













THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED  
2/13/2026

ROUTE A STATE MO

DISTRICT CD SHEET NO. 4

COUNTY WASHINGTON

JOB NO. JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

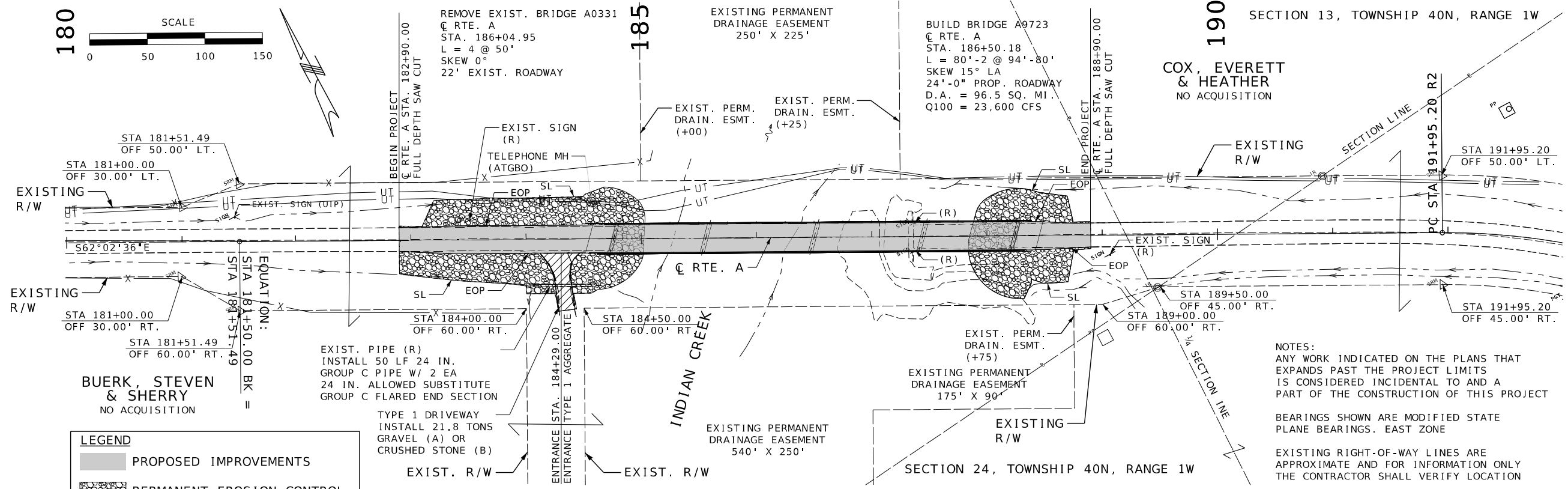
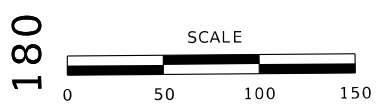
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

**GBA**

16305 SWINGLEY RIDGE RD  
ST. 300  
CHESTERFIELD, MO 63017  
314.231.0100  
GBAteam.com

GEORGE BUTLER  
ASSOCIATES, INC.  
PRO. ENGINEER 000133  
ARCHITECT 000212  
PRO. LAND SURVEYOR 000659

BRIAN KIERATH  
PROFESSIONAL  
ENGINEER  
PE-2023008624



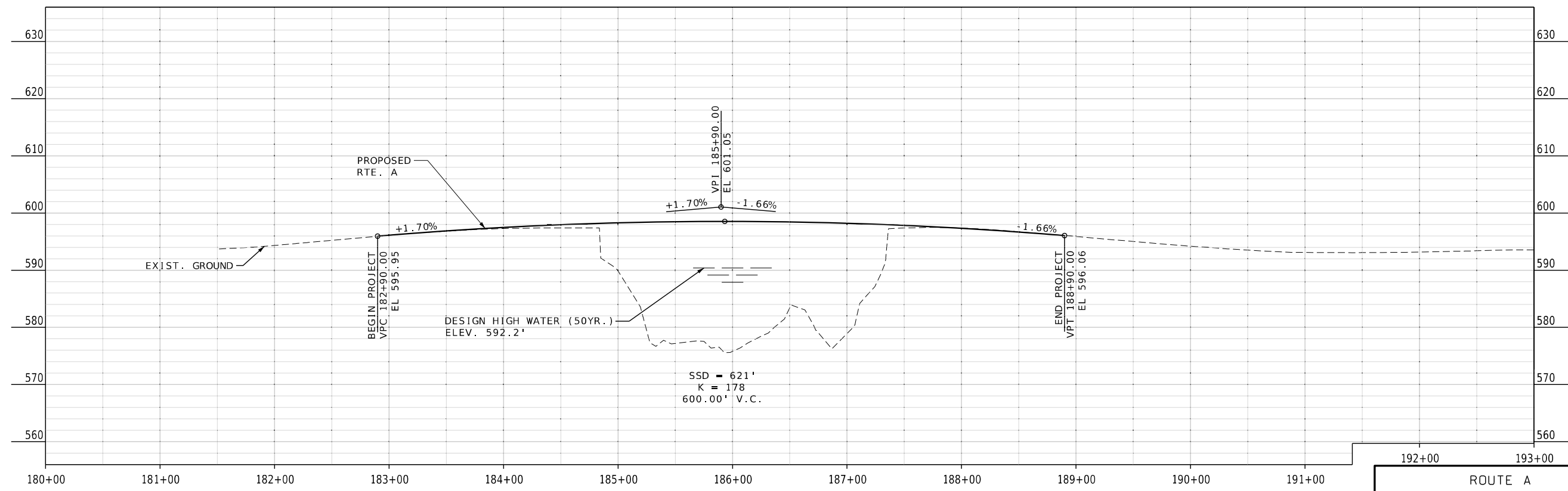
**LEGEND**

- PROPOSED IMPROVEMENTS
- PERMANENT EROSION CONTROL
- ENTRANCE

NOTES:  
ANY WORK INDICATED ON THE PLANS THAT EXPANDS PAST THE PROJECT LIMITS IS CONSIDERED INCIDENTAL TO AND A PART OF THE CONSTRUCTION OF THIS PROJECT

BEARINGS SHOWN ARE MODIFIED STATE PLANE BEARINGS. EAST ZONE

EXISTING RIGHT-OF-WAY LINES ARE APPROXIMATE AND FOR INFORMATION ONLY THE CONTRACTOR SHALL VERIFY LOCATION



ROUTE A

PLAN-PROFILE  
SHEET 1 OF 1







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ROUTE STATE  
A MO

DISTRICT SHEET NO.  
CD 7

COUNTY  
WASHINGTON

JOB NO.  
JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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CHRISTOPHER NOVOSEL PROFESSIONAL ENGINEER PE-2018024421

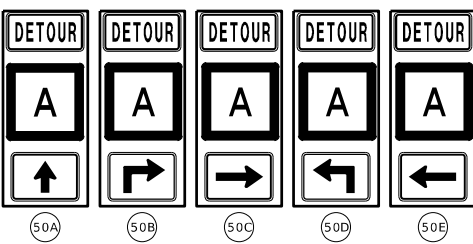
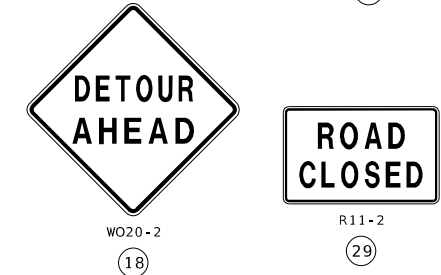
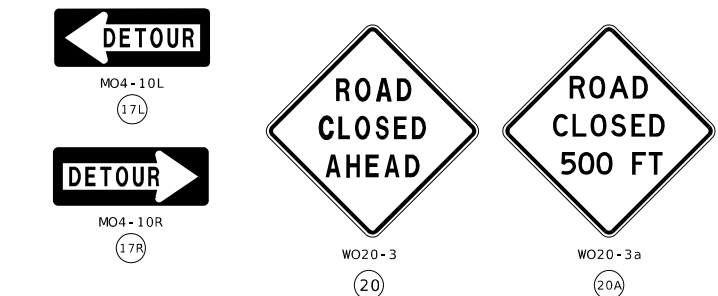
REV.

GENERAL TRAFFIC CONTROL NOTES:

1. ALL EXISTING SIGNS THAT CONFLICT WITH THE PROPOSED TRAFFIC CONTROL PLAN SHALL BE COVERED, NO DIRECT PAY.
2. ALL R11-2 AND R11-4 SIGNS SHALL BE MOUNTED ON TYPE III BARRICADE.

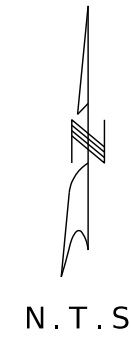
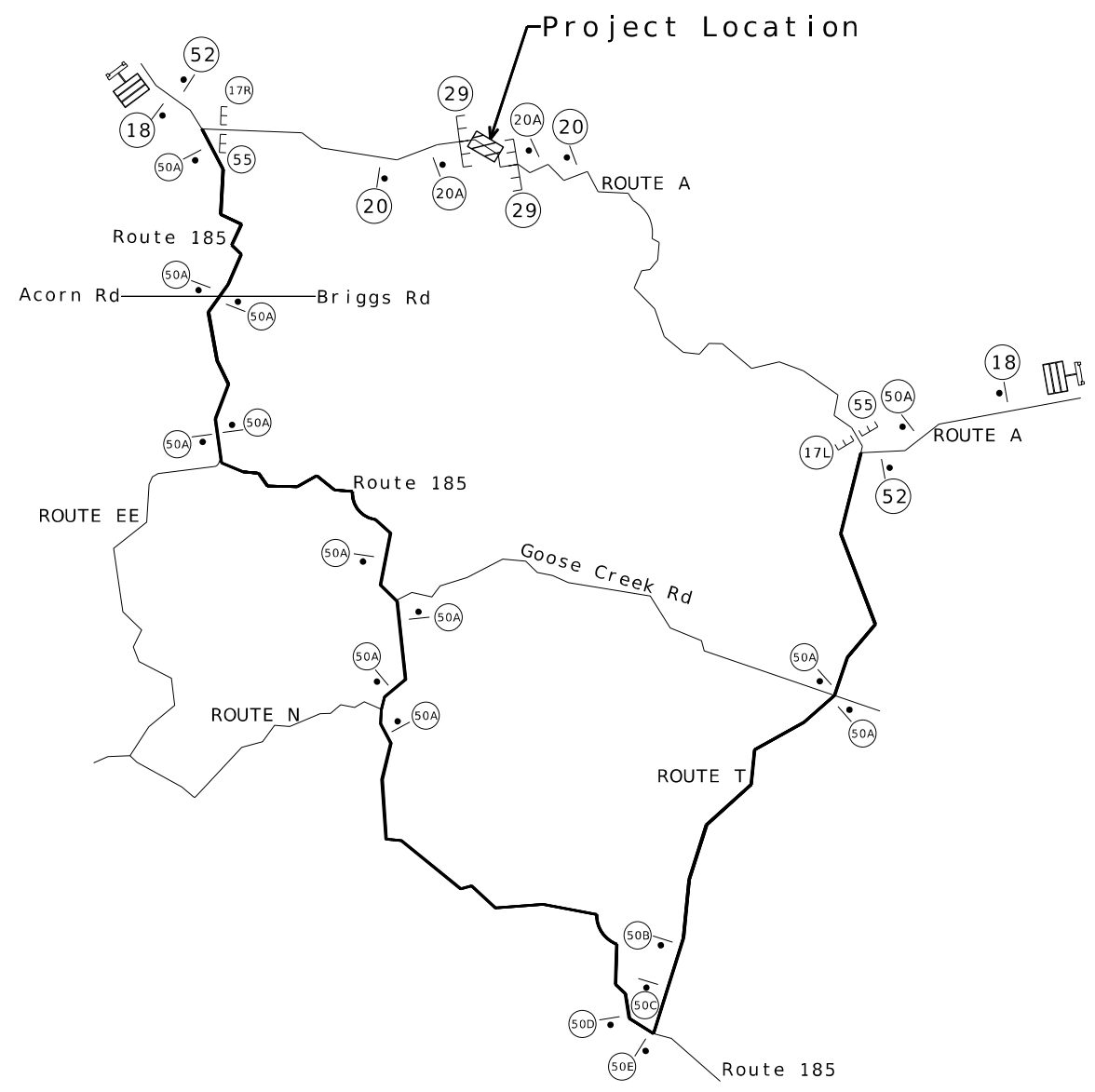
SIGN SPACING FOR ADVANCE SIGN SERIES (1) (2)		
POSTED SPEED PRIOR TO CONSTRUCTION, MPH (P)	NON-DIVIDED HIGHWAY LENGTH (S), (FT.)	DIVIDED HIGHWAY LENGTH (S), (FT.)
0 TO 35	200'	200'
40 TO 45	350'	500'
50 TO 55	500'	1000'
60 TO 70	SA - 1000 FT, SB - 1500 FT, SC - 2640 FT	

NOTES:  
DIMENSIONS IN FEET  
(1) SPACING BETWEEN SIGNS, BEGINNING OF TAPER OR SIGNED CONDITION.  
(2) SPACING MAY BE ADJUSTED TO MEET FIELD CONDITIONS.



DETOUR LEGEND

- DETOUR ROUTE
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE WITH LIGHT
- PORTABLE CHANGEABLE MESSAGE BOARD



ROUTE A  
DETOUR PLAN  
SHEET 1 OF 1



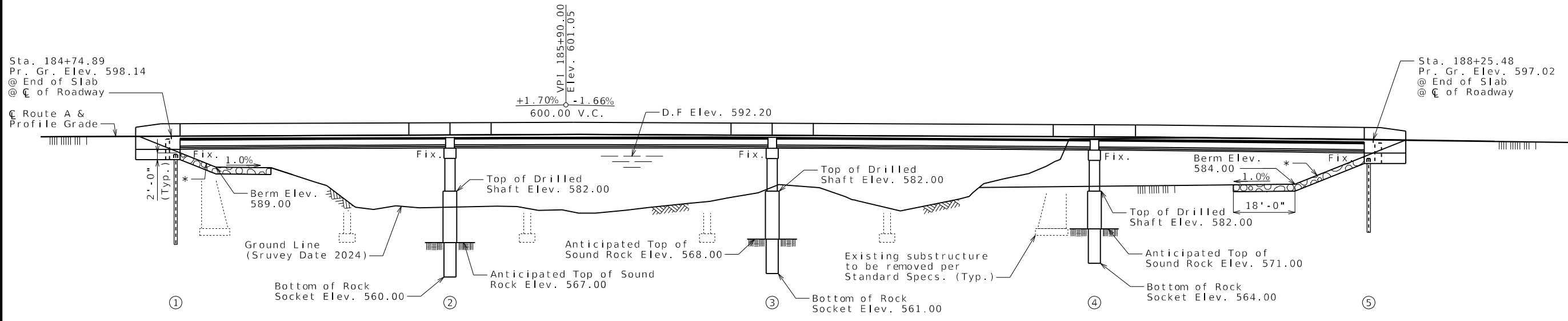






(80' - 94' - 94' - 80') PRESTRESSED CONCRETE NU-GIRDER SPANS

SEC/SUR 13 TWP 40N RGE 1W



GENERAL ELEVATION

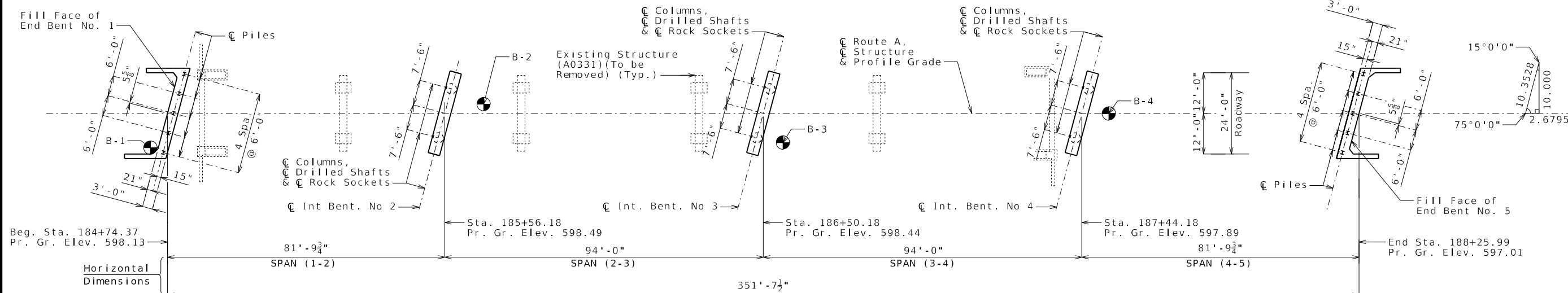
● Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) 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 department for the design of the project, are shown on Sheets No. 31-34 and may be included in the Electronic Bridge Deliverables. They 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.

The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in the construction of this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.

\*2.5:1 (H:V) Slope (Normal)  
2'-0" Thick Type 2 Rock Blanket  
with Permanent Erosion Control  
Geotextile (Roadway Item)



PLAN

Notes:

For General Notes, Estimated Quantities, Estimated Quantities for Slab on Concrete NU Girder, Foundation Data, Hydrologic Data, and Location Sketch, see Sheet No. 2.

Existing roadway fill under the ends of the bridge shall be removed as shown. Removal of existing roadway fill will be considered completely covered by the contract unit price for roadway excavation.

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

All longitudinal dimensions shown are horizontal.

Outline of existing work is indicated by light dashed lines. Heavy lines indicate new work.

All Bents are parallel.

Designed Nov 2025  
Detailed Jan 2026  
Checked Jan 2026

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

Sheet No. 1 of 34

B.M. 802 = REBAR & CAP BURIED 0.20  
10' SOUTH OF S.E.P. RTE. A,  
38.10' WEST OF SOUTHWEST CORNER OF BRIDGE, ELEV 596.11

B.M. 803 = REBAR & CAP BURIED 0.20,  
13' NORTH OF N.E.P. RTE. A,  
24' WEST OF COUNTY RD. WILLOW RD., ELEV. 593.29

BRIDGE: ROUTE A OVER INDIAN CREEK  
ROUTE A FROM ROUTE 185 TO ROUTE T  
ABOUT 3.5 MILES EAST OF ROUTE 185  
BEGINNING STATION 184+74.37



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2/23/2026

ROUTE A STATE MO  
DISTRICT BR SHEET NO. 1

COUNTY WASHINGTON

JOB NO. JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9723

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

**GBA**

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GEORGE BUTLER  
ASSOCIATES, INC.  
PRO. ENGINEER 000133  
ARCHITECT 000212  
PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY  
PROFESSIONAL  
ENGINEER  
PE-2018037127

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2/23/2026

ROUTE A STATE MO

DISTRICT BR SHEET NO. 3

COUNTY WASHINGTON

JOB NO. JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9723

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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



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NICHOLE WITUSHYNSKY PROFESSIONAL ENGINEER PE-2018037127

Detailed Jan 2026

Checked Jan 2026

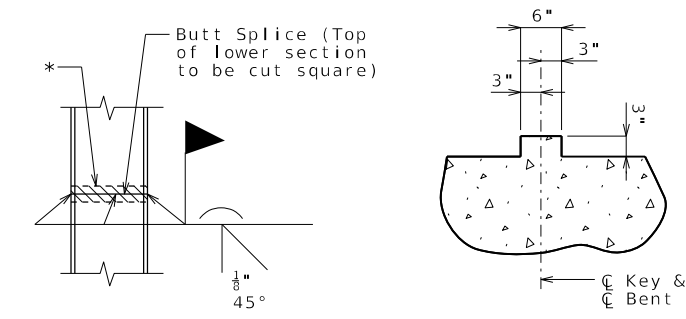
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 34

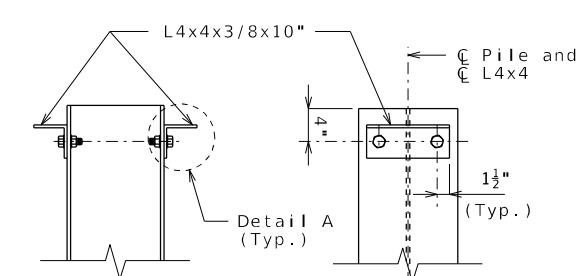
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IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

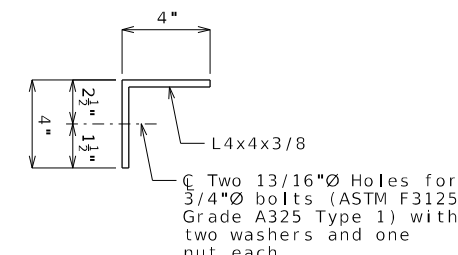
STEEL PILE SPLICE (If required)



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



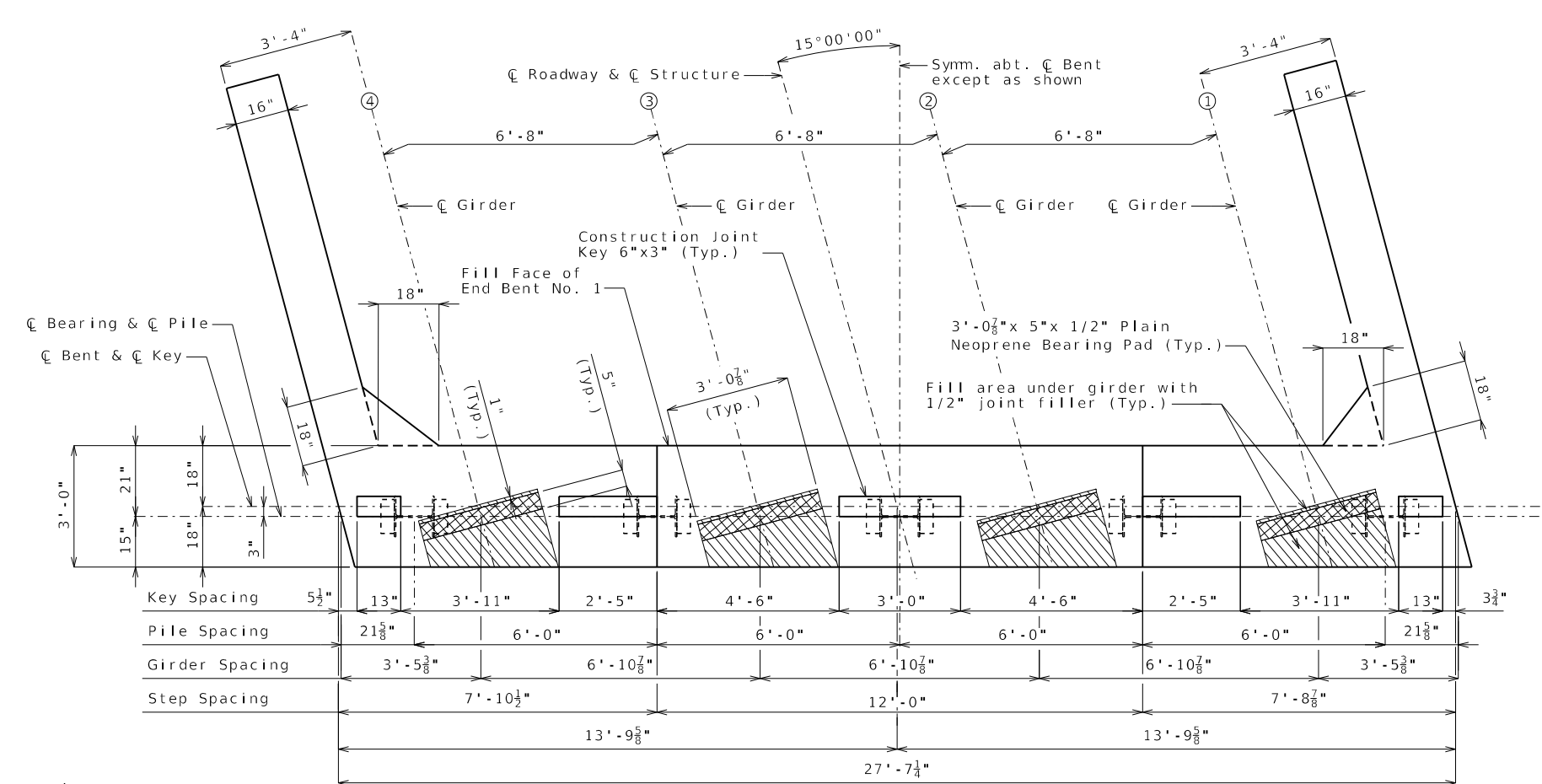
DETAILS OF HP PILE ANCHORS



DETAIL A

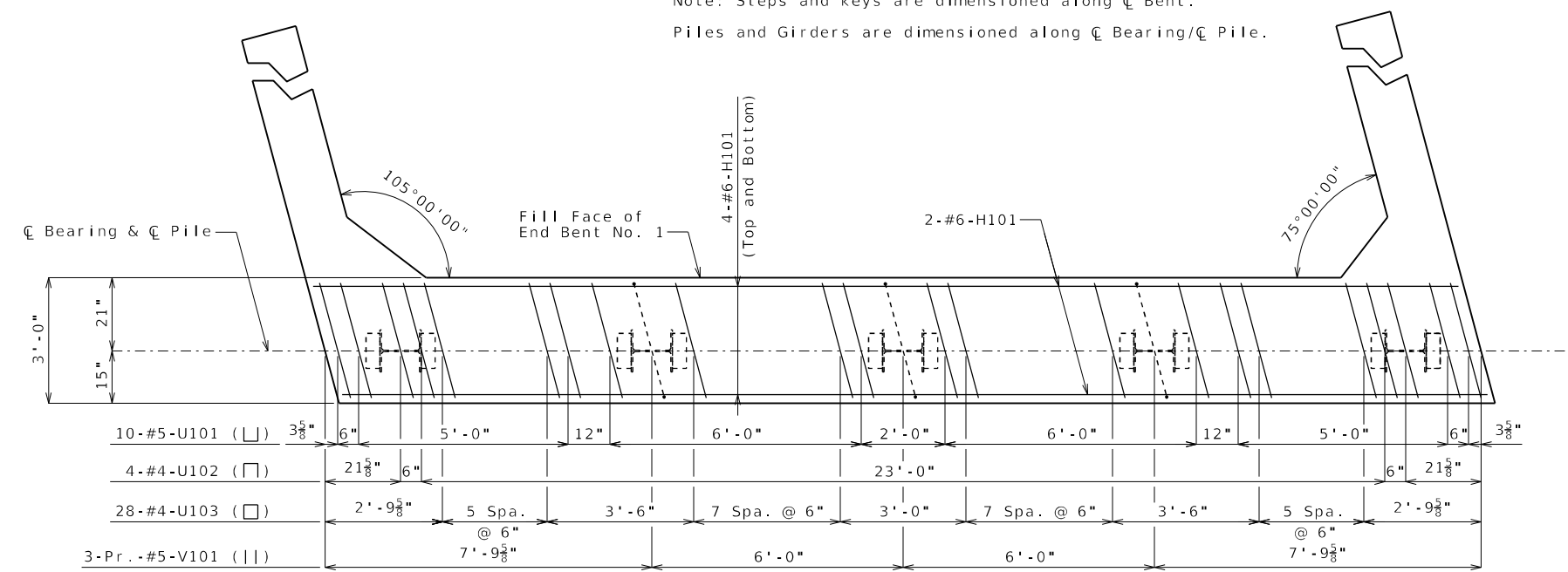
Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

Notes:  
For Details of End Bent No. 1 not shown, see Sheets No. 4 & 5.  
Reinforcing steel shall be shifted to clear piles. U-bars shall clear piles by at least 1 1/2 inches.  
All concrete in the end bent above top of beam and below top of slab shall be Class B-2.  
All U-bars and pairs of V-bars shall be placed parallel to centerline of roadway.



PLAN OF BEAM

Note: Steps and keys are dimensioned along C Bent.  
Piles and Girders are dimensioned along C Bearing/C Pile.



PLAN OF BEAM SHOWING REINFORCEMENT

Note: Steps and keys not shown for clarity.

DETAILS OF END BENT NO. 1



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ROUTE STATE  
A MO

DISTRICT SHEET NO.  
BR 4

COUNTY  
WASHINGTON

JOB NO.  
JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A9723

DESCRIPTION

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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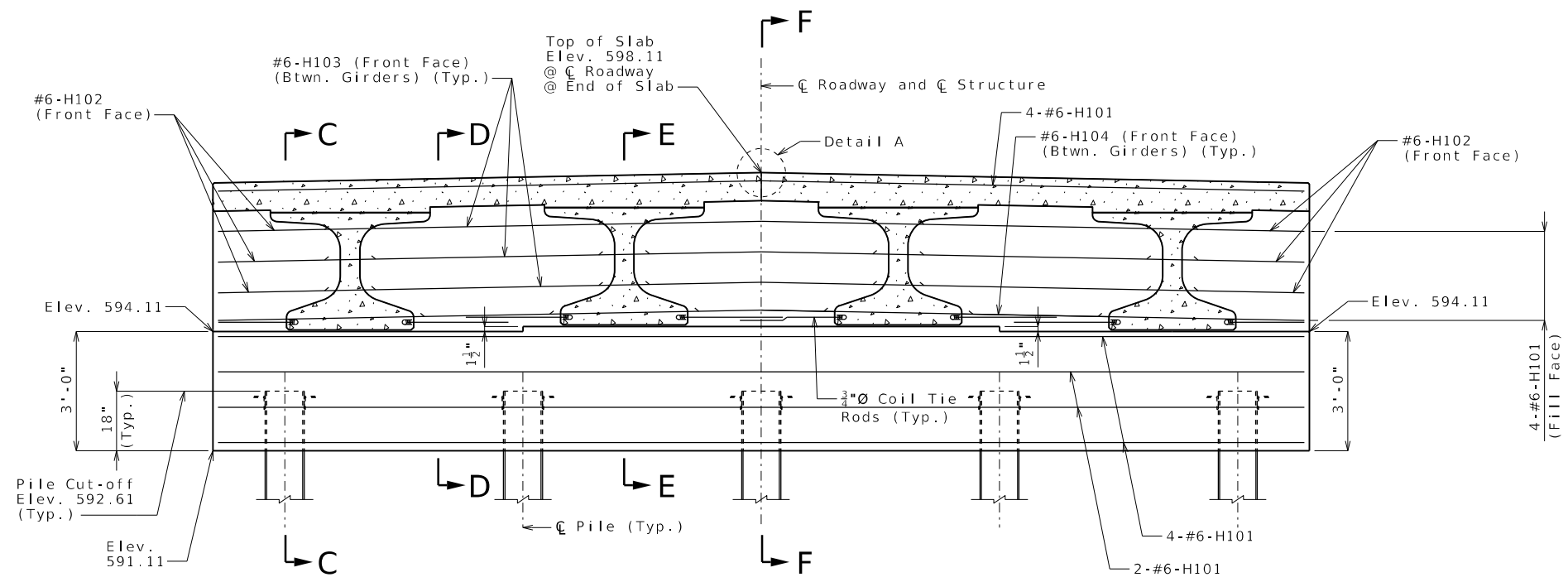
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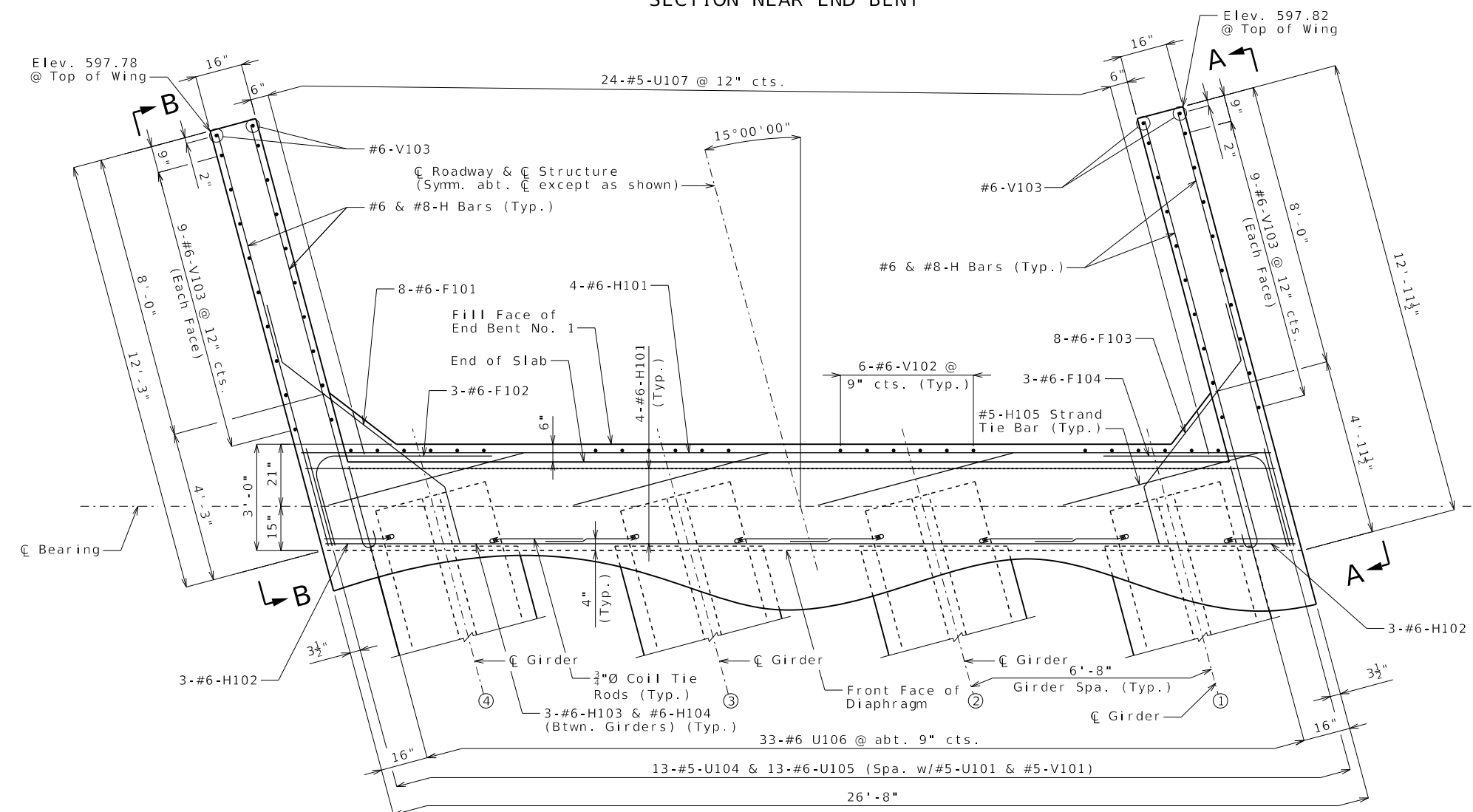
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NICHOLE WITUSHYNSKY PROFESSIONAL ENGINEER PE-2018037127

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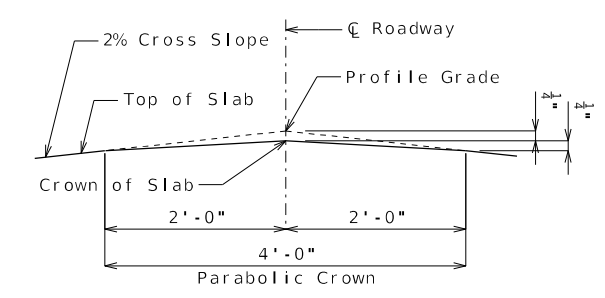


SECTION NEAR END BENT



PLAN DETAILS OF END BENT NO. 1

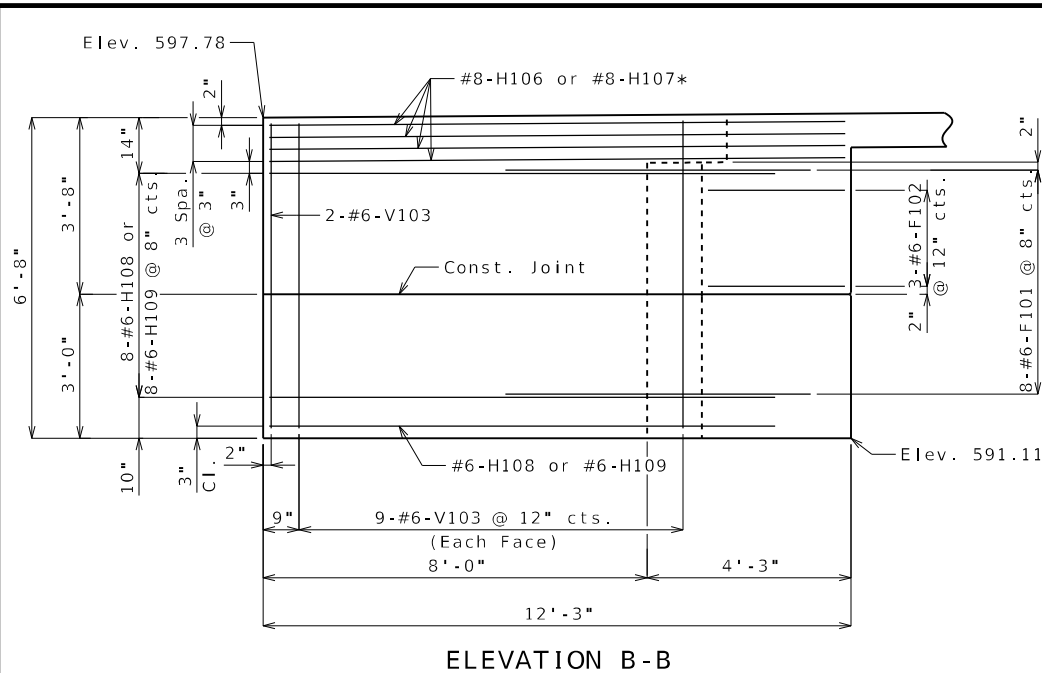
Note: This drawing is not to scale. Follow dimensions. Sheet No. 4 of 34



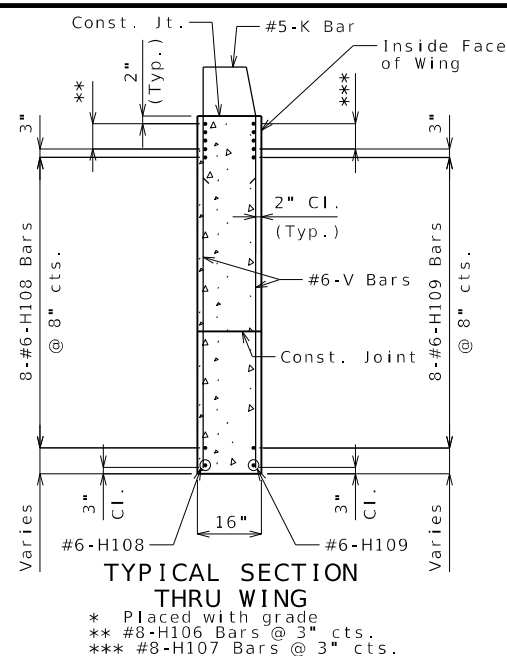
DETAIL A

- Notes:
- For details of End Bent No. 1 not shown, see Sheets No. 3 & 5.
  - The #6-F101 & #6-F103 bars shall be bent in the field to clear the girders.
  - For Elevations A-A & B-B, and Sections C-C, D-D, E-E and F-F, see Sheet No. 5.
  - 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 U-bars, pairs of V-bars shall be placed parallel to  $\bar{C}$  Roadway.
  - For locations of strand tie bars and coil tie rods, see Sheets No. 14-17.
  - For Details of Vertical Drain at End Bent, see Sheet No. 6.
  - For reinforcement of Type D Barrier, see Sheets No. 24 & 25.
  - For details of Approach Slab, see Sheet No. 26.

Detailed Jan 2026  
Checked Jan 2026

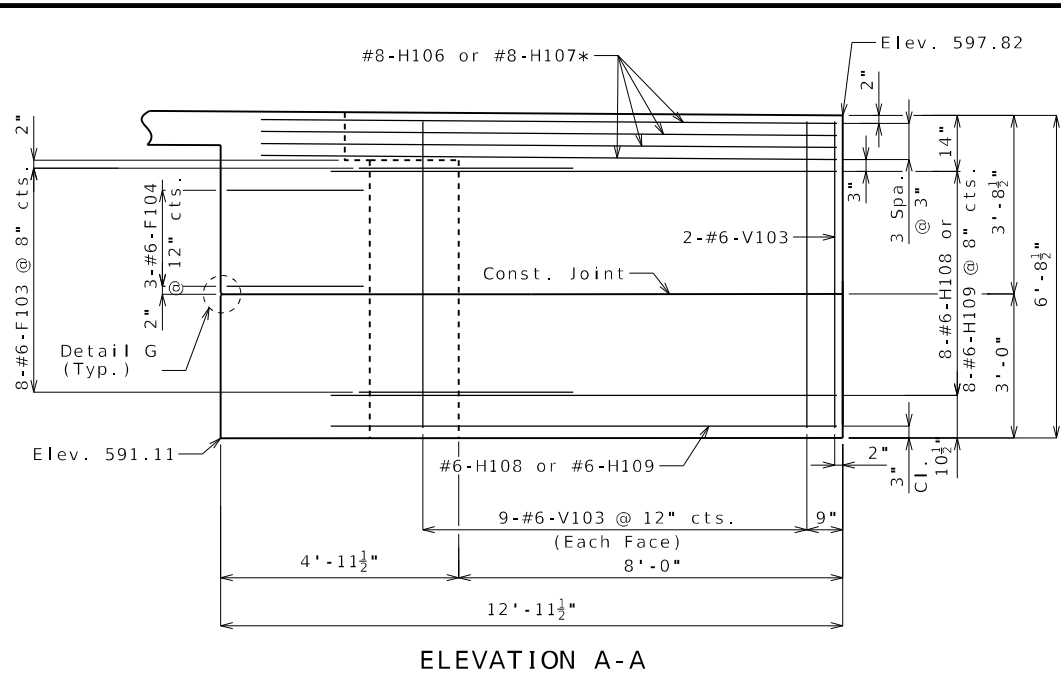


ELEVATION B-B

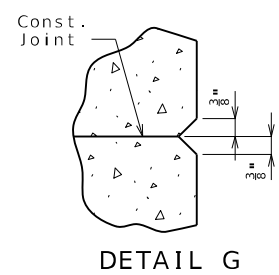


TYPICAL SECTION THRU WING

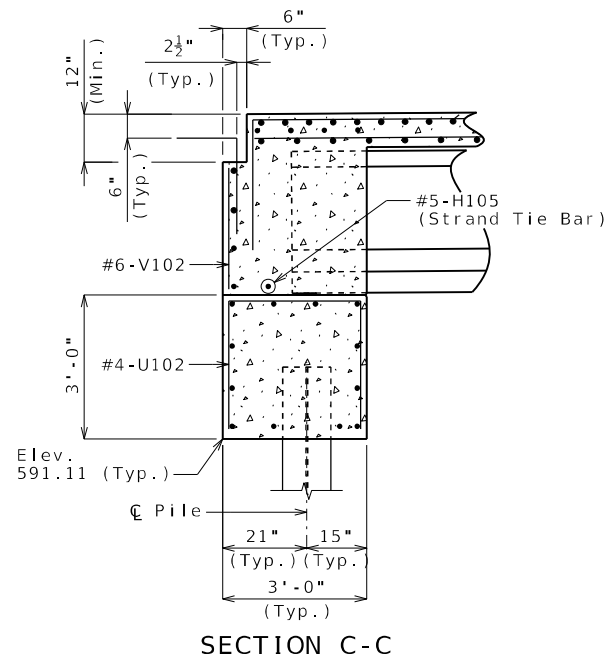
\* Placed with grade  
 \*\* #8-H106 Bars @ 3" cts.  
 \*\*\* #8-H107 Bars @ 3" cts.



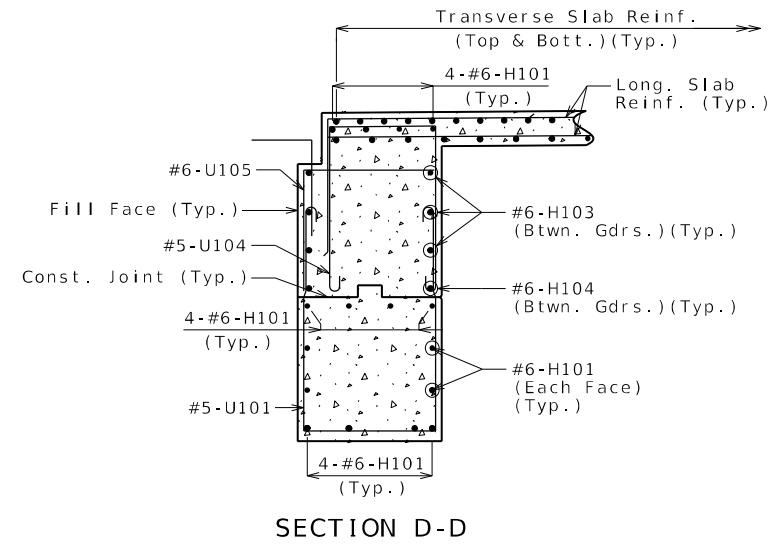
ELEVATION A-A



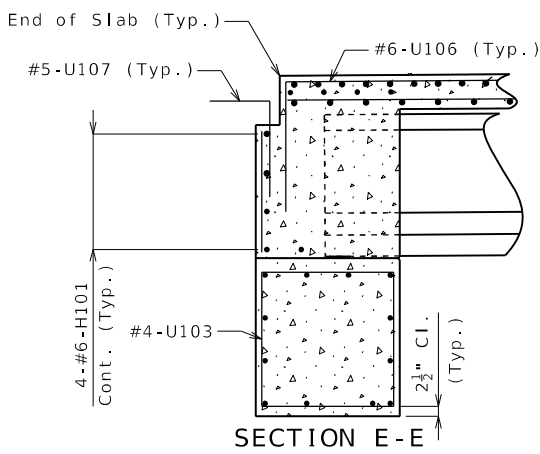
DETAIL G



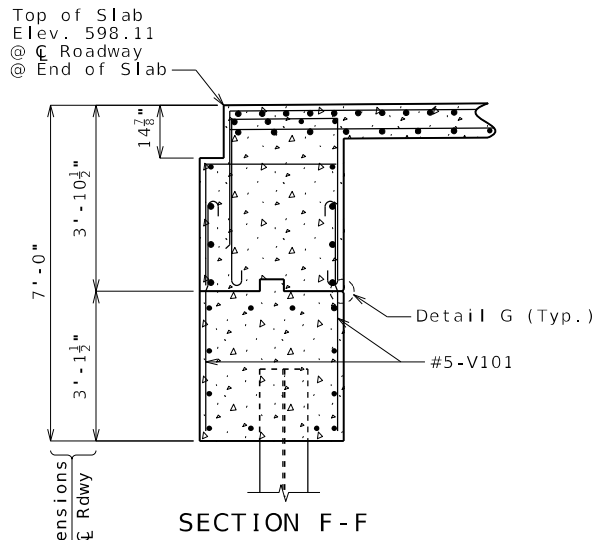
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

DETAILS OF END BENT NO. 1

Notes:

- For details of End Bent No. 1 not shown, see Sheets No. 3 & 4.
- For location of Elevations A-A & B-B and Sections C-C, D-D, E-E, and F-F, see Sheet No. 4.
- For reinforcement of Type D Barrier, see Sheets No. 24 & 25.

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	35
Galvanized Structural Steel Piles (12 in.)	linear foot	135
Pile Point Reinforcement	each	5
Class B Concrete (Substructure)	cu. yard	12.4

These quantities are included in the Estimated Quantities table on Sheet No. 2.

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

Sheet No. 5 of 34



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DATE PREPARED: 2/23/2026  
 ROUTE: A STATE: MO  
 DISTRICT: BR SHEET NO.: 5  
 COUNTY: WASHINGTON  
 JOB NO.: JCD0228  
 CONTRACT ID.:  
 PROJECT NO.:  
 BRIDGE NO.: A9723

DESCRIPTION	DATE

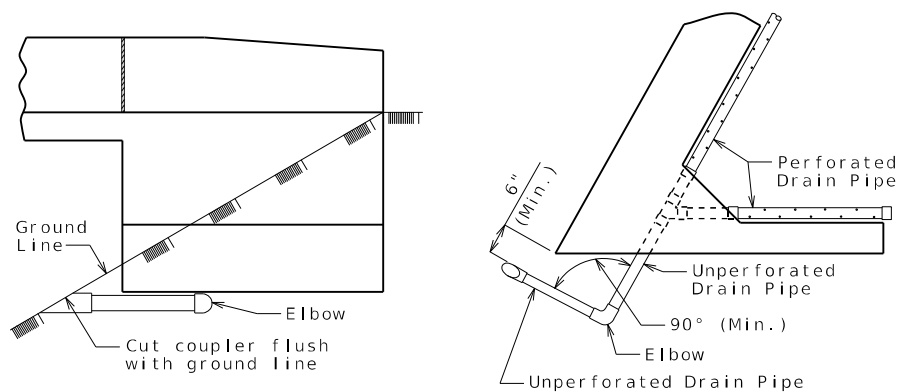
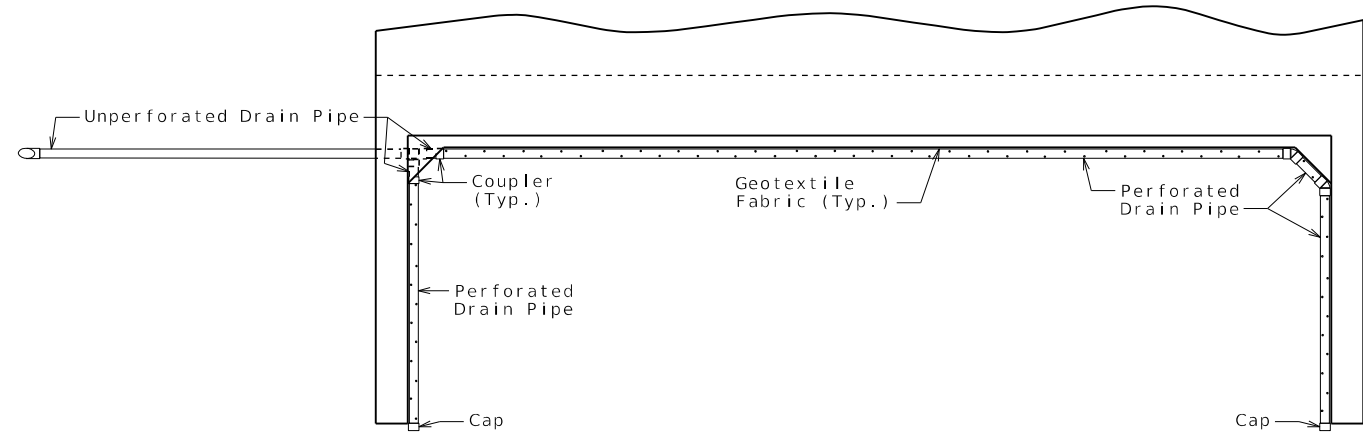
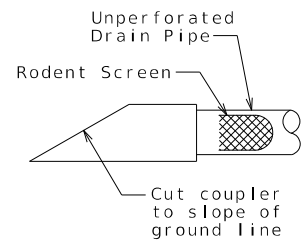
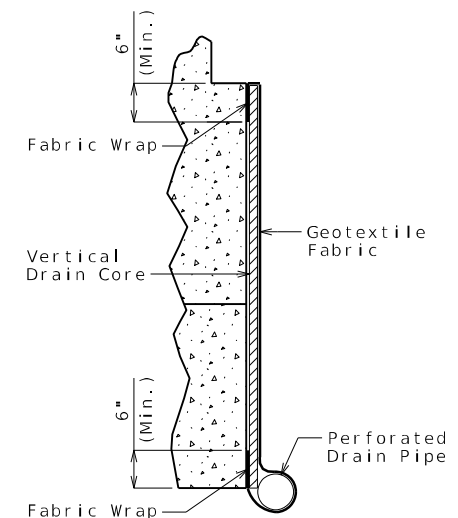
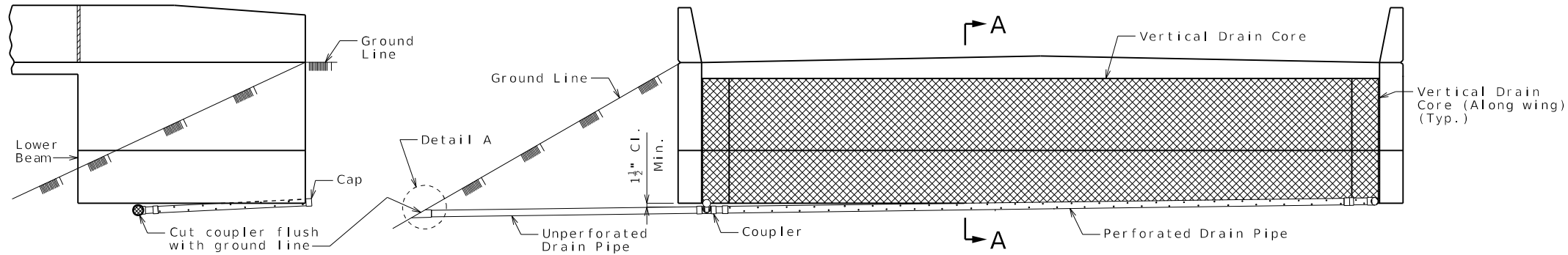
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NICHOLE WITUSHYNSKY PROFESSIONAL ENGINEER PE-2018037127

Detailed Jan 2026  
 Checked Jan 2026



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

**General Notes:**

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

**VERTICAL DRAIN AT END BENTS**

(Squared end bent shown, skewed end bent similar)  
Note: This drawing is not to scale. Follow dimensions. Sheet No. 6 of 34



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ROUTE A	STATE MO
DISTRICT BR	SHEET NO. 6
COUNTY WASHINGTON	
JOB NO. JCD0228	
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BRIDGE NO. A9723	

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JEFFERSON CITY, MO 65102  
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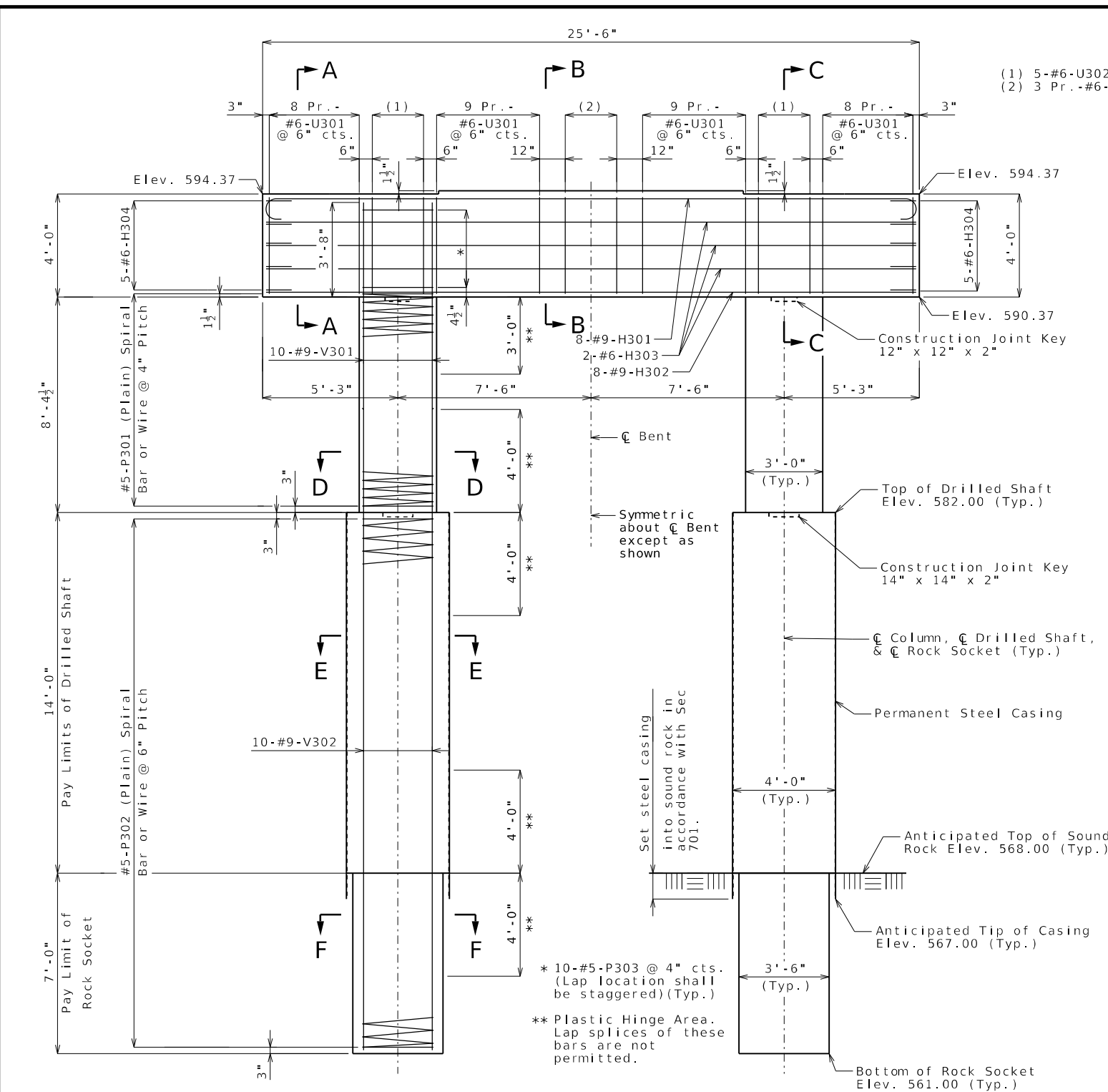
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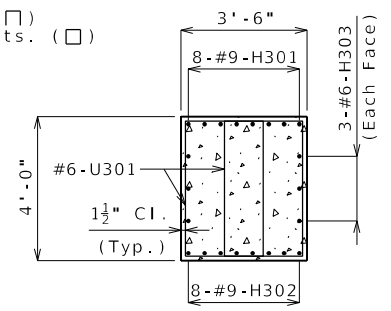
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PROFESSIONAL  
ENGINEER  
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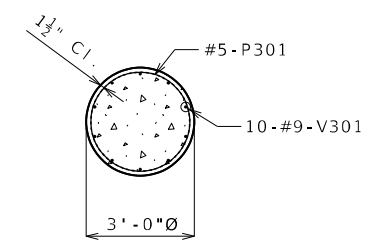




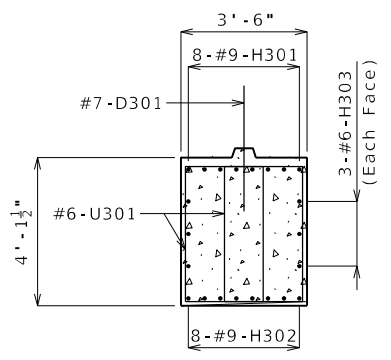
- (1) 5-#6-U302 @ 6" cts. (□)
- (2) 3 Pr.-#6-U301 @ 12" cts. (□)



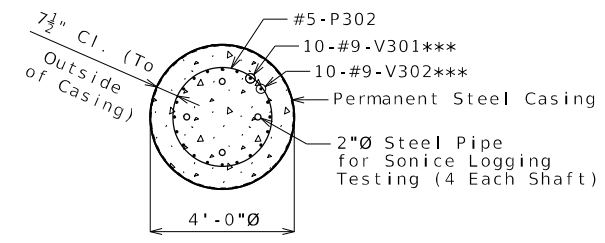
SECTION A-A



SECTION D-D

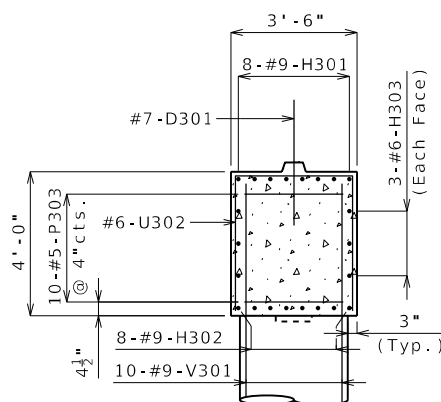


SECTION B-B

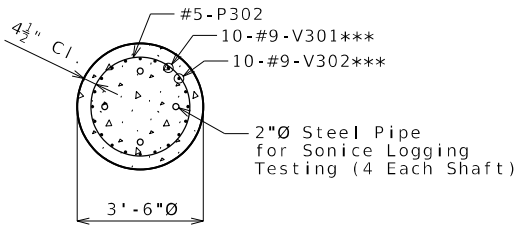


SECTION E-E

\*\*\*Alternate #9-V301 and #9-V302 bars

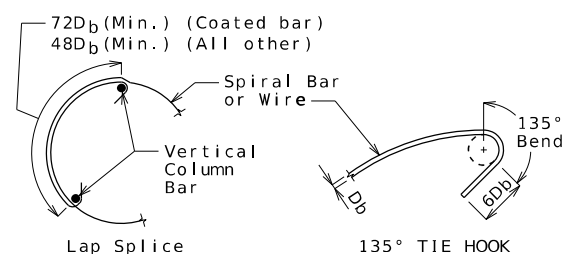


SECTION C-C



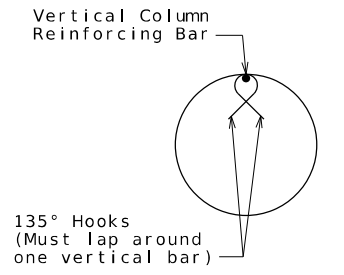
SECTION F-F

\*\*\*Alternate #9-V301 and #9-V302 bars



INTERMEDIATE SPLICE OF SPIRALS

Standard 135-degree tie hooks that engage vertical column reinforcing bars shall be provided at each end of splice.



SEISMIC STIRRUP BAR

ELEVATION

- Notes:
- Note: Dowels and keys not shown on the pier beam for clarity.
  - Sonic logging testing shall be performed on all drilled shafts and rock sockets.
  - Thickness of steel casing shall be in accordance with Sec 701.
  - An additional 4 feet have been added to V301 & V302 bar lengths and an additional 4 foot in height for #5-P302 spiral bars have been added in the quantities, if required, for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off or included in the reinforcement lap if not required. The additional spiral bar height shall be cut off if not required.
  - The cost of any required excavation to the top of the drilled shafts will be considered completely covered by the contract unit price for other items.
  - The tip of casing shall not extend into the rock socket elevation range reported in the Foundation Data table without approval by the engineer.
  - All reinforcement in drilled shafts and rock sockets is included in the Substructure Quantities.
  - For additional details and substructure quantity table, see Sheet No. 10.

DETAILS OF INTERMEDIATE BENT NO. 3

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



THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 2/23/2026	
ROUTE A	STATE MO
DISTRICT BR	SHEET NO. 8
COUNTY WASHINGTON	
JOB NO. JCD0228	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9723	

DESCRIPTION	DATE

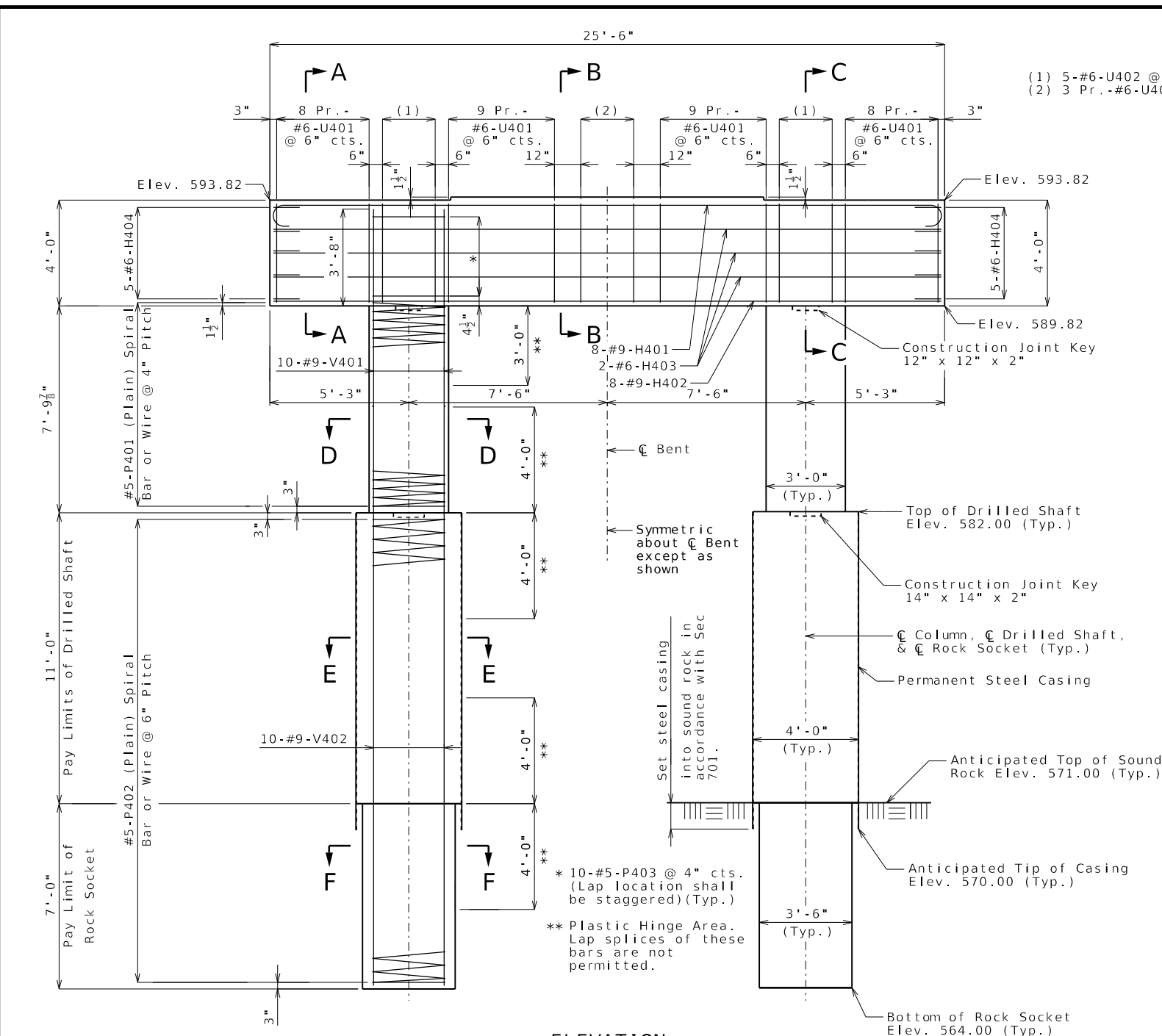
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

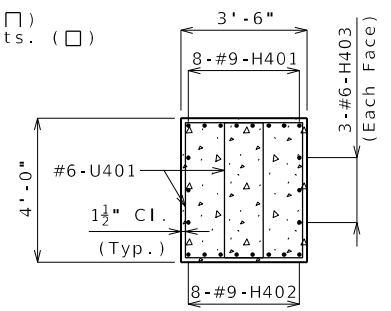
16305 SWINGLEY RIDGE RD  
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CHESTERFIELD, MO 63017  
314.231.0100  
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ASSOCIATES, INC.  
PRO. ENGINEER 000133  
ARCHITECT 000212  
PRO. LAND SURVEYOR 000059

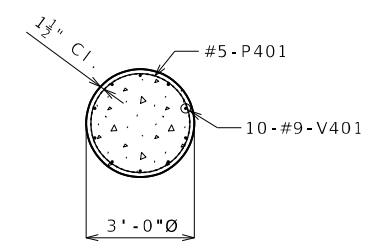
NICHOLE WITUSHYNSKY  
PROFESSIONAL  
ENGINEER  
PE-2018037127



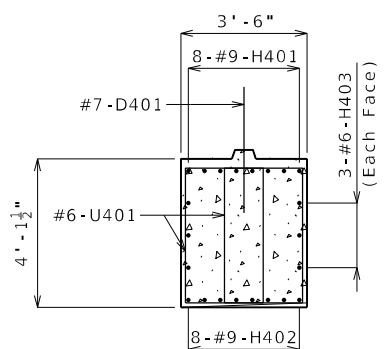
- (1) 5-#6-U402 @ 6" cts. (□)
- (2) 3 Pr.-#6-U401 @ 12" cts. (□)



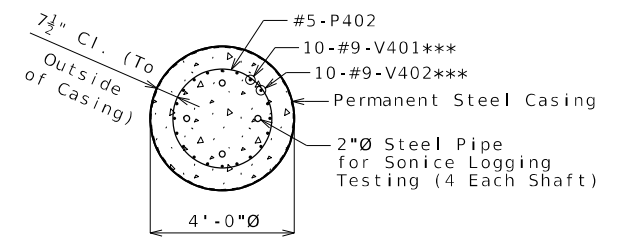
SECTION A-A



SECTION D-D

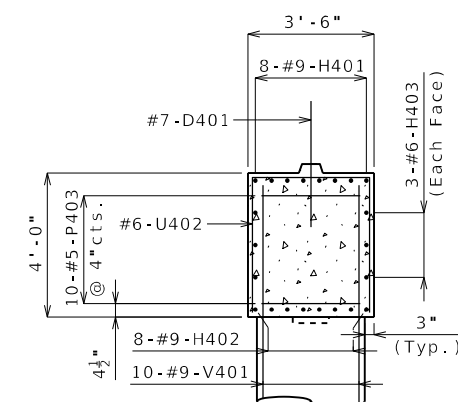


SECTION B-B

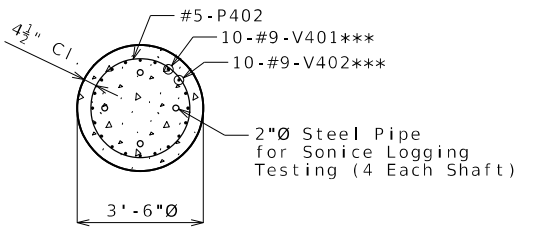


SECTION E-E

\*\*\*Alternate #9-V401 and #9-V402 bars



SECTION C-C



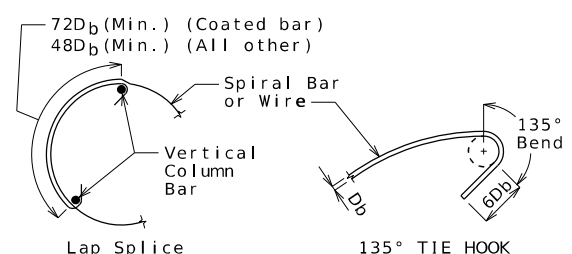
SECTION F-F

\*\*\*Alternate #9-V401 and #9-V402 bars

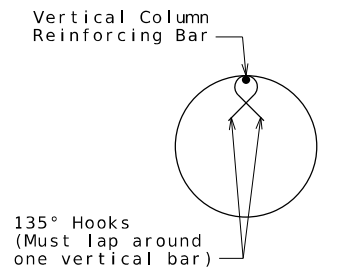
ELEVATION

Note: Dowels and keys not shown on the pier beam for clarity.

Notes:  
 Sonic logging testing shall be performed on all drilled shafts and rock sockets.  
 Thickness of steel casing shall be in accordance with Sec 701.  
 An additional 4 feet have been added to V401 & V402 bar lengths and an additional 4 foot in height for #5-P402 spiral bars have been added in the quantities, if required, for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off or included in the reinforcement lap if not required. The additional spiral bar height shall be cut off if not required.  
 The cost of any required excavation to the top of the drilled shafts will be considered completely covered by the contract unit price for other items.  
 The tip of casing shall not extend into the rock socket elevation range reported in the Foundation Data table without approval by the engineer.  
 All reinforcement in drilled shafts and rock sockets is included in the Substructure Quantities.  
 For additional details and substructure quantity table, see Sheet No. 10.



INTERMEDIATE SPLICE OF SPIRALS  
 Standard 135-degree tie hooks that engage vertical column reinforcing bars shall be provided at each end of splice.



SEISMIC STIRRUP BAR

DETAILS OF INTERMEDIATE BENT NO. 4

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



THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 2/23/2026	
ROUTE A	STATE MO
DISTRICT BR	SHEET NO. 9
COUNTY WASHINGTON	
JOB NO. JCD0228	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9723	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

16305 SWINGLEY RIDGE RD  
ST. 300  
CHESTERFIELD, MO 63017  
314.231.0100  
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GEORGE BUTLER  
ASSOCIATES, INC.  
PRO. ENGINEER 000133  
ARCHITECT 000212  
PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY  
PROFESSIONAL  
ENGINEER  
PE-2018037127

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED  
2/23/2026

ROUTE A STATE MO

DISTRICT BR SHEET NO. 10

COUNTY WASHINGTON

JOB NO. JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9723

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



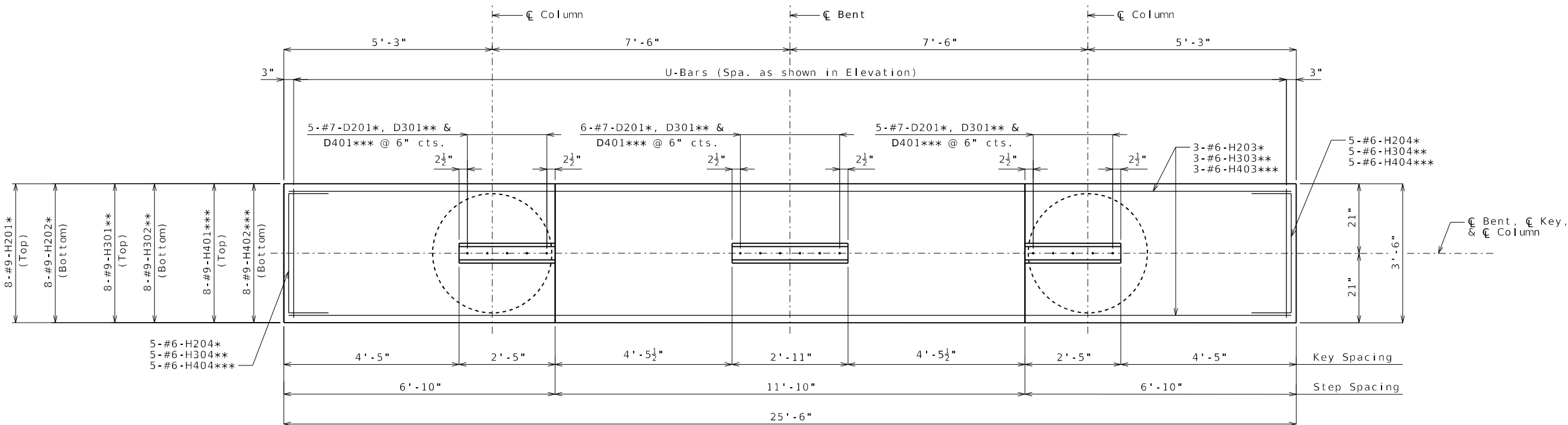
GBA

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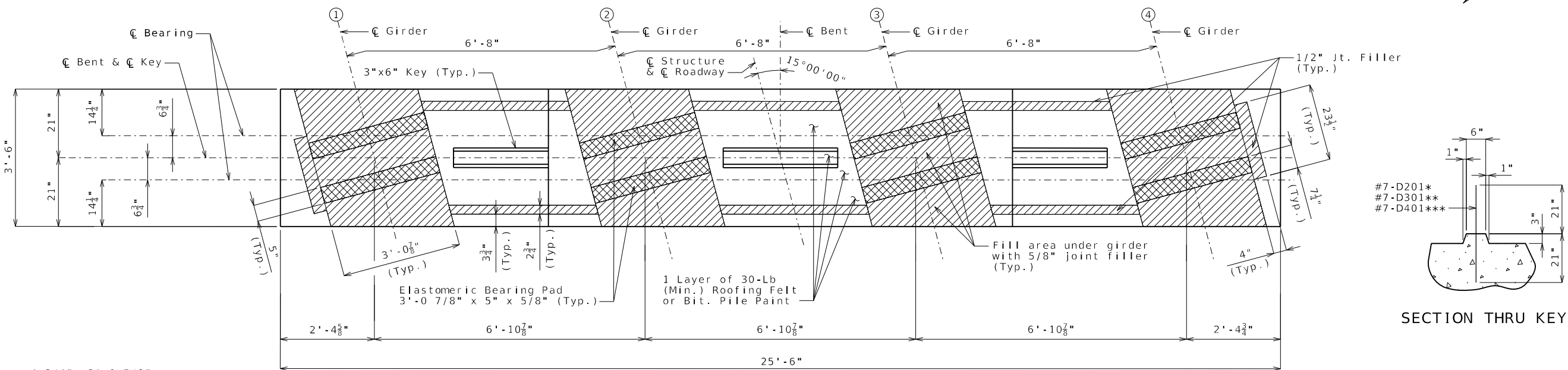
GEORGE BUTLER  
ASSOCIATES, INC.  
PRO. ENGINEER 000133  
ARCHITECT 000212  
PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY  
PROFESSIONAL  
ENGINEER  
PE-2018037127

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



PLAN OF BEAM SHOWING REINFORCING



PLAN OF BEAM

Dowel bars not shown for clarity.

Substructure Quantity Table for Bents No. 2, 3 & 4

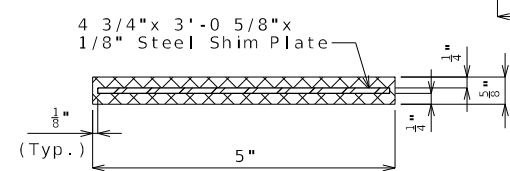
Item	Quantity	Quantity		
		Bent No. 2	Bent No. 3	Bent No. 4
Drilled Shafts (4 ft. 0 in. Dia.)	linear foot	30.0	28.0	22.0
Rock Sockets (3 ft. 6 in. Dia.)	linear foot	14.0	14.0	14.0
Video Camera Inspection	each	2	2	2
Foundation Inspection Holes	linear foot	34.0	34.0	34.0
Sonic Logging Testing	each	2	2	2
Class B Concrete (Substructure)	cu. yard	17.8	17.8	17.5
Reinforcing Steel (Bridges)	pound	9,520	9,350	8,760

These quantities are included in the Estimated Quantities table on Sheet No. 2.

DETAILS OF INTERMEDIATE BENTS NO. 2, 3 & 4

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

Sheet No. 10 of 34



TYPICAL SECTION THRU LAMINATED NEOPRENE BEARING PAD

Notes:  
For details of Int. Bent No. 2 not shown, see Sheet No. 7.  
For details of Int. Bent No. 3 not shown, see Sheet No. 8.  
For details of Int. Bent No. 4 not shown, see Sheet No. 9.

\* Intermediate Bent No. 2  
\*\* Intermediate Bent No. 3  
\*\*\* Intermediate Bent No. 4

Detailed Jan 2026  
Checked Jan 2026





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DATE PREPARED  
2/23/2026

ROUTE STATE  
A MO

DISTRICT SHEET NO.  
BR 12

COUNTY  
WASHINGTON

JOB NO.  
JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A9723

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102

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

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ARCHITECT 000212

PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY  
PROFESSIONAL  
ENGINEER

PE-2018037127

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Notes:

For details of End Bent No. 5 not shown, see Sheets No. 11 & 13.

The #6-F501 & #6-F503 bars shall be bent in the field to clear the girders.

For Elevations A-A & B-B, and Sections C-C, D-D, E-E and F-F, see Sheet No. 13.

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 U-bars, pairs of V-bars shall be placed parallel to  $\bar{C}$  Roadway.

For locations of strand tie bars and coil tie rods, see Sheets No. 14-17.

For Details of Vertical Drain at End Bent, see Sheet No. 6.

For reinforcement of Type D Barrier, see Sheets No. 24 & 25.

For details of Approach Slab, see Sheet No. 26.

Notes:

For details of End Bent No. 5 not shown, see Sheets No. 11 & 13.

The #6-F501 & #6-F503 bars shall be bent in the field to clear the girders.

For Elevations A-A & B-B, and Sections C-C, D-D, E-E and F-F, see Sheet No. 13.

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.

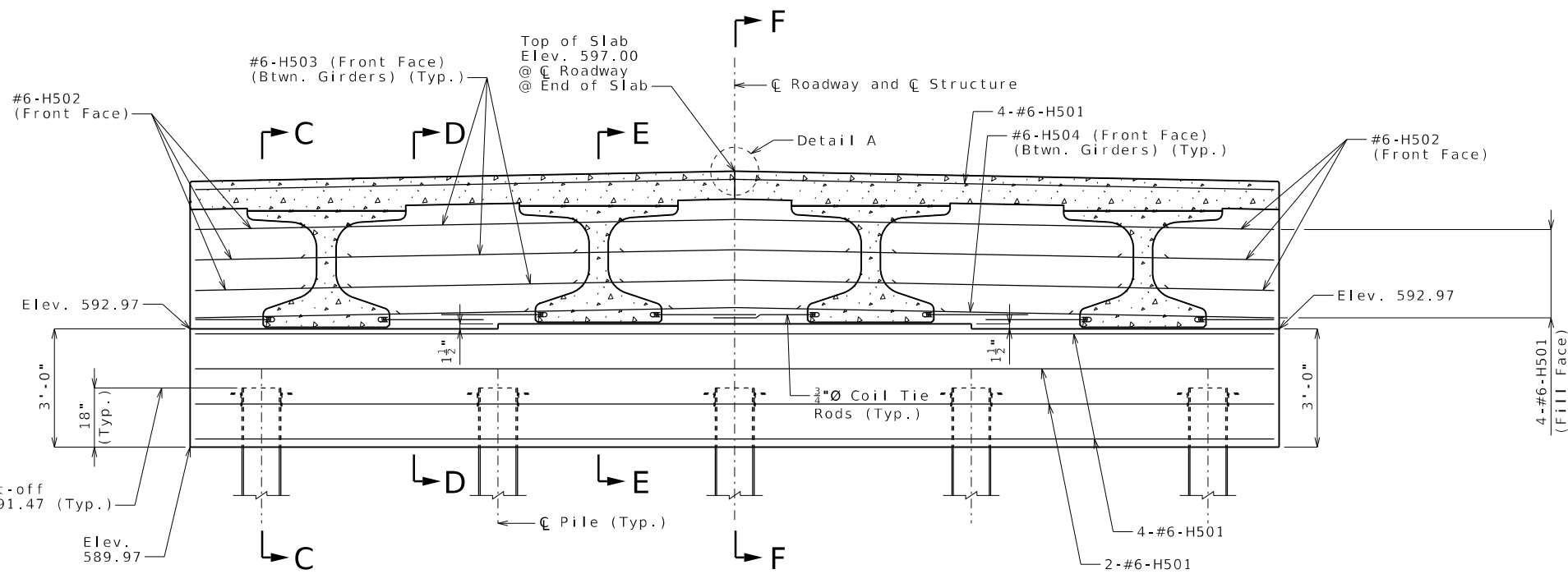
All U-bars, pairs of V-bars shall be placed parallel to  $\bar{C}$  Roadway.

For locations of strand tie bars and coil tie rods, see Sheets No. 14-17.

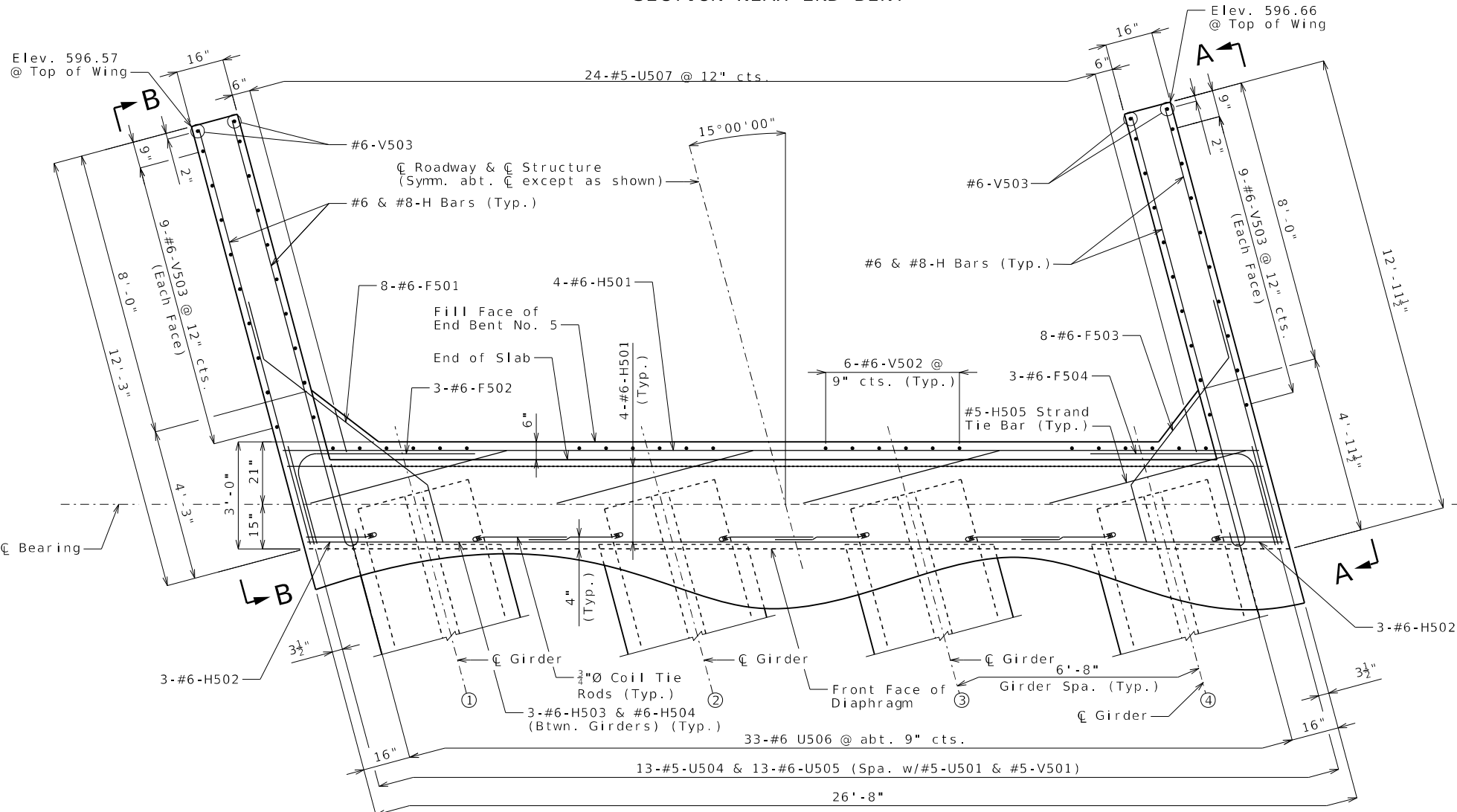
For Details of Vertical Drain at End Bent, see Sheet No. 6.

For reinforcement of Type D Barrier, see Sheets No. 24 & 25.

For details of Approach Slab, see Sheet No. 26.



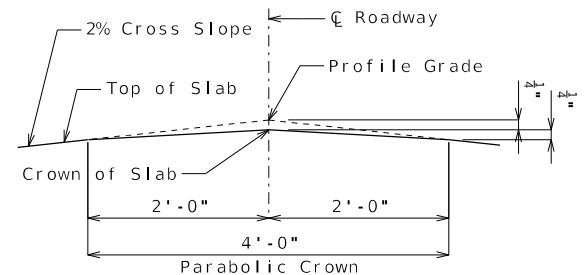
SECTION NEAR END BENT



PLAN  
DETAILS OF END BENT NO. 5

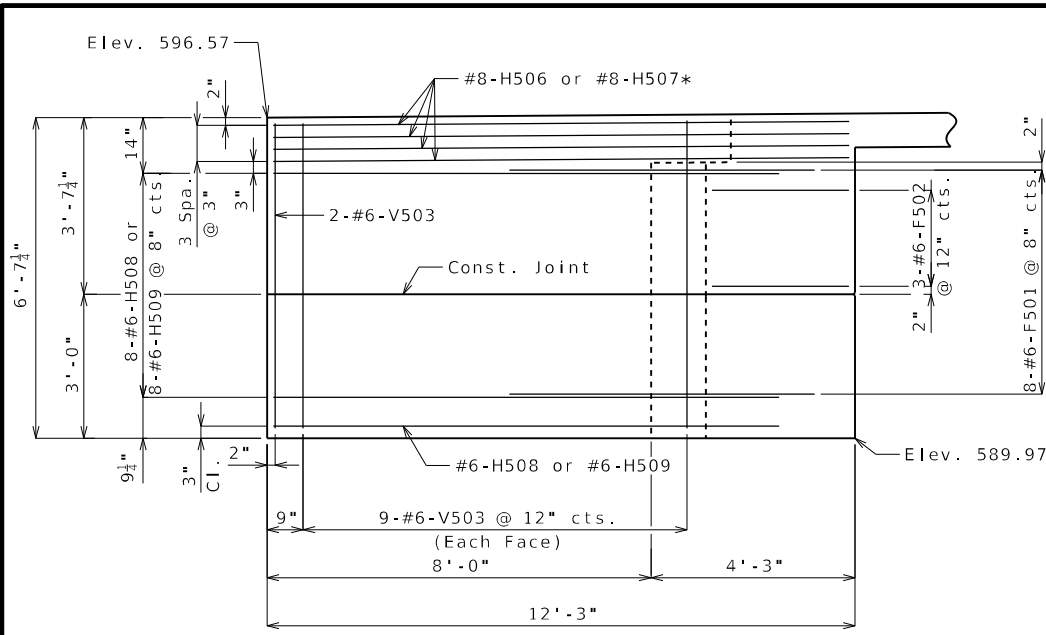
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 12 of 34

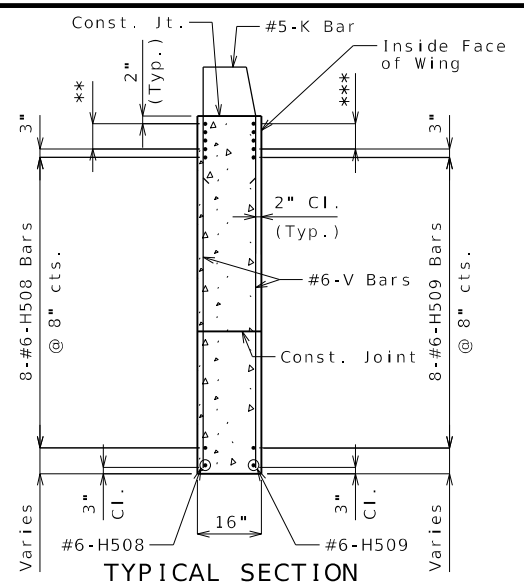


DETAIL A

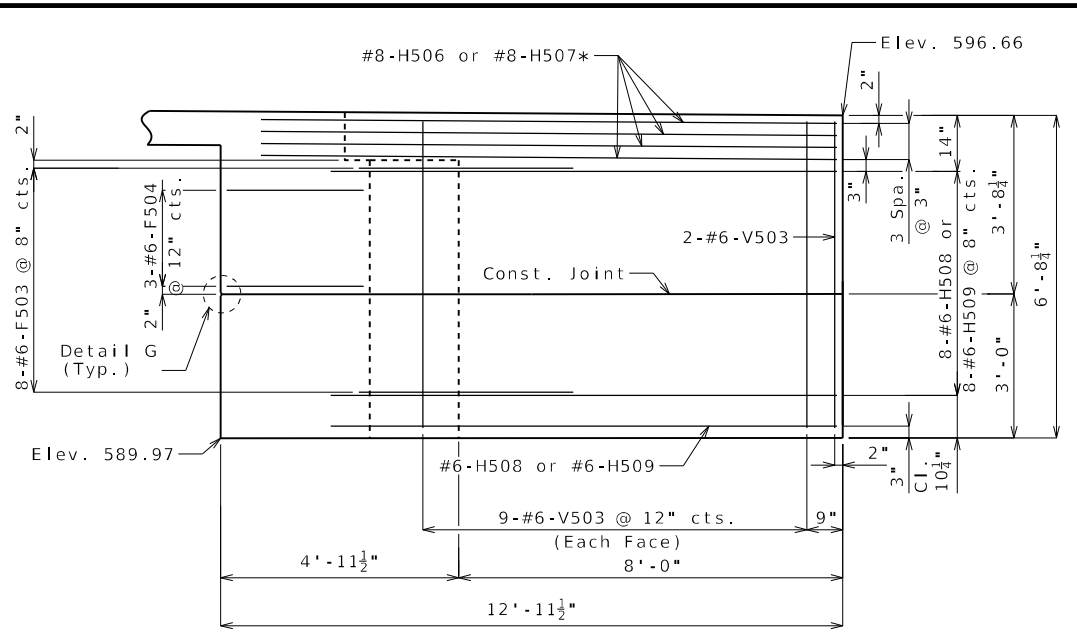
Detailed Jan 2026  
Checked Jan 2026



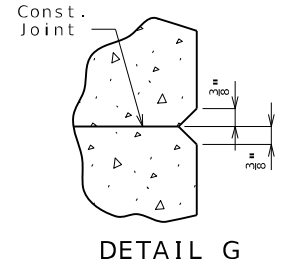
ELEVATION B-B



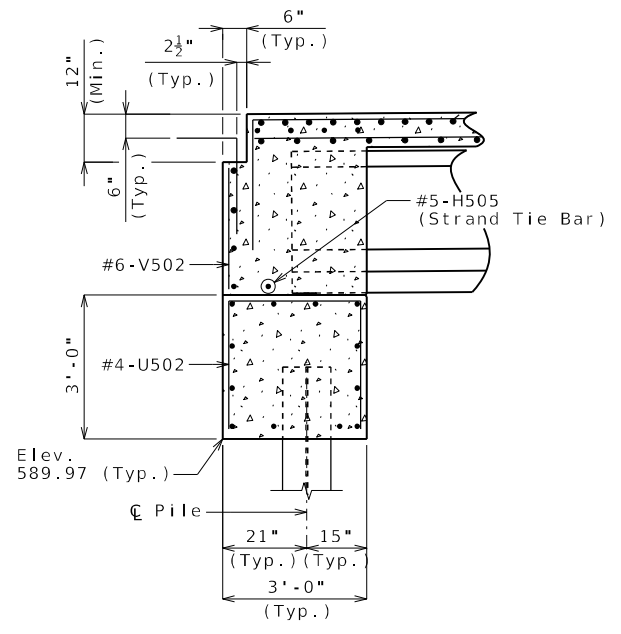
TYPICAL SECTION THRU WING  
\* Placed with grade  
\*\* #8-H506 Bars @ 3" cts.  
\*\*\* #8-H507 Bars @ 3" cts.



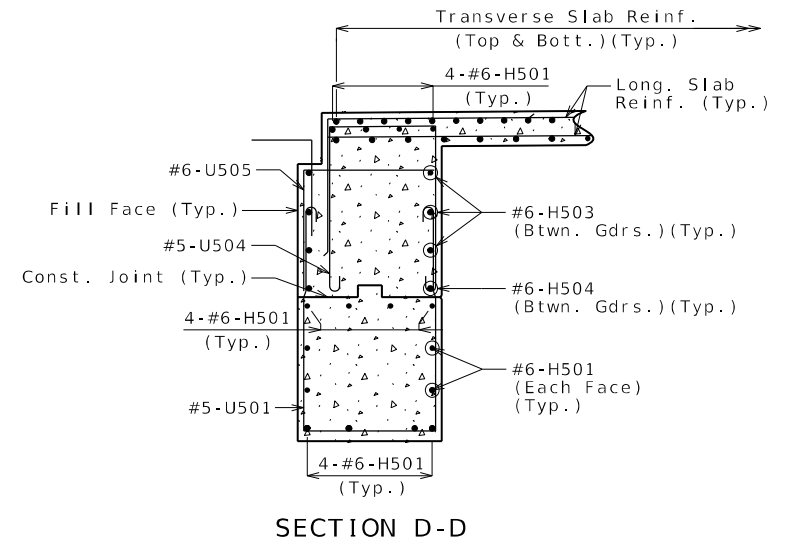
ELEVATION A-A



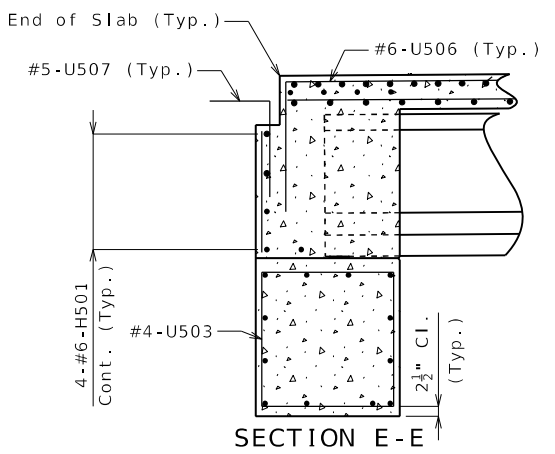
DETAIL G



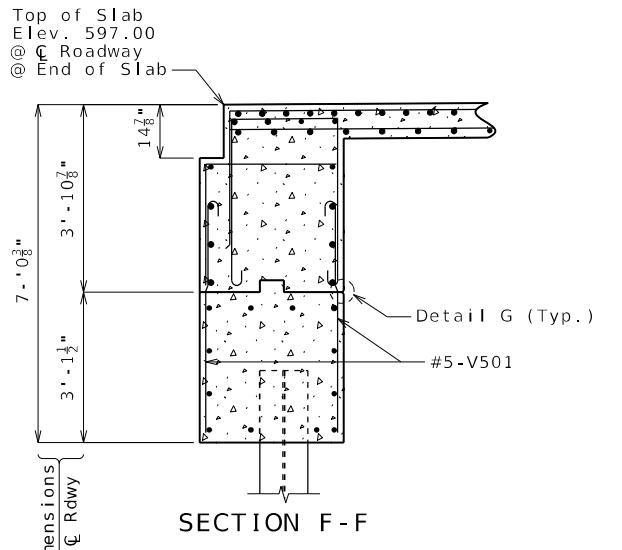
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

DETAILS OF END BENT NO. 5

Notes:  
For details of End Bent No. 5 not shown, see Sheets No. 11 & 12.  
For location of Elevations A-A & B-B and Sections C-C, D-D, E-E, and F-F, see Sheet No. 12.  
For reinforcement of Type D Barrier, see Sheets No. 24 & 25.

Substructure Quantity Table for Bent No. 5		
Item		Quantity
Class 1 Excavation	cu. yard	35
Galvanized Structural Steel Piles (12 in.)	linear foot	110
Pile Point Reinforcement	each	5
Class B Concrete (Substructure)	cu. yard	12.4

These quantities are included in the Estimated Quantities table on Sheet No. 2.



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DATE PREPARED  
2/23/2026

ROUTE A STATE MO

DISTRICT BR SHEET NO. 13

COUNTY WASHINGTON

JOB NO. JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9723

DESCRIPTION

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



16305 SWINGLEY RIDGE RD ST. 300 CHESTERFIELD, MO 63017 314.231.0100 GBAteam.com

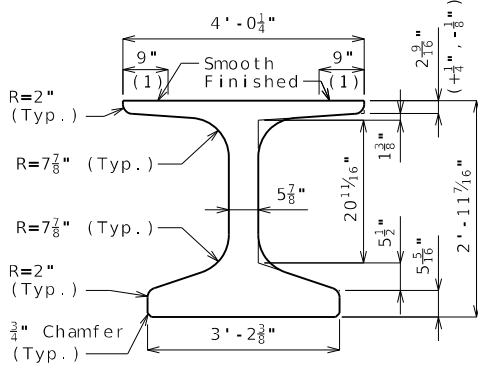
GEORGE BUTLER ASSOCIATES, INC. PRO. ENGINEER 000133 ARCHITECT 000212 PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY PROFESSIONAL ENGINEER PE-2018037127

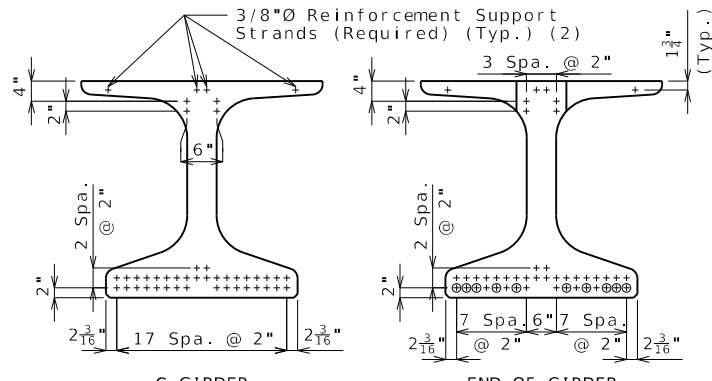
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

(1) Fabricator shall apply a bond breaker to this region.

(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.

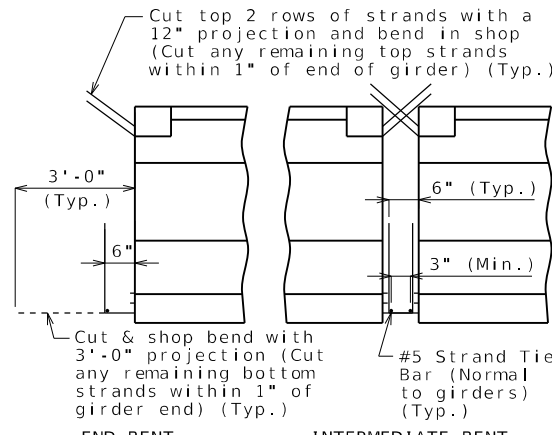


**DIMENSIONS**

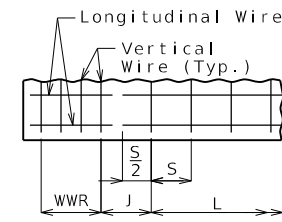


**STRAND ARRANGEMENT**

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



**STRANDS AT GIRDER ENDS**

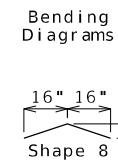


**WELDED WIRE PLACEMENT**

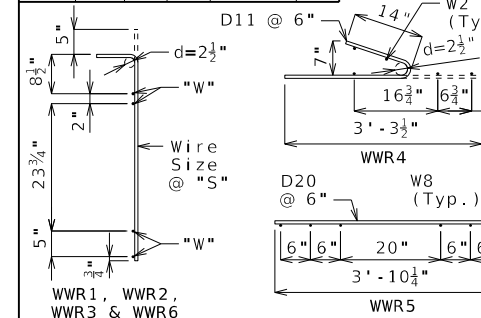
S = Vertical wire spacing   
 L = Length of WWR mats   
 J = Distance between WWR mats

**Bill of Reinforcing Steel**

Bars Each Girder				
No.	Size/Mark	Length	Shape	
101	3 G1	2'-10"	8	
2	4 G3	4'-0"	20	
2	4 G4	2'-3"	20	
2	4 G5	2'-9"	20	
4	4 G6	Varies	20	



Welded Wire Each Girder					
Mark	Size	S	W	L	J
WWR1	D31 5"	W12	8'-9"	9"	
WWR2	D31 9"	W12	5'-3"	9 3/4"	
WWR3	D31 12"	W12	7'-0"	15"	
WWR4	D31 15"	W12	28'-9"	-	
WWR6	D31 2"	W12	16"	4"	



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 ASTM A615 or A706 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  $f'c = 9000$  psi and  $f'ci = 6500$  psi.

Use 40 strands, 0.5" Grade 270, with an initial prestress force of 1240 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 & coil inserts for slab drains.

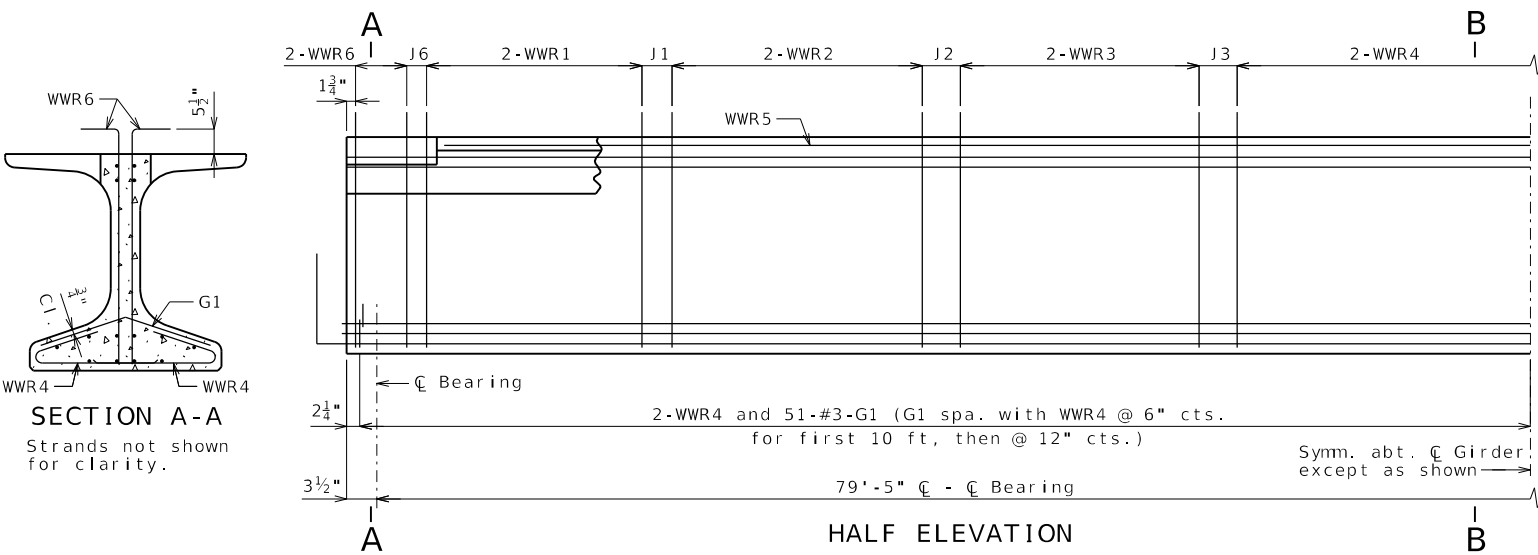
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 20.

For location of coil inserts at slab drains, see Sheet No. 19.

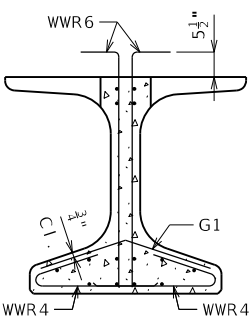
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4, 12 and 18.

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.



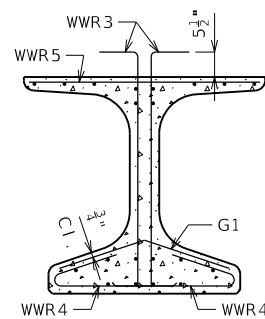
**HALF ELEVATION**

Reinforcement support strands not shown for clarity.



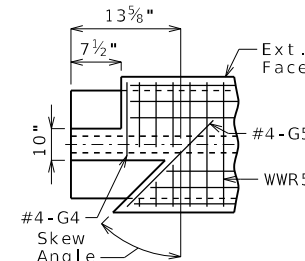
**SECTION A-A**

Strands not shown for clarity.



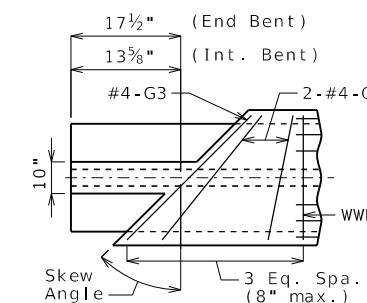
**SECTION B-B**

Strands not shown for clarity.

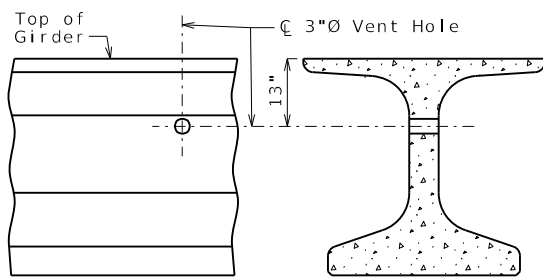


**LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT**

Rotate 180° for right ext.



**TOP FLANGE BLOCKOUT**

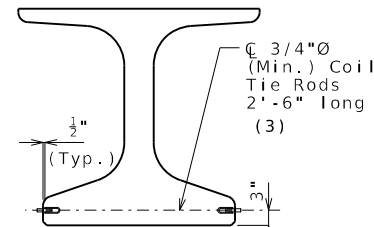


**PART ELEVATION**

**PART SECTION**

**VENT HOLE**

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.

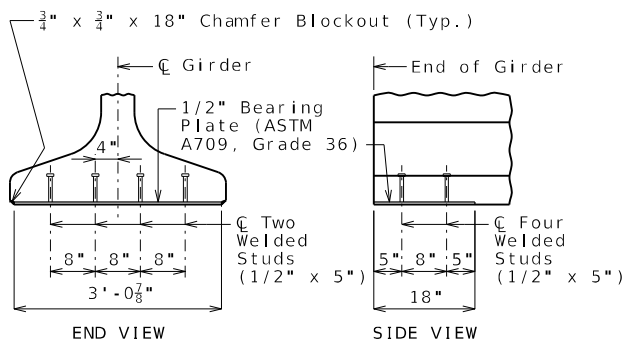


**CLOSED DIAPHRAGMS AND INTEGRAL BENTS**

**COIL TIES**

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

(3) 20" at exterior face of exterior girders at end bents



**END VIEW**

**SIDE VIEW**

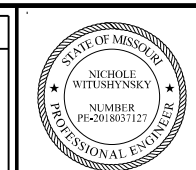
**BEARING PLATE**

**NU-GIRDERS - SPANS (1-2) AND (4-5)**

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

Sheet No. 14 of 34

Detailed Jan 2026   
 Checked Jan 2026



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DATE PREPARED 2/23/2026

ROUTE A STATE MO

DISTRICT BR SHEET NO. 14

COUNTY WASHINGTON

JOB NO. JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9723

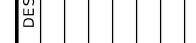
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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



GBA

16305 SWINGLEY RIDGE RD ST. 300 CHESTERFIELD, MO 63017 314.231.0100 GBAteam.com

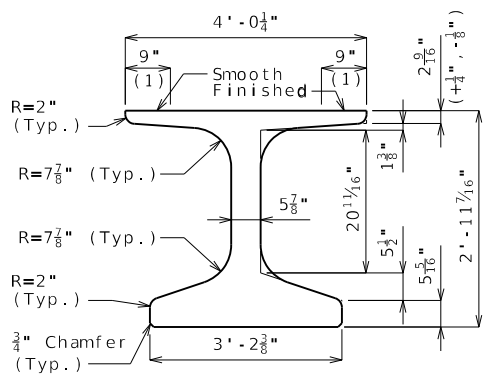
GEORGE BUTLER ASSOCIATES, INC. PRO. ENGINEER 000133 ARCHITECT 000212 PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY PROFESSIONAL ENGINEER PE-2018037127

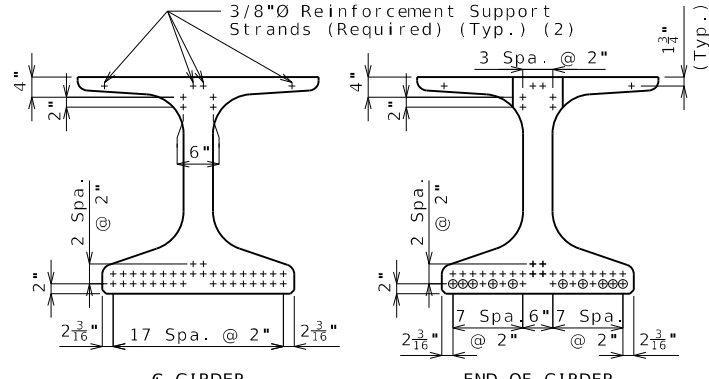
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

(1) Fabricator shall apply a bond breaker to this region.

(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.

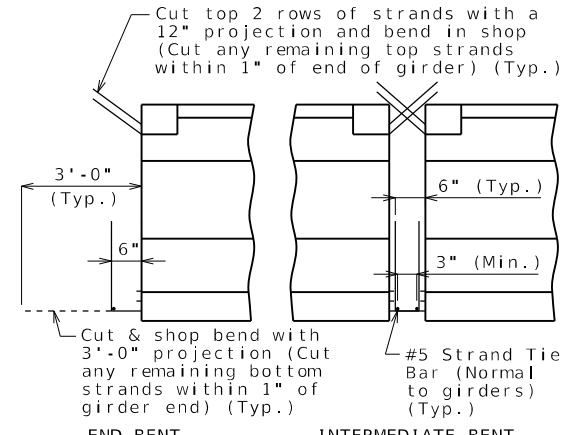


**DIMENSIONS**

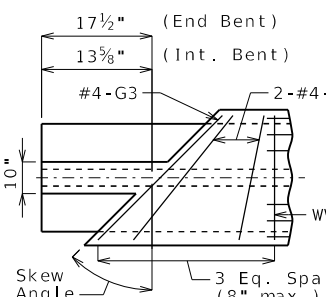
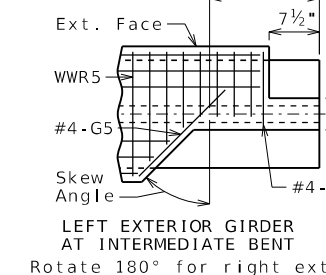
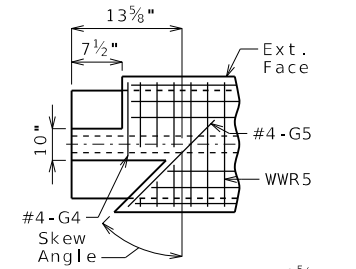


**STRAND ARRANGEMENT**

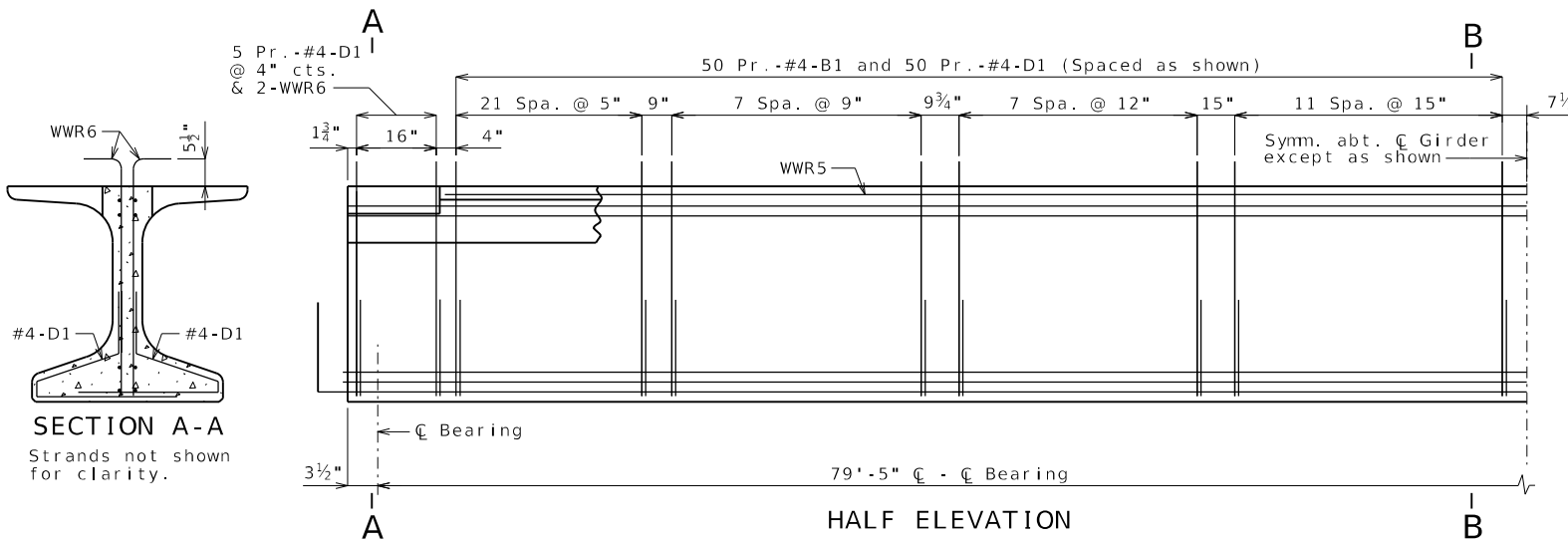
+ Indicates prestressing strand. ○ Indicates cut & shop bend with 3'-0" projection.



**STRANDS AT GIRDER ENDS**



**INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT**

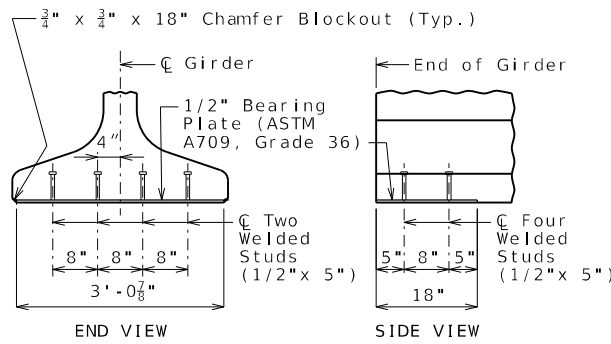


**HALF ELEVATION**

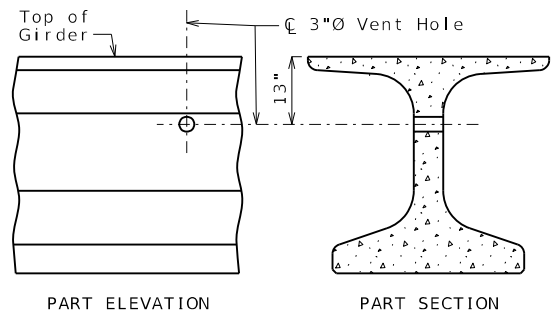
Reinforcement support strands not shown for clarity.

**SECTION A-A**  
Strands not shown for clarity.

**SECTION B-B**  
Strands not shown for clarity.

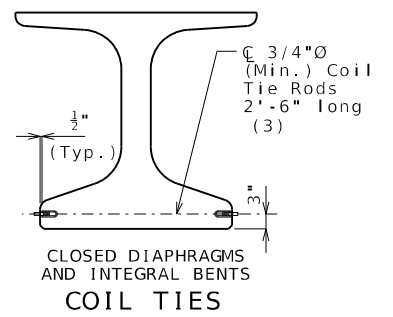


**BEARING PLATE**



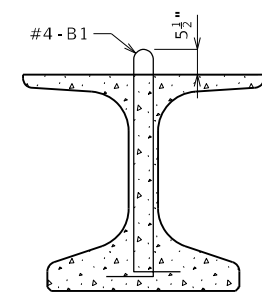
**VENT HOLE**

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.



**COIL TIES**

Exclude coil tie at exterior face of exterior girders except at integral end bents.  
(3) 20" at exterior face of exterior girders at end bents



**B1 BAR PERMISSIBLE ALTERNATE SHAPE**

Bill of Reinforcing Steel - Each Girder				
No.	Size/Mark	Length	Shape	Bending Diagrams
200	4 B1	4'-4"	11S	Shape 20
220	4 D1	4'-0"	9S	Shape 9S
2	4 G3	4'-0"	20	Shape 11S
2	4 G4	2'-3"	20	
2	4 G5	2'-9"	20	
4	4 G6	Varies	20	

Welded Wire Reinforcement - Each Girder	
ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	15
COUNTY	WASHINGTON
JOB NO.	JCD0228
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9723

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 one inch.

All bar reinforcement shall be Grade 60.

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

All B1 bars shall be epoxy coated.

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 girders shall be Class A-1 with  $f'c = 9000$  psi and  $f'ci = 6500$  psi.

Use 40 strands, 0.5"Ø Grade 270, with an initial prestress force of 1240 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 breakout, application of bond breaker & coil inserts for slab drains.

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. 20.

For location of coil inserts at slab drains, see Sheet No. 19.

For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4, 12 and 18.

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.



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DATE PREPARED: 2/23/2026

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	15
COUNTY	WASHINGTON
JOB NO.	JCD0228
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9723

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

**GBA**

16305 SWINGLEY RIDGE RD  
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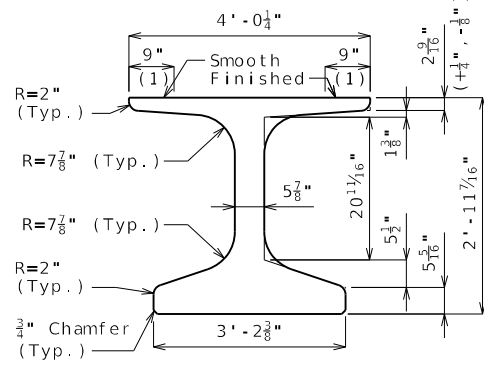
GEORGE BUTLER ASSOCIATES, INC.  
PRO. ENGINEER 000133  
ARCHITECT 000212  
PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY  
PROFESSIONAL ENGINEER  
PE-2018037127

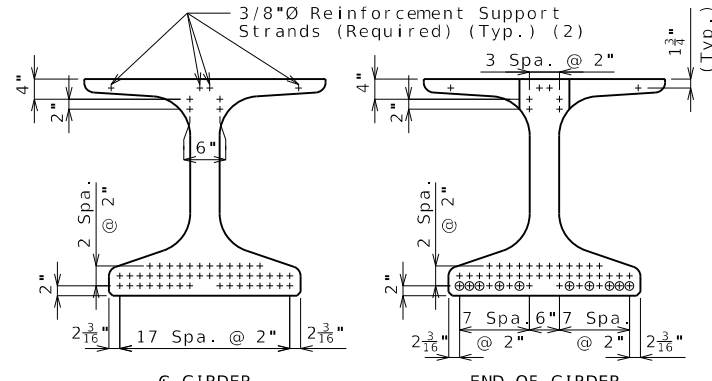
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

(1) Fabricator shall apply a bond breaker to this region.

(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.

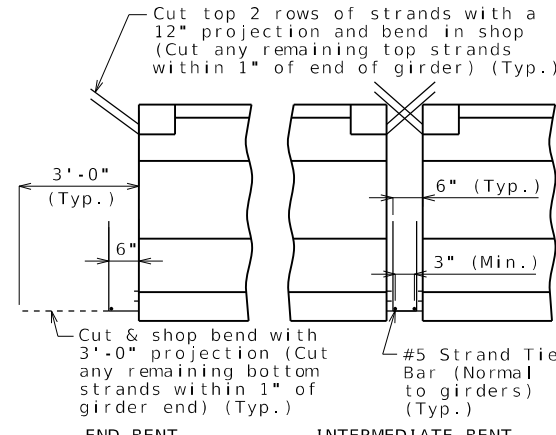


DIMENSIONS

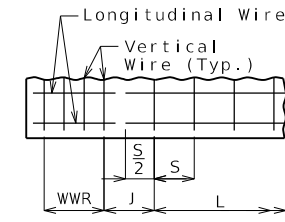


$\bar{C}$  GIRDER STRAND ARRANGEMENT

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



END BENT INTERMEDIATE BENT STRANDS AT GIRDER ENDS



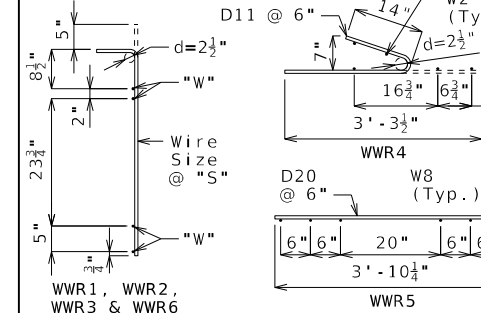
WELDED WIRE PLACEMENT

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

Bill of Reinforcing Steel

Bars Each Girder					Bending Diagrams	
No.	Size/Mark	Length	Shape			
114	3 G1	2'-10"	8			Shape 8
2	4 G3	4'-0"	20			
2	4 G4	2'-3"	20			
2	4 G5	2'-9"	20			
4	4 G6	Varies	20			

Welded Wire Each Girder					
Mark	Size	S	W	L	J
WWR1	D31 5"	W12	8'-9"	9"	
WWR2	D31 9"	W12	5'-3"	10 1/2"	
WWR3	D31 12"	W12	8'-0"	15"	
WWR4	D31 15"	W12	40'-0"	-	
WWR6	D31 2"	W12	16"	4"	



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 ASTM A615 or A706 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  $f'c = 9000$  psi and  $f'ci = 6500$  psi.

Use 50 strands, 0.5" Grade 270, with an initial prestress force of 1549 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 & coil inserts for slab drains.

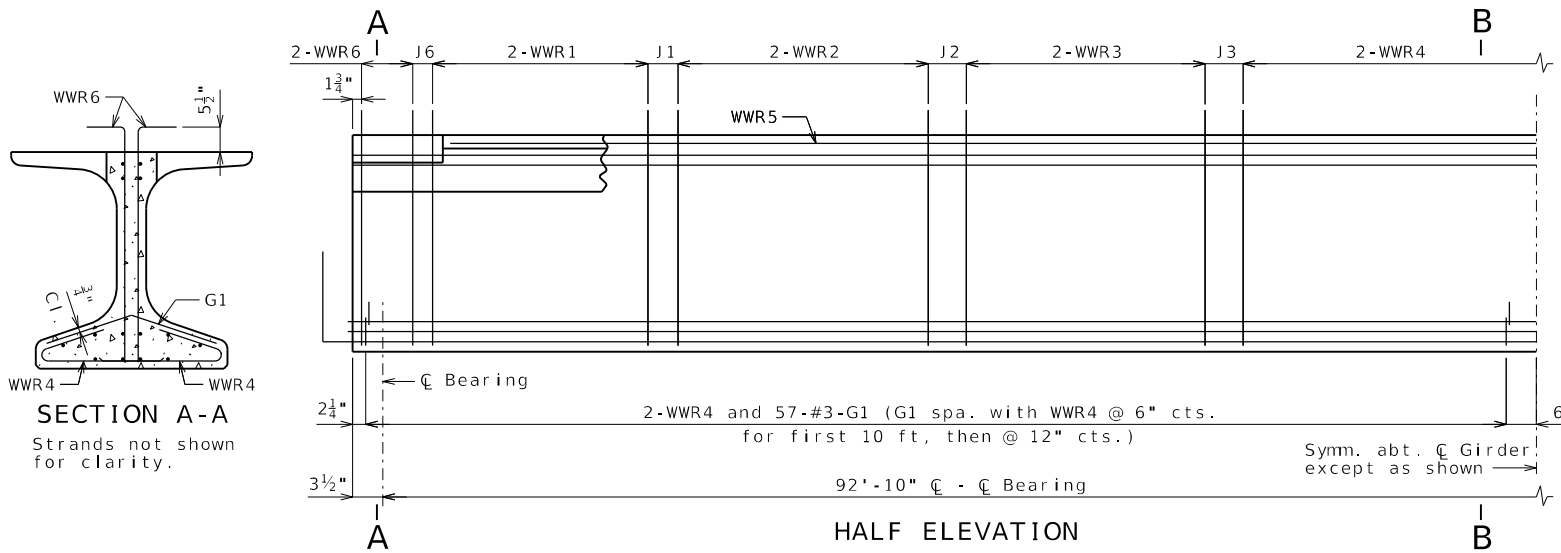
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 20.

For location of coil inserts at slab drains, see Sheet No. 19.

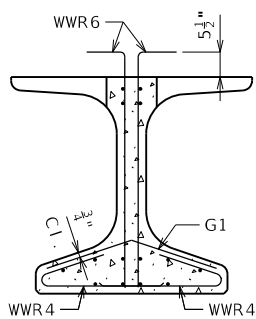
For location of coil ties at concrete diaphragms and integral bents, see Sheet No. 18.

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.

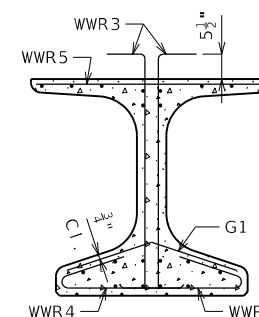


HALF ELEVATION

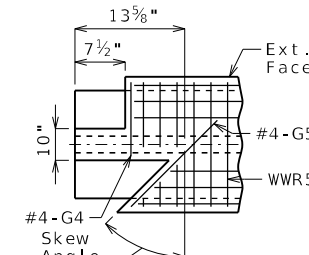
Reinforcement support strands not shown for clarity.



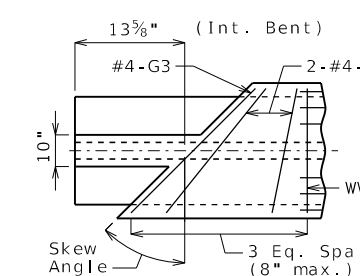
SECTION A-A Strands not shown for clarity.



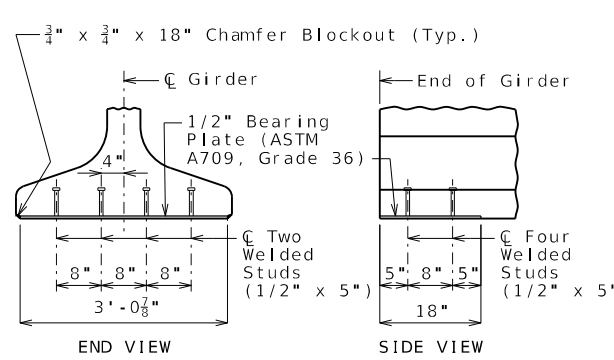
SECTION B-B Strands not shown for clarity.



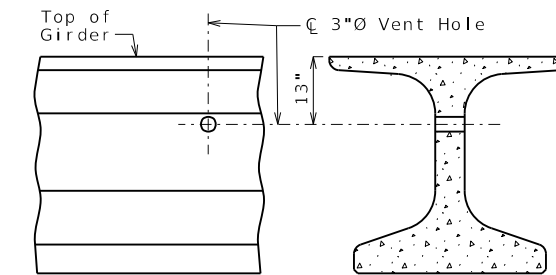
LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT Rotate 180° for right ext.



INTERIOR GIRDER AT ALL BENTS TOP FLANGE BLOCKOUT

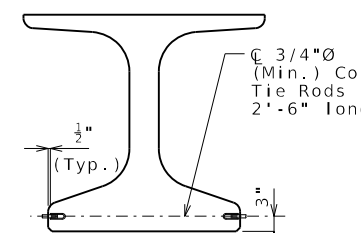


BEARING PLATE



PART ELEVATION PART SECTION VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum and steel intermediate diaphragm bolt connections by 6" minimum.



CLOSED DIAPHRAGMS AND INTEGRAL BENTS COIL TIES

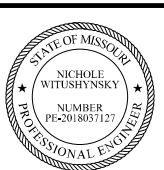
Exclude coil tie at exterior face of exterior girders except at integral end bents.

NU-GIRDERS - SPANS (2-3) AND (3-4)

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

Sheet No. 16 of 34

Detailed Jan 2026  
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DATE PREPARED 2/23/2026

ROUTE A STATE MO

DISTRICT BR SHEET NO. 16

COUNTY WASHINGTON

JOB NO. JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9723

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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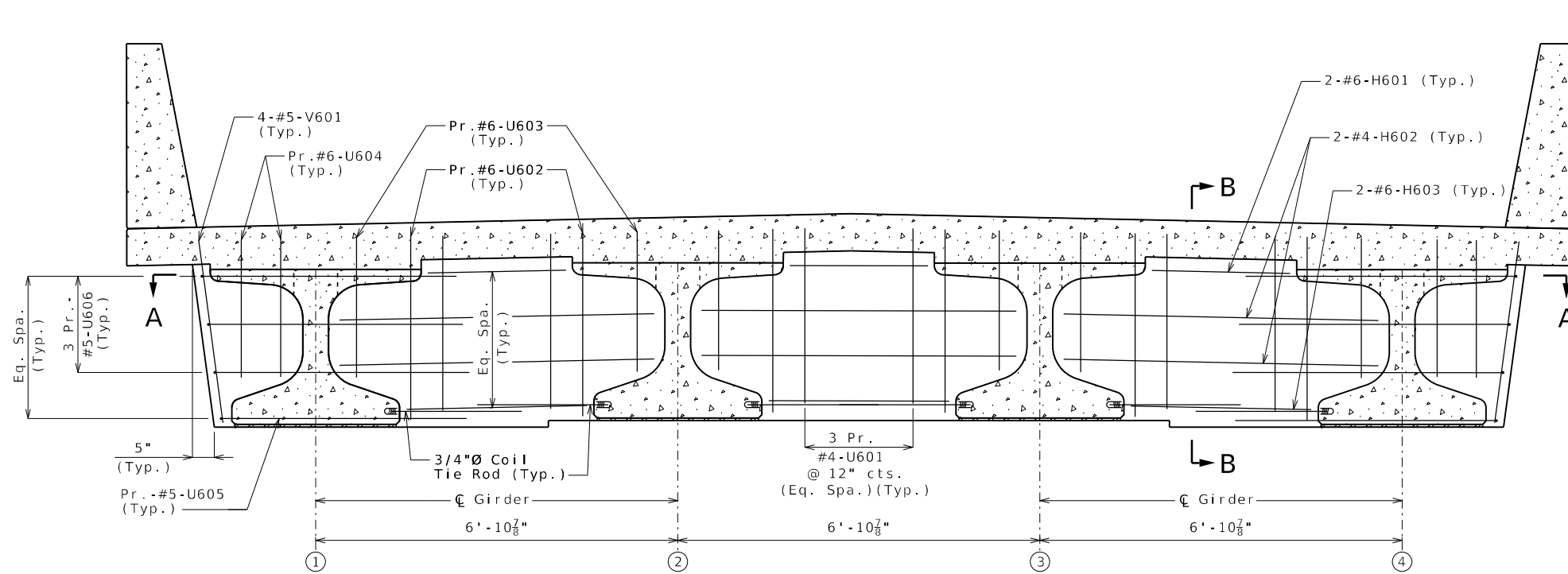
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GEORGE BUTLER ASSOCIATES, INC. PRO. ENGINEER 000133 ARCHITECT 000212 PRO. LAND SURVEYOR 000059

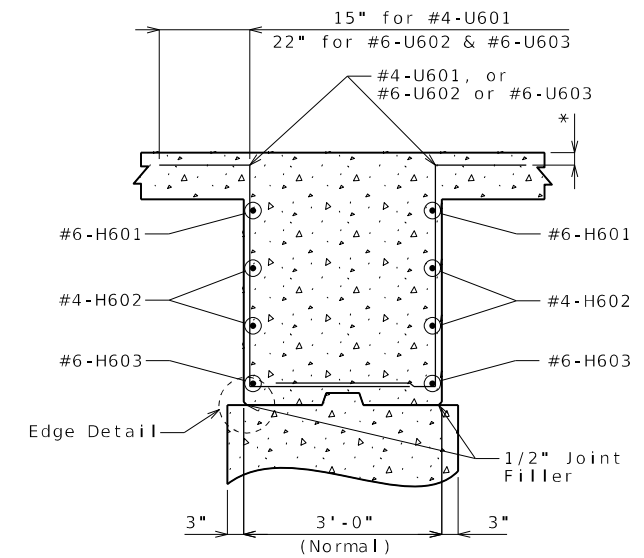
NICHOLE WITUSHYNSKY PROFESSIONAL ENGINEER PE-2018037127

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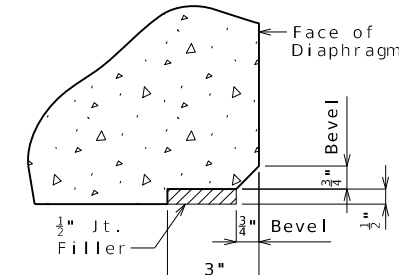


SECTION NEAR INTERMEDIATE BENT  
(Key not shown for clarity.)

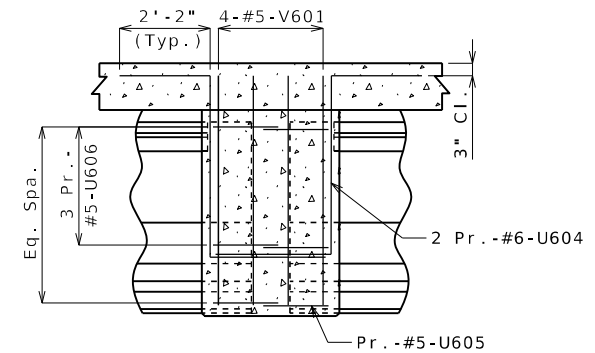


SECTION B-B

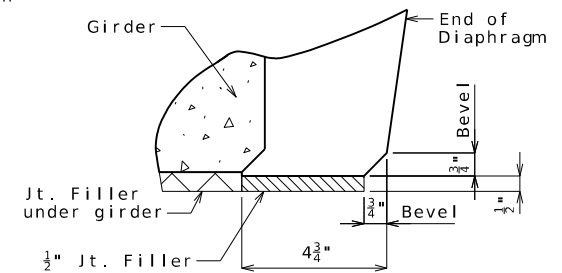
\* 3 1/4\"/>



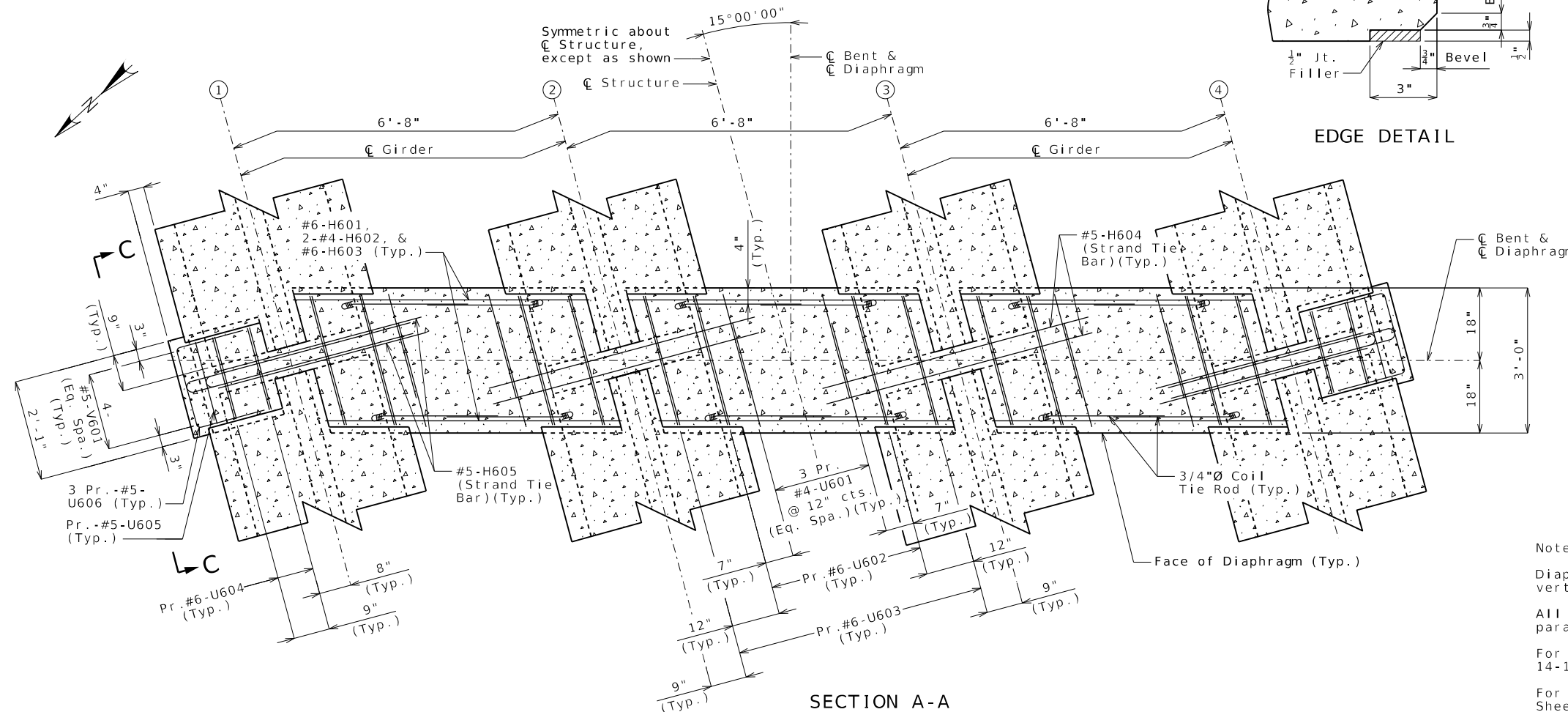
EDGE DETAIL



SECTION C-C



END DETAIL



SECTION A-A

Notes:

Diaphragms at Intermediate Bents shall be built vertical.

All U-bars in the diaphragm are to be placed parallel to  $\bar{C}$  Structure.

For locations of Strand Tie Bars, see Sheets No. 14-17.

For locations and details of Coil Tie Rods, see Sheets No. 14-17.

DETAILS OF CONCRETE DIAPHRAGM AT INTERMEDIATE BENTS NO. 2, 3 & 4

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

Sheet No. 18 of 34

Detailed Jan 2026  
Checked Jan 2026



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DATE PREPARED  
2/23/2026

ROUTE A STATE MO

DISTRICT BR SHEET NO. 18

COUNTY WASHINGTON

JOB NO. JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9723

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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ST. 300  
CHESTERFIELD, MO 63017  
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GEORGE BUTLER  
ASSOCIATES, INC.  
PRO. ENGINEER 000133  
ARCHITECT 000212  
PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY  
PROFESSIONAL  
ENGINEER  
PE-2018037127

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DATE PREPARED  
2/23/2026

ROUTE A STATE MO

DISTRICT BR SHEET NO. 20

COUNTY WASHINGTON

JOB NO. JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9723

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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

MODOT

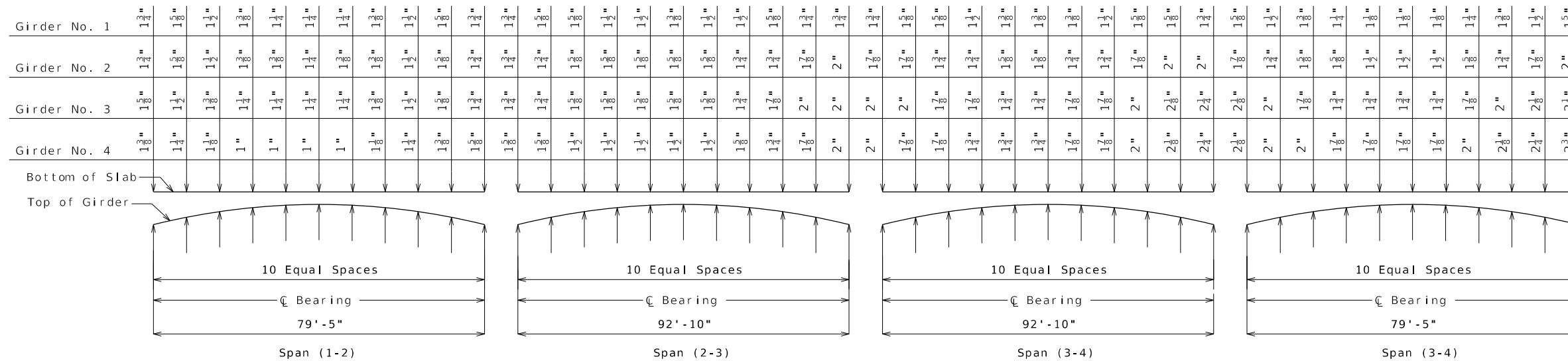
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THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

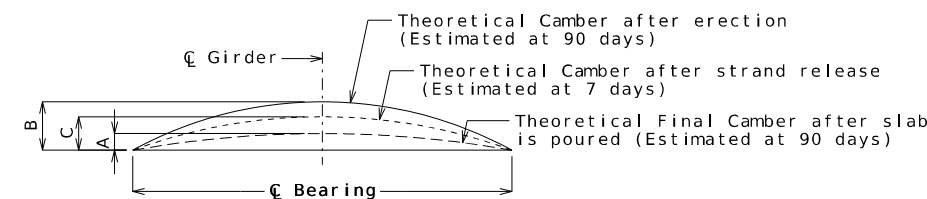
If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete NU-Girder.

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

Girder Number	Span (1-2) (79'-5" C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	597.25	597.34	597.41	597.48	597.53	597.58	597.60	597.61	597.61	597.60	597.59
2	597.38	597.46	597.54	597.61	597.66	597.70	597.73	597.74	597.74	597.73	597.72
3	597.36	597.45	597.53	597.60	597.65	597.70	597.72	597.74	597.74	597.73	597.71
4	597.22	597.30	597.38	597.45	597.51	597.55	597.58	597.60	597.60	597.59	597.58
Girder Number	Span (2-3) (92'-10" C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	597.59	597.67	597.74	597.79	597.82	597.82	597.81	597.76	597.70	597.62	597.53
2	597.72	597.80	597.87	597.92	597.96	597.96	597.95	597.90	597.84	597.76	597.66
3	597.72	597.80	597.87	597.92	597.96	597.96	597.95	597.91	597.84	597.76	597.67
4	597.58	597.66	597.73	597.79	597.82	597.83	597.81	597.77	597.71	597.63	597.54
Girder Number	Span (3-4) (92'-10" C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	597.52	597.55	597.57	597.57	597.56	597.51	597.45	597.35	597.24	597.11	596.97
2	597.66	597.69	597.72	597.72	597.70	597.66	597.59	597.50	597.39	597.26	597.12
3	597.67	597.70	597.72	597.73	597.71	597.67	597.60	597.51	597.40	597.27	597.13
4	597.54	597.57	597.60	597.60	597.58	597.54	597.48	597.39	597.28	597.15	597.01
Girder Number	Span (4-5) (79'-5" C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	596.96	596.92	596.88	596.83	596.76	596.68	596.59	596.48	596.36	596.23	596.10
2	597.11	597.07	597.03	596.98	596.92	596.84	596.75	596.64	596.52	596.39	596.25
3	597.12	597.09	597.05	597.00	596.93	596.86	596.77	596.66	596.54	596.41	596.28
4	597.00	596.97	596.93	596.88	596.82	596.74	596.65	596.55	596.43	596.30	596.17

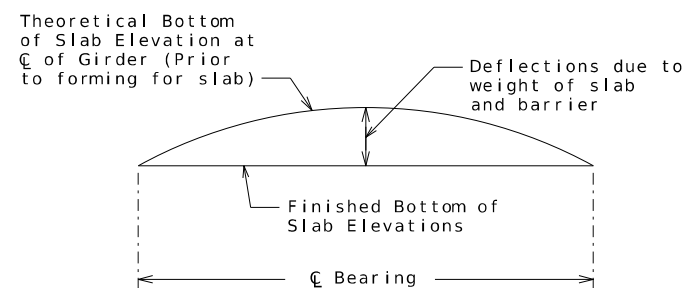
Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab and barrier.



Girder	Span (1-2)			Span (2-3)			Span (3-4)			Span (4-5)		
	A	B	C	A	B	C	A	B	C	A	B	C
Exterior	1"	2 3/8"	1 3/8"	1 3/8"	3 1/2"	2"	1 1/8"	3 1/2"	2"	1"	2 3/8"	1 3/8"
Interior	1"			1"			1"			1"		

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

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



TYPICAL SLAB ELEVATIONS DIAGRAM

SLAB DETAILS

Detailed Jan 2026  
Checked Jan 2026

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

Sheet No. 20 of 34



THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED  
2/23/2026

ROUTE A STATE MO

DISTRICT BR SHEET NO. 21

COUNTY WASHINGTON

JOB NO. JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9723

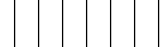
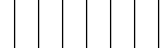
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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

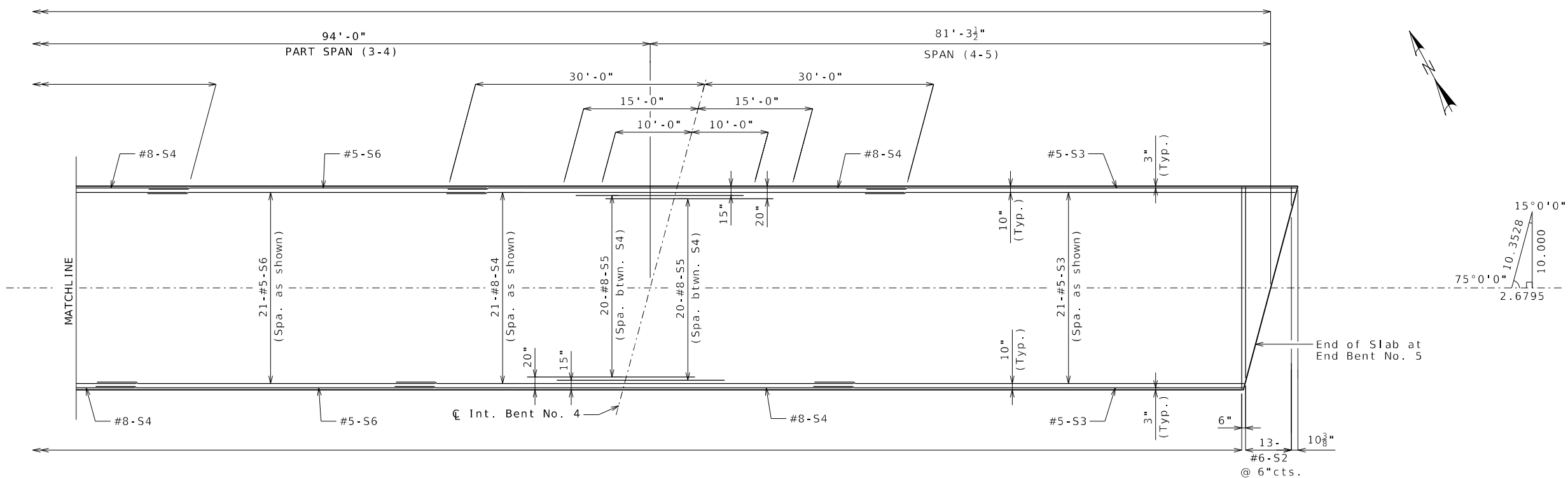
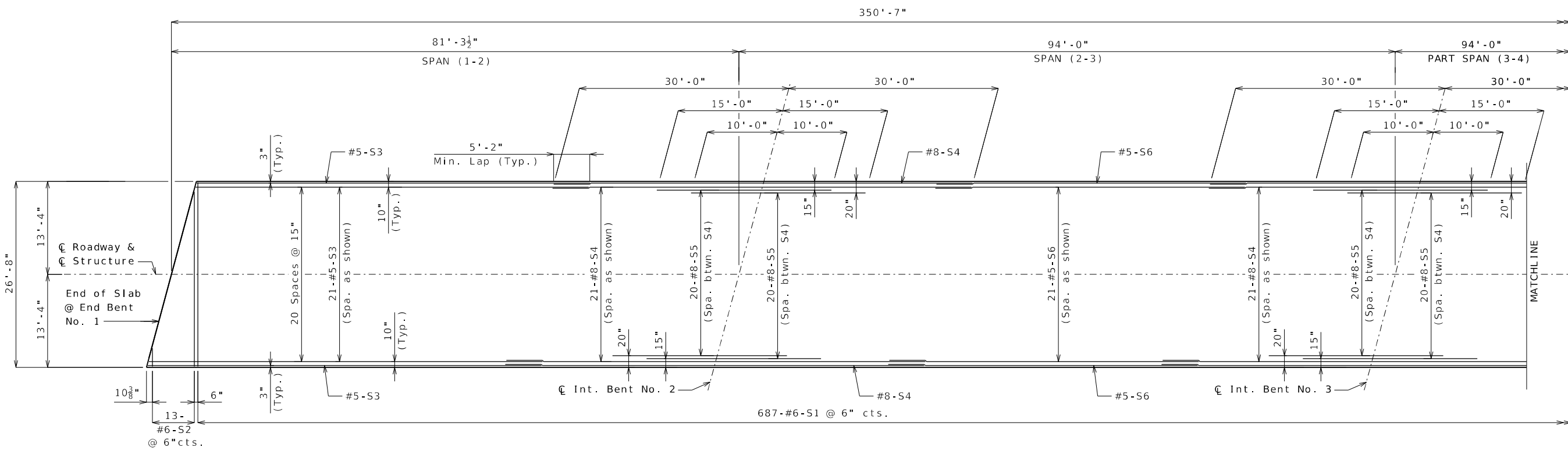


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NICHOLE WITUSHYNSKY PROFESSIONAL ENGINEER PE-2018037127

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



- Notes:
- Longitudinal slab dimensions are measured horizontally.
  - For bottom slab reinforcing, see Sheet No. 22.
  - For details and locations of Slab Drains, see Sheet No. 19.
  - For reinforcement of Type D Barrier not shown, see Sheets No. 24 & 25.
  - For Theoretical Bottom of Slab Elevations, Girder Camber and Theoretical Slab Haunching Diagram, see Sheet No. 20.
  - For Section Thru Slab, Construction Joint Detail, Slab Pouring Sequence and Optional Stay-In-Place Form Details, see Sheet No. 23.

### PLAN OF SLAB SHOWING TOP REINFORCING

Note: This drawing is not to scale. Follow dimensions. Sheet No. 21 of 34

Detailed Jan 2026  
Checked Jan 2026



THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED  
2/23/2026

ROUTE A STATE MO

DISTRICT BR SHEET NO. 22

COUNTY WASHINGTON

JOB NO. JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9723

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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

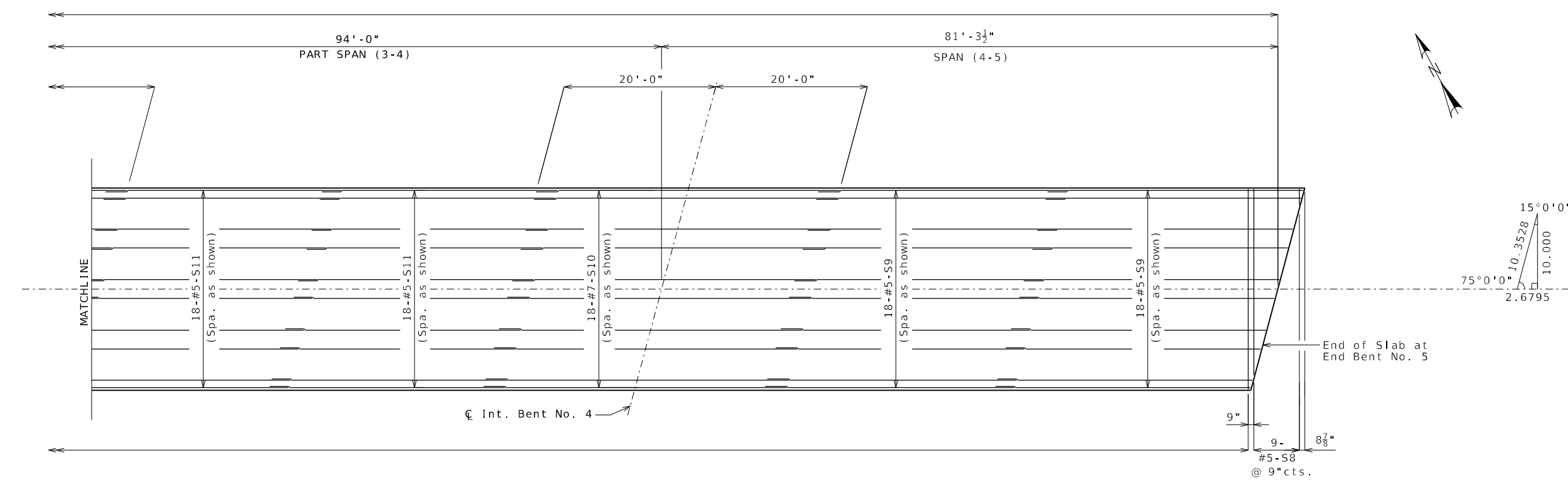
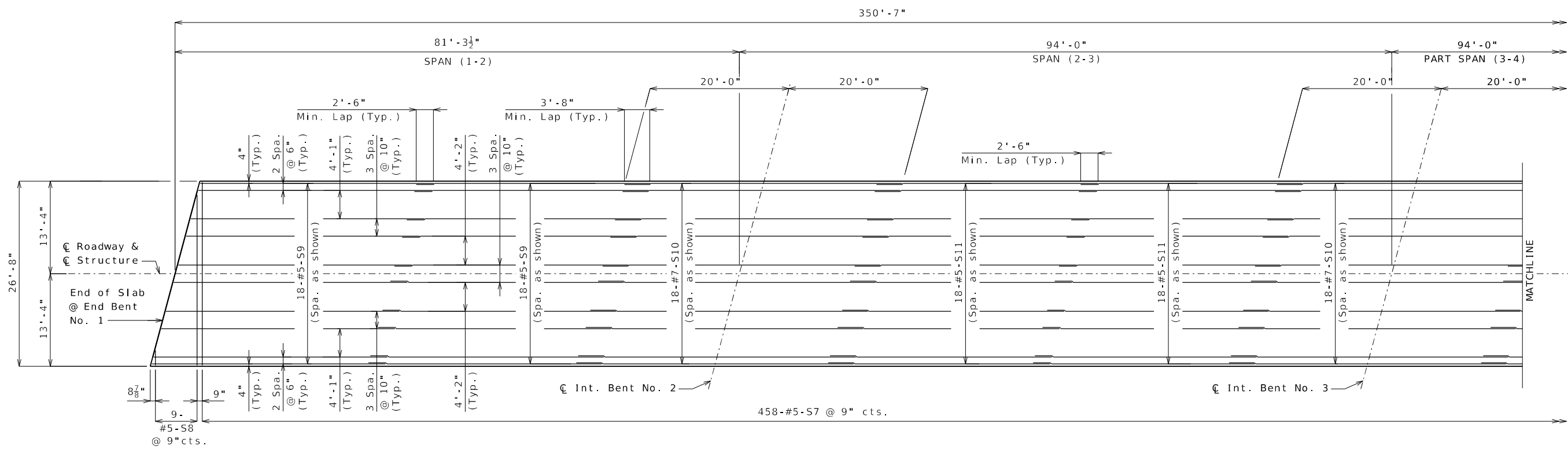


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NICHOLE WITUSHYNSKY PROFESSIONAL ENGINEER PE-2018037127

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



- Notes:
- Longitudinal slab dimensions are measured horizontally.
  - For top slab reinforcing, see Sheet No. 21.
  - For details and locations of Slab Drains, see Sheet No. 19.
  - For reinforcement of Type D Barrier not shown, see Sheets No. 24 & 25.
  - For Theoretical Bottom of Slab Elevations, Girder Camber and Theoretical Slab Haunching Diagram, see Sheet No. 20.
  - For Section Thru Slab, Construction Joint Detail, Slab Pouring Sequence and Optional Stay-In-Place Form Details, see Sheet No. 23.

### PLAN OF SLAB SHOWING BOTTOM REINFORCING

Note: This drawing is not to scale. Follow dimensions. Sheet No. 22 of 34

Detailed Jan 2026  
Checked Jan 2026



THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED  
2/23/2026

ROUTE A STATE MO

DISTRICT BR SHEET NO. 23

COUNTY WASHINGTON

JOB NO. JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9723

DESCRIPTION	DATE

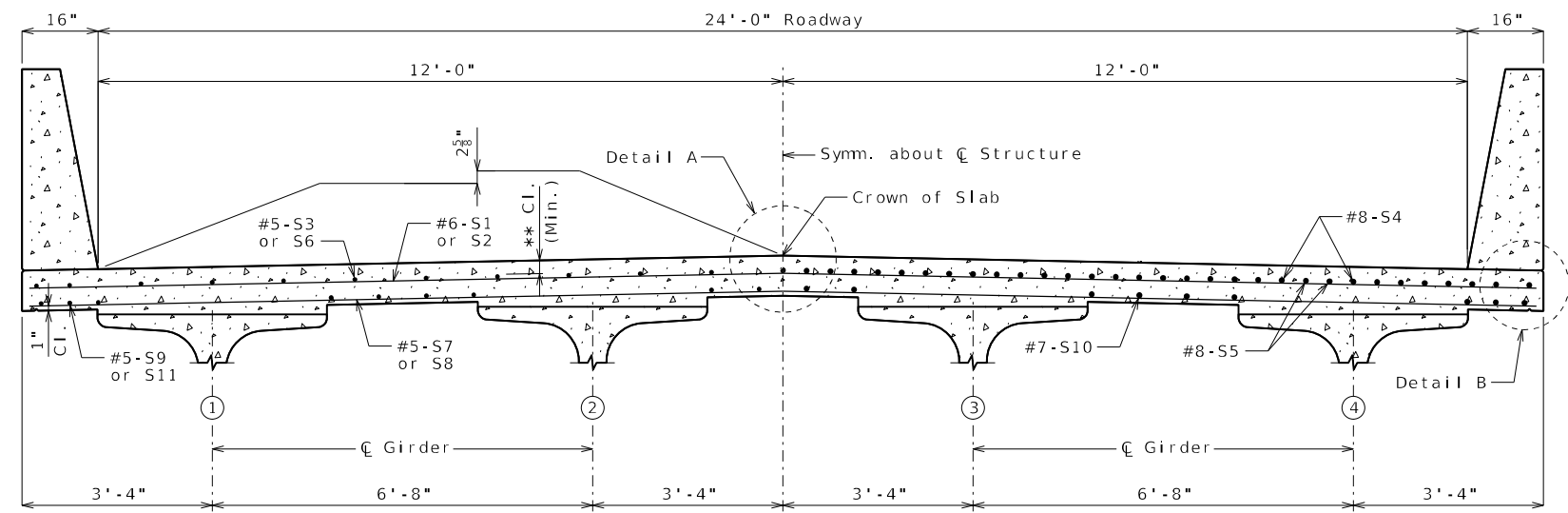
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
 105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)



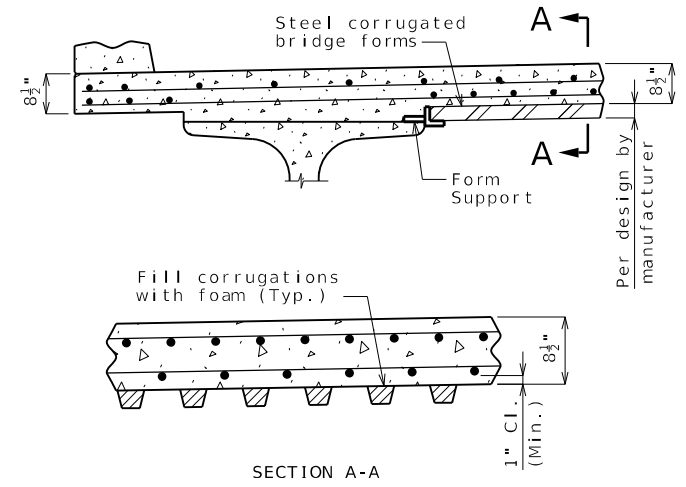
16305 SWINGLEY RIDGE RD  
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GEORGE BUTLER ASSOCIATES, INC.  
 PRO. ENGINEER 000133  
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 PROFESSIONAL ENGINEER  
 PE-2018037127

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



SECTION THRU SLAB  
 \*\* 3/8" (#5)  
 2/4" (#8)



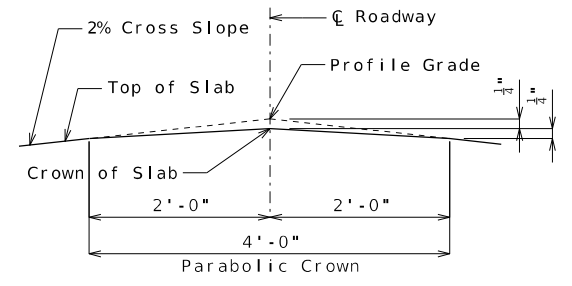
OPTIONAL STAY-IN-PLACE FORM DETAILS

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

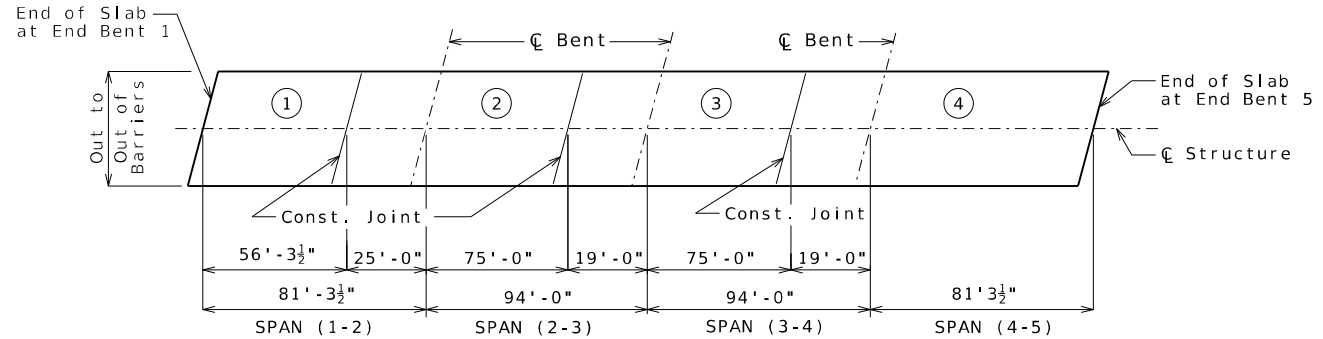
Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

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

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



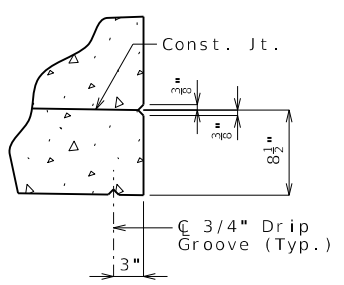
DETAIL A



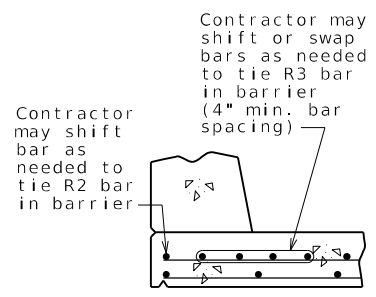
Sequence of Pours	Direction				Min. Rate of Pour Cu. Yds./Hr. With Retarder
	1	2	3	4	
Basic Sequence	End to 2	1 to 3	2 to 4	3 to End	25
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.					
Alternate A Pours	1 + 2 End to 3	3 2 to 4	4 3 to End		25
Alternate B Pours	1 + 2 End to 3		3 + 4 2 to End		25
Alternate C Pours	1 + 2 + 3 + 4 End to End				25

The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.  
 The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

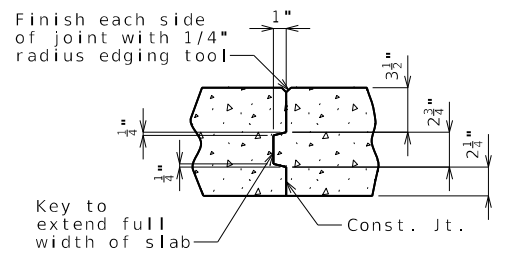
SLAB POURING SEQUENCE



DETAIL B



OPTIONAL SHIFTING TOP BARS AT BARRIER



SLAB CONSTRUCTION JOINT

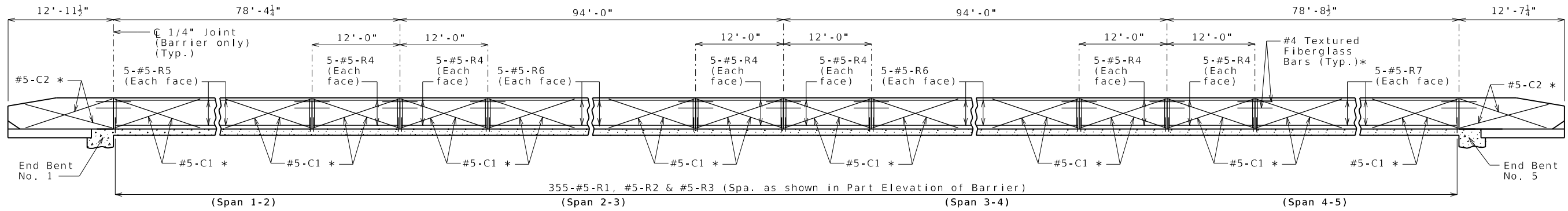
- Notes:
- For reinforcement of barrier not shown, see Sheets No. 24 & 25.
  - For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 20.
  - For Plan of Slab Showing Reinforcement, see Sheets No. 21 & 22.

SLAB DETAILS

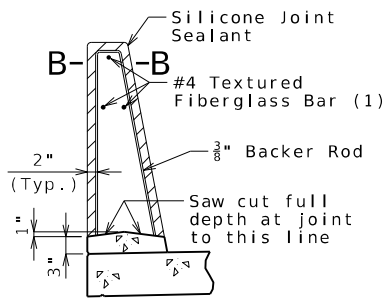
Detailed Jan 2026  
 Checked Jan 2026

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

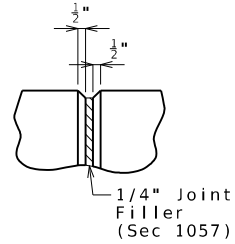
Sheet No. 23 of 34



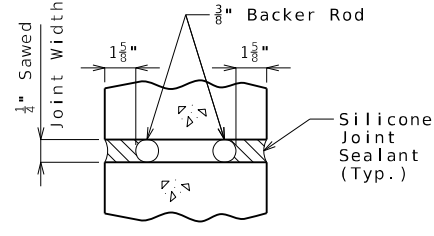
**ELEVATION OF BARRIER**  
 (Left barrier shown, right barrier similar)  
 Longitudinal dimensions are horizontal.



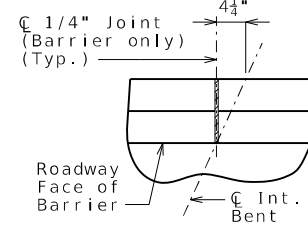
**SECTION THRU SAW CUT JOINT**



**PART ELEVATION AT FORMED JOINT**



**SECTION B-B**



**PART PLAN SHOWING JOINT LOCATION**

**General Notes:**

\* Slip-formed option only.

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

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

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

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Type D Barrier per linear foot.

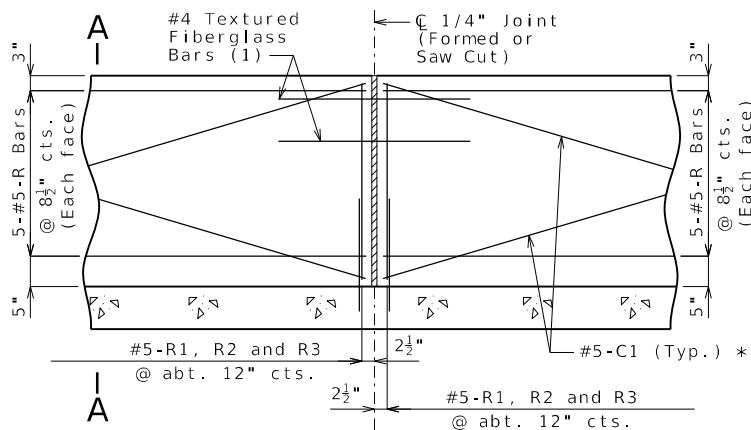
Concrete in barrier shall be Class B-1.

Measurement of barrier is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the barrier as shown on Missouri Standard Plan 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Type D Barrier.

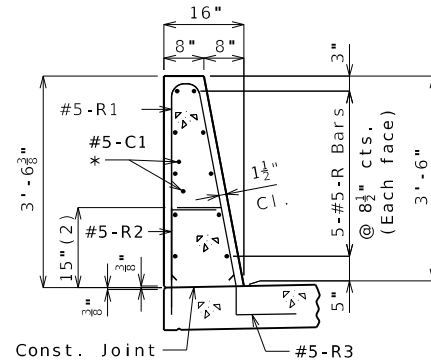
Joint sealant and backer rods shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

For slip-formed option, both sides of barrier shall have a vertically broomed finish and the top shall have a transversely broomed finish.



**PART ELEVATION OF BARRIER**

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

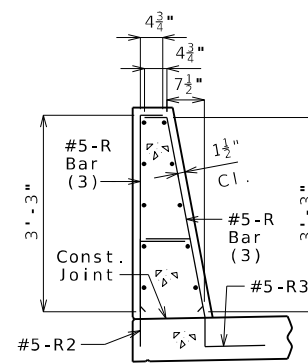


**SECTION A-A**

Use a minimum lap of 2'-6" for #5 horizontal barrier bars.

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

(2) To top of bar



**R-BAR PERMISSIBLE ALTERNATE SHAPE**

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

**TYPE D BARRIER**



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DATE PREPARED 2/23/2026

ROUTE A STATE MO

DISTRICT BR SHEET NO. 24

COUNTY WASHINGTON

JCD0228

CONTRACT ID.

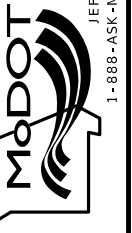
PROJECT NO.

BRIDGE NO. A9723

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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

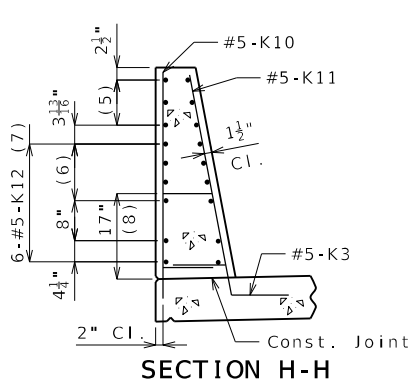
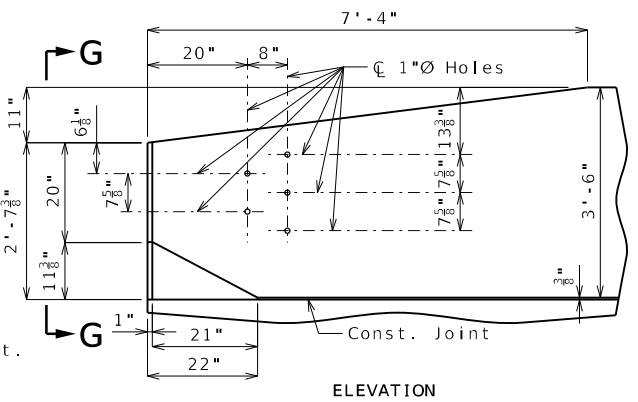
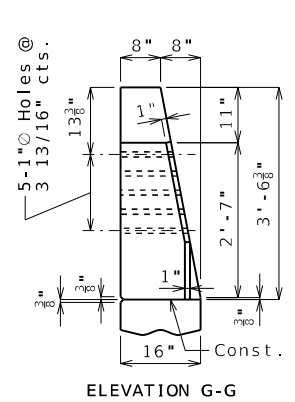
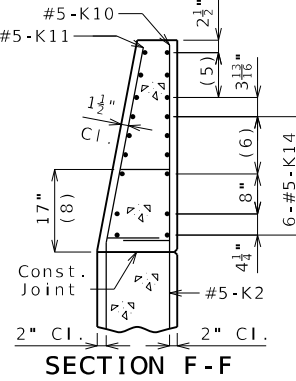
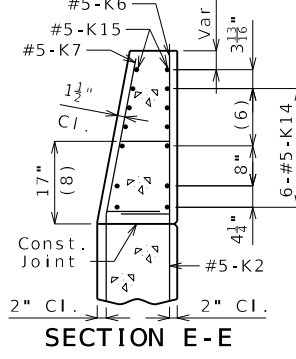
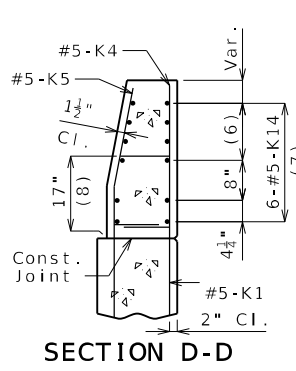
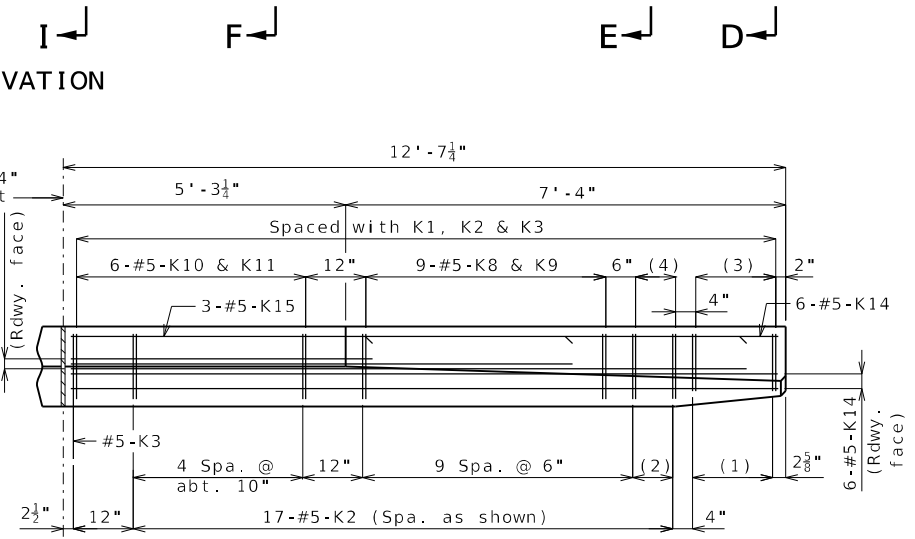
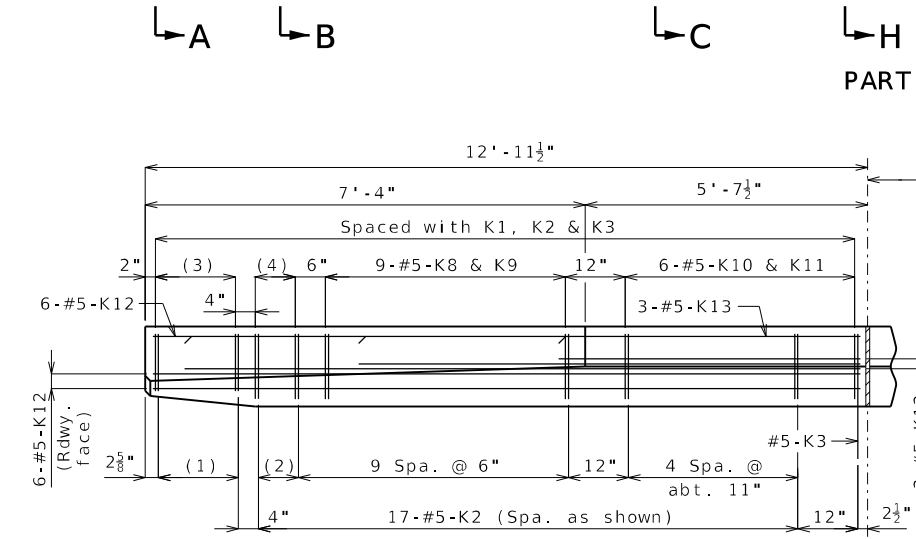
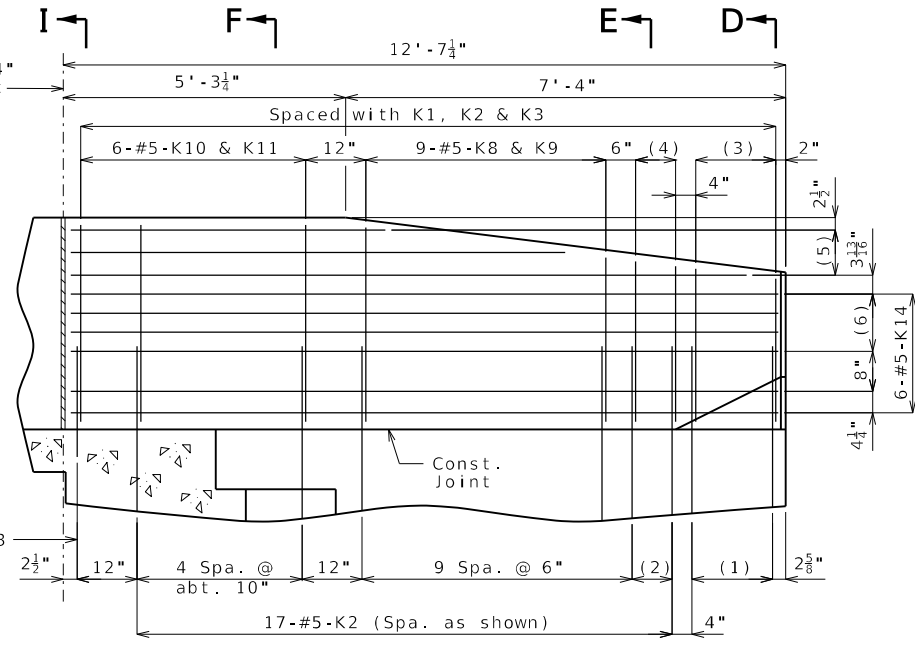
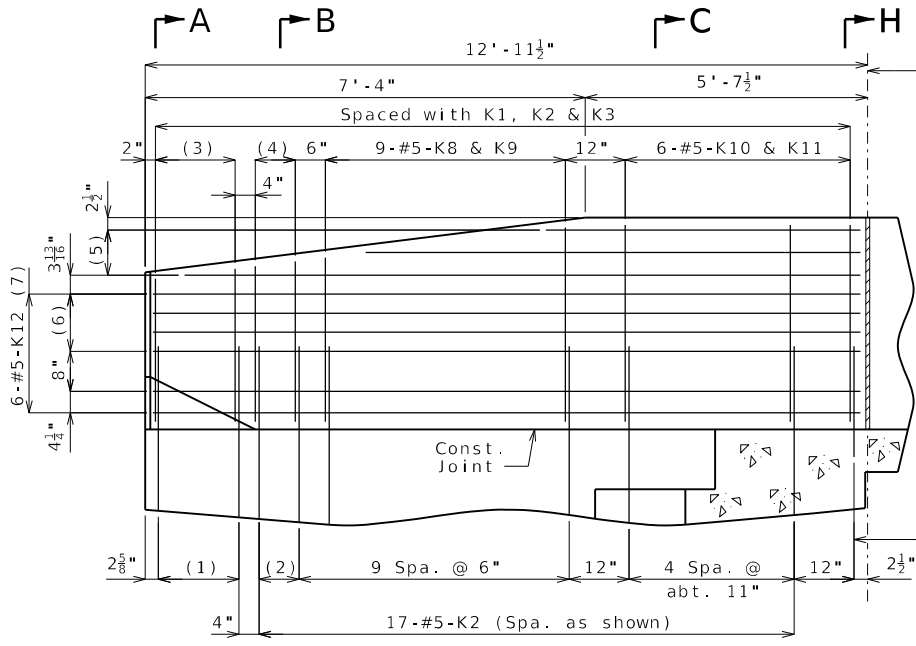
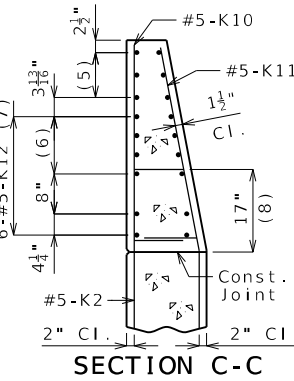
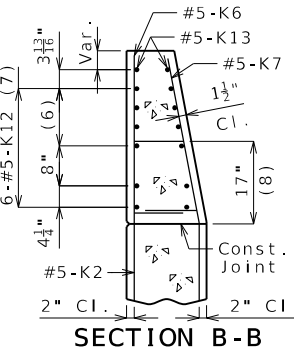
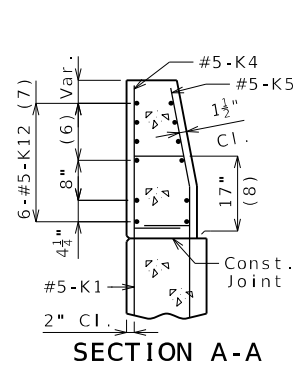


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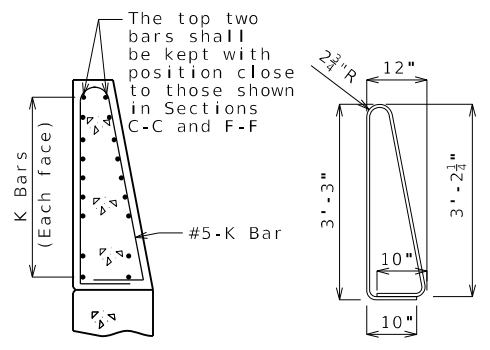
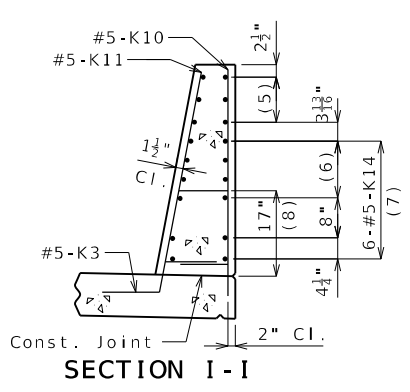
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NICHOLE WITUSHYNSKY PROFESSIONAL ENGINEER PE-2018037127

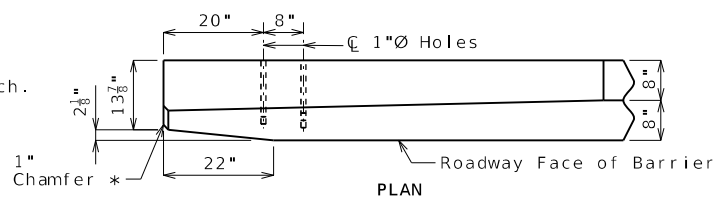
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



- (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 1/2" cts., each face
- (6) 3 spaces @ 3 1/8"
- (7) Spaced as shown, each face
- (8) To top of bar



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



DETAILS OF GUARD RAIL ATTACHMENT

**General Notes:**

Concrete traffic barrier delineators shall be placed on top of the barrier as shown on Missouri Standard Plan 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Type D Barrier.

**Reinforcing Steel:**

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

**TYPE D BARRIER AT END BENTS**

(Left barrier shown, right barrier similar)

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

Sheet No. 25 of 34



THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED: 2/23/2026

ROUTE: A STATE: MO

DISTRICT: BR SHEET NO.: 25

COUNTY: WASHINGTON

JOB NO.: JCD0228

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9723

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

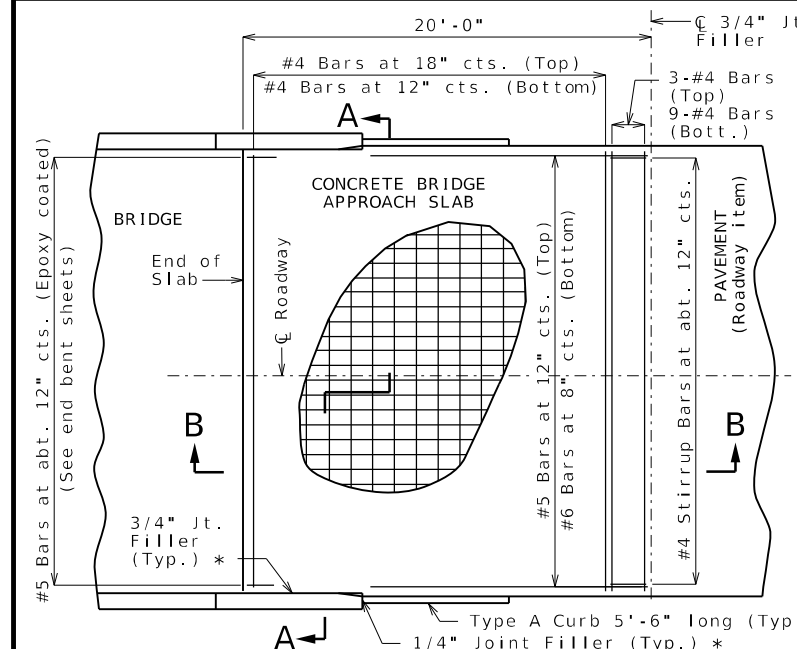


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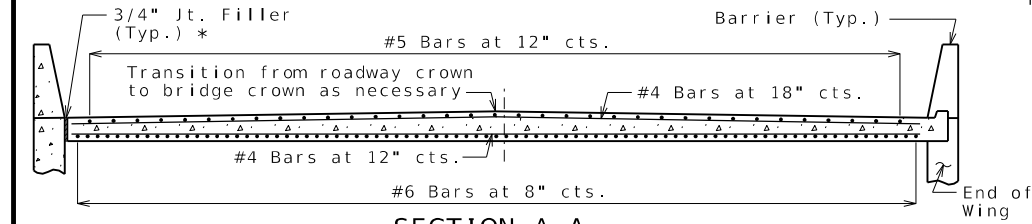
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ARCHITECT 000212  
PRO. LAND SURVEYOR 000059

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PROFESSIONAL ENGINEER  
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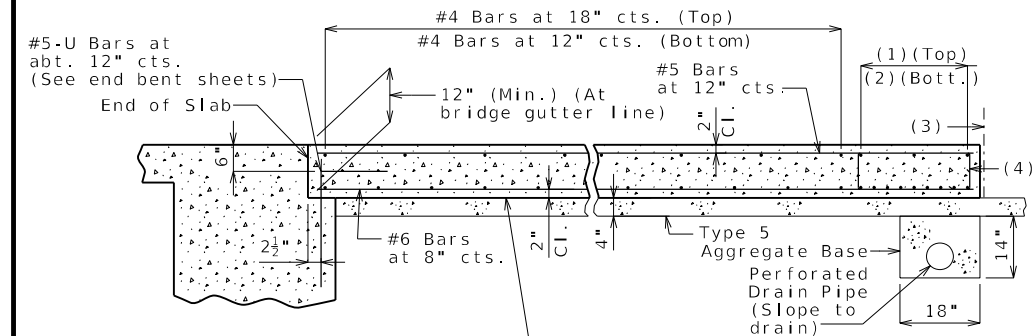


**PART PLAN OF SQUARED STRUCTURE**  
(Skewed structure similar)

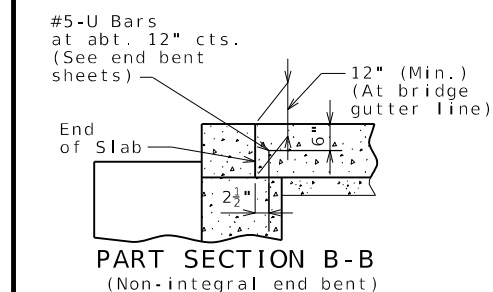


**SECTION A-A**

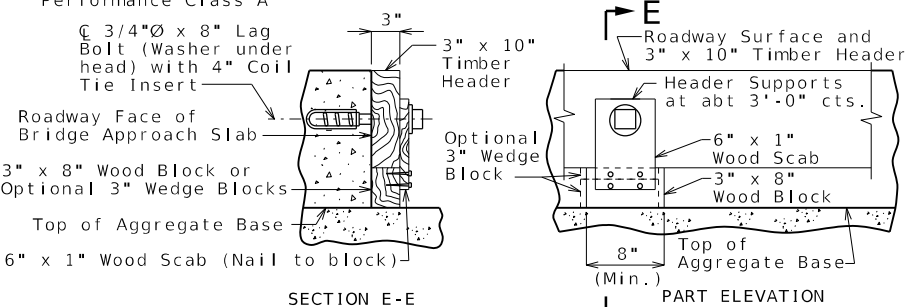
With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



**SECTION B-B**  
(Integral end bent)

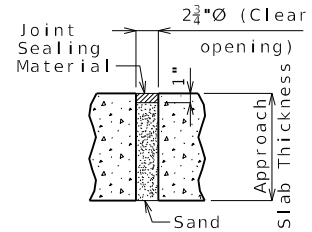


**PART SECTION B-B**  
(Non-integral end bent)

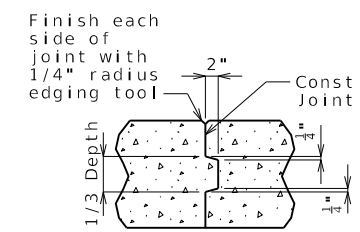


**DETAILS OF TIMBER HEADER**

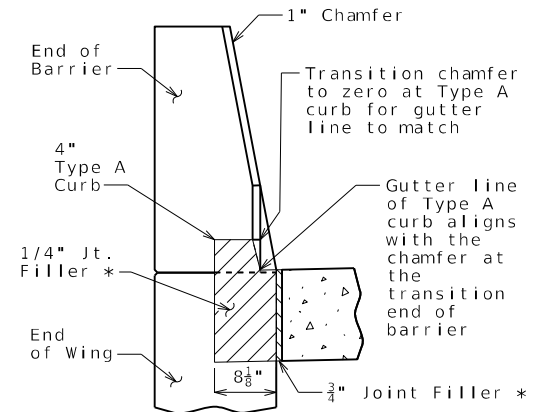
Remove timber header when concrete pavement is placed.  
**OPTIONAL CONCRETE SLAB**



**UNDERSEAL ACCESS HOLE DETAIL**  
(If required)



**CONSTRUCTION JOINT DETAIL**



**SECTION BETWEEN CURB AND BARRIER**

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

**Notes For Concrete Slab Only:**  
All concrete for the bridge approach slab shall be in accordance with Sec 503 ( $f'c = 4,000$  psi).  
The reinforcing steel in the bridge approach slab shall be epoxy coated Grade 60 with  $f_y = 60,000$  psi.

Longitudinal construction joints in bridge approach slab shall be aligned with longitudinal construction joints in bridge slab.

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

The reinforcing steel in the bridge approach slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 26 inches for #4 bars, or by mechanical bar splice.

Mechanical bar splices shall be in accordance with Sec 710.

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

Payment for furnishing all materials, labor and excavation necessary to construct the concrete bridge approach slab, including the timber header, underdrain, Type 5 aggregate base, joint filler, and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) per square yard.

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

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

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

**General Notes:**  
Contractor shall have the option to construct either slab except as noted.  
The contractor shall pour and satisfactorily finish the bridge slab before placing the bridge approach slab.

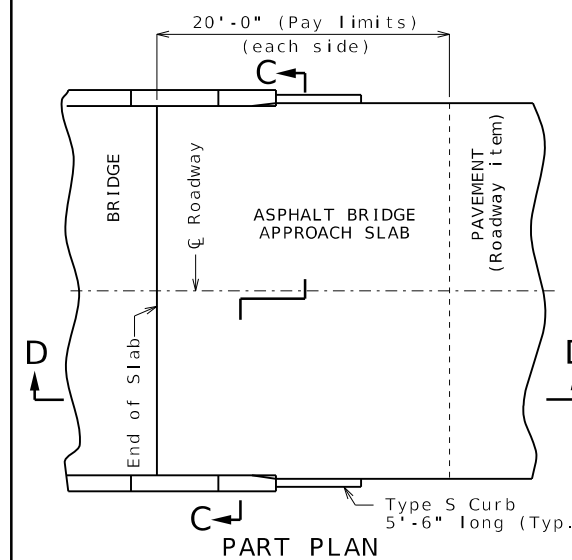
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

Concrete Bridge Approach Slab  
 Asphalt Bridge Approach Slab

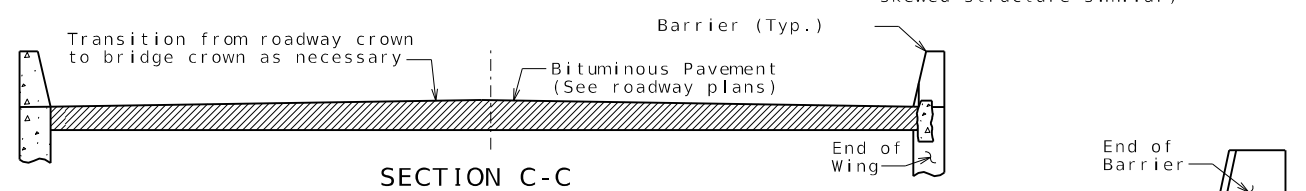
**Notes For Asphalt Slab Only:**

Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) per square yard.

Application of tack is required between lifts per Sec 403.

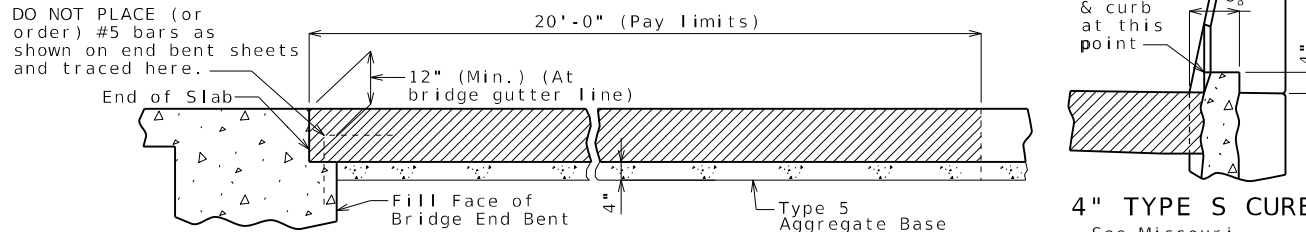


**PART PLAN**  
(Squared structure shown, skewed structure similar)



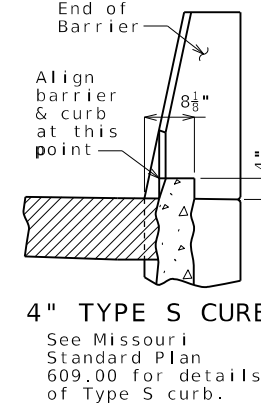
**SECTION C-C**

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 D-D**

**OPTIONAL ASPHALT SLAB** (NOT ALLOWED WITH CONCRETE PAVEMENT)



**4" TYPE S CURB**  
See Missouri Standard Plan 609.00 for details of Type S curb.



THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED: 2/23/2026

ROUTE: A STATE: MO

DISTRICT: BR SHEET NO.: 26

COUNTY: WASHINGTON

JOB NO.: JCD0228

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9723

DESCRIPTION:

DATE:

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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

MoDOT

GBA

16305 SWINGLEY RIDGE RD ST. 300 CHESTERFIELD, MO 63017 314.231.0100 GBAteam.com

GEORGE BUTLER ASSOCIATES, INC. PRO. ENGINEER 000133 ARCHITECT 000212 PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY PROFESSIONAL ENGINEER PE-2018037127

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



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.	lb	
SUBSTRUCTURE																
INT BENT 2																
16	7 D201	BEAM	20		3	6.00							3	6	114	
8	9 H201	BEAM	18		25	3.00							27	9	755	
8	9 H202	BEAM	20		25	3.00							25	3	687	
6	6 H203	BEAM	20		25	3.00							25	3	228	
10	6 H204	BEAM	10S				12.00	3	1.50				5	2	73	
2	5 P201	COLUMN	35		2	9.00	4.00	8	3.75				241	0	494	
2	5 P202	DRILLED SHAFT	35		2	9.00	6.00	25	6.00				466	9	956	
20	5 P203	COLUMN	34S		8	7.50	3.00				2	9.00	9	10	205	
74	6 U201	BEAM	13S		2	2.00	3	9.00	2	2.00	3	9.00	13	1	1399	
10	6 U202	BEAM	10S				3	9.00	3	3.00			10	9	156	
20	9 V201	COLUMN	20		37	11.00							37	11	2578	
20	9 V202	DRILLED SHAFT	20		25	9.00							25	9	1751	
INT BENT 3																
16	7 D301	BEAM	20		3	6.00							3	6	114	
8	9 H301	BEAM	18		25	3.00							27	9	755	
8	9 H302	BEAM	20		25	3.00							25	3	687	
6	6 H303	BEAM	20		25	3.00							25	3	228	
10	6 H304	BEAM	10S				12.00	3	1.50				5	2	73	
2	5 P301	COLUMN	35		2	9.00	4.00	8	3.00				239	5	491	
2	5 P302	DRILLED SHAFT	35		2	9.00	6.00	24	6.00				449	6	921	
20	5 P303	COLUMN	34S		8	7.50	3.00				2	9.00	9	10	205	
74	6 U301	BEAM	13S		2	2.00	3	9.00	2	2.00	3	9.00	13	1	1399	
10	6 U302	BEAM	10S				3	9.00	3	3.00			10	9	156	
20	9 V301	COLUMN	20		36	11.00							36	11	2510	
20	9 V302	DRILLED SHAFT	20		24	9.00							24	9	1683	
INT BENT 4																
16	7 D401	BEAM	20		3	6.00							3	6	114	
8	9 H401	BEAM	18		25	3.00							27	9	755	
8	9 H402	BEAM	20		25	3.00							25	3	687	
6	6 H403	BEAM	20		25	3.00							25	3	228	
10	6 H404	BEAM	10S				12.00	3	1.50				5	2	73	
2	5 P401	COLUMN	35		2	9.00	4.00	7	8.50				225	4	462	
2	5 P402	DRILLED SHAFT	35		2	9.00	6.00	21	6.00				397	7	815	
20	5 P403	COLUMN	34S		8	7.50	3.00				2	9.00	9	10	205	
74	6 U401	BEAM	13S		2	2.00	3	9.00	2	2.00	3	9.00	13	1	1399	
10	6 U402	BEAM	10S				3	9.00	3	3.00			10	9	156	
20	9 V401	COLUMN	20		33	4.00							33	4	2267	
20	9 V402	DRILLED SHAFT	20		21	9.00							21	9	1479	
SUPERSTRUCTURE																
END BENT 1																
8	6 F101	WING BRACE	E 23		20.00	5	11.00	20.00	12.00	16.00	9	3	9	2	110	
3	6 F102	DIAPHRAGM	E 21			5	5.25	2	9.50		5	3.00	17.00	8	3	36
8	6 F103	WING BRACE	E 23		20.00	4	7.00	20.00	16.00	12.00	7	11	7	10	94	
3	6 F104	DIAPHRAGM	E 21		2	9.50	4	8.00			4	6.00	14.50	7	5	33
20	6 H101	BEAM	E 20		27	4.00					27	4	27	4	821	
6	6 H102	DIAPHRAGM	E 20		2	9.00					2	9	2	9	25	
9	6 H103	DIAPHRAGM	E 20		5	9.00					5	9	5	9	78	
3	6 H104	DIAPHRAGM	E 20		3	4.00					3	4	3	4	15	
4	5 H105	DIAPHRAGM	E 20		5	9.00					5	9	5	9	24	
8	8 H106	WING	E 20		12	0.00					12	0	12	0	256	
8	8 H107	WING	E 17		12	0.00					12	11	12	11	276	
18	6 H108	WING	E 20		10	7.00					10	7	10	7	286	
18	6 H109	WING	E 17		10	7.00					11	3	11	3	304	

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. 27.

Detailed Jan 2026  
Checked Jan 2026

All bars shall be ASTM A706 Grade 60.

### BILL OF REINFORCING STEEL

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

Sheet No. 28 of 34

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.	lb	
10	5 U101	BEAM	E 37S		4	9.50	2	10.00					13	5	137	
4	4 U102	BEAM	E 10S				2	8.00	2	10.00			8	2	21	
28	4 U103	BEAM	E 13S		2	10.00	2	8.00	2	10.00	2	8.00	11	9	215	
13	5 U104	DIAPHRAGM	E 37S		3	3.50	2	3.75					9	10	131	
13	6 U105	DIAPHRAGM	E 19S		2	5.00	2	10.00					5	3	99	
33	6 U106	DIAPHRAGM	E 19S		2	9.75	4	3.50					7	1	347	
24	5 U107	DIAPHRAGM	E 19S		2	0.00	15.00						3	3	79	
6	5 V101	BEAM	E 17		4	10.00							5	5	34	
24	6 V102	DIAPHRAGM	E 20		2	4.00							2	4	84	
40	6 V103	WING	E 20		6	4.00							6	4	381	
END BENT 5																
8	6 F501	WING BRACE	E 23		20.00	5	11.00	20.00	12.00	16.00	9	3	9	2	110	
3	6 F502	DIAPHRAGM	E 21			5	5.25	2	9.50		5	3.00	17.00	8	3	36
8	6 F503	WING BRACE	E 23		20.00	4	7.00	20.00	16.00	12.00	7	11	7	10	94	
3	6 F504	DIAPHRAGM	E 21		2	9.50	4	8.00			4	6.00	14.50	7	5	33
20	6 H501	BEAM	E 20		27	4.00					27	4	27	4	821	
6	6 H502	DIAPHRAGM	E 20		2	9.00					2	9	2	9	25	
9	6 H503	DIAPHRAGM	E 20		5	9.00					5	9	5	9	78	
3	6 H504	DIAPHRAGM	E 20		3	4.00					3	4	3	4	15	
4	5 H505	DIAPHRAGM	E 20		5	9.00					5	9	5	9	24	
8	8 H506	WING	E 20		12	0.00					12	0	12	0	256	
8	8 H507	WING	E 17		12	0.00					12	11	12	11	276	
18	6 H508	WING	E 20		10	7.00					10	7	10	7	286	
18	6 H509	WING	E 17		10	7.00					11	3	11	3	304	
10	5 U501	BEAM	E 37S		4	9.50	2	10.00					13	5	137	
4	4 U502	BEAM	E 10S				2	8.00	2	10.00			8	2	21	
28	4 U503	BEAM	E 13S		2	10.00	2	8.00	2	10.00	2	8.00	11	9	215	
13	5 U504	DIAPHRAGM	E 37S		3	3.50	2	3.75					9	10	131	
13	6 U505	DIAPHRAGM	E 19S		2	5.00	2	10.00					5	3	99	
33	6 U506	DIAPHRAGM	E 19S		2	9.75	4	3.50					7	1	347	
24	5 U507	DIAPHRAGM	E 19S		2	0.00	15.00						3	3	79	
6	5 V501	BEAM	E 17		4	10.00							5	5	34	
24	6 V502	DIAPHRAGM	E 20		2	4.00							2	4	84	
40	6 V503	WING	E 20		6	4.00							6	4	381	
INT. BENTS 2, 3 & 4																
18	6 H601	DIAPHRAGM	E 20		2	5.00					2	5	2	5	65	
36	4 H602	DIAPHRAGM	E 20		6	1.00					6	1	6	1	146	
18	6 H603	DIAPHRAGM	E 20		3	4.00					3	4	3	4	90	
12	5 H604	DIAPHRAGM	E 20		5	9.00					5	9	5	9	72	
12	5 H605	DIAPHRAGM	E 20		4	8.00					4	8	4	8	58	
54	4 U601	DIAPHRAGM	E 28S</													





Missouri Department of Transportation Construction and Materials

BORING NO. B-1 Page 1 of 2

Job No.: JCD0228 County: Washington Route: A
Design: A0331 Skew: - Location: Washington County
Bent: - Logged By: EER (UES) Operator: SC (UES)
Station: - Northing: 860400.514 Date of Work: 06/09/25-06/09/25
Offset: - Easting: 681789.711 Depth to Water: 15.5
Elevation: 597.3 Requested Northing: Depth Hole Open:
Requested Station: - Requested Easting: Time Change:
Requested Offset: - Equipment: CME 55LC, Shelby Tube, Split-Spoon Sampler, NQ2
Requested Elevation: Location Note: West Abutment
Drill No.: S/N 390755 Hammer Efficiency: 84% Drilling Method: Hollow Stem Auger and Mud Rotary

Table with 8 columns: Depth (ft), Graphic, Description, Elevation (ft), Sample Type, REC % (RQD %), Blow Counts (N60), Shear Data, Field Tests, Index Tests. Includes soil descriptions like ASPHALT, FILL, LEAN CLAY, and WELL-GRADED SAND.

N60 = (Em/60)Nm Ncs - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value; (1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor:
Coordinate Datum: NAD 83 (CONUS) 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.

(Continued Next Page)

Missouri Department of Transportation Construction and Materials

BORING NO. B-1 Page 2 of 2

Job No.: JCD0228 County: Washington Route: A
Design: A0331 Skew: - Location: Washington County
Bent: - Logged By: EER (UES) Operator: SC (UES)
Station: - Northing: 860400.514 Date of Work: 06/09/25-06/09/25
Offset: - Easting: 681789.711 Depth to Water: 15.5
Elevation: 597.3 Requested Northing: Depth Hole Open:
Requested Station: - Requested Easting: Time Change:
Requested Offset: - Equipment: CME 55LC, Shelby Tube, Split-Spoon Sampler, NQ2
Requested Elevation: Location Note: West Abutment
Drill No.: S/N 390755 Hammer Efficiency: 84% Drilling Method: Hollow Stem Auger and Mud Rotary

Table with 8 columns: Depth (ft), Graphic, Description, Elevation (ft), Sample Type, REC % (RQD %), Blow Counts (N60), Shear Data, Field Tests, Index Tests. Includes description: 30.5-40.5' Strong to very strong, gray, finely crystalline, thin to thick bedded, slightly weathered to unweathered, pitted to dense LIMESTONE.

N60 = (Em/60)Nm Ncs - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value; (1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor:
Coordinate Datum: NAD 83 (CONUS) 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.



THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 2/23/2026

ROUTE STATE A MO DISTRICT SHEET NO. BR 31

COUNTY WASHINGTON

JOB NO. JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9723

Table with 2 columns: DATE, DESCRIPTION.



16305 SWINGLEY RIDGE RD ST. 300 CHESTERFIELD, MO 63017 314.231.0100 GBAteam.com

GEORGE BUTLER ASSOCIATES, INC. PRO. ENGINEER 000133 ARCHITECT 000212 PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY PROFESSIONAL ENGINEER PE-2018037127

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 Jan 2026 Checked Jan 2026

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Missouri Department of Transportation  
Construction and Materials

BORING NO. B-2  
Page 1 of 2

Job No.: JCD0228 County: Washington Route: A  
 Design: A0331 Skew: - Location: Washington County  
 Bent: - Logged By: EER (UES) Operator: SC (UES)  
 Station: - Northing: 860367.263 Date of Work: 06/11/25-06/11/25  
 Offset: - Easting: 681881.503 Depth to Water: 16.5  
 Elevation: 597.3 Requested Northing: Depth Hole Open:  
 Requested Station: - Requested Easting: Time Change:  
 Requested Offset: - Equipment: CME 55LC Split-Spoon Sampler, NQ2  
 Requested Elevation: Location Note:  
 Drill No.: S/N 390755 Hammer Efficiency: 84% Drilling Method: Hollow Stem Auger and Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (ROD %)	Blow Counts (N <sub>60</sub> )	Shear Data	Field Tests	Index Tests
0		0.0-0.2' ASPHALT - 2 inches 0.2-0.7' CONCRETE - 8 inches 0.7-16.5' Air	595						
5			590						
10			585						
15		16.5-18.2' Water	580						
20		18.2-29.5' Loose, brown, WELL-GRADED SAND and gravel, trace clay - SW	575						
25			570		17	1-2-2 (6)			
					13	4-4-50/0.3'			

N<sub>60</sub> = (Em/60)N<sub>m</sub> N<sub>cs</sub> - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; N<sub>m</sub> - Observed N-value; (1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor:

Coordinate Datum: NAD 83 (CONUS) 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.

(Continued Next Page)

Missouri Department of Transportation  
Construction and Materials

BORING NO. B-2  
Page 2 of 2

Job No.: JCD0228 County: Washington Route: A  
 Design: A0331 Skew: - Location: Washington County  
 Bent: - Logged By: EER (UES) Operator: SC (UES)  
 Station: - Northing: 860367.263 Date of Work: 06/11/25-06/11/25  
 Offset: - Easting: 681881.503 Depth to Water: 13.5  
 Elevation: 597.3 Requested Northing: Depth Hole Open:  
 Requested Station: - Requested Easting: Time Change:  
 Requested Offset: - Equipment: CME 55LC Split-Spoon Sampler, NQ2  
 Requested Elevation: Location Note:  
 Drill No.: S/N 390755 Hammer Efficiency: 84% Drilling Method: Hollow Stem Auger and Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (ROD %)	Blow Counts (N <sub>60</sub> )	Shear Data	Field Tests	Index Tests
30		29.5-30.0' Weathered LIMESTONE gravel 30.0-55.1' Strong to very strong, gray, finely crystalline, thin to thick bedded, slightly weathered to unweathered, vuggy to dense LIMESTONE, some chert partings and nodules	565		100 (0)		Qu Test Results UCS = 1470 ksf γ <sub>moist</sub> = 164.8 pcf		
35			560		100 (100)		Qu Test Results UCS = 1040 ksf γ <sub>moist</sub> = 170.3 pcf		
40			555		100 (92)		Qu Test Results UCS = 2180 ksf γ <sub>moist</sub> = 173.1 pcf		
45			550		100 (75)		Qu Test Results UCS = 1660 ksf γ <sub>moist</sub> = 171.8 pcf		
50		47.3' SHALE seam - 1 inch	545		100 (82)		Qu Test Results UCS = 2860 ksf γ <sub>moist</sub> = 171.6 pcf		
55		Refusal at 29.5 feet. Bottom of borehole at 55.1 feet.			100 (100)				

N<sub>60</sub> = (Em/60)N<sub>m</sub> N<sub>cs</sub> - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; N<sub>m</sub> - Observed N-value; (1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor:

Coordinate Datum: NAD 83 (CONUS) 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.



THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED  
2/23/2026

ROUTE STATE  
A MO

DISTRICT SHEET NO.  
BR 32

COUNTY  
WASHINGTON

JOB NO.  
JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A9723

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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

MODOT

GBA

16305 SWINGLEY RIDGE RD ST. 300 CHESTERFIELD, MO 63017 314.231.0100 GBAteam.com

GEORGE BUTLER ASSOCIATES, INC. PRO. ENGINEER 000133 ARCHITECT 000212 PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY PROFESSIONAL ENGINEER PE-2018037127

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 Jan 2026  
Checked Jan 2026

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



Missouri Department of Transportation  
Construction and Materials

BORING NO. B-4  
Page 1 of 2

Job No.: JCD0228 County: Washington Route: A  
 Design: A0331 Skew: - Location: Washington County  
 Bent: - Logged By: EER (UES) Operator: SC (UES)  
 Station: - Northing: 860275.374 Date of Work: 06/12/25-06/12/25  
 Offset: - Easting: 682044.837 Depth to Water: 15.5  
 Elevation: 597.3 Requested Northing: Depth Hole Open:  
 Requested Station: - Requested Easting: Time Change:  
 Requested Offset: - Equipment: CME 55LC, Shelby Tube, Split-Spoon Sampler, NQ2  
 Requested Elevation: Location Note: East Abutment  
 Drill No.: S/N 390755 Hammer Efficiency: 84% Drilling Method: Hollow Stem Auger and Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N <sub>60</sub> )	Shear Data	Field Tests	Index Tests
0		0.0-0.7' ASPHALT - 8 inches							
		0.7-12.5' FILL: brown lean clay, trace sand, little gravel	595						
5				X	11	3-4-3 (10)			MC = 8.3%
			590		67		Qu Test Results MC = 15.5% γ <sub>moist</sub> = 127.8 pcf	PP = 1.00 tsf	LL = 36 PL = 17 MC = 15.5%
10				X	6	4-6-5 (15)			MC = 15.6%
			585		92			PP = 1.00 tsf	MC = 18.5%
15		12.5-26.4' Medium dense to loose, brown, WELL-GRADED SAND and gravel, trace clay - (SW)		X	22	4-8-8 (22)			Sieve Analysis Sieve # % Passing 1 1/2" 100.0 1" 88.8 3/4" 88.8 1/2" 79.5 3/8" 72.0 #4 54.6 #10 39.9 #20 27.9 #40 18.4 #60 11.9 #100 9.1 #140 8.0 #200 7.2
20				X	22	3-6-5 (15)			
			580						
25				X	22	3-5-4 (13)			Sieve Analysis Sieve # % Passing 1" 100.0 3/4" 95.1 1/2" 95.1 3/8" 89.5
			575						

N<sub>60</sub> = (Em/60)Nm N<sub>cs</sub> - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value; (1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor:

Coordinate Datum: NAD 83 (CONUS) 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.

(Continued Next Page)

Missouri Department of Transportation  
Construction and Materials

BORING NO. B-4  
Page 2 of 2

Job No.: JCD0228 County: Washington Route: A  
 Design: A0331 Skew: - Location: Washington County  
 Bent: - Logged By: EER (UES) Operator: SC (UES)  
 Station: - Northing: 860275.374 Date of Work: 06/12/25-06/12/25  
 Offset: - Easting: 682044.837 Depth to Water: 15.5  
 Elevation: 597.3 Requested Northing: Depth Hole Open:  
 Requested Station: - Requested Easting: Time Change:  
 Requested Offset: - Equipment: CME 55LC, Shelby Tube, Split-Spoon Sampler, NQ2  
 Requested Elevation: Location Note: East Abutment  
 Drill No.: S/N 390755 Hammer Efficiency: 84% Drilling Method: Hollow Stem Auger and Mud Rotary

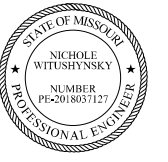
Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N <sub>60</sub> )	Shear Data	Field Tests	Index Tests
		26.4-30.4' Strong to very strong, gray, finely crystalline, thin to thick bedded, slightly weathered to unweathered, pitted to dense LIMESTONE, some chert partings and nodules	570		100 (54)				#4 64.3 #10 34.1 #20 14.6 #40 8.1 #60 5.5 #100 4.4 #140 4.0 #200 3.7
30		30.4-31.1' SHALE and limestone layer - 8 inches							
		31.1-40.8' LIMESTONE continued.	565		100 (88)		Qu Test Results UCS = 1220 ksf γ <sub>moist</sub> = 171 pcf		
35									
			560		100 (80)		Qu Test Results UCS = 2080 ksf γ <sub>moist</sub> = 168.7 pcf		
40		Refusal at 26.4 feet. Bottom of borehole at 40.8 feet.							

N<sub>60</sub> = (Em/60)Nm N<sub>cs</sub> - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value; (1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor:

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\* 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.



THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED  
2/23/2026

ROUTE STATE  
A MO

DISTRICT SHEET NO.  
BR 34

COUNTY  
WASHINGTON

JOB NO.  
JCD0228

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A9723

DESCRIPTION

DATE

DESCRIPTION

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BORING DATA

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

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

Sheet No. 34 of 34

Detailed Jan 2026  
Checked Jan 2026

NICHOLE WITUSHYNSKY  
PROFESSIONAL  
ENGINEER  
PE-2018037127

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