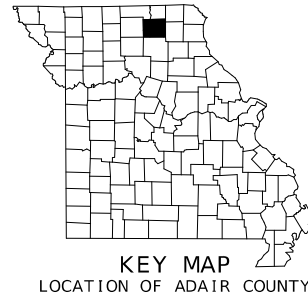


**DESIGN DESIGNATION**

A.A.D.T. - 2025 = 403  
 A.A.D.T. - 2045 = 445  
 PEAK HOUR = 9.81%  
 T = 20.23%  
 V = 55 M.P.H.  
 DIRECTIONAL DISTRIBUTION = 49%E/51%W  
 FUNCTIONAL CLASSIFICATION- MAJOR COLLECTOR

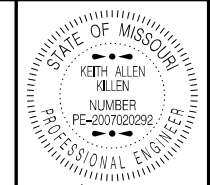
**MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
 PLANS FOR PROPOSED  
 STATE HIGHWAY  
 ADAIR COUNTY**



KEY MAP  
LOCATION OF ADAIR COUNTY

**INDEX OF SHEETS**

DESCRIPTION	SHEET NUMBER
TITLE SHEET .....	1
TYPICAL SECTIONS (TS) (1 SHEET)--	2
QUANTITIES (QU) (1 SHEET)-----	3
PLAN-PROFILE (PP)-----	4
COORDINATE POINTS (CP)-----	5
SPECIAL SHEETS (SS)-----	6
TRAFFIC CONTROL SHEETS (TC)-----	7
EROSION CONTROL SHEETS (EC)-----	8
BRIDGE DRAWINGS (B)	
A9442-----	1-28
CROSS SECTIONS (XS)-----	1-4

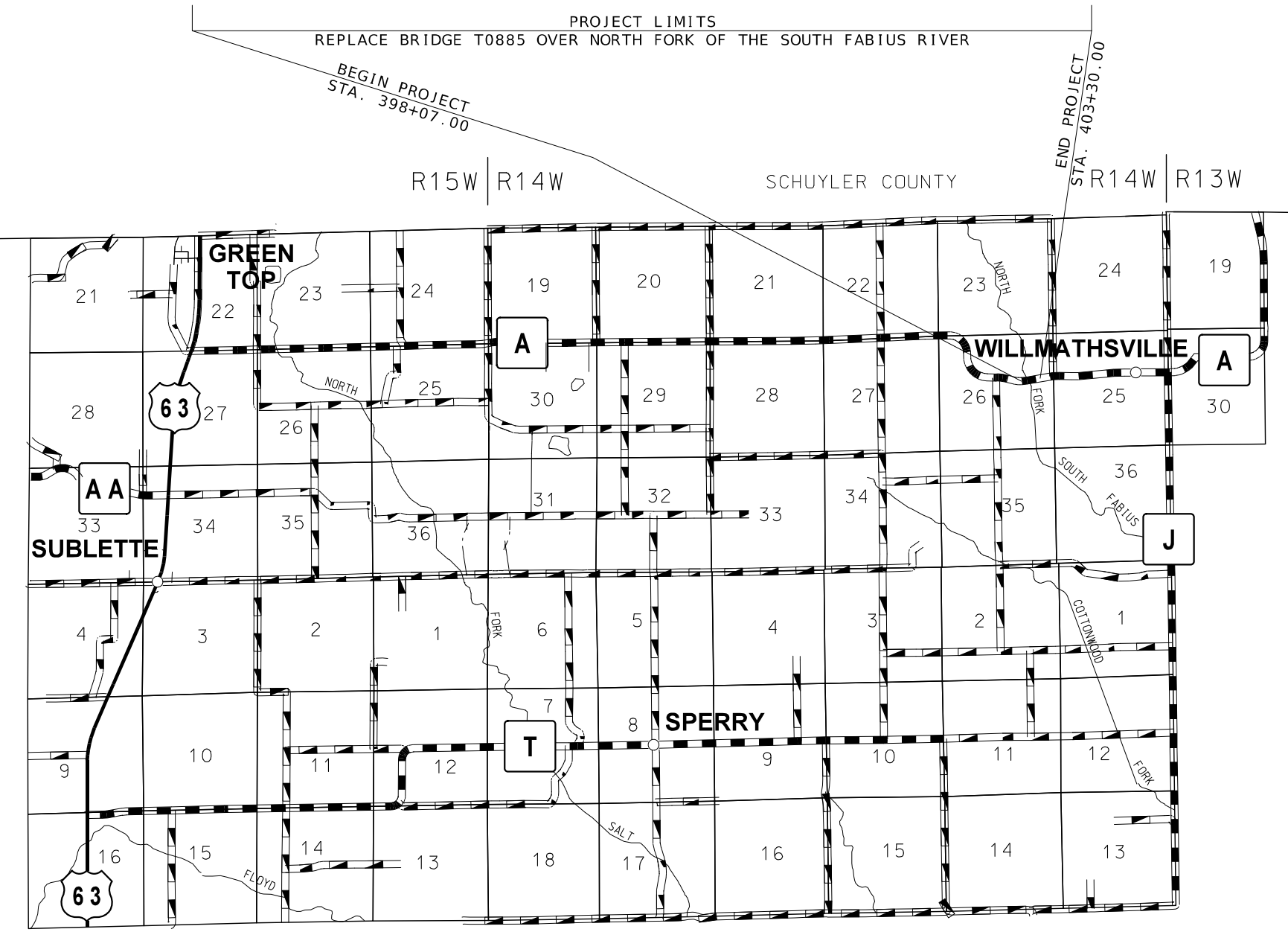


DATE PREPARED  
6/21/2024

ROUTE STATE  
A MO  
DISTRICT SHEET NO.  
NE 1

COUNTY  
ADAIR  
JOB NO.  
JNE0140  
CONTRACT ID.

PROJECT NO.  
BRIDGE NO.



**CONVENTIONAL SYMBOLS  
(USED IN PLANS)**

	EXISTING	NEW
BUILDINGS AND STRUCTURES	[Symbol]	[Symbol]
GUARD RAIL	[Symbol]	[Symbol]
GUARD CABLE	[Symbol]	[Symbol]
CONCRETE RIGHT-OF-WAY MARKER	[Symbol]	[Symbol]
STEEL RIGHT-OF-WAY MARKER	[Symbol]	[Symbol]
LOCATION SURVEY MARKER	[Symbol]	[Symbol]
UTILITIES		
FIBER OPTICS	-FO-	-FO-
OVERHEAD CABLE TV	-OTV-	-OTV-
UNDERGROUND CABLE TV	-UTV-	-UTV-
OVERHEAD TELEPHONE	-OT-	-OT-
UNDERGROUND TELEPHONE	-UT-	-UT-
OVERHEAD POWER	-OE-	-OE-
UNDERGROUND POWER	-UE-	-UE-
SANITARY SEWER	-S-	-S-
STORM SEWER	-SS-	-SS-
GAS	-G-	-G-
WATER	-W-	-W-
MANHOLE	[Symbol]	[Symbol]
FIRE HYDRANT	[Symbol]	[Symbol]
WATER VALVE	[Symbol]	[Symbol]
WATER METER	[Symbol]	[Symbol]
DROP INLET	[Symbol]	[Symbol]
DITCH BLOCK	[Symbol]	[Symbol]
GROUND MOUNTED SIGN	[Symbol]	[Symbol]
LIGHT POLE	[Symbol]	[Symbol]
H-FRAME POWER POLE	[Symbol]	[Symbol]
TELEPHONE PEDESTAL	[Symbol]	[Symbol]
FENCE	[Symbol]	[Symbol]
CHAIN LINK	[Symbol]	[Symbol]
WOVEN WIRE	[Symbol]	[Symbol]
GATE POST	[Symbol]	[Symbol]
BENCHMARK	[Symbol]	[Symbol]

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION. IT IS, THEREFORE, THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE, LOCATION AND STATUS OF ANY FACILITY. SUCH VERIFICATION INCLUDES DIRECT CONTACT WITH THE LISTED UTILITIES.

**LENGTH OF PROJECT**

BEGINNING OF PROJECT STA. 398+07.00  
 END OF PROJECT STA. 403+30.00

APPARENT LENGTH 523.00 FEET

EQUATIONS AND EXCEPTIONS:

TOTAL CORRECTIONS	0 FEET
NET LENGTH OF PROJECT	523.00 FEET
STATE LENGTH	0.099 MILES
FOR INFORMATION ONLY	
ESTIMATED DISTURBED ACRES	0.90 ACRES

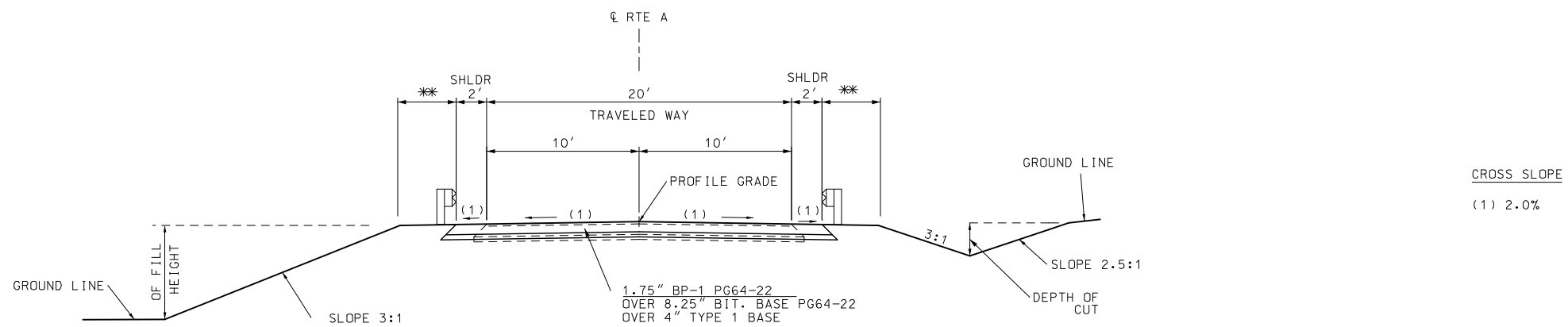
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



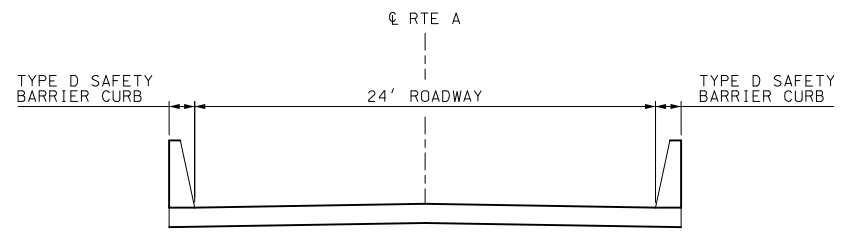
TITLE SHEET



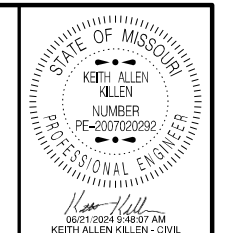
TYPICAL SECTION RTE. A  
STA. 398+19.00 TO STA. 402+66.40

NOTE: PAVEMENT LIMITS STA. 398+19.00 TO STA. 399+15.62  
STA. 401+32.40 TO STA. 402+66.40  
20' BRIDGE APPROACH SLAB EACH END OF BRIDGE (BRIDGE ITEM)

\*\* FOR GUARDRAIL WIDENING SEE STANDARD 606.81B ALTERNATE GRADING LIMITS



PROPOSED TYPICAL SECTION BRIDGE #A9442  
STA. 399+35.07 TO STA. 401+12.95



DATE PREPARED  
6/21/2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
NE	2

COUNTY  
ADAIR  
JOB NO.  
JNE0140  
CONTRACT ID.

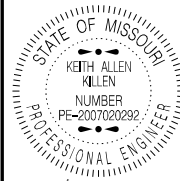
PROJECT NO.  
BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

TYPICAL SECTION SHEET  
SHEET 1 OF 1



DATE PREPARED  
6/21/2024 9:52:14 AM  
KEITH ALLEN KULLEN - CIVIL  
MO-PE-2007020292

ROUTE STATE  
A MO  
DISTRICT SHEET NO.  
NE 3

COUNTY  
ADAIR  
JOB NO.  
JNE0140  
CONTRACT ID.

PROJECT NO.  
BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

QUANTITY SHEET  
SHEET 1 OF 1

REMOVAL OF IMPROVEMENTS

SHEET #	LOC.	OFFSET FT.	STA.	STA.	TOTAL	REMARKS
-	CL RTE A	16' RT	BEFORE	PROJECT	2 SIGNS	WEIGHT AND ONE LANE SIGNS
4	CL RTE A	16' RT	397+22.00		1 SIGN	YIELD TO ONCOMING TRAFFIC
4	CL RTE A	10' LT-10' RT	398+19.00		21 LF	SAW CUT
4	CL RTE A	0-10' LT/RT	398+19.00	399+35.07	277 SY	PAVEMENT REMOVAL
4	CL RTE A	0-10' LT/RT	401+12.95	402+66.40	366 SY	PAVEMENT REMOVAL
4	CL RTE A	10' LT-10' RT	402+66.40		21 LF	SAW CUT
4	CL RTE A	16' LT	403+29.00		1 SIGN	YIELD TO ONCOMING TRAFFIC
-	CL RTE A	16' LT	AFTER	PROJECT	2 SIGNS	WEIGHT AND ONE LANE SIGNS
4	CL RTE A	45' LT	398+18.00	399+09.00	95 LF	FENCE
4	CL RTE A	41' RT	398+06.00	399+54.00	150 LF	FENCE
TOTAL					1	LUMP SUM

EARTHWORK							
SHEET	BEGIN STATION	END STATION	ROUTE	CL. A EXC. (CY)	COMP. EMB. (CY)	EMB IN PLACE (CY)	REMARKS
4	398+07.00	399+35.07	A	155.0	137.0	327.0	INCLUDES SPILL FILL VOLUME BENT #1
4	401+12.95	403+30.00	A	156.0	138.0	404.0	INCLUDES SPILL FILL VOLUME BENT #3
TOTAL				311.0	275.0	731.0	
USE				311.0	275.0	731.0	

HEAVY STONE REVETMENT					
SHEET	STATION	STATION	HEAVY STONE REVETMENT SY	PERMANENT EROSION CONTROL GEOTEXTILE (SY)	REMARKS
4	399+05.07	399+84.43	510.00	510.00	END BENT #1
4	399+87.03	400+55.53	364.00	364.00	BENT #2
4	400+92.81	401+42.95	176.00	176.00	END BENT #3
TOTAL			1050.0	1050.0	
USE			1050.0	1050.0	

CLEARING AND GRUBBING					
SHEET	STA.	STA.	LOCATION	QUANTITY ACRES	REMARKS
4	398+19.00	399+76.00	RT	0.06	
TOTAL				0.06	
USE				1.0	

SUBGRADE COMPACTION (6 INCH DEPTH)					
SHEET	BEGIN STATION	END STATION	ROUTE	LENGTH 100 FT.	REMARKS
4	398+19.00	399+35.07	A	1.2	
4	401+12.95	402+66.40	A	1.5	
TOTAL				2.7	
USE				3.0	

ASPHALT PAVEMENT										
SHEET	BEGIN STATION	END STATION	ROUTE	AREA (SF)	WIDTH (FT)	10" BITUMINOUS	TACK COAT		REMARKS	
						PAVEMENT SY	4" TYPE 1 AGG BASE (SY)	0.08 GAL/SY GAL		0.05 GAL/SY GAL
4	398+19.00	399+15.62	A	2279.51	24.00	253	253	20	25	1.75" BP-1 OVER 8.25" BIT BASE
4	401+32.40	402+66.40	A	3184.38	24.00	354	354	28	35	1.75" BP-1 OVER 8.25" BIT BASE
TOTAL						607	607	108		

NOTE: BP-1 = 1.948 TONS/CY OF COMPACTED MIXTURE  
BITUMINOUS BASE = 1.943 TONS/CY OF COMPACTED MIXTURE

MGS GUARDRAIL						
SHEET	ROADWAY	LT/RT	MGS GUARDRAIL L.F.	MGS BRIDGE APPROACH TRANSITION SECTION (EA)	TYPE A CRASHWORTHY END TERMINAL (MASH) (EA)	REMARKS
4,6	A	LEFT	-	1	1	SW CORNER
4,6	A	RIGHT	-	1	1	NW CORNER
4,6	A	RIGHT	62.5	1	1	SE CORNER
4,6	A	LEFT	100	1	1	NE CORNER
TOTAL			162.5	4	4	
TOTAL			163	4	4	

WATERBORNE MARKING PAINT WITH TYPE P BEADS			
STATION	STATION	4" YELLOW L.F.	REMARKS
393+85.00	405+69.00	2368	DOUBLE SOLID YELLOW CENTERLINE
TOTAL		2368	

MOBILIZATION	
ITEM	QUANTITY (LS)
MOBILIZATION	1
TOTAL	1 LUMP SUM

TEMPORARY SEEDING					
SHEET	STA.	STA.	LOCATION	QUANTITY ACRES	REMARKS
4	398+07.00	399+05.07	LT	0.07	
4	398+18.15	399+15.08	RT	0.08	
4	400+36.20	400+99.09	-	0.13	BERM UNDER BRIDGE
4	401+42.95	403+29.93	LT	0.14	
4	401+32.95	403+04.17	RT	0.12	
TOTAL				0.54	
USE				0.6	

TEMPORARY EROSION CONTROL					
SHEET	* SEDIMENT REMOVAL (CY)	SILT FENCE (LF)	ROCK DITCH CHECK (LF)	TYPE C BERM (LF)	REMARKS
8	10	842	10	275	
TOTAL		10	842	275	

\* ESTIMATED AT 1 CY PER DITCH CHECK AND 1 CY PER 100' OF SILT FENCE

SEEDING - COOL SEASON MIXTURE					
SHEET	STA.	STA.	LOCATION	QUANTITY APPROX. ACRES	REMARKS
4	398+07.00	399+05.07	LT	0.07	
4	398+18.15	399+15.08	RT	0.08	
4	400+36.20	400+99.09	-	0.13	BERM UNDER BRIDGE
4	401+42.95	403+29.93	LT	0.14	
4	401+32.95	403+04.17	RT	0.12	
TOTAL				0.54	
USE				0.6	

NOTE: ACREAGE INCLUDES AREA 5' OUTSIDE OF SLOPE LINE

MULCHING					
SHEET	STA.	STA.	LOCATION	QUANTITY ACRES	REMARKS
4	398+07.00	399+05.07	LT	0.14	
4	398+18.15	399+15.08	RT	0.16	
4	400+36.20	400+99.09	-	0.26	BERM UNDER BRIDGE
4	401+42.95	403+29.93	LT	0.28	
4	401+32.95	403+04.17	RT	0.24	
TOTAL				1.08	
USE				1.1	

NOTE: ACREAGE INCLUDES AREA 5' OUTSIDE OF SLOPE LINE  
TEMPORARY AND PERMANENT MULCHING

CONTRACTOR FURNISHED SURVEYING AND STAKING	
ITEM	QUANTITY (LS)
CONTRACTOR FURNISHED SURVEYING AND STAKING	1
TOTAL	1 LUMP SUM

PAVEMENT MARKING REMOVAL			
STATION	STATION	4" YELLOW L.F.	REMARKS
397+00.00	398+19.00	238	WHITE EDGELINES (BOTH SIDES)
402+66.40	403+37.95	143	WHITE EDGELINES (BOTH SIDES)
TOTAL		381	

395

PI 395+55.90  
 PC 393+11.03  
 PT 397+91.59  
 $\Delta$  24° 6' 59.4" (LT)  
 D 5° 00' 00"  
 L 482.48' (CHORD)  
 T 244.87'  
 R 1146.28'  
 SE 7.8%

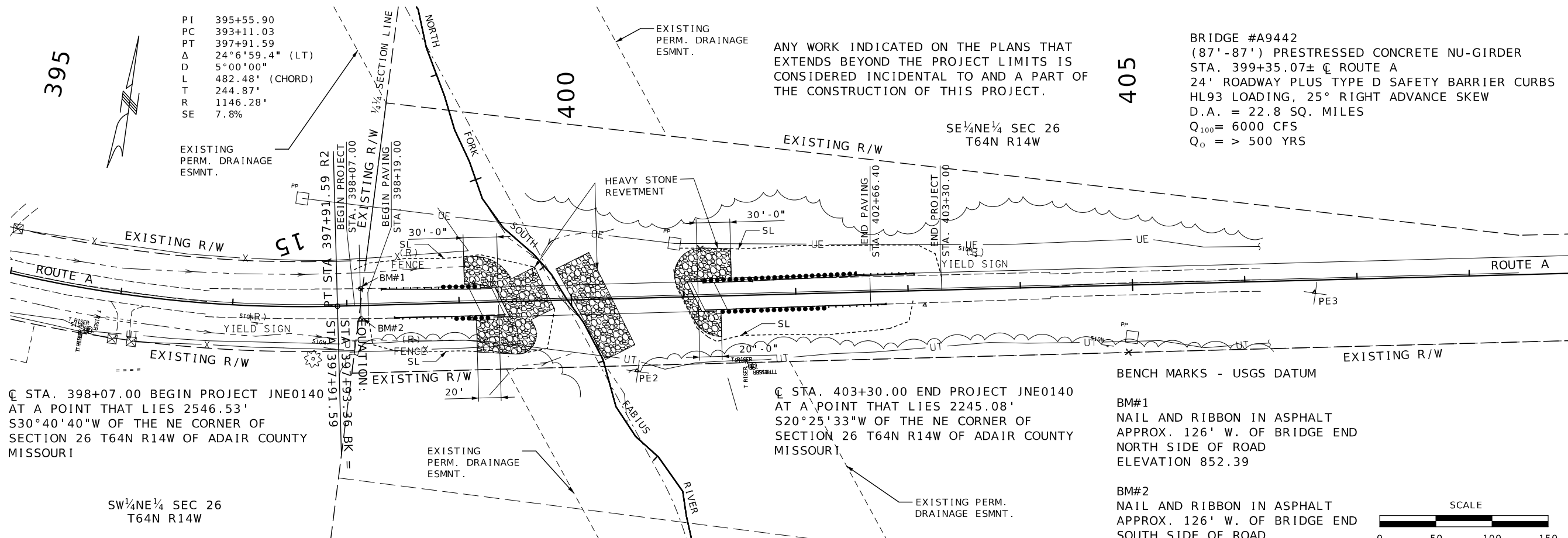
EXISTING PERM. DRAINAGE ESMNT.

400

ANY WORK INDICATED ON THE PLANS THAT EXTENDS BEYOND THE PROJECT LIMITS IS CONSIDERED INCIDENTAL TO AND A PART OF THE CONSTRUCTION OF THIS PROJECT.

405

BRIDGE #A9442  
 (87'-87') PRESTRESSED CONCRETE NU-GIRDER  
 STA. 399+35.07± C ROUTE A  
 24' ROADWAY PLUS TYPE D SAFETY BARRIER CURBS  
 HL93 LOADING, 25° RIGHT ADVANCE SKEW  
 D.A. = 22.8 SQ. MILES  
 $Q_{100}$  = 6000 CFS  
 $Q_0$  = > 500 YRS



C STA. 398+07.00 BEGIN PROJECT JNE0140  
 AT A POINT THAT LIES 2546.53'  
 S30°40'40"W OF THE NE CORNER OF  
 SECTION 26 T64N R14W OF ADAIR COUNTY  
 MISSOURI

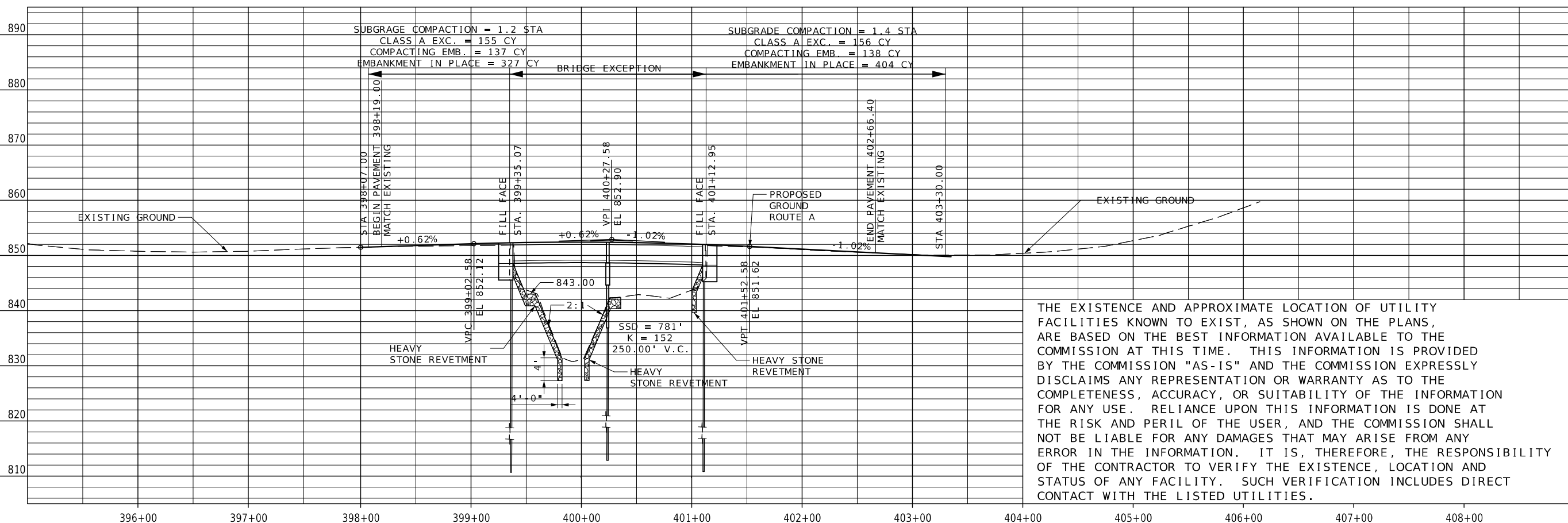
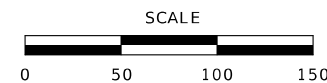
SW 1/4 NE 1/4 SEC 26  
 T64N R14W

C STA. 403+30.00 END PROJECT JNE0140  
 AT A POINT THAT LIES 2245.08'  
 S20°25'33"W OF THE NE CORNER OF  
 SECTION 26 T64N R14W OF ADAIR COUNTY  
 MISSOURI

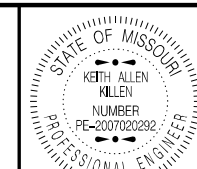
BENCH MARKS - USGS DATUM

BM#1  
 NAIL AND RIBBON IN ASPHALT  
 APPROX. 126' W. OF BRIDGE END  
 NORTH SIDE OF ROAD  
 ELEVATION 852.39

BM#2  
 NAIL AND RIBBON IN ASPHALT  
 APPROX. 126' W. OF BRIDGE END  
 SOUTH SIDE OF ROAD  
 ELEVATION 852.87



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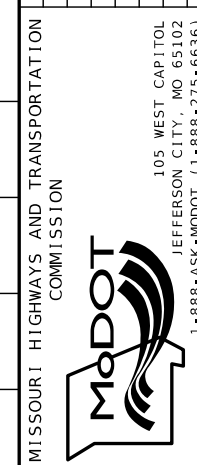
DATE PREPARED  
 6/21/2024

ROUTE A STATE MO  
 DISTRICT NE SHEET NO. 4

COUNTY ADAIR  
 JOB NO. JNE0140  
 CONTRACT ID.

PROJECT NO.  
 BRIDGE NO.

DATE	DESCRIPTION



PLAN/PROFILE SHEET  
 SHEET 1 OF 1

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



DATE PREPARED  
6/21/2024

ROUTE A STATE MO  
DISTRICT NE SHEET NO. 5

COUNTY ADAIR  
JOB NO. JNE0140  
CONTRACT ID.

PROJECT NO.  
BRIDGE NO.

ALL PROJECT COORDINATES HAVE BEEN PROJECTED FROM THE MISSOURI STATE PLANE COORDINATE (SPC) SYSTEM OF 1983 USING AN AVERAGE PROJECT PROJECTION (GRID TO GROUND) FACTOR. TO GET BACK TO STATE PLANE COORDINATES MULTIPLY THE PROJECT COORDINATES BY THE AVERAGE GRID FACTOR AS SHOWN IN THE "REFERENCE CONTROL INFORMATION" PORTION OF THIS TABLE.

**PROJECT COORDINATE INFORMATION**

COORDINATE SYSTEM	MODIFIED STATE PLANE (GROUND)
HORIZONTAL DATUM	NAD 83 (2011) EPOCH 2010
VERTICAL DATUM	NAVD88 GNSS DERIVED
GEOID MODEL	18 US
ELEVATIONS DETERMINED BY	DIFFERENTIAL LEVELING/ GPS - MOVRS
PROJECT PROJECTION FACTOR	1.00006143

**REFERENCE CONTROL INFORMATION**

COORDINATE SYSTEM	MO COORDINATE SYSTEM OF 1983
CONTROL STATION	MISSOURI CORS
DESIGNATION	MODOT EDINA COR ARP
CORS_ID	MOED
PID	DM4674
LATITUDE	40 11 11.65651
LONGITUDE	92 10 30.28768
NORTHING (M)	483213.886
EASTING (M)	527668.699
ZONE	CENTRAL
PROJECT AVERAGE GRID FACTOR	0.99993857

**EXAMPLE OF PROJECT COORDINATE TO S.P.C.**

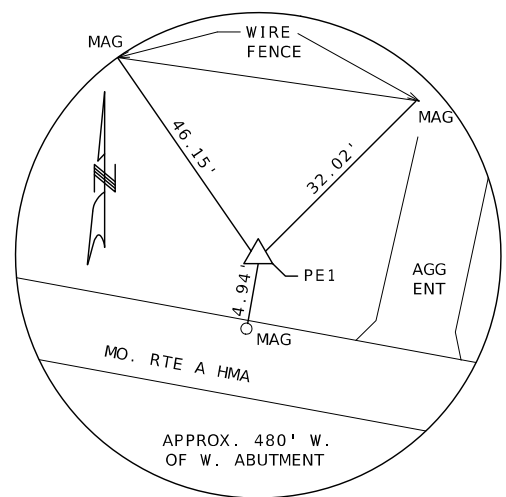
PROJECT NORTHING X AVERAGE GRID FACTOR = STATE PLANE NORTHING  
 PROJECT EASTING X AVERAGE GRID FACTOR = STATE PLANE EASTING

EXAMPLE: CONTROL POINT #\_\_\_  
 N 1536182.2077 X 0.99993857 = N 1536087.839  
 E 1545732.8741 X 0.99993857 = E 1545637.920

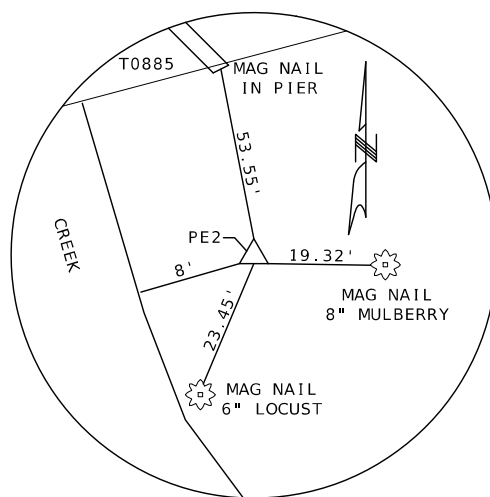
**LINEAR UNIT CONVERSION**  
 1 METER = 3.280833333 US SURVEY FEET (USFT)

**COORDINATE POINT LISTING**

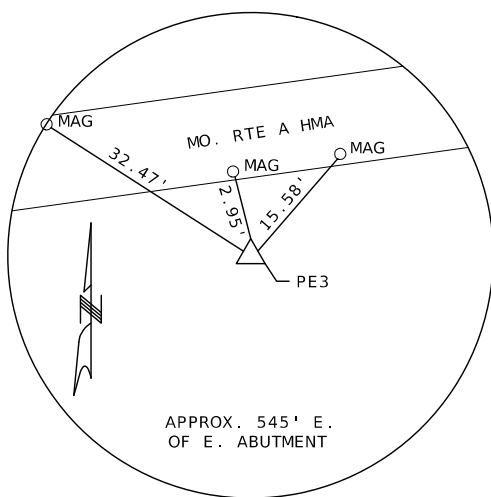
SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND)			DESCRIPTION	GPK POINT ID
				NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)		
<b>PROJECT CONTROL POINTS</b>								
	394+57.86	RTE A	-16.12	1635895.4309	1660444.6428	852.16	PE1	
4	400+57.45	RTE A	65.34	1635865.1830	1661049.9540	842.92	PE2	
4	406+62.54	RTE A	11.62	1636017.8594	1661637.9261	863.13	PE3	
<b>ALIGNMENTS</b>								
4	398+19.00	RTE A	0	1635890.3447	1660804.0007	851.60	BEGIN PAVEMENT	
4	399+35.07	RTE A	0	1635909.4677	1660918.4845	852.29	FILL FACE BRIDGE #A9442	
4	401+12.95	RTE A	0	1635938.7740	1661093.9338	851.98	FILL FACE BRIDGE #A9442	
4	402+66.40	RTE A	0	1635964.0555	1661245.2868	850.46	END PAVEMENT	



CONTROL POINT PE1  
 SET 5/8" REBAR  
 N: 1635794.944  
 E: 1660342.648  
 EL: 852.16



CONTROL POINT PE2  
 SET 5/8" REBAR  
 N: 1635764.698  
 E: 1660947.922  
 EL: 842.92

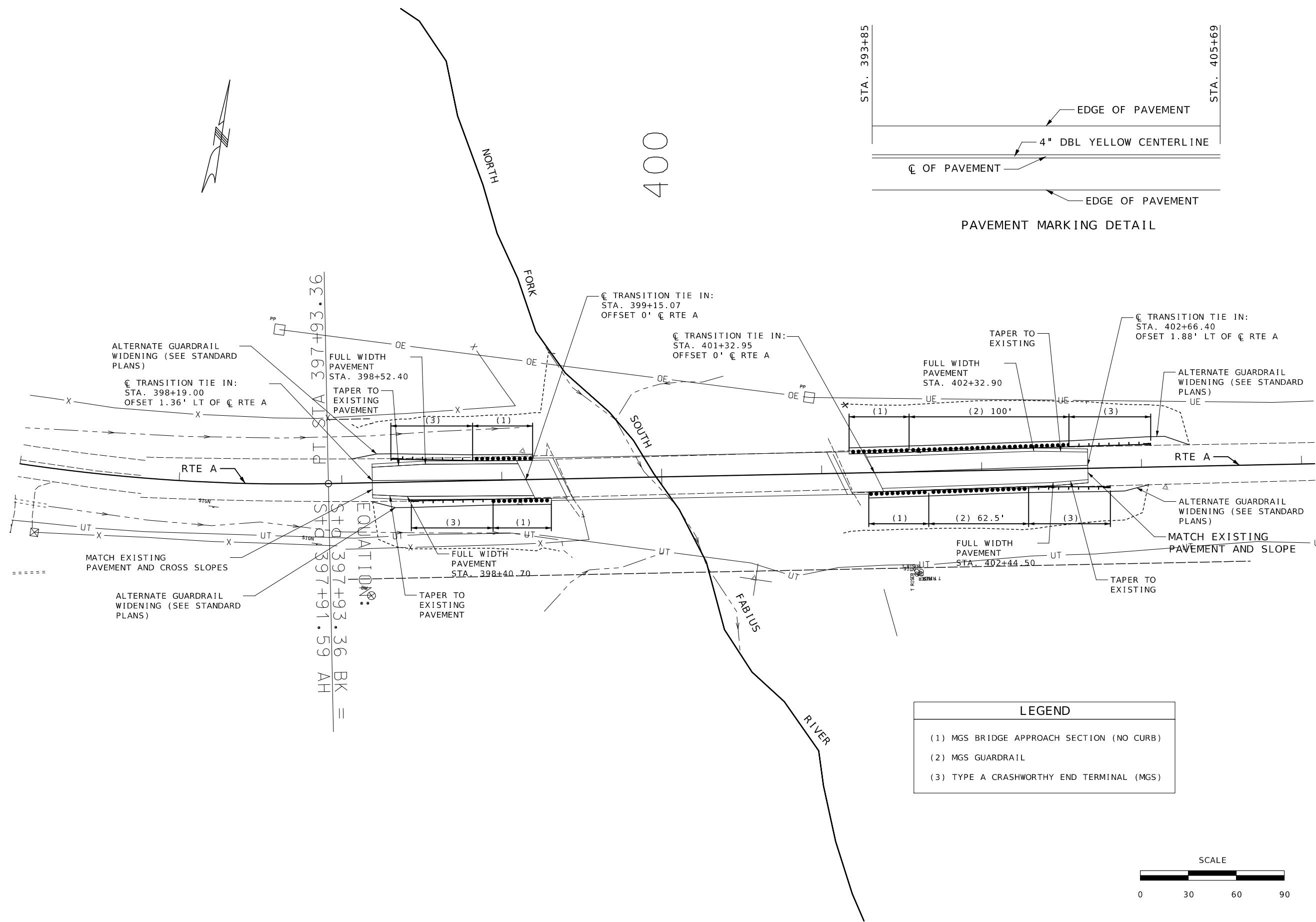


CONTROL POINT PE3  
 SET 5/8" REBAR  
 N: 1635917.365  
 E: 1661535.858  
 EL: 863.13

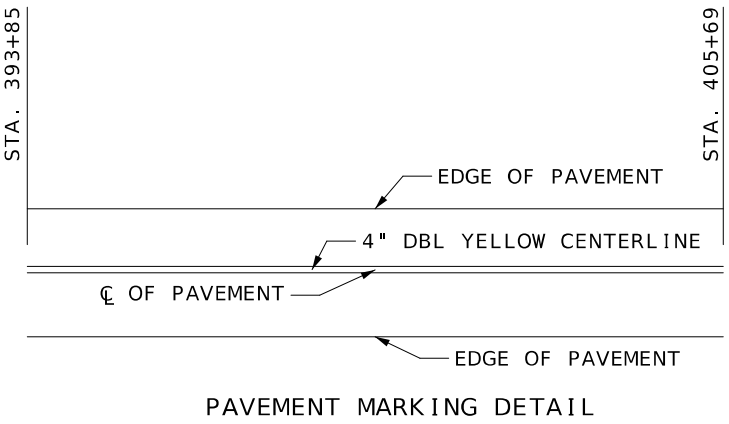
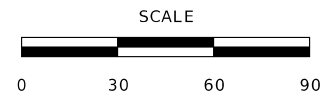
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

MoDOT



LEGEND	
(1)	MGS BRIDGE APPROACH SECTION (NO CURB)
(2)	MGS GUARDRAIL
(3)	TYPE A CRASHWORTHY END TERMINAL (MGS)



DATE PREPARED  
6/21/2024

ROUTE A STATE MO  
DISTRICT NE SHEET NO. 6

COUNTY ADAIR  
JOB NO. JNE0140  
CONTRACT ID.

PROJECT NO.  
BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

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

SPECIAL SHEET  
GUARDRAIL DETAILS  
PAVEMENT MARKING DETAILS  
SHEET 1 OF 1



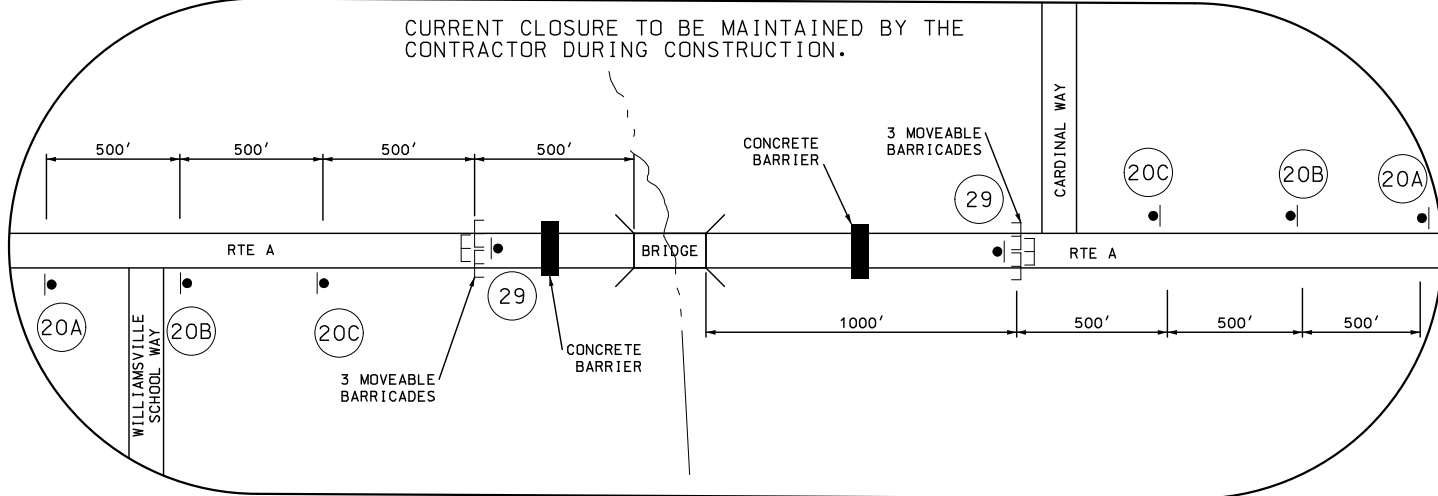
W020-3 (20A) W020-3 (20C) W020-3 (20B)



R11-2 (29)



R11-3a (55A) ADVANCED ROAD CLOSURE SIGN



**NOTES:**

TRAFFIC CONTROL SIGNS AND DEVICES TO CLOSE THE ROAD HAVE BEEN PROVIDED AND INSTALLED BY THE COMMISSION.

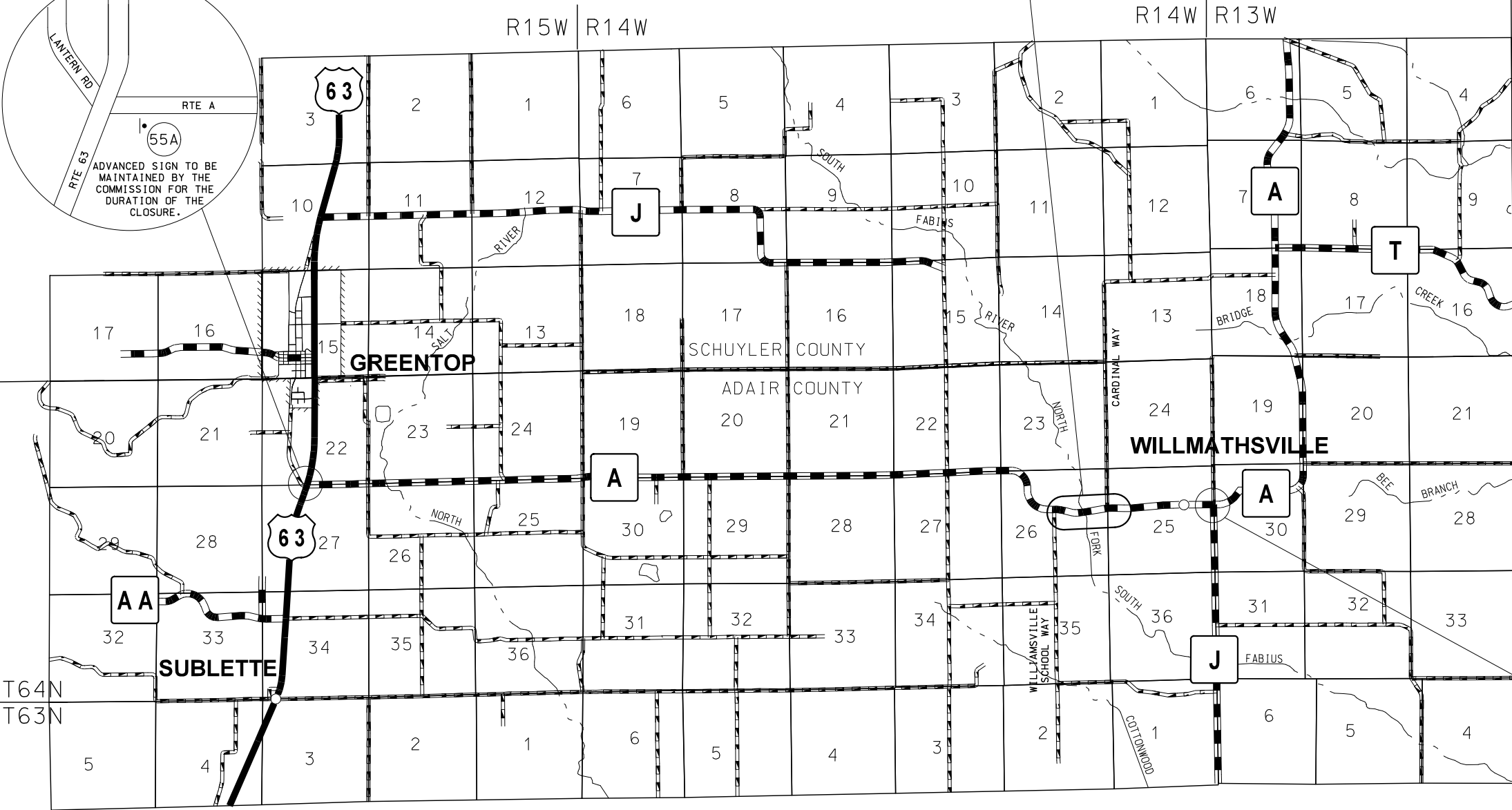
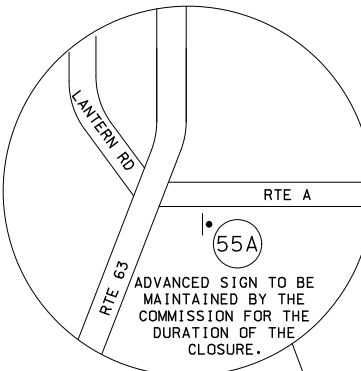
THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING SIGNS, BARRICADES AND CONCRETE BARRIER ADJACENT TO THE BRIDGE DURING BRIDGE REMOVAL ACTIVITIES.

ADVANCED ROAD CLOSURE SIGNS WILL BE MAINTAIN BY THE COMMISSION.

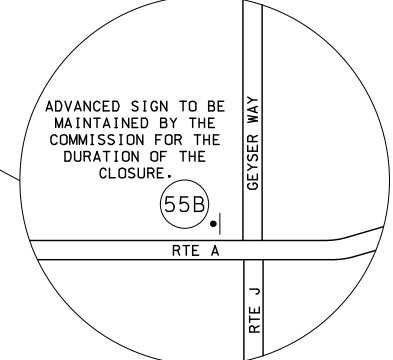
THE CONTRACTOR MAY ADJUST THE ROAD CLOSURE SIGNS, BARRICADES AND CONCRETE BARRIER WITH APPROVAL OF THE ENGINEER.

**TRAFFIC CONTROL LEGEND**

- SIGN (SINGLE SIDED)
- CHANNELIZER
- E TYPE III MOVABLE BARRICADE
- CONCRETE BARRIER



R11-3a (55B) ADVANCED ROAD CLOSURE SIGN



DATE PREPARED 6/21/2024

ROUTE A STATE MO

DISTRICT NE SHEET NO. 7

COUNTY ADAIR

JOB NO. JNE0140

CONTRACT ID.

PROJECT NO.

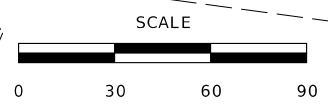
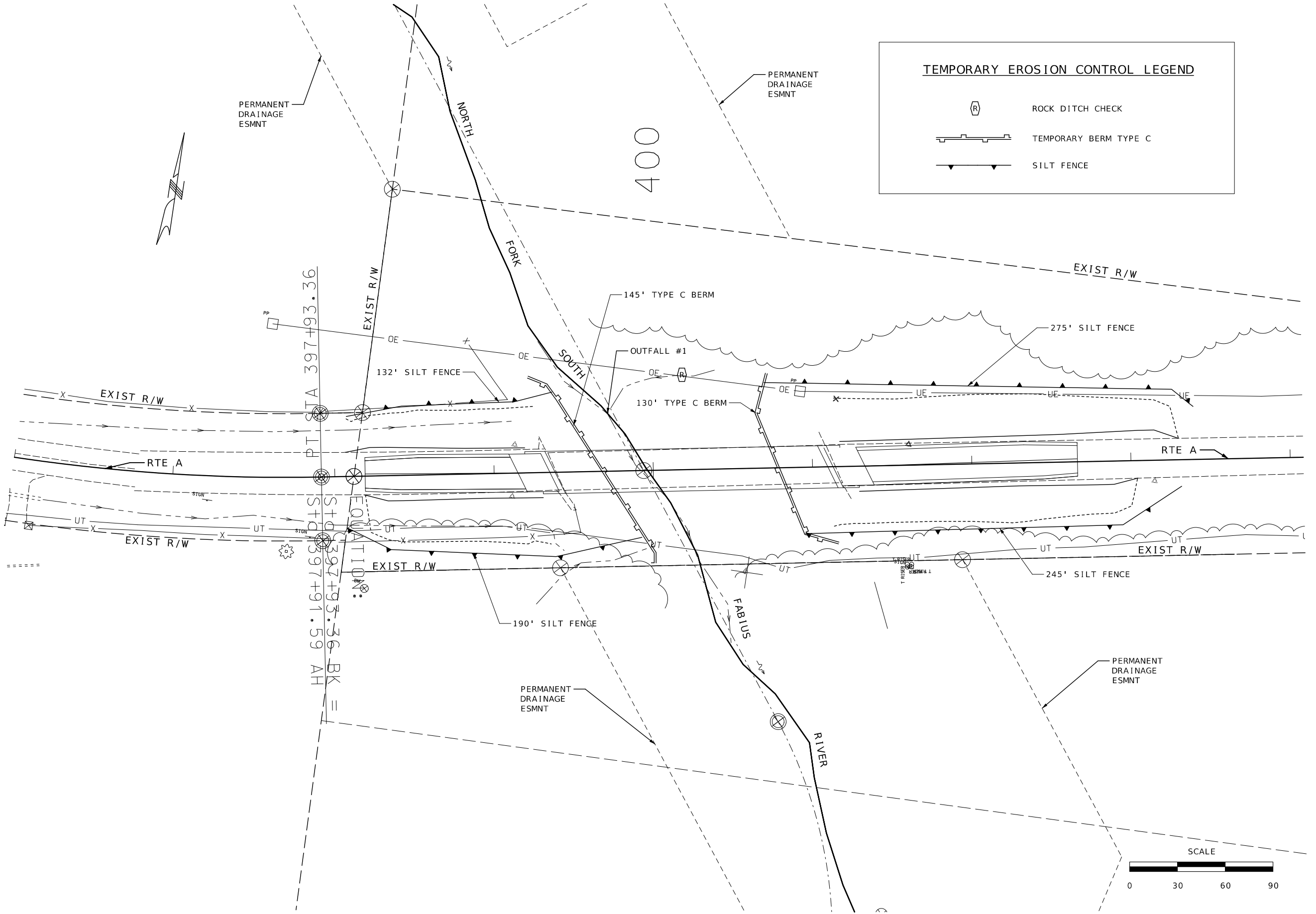
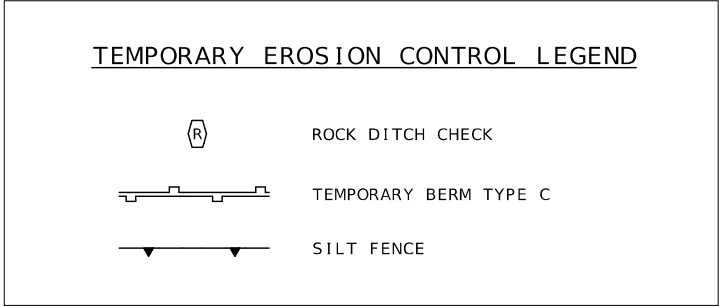
BRIDGE NO.

DATE	DESCRIPTION

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




TRAFFIC CONTROL SHEET 1 OF 1



DATE PREPARED  
**6/21/2024**  
 ROUTE **A** STATE **MO**  
 DISTRICT **NE** SHEET NO. **8**  
 COUNTY **ADAIR**  
 JOB NO. **JNE0140**  
 CONTRACT ID.  
 PROJECT NO.  
 BRIDGE NO.

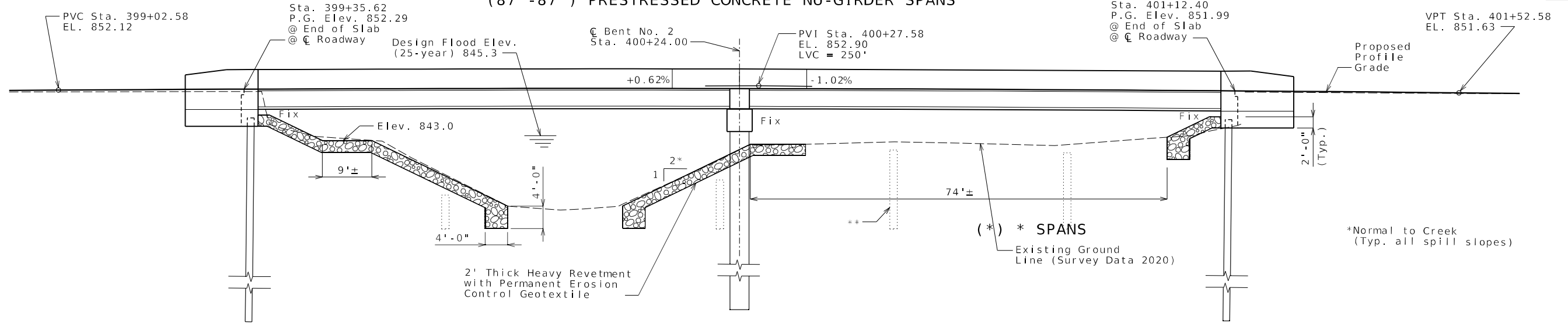
DATE	DESCRIPTION

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

**EROSION CONTROL SHEET**  
**SHEET 1 OF 1**



(87' - 87') PRESTRESSED CONCRETE NU-GIRDER SPANS



GENERAL ELEVATION

⊙ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheets No. 27 thru 28 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

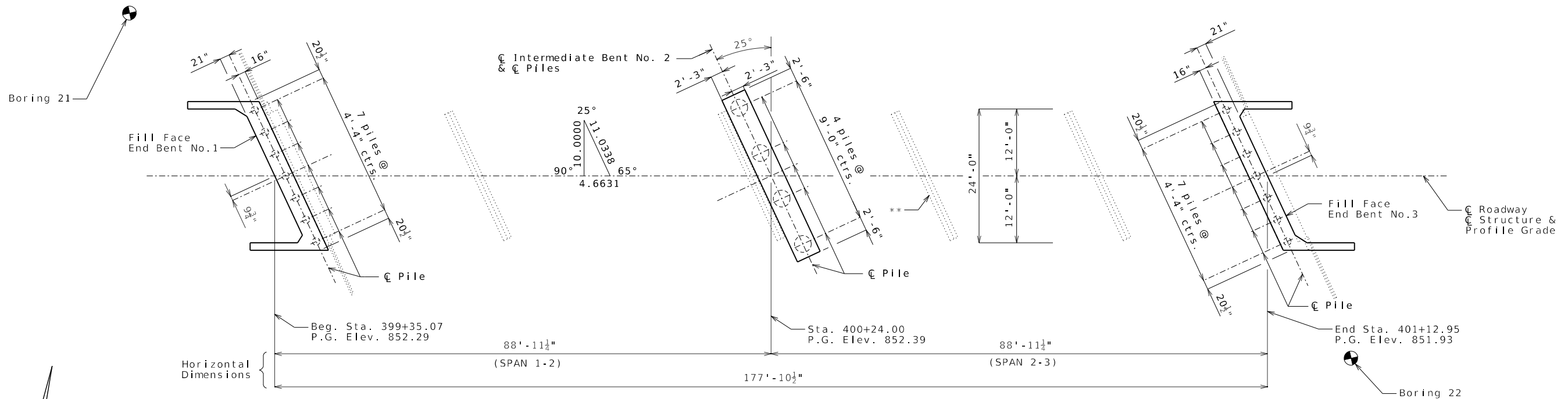
The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those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

Notes:

\*\* Existing Bridge No. T0885 was removed by others per Standard Specifications.

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

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



GENERAL PLAN

BRIDGE: ROUTE A OVER NORTH FORK SOUTH FABIUS RIVER

ROUTE A FROM ROUTE 63 TO ROUTE J ABOUT 1.2 MILES WEST OF ROUTE J BEGINNING STA. 399+35.07



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 06/21/2024	
ROUTE A	STATE MO
DISTRICT BR	SHEET NO. 1
COUNTY ADAIR	
JOB NO. JNE0140	
CONTRACT ID.	

PROJECT NO.
BRIDGE NO. A9442

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

VEENSTRA & KIMM INC.  
9788 N Ash Ave. Kansas City, Missouri 64157  
816-781-8182 816-781-0643 (FAX)  
Certificate of Authority No. 2002006347

Designed May 2024  
Detailed May 2024  
Checked Jun. 2024

**General Notes:**

**Design Specifications:**

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)  
 2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details)  
 Seismic Design Category = B  
 Design earthquake response spectral acceleration coefficient at 1.0 second period,  $SD_1 = 0.12g$   
 Acceleration Coefficient (effective peak ground acceleration coefficient),  $A_s = 0.072g$

**Design Loading:**

Vehicular = HL-93  
 Future Wearing Surface = 35 Lb./Sq. Ft.  
 Earth = 120 Lb./Cu. Ft.  
 Equivalent Fluid Pressure = 45 Lb./Cu. Ft.  
 Superstructure: Simply-Supported, Non-Composite for dead load. Continuous Composite for live load.

**Design Unit Stresses:**

Class B Concrete (Substructure)  $f'c = 3,000 \text{ psi}$   
 Class B-1 Concrete (Barrier)  $f'c = 4,000 \text{ psi}$   
 Class B-2 Concrete (Superstructure, except Barrier and Prestressed Girders)  $f'c = 4,000 \text{ psi}$   
 Reinforcing Steel (Grade 60)  $fy = 60,000 \text{ psi}$   
 Welded or Seamless Steel Shell (pipe) for CIP Pile (ASTM Grade 3)  $fy = 45,000 \text{ psi}$   
 For Prestressed Girder Stresses, see Sheets No. 14 thru 15.

**Neoprene Pads:**

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

**Joint Filler:**

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

**Reinforcing Steel:**

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

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.

**Traffic Handling:**

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

Estimated Quantities for Slab on Concrete NU-Girder		
Item		Total
Class B-2 Concrete	cu. yard	176.4
Reinforcing Steel (Epoxy Coated)	pound	48030

**Notes:**

The table of Estimated Quantities for Slab on Concrete NU Girder 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 forms or 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 panels will not be permitted.

Detailed May 2024  
 Checked Jun. 2024

Estimated Quantities				
Item	Substr.	Superstr.	Total	
Class 1 Excavation	cu. yard	75	75	
Bridge Approach Slab (Minor)	sq. yard	109	109	
Galvanized Cast-in-Place Concrete Pile (16 in.)	linear foot	1099	1099	
Dynamic Pile Testing	each	3	3	
Dynamic Pile Restrike Testing	each	3	3	
Pile Point Reinforcement	each	14	14	
Pile Point Reinforcement (36" CIP Concrete Pile)	each	4	4	
Galvanized Cast-in-Place Concrete Pile (36 in.)	linear foot	300	300	
Class B Concrete (Substructure)	cu. yard	51.2	51.2	
Type D Barrier	linear foot	396	396	
Slab on Concrete NU-Girder	sq. yard	524	524	
NU 43, Prestressed Concrete NU-Girder	linear foot	523	523	
Reinforcing Steel (Bridges)	pound	6530	6530	
Slab Drain	each	12	12	
Vertical Drain at End Bents	each	2	2	
Plain Neoprene Bearing Pad	each	6	6	
Laminated Neoprene Bearing Pad	each	6	6	

**Notes:**

All concrete above the construction joint in the end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All reinforcement in the end bents and all reinforcement in cast-in-place pile at end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All reinforcement in the intermediate bent concrete diaphragms except reinforcement embedded in the beam cap is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All concrete above the intermediate beam cap is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All reinforcement in cast-in-place pile at intermediate bent is included in the substructure quantities.

Foundation Data				
Type	Design Data	Bent Number		
		1	2	3
Load Bearing Pile	Pile Type and Size	CECIP 16"	CECIP 36"	CECIP 16"
	Number	ea 7	4	7
	Approximate Length Per Each	ft 74	75	83
	Pile Point Reinforcement	ea ALL	ALL	ALL
	Min. Galvanized Penetration (Elev.)	ft 824.1	819.7	824.3
	Est. Max. Scour Depth 500 (Elev.)	ft --	824.7	--
	Minimum Tip Penetration (Elev.)	ft 818.5	798.0	798.0
	Criteria for Min. Tip Penetration	(1)	(1)	(1)
	Pile Driving Verification Method	DT	DT	DT
	Minimum Nominal Axial Compressive Resistance (MNACR)	kip 202	614	202
	Portion of MNACR Required at End of Initial Drive	kip 141 (70%)	430 (70%)	141 (70%)
	Resistance Factor	0.65	0.65	0.65

$$\text{Minimum Nominal Axial Compressive Resistance} = \frac{\text{Maximum Factored Loads}}{\text{Resistance Factor}}$$

DT = Dynamic Testing

Dynamic Testing shall be performed on the first pile installed at each bent.

The test piles at End Bents No. 1 and 3 shall be driven to an end-of-initial drive resistance of approximately 141 kips, which is estimated to occur at a pile tip elevation of approximately 800 and 790 respectively. The test piles at intermediate Bents No. 2 shall be driven to an end-of-initial drive resistance of approximately 430 kips, which is estimated to occur at a pile tip elevation of approximately 790. Subsequently, pile setups and the minimum nominal axial compressive resistance shall be confirmed by a restrike test performed not less than 24 hours after end of initial drive.

Pile point reinforcement need not be galvanized. Shop drawings will not be required for pile point reinforcement.

Estimated Maximum Scour Depth (Elevation) shown is for verifying Minimum Nominal Axial Compressive Resistance using dynamic testing only where pile resistance contribution above this Elevation shall not be considered.

All piling shall be galvanized down to the minimum galvanized penetration (elevation).

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 the minimum will be considered acceptable provided the contractor makes the necessary corrections to ensure the minimum penetration is achieved on subsequent piles.

Piles are located within the Heavy Retevment on spill slopes.

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

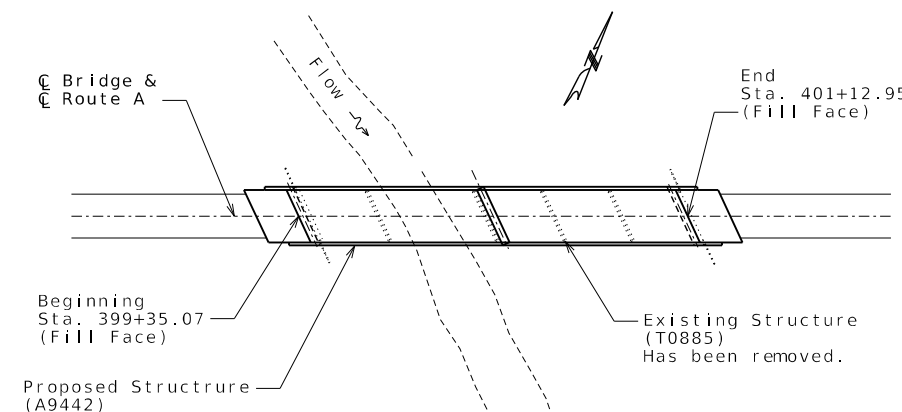
Sheet No. 2 of 28

**List of Drawings**

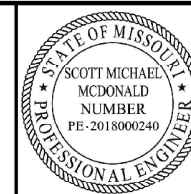
SHEET NO.	DESCRIPTION
1.	GENERAL PLAN & ELEVATION
2.	GENERAL NOTES & QUANTITIES
3.	GALVANIZED CLOSED END CAST-IN-PLACE (CECIP) CONCRETE PILES
4.	DETAILS OF END BENT NO. 1
5.	DETAILS OF END BENT NO. 1
6.	DETAILS OF END BENT NO. 1
7.	DETAILS OF END BENT NO. 1
8.	VERTICAL DRAIN AT END BENTS
9.	DETAILS OF INTERMEDIATE BENT NO. 2
10.	DETAILS OF END BENT NO. 3
11.	DETAILS OF END BENT NO. 3
12.	DETAILS OF END BENT NO. 3
13.	DETAILS OF END BENT NO. 3
14.	NU-GIRDERS-SPANS (1-2) AND (2-3)
15.	NU-GIRDERS (ALTERNATE REINFORCEMENT)-SPANS (1-2) AND (2-3)
16.	DETAILS OF DIAPHRAGM AT INTERMEDIATE BENT NO. 2
17.	SLAB DRAINS
18.	GIRDER CAMBER DIAGRAM & MISC. SLAB DETAILS
19.	SLAB PLAN & SECTION
20.	TYPE D BARRIER
21.	TYPE D BARRIER AT END BENTS
22.	BRIDGE APPROACH SLAB (MINOR)
23.	BILL OF REINFORCING STEEL
24.	BILL OF REINFORCING STEEL
25.	BILL OF REINFORCING STEEL
26.	"AS BUILT PILE" DATA
27.	BORING DATA
28.	BORING DATA

Hydrologic Data	
Drainage Area = 23 mi <sup>2</sup>	
Design Flood Frequency = 25 years	
Design Flood Discharge = 4300 cfs	
Design Flood (D.F.) Elevation = 845.3	
Base Flood (100-year)	
Base Flood Elevation = 846.3	
Base Flood Discharge = 6000 cfs	
Estimated Backwater = 1.0 ft	
Average Velocity thru Opening = 7.3 ft/s	
Freeboard (50-year)	
Freeboard = 2.1 ft	
Roadway Overtopping	
Overtopping Flood Discharge = N/A	
Overtopping Flood Frequency = > 500 year	
500-year Flood Elevation = 847.3	

(1) Criteria for Min. Tip Penetration:  
 Penetration anticipated soft geotechnical layers



LOCATION SKETCH



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED  
 06/21/2024

ROUTE A STATE MO  
 DISTRICT BR SHEET NO. 2

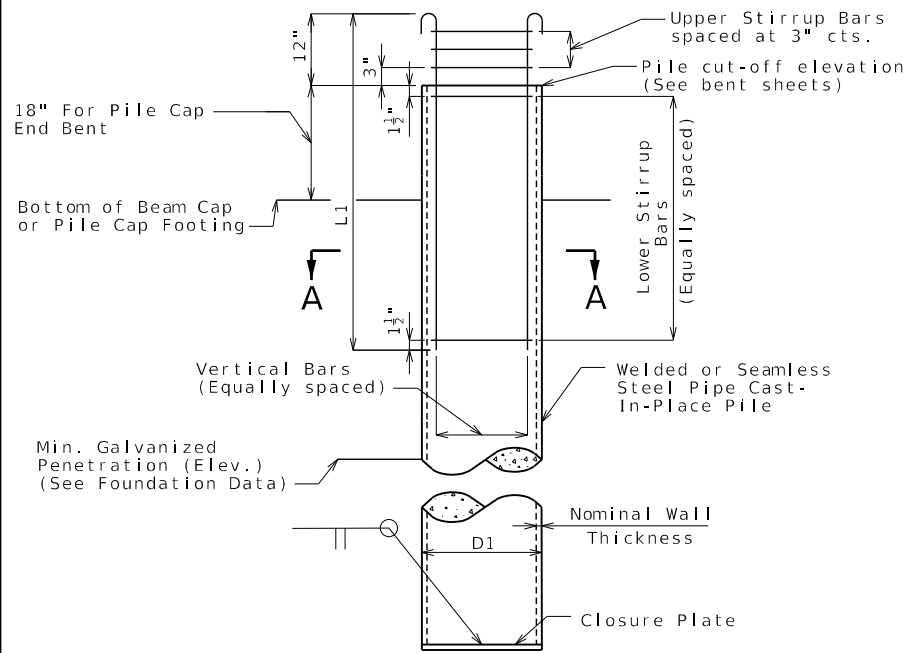
COUNTY ADAIR  
 JOB NO. JNE0140  
 CONTRACT ID.

PROJECT NO.  
 BRIDGE NO. A9442

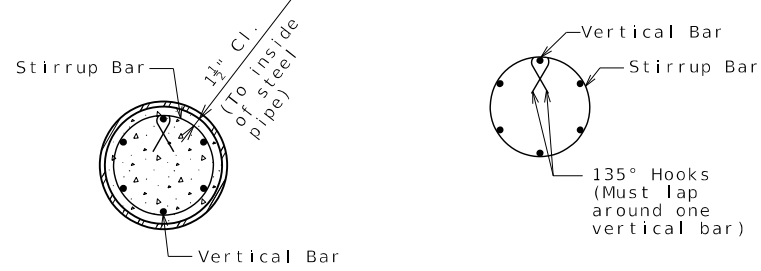
DESCRIPTION	DATE

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

VEENSTRA & KIMM INC.  
 9788 N. Ash Ave. Kansas City, Missouri 64157  
 816-781-6182 816-781-0643 (FAX)  
 Certificate of Authority No. 2002006347

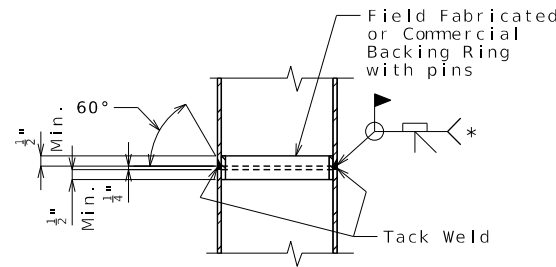


16" GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE WITHOUT PILE POINT REINFORCEMENT



SECTION A-A

DETAIL OF SEISMIC STIRRUP BAR



STEEL PIPE PILE SPLICE

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

Galvanized Closed Ended Cast-In-Place (CECIP) Concrete Pile Data			
Bent Number	1	2	3
D1, CECIP Pile (O.D.)	16"	36"	16"
Min. Nominal Wall Thickness	5/8"	5/8"	5/8"
Closure Plate Thickness	3/4"	1 1/2"	3/4"
Pile Point Reinforcement	Conical	Conical	Conical
Vertical Bars	6-#6-V104	14-#8-V202	6-#6-V304
L1, Length of Vertical Bars	5'-3"	16'-0"	5'-3"
Upper Stirrup Bars	3-#4-P101	14-#4-P201	3-#4-P301
Lower Stirrup Bars	5-#4-P101	13-#4-P201	5-#4-P301

Notes:

Welded or seamless steel shell (pipe) shall be ASTM A252 Grade 3 (fy = 45,000 psi).

Concrete for cast-in-place pile shall be Class B-1.

Steel for closure plate shall be ASTM A709 Grade 50.

Steel casting for conical pile point reinforcement shall be ASTM A148 Grade 90-60.

The minimum wall thickness of any spot or local area of any type shall not be more than 12.5% under the specified nominal wall thickness.

The contractor shall determine the pile wall thickness required to avoid damage from all driving activities, but wall thickness shall not be less than the minimum specified. No additional payment will be made for furnishing a thicker pile wall than specified on the plans.

Closure plate shall not project beyond the outside diameter of the pipe pile. Satisfactory weldments may be made by beveling tip end of pipe or by use of inside backing rings. In either case, proper gaps shall be used to obtain weld penetration full thickness of pipe. Payment for furnishing and installing closure plate will be considered completely covered by the contract unit price for Galvanized Cast-In-Place Concrete Piles.

Splices of pipe for cast-in-place concrete pile shall be made watertight and to the full strength of the pipe above and below the splice to permit hard driving without damage. Pipe damaged during driving shall be replaced without cost to the state. Pipe sections used for splicing shall be at least 5 feet in length.

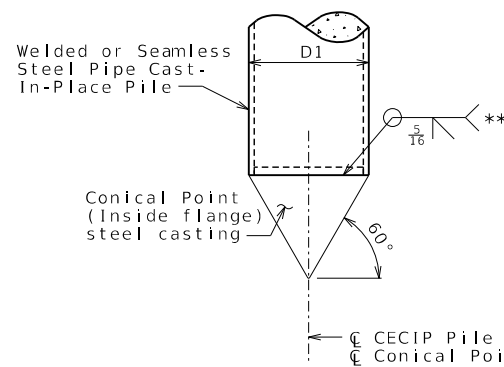
The hooks of vertical bars embedded in the beam cap should not be turned outward, away from the pile core.

Closure plate need not be galvanized.

Reinforcing steel for cast-in-place piles is included in the Bill of Reinforcing Steel.

All reinforcement for cast-in-place pile is included in the estimated quantities for bents.

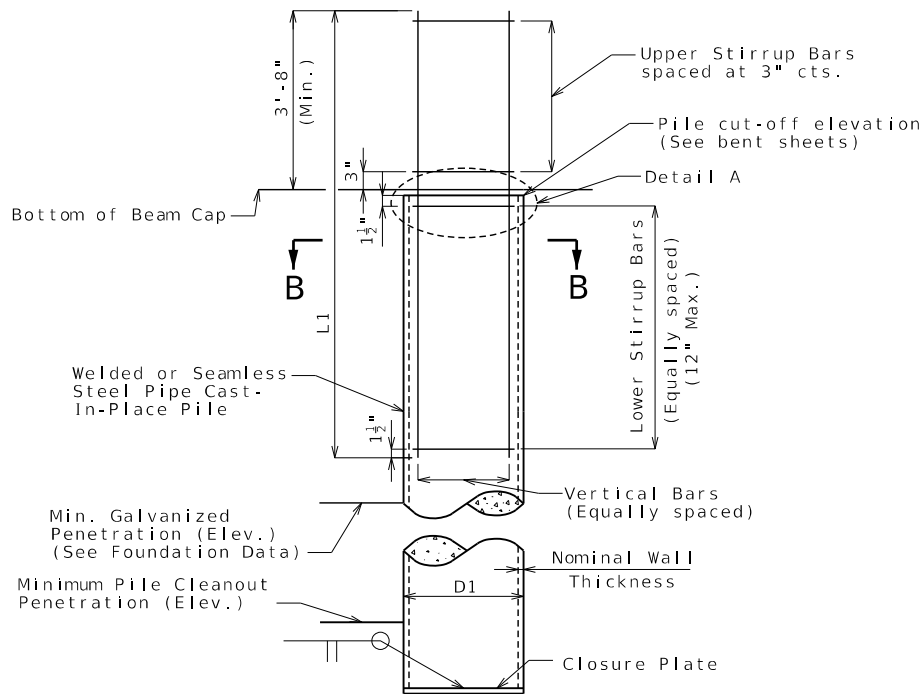
For Foundation Data table, see Sheet No. 2.



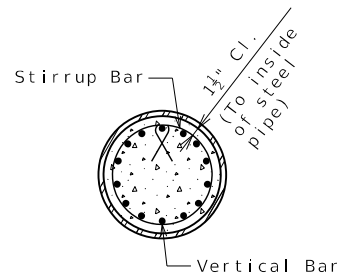
MANUFACTURED CONICAL PILE POINT

(Omit closure plate)

\*\* If the conical pile point is not pre-beveled, place a 3/8" bevel at 40 degrees on the pipe.

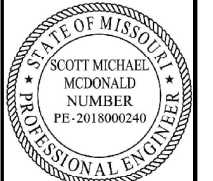


36" GALVANIZED CLOSED ENDED CAST-IN-PLACE (OECIP) CONCRETE PILE WITHOUT PILE POINT REINFORCEMENT



SECTION B-B

GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED  
06/21/2024

ROUTE A STATE MO  
DISTRICT BR SHEET NO. 3

COUNTY ADAIR

JOB NO. JNE0140

CONTRACT ID.

PROJECT NO.

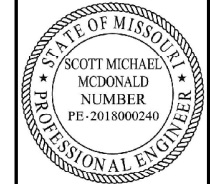
BRIDGE NO. A9442

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

9788 N Ash Ave. Kansas City, Missouri 64157  
816-781-6182 816-781-0643 (FAX)  
Certificate of Authority No. 2002006347



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DATE PREPARED  
06/21/2024

ROUTE STATE  
A MO  
DISTRICT SHEET NO.  
BR 4

COUNTY  
ADAIR  
JOB NO.  
JNE0140  
CONTRACT ID.

PROJECT NO.

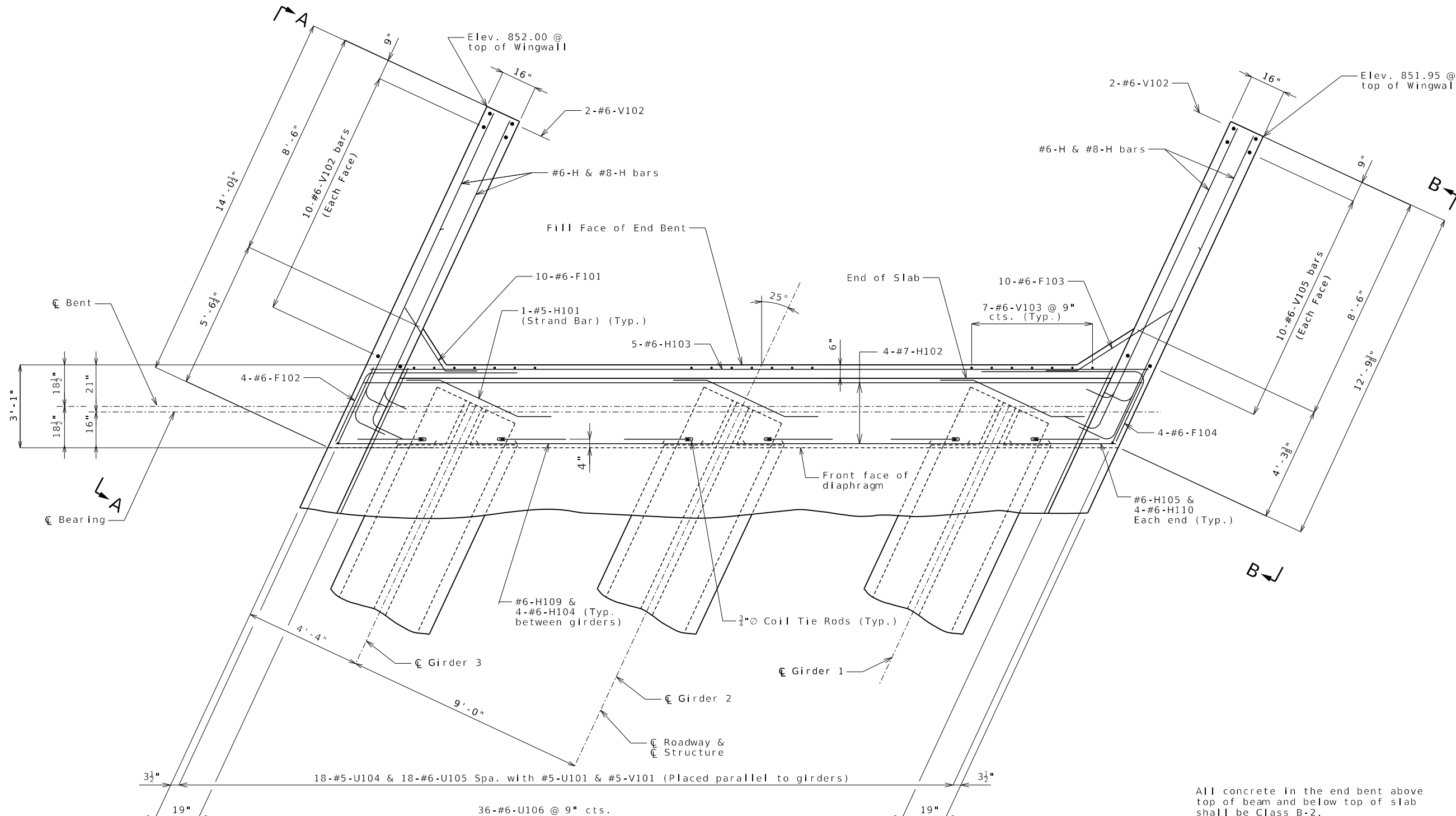
BRIDGE NO.  
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
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Certificate of Authority No. 2002006347



PART PLAN

Item	Quantity
Class 1 Excavation	cu. yard 45
Galvanized Cast-In-Place Concrete Piles ( 16 in. )	linear foot 518
Dynamic Pile Testing	each 1
Dynamic Pile Restrike Testing	each 1
Pile Point Reinforcement	each 7
Class B Concrete (Substructure)	cu. yard 13.5

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

DETAILS OF END BENT NO. 1

Note: All U bars and V bar pairs in the End Bent shall be placed parallel to the girders.

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.  
Strands at end of girders shall be field bent or, if necessary, cut in field to maintain 1 1/2 inch minimum clearance to fill face of end bent.  
For location of coil tie rods and #5-H101 (strand tie bar), see Sheets No. 14 thru 15.  
For Elevation A-A and Elevation B-B see Sheet No. 7.  
For details of Vertical Drain at End Bent, see Sheet No. 8.  
For details of Bridge Approach Slab, see Sheet No. 22.  
For details of End Bent No. 1 not shown, see Sheets No. 5, 6, & 7.  
For details of Galvanized Cast-In-Place Concrete Piles, see Sheet No. 3.



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED  
06/21/2024

ROUTE STATE  
A MO  
DISTRICT SHEET NO.  
BR 5

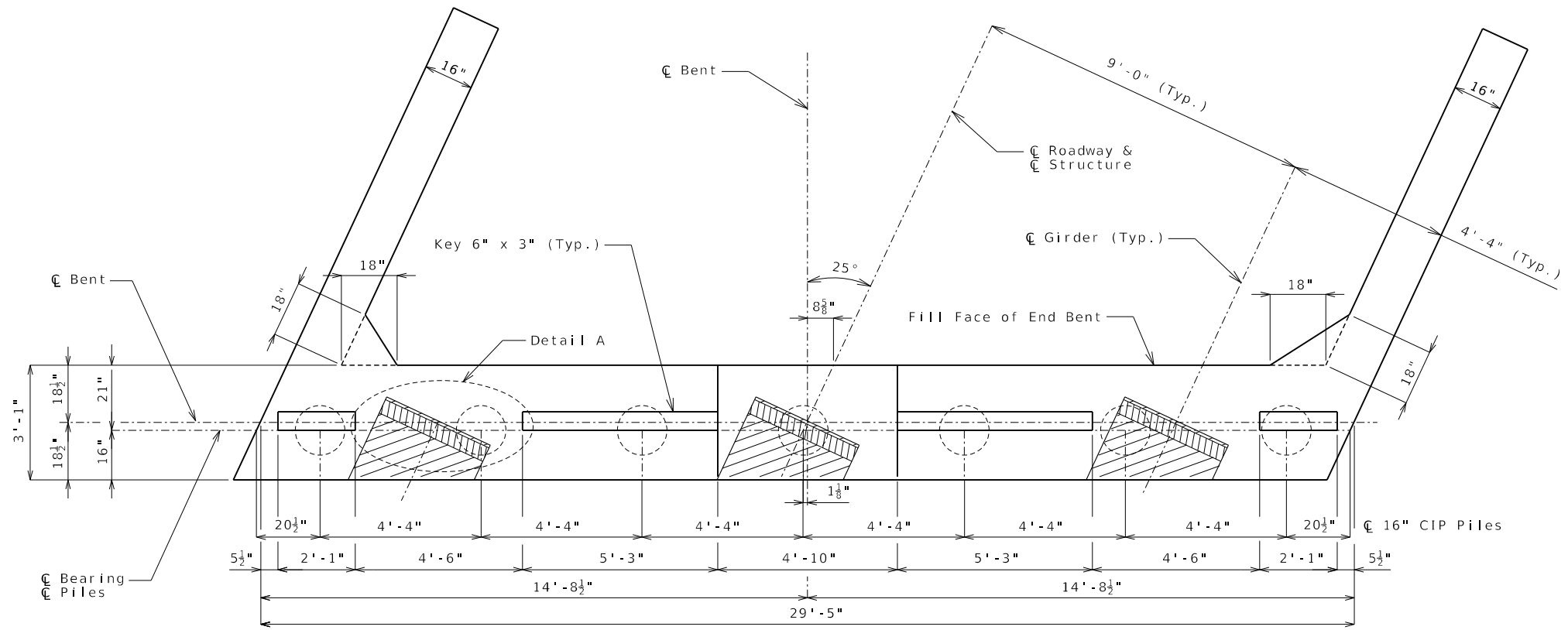
COUNTY  
ADAIR  
JOB NO.  
JNE0140  
CONTRACT ID.

PROJECT NO.

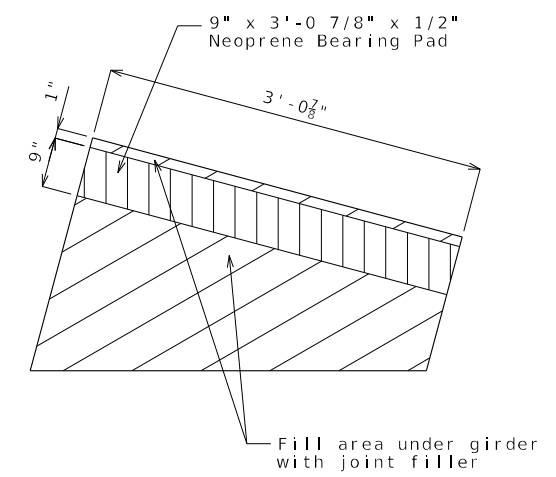
BRIDGE NO.  
A9442

DESCRIPTION	DATE

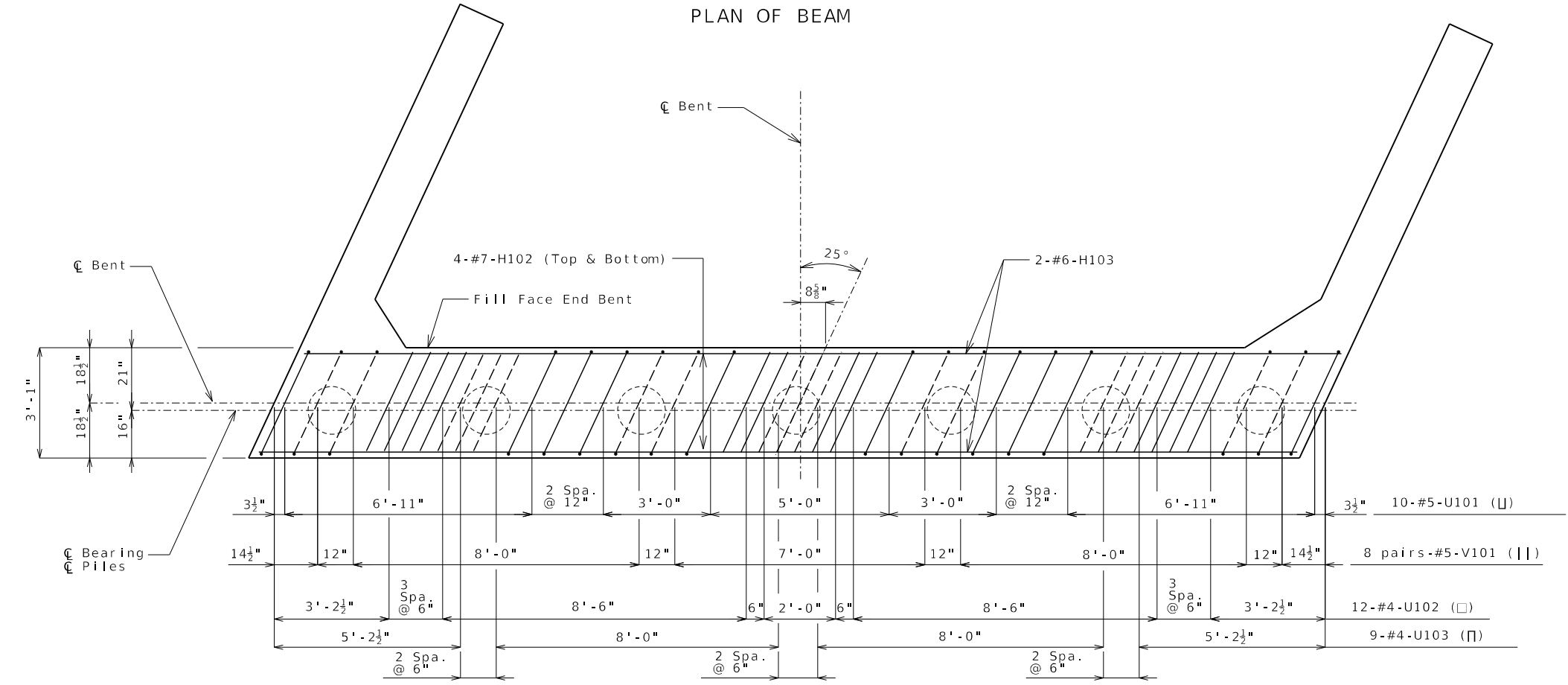
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
 105 WEST CAPITOL JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)



PLAN OF BEAM



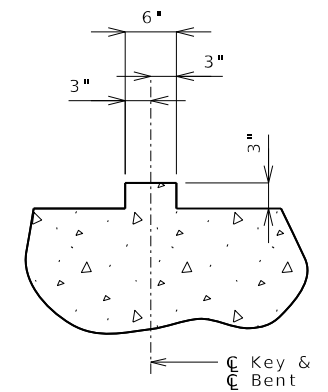
DETAIL A



PLAN OF BEAM SHOWING REINFORCEMENT

Note: All U bars and V bar pairs in the End Bent shall be placed parallel to the girders.

DETAILS OF END BENT NO. 1



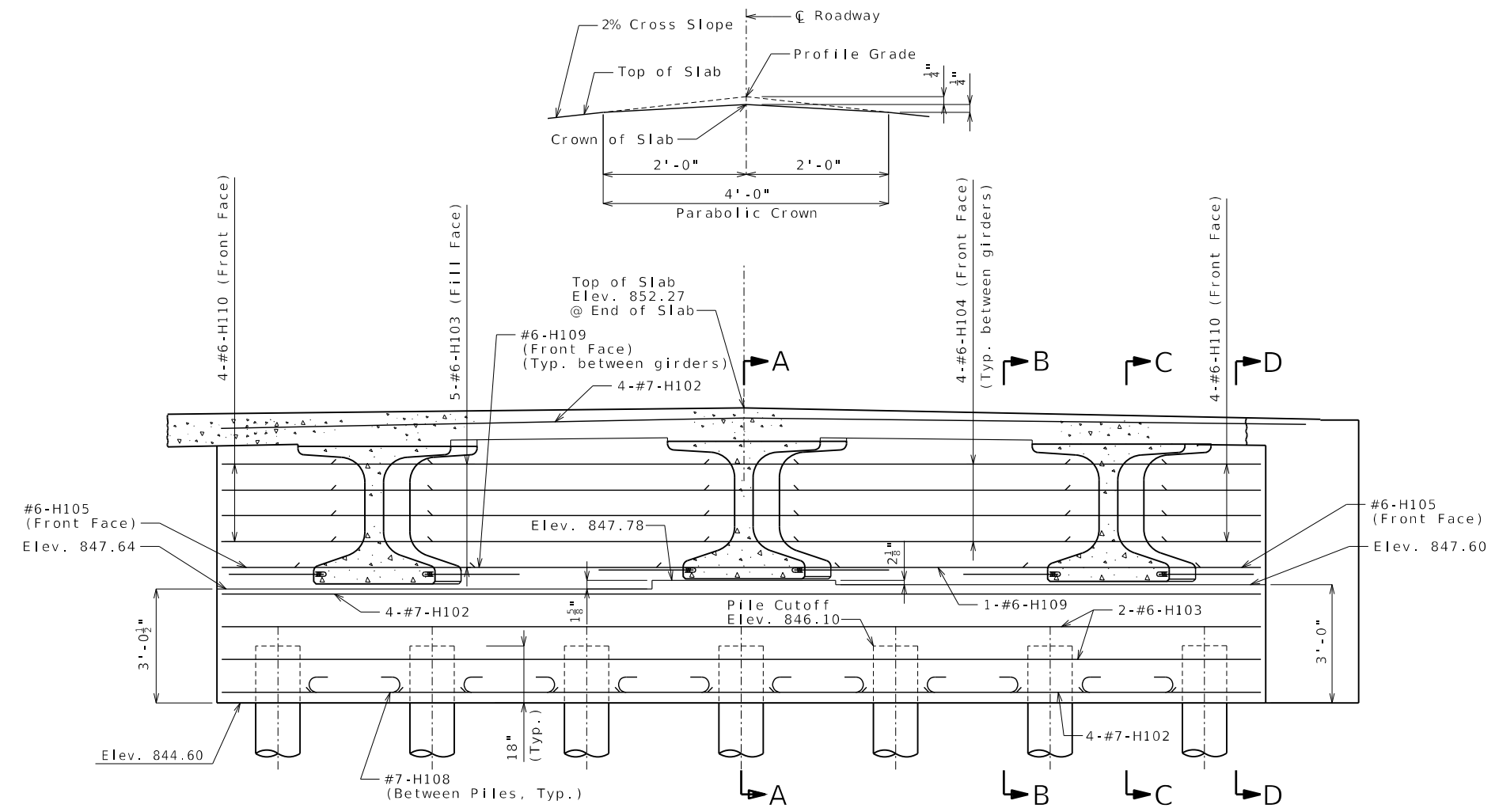
SECTION THRU KEY

NOTES:  
 Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inch.  
 For details of End Bent No. 1 not shown, see Sheets No. 4, 6 & 7.

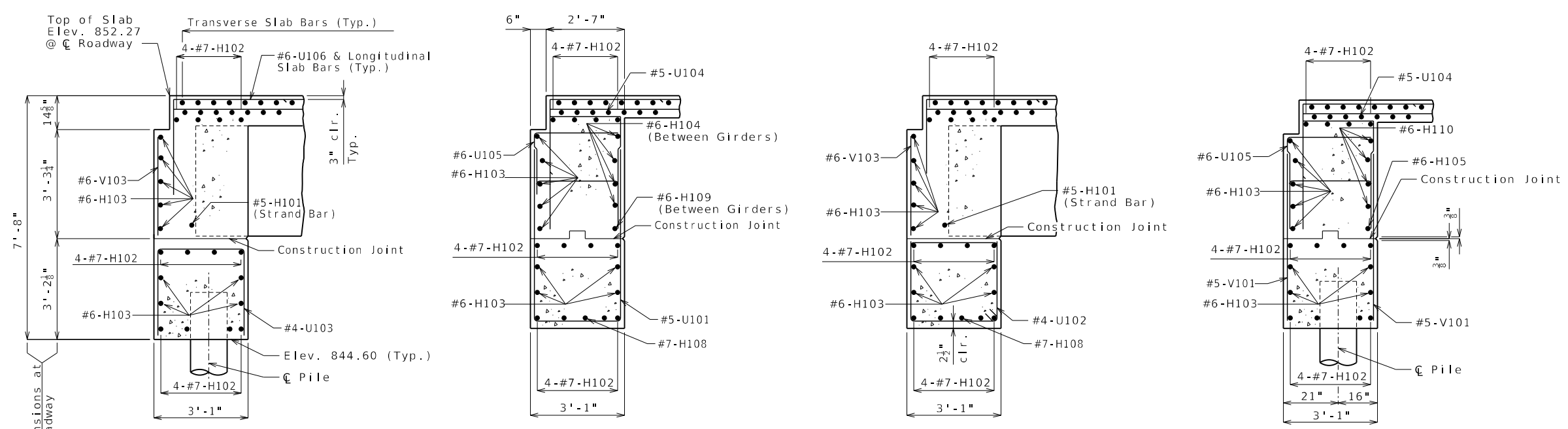


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DATE PREPARED 06/21/2024	
ROUTE A	STATE MO
DISTRICT BR	SHEET NO. 6
COUNTY ADAIR	
JOB NO. JNE0140	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9442	



SECTION NEAR END BENT



DETAILS OF END BENT NO. 1

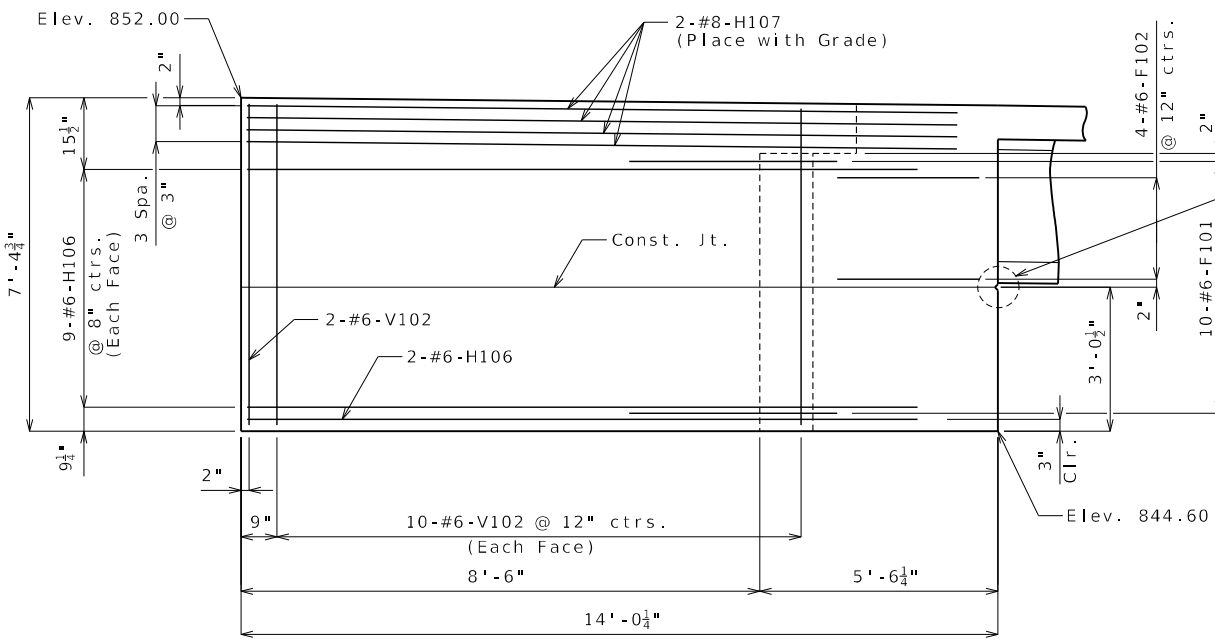
NOTES:  
For details of End Bent No. 1 not shown, see Sheets No. 4, 5, & 7.

DESCRIPTION	DATE

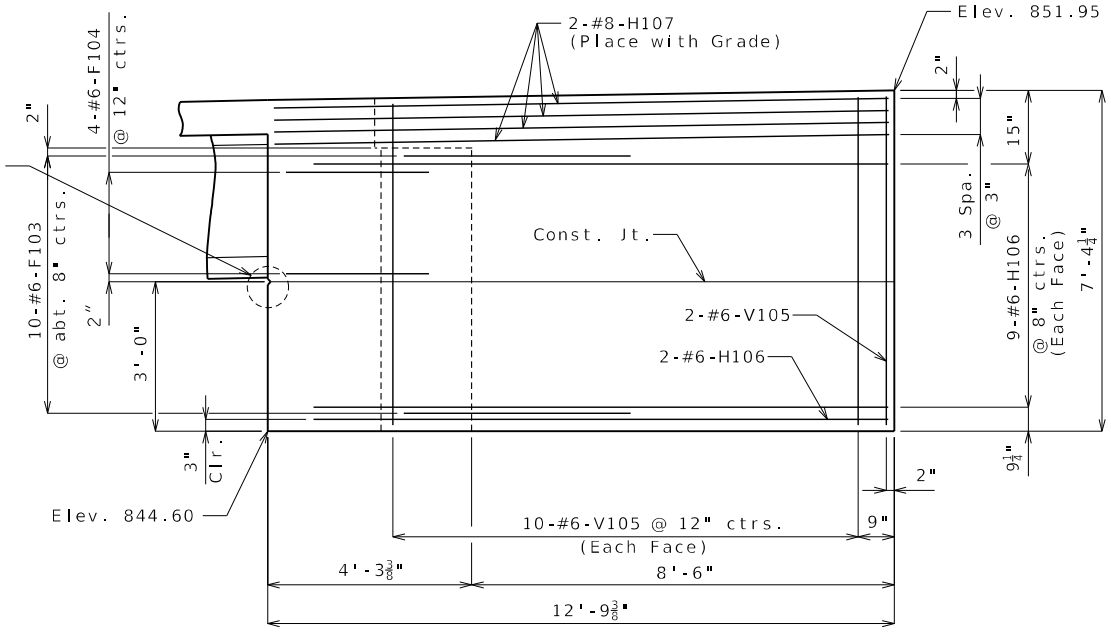
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102  
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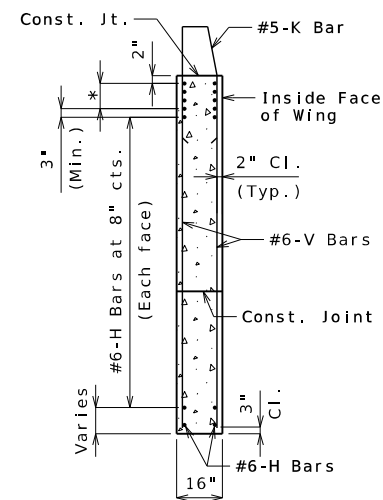
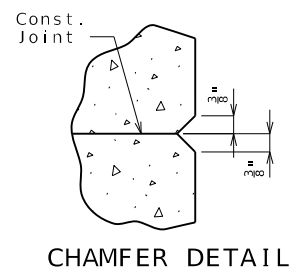
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ELEVATION A-A



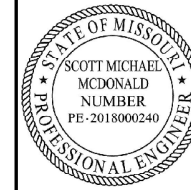
ELEVATION B-B



TYPICAL SECTION THRU WING  
 \* #8-H Bars at 3" ctrs. (Each face) (Place with grade)  
 For reinforcement of the barrier, see Sheet No. 21

DETAILS OF END BENT NO. 1

Note:  
 For location of Elevation A-A and Elevation B-B, see Sheet No. 4.  
 For Details of End Bent 1 not shown, see Sheets No. 4, 5 & 6.



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ROUTE STATE  
 A MO

DISTRICT SHEET NO.  
 BR 7

COUNTY  
 ADAIR

JOB NO.  
 JNE0140

CONTRACT ID.

PROJECT NO.

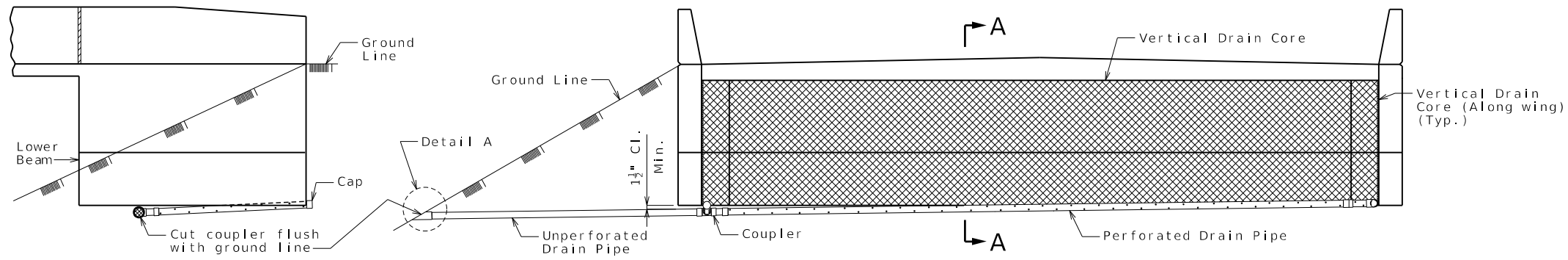
BRIDGE NO.  
 A9442

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  

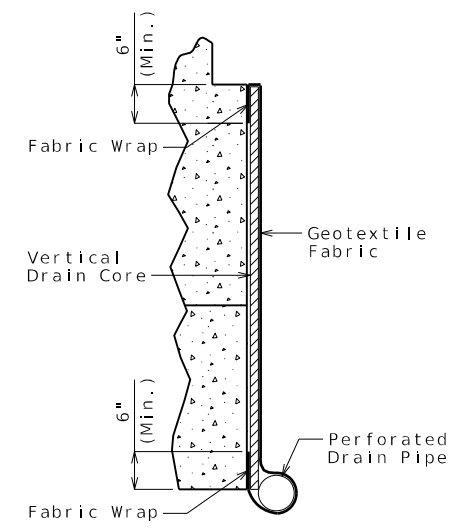
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 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-273-6636)

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 9788 N Ash Ave. Kansas City, Missouri 64157  
 816-781-6182 816-781-0643 (FAX)  
 Certificate of Authority No. 2002006347

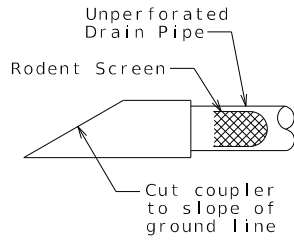


ELEVATION OF WING

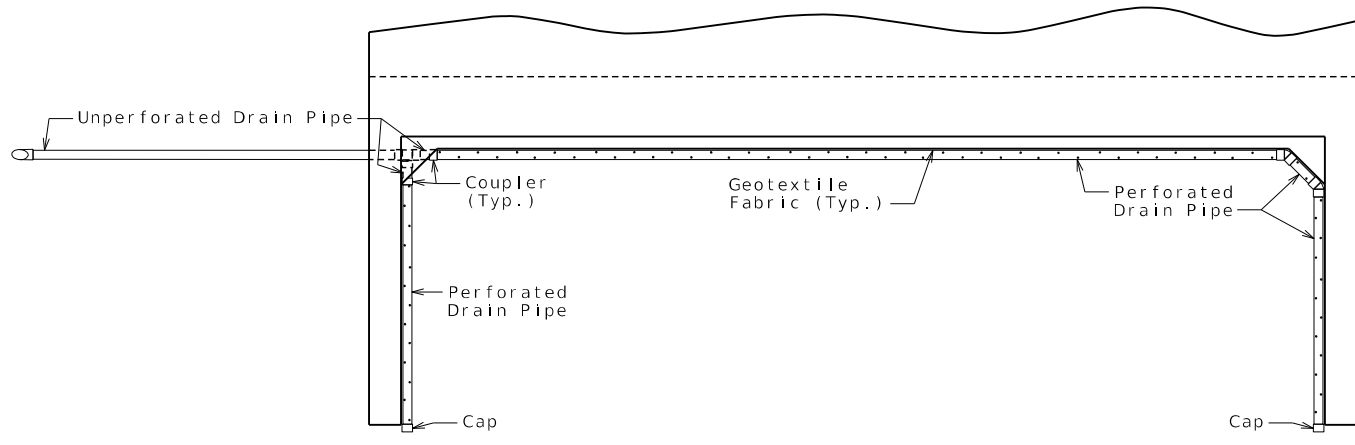
ELEVATION OF END BENT



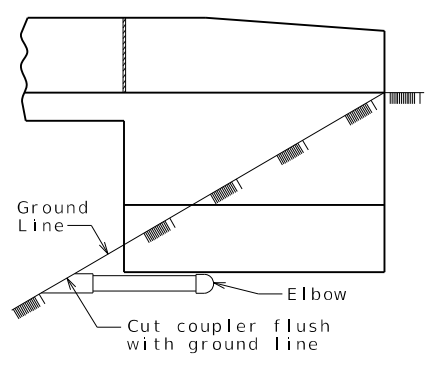
PART SECTION A-A  
(Section thru wing similar)



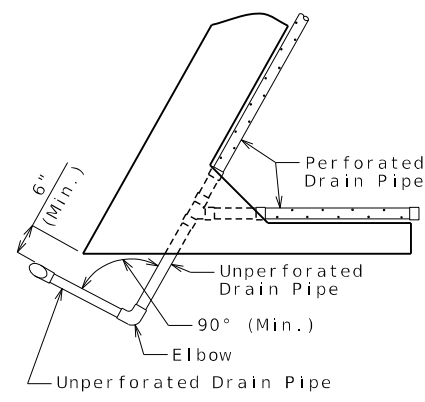
DETAIL A



PLAN OF END BENT



ELEVATION OF WING



PART PLAN

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

**General Notes:**

- All drain pipe shall be sloped 1 to 2 percent.
- Drain pipe may be either 6-inch diameter corrugated metallic-coated steel pipe underdrain, 4-inch diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4-inch diameter corrugated polyethylene (PE) drain pipe.
- Drain pipe shall be placed at fill face of end bent and inside face of wings. The pipe shall slope to lowest grade of ground line, also missing the lower beam of end bent by a minimum of 1 1/2 inches.
- Perforated pipe shall be placed at fill side and inside face of wings at the bottom of end bent and plain pipe shall be used where the vertical drain ends to the exit at ground line.

**VERTICAL DRAIN AT END BENTS**  
(Squared end bent shown, skewed end bent similar)



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06/21/2024

ROUTE A STATE MO  
DISTRICT BR SHEET NO. 8

COUNTY ADAIR  
JOB NO. JNE0140  
CONTRACT ID.

PROJECT NO.  
BRIDGE NO. A9442

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
  
 105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
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ROUTE A STATE MO  
DISTRICT BR SHEET NO. 9

COUNTY ADAIR  
JOB NO. JNE0140  
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9442

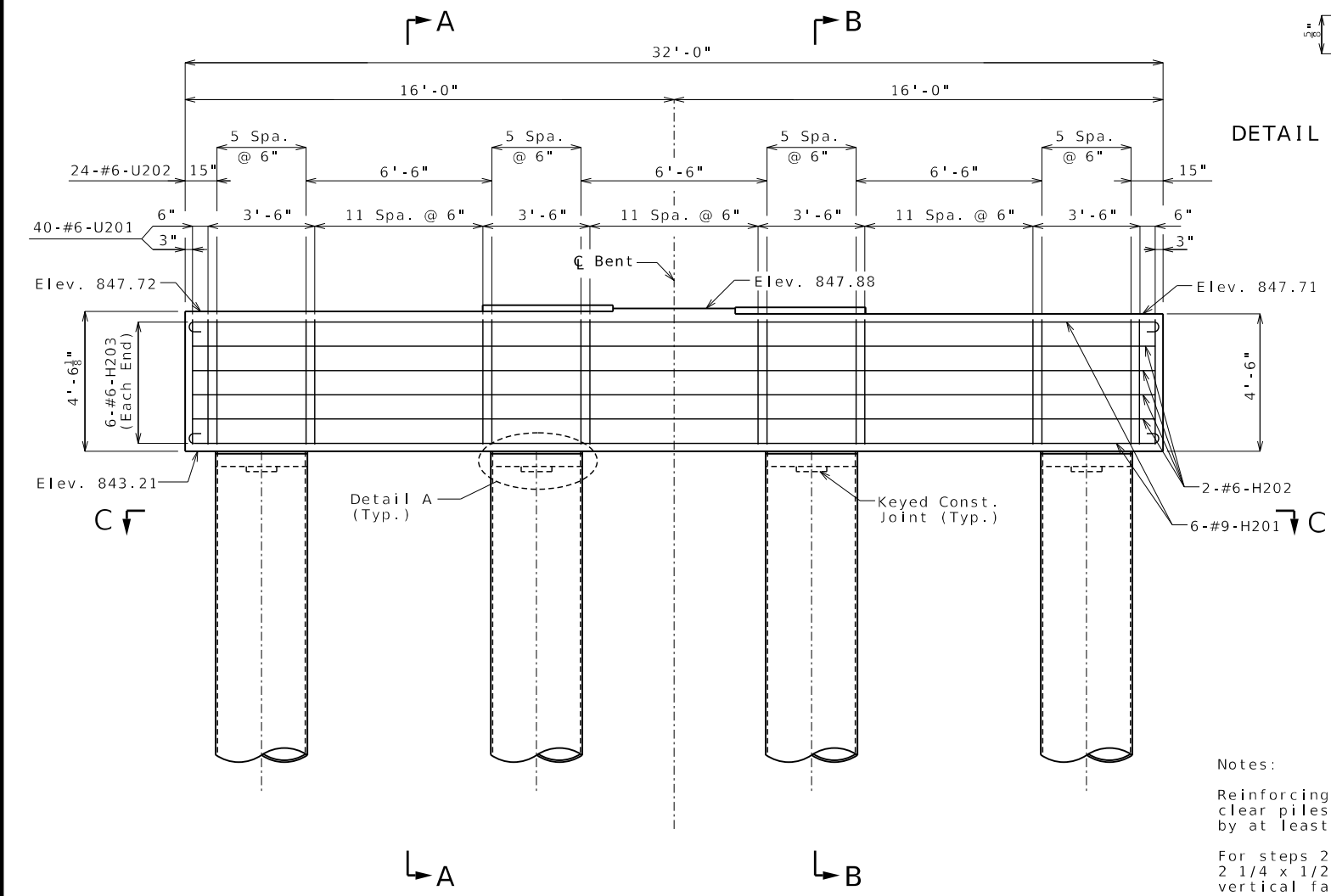
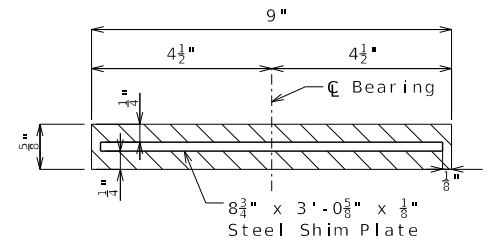
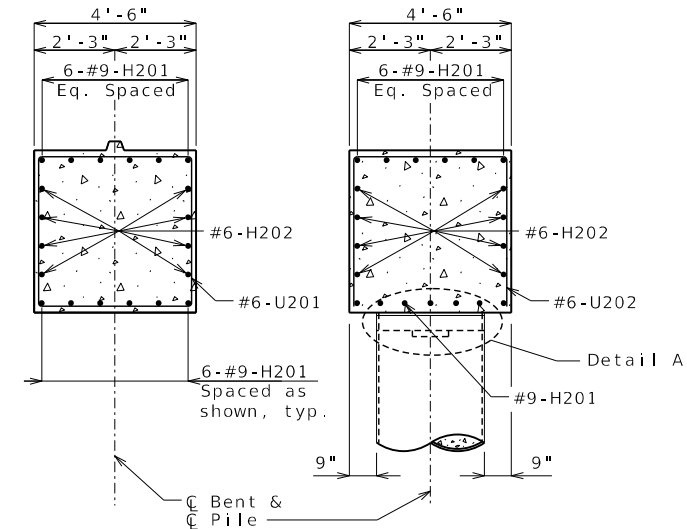
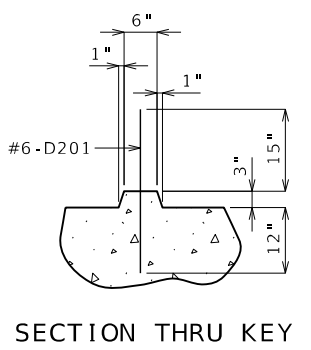
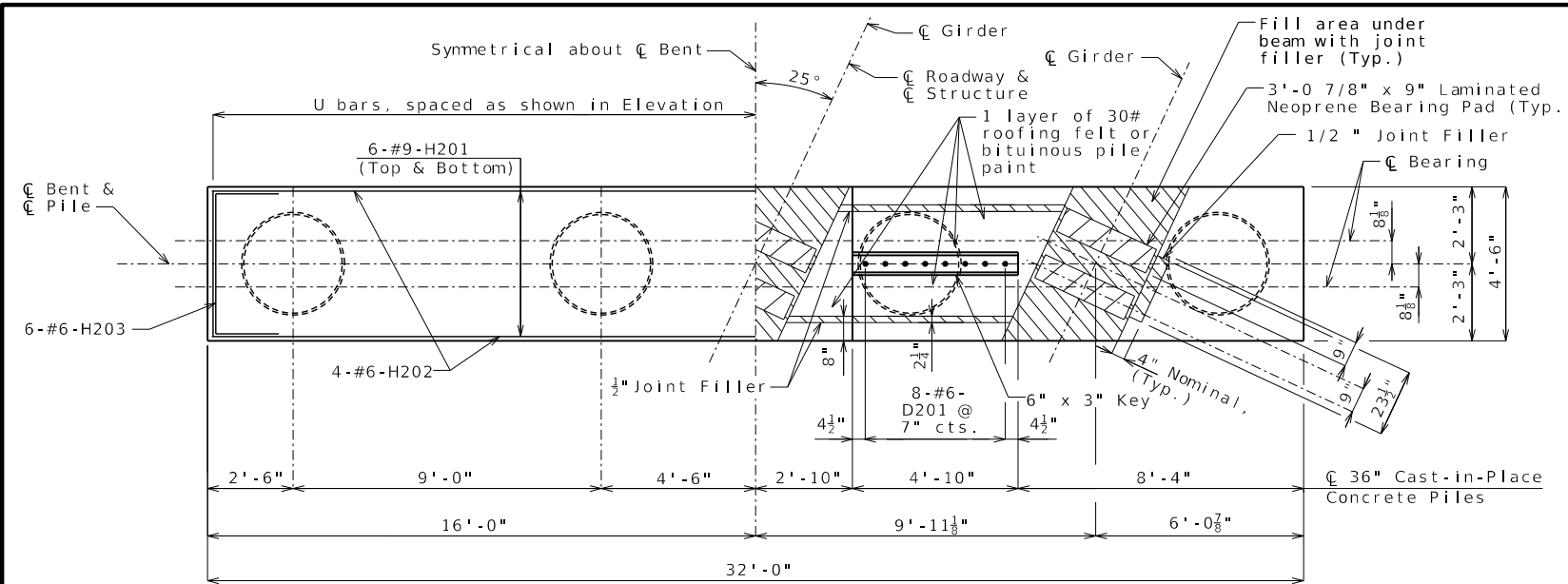
DESCRIPTION

DATE

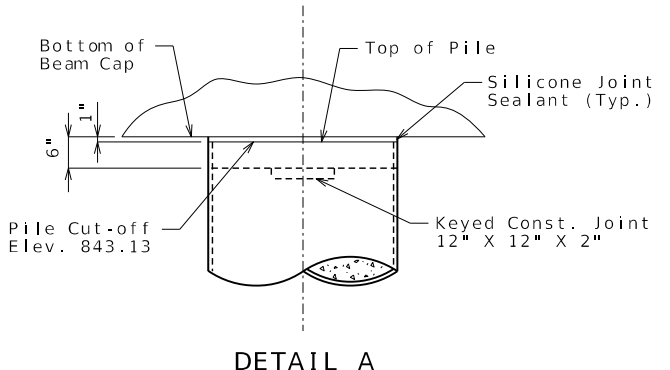
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Notes:  
Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inches.  
For steps 2 inches or more, use 2 1/4 x 1/2 inch joint filler up vertical face.



Item	Quantity
Galvanized Structural Steel Pile (36 in.)	linear foot 300
Dynamic Pile Testing	each 1
Dynamic Pile Restrike Testing	each 1
Pile Point Reinforcement (36 in. CIP Concrete Piles)	each 4
Class B Concrete (Substructure)	cu. yard 24.2
Reinforcing Steel (Bridges)	pound 6530

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

Detailed Jun. 2024  
Checked Jun. 2024

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

Sheet No. 9 of 28

DETAILS OF INTERMEDIATE BENT NO. 2



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DATE PREPARED  
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ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	10

COUNTY  
ADAIR  
JOB NO.  
JNE0140  
CONTRACT ID.

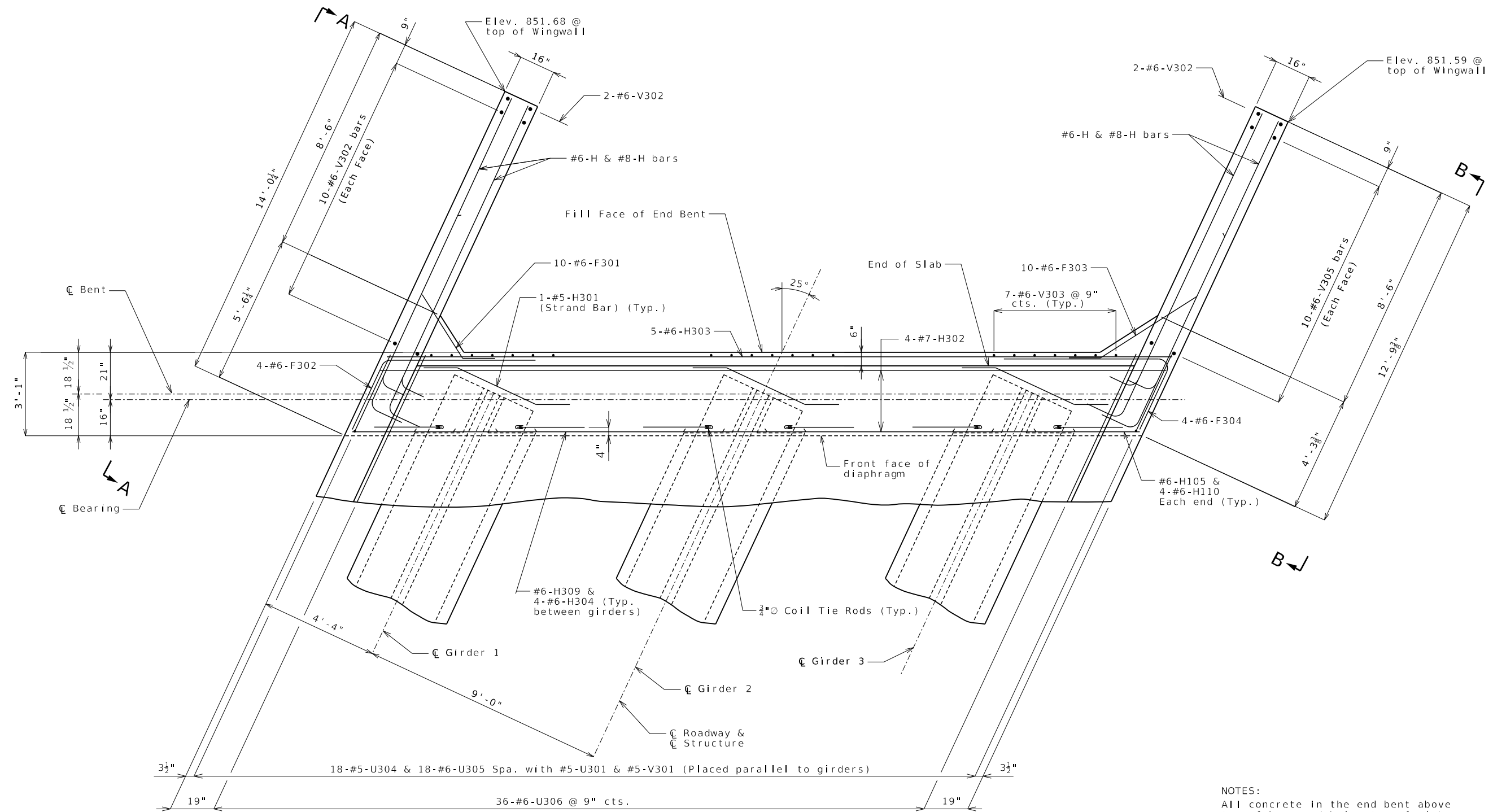
PROJECT NO.

BRIDGE NO.  
A9442

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
  
 105 WEST CAPITOL  
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**PART PLAN**

Note: All U bars and V bar pairs in the End Bent shall be placed parallel to the girders.

Item	Quantity
Class 1 Excavation	cu. yard 30
Galvanized Cast-In-Place Concrete Piles ( 16 in. )	linear foot 581
Dynamic Pile Testing	each 1
Dynamic Pile Restrike Testing	each 1
Pile Point Reinforcement	each 7
Class B Concrete (Substructure)	cu. yard 13.5

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

**DETAILS OF END BENT NO. 3**

**NOTES:**  
 All concrete in the end bent above top of beam and below top of slab shall be Class B-2.  
 Strands at end of girders shall be field bent or, if necessary, cut in field to maintain 1 1/2 inch minimum clearance to fill face of end bent.  
 For location of coil tie rods and #5-H301 (strand tie bar), see Sheets No. 14 thru 15.  
 For Elevation A-A and Elevation B-B see Sheet No. 13.  
 For details of Vertical Drain at End Bent, see Sheet No. 8.  
 For details of Bridge Approach Slab, see Sheet No. 22.  
 For details of End Bent No. 3 not shown, see Sheets No. 11, 12, & 13.  
 For details of Galvanized Cast-In-Place Concrete Piles, see Sheet No. 3.



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ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	11

COUNTY  
**ADAIR**

JOB NO.  
**JNE0140**

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
**A9442**

DESCRIPTION	DATE

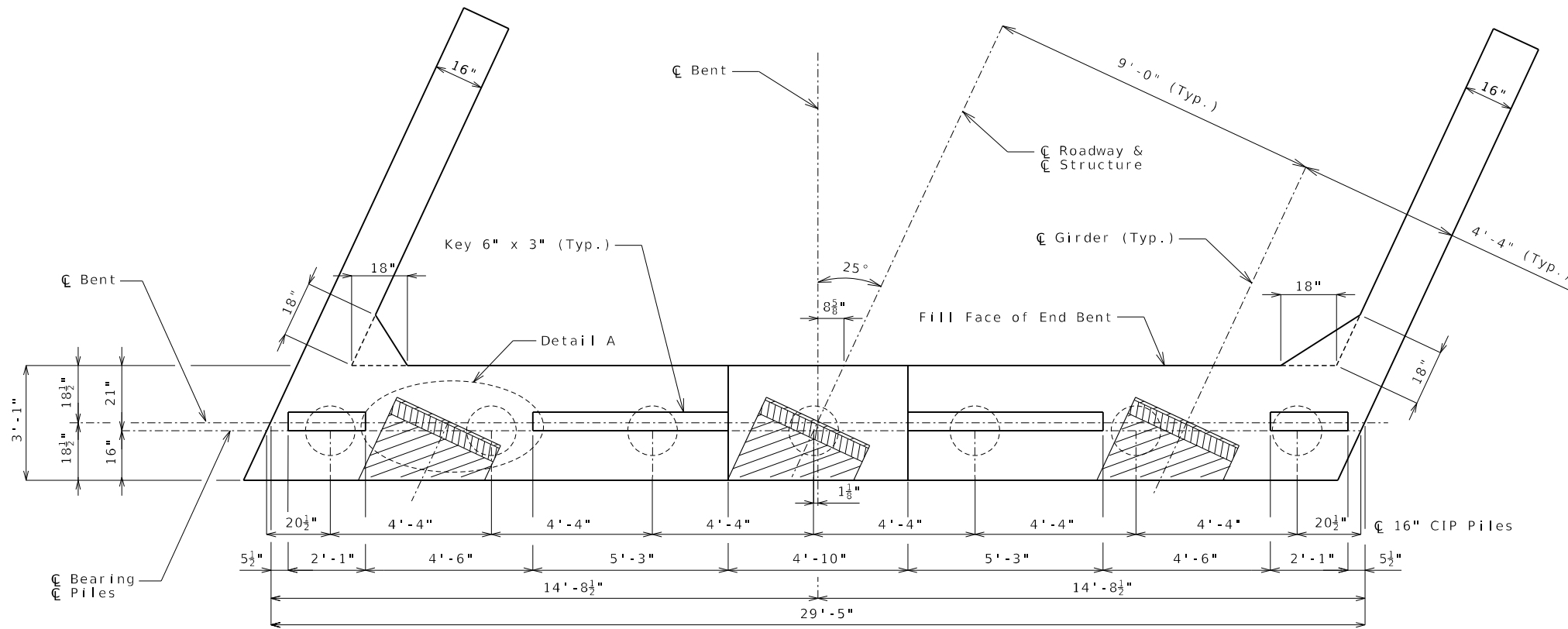
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**MoDOT**

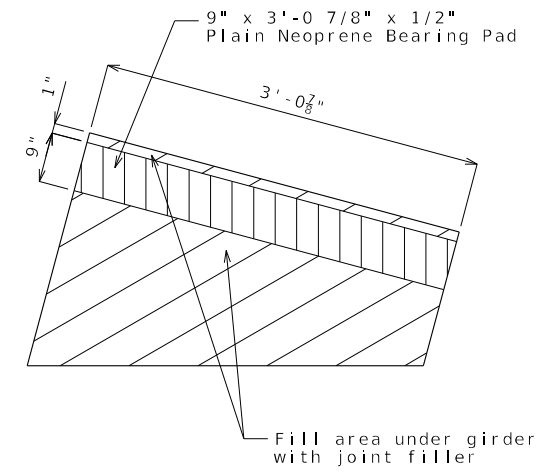
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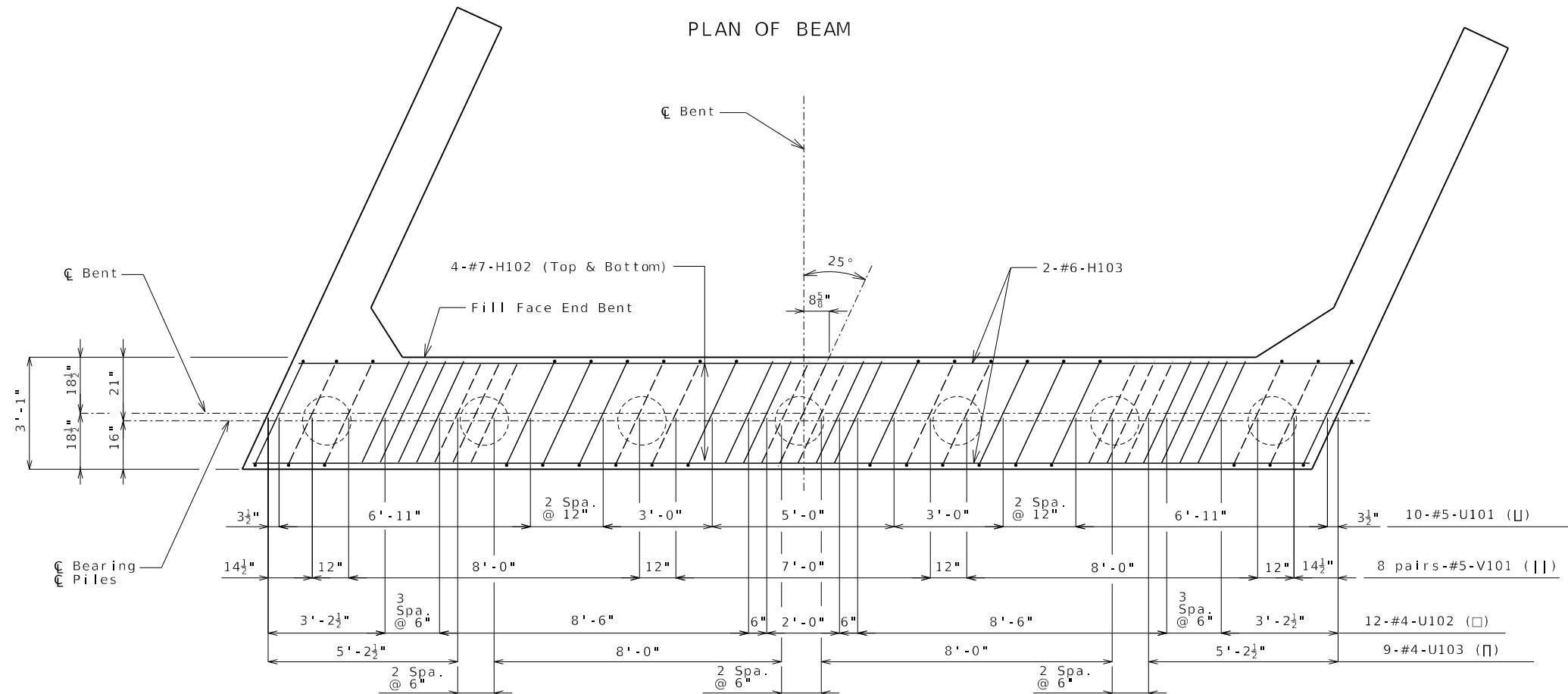
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PLAN OF BEAM



DETAIL A



PLAN OF BEAM SHOWING REINFORCEMENT

Note: All U bars and V bar pairs in the End Bent shall be placed parallel to the girders.

DETAILS OF END BENT NO. 3

NOTES:

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

For details of End Bent No. 3 not shown, see Sheets No. 10, 12 & 13.



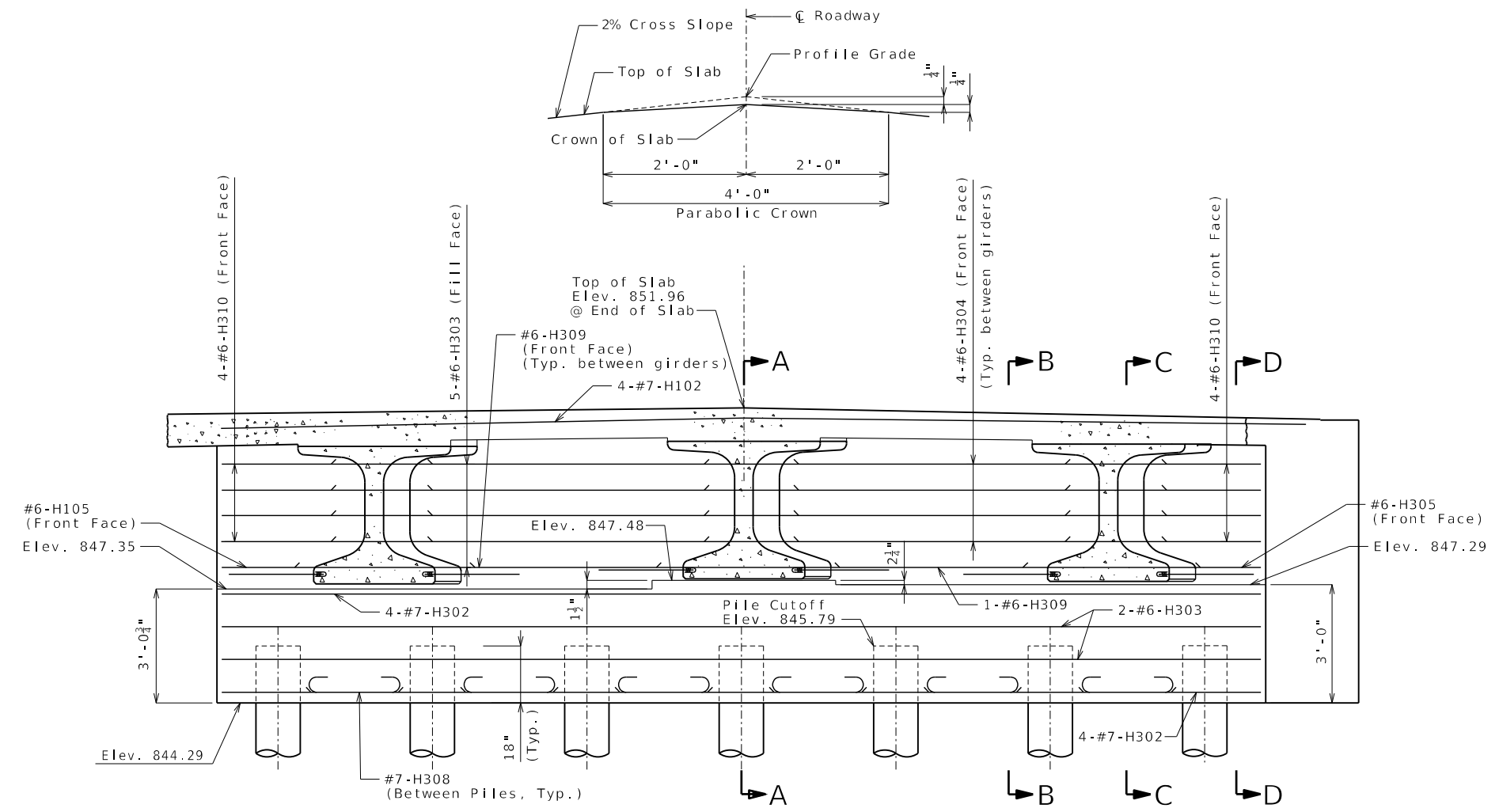
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DATE PREPARED 06/21/2024	
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DISTRICT BR	SHEET NO. 12
COUNTY ADAIR	
JOB NO. JNE0140	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9442	

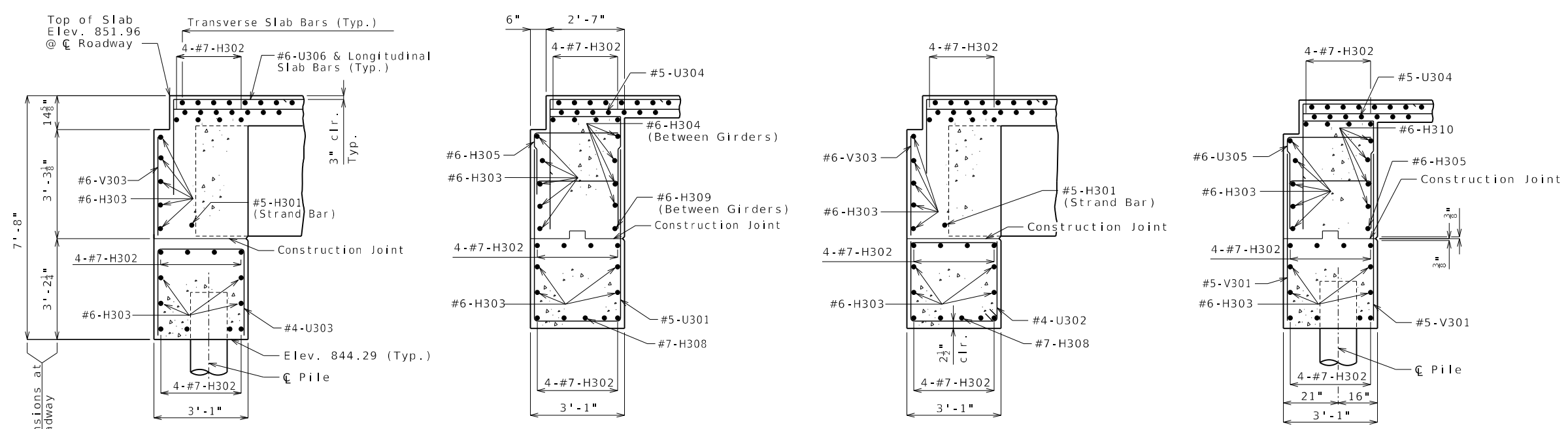
DESCRIPTION	DATE

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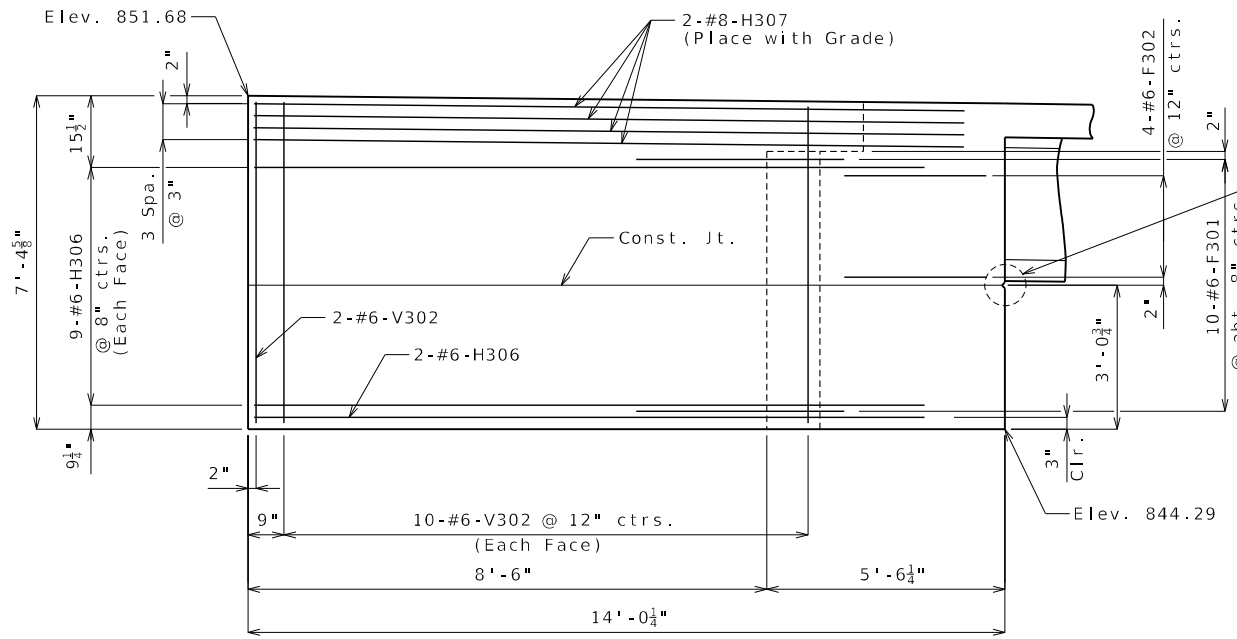


SECTION NEAR END BENT

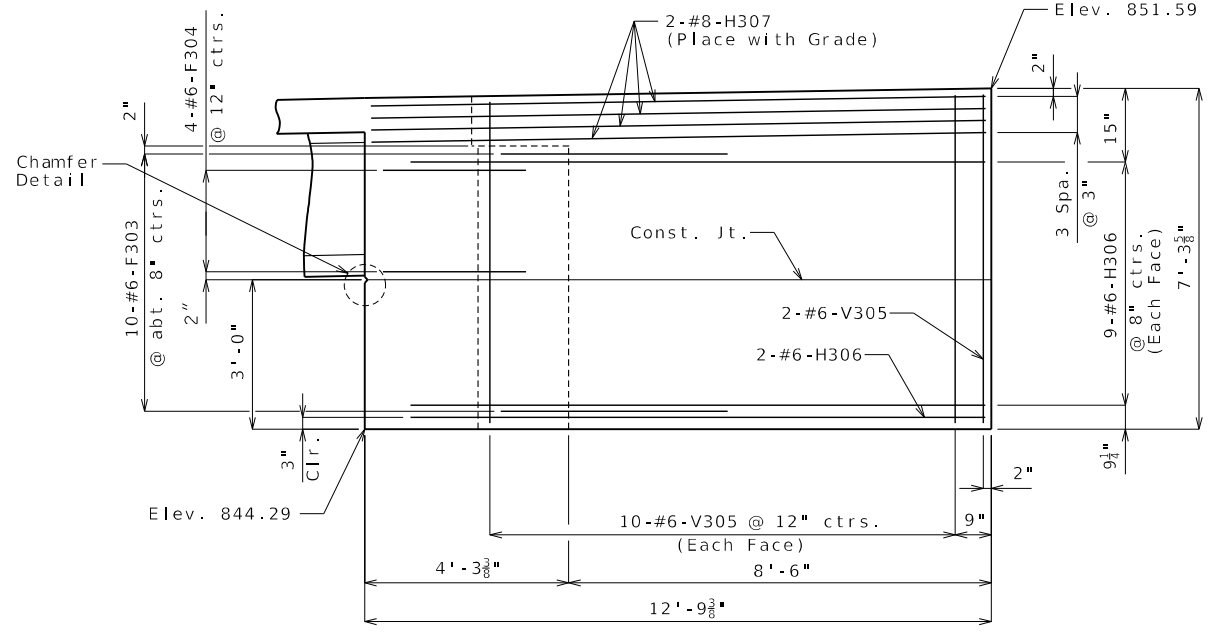


DETAILS OF END BENT NO. 3

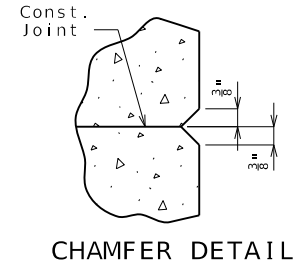
NOTES:  
 For details of End Bent No. 3 not shown, see Sheets No. 10, 11, & 13.



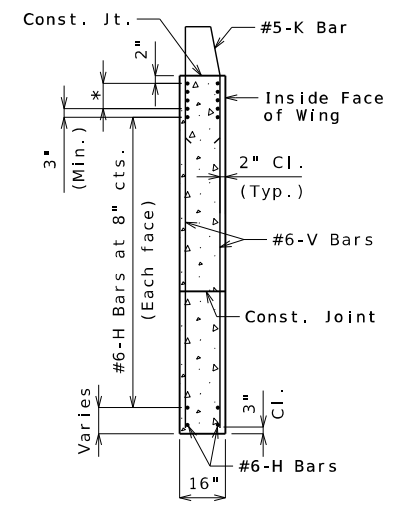
ELEVATION A-A



ELEVATION B-B



CHAMFER DETAIL



TYPICAL SECTION THRU WING

\* #8-H Bars at 3" cts. (Each face) (Place with grade)

For reinforcement of the barrier, see Sheet No. 21

DETAILS OF END BENT NO. 3

Note:  
For location of Elevation A-A and Elevation B-B, see Sheet No. 10.  
For Details of End Bent 3 not shown, see Sheets No. 10, 11 & 12.



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DISTRICT BR	SHEET NO. 13
COUNTY ADAIR	
JOB NO. JNE0140	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9442	

DATE	DESCRIPTION

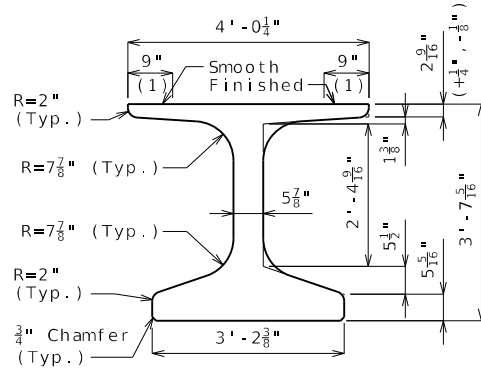
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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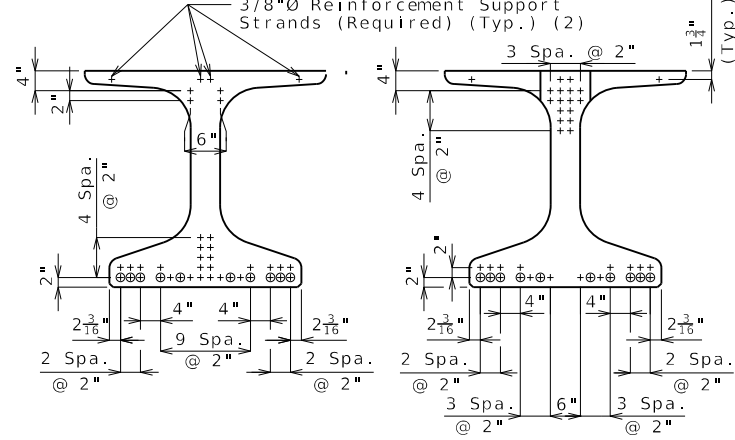
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(1) Fabricator shall apply a bond breaker to this region.

(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about  $\bar{C}$  Girder. May be moved laterally in pairs.

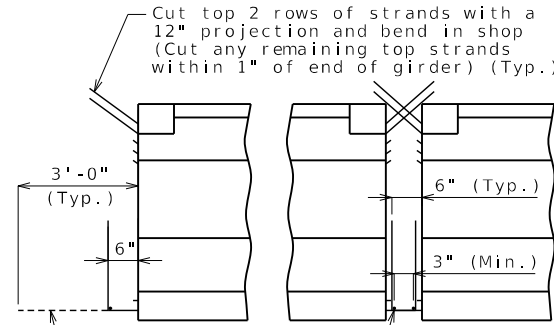


**DIMENSIONS**



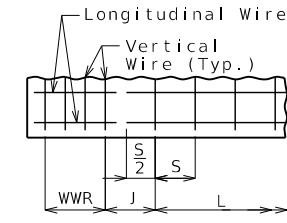
$\bar{C}$  GIRDER STRAND ARRANGEMENT

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



END BENT INTERMEDIATE BENT STRANDS AT GIRDER ENDS

- (3) Bent 1: 1'-9 3/8"
- Bent 2: 1'-7 1/8" (Span 1-2)
- 1'-6 7/8" (Span 2-3)
- Bent 3: 1'-9 5/8"
- (4) Bent 2: 1'-7 3/8" (Span 1-2)
- Bent 2: 1'-6 3/8" (Span 2-3)
- (5) Bent 2: 0'-7 1/2" (Span 1-2)
- Bent 2: 0'-7 1/4" (Span 2-3)



**WELDED WIRE PLACEMENT**

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

Bill of Reinforcing Steel					
Bars Each Girder				Bending Diagrams	
No.	Size/Mark	Length	Shape		
108	3 G1	2'-10"	8		
2	4 G3	4'-3"	20		
2	4 G4	2'-3"	20		
2	4 G5	2'-11"	20		
6	4 G6	Varies	20		
Welded Wire Each Girder					Shape 20
Mark	Size	S	W	L	J
WWR1	D31	4"	W12	14'-0"	5 1/2"
WWR2	D31	12"	W12	8'-0"	12"
WWR3	D31	20"	W12	36'-8"	--
WWR6	D31	2"	W12	16"	4"

All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Actual bar lengths are measured along centerline of bar to the nearest inch.

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

All bar reinforcement shall be Grade 60.

WWR shall not be epoxy coated.

G4 and G5 not required for interior girders. Half no. of G3, G4, G5 and G6 not required for ext. girders of end spans.

**General Notes:**

Concrete for prestressed beams shall be Class A-1 with  $f'c = 8000$  psi and  $f'ci = 6500$  psi.

Use 36 strands, 0.6"Ø Grade 270, with an initial prestress force of 1582 kips.

Pretensioned members shall be in accordance with Sec 1029.

Fabricator shall be responsible for location and design of lifting devices.

Exterior and interior girders are the same except: coil ties, top flange blackout, coil inserts for slab drains.

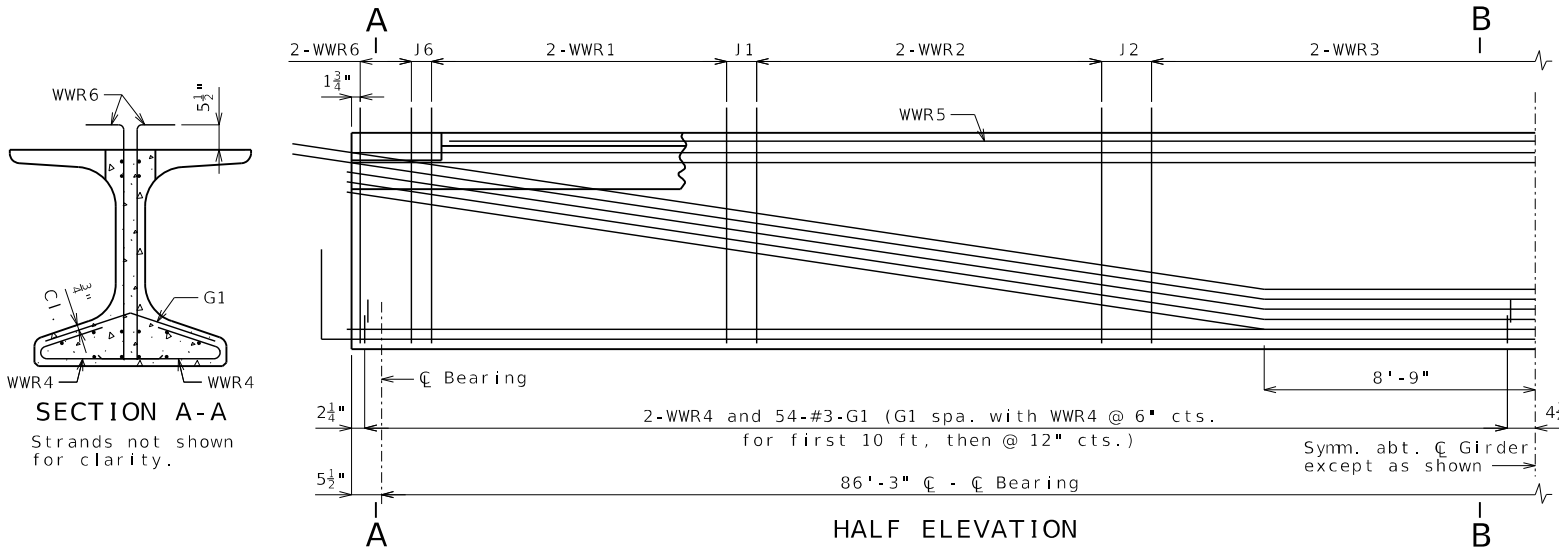
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 18.

For location of coil inserts at slab drains, see Sheet No. 17.

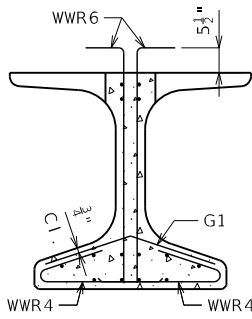
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4, 10 and 16.

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

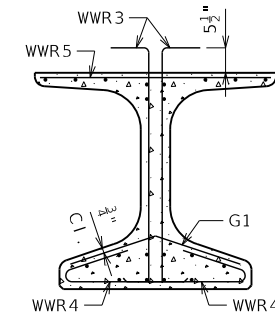


**HALF ELEVATION**

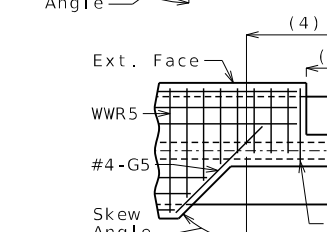
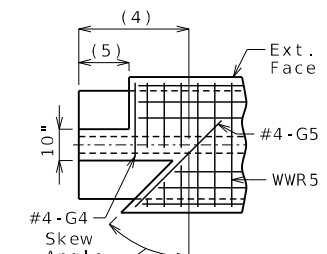
Reinforcement support strands not shown for clarity.



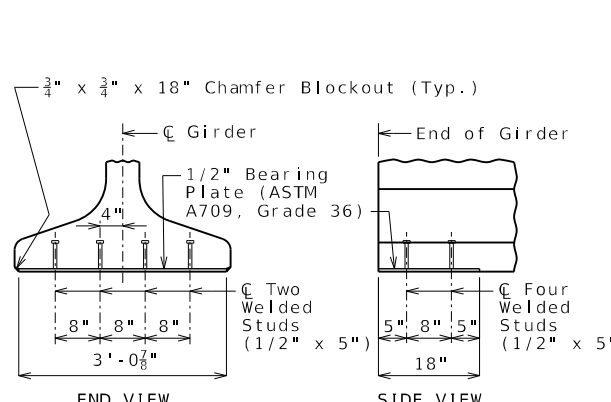
**SECTION A-A**  
Strands not shown for clarity.



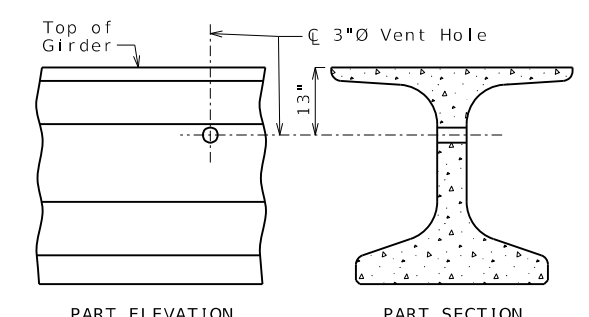
**SECTION B-B**  
Strands not shown for clarity.



**TOP FLANGE BLOCKOUT**  
Mirror for right advanced.

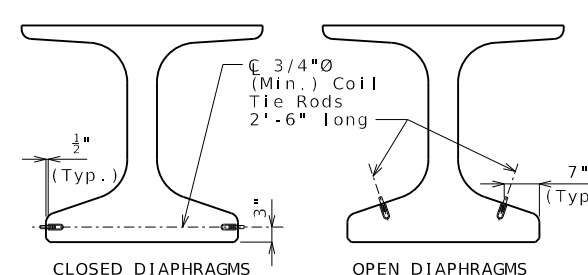


**BEARING PLATE**



**VENT HOLE**

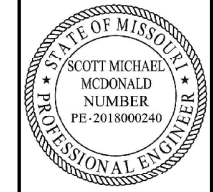
Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.



**COIL TIES**

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

**NU-GIRDERS - SPANS (1-2) AND (2-3)**



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DATE PREPARED: 06/21/2024

ROUTE: A STATE: MO  
DISTRICT: BR SHEET NO.: 14

COUNTY: ADAIR

JOB NO.: JNE0140

CONTRACT ID.

PROJECT NO.

BRIDGE NO.: A9442

DESCRIPTION	DATE

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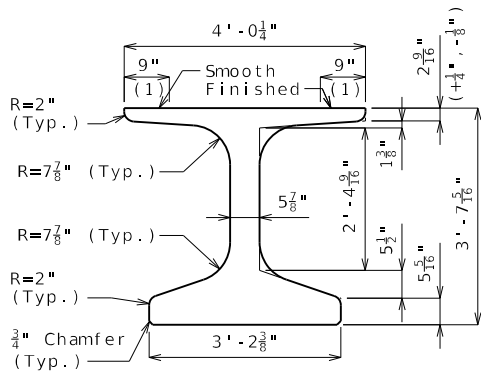
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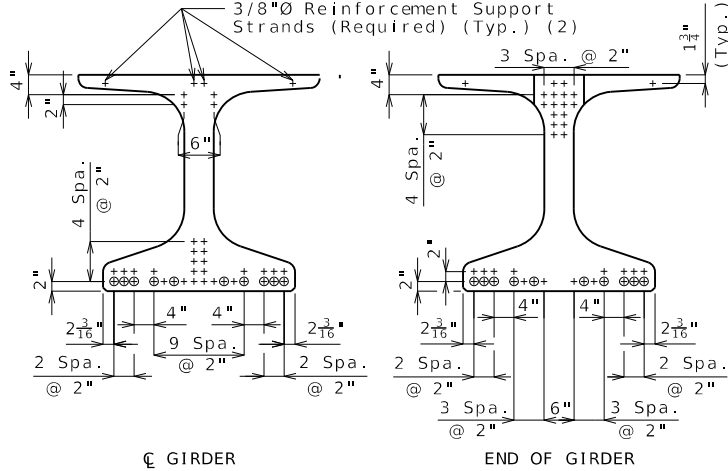
9788 N Ash Ave. Kansas City, Missouri 64157  
816-781-8182 816-781-0643 (FAX)  
Certificate of Authority No. 200206647

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

(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about  $\bar{C}$  Girder. May be moved laterally in pairs.

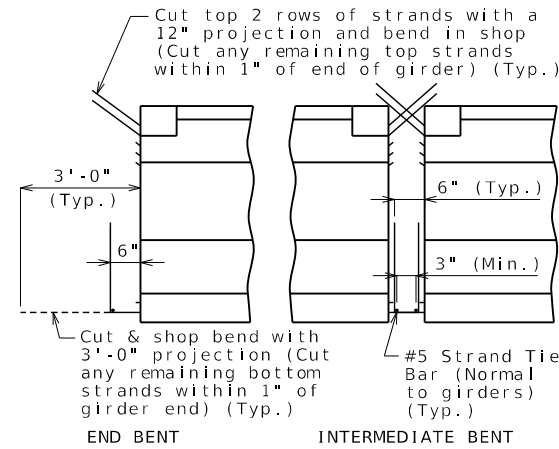


DIMENSIONS



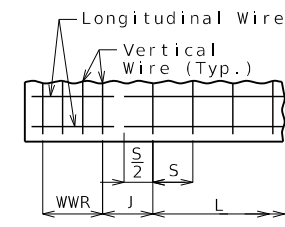
$\bar{C}$  GIRDER STRAND ARRANGEMENT

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



END BENT INTERMEDIATE BENT STRANDS AT GIRDER ENDS

- (3) Bent 1: 1'-9 3/8" Bent 2: 1'-7 1/8" (Span 1-2) Bent 2: 1'-6 7/8" (Span 2-3) Bent 3: 1'-9 3/8"
- (4) Bent 2: 1'-7 1/8" (Span 1-2) Bent 2: 1'-6 7/8" (Span 2-3)
- (5) Bent 2: 0'-7 1/2" (Span 1-2) Bent 2: 0'-7 1/4" (Span 2-3)

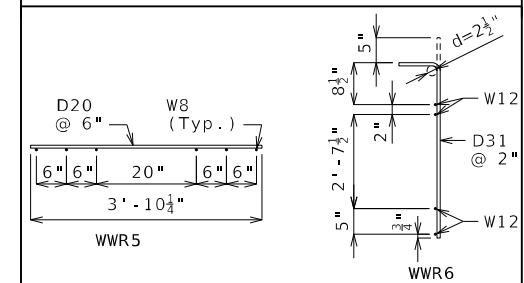


WELDED WIRE PLACEMENT

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

Bill of Reinforcing Steel - Each Girder				Bending Diagrams	
No.	Size/Mark	Length	Shape		
186	5 B1	5'-0"	115	Shape 20	Shape 95
206	4 D1	4'-0"	95		
2	4 G3	4'-3"	20	Shape 115	Shape 115
2	4 G4	2'-3"	20		
2	4 G5	2'-11"	20		
6	4 G6	Varies	20		

Welded Wire Reinforcement - Each Girder



All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Actual bar lengths are measured along centerline of bar to the nearest inch.

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

All bar reinforcement shall be Grade 60.

WWR shall not be epoxy coated.

G4 and G5 not required for interior girders. Half no. of G3, G4, G5 and G6 not required for ext. girders of end spans.

**General Notes:**

Concrete for prestressed beams shall be Class A-1 with  $f'c = 8000$  psi and  $f'ci = 6500$  psi.

Use 36 strands, 0.6"Ø Grade 270, with an initial prestress force of 1582 kips.

Pretensioned members shall be in accordance with Sec 1029.

Fabricator shall be responsible for location and design of lifting devices.

Exterior and interior girders are the same except: coil ties, top flange blackout, coil inserts for slab drains.

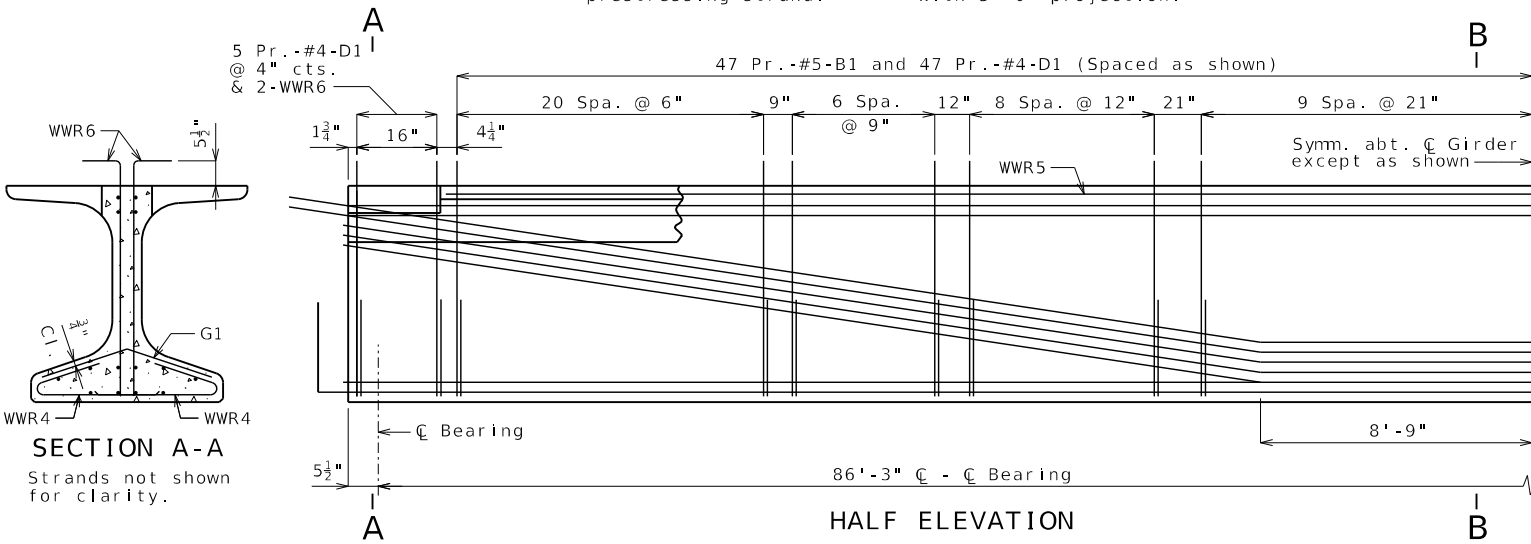
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 18.

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

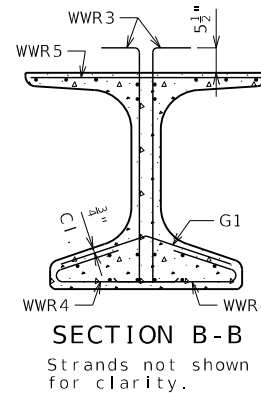
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4, 10 and 16.

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

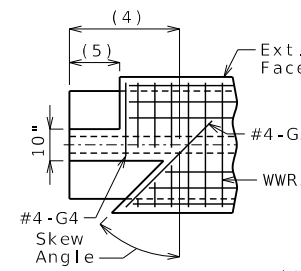


HALF ELEVATION Reinforcement support strands not shown for clarity.

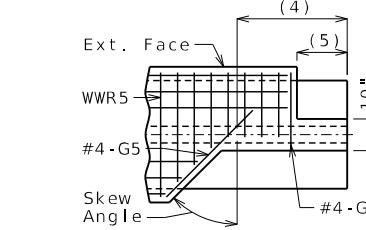
SECTION A-A Strands not shown for clarity.



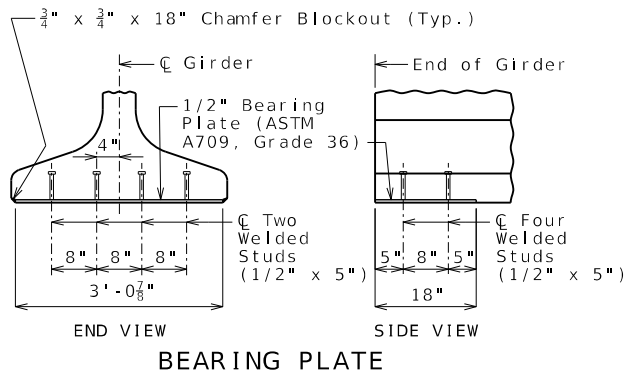
SECTION B-B Strands not shown for clarity.



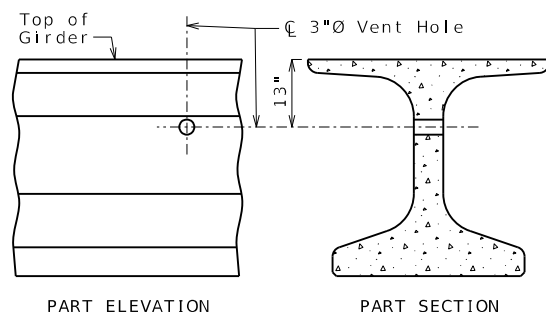
LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT Rotate 180° for right ext.



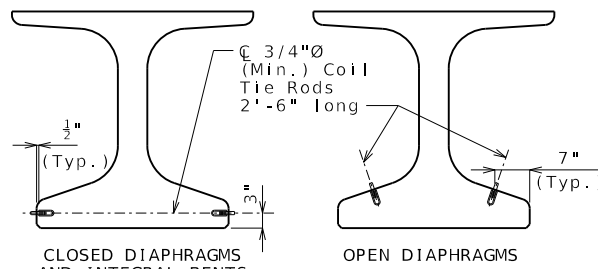
INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT TOP FLANGE BLOCKOUT Mirror for right advanced.



BEARING PLATE



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



COIL TIES

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

**NU-GIRDERS (ALTERNATE REINFORCEMENT) - SPANS (1-2) AND (2-3)**

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

Sheet No. 15 of 28



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DATE PREPARED 06/21/2024

ROUTE A STATE MO DISTRICT BR SHEET NO. 15

COUNTY ADAIR JOB NO. JNE0140 CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9442

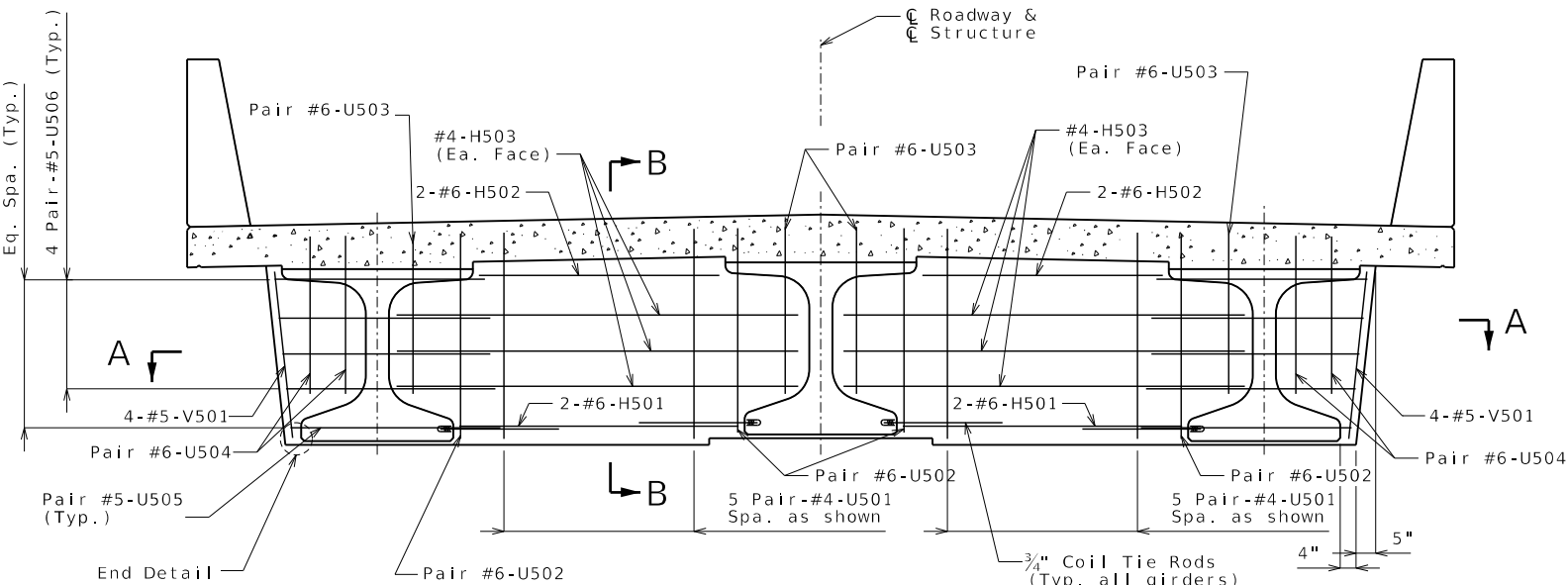
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

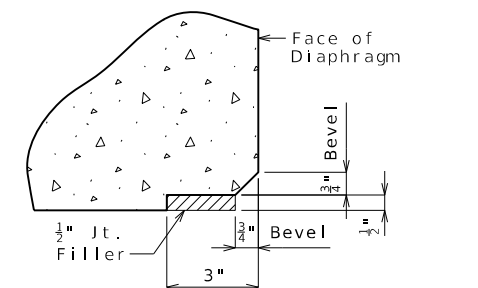
105 WEST CAPITOL JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

**VEENSTRA & KIMM INC.**

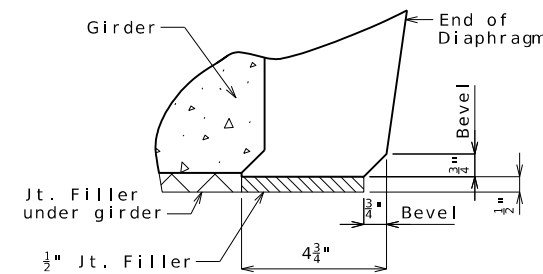
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816-781-6182 816-781-0643 (FAX)  
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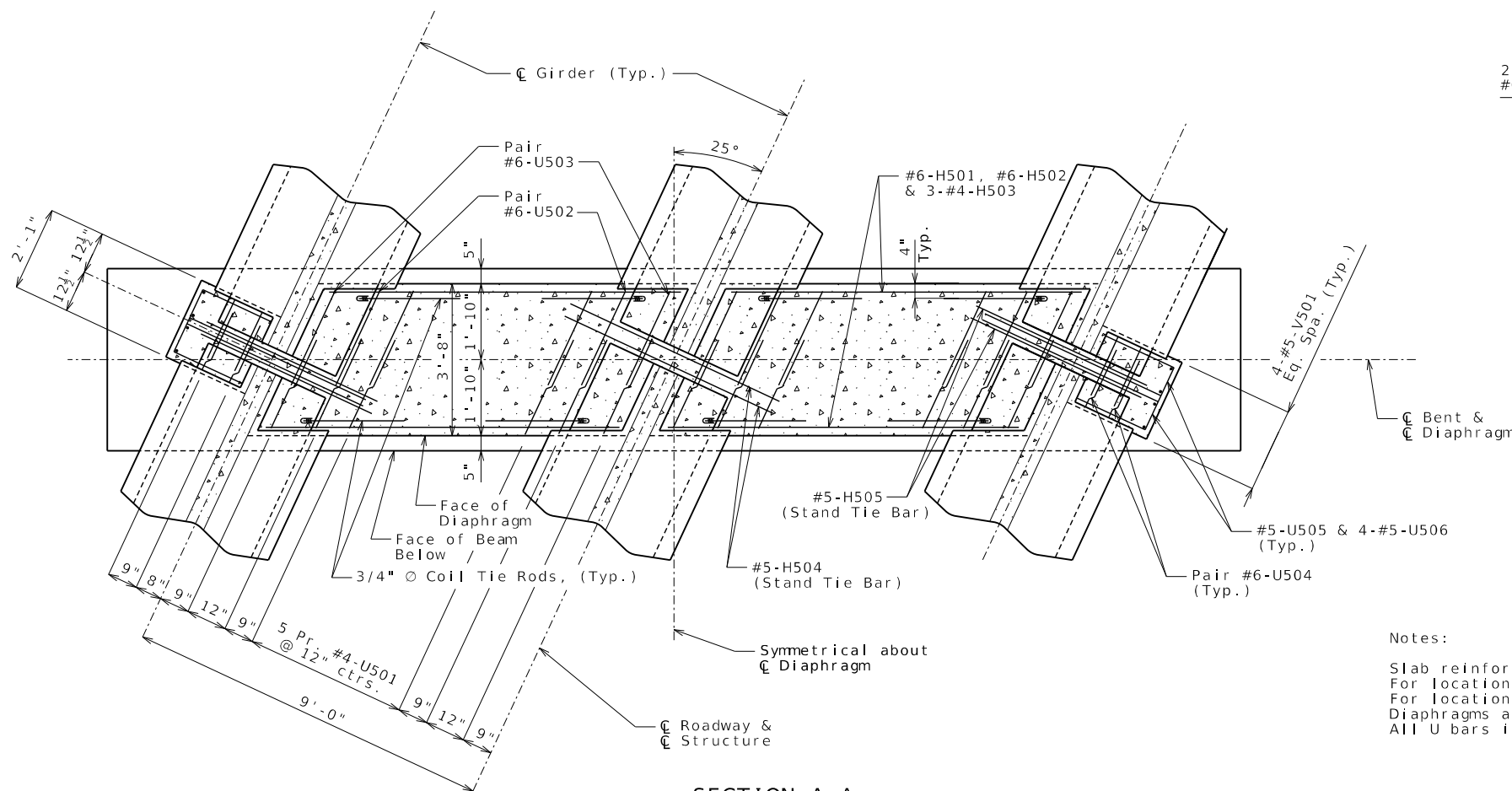
SECTION NEAR INTERMEDIATE BENT NO. 2



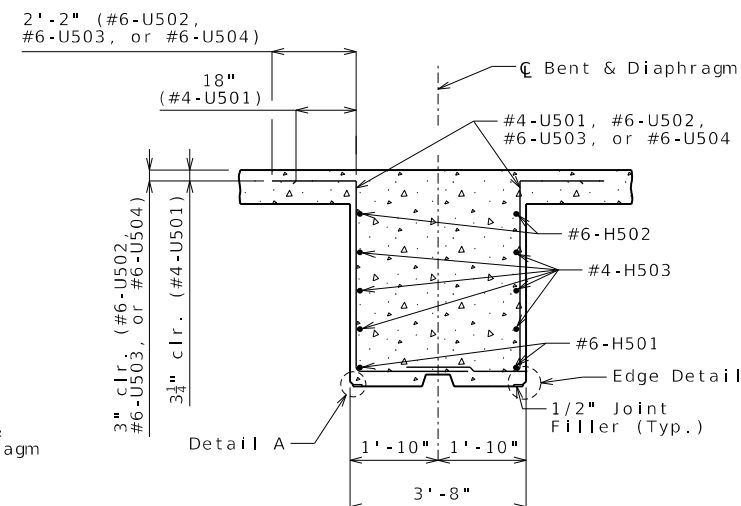
EDGE DETAIL



END DETAIL



SECTION A-A



SECTION B-B

Notes:

Slab reinforcing bars not shown for clarity. For location of strand tie bars, see Sheets No. 14 & 15. For location and details of Coil Tie Rods, see Sheets No. 14 & 15. Diaphragms at intermediate bents shall be built vertical. All U bars in diaphragm are to be placed parallel to C roadway.

DETAILS OF DIAPHRAGM AT INTERMEDIATE BENT NO. 2



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ROUTE A STATE MO  
DISTRICT BR SHEET NO. 16

COUNTY ADAIR  
JOB NO. JNE0140  
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9442

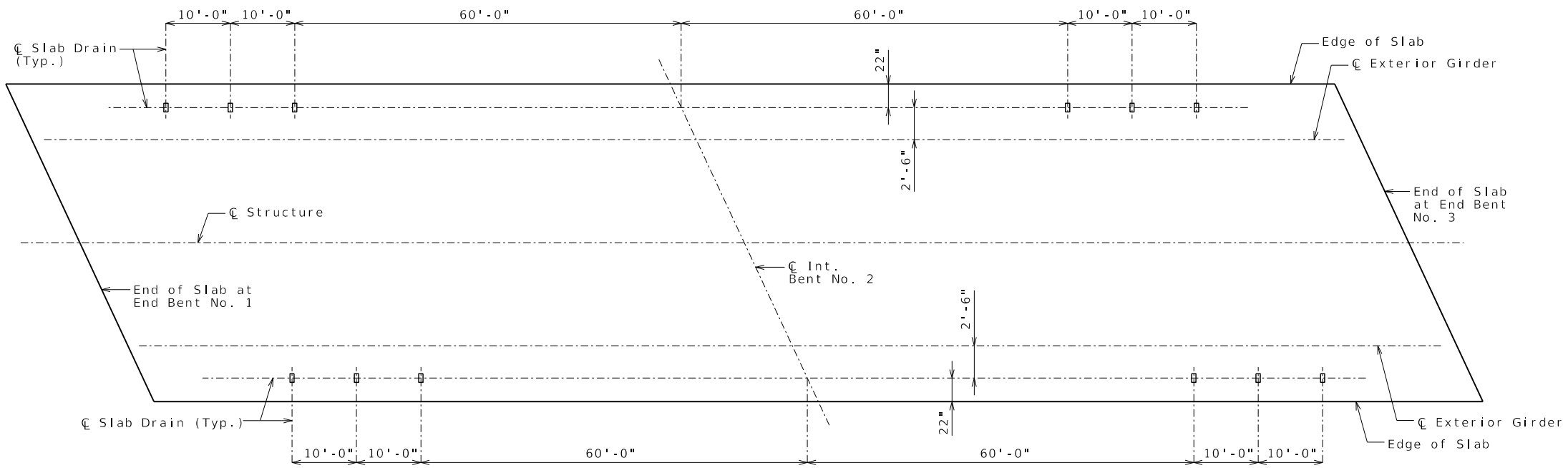
DESCRIPTION	DATE

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9788 N. Ash Ave. Kansas City, Missouri 64117  
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PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS

**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.

Locate drains in slab by dimensions shown in Part Section Near Drain.

Reinforcing steel shall be shifted to clear drains.

The coil inserts and 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"Ø bolts shall be ASTM A307.

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

The coil insert required for the bracket assembly attachment shall be located on the prestressed girder shop drawings.

Coil inserts shall have a concrete pull-out strength (ultimate load) of at least 2,500 pounds in 5,000 psi concrete.

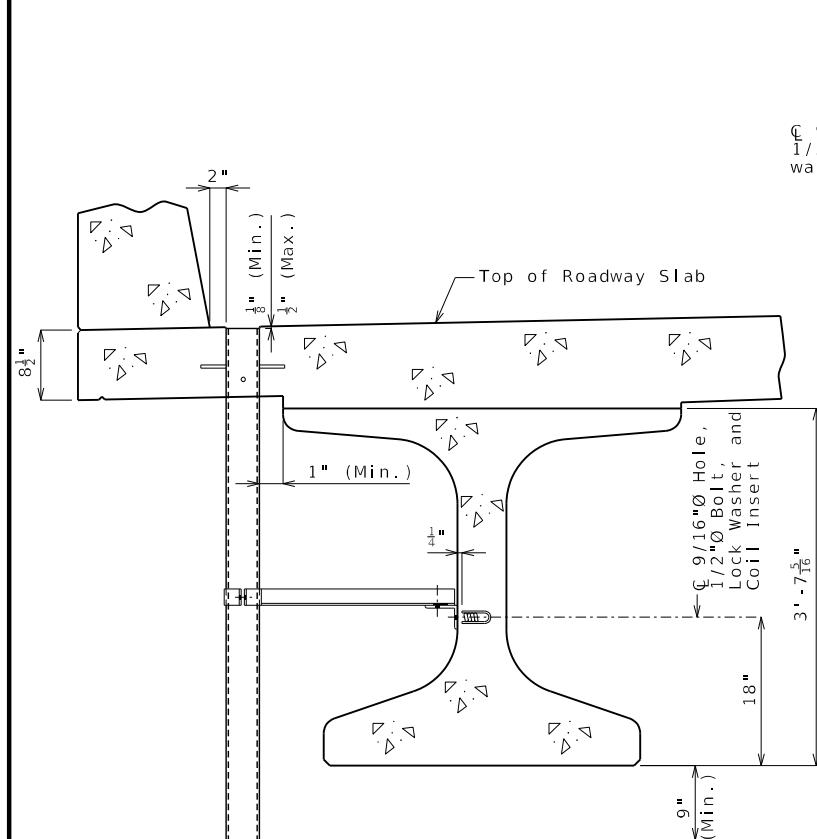
The bolt required to attach the slab drain bracket assembly to the prestressed girder web shall be supplied by the prestressed girder fabricator.

**Notes for Steel Drain:**

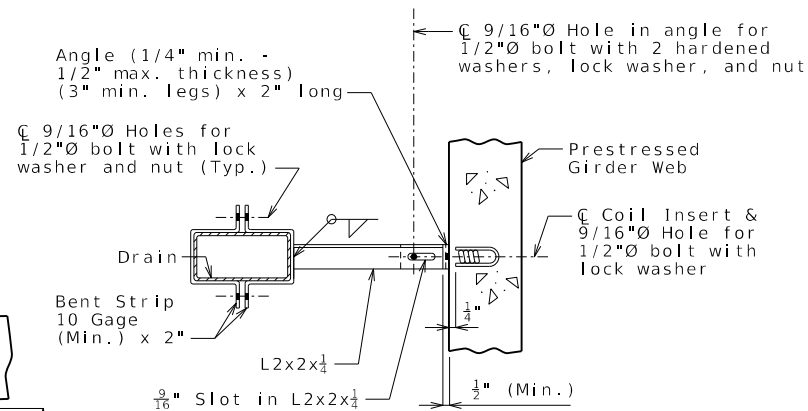
Slab drains may be fabricated of either 1/4" welded sheets of ASTM A709 Grade 36 steel or from 1/4" structural steel tubing ASTM A500 or A501.

Outside dimensions of drains are 8" x 4".

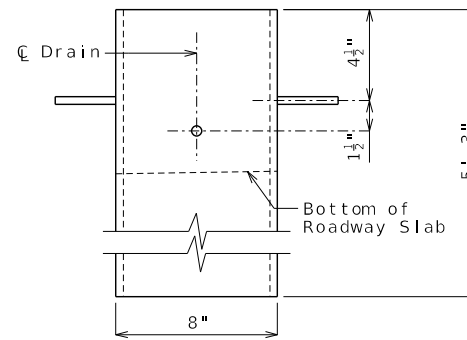
The drains shall be galvanized in accordance with ASTM A123.



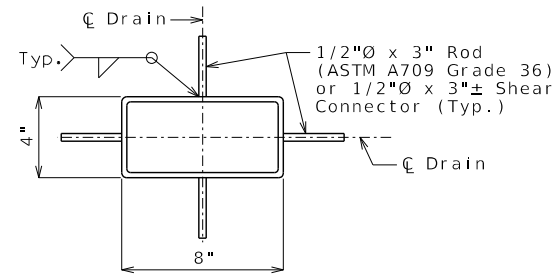
PART SECTION NEAR DRAIN



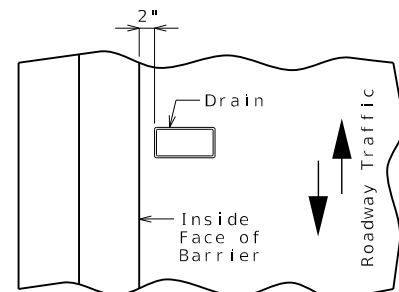
PART SECTION SHOWING BRACKET ASSEMBLY



ELEVATION OF DRAIN

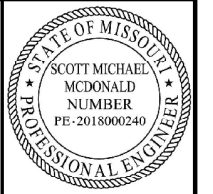


PLAN OF STEEL DRAIN



PART PLAN OF SLAB AT DRAIN

**SLAB DRAINS**



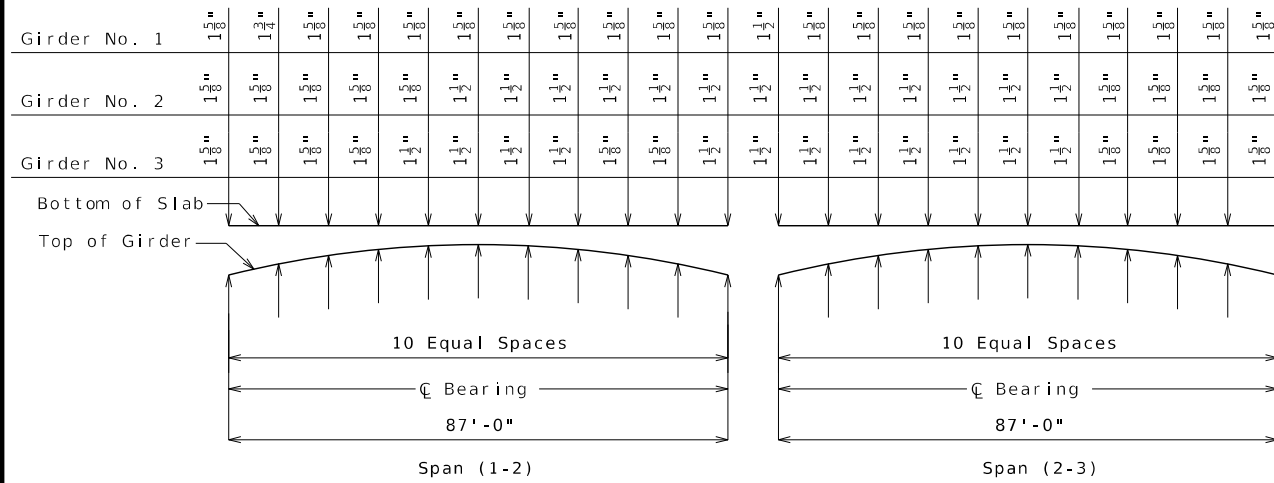
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DATE PREPARED 06/21/2024	
ROUTE A	STATE MO
DISTRICT BR	SHEET NO. 17
COUNTY ADAIR	
JOB NO. JNE0140	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9442	

DESCRIPTION	DATE

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

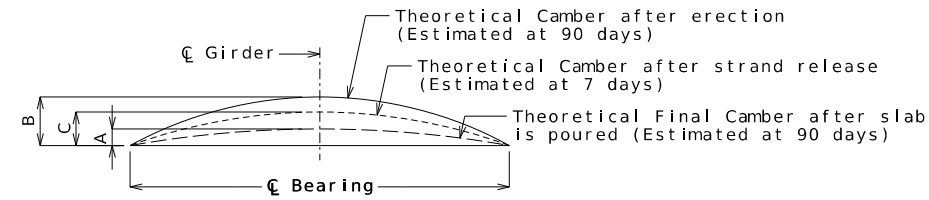
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 816-781-8182 816-781-0643 (FAX)  
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**THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)**

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

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

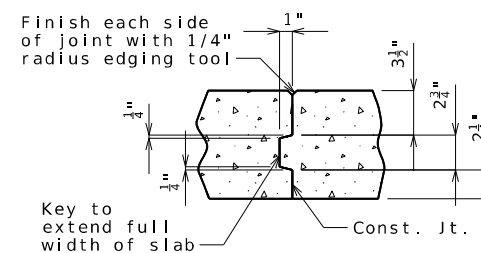


Girder	Span (1-2)			Span (2-3)		
	A	B	C	A	B	C
Exterior	3/4"	2 1/8"	1 1/4"	3/4"	2 1/8"	1 1/4"
Interior	3/4"	2 1/8"	1 1/4"	3/4"	2 1/8"	1 1/4"

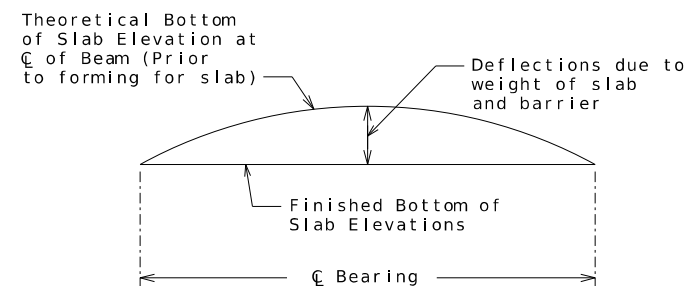
**GIRDER CAMBER DIAGRAM**

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

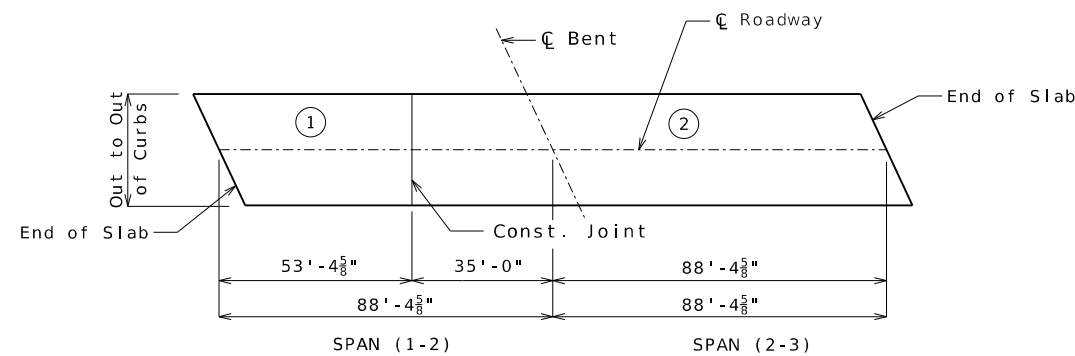
- 0.1 pt. = 0.314 x 0.5 pt.
- 0.2 pt. = 0.593 x 0.5 pt.
- 0.3 pt. = 0.813 x 0.5 pt.
- 0.4 pt. = 0.952 x 0.5 pt.



**SLAB CONSTRUCTION JOINT**



**TYPICAL SLAB ELEVATIONS DIAGRAM**



**SPAN (1-2) SPAN (2-3)**

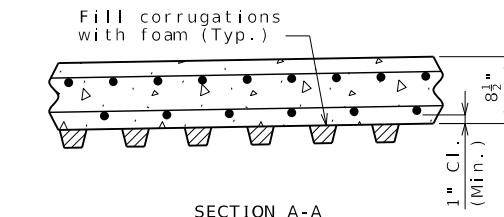
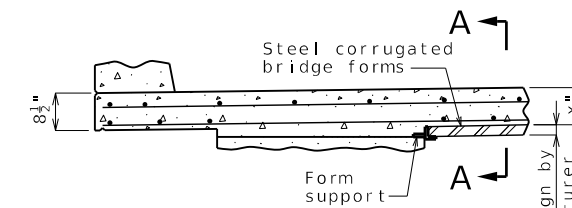
	Sequence of Pours		Min. Rate of Pour Cu. Yds./Hr.
	Direction		
Basic Sequence	1	2	25
	End to 2	1 to End	
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.			
Alternate A Pours	1 + 2 End to End		26

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

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

**SLAB POURING SEQUENCE**

**GIRDER CAMBER DIAGRAM & MISC. SLAB DETAILS**



**SECTION A-A**

**OPTIONAL STAY-IN-PLACE FORM DETAILS**

Stay-In-Place Forms:

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

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

Form sheets shall not rest directly on the top of beam. 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 top of beam. Drilling holes in the beam 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 loading.

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

Girder Number	Span (1-2) (87'-0" C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	851.39	851.46	851.53	851.58	851.61	851.63	851.64	851.62	851.60	851.56	851.51
2	851.57	851.64	851.70	851.75	851.78	851.80	851.80	851.79	851.76	851.71	851.67
3	851.42	851.49	851.55	851.60	851.63	851.64	851.64	851.62	851.59	851.55	851.50
Girder Number	Span (2-3) (87'-0" C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	851.51	851.53	851.54	851.55	851.54	851.51	851.46	851.40	851.32	851.23	851.14
2	851.66	851.68	851.69	851.69	851.68	851.65	851.60	851.54	851.46	851.37	851.27
3	851.50	851.51	851.52	851.52	851.50	851.47	851.42	851.35	851.27	851.18	851.08

Elevations are based on a constant slab thickness of 8 1/2 inches and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier.



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06/21/2024

ROUTE A STATE MO

DISTRICT BR SHEET NO. 18

COUNTY ADAIR

JOB NO. JNE0140

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9442

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL JEFFERSON CITY, MO 65102

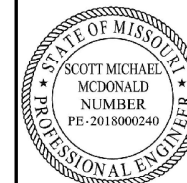
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ROUTE STATE  
A MO

DISTRICT SHEET NO.  
BR 19

COUNTY  
ADAIR

JOB NO.  
JNE0140

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A9442

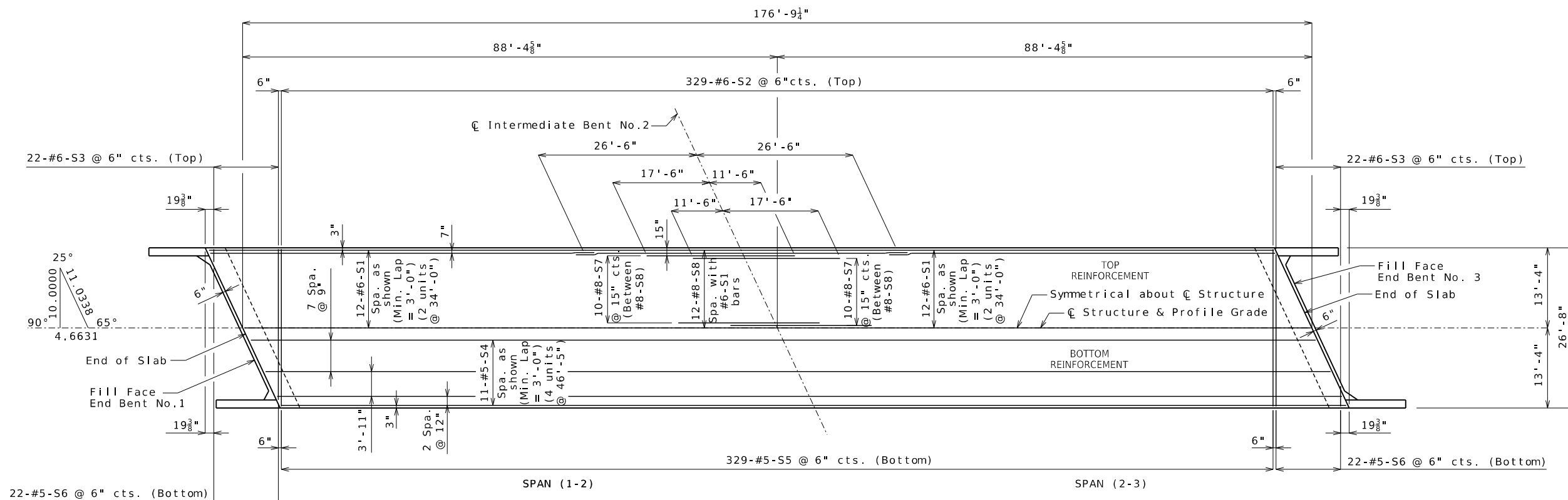
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DATE

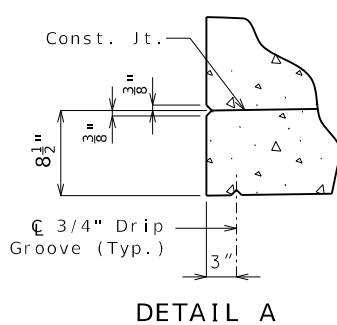
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



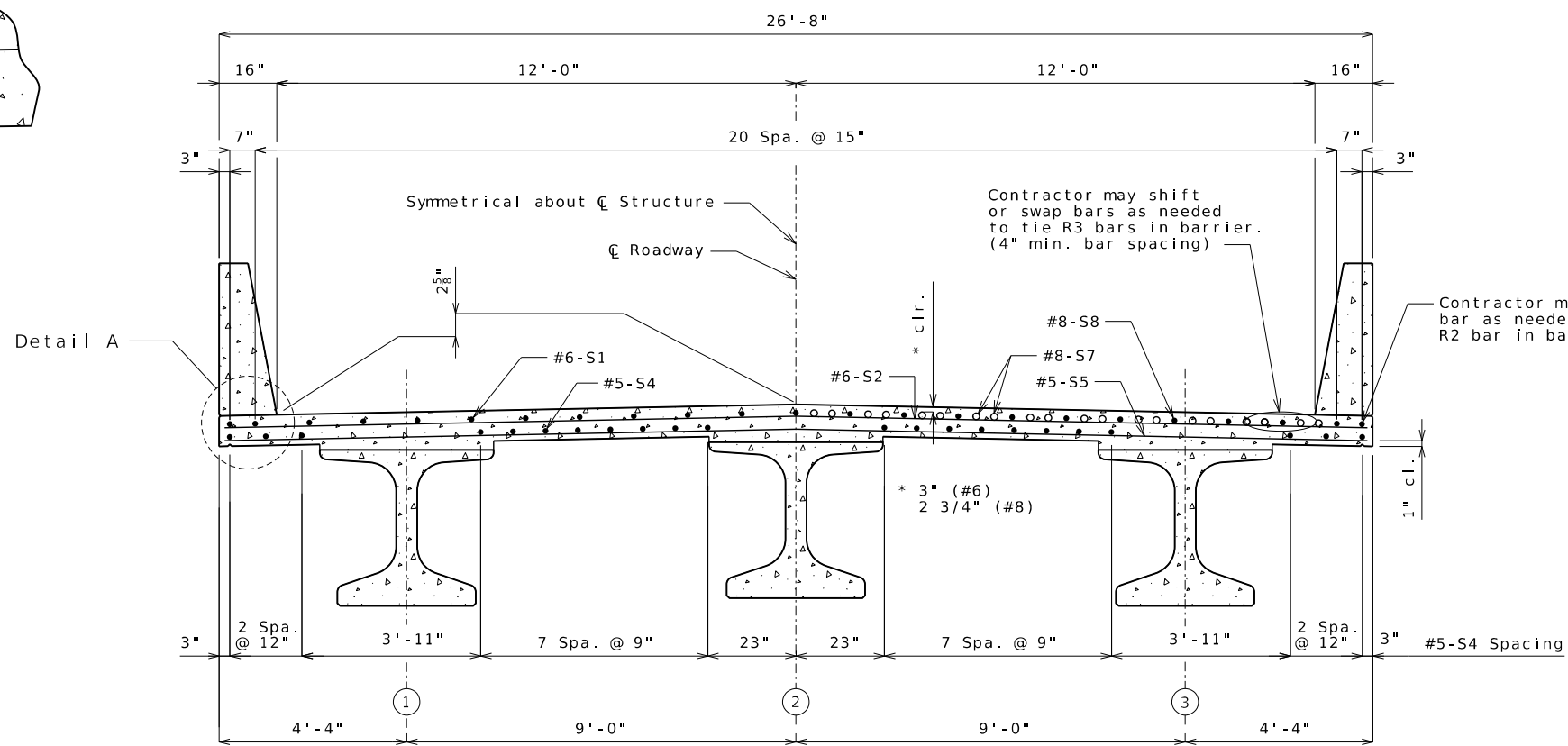
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PLAN OF SLAB SHOWING REINFORCEMENT

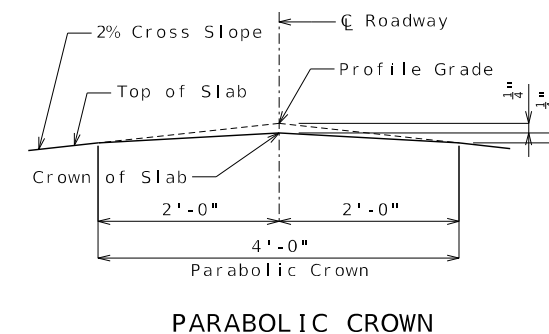


DETAIL A



TYPICAL HALF SECTION NEAR MID SPAN

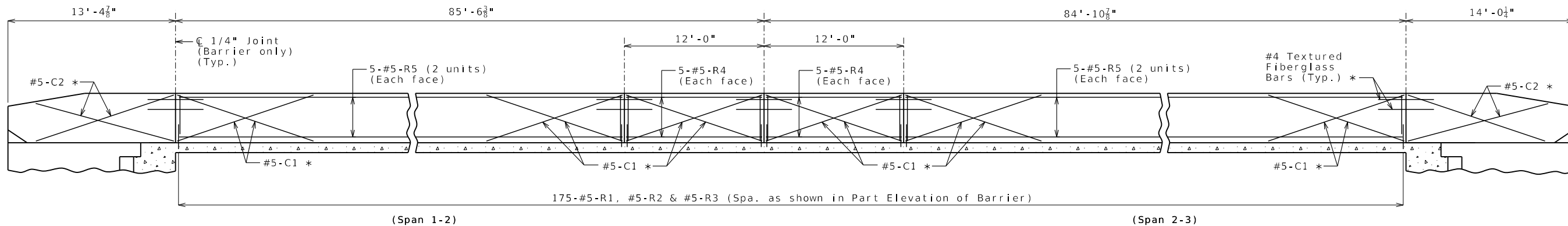
TYPICAL HALF SECTION NEAR INTERMEDIATE BENT



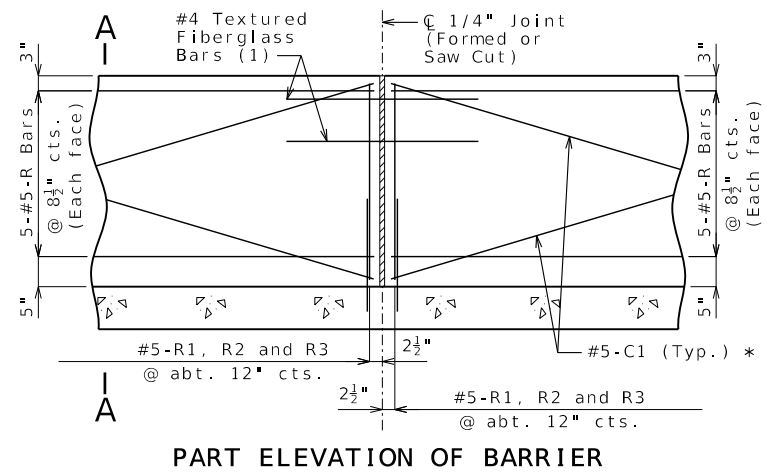
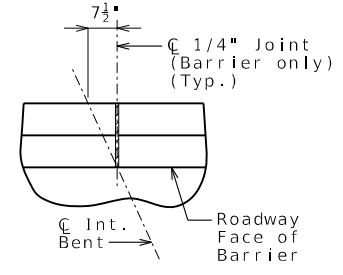
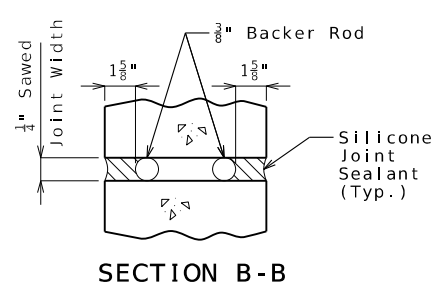
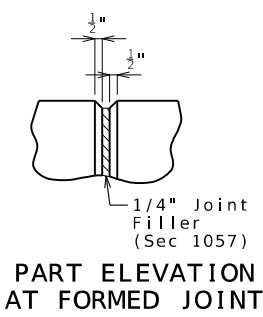
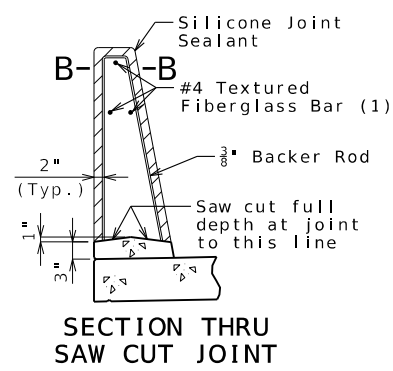
PARABOLIC CROWN

Notes:

For details of barrier, see Sheets No. 20 & 21.  
For details and locations of slab drains, see Sheet No. 17.  
For theoretical haunch, see Sheet No. 18.  
For bottom of slab elevations along beam, see Sheet No. 18.  
For slab pouring sequence, see Sheet No. 18.  
Longitudinal slab dimensions are measured horizontally.

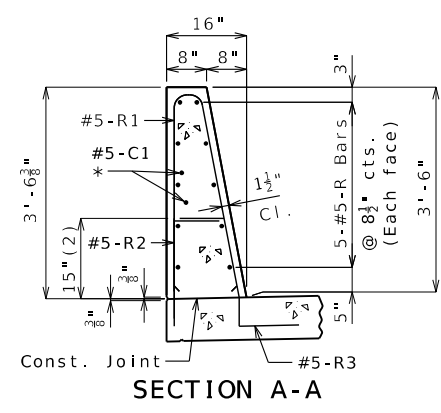


**ELEVATION OF BARRIER**  
(Left barrier shown, right barrier similar)  
Longitudinal dimensions are horizontal.



**PART ELEVATION OF BARRIER**

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

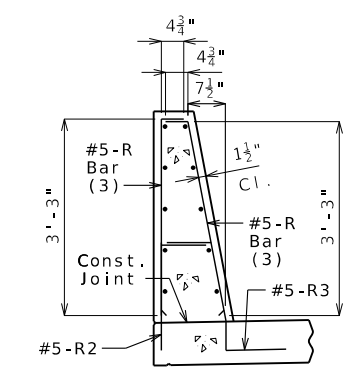


**SECTION A-A**

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

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

(2) To top of bar



**R-BAR PERMISSIBLE ALTERNATE SHAPE**

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

**General Notes:**

\* Slip-formed option only.

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

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

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

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

Concrete in barrier shall be Class B-1.

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

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

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

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

**TYPE D BARRIER**



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED  
06/21/2024

ROUTE A STATE MO  
DISTRICT BR SHEET NO. 20

COUNTY ADAIR

JOB NO. JNE0140

CONTRACT ID.

PROJECT NO.  
BRIDGE NO. A9442

DATE	DESCRIPTION

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

**VEENSTRA & KIMM INC.**  
9788 N Ash Ave. Kansas City, Missouri 64157  
816-781-8182 816-781-0643 (FAX)  
Certificate of Authority No. 200206347



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED  
06/21/2024

ROUTE A MO  
DISTRICT BR SHEET NO. 21

COUNTY ADAIR  
JOB NO. JNE0140  
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9442

DESCRIPTION

DATE

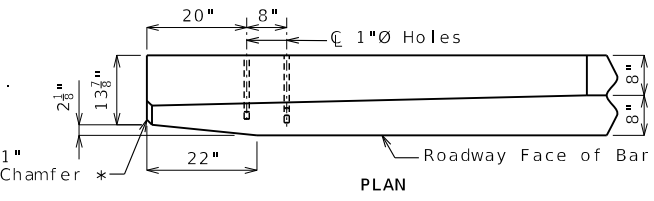
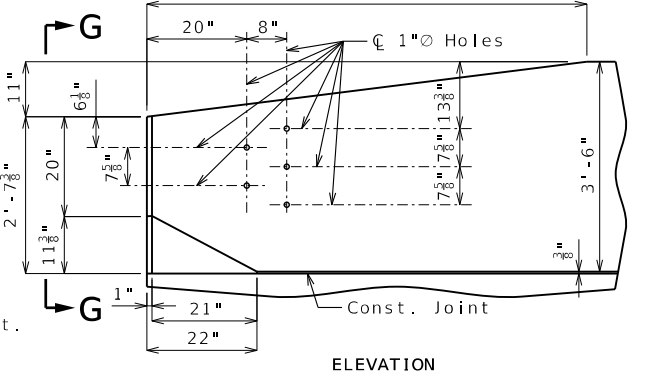
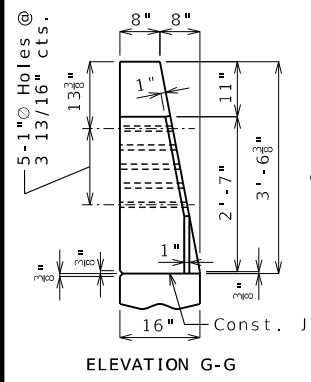
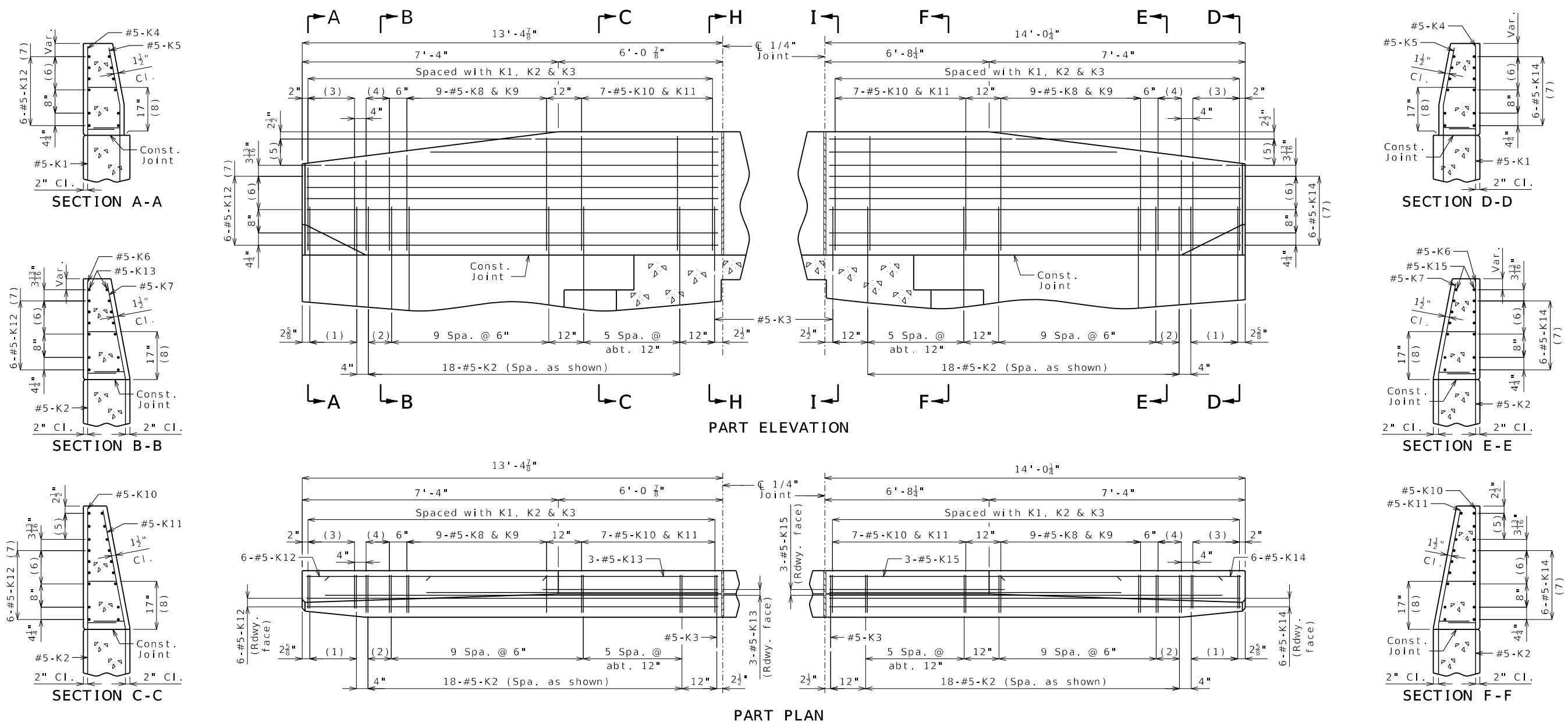
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



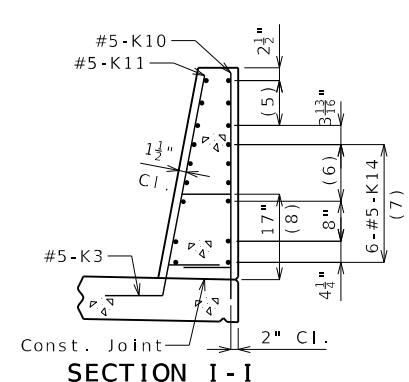
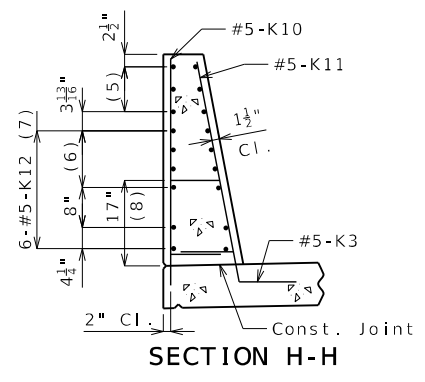
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)



9788 N Ash Ave. Kansas City, Missouri 64157  
816-781-6182 816-781-0643 (FAX)  
Certificate of Authority No. 2002006347



DETAILS OF GUARD RAIL ATTACHMENT



**General Notes:**

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

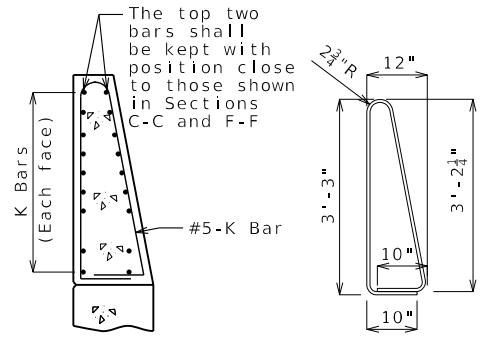
**Reinforcing Steel:**

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

**TYPE D BARRIER AT END BENTS**

(Left barrier shown, right barrier similar)

- (1) 5-#5-K1 @ 4" cts.
- (2) 2 spaces @ 4"
- (3) 5-#5-K4 & K5
- (4) 3-#5-K6 & K7
- (5) 3-#5-K13 or K15 @ 4 1/2" cts., each face
- (6) 3 spaces @ 3 13/16"
- (7) Spaced as shown, each face
- (8) To top of bar



**K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE**

(Other K bars not shown for clarity)

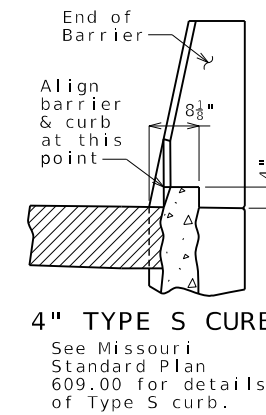
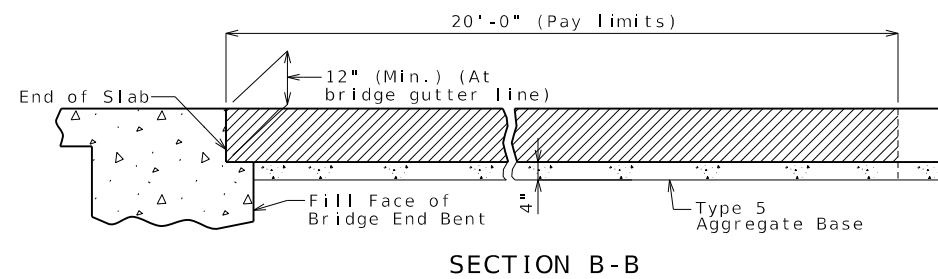
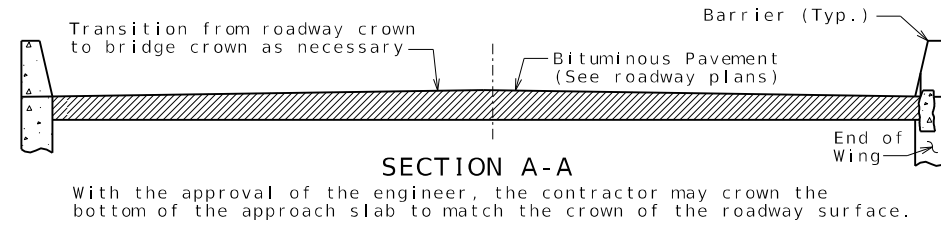
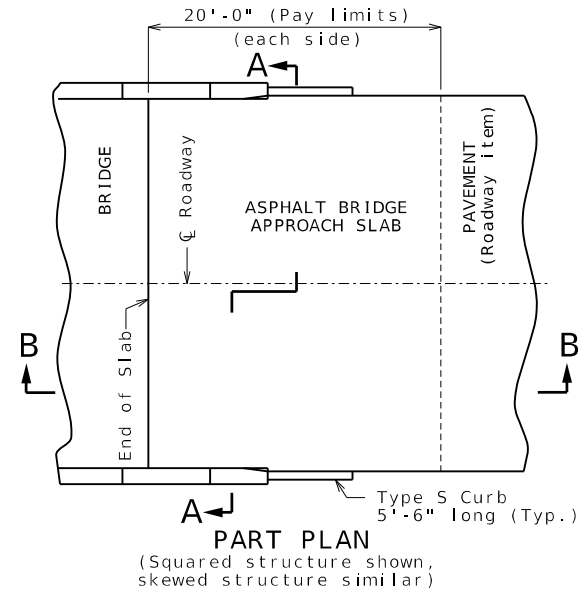
The K10-K11 bar combination may be furnished as one bar as shown, at the contractor's option.

All dimensions are out to out.

Detailed May 2024  
Checked Jun. 2024

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

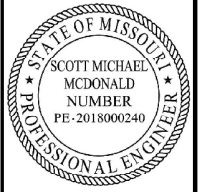
Sheet No. 21 of 28



**General Notes:**  
 Contractor shall construct the asphalt slab. The concrete slab is not allowed.  
 The contractor shall pour and satisfactorily finish the bridge slab before placing the bridge approach slab.

**Notes For Asphalt Slab Only:**

Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) per square yard.  
 Application of tack is required between lifts per Sec 403.



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
06/21/2024	
ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	22
COUNTY	
ADAIR	
JOB NO.	
JNE0140	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A9442	

DATE	DESCRIPTION

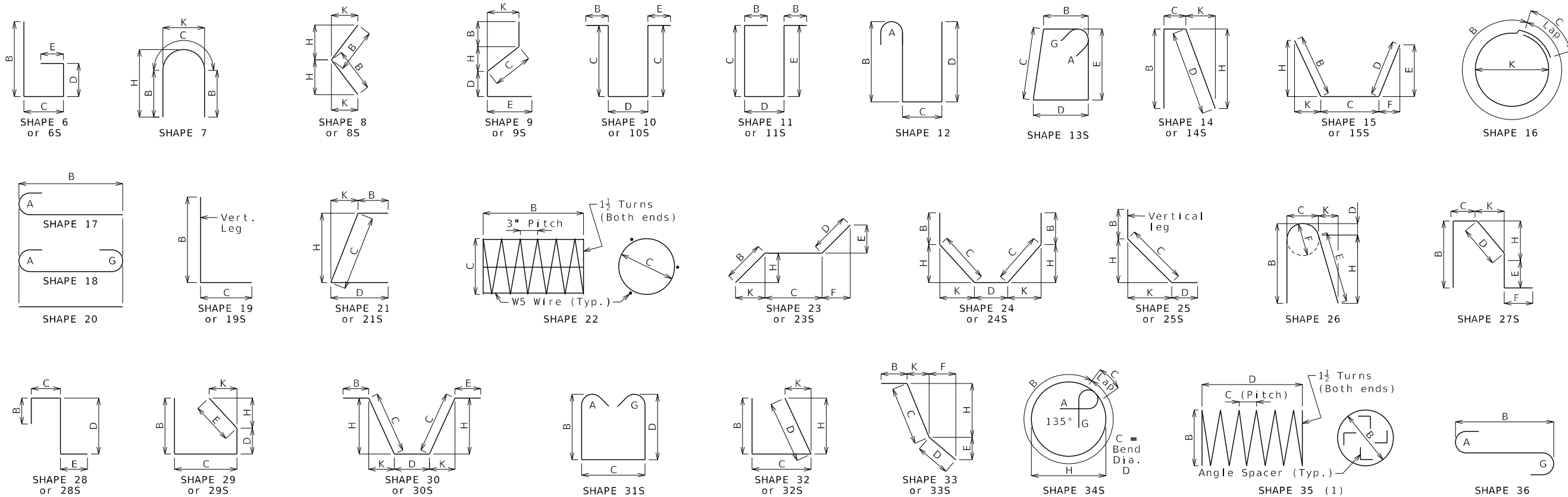
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

**VEENSTRA & KIMM INC.**

9788 N Ash Ave. Kansas City, Missouri 64157  
 816-781-6182 816-781-0643 (FAX)  
 Certificate of Authority No. 2002006347

**ASPHALT SLAB**  
**BRIDGE APPROACH SLAB (MINOR)**  
 Integral end bents shown, non-integral end bent similar.



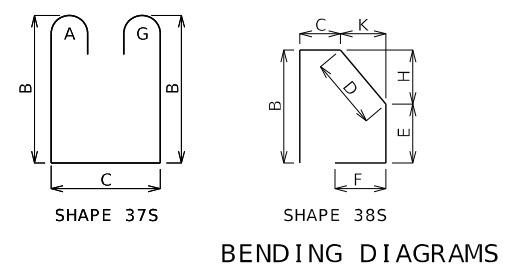
### Finished Bend Diameters D and Hook Dimensions

Size	Case	D	A or G			J
			90°	180°	180°	
#4	1	3"	8"	6"	4"	
#5	1	3 3/4"	10"	7"	5"	
#6	1	4 1/2"	12"	8 1/2"	6"	
#7	2	5 1/2"	14"	9 3/4"	7"	
	3	7"	15"	11 1/2"	8 3/4"	
#8	2	6"	16"	11"	8"	
	3	8"	17"	13 3/4"	10"	
#9	1	9 1/2"	19 1/2"	15 1/2"	11 3/8"	
#10	1	10 3/4"	22"	17 1/2"	13 1/4"	
#11	1	12"	24 1/2"	19 1/2"	14 7/8"	
#14	1	18 1/4"	31 1/4"	27 1/2"	21 5/8"	
#18	1	24"	41 1/2"	36 1/4"	28 1/2"	

Size	Case	D	A or G			H	J
			90°	135°	180°		
#4	2	2"	4 1/2"	4 1/2"	5"	2 3/8"	3"
	3	3"	5"	5 1/4"	6"	3"	4"
#5	2	2 1/2"	5 3/4"	5 3/4"	5 3/4"	3 3/8"	3 3/4"
	3	3 3/4"	6 1/4"	6 1/4"	7"	3 3/8"	5"
#6	1	4 1/2"	12"	7 3/4"	8 1/4"	4 3/8"	6"

Applicable for all grades of steel.  
Case 1 applies to all reinforcement. Case 2 applies to all reinforcement except for galvanized bars. Case 3 applies to galvanized bars only.



All dimensions are out to out. (1) Shall be a deformed or plain spiral bar or wire.

Shapes ending with an S shall be bent in accordance with stirrup pin bend shapes.

Unless otherwise noted, finished bending diameter D is the same for all bends of a shape.

Four angle or channel spacers are required for each column spiral. Spacers are to be placed on inside of spirals. Length and weight of column spirals do not include splices or spacers.

### Reinforcing Steel Totals (Pounds)

Size	Substructure		Superstructure			Entire Bridge		
	Plain	Epoxy	Plain	Epoxy	Barrier	Slip Form	Plain	Epoxy
W5	0	0	0	0	0	0	0	0
4	667	0	0	956	0	0	667	956
5	0	0	0	13044	10645	388	0	24077
6	2069	0	0	24984	0	0	2069	24984
7	0	0	0	1538	0	0	0	1538
8	2392	0	0	7512	0	0	2392	7512
9	1397	0	0	0	0	0	1397	0
10	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0
<b>By Type</b>	<b>6525</b>	<b>0</b>	<b>0</b>	<b>48034</b>	<b>10645</b>	<b>388</b>	<b>6525</b>	<b>59067</b>

All superstructure reinforcing steel shall be epoxy coated unless otherwise specified.

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 06/21/2024

ROUTE: A STATE: MO

DISTRICT: BR SHEET NO.: 23

COUNTY: ADAIR

JOB NO.: JNE0140

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9442

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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

**VEENSTRA & KIMM INC.**

9788 N Ash Ave. Kansas City, Missouri 64157  
816-781-6182 816-781-0643 (FAX)  
Certificate of Authority No. 2002006347

## BENDING DIAGRAMS AND REINFORCING STEEL TOTALS









## BORING LOG NO. B-21

PROJECT: MoDOT FARM Bridges Project		CLIENT: Missouri Department of Transportation Hannibal, Missouri										
SITE: Project J2S3318 - Bridge T0885 Adair County, MO												
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (in.)	FIELD TEST RESULTS	N <sub>c</sub>	POCKET PENETROMETER (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS
		Northing: 1635837.041 Easting: 1660785.155 Approximate Surface Elev.: 843.5 (Ft.) +/-										LL-PL-PI
		DEPTH ELEVATION (Ft.)										
		17.0	843.5+/-									
		<b>ROOT ZONE</b> , (Approximately 6 inches)										
		<b>LEAN CLAY (CL)</b> , with sand, trace organics, brown and grayish brown, medium stiff to stiff										
		5.0	838.5+/-			1	14	3-3-4 N=7	11	0.5	21.0	
						2	15	4-4-4 N=8	12	0.75	21.8	
		<b>SANDY LEAN CLAY (CL)</b> , brown and grayish brown, very soft to soft										
						3	18	0-0-0 N=0	0	0.0	24.9	
						4	11	0-1-2 N=3	5	0.0	24.7	34-16-18
		with sand seams, gray										
						5	11	0-0-1 N=1	2	0.0	24.0	
		17.0	826.5+/-			6	18	2-1-1 N=2	3		23.7	
		<b>POORLY GRADED SAND (SP)</b> , trace clay, fine to medium grained, gray, very loose to medium dense										
						7	11	0-0-1 N=1	2		21.3	
						8	10	7-7-8 N=15	23		15.4	
						9	14	5-7-10 N=17	26		15.1	
		37.0	806.5+/-			10	15	4-6-6 N=12	19	1.75	26.4	61-21-40
		<b>SANDY FAT CLAY (CH)</b> , trace gravel, gray, stiff										
						11	18	7-5-11 N=16	25	1.75	22.2	
		42.0	801.5+/-			12	18	6-7-10 N=17	26	2.0	21.8	
		<b>SANDY LEAN CLAY (CL)</b> , trace gravel, gray, very stiff										
		52.0	791.5+/-									

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

<p><b>Advancement Method:</b> 0-20 feet: Hollow-stem augers 20-100 feet: Mud rotary</p>	<p>See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).</p>	<p><b>Notes:</b> 92.5% Hammer efficiency</p>
<p><b>Abandonment Method:</b> Boring backfilled with bentonite grout upon completion</p>	<p>See Supporting Information for explanation of symbols and abbreviations. Elevations provided by others</p>	
<p><b>WATER LEVEL OBSERVATIONS</b></p> <p>▽ 9 feet while drilling</p>	<p><b>Terracon</b> 11600 Lilburn Park Rd Saint Louis, MO</p>	<p>Boring Started: 07-15-2020 Boring Completed: 07-15-2020</p> <p>Drill Rig: DR840 Driller: DH</p> <p>Project No.: 1520P078</p>

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. MODOT\_CUSTOM\_LOG\_1520P078 MODOT FARM BRIDGE - T0885.GPJ TERRACON\_DATATEMPLATE.GDT 8/25/20

## BORING LOG NO. B-21

PROJECT: MoDOT FARM Bridges Project		CLIENT: Missouri Department of Transportation Hannibal, Missouri										
SITE: Project J2S3318 - Bridge T0885 Adair County, MO												
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (in.)	FIELD TEST RESULTS	N <sub>c</sub>	POCKET PENETROMETER (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS
		Northing: 1635837.041 Easting: 1660785.155 Approximate Surface Elev.: 843.5 (Ft.) +/-										LL-PL-PI
		DEPTH ELEVATION (Ft.)										
		100.0	743.5+/-									
		<b>SANDY LEAN CLAY (CL)</b> , trace gravel, gray, stiff to very stiff										
						13	18	6-7-9 N=16	25	2.0	23.3	
		with sand seams										
						14	18	8-8-11 N=19	29	2.0	21.5	
						15	18	5-7-8 N=15	23	1.5	23.4	
						16	18	7-8-9 N=17	26	1.75	18.8	
						17	18	9-9-11 N=20	31	2.0	19.5	
						18	18	7-10-9 N=19	29	1.75	18.9	
						19	18	7-9-11 N=20	31	1.75	18.1	
						20	18	6-10-13 N=23	35	2.0	17.6	
						21	18	6-11-12 N=23	35	2.0	16.6	
						22	18	8-13-13 N=26	40	2.25	18.6	

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

<p><b>Advancement Method:</b> 0-20 feet: Hollow-stem augers 20-100 feet: Mud rotary</p>	<p>See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).</p>	<p><b>Notes:</b> 92.5% Hammer efficiency</p>
<p><b>Abandonment Method:</b> Boring backfilled with bentonite grout upon completion</p>	<p>See Supporting Information for explanation of symbols and abbreviations. Elevations provided by others</p>	
<p><b>WATER LEVEL OBSERVATIONS</b></p> <p>▽ 9 feet while drilling</p>	<p><b>Terracon</b> 11600 Lilburn Park Rd Saint Louis, MO</p>	<p>Boring Started: 07-15-2020 Boring Completed: 07-15-2020</p> <p>Drill Rig: DR840 Driller: DH</p> <p>Project No.: 1520P078</p>

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. MODOT\_CUSTOM\_LOG\_1520P078 MODOT FARM BRIDGE - T0885.GPJ TERRACON\_DATATEMPLATE.GDT 8/25/20

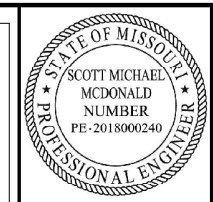
### BORING DATA

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

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

Sheet No. 27 of 28

Detailed Jun. 2024  
Checked Jun. 2024



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED  
06/21/2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	27

COUNTY  
ADAIR

JOB NO.  
JNE0140

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A9442

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

9788 N Ash Ave. Kansas City, Missouri 64157  
816-781-8182 816-781-0643 (FAX)  
Certificate of Authority No. 2002006347

<b>BORING LOG NO. B-22</b>										Page 1 of 2		
<b>PROJECT: MoDOT FARM Bridges Project</b>					<b>CLIENT: Missouri Department of Transportation Hannibal, Missouri</b>							
<b>SITE: Project J2S3318 - Bridge T0885 Adair County, MO</b>												
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (in.)	FIELD TEST RESULTS	N <sub>60</sub>	POCKET PENETROMETER (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS
		Northing: 1635810.351 Easting: 1661011.86 Approximate Surface Elev.: 845.0187 (Ft.) +/- DEPTH ELEVATION (Ft.)										LL-PL-PI
1		ROOT ZONE, (Approximately 6 inches)	844.5+/-									
2		LEAN CLAY (CL), with sand, trace organics, grayish brown, medium stiff				1	16	4-3-4 N=7	11	1.0	21.0	
						2	15	4-3-3 N=6	9	1.0	23.9	
			6.0			3	18	2-4-4 N=8	12	0.75	22.6	
5		SANDY LEAN CLAY (CL), grayish brown and gray, stiff	839+/-			4	18	4-4-5 N=9	14	1.0	21.8	
						5	12	0-0-0 N=0	0	0.0	38.0	53-21-32
3		FAT CLAY (CH), with sand, grayish brown and gray, very soft	833+/-			6	18	0-1-2 N=3	5	0.25	19.4	
						7	9	2-2-1 N=3	5	0.25	19.1	
			12.0			8	28	2-2-3 N=5	8	0.5	31.8	
						9	18	0-0-1 N=1	2	0.25	25.0	
			17.0			10	15	0-0-2 N=2	3	0.25	21.4	
4		POORLY GRADED SAND (SP), with clay seams, fine to coarse grained, gray, very loose	828+/-			11	18	0-0-0 N=0	0	0.5	12.2	56-24-32
						12	18	6-9-7 N=16	25	2.0	21.5	
			27.0									
			42.0									
2		SANDY LEAN CLAY (CL), gray, very soft to medium stiff	818+/-									
			47.0									
3		FAT CLAY (CH), with sand, very soft	803+/-									
			47.0									
5		SANDY LEAN CLAY (CL), trace gravel, gray, very stiff	798+/-									
			52.0									
			793+/-									

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

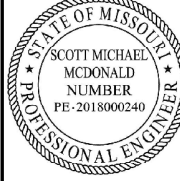
Advancement Method: 0-20 feet: Hollow-stem augers 20-100 feet: Mud rotary	See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).	Notes: 92.5% Hammer efficiency
Abandonment Method: Boring backfilled with bentonite grout upon completion	See Supporting Information for explanation of symbols and abbreviations. Elevations provided by others	
<b>WATER LEVEL OBSERVATIONS</b> 13 feet while drilling		Boring Started: 07-14-2020 Boring Completed: 07-14-2020 Drill Rig: DR840 Driller: DH Project No.: 1520P078

<b>BORING LOG NO. B-22</b>										Page 2 of 2		
<b>PROJECT: MoDOT FARM Bridges Project</b>					<b>CLIENT: Missouri Department of Transportation Hannibal, Missouri</b>							
<b>SITE: Project J2S3318 - Bridge T0885 Adair County, MO</b>												
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (in.)	FIELD TEST RESULTS	N <sub>60</sub>	POCKET PENETROMETER (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS
		Northing: 1635810.351 Easting: 1661011.86 Approximate Surface Elev.: 845.0187 (Ft.) +/- DEPTH ELEVATION (Ft.)										LL-PL-PI
		SANDY LEAN CLAY (CL), trace gravel, gray, very stiff				13	18	5-7-9 N=16	25	2.0	23.8	
			55			14	18	9-11-11 N=22	34	2.0	17.2	
			60			15	18	6-8-9 N=17	26	2.0	22.3	
			65			16	18	5-7-19 N=26	40	2.0	21.7	
			70			17	18	7-7-9 N=16	25	2.0	20.2	
			75			18	5	8-9-11 N=20	31	2.0	19.2	
			80			19	18	12-28-37 N=65	100	0.25	12.9	
			85			20	18	6-9-10 N=19	29	2.0	18.8	
			90			21	18	8-10-14 N=24	37	2.0	17.4	
			95			22	18	8-11-15 N=26	40	2.0	19.0	
			100.0									
		Boring Terminated at 100 Feet	745+/-									

Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic

Advancement Method: 0-20 feet: Hollow-stem augers 20-100 feet: Mud rotary	See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).	Notes: 92.5% Hammer efficiency
Abandonment Method: Boring backfilled with bentonite grout upon completion	See Supporting Information for explanation of symbols and abbreviations. Elevations provided by others	
<b>WATER LEVEL OBSERVATIONS</b> 13 feet while drilling		Boring Started: 07-14-2020 Boring Completed: 07-14-2020 Drill Rig: DR840 Driller: DH Project No.: 1520P078

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. MODOT\_CUSTOM\_LOG\_1520P078 MODOT FARM BRIDGE - T0885.GPJ TERRACON DATATEMPLATE.GDT 6/25/20



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 06/21/2024

ROUTE: A STATE: MO  
DISTRICT: BR SHEET NO.: 28

COUNTY: ADAIR  
JOB NO.: JNE0140  
CONTRACT ID.:


PROJECT NO.:

BRIDGE NO.: A9442


DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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



9788 N Ash Ave. Kansas City, Missouri 64157  
816-781-6182 816-781-0643 (FAX)  
Certificate of Authority No. 2002006347

**BORING DATA**

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

Detailed Jun. 2024  
Checked Jun. 2024

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

Sheet No. 28 of 28