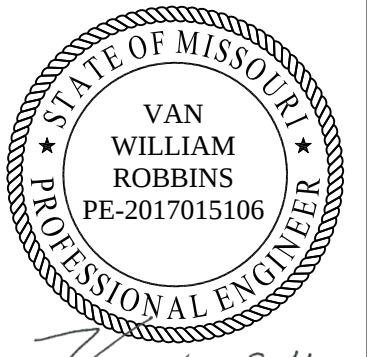


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Note:
See Civil Package 2: Early Grading for project reference points and project coordinate points.



Van W. Polli
06-03-25

DATE PREPARED
06/02/2025

ROUTE	STATE
I - 70	MO

DISTRICT BR	SHEET NO. B05-01
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COUNTY
JACKSON

JOB NO.
J4I1486D

CONTRACT ID.
240807-C01

PROJECT NO. _____

BRIDGE NO.
A9622

DATE	DESCRIPTION
06/02/25	REV 0 - RFC SUBMITTAL



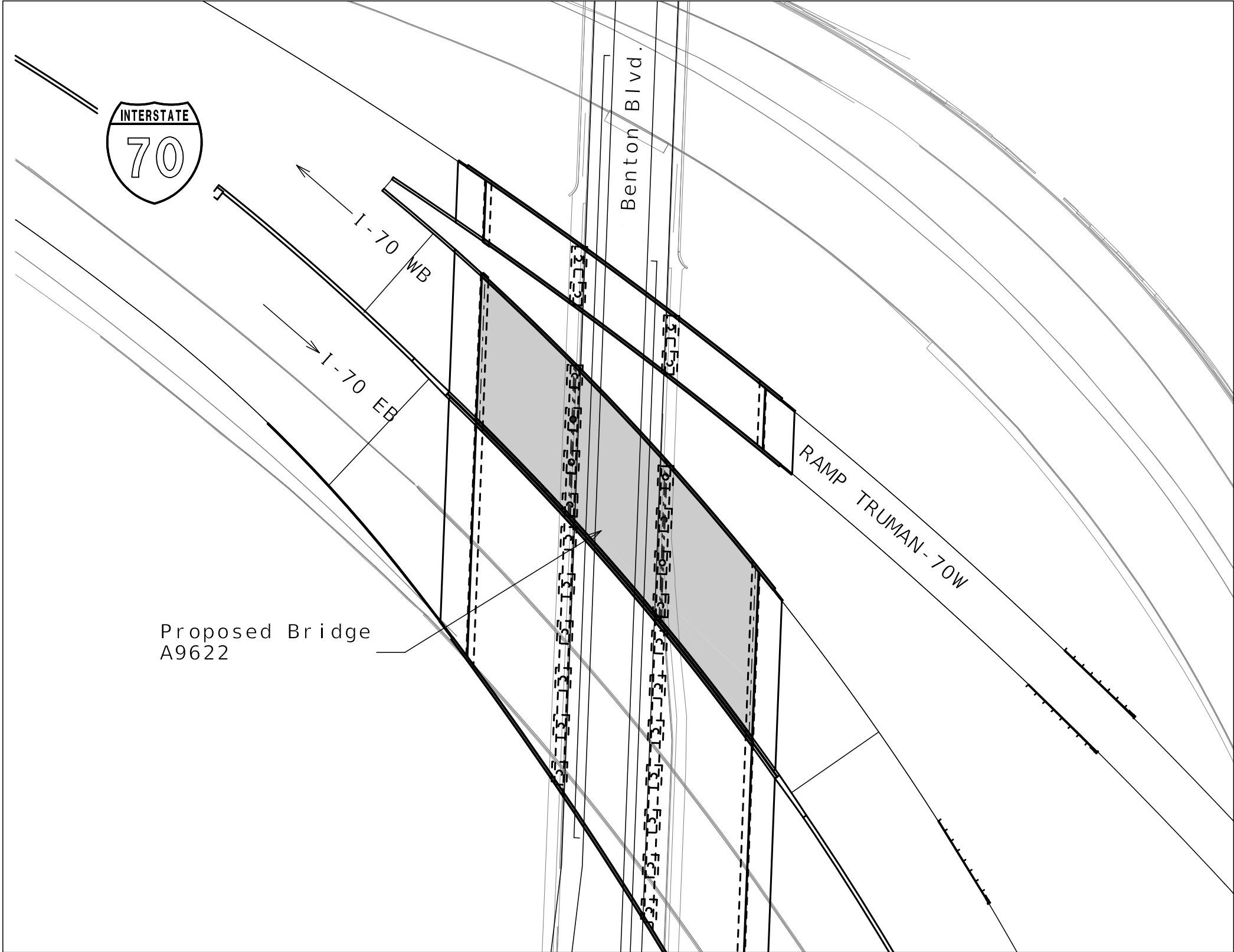
MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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



**CLARKSON
RADMACHER**
JOINT VENTURE

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



LOCATION SKETCH

Released For Construction
Not to Scale
Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

BRIDGE: ROUTE I-70 WB OVER BENTON BLVD.

ROUTE 1-70 WB FROM ROUTE 40 TO ROUTE 1-670
ABOUT 3.0 MILES WEST OF ROUTE 40
BEGINNING STATION 431+77.70

General Note:
For additional bridge details not shown, see A9622 (I-70 WB Over Benton)
Superstructure Package.

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

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

Design Unit Stresses:
Class B Concrete (End Bents below Const. Jt.) $f'c = 3,000 \text{ psi}$
Class B-1 Concrete (Intermediate Bents) $f'c = 4,000 \text{ psi}$
Class B-2 Concrete (End Bents above construction joint) $f'c = 4,000 \text{ psi}$
Reinforcing Steel (ASTM A615 Grade 60) $f_y = 60,000 \text{ psi}$
Structural HP Steel Pile (ASTM A709 Grade 50) $f_y = 50,000 \text{ psi}$

Neoprene Pads:
Neoprene Bearing Pads shall be 60 durometer and shall be in accordance with
Sec 716.

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

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

All reinforcing in End Bents No. 1 and 4 and Intermediate Bents No. 2 & 3
shall be epoxy coated. Reinforcing in the Intermediate Bents No. 2 & 3 pile cap
footings shall be uncoated.

Minimum clearance between galvanized piles and uncoated (plain) reinforcing
steel including bar supports shall be 1½". Nylon, PVC, or polyethylene spacers
shall be used to maintain clearance. Nylon cable ties shall be used to bind
the spacers to the reinforcement.

Concrete Protective Coatings:
Concrete and masonry protective coating shall be applied to concrete column
and end bent wingwall exposed areas in accordance with Sec 711.

Sacrificial graffiti protective coating shall be applied to concrete column and
end bent wingwall exposed areas in accordance with Sec 711.

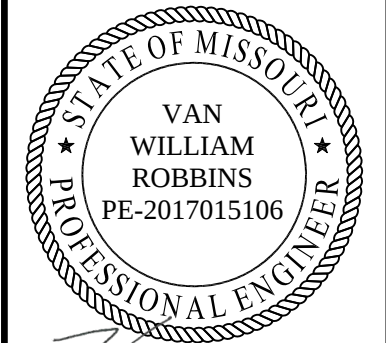
Miscellaneous:
Outline of old work is indicated by light dashed lines. Heavy lines indicate
new work U.N.O.

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

Foundation Data					
Type	Design Data	Bent Number			
		1	2	3	4
Load Bearing Pile	Pile Type and Size	HP 12x53	HP 12x74	HP 12x74	HP 12x53
	Number ea	9	24	24	10
	Approximate Length Per Each (1) ft	108	85	84	102
	Pile Point Reinforcement ea	All	All	All	All
	Min. Galvanized Penetration (Elev.) ft	833	820	818	830
	Minimum Tip Penetration (Elev.) ft	---	---	---	---
	Criteria for Min. Tip Penetration	---	---	---	---
	Pile Driving Verification Method	DF	DF	DF	DF
	Resistance Factor	0.40	0.40	0.40	0.40
	Minimum Nominal Axial Compressive Resistance kip	530	585	585	533

(1) Pile length is maximum estimated for bent and includes
embedment into concrete. Adjust as needed for bottom of
concrete variations at each bent.

Load Bearing Piles:
Minimum Nominal Axial Compressive Resistance =
Maximum Factored Loads/Resistance Factor
HP piles are anticipated to be driven to refusal
on rock. Review all borings for depth of rock and
restrict driving as appropriate to comply with hard
rock driving criteria in accordance with Sec 702.
When pile refusal on rock occurs, as approved by the
engineer, the minimum nominal axial compressive
resistance is verified and no additional pile driving
verification method is required.
All piles shall be galvanized down to the minimum
galvanized penetration (elevation).
Pile point reinforcement need not be galvanized.
Shop drawings will not be required for pile point
reinforcement.
The contractor shall make every effort to achieve
the minimum galvanized penetration (elevation) shown
on the plans for all piles. Deviations in penetration
less than 5 feet of minimum will be considered
acceptable provided the contractor makes the necessary
corrections to ensure the minimum penetration is
achieved on subsequent piles.
DF=FHWA-modified Gates Dynamic Pile Formula



06-03-25

DATE PREPARED
06/02/2025

ROUTE STATE
1 - 70 MO
DISTRICT SHEET NO.
BR B05-03

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A9622

DATE	DESCRIPTION	REV	0	-	RFC	SUBMITTAL
06/02/25						

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

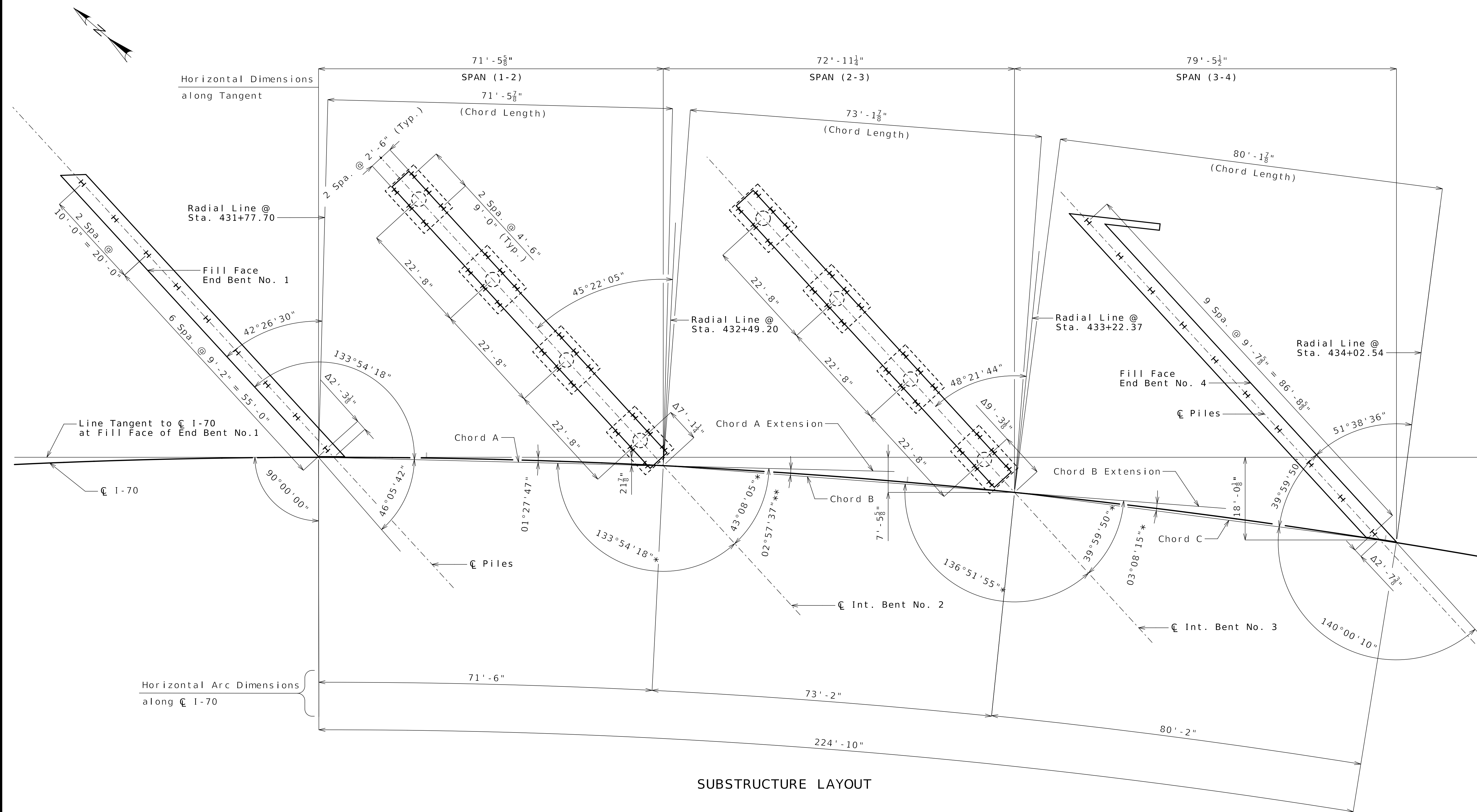
MoDOT

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

CLARKSON
RADMACHER
JOINT VENTURE

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

HNTB



SUBSTRUCTURE LAYOUT

SUBSTRUCTURE LAYOUT

Detailed FEB 2025
Checked MAR 2025

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

Sheet No. B05-04 of B05-29

Released For Construction
Not to Scale
Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

Notes:
All stations are given along C I-70.
All dimensions are horizontal.
* Angle between C Bent and chord.
** Angle between extended chord and chord.
Δ Measured to C I-70.



Gina D. Horner

06/03/25

DATE PREPARED

06/02/2025

ROUTE STATE

I-70 MO

DISTRICT SHEET NO.

BR B05-04

COUNTY

JACKSON

JOB NO.

J411486D

CONTRACT ID.

240807-C01

PROJECT NO.

BRIDGE NO.

A9622

DESCRIPTION

REV 0 - RFC SUBMITTAL

DATE

06/02/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

CERTIFICATE OF AUTHORITY

NO. 001270

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715 KIRK DRIVE

KANSAS CITY, MO 64105-1310

CERTIFICATE OF AUTHORITY

NO. 001270

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CLARKSON RADMACHER JOINT VENTURE

715 KIRK DRIVE

KANSAS CITY, MO 64105-1310

CERTIFICATE OF AUTHORITY

NO. 001270

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CLARKSON RADMACHER JOINT VENTURE

715 KIRK DRIVE

KANSAS CITY, MO 64105-1310

CERTIFICATE OF AUTHORITY

NO. 001270

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CLARKSON RADMACHER JOINT VENTURE

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CLARKSON RADMACHER JOINT VENTURE

715 KIRK DRIVE

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CERTIFICATE OF AUTHORITY

NO. 001270

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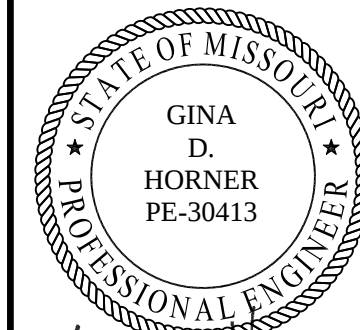
CLARKSON RADMACHER JOINT VENTURE

715 KIRK DRIVE

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06/02/2025

ROUTE STATE

I-70 MO

DISTRICT SHEET NO.

BR B05-05

COUNTY

JACKSON

JOB NO.

J411486D

CONTRACT ID.

240807-C01

PROJECT NO.

BRIDGE NO.

A9622

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	06/02/25

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	06/02/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION	105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)
CLARKSON RADMACHER JOINT VENTURE	715 KIRK DRIVE KANSAS CITY, MO 64105-1310 CERTIFICATE OF AUTHORITY NO. 001270
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Released For Construction
Not to ScaleRevision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

Notes:

Work this sheet with Sheets No. B05-06 and B05-07.

For Detail A, see Sheet No. B05-07.

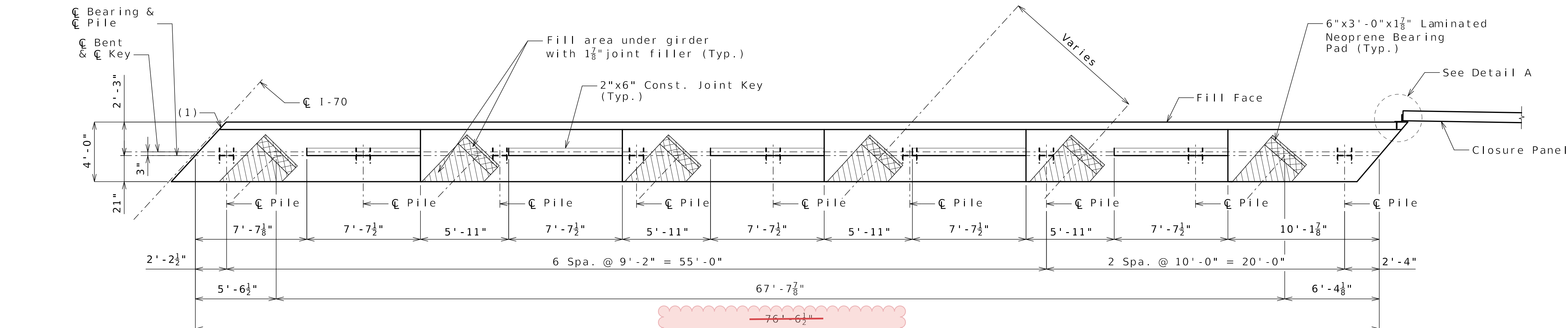
All U bars and pairs of vertical bars shall be placed along skew.

Reinforcing steel shall be shifted to clear piles. U-bars shall clear piles by at least $1\frac{1}{2}$ ".

For details of bridge approach slab, see A9622 (I-70 WB Over Benton) Superstructure Package.

For angle of girders relative to C Bent and Closure Panel details, see A9622 (I-70 WB Over Benton) Superstructure Package.

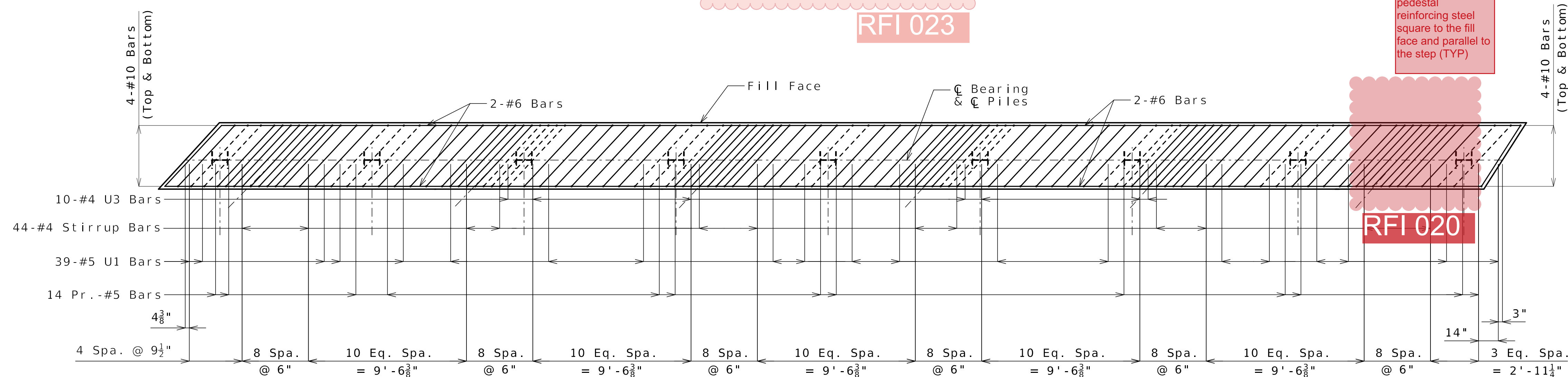
DETAILS OF END BENT NO. 1



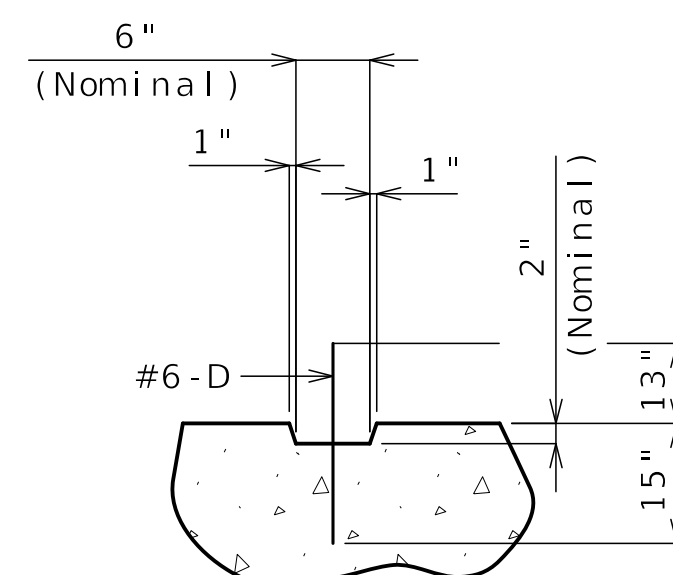
(1) Adjacent A9621 (I-70 EB Over Benton) end bent not shown. 1" joint filler required between adjacent concrete faces.

PLAN OF BEAM

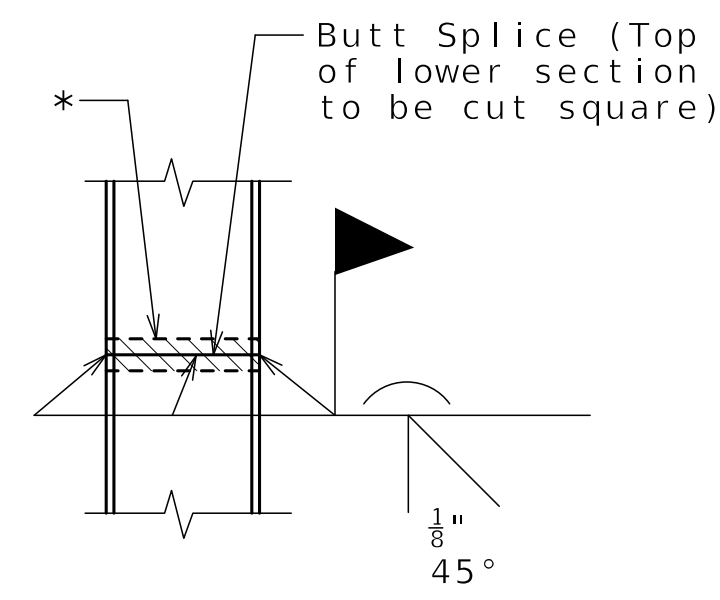
RFI 023

PLAN OF BEAM SHOWING REINFORCING
(Key and steps not shown for clarity)

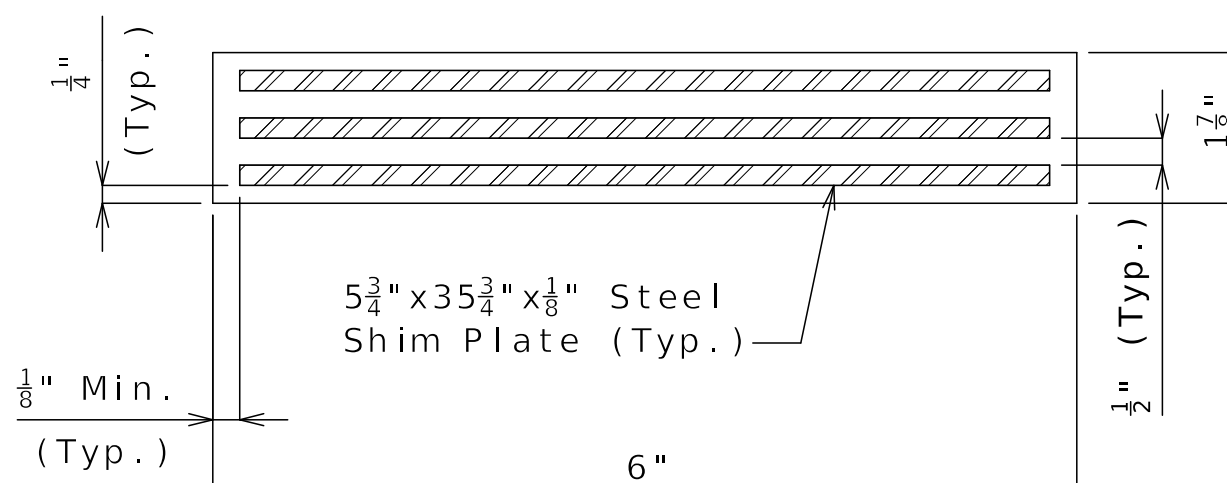
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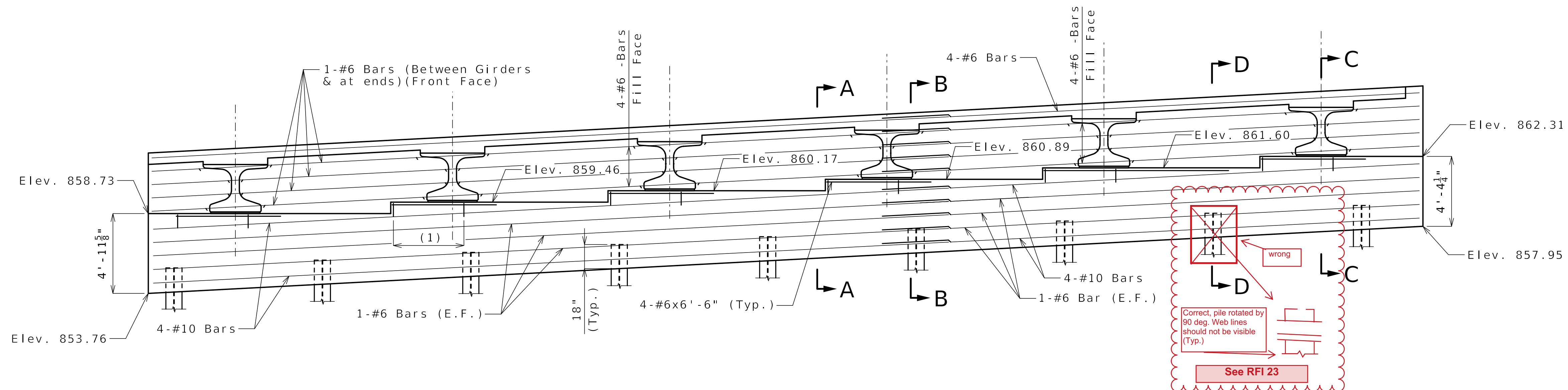


SECTION THRU KEY

STEEL PILE SPLICE
(If required)

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

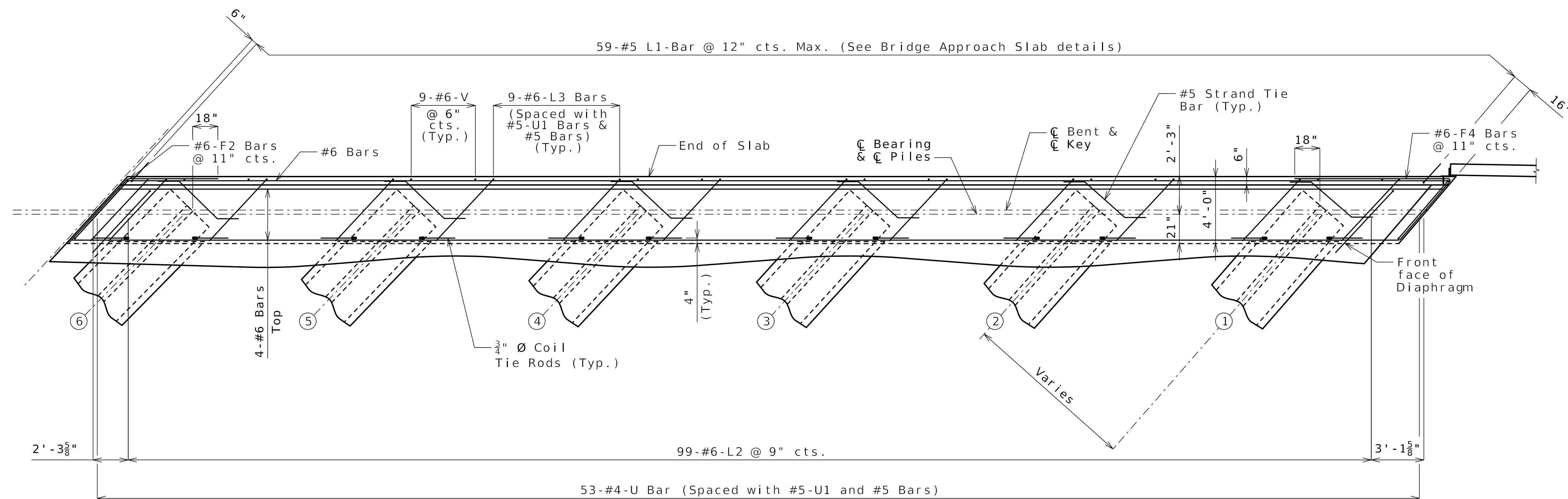
TYPICAL SECTION THRU
LAMINATED NEOPRENE BEARING PAD
6 Required per Bent



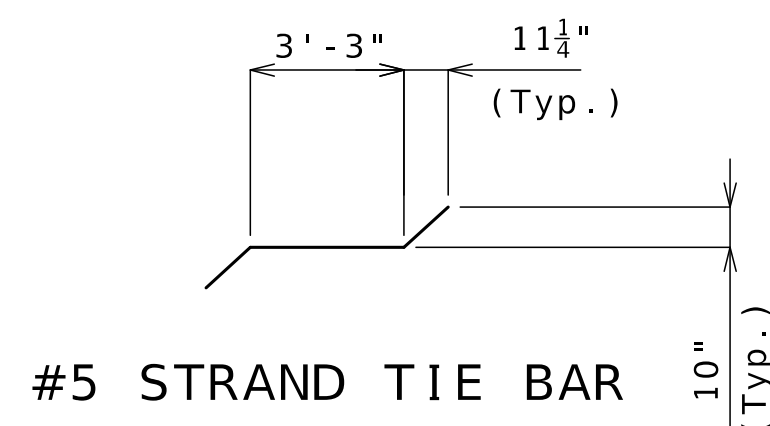
SECTION NEAR END BENT
(Looking Back Station)

(1) 9-#4-U4 Bars @ 6" Spa. under girders (Typ.)

Notes:
Lap Splice for #6 bars = 4'-3" (Min.)
Lap Splice for #10 bars = 7'-2" (Min.)



PART PLAN



General Note:
Work this sheet with Sheets No. B05-05 and B05-06.
For Sections A-A, B-B, C-C, and D-D Sheet No. B05-07.
For location of coil tie rods, see A9622 (I-70 WB Over Benton) Superstructure Package.

(X) Denotes girder number

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

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

DETAILS OF END BENT NO. 1

Released For Construction
Not to Scale

Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

Detailed FEB 2025
Checked MAR 2025

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

Sheet No. B05-06 of B05-29

B_A9622_B05-06_J411486D.dgn 6:31:51 AM 6/3/2025



Gina D. Horner
06/03/25

DATE PREPARED
06/02/2025

ROUTE 1-70 STATE MO

DISTRICT BR SHEET NO. B05-06

COUNTY JACKSON

JOB NO. J411486D

CONTRACT ID. 240807-C01

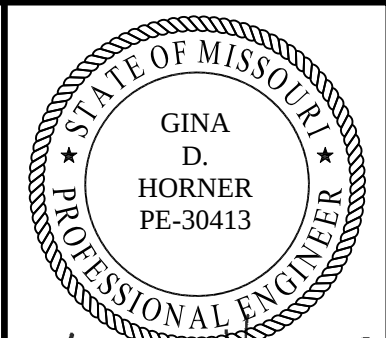
PROJECT NO.

BRIDGE NO. A9622

DATE	DESCRIPTION
06/02/25	REV 0 - RFC SUBMITTAL

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

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



Gina D. Horner

06/03/25

DATE PREPARED
06/02/2025

ROUTE
1 - 70

STATE
MO

DISTRICT
BR

SHEET NO.
B05 - 07

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807 - C01

PROJECT NO.

BRIDGE NO.
A9622

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	06/02/25

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

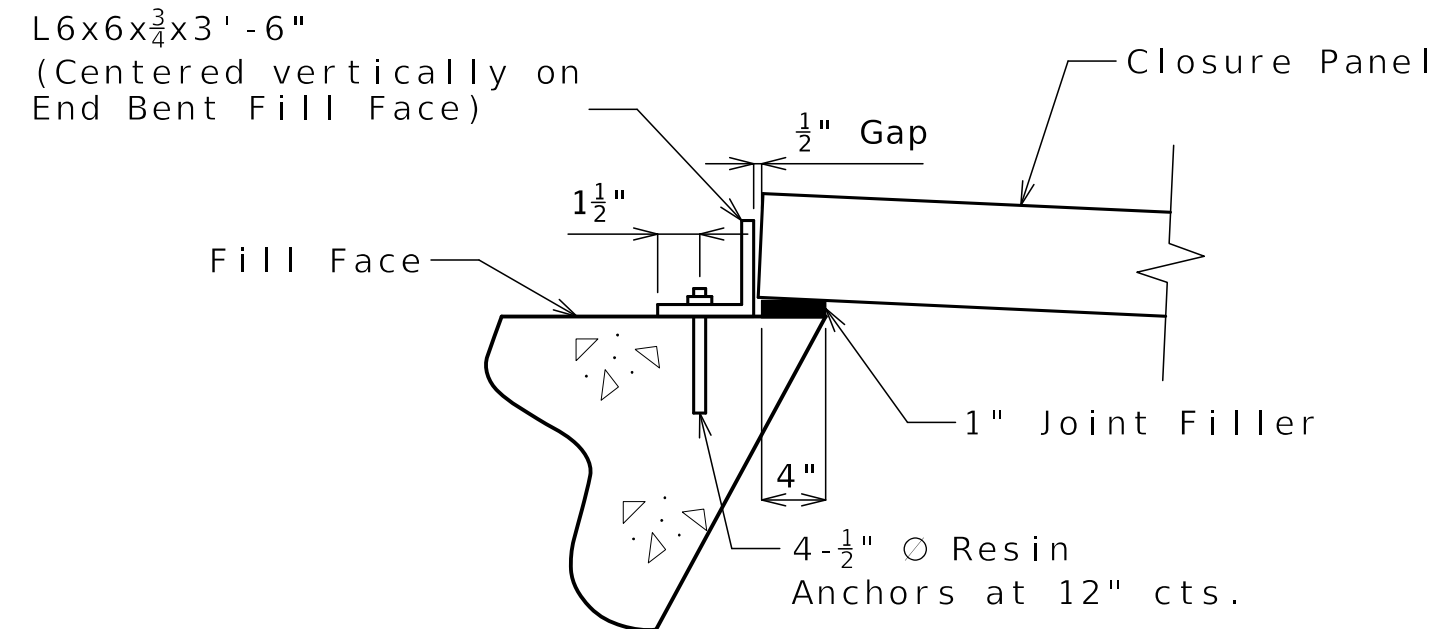
MoDOT

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

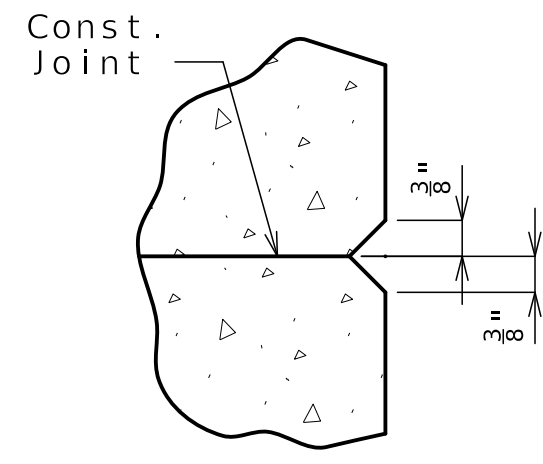
CLARKSON
RADMACHER
JOINT VENTURE

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

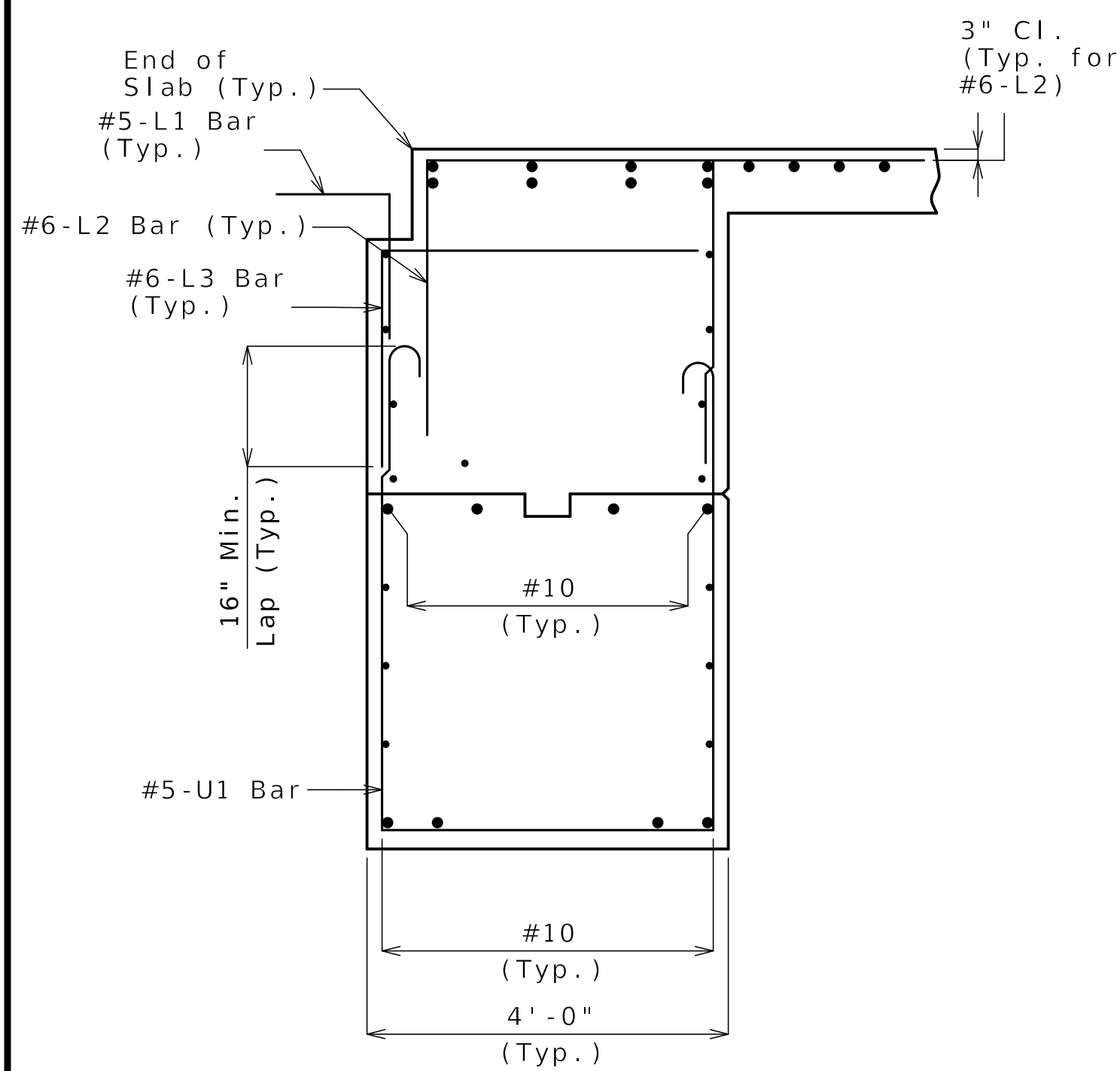
HNTB



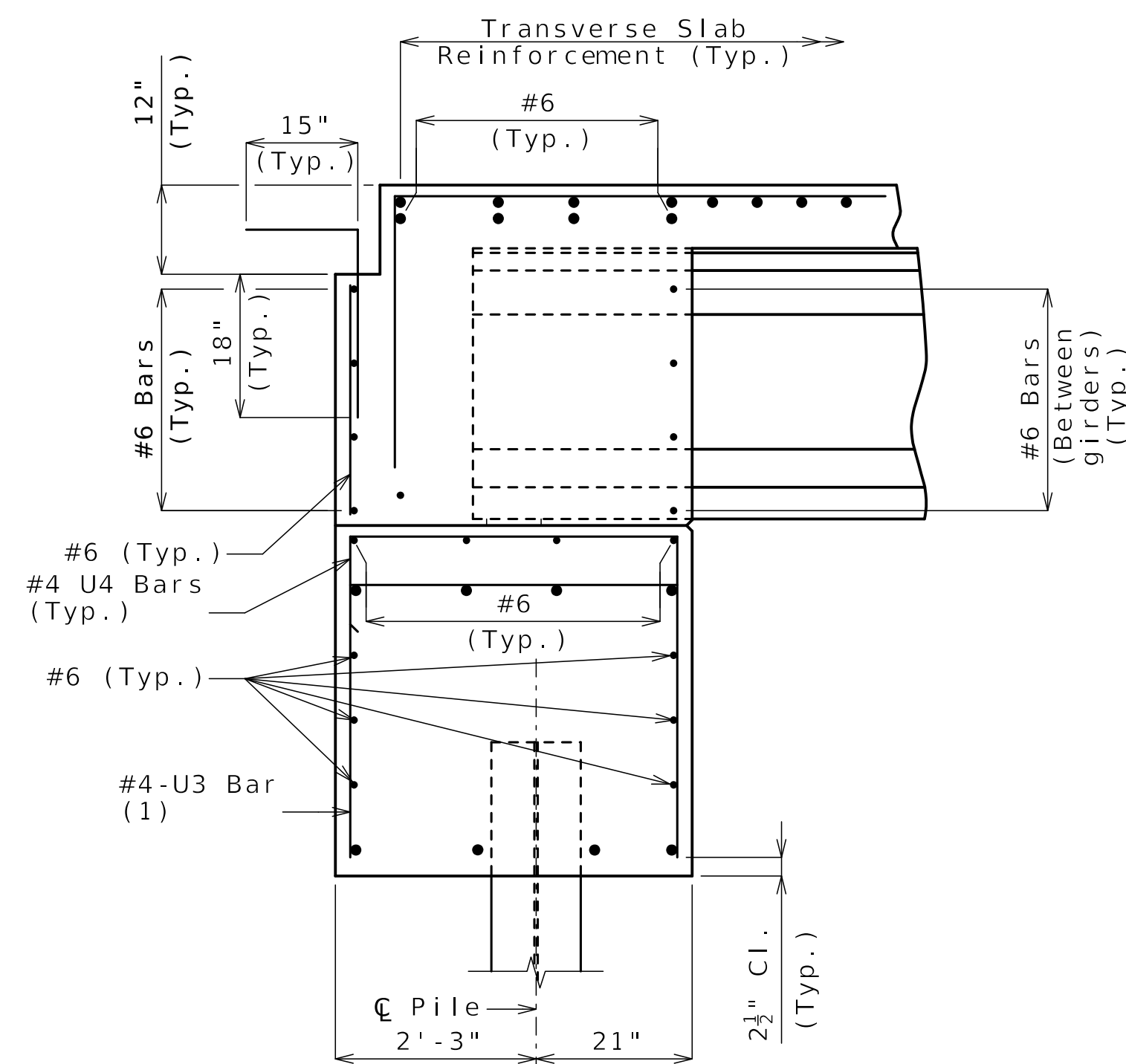
DETAIL A



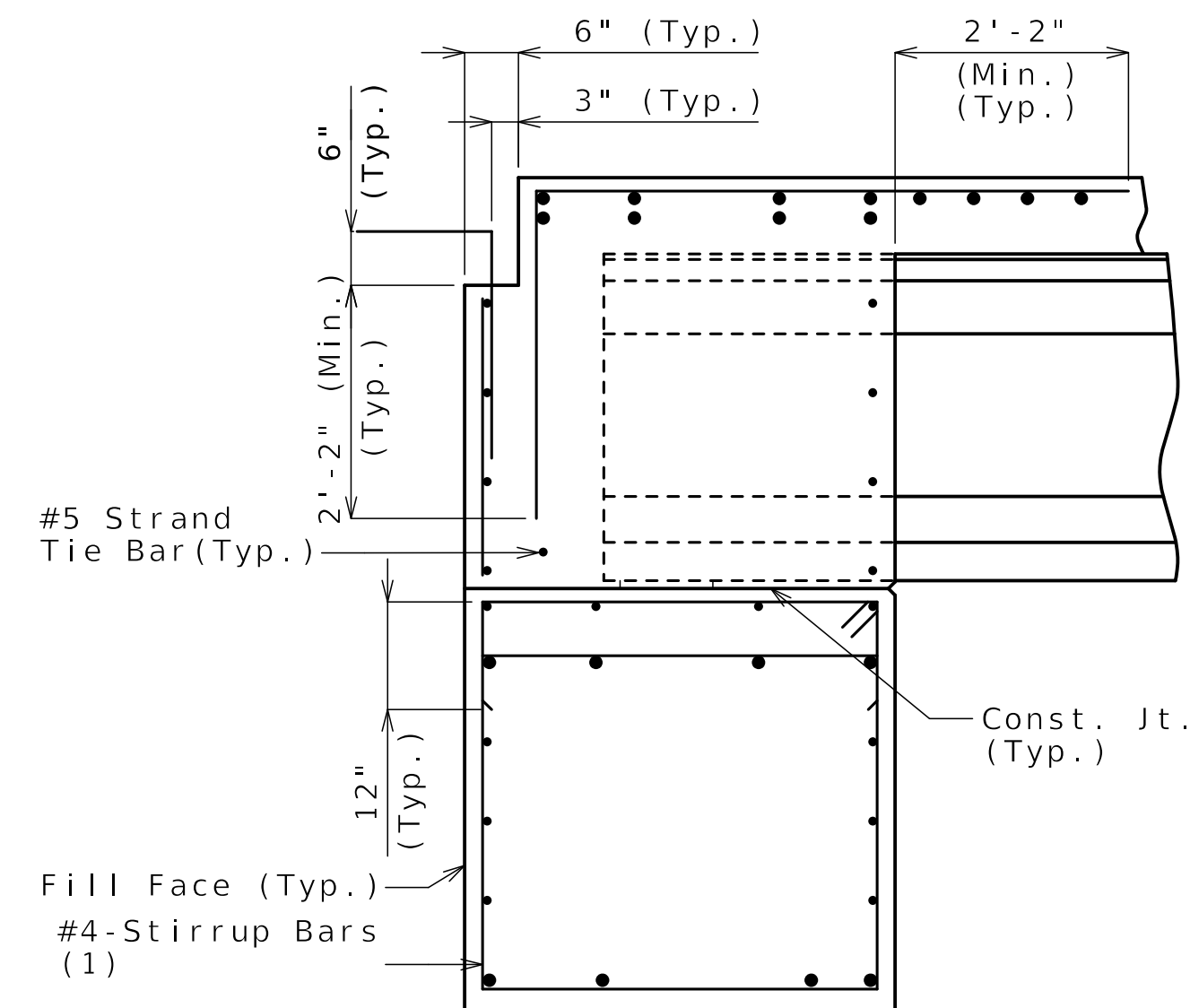
CHAMFER DETAIL



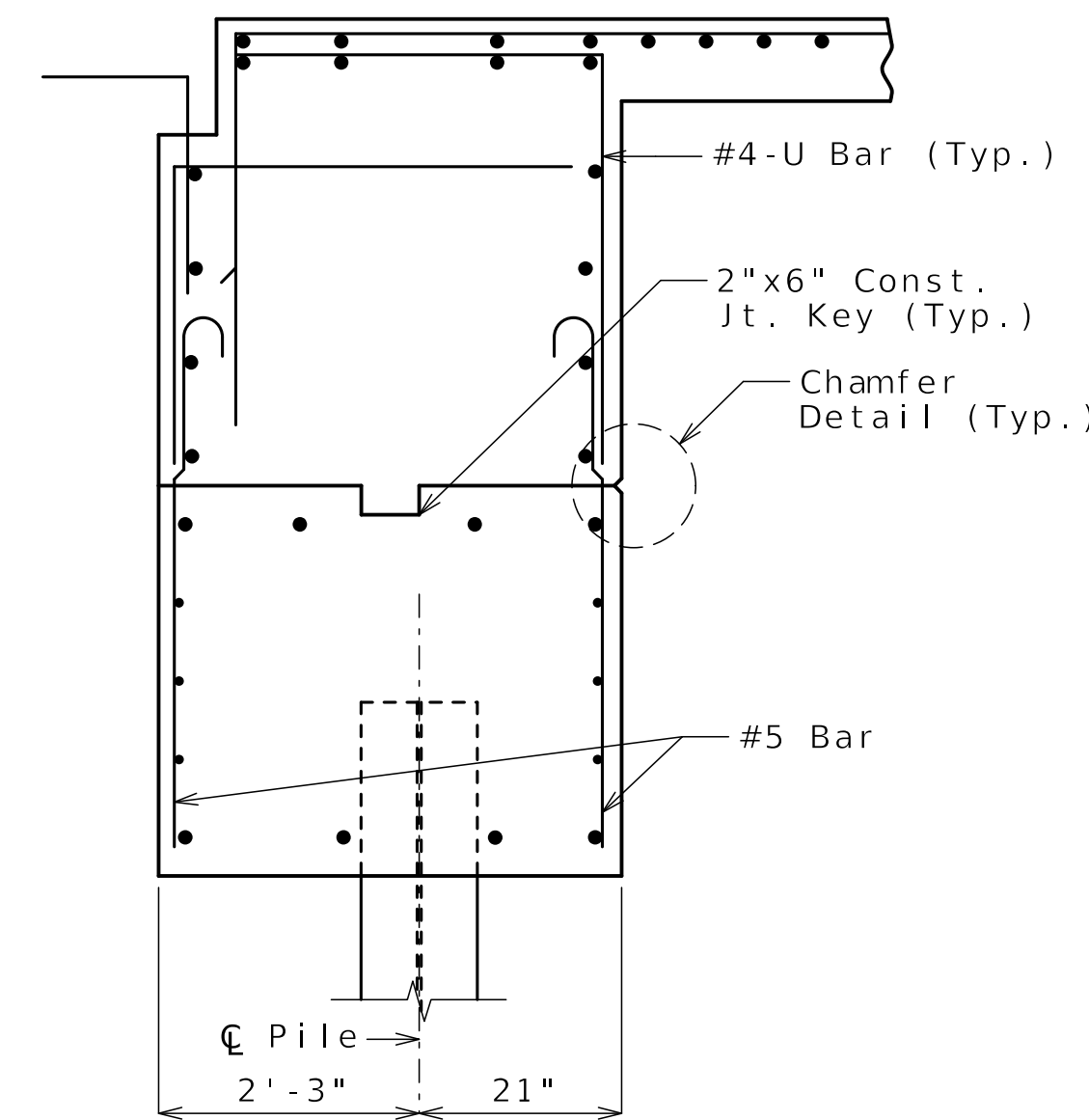
SECTION A-A



SECTION B-B



SECTION C-C



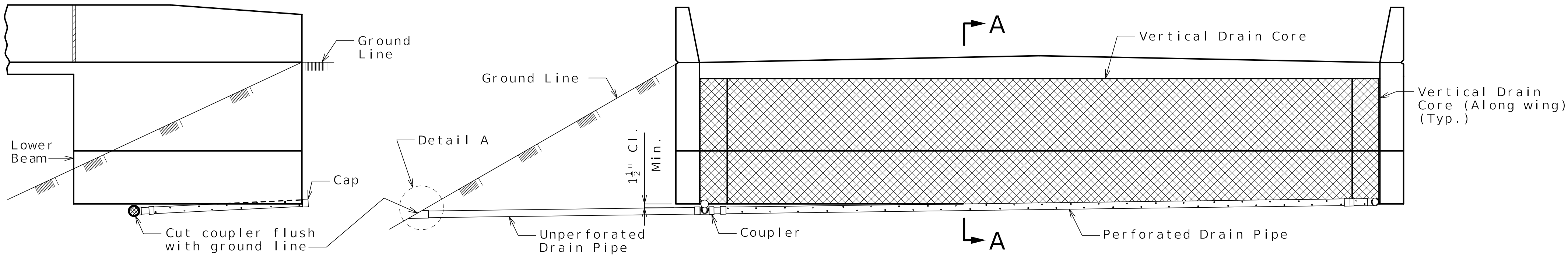
SECTION D-D

(1) U3 & #4 stirrup bar
vertical leg = 3'-11"

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Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

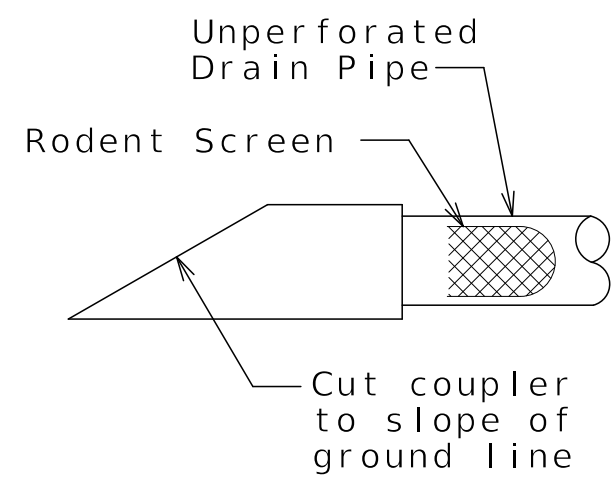
General Notes:
Work this sheet with Sheets No. B05-05 and B05-06.
For location of Detail A, see Sheet No. B05-05.
For location of Sections A-A, B-B, C-C, and D-D, see Sheet No. B05-06.
For reinforcement of the Type D Barrier, see A9622 (I-70 WB Over Benton) Superstructure Package.
Steel angle shall be ASTM A709, Grade 36 Steel angle shall be galvanized in accordance with ASTM A123 and Sec. 1081.
The contractor shall use one of the qualified resin anchor systems in accordance with Sec. 1039.
The minimum embedment depth in concrete for the resin anchor systems shall be that required to meet the minimum ultimate pullout strength in accordance with Sec. 1039 but shall not be less than 5".

DETAILS OF END BENT NO. 1

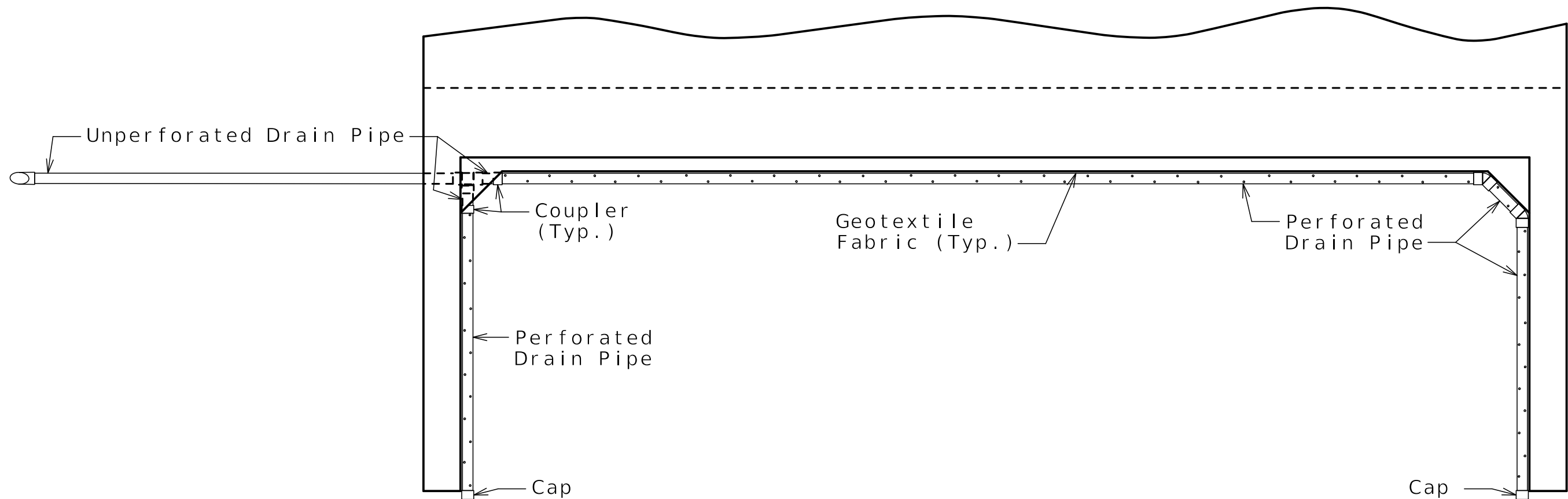


ELEVATION OF WING

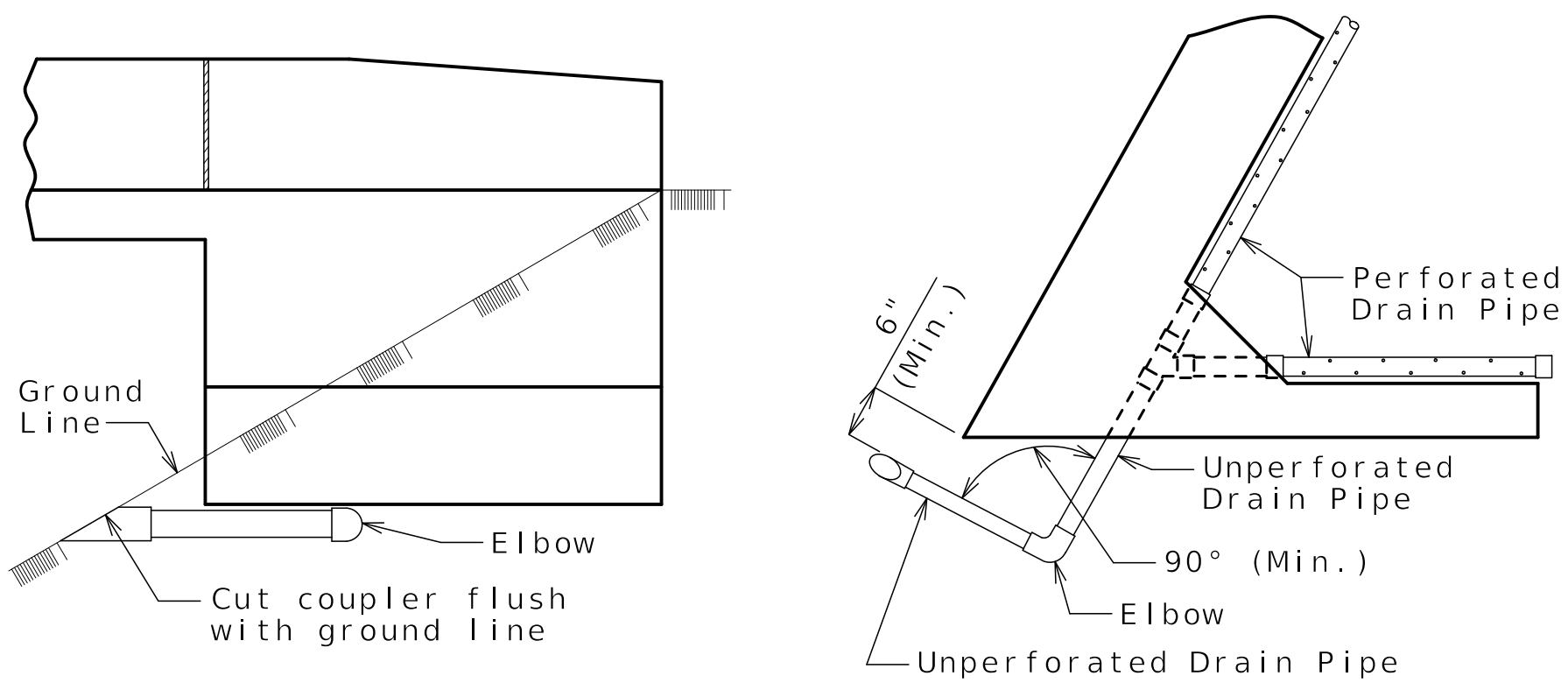
ELEVATION OF END BENT



DETAIL A



PLAN OF END BENT

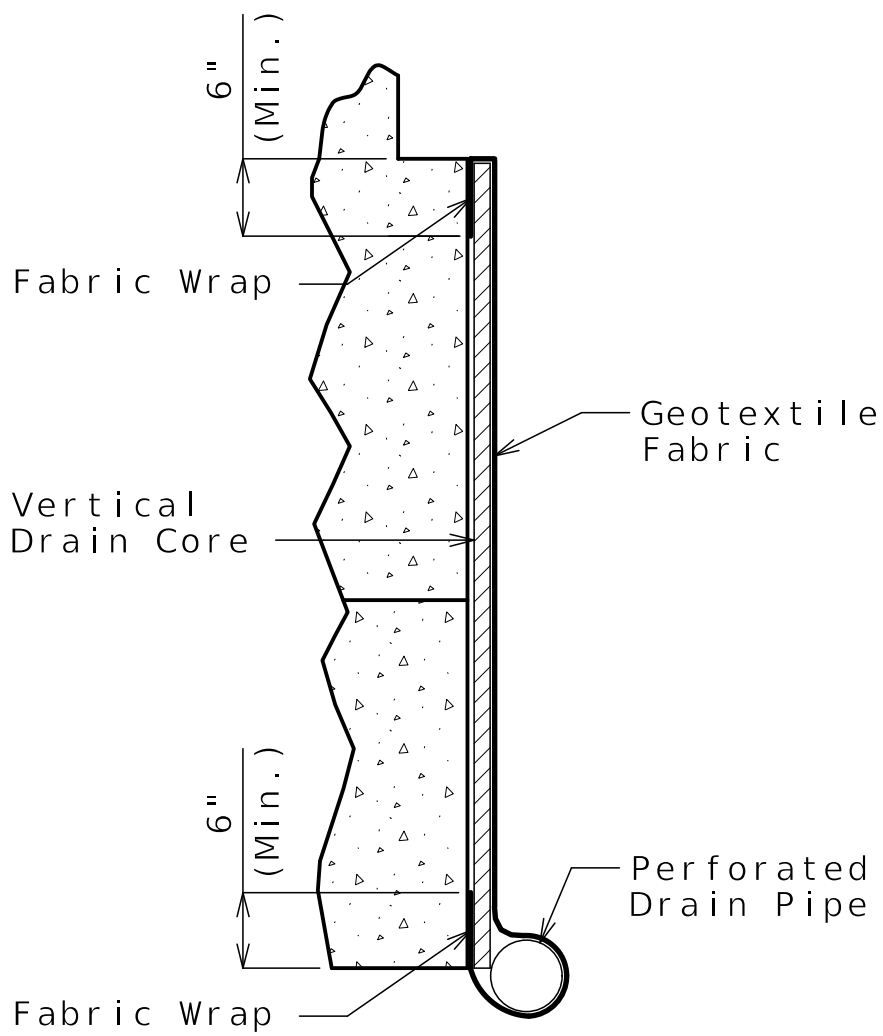


ELEVATION OF WING

PART PLAN

OPTIONAL TURNED DRAIN

(Use only when straight drain is not practical.)



PART SECTION A-A
(Section thru wing similar)

General Notes:

Details shown are illustrative and not necessarily representative of one or both end bents on this bridge. Construction phasing and bridge geometry will require utilizing a combination of the details shown to construct a vertical drain system that maintains positive flow out and away from the end bents.

Square end bent shown, skewed end bent similar.

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

VERTICAL DRAIN AT END BENTS

Released For Construction
Not to Scale
Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst



Gina D. Horner

06/03/25

DATE PREPARED
06/02/2025

ROUTE STATE
I-70 MO

DISTRICT SHEET NO.
BR B05-08

COUNTY
JACKSON

JOB NO.
J4I1486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A9622

DATE	DESCRIPTION
06/02/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

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

CLARKSON RADMACHER JOINT VENTURE

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

HNTB

DATE PREPARED
06/02/2025

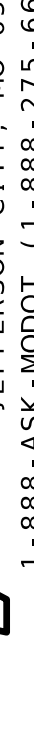
DISTRICT BR	SHEET NO. B05 - 10
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JOB NO.
J4I1486D

PROJECT NO.

BRIDGE NO.
A9622

DATE	DESCRIPTION
06/02/25	REV 0 - RFC SUBMITTAL



MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

ARKSON
ADMACHER
JOINT VENTURE

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



SECTION C-C

Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst



DETAILS OF INTERMEDIATE BENT NO. 2

DATE PREPARED
06/03/2025

DISTRICT	SHEET NO.
BP	B05 1

JACKSON
JOB NO.
141148CD

240807-C01
PROJECT NO.

A9622							

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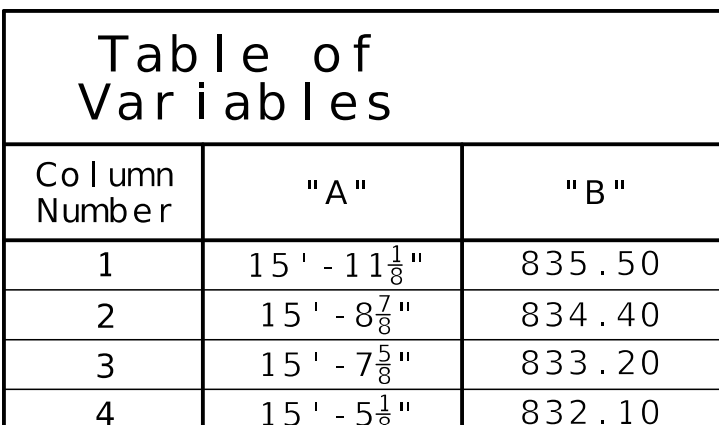
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- 1 6-#6-U2 @ 8" cts.
- 2 3-#6-U1 @ 16" cts.
- 3 8 Sets of 1-#6-U2 & 2-#6 Tie Bars @ 9" cts.
- 4 7-#6-U2 @ 12" cts.
- 5 23-#4-U4 @ 6" Spa.
- 6 15-#4-U4 @ 6" Spa.
- 7 18-#4-U4 @ 6" Spa.

12" 4' - 4" #6-U3 BAR

18" 4' - 6" #4-U4 BAR

Notes:

- * Alternate location of lap splices between adjacent bars about centerline of bent. Alternate lap splice location not shown.

Prior to placing concrete for columns, position of vertical reinforcement shall be verified so as to provide clearance for capbeam reinforcement as applicable.

Work this sheet with Sheet No. B05-12.

For location of footings, see Sheet No. B05-04.

For Sections A-A thru D-D, see Sheet No. B05-12.

For Steel Pile Splice detail, see Sheet No. B05-05.



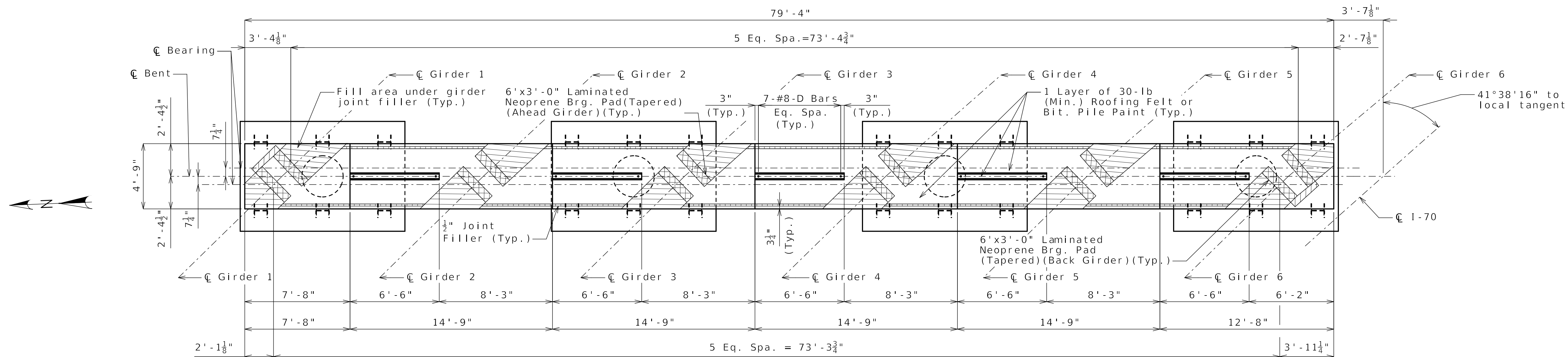
DETAIL A

FOOTING PLAN

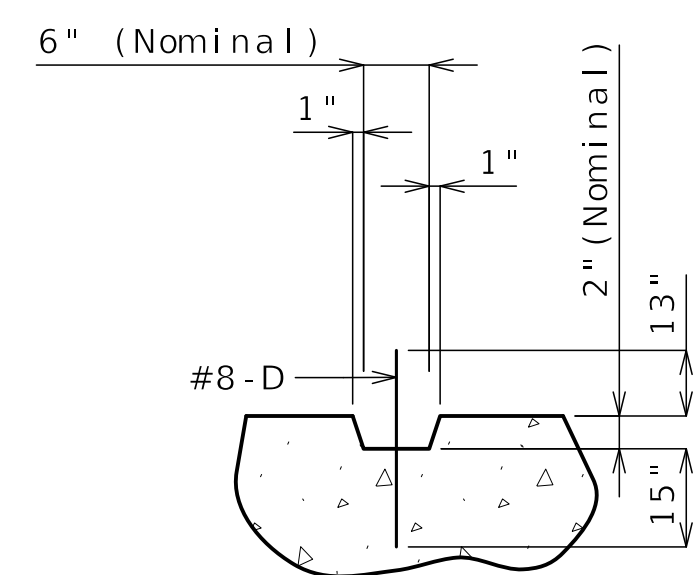
FOOTING PLAN

Sheet No. B05-11 of B05-29

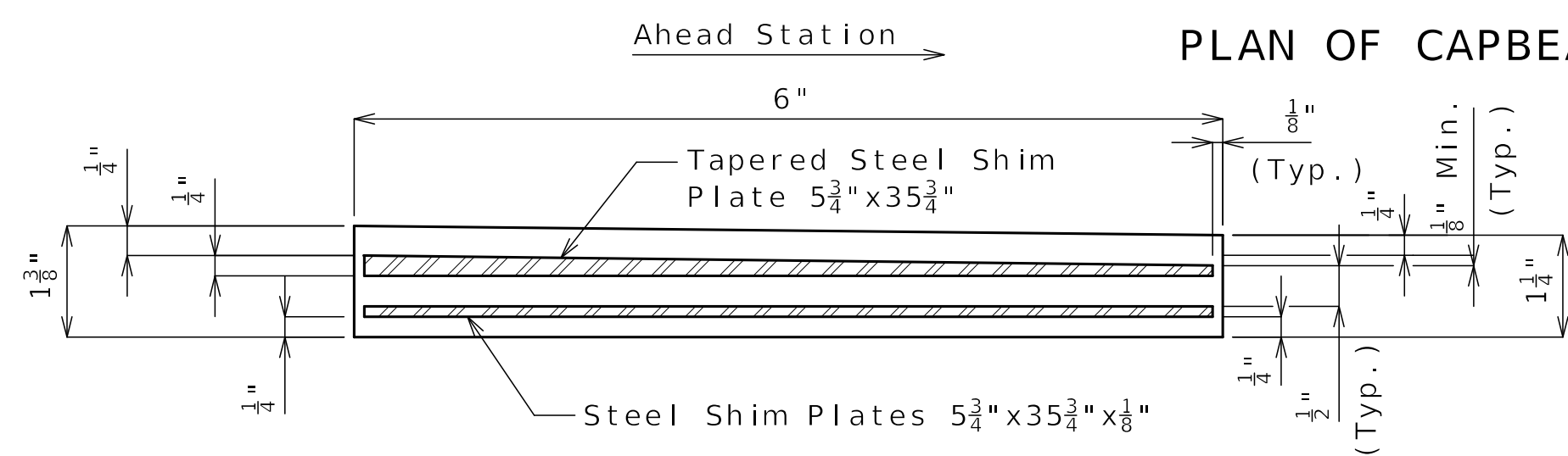
B_A9622_B05-12_J4I1486D.dgn 6:32:35 AM 6/3/2025



PLAN OF CAPBEAM

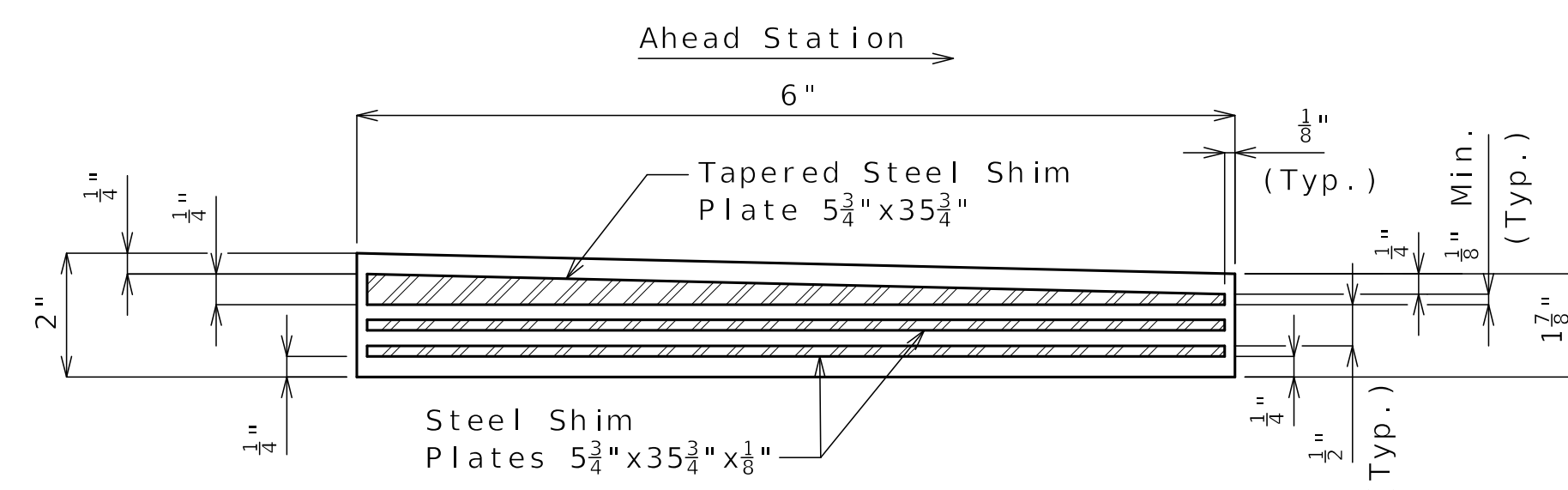


SECTION THRU KEY



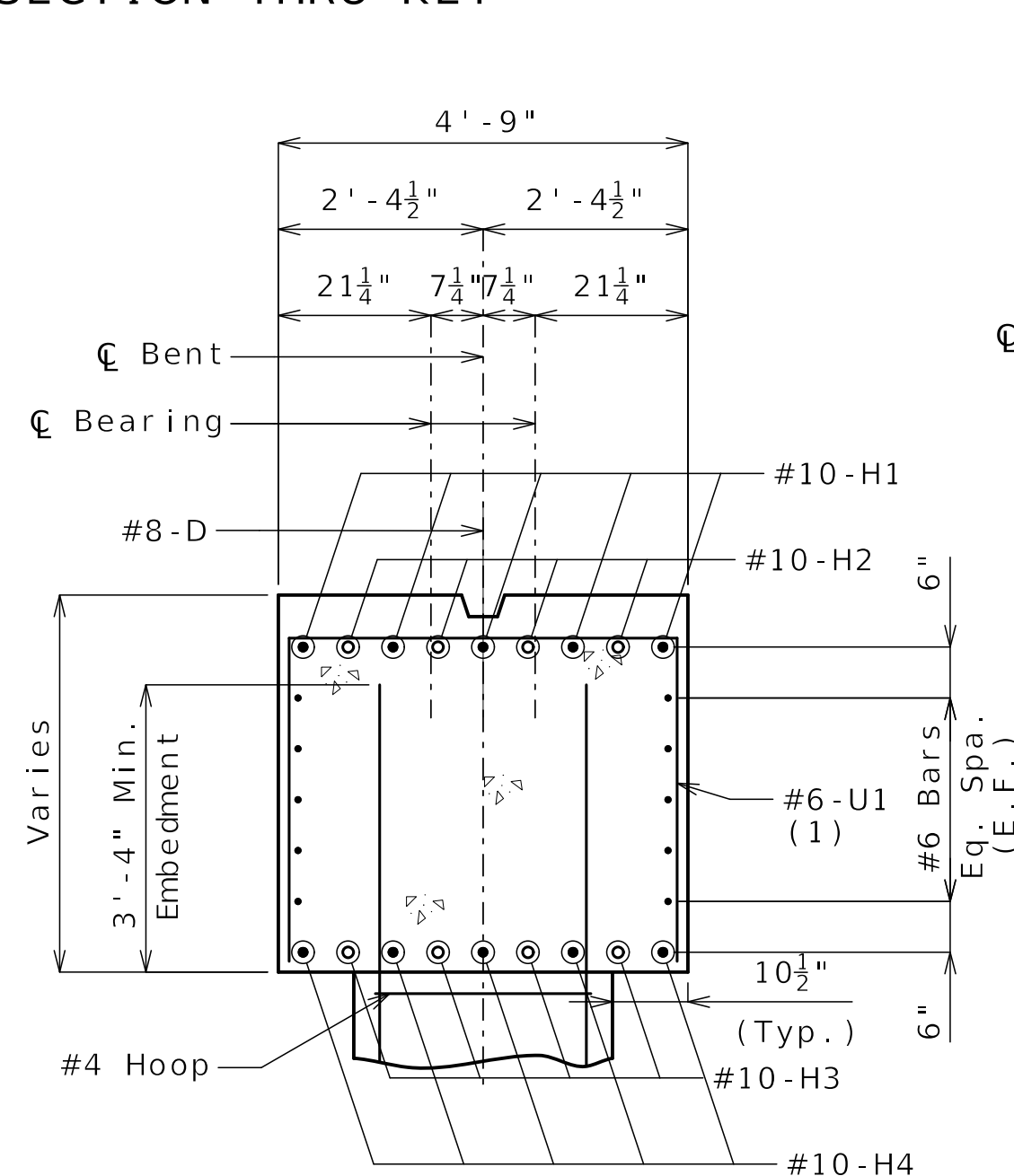
TYPICAL SECTION THRU LAMINATED NEOPRENE BEARING PAD (TAPERED)

Bent 3 Back-6 Required

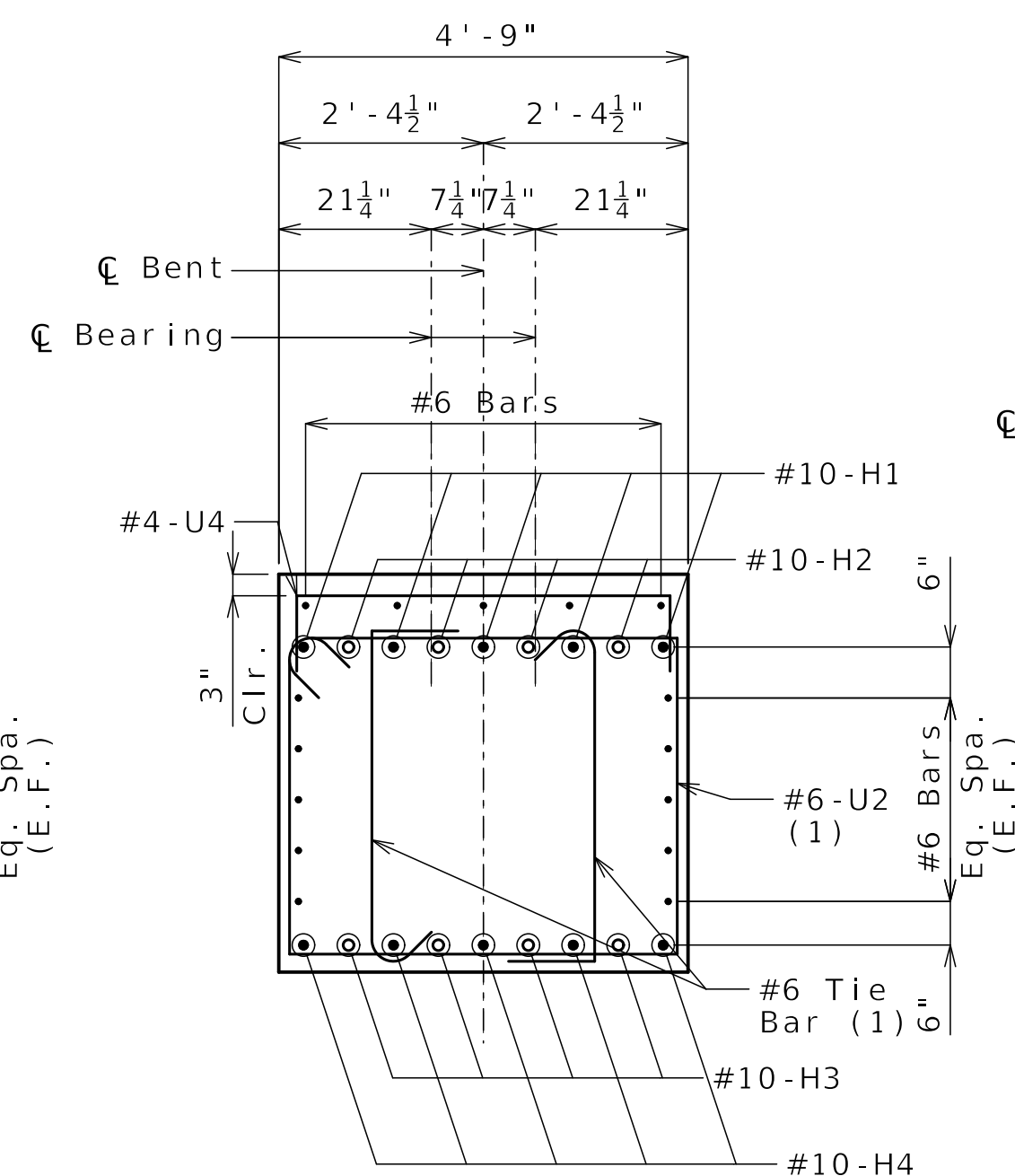


TYPICAL SECTION THRU LAMINATED NEOPRENE BEARING PAD (TAPERED)

Bent 3 Ahead-6 Required

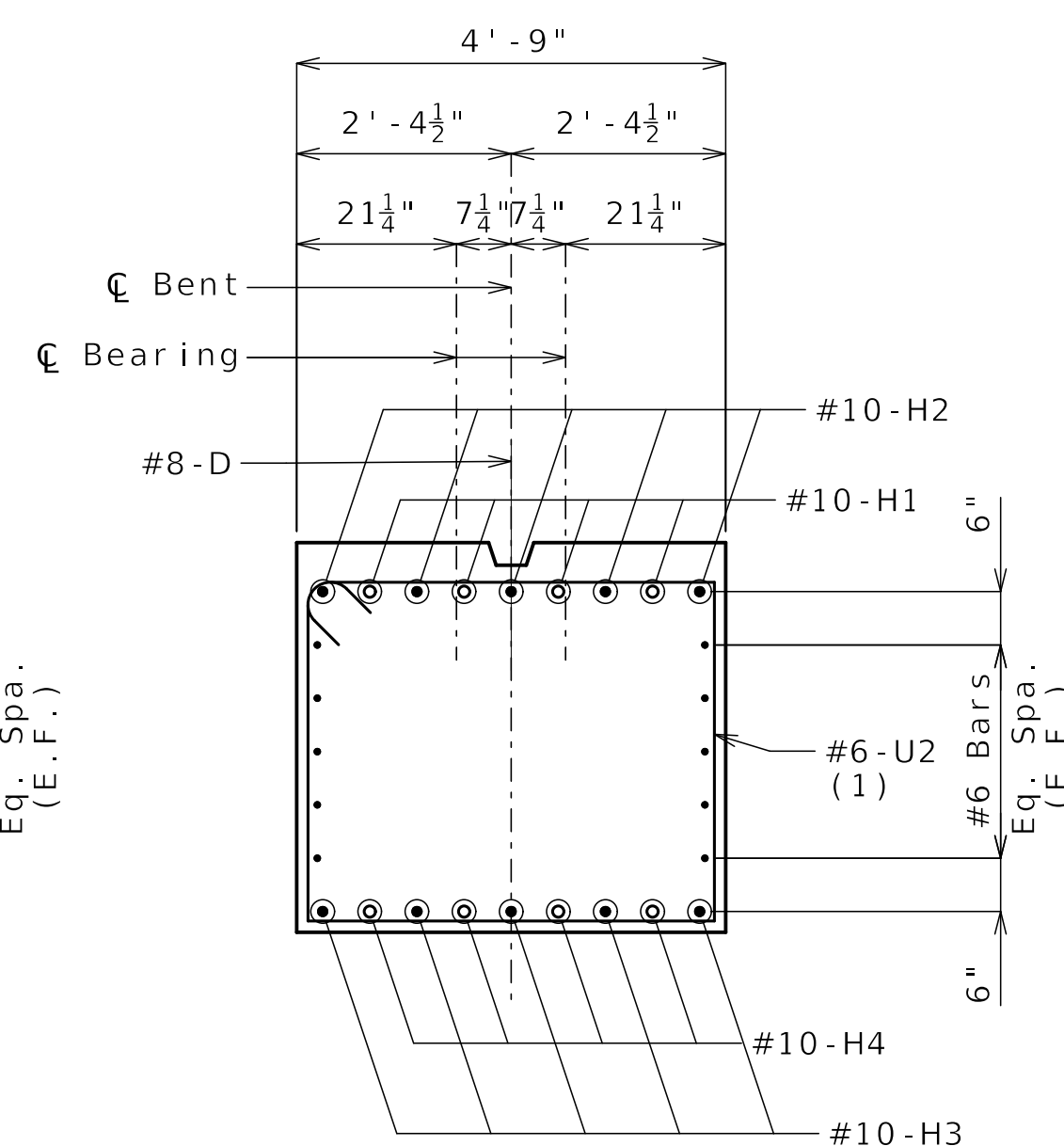


SECTION A-A

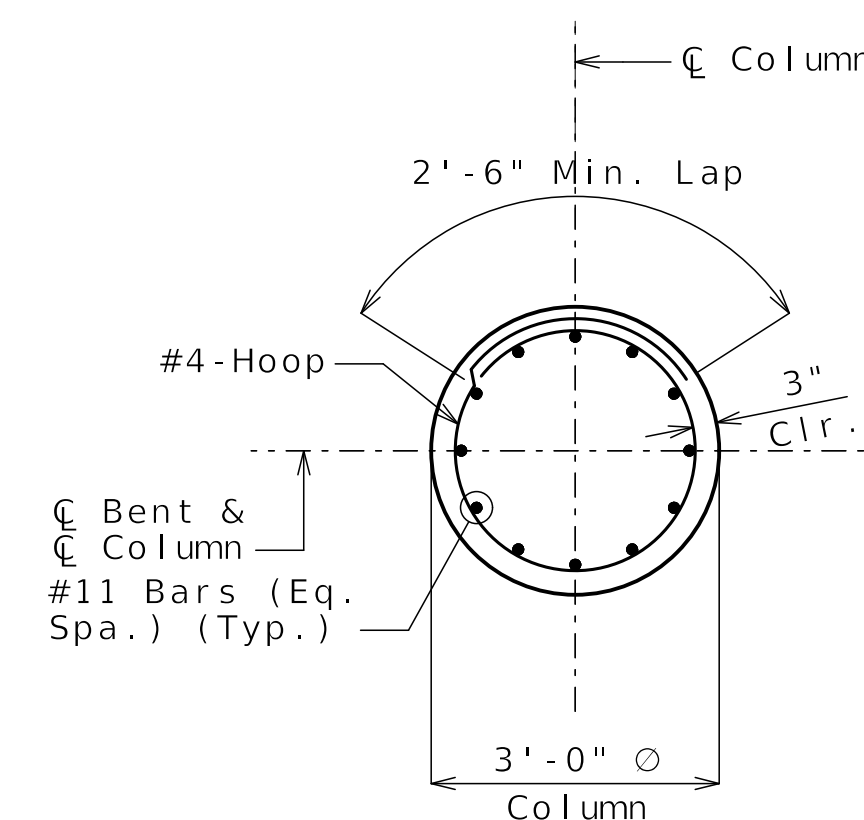


SECTION B-B

(1)U1, U2, and #6 Tie Bar vertical leg = 3'-7 1/4"



SECTION C-C



SECTION D-D

Notes:

Work this sheet with Sheets No. B05-11.
For angle of girders relative to C Bent , see A9622 (I-70 WB Over Benton) Superstructure Package.

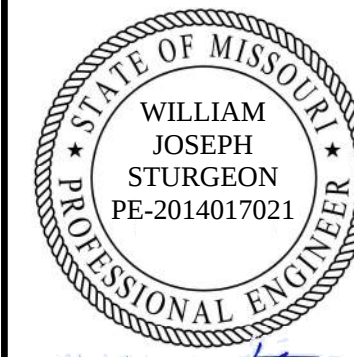
For additional joint filler layout details, see concrete diaphragm details sheet in A9622 (I-70 WB Over Benton) Superstructure Package.

For steps 2 inches or more, use 2 1/4" x 1/2" joint filler up vertical face.

DETAILS OF INTERMEDIATE BENT NO. 3

Released For Construction
Not to Scale

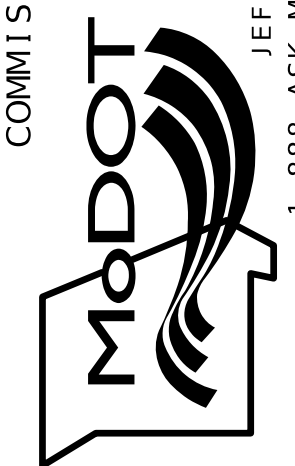
Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst



6/3/2025

DATE PREPARED
06/02/2025ROUTE
1-70STATE
MODISTRICT
BRSHEET NO.
B05-12COUNTY
JACKSONJOB NO.
J411486DCONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A9622DESCRIPTION
REV 0 - RFC SUBMITTALDATE
06/02/25MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

CLARKSON
RADMACHER
JOINT VENTURE

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





Gina D. Horner

06/03/25

DATE PREPARED

06/02/2025

ROUTE STATE

I-70 MO

DISTRICT SHEET NO.

BR B05-14

COUNTY

JACKSON

JOB NO.

J411486D

CONTRACT ID.

240807-C01

PROJECT NO.

BRIDGE NO.

A9622

DESCRIPTION

REV 0 - RFC SUBMITTAL

DATE

06/02/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL

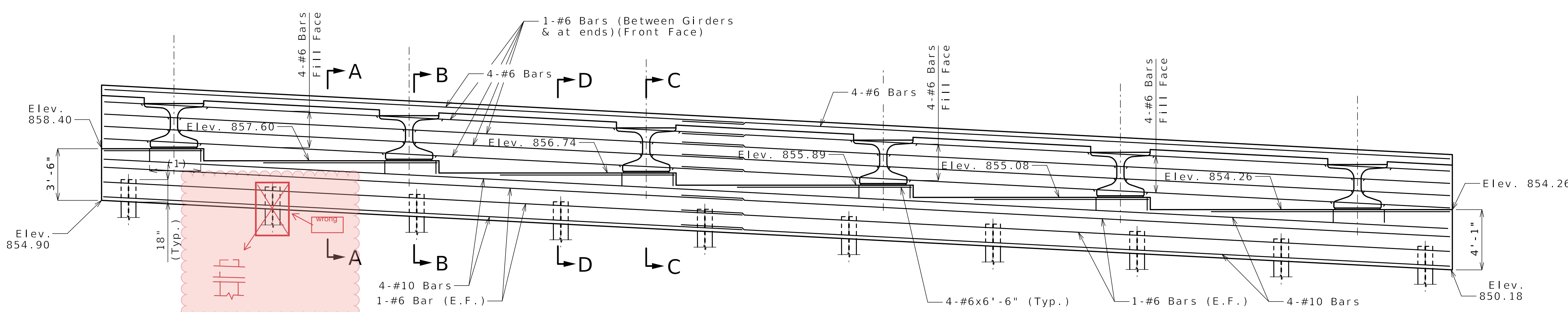
JEFFERSON CITY, MO 65102

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

CERTIFICATE OF AUTHORITY

NO. 001270

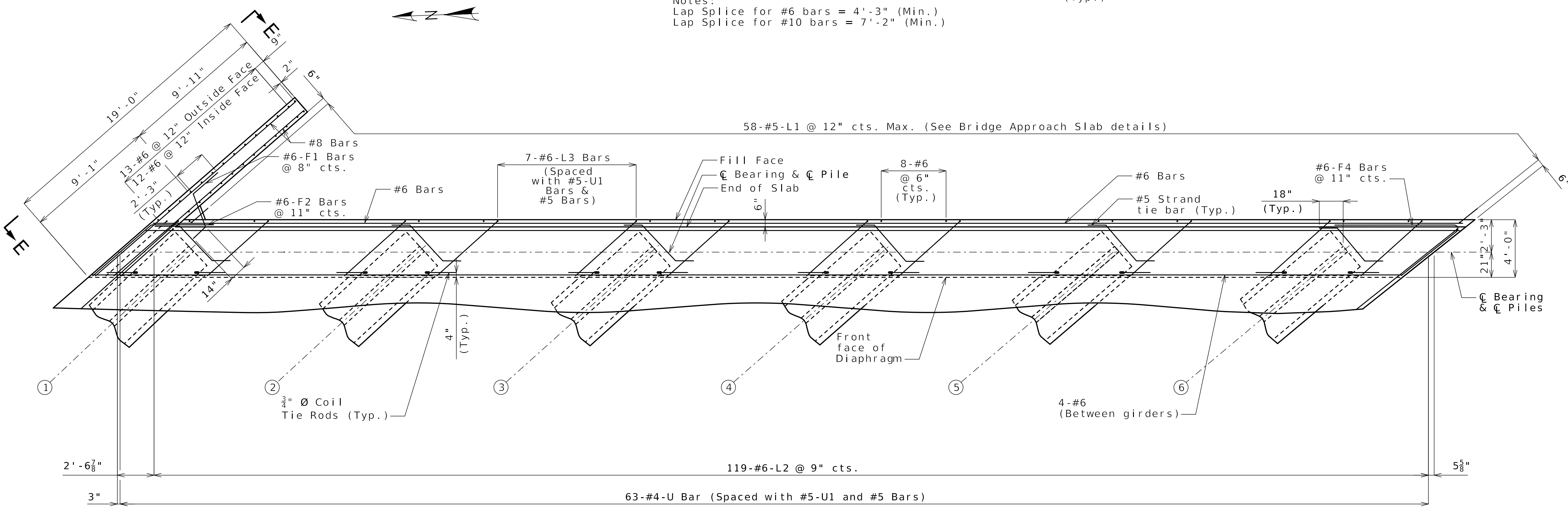
HNTB



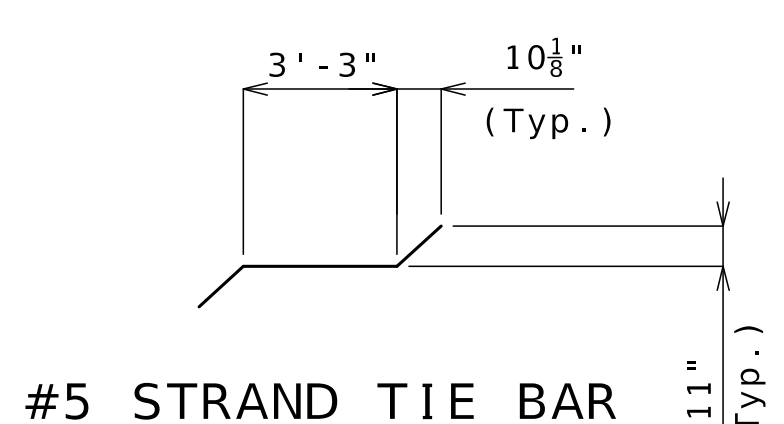
SECTION NEAR END BENT

Notes:
Lap Splice for #6 bars = 4'-3" (Min.)
Lap Splice for #10 bars = 7'-2" (Min.)

(1) 10-#4-U4 Bars @ 6"
Spa. undergirders
(Typ.)



PART PLAN



#5 STRAND TIE BAR

Released For Construction
Not to Scale
Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

General Notes:
Work this sheet with Sheets No. B05-13 and B05-15.
For Sections A-A, B-B, C-C and D-D
and Elevation E-E, see Sheet No. B05-15.

① Denotes girder number

For location of coil tie rods, see Sheet A9622 (I-70 WB Over Benton) Superstructure Package.
Strands at end of the girders shall be field bent or, if necessary, cut in field to maintain 1 1/2'-inch minimum clearance to fill face of end bent.
The #6-F bars shall be bent in the field to clear girders.

DETAILS OF END BENT NO. 4

06/03/25

ROUTE	STATE
I - 70	MO

COUNTY
JACKSON

CONTRACT ID.
240807-C01

BRIDGE NO.
A9622

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OF A



KIRKWOOD
COMMUNITY COLLEGE
0012

UR B



TYPICAL SECTION
THRU WING

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



(1) U3 & #4 stirrup
bar vertical leg = 3'-1"



General Notes:
 Work this sheet with Sheets No. B05-13
 and B05-14.
 For location of Sections A-A, B-B, C-C, D-D
 and Elevation E-E, see Sheet No. B05-14.
 For reinforcement of the Type D Barrier, see
 Sheet A9622 (I-70 WB Over Benton) Superstructure
 Package.

DETAILS OF END BENT NO. 4

Released For Construction
Not to Scale

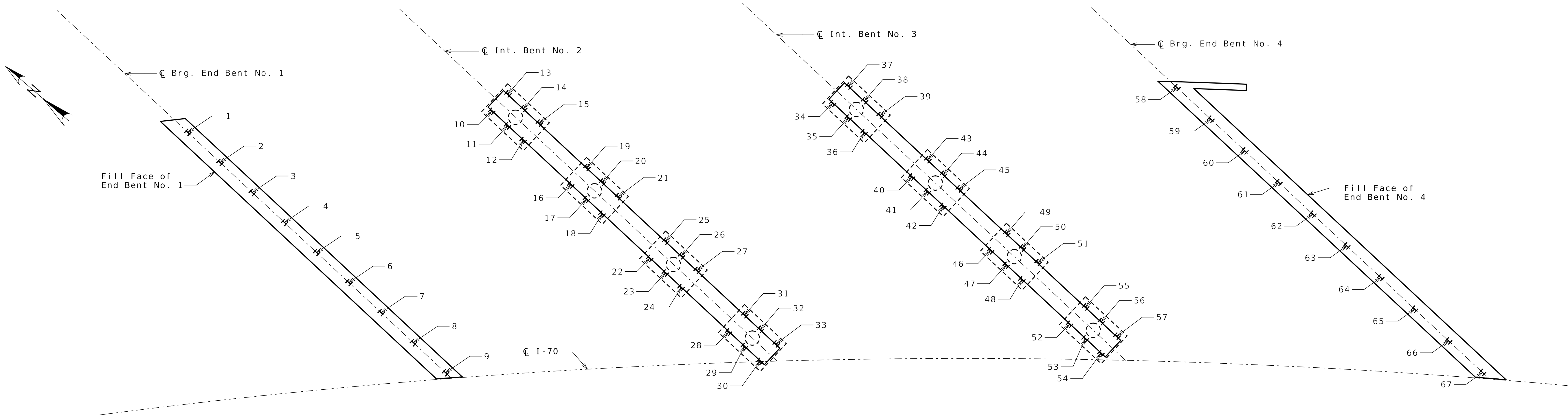
Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

Sheet No. B05-15 of B05-29

Detailed FEB 2025
Checked MAR 2025

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

B A9622 B05-17 J4I1486D.dgn 6:33:45 AM 6/3/2025



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

As-Built Pile Data			
Pile No.	Length in Place (ft.)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
1			End Bent No. 1
2			
3			
4			
5			
6			
7			
8			
9			
58			End Bent No. 4
59			
60			
61			
62			
63			
64			
65			
66			
67			

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

As-Built Pile Data			
Pile No.	Length in Place (ft.)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
10			Intermediate Bent No. 2
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			

As-Built Pile Data			
Pile No.	Length in Place (ft.)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
34			Intermediate Bent No. 3
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			
56			
57			

Note:
This sheet to be completed by design-builder.

AS-BUILT PILE DATA

Detailed FEB 2025
Checked MAR 2025

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

Released For Construction
Not to Scale
Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

Sheet No. B05-16 of B05-29



Gina D. Horner

06/03/25

DATE PREPARED
06/02/2025

ROUTE
I-70

STATE
MO

DISTRICT
BR

SHEET NO.
B05-16

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A9622

DESCRIPTION

REV 0 - RFC SUBMITTAL

DATE
06/02/25

DATE

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SOIL BORING NUMBER: Ben_B1_1

Page 1 of 3

PROJECT Improve I 70 KC Design Build NORTHING/EASTING 1066539.7 / 2776200.1
DRILLING FIRM PPI DRILLER Ray A. DATE STARTED 11/21/2024
LOGGED BY Trent Shepherd DATE COMPLETED 11/21/2024
SURFACE ELEVATION 845.3' RIG TYPE CME-55
METHOD Mud Rotary/NQ Core TOOLING 3-3/4" Rotary Drill

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-P)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
																FILL, brown, very stiff, moist, LEAN CLAY (CL), with organics
5	5 ft		J-1	14	4-5-6 (11)	78		4.0				48-22-26	18.7			
10	9.5 ft		J-2	18	2-3-2 (5)	100		1.0		9.5	835.8					Brown, firm, moist, LEAN CLAY with SILT (CL-ML), with organics
	13 ft		U-1	24		100		1.5		13.0	832.3					Brown to gray, firm, moist, LEAN CLAY (CL)
15												41-23-18	26.2	99.6	1.56	
	18 ft		J-3	18	2-2-4 (6)	100		0.75		18.0	827.3					Brown, soft, wet, FAT CLAY (CH)
20																
	23 ft		U-2	24		100		0.75				36-17-19	22.9	102.8	1.44	
25																
	28 ft		J-4	18	2-3-3 (6)	100		0.75		28.0	817.3					Brown, firm, moist, LEAN CLAY (CL)
30																
	33 ft		U-3	24		100		3.0		33.0	812.3					Tan, very stiff, moist, LEAN CLAY with SILT (CL-ML)
35												32-17-15	20.6			



SOIL BORING NUMBER: Ben_B1_1

Page 2 of 3

PROJECT Improve I 70 KC Design Build NORTHING/EASTING 1066539.7 / 2776200.1
DRILLING FIRM PPI DRILLER Ray A. DATE STARTED 11/21/2024
LOGGED BY Trent Shepherd DATE COMPLETED 11/21/2024
SURFACE ELEVATION 845.3' RIG TYPE CME-55
METHOD Mud Rotary/NQ Core TOOLING 3-3/4" Rotary Drill

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-P)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
	38 ft		J-5	18	3-3-5 (8)	100		2.5								Tan, very stiff, moist, LEAN CLAY with SILT (CL-ML)
40																
	43 ft		J-6	18	4-9-8 (17)	100		3.0		43.0	802.3					Reddish brown, very stiff, moist, LEAN TO FAT CLAY (CL-CH)
45																
	48 ft		U-4	24		100		1.5				42-16-26	21.0	106.5	2.61	- becomes stiff at 48'
50																
	53 ft		J-7	18	2-5-5 (10)	100		2.5		53.0	792.3					Brown, very stiff, moist, LEAN CLAY (CL), with shaley structure
55																
	58 ft		J-8	18	3-4-4 (8)	100		1.5				36-19-17	24.2			- becomes stiff at 58'
60																
	68 ft		J-9	18	4-4-6 (10)	100		2.5		68.0	777.3					Brown, very stiff, moist, LEAN CLAY with SILT (CL-ML), with trace sand
70												36-19-17	23.8			

Released For Construction
Not to Scale
Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

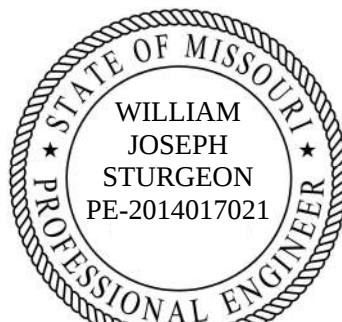
Notes:
For locations of borings, see Sheet No. B05-02 and Geotechnical Report.

BORING LOGS

Detailed FEB 2025
Checked MAR 2025

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

Sheet No. B05-17 of B05-29



6/3/2025

DATE PREPARED
06/02/2025

ROUTE
1 - 70
STATE
MO
DISTRICT
BR
SHEET NO.
B05 - 17

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807 - C01

PROJECT NO.

BRIDGE NO.
A9622

DATE	REV	DESCRIPTION	REV	0	- RFC	SUBMITTAL
06/02/25						

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

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



SOIL BORING NUMBER: Ben_B1_1

Page 3 of 3

PROJECT Improve I 70 KC Design Build NORTHING/EASTING 1066539.7 / 2776200.1
DRILLING FIRM PPI DRILLER Ray A. DATE STARTED 11/21/2024
LOGGED BY Trent Shepherd DATE COMPLETED 11/21/2024
SURFACE ELEVATION 845.3' RIG TYPE CME-55
METHOD Mud Rotary/NQ Core TOOLING 3-3/4" Rotary Drill

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-Pi)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
78 ft																Brown, very stiff, moist, LEAN CLAY with SILT (CL-ML), with trace sand
			J-10	18	2-5-10 (15)	100		1.5								78.0 767.3
80																Brown, stiff, moist, SANDY LEAN CLAY (SC), fine grained sand
																81.0 764.3
85																Brown, loose, moist, fine to coarse grained, WELL-GRADED SAND (SW)
88 ft			J-11	11	3-3-3 (6)	61										
90																92.3 753
92.3 ft			C-1	30		100	100					0.2	164.6	1112		Limestone, weathered, light gray, moderately hard
94.8 ft			C-2	60		100	97									
95																
100																99.8 745.5
105																Bottom of Boring at 99.8'
110																Boring backfilled with cuttings 11/21/2024



SOIL BORING NUMBER: Ben_B1_2

Page 1 of 4

PROJECT Improve I 70 KC Design Build NORTHING/EASTING 1066693.0 / 2776236.1
DRILLING FIRM PPI DRILLER Josh Starkey DATE STARTED 12/02/2024
LOGGED BY Cameron Dupont DATE COMPLETED 12/04/2024
SURFACE ELEVATION 857.5' RIG TYPE CME-55LC
METHOD Auger, Mud Rotary, NQ Core TOOLING 4-1/2" Continuous Flight Auger, 3-3/4" Rotary Drill

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-Pi)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
3.5 ft			J-1	9	3-10-9 (19)	50		3.5								FILL, brown, very stiff, LEAN CLAY (CL), little rubble/red brick, trace organics
5																- Mud rotary started at 4.5'
8 ft			J-2	12	5-5-8 (13)	67		4.0				44-23-21	25.5			
10																
13 ft			J-3	10	3-4-5 (9)	56		2.0		13.0	844.5					
15												36-20-16	25.5			FILL, dark brown, stiff, moist, LEAN CLAY with SILT (CL-ML), some red brick rubble
18 ft			J-4	13	1-22-6 (28)	72		1.0		18.5	839					
20																FILL, fine to medium grained, red brick rubble with sand
										19.0	838.5					
23 ft			J-5	16	9-5-1 (6)	69		0.5								FILL, dark brown-gray, firm, moist, LEAN CLAY (CL), mottled
25										23.8	833.7					
										24.2	833.3					FILL, red brick rubble
28 ft			U-1	24		100		0.5								FILL, dark gray-brown, soft to firm, moist, LEAN CLAY (CL), mottled
30												40-17-23	29.8	93.1	0.665	
33 ft			J-6	18	3-3-5 (8)	100		0.5		33.0	824.5					
35																Brown to gray, soft to firm, moist, LEAN CLAY with SILT (CL-ML), some orange iron nodules

Released For Construction
Not to Scale
Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

Notes:
For locations of borings, see Sheet No. B05-02 and Geotechnical Report.

BORING LOGS



6/3/2025

DATE PREPARED
06/02/2025

ROUTE
1 - 70

STATE
MO

DISTRICT
BR

SHEET NO.
B05 - 18

COUNTY
JACKSON

JOB NO.
J4I1486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A9622

DESCRIPTION

REV 0 - RFC SUBMITTAL

DATE

06/02/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MoDOT

CLARKSON RADMACHER JOINT VENTURE

715 KIRK DRIVE

KANSAS CITY, MO 64105-1310

CERTIFICATE OF AUTHORITY

NO. 001270

HNTB



SOIL BORING NUMBER: Ben_B1_2

Page 2 of 4

PROJECT Improve I 70 KC Design Build NORTHING/EASTING 1066693.0 / 2776236.1
DRILLING FIRM PPI DRILLER Josh Starkey DATE STARTED 12/02/2024
LOGGED BY Cameron Dupont DATE COMPLETED 12/04/2024
SURFACE ELEVATION 857.5' RIG TYPE CME-55LC
METHOD Auger, Mud Rotary, NQ Core TOOLING 4-1/2" Continuous Flight Auger, 3-3/4" Rotary Drill

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-Pi)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
	38 ft		J-7	18	3-5-6 (11)	100		1.0				40-19-21	26.2			Brown to gray, soft to firm, moist, LEAN CLAY with SILT (CL-ML), some orange iron nodules
40																
	42.5 ft		J-8	18	3-4-6 (10)	100		2.5								
45																
	47.5 ft		J-9	18	2-4-5 (9)	100		1.5				45-18-27	31.4			
50																
	52.5 ft		J-10	18	5-6-8 (14)	100		3.0		52.5	805					Orangish brown, stiff, moist, LEAN CLAY with SILT (CL-ML), mottled, trace iron nodules
55																
	57.5 ft		J-11	18	4-5-9 (14)	100		2.5				38-20-18	39.8			
60																
65										66.1	791.4					Orangish brown, moist, fine to medium grained, POORLY GRADED SAND with CLAY (SP)
	67.5 ft		J-12	18	13-16-22 (38)	100		3.0		68.5	789					Orangish brown, moist, FAT CLAY with SILT (CH), mottled, trace sand
70										71.0	786.5					Brown, moist, fine to medium grained, WELL-GRADED SAND with CLAY (SW-SC), some gravel (rounded)



SOIL BORING NUMBER: Ben_B1_2

Page 3 of 4

PROJECT Improve I 70 KC Design Build NORTHING/EASTING 1066693.0 / 2776236.1
DRILLING FIRM PPI DRILLER Josh Starkey DATE STARTED 12/02/2024
LOGGED BY Cameron Dupont DATE COMPLETED 12/04/2024
SURFACE ELEVATION 857.5' RIG TYPE CME-55LC
METHOD Auger, Mud Rotary, NQ Core TOOLING 4-1/2" Continuous Flight Auger, 3-3/4" Rotary Drill

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-Pi)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
	77.5 ft		J-13	17	11-13-14 (27)	94		1.0								Brown, moist, fine to medium grained, WELL-GRADED SAND with CLAY (SW-SC), some gravel (rounded)
80																
										82.8	774.7					Tan-brown, moist, medium to coarse grained, WELL-GRADED SAND with CLAY (SW-SC), some gravel (rounded)
85																
	86 ft		J-14	12	25-14-12 (26)	67		0.5								
90																
95										96.0	761.5					Brown-tan, moist, fine to medium grained, POORLY GRADED SAND (SP)
100																
	103.5 ft		C-1	14.5		97	97			103.0	754.5					Limestone, slightly weathered, gray, hard
105			C-2	60		100	100									
	109.75 ft		C-3	60		100	93									
110																

Released For Construction
Not to Scale
Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

Notes:
For locations of borings, see Sheet No. B05-02 and Geotechnical Report.

BORING LOGS

Detailed FEB 2025
Checked MAR 2025

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

Sheet No. B05-19 of B05-29



6/3/2025

DATE PREPARED
06/02/2025

ROUTE
1 - 70

STATE
MO

DISTRICT
BR

SHEET NO.
B05 - 19

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A9622

DESCRIPTION

REV 0 - RFC SUBMITTAL

DATE

06/02/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

CLARKSON RADMACHER JOINT VENTURE

715 KIRK DRIVE

KANSAS CITY, MO 64105-1310

CERTIFICATE OF AUTHORITY

NO. 001270

HNTB



SOIL BORING NUMBER: Ben_B2_2

Page 2 of 3

PROJECT Improve I 70 KC Design Build
NORTHING/EASTING 1066599.4 / 2776274.6
DRILLING FIRM PPI
DRILLER Ray A.
DATE STARTED 11/15/2024
LOGGED BY Alex Wen
DATE COMPLETED 11/19/2024
SURFACE ELEVATION 841.4'
RIG TYPE CME-55
METHOD Auger/Mud Rotary/NQ Core
TOOLING 4-1/4" Hollow Stem Auger, 3-3/4" Rotary Drill

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-P)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
37.5			J-6	14	x-x-4 (4)	78		0.25								Brown, firm, moist, LEAN CLAY with SILT (CL-ML)
40										38.5	802.9					Brown mottled, orange-brown mottling, stiff, moist, FAT CLAY (CH)
42.5			U-3	21		88		1.5				39-14-25	20.9	1071	2.01	
45																- becomes orange-brown at 46'
47.5			J-7	18	3-5-6 (11)	100		1.5								
50																
52.5			J-8	18	3-4-5 (9)	100		1.0								
55																
57.5			J-9	11	4-5-6 (11)	61						37-22-15	30.5			- becomes brown, few fine to coarse subangular gravel at 57.5'
60																
65																
67.5			J-10	18	6-8-11 (19)	100		2.25								- loss of gravel inclusions at 67.5'
70																
										71.4	770					Brown, medium dense, wet, fine to coarse grained, SANDY SILT (ML), trace clay, fine to coarse subrounded gravel, possible cobbles



SOIL BORING NUMBER: Ben_B2_2

Page 3 of 3

PROJECT Improve I 70 KC Design Build
NORTHING/EASTING 1066599.4 / 2776274.6
DRILLING FIRM PPI
DRILLER Ray A.
DATE STARTED 11/15/2024
LOGGED BY Alex Wen
DATE COMPLETED 11/19/2024
SURFACE ELEVATION 841.4'
RIG TYPE CME-55
METHOD Auger/Mud Rotary/NQ Core
TOOLING 4-1/4" Hollow Stem Auger, 3-3/4" Rotary Drill

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-P)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
77.5			J-11	12	4-6-7 (13)	67										Brown, medium dense, wet, fine to coarse grained, SANDY SILT (ML), trace clay, fine to coarse subrounded gravel, possible cobbles
80												26-16-10	17.8			
85																
85.84			C-1	46		100	83			85.8	755.6					Limestone, slightly weathered, gray, hard, with healed joints and dark gray shaley laminations that are often lenticular
89.67			C-2	57		95	95					0.1	168.4	1433		
94.67			C-3	0		0	0			95.0	746.4					Bottom of Boring at 95'
																Boring backfilled with cuttings 11/19/2024
100																
105																
110																

Released For Construction
Not to Scale
Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

Notes:
For locations of borings, see Sheet No. B05-02 and Geotechnical Report.

BORING LOGS

Detailed FEB 2025
Checked MAR 2025

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

Sheet No. B05-21 of B05-29



6/3/2025

DATE PREPARED
06/02/2025

ROUTE
1 - 70

STATE
MO

DISTRICT
BR

SHEET NO.
B05 - 21

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807 - C01

PROJECT NO.

BRIDGE NO.
A9622

DESCRIPTION

REV 0 - RFC SUBMITTAL

DATE

06/02/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

CLARKSON RADMACHER JOINT VENTURE

715 KIRK DRIVE

KANSAS CITY, MO 64105-1310

CERTIFICATE OF AUTHORITY

NO. 001270

HNTB



SOIL BORING NUMBER: Ben_B2_3

Page 1 of 3

PROJECT Improve I 70 KC Design Build
NORTHING/EASTING 1066646.0 / 2776277.8
DRILLING FIRM PPI
DRILLER Ray A.
DATE STARTED 11/20/2024
LOGGED BY Trent Shepherd
DATE COMPLETED 11/20/2024
SURFACE ELEVATION 843.9'
RIG TYPE CME-55
METHOD Auger/Mud Rotary/NQ Core
TOOLING 4-1/4" Hollow Stem Auger, 3-3/4" Rotary Drill

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-P)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
5	5 ft		J-1	13	3-4-3 (7)	72		2.5								
10	10 ft		J-2	18	3-4-4 (8)	100		3.5								
13	13 ft		U-1	24		100		0.5								
15																
18	18 ft		J-3	18	WOH-WOH-WOH	100		<0.5								
20																
23	23 ft		J-4	18	2-2-3 (5)	100		<0.5								
25																
28	28 ft		U-2	24		100		4.5								
30																
33	33 ft		J-5	18	3-3-4 (7)	100		3.0								
35																

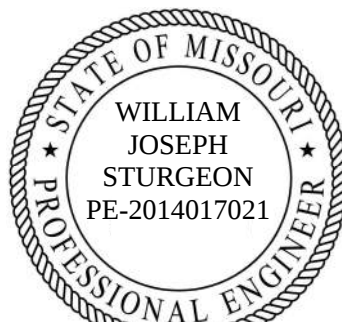


SOIL BORING NUMBER: Ben_B2_3

Page 2 of 3

PROJECT Improve I 70 KC Design Build
NORTHING/EASTING 1066646.0 / 2776277.8
DRILLING FIRM PPI
DRILLER Ray A.
DATE STARTED 11/20/2024
LOGGED BY Trent Shepherd
DATE COMPLETED 11/20/2024
SURFACE ELEVATION 843.9'
RIG TYPE CME-55
METHOD Auger/Mud Rotary/NQ Core
TOOLING 4-1/4" Hollow Stem Auger, 3-3/4" Rotary Drill

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-P)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
38	38 ft		J-6	18	3-5-8 (13)	100		4.5								
40																
43	43 ft		U-3	24		100		3.0								
45																
48	48 ft		J-7	18	3-3-6 (9)	100		2.5								
50																
53	53 ft		J-8	18	3-5-6 (11)	100		2.0								
55																
58	58 ft		J-9	18	2-4-5 (9)	100		2.0								
60																
65																
68	68 ft		J-10	18	10-7-9 (16)	100										
70																



6/3/2025

DATE PREPARED
06/02/2025

ROUTE
1 - 70

STATE
MO

DISTRICT
BR

SHEET NO.
B05 - 22

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807 - C01

PROJECT NO.

BRIDGE NO.
A9622

DESCRIPTION

REV 0 - RFC SUBMITTAL

DATE

06/02/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MoDOT

CLARKSON RADMACHER JOINT VENTURE

715 KIRK DRIVE

KANSAS CITY, MO 64105-1310

CERTIFICATE OF AUTHORITY

NO. 001270

HNTB

Released For Construction

Not to Scale

Revision: 0.0

Date: 06/09/2025

Package: BRD-05-WB70-Benton-Subst

Notes:

For locations of borings, see Sheet No. B05-02 and Geotechnical Report.

BORING LOGS



SOIL BORING NUMBER: Ben_B3_3

Page 1 of 3

PROJECT Improve I 70 KC Design Build NORTHING/EASTING 1066641.0 / 2776342.6
DRILLING FIRM PPI DRILLER Josh Starkey DATE STARTED 11/12/2024
LOGGED BY Cameron Dupont DATE COMPLETED 11/13/2024
SURFACE ELEVATION 843.2' RIG TYPE CME-55LC
METHOD Hollow Stem Auger TOOLING 4-1/4" Hollow Stem Auger

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab			
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-P)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)
										Visual Classification and Remarks					
										FILL, dark brown, stiff, moist, LEAN CLAY (CL)					
										- black mottling at 4'					
4	4 ft		J-1	8.5	4-4-4 (8)	47		4.0							
8.5	8.5 ft		U-1	21		88		1.0				37-20-17	25.7	95.0	1.53
13.5	13.5 ft		J-2	18	x-1-3 (4)	100		0.5		13.5	829.7				
18.5	18.5 ft		J-3	17	x-3-2 (5)	94		1.0		Brownish gray, soft to firm, moist, LEAN CLAY with SILT (CL-ML), trace organics		39-18-21	29.7		
25.4	25.4 ft		J-4	18	2-2-3 (5)	100		0.5		- no recovery at 23.5'		35-17-18	29.0		
28.5	28.5 ft		J-5	18	x-3-2 (5)	100		0.5							
33.5	33.5 ft		J-6	18	3-4-5 (9)	100		2.0		32.5	810.7				
										Brownish gray, stiff, moist, LEAN CLAY with SILT (CL-ML), with trace gravel		59-19-40	26.5		



SOIL BORING NUMBER: Ben_B3_3

Page 2 of 3

PROJECT Improve I 70 KC Design Build NORTHING/EASTING 1066641.0 / 2776342.6
DRILLING FIRM PPI DRILLER Josh Starkey DATE STARTED 11/12/2024
LOGGED BY Cameron Dupont DATE COMPLETED 11/13/2024
SURFACE ELEVATION 843.2' RIG TYPE CME-55LC
METHOD Hollow Stem Auger TOOLING 4-1/4" Hollow Stem Auger

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab			
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-P)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)
										Visual Classification and Remarks					
38	38 ft		U-2	24		100		3.0		Brownish gray, stiff, moist, LEAN CLAY with SILT (CL-ML), with trace gravel		44-16-28	19.0	110.1	2.62
43.5	43.5 ft		J-7	18	4-4-6 (10)	100		2.5		Orangish brown, stiff to very stiff, moist, LEAN CLAY with SILT (CL-ML), iron concretions					
48.5	48.5 ft		J-8	18	3-5-6 (11)	100		2.5							
53.5	53.5 ft		J-9	18	3-5-6 (11)	100		3.0							
58.5	58.5 ft		J-10	18	3-5-6 (11)	100		2.5							
68.5	68.5 ft		J-11	18	6-9-17 (26)	100				68.5	774.7				
										Brown-tan, moist, WELL-GRADED SAND with CLAY (SW-SC), some gravel					



6/3/2025

DATE PREPARED
06/02/2025

ROUTE
1 - 70

STATE
MO

DISTRICT
BR

SHEET NO.
B05 - 25

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A9622

DESCRIPTION

REV 0 - RFC SUBMITTAL

DATE

06/02/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

CLARKSON RADMACHER JOINT VENTURE

715 KIRK DRIVE

KANSAS CITY, MO 64105-1310

CERTIFICATE OF AUTHORITY

NO. 001270

HNTB

Released For Construction
Not to Scale
Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

Notes:
For locations of borings, see Sheet No. B05-02 and Geotechnical Report.

BORING LOGS



SOIL BORING NUMBER: Ben_B3_3

Page 3 of 3

PROJECT Improve I 70 KC Design Build NORTHING/EASTING 1066641.0 / 2776342.6
DRILLING FIRM PPI DRILLER Josh Starkey DATE STARTED 11/12/2024
LOGGED BY Cameron Dupont DATE COMPLETED 11/13/2024
SURFACE ELEVATION 843.2' RIG TYPE CME-55LC
METHOD Hollow Stem Auger TOOLING 4-1/4" Hollow Stem Auger

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-Pi)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
										After Drilling (ft):	N/A					
										After __ Hours (ft):	N/A					
78.3 ft			J-12	18	5-3-4 (7)	100										Brown-tan, moist, WELL-GRADED SAND with CLAY (SW-SC), some gravel
80																
85																
87.9 ft			C-1	31		97	88			87.8	755.4					Limestone, slightly weathered to weathered, gray to blue, hard
90.5 ft			C-2	60		100	100					0.1	166.9	1479		
95.5 ft			C-3	28		100	79			97.9	745.3					Bottom of Boring at 97.9'
100																Boring backfilled with cuttings 11/13/2024
105																
110																



SOIL BORING NUMBER: Ben_B4_2

Page 1 of 3

PROJECT Improve I 70 KC DB Project [0] NORTHING/EASTING 1066500.4 / 2776375.3
DRILLING FIRM PPI DRILLER Eric P. DATE STARTED 11/06/2024
LOGGED BY Zachary Boyd DATE COMPLETED 11/07/2024
SURFACE ELEVATION 842.9' RIG TYPE CME-550
METHOD Auger, Mud Rotary, NQ Core TOOLING 4-1/2" Continuous Flight Auger, 3-3/4" Rotary Drill

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-Pi)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
										After Drilling (ft):	N/A					
										After __ Hours (ft):	N/A					
3 ft			U-1	6		25		>4.5								FILL, dark brown, hard, moist, LEAN CLAY (CL), with gravel and brick fragments
5																
8 ft			J-1	13	1-1-2 (3)	72	0.5			8.0	834.9					Dark brown, soft, moist, LEAN CLAY with GRAVEL (CL), iron stained, organics
10																
13 ft			J-2	18	1-1-1 (2)	100	<0.5						31.4			
15																
18 ft			U-2	24		100	<0.5									- tree root at 20'
20																
23 ft			J-3	17	2-2-4 (6)	94	0.5									- no gravel at 23'
25																
28 ft			J-4	8	4-4-6 (10)	44	0.5			29.0	813.9					Reddish light brown, soft to firm, moist, FAT CLAY (CH), iron stained
30																
33 ft			U-3	21		88										
35																



6/3/2025

DATE PREPARED
06/02/2025

ROUTE
1 - 70

STATE
MO

DISTRICT
BR

SHEET NO.
B05 - 26

COUNTY

JACKSON

JOB NO.

J411486D

CONTRACT ID.

240807-C01

PROJECT NO.

BRIDGE NO.

A9622

DESCRIPTION

REV 0 - RFC SUBMITTAL

DATE

06/02/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MoDOT

CLARKSON RADMACHER JOINT VENTURE

715 KIRK DRIVE

KANSAS CITY, MO 64105-1310

CERTIFICATE OF AUTHORITY

NO. 001270

HNTB

Released For Construction

Not to Scale

Revision: 0.0

Date: 06/09/2025

Package: BRD-05-WB70-Benton-Subst

Notes:
For locations of borings, see Sheet No. B05-02 and Geotechnical Report.

BORING LOGS



SOIL BORING NUMBER: Ben_B4_2

Page 2 of 3

PROJECT Improve I 70 KC DB Project [0] NORTHING/EASTING 1066500.4 / 2776375.3
DRILLING FIRM PPI DRILLER Eric P. DATE STARTED 11/06/2024
LOGGED BY Zachary Boyd DATE COMPLETED 11/07/2024
SURFACE ELEVATION 842.9' RIG TYPE CME-550
METHOD Auger, Mud Rotary, NQ Core TOOLING 4-1/2" Continuous Flight Auger, 3-3/4" Rotary Drill

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-P)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
	38 ft		J-5	18	3-5-7 (12)	100		1.5								Reddish light brown, soft to firm, moist, FAT CLAY (CH), iron stained
40																- light brown, becomes firm at 38'
43 ft			J-6	18	6-6-7 (13)	100		1.5								- becomes reddish brown at 43'
45																
48 ft			J-4	24		100		<0.5				64-22-42	46.3			- with gravel at 48'
50																
53 ft			J-7	18	2-4-5 (9)	100		1.5					24.5			
55																
58 ft			J-8	18	3-4-5 (9)	100		1.0		58.0	784.9		26.3			Light brown to gray, moist, FAT CLAY with SAND (CH), iron stained
60																
65																
68 ft			J-9	18	3-6-8 (14)	100		1.0		68.0	774.9		29.8			Dark gray to brown, stiff, moist, FAT CLAY (CH), iron stained
70																



SOIL BORING NUMBER: Ben_B4_2

Page 3 of 3

PROJECT Improve I 70 KC DB Project [0] NORTHING/EASTING 1066500.4 / 2776375.3
DRILLING FIRM PPI DRILLER Eric P. DATE STARTED 11/06/2024
LOGGED BY Zachary Boyd DATE COMPLETED 11/07/2024
SURFACE ELEVATION 842.9' RIG TYPE CME-550
METHOD Auger, Mud Rotary, NQ Core TOOLING 4-1/2" Continuous Flight Auger, 3-3/4" Rotary Drill

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Groundwater Data		Lab				Visual Classification and Remarks
										During Drilling (ft):	N/A	Atterberg Limits (LL-PL-P)	Moisture Content (%)	Dry Density (PCF)	UCS (tsf)	
	78 ft		J-10	18	3-6-9 (15)	100		1.0								Dark gray to brown, stiff, moist, FAT CLAY (CH), iron stained
80																- with sand, well-graded at 78'
85																
87.5 ft			C-1	36		92	41			87.5	755.4					Limestone, weathered, light gray, hard, fractured, slightly vuggy, joint fractures
90			C-2	60		100	83									
95			C-3	60		100	82									
95.8 ft																- 1.5" clay seam at 99.8'
100										100.8	742.1					Bottom of Boring at 100.8'
105																Boring backfilled with grout 11/7/2024
110																

Released For Construction
Not to Scale
Revision: 0.0
Date: 06/09/2025
Package: BRD-05-WB70-Benton-Subst

Notes:
For locations of borings, see Sheet No. B05-02 and Geotechnical Report.

BORING LOGS



6/3/2025

DATE PREPARED
06/02/2025

ROUTE
1 - 70

STATE
MO

DISTRICT
BR

SHEET NO.
B05 - 27

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807 - C01

PROJECT NO.

BRIDGE NO.
A9622

DESCRIPTION

REV 0 - RFC SUBMITTAL

DATE

06/02/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

CLARKSON RADMACHER JOINT VENTURE

715 KIRK DRIVE

KANSAS CITY, MO 64105-1310

CERTIFICATE OF AUTHORITY

NO. 001270

HNTB

