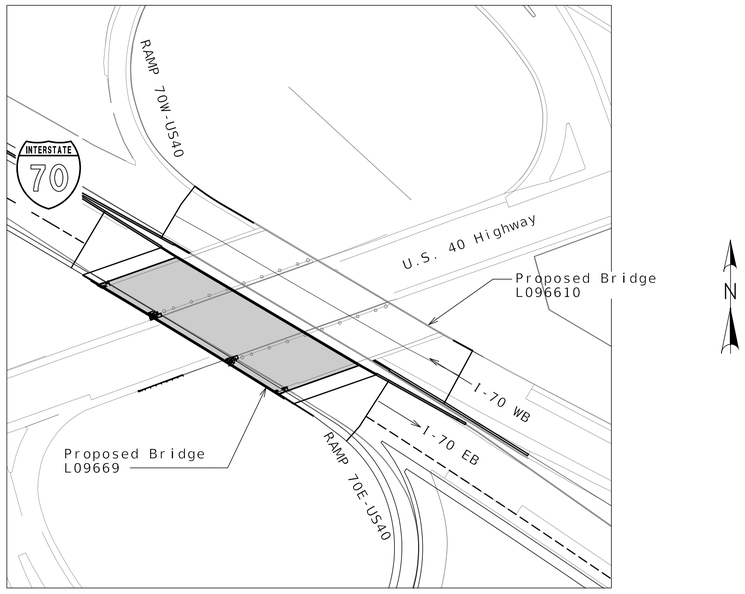
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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B24-02 General Plan and Elevation
B24-03 General Notes
B24-04 Substructure Layout
B24-05 Details of End Bent No. 1
B24-06 Details of End Bent No. 1
B24-07 Vertical Drain at End Bents
B24-08 Details of Intermediate Bents
B24-09 Details of Intermediate Bents
B24-10 Details of End Bent No. 4
B24-11 Details of End Bent No. 4
B24-12 Details of End Bent No. 4
B24-13 Laminated Neoprene Bearing Pad Assembly
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B24-16 Field Splice Details
B24-17 Diaphragm Details
B24-18 Miscellaneous Steel Details
B24-19 Slab Drains
B24-20 Dead Load Deflections and Slab Haunching Diagram
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B24-22 Slab Plan Showing Top Reinforcement
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B24-29 Bridge Approach Slab (Major)
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B24-31 Boring Logs
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B24-33 Boring Logs
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B24-36 Boring Logs
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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

DATE	DESCRIPTION
12/19/25	REV0 - 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

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)

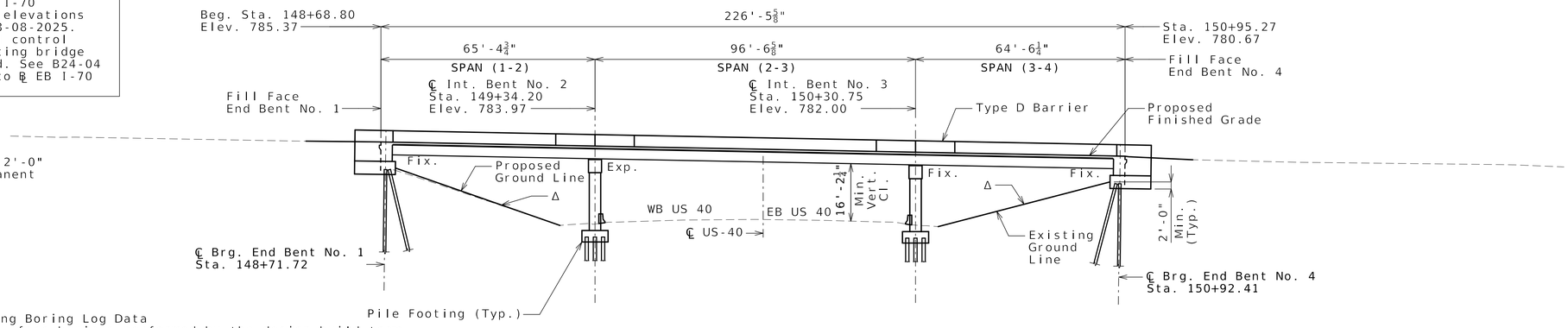
Detailed JUL 2025
Checked AUG 2025

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

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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)

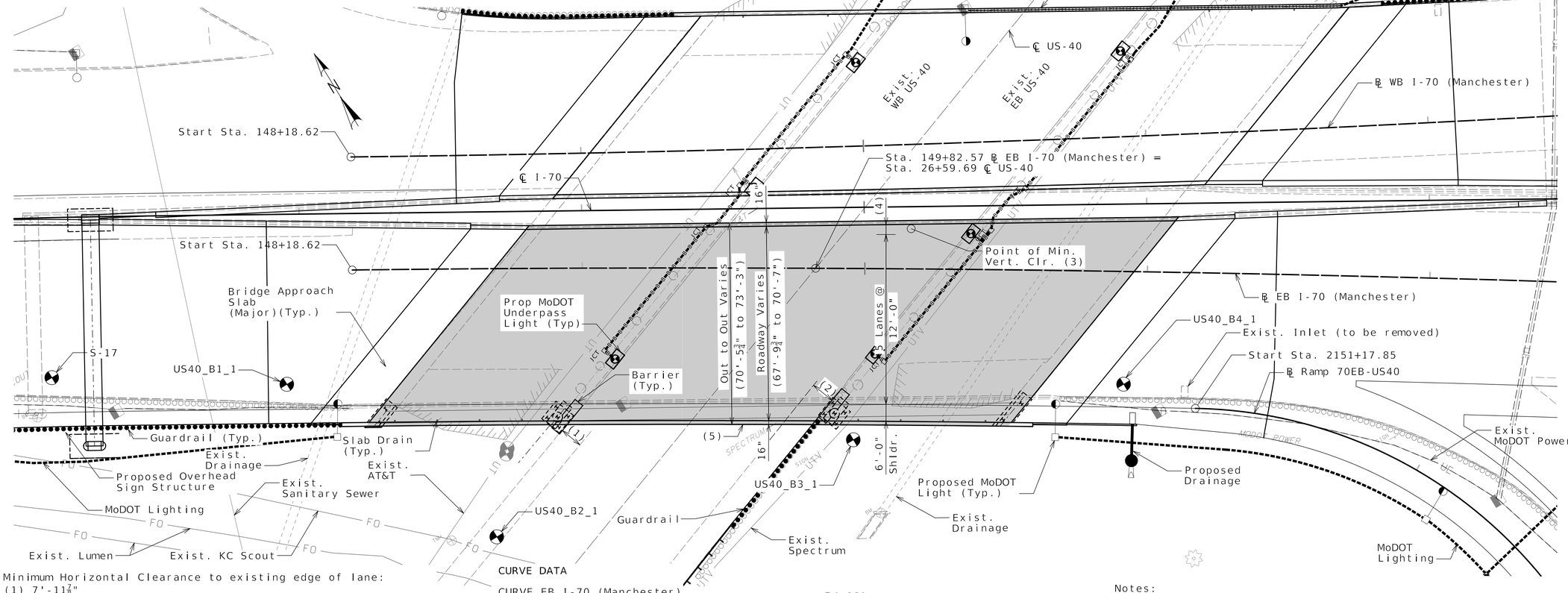
(65.4'-96.6'-64.5') Continuous Composite Wide Flange Beam Spans



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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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.

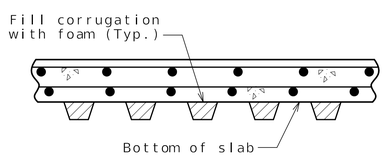
Structural steel for the beam chairs shall be coated with not less than 2 mils of inorganic zinc primer. Scratched or damaged surfaces are to be touched up in the field before concrete is poured. In lieu of coating, the beam chairs may be galvanized in accordance with ASTM A123.

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

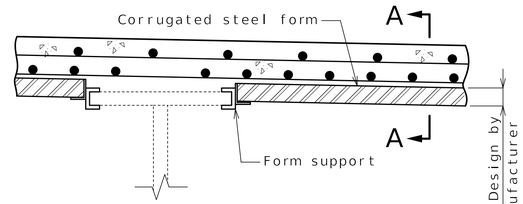
The contractor shall provide bracing necessary for lateral and torsional stability of the beams and girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not weld on or drill holes in the beams or girders.

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

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

GENERAL NOTES

Detailed JUL 2025
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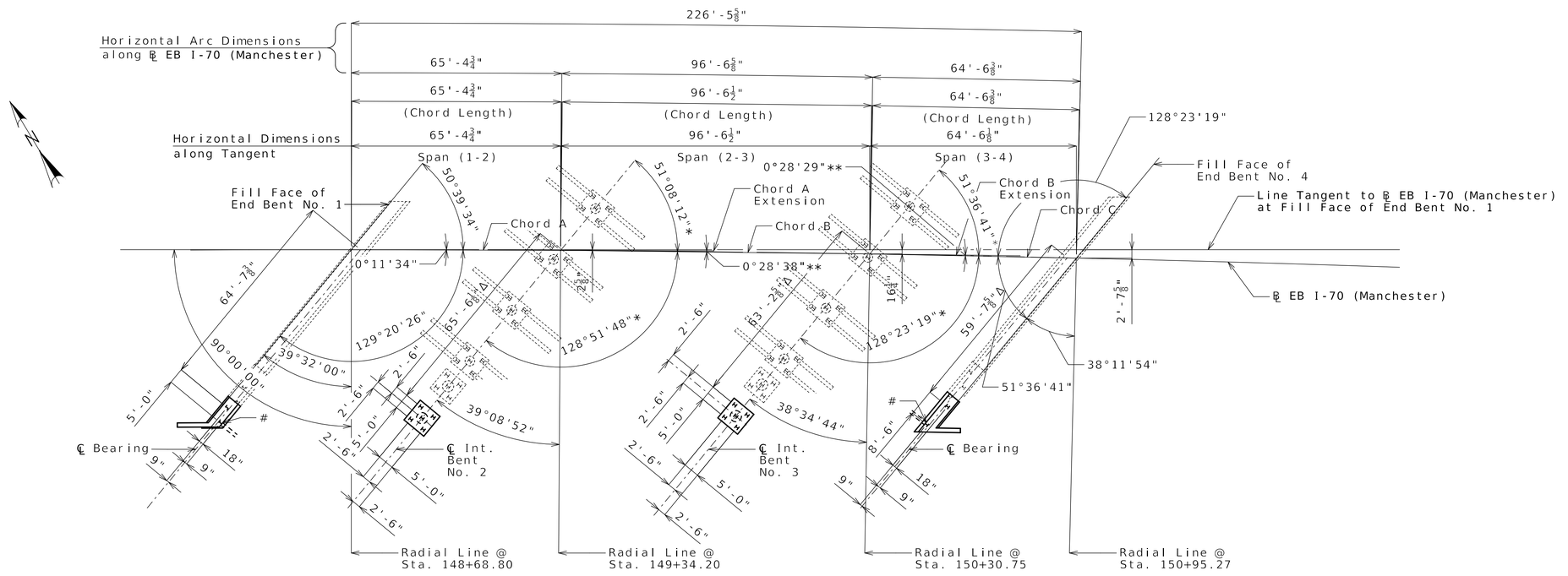
Note: This drawing is not to scale. Follow dimensions.

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. B24-03
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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MoDOT
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB



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

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.

Sheet No. B24-04 of B24-37

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

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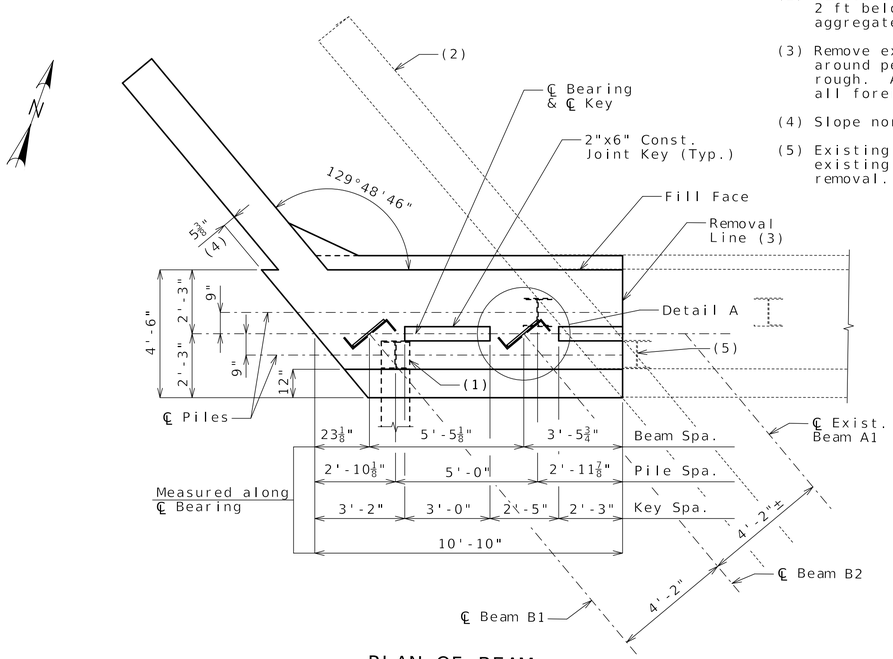
(1) Pile shall be battered 3 (H) on 12 (V) in direction shown.

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

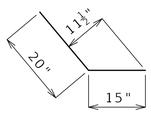
(3) Remove existing end bent to neat lines around perimeter. Interior surface can be rough. All surfaces shall be cleaned and all foreign and loose matter removed.

(4) Slope normal to bridge fascia to drain.

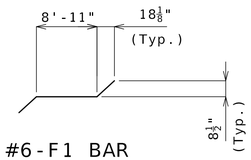
(5) Existing pile to be used in place. Protect existing pile during end bent concrete removal.



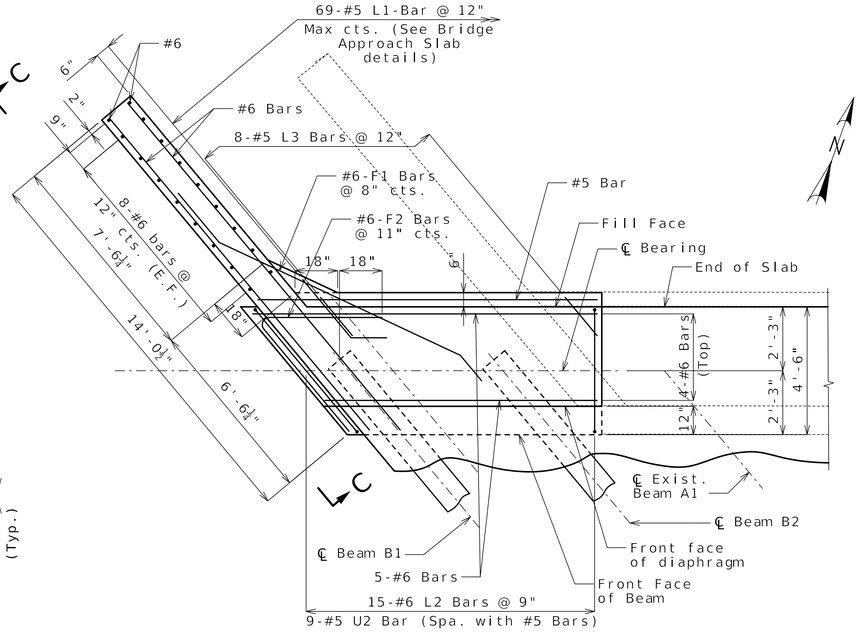
PLAN OF BEAM



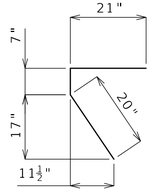
#5-L1 BAR



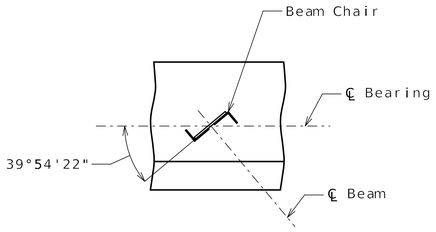
#6-F1 BAR



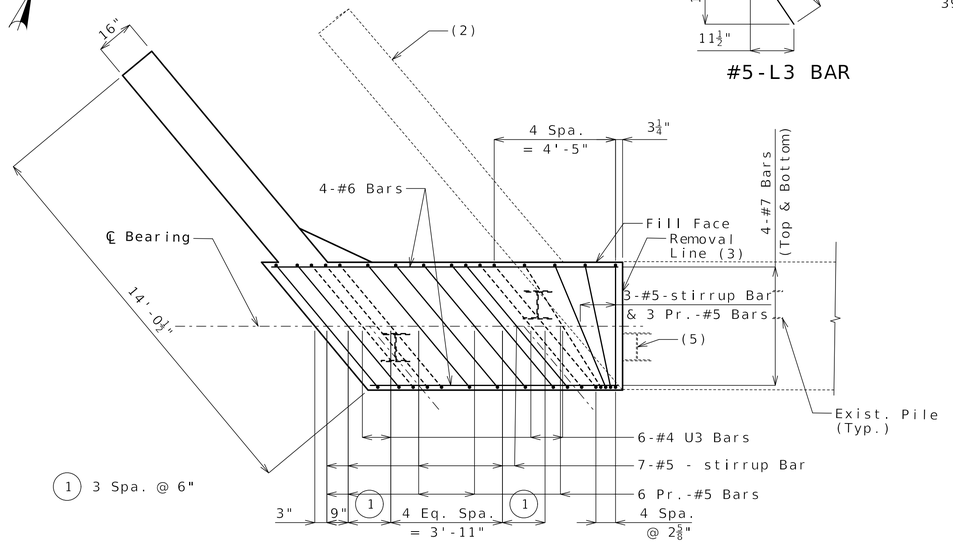
PART PLAN
(U2 bars and pairs of #5 Bars placed with beam and not shown for clarity)



#5-L3 BAR

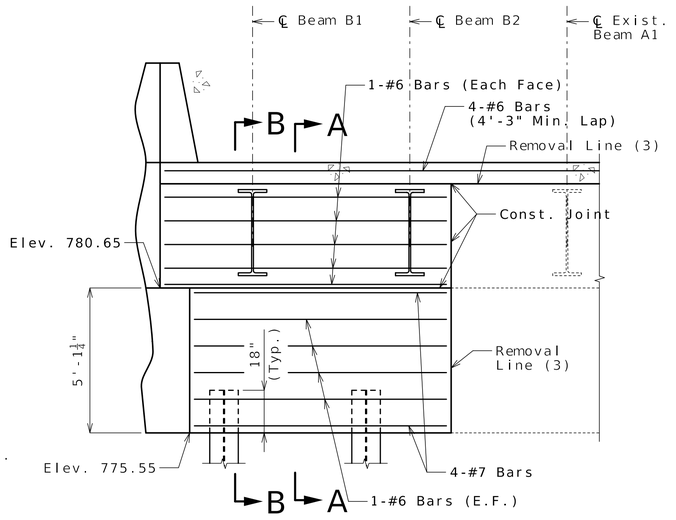


DETAIL A



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

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

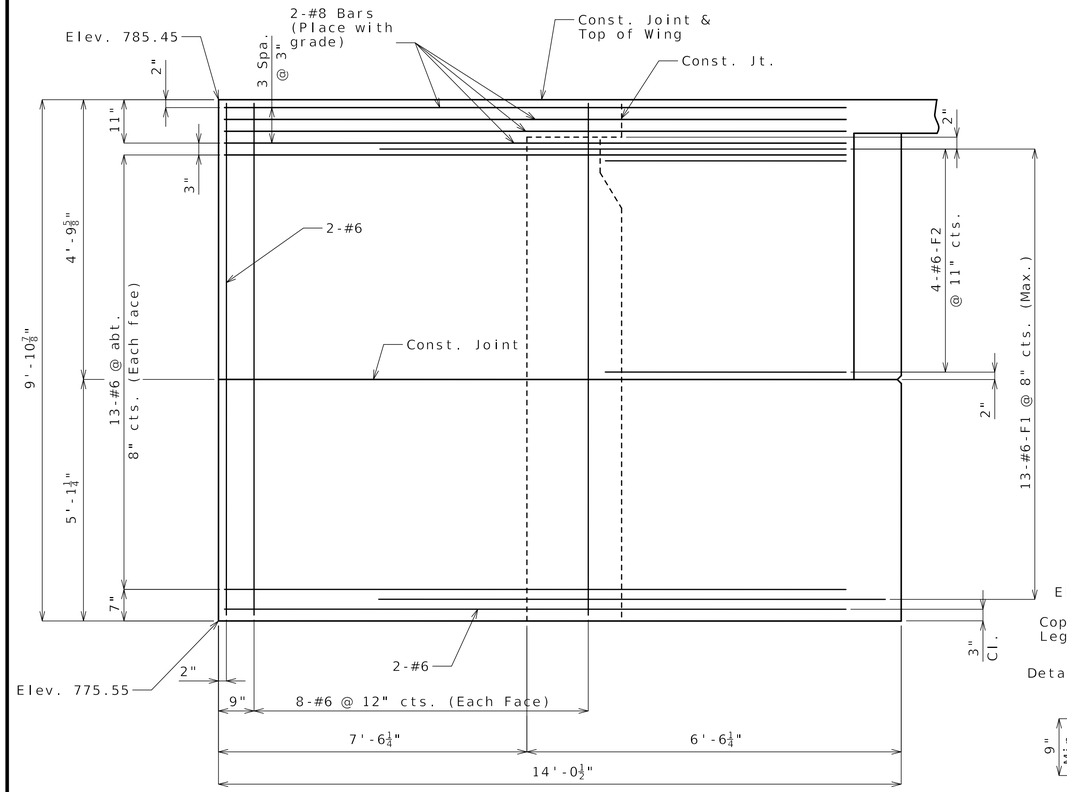
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
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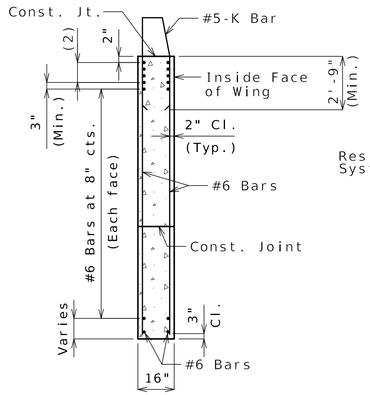
Detailed JUL 2025
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Note: This drawing is not to scale. Follow dimensions.

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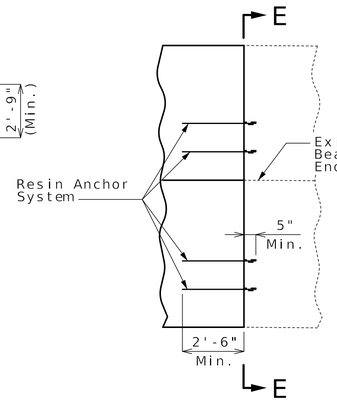


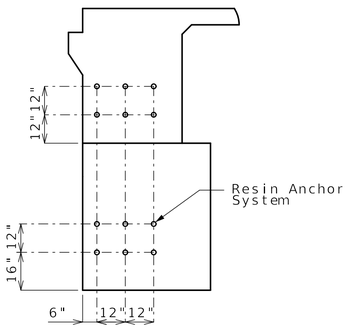
ELEVATION C-C



TYPICAL SECTION THRU WING

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





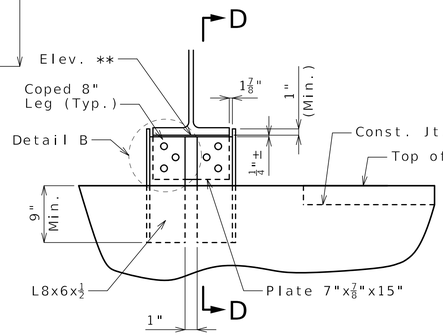
SECTION E-E

Resin Anchor Notes:

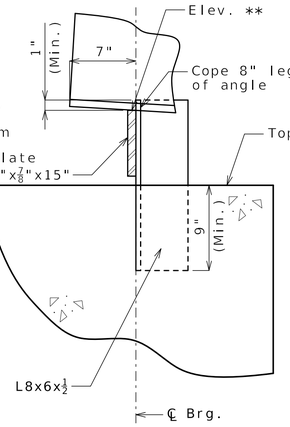
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

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.

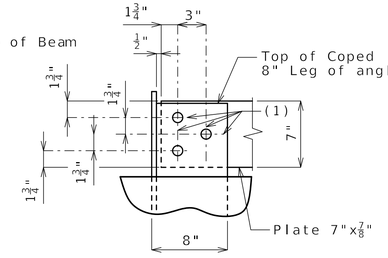


BEAM CHAIR ELEVATION



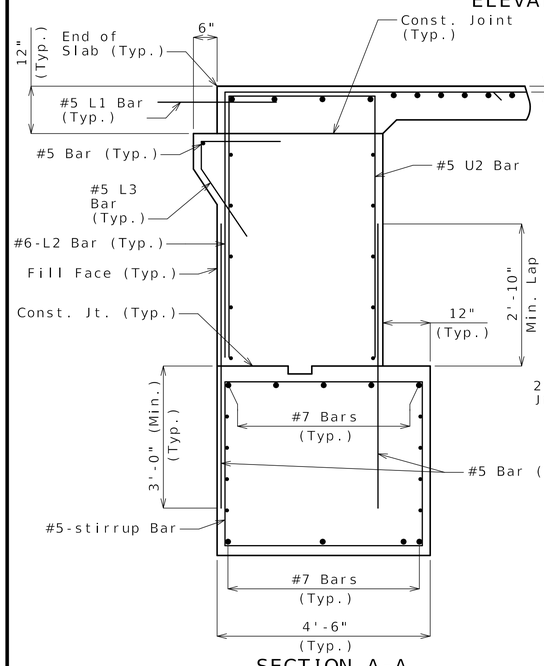
PART SECTION D-D

** 781.30 for Beam B1
781.34 for Beam B2

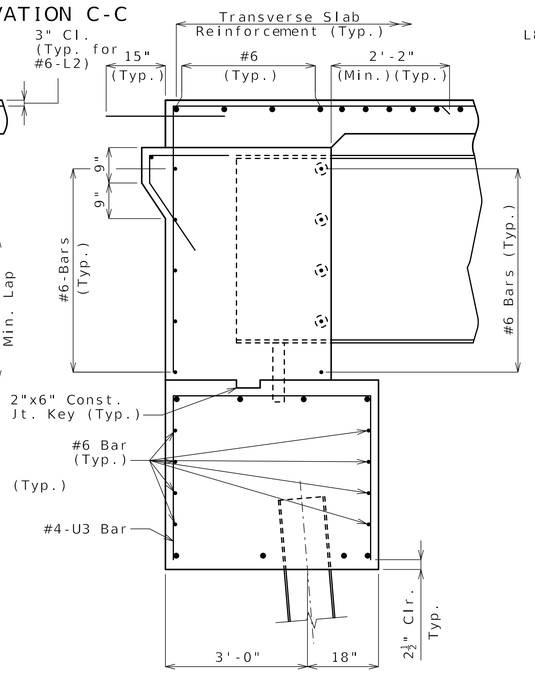


(1) ℄ 1 1/16" ∅ Hole in angle (Field drilled) & plate for 1" ∅ ASTM F3125 Grade A325 Type 1 bolts

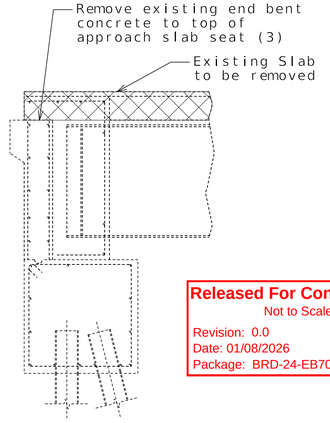
DETAIL B



SECTION A-A



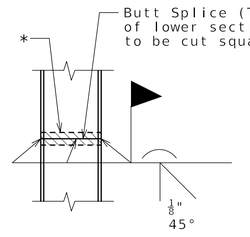
SECTION B-B



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.

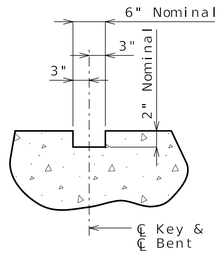
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Not to Scale
Revision: 0.0
Date: 01/08/2026
Package: BRD-24-EB70-US40



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

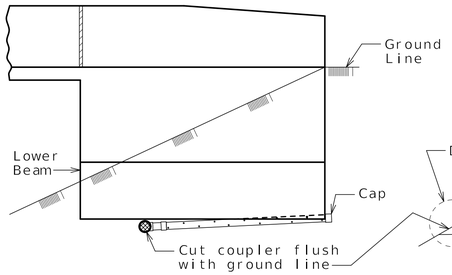
COUNTY: JACKSON
JOB NO.: J4I1486D
CONTRACT ID.: 240807-C01
PROJECT NO.:
BRIDGE NO.: L09669

DESCRIPTION	DATE
REV0 - RFC SUBMITTAL	12/19/25

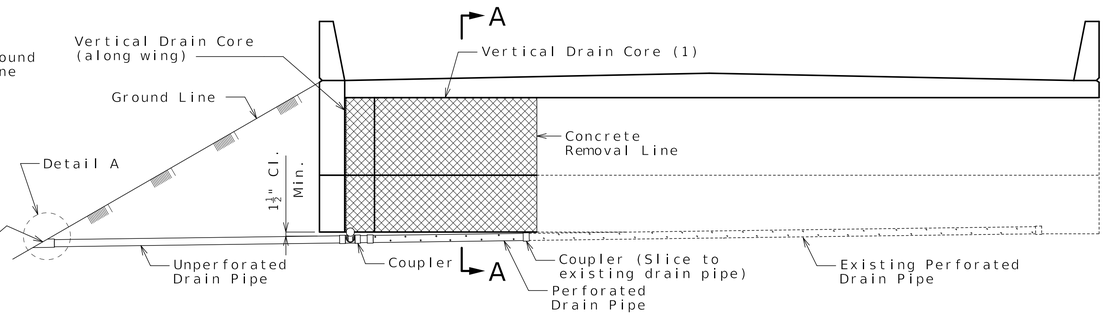
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

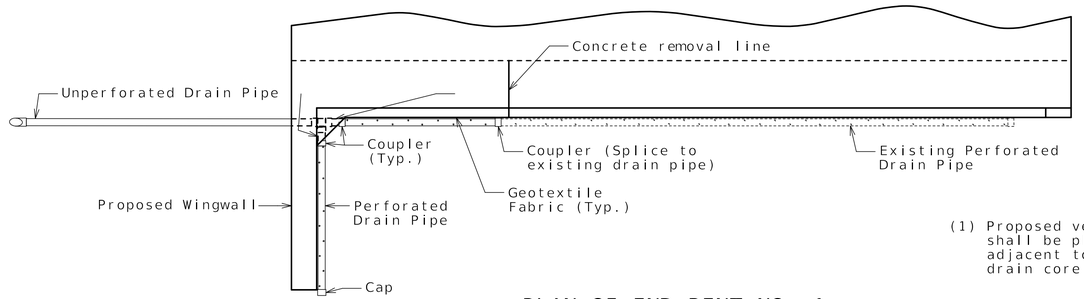
HNTB



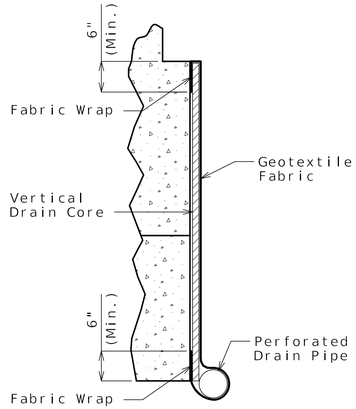
ELEVATION OF WING



ELEVATION OF END BENT NO. 1

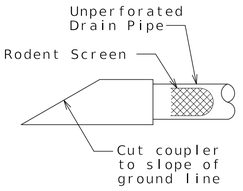


PLAN OF END BENT NO. 1

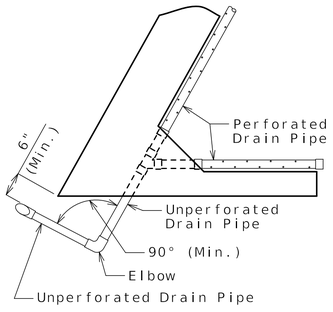


PART SECTION A-A
(Section thru wing similar)

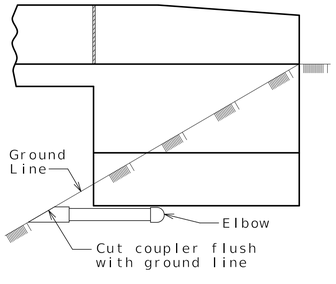
(1) Proposed vertical drain core shall be placed immediately adjacent to existing vertical drain core to remain.



DETAIL A

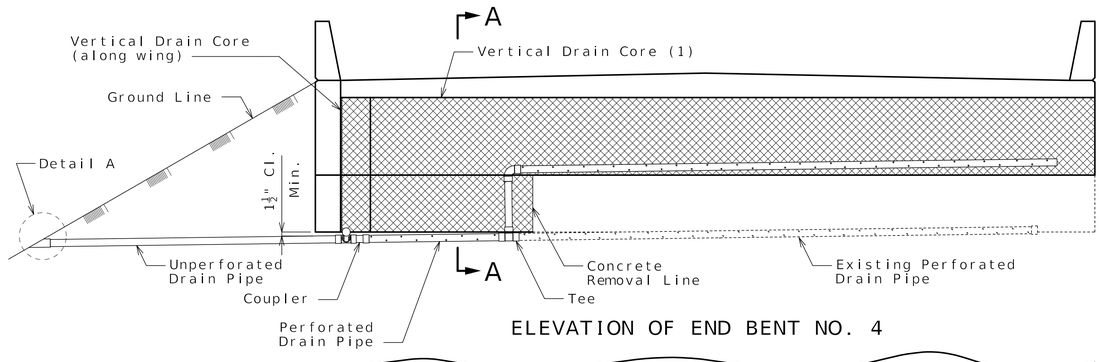


PART PLAN

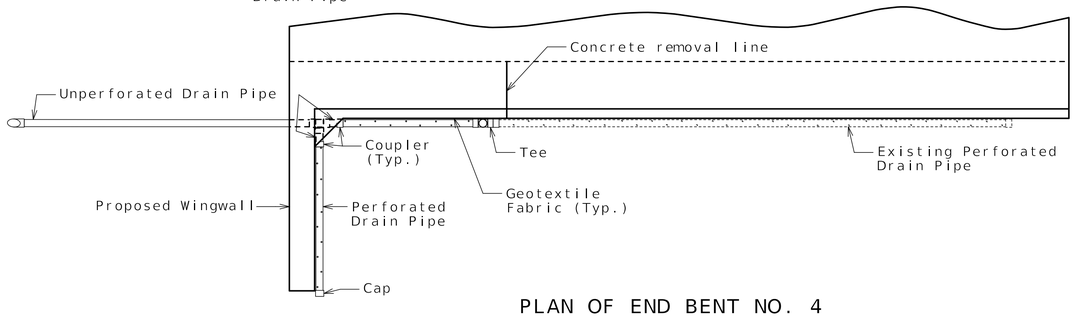


ELEVATION OF WING

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.

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VERTICAL DRAIN AT END BENTS

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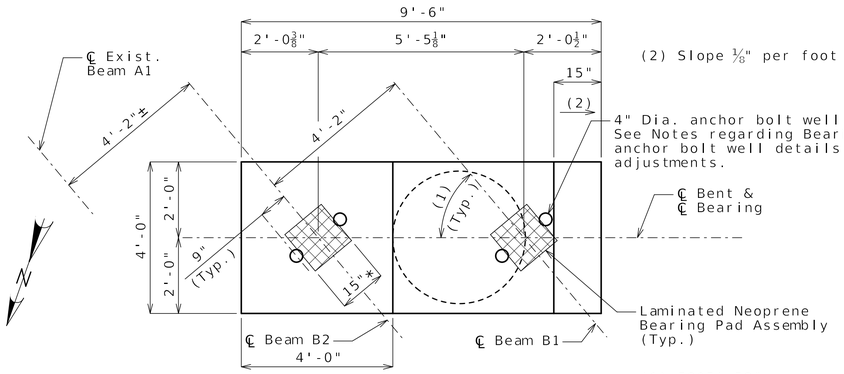
Note: This drawing is not to scale. Follow dimensions.

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)

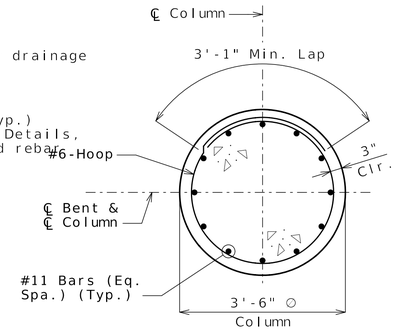
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB



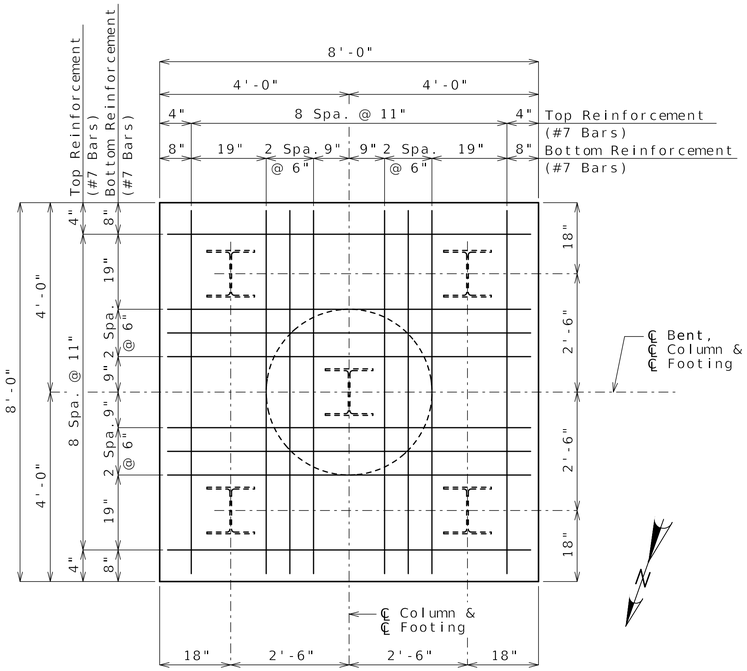
(2) Slope ⅛" per foot for drainage

(1) 50°5'-38"

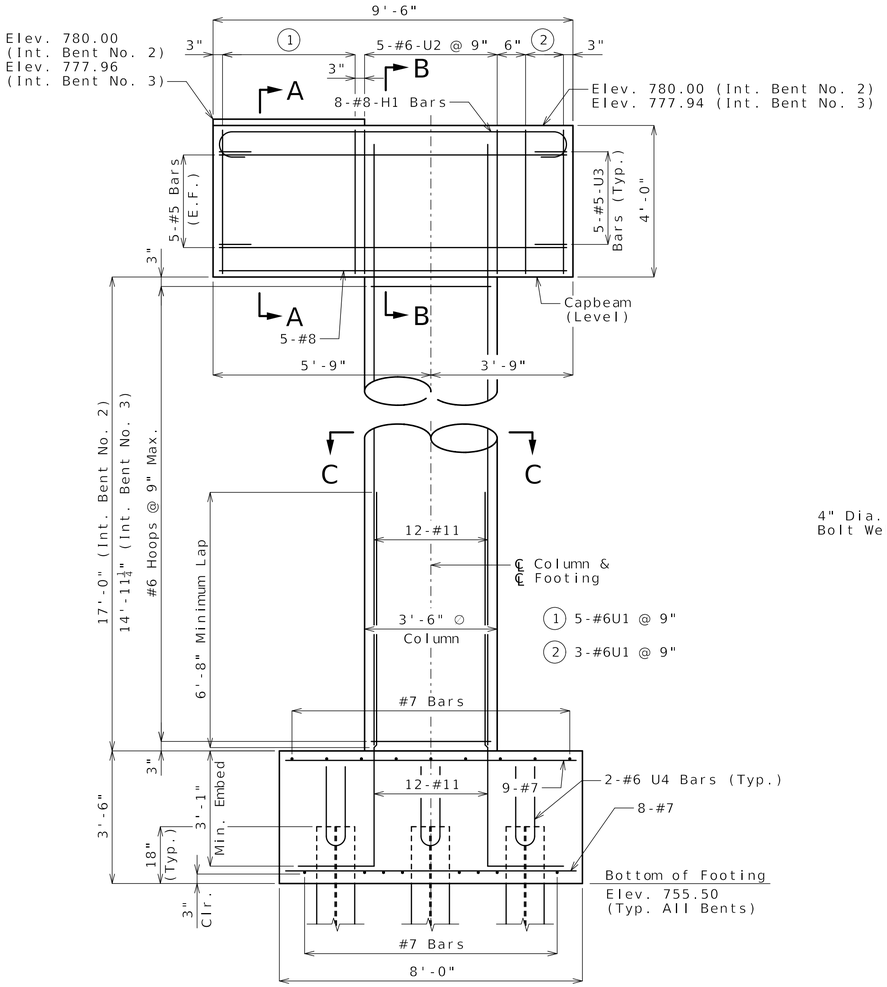
PLAN OF CAPBEAM



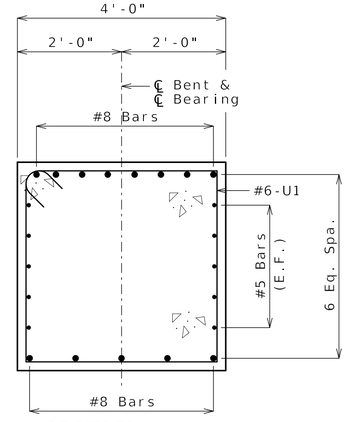
SECTION C-C



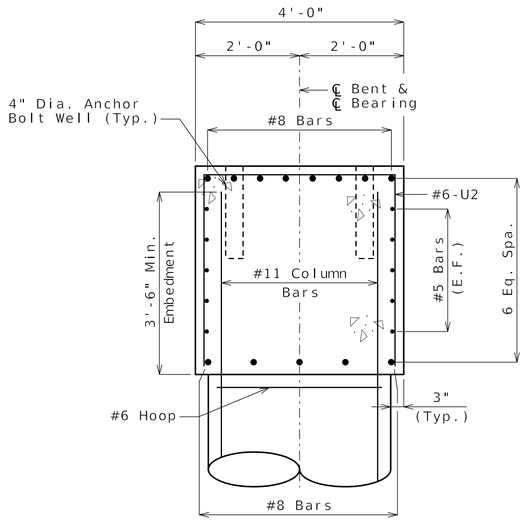
FOOTING PLAN



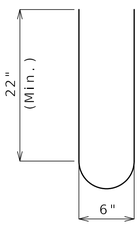
ELEVATION
(Looking upstation)



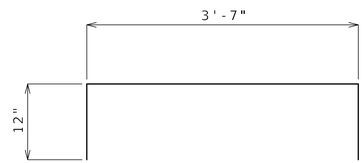
SECTION A-A



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	REV0 - RFC SUBMITTAL

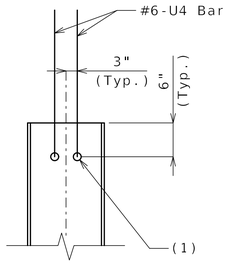
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

Detailed JUL 2025
Checked AUG 2025

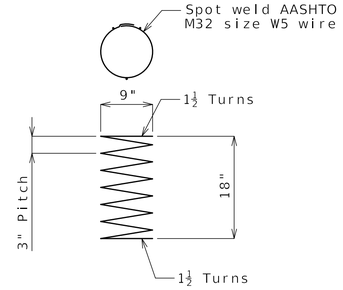
Note: This drawing is not to scale. Follow dimensions.

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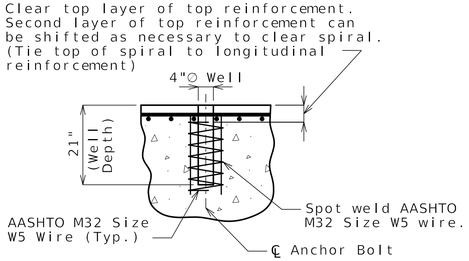


DETAILS OF HP PILE ANCHORS

(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

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

Detailed JUL 2025
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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)

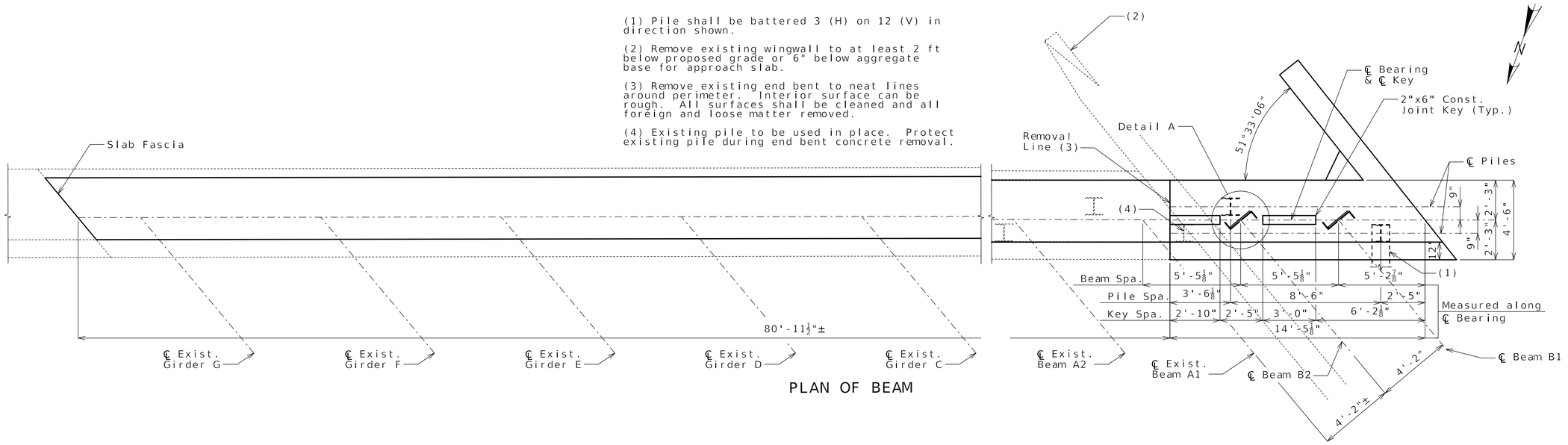
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB

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

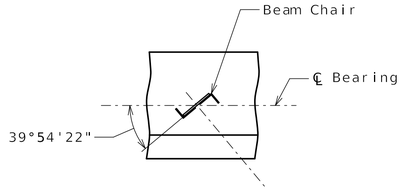
(2) Remove existing wingwall to at least 2 ft below proposed grade or 6" below aggregate base for approach slab.

(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.

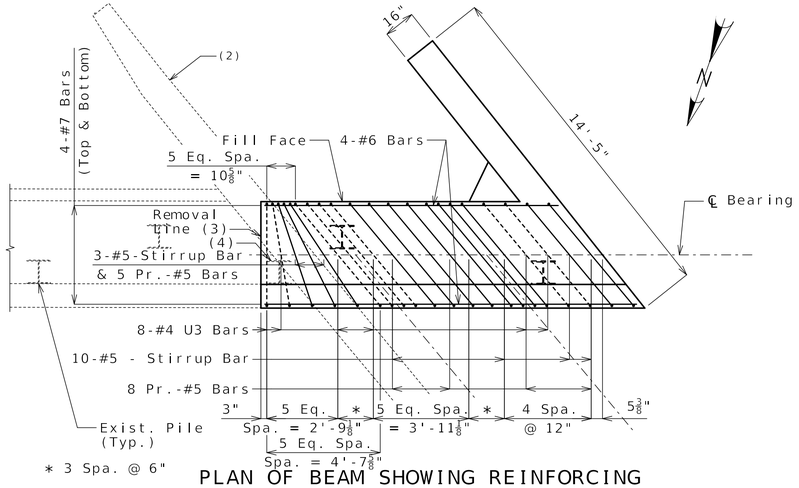
(4) Existing pile to be used in place. Protect existing pile during end bent concrete removal.



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.

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

DETAILS OF END BENT NO. 4

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)

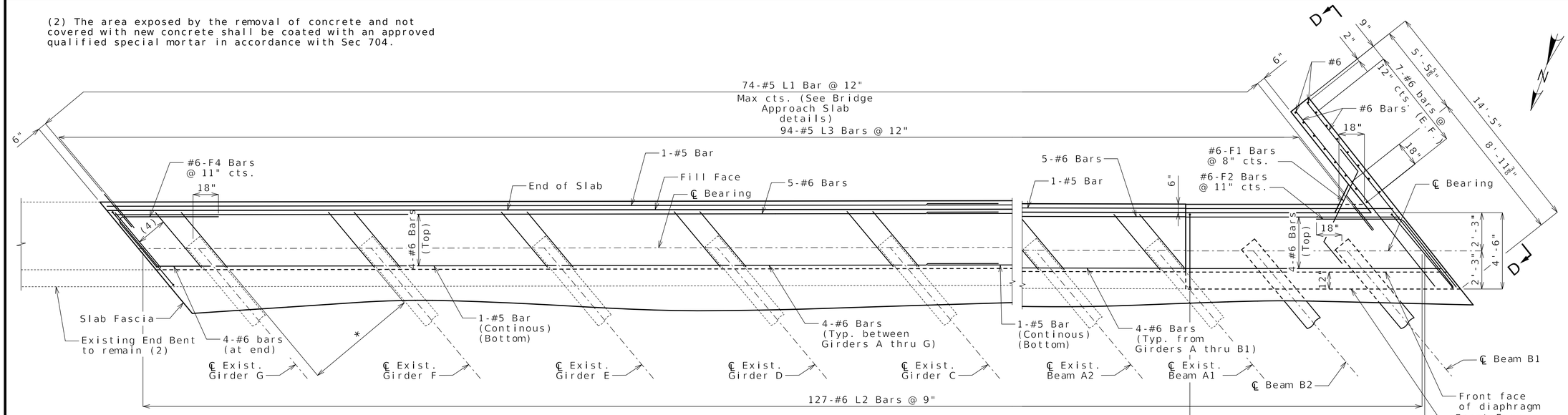
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB

Detailed JUL 2025
Checked AUG 2025

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

B_L09669_B24-12_J4I1486D.dgn 5:02:30 PM 12/18/2025

(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.



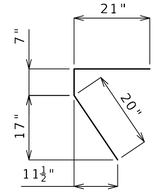
(4) 3 Pairs of 2-#5-U1 Bars @ 13" cts.

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

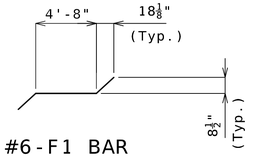
PART PLAN

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

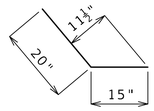
Notes:
Lap Splice for #5 bars = 2'-10" (Min.)
Lap Splice for #6 bars = 4'-3" (Min.)



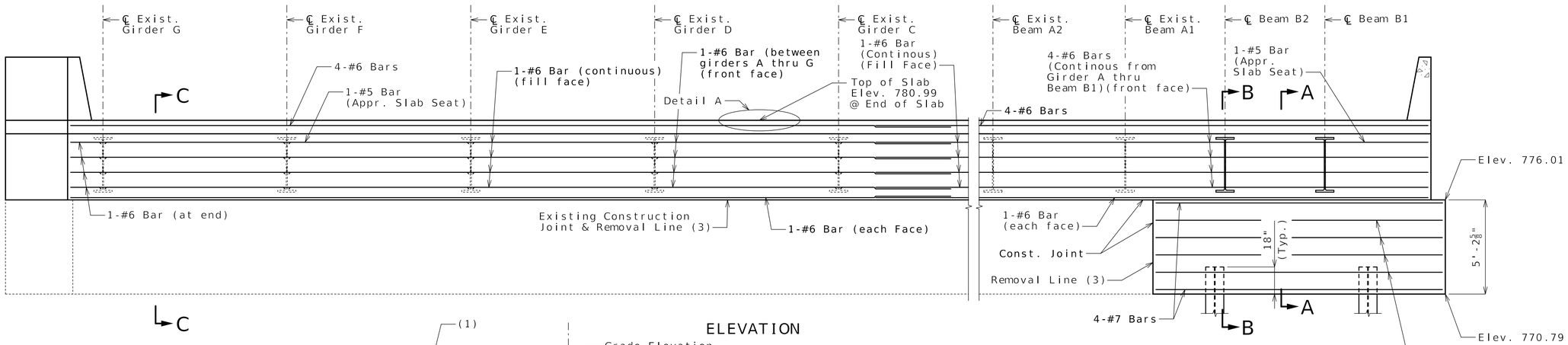
#5-L3 BAR



#6-F1 BAR



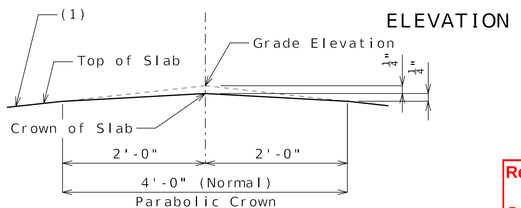
#5-L1 BAR



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

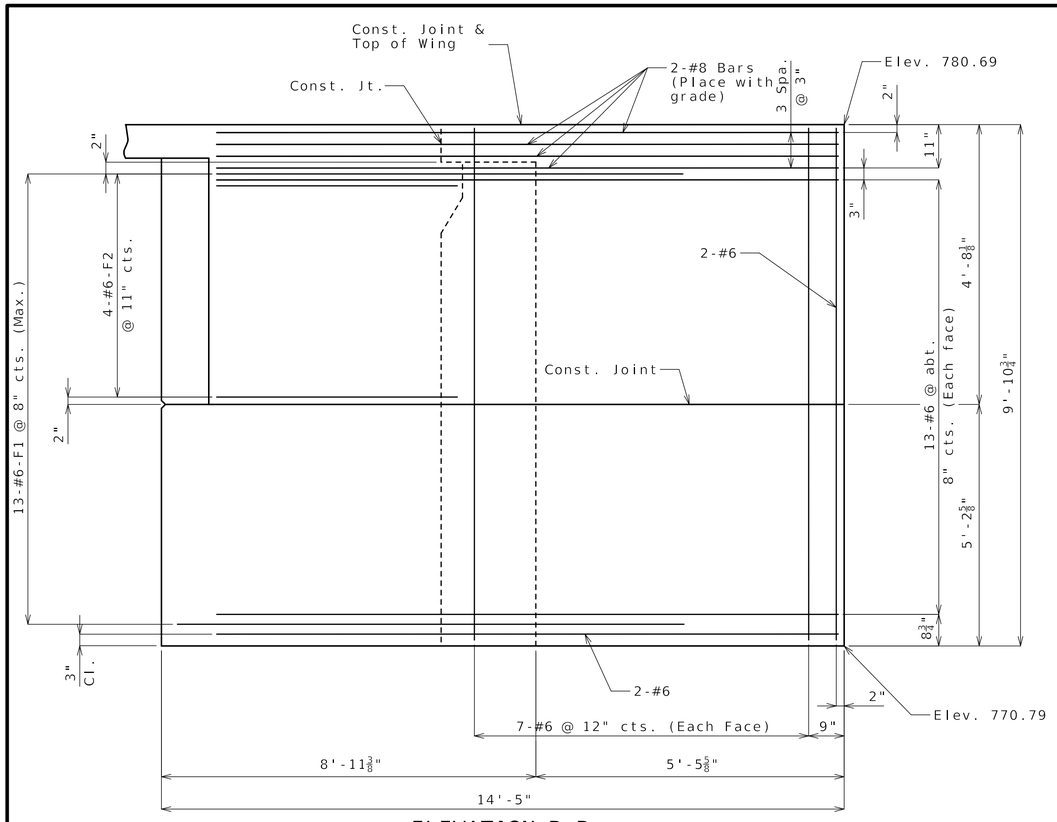
Sheet No. B24-11 of B24-37

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

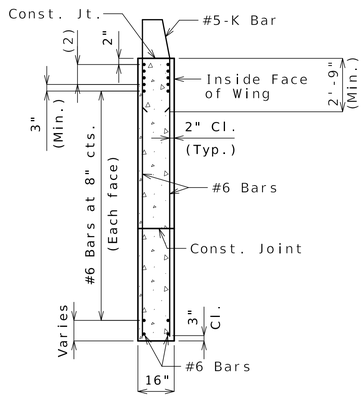
DATE	DESCRIPTION
12/19/25	REV 0 - RFC SUBMITTAL

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

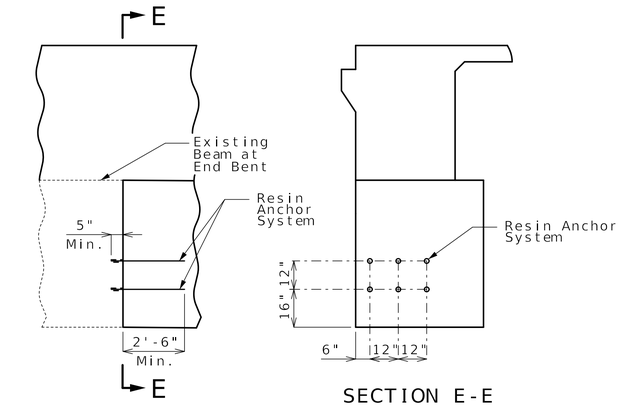


ELEVATION D-D



TYPICAL SECTION THRU WING

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



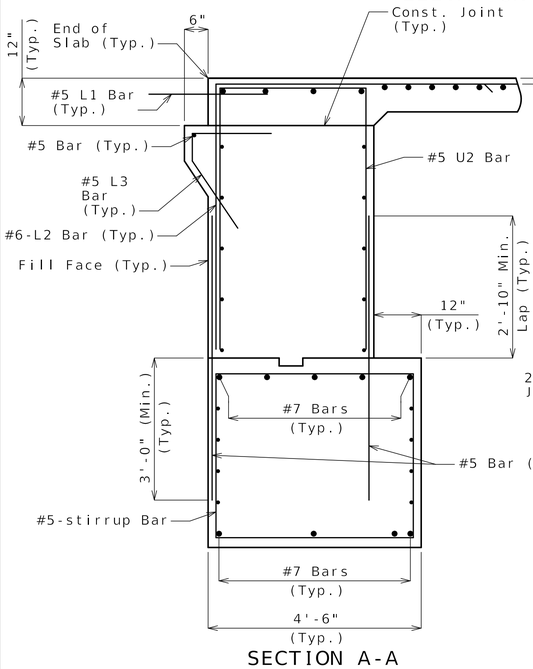
SECTION E-E

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

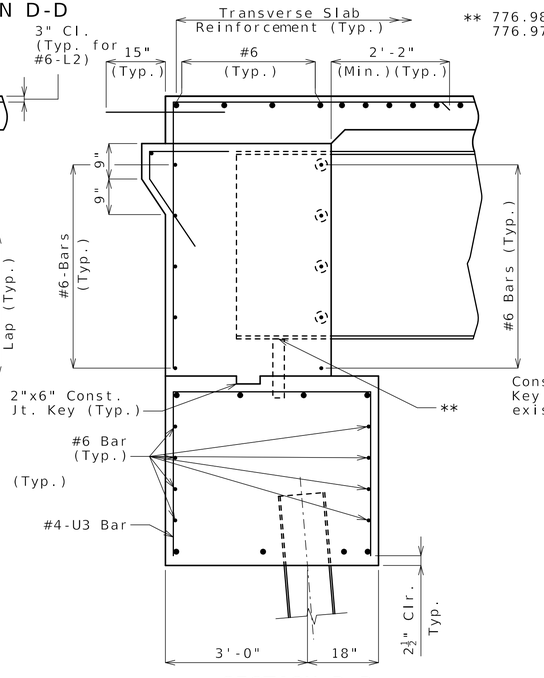
The minimum embedment depth in concrete with f'c=4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less that 5".

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

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

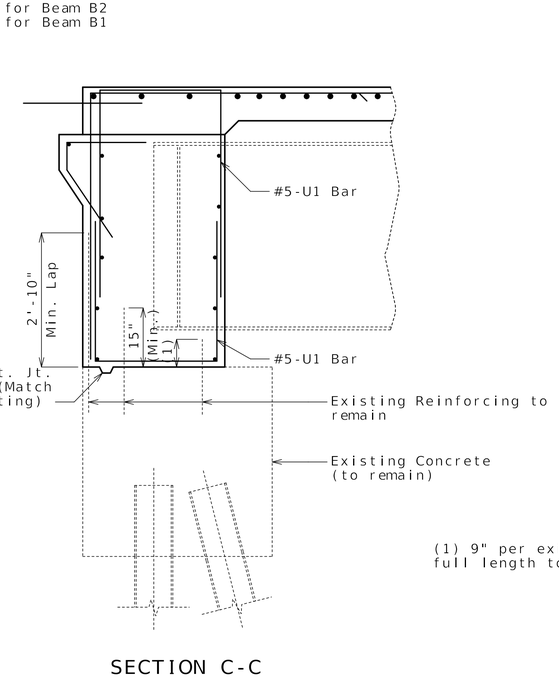


SECTION A-A



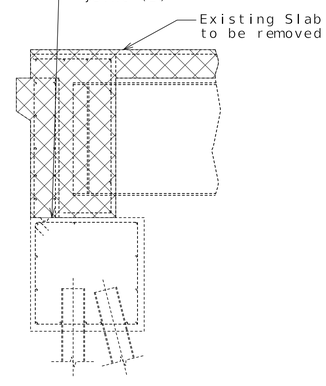
SECTION B-B

** 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

Detailed JUL 2025
Checked AUG 2025

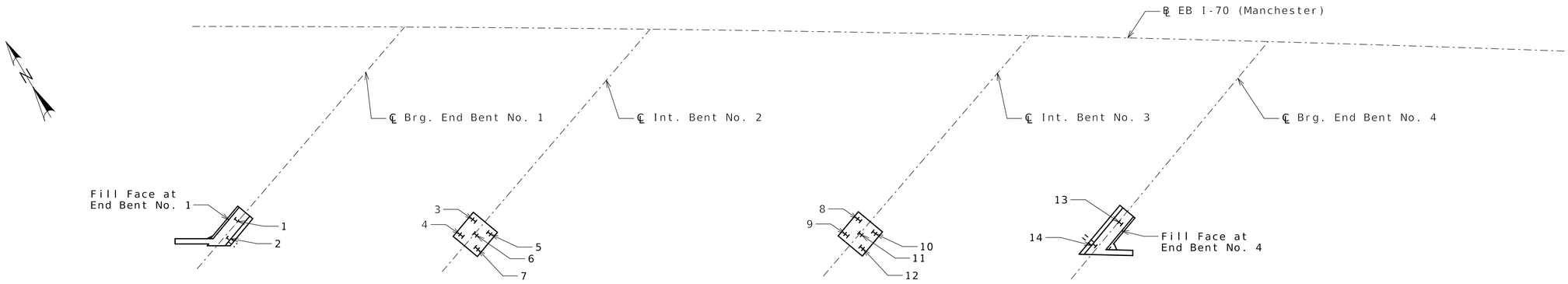
Note: This drawing is not to scale. Follow dimensions.

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. B24-12
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



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.

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

AS-BUILT PILE DATA

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	B24-30

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

DATE	DESCRIPTION
12/19/25	REV0 - 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

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				
										Gray-brown, firm, moist, LEAN CLAY (CL), Silty				
	2.5 ft		J-1	15	2-4-3 (7)	83		0.5				22.8		
5	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		
										- becomes firm to stiff at 13.5'				
15	17.5 ft		J-4	18	2-2-3 (5)	100		1.5		17.5 768.5				
										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

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

Detailed JUL 2025
Checked AUG 2025

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

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	82.5 ft		J-12	8	4-5-9 (14)	44		1.5		Brown-gray, stiff, moist, LEAN CLAY (CL), gray mottling				
										87.5 698.5				
85	87.5 ft		J-13	0	50/3" (50/3")	0				Shale, thinly bedded, highly weathered, fine grained, dark gray, soft to moderately hard				
	88.2 ft		C-1	23		100	74					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														

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)
										ASPHALT 1.0 761.1				
5	3 ft		J-1	11	2-3-2 (5)	61		1.75		FILL, brown, stiff, moist, LEAN CLAY (CL), some gravel, gray mottling				
10	8 ft		U-1	24		100		2.0			44-22-22	23.4	101.5	3.98
	13 ft		J-2	18	WOH-WOH-WOH (0)	100		<0.5		13.0 749.1 Gray, soft, wet, LEAN CLAY (CL), silty, some brown mottling				
15														
20	18 ft		J-3	18	WOH-1-1 (2)	100		0.75			42-22-20	29.0		
25	23 ft		J-4	18	2-3-4 (7)	100		1.5		- becomes gray, iron stained, stiff at 23'				
30	28 ft		J-5	18	WOH-WOH-1 (1)	100		0.5		- becomes soft at 28'				
	33 ft		U-2	24		100		0.5			44-19-25	23.7	101.4	3.66

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. B24-32
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.

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)
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							

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)
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

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. B24-33
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

Detailed JUL 2025
Checked AUG 2025

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

B_L09669_B24-38_J4I1486D.dgn 5:05:53 PM 12/18/2025

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'				
	13.5 ft		U-1	24		100		1.75						
15											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					8.9	129.1	57
95	95.8 ft		C-8	60		100	100			- becomes fresh and hard at 95.8'				
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:
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BORING LOGS

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. B24-35
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'				

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. B24-36
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.

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