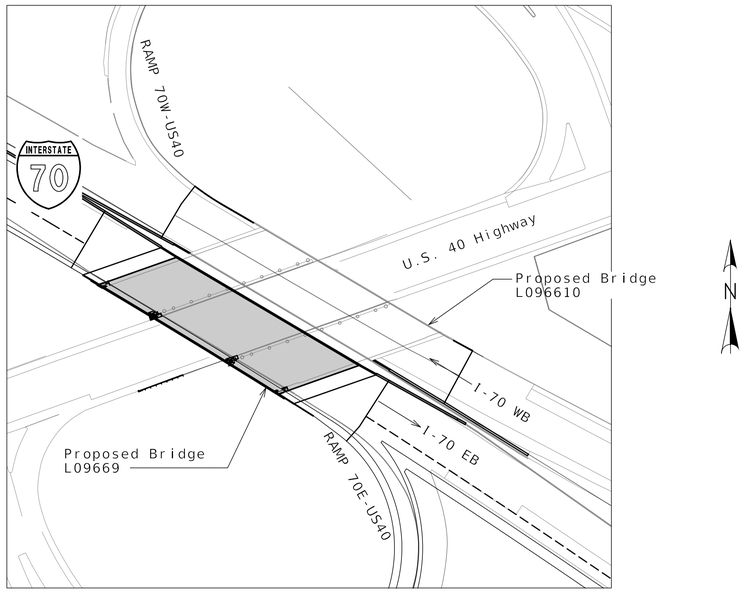
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

Notes:
See Civil Package 2: Early Grading for project reference points and project coordinate points.
See Civil Package 6 for ℄ EB I-70 (Manchester) and ℄ WB I-70 (Manchester) project coordinate points.



LOCATION SKETCH

INDEX OF DRAWINGS

VAN WILLIAM ROBBINS
PE-2017015106
STATE OF MISSOURI
PROFESSIONAL ENGINEER
12-29-25

DATE PREPARED
12/19/2025

ROUTE	STATE
I-70	MO

DISTRICT	SHEET NO.
BR	B24-01

COUNTY
JACKSON

JOB NO.
J4I1486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
L09669

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	12/19/25

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: 01/08/2026
Package: BRD-24-EB70-US40

REPAIRS TO BRIDGE: ROUTE I-70 EB OVER ROUTE 40

ROUTE I-70 EB FROM ROUTE I-670 TO ROUTE I-435
ABOUT 4.4 MILES EAST OF ROUTE I-670
BEGINNING STATION 248+85.07± (MATCH EXISTING)

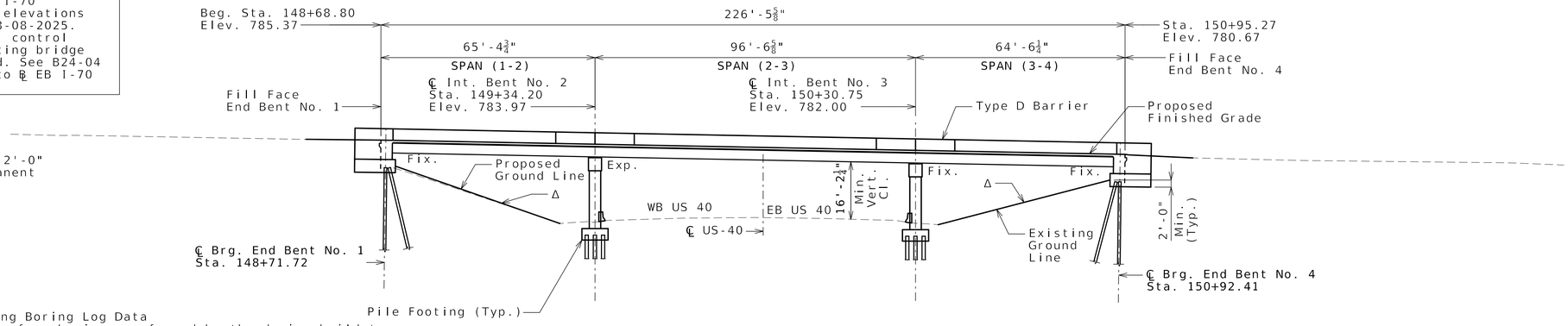
Detailed JUL 2025
Checked AUG 2025

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

B_L09669_B24-01_J4I1486D.dgn 5:01:09 PM 12/18/2025

NOTES:
Stationing and longitudinal dimensions are measured along ℄ EB I-70 (Manchester) and is intended to match existing bridge geometry. Elevations noted are along ℄ EB I-70 (Manchester) and match existing elevations from Powell-CWM survey dated 08-08-2025. Contractor shall verify vertical control matches Powell-CWM survey. Existing bridge geometry shall be field verified. See B24-04 for substructure skew relative to ℄ EB I-70 (Manchester)

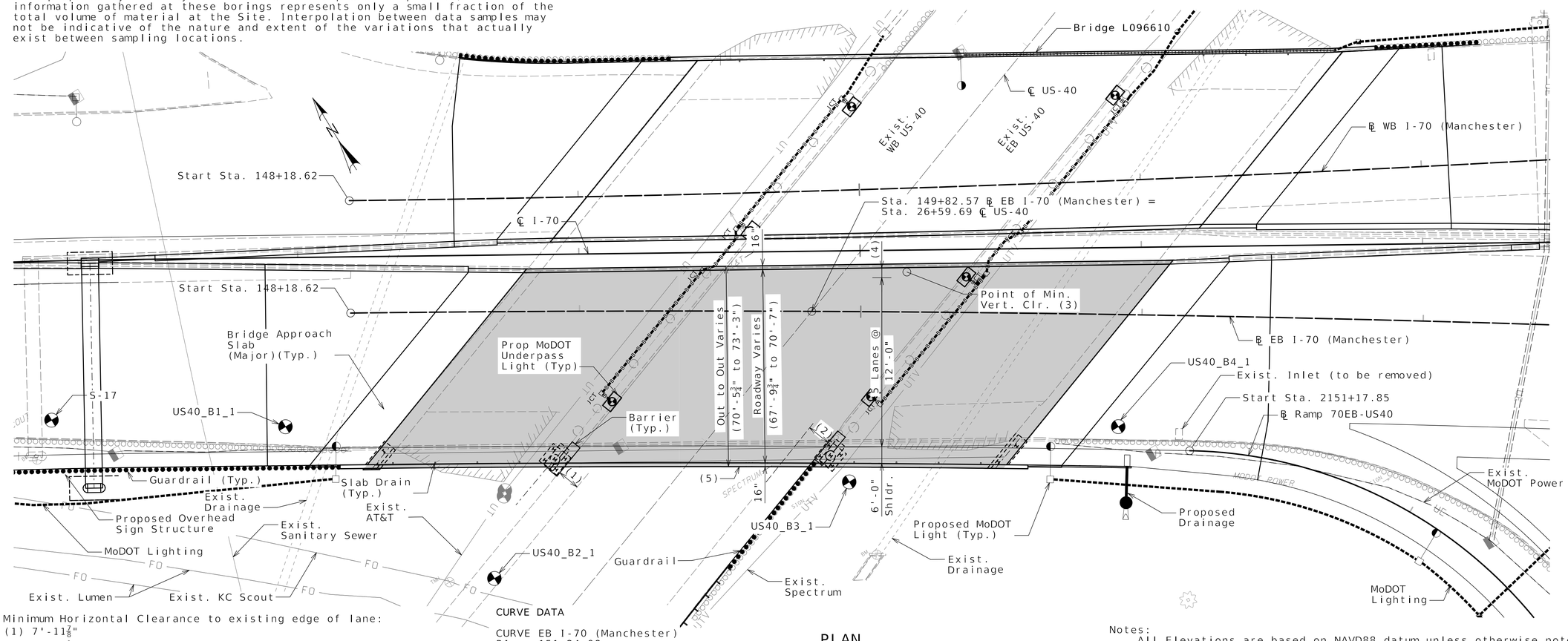
(65.4'-96.6'-64.5') Continuous Composite Wide Flange Beam Spans



ELEVATION

Indicate location of borings.

Notice and Disclaimer Regarding Boring Log Data
The locations of all subsurface borings performed by the design-build team for this structure are shown on the plan sheets for this structure. The logs for all locations indicated are provided on Sheets No. B24-31 thru B24-37. Laboratory test results, rock core photographs and other information obtained at these boring are available in the corresponding Foundation Recommendations Memo prepared by HNTB. By the nature of the exploration process, the information gathered at these borings represents only a small fraction of the total volume of material at the Site. Interpolation between data samples may not be indicative of the nature and extent of the variations that actually exist between sampling locations.



PLAN

Minimum Horizontal Clearance to existing edge of lane:
(1) 7'-11 7/8"
(2) 7'-10 1/2"
(3) Point of minimum vertical clearance. Sta. 150+16.18', 14.78' Lt., ℄ EB I-70 (Manchester)
(4) Shoulder varies (1'-9 5/8" to 6'-3") (to match existing)
(5) Minimum vertical clearance sign on back of existing barrier shall be remounted on back of proposed barrier.

CURVE DATA

CURVE EB I-70 (Manchester)
PI = 151+24.98
PC = 148+18.62
PRC = 154+31.14
Δ = 3°36'38.0" (RT)
D = 0°35'22.1"
L = 612.52'
T = 306.36'
R = 9,720.00'

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Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

Notes:
All Elevations are based on NAVD88 datum unless otherwise noted.
All dimensions are horizontal.
All Bents are parallel.
For footing elevations, see Sheet No. B24-08
See Civil Package 6: I-70 Mainline for under US-40 typical section details and underpass lighting details.

GENERAL PLAN AND ELEVATION

Detailed JUL 2025
Checked AUG 2025

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

VAN WILLIAM ROBBINS PE-2017015106
PROFESSIONAL ENGINEER — STATE OF MISSOURI
12-29-25

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-02
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DATE	DESCRIPTION
12/19/25	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

HNTB

Design Specifications (New construction):
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 (New Construction):
Vehicular = HL-93
Future Wearing Surface = 35 lb/sf
Earth - 120 lb/cf
Equivalent Fluid Pressure - 45 lb/cf (Min.)

Design Unit Stresses:

Class B Concrete (End Bents below Const. Jt.)	f'c = 3,000 psi
Class B-1 Concrete (Intermediate Bents)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Type D Barrier)	f'c = 4,000 psi
Class B-1 Concrete (Type D Barrier)	f'c = 4,000 psi
Reinforcing Steel (ASTM A615 Grade 60)	fy = 60,000 psi
Structural Steel (ASTM A709 Grade 50)	fy = 50,000 psi
Structural HP Steel Pile (ASTM A709 Grade 50)	fy = 50,000 psi

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

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

Structural Steel Protective Coatings (new structural steel only):
Protective Coating: System G in accordance with Sec 1081.

Field Coats: The color of the field coats shall be Gray (Federal Standard #26373).

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

Miscellaneous:
High strength bolts, nuts, and washers will be sampled for quality assurance as specified in Sec 106.

Fabrication and erection of structural steel shall be in accordance with Sec 712 and approved project Additional Applicable Standards.

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

All reinforcing in the Type D barriers, slab, 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 1-1/2". 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 on all exposed concrete and stone areas as noted in the plans in accordance with Sec 711. See Sheet No. B24-28.

Sacrificial graffiti protective coating shall be applied on all exposed concrete and stone areas as noted in the plans in accordance with Sec 711. See Sheet No. B24-28.

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

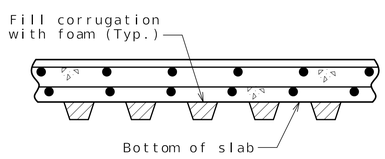
Structural steel for the beam chairs shall be coated with not less than 2 mils of inorganic zinc primer. Scratched or damaged surfaces are to be touched up in the field before concrete is poured. In lieu of coating, the beam chairs may be galvanized in accordance with ASTM A123.

Dimensions of existing structure are based on as-built plans. Contractor shall verify all dimensions in field before ordering materials.

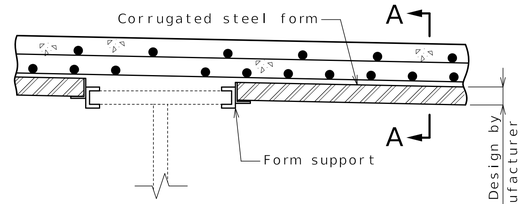
The contractor shall provide bracing necessary for lateral and torsional stability of the beams and girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not weld on or drill holes in the beams or girders.

Due to the presence of in-situ corrosive soils, provide the following protective measures at Intermediate Bents No. 2, 3 and End Bent 4:
1. Construct a 4-inch minimum "mud slab" below the bottom of the concrete pile cap beam.
2. Construct either:
A. A 12-inch layer of porus backfill material meeting the requirements of Sec 206 between the native soil and the concrete surface. Place separation geotextile per Sec 1011 between the new porus backfill and the native soil.
B. A non-permeable, effectively continuous barrier between the corrosive soil and the fill face of the pile cap, end bent and wing walls. This barrier shall not prohibit the performance of the end bent vertical drain.

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



SECTION A-A



STAY-IN-PLACE CORRUGATED STEEL FORM DETAIL

Stay-In-Place Corrugated Steel Form Notes:

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 beam & girder flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Welding on or drilling holes in the beam & 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 beam & girder loading.

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	2	5	5	2
	Approximate Length Per Each (1)	ft	79	64	66	69
	Pile Point Reinforcement	ea	ALL	ALL	ALL	ALL
	Min. Galvanized Penetration (Elev.)	ft	733	741	741	727
	Minimum Tip Penetration (Elev.)	ft	---	---	---	---
	Criteria for Min. Tip Penetration		---	---	---	---
	Pile Driving Verification Method		DT	DT	DT	DT
	Resistance Factor		0.65	0.65	0.65	0.65
	Minimum Nominal Axial Compressive Resistance	kip	320	405	405	320

(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.
DT=Dynamic Testing

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

GENERAL NOTES

Detailed JUL 2025
Checked AUG 2025

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

VAN WILLIAM ROBBINS PE-2017015106
PROFESSIONAL ENGINEER
STATE OF MISSOURI
12-29-25

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-03
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DATE	DESCRIPTION
12/19/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
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CERTIFICATE OF AUTHORITY NO. 001270
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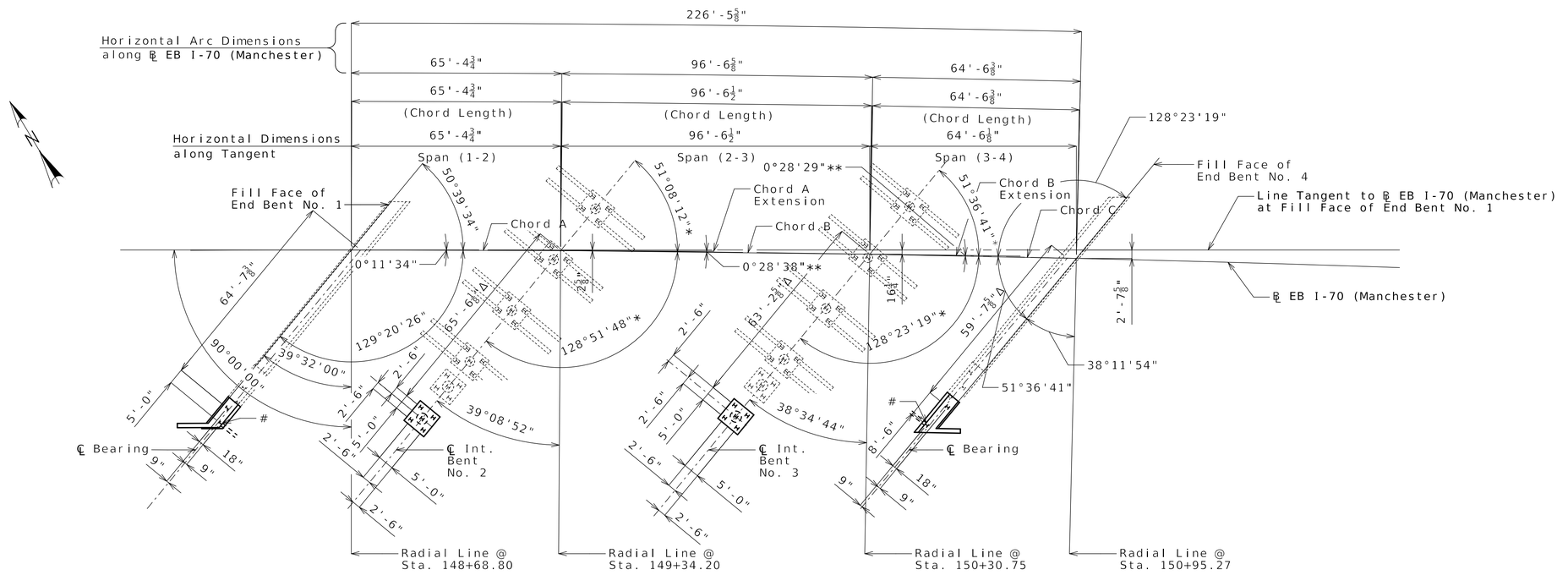

SUBSTRUCTURE LAYOUT

Notes:
All stations are given along ℄ EB I-70 (Manchester).
All dimensions are horizontal.
∗ Angle between ℄ Bent and chord.
∗∗ Angle between extended chord and chord.
Δ Measured to ℄ EB I-70 (Manchester)
Noted Piles are battered 3 (H):12(V) in the direction shown.

SUBSTRUCTURE LAYOUT

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Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

Detailed JUL 2025
Checked AUG 2025

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

GINA D. HORNER PE-30413
PROFESSIONAL ENGINEER — STATE OF MISSOURI
Gina D Horner
12/29/2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-04
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

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12/19/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB

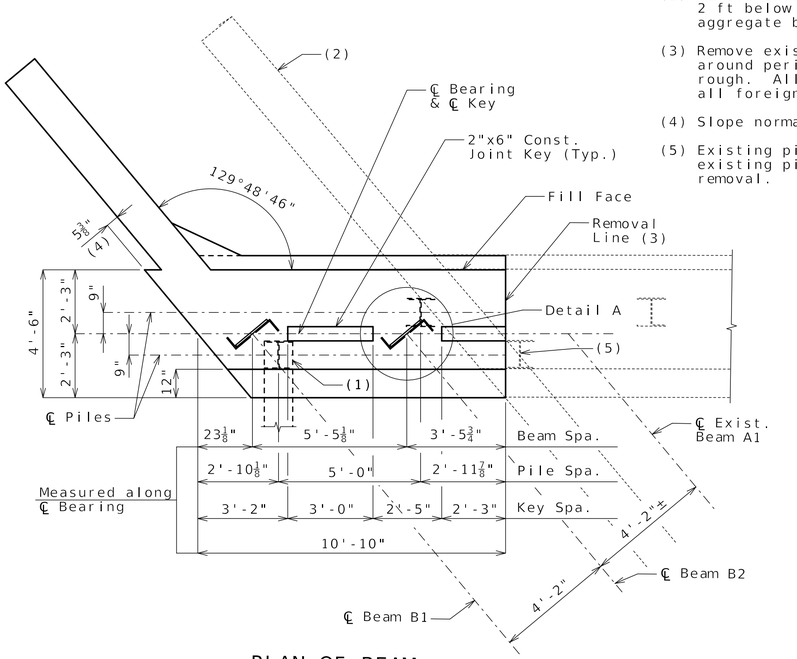
(1) Pile shall be battered 3 (H) on 12 (V) in direction shown.

(2) Remove existing wingwall to at least 2 ft below proposed grade or 6" below aggregate base for approach slab

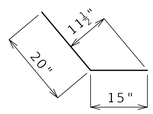
(3) Remove existing end bent to neat lines around perimeter. Interior surface can be rough. All surfaces shall be cleaned and all foreign and loose matter removed.

(4) Slope normal to bridge fascia to drain.

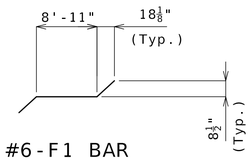
(5) Existing pile to be used in place. Protect existing pile during end bent concrete removal.



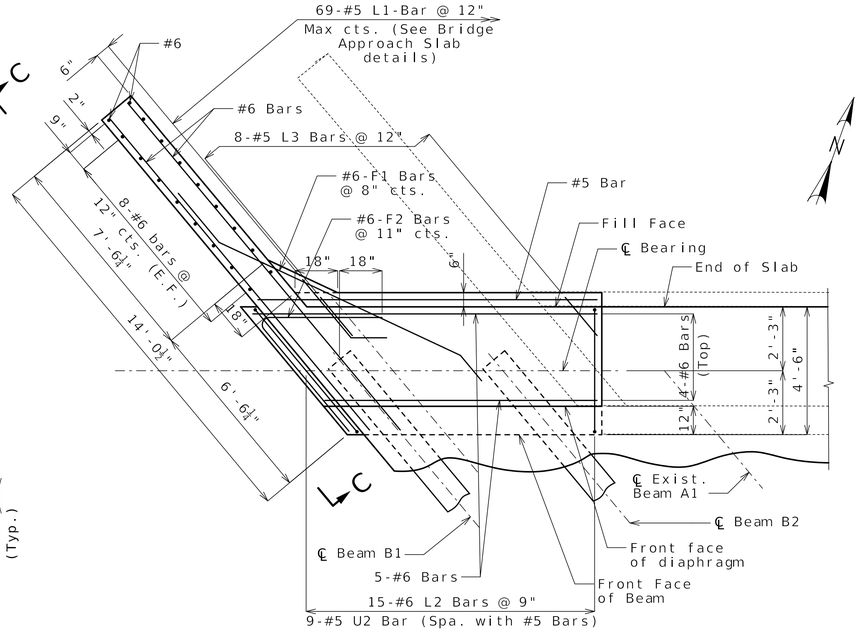
PLAN OF BEAM



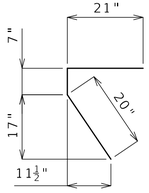
#5-L1 BAR



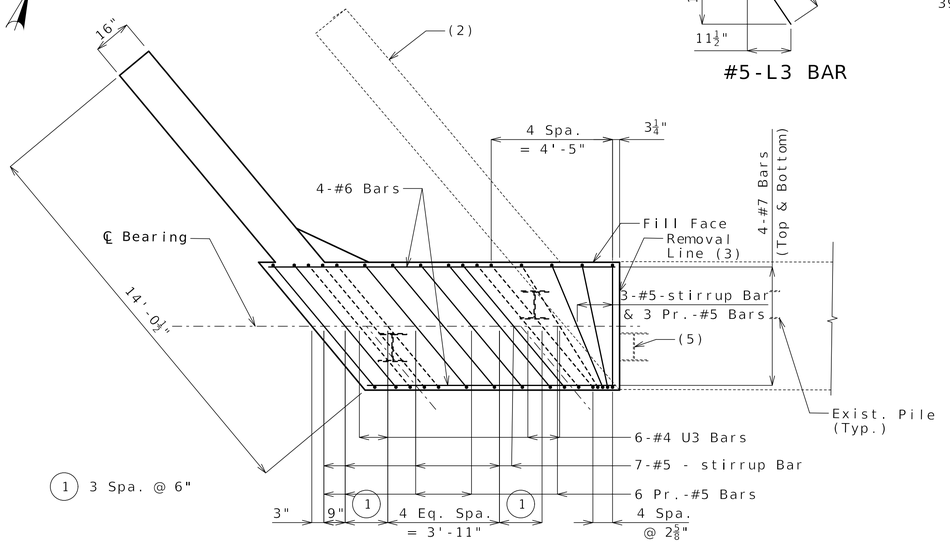
#6-F1 BAR



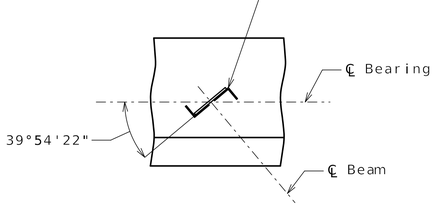
PART PLAN
(U2 bars and pairs of #5 Bars placed with beam and not shown for clarity)



#5-L3 BAR

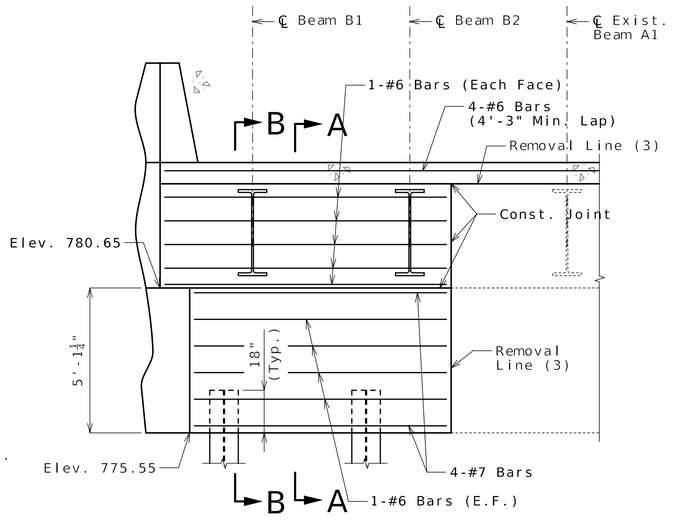


PLAN OF BEAM SHOWING REINFORCING
(Key not shown for clarity)



DETAIL A

Notes:
Work this sheet with Sheet No. B24-06.
For Sections A-A, B-B and Elevation C-C, see Sheet No. B24-06.
Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inches.
All U bars and pairs of vertical bars shall be placed along skew except as shown.
For angles of beam relative to ℄ Bearing, see Sheet No. B24-14.
For details of bridge approach slab, see Sheet No. B24-29.
The #6-F bars shall be bent in the field to clear beams.
Steel for beam chairs shall be ASTM A709 Grade 36.



SECTION NEAR END BENT
(Looking backstation)

DETAILS OF END BENT NO. 1

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

GINA D. HORNER PE-30413 PROFESSIONAL ENGINEER STATE OF MISSOURI
Gina D Horner
12/29/2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-05
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	12/19/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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CLARKSON RADMACHER JOINT VENTURE
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KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
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Detailed JUL 2025
Checked AUG 2025

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

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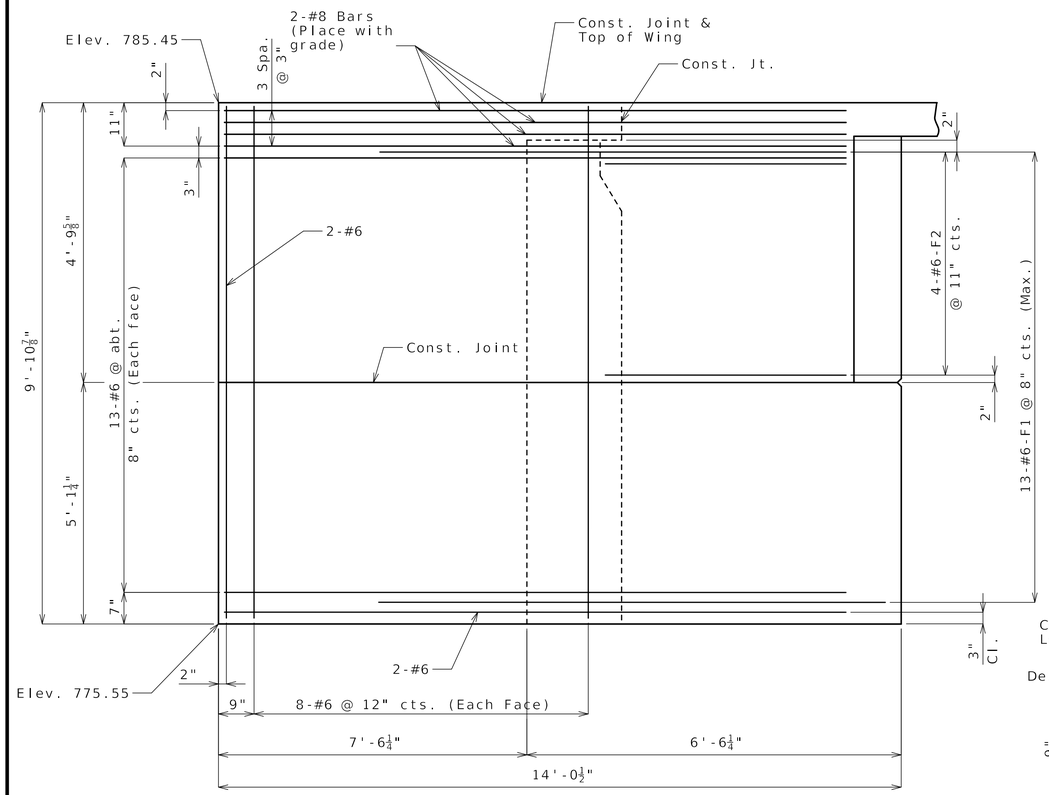
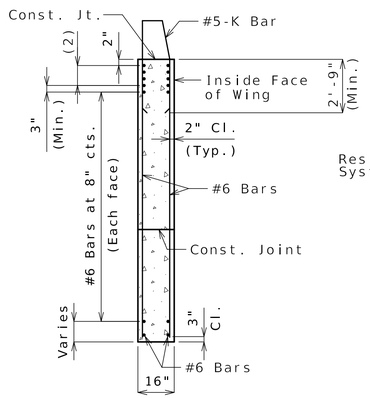
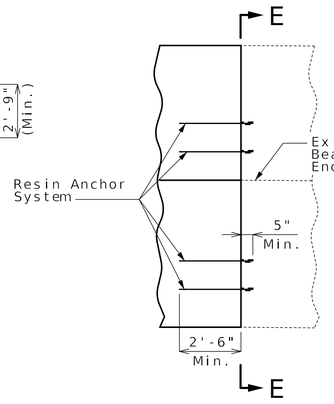


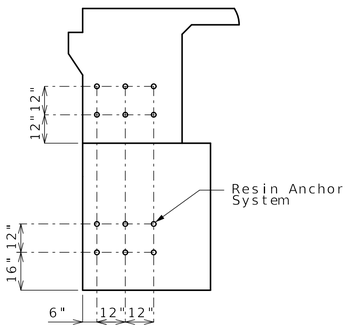
ELEVATION C-C



TYPICAL SECTION THRU WING

(2) #8 Bars at 3" cts. (Each face)(Place with grade)





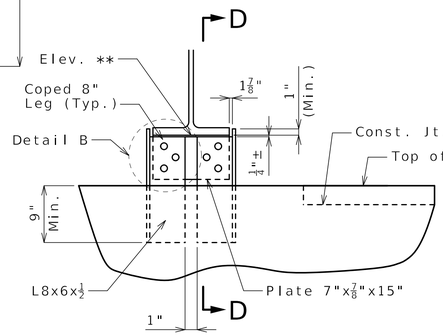
SECTION E-E

Resin Anchor Notes:

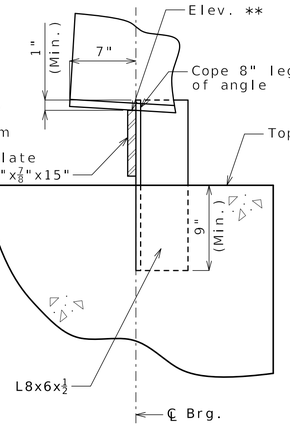
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

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

An epoxy coated #6 Grade 60 reinforcing bar 2'-6" long shall be substituted for the threaded rod.

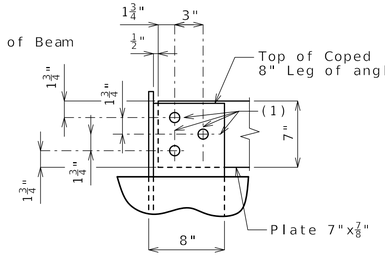


BEAM CHAIR ELEVATION



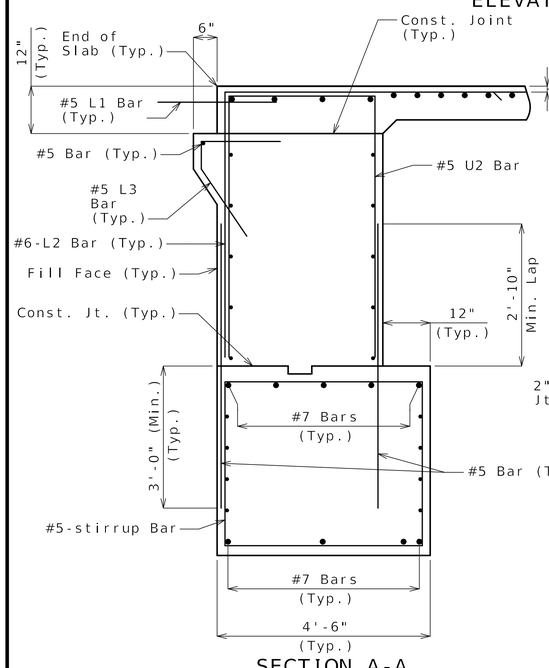
PART SECTION D-D

** 781.30 for Beam B1
781.34 for Beam B2

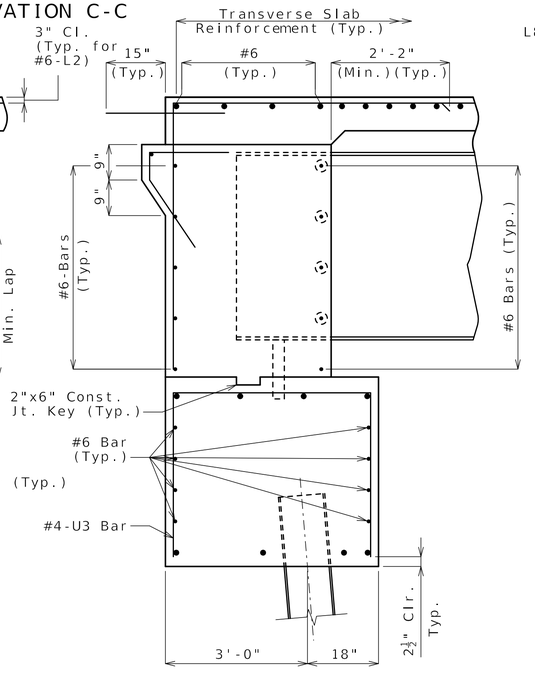


(1) ℄ 1 1/16" ∅ Hole in angle (Field drilled) & plate for 1" ∅ ASTM F3125 Grade A325 Type 1 bolts

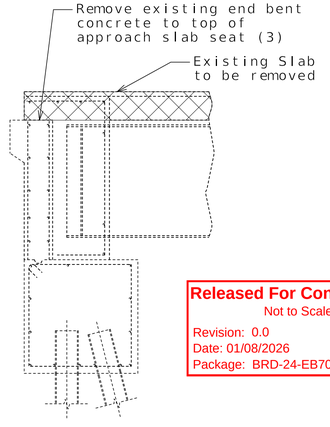
DETAIL B



SECTION A-A



SECTION B-B



EXISTING SECTION

(3) Surface of existing concrete to remain shall be prepared per Sec 704. Existing reinforcing embedded in end bent concrete shall remain and be cleaned. Damaged reinforcing shall be repaired per Sec 704.

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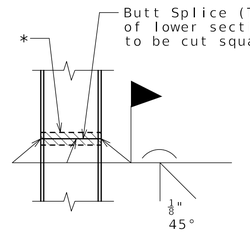
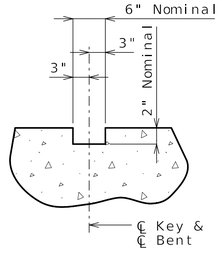
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40



STEEL PILE SPLICE

(If required)

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



SECTION THRU KEY

Notes:

Work this sheet with Sheet No. B24-05.

For location of Sections A-A, B-B and Elevation C-C, see Sheet No. B24-05.

For reinforcement of Type D Barrier, see Sheet No. B24-27.

DETAILS OF END BENT NO. 1

Detailed JUL 2025
Checked AUG 2025

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

GINA D. HORNER PE-30413
PROFESSIONAL ENGINEER
STATE OF MISSOURI
Gina D Horner
12/29/2025

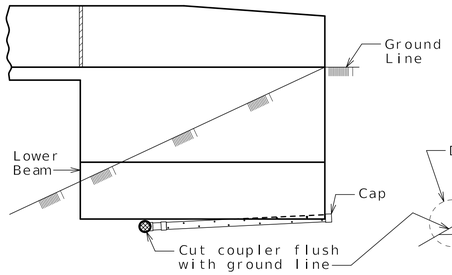
DATE PREPARED 12/19/2025

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	B24-06

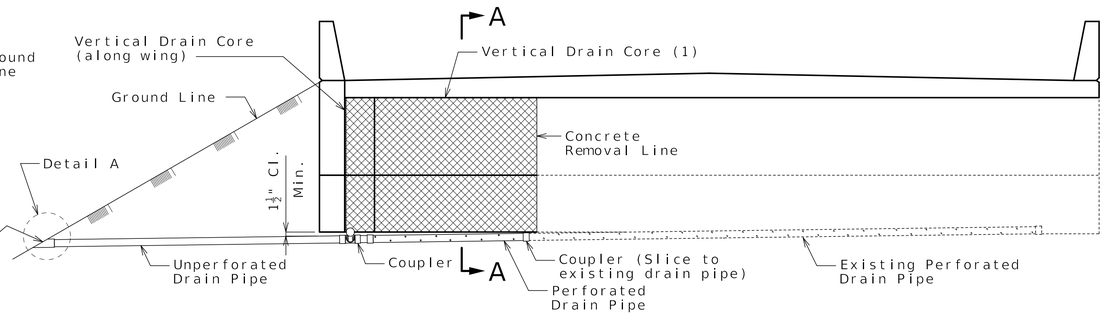
COUNTY: JACKSON
JOB NO.: J4I1486D
CONTRACT ID.: 240807-C01
PROJECT NO.:
BRIDGE NO.: L09669

DESCRIPTION	DATE
REV0 - RFC SUBMITTAL	12/19/25

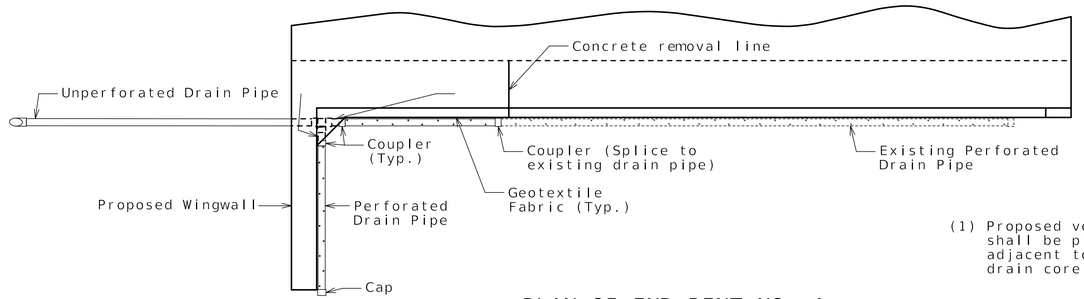
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB



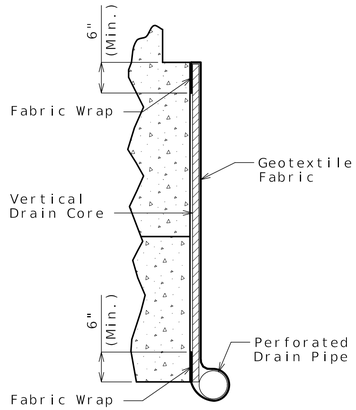
ELEVATION OF WING



ELEVATION OF END BENT NO. 1

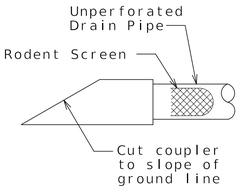


PLAN OF END BENT NO. 1

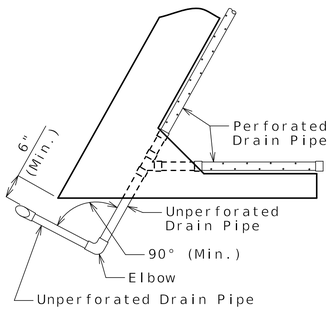


PART SECTION A-A
(Section thru wing similar)

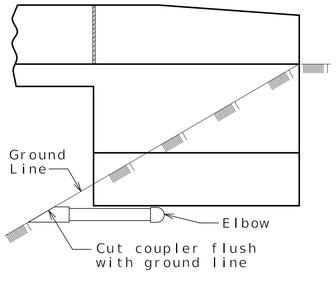
(1) Proposed vertical drain core shall be placed immediately adjacent to existing vertical drain core to remain.



DETAIL A

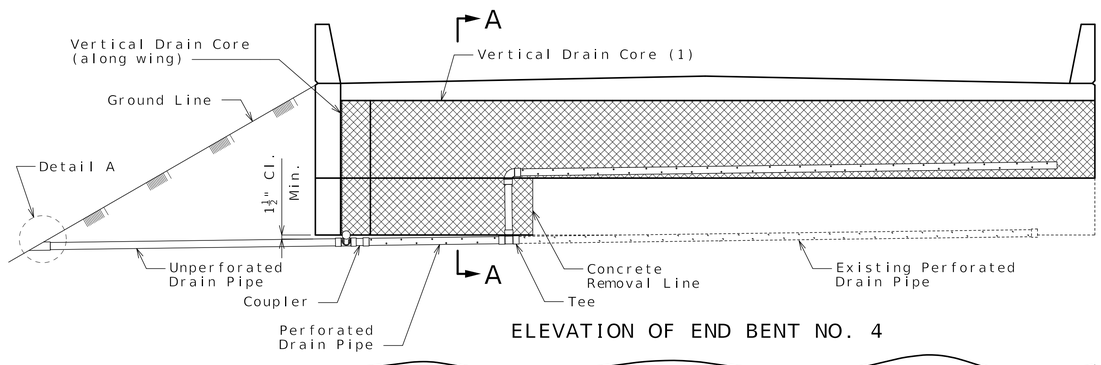


PART PLAN

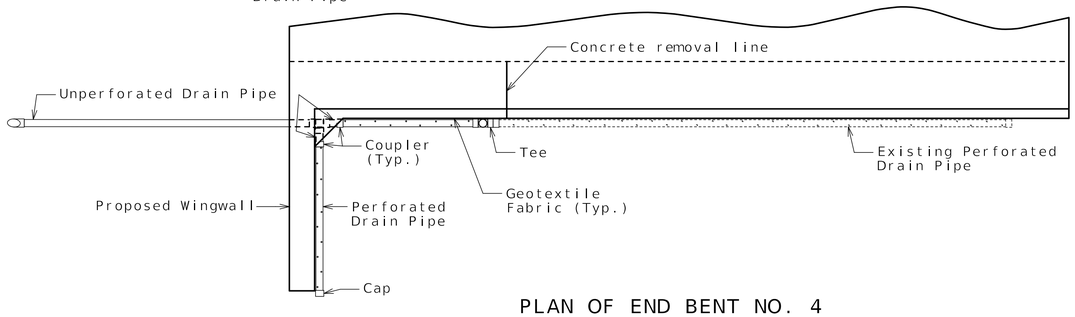


ELEVATION OF WING

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



ELEVATION OF END BENT NO. 4



PLAN OF END BENT NO. 4

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.

Squared end bent shown, skewed end bent similar.

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

Released For Construction
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Revision: 0.0
Date: 01/08/2026
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VERTICAL DRAIN AT END BENTS

Detailed JUL 2025
Checked AUG 2025

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

GINA D. HORNER PE-30413 PROFESSIONAL ENGINEER STATE OF MISSOURI
Gina D Horner
12/29/2025

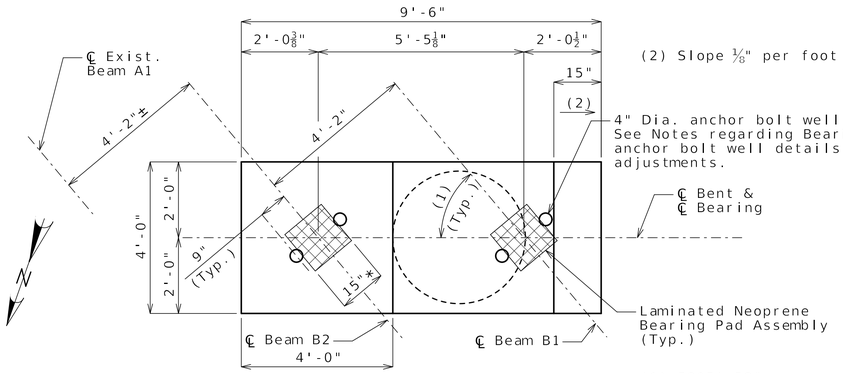
DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-07
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DATE	DESCRIPTION
12/19/25	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

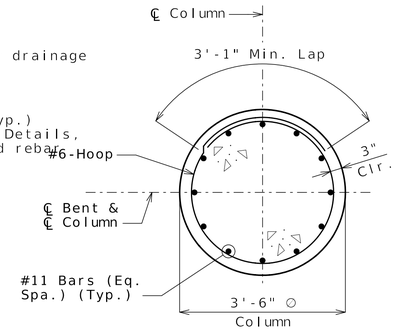
HNTB



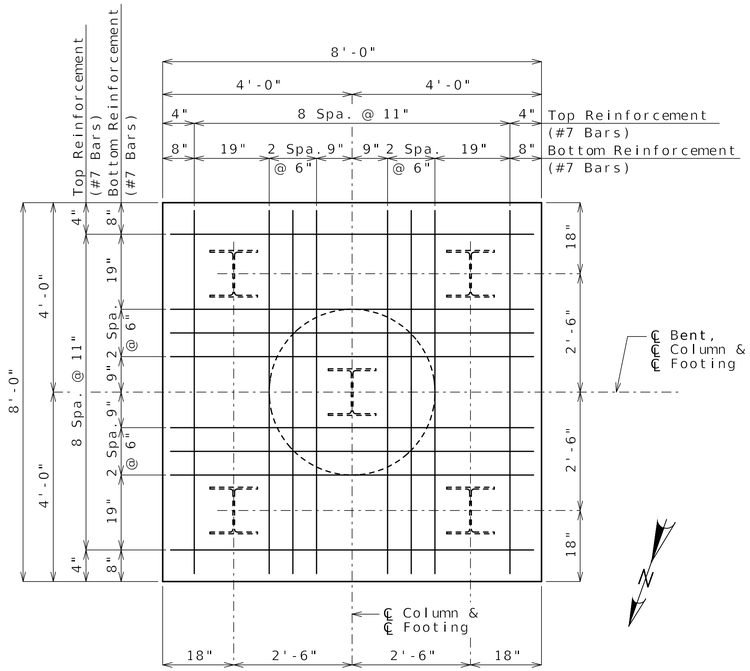
(2) Slope ⅛" per foot for drainage

(1) 50°5'-38"

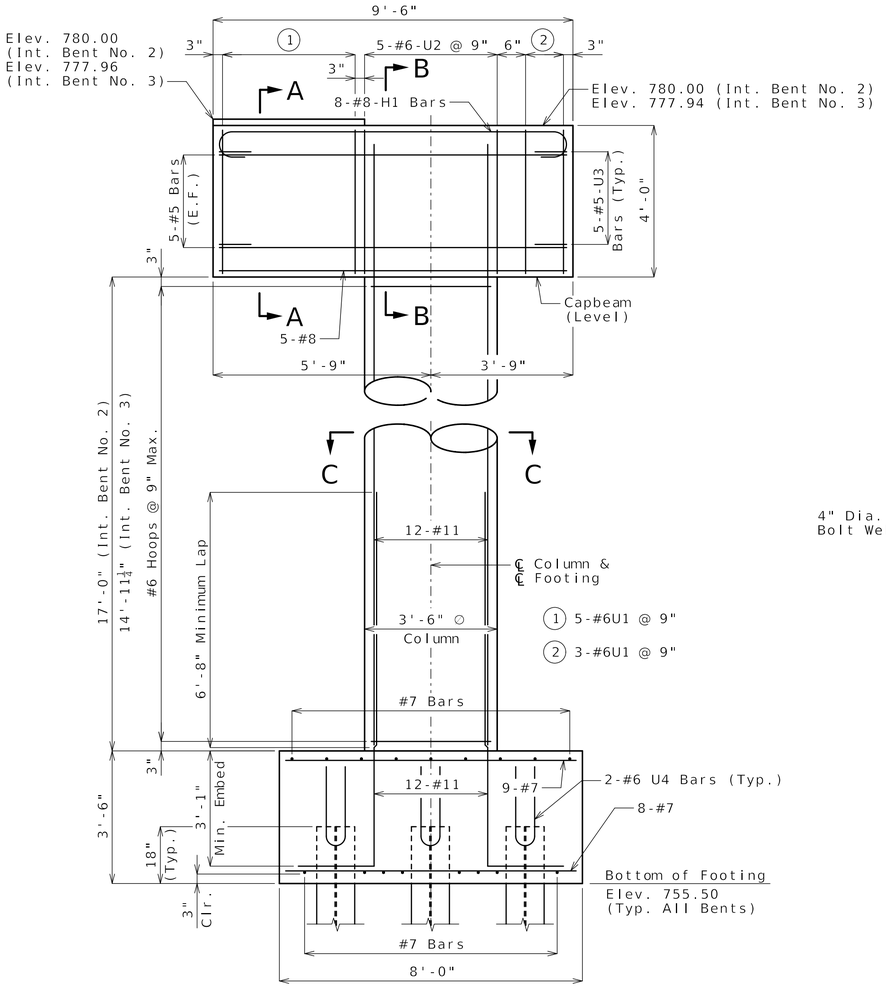
PLAN OF CAPBEAM



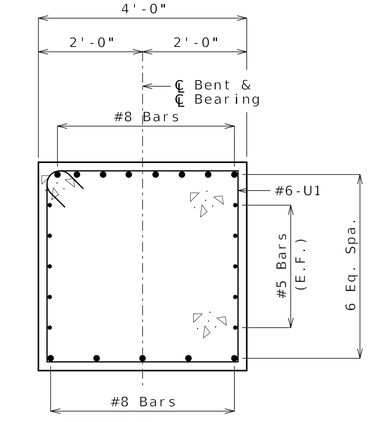
SECTION C-C



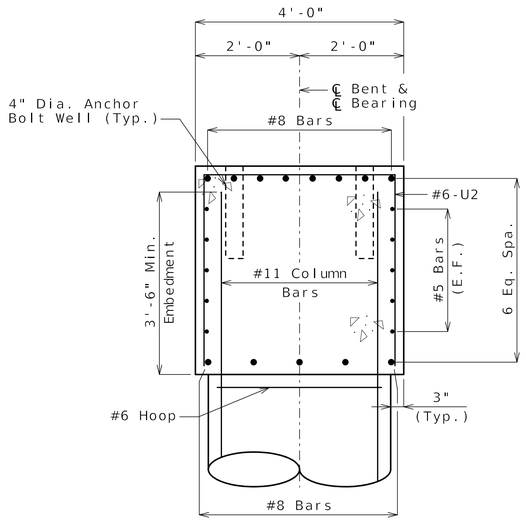
FOOTING PLAN



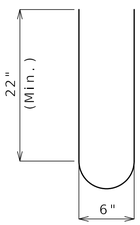
ELEVATION
(Looking upstation)



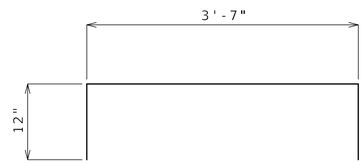
SECTION A-A



SECTION B-B



#6-U4 BAR



#5-U3 BAR

Notes:

Work this sheet with Sheet No. B24-09

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

For location of footings, see Sheet No. B24-04.

For details of Laminated Neoprene Bearing Pad Assembly, see Sheet No. B24-13.

*Bearing Pads and Anchor Bolts are placed perpendicular to ℄ Beam.

Reinforcing steel shall be shifted to clear anchor bolt wells by at least ½ inch.

Anchor bolt wells shall not be formed with galvanized corrugated steel pipe.

*Bearing pads and anchor bolts are placed perpendicular to ℄ Beam.

For soil backfill requirements, see Sheet No. B24-03.

DETAILS OF INTERMEDIATE BENTS

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

WILLIAM JOSEPH STURGEON PE-2014017021
PROFESSIONAL ENGINEER
STATE OF MISSOURI
12/29/2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-08
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DATE	DESCRIPTION
12/19/25	REVO - RFC SUBMITTAL

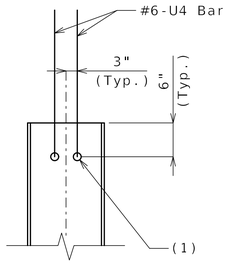
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

Detailed JUL 2025
Checked AUG 2025

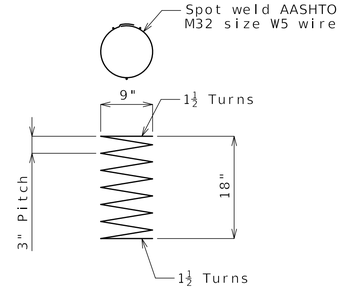
Note: This drawing is not to scale. Follow dimensions.

B_L09669_B24-11_J4I1486D.dgn 9:26:32 AM 12/19/2025

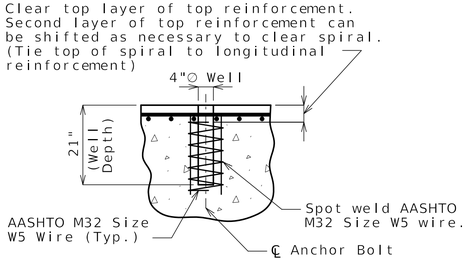


DETAILS OF HP PILE ANCHORS

(1) Holes required in pile webs for threading bars through. Holes shall not be larger than necessary and can be field cut. Galvanization shall be repaired per 1081.



DETAIL OF SIZE W5 WIRE



DETAIL OF ANCHOR BOLT WELL

Notes:
Work this sheet with Sheet No. B24-08

DETAILS OF INTERMEDIATE BENTS

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

Detailed JUL 2025
Checked AUG 2025

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

WILLIAM JOSEPH STURGEON
PE-2014017021
STATE OF MISSOURI
PROFESSIONAL ENGINEER
12/29/2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-09
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DATE	DESCRIPTION
12/19/25	REV 0 - RFC SUBMITTAL

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

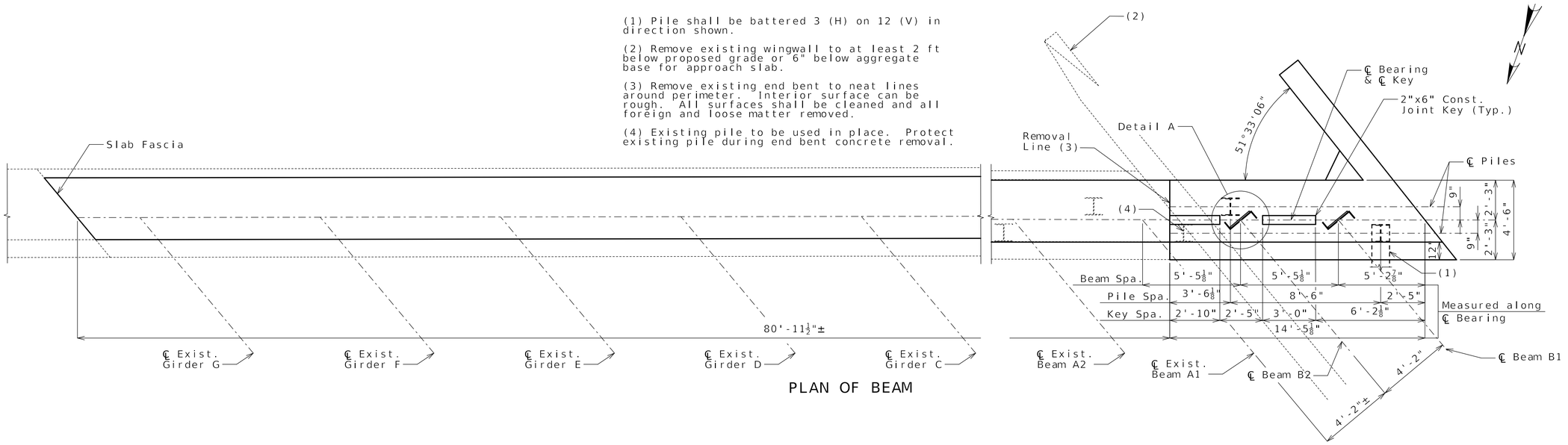
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB

(1) Pile shall be battered 3 (H) on 12 (V) in direction shown.

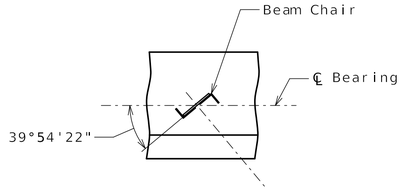
(2) Remove existing wingwall to at least 2 ft below proposed grade or 6" below aggregate base for approach slab.

(3) Remove existing end bent to neat lines around perimeter. Interior surface can be rough. All surfaces shall be cleaned and all foreign and loose matter removed.

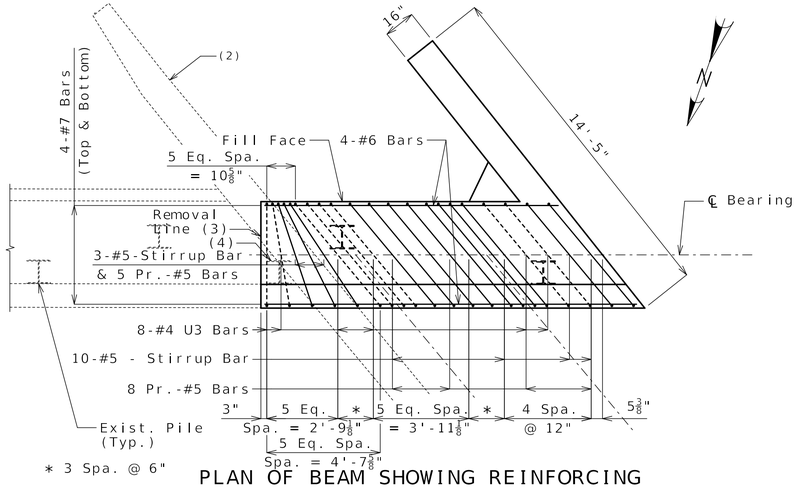
(4) Existing pile to be used in place. Protect existing pile during end bent concrete removal.



PLAN OF BEAM



DETAIL A



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

Notes:
Work this sheet with Sheets No. B24-11 and B24-12.
All U bars and pairs of vertical bars shall be placed along skew except as shown.
Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inches.
For angles of beam relative to ℄ Bearing, see Sheet No. B24-14.
For details of bridge approach slab, see Sheet No. B24-29.
Steel for beam chairs shall be ASTM A709 Grade 36.
For soil backfill requirements, see Sheet No.B24-03.

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

DETAILS OF END BENT NO. 4

Detailed JUL 2025
Checked AUG 2025

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

GINA D. HORNER PE-30413
PROFESSIONAL ENGINEER
STATE OF MISSOURI
Gina D Horner
12/29/2025

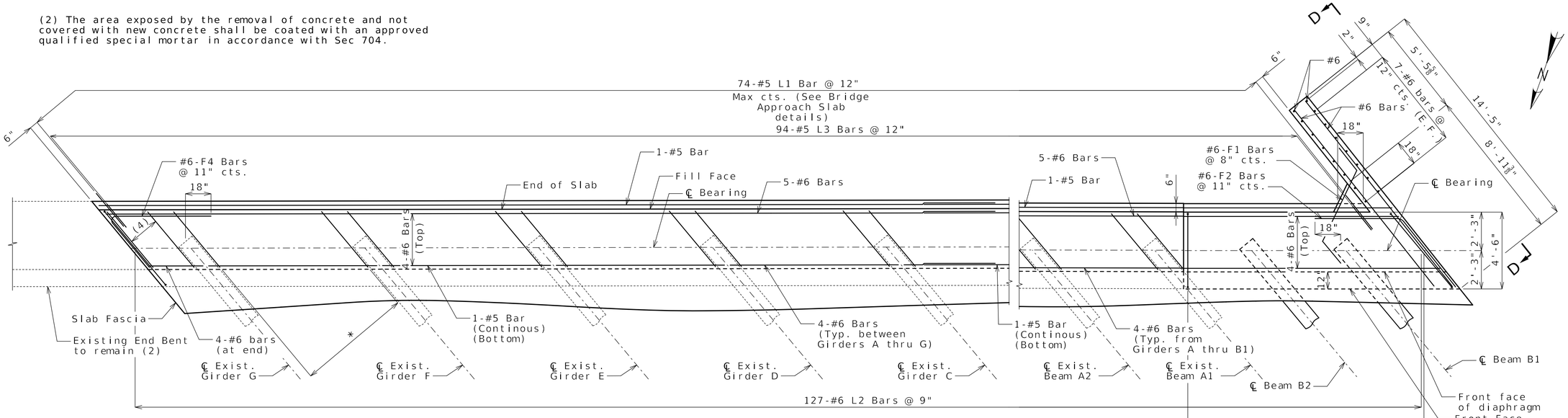
DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-10
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	12/19/25

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

(2) The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.



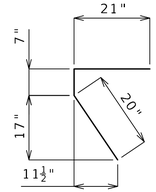
(4) 3 Pairs of 2-#5-U1 Bars @ 13" cts.

* 8 Pairs of 2-#5-U1 Bars @ 12" cts. (Max.) (Typ. Btwn exist. girders & beams)

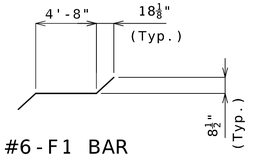
PART PLAN

(U3 bars and pairs of #5 Bars placed with beam are not shown for clarity)

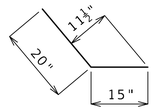
Notes:
Lap Splice for #5 bars = 2'-10" (Min.)
Lap Splice for #6 bars = 4'-3" (Min.)



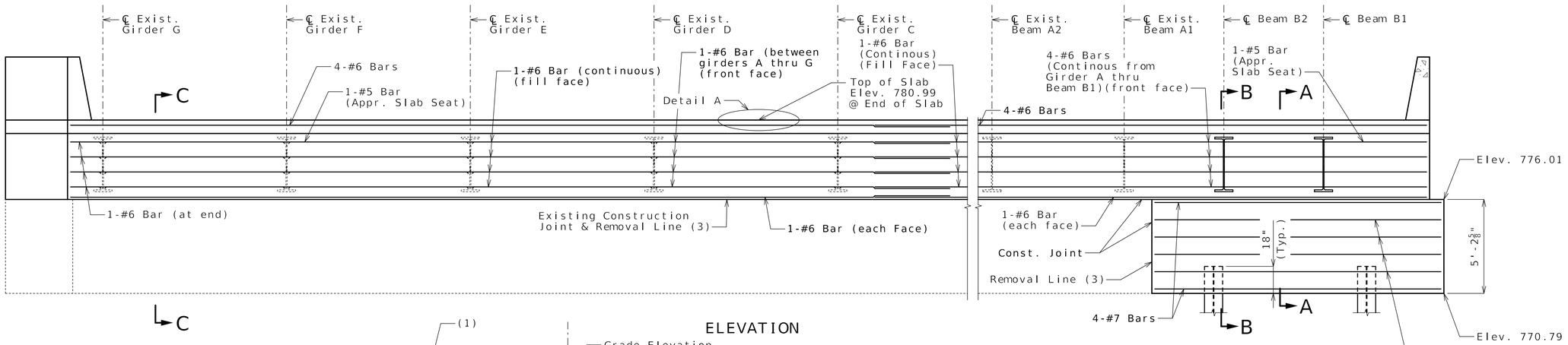
#5-L3 BAR



#6-F1 BAR



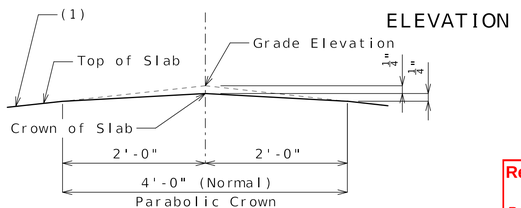
#5-L1 BAR



ELEVATION

(1) Elevations shown on Sheet B24-21 are based on 2025 survey of existing deck. Cross slope will vary to match bridge deck elevations. Dimensions shown in Detail A are based on an assumed cross slope of 2%.

(3) Bars bonded in existing concrete below constuction joint shall not be removed and cleanlly stripped for embedment into new concrete. If length is available, exisitng bars shall extend into new concrete at least 40 diameters for plain bars and 30 diameters for deformed bars.



DETAIL A

(Crown is located 12'-0" right of ℄ EB I-70 (Manchester))

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

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

Notes:
Work this sheet with Sheets No. B24-10 and B24-12.
For Sections A-A, B-B, C-C and Elevation D-D, see Sheet No. B24-12.
The #6-F bars shall be bent in the field to clear beams.

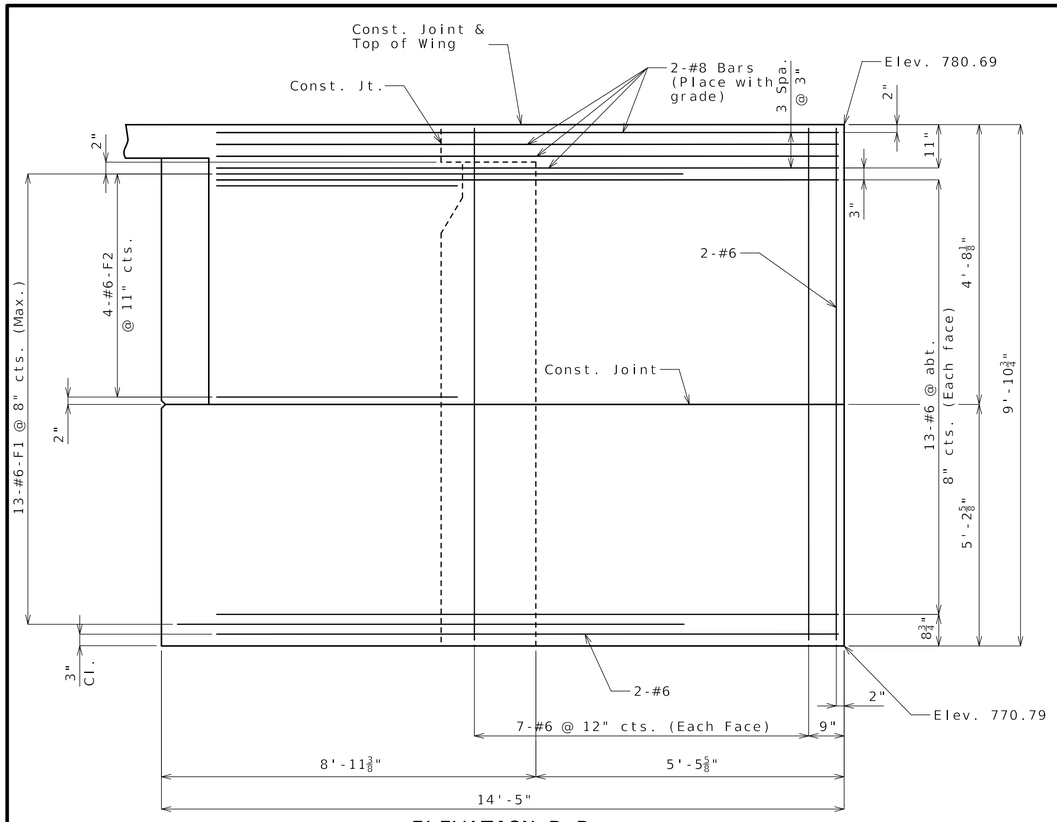
DETAILS OF END BENT NO. 4

Detailed JUL 2025
Checked AUG 2025

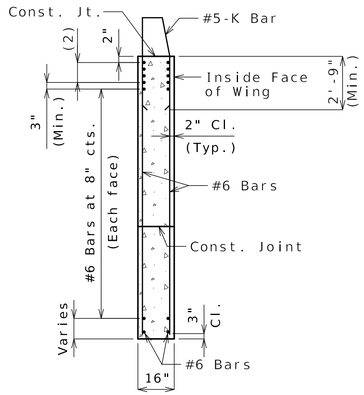
STATE OF MISSOURI
PROFESSIONAL ENGINEER
GINA D. HORNER
PE-30413
Gina D Horner
12/29/2025
DATE PREPARED
12/19/2025
ROUTE I-70
STATE MO
DISTRICT BR
SHEET NO. B24-11
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DATE	DESCRIPTION
12/19/25	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
HNTB

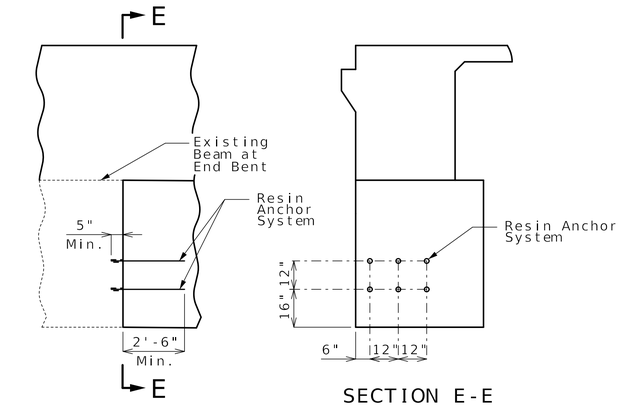


ELEVATION D-D



TYPICAL SECTION THRU WING

(2) #8 Bars at 3" cts. (Each face)(Place with grade)



SECTION E-E

Resin Anchor Notes:

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

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

An expoxy coated #6 Grade 60 reinforcing bar 2'-6" long shall be substituted for the threaded rod.

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Revision: 0.0
Date: 01/08/2026
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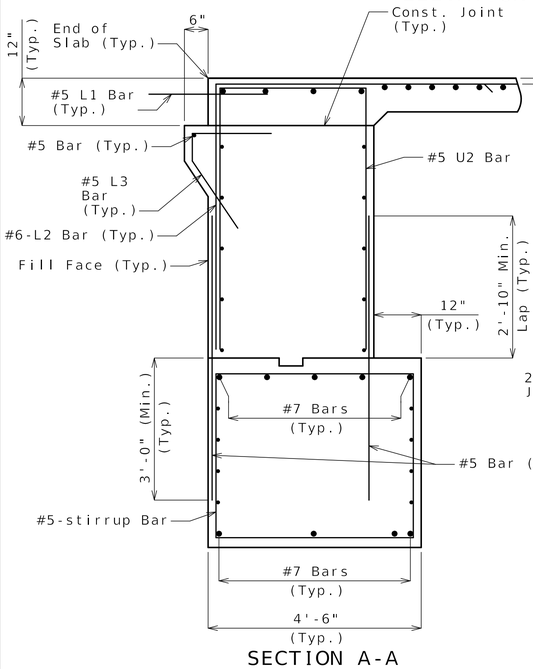
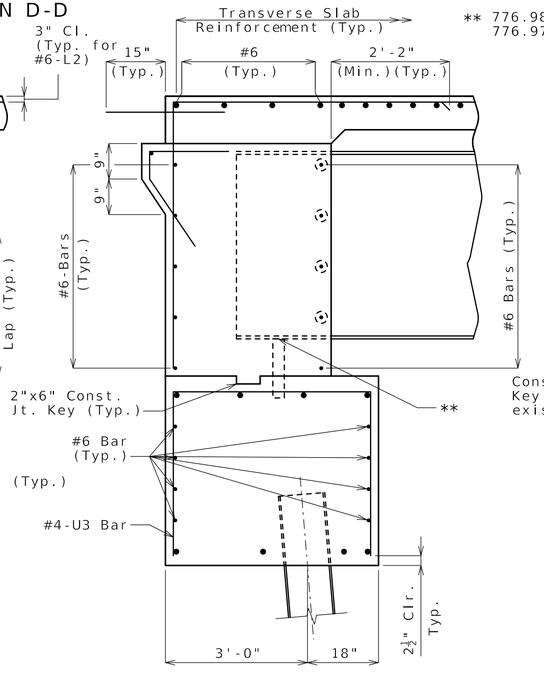
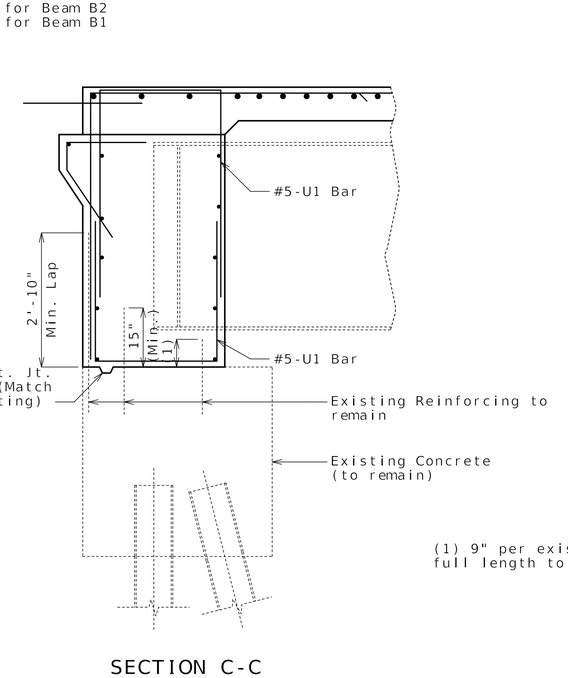


SECTION A-A



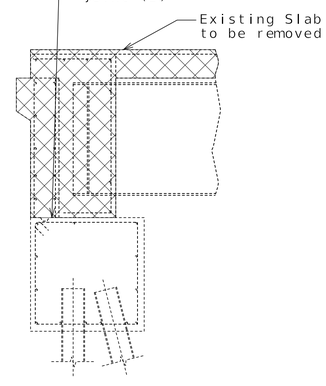
SECTION B-B

** 776.98 for Beam B2
776.97 for Beam B1



SECTION C-C

(1) 9" per existing plans, full length to remain.



EXISTING SECTION

(3) Surface of existing concrete to remain shall be prepared per Sec 704. Existing reinforcing embedded in end bent concrete shall remain as noted and be cleaned. Damaged reinforcing shall be repaired per Sec 704.

Notes:

Work this sheet with Sheets No. B24-10 and B24-11.

For location of Sections A-A, B-B, C-C and Elevation D-D, see No. Sheet B24-11.

For reinforcement of Type D Barrier, see Sheet No. B24-27.

For Steel Pile Splice Details, and Beam Chair Details and Section Thru Key, see Sheet No. B24-06.

DETAILS OF END BENT NO. 4

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Checked AUG 2025

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

STATE OF MISSOURI
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PE-30413
PROFESSIONAL ENGINEER
Gina D Horner
12/29/2025

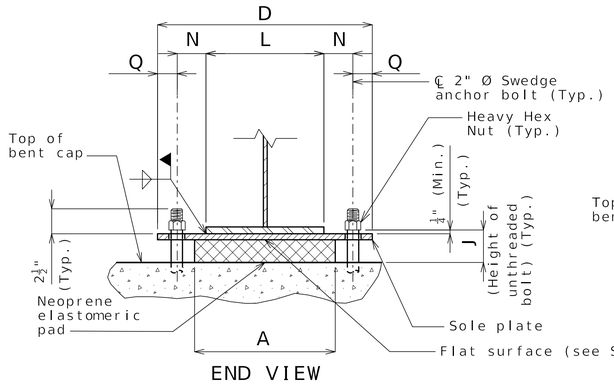
DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-12
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DATE	DESCRIPTION
12/19/25	REV 0 - RFC SUBMITTAL

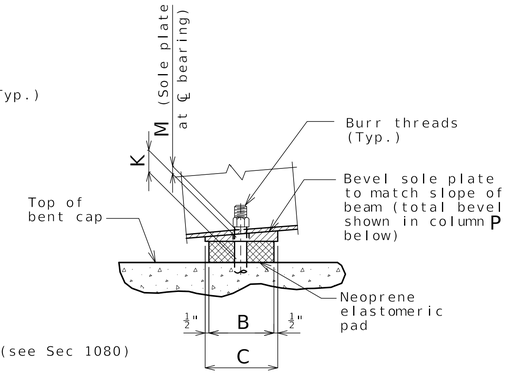
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

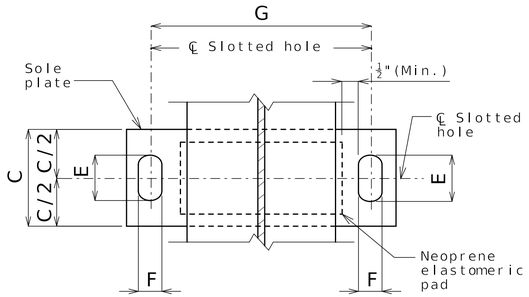
HNTB



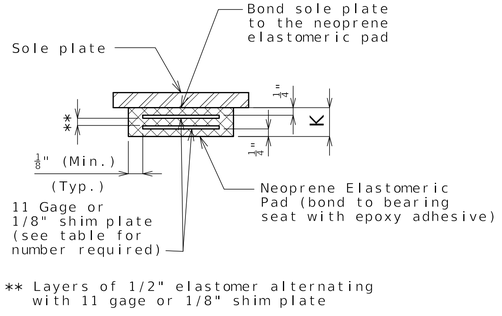
END VIEW



SIDE VIEW

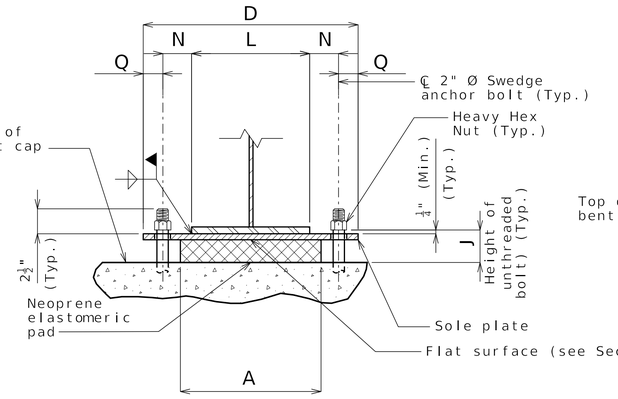


PART PLAN

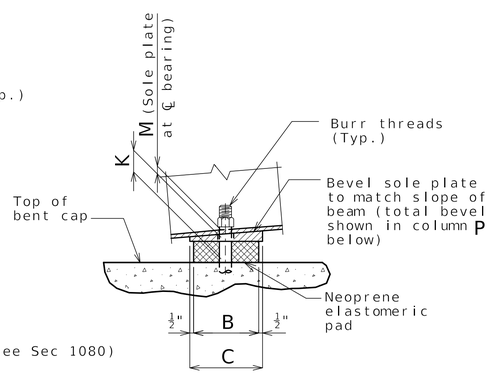


** Layers of 1/2" elastomer alternating with 11 gage or 1/8" shim plate

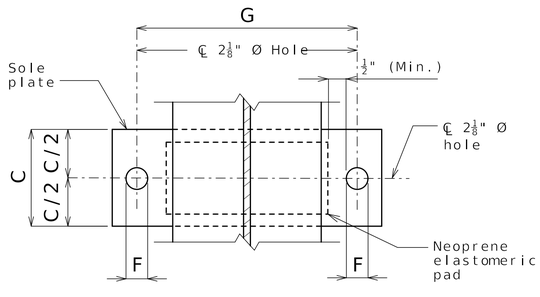
NEOPRENE ELASTOMERIC PAD



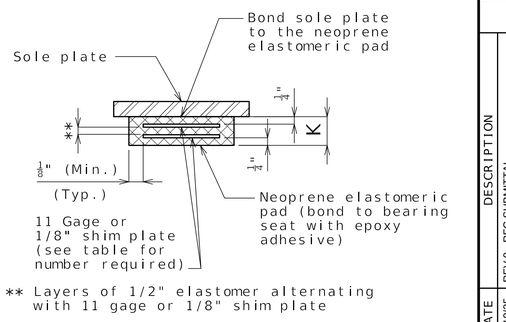
END VIEW



SIDE VIEW



PART PLAN



** Layers of 1/2" elastomer alternating with 11 gage or 1/8" shim plate

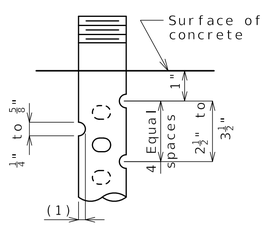
NEOPRENE ELASTOMERIC PAD

EXPANSION BEARINGS																
BENT NO.	A	B	C	D	E	F	G	J	K	L	M	N	P	Q	R	NUMBER OF SHIM PLATES *	NUMBER REQUIRED
2	15"	14"	15"	24"	4¼"	2⅛"	18"	4¼"	2½"	12¼"	1½"	2⅞"	¼"	3"	⅛"	4	2
																TOTAL BEARINGS	2

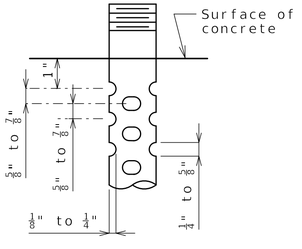
* The required shim plate shall be placed between layers of elastomer and molded together to form an integral unit.

FIXED BEARINGS															
BENT NO.	A	B	C	D	F	G	J	K	L	M	N	P	Q	NUMBER OF SHIM PLATES *	NUMBER REQUIRED
3	15"	14"	15"	24"	2⅛"	18"	4¼"	2½"	12¼"	1½"	2⅞"	¼"	3"	4	2
														TOTAL BEARINGS	2

* The required shim plate shall be placed between layers of elastomer and molded together to form an integral unit.



DETAIL OF 3/4"Ø THRU 2 1/2"Ø ANCHOR BOLTS



OPTIONAL DETAIL OF 1 3/8"Ø THRU 2 1/2"Ø ANCHOR BOLTS

SWEDGE ANCHOR BOLT DETAILS

(1) ⅛" for ¾"Ø thru 1¼"Ø anchor bolts

⅛" to ¼" for 1⅜"Ø thru 2½"Ø anchor bolts

GENERAL NOTES:

Anchor bolts shall be 2" Ø ASTM F1554 Grade 55 swedged bolts and shall extend 21" into the concrete with ASTM A563 Grade A Heavy Hex nuts. Actual manufacturer's certified mill test reports (chemical and mechanical) shall be provided. Swedging shall be 1" less than extension into the concrete.

Anchor bolt shall be at the centerline of slotted hole at 60°F. Bearing position shall be adjusted R for each 10° fall or rise in temperature at installation.

Anchor bolts and heavy hex nuts shall be coated with a minimum of two coats of inorganic zinc primer to provide a total dry film thickness of 4 mils minimum, 6 mils maximum, or galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

Neoprene Elastomeric Pads shall be 60 Durometer.

Structural steel for sole plate shall be ASTM A709 Grade 36 and shall be coated with a minimum of two coats of inorganic zinc primer to provide a total dry film thickness of 4 mils minimum, 6 mils maximum.

Laminated Neoprene Bearing Pad Assembly shall be in accordance with Sec 716.

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LAMINATED NEOPRENE BEARING PAD ASSEMBLY

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Gina D Horner
12/29/2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-13
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	12/19/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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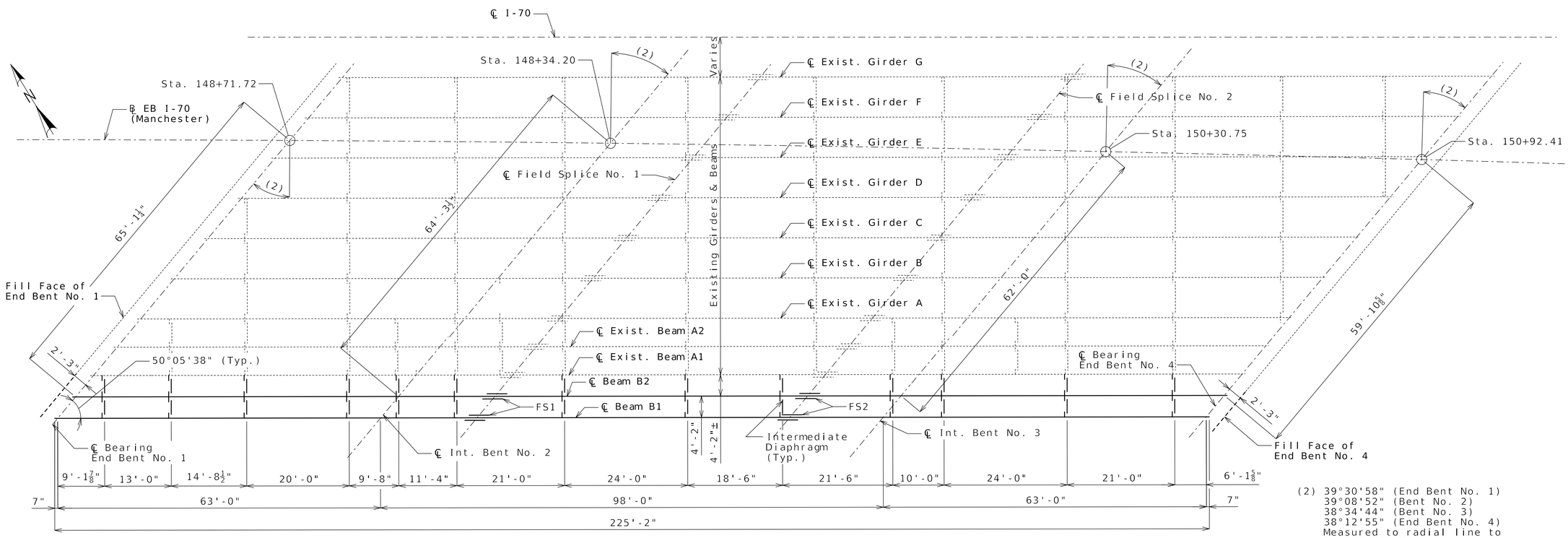
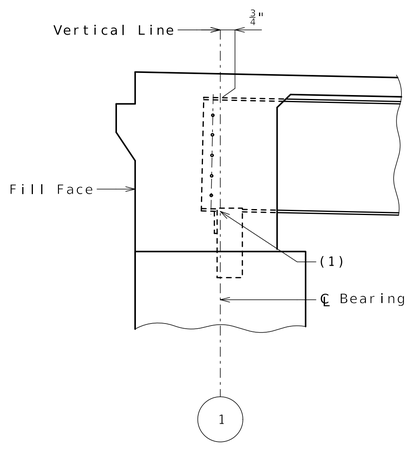
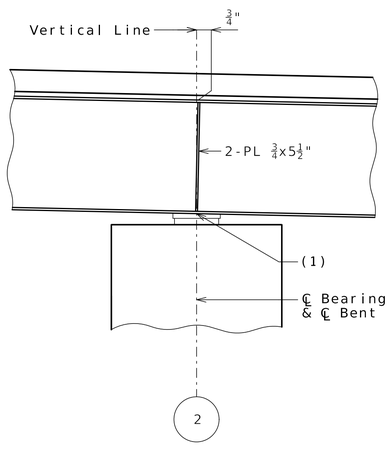
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB

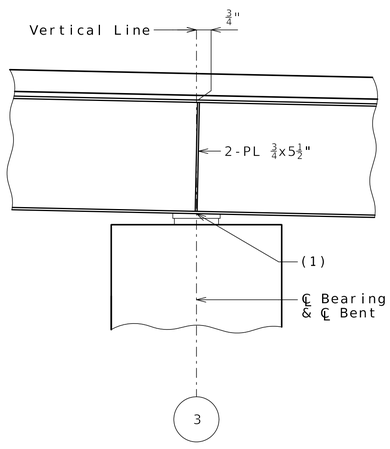


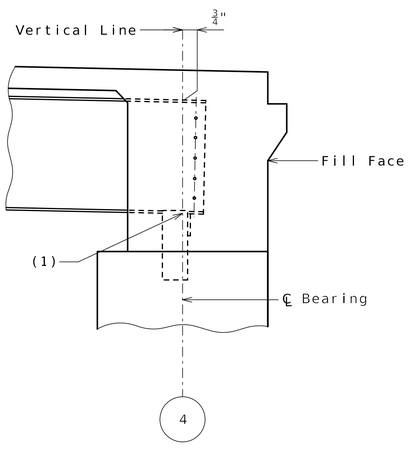
(2) 39°30'58" (End Bent No. 1)
39°08'52" (Bent No. 2)
38°34'44" (Bent No. 3)
38°12'55" (End Bent No. 4)
Measured to radial line to ℄ EB I-70 (Manchester)

FRAMING PLAN









PART LONGITUDINAL SECTION

(1) Point of Rotation location at the bottom of flange

Notes:
All longitudinal dimensions are horizontal and measured along ℄ Beam.
Beams within a span are parallel.
All bents are parallel.
Contractor shall verify dimensions to new intermediate diaphragm locations to ensure they line up with stiffener locations on Existing Beam A1.

(X) Denotes ℄ Bearing

FRAMING PLAN

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STATE OF MISSOURI PROFESSIONAL ENGINEER
12-29-25

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-14
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

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CERTIFICATE OF AUTHORITY NO. 001270
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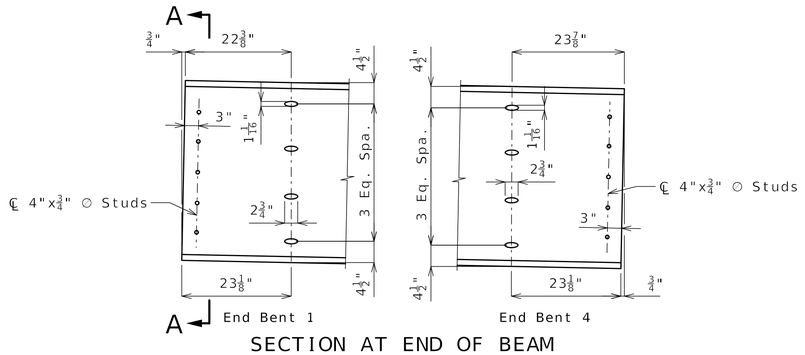
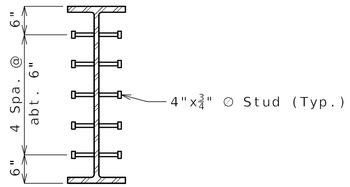
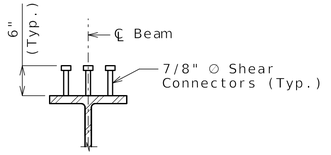


SECTION AT END OF BEAM

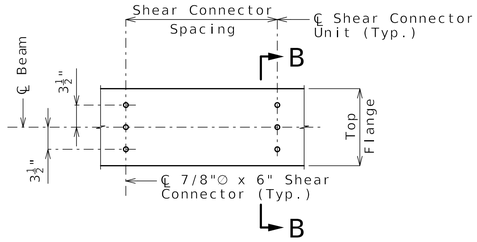
(2) 10 Spa. @ 7" = 5'-10"



SECTION A-A

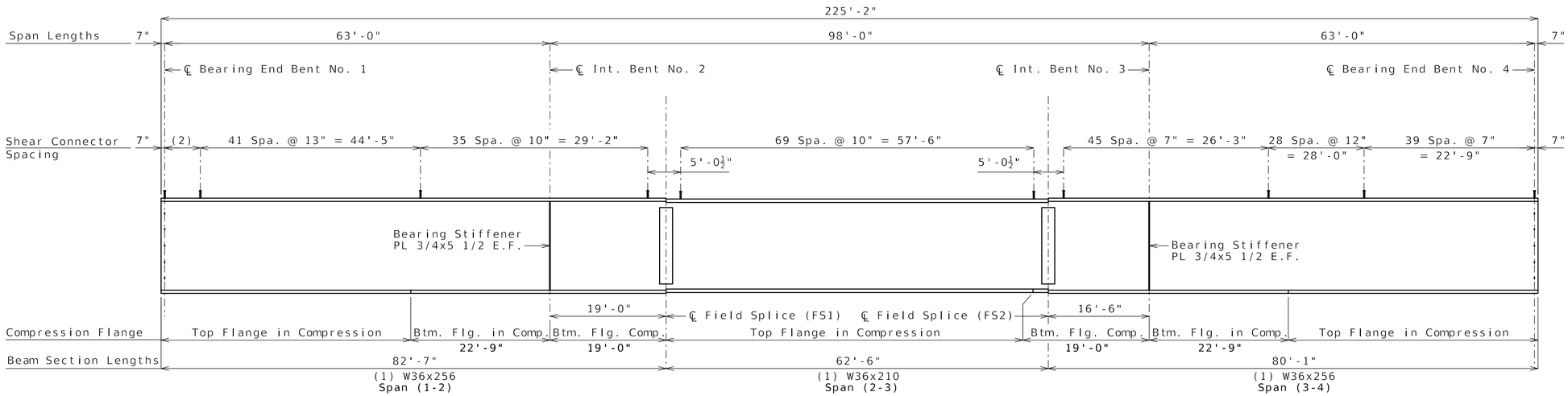


SECTION B-B



SHEAR CONNECTOR DETAIL

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



PART ELEVATION (BEAMS B1 & B2)

(1) All wide flange beams shall be subjected to notch toughness requirements.

Notes:
Fabricated structural steel shall be ASTM A709 Grade 50, except as noted.
Longitudinal dimensions are horizontal and measured along ℄ Beam.
Diaphragms and their connection plates and flange splice plates not shown for clarity.
Existing beam connection angles and new intermediate diaphragm connection plates shall be located as shown on Sheet No. B24-14.
For Framing Plan, see Sheet No. B24-14.
For location of slab drain attachment holes, see Sheet No. B24-19.

BEAM ELEVATION

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12-29-25

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-15
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

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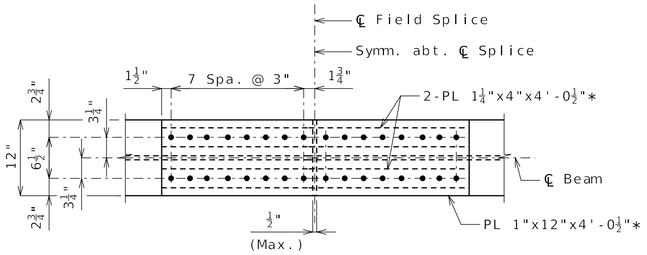
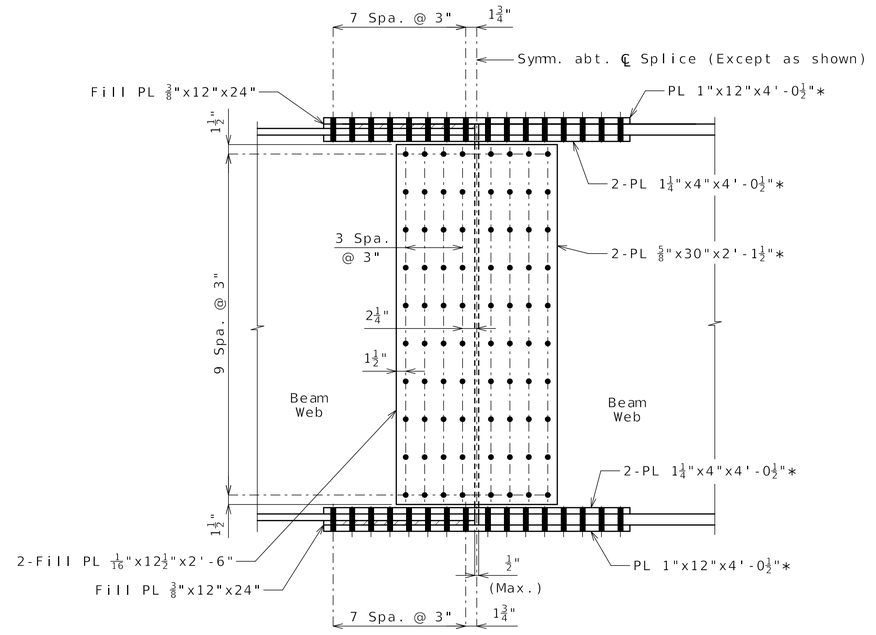


PLAN OF FLANGE SPLICE - TOP & BOTTOM

(FS2 shown, FS1 opposite hand)



DETAIL OF BOLTED FIELD SPLICE

Notes:
Bolts shall be 7/8-inch diameter ASTM F3125 Grade A325 Type 1 in 15/16-inch diameter holes.
Contact surfaces shall be in accordance with Sec 1081 for surface preparation.
For location of field splices, see Sheet No. B24-14.
Fabricated structural steel for splice plates shall be ASTM A709 Grade 50.
*Indicates splice plates subject to notch toughness testing.

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FIELD SPLICE DETAILS

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DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-16
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
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DESCRIPTION	DATE
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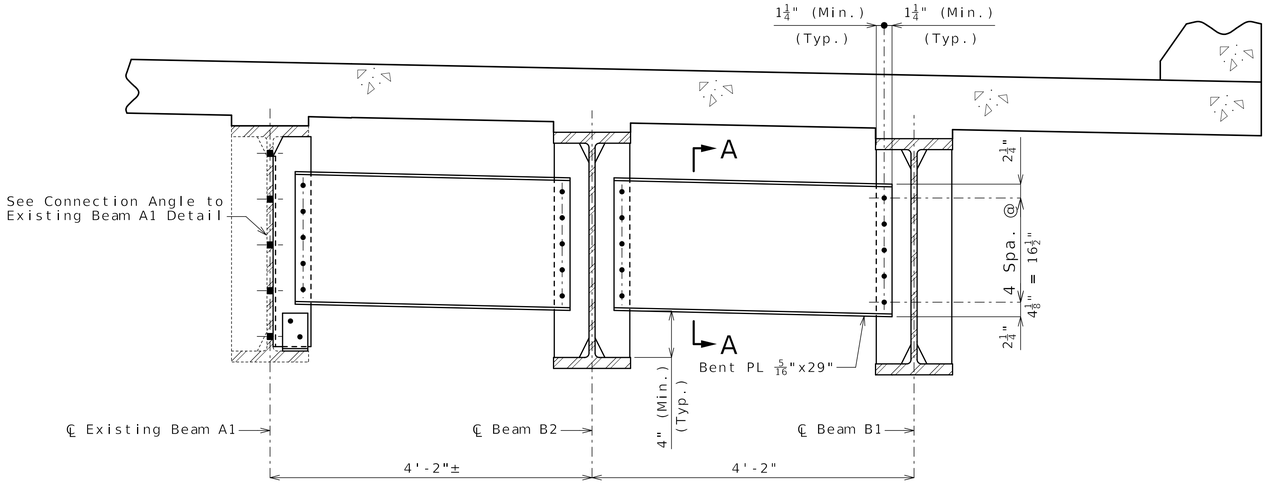
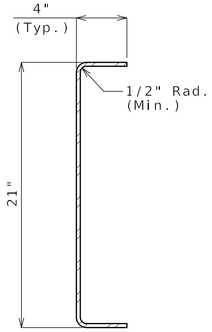
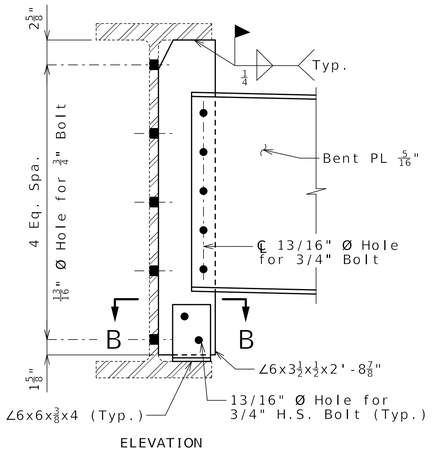


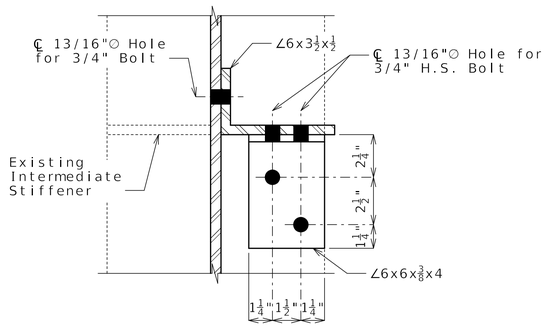
NEW INTERMEDIATE DIAPHRAGMS



SECTION A-A



ELEVATION



SECTION B-B

CONNECTION ANGLE TO EXISTING BEAM A1

Notes:
The two 3/4" ○ high strength bolts that connect the 6x6x3/8 angle to the top flange shall be placed so the nut is on the inside of flange toward the web.
Bolts shall be 3/4" ○ ASTM F3125 Type 1 bolts in 13/16" ○ holes.
Fabricated Structural Steel for bearing stiffeners, new intermediate diaphragms, connection plates and connection angles shall be ASTM A709 Grade 50.
Field drill and/or shop drill holes at new connection plates on exterior faces of existing beams as required.
At the contractor's option, holes in the diaphragm plates may be made 3/16" larger than the nominal diameter of the bolt. A hardened washer shall be used under the bolt head and nut when this option is used. Holes in the beam diaphragm connection plate or transverse web stiffener shall be standard size.
Diaphragms and their connectors shall be fabricated to the steel dead load fit condition.

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DIAPHRAGM DETAILS

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12-29-25

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-17
COUNTY JACKSON
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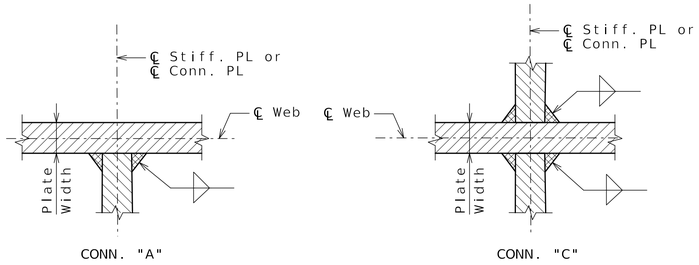
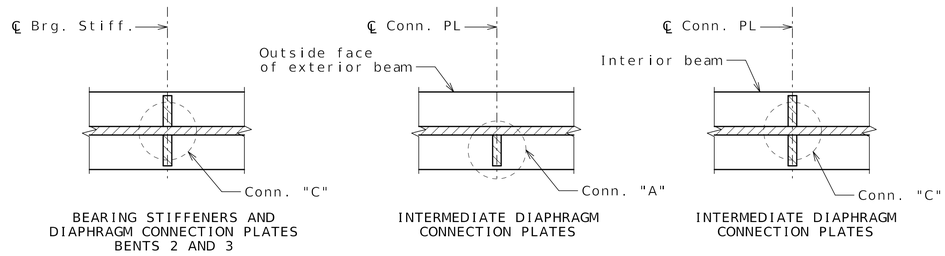
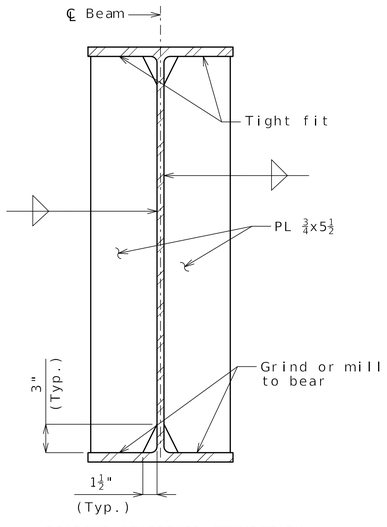


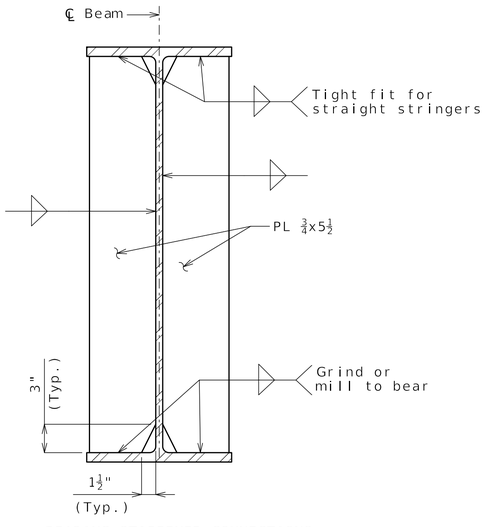
WELDING DETAILS



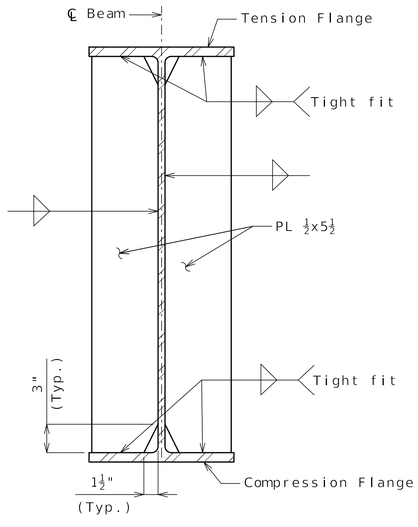
TYPICAL LOCATION DETAILS



BEARING STIFFENER CONNECTION
NO DIAPHRAGMS ATTACHED
(Typical at all Bent 2 and Bent 3 locations except Bent 2, Beam B2)



BEARING STIFFENER CONNECTIONS
DIAPHRAGM ATTACHED
(Bent 2, Beam B2)



NEW INTERMEDIATE DIAPHRAGM
CONNECTION PLATES
(Beam B1 and B2)

WELD DETAILS

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

MISCELLANEOUS STEEL DETAILS

Detailed JUL 2025
Checked AUG 2025

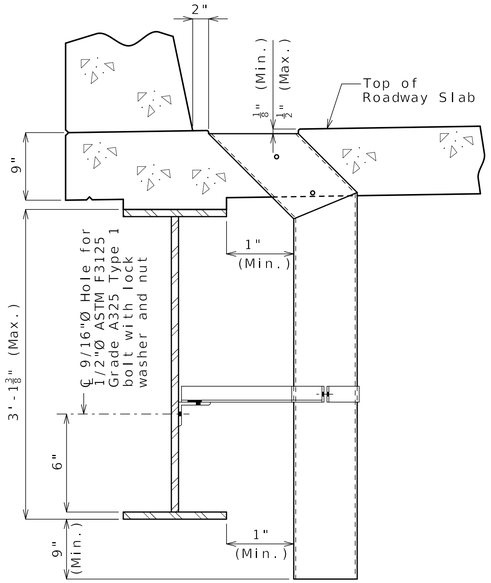
Note: This drawing is not to scale. Follow dimensions.

KALEB S. HAWK
NUMBER PE-2024007443
STATE OF MISSOURI
PROFESSIONAL ENGINEER
12-27-25

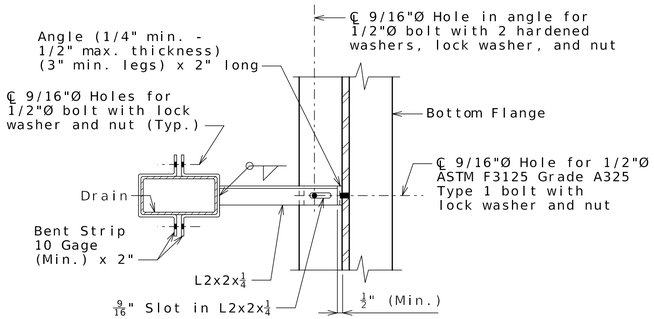
DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-18
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	12/19/25

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



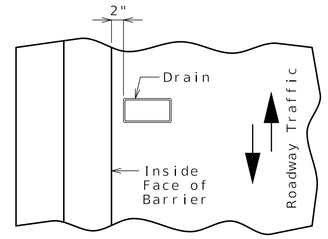
PART SECTION NEAR SPAN (1-2) DRAIN



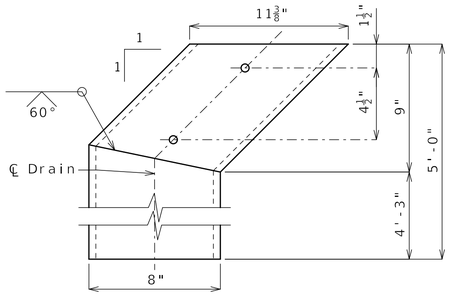
PART SECTION SHOWING BRACKET ASSEMBLY

(Span (1-2) slab drains shown, Span (3-4) slab drains similar except drain & assembly mirrored about ℄ of web)

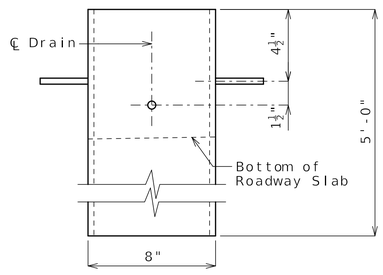
∗ See Sec 1080.4



PART PLAN OF SLAB AT DRAIN



ELEVATION OF SPAN (1-2) DRAIN



ELEVATION OF SPAN (3-4) DRAIN

General Notes:

Contractor shall have the option to construct either steel or FRP slab drains. All drains shall be of same type.

Slab drain bracket assembly shall be ASTM A709 Grade 36 steel.

For slab drain locations see Sheet No. B24-22

Reinforcing steel shall be shifted to clear drains.

The bracket assembly shall be galvanized in accordance with ASTM A123.

All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

All 1/2-inch diameter bolts shall be ASTM A307, except as shown.

Shop drawings will not be required for the slab drains and the bracket assembly.

The bolt hole for the bracket assembly attachment shall be located on the steel beam shop drawings.

Notes for Steel Drain:

Slab drains may be fabricated of either 1/4-inch welded sheets of ASTM A709 Grade 36 steel or from 1/4-inch structural steel tubing ASTM A500 or A501.

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

Drains shall be machine filament-wound thermosetting resin tubing meeting the requirements of ASTM D2996 with the following exceptions:

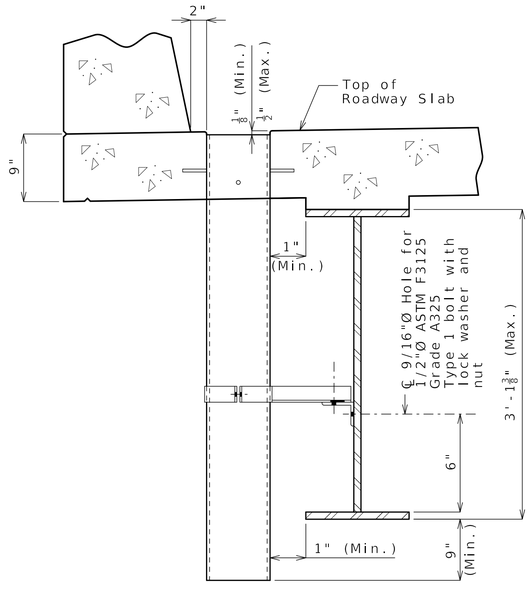
Shape of drains shall be rectangular with outside nominal dimensions of 8" x 4".

The resin used shall be ultraviolet (UV) resistant and/or have UV inhibitors mixed throughout. Drains may have an exterior coating for additional UV resistance.

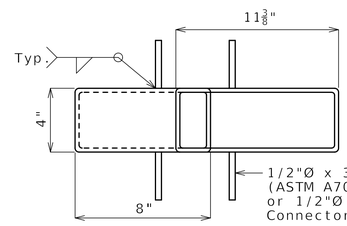
The color of the slab drain shall be gray (Federal Standard #26373). The color shall be uniform throughout the resin and any coating used.

The combination of materials used in the manufacture of the drains shall be tested for UV resistance in accordance with ASTM D4329 Cycle A. The representative material shall withstand at least 500 hours of testing with only minor discoloration and without any physical deterioration. The contractor shall furnish the results of the required ultraviolet testing prior to acceptance of the slab drains.

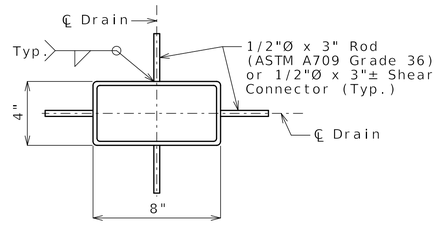
At the contractor's option, drains may be field cut. The method of cutting FRP slab drain shall be as recommended by the manufacturer to ensure a smooth, chip free cut.



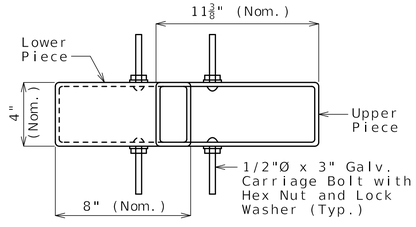
PART SECTION NEAR SPAN (3-4) DRAIN



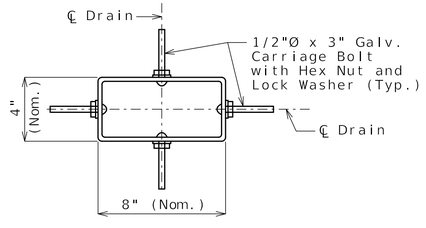
PLAN OF SPAN (1-2) STEEL DRAIN OPTION



PLAN OF SPAN (3-4) STEEL DRAIN OPTION



PLAN OF SPAN (1-2) FRP DRAIN OPTION



PLAN OF SPAN (3-4) FRP DRAIN OPTION

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

SLAB DRAINS

VAN WILLIAM ROBBINS
PE-2017015106
STATE OF MISSOURI
PROFESSIONAL ENGINEER
12-29-25

DATE PREPARED: 12/19/2025
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: B24-19
COUNTY: JACKSON
JOB NO.: J4I1486D
CONTRACT ID.: 240807-C01
PROJECT NO.:
BRIDGE NO.: L09669

DATE	DESCRIPTION
12/19/25	REVO - RFC SUBMITTAL

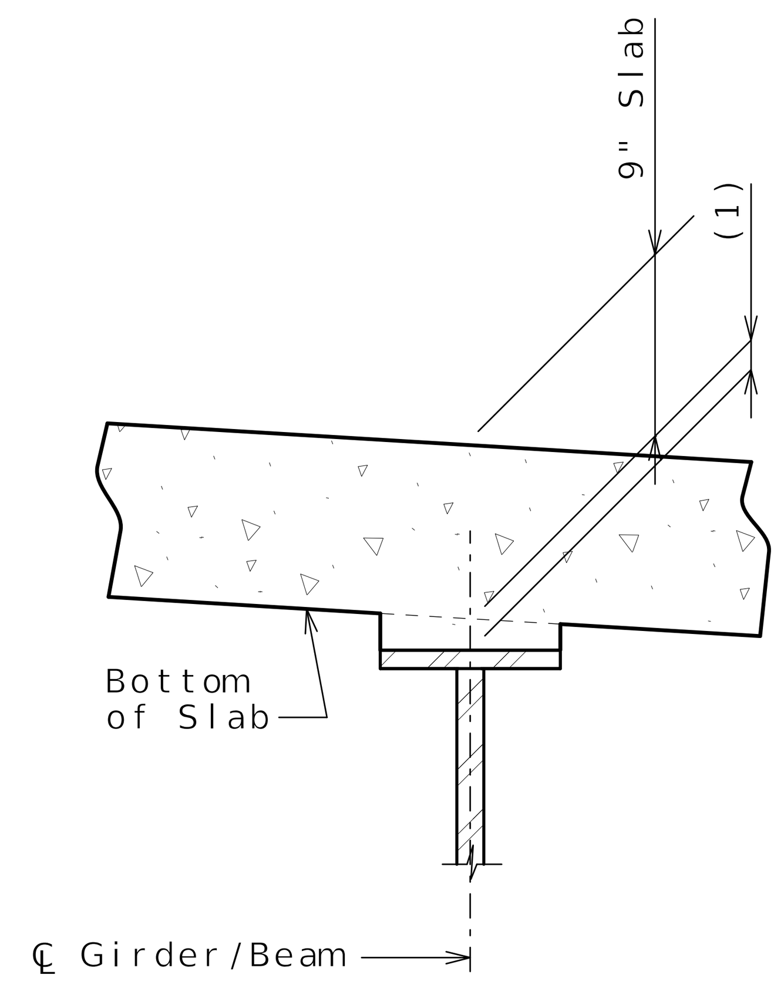
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

HNTB

Detailed JUL 2025
Checked AUG 2025

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



THEORETICAL SLAB HAUNCH

(1) Dimensions shown is bottom of slab to top of top flange. See Theoretical Slab Haunching Diagram. Field adjustments may be necessary to account for as-built conditions and associated unknowns.

DEAD LOAD DEFLECTION

Steel Self-Weight

SPAN (1-2)

Girder A and G	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"
Girder B thru F	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"
Beam A1, A2, B1, B2	0"	0"	1/16"	1/16"	1/16"	1/16"	0"	0"	0"	0"	0"

SPAN (2-3)

Girder A and G	1/16"	1/16"	1/8"	1/8"	3/16"	1/8"	1/8"	1/16"	1/16"	0"
Girder B thru F	1/16"	1/16"	1/8"	3/16"	3/16"	3/16"	1/8"	1/16"	1/16"	0"
Beam A1, A2, B1, B2	1/16"	1/8"	3/16"	1/4"	1/4"	1/4"	3/16"	1/8"	1/16"	0"

SPAN (3-4)

Girder A and G	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"
Girder B thru F	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"
Beam A1, A2, B1, B2	0"	0"	0"	0"	1/16"	1/16"	1/16"	1/16"	0"	0"

Total Dead Load

SPAN (1-2)

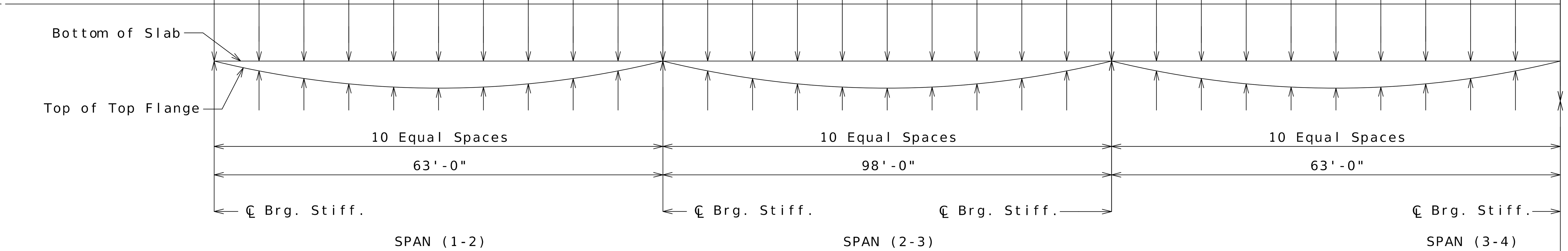
Girder A and G	0"	1/16"	1/8"	1/8"	1/8"	1/16"	0"	-1/16"	-1/16"	-1/16"	0"
Girder B thru F	0"	1/16"	1/8"	3/16"	1/8"	1/8"	0"	-1/16"	-1/16"	-1/16"	0"
Beam A2	0"	1/16"	1/8"	1/8"	1/8"	1/16"	1/16"	0"	-1/16"	-1/16"	0"
Beam A1	0"	1/16"	1/8"	1/8"	1/8"	1/16"	1/16"	0"	-1/16"	-1/16"	0"
Beam B2	0"	1/16"	1/16"	1/8"	1/8"	1/16"	1/16"	0"	-1/16"	-1/16"	0"
Beam B1	0"	1/16"	1/16"	1/16"	1/16"	1/16"	0"	-1/16"	-1/16"	-1/16"	0"

SPAN (2-3)

Girder A and G	3/16"	7/16"	3/4"	15/16"	1 1/16"	15/16"	3/4"	7/16"	3/16"	0"
Girder B thru F	1/4"	9/16"	15/16"	1 3/16"	1 1/4"	1 3/16"	15/16"	9/16"	1/4"	0"
Beam A2	1/4"	5/8"	15/16"	1 3/16"	1 1/4"	1 3/16"	15/16"	5/8"	1/4"	0"
Beam A1	1/4"	9/16"	7/8"	1 1/8"	1 3/16"	1 1/8"	7/8"	9/16"	1/4"	0"
Beam B2	3/16"	1/2"	13/16"	1"	1 1/16"	1"	13/16"	1/2"	3/16"	0"
Beam B1	1/4"	9/16"	15/16"	1 3/16"	1 1/4"	1 3/16"	15/16"	5/8"	1/4"	0"

SPAN (3-4)

Girder A and G	-1/16"	-1/16"	-1/16"	0"	1/16"	1/8"	1/8"	1/8"	1/16"	0"
Girder B thru F	-1/16"	-1/16"	-1/16"	0"	1/8"	1/8"	3/16"	1/8"	1/16"	0"
Beam A2	-1/16"	-1/16"	0"	1/16"	1/16"	1/8"	1/8"	1/8"	1/16"	0"
Beam A1	-1/16"	-1/16"	0"	1/16"	1/16"	1/8"	1/8"	1/8"	1/16"	0"
Beam B2	-1/16"	-1/16"	0"	1/16"	1/16"	1/8"	1/8"	1/16"	1/16"	0"
Beam B1	-1/16"	0"	1/16"	1/8"	3/16"	3/16"	3/16"	3/16"	1/8"	0"



DEAD LOAD DEFLECTION

Total dead load deflection includes weight of structural steel, stay-in-place corrugated metal forms, concrete slab, and Type D barrier. Negative values indicate upward deflection.

THEORECTICAL SLAB HAUNCHING DIAGRAM

SPAN (1-2)

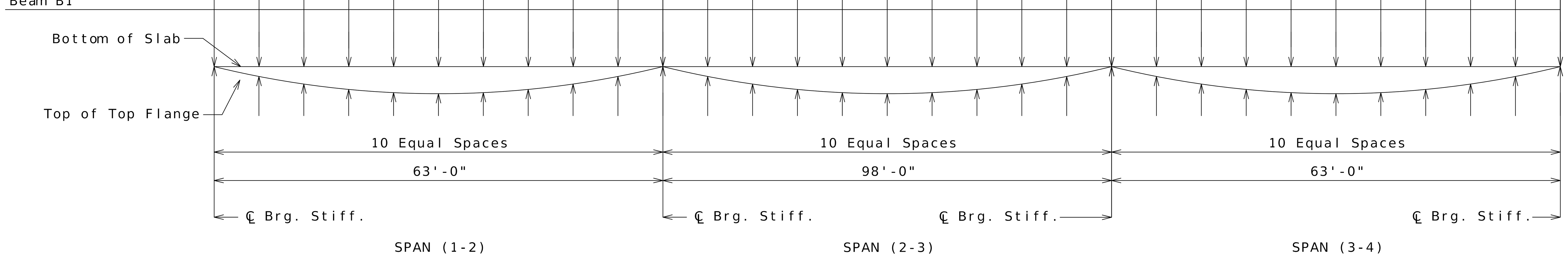
Girder A and G	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	3/8"	3/8"	3/8"
Girder B thru F	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	5/8"	5/8"	5/8"
Beam A2	1 3/8"	1 15/16"	2 1/2"	2 13/16"	2 15/16"	2 7/8"	2 3/4"	2 7/16"	2 1/16"	1 5/8"	1 3/8"
Beam A1	1 3/8"	1 15/16"	2 3/8"	2 15/16"	3 1/16"	3 3/16"	2 7/8"	2 9/16"	2 3/16"	1 3/4"	1 3/8"
Beam B2	1 3/8"	1 3/4"	2 1/4"	2 11/16"	3 1/16"	3 1/16"	3"	2 5/8"	2 1/4"	1 13/16"	1 3/8"
Beam B1	1 3/8"	1 5/8"	2 1/16"	2 7/16"	2 13/16"	2 15/16"	2 15/16"	2 5/8"	2 1/4"	1 13/16"	1 3/8"

SPAN (2-3)

Girder A and G	3/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	3/8"	3/8"
Girder B thru F	5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	5/8"	5/8"
Beam A2	1 3/4"	2 3/8"	2 1/2"	2 3/4"	2 7/8"	2 9/16"	2 5/16"	2"	1 9/16"	1 3/8"
Beam A1	1 5/8"	2 9/16"	2 5/8"	2 9/16"	2 9/16"	2 9/16"	2 3/8"	2"	1 3/8"	1 3/8"
Beam B2	1 9/16"	2 1/2"	2 5/8"	2 9/16"	2 1/2"	2 7/16"	2 1/4"	1 15/16"	1 3/8"	1 3/8"
Beam B1	1 1/2"	2 7/16"	2 7/8"	2 13/16"	2 3/4"	2 5/8"	2 7/16"	2 1/8"	1 7/16"	1 3/8"

SPAN (3-4)

Girder A and G	3/8"	3/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"
Girder B thru F	5/8"	5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"
Beam A2	1 3/8"	1 3/8"	1 3/8"	1 1/2"	1 7/16"	1 1/2"	1 9/16"	1 1/2"	1 3/8"	1 3/8"
Beam A1	1 5/8"	1 11/16"	1 9/16"	1 9/16"	1 9/16"	1 1/2"	1 1/2"	1 1/2"	1 7/16"	1 3/8"
Beam B2	1 9/16"	1 3/4"	1 3/4"	1 5/8"	1 11/16"	1 9/16"	1 1/2"	1 1/2"	1 9/16"	1 3/8"
Beam B1	1 7/16"	1 3/4"	1 7/8"	1 3/4"	1 13/16"	1 13/16"	1 5/8"	1 9/16"	1 1/2"	1 3/8"



THEORECTICAL SLAB HAUNCHING DIAGRAM

Theoretical Slab Haunching includes weight of structural steel, stay-in-place corrugated metal forms, concrete slab, and Type D barrier.

Note:
℄ Brg. to ℄ Brg. dimension is measured along ℄ girders or beams. For exisitng girders and beams this is based on as built plan dimensions and should be field verified.

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

DEAD LOAD DEFLECTIONS AND SLAB HAUNCHING DIAGRAM

Detailed JUL 2025
Checked AUG 2025

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

STATE OF MISSOURI
KALEB S. HAWK
NUMBER PE-2024007443
PROFESSIONAL ENGINEER
Kaleb S. Hawk
12-29-25

DATE PREPARED 12/19/2025
ROUTE I-70
STATE MO
DISTRICT BR
SHEET NO. B24-20
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DATE	DESCRIPTION
12/19/25	REV 0 - RFC SUBMITTAL

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

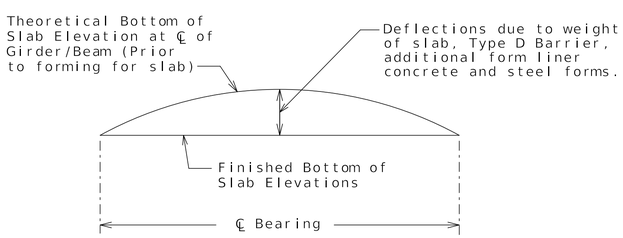
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

B_L09669_B24-23_J4I1486D.dgn 5:03:30 PM 12/18/2025

Theoretical Bottom of Slab Elevations at Centerline of Girder/Beams (Prior to forming for slab)(1)(2)

Girder or Beam Number	Span (1-2) (63'-0" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
G	784.15	784.04	783.93	783.81	783.67	783.52	783.39	783.24	783.10	782.98	782.85
F	784.39	784.27	784.14	784.02	783.88	783.74	783.60	783.46	783.32	783.19	783.07
E	784.67	784.55	784.42	784.28	784.14	784.00	783.85	783.70	783.58	783.45	783.32
D	784.86	784.79	784.69	784.57	784.45	784.31	784.15	784.00	783.86	783.72	783.61
C	784.88	784.82	784.72	784.61	784.49	784.35	784.23	784.08	783.94	783.80	783.67
B	784.83	784.76	784.67	784.57	784.45	784.32	784.19	784.07	783.93	783.80	783.67
A	784.73	784.67	784.61	784.51	784.41	784.31	784.18	784.05	783.92	783.79	783.67
A2	784.67	784.61	784.55	784.47	784.38	784.26	784.15	784.02	783.88	783.74	783.62
A1	784.61	784.55	784.48	784.42	784.33	784.24	784.11	783.98	783.85	783.71	783.57
B2	784.57	784.50	784.44	784.37	784.30	784.20	784.10	783.97	783.84	783.70	783.56
B1	784.53	784.45	784.38	784.32	784.26	784.17	784.07	783.95	783.82	783.69	783.56
Girder or Beam Number	Span (2-3) (98'-0" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
G	782.85	782.65	782.47	782.30	782.12	781.94	781.71	781.48	781.26	781.04	780.84
F	783.07	782.88	782.70	782.52	782.34	782.16	781.94	781.72	781.49	781.27	781.04
E	783.32	783.13	782.94	782.76	782.57	782.38	782.17	781.96	781.73	781.50	781.29
D	783.61	783.44	783.25	783.06	782.87	782.67	782.46	782.23	782.01	781.77	781.55
C	783.67	783.49	783.33	783.14	782.94	782.74	782.53	782.31	782.08	781.85	781.62
B	783.67	783.48	783.30	783.13	782.93	782.71	782.50	782.29	782.06	781.84	781.62
A	783.67	783.47	783.29	783.11	782.92	782.71	782.49	782.27	782.05	781.84	781.61
A2	783.62	783.44	783.25	783.05	782.87	782.67	782.44	782.22	782.00	781.80	781.58
A1	783.57	783.39	783.22	783.02	782.81	782.60	782.40	782.18	781.96	781.74	781.54
B2	783.56	783.37	783.21	783.01	782.79	782.58	782.37	782.16	781.94	781.72	781.52
B1	783.56	783.36	783.19	783.01	782.80	782.59	782.37	782.16	781.93	781.71	781.50
Girder or Beam Number	Span (3-4) (63'-0" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
G	780.84	780.68	780.55	780.41	780.28	780.15	780.02	779.90	779.78	779.66	779.56
F	781.04	780.91	780.77	780.64	780.50	780.38	780.24	780.11	779.98	779.87	779.74
E	781.29	781.15	781.02	780.89	780.75	780.61	780.48	780.35	780.22	780.09	779.96
D	781.55	781.43	781.30	781.17	781.03	780.90	780.77	780.62	780.48	780.34	780.18
C	781.62	781.47	781.35	781.23	781.10	780.97	780.84	780.71	780.57	780.43	780.31
B	781.62	781.47	781.33	781.20	781.08	780.95	780.81	780.68	780.55	780.41	780.28
A	781.61	781.48	781.35	781.22	781.09	780.96	780.83	780.69	780.52	780.39	780.25
A2	781.58	781.45	781.32	781.18	781.05	780.92	780.78	780.66	780.52	780.37	780.24
A1	781.54	781.43	781.30	781.16	781.03	780.89	780.76	780.63	780.50	780.36	780.22
B2	781.52	781.41	781.29	781.16	781.01	780.89	780.75	780.61	780.48	780.36	780.21
B1	781.50	781.38	781.28	781.15	781.01	780.88	780.75	780.61	780.48	780.34	780.20

(1) Elevations are based on a constant slab thickness of 9" and include allowance for theoretical dead load deflections due to weight of slab (including steel forms) Type D Barrier and additional form liner concrete.
(2) After removal of the existing concrete bridge slab, the Contractor shall survey top of top flanges of existing girders and beams and submit to the Engineer for review.



TYPICAL SLAB ELEVATIONS DIAGRAM

Note:
℄ Brg. to ℄ Brg. dimension is measured along ℄ girders or beams. For existing girders and beams this is based on as built plan dimensions and should be field verified.

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THEORETICAL BOTTOM OF SLAB ELEVATIONS

Detailed JUL 2025
Checked AUG 2025

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

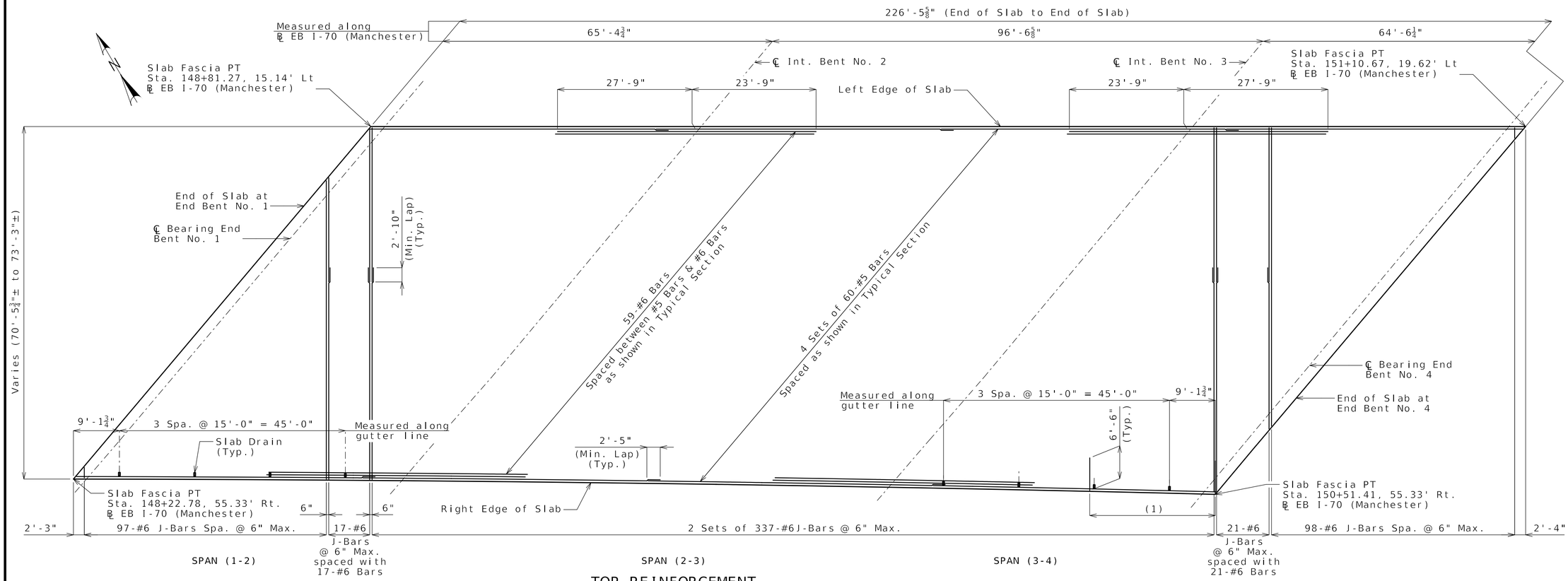
STATE OF MISSOURI
KALEB S. HAWK
NUMBER PE-2024007443
PROFESSIONAL ENGINEER
12-29-25

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-21
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION: REV 0 - RFC SUBMITTAL
DATE: 12/19/25

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



TOP REINFORCEMENT

(1) 26-#4 Bars @ 12" Max. spaced with #6 J-Bars

Notes:
Work this sheet with Sheet No. B24-23.
For Typical Section, see Sheet No. B24-24.
For Slab Pouring Sequence, see Sheet No. B24-23.
For details and reinforcement of Type D Barrier, see Sheet No. B24-26.
For Dead Load Deflections and Slab Haunching Diagram, see Sheet No. B24-20.
For Theoretical Bottom of Slab Elevations, see Sheet No. B24-21.
Longitudinal slab dimensions are measured horizontally.

SLAB PLAN SHOWING TOP REINFORCEMENT

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BENJAMIN LICHTY NUMBER PE-2023038803
STATE OF MISSOURI PROFESSIONAL ENGINEER
12-29-2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-22
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DATE	DESCRIPTION
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
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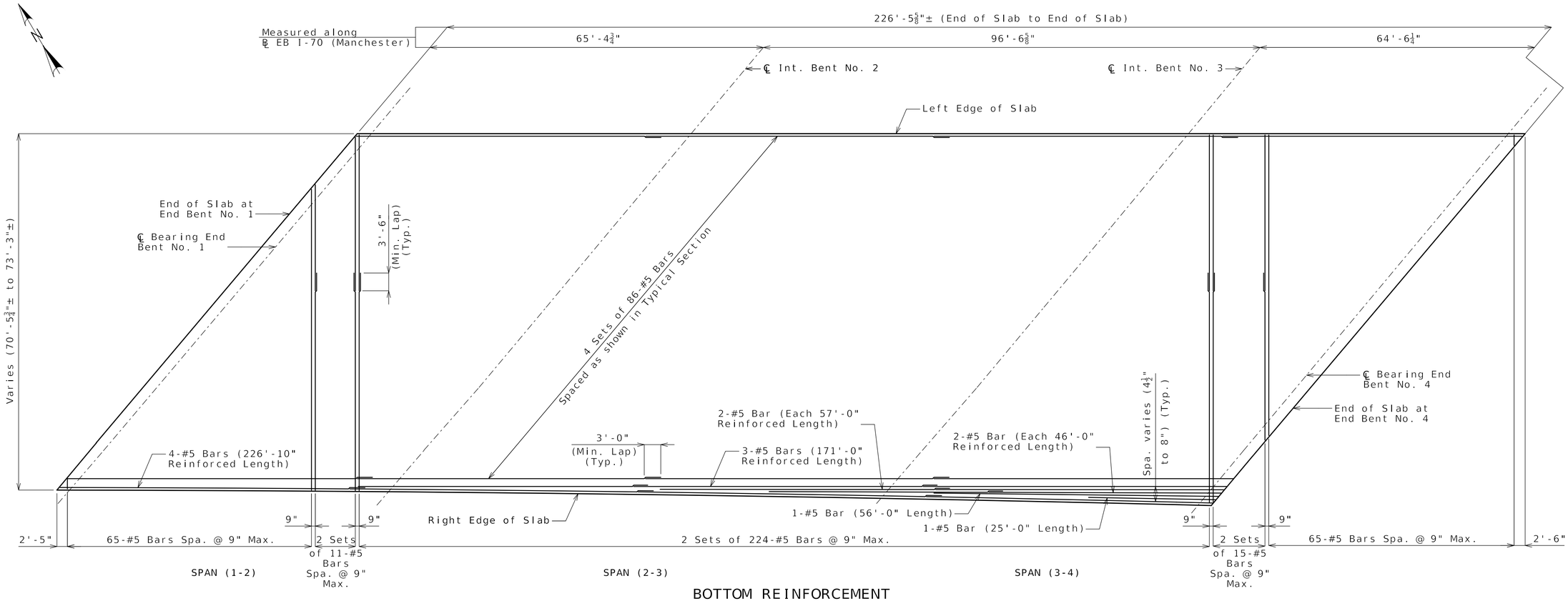
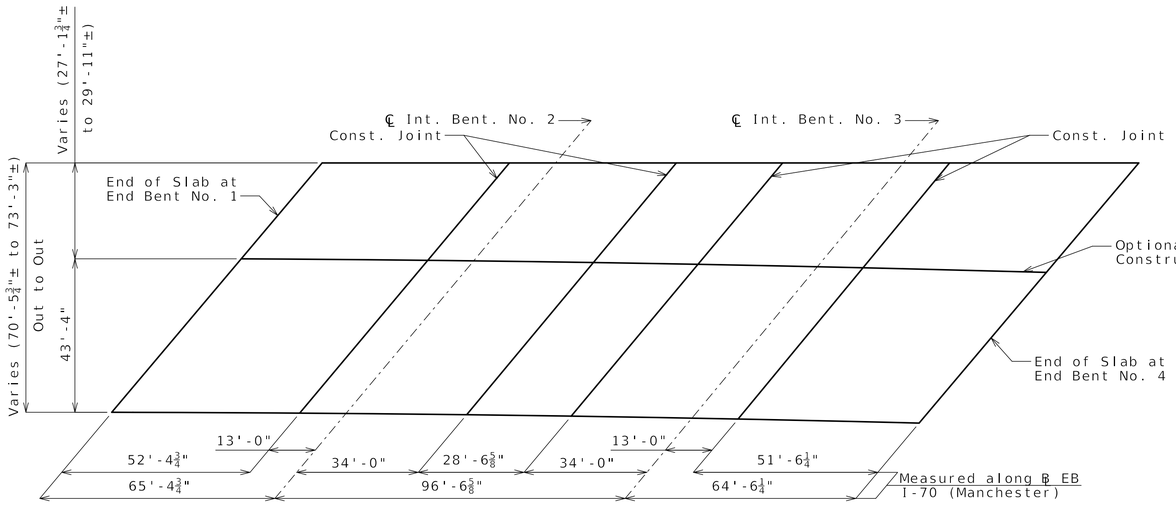


BOTTOM REINFORCEMENT



	Sequence of Pours					Min. Rate of Pour Cu. Yds./Hr.
	Direction					With Retarder
Basic Sequence	3	4	2	5	1	25*
	End to 4	3 to 2	4 to 5	2 to 1	5 to End	
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.						
Alternate A Pours	3		4 + 2		5 + 1	61
	End to 4		3 to 5		2 to End	
Alternate B Pours	3+4+2			3+1		61
	End to 5			2 to End		
Alternate C Pours	3 + 4 + 2 + 5 + 1					61
	End to End					

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

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

*A minimum finishing rate of 20 LF/HR shall be maintained, otherwise the optional longitudinal construction joint shall be required.

SLAB POURING SEQUENCE

Notes:
Work this sheet with Sheet No. B24-22.

SLAB PLAN SHOWING BOTTOM REINFORCEMENT

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Revision: 0.0
Date: 01/08/2026
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12-29-2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-23
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
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Detailed JUL 2025
Checked AUG 2025

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

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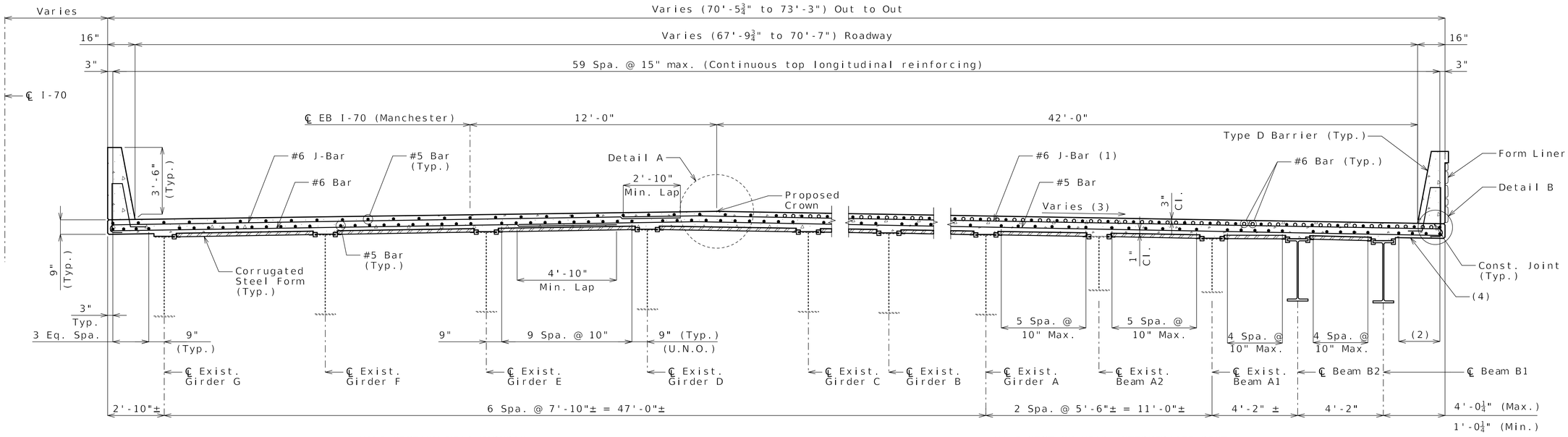


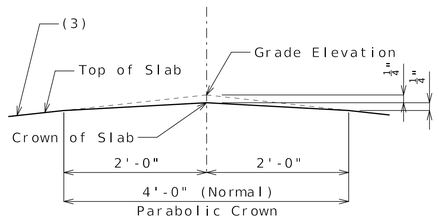
HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR INTERMEDIATE BENT

TYPICAL SECTION
(Looking Ahead Sta.)

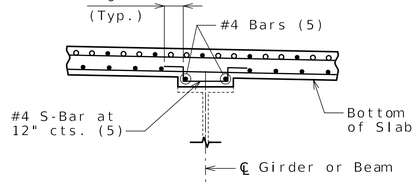
(3) Elevations shown on Sheet B24-21 are based on 2025 survey of existing deck. Cross slope will vary to match bridge deck elevations. Dimensions shown in Detail A are based on an assumed cross slope of 2%.

(1) For details of bundled reinforcement in overhang, see slab plan.
(2) Varies (see slab plan)
(4) Slab drains in Span (1-2) and (3-4) not shown. See Sheet No. B24-19 and B24-22 for details and locations.



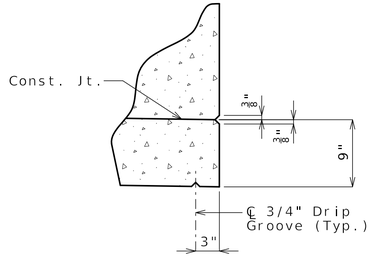
DETAIL A

(Crown is located 12'-0" right of ℄ EB I-70 (Manchester))

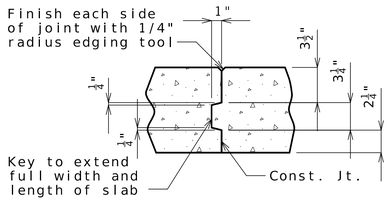


HAUNCH REINFORCING DETAIL

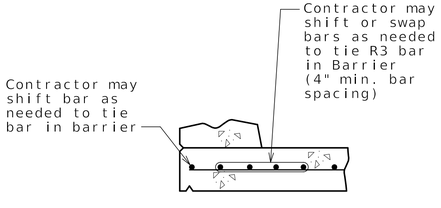
(5) Contractor shall provide #4 Bars and #4 S-Bars as necessary where the haunch exceeds 3 inches measured at centerline of girder or beam. See Theoretical Slab Haunching Diagram on Sheet No. B24-20 for haunch thickness.



DETAIL B



SLAB CONSTRUCTION JOINT



OPTIONAL SHIFTING TOP BARS AT BARRIER

Notes:
Cant #6 transverse hooked bars as needed to provide clearance.
For Slab Plan showing Top and Bottom Reinforcement, see Sheets No. B24-22 thru B24-23.
For reinforcement of Type D Barrier not shown, see Sheet No. B24-26.
For Form Liner and Aesthetic Stain Details not shown, see Sheet No. B24-28.

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SLAB DETAILS

Detailed JUL 2025
Checked AUG 2025

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

Sheet No. B24-24 of B24-37

BENJAMIN LICHTY NUMBER PE-2023038803
STATE OF MISSOURI PROFESSIONAL ENGINEER
12-29-2025

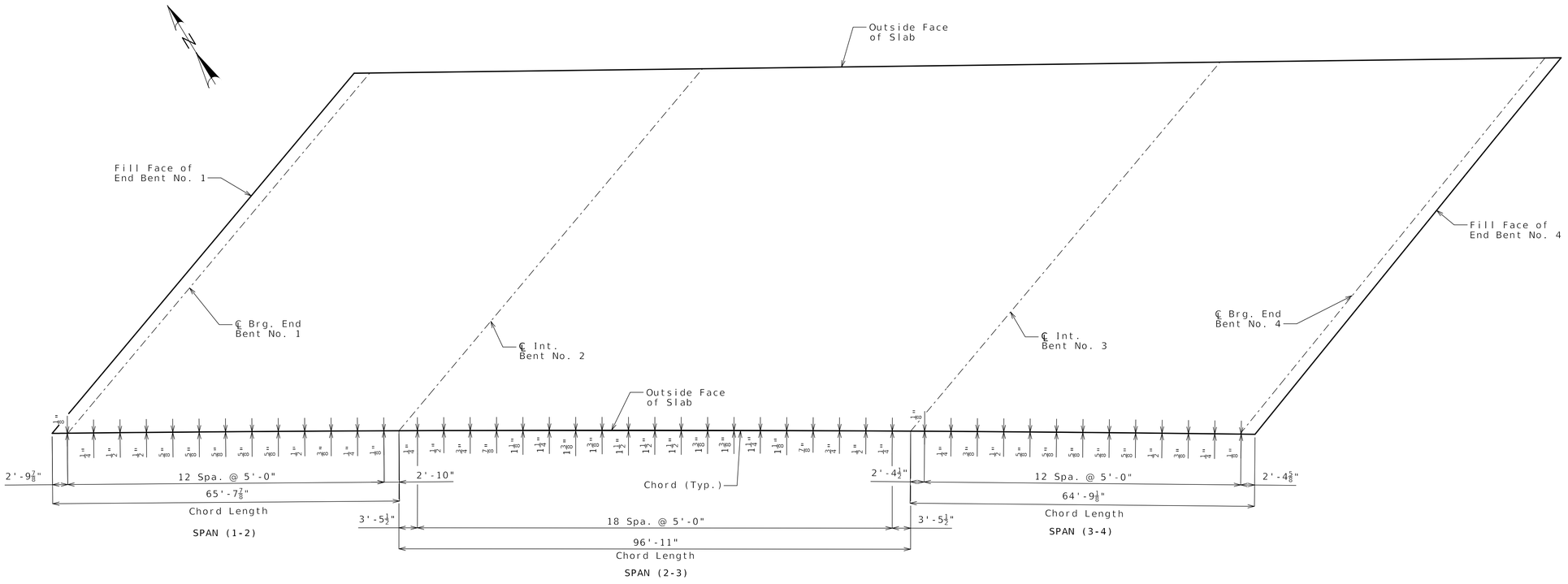
DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-24
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	12/19/25

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



PLAN

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Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

Notes:
All dimensions are horizontal.
All bents are parallel.

SLAB CURVE ORDINATES

Detailed JUL 2025
Checked AUG 2025

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

BENJAMIN LICHTY
NUMBER PE-2023038803
PROFESSIONAL ENGINEER
STATE OF MISSOURI
12-29-2025

DATE PREPARED
12/19/2025

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	B24-25

COUNTY
JACKSON

JOB NO.
J4I1486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
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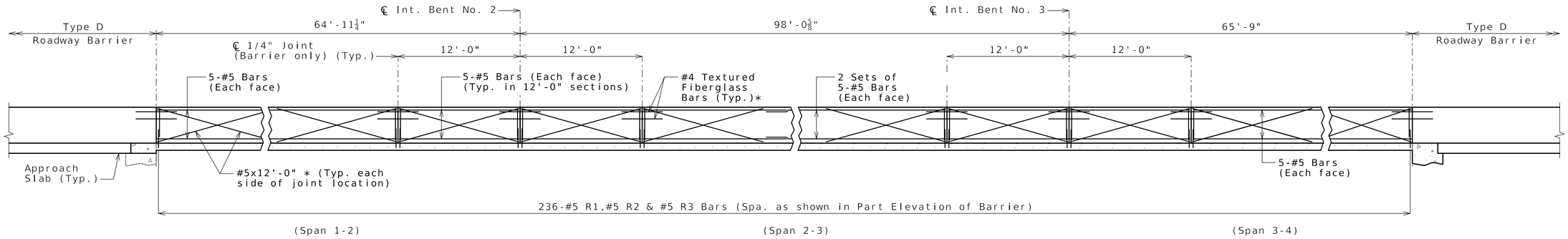
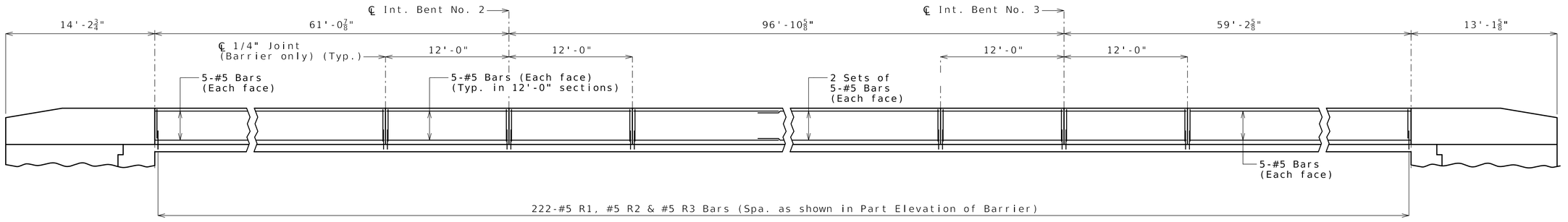
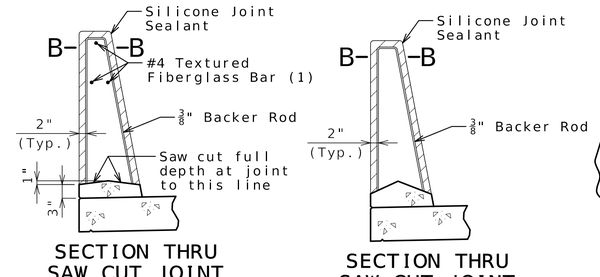


ELEVATION OF LEFT BARRIER

Longitudinal dimensions are horizontal and measured along the outside of slab.



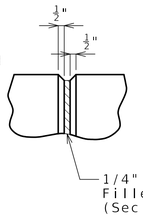


SECTION THRU SAW CUT JOINT

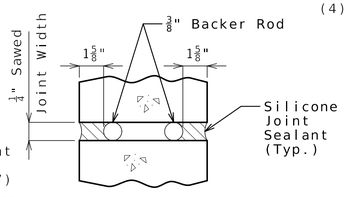
(Left Barrier)

SECTION THRU SAW CUT JOINT

(Right Barrier)
(Form liner and aesthetic details not shown.)



PART ELEVATION AT FORMED JOINT

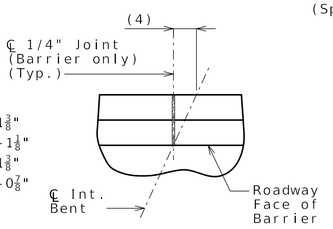


SECTION B-B

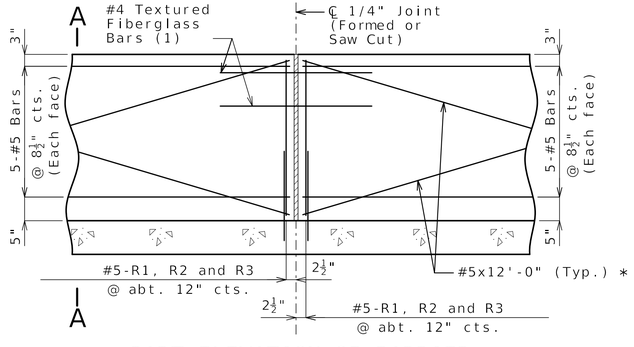
ELEVATION OF RIGHT BARRIER

Longitudinal dimensions are horizontal and measured along the outside of slab.

(4) Int. Bent No. 2 Left = 1'-1⅜"
Int. Bent No. 2 Right = 1'-1⅛"
Int. Bent No. 3 Left = 1'-1⅜"
Int. Bent No. 3 Right = 1'-0⅞"

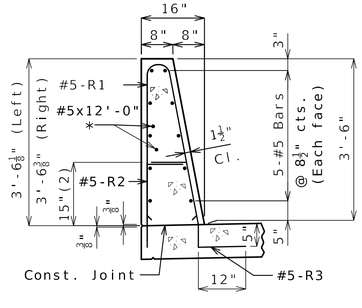


PART PLAN SHOWING JOINT LOCATION



PART ELEVATION OF BARRIER

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

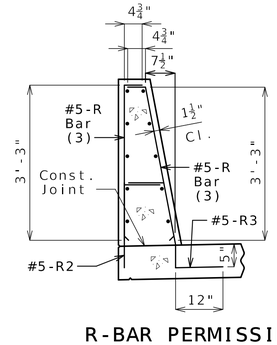


SECTION A-A

(Form liner aesthetic details on right barrier not shown.)

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

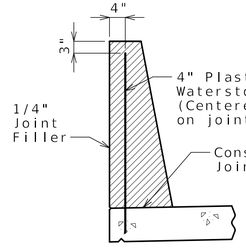
(2) To top of bar



R-BAR PERMISSIBLE ALTERNATE SHAPE

(Form liner aesthetic details on right barrier not shown.)

(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.)



WATERSTOP DETAIL

Plastic waterstop shall be placed in formed joints on lower side of superelevation.

General Notes:

∗ Left Barrier Slip-formed option only.

Conventional forming or slip forming may be used with left barrier. Conventional forming shall be used with right barrier. Saw cut joints may be used with conventional forming.

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

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

Concrete in barrier shall be Class B-1.

Concrete traffic barrier delineators shall be placed on top of the barrier as shown on Missouri Standard Plan 617.10 and in accordance with Sec 617.

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

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

Plastic waterstop shall not be used with saw cut joints.

For Form Liner and Aesthetic Stain details of right barrier not shown, see Sheet No. B24-28.

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TYPE D BARRIER

Detailed JUL 2025
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STATE OF MISSOURI PROFESSIONAL ENGINEER
12-29-2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-26
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DATE	DESCRIPTION
12/19/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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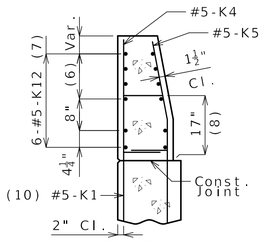
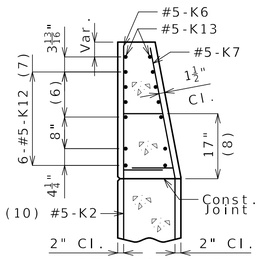
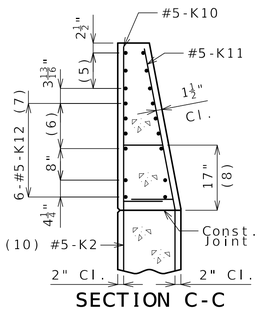


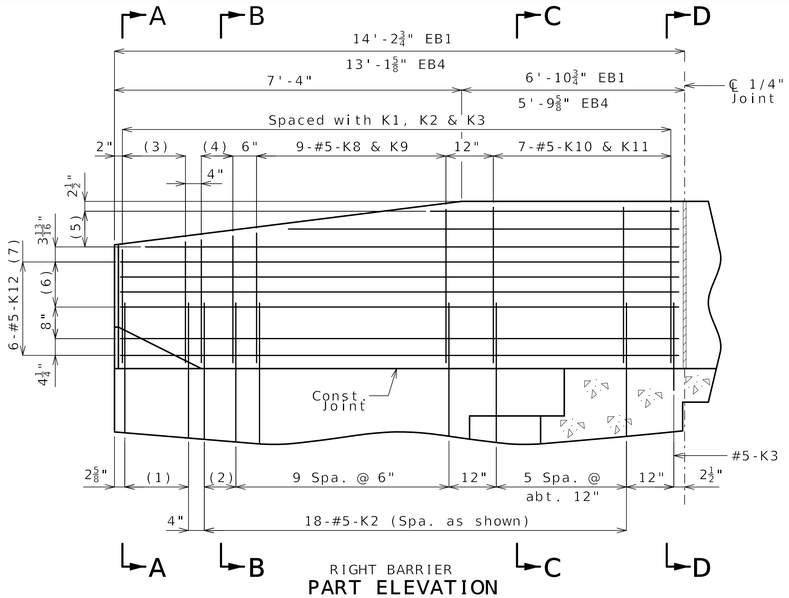
SECTION A-A



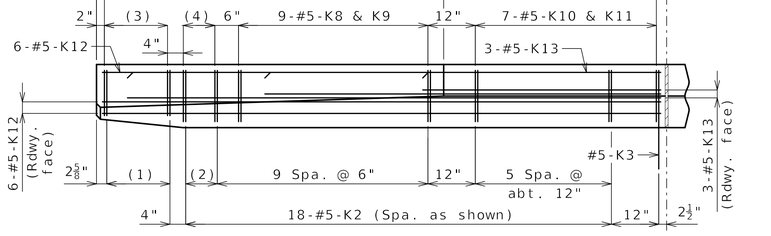
SECTION B-B



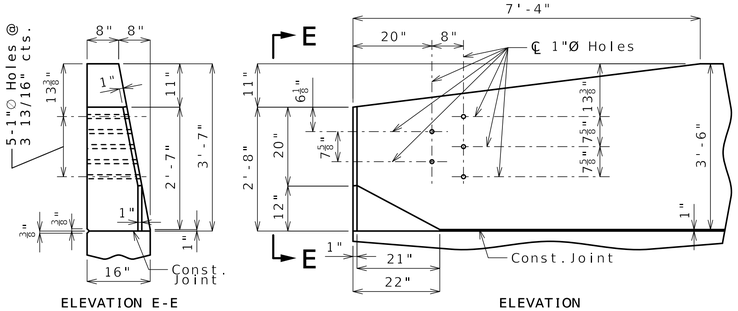
SECTION C-C



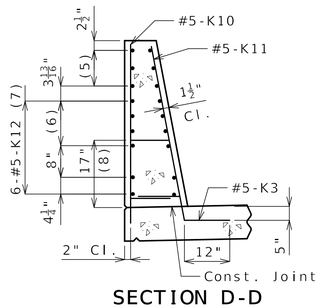
RIGHT BARRIER
PART ELEVATION



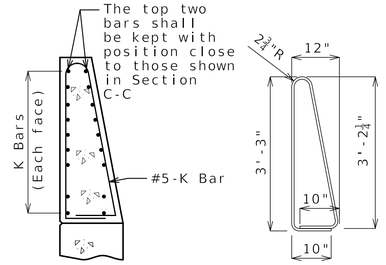
RIGHT BARRIER
PART PLAN



DETAILS OF GUARD RAIL ATTACHMENT



SECTION D-D



K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE

(Other K bars not shown for clarity)

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

All dimensions are out to out.

(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 @ 4½" cts., each face

(6) 3 spaces @ 3 13/16"

(7) Spaced as shown, each face

(8) To top of bar

(9) 2 spaces @ 4¼"

(10) Minimum embedment into wingwall is 2'-9"

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.

EB1 denotes End Bent No. 1
EB4 denotes End Bent No. 4

For Form Liner and Aesthetic Stain details of right barrier not shown, see Sheet No. B24-28.

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

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

TYPE D BARRIER AT END BENTS

Detailed JUL 2025
Checked AUG 2025

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

Sheet No. B24-27 of B24-37

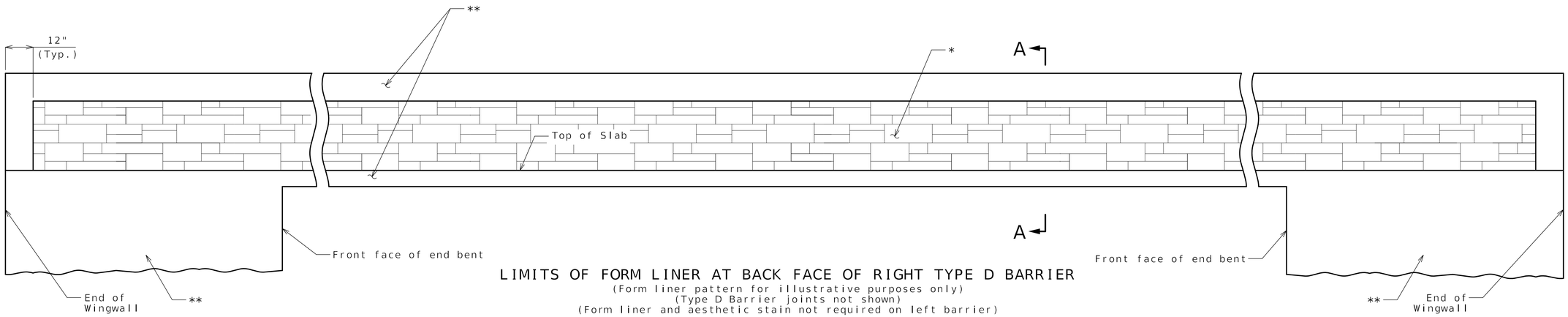
STATE OF MISSOURI
BENJAMIN LICHTY NUMBER PE-2023038803
PROFESSIONAL ENGINEER
12-29-2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-27
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DATE	DESCRIPTION
12/19/25	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
HNTB



LIMITS OF FORM LINER AT BACK FACE OF RIGHT TYPE D BARRIER

(Form liner pattern for illustrative purposes only)
(Type D Barrier joints not shown)
(Form liner and aesthetic stain not required on left barrier)

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

General Notes:

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

Protective coatings shall be compatible with Aesthetic Concrete Stain.

Concrete Form Liner Notes:

Form liner shall be constructed in accordance with Special Provisions.

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

-Scott System, Inc.: Form liner pattern #167 "Ashlar Stone"

-Fitzgerald Formliners: Form liner pattern #16986 "Ashlar Stone"

-Greenstreak: Form liner pattern #330 "Ashlar Stone"

-Spec Formliners: Form liner pattern #1515 "Ashlar Stone"

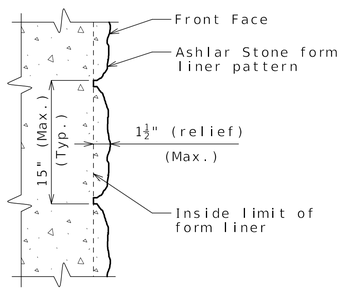
-Customrock: Form liner pattern #12020 "Tollway Ashlar"

-An approved equal

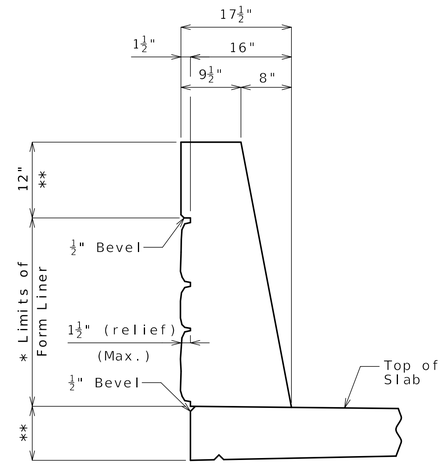
Aesthetic Concrete Stain Notes:

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

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



FORM LINER DETAIL



SECTION A-A

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

FORM LINER AND AESTHETIC STAIN DETAILS

Detailed JUL 2025
Checked AUG 2025

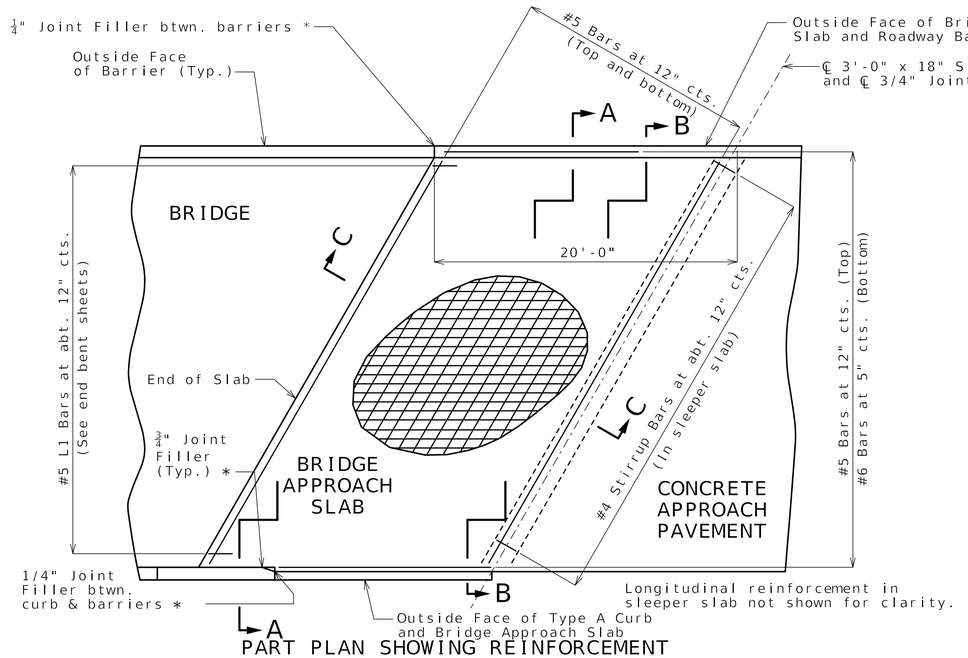
Note: This drawing is not to scale. Follow dimensions.

BENJAMIN LICHTY
NUMBER PE-2023038803
PROFESSIONAL ENGINEER
STATE OF MISSOURI
12-29-2025

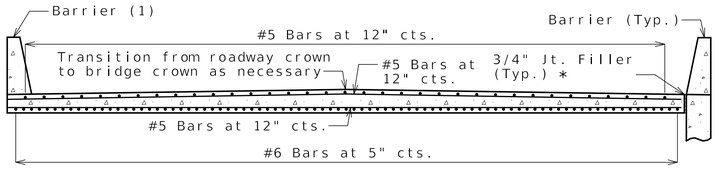
DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-28
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	12/19/25

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



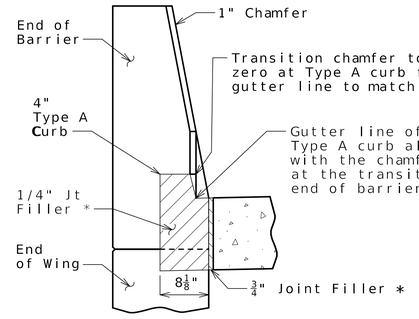
PART PLAN SHOWING REINFORCEMENT



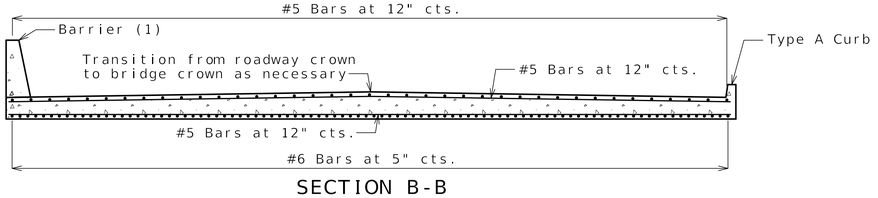
SECTION A-A

(End Bent No. 4 shown, End Bent No. 1 opposite hand)

(1) See roadway standard plans 617.10M.

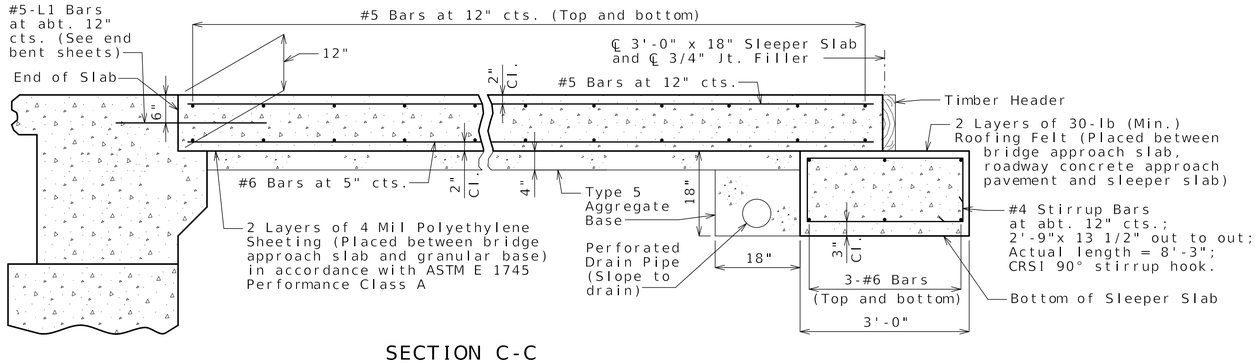


SECTION BETWEEN CURB AND BARRIER

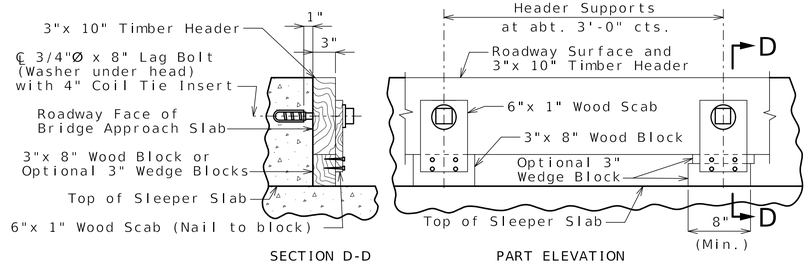


SECTION B-B

(End Bent No. 4 shown, End Bent No. 1 opposite hand)



SECTION C-C



SECTION D-D PART ELEVATION

DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

General Notes:

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

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

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

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

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

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

The contractor shall pour and satisfactorily finish the bridge slab before placing the bridge approach slab.

For concrete approach pavement details, see roadway plans.

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

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

BENJAMIN LICHTY NUMBER PE-2023038803 STATE OF MISSOURI PROFESSIONAL ENGINEER

12-29-2025

DATE PREPARED 12/19/2025

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	B24-29

COUNTY: JACKSON

JOB NO.: J4I1486D

CONTRACT ID.: 240807-C01

PROJECT NO.:

BRIDGE NO.: L09669

DATE	DESCRIPTION
12/19/25	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

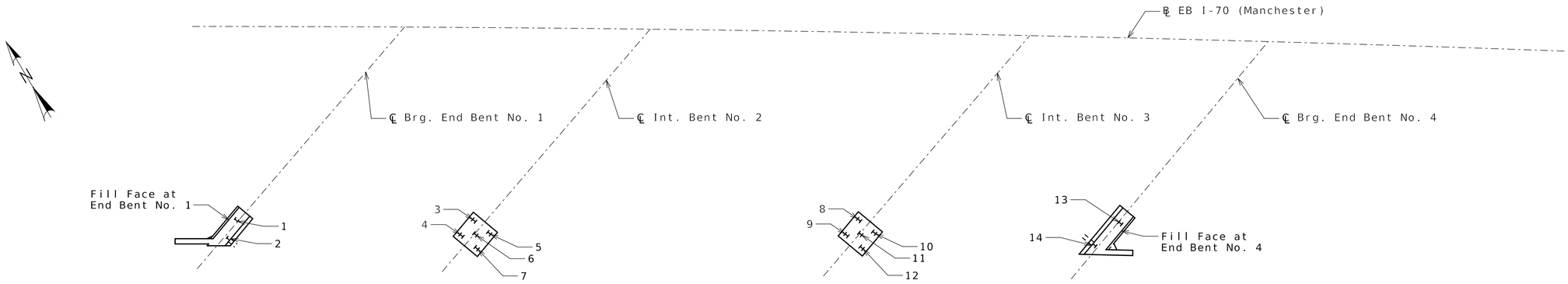
HNTB

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

BRIDGE APPROACH SLAB (MAJOR)

Detailed JUL 2025
Checked AUG 2025

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



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

(Existing Bridge Foundations not shown)

As-Built Pile Data			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			End Bent No. 1
1			
2			
			End Bent No. 4
13			
14			

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	
					Intermediate Bent No. 2
3					
4					
5					
6					
7					
					Intermediate Bent No. 3
8					
9					
10					
11					
12					

Note:

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

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

AS-BUILT PILE DATA

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

Detailed JUL 2025
Checked AUG 2025

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

GINA D. HORNER PE-30413
STATE OF MISSOURI PROFESSIONAL ENGINEER
Gina D Horner
12/29/2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-30
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION	DATE
REV0 - RFC SUBMITTAL	12/19/25

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

HNTB

SOIL BORING NUMBER: US40_B1_1

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ray A.
LOGGED BY Cameron Dupont
SURFACE ELEVATION 786.0'
METHOD Water Rotary, NQ Core
NORTHING/EASTING 1056871.5 / 2785608.6
DATE STARTED 02/14/2025
DATE COMPLETED 02/14/2025
RIG TYPE CME-55
TOOLING 2-15/16" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
										ASPHALT 0.3 785.7				
										CONCRETE 1.3 784.7				
	2.5 ft									Gray-brown, firm, moist, LEAN CLAY (CL), Silty				
5			J-1	15	2-4-3 (7)	83		0.5				22.8		
	6.3 ft													
			J-2	7	4-3-3 (6)	39		0.5						
10														
	12.5 ft													
			J-3	18	2-3-6 (9)	100		1.0			40-23-17	24.4		
15										- becomes firm to stiff at 13.5'				
	17.5 ft									17.5 768.5				
			J-4	18	2-2-3 (5)	100		1.5		Brown-gray, stiff, moist, LEAN CLAY (CL), gray mottling				
20														
	22.5 ft													
			J-5	14	2-3-8 (11)	78		2.0			46-24-22	26.6		
25														
	27.5 ft													
			J-6	18	3-5-2 (7)	100		1.5						
30														
	32.5 ft													
			J-7	16	1-2-2 (4)	89		1.0				27.0		
35														

HNTB

SOIL BORING NUMBER: US40_B1_1

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ray A.
LOGGED BY Cameron Dupont
SURFACE ELEVATION 786.0'
METHOD Water Rotary, NQ Core
NORTHING/EASTING 1056871.5 / 2785608.6
DATE STARTED 02/14/2025
DATE COMPLETED 02/14/2025
RIG TYPE CME-55
TOOLING 2-15/16" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
40										Brown-gray, stiff, moist, LEAN CLAY (CL), gray mottling				
	42.5 ft													
			J-8	16	WOH-WOH-3 (3)	89		1.0			42-23-19	29.6		
45														
50														
	52.5 ft													
			J-9	18	WOH-2-2 (4)	100		1.0		- becomes orange-gray, silty at 52.5'				
55														
60														
	62.5 ft													
			J-10	13	2-2-2 (4)	72		1.0		- becomes gray, no mottling or iron staining, stiff to very stiff		38.2		
65														
70														
	72.5 ft													
			J-11	16	1-3-4 (7)	89		1.0				48.7		

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

Notes:
For locations of borings, see Sheet No. B24-02 and Geotechnical Report.

BORING LOGS

Detailed JUL 2025
Checked AUG 2025

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

STATE OF MISSOURI
WILLIAM JOSEPH STURGEON
PE-2014017021
PROFESSIONAL ENGINEER
12/29/2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-31
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION: REV 0 - RFC SUBMITTAL
DATE: 12/19/25

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: US40_B1_1

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ray A.
LOGGED BY Cameron Dupont
SURFACE ELEVATION 786.0'
METHOD Water Rotary, NQ Core
NORTHING/EASTING 1056871.5 / 2785608.6
DATE STARTED 02/14/2025
DATE COMPLETED 02/14/2025
RIG TYPE CME-55
TOOLING 2-15/16" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
80										Brown-gray, stiff, moist, LEAN CLAY (CL), gray mottling				
	82.5 ft		J-12	8	4-5-9 (14)	44		1.5						
85	87.5 ft		J-13	0	50/3" (50/3")	0				87.5 698.5				
	88.2 ft		C-1	23		100	74			Shale, thinly bedded, highly weathered, fine grained, dark gray, soft to moderately hard		6.9	128.6	56
90	90.1 ft		C-2	60		100	77							
95	95.1 ft		C-3	58		97	85			- becomes moderately hard at 95'				
100										100.1 685.9		8.1	140.5	83
										Bottom of Boring at 100.1'				
105										Boring backfilled with cuttings and patched with asphalt 2/14/2025				
110														

SOIL BORING NUMBER: US40_B2_1

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ray A.
LOGGED BY Cameron Dupont
SURFACE ELEVATION 762.1'
METHOD Auger, Water Rotary, NQ Core
NORTHING/EASTING 1056786.8 / 2785643.9
DATE STARTED 02/24/2025
DATE COMPLETED 02/25/2025
RIG TYPE CME-55
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
										ASPHALT 1.0 761.1				
	3 ft									FILL, brown, stiff, moist, LEAN CLAY (CL), some gravel, gray mottling				
5			J-1	11	2-3-2 (5)	61		1.75						
	8 ft													
10			U-1	24		100		2.0			44-22-22	23.4	101.5	3.98
	13 ft									13.0 749.1				
			J-2	18	WOH-WOH-WOH (0)	100		<0.5		Gray, soft, wet, LEAN CLAY (CL), silty, some brown mottling				
15														
	18 ft		J-3	18	WOH-1-1 (2)	100		0.75			42-22-20	29.0		
20														
	23 ft		J-4	18	2-3-4 (7)	100		1.5		- becomes gray, iron stained, stiff at 23'				
25														
	28 ft		J-5	18	WOH-WOH-1 (1)	100		0.5		- becomes soft at 28'				
30														
	33 ft		U-2	24		100		0.5			44-19-25	23.7	101.4	3.66

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-32
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION: REV 0 - RFC SUBMITTAL
DATE: 12/19/25

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: 01/08/2026
Package: BRD-24-EB70-US40

Notes:
For locations of borings, see Sheet No. B24-02 and Geotechnical Report.

BORING LOGS

Detailed JUL 2025
Checked AUG 2025

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

SOIL BORING NUMBER: US40_B2_1

PROJECT Improve I 70 KC Design Build
NORTHING/EASTING 1056786.8 / 2785643.9
DRILLING FIRM PPI **DRILLER** Ray A.
DATE STARTED 02/24/2025
LOGGED BY Cameron Dupont
DATE COMPLETED 02/25/2025
SURFACE ELEVATION 762.1'
RIG TYPE CME-55
METHOD Auger, Water Rotary, NQ Core
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
35	34 ft		U-2	24		100		0.5		Gray, soft, wet, LEAN CLAY (CL), silty, some brown mottling	44-19-25	23.7	101.4	3.66
	38 ft		J-6	18	2-3-3 (6)	100		2.0		- becomes stiff, no iron staining or mottling at 38'				
40	43 ft		J-7	18	1-2-1 (3)	100		1.0		- becomes firm at 43'				
45	48 ft		J-8	18	1-2-2 (4)	100		1.0				30.5		
50	53 ft		J-9	18	WOH-WOH-2 (2)	100		1.0						
55	58 ft		J-10	18	2-2-6 (8)	100		1.0				48.5		
60														
65	65.6 ft		J-11	0	50/4" (50/4")	0		4.0		65.0 697.1 Shale, thinly bedded, highly weathered, fine grained, gray, soft				
	66 ft		C-1	45		100	47							

SOIL BORING NUMBER: US40_B2_1

PROJECT Improve I 70 KC Design Build
NORTHING/EASTING 1056786.8 / 2785643.9
DRILLING FIRM PPI **DRILLER** Ray A.
DATE STARTED 02/24/2025
LOGGED BY Cameron Dupont
DATE COMPLETED 02/25/2025
SURFACE ELEVATION 762.1'
RIG TYPE CME-55
METHOD Auger, Water Rotary, NQ Core
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
70	69.7 ft		C-1	45		100				Shale, thinly bedded, highly weathered, fine grained, gray, soft		9.1	139.4	17
			C-2	46		77	37					10.5	123.2	11
75	74.7 ft		C-3	60		100	92							
80	79.7 ft		C-4	60		100	100			- becomes moderately hard, slightly weathered to fresh, laminated at 79.5'		6.8	144.4	178
85	84.7 ft		C-5	60		100	97					11.4	117.1	57
90	89.7 ft		C-6	60		100	100					7.9	145.2	198
95	94.7 ft		C-7	25		42	0			- becomes highly weathered at 94.7'				
100	99.7 ft		C-8	60		100	17							

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

Notes:
For locations of borings, see Sheet No. B24-02 and Geotechnical Report.

BORING LOGS

Detailed JUL 2025
Checked AUG 2025

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

STATE OF MISSOURI
WILLIAM JOSEPH STURGEON
PE-2014017021
PROFESSIONAL ENGINEER
12/29/2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-33
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION: REV0 - RFC SUBMITTAL
DATE: 12/19/25

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: US40_B2_1

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ray A.
LOGGED BY Cameron Dupont
SURFACE ELEVATION 762.1'
METHOD Auger, Water Rotary, NQ Core

NORTHING/EASTING 1056786.8 / 2785643.9
DATE STARTED 02/24/2025
DATE COMPLETED 02/25/2025
RIG TYPE CME-55
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
105	102 ft		C-8	60		100				Shale, thinly bedded, highly weathered, fine grained, gray, soft				
	104.7 ft									103.7 658.4		4.8	153.5	197
			C-9	60		100	87			Limey shale, weathered, moderately hard, some fossils				
										- 6" clay seam at 104.9'		5.0	149.3	123
110										109.7 652.4				
										Bottom of Boring at 109.7'				
										Boring backfilled with cuttings and patched with asphalt 2/26/25				
115														
120														
125														
130														
135														

SOIL BORING NUMBER: US40_B3_1

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Eric P.
LOGGED BY Zachary Boyd
SURFACE ELEVATION 761.1'
METHOD Water Rotary, NQ Core

NORTHING/EASTING 1056750.4 / 2785769.5
DATE STARTED 02/25/2025
DATE COMPLETED 02/26/2025
RIG TYPE CME-550X
TOOLING 3-3/4" Rotary Drill

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
5	3.5 ft		J-1	12	5-5-5 (10)	67		1.5		FILL, brown, stiff, moist, LEAN CLAY (CL), organics, with gravel				
										5.0 756.1	44-26-18	22.6		
	8.5 ft		J-2	15	4-5-6 (11)	83		1.5		Brown, stiff, moist, LEAN CLAY (CL), organics, with gravel				
10										- no gravel at 8.5'				
15	13.5 ft		U-1	24		100		1.75			36-13-23	26.9	101.1	1.87
	18.5 ft		J-3	18	1-3-3 (6)	100		1.0		18.5 742.6				
20										Brown, firm, moist, LEAN TO FAT CLAY (CH), iron staining				
	23.5 ft		J-4	18	2-4-4 (8)	100		1.0		23.5 737.6				
25										Gray, firm, moist, LEAN CLAY with SILT (CL-ML)				
	28.5 ft		U-2	24		100		1.0			48-20-28	40.8	78.5	0.199
30														
	33.5 ft		J-5	18	1-2-1 (3)	100		0.5		- becomes soft at 33.5'				
35														

WILLIAM JOSEPH STURGEON
PE-2014017021
STATE OF MISSOURI
PROFESSIONAL ENGINEER
12/29/2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-34
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION: REV 0 - RFC SUBMITTAL
DATE: 12/19/25

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: 01/08/2026
Package: BRD-24-EB70-US40

Notes:
For locations of borings, see Sheet No. B24-02 and Geotechnical Report.

BORING LOGS

Detailed JUL 2025
Checked AUG 2025

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

SOIL BORING NUMBER: US40_B3_1

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Eric P.
LOGGED BY Zachary Boyd
SURFACE ELEVATION 761.1'
METHOD Water Rotary, NQ Core
NORTHING/EASTING 1056750.4 / 2785769.5
DATE STARTED 02/25/2025
DATE COMPLETED 02/26/2025
RIG TYPE CME-550X
TOOLING 3-3/4" Rotary Drill

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
40	38.5 ft		J-6	18	2-2-2 (4)	100		0.5		Gray, firm, moist, LEAN CLAY with SILT (CL-ML)				
45	43.5 ft		J-7	18	1-2-2 (4)	100		0.5			48-23-25	47.2		
50	48.5 ft		J-8	18	1-2-3 (5)	100		0.5						
55	53.5 ft		J-9	18	WOH-WOH-2 (2)	100		0.5			29-20-9	28.2		
60	58.5 ft		J-10	11	6-14-15 (29)	61		3.5		58.5 / 702.6 Dark gray, moist, LEAN CLAY (CL), with sand and gravel, well-graded				
65	65.5 ft 65.8 ft		C-1 C-2	4 60		100 100	0 100			65.5 / 695.6 Shale, thinly bedded, highly weathered, gray, soft		14.5	121.7	10
70	70.8 ft		C-3	60		100	87					13.6	124.1	16
75	75.8 ft													

SOIL BORING NUMBER: US40_B3_1

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Eric P.
LOGGED BY Zachary Boyd
SURFACE ELEVATION 761.1'
METHOD Water Rotary, NQ Core
NORTHING/EASTING 1056750.4 / 2785769.5
DATE STARTED 02/25/2025
DATE COMPLETED 02/26/2025
RIG TYPE CME-550X
TOOLING 3-3/4" Rotary Drill

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
80	76 ft		C-4	60		100				Shale, thinly bedded, highly weathered, gray, soft		9.8	124.1	31
85	80.8 ft 85.8 ft		C-5 C-6	60 60		100 100	88 87			- becomes weathered, moderately hard at 80.8'		8.6 8.7	135.1 140.1	74 95
90	90.8 ft		C-7	60		100	93			- becomes fresh and hard at 95.8'		8.9	129.1	57
95	95.8 ft		C-8	60		100	100							
100	100.8 ft		C-9	60		100	55			- becomes weathered and moderately hard at 100.8'		9.2	121.7	45
105	105.8 ft		C-10	56		93	87			104.9 / 656.2 Limy shale, highly weathered, soft		13.4	129.1	8
110										110.8 / 650.3 Bottom of Boring at 110.8' Boring backfilled with cuttings 2/26/25		4.6	150.7	153

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

Notes:
For locations of borings, see Sheet No. B24-02 and Geotechnical Report.

BORING LOGS

Detailed JUL 2025
Checked AUG 2025

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

STATE OF MISSOURI
WILLIAM JOSEPH STURGEON
PE-2014017021
PROFESSIONAL ENGINEER
12/29/2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-35
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION: REV 0 - RFC SUBMITTAL
DATE: 12/19/25

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

HNTB

SOIL BORING NUMBER: US40_B4_1

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ray A.
LOGGED BY Cameron Dupont
SURFACE ELEVATION 780.2'
METHOD Auger, Water Rotary, NQ Core
NORTHING/EASTING 1056717.4 / 2785861.4
DATE STARTED 02/25/2025
DATE COMPLETED 02/25/2025
RIG TYPE CME-55
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
										ASPHALT 0.3 / 779.9				
										CONCRETE 1.3 / 778.9				
										Gray, very stiff, moist, LEAN CLAY (CL), some sand, silty				
5	3 ft		J-1	1	3-3-3 (6)	6		3.0						
10	8 ft		U-1	23		96		2.0			43-25-18	17.20	116.00	1.81
15	13 ft		J-2	12	3-5-5 (10)	67		2.5		- becomes gray-brown, mottled, no sand at 13'				
20	18 ft			0	WOH-WOH-WOH	0				- becomes soft at 18' - becomes stiff at 20'				
25	23 ft		J-3	15	4-4-5 (9)	83		2.5		- becomes very stiff at 23'	43-23-20	24.40		
30	28 ft		U-2	24		100		3.0						
35	33 ft		J-4	17	3-5-8 (13)	94		2.0			46-20-26	25.40		

HNTB

SOIL BORING NUMBER: US40_B4_1

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ray A.
LOGGED BY Cameron Dupont
SURFACE ELEVATION 780.2'
METHOD Auger, Water Rotary, NQ Core
NORTHING/EASTING 1056717.4 / 2785861.4
DATE STARTED 02/25/2025
DATE COMPLETED 02/25/2025
RIG TYPE CME-55
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
	38 ft		J-5	18	WOH-1-2 (3)	100		1.0		Gray, very stiff, moist, LEAN CLAY (CL), some sand, silty 38.0 / 742.2				
40										Gray, soft to firm, wet, LEAN CLAY (CL), silty, plastic				
45	43 ft		J-6	18	WOH-WOH-1 (1)	100		0.5			34-20-14	30.20		
50	48 ft		J-7	18	WOH-1-1 (2)	100		0.5						
55	53 ft		J-8	18	1-2-2 (4)	100		0.5						
60	58 ft		J-9	18	1-1-2 (3)	100		0.5			34-24-10	30.60		
65														
70	68 ft		J-10	18	WOH-1-1 (2)	100		0.5		- some sand at 68'				

Detailed JUL 2025
Checked AUG 2025

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

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

Notes:
For locations of borings, see Sheet No. B24-02 and Geotechnical Report.

BORING LOGS

STATE OF MISSOURI
WILLIAM JOSEPH STURGEON
PE-2014017021
PROFESSIONAL ENGINEER
12/29/2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-36
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DESCRIPTION: REV 0 - RFC SUBMITTAL
DATE: 12/19/25

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: US40_B4_1

PROJECT Improve I 70 KC Design Build
NORTHING/EASTING 1056717.4 / 2785861.4
DRILLING FIRM PPI **DRILLER** Ray A.
DATE STARTED 02/25/2025
LOGGED BY Cameron Dupont
DATE COMPLETED 02/25/2025
SURFACE ELEVATION 780.2'
RIG TYPE CME-55
METHOD Auger, Water Rotary, NQ Core
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
										Gray, soft to firm, wet, LEAN CLAY (CL), silty, plastic				
										76.0 / 704.2				
										Gray, dense, wet, medium to coarse grained, SILTY SAND with GRAVEL, angular				
80	78 ft		J-11	18	10-17-17 (34)	100								
										84.0 / 696.2				
85	84 ft / 85 ft		C-1	12		100	58			Shale, thinly bedded, highly weathered, fine grained, gray, soft		9.40	120.30	65
			C-2	60		100	60							
90	90 ft		C-3	48		100	96							
										94.0 / 686.2				
95										Bottom of Boring at 94'				
										Boring backfilled with cuttings and patched with asphalt 2/25/25				
100														
105														
110														

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40

Notes:
For locations of borings, see Sheet No. B24-02 and Geotechnical Report.

BORING LOGS

Detailed JUL 2025
Checked AUG 2025

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

Sheet No. B24-37 of B24-37

WILLIAM JOSEPH STURGEON
PE-2014017021
STATE OF MISSOURI
PROFESSIONAL ENGINEER
12/29/2025

DATE PREPARED 12/19/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B24-37
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. L09669

DATE	DESCRIPTION
12/19/25	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
HNTB

B_L09669_B24-42_J4I1486D.dgn 5:08:10 PM 12/18/2025