

General Notes:

Design Specifications: 2020 AASHTO LRFD Bridge Design Specifications (9th Edition) 2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic) Seismic Design Category = C
Design earthquake response spectral acceleration coefficient at 1.0 second period, Sp1 = 0.706q

Acceleration Coefficient (effective peak ground acceleration coefficient), $A_s = 0.534$ c

Design Loading: 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 (Substructure, except CIP Concrete Piles)
Class B-1 Concrete (Type D Barrier and CIP Concrete Piles)
Class B-2 Concrete (Superstructure, except Type D Barrier)
Reinforcing Steel (ASTM A706 Grade 60)
Structural Steel (ASTM A709 Grade 50W)
Wolded or Sampless at all (astm A709 Grade 50W) f'c = 3,000 psi f'c = 4,000 psif c = 4,000 psifv = 60,000 nsi Welded or Seamless steel shell (pipe) for CIP pile (ASTM A252 Modified Grade 3) fy = 50,000 psi

Neoprene Pads:

Neoprene bearing pads shall be 60 durometer and shall be in accordance with Sec 716.

Field connections shall be made with 7/8-inch diameter ASTM F3125 Grade A325 Type 3 bolts and 15/16-inch diameter holes, except as noted.

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

Reinforcing Steel:

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

Traffic Handling:

Structure to be closed during construction. Traffic to be maintained on other routes. See roadway plans for traffic control.

Coating New Steel

Protective coating: System G in accordance with Sec 1081. The following weathering steel surfaces shall be coated:

All steel surfaces within 10 feet of bridge deck expansion joints, including cross frames, stiffeners, connection bolts and bearings.

All steel surfaces exposed to the outside face of the bridge, including outside faces and bottom of the exterior beams and girders, splice plates and bolts, stiffeners, drip bars and bearings.

The cost of the inorganic zinc prime coat will be considered completely covered by the contract unit price for the fabricated structural steel.

Field Coat(s): The color of the field coats shall be Gray (Federal Standard #26373). The cost of the intermediate and finish field coats will be completely covered by the contract unit price for the fabricated structural steel.

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.

Concrete Protective Coatings:

Temporary coating for concrete bents and piers (weathering steel) shall be applied on all concrete surfaces above the ground line or low water elvation on all abutments and intermediate bents in

Protective coating for concrete bents and piers (Epoxy) shall be applied as shown on the bridge plans

Miscellaneous:

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

Pile Driving

Dynamic Pile Restrike Testing shall be performed at least 1 hr after the completion of driving to evaluate pile relaxation.

The first three production piles driven and dynamically tested shall be as follows: one from pile numbers 8, 13, 18 or 23, one from 28 or 33, and one from 43, 48, 53, 58, 63, 68 or 73. For pile numbers, see As-Built Pile Data on Sheets No. 52 & 53.

The test pile at each bent shall be driven completely and tested prior to installing or driving the remaining piles for that bent. The test pile at each bent shall be the center pile.

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

Abbreviations:

E.F. Each Face

Estimated Quan	tities			
I t em		Substr.	Superstr.	Total
Removal of Bridges (H0927-MO)(A1087-AR)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard			152
Dynamic Pile Testing	each	16		16
Dynamic Pile Restrike Testing	1\ 7,630 — each	16	1 7,630 —	16
Pile Point Reinforcement	each	80		80
Galvanized Cast-In-Place Concrete Piles (30 in.)	linear foot	7,6051		7,6051
Galvanized Cast-In-Place Concrete Piles (36 in.)	linear foot	1,185		1,185
Class B Concrete (Substructure)	cu. yard	471.2		471.2
Slab on Steel	sq. yard		4,348	4,348
Type D Barrier	linear foot		2,165	2,165
Reinforcing Steel (Bridges)	pound	74,140		74,140
Reinforcing Steel (Epoxy Coated)	pound	42,900		42,900
Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum			1
Temporary Coating - Concrete Bents and Piers (Weathering Ste	el) lumpsum			1
Expansion Device (Finger Plate)	linear foot		74	74
Fabricated Structural Low Alloy Steel (I-Beam) A709, Grade 5)W pound		515,570	515,570
Fabricated Structural Low Alloy Steel (Plate Girder) A709, G	ade 50W pound		405,370	405,370
Slab Drain	each		18	18
Vertical Drain at End Bents	each			2
Laminated Neoprene Bearing Pad Assembly	each		76	76
Strip Seal Expansion Joint System	linear foot		110	110

Concrete above the upper construction joint in the backwall at End Bents No. 1 and 16 is included with Class B-2 Concrete Quantities.

All reinforcement in cast-in-place piles at non-integral end bents and intermediate bents is included in the substructure quantities.

Cost of any required excavation for bridge will be considered completely covered by the contract unit price for other items.

Estimated Quantities for Slab on Steel	
I t em	Total
Class B-2 Concrete cu. yard	1,059
Reinforcing Steel (Epoxy Coated) pound	373,780

The table of Estimated Quantities for Slab on Steel represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard longitudinally from end of slab to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab). Payment for stay-in-place corrugated steel forms, conventional forms, all concrete and epoxy coated reinforcing steel will be considered completely covered by the contract unit price for the slab. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit price.

Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

Slab shall be cast-in-place with conventional forms or stay-in-place corrugated steel forms. Precast prestressed panels will not be permitted.

THIS SHEET HAS BEEN SIGNED. SEALED AND DATE ELECTRONICALLY

7/29/2025 62 MO SHEET NO BR 3 DUNKLIN LOB NO

JSE0155 CONTRACT ID PROJECT NO

BRIDGE N

A9436

/ SPRING 200 0 64153 98-6465 AUTHORI



GENERAL NOTES AND QUANTITIES

Sheet No. 3 of 61

/1\ REVISED 07-29-2025

Hydrologic Data					
Drainage Area = 467 mi ²					
Design Flood Frequency = 50 years					
Design Flood Discharge = 28,300 cfs					
Design Flood (D.F.) Elevation = 297.4					
Base Flood (100-year)					
Base Flood Elevation = 298.0					
Base Flood Discharge = 32,000 cfs					
Estimated Backwater = 0.3 ft					
Average Velocity thru Opening = 3.0 ft/s					
Freeboard (50-year)					
Freeboard = 4.6 ft					
Roadway Overtopping					
Overtopping Flood Discharge = N/A cfs					
Overtopping Flood Frequency = > 500 years					
500-Year Flood Elevation = 299.5					

				Foundat	ion Data					
			Bent Number							
Туре	Design Data 🛕 75—	$\neg \lceil$	1	2	3	4	5	6	7	8
	Pile Type and Size		CECIP 30"	CECIP 30"	CECIP 30"	CECIP 30"	CECIP 30"	CECIP 36"	CECIP 36"	CECIP 30"
		e a	5	5	5	5	5	5	5	5
	11 3	ft	70	113	115	116	115	127	110	106
	Pile Point Reinforcement	e a	AII	AII	AII	AII	AII	AII	AII	AII
	Min. Galvanized Penetration (Elev.)	ft	275.0	273.9	273.3	273.6	273.0	261.0	259.5	272.3
Load	Est. Max. Scour Depth 100-Year (Elev.)	ft	295.0	286.4	285.6	285.8	285.2	275.5	272.0	282.4
Bearing Pile	Minimum Tip Penetration (Elev.)	f t	225.0	214.0	214.0	214.0	214.0	204.0	195.0	208.0
7116	Criteria for Min. Tip Penetration		Scouri	Uplift						
	Pile Driving Verification Method		/ DT	DT						
	Resistance Factor		0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
	Minimum Nominal Axial 🛕 Liquefaction—Compressive Resistance k	i p	588	846	846	846	846	1133	1133	846
			Bent Number							
Туре	Design Data		9	10	11	12	13	14	15	16
	Pile Type and Size		CECIP 30"	CECIP 30"	CECIP 30"	CECIP 30"	CECIP 30"	CECIP 30"	CECIP 30"	CECIP 30"
		e a	5	5	5	5	5	5	5	5
	Approximate Length Per Each	ft	108	108	119	119	118	118	117	79
	Pile Point Reinforcement	e a	AII	AII	AII	AII	AII	AII	AII	AII
	Min. Galvanized Penetration (Elev.)	ft	270.5	269.6	269.0	268.3	268.0	267.4	267.5	272.0
Load	Est. Max. Scour Depth 100-Year (Elev.)	ft	280.3	279.2	279.6	278.8	276.6	275.0	274.2	292.0
Bearing Pile	Minimum Tip Penetration (Elev.)	ft	208.0	208.0	196.0	196.0	196.0	196.0	196.0	225.0
	Criteria for Min. Tip Penetration		Uplift	Uplift	Uplift	Uplift	Uplift	Uplift	Uplift	Scouri
	Pile Driving Verification Method		DT	DT	DT	DT	DT	DT	DT	/ DT
	Resistance Factor		0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
	Minimum Nominal Axial Compressive Resistance k	ip	846	846	846	846	846	846	846	588

Minimum Nominal Axial Compressive Resistance = <u>Maximum Factored Loads</u> Resistance Factor

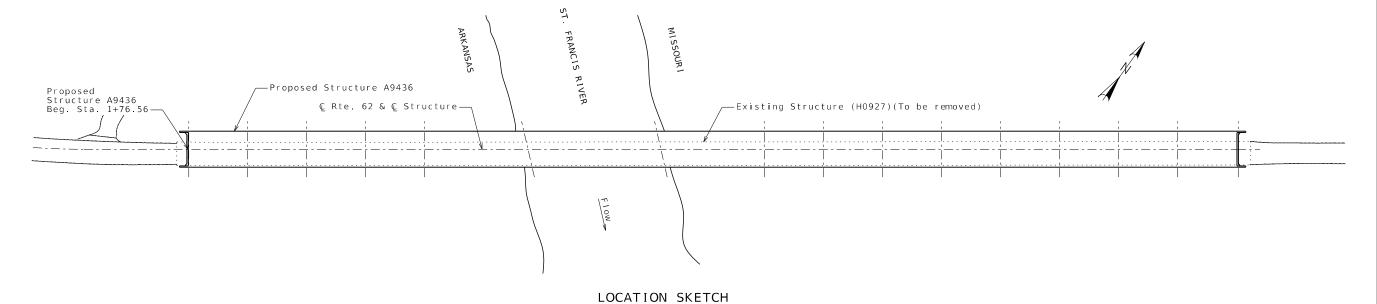
DT = Dynamic Testing

CECIP = Closed Ended Cast-In-Place concrete pile

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 the piles. Deviations in penetration less than 5 feet of the minimum will be considered acceptable provided the contractor makes the necessary corrections to ensure the minimum penetration is achieved on subsequent piles.



GENERAL NOTES AND QUANTITIES

1 REVISED 07-29-2025

⚠ Liquefaction—



DATE PREPARED
7/29/2025
ROUTE
62 MO
DISTRICT SHEET NO.
BR 4
COUNTY
DUNKL IN
JOB NO.
JSE0155
CONTRACT ID.

PROJECT NO.

DESCRIPTION
Table Update
Update
A 9436

ORTATION DATE COUNDATION 07.29.25 Foundation

SSOURI HIGHWAYS AND TRANSPORTAT
COMMISSION

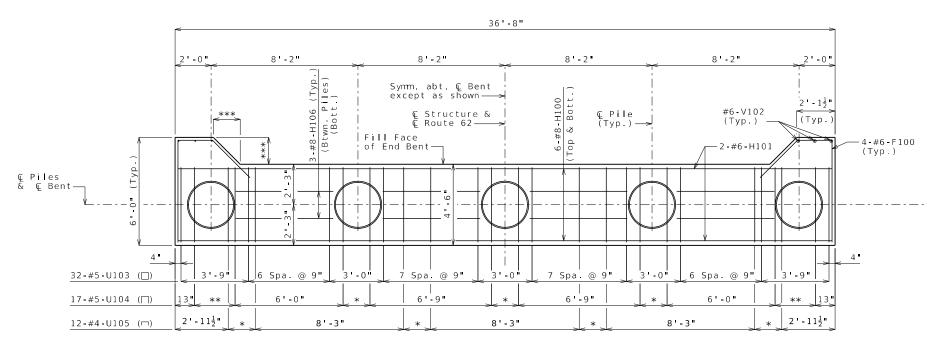
MODOT

105 WEST CAP!

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SARVER, LLC.
SOO NW TIFFANY SPRINGS
ARKWAY, SUITE 200
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FERTICATE OF AUTHORITY





PLAN OF BEAM SHOWING PILE SPACING AND REINFORCEMENT (Keys & steps not shown for clarity)

* 2 Spa. @ 9" ** 3 Spa. @ 9" *** 18" (Typ.) Top of Wing Elev. 304.62-— Top of Wing Elev. 304.62 17'-0" 17'-0" 51 Sets of 1-#6-U100 (□) & 1-#5-U101 (□) @ 8" cts. 34-#5-U102 (┐) @ 12" cts. (See Bridge Approach Slab Sheet) Symm. abt. © Bent except as shown— -4-#6-H104 & 4-#8-H105 (Typ.) -Fill Face of End Bent © Route 62 -Laminated Neoprene 5-#6-F101 Bearing Pad 14"x10"x3 1/8" (Each End) 4-#6-H102 -4-#6-H102 & 2-#6-H103 - 2-#6-H103 ── Front Face -⊊ Bearing AASHTO M32. — of Backwall Size W5 Wire Ç Anchor (W100)(Typ.) Bolt (Typ.) -Slope top of beam cap 1" to drain (Typ.) 4-#4-U106 9" 9" 14" (Typ.) —

(1) 4-#6-V100 @ 10" cts. (E.F.)(Typ.)

7'-0"

€ Beam

9'-8"

2'-6"

Detailed Nov. 2024

3'-10"

(2) 7-#6-V101 @ 10" cts. (E.F.)(Typ.)

(3) 4-#4-V103 @ 10" cts. (E.F.)(Typ.)

PART PLAN

36'-8"

3'-6"

4 - 10

(Typ.)

4 - 10"

3'-6"

[(Typ.)

2'-8"

1 REVISED 07-29-2025

2'-6"

3 - 10

2 -8

DETAILS OF END BENT NO. 1

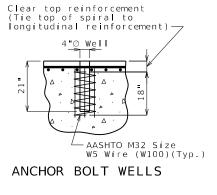
Note: This drawing is not to scale. Follow dimensions. Sheet No. 7 of 61

(Typ.)

7'-0"

€ Beam

9'-8"



Notes:

Work this sheet with Sheets No. 8 & 9.

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

For details of bridge approach slab, see Sheet No. 48.

For details of Type D Barrier, see Sheet No. 47.

For details of Laminated Neoprene Bearing Pad Assembly, see Sheet No. 22.

For details of galvanized cast-in-place concrete piles, see Sheet No. 6

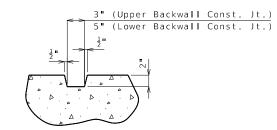
All concrete above the upper construction joint in the backwall shall be Class B-2.

Top of backwall for End Bent No. 1 shall be formed to the crown and grade of the roadway. Backwall above upper construction joint shall not be poured until the superstructure slab has been poured in the adjacent span.

Reinforcing steel shall be shifted to clear piles. U bars shall be shifted to clear piles by at least 1 1/2 inches.

Reinforcing steel in beam cap and cast-in-place piles shall be shifted where necessary to clear anchor bolt wells by at least 1/2".

Seal the following surfaces with Protective Coating -Concrete Bents and Piers (Epoxy): backwall; top and front of beam cap; all sides and top of curtain walls; outside of beam cap above ground line; and outside of wingwalls for 2 ft beyond curtain walls.



SECTION THRU KEY

Substructure Quantity Table for	End Bent	No. 1	
I t em		Quantity	
Dynamic Pile Testing	each	1	
Dynamic Pile Restrike Testing	each	1	١.
Pile Point Reinforcement	each	5	
Galvanized Cast-In-Place Concrete Pile (30 in.)	linear foot	[350]	
Class B Concrete (Substructure)	cu. yard	29.5	
Reinforcing Steel (Epoxy Coated)	pound	8,690	
			1

These quantities are included in the Estimated Quantities table on Sheet No. 3.



7/29/2025

62 MO SHEET NO 7 BR DUNKLIN LOB NO

> JSE0155 CONTRACT ID.

PROJECT NO. BRIDGE NO A9436

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