MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

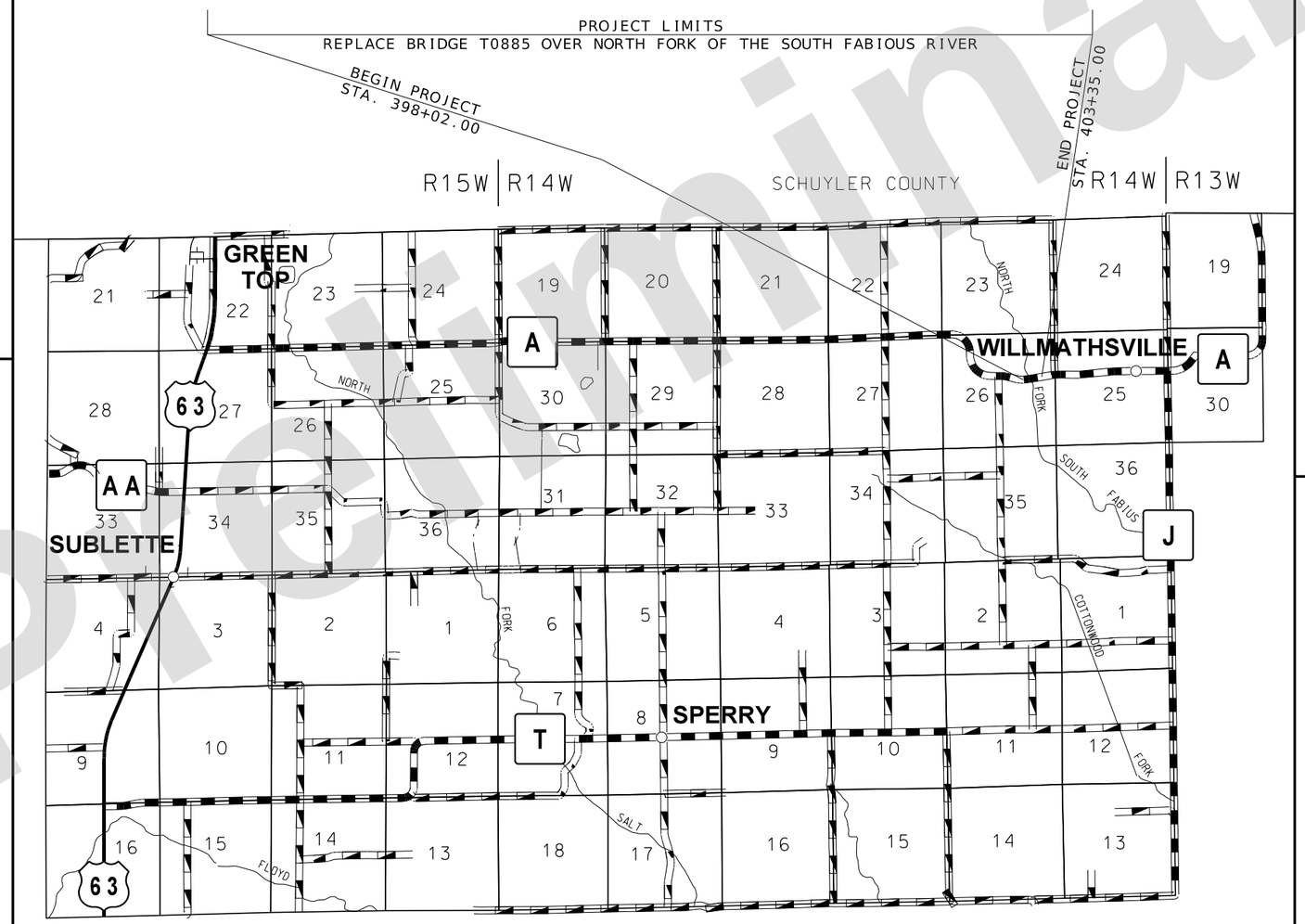
PLANS FOR PROPOSED STATE HIGHWAY

ADAIR COUNTY

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

KEY MAP
LOCATION OF ADAIR COUNTY



CONVENTIONAL SYMBOLS

(USED IN PLANS)

	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
GUARD CABLE		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
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	SAN	
FIRE HYDRANT	HYD	
WATER VALVE	WV	
WATER METER	WM	
DROP INLET	D	
DITCH BLOCK		
GROUND MOUNTED SIGN	SIGN	
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL	PED	
FENCE		
CHAIN LINK	-V-	
WOVEN WIRE	-X-	
GATE POST		
BENCHMARK	BM	

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.

INDEX OF SHEETS

LENGTH OF PROJECT

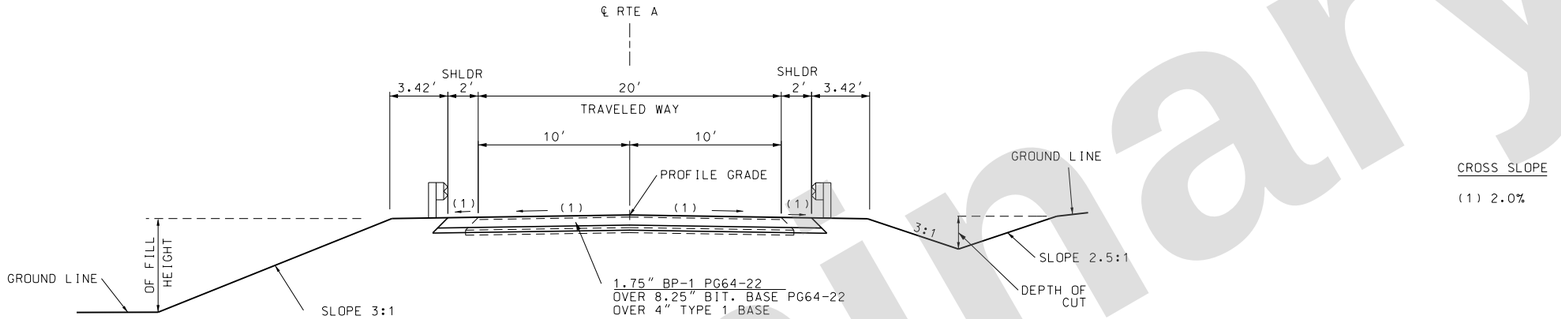
BEGINNING OF PROJECT	STA.	398+02.00
END OF PROJECT	STA.	403+35.00
APPARENT LENGTH		533.00 FEET
EQUATIONS AND EXCEPTIONS:		
TOTAL CORRECTIONS		0 FEET
NET LENGTH OF PROJECT		533.00 FEET
STATE LENGTH		0.101 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES		0.90 ACRES

DATE PREPARED: 6/4/2024
ROUTE: A | STATE: MO
DISTRICT: NE | SHEET NO.: 1
COUNTY: ADAIR
JOB NO.: JNE0140
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION | DATE

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

TITLE SHEET

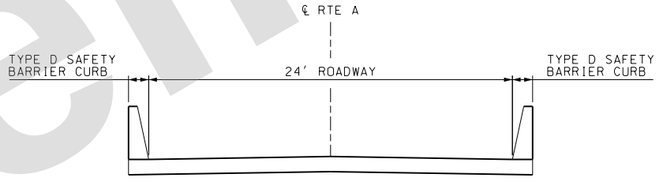


CROSS SLOPE

(1) 2.0%

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

* 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)



PROPOSED TYPICAL SECTION BRIDGE #A9942
STA. 399+35.07 TO STA. 401+12.95

DATE PREPARED
6/4/2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
NE	2

COUNTY
ADAIR

JOB NO.
JNE0140

CONTRACT ID.

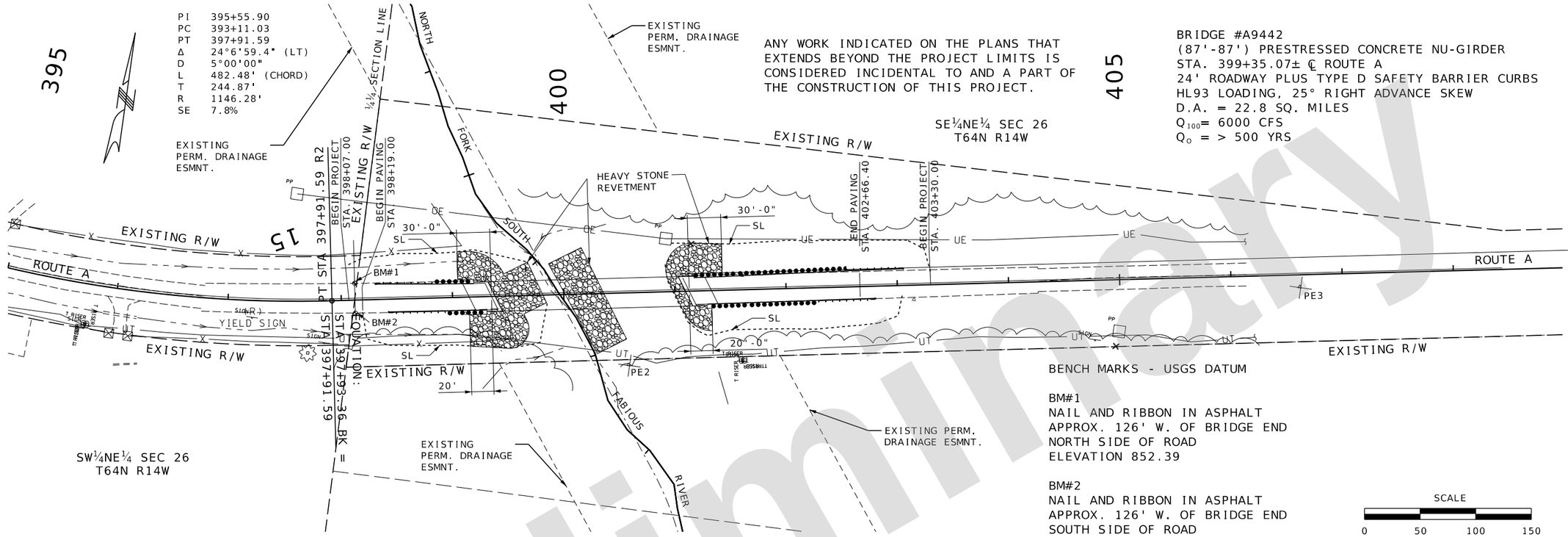
PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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 6/5/2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
NE	4

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

DESCRIPTION | DATE

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

PLAN/PROFILE SHEET
SHEET 1 OF 1

004_PP_01_JNE0140_I50.dgn 8:36:58 AM 6/5/2024

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 MULTIPY 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	I8 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

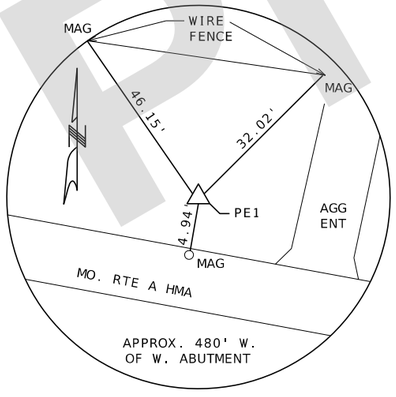
EXAMPLE: CONTROL POINT #___
N 1536182.2077 X 0.99993857 = N 1536087.839
E 1545732.8741 X 0.99993857 = E 1545637.920

LINEAR UNIT CONVERSION

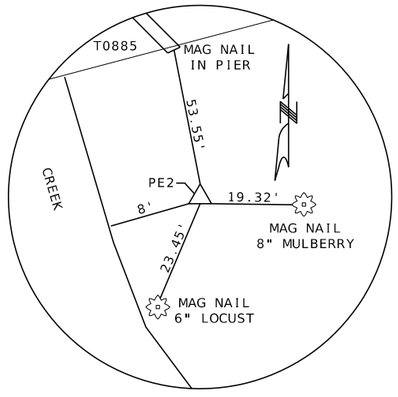
1 METER = 3.280833333 US SURVEY FEET (USFT)

COORDINATE POINT LISTING

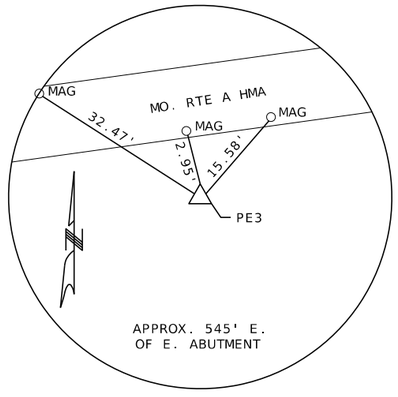
SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)	DESCRIPTION	GPK POINT ID
PROJECT CONTROL POINTS								
	394+57.86	RTE A	-16.12	1635895.4309	1660444.6428	852.16	PE1	
4	400+57.45	RTE A	65.34	1635865.1830	1661049.9540	842.92	PE2	
4	406+62.54	RTE A	11.62	1636017.8594	1661637.9261	863.13	PE3	
ALIGNMENTS								
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

DATE PREPARED
6/4/2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
NE	5

COUNTY
ADAIR

JOB NO.
JNE0140

CONTRACT ID.

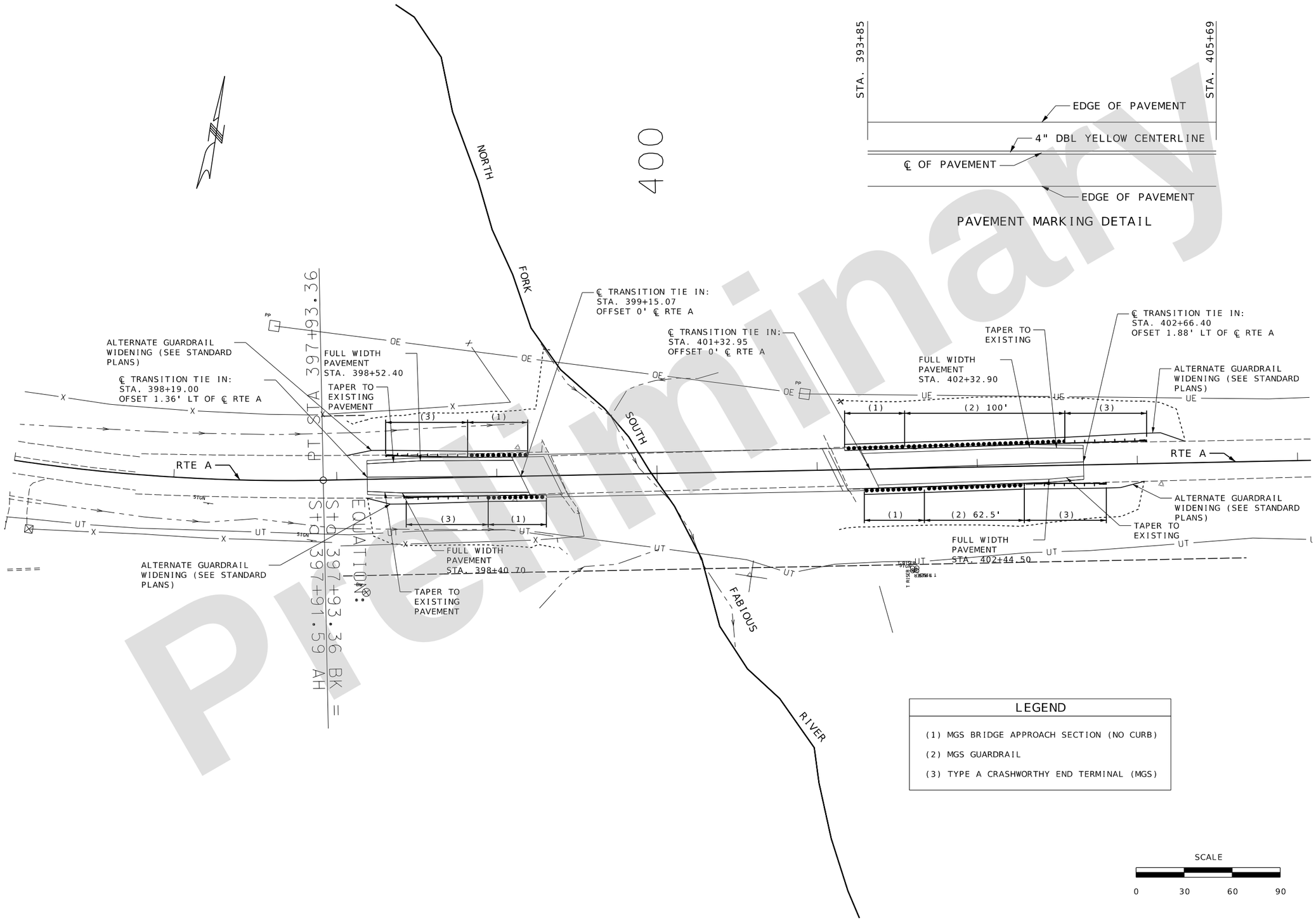
PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

COORDINATE/REFERENCE SHEET
SHEET 1 OF 1



DATE PREPARED 6/4/2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
NE	6

COUNTY ADAIR

JOB NO. JNE0140

CONTRACT ID.

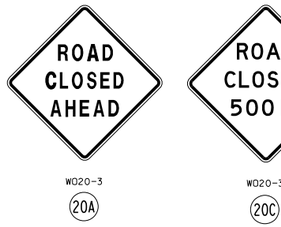
PROJECT NO.

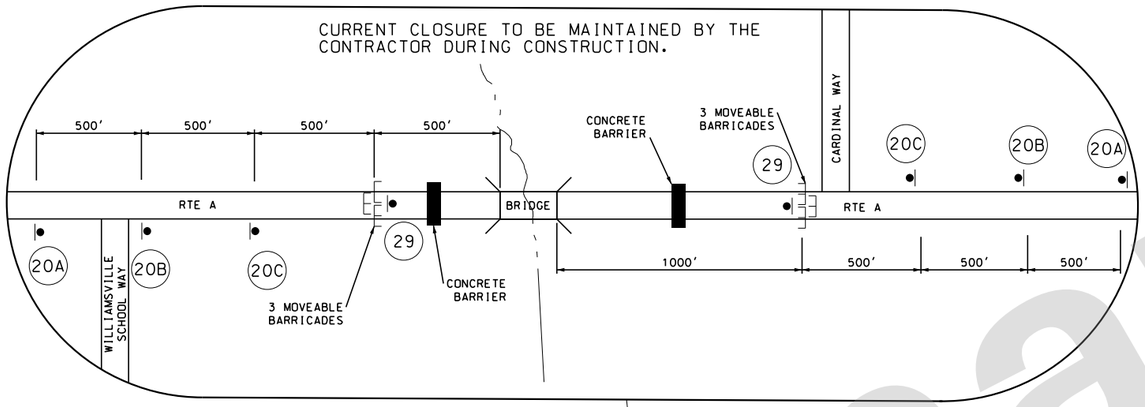
BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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





NOTES:

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

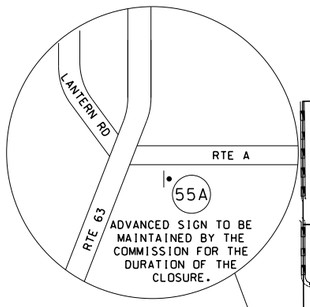
THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING SIGNS, BARRICADES AND CONCRETE BARRIER ADJACENT TO THE BRIDGE DURING BRIDGE REMOVAL ACTIVITIES.

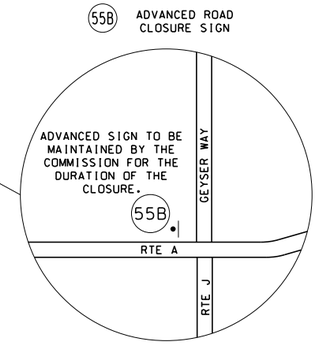
ADVANCED ROAD CLOSURE SIGNS WILL BE MAINTAIN BY THE COMMISSION.

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

TRAFFIC CONTROL LEGEND

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





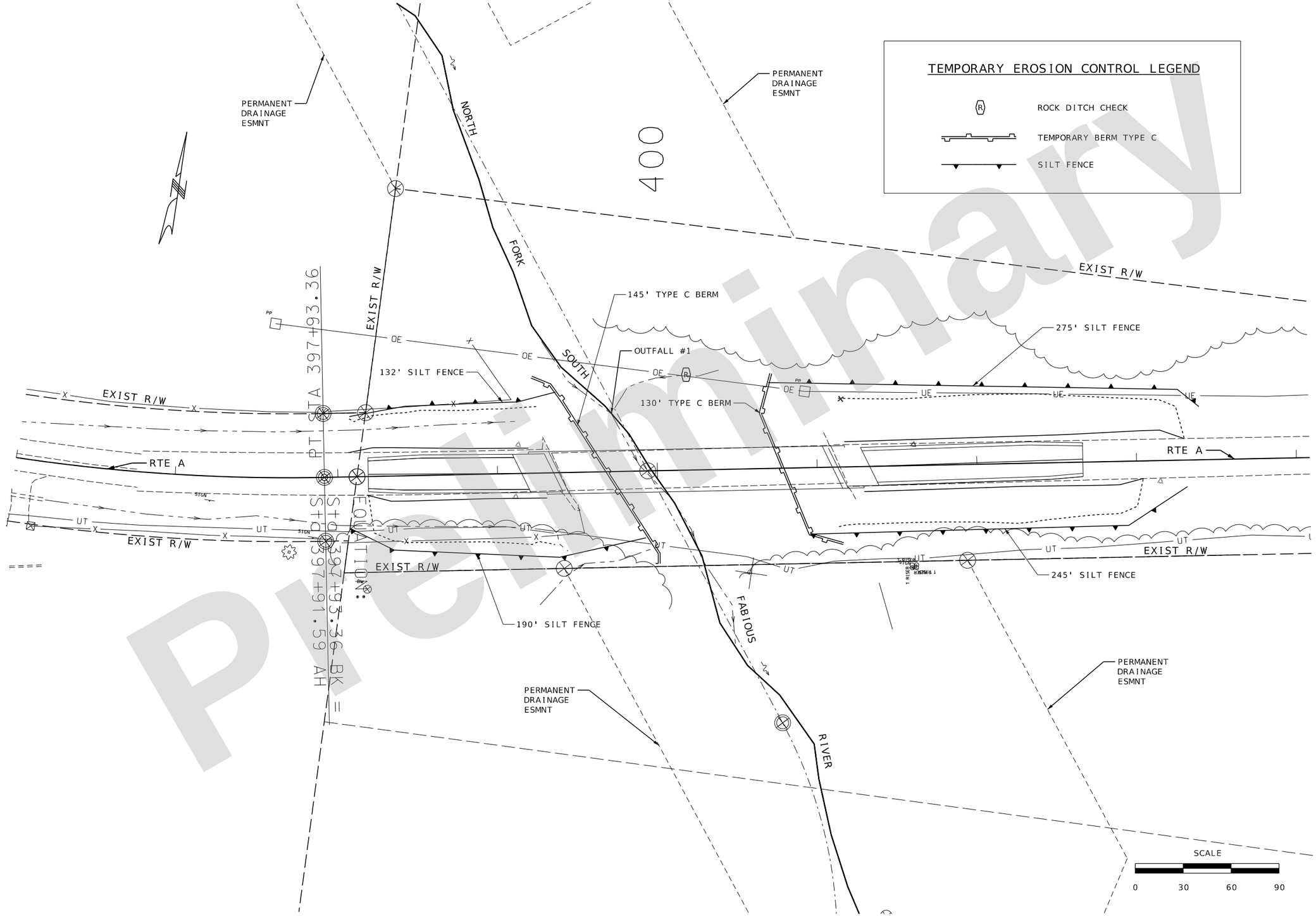
DATE PREPARED	6/4/2024
ROUTE	A
STATE	MO
DISTRICT	NE
SHEET NO.	7
COUNTY	ADAIR
JOB NO.	JNE0140
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION

DATE

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	6/4/2024
ROUTE	A
STATE	MO
DISTRICT	NE
SHEET NO.	8
COUNTY	ADAIR
JOB NO.	JNE0140
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION

DATE

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

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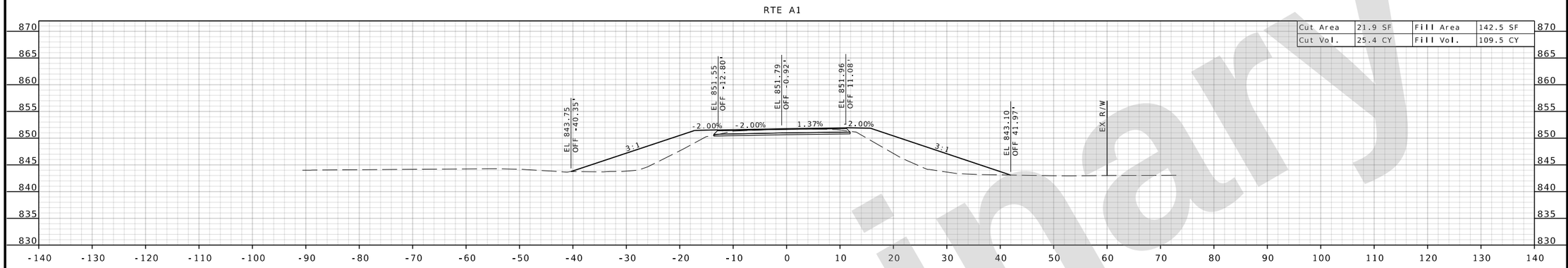
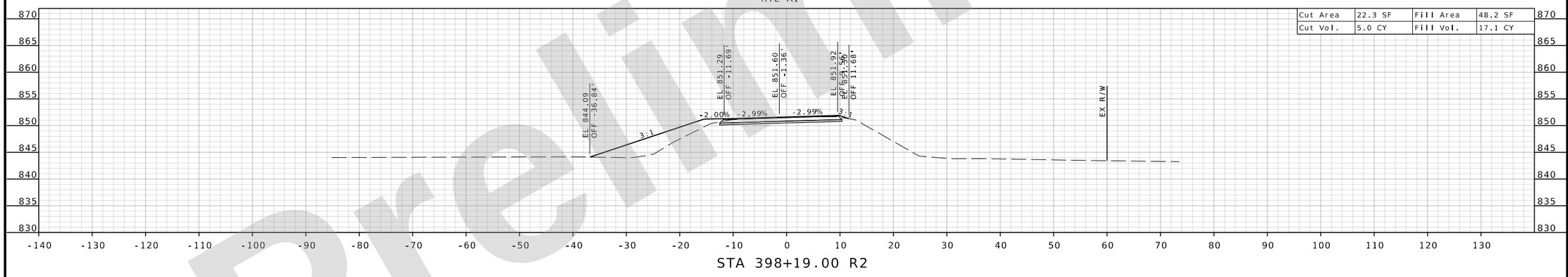
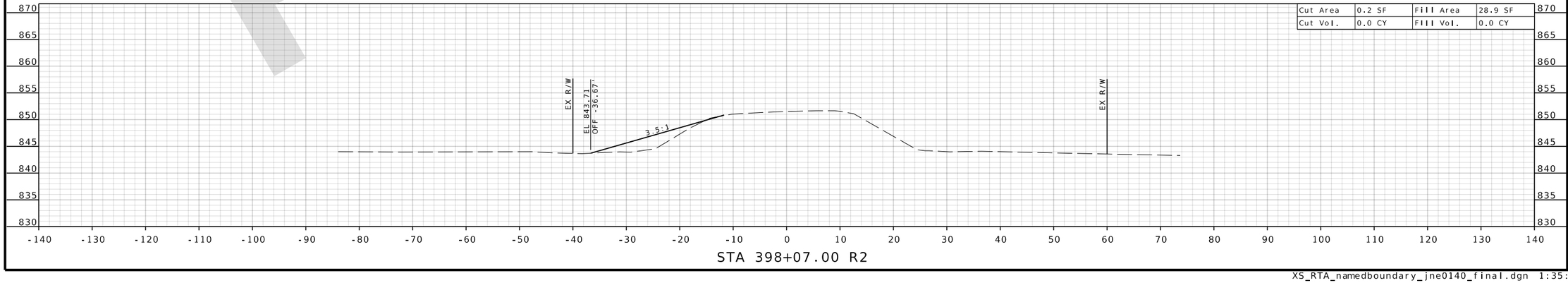






DATE PREPARED
6/4/2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
NE	1

COUNTY
ADAIR

JOB NO.
JNE0140

CONTRACT ID.

PROJECT NO.

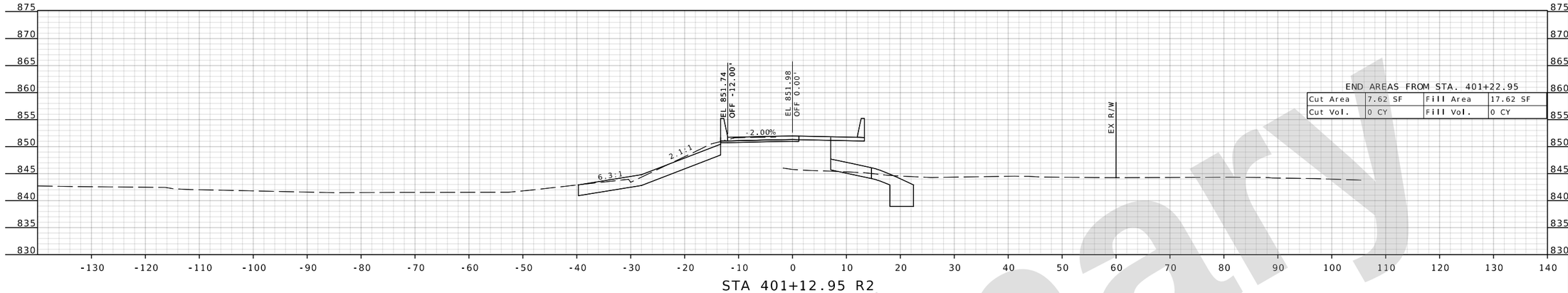
BRIDGE NO.

DESCRIPTION

DATE

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

CROSS SECTIONS
ROUTE A
SHEET 1 OF 4

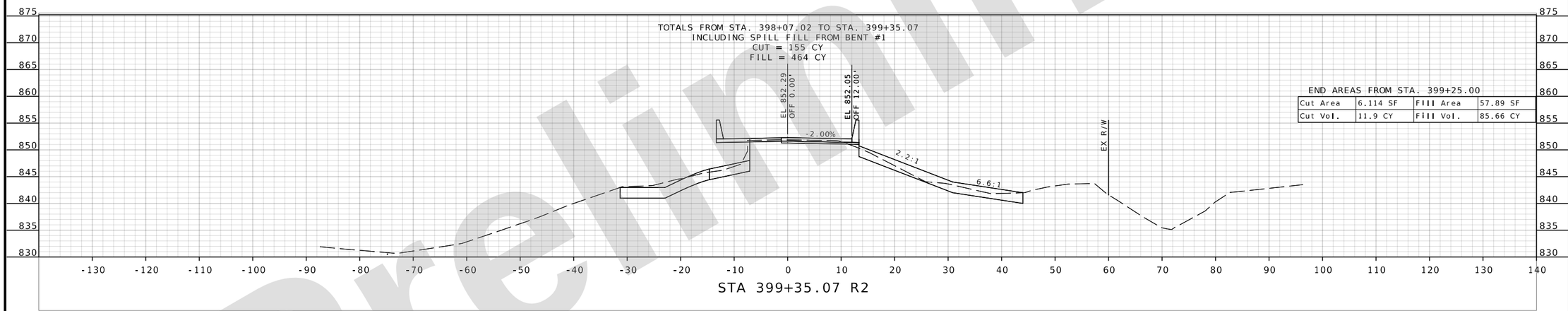


END AREAS FROM STA. 401+22.95

Cut Area	7.62 SF	Fill Area	17.62 SF
Cut Vol.	0 CY	Fill Vol.	0 CY

STA 401+12.95 R2

TOTALS FROM STA. 398+07.02 TO STA. 399+35.07
INCLUDING SPILL FILL FROM BENT #1
CUT = 155 CY
FILL = 464 CY

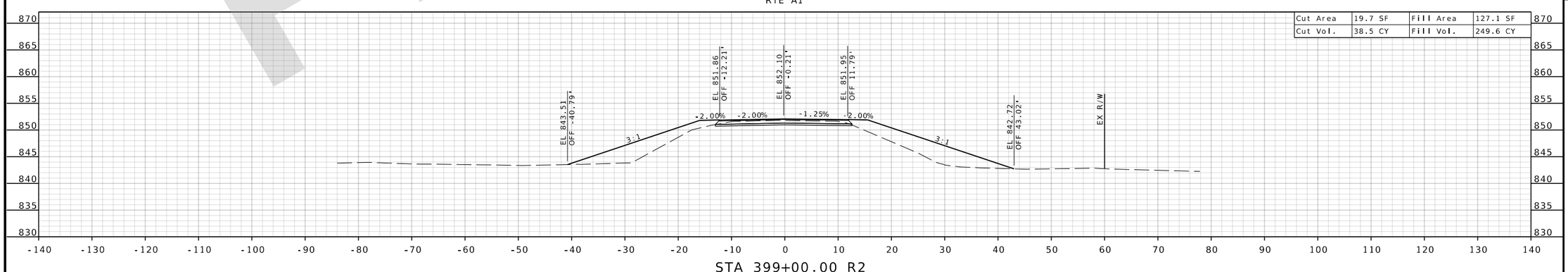


END AREAS FROM STA. 399+25.00

Cut Area	6.114 SF	Fill Area	57.89 SF
Cut Vol.	11.9 CY	Fill Vol.	85.66 CY

STA 399+35.07 R2

RTE A1



Cut Area	19.7 SF	Fill Area	127.1 SF
Cut Vol.	38.5 CY	Fill Vol.	249.6 CY

STA 399+00.00 R2

DATE PREPARED
6/5/2024

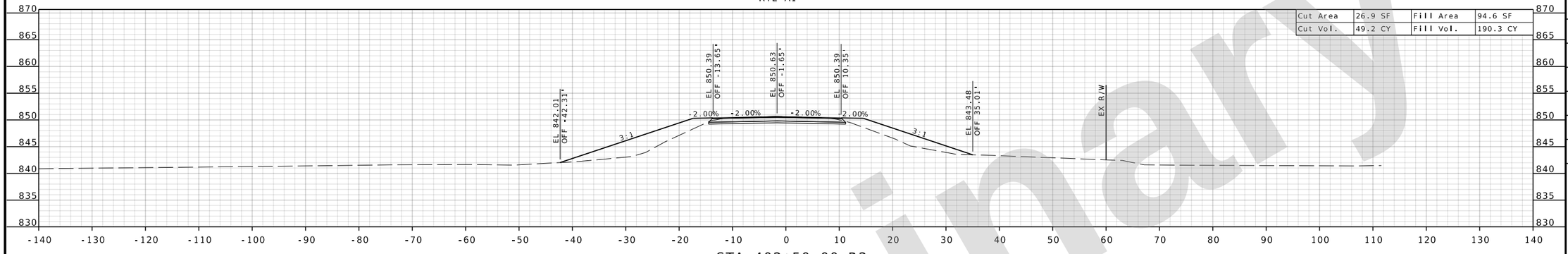
ROUTE A | STATE MO
DISTRICT NE | SHEET NO. 2
COUNTY ADAIR
JOB NO. JNE0140
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION | DATE

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

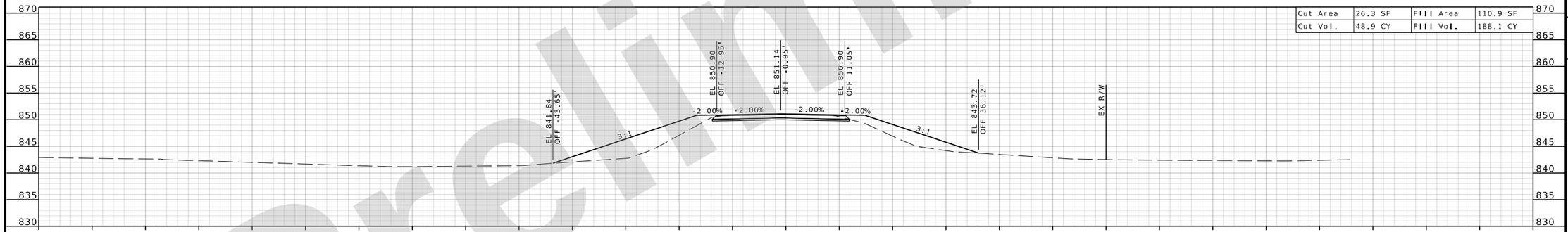
CROSS SECTIONS
ROUTE A
SHEET 2 OF 4

RTE A1



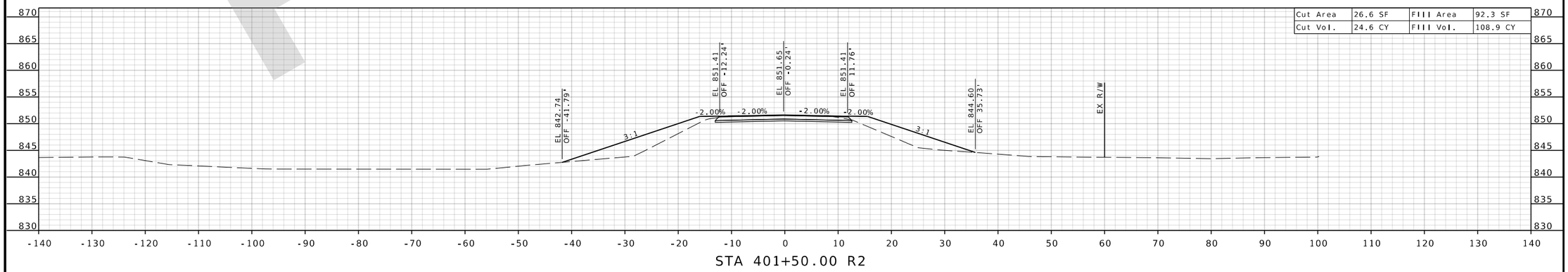
STA 402+50.00 R2

RTE A1



STA 402+00.00 R2

RTE A1



STA 401+50.00 R2

DATE PREPARED
6/4/2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
NE	3

COUNTY
ADAIR

JOB NO.
JNE0140

CONTRACT ID.

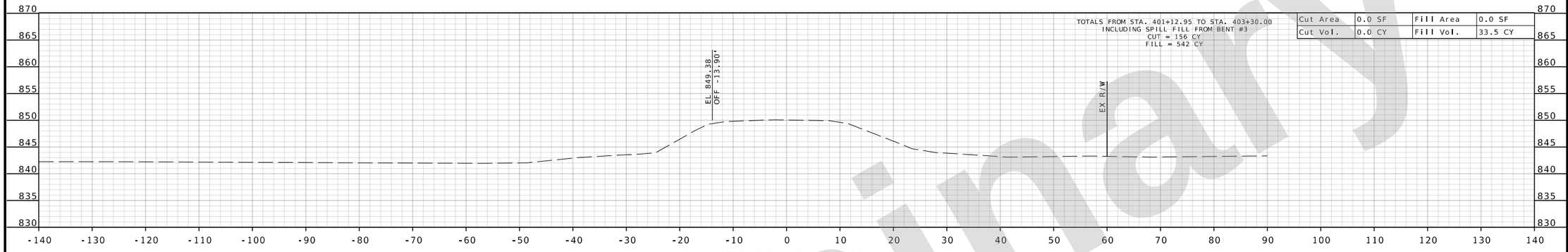
PROJECT NO.

BRIDGE NO.

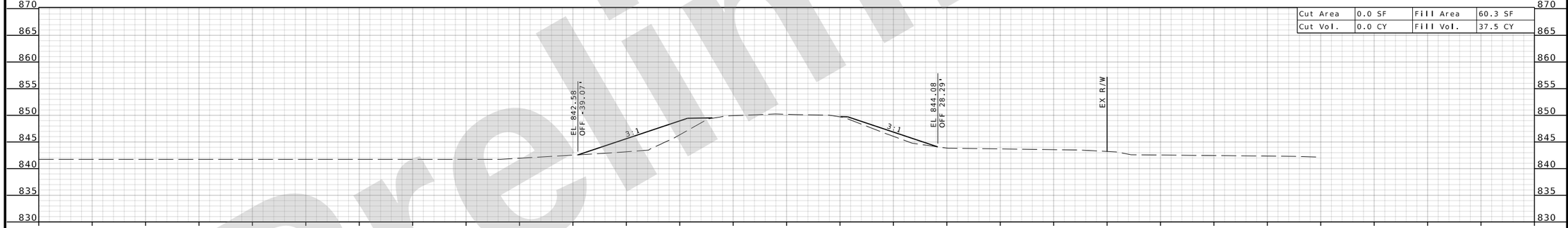
DESCRIPTION	DATE

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

CROSS SECTIONS
ROUTE A
SHEET 3 OF 4

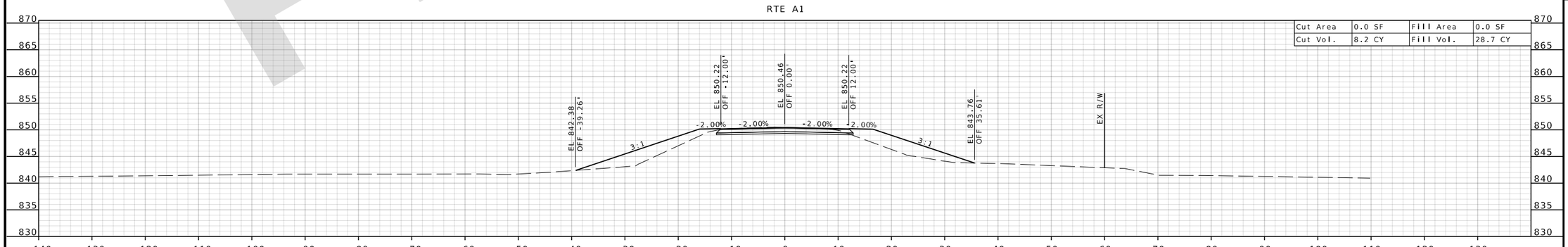


STA 403+30.00 R2



STA 403+00.00 R2

RTE A1



STA 402+66.40 R2

DATE PREPARED
6/5/2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
NE	4

COUNTY
ADAIR

JOB NO.
JNE0140

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

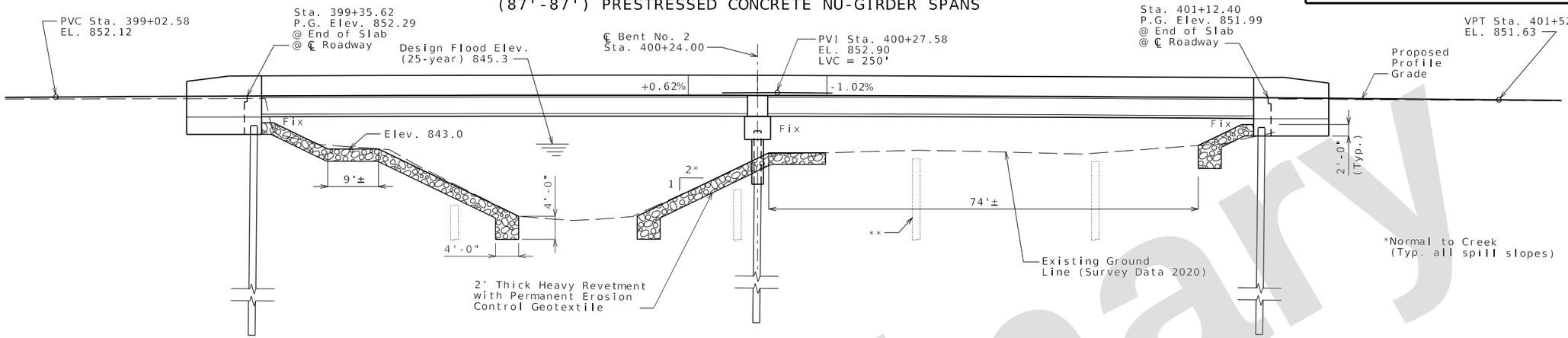
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

CROSS SECTIONS
ROUTE A
SHEET 4 OF 4

SEC/SUR 26 TWP 64N RGE 14W

(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.

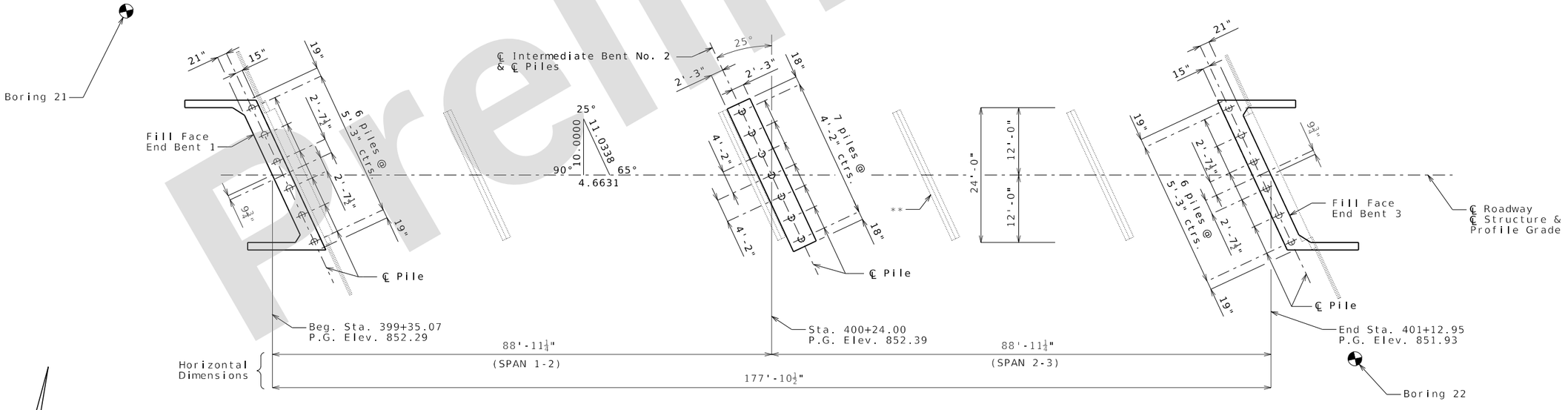
The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those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



B.M.
Chisled Square in NW Corner Bridge
℄ RTE. A ELEV. 852.46

GENERAL PLAN

Designed May 2024
Detailed May 2024
Checked Jun. 2024

Sheet No. 1 of 28

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

DATE PREPARED 06/07/2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 1
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
P.O. Box 236 Liberty, Missouri 64069
816-781-6182 816-781-0643 (FAX)
Certificate of Authority No. F00362673

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 = x

Design earthquake response spectral acceleration coefficient at x.x second period, SD1 = xxxg

Acceleration Coefficient (effective peak ground acceleration coefficient), As = xxg

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 psi
Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Barrier and Prestressed Girders)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Welded or Seamless Steel Shell (pipe) for CIP Pile (ASTM Grade 3)	fy = 45,000 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 to be closed during construction.
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	xxx
Reinforcing Steel (Epoxy Coated)	pound	xxxx

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.

Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	xx		xx
Bridge Approach Slab (Minor)	sq. yard		xxx	xxx
Galvanized Cast-in-Place Concrete Pile (14 in.)	linear foot	xxx		xxx
Galvanized Cast-in-Place Concrete Pile (16 in.)	linear foot	xxx		xxx
Dynamic Pile Testing	each	xx		xx
Dynamic Pile Restike Testing	each	xx		xx
Pile Point Reinforcement	each	xx		xx
Class B Concrete (Substructure)	cu. yard	xxx		xxx
Type D Barrier	linear foot		xxx	xxx
Slab on Concrete NU-Girder	sq. yard		xxx	xxx
NU 43, Prestressed Concrete NU-Girder	linear foot		xxx	xxx
Reinforcing Steel (Bridges)	pound	xxxx		xxxx
Slab Drain	each		xx	xx
Vertical Drain at End Bents	each			x
Plain Neoprene Bearing Pad	each		xx	xx
Laminated Neoprene Bearing Pad	each		xx	xx

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 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 *"	CECIP *"	CECIP *"
	Number	ea	*	*	*
	Approximate Length Per Each	ft	*	*	*
	Pile Point Reinforcement	ea	*	*	*
	Min. Galvanized Penetration (Elev.)	ft	*	*	*
	Est. Max. Scour Depth xxx (Elev.)	ft	*	*	*
	Minimum Tip Penetration (Elev.)	ft	*	*	*
	Criteria for Min. Tip Penetration		*	*	*
	Pile Driving Verification Method		(1)	(1)	(1)
	Minimum Nominal Axial Compressive Resistance (MNACR)	kip	*	*	*
	Portion of MNACR Required at End of Initial Drive	kip	*	*	*
	Resistance Factor		*	*	*

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 xxx kips, which is estimated to occur at a pile tip elevation of approximately xxx. The test piles at intermediate Bents No. 2 shall be driven to an end-of-initial drive resistance of approximately xxx kips, which is estimated to occur at a pile tip elevation of approximately xxx. Subsequently, pile setups and the minimum nominal axial compressive resistance shall be confirmed by a restrike test perfomed 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).

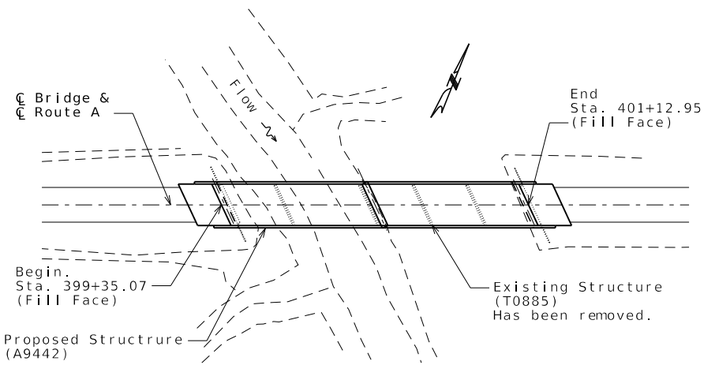
The contractor shall make every effort to achieve the minimum galvanized penetration (elevation) shown on the plans for all piles. Deviations in penetration less than 5 feet of the minimum will be considered acceptable provided the contractor makes the necessary corrections to ensure the minimum penetration is achieved on subsequent piles.

* Piles are located within the Heavy Revetment on spill slopes.

List of Drawings

Hydrologic Data

Drainage Area = 23.0 mi²
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



LOCATION SKETCH

DATE PREPARED 06/07/2024
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
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

VEENSTRA & KIMM INC
P.O. Box 236
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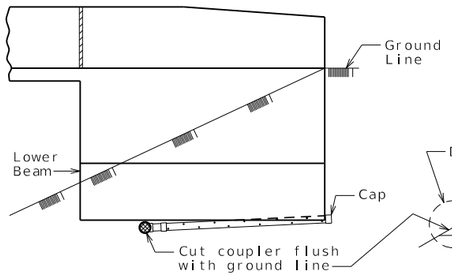
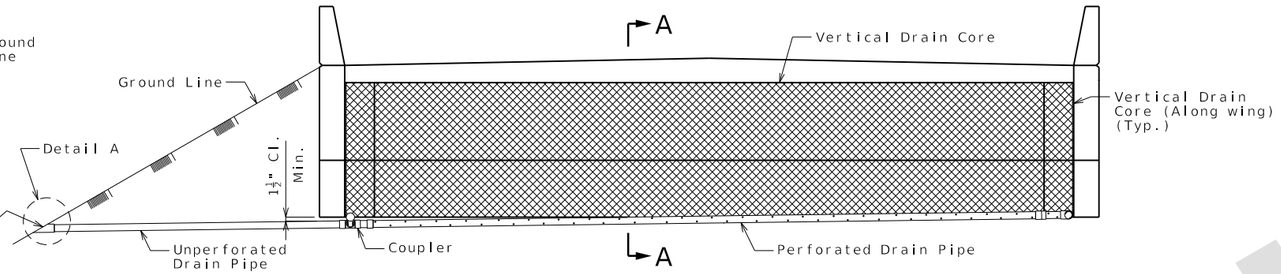
Liberty, Missouri 64069
816-781-0643 (FAX)
Certificate of Authority No. F00362673

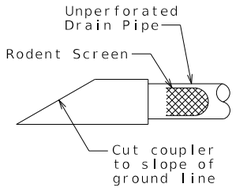
Detailed May 2024
Checked May 2024



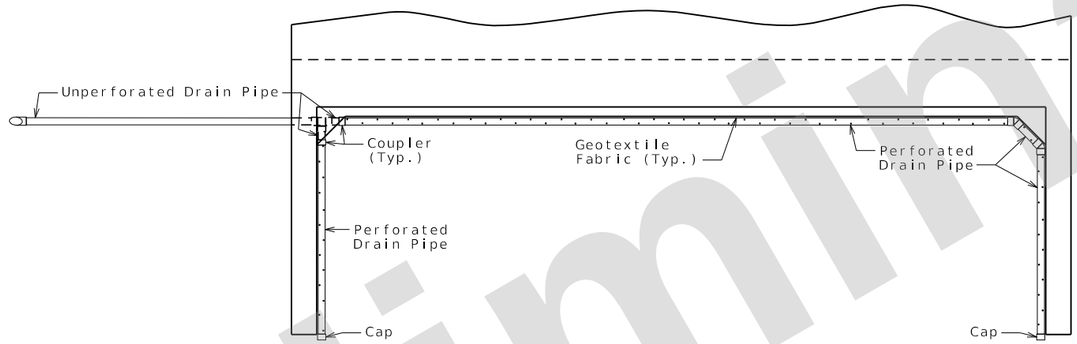
ELEVATION OF WING



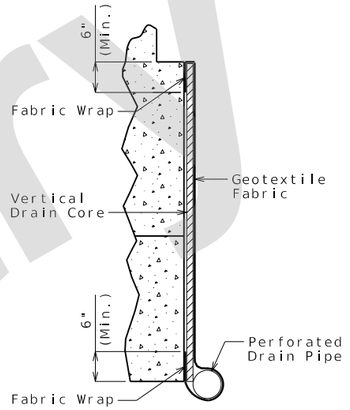
ELEVATION OF END BENT



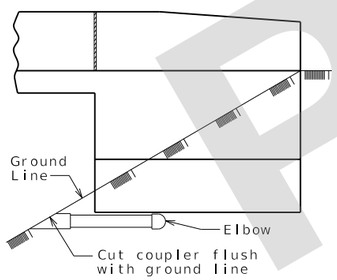
DETAIL A



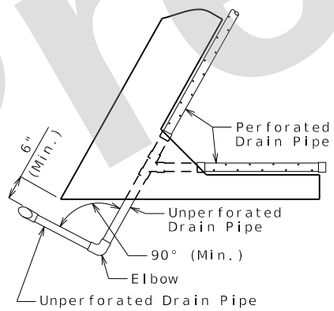
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



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

VERTICAL DRAIN AT END BENTS

(Squared end bent shown, skewed end bent similar)

DATE PREPARED 06/07/2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 8
COUNTY ADAIR
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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)

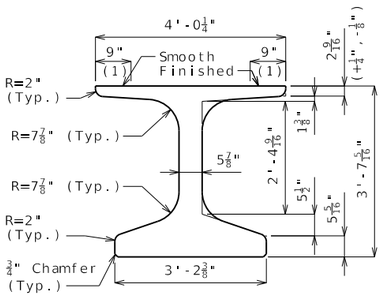
VEENSTRA & KIMM INC
P.O. Box 236 Liberty, Missouri 64069
816-781-6182 816-781-0643 (FAX)
Certificate of Authority No. F00362673

Detailed Jun. 2024
Checked Jun. 2024

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

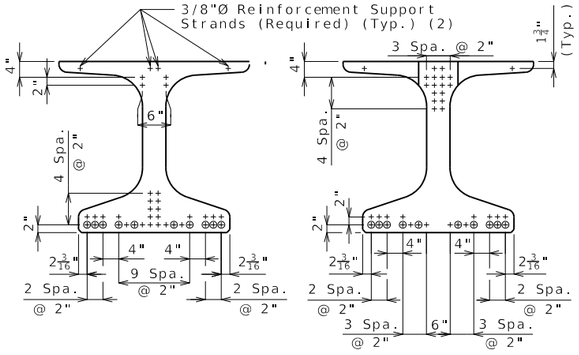
B_A9442_008_VertDrainEB.dgn 9:02:32 AM 6/7/2024

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



DIMENSIONS

(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.

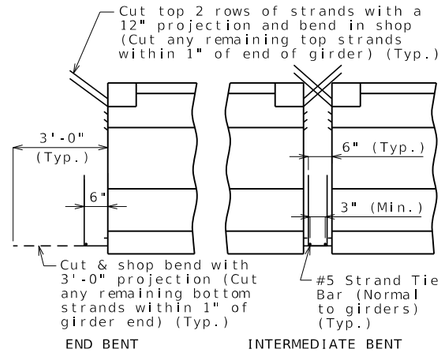


℄ GIRDER END OF GIRDER

STRAND ARRANGEMENT

+ Indicates prestressing strand.

o Indicates cut & shop bend with 3'-0" projection.



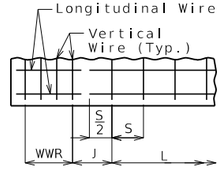
END BENT INTERMEDIATE BENT

STRANDS AT GIRDER ENDS

(3) Bent 1: 1'-8⅜"
Bent 2: 1'-7⅛" (Span 1-2)
1'-6⅞" (Span 2-3)
Bent 3: 1'-8⅜"

(4) Bent 2: 1'-7⅛" (Span 1-2)
Bent 2: 1'-6⅞" (Span 2-3)

(5) Bent 2: 0'-7½" (Span 1-2)
Bent 2: 0'-7¼" (Span 2-3)



WELDED WIRE PLACEMENT

S = Vertical wire spacing

L = Length of WWR mats

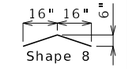
J = Distance between WWR mats

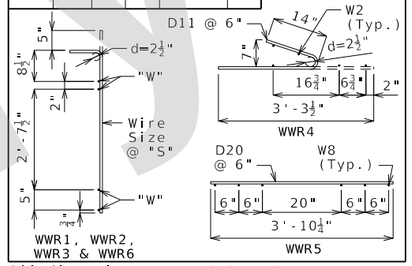
Bill of Reinforcing Steel

Bars Each Girder				
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					
Mark	Size	S	W	L	J
WWR1	D31	4"	W12	14'-0"	5¼"
WWR2	D31	12"	W12	8'-0"	12"
WWR3	D31	20"	W12	36'-8"	--
WWR6	D31	2"	W12	16"	4"

Bending Diagrams





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 blockout, coil inserts for slab drains.

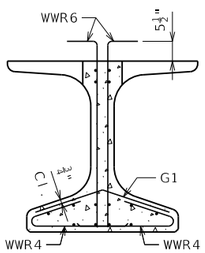
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 18.

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

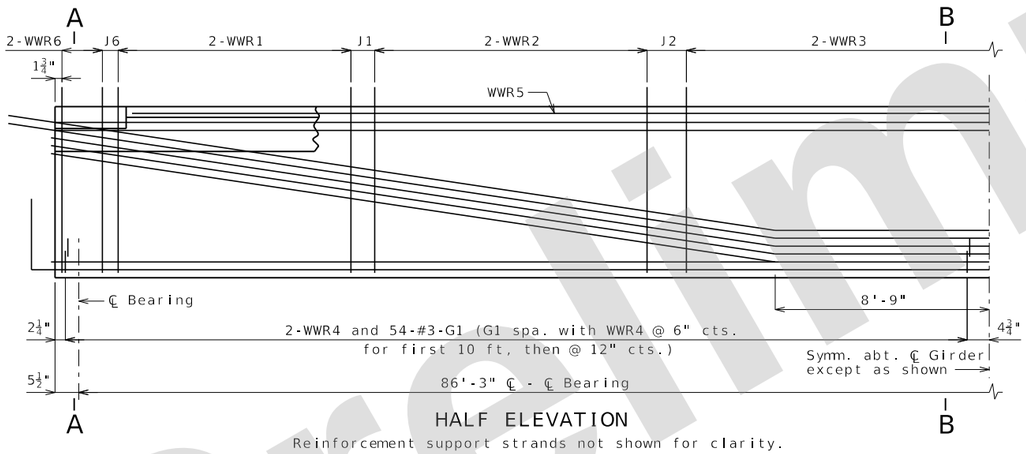
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4,10 and 16.

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.



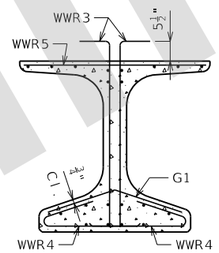
SECTION A-A

Strands not shown for clarity.



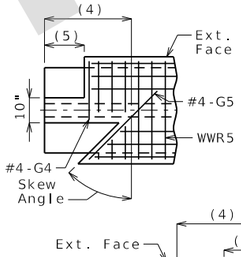
HALF ELEVATION

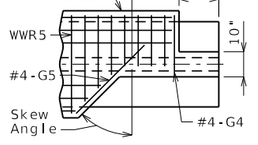
Reinforcement support strands not shown for clarity.



SECTION B-B

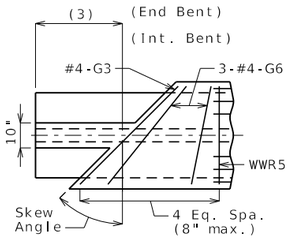
Strands not shown for clarity.





LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

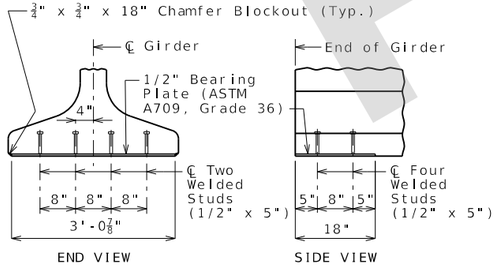
Rotate 180° for right ext.



INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT

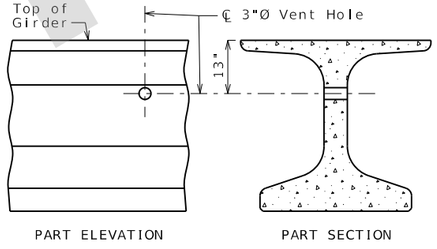
TOP FLANGE BLOCKOUT

Mirror for right advanced.



END VIEW SIDE VIEW

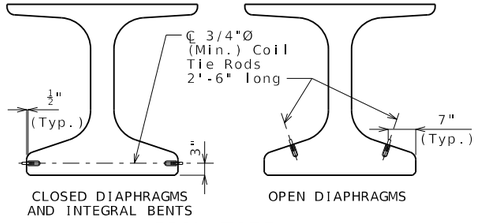
BEARING PLATE



PART ELEVATION PART SECTION

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.



CLOSED DIAPHRAGMS AND INTEGRAL BENTS

OPEN DIAPHRAGMS

COIL TIES

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

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

Detailed Jun. 2024
Checked Jun. 2024

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

DATE PREPARED 06/07/2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 14
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
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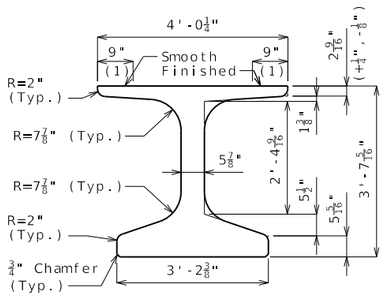
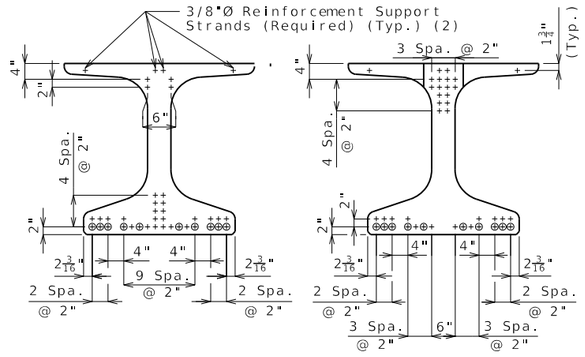
VEENSTRA & KIMM INC
P.O. Box 236 816-781-6182
Liberty, Missouri 64069 816-781-0643 (FAX)
Certificate of Authority No. F00362673

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



DIMENSIONS

(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.

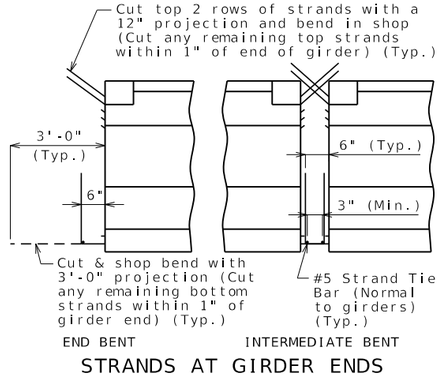


℄ GIRDER END OF GIRDER

STRAND ARRANGEMENT

\+ Indicates prestressing strand.

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



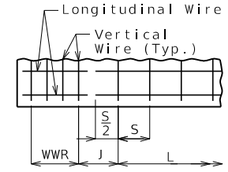
END BENT INTERMEDIATE BENT

STRANDS AT GIRDER ENDS

(3) Bent 1: 1'-8⅜"
Bent 2: 1'-7⅛" (Span 1-2)
1'-6⅞" (Span 2-3)
Bent 3: 1'-8⅜"

(4) Bent 2: 1'-7⅛" (Span 1-2)
Bent 2: 1'-6⅞" (Span 2-3)

(5) Bent 2: 0'-7½" (Span 1-2)
Bent 2: 0'-7¼" (Span 2-3)



WELDED WIRE PLACEMENT

S = Vertical wire spacing

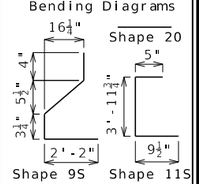
L = Length of WWR mats

J = Distance between WWR mats

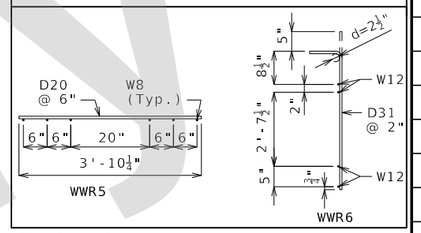
Bill of Reinforcing Steel - Each Girder

No.	Size/ Mark	Length	Shape
186	5 B1	5'-0"	11S
206	4 D1	4'-0"	9S
2	4 G3	4'-3"	20
2	4 G4	2'-3"	20
2	4 G5	2'-11"	20
6	4 G6	Varies	20

Bending Diagrams



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 blockout, coil inserts for slab drains.

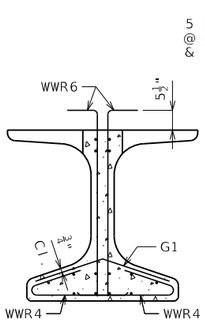
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 18.

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

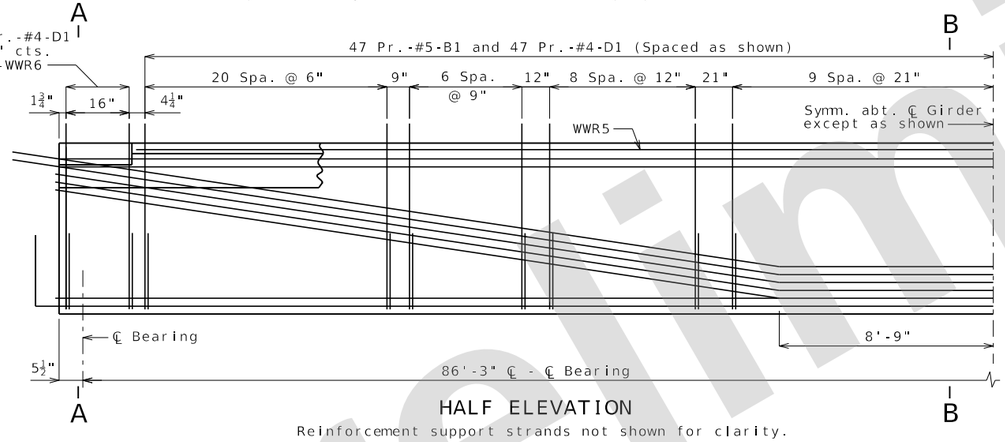
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4,10 and 16.

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.



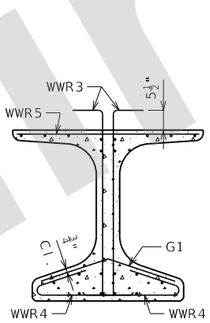
SECTION A-A

Strands not shown for clarity.



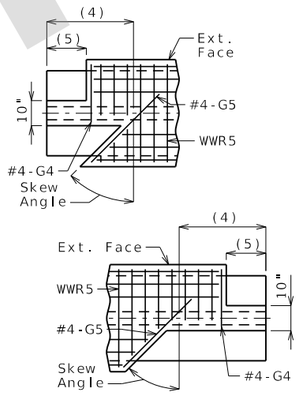
HALF ELEVATION

Reinforcement support strands not shown for clarity.



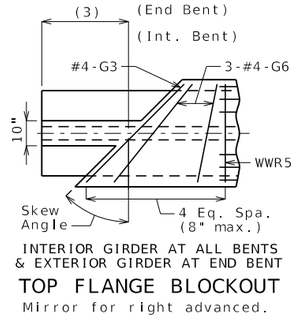
SECTION B-B

Strands not shown for clarity.



LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

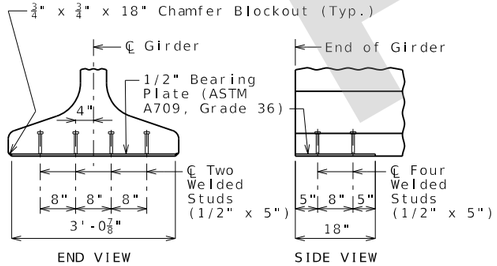
Rotate 180° for right ext.



INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT

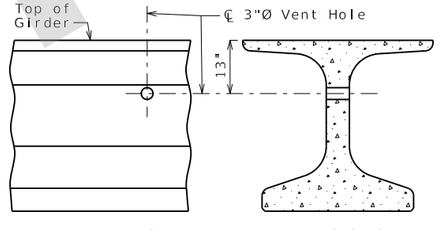
TOP FLANGE BLOCKOUT

Mirror for right advanced.



END VIEW SIDE VIEW

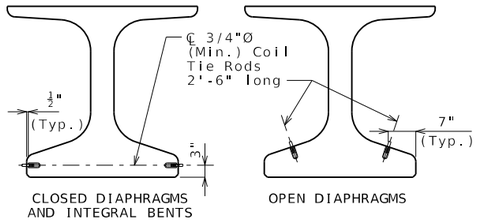
BEARING PLATE



PART ELEVATION PART SECTION

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.



CLOSED DIAPHRAGMS AND INTEGRAL BENTS

OPEN DIAPHRAGMS

COIL TIES

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

DATE PREPARED 06/07/2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 15
COUNTY ADAIR
JOB NO. JNE0140
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9442

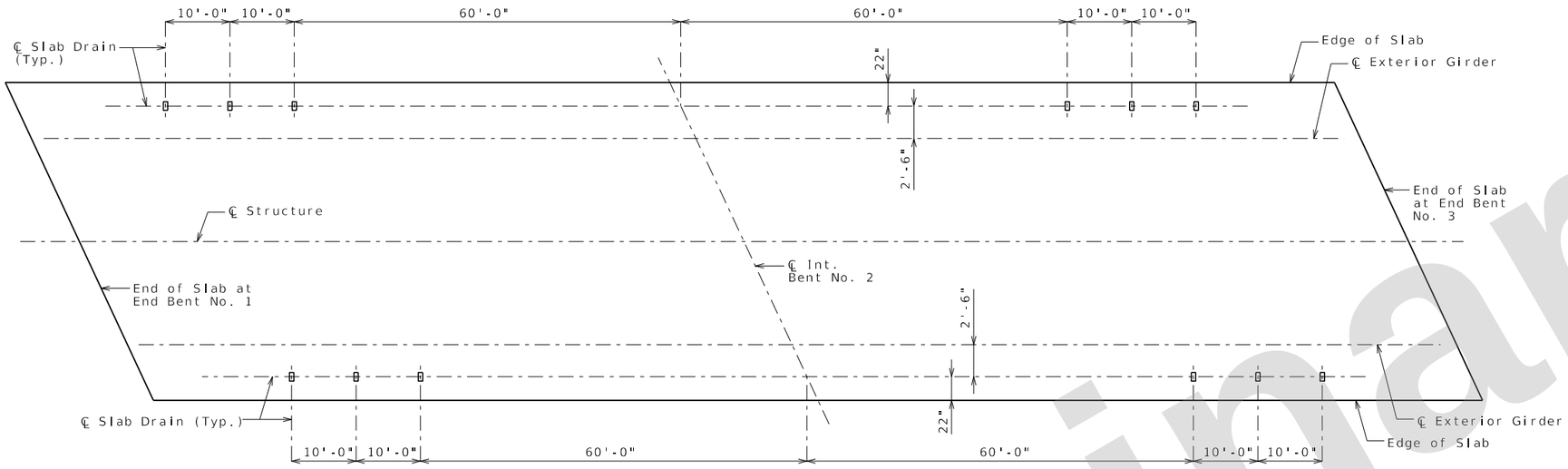
DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
VEENSTRA & KIMM INC
P.O. Box 236
816-781-6182
Liberty, Missouri 64069
816-781-0643 (FAX)
Certificate of Authority No. F00362673

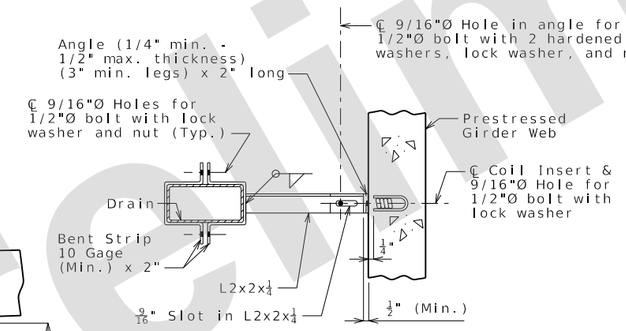
NU-GIRDERS (ALTERNATE REINFORCEMENT) - SPANS (1-2) AND (2-3)

Detailed Jun. 2024
Checked Jun. 2024

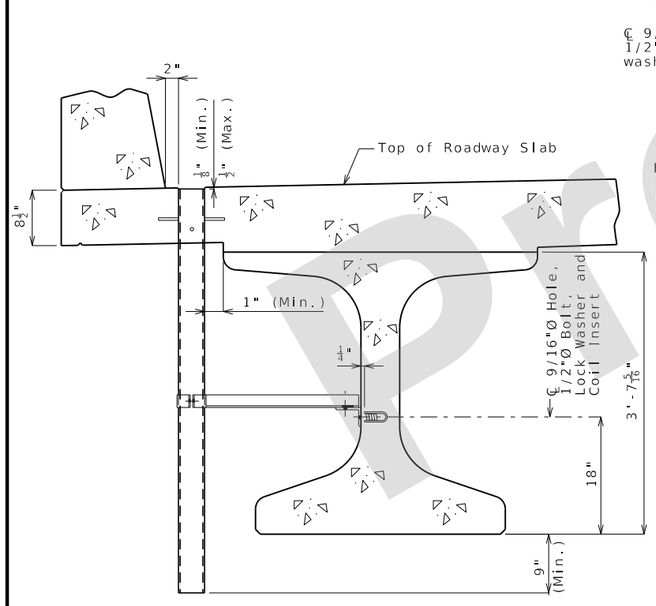
Note: This drawing is not to scale. Follow dimensions.



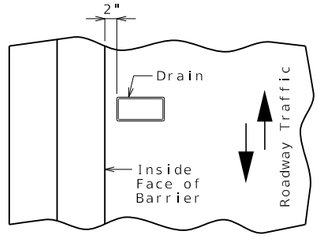
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



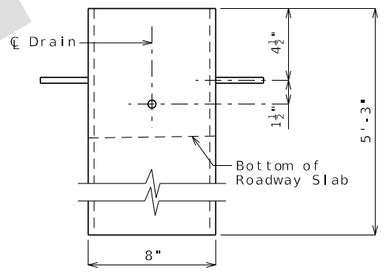
PART SECTION SHOWING BRACKET ASSEMBLY



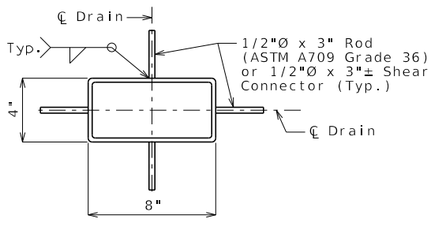
PART SECTION NEAR DRAIN



PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF STEEL DRAIN

General Notes:

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

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

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.

DESCRIPTION	DATE

DATE PREPARED 06/07/2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	17

COUNTY ADAIR

JOB NO. JNE0140

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9442

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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VEENSTRA & KIMM INC
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Liberty, Missouri 64069
816-781-0643 (FAX)
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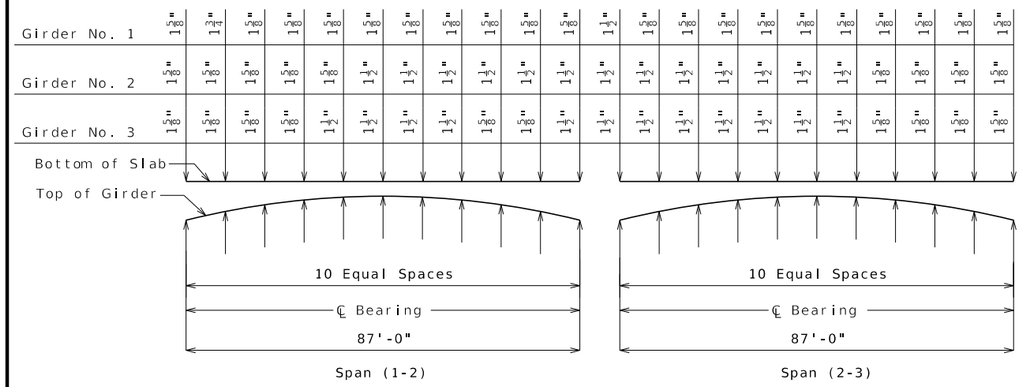
SLAB DRAINS

Detailed Jun. 2024
Checked Jun. 2024

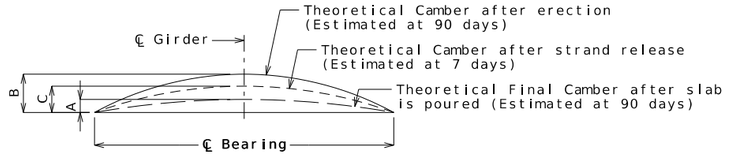
Note: This drawing is not to scale. Follow dimensions.



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.

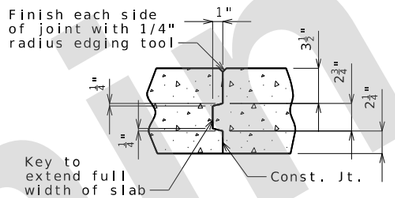


Girder	Span (1-2)			Span (2-3)		
	A	B	C	A	B	C
Exterior	$\frac{3}{4}$"	$2\frac{1}{8}$"	$1\frac{1}{4}$"	$\frac{3}{4}$"	$2\frac{1}{8}$"	$1\frac{1}{4}$"
Interior	$\frac{3}{4}$"			$\frac{3}{4}$"		

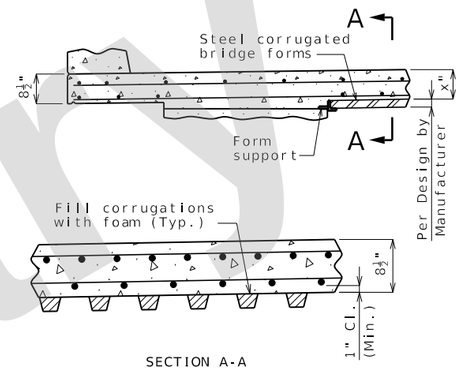
GIRDER CAMBER DIAGRAM

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



SECTION A-A

OPTIONAL STAY-IN-PLACE FORM DETAILS

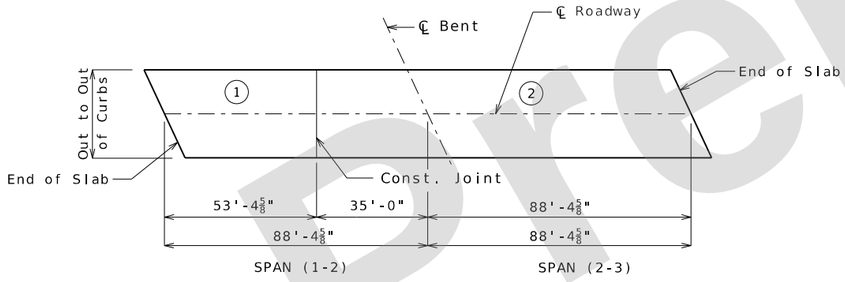
Stay-In-Place Forms:

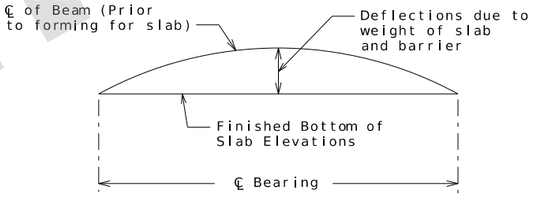
Corrugated steel forms, supports, closure elements and accessories shall be in accordance with grade requirement and coating designation G165 of ASTM A653. Complete shop drawings of the permanent steel deck forms shall be required in accordance with Sec 1080.

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.





TYPICAL SLAB ELEVATIONS DIAGRAM

	Sequence of Pours		Min. Rate of Pour Cu. Yds./Hr.
	Direction		With Retarder
Basic Sequence	1 End to 2	2 1 to End	25
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

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" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ 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" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ 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" and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier.

BEAM CAMBER DIAGRAM & MISC. SLAB DETAILS

Detailed May 2024
Checked Jun. 2024

DATE PREPARED 06/07/2024
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
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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P.O. Box 236
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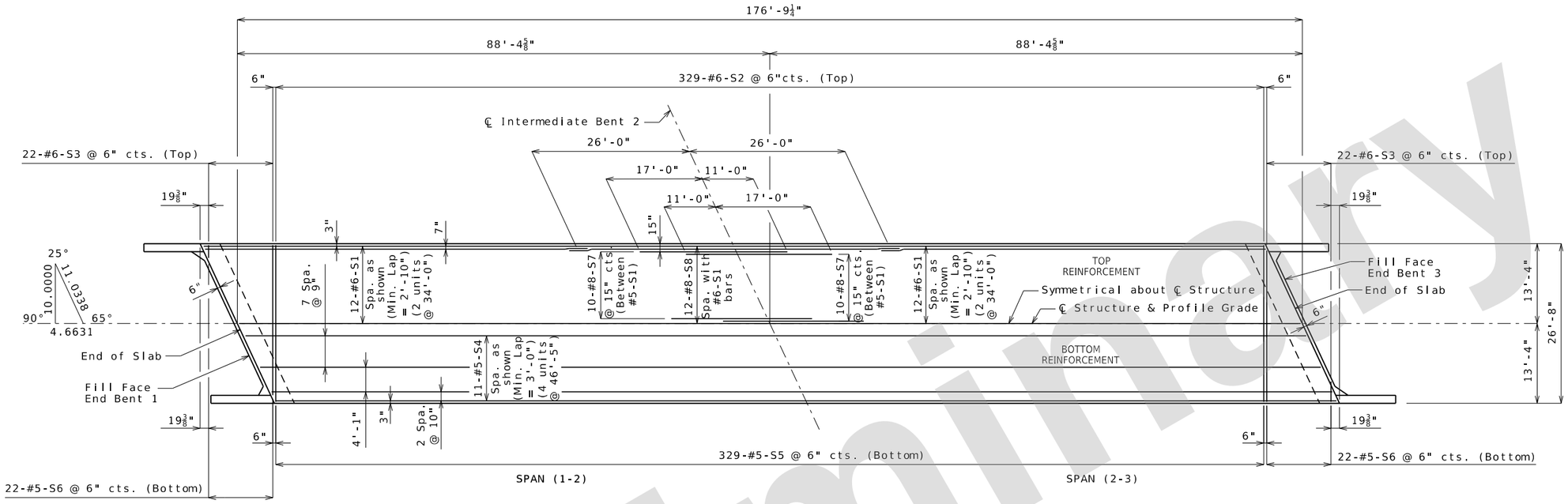
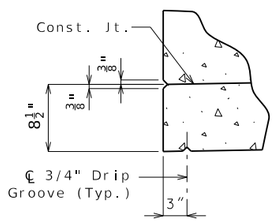
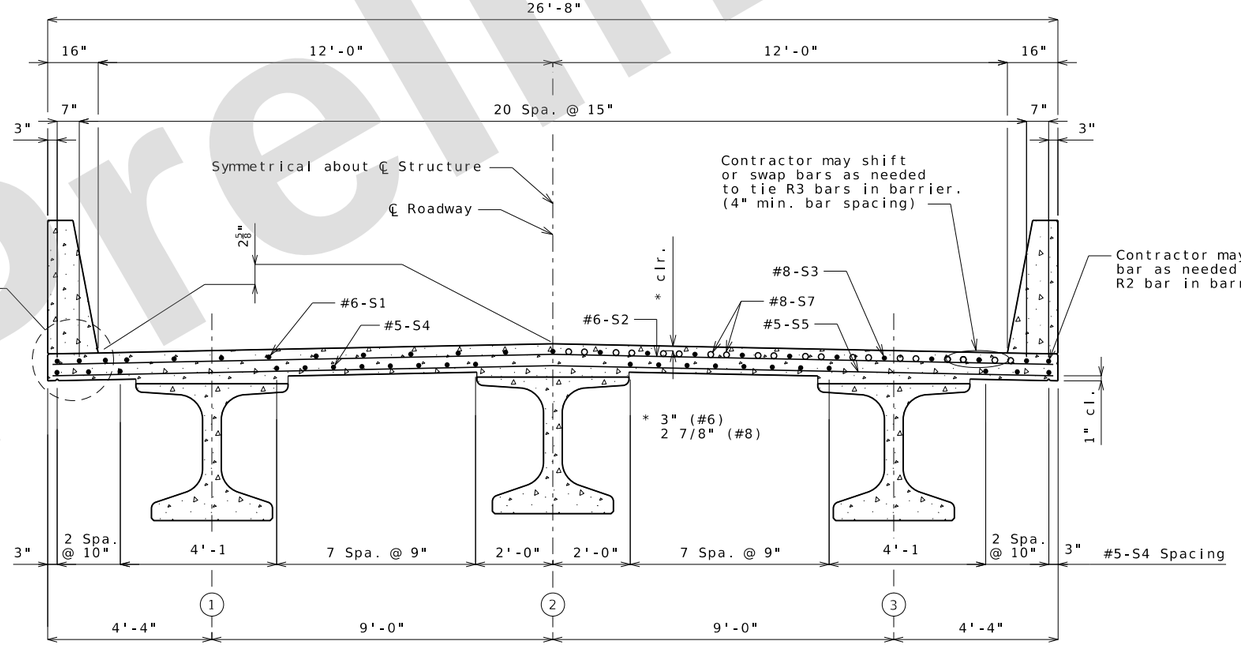


PLAN OF SLAB SHOWING REINFORCEMENT

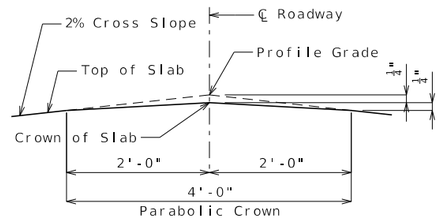


DETAIL A



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.

DATE PREPARED 06/07/2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 19
COUNTY ADAIR
JOB NO. JNE0140
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9442

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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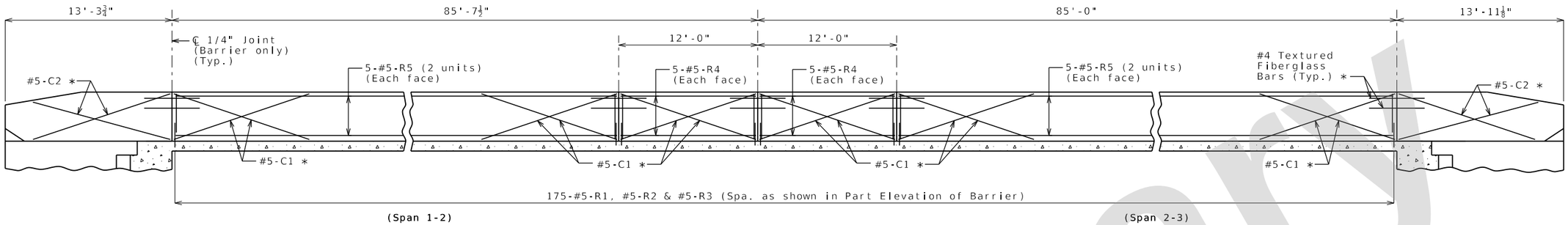
Liberty, Missouri 64069
816-781-0643 (FAX)
Certificate of Authority No. F00362673

Detailed May 2024
Checked Jun. 2024

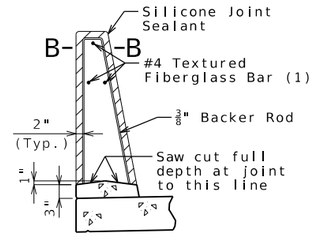
B_A9442_019_Slab.dgn 11:30:09 AM 6/7/2024



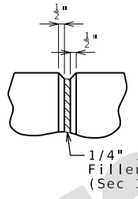
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

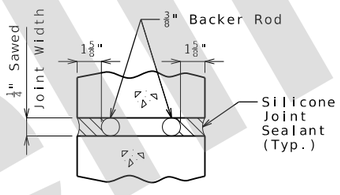
Longitudinal dimensions are horizontal.



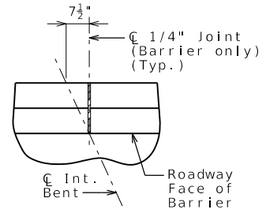
SECTION THRU SAW CUT JOINT

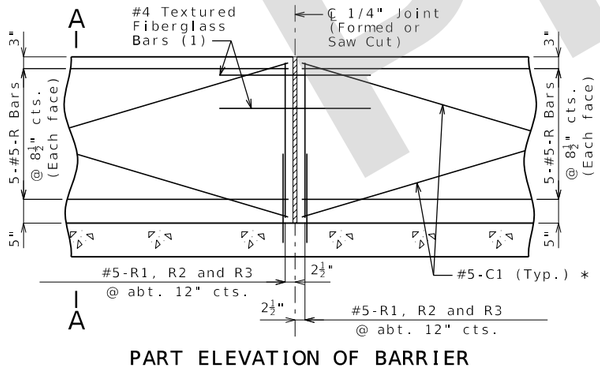


PART ELEVATION AT FORMED JOINT



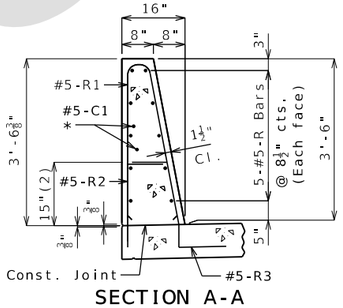
SECTION B-B





PART ELEVATION OF BARRIER

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

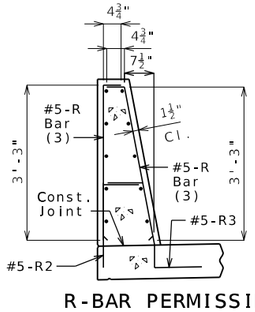


SECTION A-A

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

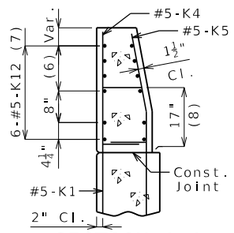
Detailed Jun. 2024
Checked Jun. 2024

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

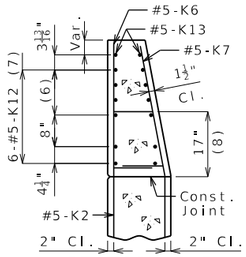
DATE PREPARED 06/07/2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 20
COUNTY ADAIR
JOB NO. JNE0140
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9442

DESCRIPTION | DATE

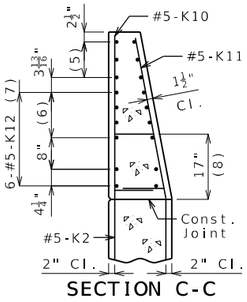
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
VEENSTRA & KIMM INC
P.O. Box 236
816-781-6182
Liberty, Missouri 64069
816-781-0643 (FAX)
Certificate of Authority No. F00362673



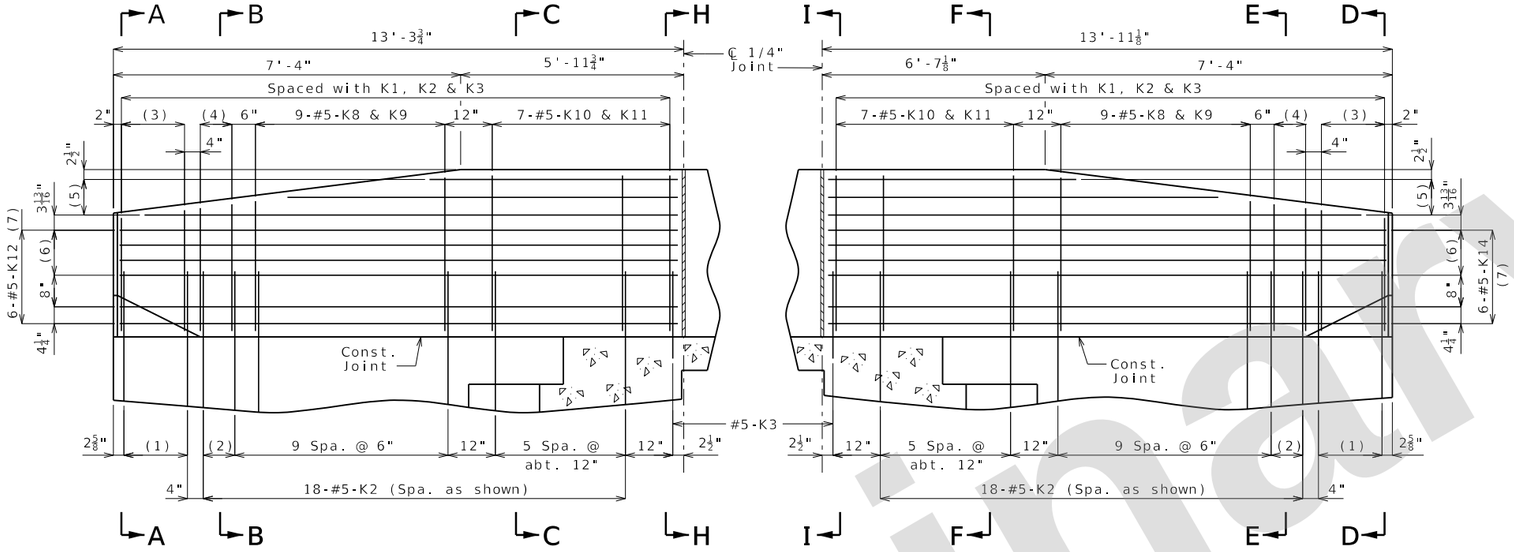
SECTION A-A



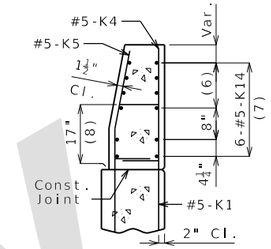
SECTION B-B



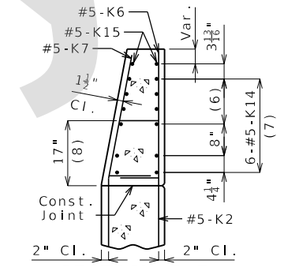
SECTION C-C



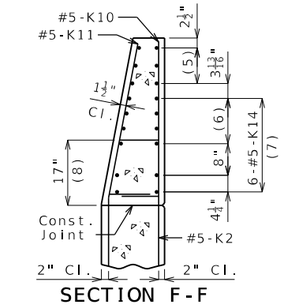
PART ELEVATION



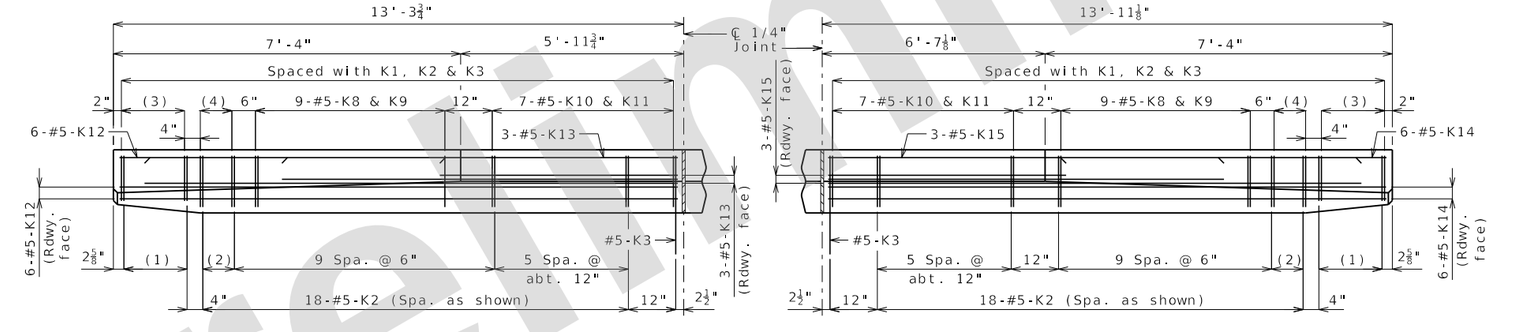
SECTION D-D



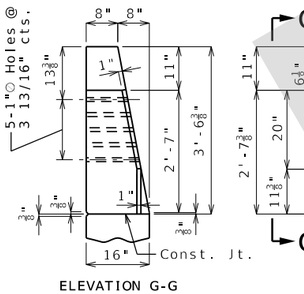
SECTION E-E



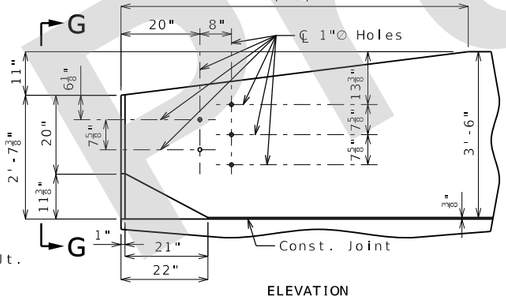
SECTION F-F



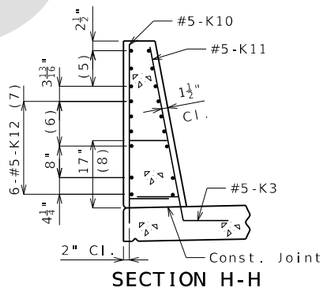
PART PLAN



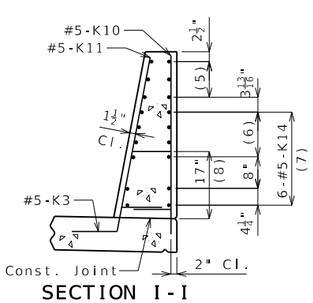
ELEVATION G-G



ELEVATION



SECTION H-H



SECTION I-I

(1) 5-#5-K1 @ 4" cts.

(2) 2 spaces @ 4"

(3) 5-#5-K4 & K5

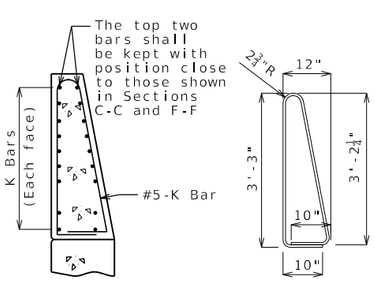
(4) 3-#5-K6 & K7

(5) 3-#5-K13 or K15 @ 4½" cts., each face

(6) 3 spaces @ 3 13/16"

(7) Spaced as shown, each face

(8) To top of bar



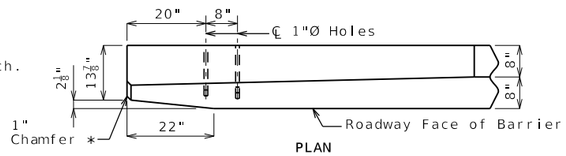
K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE

(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.

* Transition to zero at Type A curb for gutter lines to match.



PLAN

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)

Detailed May 2024
Checked Jun. 2024

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

DATE PREPARED 06/07/2024
ROUTE A | STATE 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)
MoDOT

VEENSTRA & KIMM INC
P.O. Box 236
816-781-6182
Liberty, Missouri 64069
816-781-0643 (FAX)
Certificate of Authority No. F00362673

General Notes:

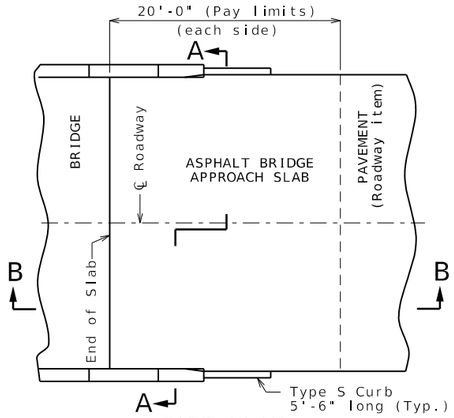
Contractor shall construct the asphalt slab. The concrete slab is not allowed.

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

Notes For Asphalt Slab Only:

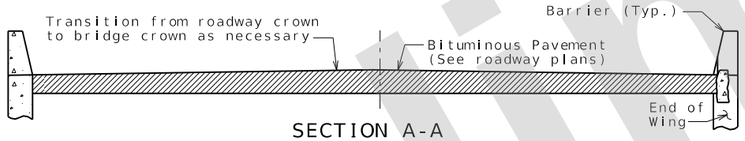
Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab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

Application of tack is required between lifts per Sec 403.



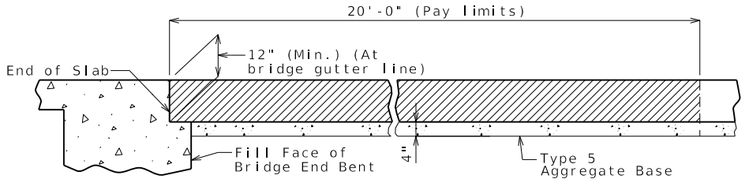
PART PLAN

(Squared structure shown, skewed structure similar)

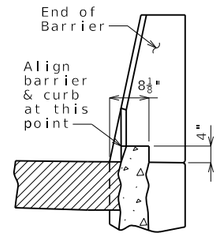


SECTION A-A

With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



SECTION B-B



4" TYPE S CURB

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

ASPHALT SLAB

BRIDGE APPROACH SLAB (MINOR)

Integral end bents shown, non-integral end bent similar.

Detailed May 2024
Checked May 2024

DATE PREPARED 06/07/2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 22
COUNTY ADAIR
JOB NO. JNE0140
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9442

DESCRIPTION | DATE | REV.

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

VEENSTRA & KIMM INC
P.O. Box 236
816-781-6182
Liberty, Missouri 64069
816-781-0643 (FAX)
Certificate of Authority No. F00362673

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

LOCATION See Exploration Plan
Northing: 1635837.041 Easting: 1660785.155
Approximate Surface Elev.: 843.5 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (In.)	FIELD TEST RESULTS	N_{60}	POCKET PENETROMETER (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.5	843+/-										
		ROOT ZONE, (Approximately 6 inches)											
2		**LEAN CLAY (CL)**, with sand, trace organics, brown and grayish brown, medium stiff to stiff				X	1	14	3-3-4 N=7	11	0.5	21.0	
						X	2	15	4-4-4 N=8	12	0.75	21.8	
		5.0	838.5+/-	5		X	3	18	0-0-0 N=0	0	0.0	24.9	
5		**SANDY LEAN CLAY (CL)**, brown and grayish brown, very soft to soft			▽	X	4	11	0-1-2 N=3	5	0.0	24.7	34-16-18
		with sand seams, gray		10		X	5	11	0-0-1 N=1	2	0.0	24.0	
		17.0	826.5+/-	15									
4		**POORLY GRADED SAND (SP)**, trace clay, fine to medium grained, gray, very loose to medium dense		20		X	6	18	2-1-1 N=2	3		23.7	
				25		X	7	11	0-0-1 N=1	2		21.3	
				30		X	8	10	7-7-8 N=15	23		15.4	
		37.0	806.5+/-	35		X	9	14	5-7-10 N=17	26		15.1	
3		**SANDY FAT CLAY (CH)**, trace gravel, gray, stiff		40		X	10	15	4-6-6 N=12	19	1.75	26.4	61-21-40
		42.0	801.5+/-	45		X	11	18	7-5-11 N=16	25	1.75	22.2	
5		**SANDY LEAN CLAY (CL)**, trace gravel, gray, very stiff		50		X	12	18	6-7-10 N=17	26	2.0	21.8	
		52.0	791.5+/-										

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

Advancement Method:
0-20 feet: Hollow-stem augers
20-100 feet: Mud rotary

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations provided by others

Notes:
92.5% Hammer efficiency

WATER LEVEL OBSERVATIONS
▽ 9 feet while drilling

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 07-15-2020 Boring Completed: 07-15-2020
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 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

LOCATION See Exploration Plan
Northing: 1635837.041 Easting: 1660785.155
Approximate Surface Elev.: 843.5 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (In.)	FIELD TEST RESULTS	N_{60}	POCKET PENETROMETER (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
5		**SANDY LEAN CLAY (CL)**, trace gravel, gray, stiff to very stiff		55		X	13	18	6-7-9 N=16	25	2.0	23.3	
		with sand seams		60		X	14	18	8-8-11 N=19	29	2.0	21.5	
				65		X	15	18	5-7-8 N=15	23	1.5	23.4	
				70		X	16	18	7-8-9 N=17	26	1.75	18.8	
				75		X	17	18	9-9-11 N=20	31	2.0	19.5	
				80		X	18	18	7-10-9 N=19	29	1.75	18.9	
				85		X	19	18	7-9-11 N=20	31	1.75	18.1	
				90		X	20	18	6-10-13 N=23	35	2.0	17.6	
				95		X	21	18	6-11-12 N=23	35	2.0	16.6	
		100.0	743.5+/-	100		X	22	18	8-13-13 N=26	40	2.25	18.6	
		Boring Terminated at 100 Feet											

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

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations provided by others

Notes:
92.5% Hammer efficiency

WATER LEVEL OBSERVATIONS
▽ 9 feet while drilling

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 07-15-2020 Boring Completed: 07-15-2020
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 8/25/20

DATE PREPARED 06/07/2024
ROUTE A STATE MO
DISTRICT BR SHEET NO. 27
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
P.O. Box 236 Liberty, Missouri 64069
816-781-6182 816-781-0643 (FAX)
Certificate of Authority No. F00362673

BORING DATA

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

Detailed Jun. 2024
Checked Jun. 2024

BORING LOG NO. B-22

PROJECT: MoDOT FARM Bridges Project

CLIENT: Missouri Department of Transportation
Hannibal, Missouri

SITE: Project J2S3318 - Bridge T0885
Adair County, MO

LOCATION See Exploration Plan
Northing: 1635810.351 Easting: 1661011.86
Approximate Surface Elev.: 845.0187 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	ELEVATION (Ft.)	DESCRIPTION	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (In.)	FIELD TEST RESULTS	N_{60}	POCKET PENETROMETER (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.5	844.5+/-	**ROOT ZONE**, (Approximately 6 inches)									
2		6.0	839+/-	**LEAN CLAY (CL)**, with sand, trace organics, grayish brown, medium stiff		X	1	16	4-3-4 N=7	11	1.0	21.0	
						X	2	15	4-3-3 N=6	9	1.0	23.9	
5		12.0	833+/-	**SANDY LEAN CLAY (CL)**, grayish brown and gray, stiff		X	3	18	2-4-4 N=8	12	0.75	22.6	
						X	4	18	4-4-5 N=9	14	1.0	21.8	
3		17.0	828+/-	**FAT CLAY (CH)**, with sand, grayish brown and gray, very soft	▽	X	5	12	0-0-0 N=0	0	0.0	38.0	53-21-32
4		27.0	818+/-	**POORLY GRADED SAND (SP)**, with clay seams, fine to coarse grained, gray, very loose		X	6	18	0-1-2 N=3	5	0.25	19.4	
						X	7	9	2-2-1 N=3	5	0.25	19.1	
2		42.0	803+/-	**SANDY LEAN CLAY (CL)**, gray, very soft to medium stiff		X	8	28	2-2-3 N=5	8	0.5	31.8	
						X	9	18	0-0-1 N=1	2	0.25	25.0	
						X	10	15	0-0-2 N=2	3	0.25	21.4	
3		47.0	798+/-	**FAT CLAY (CH)**, with sand, very soft		X	11	18	0-0-0 N=0	0	0.5	12.2	56-24-32
5		52.0	793+/-	**SANDY LEAN CLAY (CL)**, trace gravel, gray, very stiff		X	12	18	6-9-7 N=16	25	2.0	21.5	

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

Advancement Method:
0-20 feet: Hollow-stem augers
20-100 feet: Mud rotary

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations provided by others

Notes:
92.5% Hammer efficiency

WATER LEVEL OBSERVATIONS
▽ *13 feet while drilling*

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

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 8/25/20

BORING LOG NO. B-22

PROJECT: MoDOT FARM Bridges Project

CLIENT: Missouri Department of Transportation
Hannibal, Missouri

SITE: Project J2S3318 - Bridge T0885
Adair County, MO

LOCATION See Exploration Plan
Northing: 1635810.351 Easting: 1661011.86
Approximate Surface Elev.: 845.0187 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	ELEVATION (Ft.)	DESCRIPTION	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (In.)	FIELD TEST RESULTS	N_{60}	POCKET PENETROMETER (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
5		55		**SANDY LEAN CLAY (CL)**, trace gravel, gray, very stiff		X	13	18	5-7-9 N=16	25	2.0	23.8	
		60				X	14	18	9-11-11 N=22	34	2.0	17.2	
		65				X	15	18	6-8-9 N=17	26	2.0	22.3	
		70				X	16	18	5-7-19 N=26	40	2.0	21.7	
		75				X	17	18	7-7-9 N=16	25	2.0	20.2	
		80		with sand seams, hard		X	18	5	8-9-11 N=20	31	2.0	19.2	
		85				X	19	18	12-28-37 N=65	100	0.25	12.9	
		90				X	20	18	6-9-10 N=19	29	2.0	18.8	
		95				X	21	18	8-10-14 N=24	37	2.0	17.4	
		100	745+/-			X	22	18	8-11-15 N=26	40	2.0	19.0	
		100.0		***Boring Terminated at 100 Feet***									

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

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations provided by others

Notes:
92.5% Hammer efficiency

WATER LEVEL OBSERVATIONS
▽ *13 feet while drilling*

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

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 8/25/20

DATE PREPARED 06/07/2024
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)

VEENSTRA & KIMM INC
P.O. Box 236 Liberty, Missouri 64069
816-781-6182 816-781-0643 (FAX)
Certificate of Authority No. F00362673

BORING DATA

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

Detailed Jun. 2024
Checked Jun. 2024