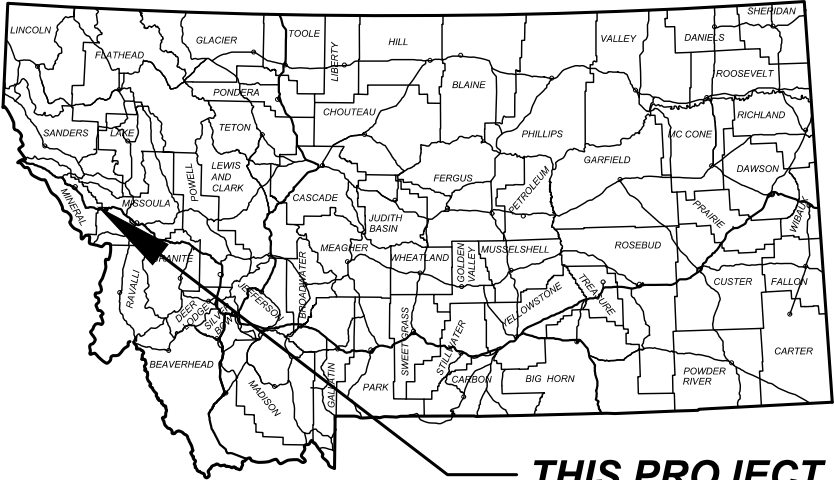




THIS PROJECT

MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT NHPB-SSS 90-1(253)69

BRIDGE REPLACEMENT

CYR INTERCHANGE STRUCTURE

MINERAL COUNTY

LENGTH 0.3 MILES

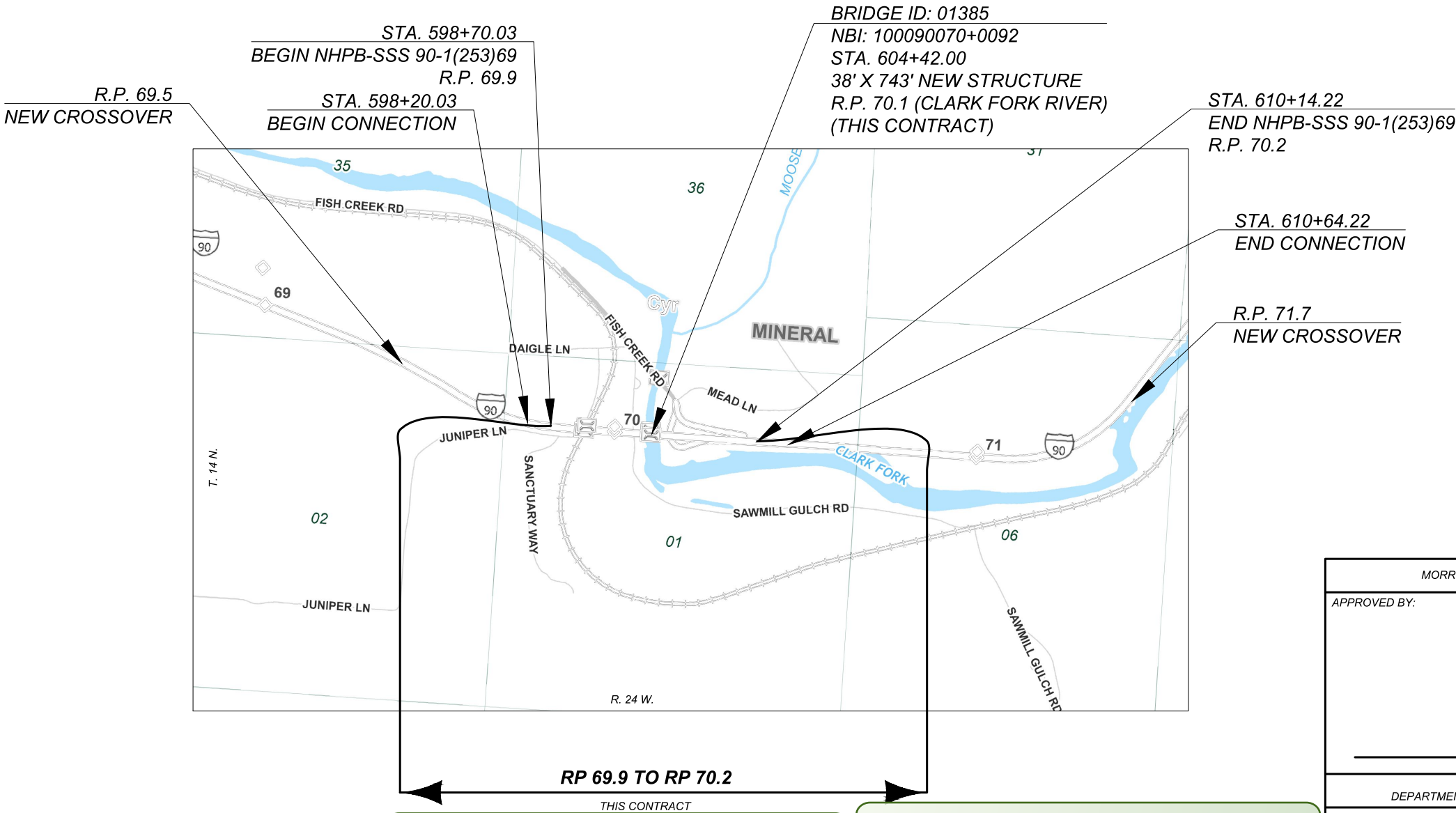
PROJECT DESIGN DATA

PRESENT	2021	A.A.D.T. = 7,370
LETTING	2026	A.A.D.T. = 7,740
DESIGN	2046	A.A.D.T. = 9,450
		D.H.V. = 890
		TRUCKS = 33.4%
		V. = 70 MPH
		18 KIP ESAL'S = 1,628
		ANNUAL GROWTH RATE = 1.0%

ASSOCIATED PROJECT AGREEMENT NUMBERS

R/W	
I. C.	
P. E.	NHPB 90-1(239)65

**SURFACING SOURCES -
CONTRACTOR FURNISHED**



APPROVED

By Kelly M Williams at 8:47 am, Jun 19, 2026

APPROVED

By Bryan Vanderloos at 2:51 pm, Jun 18, 2026

MORRISON-MAIERLE, INC.	
APPROVED BY:	
DATE	
MONTANA DEPARTMENT OF TRANSPORTATION	
DATE	

SHEET NO.

1

TITLE

PROJECT NAME
CYR INTERCHANGE STRUCTURE

COUNTY
MINERAL COUNTY

PROJECT ID
NHPB-SSS 90-1(253)69

UPN
9786002

DESIGNED BY MORRISON-MAIERLE	04/2026
REVIEWED BY FIRST INITIAL LAST NAME	MM/YYYY
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MONTANA
Department of Transportation

ROAD PLANS

5/28/2026 3:03 PM



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ROAD PLANS

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BASIS OF PLAN QUANTITIES

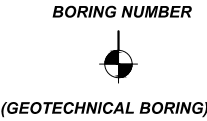
(QUANTITIES FOR ESTIMATING PURPOSES ONLY)	
COMP. AGGREGATE WEIGHT	= 3700 LBS. PER CUBIC YARD
COMP. WEIGHT OF PL. MIX BIT. SURF.	= 3855 LBS. PER CUBIC YARD
ASPHALT CEMENT	= 5.8% PL. MIX BIT. SURF.
BITUMINOUS MATERIAL	= 8.5 LBS. PER GAL.
EMULSIFIED ASPHALT - TACK (ALL OTHER SURFACES)	= 0.05 GAL. PER SQ.YARD (UNDILUTED)
EMULSIFIED ASPHALT - FOG SEAL (S & C)	= 0.075 GAL. PER SQ.YARD (UNDILUTED)
EMULSIFIED ASPHALT - FOG SEAL (RUMBLE STRIPS)	= 0.10 GAL. PER SQ.YARD (UNDILUTED)
SEAL	= 0.42 GAL. PER SQ.YARD
COVER	= 25 LBS. PER SQ.YARD

LIMITED ACCESS CONTROL

THIS PROJECT IS A LIMITED ACCESS CONTROL FACILITY. OBTAIN APPROVAL FROM THE CHIEF OF THE TRAFFIC & SAFETY BUREAU PRIOR TO ADDING, DELETING OR RELOCATING ANY APPROACHES.

SOILS INFORMATION

SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION. THE LOCATION OF GEOTECHNICAL BORINGS IS SHOWN ON THE PLAN VIEW WITH THE FOLLOWING SYMBOL:



UTILITIES

CALL THE UTILITIES UNDERGROUND LOCATION CENTER (811) OR OTHER NOTIFICATION SYSTEM FOR THE MARKING AND LOCATION OF ALL LINES AND SERVICES BEFORE EXCAVATING. ALL CLEARANCES OR DEPTHS PROVIDED FOR UTILITIES ARE FROM EXISTING GROUND LINE.

CLEARING AND GRUBBING

CLEAR AND GRUB TO CONSTRUCTION LIMITS. INCLUDE THE COST OF C LEARING AND GRUBBING IN THE UNIT PRICE BID FOR UNCLASSIFIED EXCAVATION.

WETLANDS

WETLANDS MAY EXIST ADJACENT TO THE ROADWAY AND BEYOND THE PROJECT LIMITS. A WETLAND DELINEATION HAS NOT BEEN COMPLETED FOR THIS PROJECT. IMPACTS TO WETLAND AREAS ARE NOT ANTICIPATED IN ASSOCIATION WITH THE PROPOSED WORK. NO PERMITS HAVE BEEN OBTAINED. ANY ACTION IMPACTING WETLAND AREAS WITHOUT THE APPROPRIATE PERMITTING IS THE RESPONSIBILITY OF THE CONTRACTOR.

SHEET NO.

2

TABLE OF CONTENTS
AND NOTES

PROJECT NAME
CYR INTERCHANGE STRUCTURE

COUNTY

MINERAL COUNTY

PROJECT ID

NHPB-SSS 90-1(253)69

UPN

9786002

DESIGNED BY

MORRISON-MAIERLE

04/2026

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SHEET NO.

CENTERLINE COORDINATE TABLES

PROJECT NAME
CYR INTERCHANGE STRUCTURE
 COUNTY

MINERAL COUNTY

NHPB-SSS 90-1(253)69

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MORRISON-MAIERLE	04/2026

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Department of Transportation

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CONTROL ABSTRACT			
POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION
A9524	1,045,546.722	703,466.047	2,991.25
A9786	1,045,526.174	702,776.481	2,942.89
B9524	1,046,538.622	702,623.612	2,987.30
B9786	1,044,982.505	702,799.875	2,931.22
C9786	1,044,790.655	703,364.825	2,971.15
D9786	1,045,333.216	703,288.381	2,999.02
P509	1045375.358	701556.332	3010.17



CONTROL DIAGRAM

SCALE: 1" = 200'

NOTE:
THIS PROJECT IS ON THE MONTANA COORDINATE SYSTEM NAD83-2011
NORTHING AND EASTING COORDINATES ARE EXPRESSED IN UNITS OF
INTERNATIONAL FEET AND ELEVATIONS ARE IN UNITS OF U.S. SURVEY FEET.
DIMENSIONS SHOWN ON THE PLANS ARE GRID. ALL SURVEY AND STAKING
REQUIRE THE USE OF A COMBINATION SCALE FACTOR (CSF) TO CONVERT GRID
DIMENSIONS TO GROUND DIMENSIONS (GRID DISTANCE / CSF = GROUND
DISTANCE). THE CSF FOR THIS PROJECT IS 0.99925199

CSF IS IDENTICAL WITH THE CFS FOR UPN 9524000.

CFS DERIVED FROM GEOID12B.

BEARING SOURCE
GRID -- MONTANA COORDINATE SYSTEM NAD 83-2011

LEVEL DATUM SOURCE
GRID -- MONTANA COORDINATE SYSTEM NAD 83-2011
NAVD 88 ELEVATIONS ARE DERIVED FROM DIFFERENTIAL LEVELS HOLDING THE
ELVATIONS OF A9524, B9524, AND P509 PER UPN 9524.

SHEET NO.

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CONTROL DIAGRAM
AND ABSTRACT

PROJECT NAME
CYR INTERCHANGE STRUCTURE

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MINERAL COUNTY

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NHPB-SSS 90-1(253)69

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TYPICAL SECTION NO. 1

WESTBOUND I-90 - CONNECTION

598+20.03
598+20.03

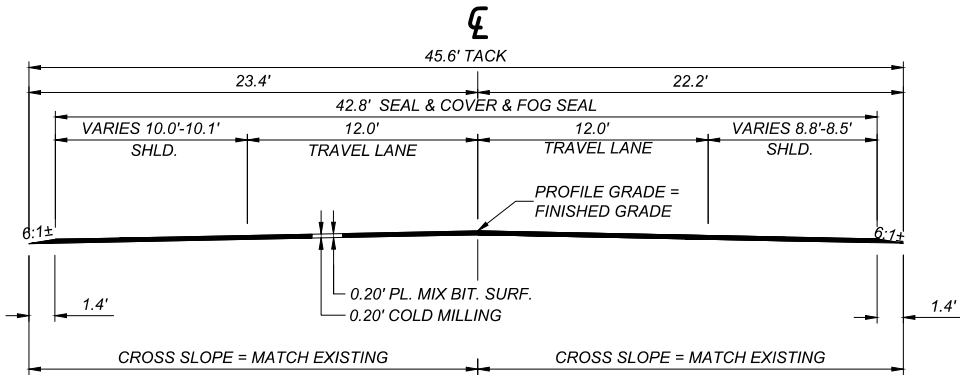
TO 598+70.03

BEGIN CONNECTION
SEE TYP. NO. 2 FOR AHEAD STATION

SHEET NO.

5

TYPICAL SECTIONS 1 & 2



QUANTITIES

UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL		AGG. TREAT	EMULSIFIED ASPHALT FOG SEAL
	COVER	PLANT MIX	CRUSHED AGGREGATE COURSE		EMULSIFIED ASPHALT SEAL	TACK*		
AREA SQUARE FEET		8.83		SQUARE YARDS PER STATION	476	507		476
CUBIC YARDS PER STATION		32.7		TONS PER STATION	0.85			
TONS PER STATION		63.1		GALS PER STATION		26		36
SQUARE YARDS PER STATION	476							

* BASED ON 1 APPLICATION

QUANTITIES BASED ON 8.8' RT SHLD. AND 10.1' LT SHLD.

*FILL SLOPES		*BACK SLOPES	
0' - 10'	6:1	0' - 5'	5:1
10' - 20'	4:1	5' - 10'	4:1
20' - 30'	3:1	10' - 15'	3:1
OVER 30'	2:1	OVER 15'	2:1

*SEE CROSS SECTIONS FOR DEVIATIONS

TYPICAL SECTION NO. 2

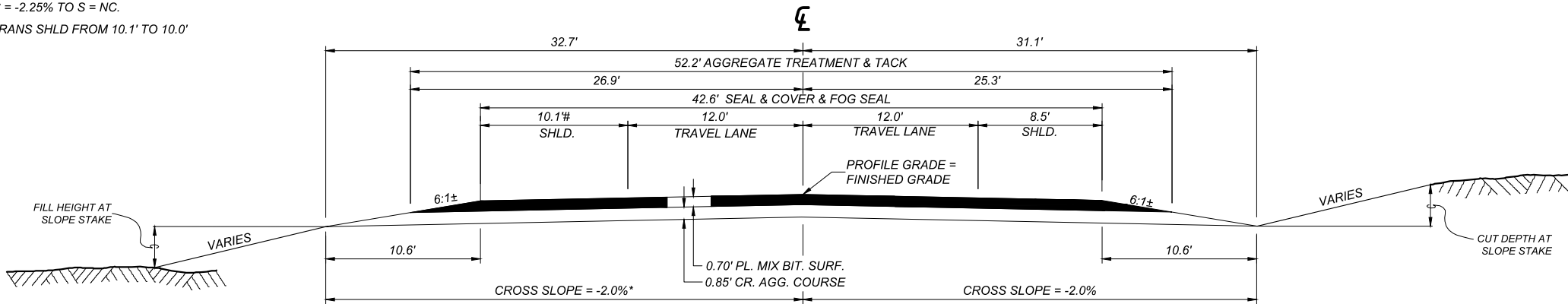
WESTBOUND I-90

598+70.03
598+70.03

TO 600+05.03

BEGIN RECONSTRUCTION
TRANS. TYP. NO. 2 TO TYP. NO. 3

*598+70.03 TO 599+00.00 LT TRANS. S = -2.25% TO S = NC.
#598+70.03 TO 598+75.00 LT S = NC. TRANS SHLD FROM 10.1' TO 10.0'



QUANTITIES

UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL		AGG. TREAT	EMULSIFIED ASPHALT FOG SEAL
	COVER	PLANT MIX	CRUSHED AGGREGATE COURSE		EMULSIFIED ASPHALT SEAL	TACK*		
AREA SQUARE FEET		33.18	49.30	SQUARE YARDS PER STATION	473	1740	580	473
CUBIC YARDS PER STATION		122.9	182.6	TONS PER STATION	0.84			
TONS PER STATION		236.9		GALS PER STATION		87		35
SQUARE YARDS PER STATION	473							

* BASED ON 3 APPLICATIONS

QUANTITIES BASED ON 10.1' LT SHLD.

NOTE: SEE DETAILS FOR SPECIAL BORROW
AND STABILIZATION GEOTEXTILE

PROJECT NAME
CYR INTERCHANGE STRUCTURE

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WESTBOUND I-90

TYPICAL SECTIONS 3 & 4

VS. SHLD FROM 10.0' TO 9.2'

32.6'

26.6'

47.6' AGGREGATE TREATMENT & TACK

26.8'

20.8'

38.0' SEAL & COVER & FOG SEAL

10.0' SHLD.

12.0' TRAVEL LANE

12.0' TRAVEL LANE

4.0' SHLD.

6:1±

6:1±

PROFILE GRADE = FINISHED GRADE

VARIES

VARIES

10.6'

10.6'

0.70' PL. MIX BIT. SURF.

0.85' CR. AGG. COURSE

CROSS SLOPE = -2.0%

CROSS SLOPE = -2.0%

FILL HEIGHT AT SLOPE STAKE

CUT DEPTH AT SLOPE STAKE

*FILL SLOPES		*BACK SLOPES	
0' - 10'	6:1	0' - 5'	5:1
10' - 20'	4:1	5' - 10'	4:1
20' - 30'	3:1	10' - 15'	3:1
OVER 30'	2:1	OVER 15'	2:1

WESTBOUND I-90

Diagram illustrating the cross-section of a road with a 42.4' wide travel lane and 6:1± slopes. The road is composed of a 0.70' PL. MIX BIT. SURF. and a 0.85' CR. AGG. COURSE. The cross slope is -2.0%.

Key dimensions and components:

- Overall width: 52.0' AGGREGATE TREATMENT & TACK
- Travel Lane: 12.0'
- Shoulders (SHLD.): 9.2' each
- Seal & Cover & Fog Seal: 42.4'
- Slopes: 6:1±
- Cross Slope: -2.0%
- Fill Height at Slope Stake: VARIES
- Cut Depth at Slope Stake: VARIES

* BASED ON 3 APPLICATIONS

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TYPICAL SECTION NO. 5

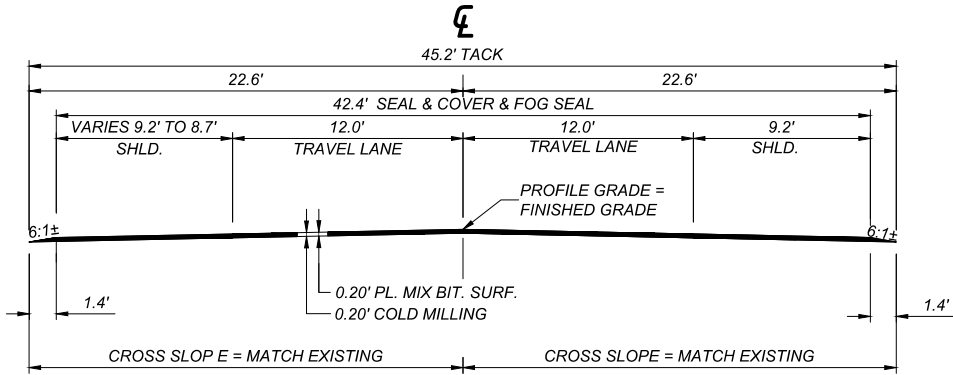
WESTBOUND I-90 - CONNECTION

610+14.22 TO 610+64.22
610+64.22
TYP. NO. 5
END CONNECTION

SHEET NO.

7

TYPICAL SECTION 5



QUANTITIES								
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL		AGG. TREAT	EMULSIFIED ASPHALT FOG SEAL
	COVER	PLANT MIX	CRUSHED AGGREGATE COURSE		EMULSIFIED ASPHALT SEAL	TACK*		
AREA SQUARE FEET		8.76		SQUARE YARDS PER STATION	471	502		471
CUBIC YARDS PER STATION		32.4		TONS PER STATION	0.84			
TONS PER STATION		62.5		GALS PER STATION		25		35
SQUARE YARDS PER STATION	471							

* BASED ON 1 APPLICATION
QUANTITIES BASED ON 9.2' LT SHLD.

*FILL SLOPES		*BACK SLOPES	
0' - 10'	6:1	0' - 5'	5:1
10' - 20'	4:1	5' - 10'	4:1
20' - 30'	3:1	10' - 15'	3:1
OVER 30'	2:1	OVER 15'	2:1

*SEE CROSS SECTIONS FOR DEVIATIONS

PROJECT NAME
CYR INTERCHANGE STRUCTURE

COUNTY

MINERAL COUNTY

PROJECT ID

NHPB-SSS 90-1(253)69

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ROAD PLANS

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ADDITIONAL GRADING				
STATION		cu. yards		REMARKS
		INCL. IN ROADWAY		
		UNCL. EXC.	EMB.+	
FROM	TO			
598+70.03	600+70.78		40	TOPSOIL REPLACEMENT
608+13.22	610+14.22		45	TOPSOIL REPLACEMENT
600+70.78	601+00.00	25	55	WEST END BRIDGE END GRADING
TOTAL		~	~	

FOR INFORMATION ONLY, INCLUDE IN THE COST OF RUMBLE STRIPS

*SEE DETAIL

[illegible]

#BASED ON 2 APPLICATIONS.

*SEE DETAILS

[illegible]

[illegible]



SURFACING

STATION		linear feet				FOR	AGGREGATE			BITUMINOUS MATERIAL			sq. yards	REMARKS
		GROSS	NET	+	-		sq. yards	tons	cu. yards	tons	gals.			
							COVER TYPE 1	COMM. MIX 1/2" PG 58V-34	CRUSHED AGG. COURSE	EMULSIFIED ASPHALT SEAL CHFRS-2P	EMULSIFIED ASPHALT TACK	EMULSIFIED FOG SEAL	AGG. TREAT.	
FROM	TO													
598+70.03	600+05.03	135.00	135.00				605	304	237	1.1	112	45	749	TRANS. TYP. NO. 2 TO TYP. NO. 3
600+05.03	600+70.03	65.00	65.00				275	139	110	0.5	51	21	344	TYP. NO. 3
600+70.03	608+14.22	744.19	0.00		744.19	BRIDGE								
608+14.22	608+58.52	44.30	44.30				187	95	75	0.4	35	14	234	TYP. NO. 3
608+58.52	610+14.22	155.70	155.70				696	351	273	1.3	130	53	862	TRANS. TYP. NO. 3 TO TYP. NO. 4
						ADDITIONAL SURFACING	1,246	66	30	2.4	27	36		
TOTAL		1,144.19	400.00	0.00	744.19		3,009	955	725	5.7	355	169	2,189	

ADDITIONAL SURFACING (INCLUDED IN SURFACING FRAME)

STATION		linear feet				FOR	AGGREGATE			BITUMINOUS MATERIAL			REMARKS
		GROSS	NET	+	-		sq. yards	tons	cu. yards	tons	gals.	gals.	
							COVER TYPE 1	COMM. MIX 1/2" PG 58V-34 MISC.	CRUSHED AGG. COURSE	EMULSIFIED ASPHALT SEAL CHFRS-2P	EMULSIFIED ASPHALT TACK	EMULSIFIED ASPHALT FOG SEAL	
FROM	TO												
598+20.03	598+70.03	50.00	50.00			CONNECTION TO PTW	238	32		0.5	13	18	TYP. NO. 1
610+14.22	610+64.22	50.00	50.00			CONNECTION TO PTW	236	32		0.5	13	18	TYP. NO. 5
						EMBANKMENT PROTECTOR		2			1		
						GUARDRAIL END SECTION WIDENING			30				MODIFY EXISTING END SECTION WIDENINGS PER STD. DWG. 606-13
						R.P. 71.7 CROSSOVER	772			1.4			
SUBTOTAL		~	~	~	~		1,246	66	30	2.4	27	36	

GUARDRAIL

STATION		linear feet										REMARKS
		REMOVE GUARDRAIL		MGS GUARDRAIL - LONG POSTS		MASH OPTIONAL TERMINAL SECTION		MGS ONE-WAY DEPARTURE TERMINAL SECTION		MASH THRIE-BEAM BRIDGE APPROACH SECTION		
FROM	TO	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	
NEW RAIL												
64+29.72	68+08.31				337.5		1		1			ON RAMP GUARDRAIL REPLACEMENT INCL. MGS TO METAL TRANS. SECTION
598+16.18	600+69.28			215.6	215.6					1	1	
608+14.97	611+49.84			250.0		1				1		
608+14.97	612+74.35				387.5		1				1	
REMOVE RAIL												
64+30.89	68+08.31		377.4									ON RAMP GUARDRAIL REMOVAL
598+16.18	600+59.90	243.7	243.7									
608+22.60	611+49.84	327.2	327.2									
SUBTOTAL		571.0	948.3	465.6	940.6	1	2		1	2	2	
TOTAL		1,519.3		1,406.2		3		1		4		

PROJECT NAME **CYR INTERCHANGE STRUCTURE**
COUNTY

MINERAL COUNTY

NHPB-SSS 90-1(253)69

9786002

DESIGNED BY	MORRISON-MAIERLE	04/2026
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SUMMARY

SHEET NO.

10

SUMMARY

PERMANENT EROSION CONTROL *							
STATION		cu. yards	sq. yards		linear feet		REMARKS
			ANCILLARY ARMOR	GEOTEXTILE	TURF REIN. MAT	4" CONCRETE CURB	
PERM. EROS. CNTRL.							
FROM	TO			HIGH SURV. CLASS B	SYNTHETIC FIBER	LEFT	
600+35.00	600+55.00			47			TRM PAD RT
600+30.03	600+70.03				40.0		
600+50.03	600+70.03					20.0	
607+76.00	607+86.00	3.7	16				RIPRAP PAD BELOW DECK DRAIN RT
608+14.22	608+84.22					70.0	
608+14.22	608+63.45				53.6		
608+35.00	608+55.00			46			TRM PAD RT
608+60.00	608+75.00			35			TRM CHUTE LT
SUBTOTAL					93.6	90.0	
TOTAL		3.7	16	128	183.6		

* SEE DETAILS

REVEGETATION											
STATION		lump sum	cu. yards	acres						REMARKS	
		REVEGETATION	TOPSOIL SALVAGING & PLACING	SEED			FERTILIZER		CONDITION SEEDBED #		MULCH
				NO. 1	NO. 2	NO. 3	NO. 1	NO. 2			
FROM	TO										
598+70.03	600+70.78		35		0.1	0.2		0.1	0.2	0.1	
608+13.22	610+14.22		40			0.2			0.2		
TOTAL		1	# 75		# 0.1	# 0.4		# 0.1	# 0.4	# 0.1	

FOR INFORMATION ONLY

STORM DRAIN STRUCTURE SCHEDULE					
NAME	STATION	each			REMARKS
		STORM DRAIN STRUCTURE	DROP INLET FRAME & GRATE	CONNECT TO EXISTING INLET	
		MANHOLE BASE			
		48"	TYPE 5/6		
DI-1	600+32.89	1	1	1	20.40' LT
TOTAL		1	1	1	

STORM DRAIN PIPE						
PIPE SECTION			ALLOWABLE PIPE MATERIALS		linear feet	REMARKS
					STORM DRAIN PIPE ##	
FROM	TO	NAME	RCP	PVC	12"	
600+32.89	600+32.88	P-1	X	X	53.9	CONNECT TO EXISTING MEDIAN INLET
TOTAL			~	~	53.9	

GRANULAR BEDDING MATERIAL INCIDENTAL TO STORM DRAIN PIPE, SEE DETAILED DRAWNGS FOR BEDDING QUANTITTITES AND DETAILS

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CYR INTERCHANGE STRUCTURE

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HYDRAULIC DATA SUMMARY *

STATION	STREAM NAME (IF NAMED)	DRAINAGE AREA (mi²)	SIZE/TYPE STRUCTURE ① ② ⑤	DESIGN FLOOD			BASE FLOOD (1%)		OVERTOPPING FLOOD ③ ④			REMARKS (FLOOD OF RECORD, Qp(max), etc.) ⑥
				MAGNITUDE (cfs)	FREQUENCY (%)	H.W. ELEV. (ft)	MAGNITUDE (cfs)	H.W. ELEV. (ft)	MAGNITUDE (cfs)	APPROX. FREQUENCY (%)	H.W. ELEV. (ft)	
604+55	CLARK FORK RIVER	9,582	743 FOOT 4-SPAN	64,766	2	2919.10	69,964	2920.30	80,902	0	2923.10	Qp(max), OVERTOPPING DOES NOT OCCUR

NOTES:
* H.W. ELEVATIONS SHOWN ARE BASED UPON PEAK FLOW ANALYSIS UNLESS NOTED IN REMARKS COLUMN.
ADDITIONAL GUIDANCE ON THE HYDRAULIC DATA SUMMARY SHEET CAN BE FOUND IN SECTION 11.8.2 OF THE HYDRAULICS MANUAL.

① STRUCTURE SIZE OR TYPE AND RELATED HYDRAULIC DATA MAY NOT REFLECT CHANGES MADE DUE TO R/W OR OTHER CONSIDERATIONS (I.E. STOCKPASS ADDED, STRUCTURE SIZE OR TYPE CHANGED, ROAD GRADE CHANGED DURING CONSTRUCTION, ETC.)

② BRIDGE TOP LENGTH AND NUMBER OF SPANS OR BASE BID CULVERT SIZE AND SHAPE.

③ OVERTOPPING IS DEFINED AS FLOW OVER THE ROAD, FLOW THROUGH A SIGNIFICANT RELIEF STRUCTURE OR FLOW OVER THE BASIN DIVIDE WHICHEVER IS LOWER.

④ FOR THOSE CROSSINGS NOTED BY Qp(max) IN THE REMARKS COLUMN, OVERTOPPING DOES NOT OCCUR THROUGH THE Qp(max) EVENT. Qp(max) IS THE 200 YEAR EVENT FOR CULVERTS AND THE 500 YEAR EVENT FOR BRIDGES.

⑤ HEAD WATER ELEVATIONS MAY VARY SLIGHTLY DEPENDING UPON THE PIPE OPTION SELECTED.

⑥ NOTE ANY CULVERTS THAT WERE SIZED USING THE HEADWATER EXCEPTION PROCEDURE PER SECTION 11.3.1.3.2 OF THE HYDRAULICS MANUAL. (FORMERLY CALLED PM10.)

EXCEEDANCE PROBABILITY	
25 YEAR	4% CHANCE
50 YEAR	2% CHANCE
100 YEAR	1% CHANCE
200 YEAR	0.5% CHANCE
500 YEAR	0.2% CHANCE



ROAD PLANS

DESIGNED BY
MORRISON-MAIERLE

REVIEWED BY

CHECKED BY

FIRST INITIAL LAST NAME

04/2026

MM/YYYY

MM/YYYY

9786002RDHDSZ01.DWG

PROJECT NAME
CYR INTERCHANGE STRUCTURE

COUNTY
MINERAL COUNTY

PROJECT ID
NHPB-SSS 90-1(253)69

UPN
9786002

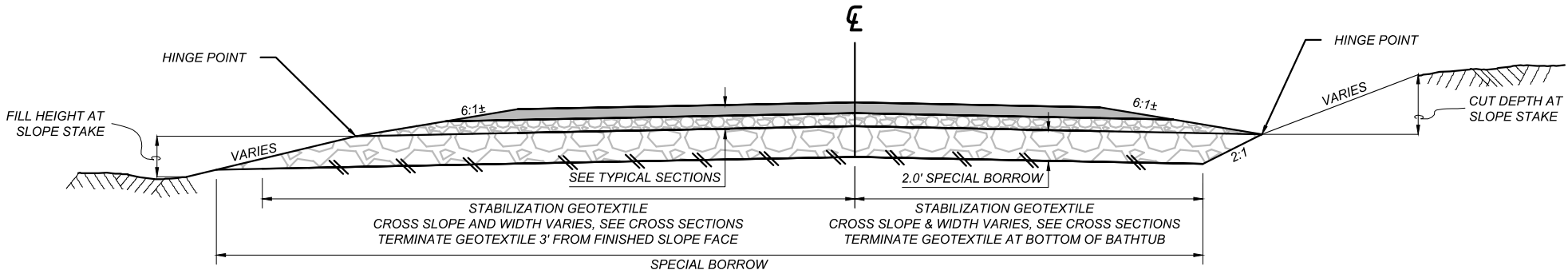
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DETAIL

SHEET NO.

12

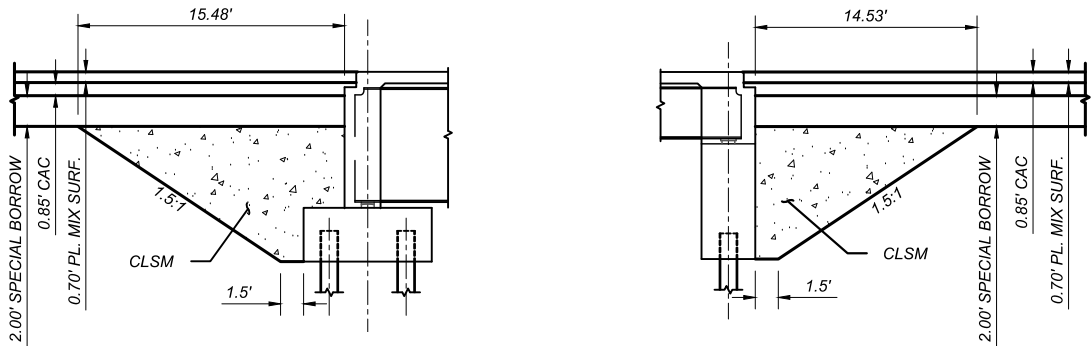
MISCELLANEOUS
DETAILS



- NOTES:
1. PLACE SPECIAL BORROW UNDER ALL SECTIONS AS SHOWN IN CROSS SECTIONS.
 2. EXCAVATION TO PLACE SPECIAL BORROW WILL BE PAID FOR AS UNCLASSIFIED EXCAVATION AND IS INCLUDED IN THE GRADING FRAME
 3. BATHTUB LOCATION VARIES, SEE CROSS SECTIONS.

SPECIAL BORROW PLACEMENT DETAIL

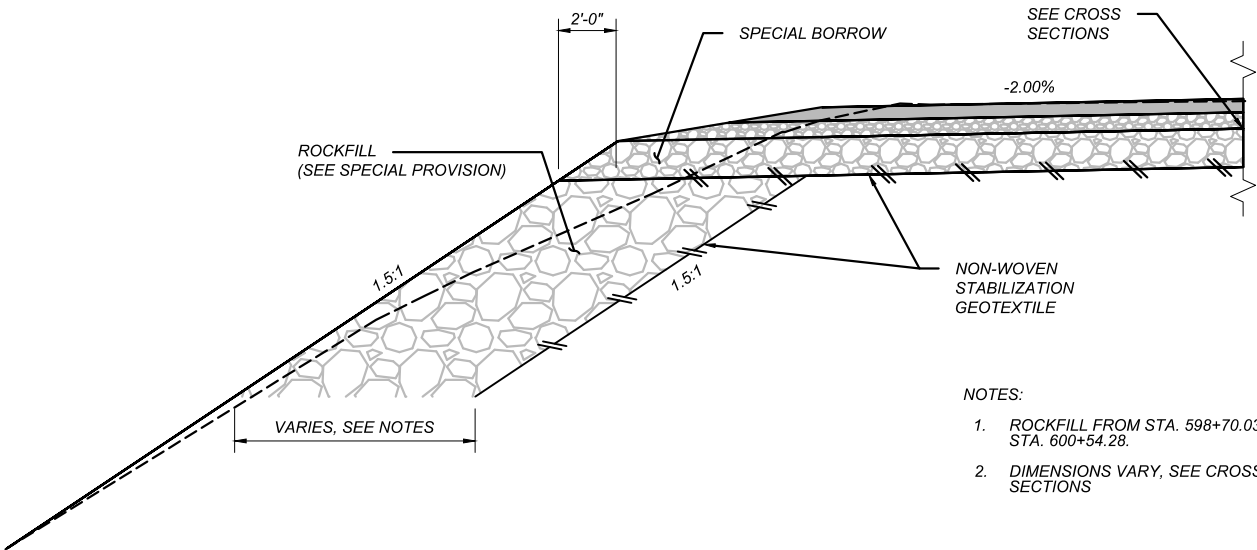
SCALE: 1" = 10'



- NOTES:
1. PLACE NON-EXCAVATABLE CONTROLLED LOW STRENGTH MATERIAL (CLSM) IN TWO (2) LIFTS (MIN.). PROVIDE 24-HOURS BETWEEN LIFTS.
 2. BENT 1 IS SHOWN IN FIGURE LEFT AND BENT 5 IS SHOWN IN FIGURE RIGHT.

BRIDGE END BACKFILL DETAIL

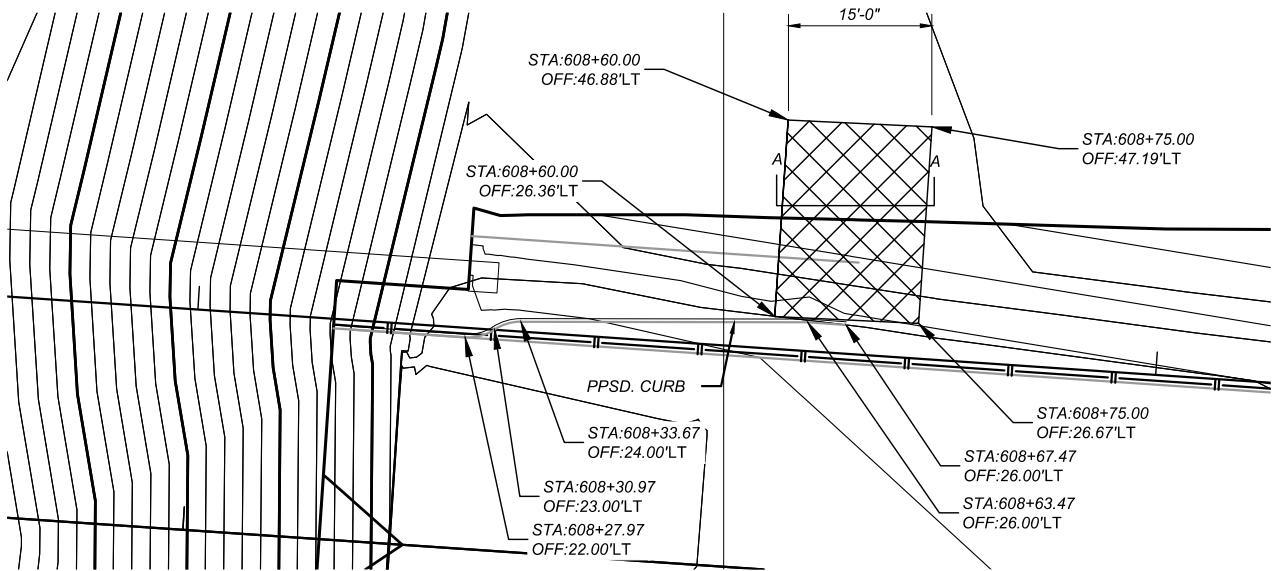
NOT TO SCALE



- NOTES:
1. ROCKFILL FROM STA. 598+70.03 TO STA. 600+54.28.
 2. DIMENSIONS VARY, SEE CROSS SECTIONS

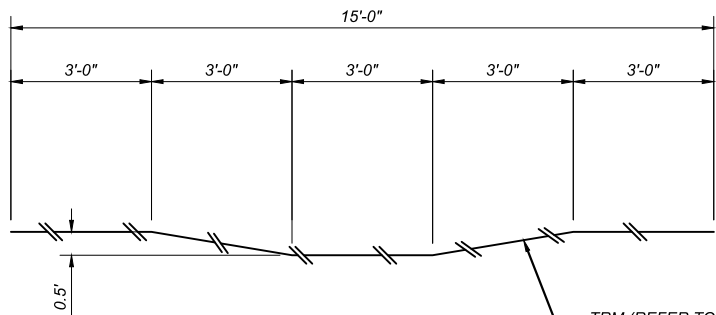
SPECIAL EMBANKMENT (ROCKFILL) DETAIL

NOT TO SCALE



EROSION CONTROL TRM CHUTE LAYOUT DETAIL

SCALE: 1" = 20'



- NOTES:
1. CONSTRUCT CURB WIDENING PER DETAIL DRAWING 603-28.

TRM (REFER TO 2016 EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES)

SECTION A-A

NOT TO SCALE

PROJECT NAME
CYR INTERCHANGE STRUCTURE

COUNTY

MINERAL COUNTY

PROJECT ID

NHPB-SSS 90-1(253)69

UPN

9786002

DESIGNED BY
MORRISON-MAIERLE

04/2026

REVIEWED BY
FIRST INITIAL LAST NAME

MM/YYYY

CHECKED BY
FIRST INITIAL LAST NAME

MM/YYYY

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ROAD PLANS

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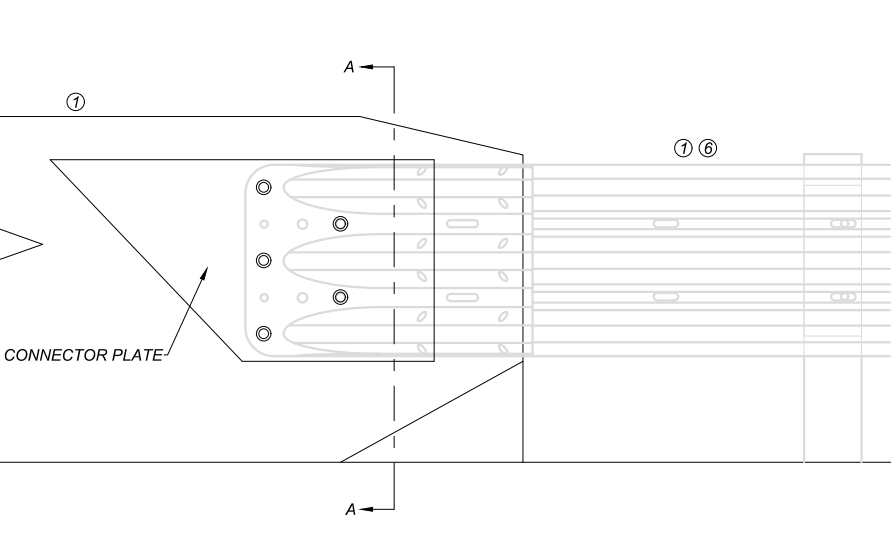
DETAIL

NOTES:

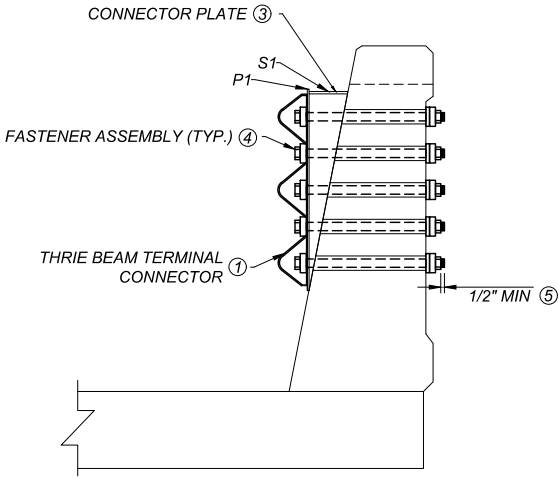
- ① SEE STD. DWG. NO. SBR-SS36 FOR STANDARD BRIDGE RAIL TYPE SINGLE SLOPE 36" INFORMATION. SEE DTL. DWG. NO. 606-23A AND 606-23B FOR STANDARD MGS THRIE BEAM BRIDGE APPROACH SECTION INFORMATION.
- ② USE PLATES AND STIFFENERS CONFORMING TO AASHTO M-270 GRADE 36 STEEL.
- ③ STIFFENERS NOT SHOWN FOR CLARITY IN SECTION A-A VIEW.
- ④ USE 7/8" DIA. HIGH STRENGTH BOLT (FBX22b*) W/ 1 PLATE WASHER AND 1 HEAVY HEX NUT (FNX22b*)(5 PLACES)
- ⑤ BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN THRIE BEAM CONNECTION PLATE, CONNECTOR PLATE, AND THE RIGID BARRIER. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH.
- ⑥ INCLUDE THE COST OF THE MGS THRIE BEAM BRIDGE APPROACH CONNECTOR PLATE IN THE COST OF THE MGS THRIE BEAM BRIDGE APPROACH SECTION.
- ⑦ GALVANIZE FABRICATED PARTS IN ACCORDANCE WITH SUBSECTION 711.08. DO NOT PUNCH, DRILL, OR CUT AFTER GALVANIZING.
- ⑧ WELD IS TYPICAL AT ALL JOINTS. DRILL HOLES AFTER WELDING. GRIND WELDS SMOOTH AT HOLES TO ALLOW FOR EASY PASSAGE OF BOLTS.

*SEE DTL. DWG. NO. 606-80 FOR SCHEDULE OF GUARDRAIL HARDWARE.

CONNECTOR PLATE DIMENSIONS (PER ASSEMBLY) ②				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C)	THICKNESS
P1	1		40" x 20" x 21"	0'-0 3/16"
S1	1		39 1/2" x 20" x 4"	0'-0 1/4"
S2	3		4" x 20 1/2"	0'-0 1/4"
S3	1		14 7/8" x 2 3/4" x 2 1/2"	0'-0 1/4"
S4	1		8 1/2" x 2"	0'-0 1/4"
S5	1		7 3/4" x 2"	0'-0 1/4"



CONNECTION DETAIL



SECTION A-A

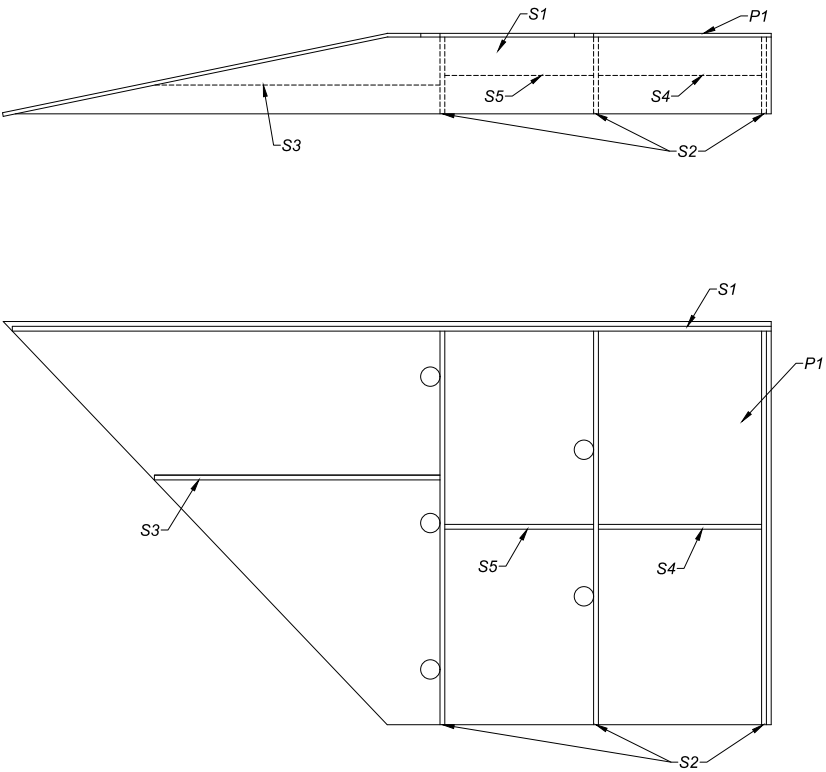


PLATE AND STIFFENER IDENTIFICATION

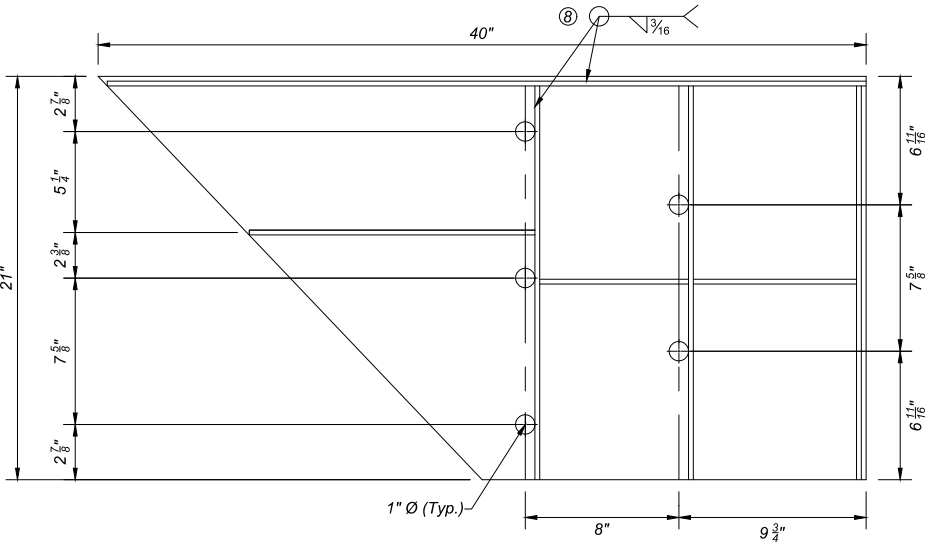
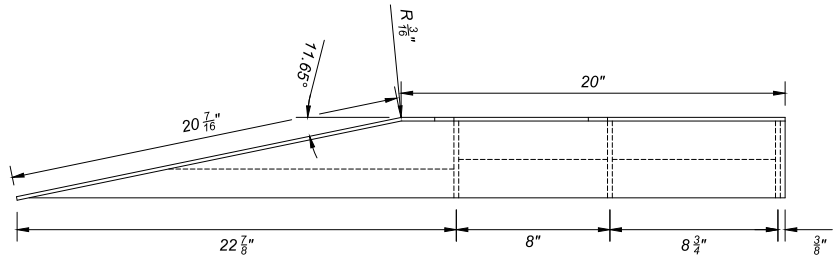
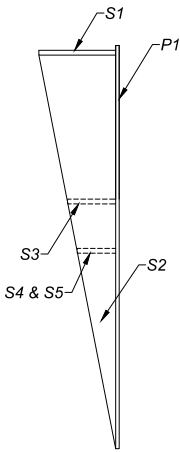
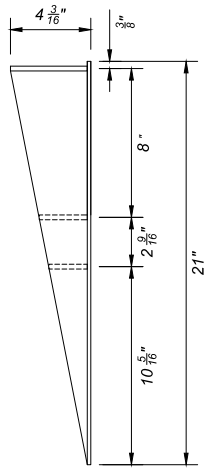


PLATE AND STIFFENER DIMENSIONS





 MONTANA Department of Transportation ROAD PLANS 5/28/2026 3:05 PM			DESIGNED BY MORRISON-MAIERLE		04/2026	PROJECT NAME CYR INTERCHANGE STRUCTURE		CROSSOVER LOCATION MAP	SHEET NO. 14
			REVIEWED BY FIRST INITIAL LAST NAME		MM/YYYY	COUNTY MINERAL COUNTY			
			CHECKED BY FIRST INITIAL LAST NAME		MM/YYYY	PROJECT ID NHPB-SSS 90-1(253)69			
					MM/YYYY	UPN 9786002			
					9786002RDDETZ05.DWG				

DETAIL

SHEET NO.

15

NEW CROSSOVER R.P.
69.5

PROJECT NAME
CYR INTERCHANGE STRUCTURE

COUNTY

MINERAL COUNTY

PROJECT ID

NHPB-SSS 90-1(253)69

UPN

9786002

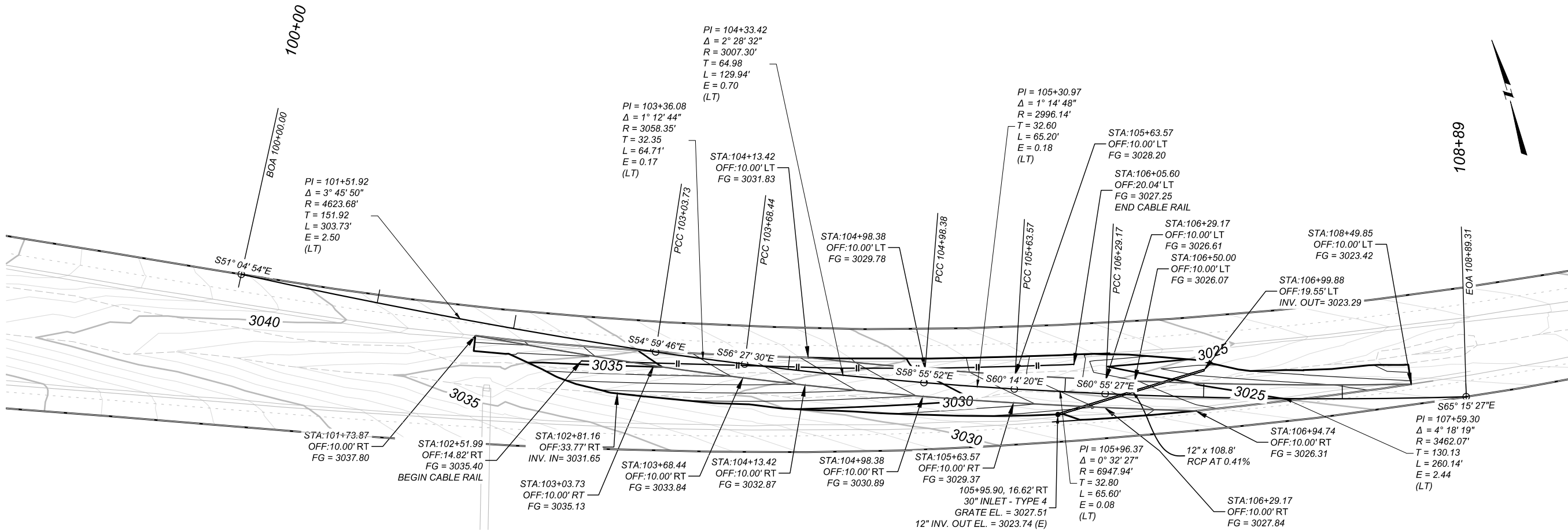
DESIGNED BY	04/2026	REVIEWED BY	###	CHECKED BY	###
MORRISON-MAIERLE		###		###	

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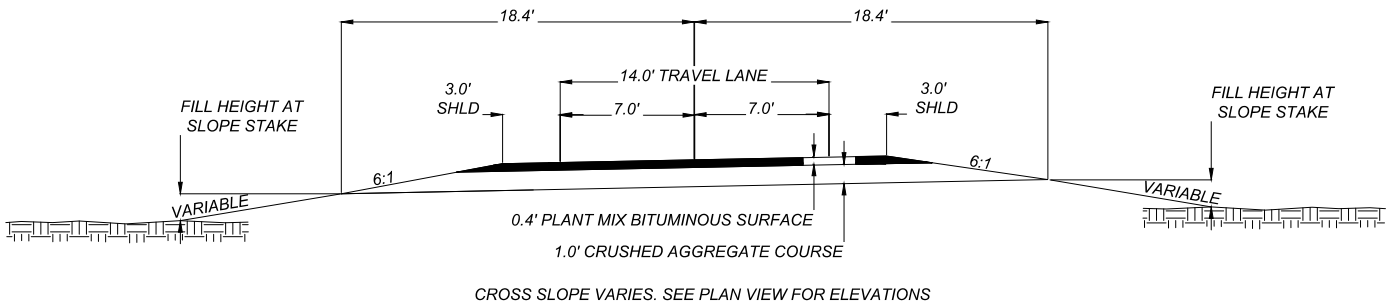


ROAD PLANS

5/28/2026 3:05 PM



CROSSOVER TYPICAL SECTION



QUANTITIES FOR WB
CROSSOVER

(FOR INFORMATIONAL PURPOSES ONLY)

COMMERCIAL PLANT MIX BIT. SURF. 1/2" PG 58V-34 = 315 TON

CRUSHED AGGREGATE COURSE = 525 CY

UNCLASSIFIED EXCAVATION = 190 CY

EMB+ = 615 CY

DROP INLET TYPE 4 = 1 EA

12 IN RCP CL. 5 = 110 LF

R.A.C.E.T = 1 EA

SALVAGE & PLACE TOPSOIL = 140 CY

COLD MILLING RUMBLE STRIPS = 138 SY

HIGH-TENSION CABLE RAIL = 355 LF

HIGH-TENSION CABLE RAIL TERMINAL SECTIONS = 2 EACH

NOTES:

- MEET CROSSOVER GEOMETRY REQUIREMENTS PER MDT DTL DWG NO. 618-30 AND 618-32.
- MEET CROSSOVER TRAFFIC CONTROL REQUIREMENTS PER MDT DTL DWG NO. 618-30 AND 618-32.
- DETERMINE FINAL LENGTH OF CABLE RAIL TO BE INSTALLED ONCE CONSTRUCTION OF THE CROSSOVER IS COMPLETE. INSTALL CABLE GUARDRAIL ONCE CONSTRUCTION ACTIVITIES HAVE BEEN SUSPENDED FOR WINTER SHUTDOWN OR UPON COMPLETION OF CONSTRUCTION ACTIVITIES. CABLE GUARDRAIL IS INCLUDED IN THE UNIT PRICE BID FOR CROSSOVER.
- SEE SPECIAL PROVISIONS FOR HIGH TENSION CABLE RAIL REQUIREMENTS.
- ELEVATIONS AT THE CONNECTION POINTS ARE APPROXIMATE. CONTRACTOR VERIFY IN THE FIELD.
- CONTRACTOR TO MILL EXISTING RUMBLE STRIPS ADJACENT TO THE CROSSOVER APPROACHES. MILL DEPTH THROUGH EXISTING RUMBLE STRIPS IS 0.15'.
- PIPE LENGTH SHOWN IN PLAN VIEW IS MEASURED FROM INSIDE EDGE TO INSIDE EDGE OF STRUCTURE FOR SLOPE CALCULATION ONLY. CENTER TO CENTER PIPE LENGTH MEASUREMENT IS USED FOR BID LENGTH.

DETAIL

SHEET NO.

16

NEW CROSSOVER R.P. 71.7

PROJECT NAME
CYR INTERCHANGE STRUCTURE

COUNTY
MINERAL COUNTY

PROJECT ID
NHPB-SSS 90-1(253)69

UPN
9786002

DESIGNED BY
MORRISON-MAIERLE

REVIEWED BY
04/2026

FIRST INITIAL LAST NAME
MM/YYYY

CHECKED BY
MM/YYYY

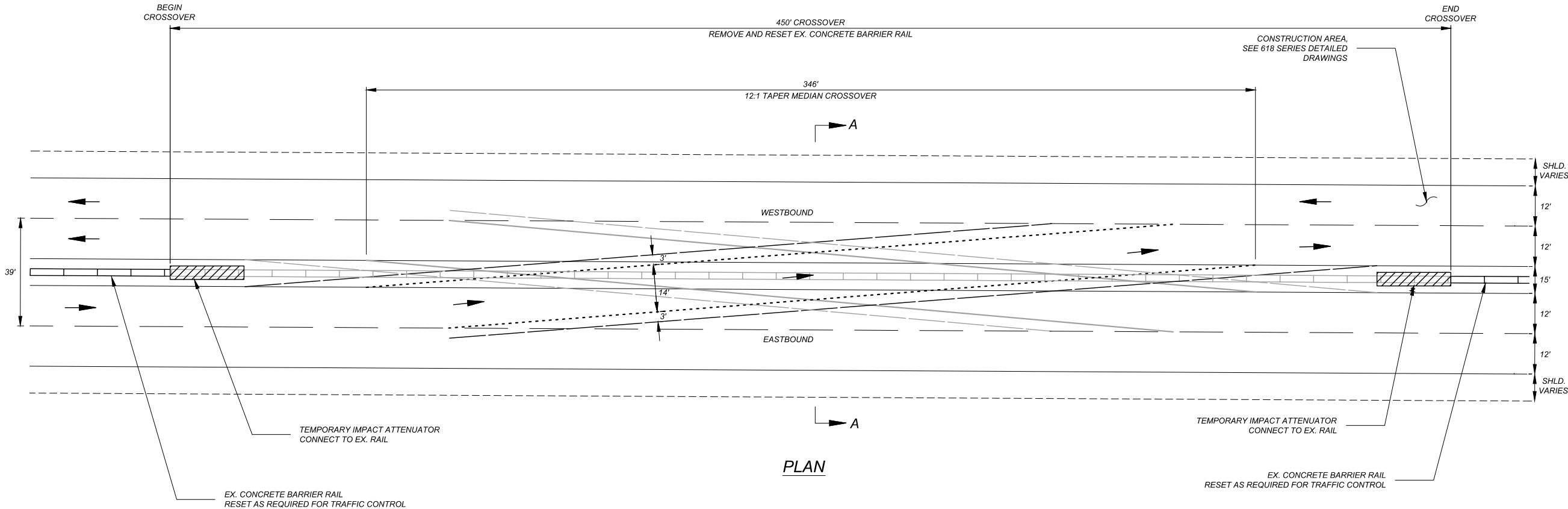
FIRST INITIAL LAST NAME
MM/YYYY

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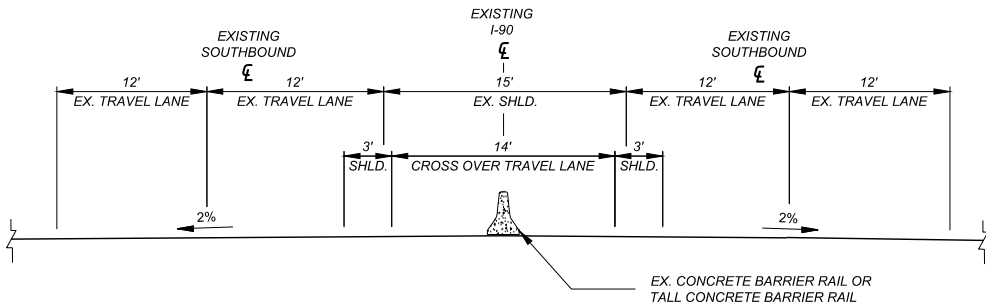
ROAD PLANS

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QUANTITIES FOR CROSSOVER
(FOR INFORMATION ONLY)

REMOVE CONCRETE BARRIER RAIL = 45 EA
TEMPORARY IMPACT ATTENUATOR = 2 EA
REMOVE IMPACT ATTENUATOR = 2 EA
RESET CONCRETE BARRIER RAIL = 45 EA

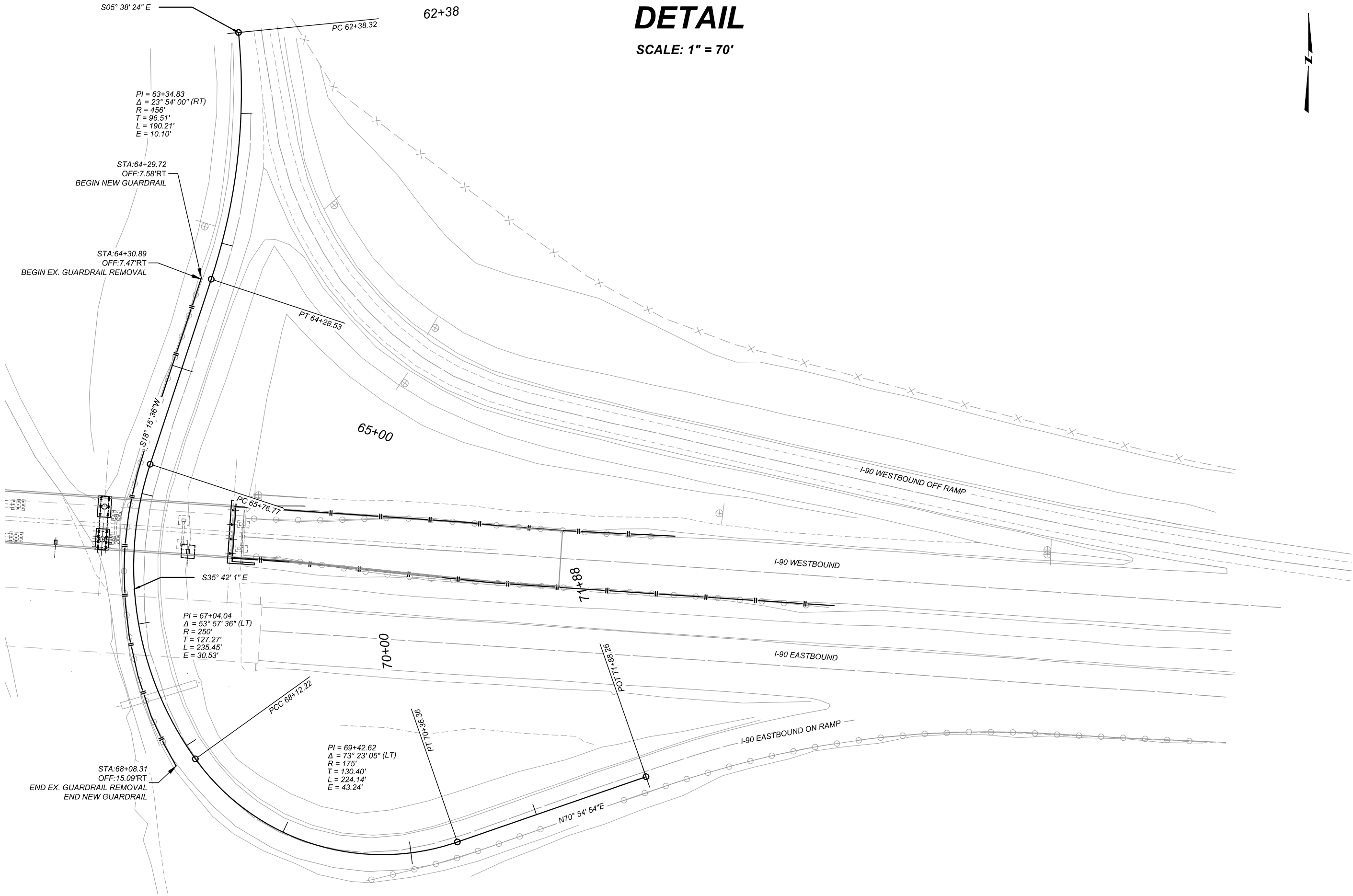


NOTES:

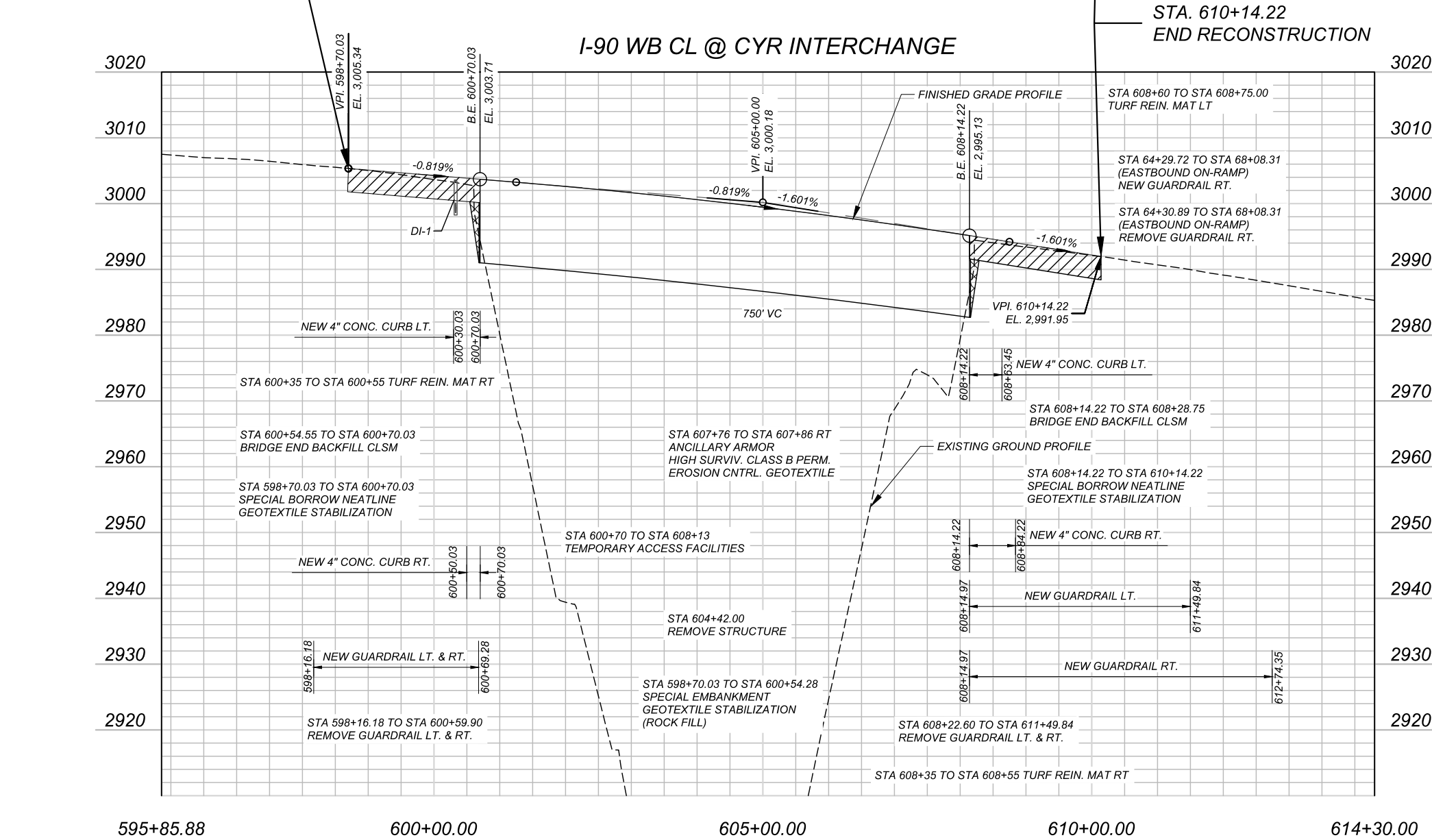
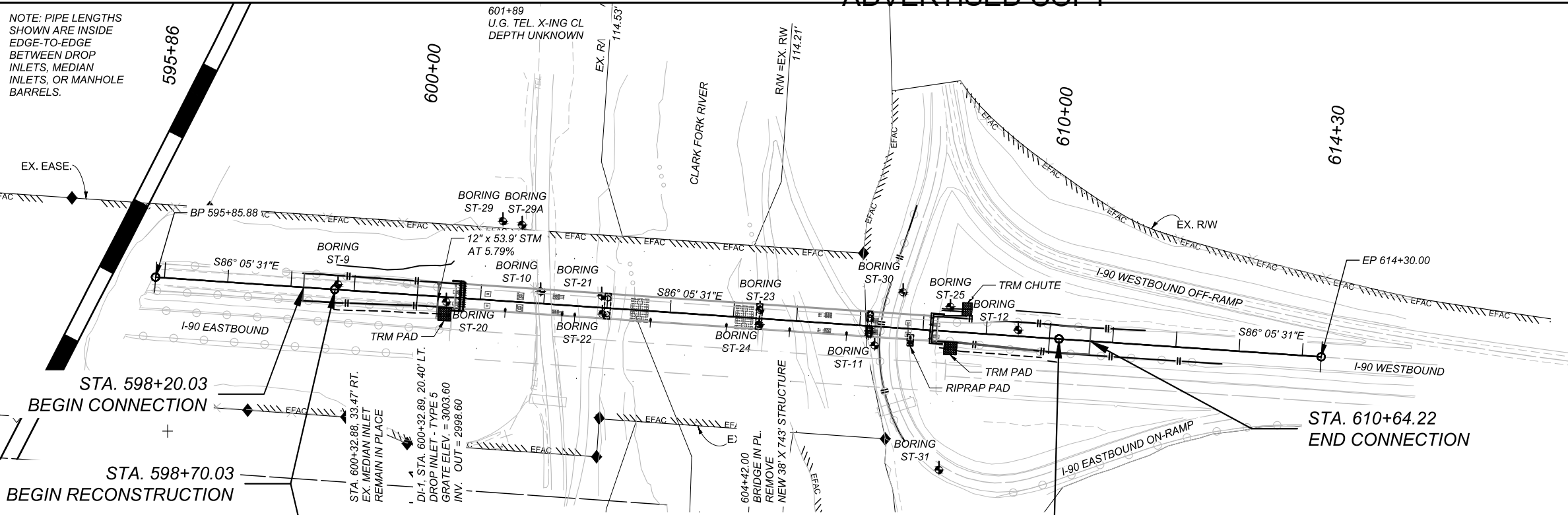
- ITEMS INCLUDED IN THE UNIT BID PRICE PER EACH OF CROSSOVER - MEDIAN BARRIER RAIL ARE REMOVE BARRIER, TEMPORARY IMPACT ATTENUATOR, REMOVE IMPACT ATTENUATOR, AND RESET CONCRETE BARRIER
- SEE 618 SERIES DETAILED DRAWINGS FOR ADDITIONAL CROSSOVER REQUIREMENTS.
- REMOVE TEMPORARY IMPACT ATTENUATORS, RESET CONCRETE BARRIER RAIL AND PROVIDE SEAL AND COVER WHEN WORK IS DONE.
- SEAL, COVER AND RUMBLE STRIPS ARE PAID FOR BY THEIR INDIVIDUAL ITEMS.

DETAIL

SCALE: 1" = 70'



NOTE: PIPE LENGTHS
SHOWN ARE INSIDE
EDGE-TO-EDGE
BETWEEN DROP
INLETS, MEDIAN
INLETS, OR MANHOLE
BARRELS.



SHEET NO.

18

I-90 WESTBOUND
MAINLINE

PROJECT NAME
CYR INTERCHANGE STRUCTURE

COUNTY
MINERAL COUNTY

PROJECT ID
NHPB-SSS 90-1(253)69

UPN
9786002

DESIGNED BY
MORRISON-MAIERLE

04/2026

REVIEWED BY
FIRST INITIAL LAST NAME

MM/YYYY

CHECKED BY
FIRST INITIAL LAST NAME

MM/YYYY

MONTANA
Department of Transportation

ROAD PLANS

5/28/2026 3:06 PM

NOTES AND ABBREVIATIONS:

MOUNTING HEIGHT REQUIREMENTS: MOUNTING HEIGHTS SHOWN REFER TO THE BOTTOM OF THE MAJOR PANEL. SEE DETAILED DRAWINGS 619-00 & 619-08

ALL MARKINGS ARE PAINT, EXCEPT AS NOTED. WHERE SPECIFIED ON THE PLANS AS PLASTIC, INSTALL INLAID HOT EXTRUDED HYDRO-CARBON THERMOPLASTIC PAVEMENT MARKINGS.

SEE LOCATION AND SPECIFICATION SHEETS FOR PORTIONS OF PROJECT NOT INCLUDED WITHIN SIGNING PLAN SHEETS.

SIGN POSTS SYMBOLS SHOWN ARE FOR REFERENCE ONLY TO SHOW EXISTING SIGNS THAT REQUIRE NO ACTION.

SIGNING LOCATIONS ARE APPROXIMATE. ENGINEERING PROJECT MANAGER TO FIELD ADJUST AS NECESSARY.

ADOPT A HIGHWAY: IF SIGNS N7-1/N7-1P EXIST, CONTRACTOR WILL CONFIRM THAT THE GROUP NAME ON THE SIGN(S) EXISTING AT THE TIME OF CONSTRUCTION CORRESPONDS TO THE GROUP NAME ON THE SIGN(S) SHOWN IN PLANS. IF NAME IS DIFFERENT, ENGINEERING PROJECT MANAGER WILL CONTACT TRAFFIC & SAFETY BUREAU SIGNING SECTION WITH THE CORRECT NAME AND A NEW SIGN DESIGN WILL BE PROVIDED.

FY = FLUORESCENT YELLOW SHEETING REQUIRED

FYG = FLUORESCENT YELLOW-GREEN SHEETING REQUIRED



=

STANDARD BREAKAWAY DEVICE:

- FOR WOOD POST SEE DETAILED DRAWING 619-20.
- FOR STRUCTURAL STEEL SEE DETAILED DRAWING 619-13.



=

SINGLE SQUARE TUBE REQUIRED. MOUNTED IN HEAVY DUTY STUB.



=

TELESCOPED SQUARE TUBES (2-1/4" & 2-1/2") WITH SLIP BASE BREAKAWAY REQUIRED. MOUNTED IN HEAVY DUTY STUB.



=

FRANGIBLE SIGN POST. BREAKAWAY DEVICE REQUIRED.

AIR

=

ANGLE IRON REQUIRED
2 1/2" x 2 1/2" x 3/8" x 6'-4" (37 lbs.)

BBR

=

BACKBRACING REQUIRED:

- FOR WOOD POLE SEE DET. DWG 619-22
- FOR STEEL POST 2" X 2" X 1/4" REQUIRED. SEE DET. DWG 619-16
- FOR STRUCTURAL STEEL POST 2 3/4" X 2 3/8" EXTRUDED "T" SECTION BACKBRACE REQUIRED. SEE DET. DWG 619-19
- FOR CANTILEVER POST, SEE DET. DWG 619-18
- FOR GUIDE SIGN PANELS, USE EXTRUDED "T" SECTION BACKBRACE. SEE DET. DWG 619-04

USE HARDWARE MEETING REQUIREMENTS OF SECTION 704

BGR

=

BEHIND GUARDRAIL

MBB

=

MOUNT BACK TO BACK

RSFO

=

REPLACE SIGN FACE ONLY

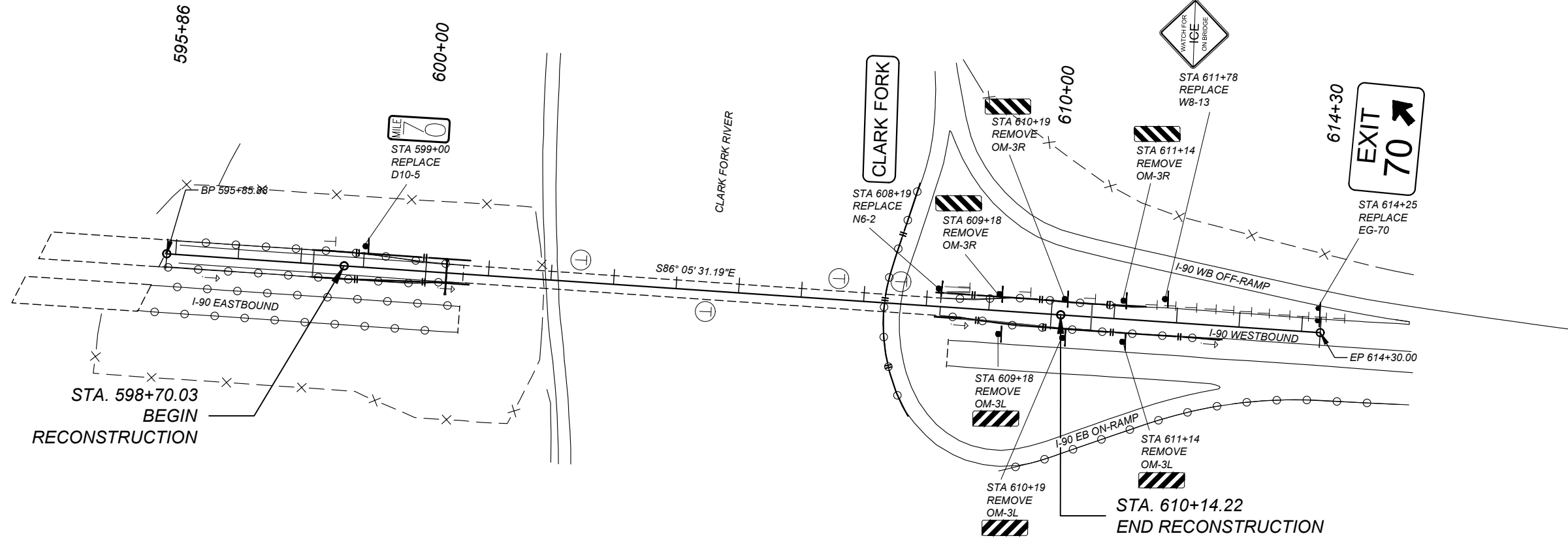
CBB

=

CHEVRON BACK TO BACK

SUMMARY SIGNING & DELINEATION QUANTITIES		
MATERIAL	TOTAL	UNIT
SIGNS-ALUM REFL SHEET XI	19.0	SQFT
SIGNS-ALUM SHEET INCR XI	44.0	SQFT
REMOVE SIGN	8	EACH
REMOVE SIGN-GUIDE	2	EACH
POSTS-TUBULAR STEEL	174	LB
POSTS-STEEL U SIGN	27	LB
POSTS-STEEL STRUCTURAL SIGN	265	LB
POLES-TREATED WOOD 4 IN	24	LNFT
FRANG SIGN POST BKWY-S5 X 10 (S130X15)	2	EACH
FRANG SIGN POST BKWY-4 IN RD (100 MM)	1	EACH
DELINEATOR TYPE 1	19	EACH
DELINEATOR TYPE 2	4	EACH

 MONTANA Department of Transportation SIGNING PLANS	DESIGNED BY MORRISON-MAIERLE		PROJECT NAME CYR INTERCHANGE STRUCTURE	
	REVIEWED BY FIRST INITIAL LAST NAME		COUNTY MINERAL COUNTY	
	CHECKED BY FIRST INITIAL LAST NAME		PROJECT ID NHPB-SSS 90-1(253)69	
	5/28/2026 2:09 PM		UPN 9786002	
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SHEET NO.

S3

I-90 WESTBOUND
MAINLINE

PROJECT NAME
CYR INTERCHANGE STRUCTURE

COUNTY
MINERAL COUNTY

PROJECT ID
NHPB-SSS 90-1(253)69

UPN
9786002

DESIGNED BY
MORRISON-MAIERLE

04/2026

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FIRST INITIAL LAST NAME

MM/YYYY

CHECKED BY
FIRST INITIAL LAST NAME

MM/YYYY

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MONTANA
Department of Transportation

SIGNING PLANS

5/28/2026 2:21 PM

ASSOCIATED PROJECT AGREEMENT NUMBERS	
P.E.	NHPB 90-1(239)65

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE PLANS AND QUANTITIES

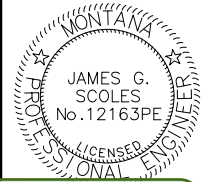
FEDERAL AID PROJECT NHPB-SSS 90-1(253)69

CYR INTERCHANGE STRUCTURE

MINERAL COUNTY

BY _____

DATE _____



APPROVED
By James Scoles at 2:47 pm, Jun 18, 2026

SCALES SHOWN ON BRIDGE PLANS SHEETS
ARE FOR HALF SIZE (11X17) PRINTS
FULL SIZE PRINTS ARE APPROXIMATELY TWICE
ORIGINAL SCALE

BRIDGE IDENTIFICATION		
MDT STR ID	EXISTING STR. NBI NUMBER	NEW STR. NBI NUMBER
01385	I00090070+00902	000000202101385

LIST OF DRAWINGS

SHEET NUMBER	DWG. NO.	TITLE	SHEET NUMBER	DWG. NO.	TITLE
B1	21175	LIST OF DRAWINGS	B22	21196	FRAME 1 FIXED BEARING DETAILS
B2	21176	ESTIMATED BRIDGE PLAN QUANTITIES	B23	21197	FRAME 1 EXPANSION BEARING DETAILS
B3	21177	BRIDGE NOTES AND SPECIFICATIONS	B24	21198	FRAME 2 EXPANSION BEARING DETAILS
B4	21178	GENERAL LAYOUT AT STA. 604+42.00	B25	21199	ERECTION PLANS
B5	21179	TYPICAL BRIDGE SECTIONS AND DETAILS	B26	21200	GIRDER ELEVATIONS
B6	21180	FOOTING PLAN	B27	21201	GIRDER END DETAILS
B7	21181	LOG OF BORINGS	B28	21202	FIELD SPLICE DETAILS
B8	21182	FOOTING DETAILS	B29	21203	FRAME 1 INTERMEDIATE CROSS FRAME DETAILS
B9	21183	BENT NO. 1	B30	21204	FRAME 1 PIER CROSS FRAME DETAILS
B10	21184	BENT NO. 1 SECTIONS	B31	21205	FRAME 1 BENT NO. 4 CROSS FRAME DETAILS
B11	21185	BENT NO. 1 CAP REINFORCING AND BILL OF REINFORCING	B32	21206	FRAME 2 DIAPHRAGM DETAILS
B12	21186	PIER NO. 2	B33	21207	CAMBER DIAGRAM
B13	21187	PIER NO. 3	B34	21208	MISCELLANEOUS STEEL DETAILS (SHEET 1 OF 2)
B14	21188	PIER CAP DETAILS	B35	21209	MISCELLANEOUS STEEL DETAILS (SHEET 2 OF 2)
B15	21189	PIER DETAILS AND BILL OF REINFORCING	B36	21210	SLAB PLAN
B16	21190	BENT NO. 4	B37	21211	FRAME 1 SLAB SECTION
B17	21191	BENT NO. 4 SECTIONS	B38	21212	FRAME 2 SLAB SECTION
B18	21192	BENT NO. 4 BILL OF REINFORCING	B39	21213	SLAB DETAILS, SLAB POURING SEQUENCE, AND BILL OF REINFORCING
B19	21193	BENT NO. 5	B40	21214	MODULAR EXPANSION JOINT DETAILS
B20	21194	BENT NO. 5 SECTIONS AND DETAILS	B41	21215	DRAIN DETAILS
B21	21195	BENT NO. 5 BILL OF REINFORCING	B42	21216	BARRIER COVER PLATE DETAILS

LIST OF STANDARD DRAWINGS

DWG. NO.	DATE	TITLE
<i>SBR-SS36</i>	<i>APPROVED 9-27-2018</i>	<i>STANDARD BRIDGE RAIL TYPE SINGLE SLOPE 36"</i>
<i>SBR-SS36R</i>	<i>APPROVED 9-27-2018</i>	<i>STANDARD BRIDGE RAIL TYPE SINGLE SLOPE 36" REINFORCING</i>
<i>PSD</i>	<i>REVISED 10-10-2019</i>	<i>STANDARD PILE SPLICE DETAILS AND PILE TIPS</i>

[illegible]



ESTIMATED BRIDGE PLAN QUANTITIES														
STRUCTURE NAME	MDT STRUCTURE ID NUMBER	FEATURE INTERSECTED	REFERENCE POINT	LOCATION	LENGTH IN FEET	STRUCTURE EXCAVATION TYPE 1	TEMPORARY SHORING	CONCRETE-CLASS STRUCTURE	CONCRETE-CLASS STRUCTURE LOW SLUMP	CONCRETE-CLASS DRILLED SHAFT	TRANSVERSE DECK GROOVING	BRIDGE DECK CRACK SEAL	EXPANSION JOINT - MODULAR	SCUPPER
					(FT)	(YD³)	(LS)	(YD³)	(YD³)	(YD³)	(YD²)	(YD²)	(FT)	(EACH)
W.B. I-90 BRIDGE AT CYR INTERCHANGE	01385	CLARK FORK RIVER	66.241	BENT NO. 1		340		100.8						
				PIER NO. 2				425.9		535.6				
				PIER NO. 3				414.8		448.3				
				BENT NO. 4		380		116.4						
				BENT NO. 5		240		56.1	33.6					
				SUPERSTRUCTURE	743.0				901.7		2968.4	3138.9	39.9	8.0
PROJECT TOTAL					743.0	960	1	1114.0	935.3	983.9	2968.4	3138.9	39.9	8.0

ESTIMATED BRIDGE PLAN QUANTITIES CONTINUED																	
STRUCTURE NAME	MDT STRUCTURE ID NUMBER	LOCATION	REINFORCING STEEL			STRUCTURAL STEEL- GIRDER	DRILLED SHAFT - 10.0 FT	DRILLED SHAFT CASING*	THERMAL INTEGRITY PROFILER	RE-DRIVE TEST PILE	DYNAMIC LOAD TEST	FURNISH STEEL PILE - HP	DRIVE STEEL PILE	PILE DRIVING POINT	ELASTOMERIC BEARING DEVICES	ELASTOMERIC BEARING DEVICES- PTFE	36 IN SS CONCRETE BARRIER RAIL-BR-CSC
			REGULAR	EPOXY COATED	SEISMIC												
W.B. I-90 BRIDGE AT CYR INTERCHANGE	01385	BENT NO. 1	17898	914						1	1	278226	2328.0	24			
		PIER NO. 2	141748		33017		180.0	225122	2								
		PIER NO. 3	128805		29648		131.0	186308	2								
		BENT NO. 4	14854	13310	1663					1	1	220491	1851.2	16	4	4	
		BENT NO. 5	6919	1190						1	1	65427	551.2	4			
		SUPERSTRUCTURE		260130		1											1492.5
PROJECT TOTAL			310224	275544	64328	1	311.0	411430	4	3	3	564144	4730.4	44	4	4	1492.5

*NOTE: Casing weight is 1293.8 lb/ft.

SHEET NO.
B2

ESTIMATED BRIDGE PLAN QUANTITIES

SCALE: No Scale

PROJECT NAME
CYR INTERCHANGE STRUCTURE

MDT STRUCTURE ID
01385

FEDERAL AID PROJECT
NHPB-SSS 90-1(253)69

COUNTY
MINERAL

REVISED

REVISED

REVISED

REVISED

CHECKED

DRAWN

DESIGNED

10-16-25

12-20-24

12-15-24

C.A.

S.M.M.

S.M.M.

5/22/2026 9:26:34 AM 9786002BRQSHZ01.dwg 1 9786002BRQSHZ02

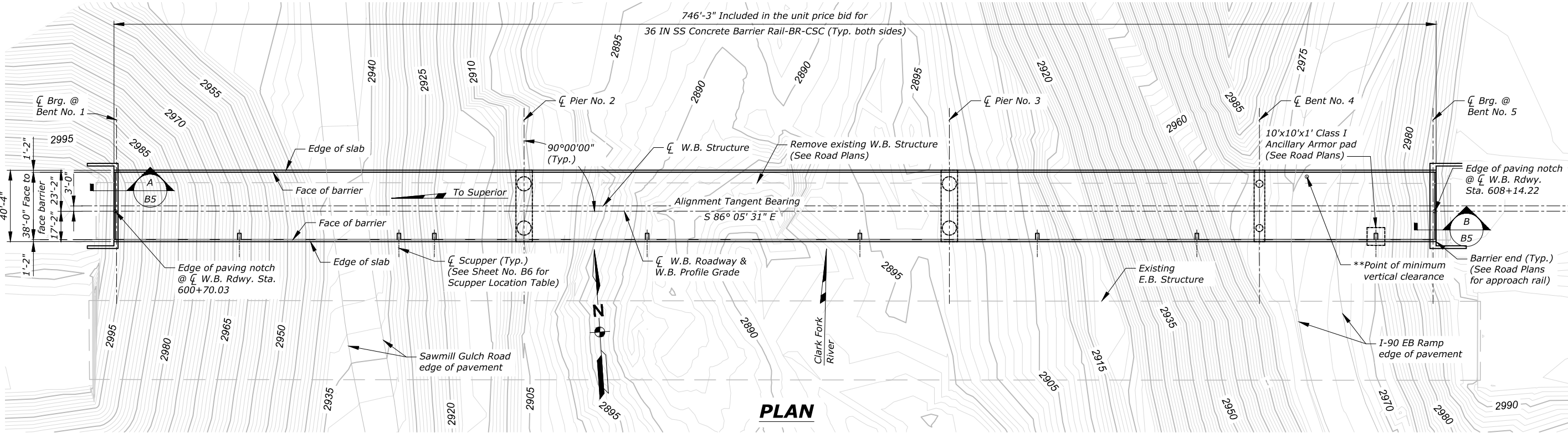
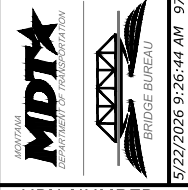
MDTA
MISSOURI
DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

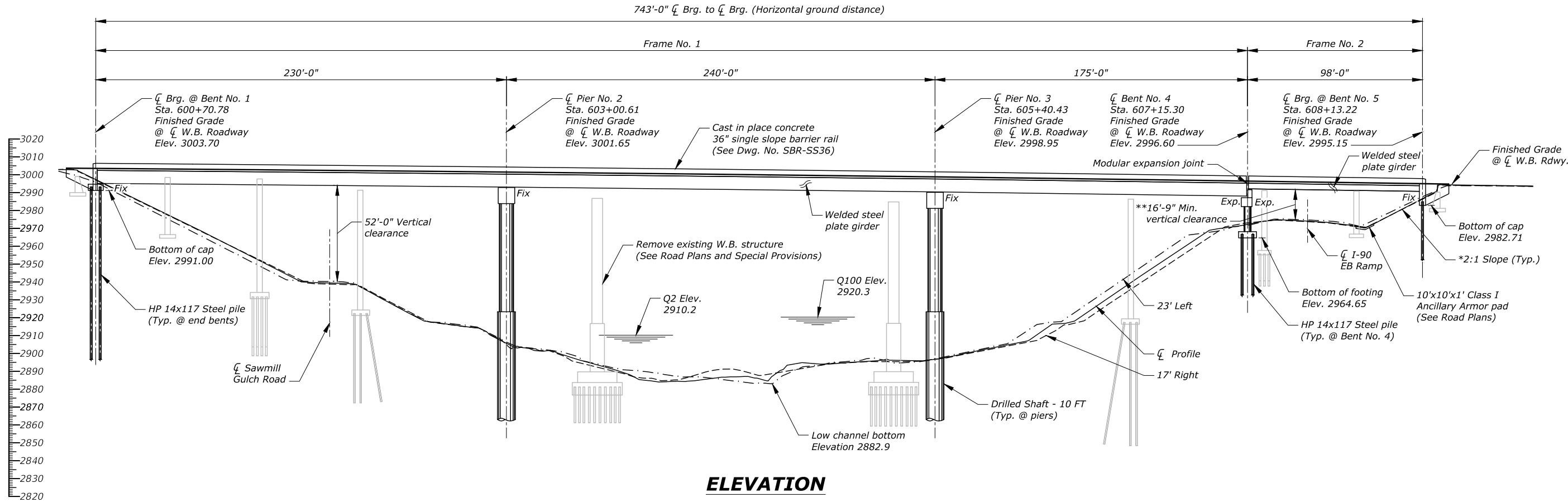
UPN NUMBER
9786002

DRAWING NO.
21176

REVISED	REVISED	REVISED	REVISED	05-14-25
DESIGNED	DRAWN	CHECKED	IN CHARGE	08-14-24
08-09-24	08-09-24	08-09-24	08-09-24	08-09-24



PLAN

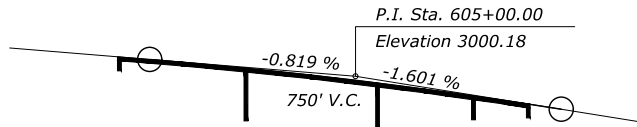


ELEVATION

HYDRAULIC DATA

Drift:	Heavy
Low Scour Elev:	2855.6
Ice:	Moderate
Drainage Area:	9582 sq. mi.
2-year Stage (Q2):	2910.2
100-year Flood Flow (Q100):	69,964 cfs
*100-year Stage (Q100):	2920.3
100-year Velocity:	8.9 ft/s
Actual Low Beam Elevation:	2986.9
Allowable Low Beam Elevation:	2922.3

Also see Hydraulic Data Summary sheet.
*100-year Stage elevation includes backwater



PROFILE GRADE

No Scale

**NOTE: Minimum vertical clearance measured at lane line.

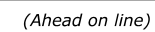
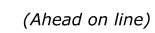
NOTE: Slab, barrier, and girders are continuous over all Piers except Bent No. 4. See Sheet No. B36 thru B39 and Dwg. No. SBR-SS36.

*NOTE: Slope varies and 2:1 is maximum. See Roadway Plans for grading details.

NOTE: Utilities not shown.

NOTE: Water surface on date of survey Elev. 2896.52 (09-14-2021).

NOTE: See Sheet No. B6 for Scupper Location Table. See Sheet No. B41 for scupper details.



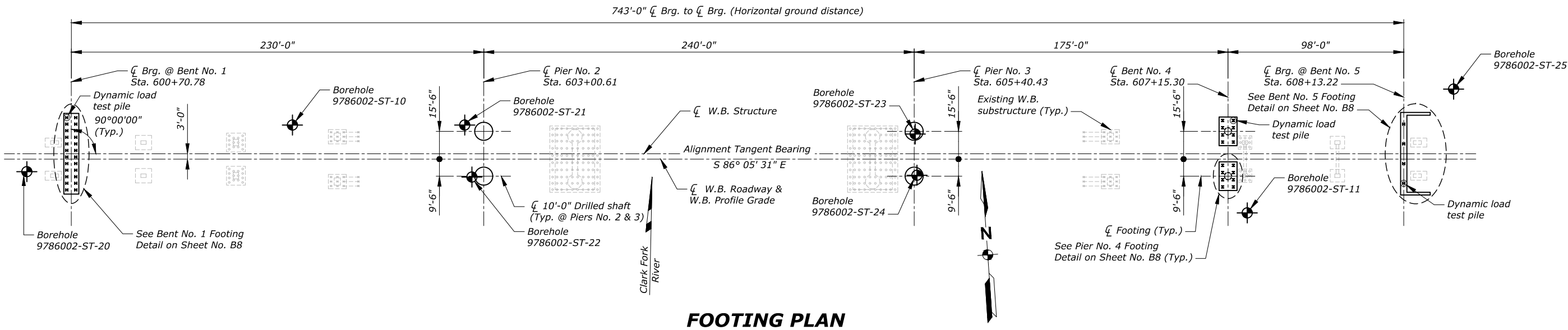
SCALE: $\frac{3}{16}" = 1'-0"$

MDT STRUCTURE ID
01385

COUNTY MINERAL

MDTA
DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

UPN NUMBER	9786002
DRAWING NO.	21179



FOOTING PLAN

COORDINATE TABLE (State Plane Coordinates)

Location	N or Y Coordinates	E or X Coordinates
ζ Brg. @ Bent No. 1 @ ζ Rdwy.	1,045,181.763	702,670.723
ζ Pier No. 2 @ ζ LT Shaft	1,045,181.563	702,901.073
ζ Pier No. 2 @ ζ Rdwy.	1,045,166.099	702,900.017
ζ Pier No. 2 @ ζ RT Shaft	1,045,156.621	702,899.369
ζ Pier No. 3 @ ζ LT Shaft	1,045,165.218	703,140.336
ζ Pier No. 3 @ ζ Rdwy.	1,045,149.754	703,139.280
ζ Pier No. 3 @ ζ RT Shaft	1,045,140.276	703,138.632
ζ Bent No. 4 @ ζ LT Column	1,045,153.300	703,314.799
ζ Bent No. 4 @ ζ Rdwy.	1,045,137.836	703,313.742
ζ Bent No. 4 @ ζ RT Column	1,045,128.358	703,313.095
ζ Brg. @ Bent No. 5 @ ζ Rdwy.	1,045,131.162	703,411.441

SCUPPER LOCATION TABLE

Scupper No.	Station
No. 1	601+40.00
No. 2	602+30.00
No. 3	602+50.00
No. 4	603+70.00
No. 5	604+90.00
No. 6	605+90.00
No. 7	606+80.00
No. 8	607+81.00

NOTE: Provide scupper on the south side of the bridge roadway at stations shown. See Sheet No. B41 for scupper details.

NOTE: Shift location of scupper up to 1'-0" to avoid cross frames.

NOTE: See Sheet No. B7 for Summary of Log Borings.

NOTE: E.B. Substructures not shown.

NOTE: See Dwg. No. PSD for welded splices for steel piles and pile tip weld details.

NOTE: Utilities not shown.

NOTE: Existing substructures location are approximate. Verify size and location.

NOTE: All ζ Brg. @ Bents and ζ Piers are perpendicular to ζ Roadway. ζ Brg. @ Bent and ζ Pier are parallel to S 03° 54' 29" W.

NOTE: Transverse dimensions are measured along ζ Pier or ζ Brg. @ Bent unless noted otherwise.

SHEET NO.
B6

FOOTING PLAN

PROJECT NAME
CYR INTERCHANGE STRUCTURE

FEDERAL AID PROJECT
NHPB-SSS 90-1(253)69

MDT STRUCTURE ID
01385

COUNTY
MINERAL

REVISED

REVISED

REVISED

REVISED

CHECKED

DRAWN

DESIGNED

05-16-25

08-16-24

08-08-24

MDTA
MISSOURI
DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

5/22/2026 9:27:05 AM 9786002BRCENZ01.dwg 9786002BRFFLZ01

UPN NUMBER
9786002

DRAWING NO.
21180

LOG OF BORINGS

PROJECT NAME
CYR INTERCHANGE STRUCTURE

FEDERAL AID PROJECT
NHPB-SSS 90-1(253)69

MDT STRUCTURE ID
01385

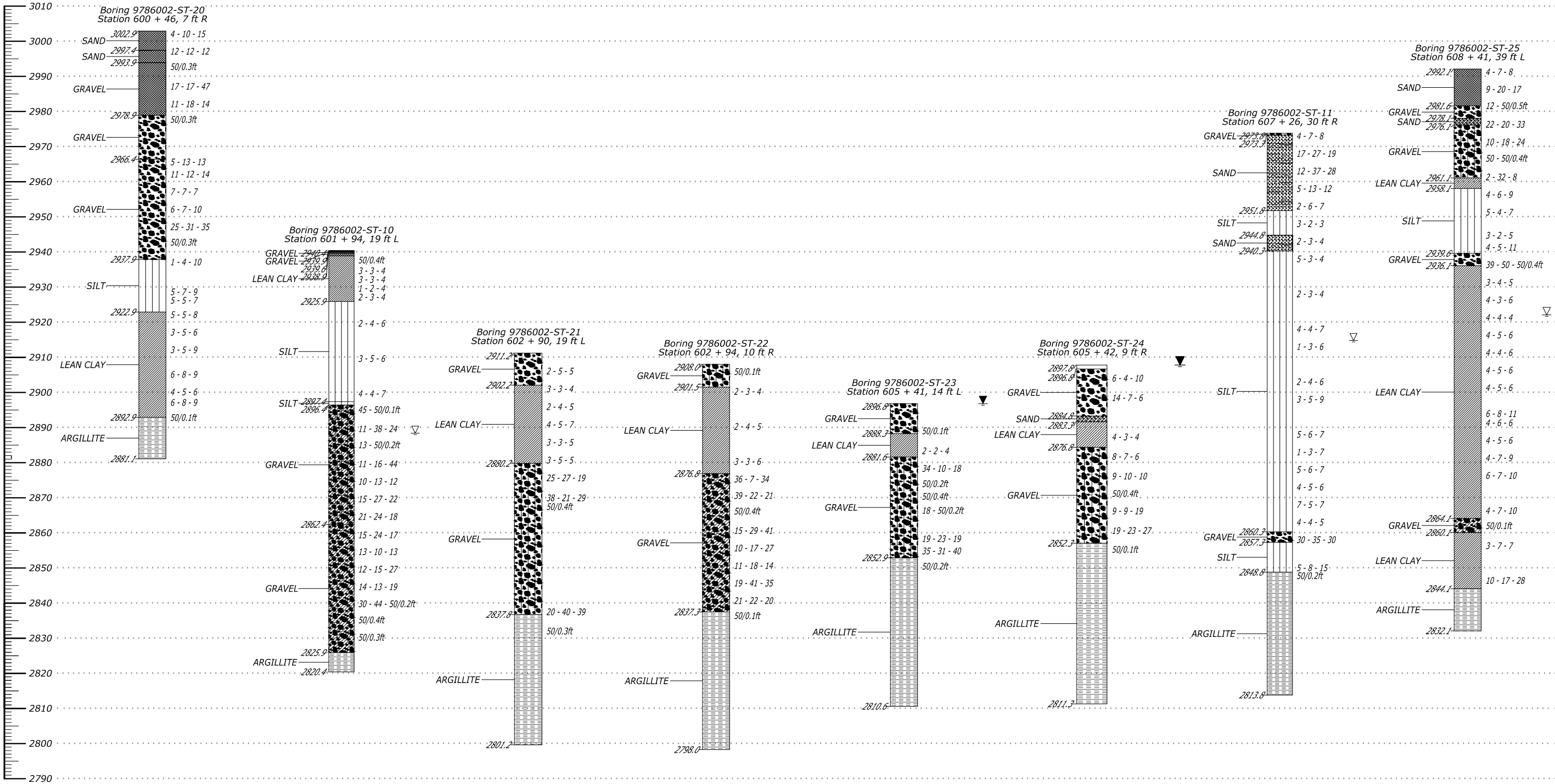
COUNTY
MINERAL

SCALE: 1" = 30'-0"

REVISED					
REVISED					
REVISED					
REVISED					
CHECKED					05-18-25
DRAWN					08-06-24
DESIGNED					08-01-24
					9786002BRRFLZ01.dwg 1 9786002BRRFLZ01



UPN NUMBER
9786002
DRAWING NO.
21181



SUMMARY OF LOG OF BORINGS

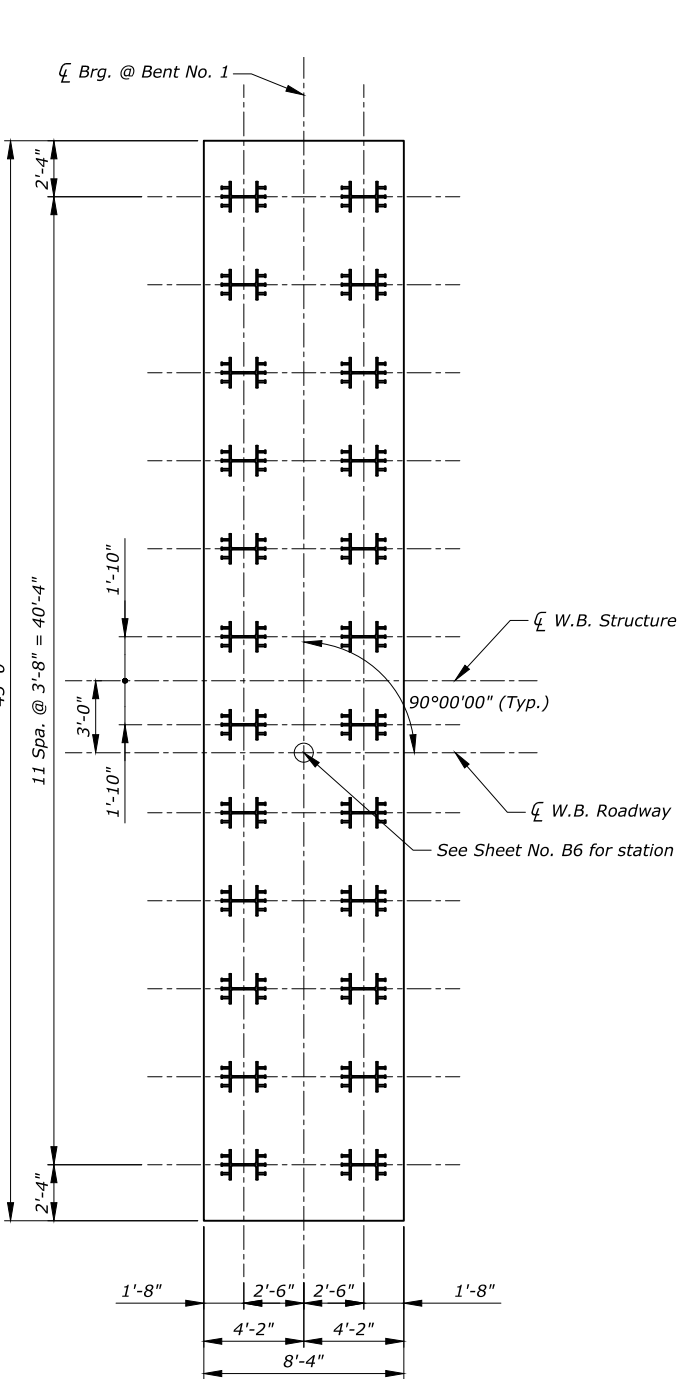
SOILS AND FOUNDATION MATERIALS: The Footing Plan shows points where SK Geotechnical drilled bore holes.

The series of numbers on the Log of Borings shows the number of blows from a 140 pound hammer with a 30" drop required to drive a 2" split spoon sampler 6" (Standard Penetration Test). The length of the split spoon sampler is 18". The sampler length is measured as three 6" intervals. If the split spoon sampler did not penetrate 6" after 50 blows, the Log of Borings shows the measured penetration within that particular interval.

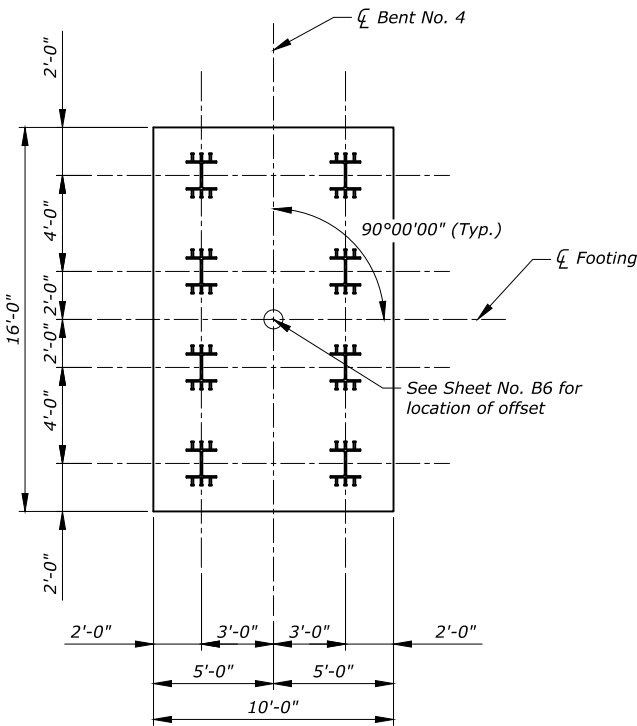
See the Special Provisions for original boring logs and additional subsurface information.

NOTE: See Sheet No. B6 for bore hole location and Footing Plan.

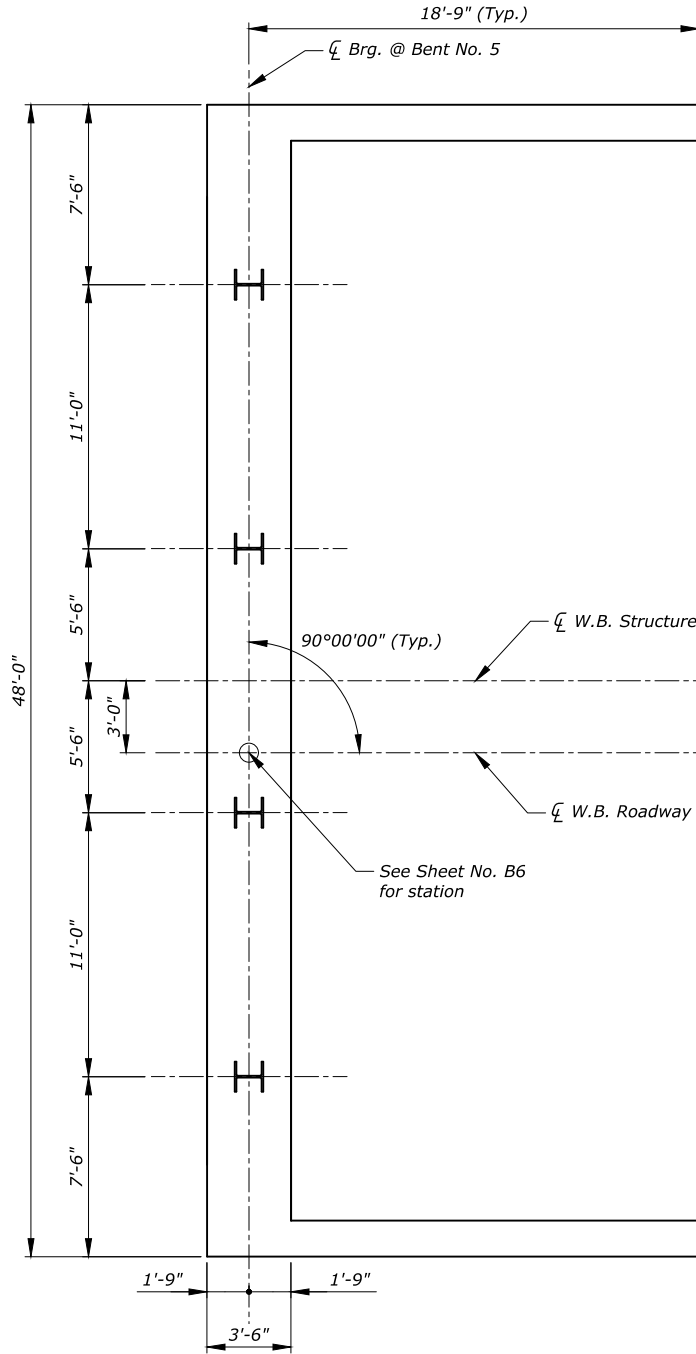
REVISED	05-18-25
REVISED	08-12-24
REVISED	08-08-24
CHECKED	C.A.
DRAWN	D.A.D.
DESIGNED	B.M.M.
5/22/2026 9:27:28 AM 9786002BRGENZ01.dwg 1 9786002BRFPLZ02	



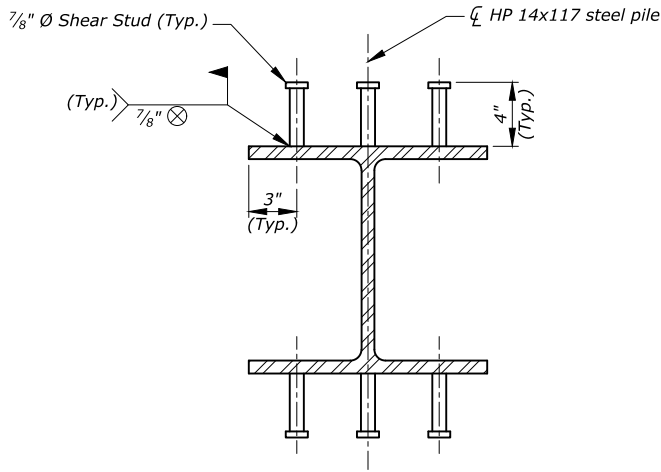
BENT NO. 1 FOOTING DETAIL



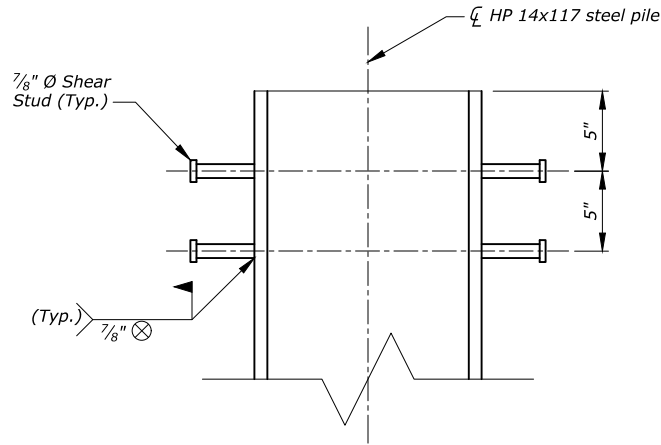
BENT NO. 4 FOOTING DETAIL



BENT NO. 5 FOOTING DETAIL



PLAN



ELEVATION

NOTE: Use shear studs meeting the requirements of AASHTO M169 Grades 1015-1020 and the mechanical requirements for type B studs in accordance with AWS D 1.5.

NOTE: Shear studs required for Bent No. 1 and Bent No. 4 piles only.

NOTE: Include all cost to furnish and install shear studs in Furnish Steel Pile - HP.

PILE SHEAR STUD DETAIL

No Scale

PILE TABLE							
Location	Pile Type	Design Pile Tip Elevation	Required Minimum Pile Tip Elevation	Estimated Pile Length	Required Minimum Pile Resistance During Driving	Pile Tip Treatment	Maximum Pile Reaction Under Strength I
Bent No. 1	HP 14 x 117	2894.00	2899.00	99.0 ft.	*425 Kips	Pile Point	104 Kips
Bent No. 4	HP 14 x 117	2849.00	2854.00	117.7 ft.	*380 Kips	Pile Point	213 Kips
Bent No. 5	HP 14 x 117	2845.00	2850.00	139.8 ft.	598 Kips	Pile Point	389 Kips

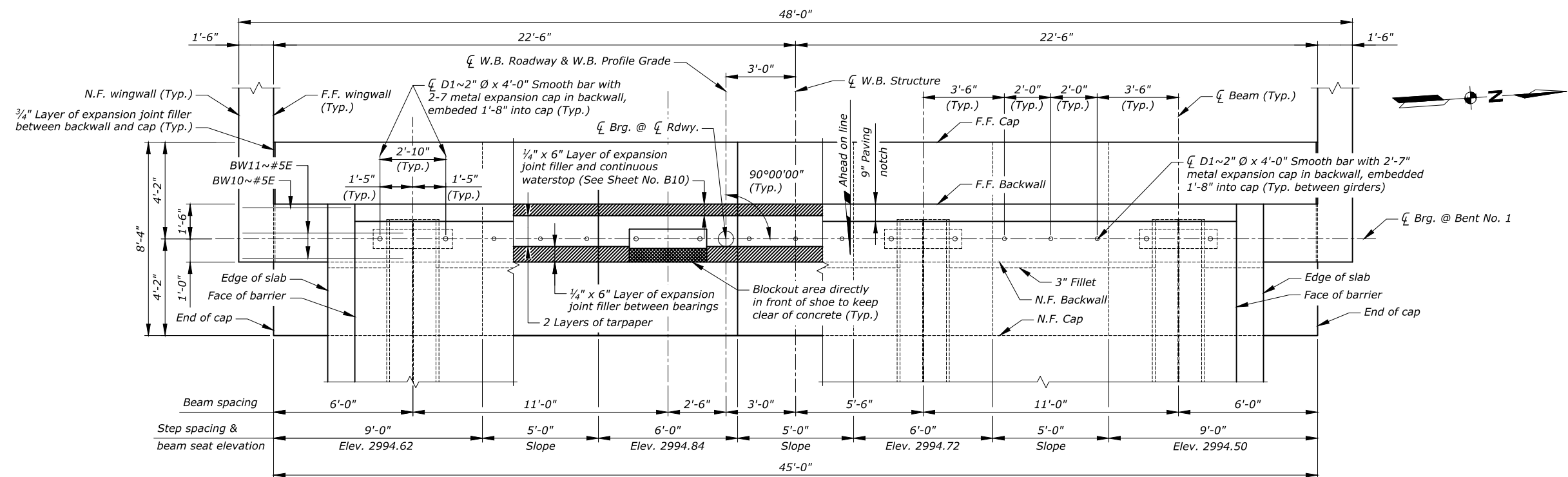
NOTE: Use a pile driving hammer large enough to achieve the required driving resistance and minimum required pile tip elevation, while keeping driving stress below 0.9fy.

*NOTE: Required minimum driving resistance is based on extreme loading demands.

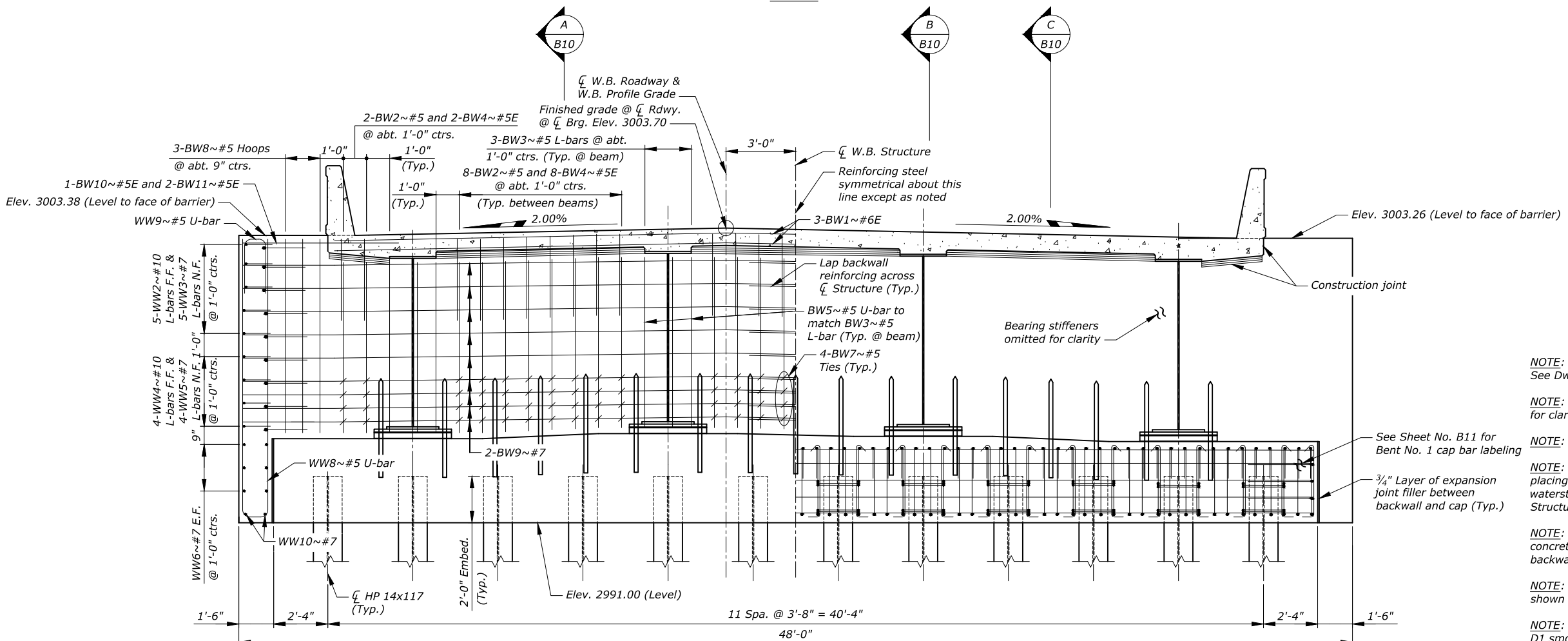
NOTE: Contact the MDT Geotechnical Section at (406) 444-6781 if pile tip elevations deviate more than 1 foot from the elevation indicated.

NOTE: Do not start driving service piles until the test pile analysis is complete, as directed by the Project Manager.

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	DATE	BY	DATE	BY
							02-18-25	J.C.A.	01-27-25	B.M.M.
							01-20-25	B.M.M.	01-20-25	B.M.M.

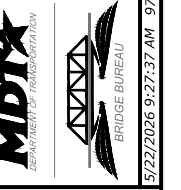


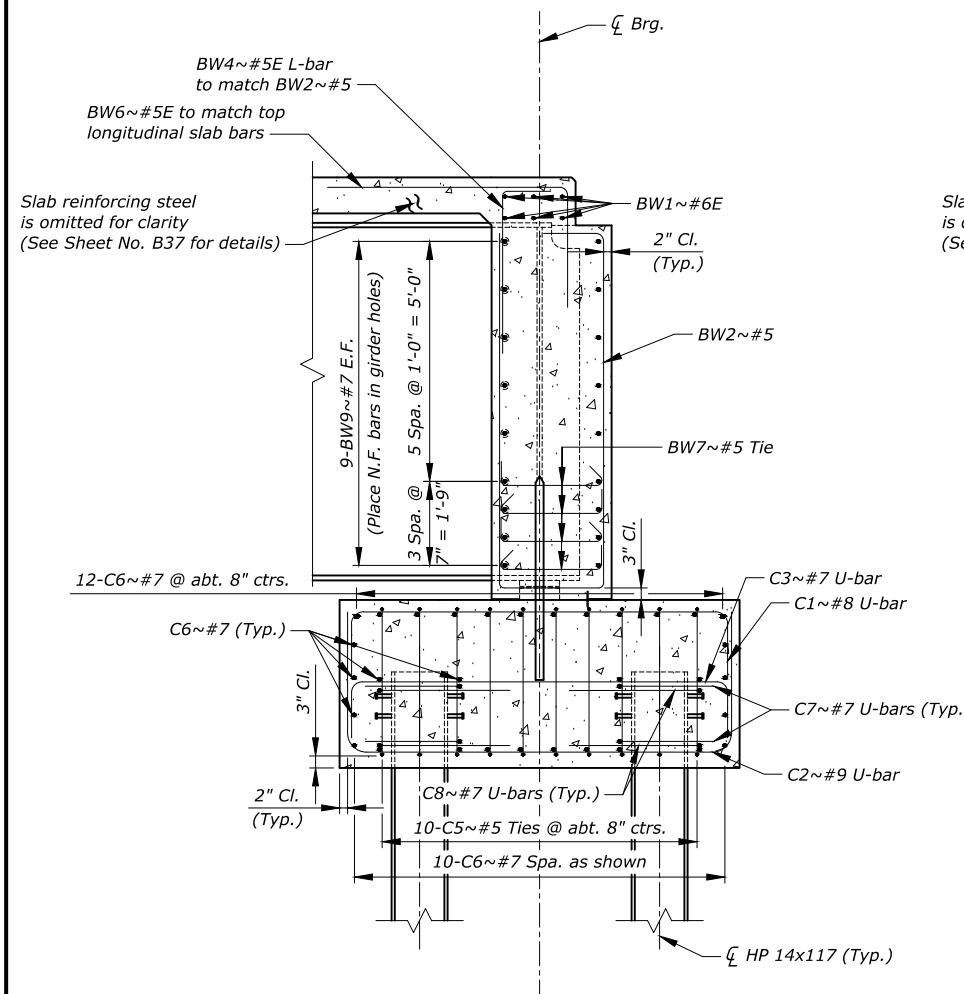
PLAN



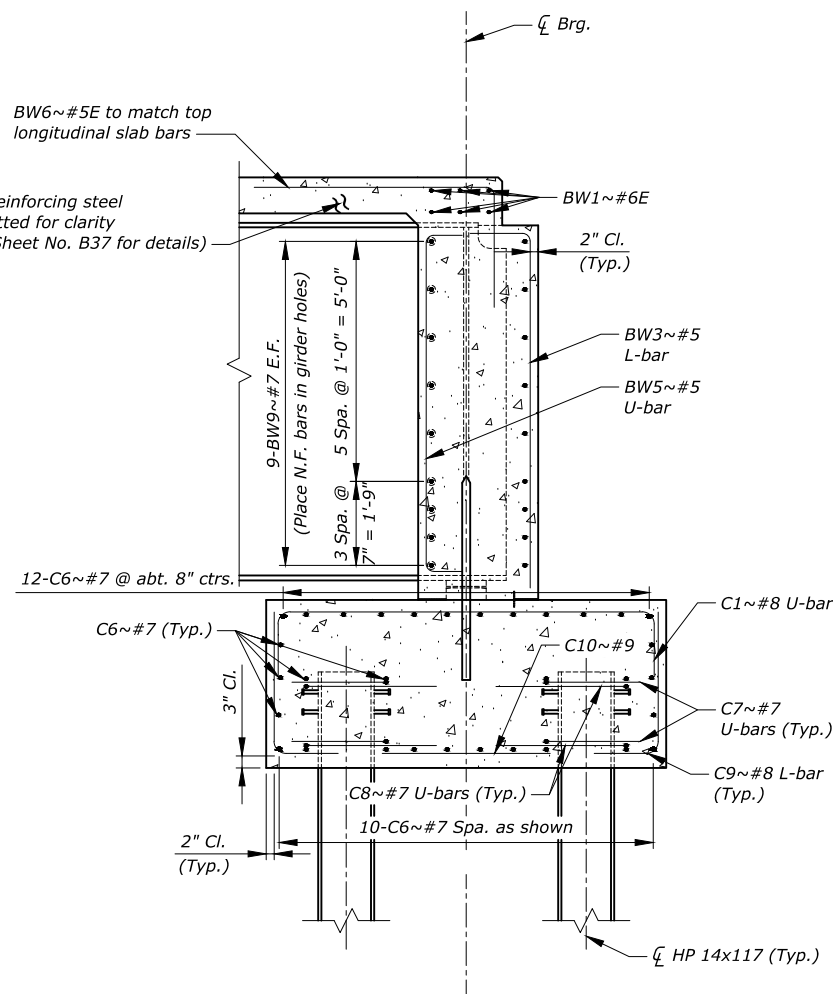
ELEVATION
(Looking Back on Line)

- NOTE: Barrier reinforcing steel is omitted for clarity. See Dwg. No. SBR-SS36R for details.
- NOTE: Slab reinforcing steel and details are omitted for clarity. See Sheet No. B37 for details.
- NOTE: See Sheet No. B11 for Bill of Reinforcing Steel.
- NOTE: Include costs associated with furnishing and placing the expansion joint filler, tarpaper, and waterstop in the unit price bid for Concrete-Class Structure.
- NOTE: Securely nail expansion joint filler to pile cap concrete and hold in proper position while placing backwall concrete.
- NOTE: Finish beam seats to the elevations and slopes shown on this drawing.
- NOTE: Ensure reinforcing steel does not interfere with D1 smooth bar placement.
- NOTE: See Sheet No. B6 for footing details.
- NOTE: See Sheet No. B10 and B11 for additional end bent details and notes.
- NOTE: See Sheet No. B22 for fixed bearing details.

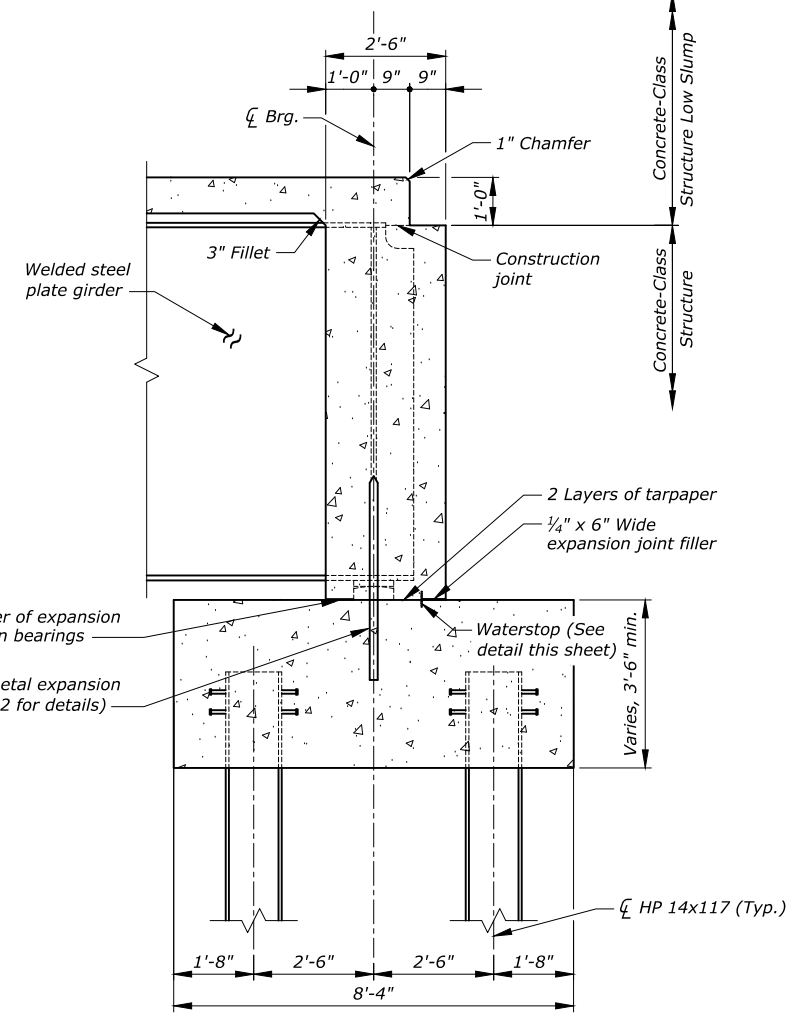




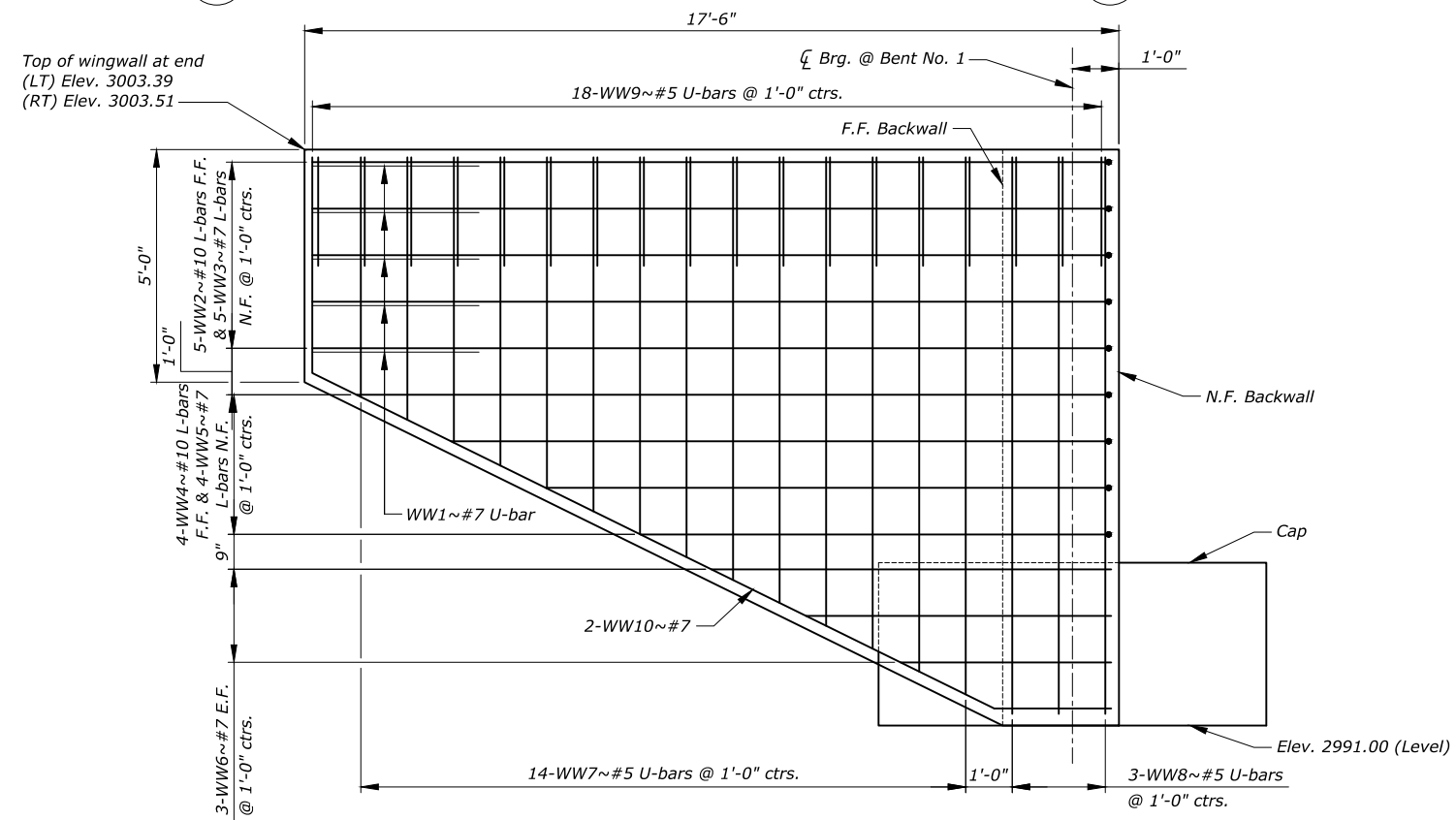
A
B9
SECTION A



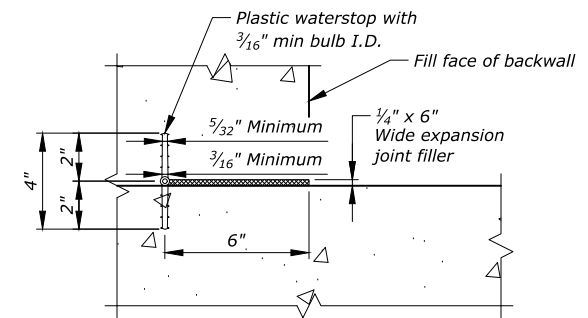
B
B9
SECTION B



C
B9
SECTION C



TYPICAL WINGWALL ELEVATION



WATERSTOP DETAIL

No Scale

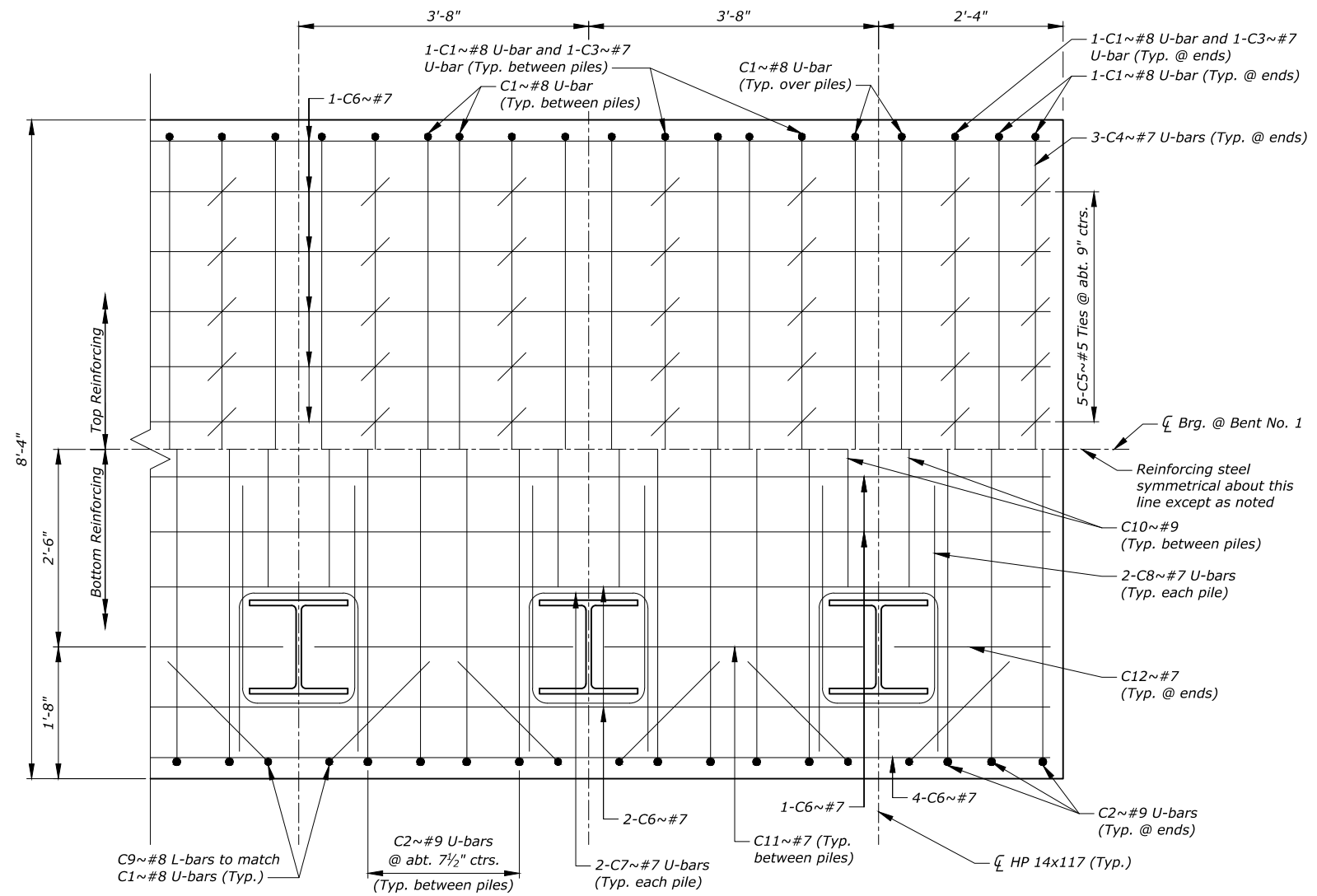
NOTE: Hold waterstop in accurate position while placing concrete.

NOTE: See Sheet No. B9 for Plan and Elevation.

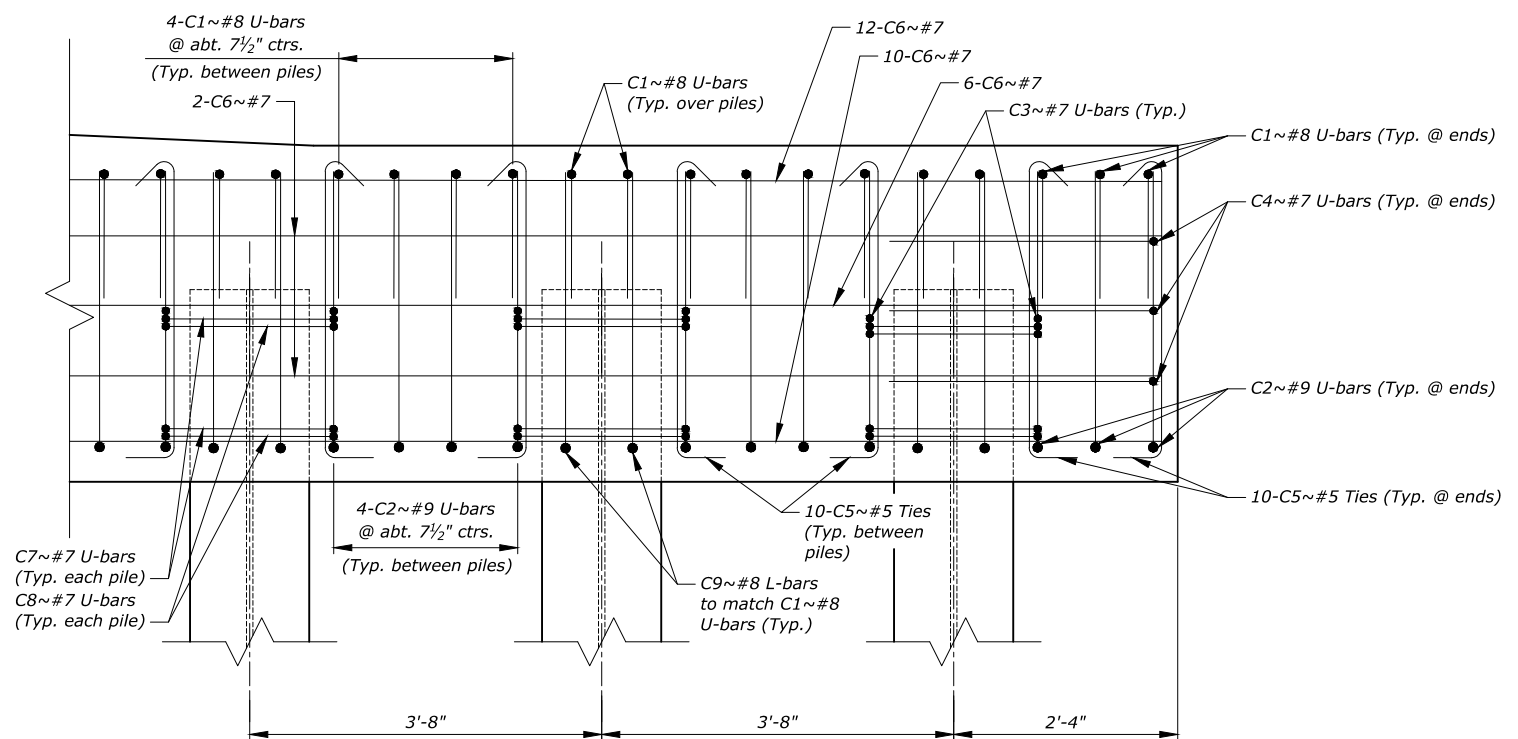
NOTE: See Sheet No. B9 for location of Sections A, B, and C.

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
				02-18-25	01-27-25	01-20-25
				C.A.	S.M.M.	S.M.M.





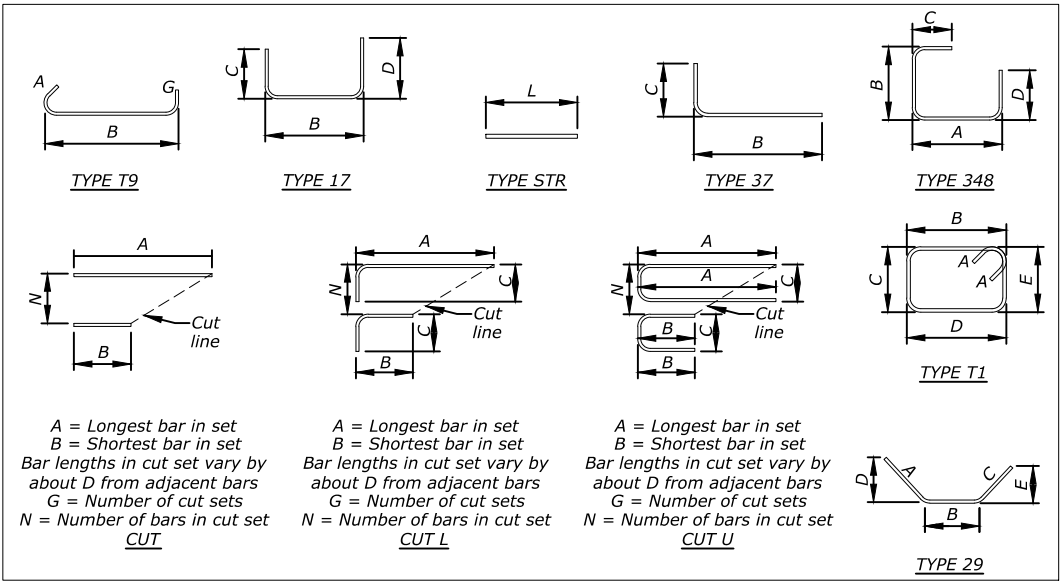
BENT NO. 1 CAP PLAN



BENT NO. 1 CAP ELEVATION

BILL OF REINFORCING STEEL

(FOR BENT NO. 1 ONLY)
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
C1	8	74	17	10'-8"		8'-0"	1'-4"	1'-4"			
C2	9	50	17	13'-10"		8'-0"	2'-11"	2'-11"			
C3	7	24	17	10'-4"		8'-0"	1'-2"	1'-2"			
C4	7	6	17	15'-0"		7'-10"	3'-7"	3'-7"			
C5	5	260	T9	4'-0 1/2"	5 1/2"	3'-1"				6"	
C6	7	32	STR	44'-8"							
C7	7	48	17	5'-6"		1'-6"	2'-0"	2'-0"			
C8	7	48	17	7'-0"		1'-6"	2'-9"	2'-9"			
C9	8	48	37	4'-9"		2'-11"	1'-10"				
C10	9	24	STR	3'-6"							
C11	7	22	STR	3'-3"							
C12	7	4	STR	1'-11"							
*D1	2"Ø	17	STR	4'-0"							
BW1	6E	6	STR	40'-0"							
BW2	5	28	348	18'-1"	2'-2"	7'-4"	1'-3"	7'-4"			
BW3	5	12	37	8'-7"		7'-4"	1'-3"				
BW4	5E	28	37	4'-6"		3'-6"	1'-0"				
BW5	5	8	17	8'-6"		7'-0"	9"	9"			
BW6	5E	49	37	7'-6"		5'-0"	2'-6"				
BW7	5	112	T9	3'-1 1/2"	5 1/2"	2'-2"				6"	
BW8	5	6	T1	21'-11"	5 1/2"	2'-2"	8'-4"	2'-2"	8'-4"		
BW9	7	36	STR	25'-10"							
BW10	5E	2	STR	4'-8"							
BW11	5E	4	STR	6'-11"							
WW1	7	10	17	8'-2"		1'-0"	3'-7"	3'-7"			
WW2	10	10	37	18'-11"		17'-1"	1'-10"				
WW3	7	10	37	18'-3"		17'-1"	1'-2"				
WW4	10	8	CUT L	14'-10 1/2"	16'-1"	10'-0"	1'-10"	2'-0 3/8"		2	4
WW5	7	8	CUT L	14'-2 1/2"	16'-1"	10'-0"	1'-2"	2'-0 3/8"		2	4
WW6	7	12	CUT	6'-6 1/2"	8'-7"	4'-6"		2'-0 1/2"		4	3
WW7	5	28	CUT U	17'-7"	11'-5"	5'-0"	1'-2"	6"		2	14
WW8	5	6	17	24'-10"		1'-2"	11'-10"	11'-10"			
WW9	5	36	17	5'-10"		1'-2"	2'-4"	2'-4"			
WW10	7	4	29	23'-4"	4'-6"	16'-4"	2'-6"	4'-0 1/2"	1'-1 1/4"		

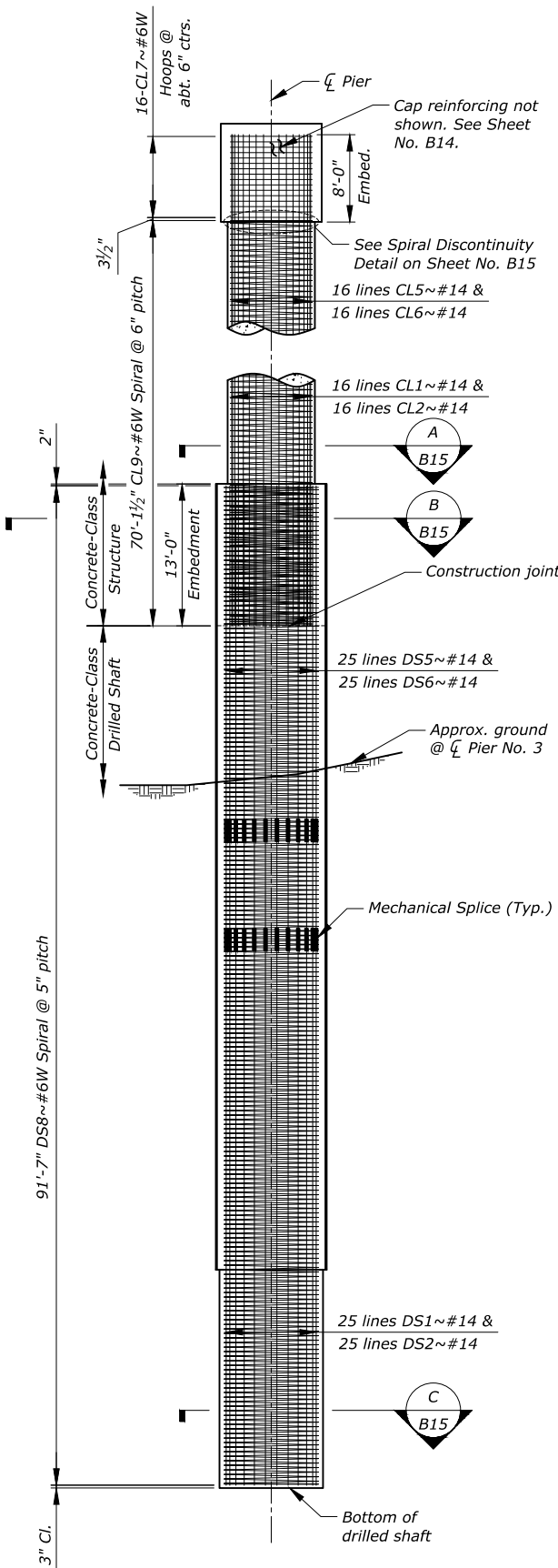
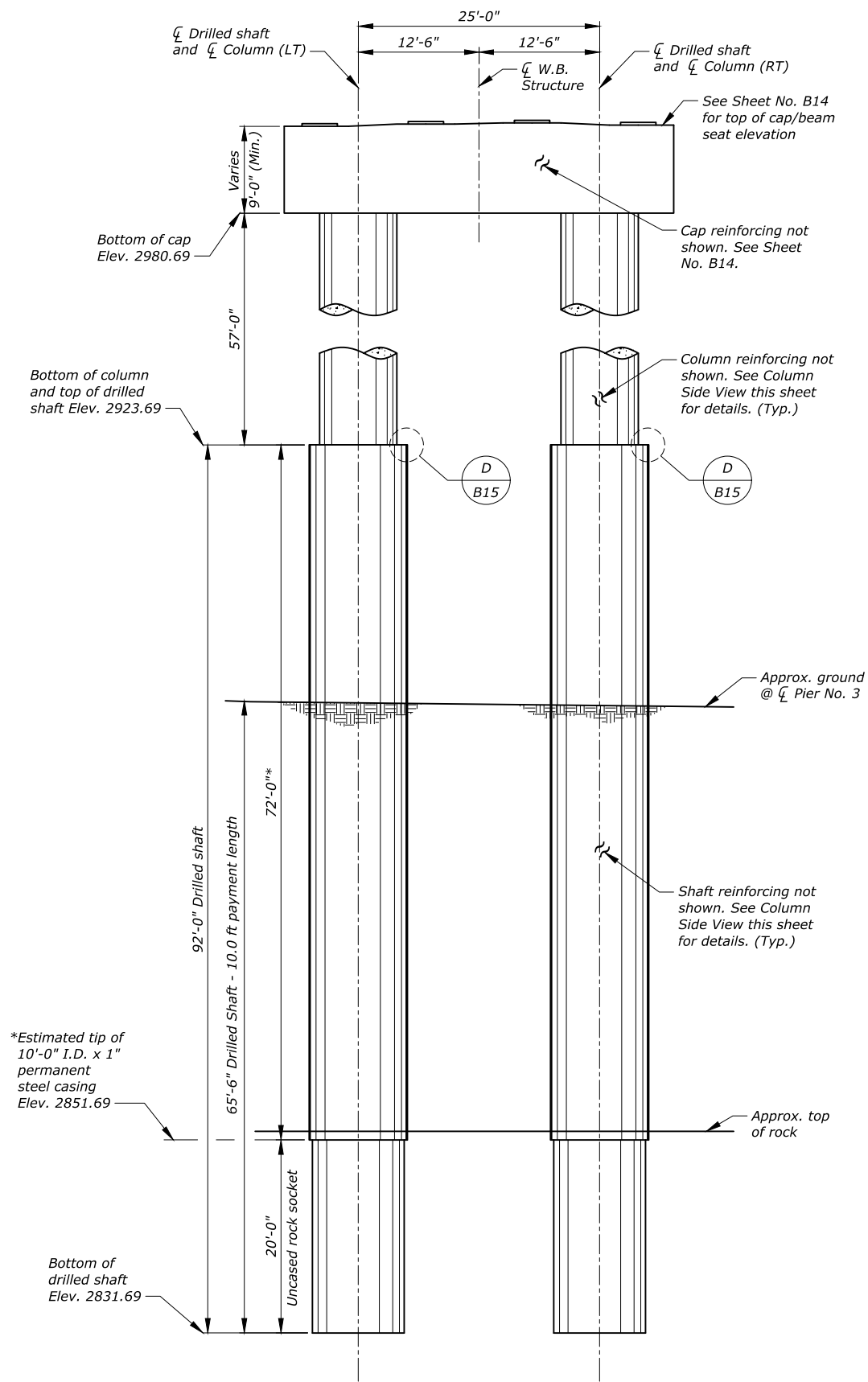
NOTE: Type CUT, CUT L, and CUT U denotes a cut set of bars. The length shown is the average bar length in a set. The total number of bars (No.) is the number of bar sets (G) times the number of bars in a set (N). Tag each individual length with a unique bar tag number starting with the shortest bar in the set. Ex. WW4-1 through WW4-4.

*NOTE: See Sheet No. B22 for material grade.



NOTE: Alternate bar lines to stagger splice location between adjacent bars.
Place CL1~#14 and CL3~#14 in one bar line; and DS1~#14 and DS3~#14
in one bar line. Place CL2~#14 and CL4~#14 in one bar line; and DS2~#14
and DS4~#14 in one bar line.

 MDTA METRO DISTRICT TRANSIT AUTHORITY		 BRIDGE BUREAU		5/22/2026 9:27:51 AM 9786002BRPRD201LAW9 \ 9786002BRPRD201	
UPN NUMBER 9786002		DRAWING NO. 21186			
REVISED		CHECKED	2 C.A.	05-20-25	COUNTY MINERAL
REVISED		DRAWN	B.M.M.	02-21-25	
REVISED		DESIGNED	B.M.M.	02-14-25	
REVISED					
NHPB-SSS 90-1(253)69 FEDERAL AID PROJECT I		COUNTY MINERAL		MDT STRUCTURE ID 01385	
CYR INTERCHANGE STRUCTURE		PROJECT NAME PJER NO. 2			
SCALE: 1/4" = 1'-0"					
SHEET NO. B12					

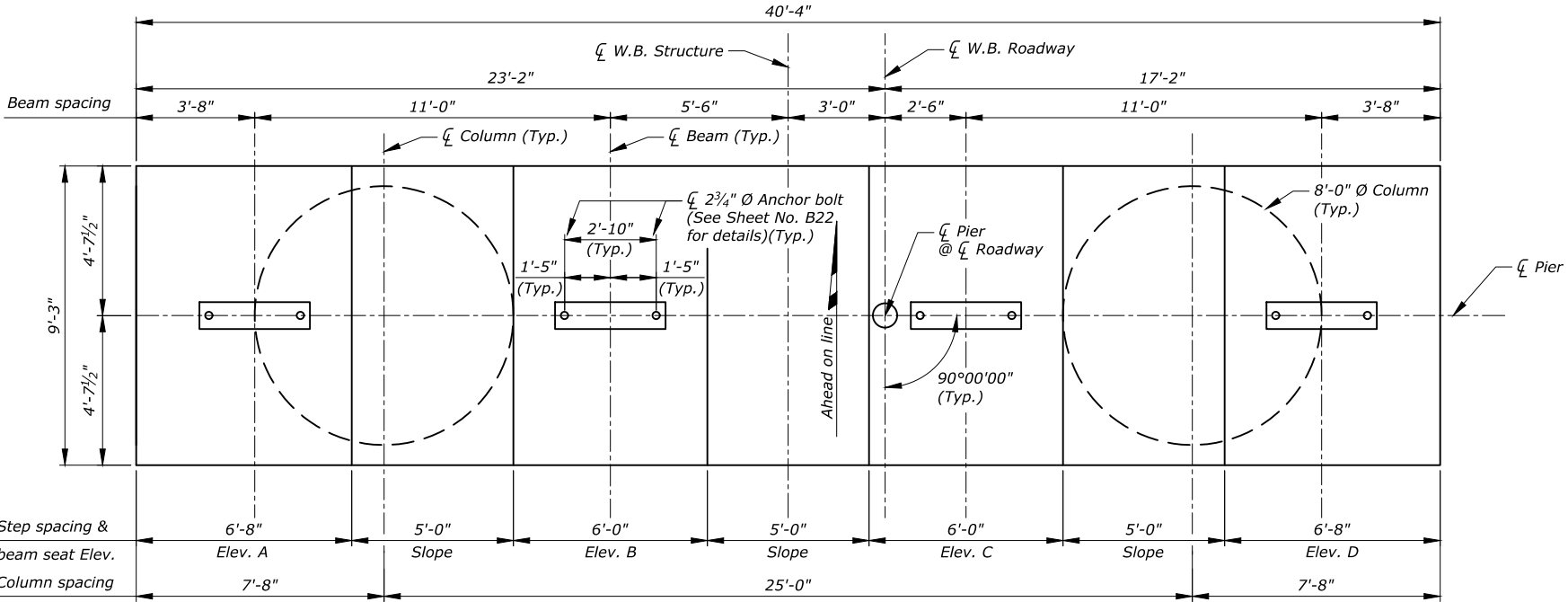


*NOTE: Use additional permanent or temporary casing as needed to construct and maintain hole stability. Include costs in the unit price bid for Drilled Shaft - 10.0 ft.

NOTE: Ground surface approximate. Verify prior to bidding and construction.

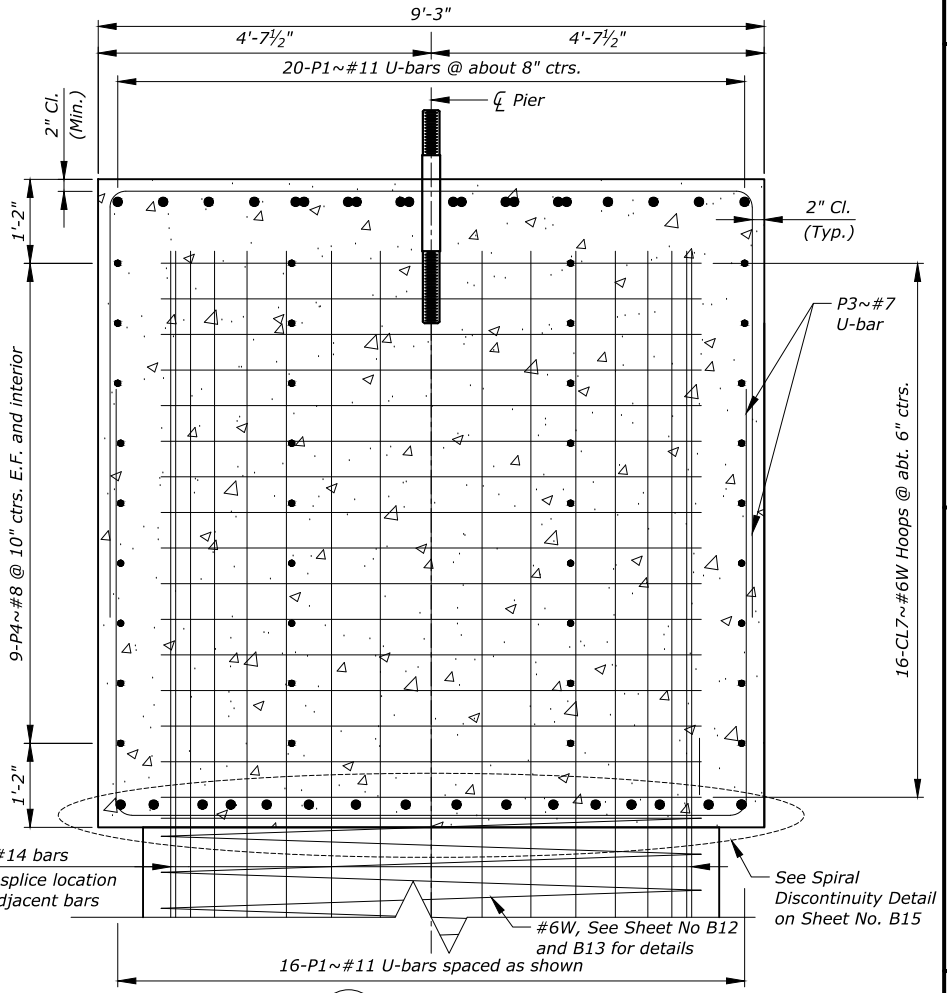
NOTE: Alternate bar lines to stagger splice location between adjacent bars. Place CL1~#14 and CL5~#14 in one bar line; and DS1~#14 and DS5~#14 in one bar line. Place CL2~#14 and CL6~#14 in one bar line; and DS2~#14 and DS6~#14 in one bar line.

SHEET NO. B13		PIER NO. 3	
PROJECT NAME CYR INTERCHANGE STRUCTURE		MDT STRUCTURE ID 01385	
FEDERAL AID PROJECT NHPB-SSS 90-1(253)69		COUNTY MINERAL	
REVISED	REVISED	REVISED	REVISED
REVISED	REVISED	REVISED	REVISED
REVISED	REVISED	REVISED	REVISED
CHECKED	C.A.	05-20-25	05-20-25
DRAWN	S.M.M.	02-21-25	02-21-25
DESIGNED	S.M.M.	02-14-25	02-14-25
5/22/2026 9:27:53 AM 9786002BRPRD201.dwg 9786002BRPRD202			
UPN NUMBER 9786002		DRAWING NO. 21187	



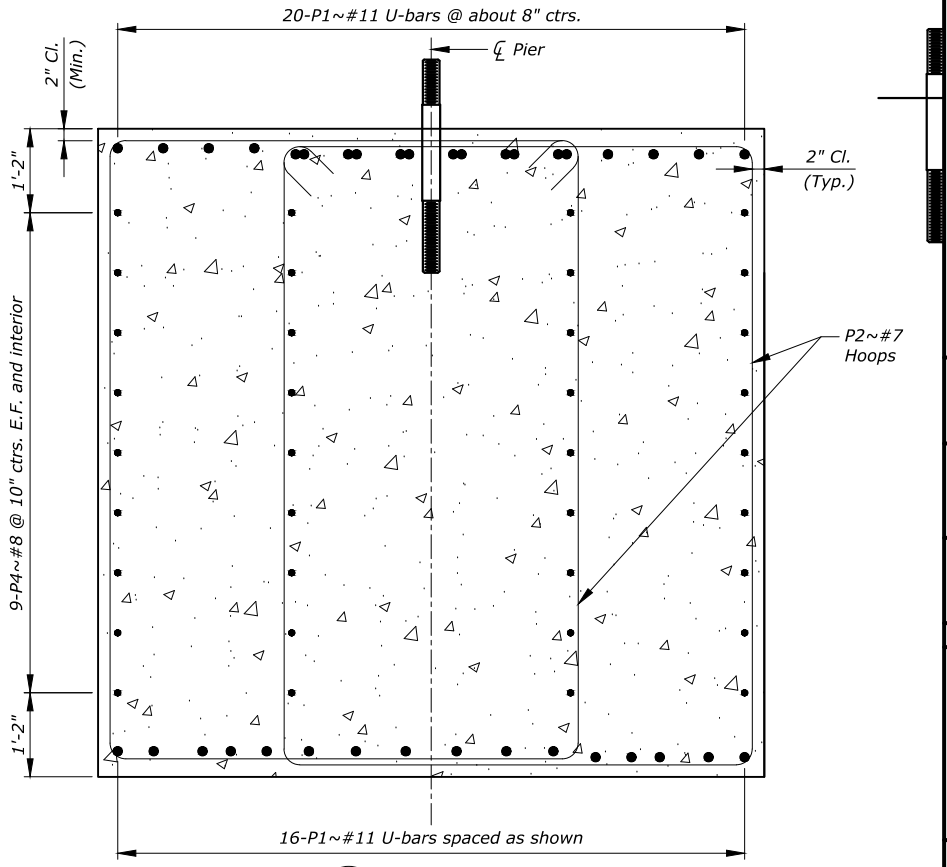
PLAN

Scale: $\frac{3}{16}'' = 1'-0''$



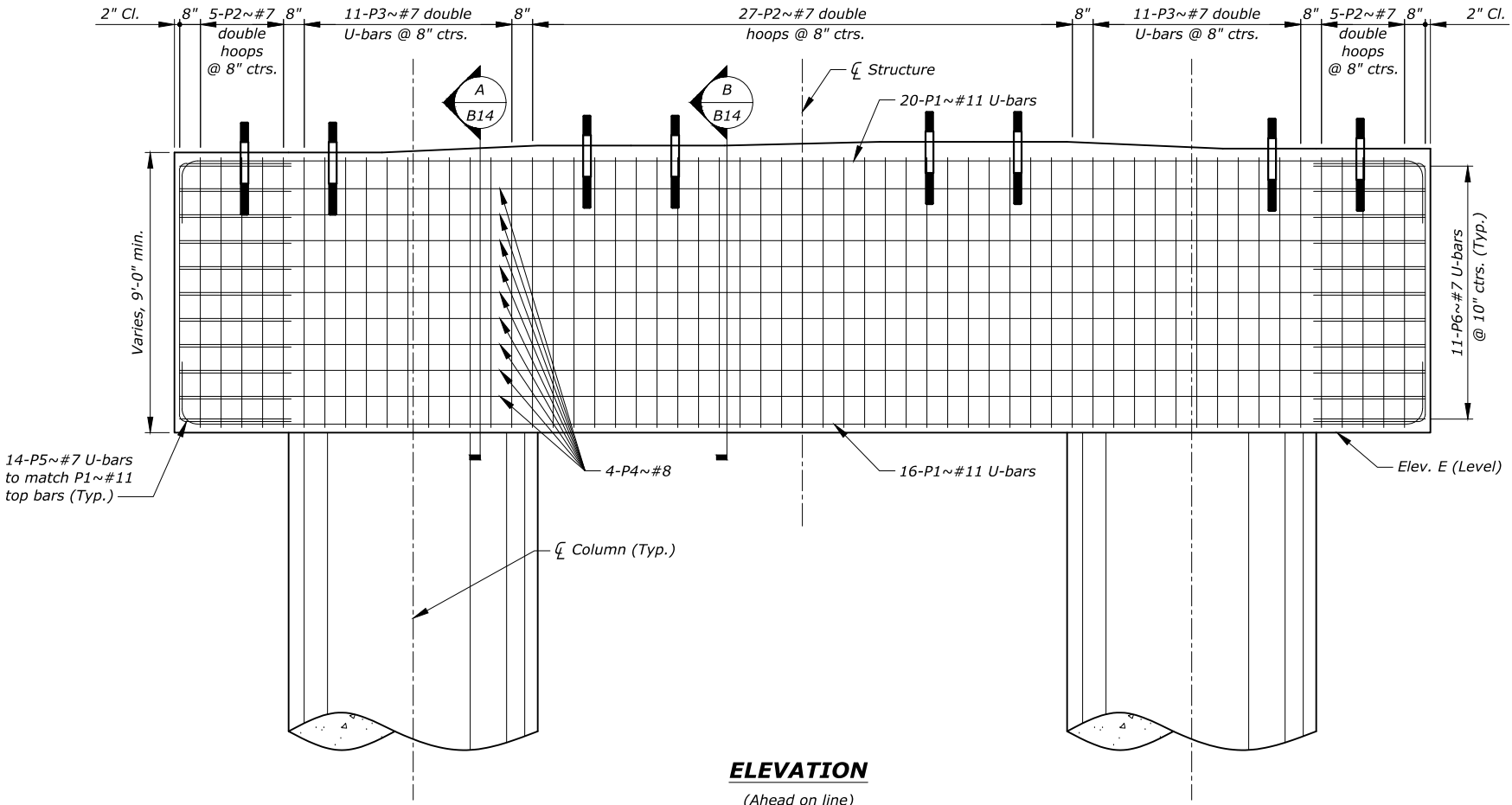
SECTION A

Scale: $\frac{3}{8}'' = 1'-0''$



SECTION B

Scale: $\frac{3}{8}'' = 1'-0''$



ELEVATION

(Ahead on line)
Scale: $\frac{3}{16}'' = 1'-0''$

TABLE OF ELEVATIONS		
Elev.	Pier No. 2	Pier No. 3
A	2992.31	2989.69
B	2992.53	2989.91
C	2992.65	2990.03
D	2992.43	2989.81
E	2983.31	2980.69

NOTE: Shift P3~#7 U-bars as necessary to avoid vertical steel.

NOTE: Use Concrete - Class Structure for the cap.

NOTE: Finish beam seats level to the elevations shown on this drawing.

NOTE: Adjust reinforcing steel as necessary to ensure reinforcing does not interfere with anchor bolt placement.

NOTE: Terminate all spiral reinforcing by providing 1 1/2 extra turns.

NOTE: Orient vertical column reinforcement as shown to allow for clearance of reinforcing in bent cap.

NOTE: See Sheet No. B12 and No. B13 for pier elevations.

NOTE: See Sheet No. B15 for Bill of Reinforcing Steel and column details.

SHEET NO.
B14

PIER CAP DETAILS

PROJECT NAME
CYR INTERCHANGE STRUCTURE

MDT STRUCTURE ID
01385

FEDERAL AID PROJECT
NHPB-SSS 90-1(253)69

COUNTY
MINERAL

REVISED	05-21-25
REVISED	02-24-25
REVISED	02-17-25
CHECKED	C.A.
DRAWN	B.M.M.
DESIGNED	B.M.M.

MONTANA
DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

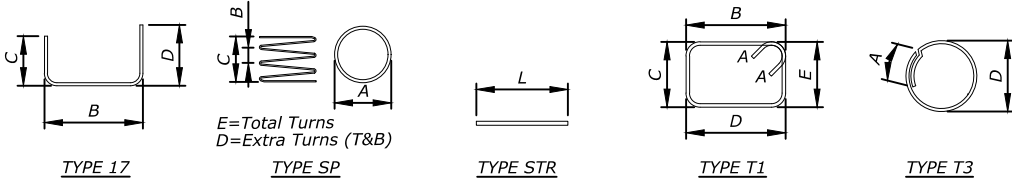
UPN NUMBER
9786002

DRAWING NO.
21188

SCALE: As noted

BILL OF REINFORCING STEEL

(FOR PIER NO. 2 AND NO. 3 ONLY)
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
P1	11	72	17	44'-0"		40'-0"	2'-0"	2'-0"			
P2	7	148	T1	31'-10"	9"	6'-6"	8'-8"	6'-6"	8'-8"		
P3	7	88	17	20'-9"		8'-11"	5'-11"	5'-11"			
P4	8	72	STR	40'-0"							
P5	7	56	17	15'-8"		8'-6"	3'-7"	3'-7"			
P6	7	44	17	15'-11"		8'-9"	3'-7"	3'-7"			
DS1	14	100	STR	60'-0"							
DS2	14	100	STR	50'-0"							
DS3	14	50	STR	46'-7"							
DS4	14	50	STR	56'-7"							
DS5	14	50	STR	31'-7"							
DS6	14	50	STR	41'-7"							
DS7	6W	2	SP	7046'-5"	8'-8"	5"	106'-7"	3	258.8		
DS8	6W	2	SP	6066'-3"	8'-8"	5"	91'-7"	3	222.8		
CL1	14	64	STR	48'-0"							
CL2	14	64	STR	38'-0"							
CL3	14	32	STR	33'-0"							
CL4	14	32	STR	43'-0"							
CL5	14	32	STR	30'-0"							
CL6	14	32	STR	40'-0"							
CL7	6W	64	T3	26'-8"	3'-1"			7'-6"			
CL8	6W	2	SP	3517'-10"	7'-6"	6"	73'-1½"	3	149.3		
CL9	6W	2	SP	3376'-6"	7'-6"	6"	70'-1½"	3	143.3		

NOTE: Drilled shaft rock socket diameter may be increased up to 9'-10" at contractors option and expense. Drilled shaft casing diameter and thickness may be increased at contractors option and expense. Maintain uniform spiral clearance.

NOTE: Splice spirals by an approved mechanical connector or by welding in accordance with the Spiral Weld Lap Detail shown on this sheet. Include all costs associated with splicing in the unit price bid for Reinforcing Steel-Seismic.

NOTE: Terminate all spiral reinforcing by providing 1½ extra turns. Weld or mechanical couple the tail per the Spiral Weld Lap Detail or Spiral Mechanical Coupler Detail shown on this sheet.

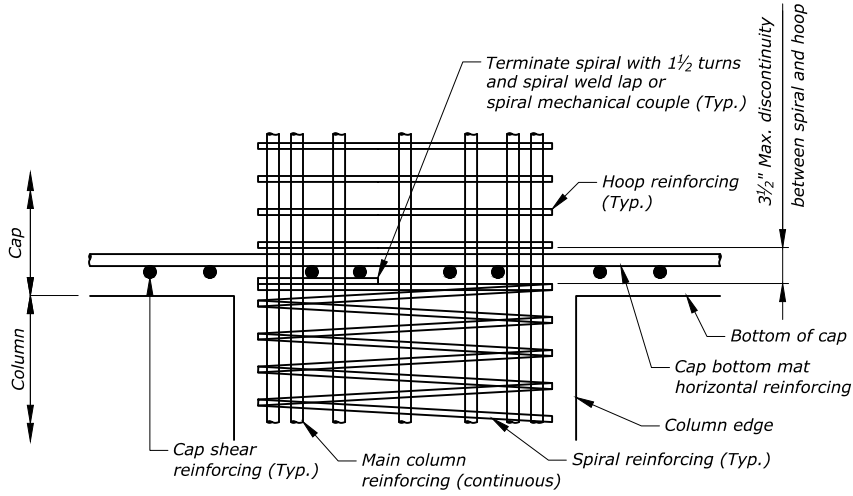
NOTE: Orient vertical reinforcement in column as shown to allow for clearance of reinforcing in pier cap and tie beam.

NOTE: See Sheet No. B12 and B13 for additional pier details and notes.

*NOTE: Provide equal longitudinal reinforcing spacing. Spacing shown is measured along outside of spiral.

NOTE: Use 1½" nominal diameter schedule 40 galvanized steel pipe for sonic logging tubes. Do not extend sonic logging tubes more than 1'-8" above top of drilled shaft. After shaft has been accepted by the Project Manager, remove the sonic logging tubes to the bottom of column elevation and grout.

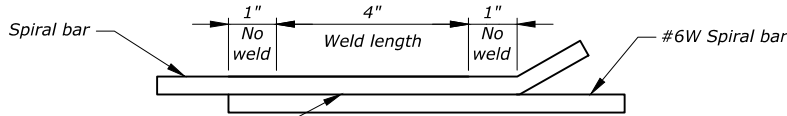
NOTE: Adjust bar length as necessary to accommodate type and length of mechanical rebar connectors. Use mechanical connectors meeting Standard Specification 711.18.



SPIRAL DISCONTINUITY DETAIL

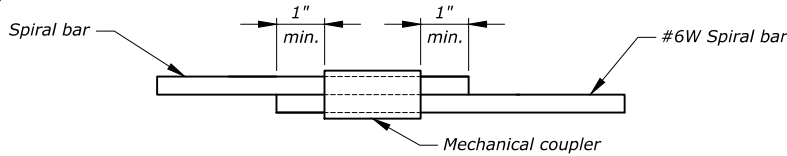
No Scale

NOTE: Use a certified welder to weld according to AWS D1.4. Use filler material meeting the requirements of AWS A5.5



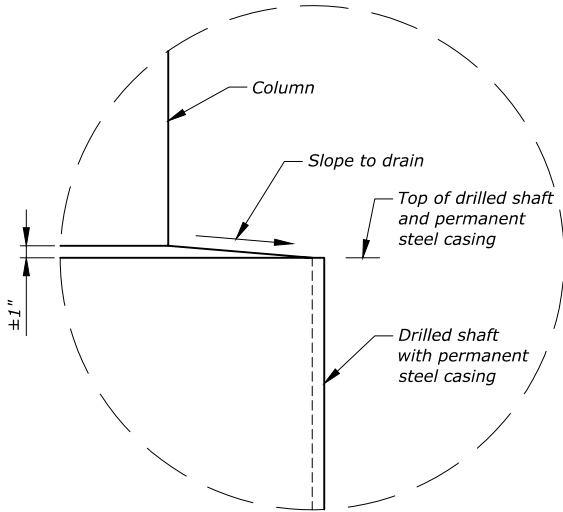
SPIRAL WELD LAP DETAIL

No Scale



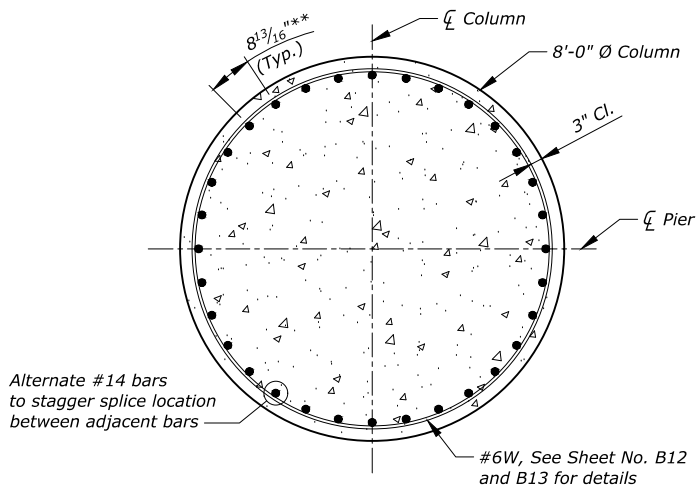
SPIRAL MECHANICAL COUPLER DETAIL

No Scale



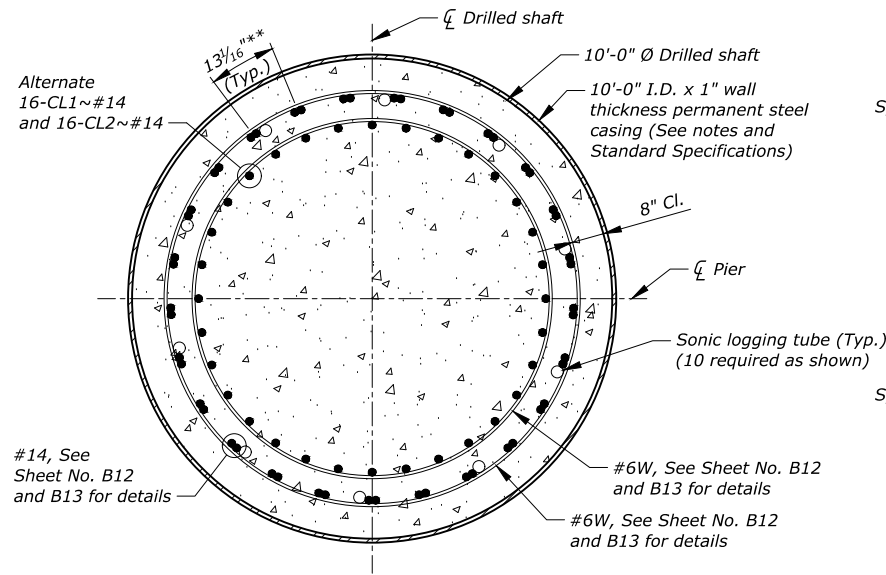
DETAIL D

B12, B13 Scale ~ ¾" = 1'-0"



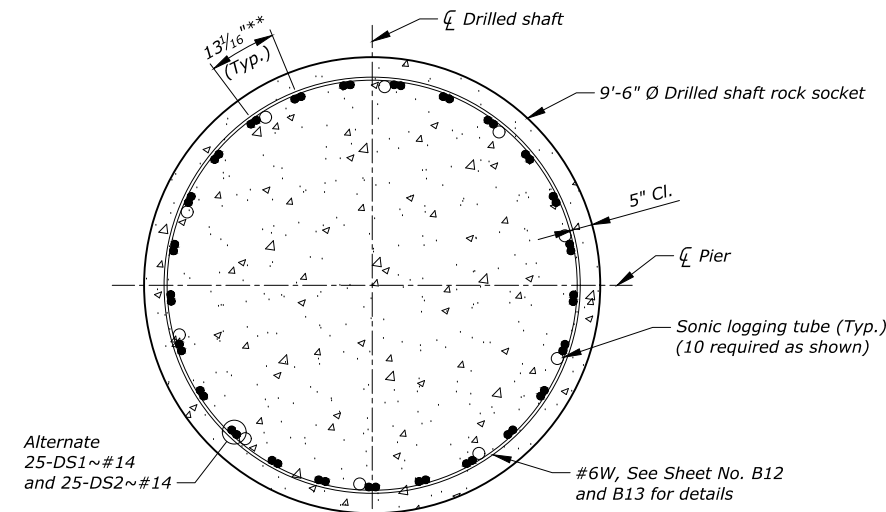
SECTION A

B12, B13 Scale ~ ¼" = 1'-0"



SECTION B

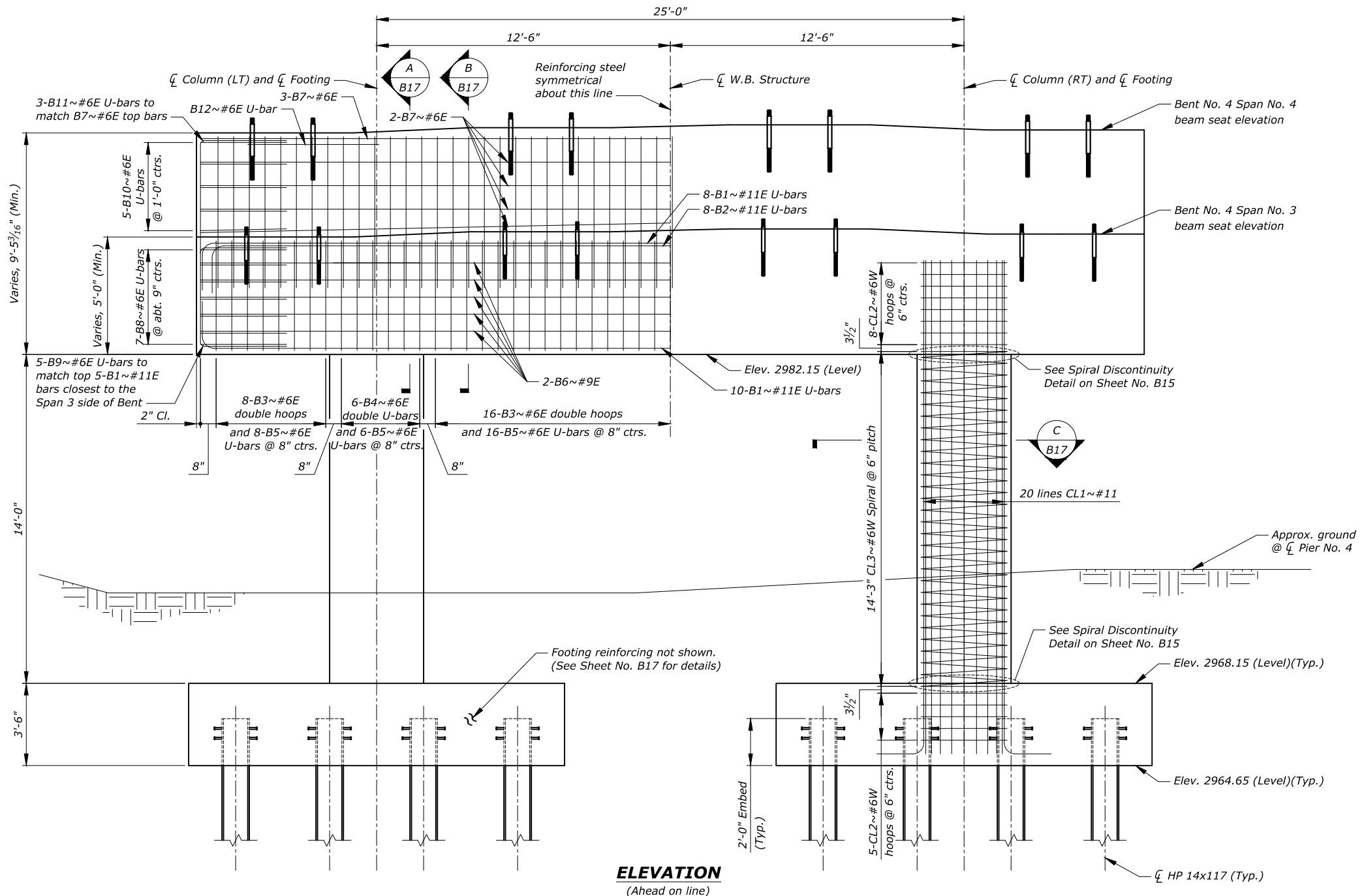
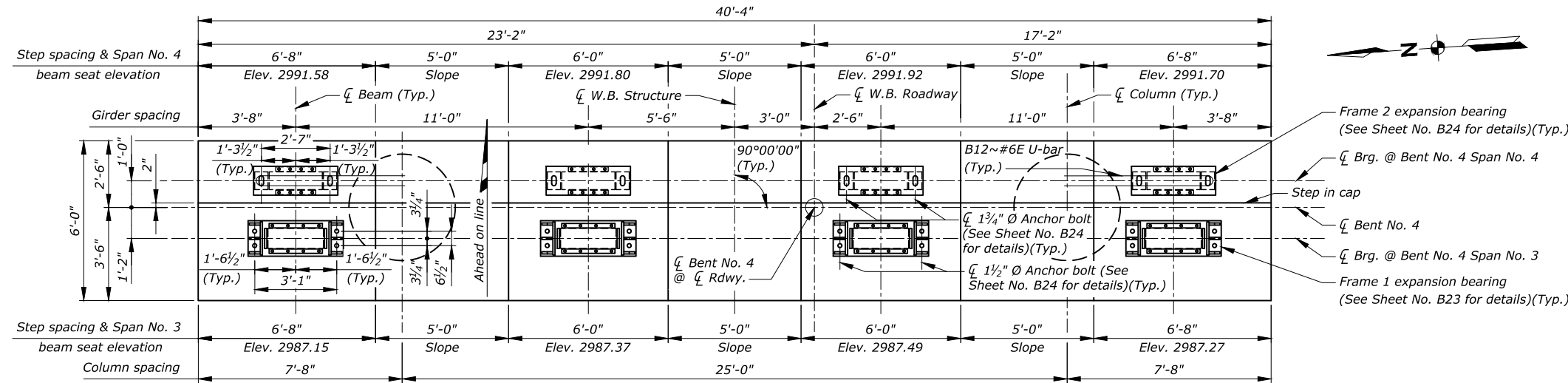
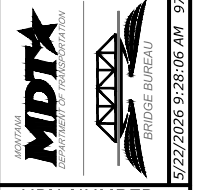
B12, B13 Scale ~ ¼" = 1'-0"



SECTION C

B12, B13 Scale ~ ¼" = 1'-0"

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
				05-26-25	03-05-25	03-01-25
				J.C.A.	B.M.M.	B.M.M.



NOTE: Adjust reinforcing steel as necessary to ensure reinforcing does not interfere with anchor bolt placement.

NOTE: See Sheet No. B6 for Footing Plan and Sheet No. B8 for Footing Details.

NOTE: See Sheet No. B18 for Bill of Reinforcing Steel.

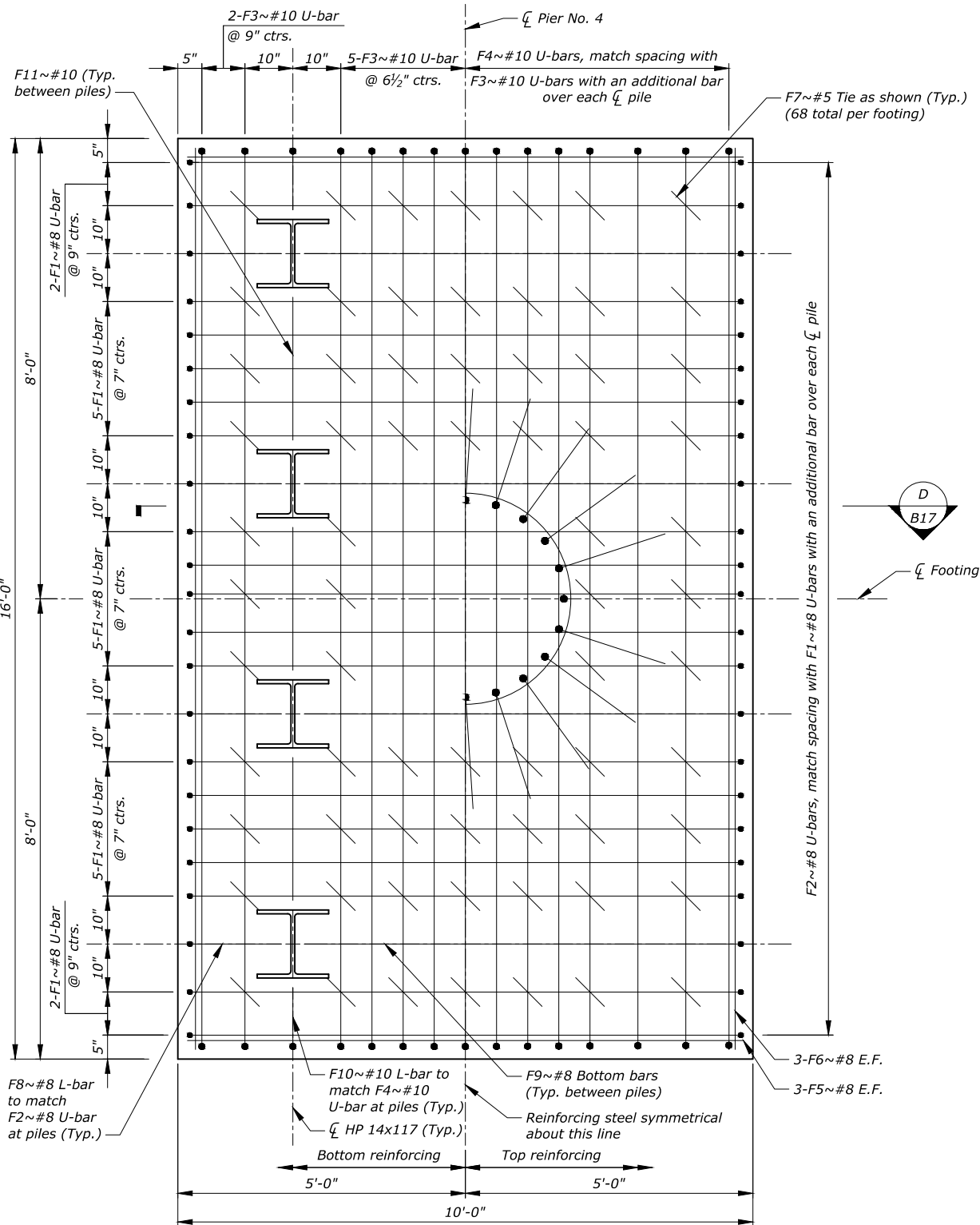
NOTE: Do not splice CL1~#11 column bars unless approved by the Project Manager.

NOTE: Splice spirals by an approved mechanical connector or by welding in accordance with the Spiral Weld Lap Detail on Sheet No. B15. Include all costs associated with splicing in the unit price bid for Reinforcing Steel-Seismic.

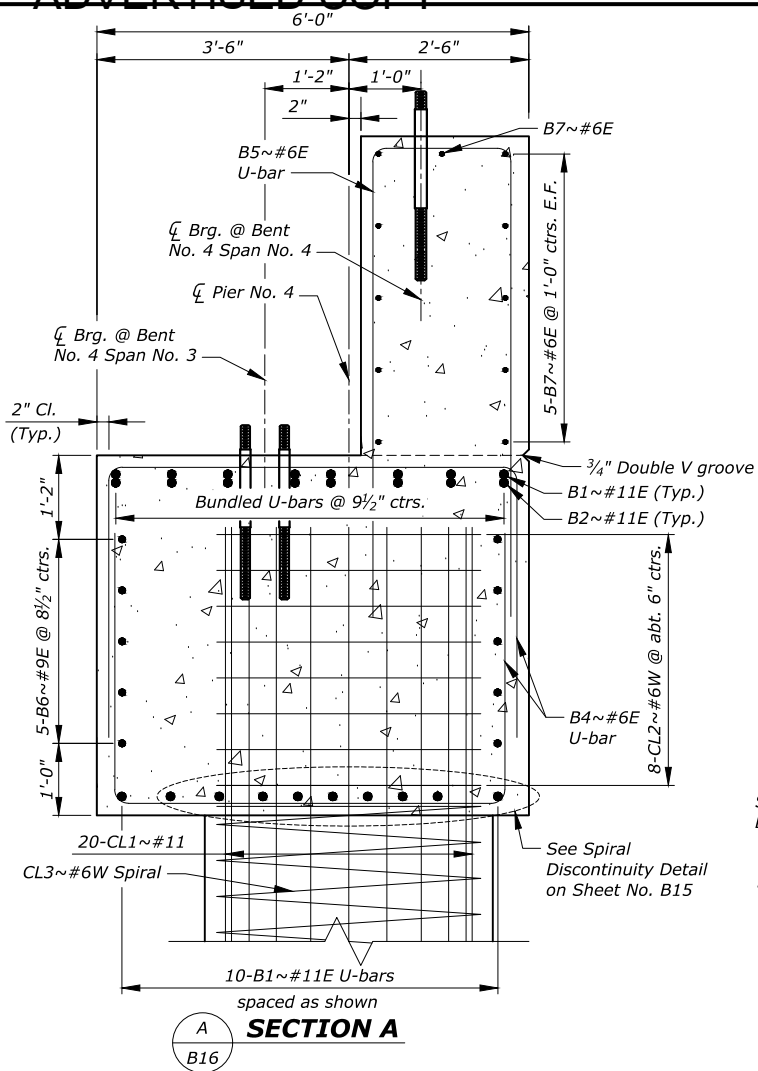
NOTE: Finish beam seats to the elevations and slopes shown on this drawing.

NOTE: Terminate all spiral reinforcement by providing 1½ extra turns. Weld or mechanically couple the tail per the Spiral Weld Lap Detail or Spiral Mechanical Coupler Detail shown on Sheet No. B15.

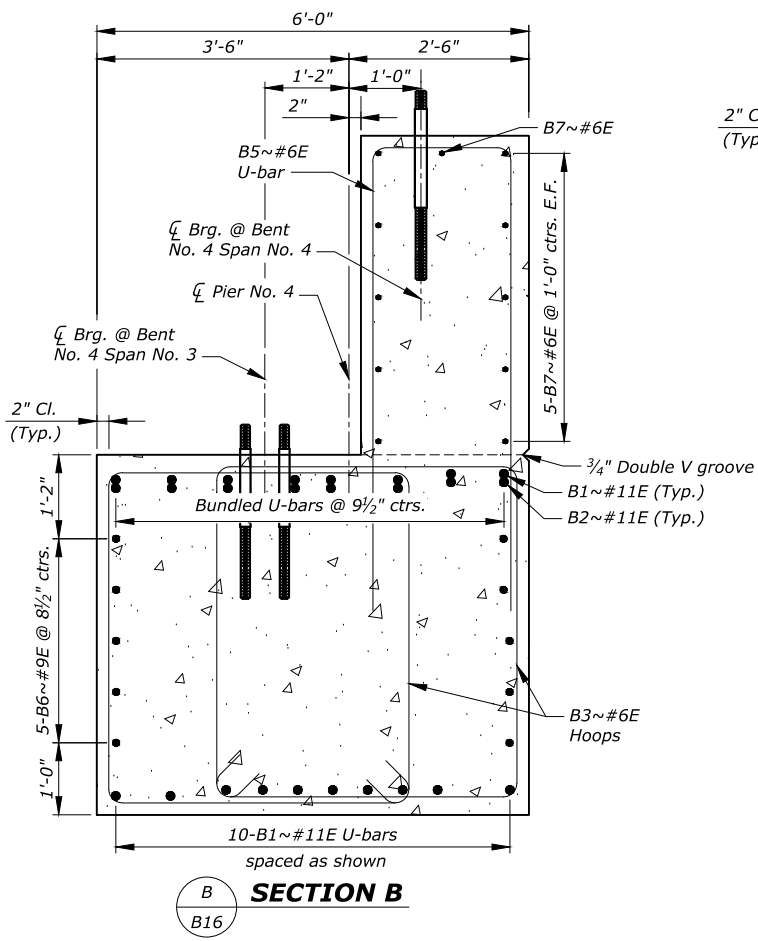
NOTE: See Sheet No. B23 and B24 for expansion bearing details.



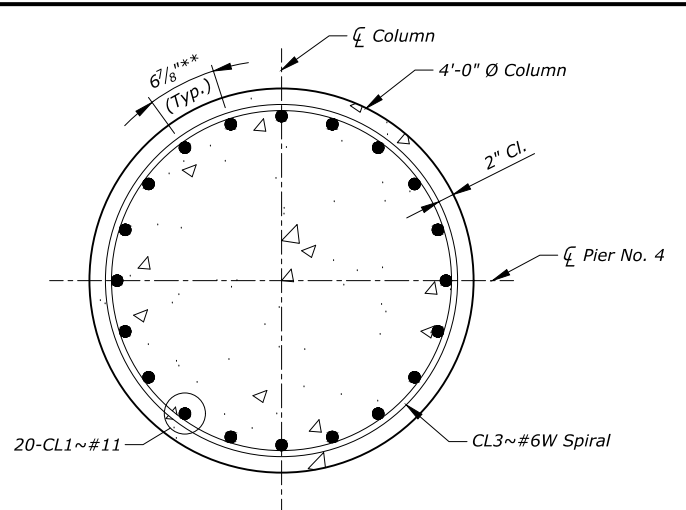
FOOTING PLAN



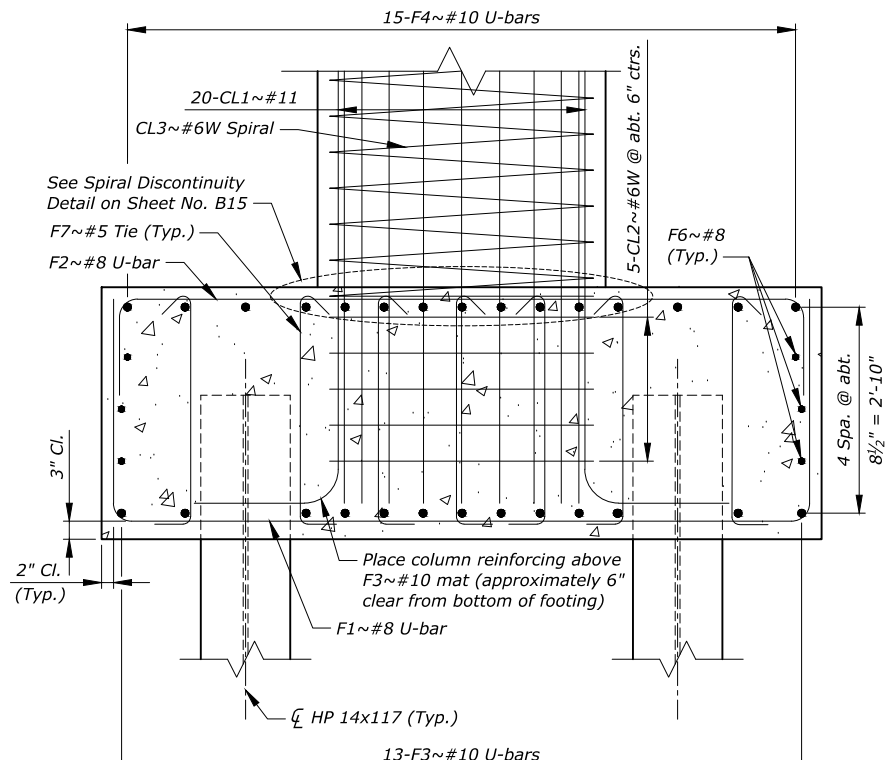
SECTION A



SECTION B



SECTION C



SECTION D

NOTE: Terminate all spiral reinforcing by providing $1\frac{1}{2}$ extra turns. Weld or mechanical couple the tail per the Spiral Weld Lap Detail or Spiral Mechanical Coupler Detail on Sheet No. B15.

NOTE: Orient vertical reinforcement in column as shown to allow for clearance of reinforcing in pier cap. Adjust footing reinforcing steel as necessary.

NOTE: See Sheet No. B16 for additional bent details and notes.

**NOTE: Provide equal longitudinal reinforcing spacing. Spacing shown is measured along outside of spiral.

NOTE: See sheet No. B24 for anchor bolt details.

NOTE: Adjust reinforcing steel as necessary to ensure reinforcing does not interfere with anchor bolt placement.

NOTE: Splice spirals by an approved mechanical connector or by welding in accordance with the Spiral Weld Lap Detail on Sheet No. B15. Include all costs associated with splicing in the unit price bid for Reinforcing Steel-Seismic.

BILL OF REINFORCING STEEL											
(FOR BENT NO. 4 ONLY) (ALL DIMENSIONS ARE OUT TO OUT)											
TYPE 17 TYPE SP TYPE STR TYPE T1 TYPE T3 TYPE T9 TYPE 37											
Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
B1	11E	18	17	44'-0"		40'-0"	2'-0"	2'-0"			
B2	11E	8	17	43'-0"		39'-0"	2'-0"	2'-0"			
B3	6E	94	T1	19'-0"	8"	4'-2"	4'-8"	4'-2"	4'-8"		
B4	6E	24	17	13'-2"		5'-8"	3'-9"	3'-9"			
B5	6E	59	17	15'-0"		2'-0"	6'-6"	6'-6"			
B6	9E	10	STR	40'-0"							
B7	6E	11	STR	40'-0"							
B8	6E	14	17	12'-10"		5'-6"	3'-8"	3'-8"			
B9	6E	10	17	11'-10"		4'-6"	3'-8"	3'-8"			
B10	6E	10	17	9'-2"		1'-10"	3'-8"	3'-8"			
B11	6E	6	17	16'-3"		8'-11"	3'-8"	3'-8"			
B12	6E	2	17	11'-6½"		4½"	5'-7"	5'-7"			
CL1	11	40	37	23'-0"		21'-0"	2'-0"				
CL2	6W	26	T3	14'-8"	3'-1"			3'-8"			
CL3	6W	2	SP	362'-11"	3'-8"	6"	14'-3"	3	31.5		
F1	8	38	17	15'-8"		9'-8"	3'-0"	3'-0"			
F2	8	46	17	12'-4"		9'-8"	1'-4"	1'-4"			
F3	10	26	17	21'-6"		15'-8"	2'-11"	2'-11"			
F4	10	30	17	19'-4"		15'-8"	1'-10"	1'-10"			
F5	8	12	STR	9'-8"							
F6	8	12	STR	15'-8"							
F7	5	136	T9	4'-0½"	5½"	3'-1"	6"				
F8	8	16	37	4'-7"		3'-0"	1'-7"				
F9	8	8	STR	5'-7"							
F10	10	8	37	3'-11"		2'-11"	1'-0"				
F11	10	12	STR	2'-5"							

SHEET NO.
B18

BENT NO. 4 BILL OF
REINFORCING

SCALE: No Scale

PROJECT NAME
CYR INTERCHANGE STRUCTURE

MDT STRUCTURE ID
01385

FEDERAL AID PROJECT
NHPB-SSS 90-1(253)69

COUNTY
MINERAL

REVISED
REVISED
REVISED
REVISED

CHECKED
DRAWN
DESIGNED

05-27-25
03-06-25
03-02-25

C.C.A.
B.M.M.
B.M.M.

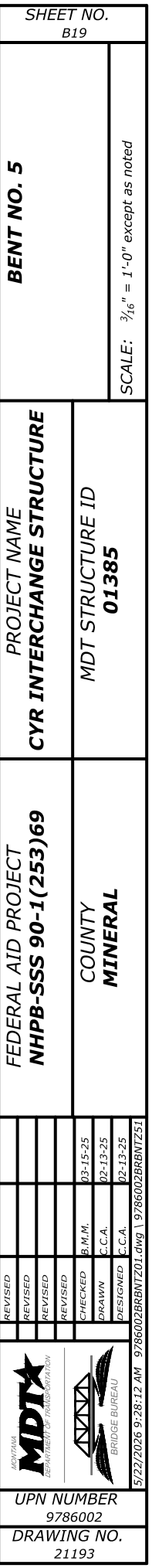
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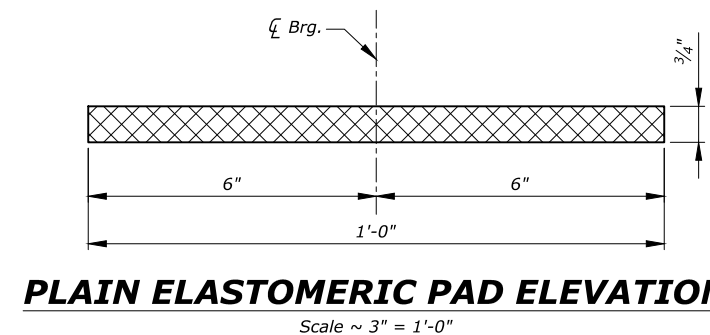
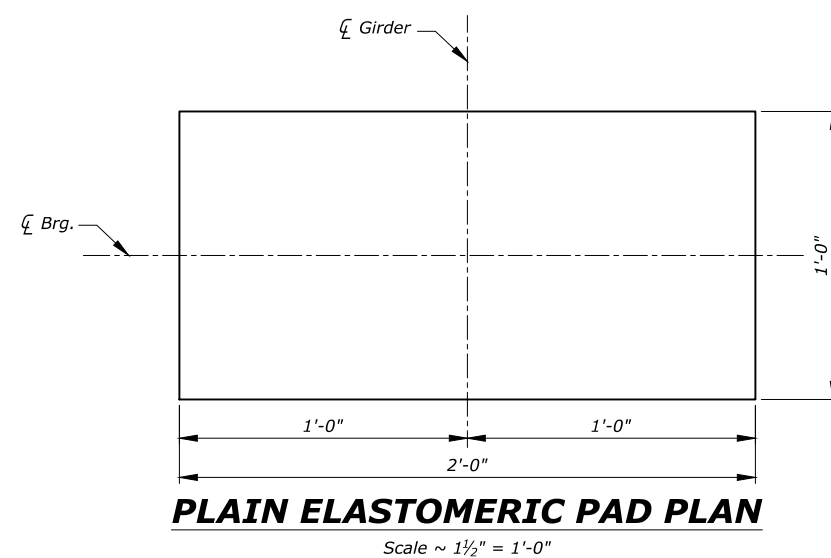
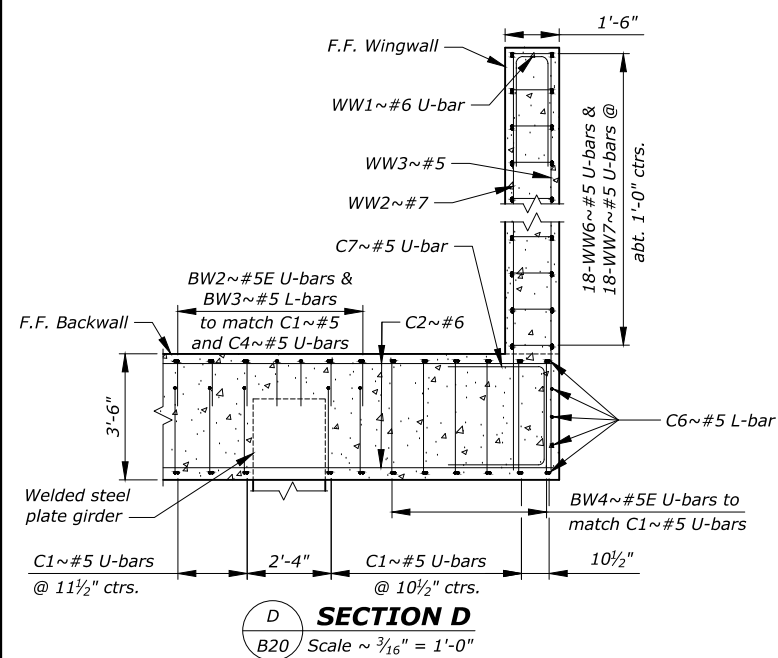
MDTA
MISSOURI
DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

UPN NUMBER
9786002

DRAWING NO.
21192

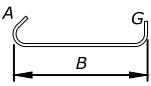
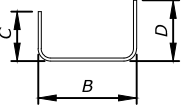
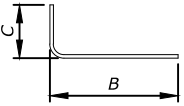
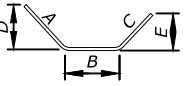
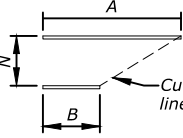
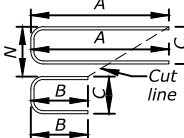




NOTE: At Bent No. 5, provide plain elastomeric pads at each beam line. Use a 60 durometer plain elastomeric pad. Include cost in the unit price bid for Structural Steel - Girder. No testing is required.

***NOTE:** Construction joints may be provided in the wingwall at beam seat elevation, rear face of cap, or as approved by the Project Manager.*

SHEET NO. B20					
BENT NO. 5 SECTIONS AND DETAILS					
CYR INTERCHANGE STRUCTURE		MDT STRUCTURE ID 01385		SCALE: ¾" = 1'-0" except as noted	
NHPB-SSS 90-1(253)69	COUNTY MINERAL				
FEDERAL AID PROJECT I					
REVISED					
REVISED					
REVISED					
CHECKED	J.M.M.	03-15-25			
DRAWN	C.C.A.	02-13-25			
DESIGNED	C.C.A.	02-13-25			
 MDTA MARYLAND DEPARTMENT OF TRANSPORTATION			 BRIDGE BUREAU		
UPN NUMBER 97860002			5/22/2026 9:28:14 AM 97860002BRBNTZ01.dwg \ 97860002BRBNTZ52		
DRAWING NO. 21194					

BILL OF REINFORCING STEEL											
(FOR BENT NO. 5 ONLY) (ALL DIMENSIONS ARE OUT TO OUT)											
       A = Longest bar in set B = Shortest bar in set Bar lengths in cut set vary by about D from adjacent bars G = Number of cut sets N = Number of bars in cut set <u>CUT</u> A = Longest bar in set B = Shortest bar in set Bar lengths in cut set vary by about D from adjacent bars G = Number of cut sets N = Number of bars in cut set <u>CUT U</u>											
Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
C1	5	44	17	24'-0"		3'-2"	10'-5"	10'-5"			
C2	6	56	STR	25'-4"							
C3	5	3	17	12'-3"		10'-7"	10"	10"			
C4	5	8	17	17'-10"		3'-2"	7'-4"	7'-4"			
C5	5	96	T9	4'-1½"	5½"	3'-2"				6"	
C6	5	10	37	13'-1"		10'-5"	2'-8"				
C7	5	28	17	8'-10"		3'-0"	2'-11"	2'-11"			
C8	6	16	17	6'-3"		1'-9"	2'-3"	2'-3"			
BW1	5E	8	STR	40'-0"							
BW2	5E	34	37	4'-11"		3'-11"	1'-3"				
BW3	5	42	37	4'-2"		2'-11"	1'-3"				
BW4	5E	12	17	11'-0"		3'-2"	3'-11"	3'-11"			
BW5	5E	8	37	11'-0"		7'-1"	3'-11"				
BW6	5E	2	37	8'-7"		4'-8"	3'-11"				
BW7	5E	49	37	8'-6"		6'-0"	2'-6"				
WW1	6	10	17	7'-10"		1'-0"	3'-5"	3'-5"			
WW2	7	10	STR	20'-1"		20'-1"					
WW3	5	10	STR	20'-1"		20'-1"					
WW4	7	24	CUT	12'-5"	20'-0"	4'-10"		1'-4½"		2	12
WW5	5	24	CUT	12'-5"	20'-0"	4'-10"		1'-4½"		2	12
WW6	5	36	CUT U	8'-6"	11'-5"	3'-3"	1'-2"	5¾"		2	18
WW7	5	36	17	6'-2"		1'-2"	2'-6"	2'-6"			
WW8	6	4	29	25'-1"	3'-7"	18'-4"	3'-2"	1'-7"	2'-10¾"		

NOTE: Type CUT and CUT U denotes a cut set of bars. The length shown is the average bar length in a set. The total number of bars (No.) is the number of bar sets (G) times the number of bars in a set (N). Tag each individual length with a unique bar tag number starting with the shortest bar in the set. Ex. WW4-1 through WW4-12.

SHEET NO.
B21

BENT NO. 5 BILL OF
REINFORCING

SCALE: No Scale

PROJECT NAME
CYR INTERCHANGE STRUCTURE

MDT STRUCTURE ID
01385

FEDERAL AID PROJECT
NHPB-SSS 90-1(253)69

COUNTY
MINERAL

REVISED
REVISED
REVISED
REVISED

CHECKED
DRAWN
DESIGNED

02-16-25
02-18-25
02-16-25

02-16-25
02-18-25
02-16-25

02-16-25
02-18-25
02-16-25

02-16-25
02-18-25
02-16-25

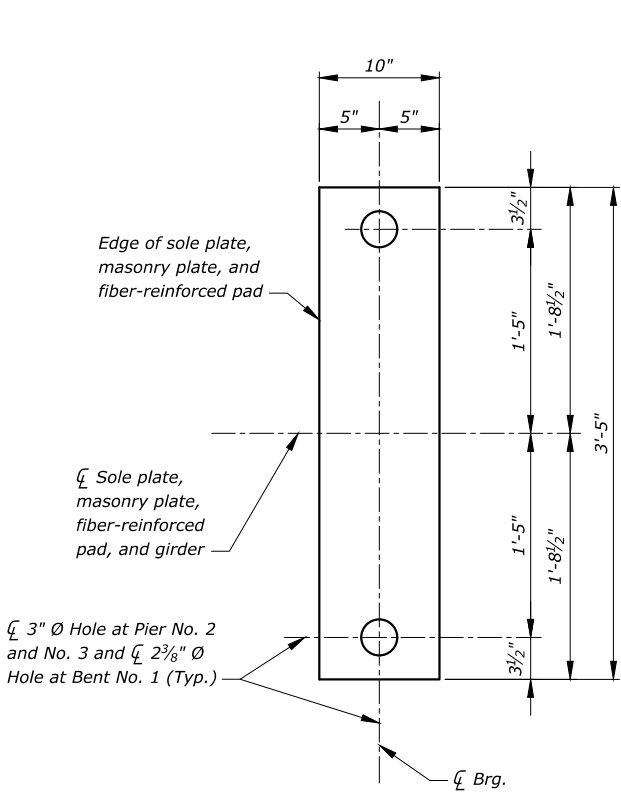
MDTA
DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

UPN NUMBER
9786002

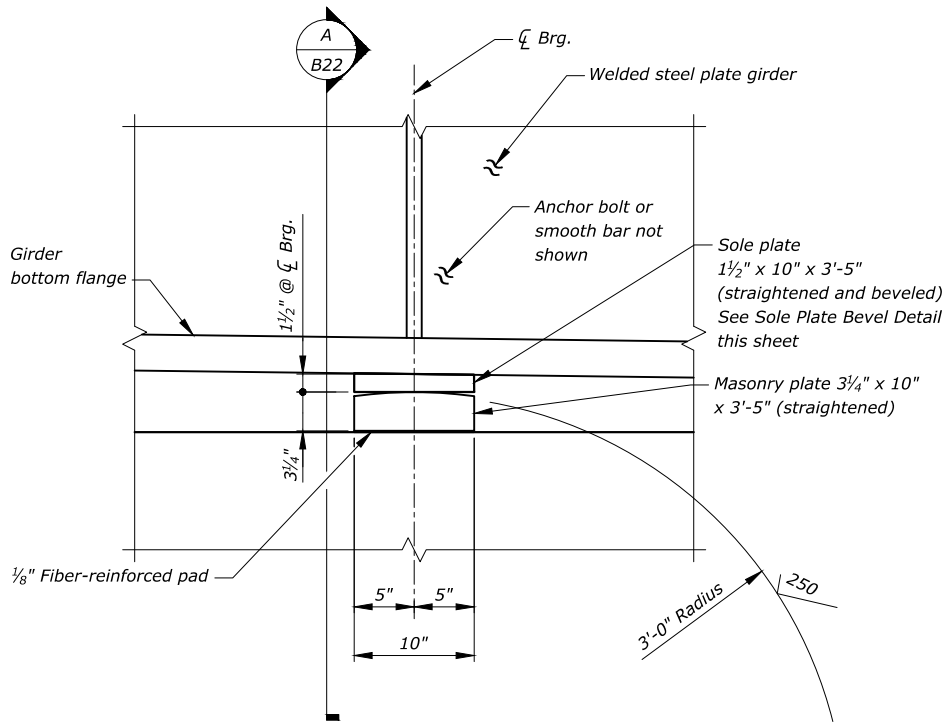
DRAWING NO.
21195

REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED



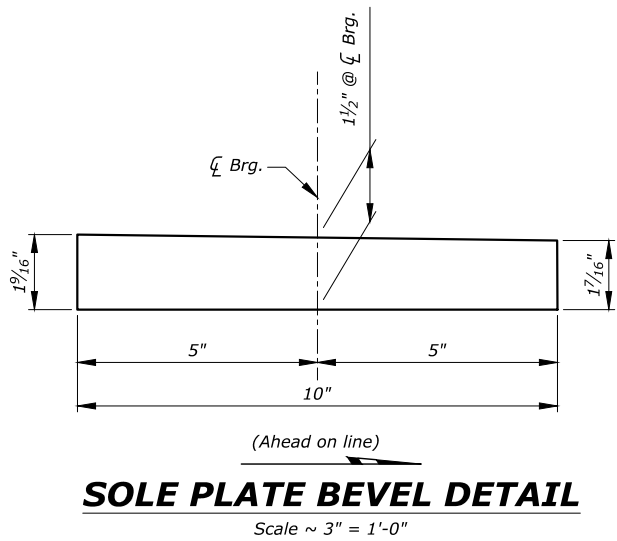
FIXED BEARING PLAN

(Pier No. 2 shown, Pier No. 3
and Bent No. 1 similar)



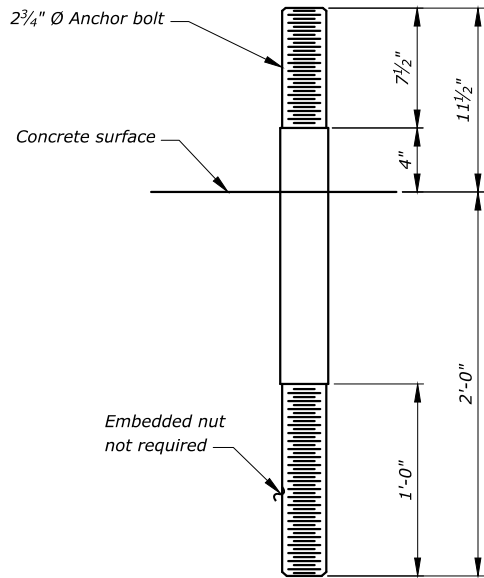
FIXED BEARING SIDE VIEW

(Pier No. 2 shown, Pier No. 3 and Bent No. 1 similar)



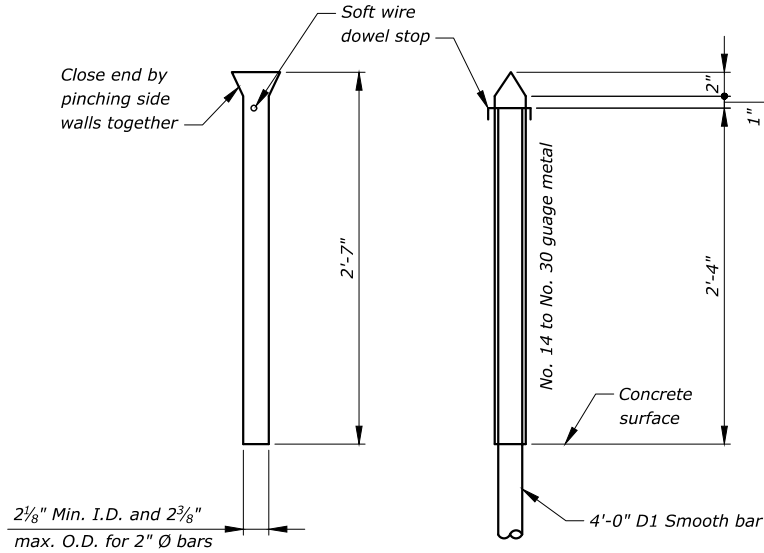
SOLE PLATE BEVEL DETAIL

Scale ~ 3" = 1'-0"

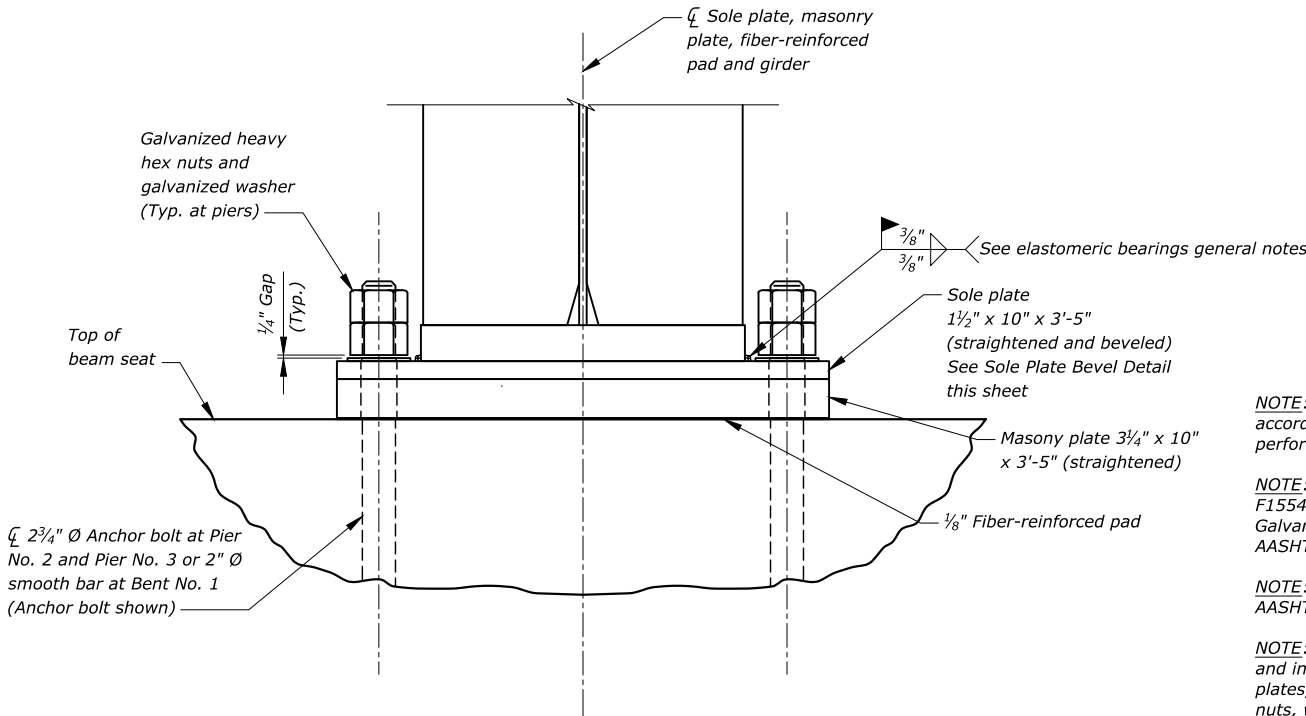


PIER ANCHOR BOLT DETAIL

Scale ~ 1" = 1'-0"



**BENT NO. 1 METAL
EXPANSION CAP DETAIL**



SECTION A

(Pier No. 2 shown, Pier No. 3
and Bent No. 1 similar)

NOTE: Galvanize sole plates and masonry plates in accordance to Standard Specifications. Grind as necessary to perform field welding and touch-up using zinc spray.

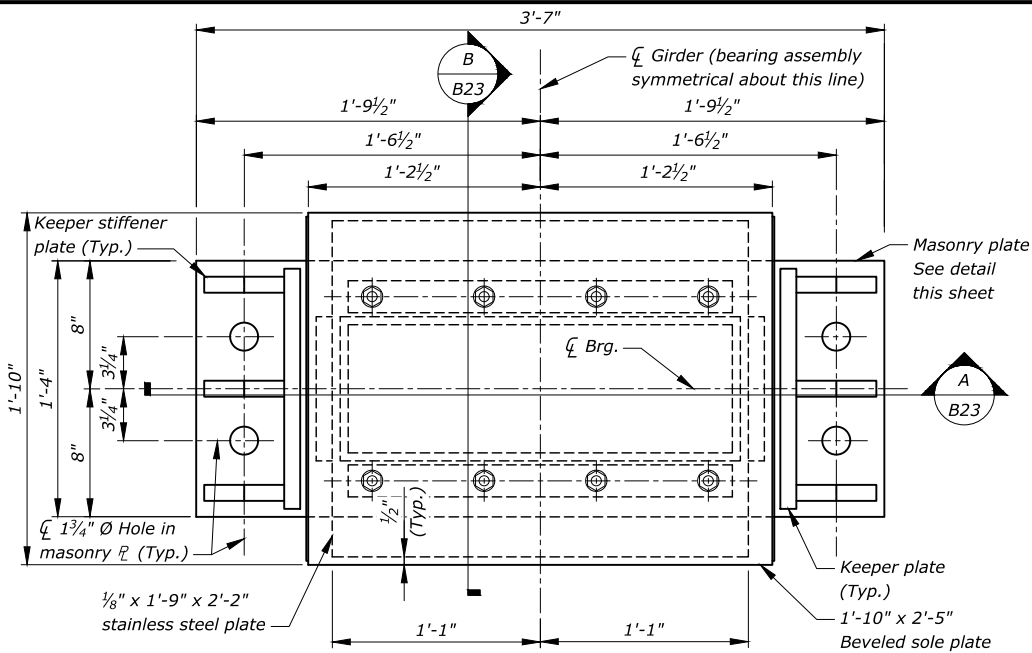
NOTE: Use structural steel meeting the requirements of ASTM F1554 Grade 105 for D1 smooth bars and anchor bolts. Galvanize the anchor bolts meeting the requirements of AASHTO M 232.

NOTE: Use structural steel meeting the requirements of AASHTO M270 Grade 50W for sole plates and masonry plates.

NOTE: Include all costs associated with furnishing, fabricating, and installing the sole plates, fiber reinforced pads, masonry plates, metal expansion caps, anchor bolts, smooth bars, nuts, washers, and incidentals in the unit price bid for Structural Steel - Girder.

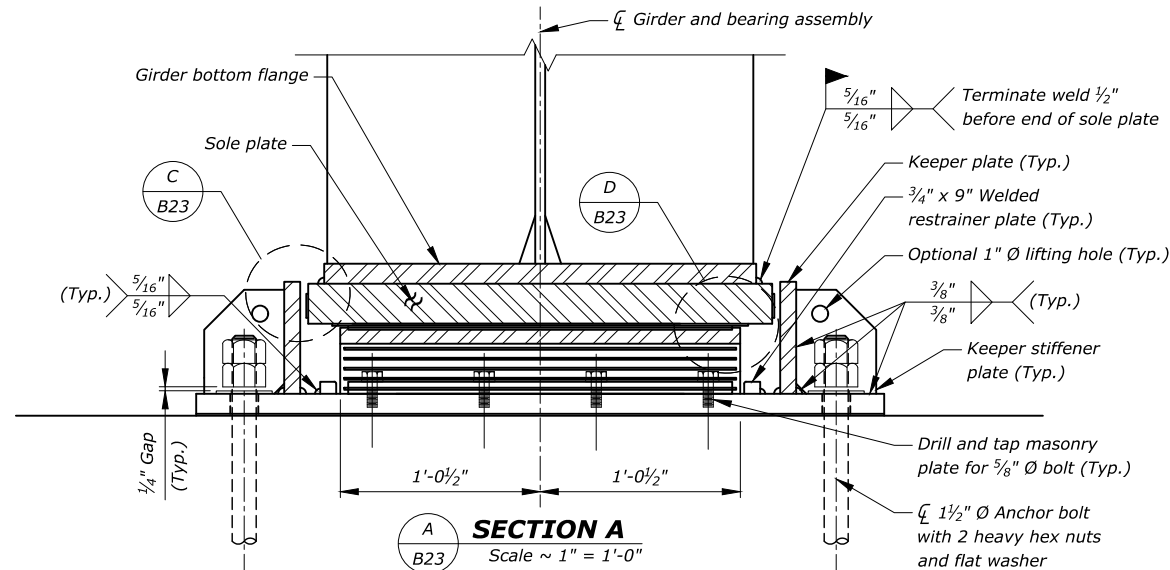
NOTE: Bevel sole plates to dimensions specified in the Sole Plate Bevel Detail. Mark sole plate prior to shipping. Make all marks permanent and visible after the bearing is installed. Include bearing location on the bridge and a direction arrow that points ahead on line (up-station).

NOTE: Jam tighten nuts together to maintain $\frac{1}{4}"$ gap for life of structure.



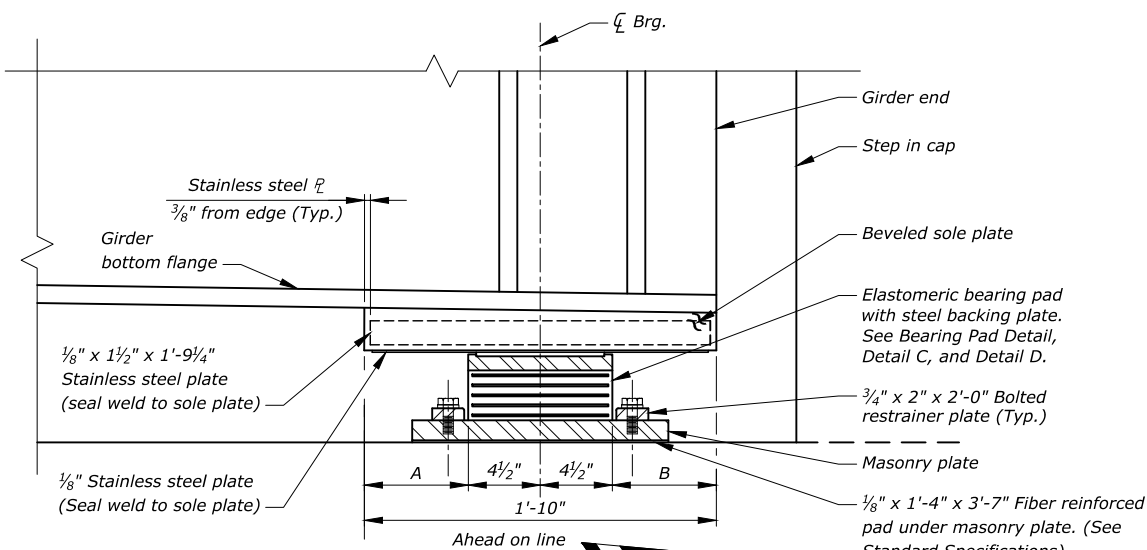
FRAME 1 EXPANSION BEARING PLAN

Scale ~ 1" = 1'-0"
(Girder not shown for clarity)



SECTION A

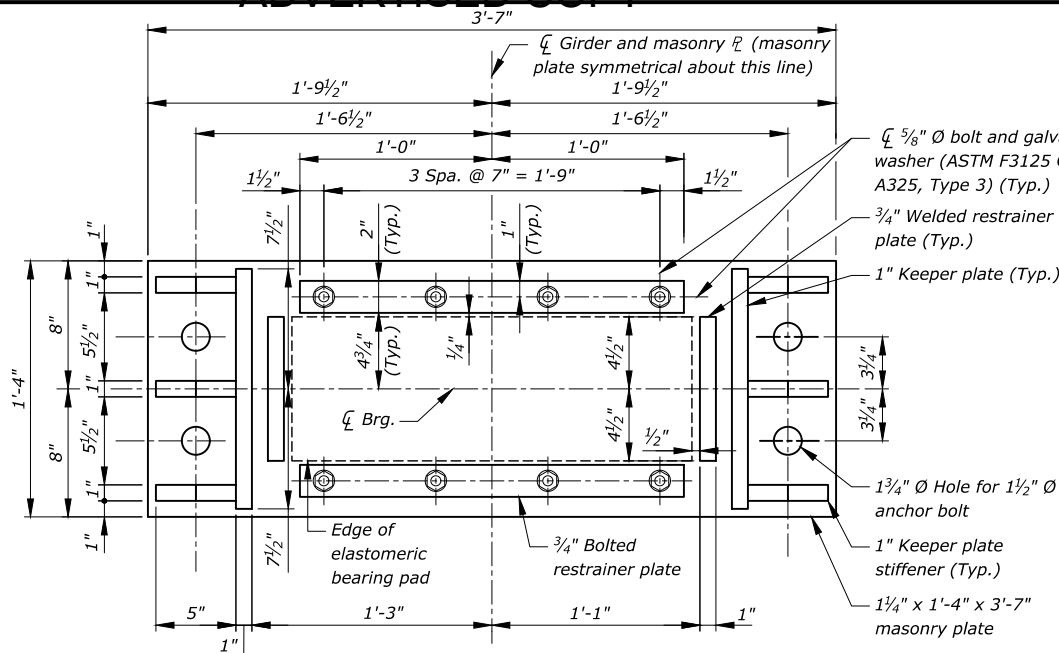
Scale ~ 1" = 1'-0"



SECTION B

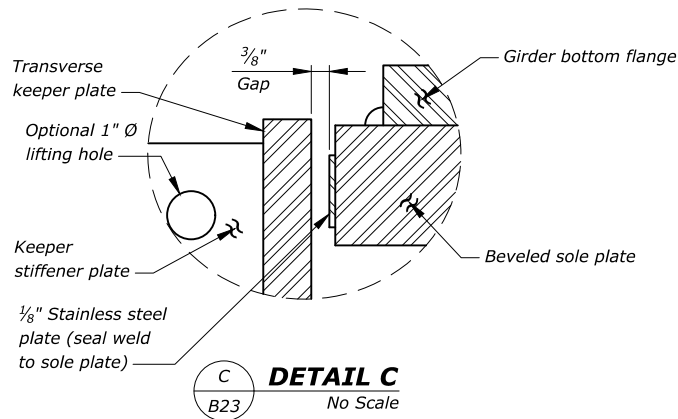
Scale ~ 1" = 1'-0"

(Transverse keeper plates and anchor bolts not shown)



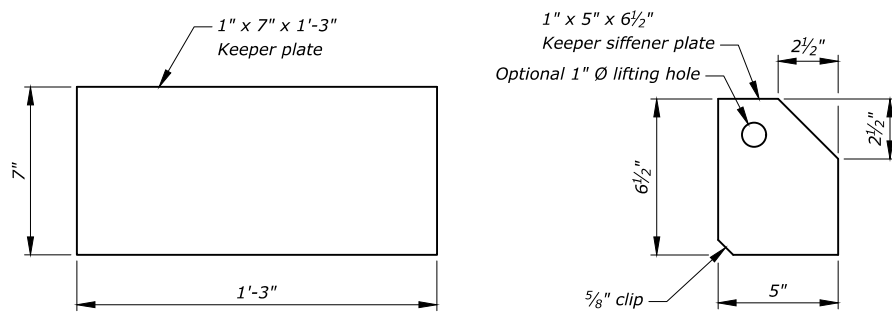
MASONRY PLATE PLAN

Scale ~ 1" = 1'-0"



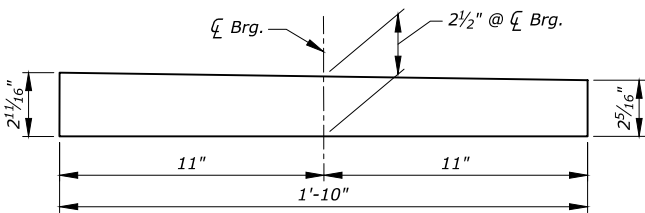
DETAIL C

No Scale



TRANSVERSE KEEPER PLATE DETAILS

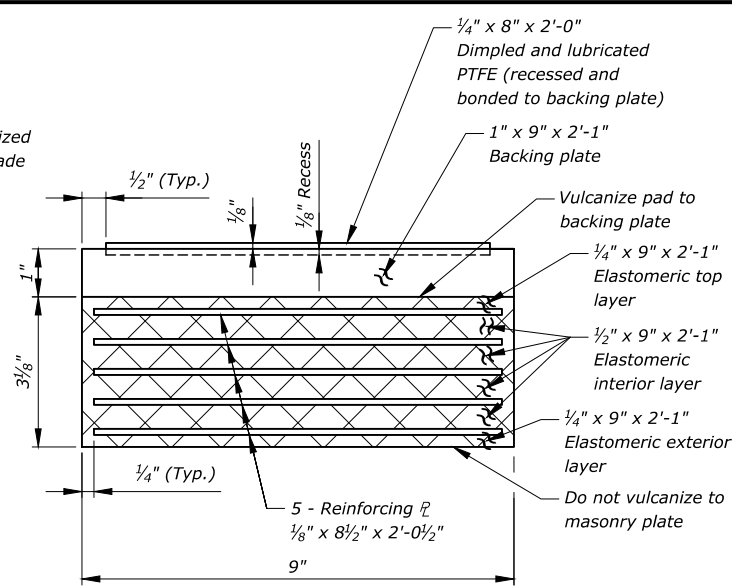
Scale ~ 1 1/2" = 1'-0"



SOLE PLATE BEVEL DETAIL

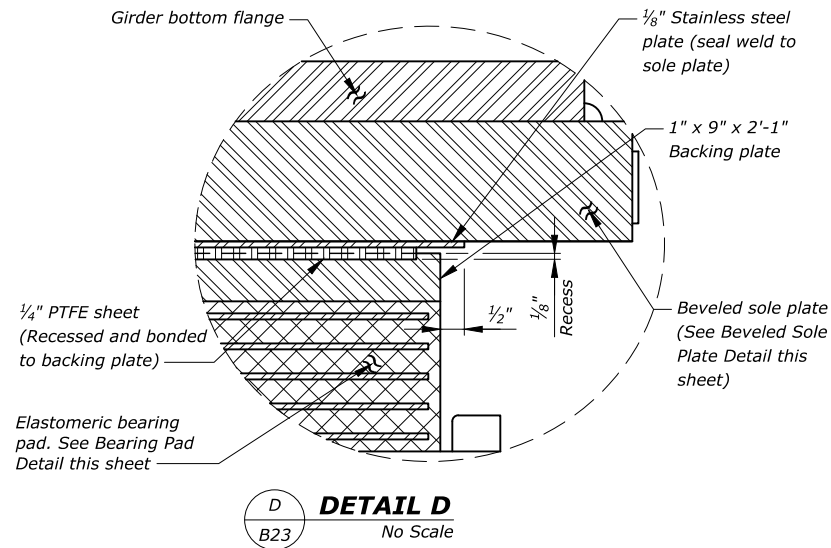
Scale ~ 1 1/2" = 1'-0"

(1/8" Stainless steel plate not shown)



BEARING PAD DETAIL

Scale ~ 3" = 1'-0"



DETAIL D

No Scale

TABLE OF EXPANSION BEARING MOVEMENTS

Mark	Temperature (°F)					
	0	20	40	60	80	100
A	9 1/2"	8 1/2"	7 1/2"	6 1/2"	5 1/2"	4 1/2"
B	3 1/2"	4 1/2"	5 1/2"	6 1/2"	7 1/2"	8 1/2"

NOTE: Prior to welding sole plate, align sole plate with end of beam and verify values in table. Interpolate between temperatures shown. Contact Project Manager if the field dimensions are not within 3/8" of value shown on table.

NOTE: Paint sole plate and masonry plate in accordance to Standard Specifications.

NOTE: The movements shown in the table are not factored. They are the actual movements anticipated for the temperatures shown.

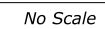
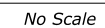
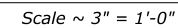
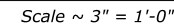
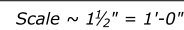
NOTE: See Sheet No. B3 for bearing notes.

NOTE: See Sheet No. B24 for anchor bolt details.

NOTE: Provide 1/8" fiber reinforced pads meeting the requirements of subsection 711.16 of the Standard Specifications. Configuration of pads to match the masonry plate.

NOTE: Include all costs associated with furnishing, fabricating, and installing the sole plate, keeper plates, restrainer plates, masonry plates, anchor bolts, bolts, nuts, and incidentals in the unit price bid for Elastomeric Bearing Devices - PTFE.

NOTE: Test elastomeric bearing pads according to AASHTO M251. Perform test based on an estimated DL+LL (without impact) service design load of 265-kips.

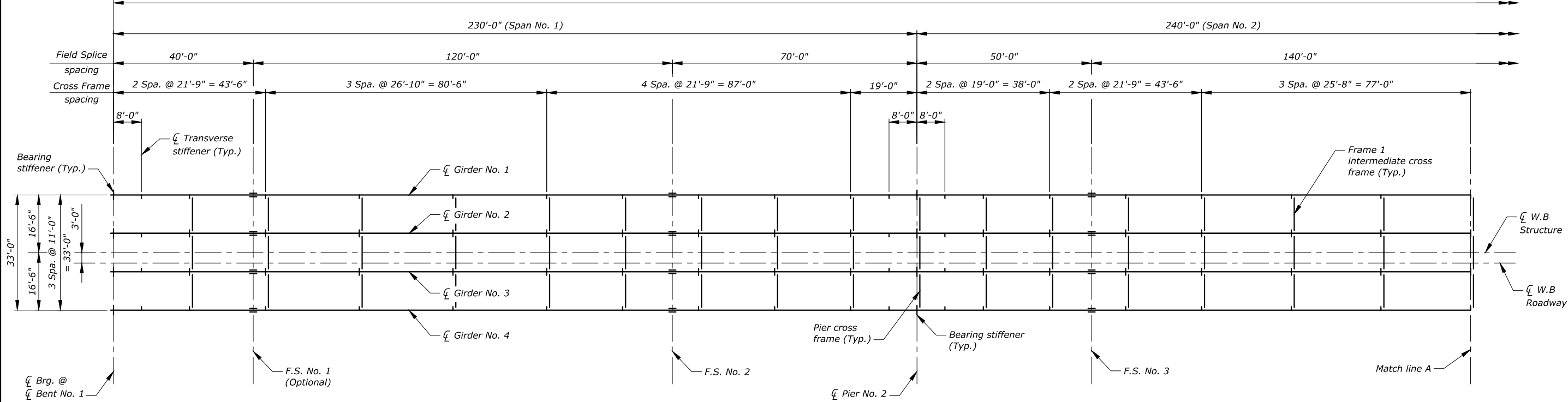


NOTE: Test elastomeric bearing pads according to AASHTO M251. Perform test based on an estimated DL+LL (without impact) service design load of 200-kips.

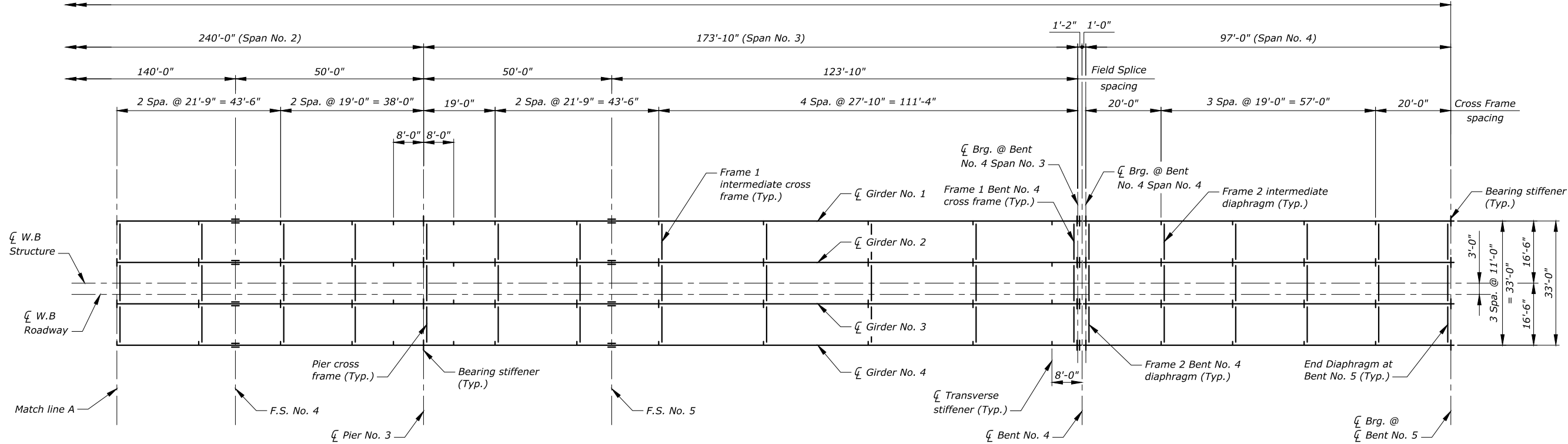
REVISED	06-03-25	C.A.
REVISED	01-18-25	S.M.M.
REVISED	01-14-25	S.M.M.
CHECKED	06-03-25	C.A.
DRAWN	01-18-25	S.M.M.
DESIGNED	01-14-25	S.M.M.



743'-0" (ζ Brg. @ Bent No. 1 to ζ Brg. @ Bent No. 5)



743'-0" (ζ Brg. @ Bent No. 1 to ζ Brg. @ Bent No. 5)



ERECTION PLAN

NOTE: Brace girders at Bent No. 1 in accordance with the submitted stability analysis until backwall is poured. See Sheet No. B3 for requirements.

NOTE: See Sheet No. B33 for camber details.

NOTE: Blast clean all structural steel except for machine finished surfaces.

NOTE: See Sheet No. B34 for stiffener and girder details.

NOTE: Dimensions shown are horizontal ground dimensions. Account for grade, temperature, and camber in fabrication.

NOTE: See Sheet No. B26 for girder elevation.

NOTE: See Sheet No. B29 to B32 for cross frame details.

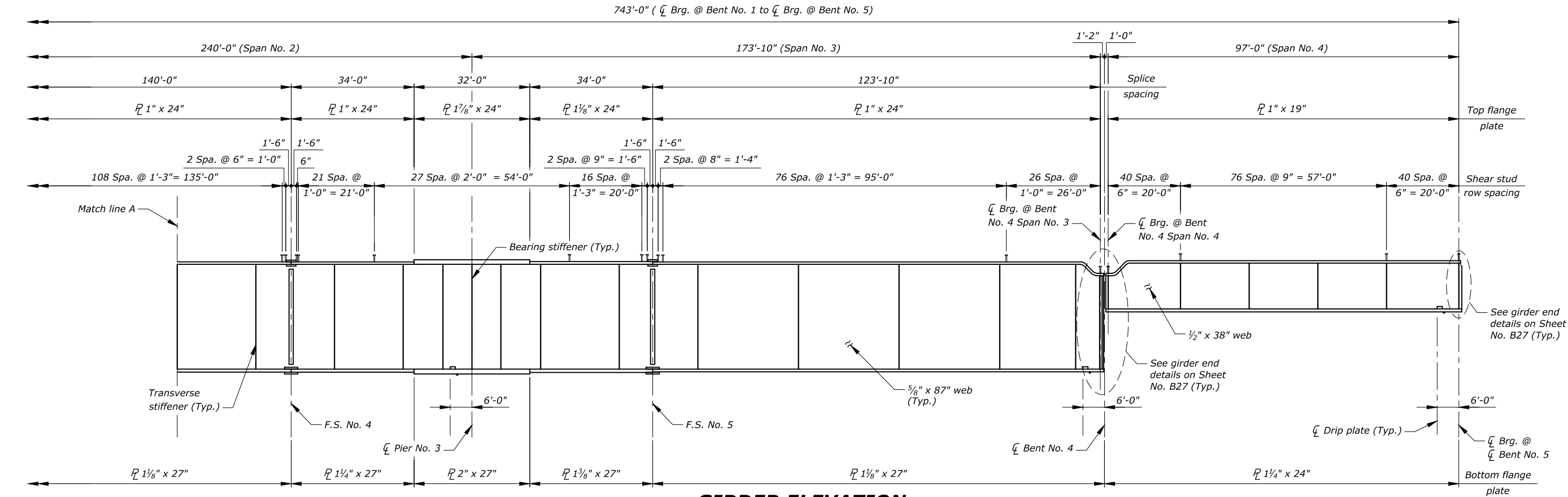
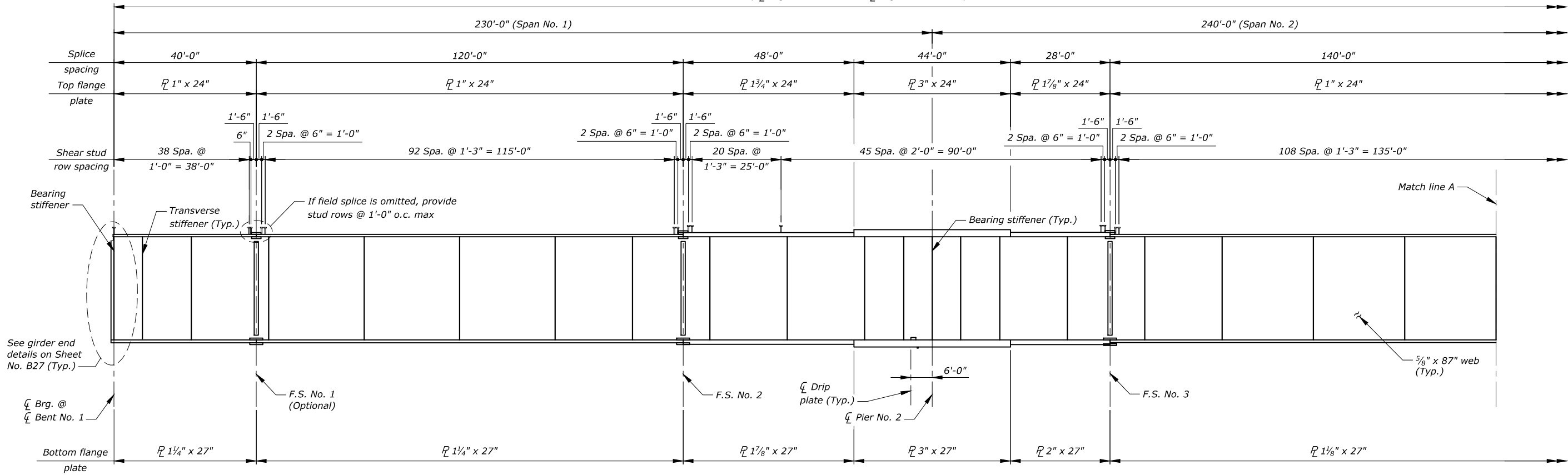
NOTE: Frame 1 is defined as the summation of Span No. 1, No. 2, and No. 3. Frame 2 is defined as Span No. 4.

NOTE: See Sheet No. B28 for field splice details.

NOTE: See Sheet No. B35 for graffiti cover and drip plate details.

NOTE: All cross frames, stiffeners, and field splices are normal to ζ Roadway.

NOTE: All longitudinal dimensions are along ζ Girder.



GIRDER ELEVATION

NOTE: Girder end details not shown. See Sheet No. B27 for details.

NOTE: Stiffener spacings are not shown for clarity. See Sheet No. B25 for locations.

NOTE: Dimensions shown are horizontal ground dimensions. Account for grade, temperature, and camber in fabrication.

NOTE: All flanges and webs in tension or reversal stress. Charpy test all flange and web plates.

NOTE: See Sheet No. B34 for girder details.

NOTE: See Sheet No. B33 for camber details.

NOTE: All dimensions along $\bar{C}$ Girder unless noted otherwise.

NOTE: See Sheet No. B28 for field splice details.

NOTE: Graffiti cover not shown. See Sheet No. B35 for details.

NOTE: Bearings not shown. See Sheet No. B22 to B24.

NOTE: See Sheet No. B29 to B32 for cross frame and stiffener details.

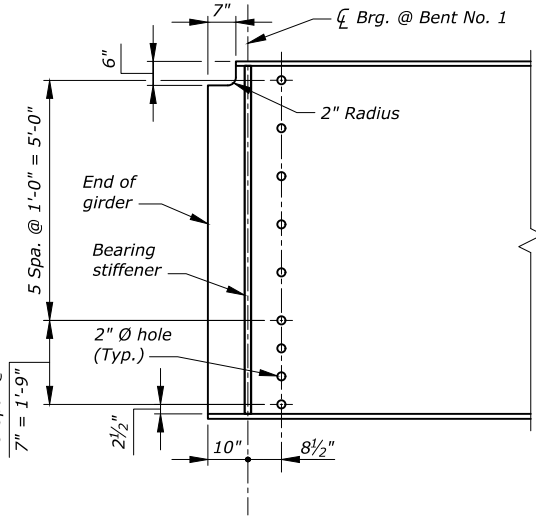
NOTE: Paint 10'-0" of girder ends at Bent No. 4 including cross frames and connection plates per Standard Specifications. Top coat color to match weathering steel.

NOTE: Provide drip plate at locations shown. See Sheet No. B35 for drip plate details.

NOTE: See Sheet No. B25 for erection plan, additional notes, and requirements.

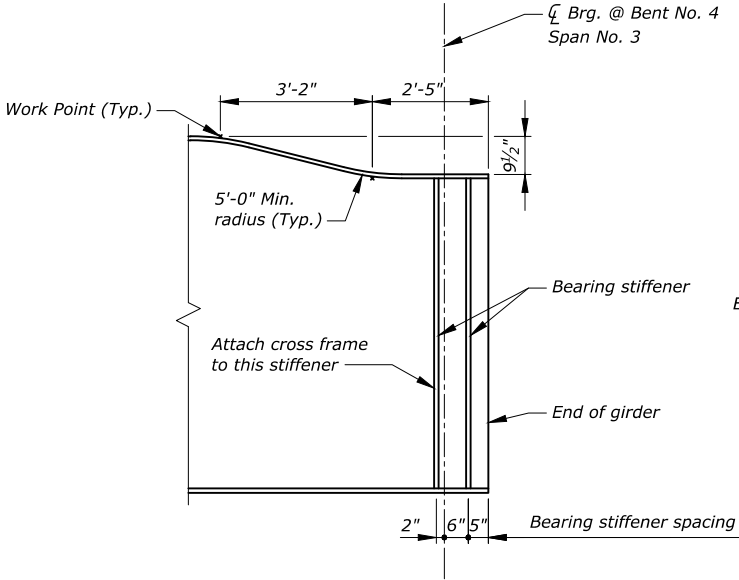
REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	DATE	BY
							06-03-25	
							01-19-25	
							01-14-25	
							01-14-25	
							01-14-25	
							01-14-25	
							01-14-25	
							01-14-25	
							01-14-25	





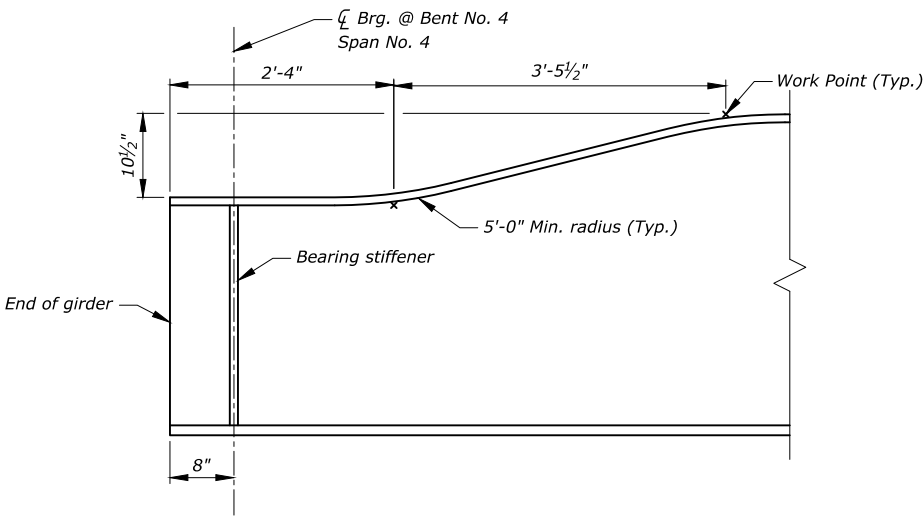
BENT NO. 1 GIRDER END DETAIL

Scale ~ 1/4" = 1'-0"



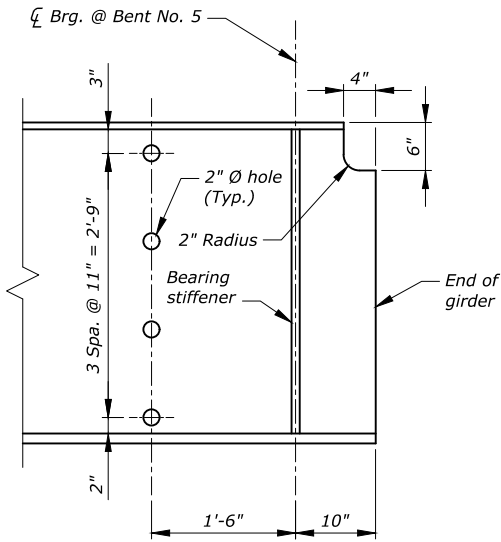
BENT NO. 4 SPAN NO. 3
GIRDER END DETAIL

Scale ~ 1/4" = 1'-0"



BENT NO. 4 SPAN NO. 4
GIRDER END DETAIL

Scale ~ 1/2" = 1'-0"

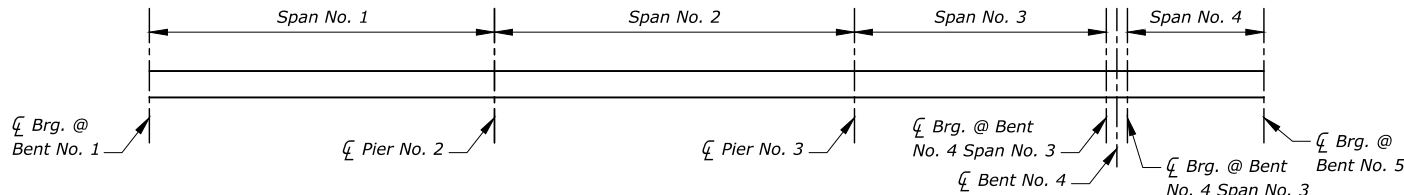


BENT NO. 5 GIRDER END DETAIL

Scale ~ 1/2" = 1'-0"

LRFD DESIGN INFORMATION TABLE (SERVICE LOADS)

DL = Dead Load
L.L. + IM = Live Load + Dynamic Load Allowance
(+) = Compression in top flange or downward deflection
(-) = Compression in bottom flange or upward deflection
Shear and Reactions in kips
Moment in ft-kips
Deflection in inches



		Span No. 1		Span No. 2		Span No. 3		Span No. 4		Bent No. 1		Pier No. 2		Pier No. 3		Bent No. 4 Span No. 3		Bent No. 4 Span No. 4		Bent No. 5	
		Interior Girder	Exterior Girder	Interior Girder	Exterior Girder	Interior Girder	Exterior Girder	Interior Girder	Exterior Girder	Interior Girder	Exterior Girder	Interior Girder	Exterior Girder	Interior Girder	Exterior Girder	Interior Girder	Exterior Girder	Interior Girder	Exterior Girder	Interior Girder	Exterior Girder
Moment (ft-kips)	DL	7439	6730	3635	3283	4096	3702	2186	1910	0	0	-14286	-12943	-8327	-7526	0	0	0	0	0	0
	LL+IM	5215	6807	4134	5493	4074	4962	2074	2531	0	0	-6225	-7693	-4861	-5967	0	0	0	0	0	0
Reaction (kips)	DL									232	215	584	530	449	406	131	118	92	80	135	123
	LL+IM									158	145	336	309	310	285	145	133	120	110	120	110
Shear (kips)	DL									175	158	306	278	227	205	129	117	90	79	90	79
	LL+IM									158	145	191	175	180	166	145	133	120	110	120	110
Deflection (in)	DL																				
	LL+IM	2 1/4	2 5/16	1 13/16	1 7/8	1	1 1/16	1 1/16	1 1/8												

NOTE: The single lane average daily truck traffic (ADTT)_{SL} for a 75-year life is 3000.

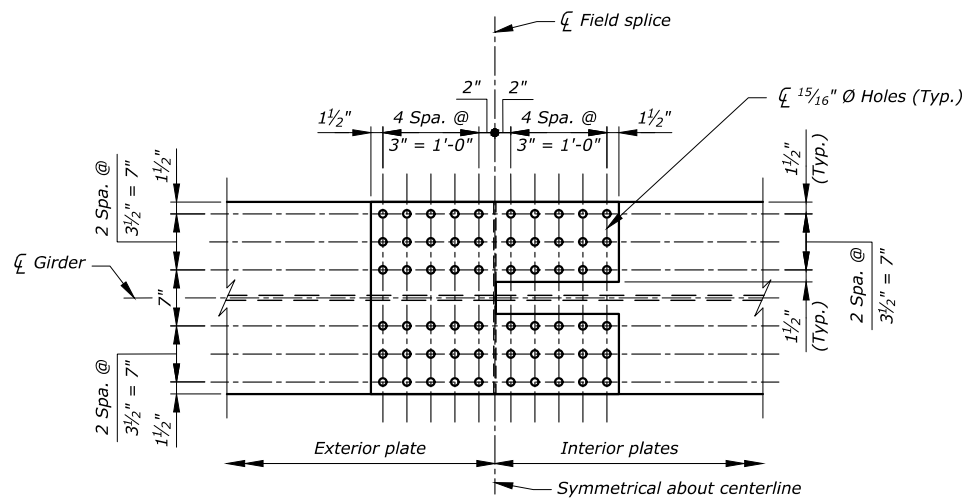
NOTE: See Sheet No. B37 and B38 for predicted dead load deflections.

NOTE: All longitudinal dimensions are along CL Girder.

NOTE: See Sheet No. B25 and B26 for Erection Plan, Girder Elevation, additional notes, and requirements.

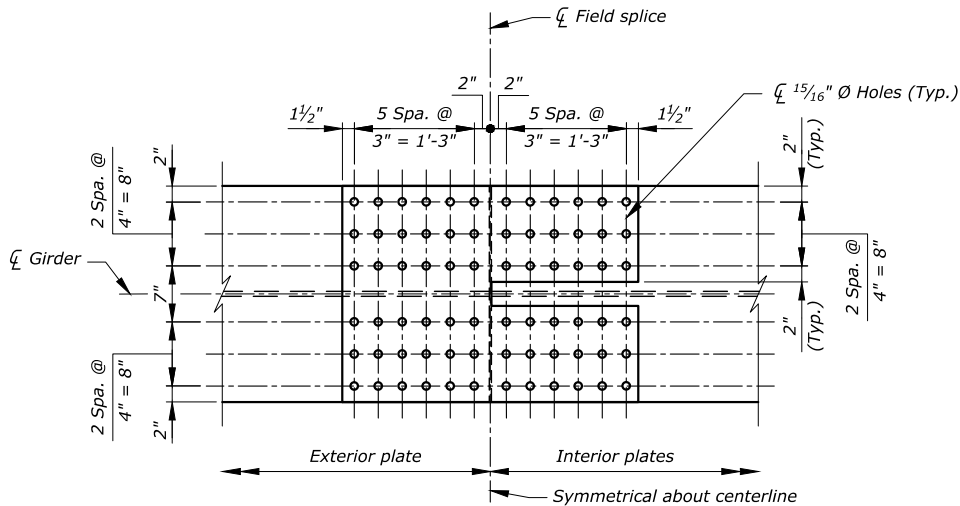
NOTE: Bearings not shown. See Sheet No. B22 to B24.

NOTE: Dimensions shown are horizontal ground dimensions. Account for grade, temperature, and camber in fabrication.



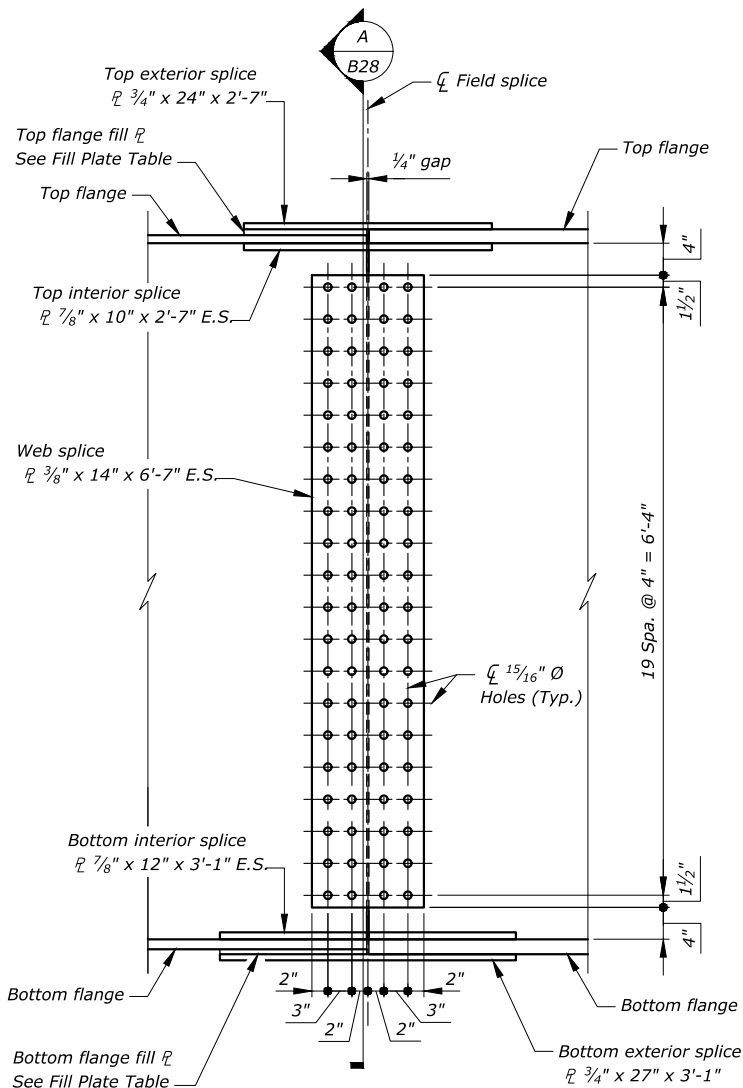
TOP FLANGE SPLICE

(F.S. No. 1 shown, F.S. No. 2, No. 3, No. 4, and No. 5 similar)



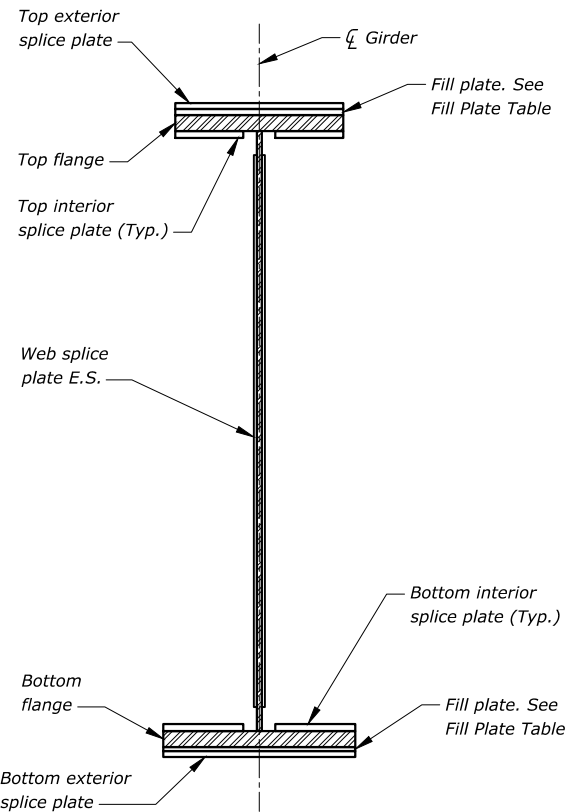
BOTTOM FLANGE SPLICE

(F.S. No. 1 shown, F.S. No. 2, No. 3, No. 4, and No 5 similar)



WEB SPLICE

(F.S. No. 2 shown, F.S. No. 1, No. 3, No. 4, and No. 5 similar)



SECTION A

No Scale

FILL PLATE TABLE		
Field Splice No.	Top Flange	Bottom Flange
F.S. 1	No Fill Plate	No Fill Plate
F.S. 2	3/4" x 24" x 1'-3 1/2"	5/8" x 27" x 1'-6 1/2"
F.S. 3	7/8" x 24" x 1'-3 1/2"	7/8" x 27" x 1'-6 1/2"
F.S. 4	No Fill Plate	1/6" x 27" x 1'-6 1/2"
F.S. 5	1/8" x 24" x 1'-3 1/2"	1/4" x 27" x 1'-6 1/2"

NOTE: Charpy test all splice plates except fillers. See Standard Specifications.

NOTE: Exclude bolt threads from shear plane at flange and web splice plates.

NOTE: Cut plates for splice plates from stock so that the direction of rolling will be parallel to the longitudinal axis of the girder. Show the direction of rolling for these plates on the shop drawings.

NOTE: Fabricate splices perpendicular to top girder flange.

NOTE: Use 7/8" Ø ASTM F3125 Grade A325 Type 3 High Strength bolts. See Standard Specifications, Special Provisions, and Sheet No. B3.

SHEET NO.
B28

FIELD SPLICE DETAILS

PROJECT NAME
CYR INTERCHANGE STRUCTURE

FEDERAL AID PROJECT
NHPB-SSS 90-1(253)69

MDT STRUCTURE ID
01385

COUNTY
MINERAL

REVISED
REVISED
REVISED
REVISED

CHECKED
DRAWN
DESIGNED

C.A.
B.M.M.
B.M.M.

06-04-25
01-09-25
01-07-25

9786002BRSF0201.dwg 1 9786002BRSF0201

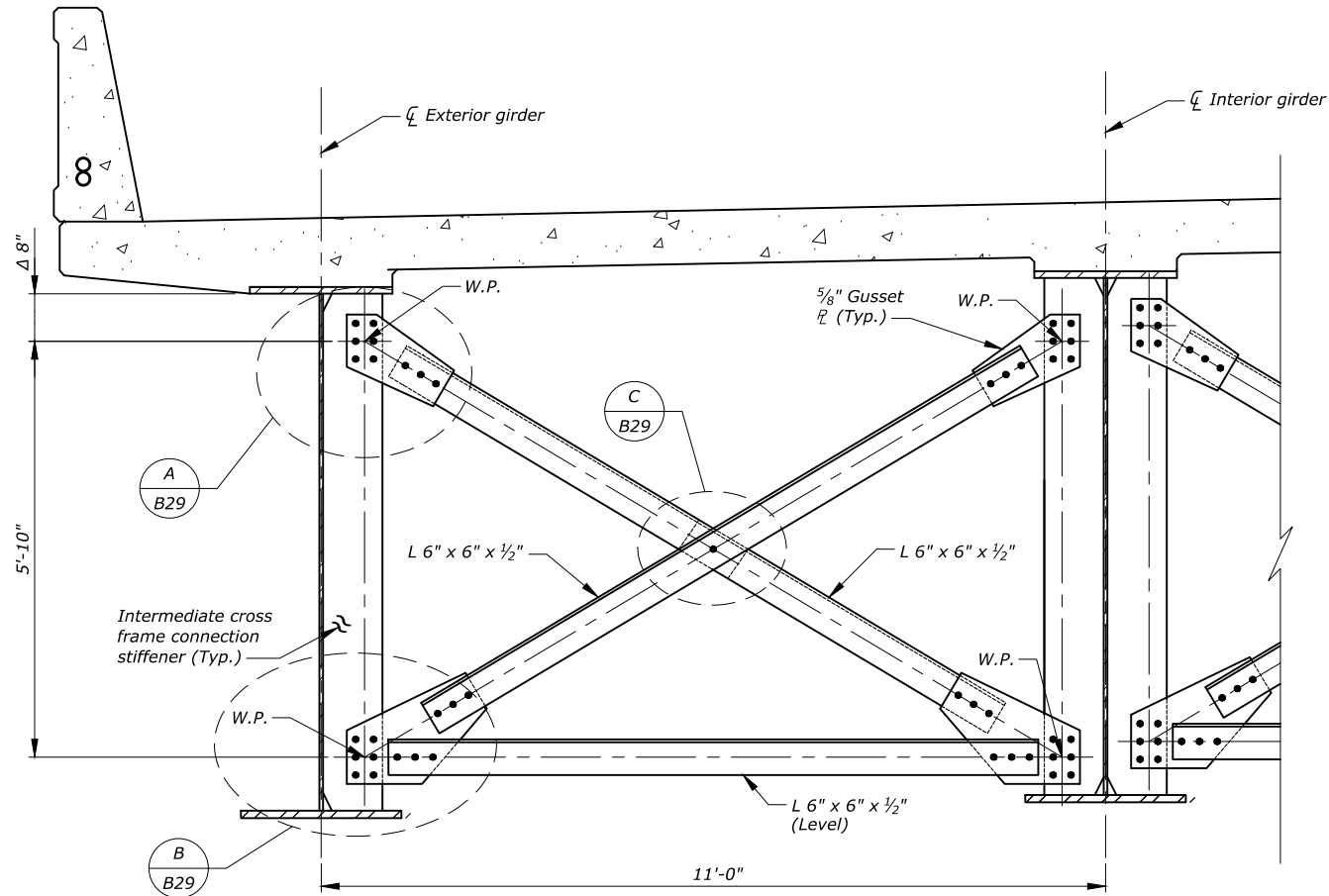
MDTA
MISSOURI DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

UPN NUMBER
9786002

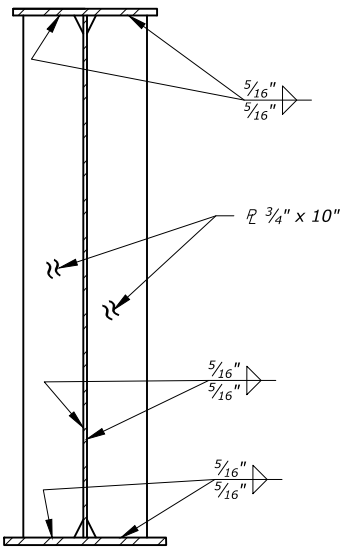
DRAWING NO.
21202

REVISED	05-20-25
REVISED	04-10-25
REVISED	04-02-25
CHECKED	B.M.M.
DRAWN	E.C.A.
DESIGNED	E.C.A.



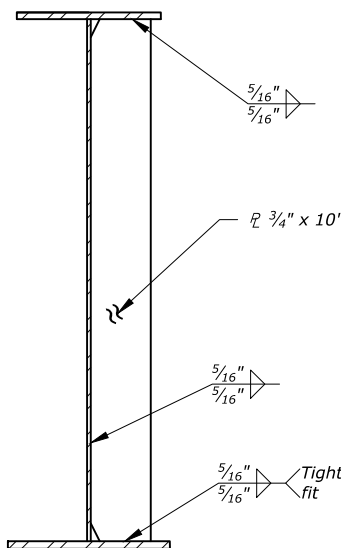
FRAME 1 INTERMEDIATE CROSS FRAME

(Ahead on Line)
Scale ~ 3/8" = 1'-0"



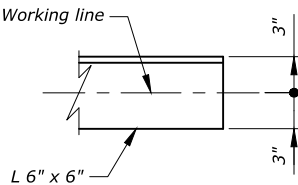
**INTERMEDIATE CROSS
FRAME CONNECTION
STIFFENER**

Scale ~ 3/8" = 1'-0"



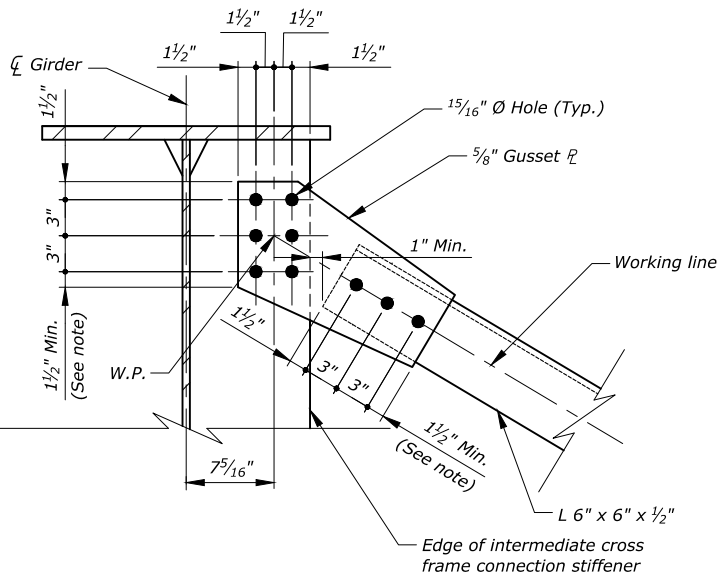
TRANSVERSE STIFFENER

Scale ~ 3/8" = 1'-0"

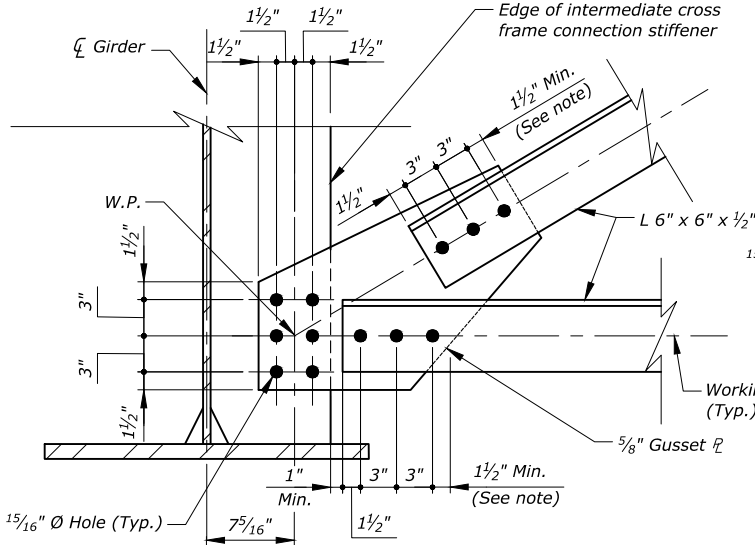


L 6X6 WORKING LINE DETAIL

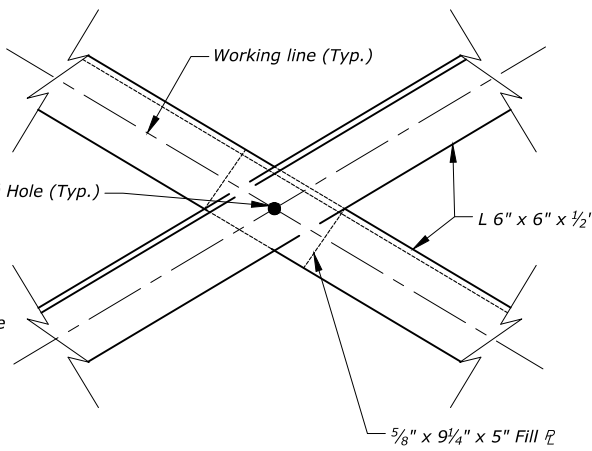
Scale ~ 3/4" = 1'-0"



DETAIL A
Scale ~ 3/4" = 1'-0"



DETAIL B
Scale ~ 3/4" = 1'-0"



DETAIL C
Scale ~ 3/4" = 1'-0"

NOTE: Set Working Point 8" from lower side of bay.

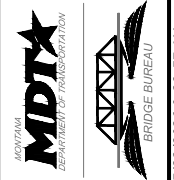
NOTE: Clearly note all adjustments to improve fit-up on fabrication drawings.

NOTE: Provide 1 1/2" min. and 5" max. from center bolt to edge of stiffener plate or gusset plate unless noted otherwise.

NOTE: Place all intermediate cross frames and connection stiffeners normal to center girder.

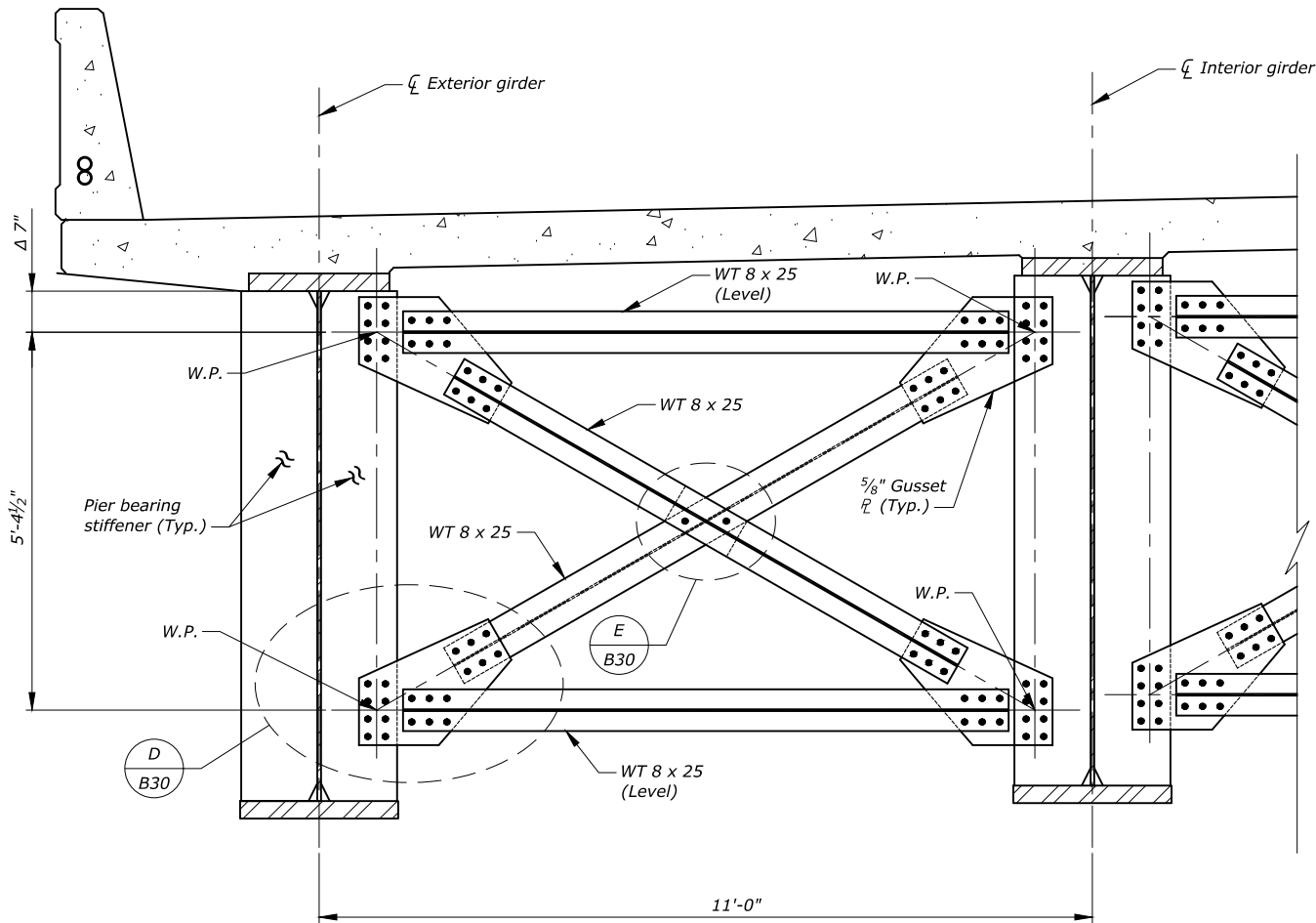
NOTE: Use 7/8" Ø ASTM F3125 Grade A325 Type 3 High Strength bolts.

REVISED					
REVISED					
REVISED					
CHECKED	B.M.M.	05-20-25			
DRAWN	S.C.A.	04-11-25			
DESIGNED	S.C.A.	04-03-25			



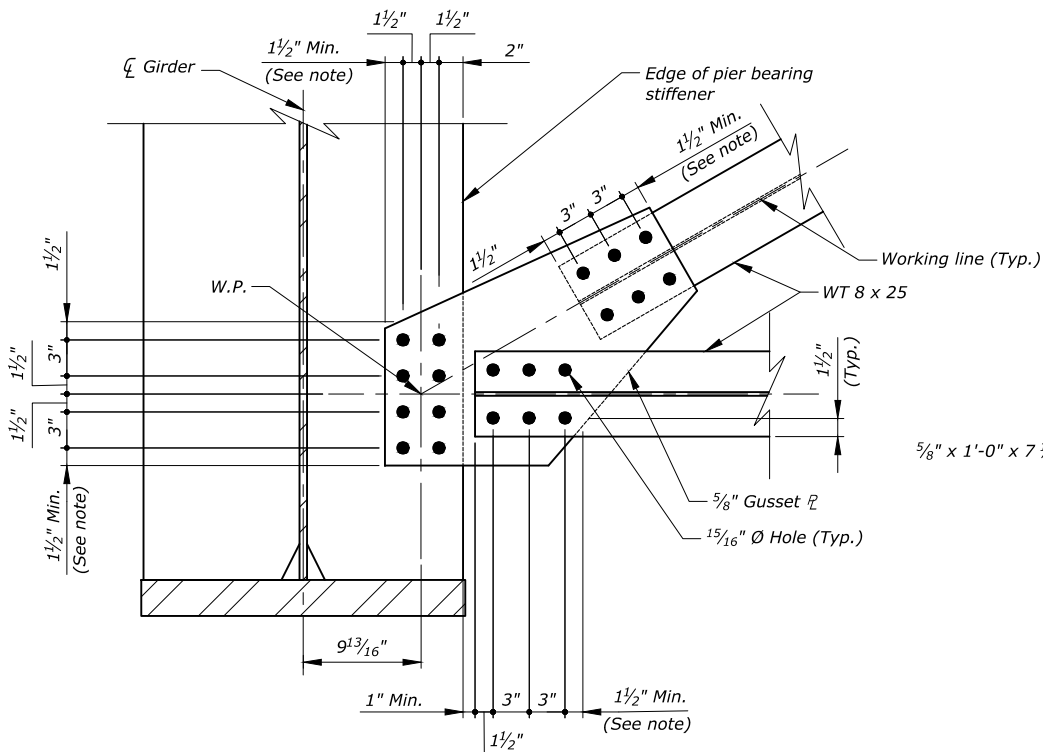
UPN NUMBER
9786002

DRAWING NO.
21204

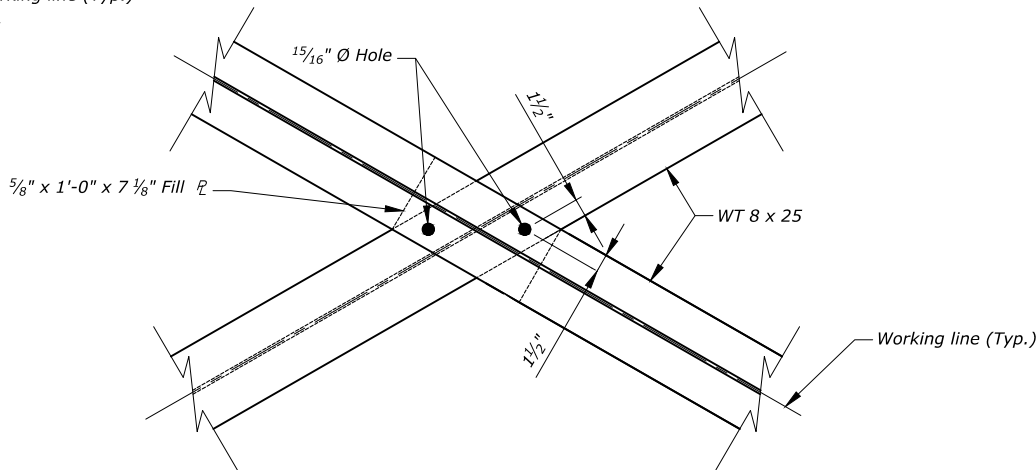


PIER CROSS FRAME

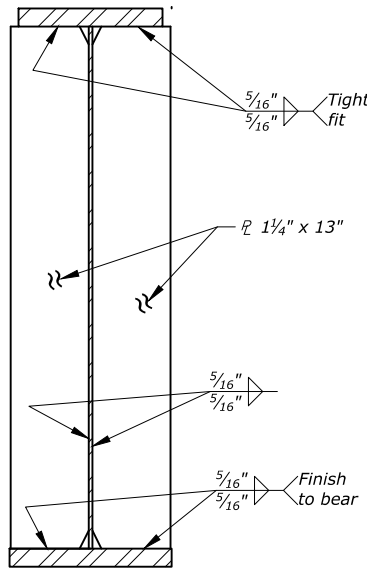
(Ahead on Line)
Scale ~ 3/8" = 1'-0"



DETAIL D
Scale ~ 3/4" = 1'-0"



DETAIL E
Scale ~ 3/4" = 1'-0"



BEARING STIFFENER

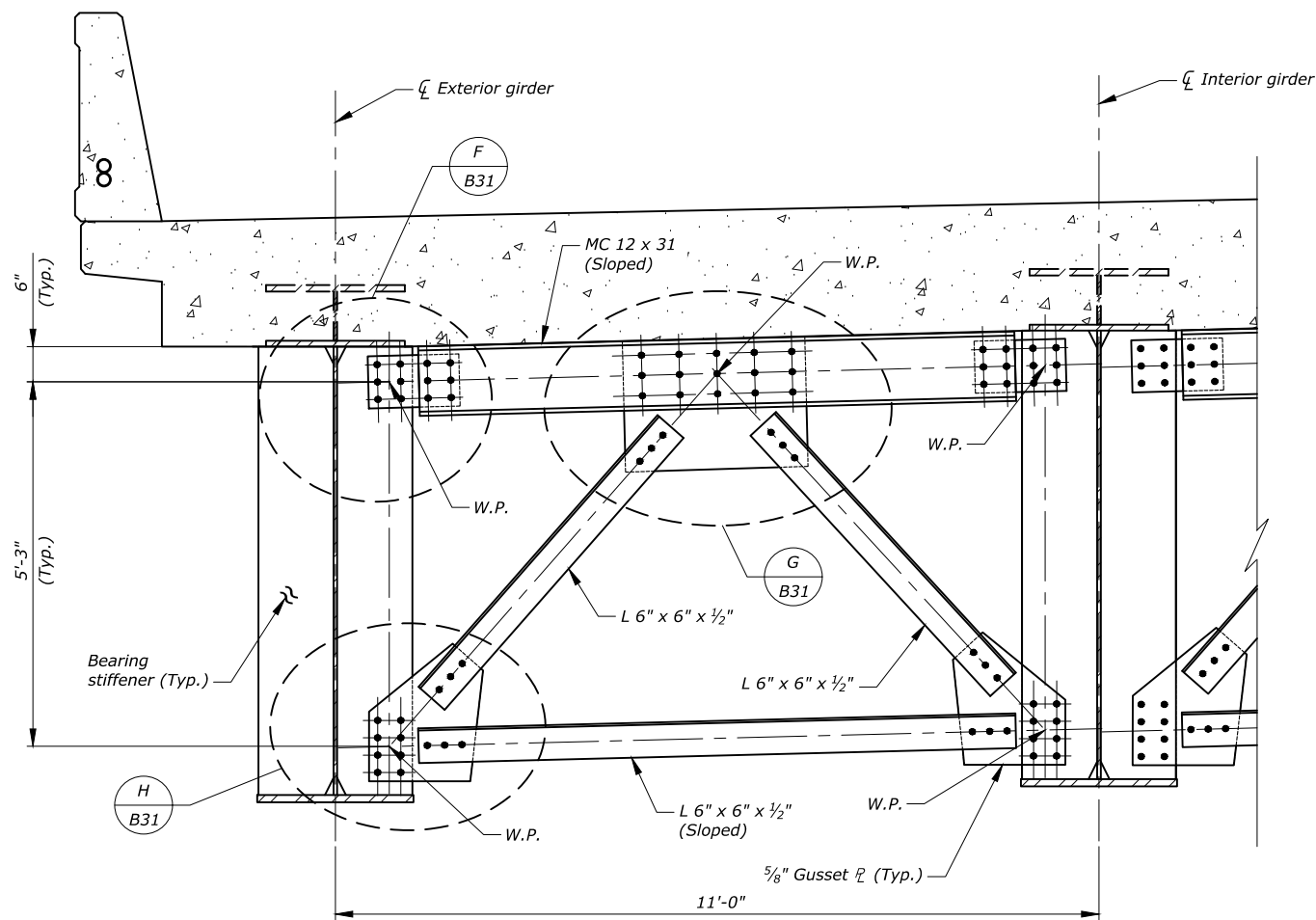
(Bent No. 1, Pier No. 2, Pier No. 3, and Bent No. 4 Span No. 3)
Scale ~ 3/8" = 1'-0"

NOTE: Set Working Point at 7" from lower side of bay.

NOTE: Clearly note all adjustments to improve fit-up on fabrication drawings.

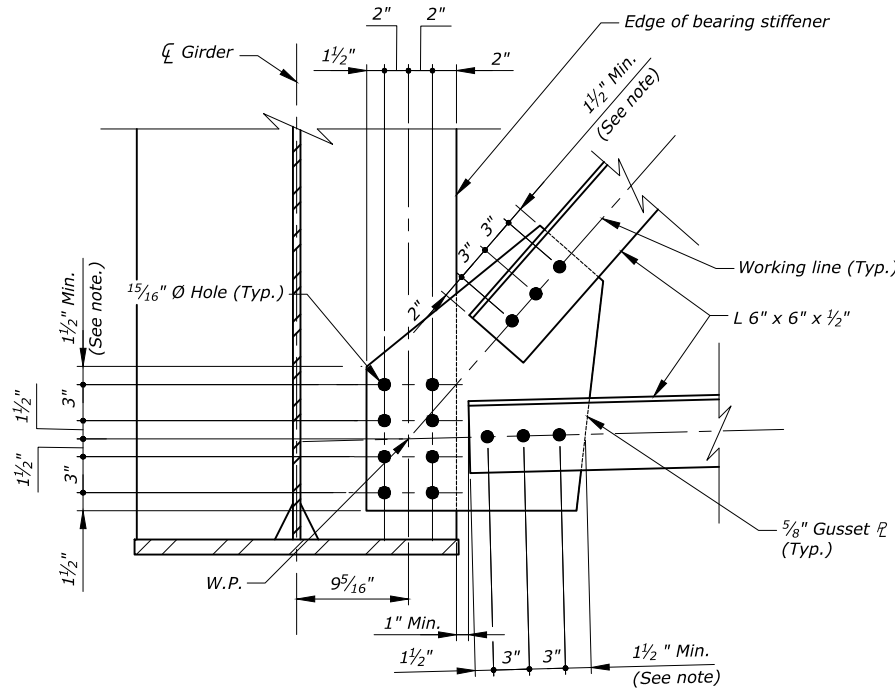
NOTE: Provide 1 1/2" min. and 5" max. from bolt to edge of stiffener plate or gusset plate unless noted otherwise.

NOTE: Use 7/8" Ø ASTM F3125 Grade A325 Type 3 High Strength bolts.

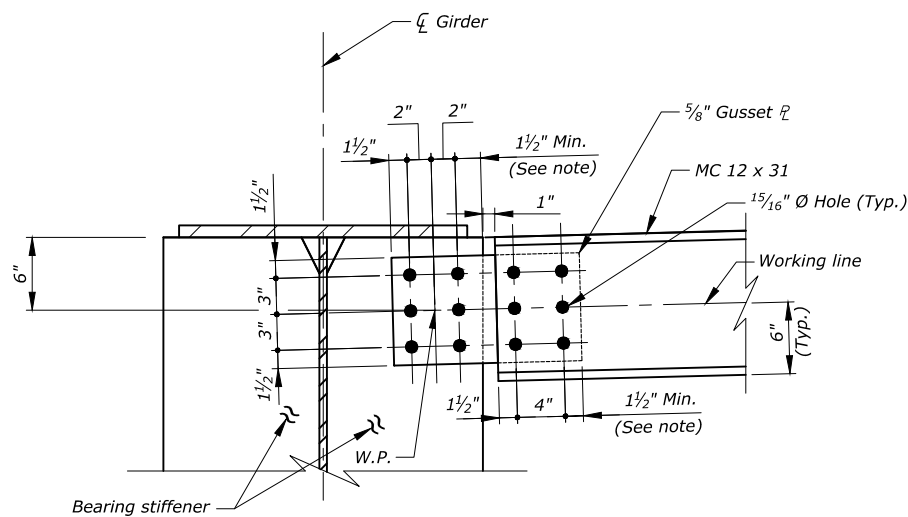


FRAME 1 BENT NO. 4 CROSS FRAME

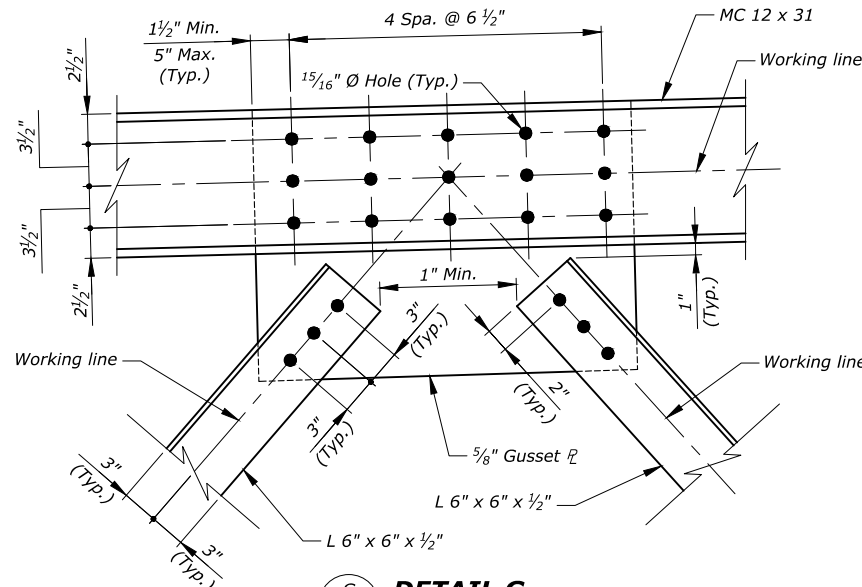
(Ahead on Line)
Scale ~ 3/8" = 1'-0"



DETAIL H
Scale ~ 3/4" = 1'-0"



DETAIL F
Scale ~ 3/4" = 1'-0"



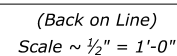
DETAIL G
Scale ~ 3/4" = 1'-0"

NOTE: See Sheet No. B30 for bearing stiffener details.

NOTE: Use 7/8" Ø ASTM F3125 Grade A325 Type 3 High Strength bolts.

NOTE: Clearly note all adjustments to improve fit-up on fabrication drawings.

NOTE: Provide 1 1/2" min. and 5" max. from bolt to edge of stiffener plate or gusset plate unless noted otherwise. 1 1/2" dimension is based on no sheared edges. Increase 1 1/2" dimension to 1 3/4" min. if sheared edges are used.



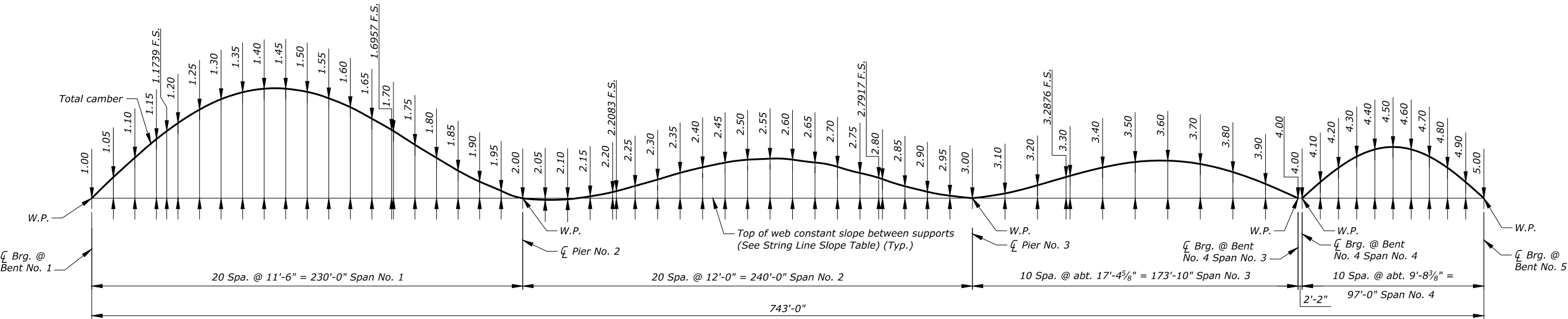
SHEET NO. B32					
FRAME 2 DIAPHRAGM DETAILS					
CYR INTERCHANGE STRUCTURE		MDT STRUCTURE ID 01385		SCALE: As noted	
NHPB-SSS 90-1(253)69	COUNTY MINERAL				
FEDERAL AID PROJECT I					
PROJECT NAME					
REVISED			05-20-25		
REVISED			DRAWN C.C.A.		
REVISED			DESIGNED C.C.A.		
REVISED				04-04-25	
			BRIDGE BUREAU		
UPN NUMBER 97860002		5/22/2026 9:29:00 AM 9786002BRDIAZ01.dwg \9786002BRDIAZ04			
DRAWING NO. 21206					



TABLE OF CAMBER INFORMATION																								
LOCATION / SPAN PT		SPAN NO. 1																						
		1.00	1.05	1.10	1.15	1.1739 F.S.	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.6957 F.S.	1.70	1.75	1.80	1.85	1.90	1.95	2.00
ALL GIRDERS	CROSSFRAME AND GIRDER DEFLECTION	0.00	0.51	0.99	1.44	1.62	1.83	2.15	2.40	2.57	2.65	2.65	2.57	2.41	2.19	1.91	1.63	1.60	1.27	0.95	0.64	0.38	0.16	0.00
	SLAB, HAUNCH, COMPOSITE DL & FWS	0.00	1.64	3.15	4.58	5.17	5.80	6.83	7.60	8.11	8.36	8.32	8.05	7.51	6.81	5.89	5.01	4.93	3.86	2.87	1.91	1.11	0.48	0.00
	TOTAL DEAD LOAD DEFLECTION	0.00	2.15	4.14	6.02	6.79	7.63	8.98	10.00	10.68	11.01	10.97	10.62	9.92	9.00	7.80	6.64	6.53	5.13	3.82	2.55	1.49	0.64	0.00
	VERTICAL CURVE EFFECT	0.00	0.10	0.19	0.29	0.34	0.39	0.48	0.57	0.63	0.68	0.72	0.73	0.74	0.72	0.69	0.64	0.64	0.57	0.49	0.39	0.28	0.15	0.00
	TOTAL CAMBER	0.00	2.25	4.33	6.31	7.13	8.02	9.46	10.57	11.31	11.69	11.69	11.35	10.66	9.72	8.49	7.28	7.17	5.70	4.31	2.94	1.77	0.79	0.00

TABLE OF CAMBER INFORMATION (CONT.)																							
LOCATION / SPAN PT		SPAN NO. 2																					
		2.05	2.10	2.15	2.20	2.2083 F.S.	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.7917 F.S.	2.80	2.85	2.90	2.95	3.00
ALL GIRDERS	CROSSFRAME AND GIRDER DEFLECTION	-0.09	-0.12	-0.09	-0.02	0.00	0.10	0.23	0.38	0.50	0.61	0.68	0.71	0.70	0.64	0.56	0.43	0.33	0.31	0.17	0.07	0.02	0.00
	SLAB, HAUNCH, COMPOSITE DL & FWS	-0.25	-0.31	-0.17	0.10	0.17	0.54	1.00	1.51	1.94	2.30	2.53	2.62	2.56	2.35	2.04	1.59	1.23	1.15	0.65	0.30	0.08	0.00
	TOTAL DEAD LOAD DEFLECTION	-0.34	-0.43	-0.26	0.08	0.17	0.64	1.23	1.89	2.44	2.91	3.21	3.33	3.26	2.99	2.60	2.02	1.56	1.46	0.82	0.37	0.10	0.00
	VERTICAL CURVE EFFECT	0.17	0.32	0.46	0.58	0.59	0.67	0.76	0.82	0.86	0.89	0.90	0.89	0.86	0.82	0.76	0.67	0.59	0.58	0.46	0.32	0.17	0.00
	TOTAL CAMBER	-0.17	-0.11	0.20	0.66	0.76	1.31	1.99	2.71	3.30	3.80	4.11	4.22	4.12	3.81	3.36	2.69	2.15	2.04	1.28	0.69	0.27	0.00

TABLE OF CAMBER INFORMATION (CONT.)																								
LOCATION / SPAN PT		SPAN NO. 3											SPAN NO. 4											
		3.10	3.20	3.2876 F.S.	3.30	3.40	3.50	3.60	3.70	3.80	3.90	4.00	4.00	4.10	4.20	4.30	4.40	4.50	4.60	4.70	4.80	4.90	5.00	
ALL GIRDERS	CROSSFRAME AND GIRDER DEFLECTION	0.08	0.25	0.44	0.46	0.65	0.78	0.82	0.74	0.57	0.31	0.00	0.00	0.29	0.55	0.75	0.88	0.92	0.88	0.75	0.55	0.29	0.00	
	SLAB, HAUNCH, COMPOSITE DL & FWS	0.26	0.83	1.44	1.53	2.18	2.62	2.74	2.51	1.92	1.05	0.00	0.00	1.38	2.61	3.58	4.19	4.40	4.19	3.58	2.61	1.38	0.00	
	TOTAL DEAD LOAD DEFLECTION	0.34	1.08	1.88	1.99	2.83	3.40	3.56	3.25	2.49	1.36	0.00	0.00	1.67	3.16	4.33	5.07	5.32	5.07	4.33	3.16	1.67	0.00	
	VERTICAL CURVE EFFECT	0.17	0.30	0.39	0.40	0.45	0.47	0.45	0.40	0.30	0.17	0.00	0.00	0.05	0.09	0.12	0.14	0.15	0.14	0.12	0.09	0.05	0.00	
	TOTAL CAMBER	0.51	1.38	2.27	2.39	3.28	3.87	4.01	3.65	2.79	1.53	0.00	0.00	1.72	3.25	4.45	5.21	5.47	5.21	4.45	3.25	1.72	0.00	



STRING LINE SLOPE TABLE (%)				
Girder No.	Span No. 1	Span No. 2	Span No. 3	Span No. 4
All Girders	-0.888%	-1.126%	-1.342%	-1.485%

NOTE: Measured at ground along ζ Girder from ζ Brg. to ζ Brg.

NOTE: Work Point (W.P.) is located at top of web.

NOTE: Camber values shown were developed based on instantaneous deflections. Permitted pouring sequences are shown on Sheet No. B39.

NOTE: Any deviation from the pouring sequence will result in changes to camber. Any changes to the pouring sequence will require approval by the Project Manager.

NOTE: Deflection, vertical curve effect, and camber values are reported in inches. Negative values denote downward camber.

NOTE: Total dead load deflections have been increased to account for effects of creep and shrinkage of the concrete slab by utilizing 3 times the modular ratio, n , in stiffness calculations for permanent loads on the composite section.

NOTE: The total dead load deflections include future wearing surface of 10 psf.

SHEET NO.
B33

CAMBER DIAGRAM

PROJECT NAME
CYR INTERCHANGE STRUCTURE

MDT STRUCTURE ID
01385

FEDERAL AID PROJECT
NHPB-SSS 90-1(253)69

COUNTY
MINERAL

REVISED
REVISED
REVISED
CHECKED
DRAWN
DESIGNED

06-05-25
04-05-25
04-02-25

C.A.
B.M.M.
B.M.M.

9786002BRCAM201.dwg | 9786002BRCAM201

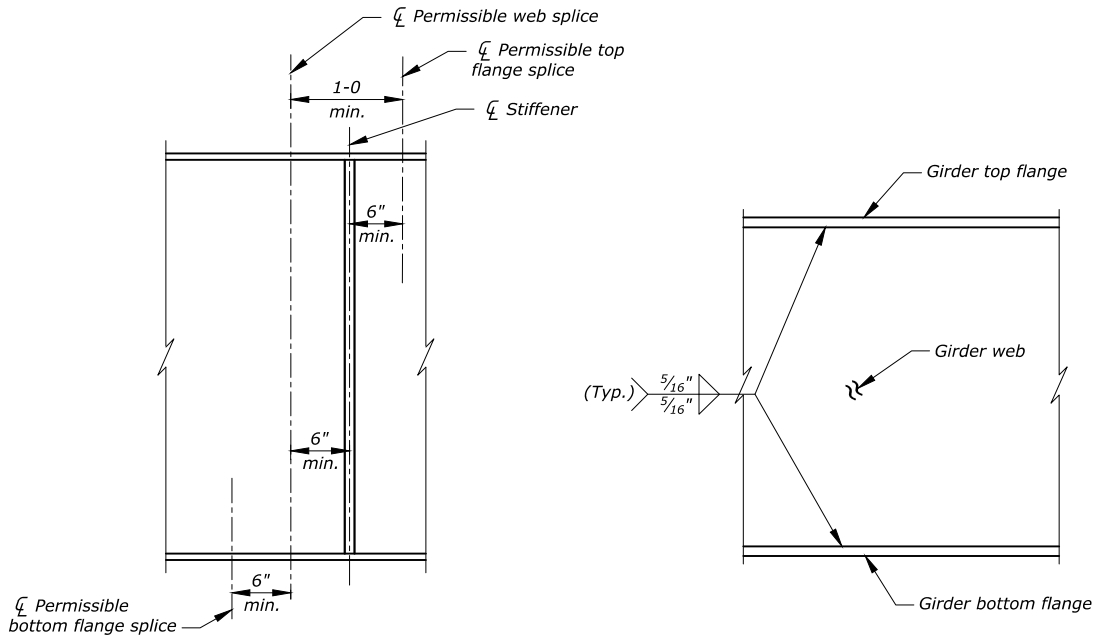
MDTA
MISSOURI
DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

5/22/2026 9:29:06 AM 9786002BRCAM201.dwg | 9786002BRCAM201

UPN NUMBER
9786002

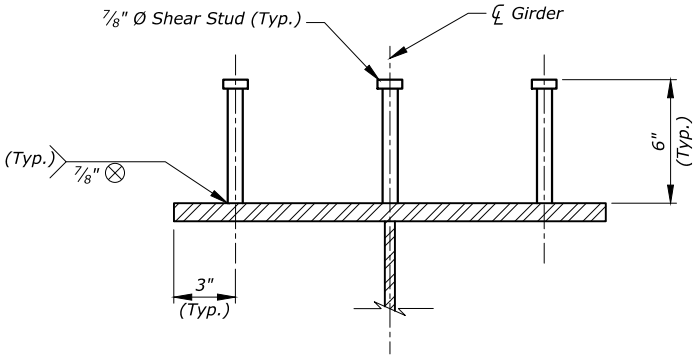
DRAWING NO.
21207



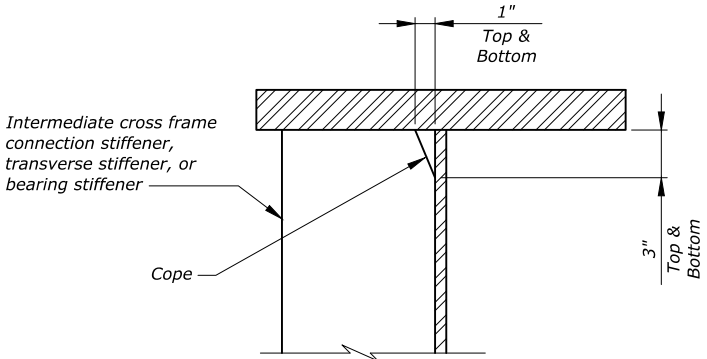
**WEB/FLANGE SHOP
SPLICE REQUIREMENTS**

NOTE: Do not allow top flange shop splices, web shop splices, and bottom flange shop splices to line up with each other.

NOTE: Minimum distance between any type of shop splice and stiffeners is 6-inches. Do not place shop splice within 3-feet of any field splice. Do not locate shop web or flange splice within 15'-0" of Pier No. 2, Pier No. 3, or midspan.

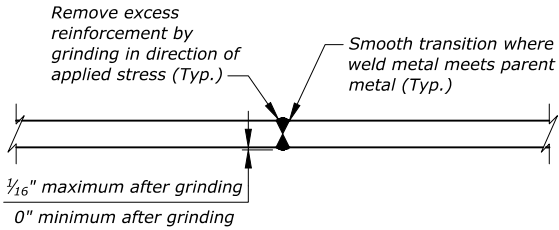


SHEAR STUD DETAIL

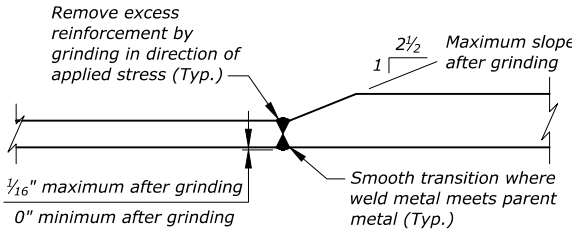


**TYPICAL STIFFENER
COPE DETAIL**

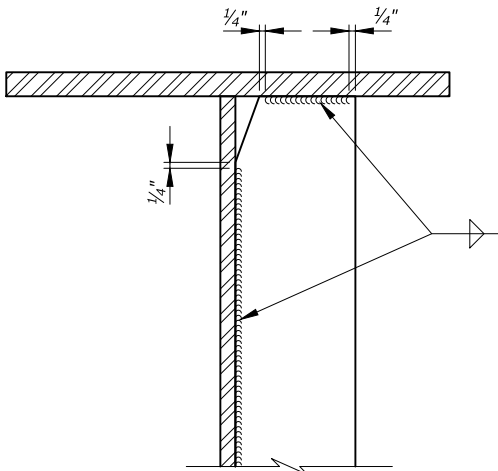
NOTE: Cope top and bottom of all stiffeners.



**FLANGE SPLICE -
EQUAL THICKNESS**



**FLANGE SPLICE -
UNEQUAL THICKNESS**



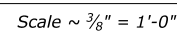
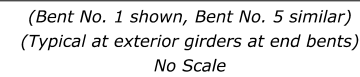
**STIFFENER WELD
TERMINATION DETAIL**

(Terminate all welds 1/4" from plate edge)
(Typical all stiffener welds)

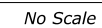
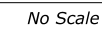
NOTE: Use shear studs meeting the requirements of AASHTO M169 Grades 1015-1020 and the mechanical requirements for type B studs in accordance with AWS D 1.5.

NOTE: See Standard Specifications for Radiographic, Ultrasonic, and Mag Particle testing requirements.

SHEET NO. B34		MISCELLANEOUS STEEL DETAILS (SHEET 1 OF 2)		SCALE: No Scale	
PROJECT NAME CYR INTERCHANGE STRUCTURE		MDT STRUCTURE ID 01385			
FEDERAL AID PROJECT NHPB-SSS 90-1(253)69		COUNTY MINERAL			
REVISED		CHECKED	C.A.	06-06-25	
REVISED		DRAWN	S.M.M.	03-27-25	
REVISED		DESIGNED	B.M.M.	03-22-25	
UPN NUMBER 9786002		DRAWING NO. 21208			



(Bent No. 1 shown, Bent No. 5 similar)
(Typical at exterior girders at end bents)
No Scale



****NOTE:** Field locate the graffiti cover plate after abutment backslope regrading. Field drill holes in web for graffiti cover. Locate to provide 11-foot minimum clearance from bottom flange to ground. Coordinate location with Project Manager.

SLAB PLAN

PROJECT NAME
CYR INTERCHANGE STRUCTURE

FEDERAL AID PROJECT
NHPB-SSS 90-1(253)69

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
				C.A.	B.M.M.	B.M.M.
				06-08-25	04-16-25	04-10-25

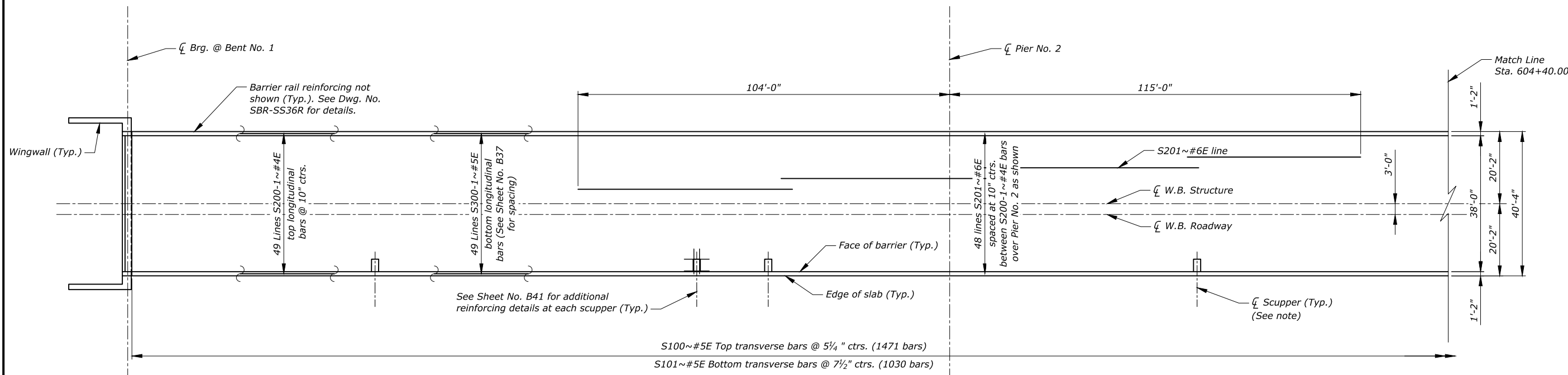


UPN NUMBER
9786002
DRAWING NO.
21210

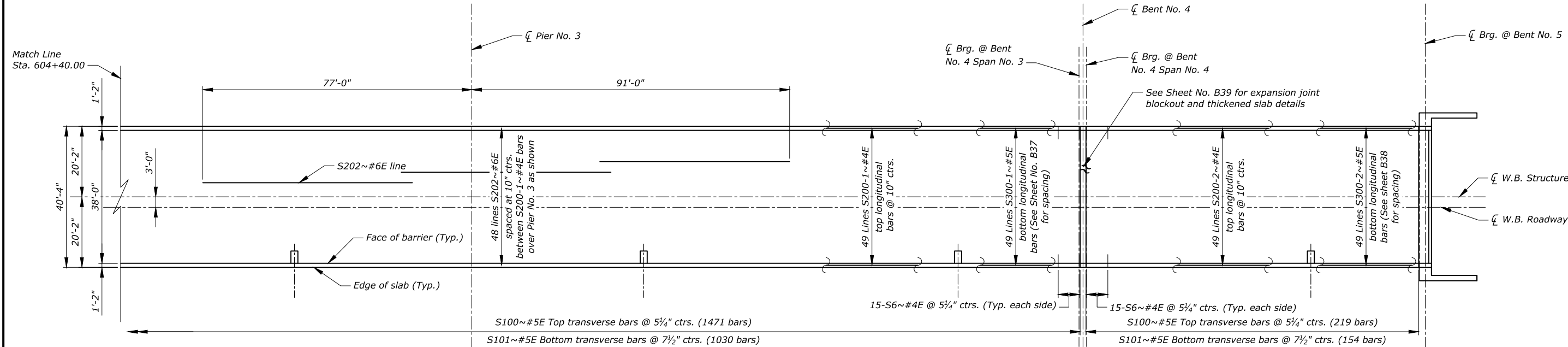
MDT STRUCTURE ID
01385

COUNTY
MINERAL

SCALE: 1" = 30'-0"



PARTIAL SLAB REINFORCING STEEL PLACEMENT DIAGRAM



PARTIAL SLAB REINFORCING STEEL PLACEMENT DIAGRAM

NOTE: See Dwg. No. SBR-SS36 and SBR-SS36R for barrier details. Ensure proper bar spacing at expansion joint.

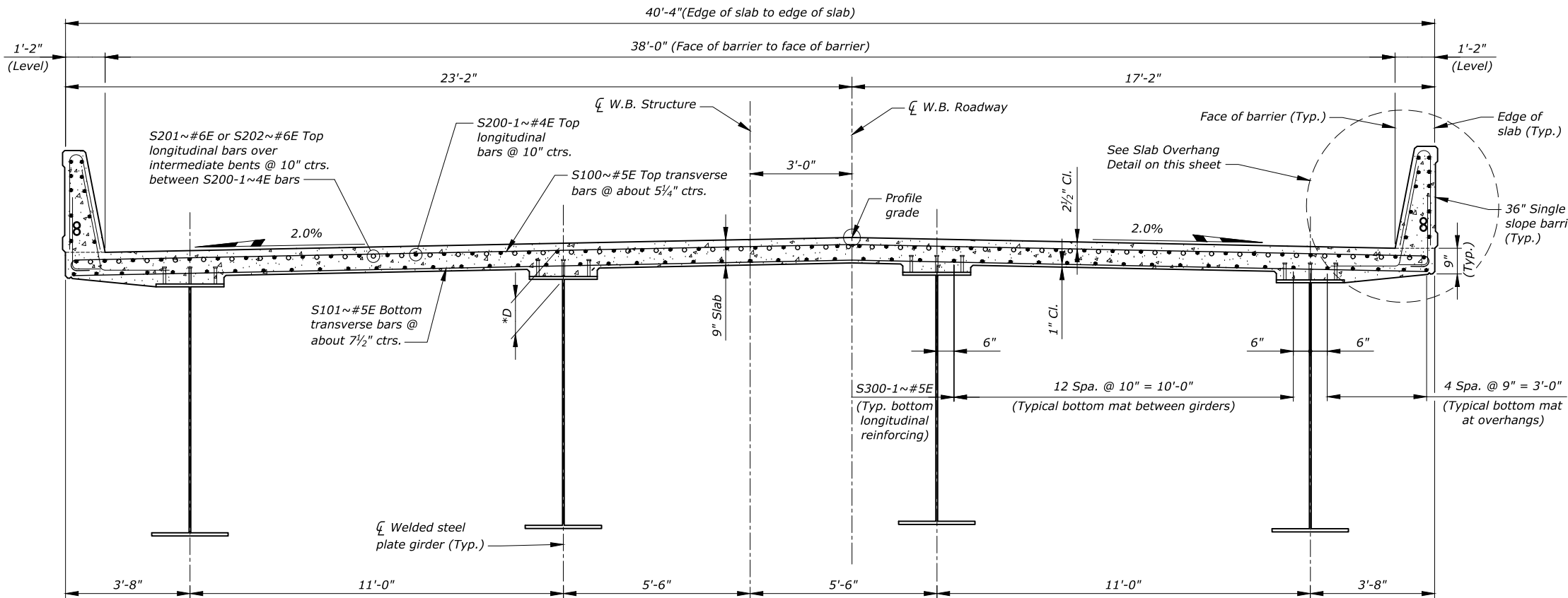
NOTE: See Sheet No. B37 and B38 for transverse section, slab overhang detail, and dead load deflection tables.

NOTE: See Sheet No. B39 for Bill of Reinforcing Steel.

NOTE: See Sheet No. B6 for Scupper Location Table. See Sheet No. B41 for scupper details and additional reinforcing requirements.

NOTE: See Sheet No. B39 for slab pouring sequence and thickened slab details.

NOTE: 4" additional per lap splice length has been provided for construction tolerances.
Lap #4E bars 1'-11" minimum lap, 2'-3" lap provided.
Lap #5E bars 3'-0" minimum lap, 3'-4" lap provided.
Lap #6E bars 2'-10" minimum lap, 3'-2" lap provided.



FRAME 1 SLAB TRANSVERSE SECTION

Scale ~ 1/4" = 1'-0"

FRAME 1 DEAD LOAD DEFLECTION TABLE

FRAME 1 DEAD LOAD DEFLECTION TABLE																							
LOCATION / SPAN PT	SPAN NO. 1																						
	1.00	1.05	1.10	1.15	1.1739 F.S.	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.6957 F.S.	1.70	1.75	1.80	1.85	1.90	1.95	2.00
ALL GIRDERS	0.00	1.64	3.15	4.58	5.17	5.80	6.83	7.60	8.11	8.36	8.32	8.05	7.51	6.81	5.89	5.01	4.93	3.86	2.87	1.91	1.11	0.48	0.00

FRAME 1 DEAD LOAD DEFLECTION TABLE

FRAME 1 DEAD LOAD DEFLECTION TABLE																							
LOCATION / SPAN PT	SPAN NO. 2																						
	2.00	2.05	2.10	2.15	2.20	2.2083 F.S.	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.7917 F.S.	2.80	2.85	2.90	2.95	3.00
ALL GIRDERS	0.00	-0.25	-0.31	-0.17	0.10	0.17	0.54	1.00	1.51	1.94	2.30	2.53	2.62	2.56	2.35	2.04	1.59	1.23	1.15	0.65	0.30	0.08	0.00

FRAME 1 DEAD LOAD DEFLECTION TABLE

LOCATION / SPAN PT	SPAN NO. 3											
	3.00	3.10	3.20	3.2876 F.S.	3.30	3.40	3.50	3.60	3.70	3.80	3.90	4.00
ALL GIRDERS	0.00	0.26	0.83	1.44	1.53	2.18	2.62	2.74	2.51	1.92	1.05	0.00

NOTE: Dead load deflections were developed based on instantaneous deflections. Permitted pouring sequences are shown on Sheet No. B39.

NOTE: Verify D prior to casting deck. Contact Project Manager if D is not between 10 3/4" and 1'-0 3/4".

NOTE: Use Dead Load Deflection Table to develop screed elevations. All values are in inches and do not include girder dead load deflections or the curvature of the structure. See Sheet No. B33 for span point location.

NOTE: Values in table have been increased to account for the effects of creep and shrinkage of the concrete slab by using three times the modular ratio, n, in calculation of the transformed composite section properties for composite dead load deflections.

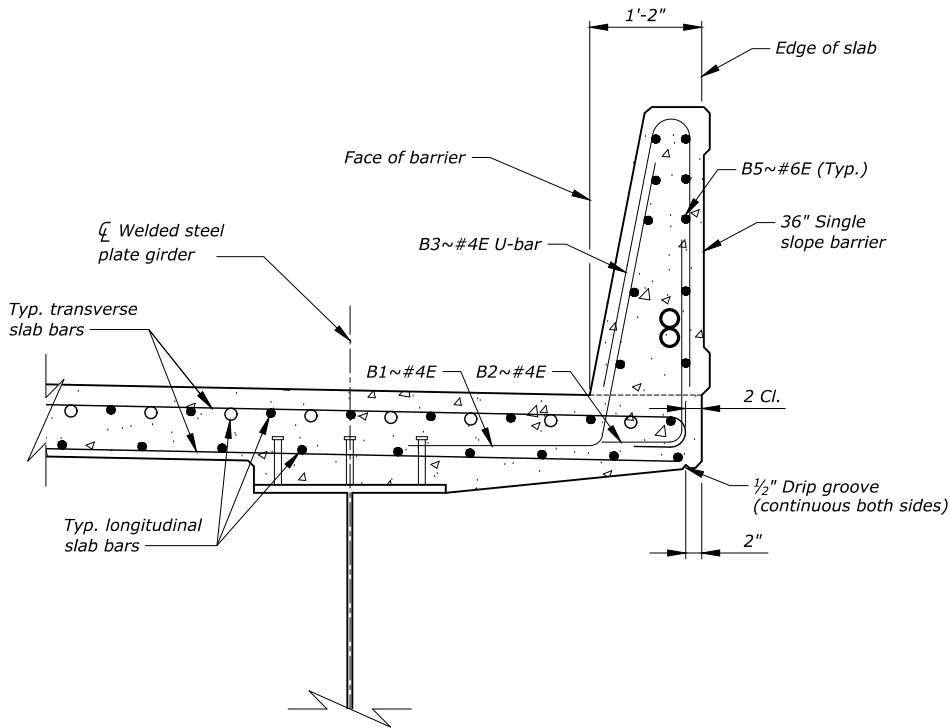
NOTE: Forming straight across the underside of the bay containing the crown break will be permitted. Pay quantities are based on the section shown. Any additional concrete is not paid for.

NOTE: See Sheet No. B39 for Slab Pouring Sequence, Slab Construction Joint, thickened slab details, and Bill of Reinforcing Steel.

NOTE: See Dwg. No. SBR-SS36 and SBR-SS36R for barrier details.

NOTE: See Sheet No. B6 for Scupper Location Table. See Sheet No. B41 for scupper details and additional reinforcing requirements.

*NOTE: D = 1'-0 1/2" from top of slab to top of web at W Girder.



SLAB OVERHANG DETAIL

Scale ~ 1/2" = 1'-0"
(Right overhang shown, left overhang similar)

SHEET NO.
B37

FRAME 1 SLAB SECTION

PROJECT NAME
CYR INTERCHANGE STRUCTURE

MDT STRUCTURE ID
01385

FEDERAL AID PROJECT
NHPB-SSS 90-1(253)69

COUNTY
MINERAL

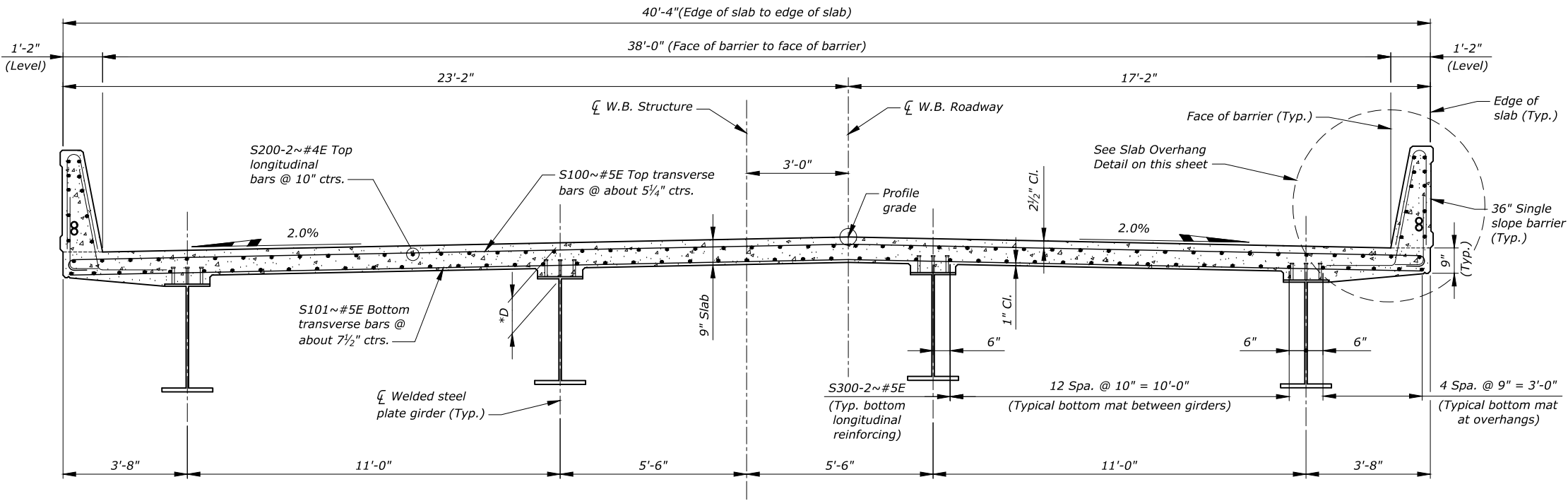
REVISED	06-09-25	C.C.A.
REVISED	04-17-25	B.M.M.
REVISED	04-11-25	B.M.M.
CHECKED	06-09-25	C.C.A.
DRAWN	04-17-25	B.M.M.
DESIGNED	04-11-25	B.M.M.
3/22/2026 9:29:28 AM 9786002BRS1D201.dwg 1 9786002BRS1D202		

MDTA
MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

UPN NUMBER
9786002
DRAWING NO.
21211

SCALE: As noted



FRAME 2 SLAB TRANSVERSE SECTION

Scale ~ 1/4" = 1'-0"

NOTE: Forming straight across the underside of the bay containing the crown break will be permitted. Pay quantities are based on the section shown. Any additional concrete is not paid for.

NOTE: See Sheet No. B39 for Slab Pouring Sequence, Slab Construction Joint, thickened slab details, and Bill of Reinforcing Steel.

NOTE: See Dwg. No. SBR-SS36 and SBR-SS36R for barrier details.

NOTE: See Sheet No. B6 for Scupper Location Table. See Sheet No. B41 for scupper details and additional reinforcing requirements.

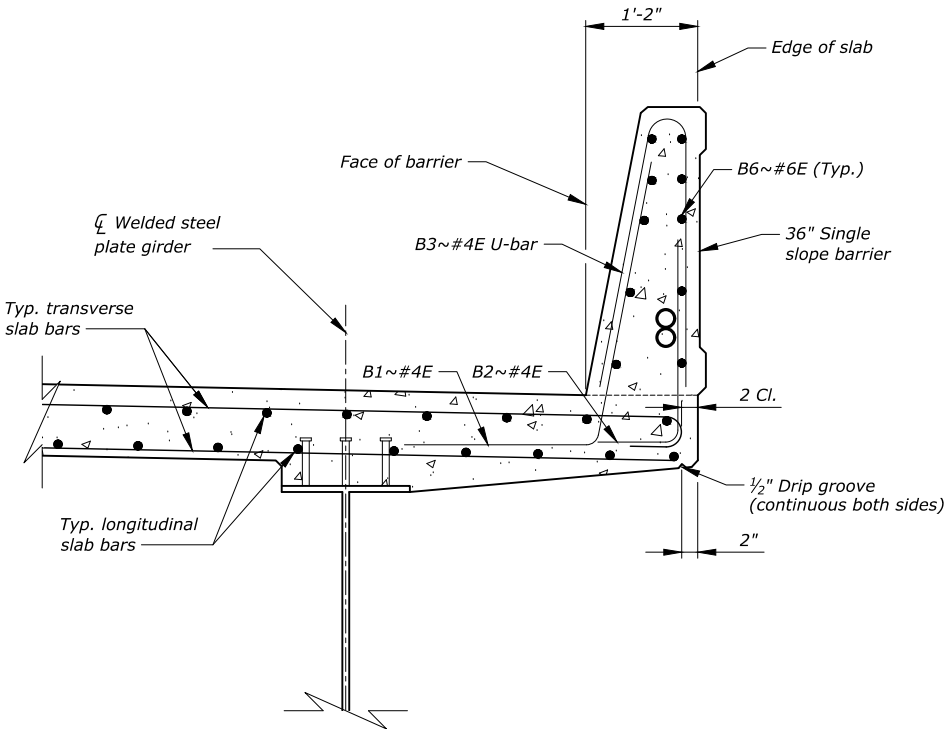
*NOTE: D = 11 1/2" from top of slab to top of web at W.B. Girder.

FRAME 2 DEAD LOAD DEFLECTION TABLE											
LOCATION / SPAN PT	SPAN NO. 4										
	4.00	4.10	4.20	4.30	4.40	4.50	4.60	4.70	4.80	4.90	5.00
ALL GIRDERS	0.00	1.38	2.61	3.58	4.19	4.40	4.19	3.58	2.61	1.38	0.00

NOTE: Verify D prior to casting deck. Contact Project Manager if D is not between 10" and 11 3/4".

NOTE: Use Dead Load Deflection Table to develop screed elevations. All values are in inches and do not include girder dead load deflections or the curvature of the structure. See Sheet No. B33 for span point location.

NOTE: Values in table have been increased to account for the effects of creep and shrinkage of the concrete slab by using three times the modular ratio, n, in calculation of the transformed composite section properties for composite dead load deflections.



SLAB OVERHANG DETAIL

Scale ~ 1/2" = 1'-0"
(Right overhang shown, left overhang similar)

SHEET NO.
B38

FRAME 2 SLAB SECTION

PROJECT NAME
CYR INTERCHANGE STRUCTURE

FEDERAL AID PROJECT
NHPB-SSS 90-1(253)69

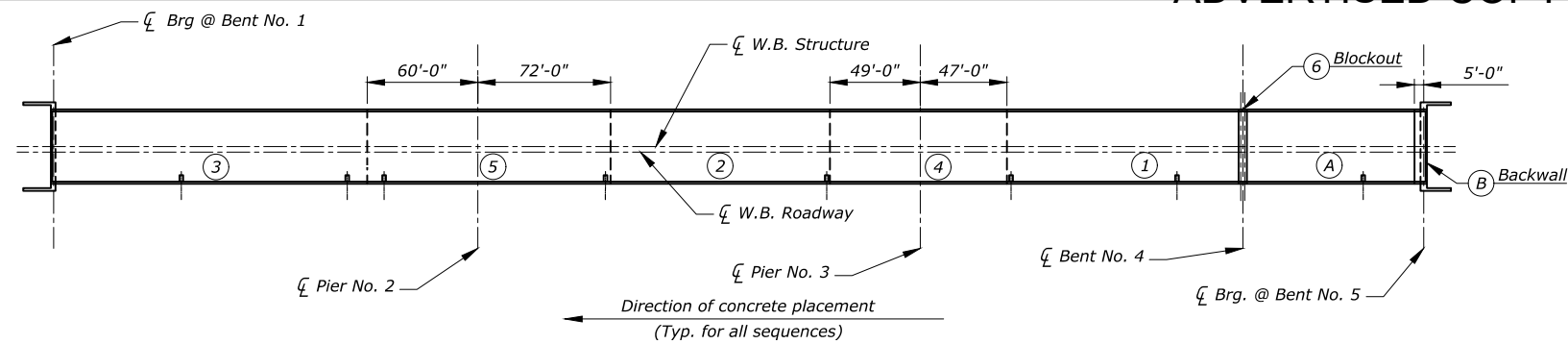
MDT STRUCTURE ID
01385

COUNTY
MINERAL

REVISIONS
REVISED
REVISED
REVISED
CHECKED
DRAWN
DESIGNED
06-09-25
04-17-25
04-11-25
C.C.A.
B.M.M.
B.M.M.
9786002BRS1D201.dwg | 9786002BRS1D203

UPN NUMBER
9786002

DRAWING NO.
21212



SLAB POURING SEQUENCE

Scale $\sim 1'' = 100'-0''$

NOTE: The number inscribed in the circle represents the sequence of placing each section of the slab. Place the slab section in one of the sequences described on this sheet unless approved in writing by the Project Manager.

NOTE: Cure concrete for 72 hours after the completion of one section before starting the next slab section.

NOTE: Use sufficient retarding admixture to assure that initial set of concrete will not occur during the duration of each placement. Submit admixture data and mix propositions to the Project Manager for review and approval.

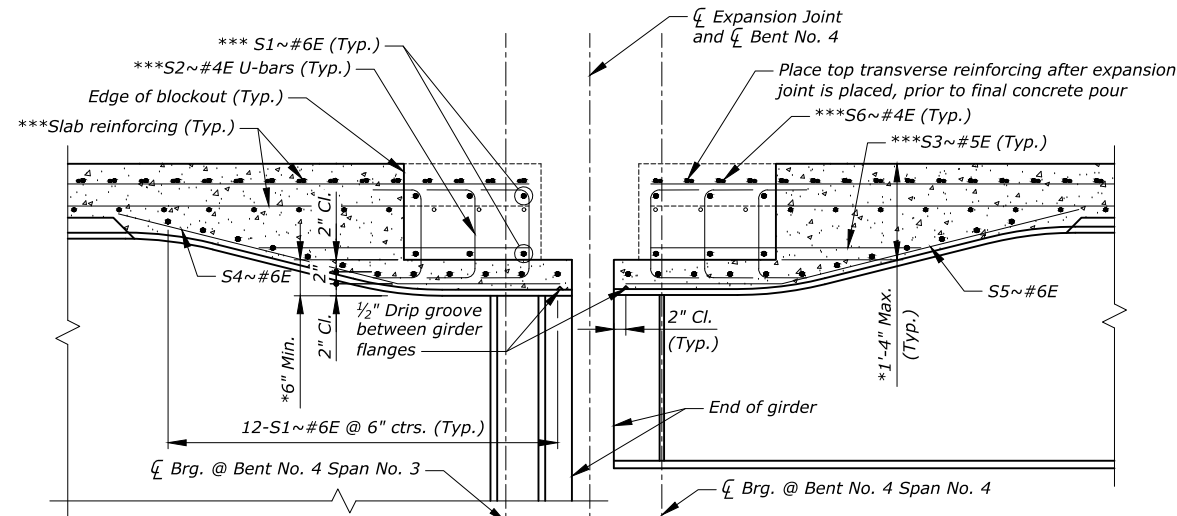
NOTE: Expansion joint to be placed and blockout cast after entire deck is complete. See Sheet No. B40 for requirements and details.

NOTE: Pour Bent No. 1 backwall before pouring any part of the deck.

NOTE: Pour A can be poured at any time before pour 6 and before pour B. Pour A and B may be combined into a single pour if desired. Temporary brace girders at Bent No. 5 as required.

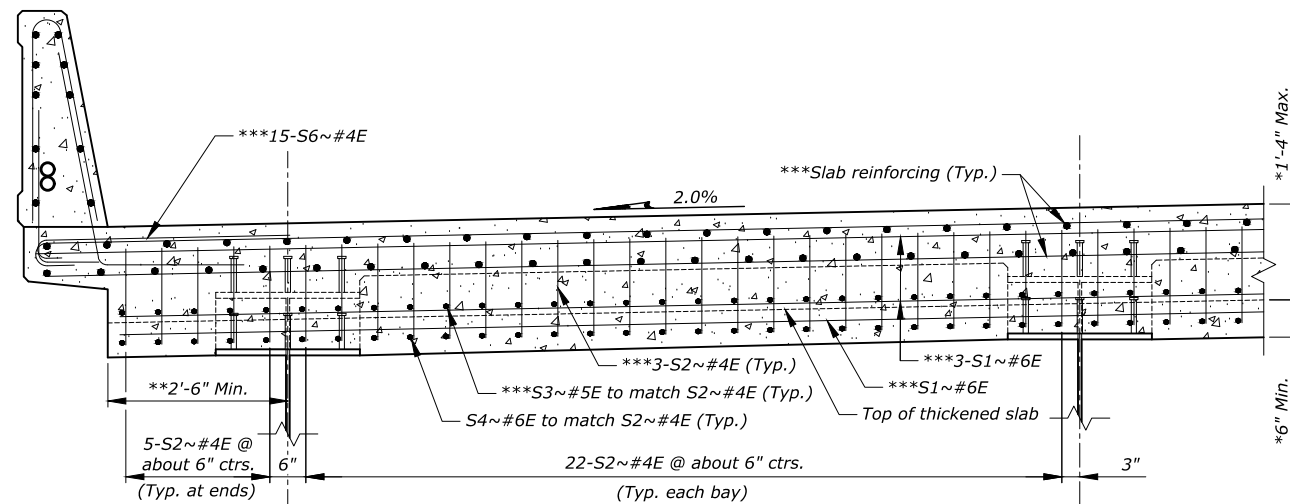
NOTE: Camber and dead load deflection values on Sheet No. B33, B37, and B38 were developed based on instantaneous deflections. Any deviation from the pouring sequences described on this sheet will result in changes to dead load deflections, girder camber, and girder elevations. If the contractor wishes to change the sequence, submit the revisions to the Project Manager for review and approval prior to submittal of girder shop drawings. Prepare and seal the plan and calculations by a Professional Engineer registered in Montana.

NOTE: Place the concrete deck sections for Frame 1 in one of the following sequences: 1-2-3-4-5, 1-2-3-(4+5), or 1-(2+3)-(4+5). Dashes separate individually placed sections within a placement sequence. Parenthesis around a group of sections with plus signs indicates a singular larger section comprised of the individual sections that is placed in one continuous placement.



THICKENED SLAB/BLOCKOUT SECTION

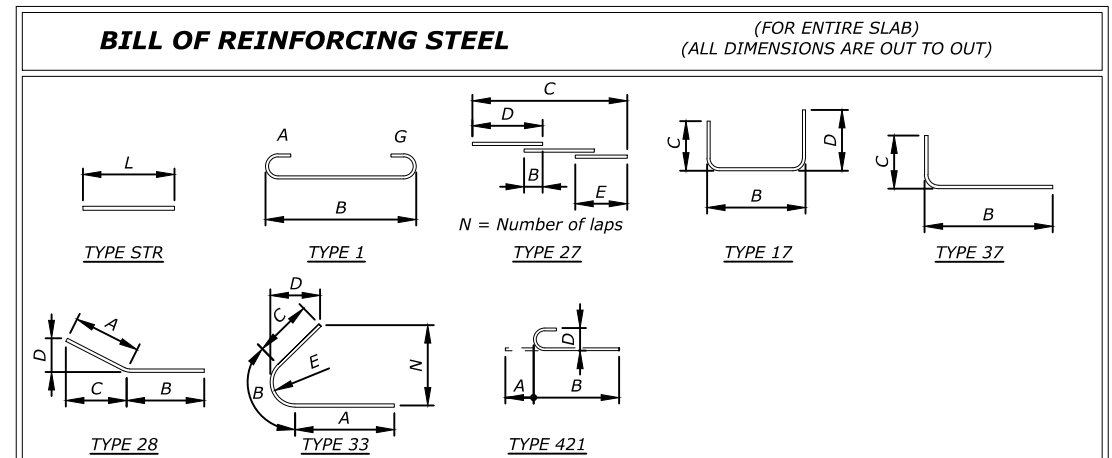
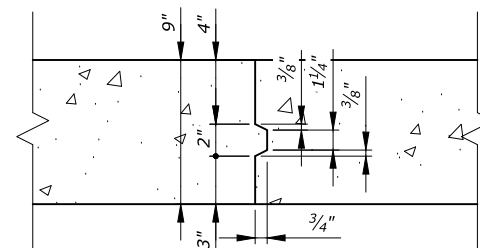
Scale $\sim \frac{3}{8}'' = 1'-0''$



THICKENED SLAB EDGE AT PIER NO. 4 ELEVATION

(Span No. 3 shown, Span No. 4 similar)

Scale $\sim \frac{3}{8}'' = 1'-0''$

[illegible]

SLAB CONSTRUCTION JOINT

No Scale

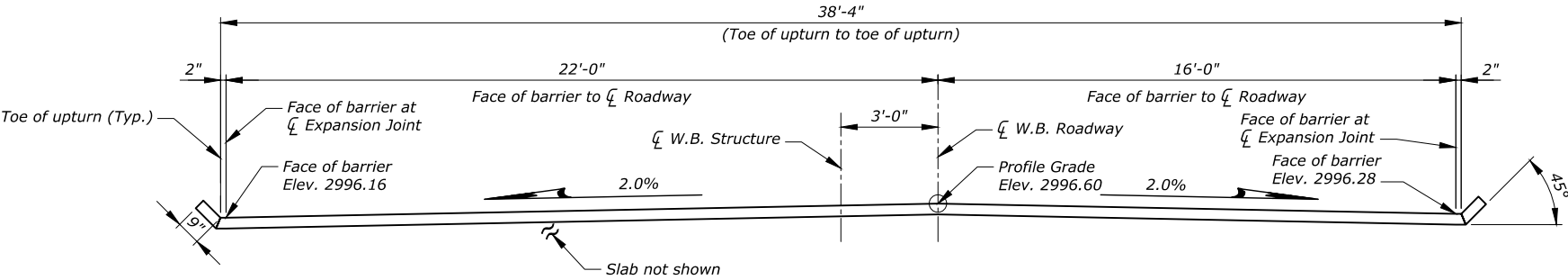
NOTE: See Sheet No. B40 for modular expansion joint details.

NOTE: See Sheet No. B36 to B38 for Slab Plan and Sections.

* **NOTE:** Minimum and maximum dimensions are shown.
Adjust depth dimensions for thickened slab and blockout as
required by joint manufacturer's design.

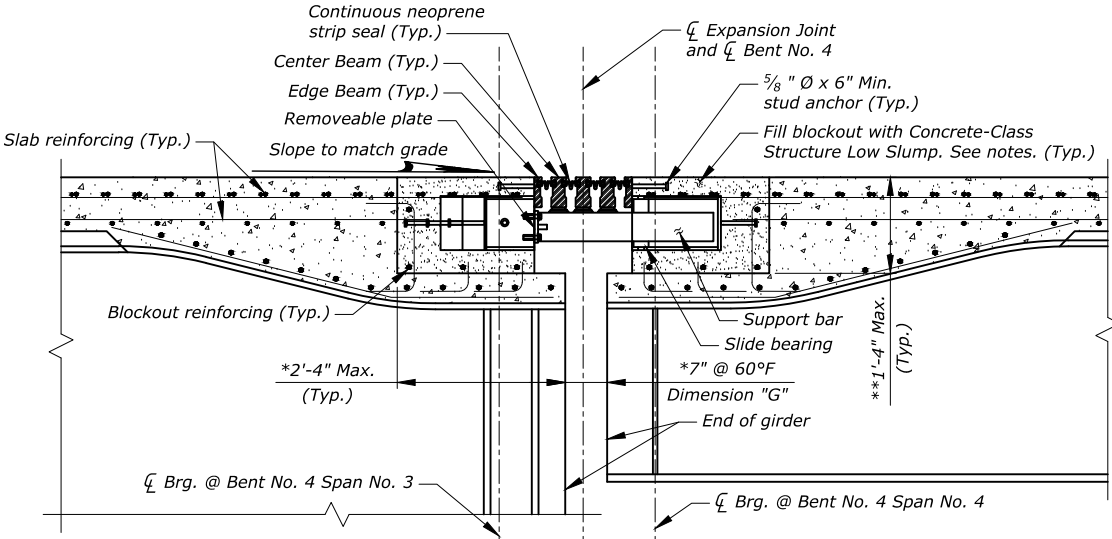
**** NOTE:** Adjust width of thickened slab as necessary to provide 4" minimum cover outside support box. Revise reinforcing for adjustments.

*** NOTE: Field bend, adjust, or cut reinforcing in breakout as necessary to facilitate modular expansion joint installation. Provide 2" clear cover. Coordinate thickened slab and breakout reinforcing adjustments and cuts with the Project Manager and modular joint manufacturer.



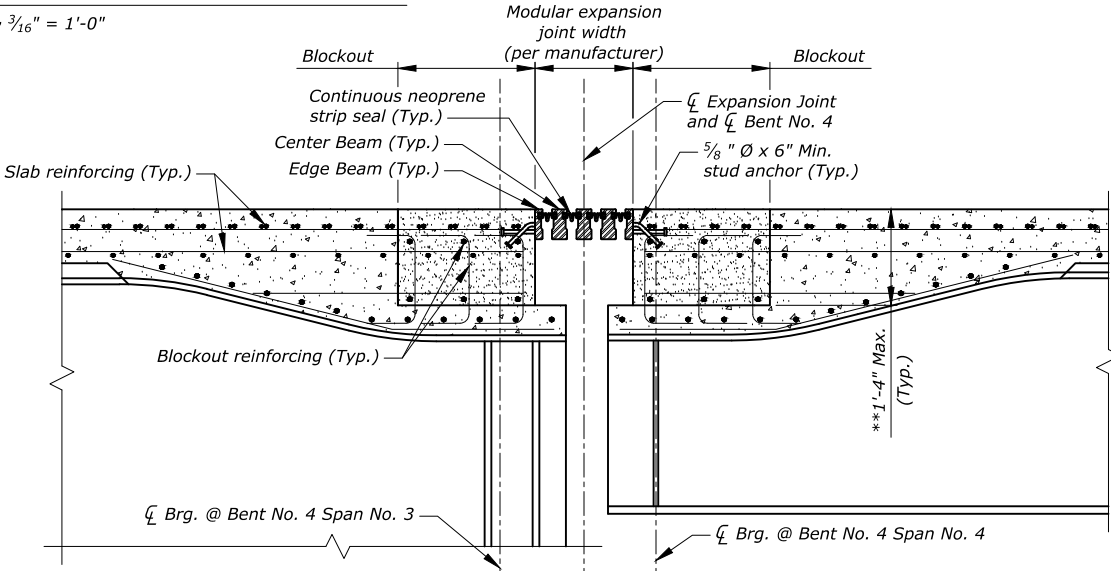
MODULAR EXPANSION JOINT ELEVATION

Scale ~ 3/16" = 1'-0"

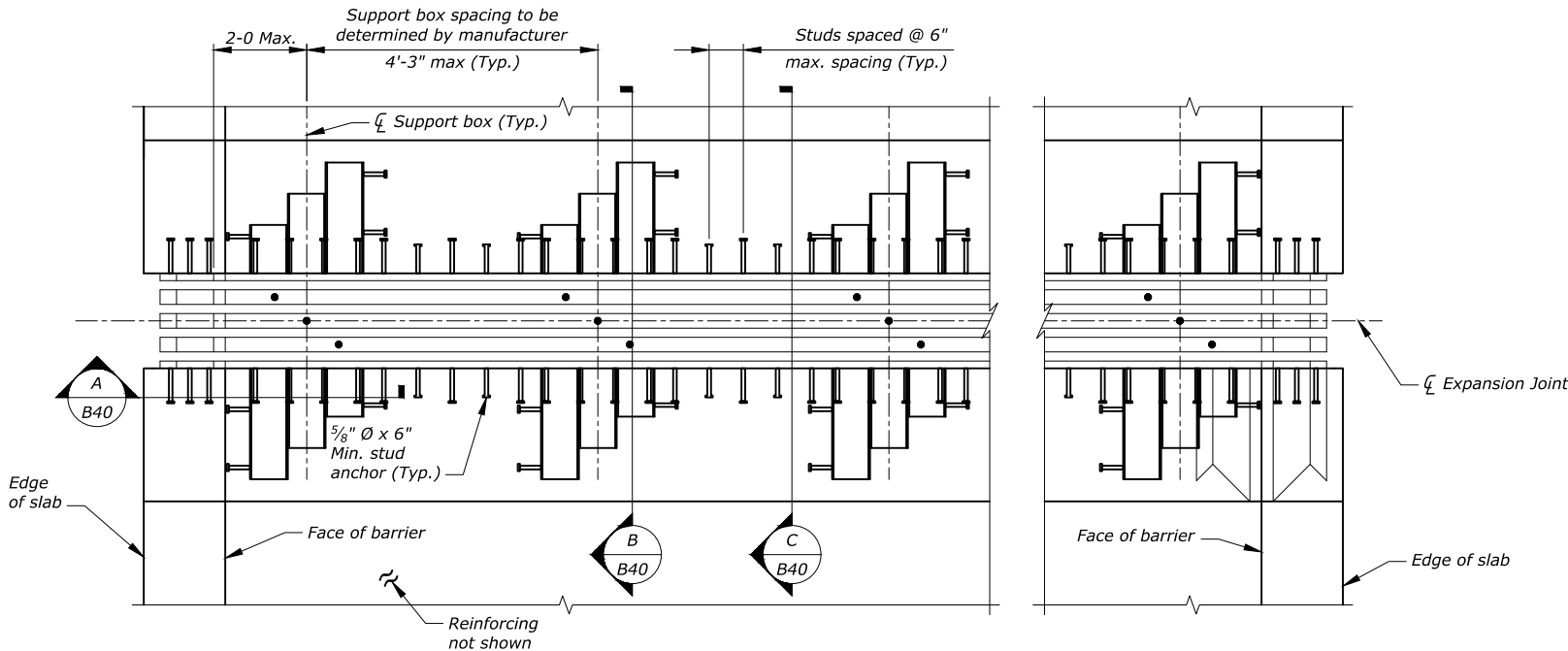


SECTION B
B40 Scale ~ 3/8" = 1'-0"

**NOTE: Adjust blockout depth. 1'-4" Max. See Sheet No. BX for additional details.

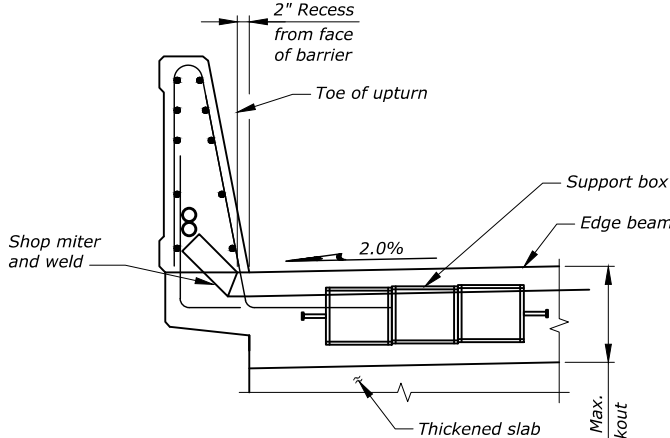


SECTION C
B40 Scale ~ 3/8" = 1'-0"



MODULAR EXPANSION JOINT PLAN

Scale ~ 3/8" = 1'-0"



SECTION A
B40 Scale ~ 3/8" = 1'-0"

NOTE: This drawing is a schematic of the modular joint device required at Bent No. 4. Manufacturer is responsible for the design of a modular joint device in accordance with AASHTO LRFD Chapter 14, which is capable of accommodating a minimum of 10 1/2" factored temperature movement. This movement is based on a temperature range of -40°F to 110°F and length of 743'-0". Provide a joint device capable of maintaining equal distance between all transverse beams. Acceptable alternates for the expansion device are D.S. Brown Steel Flex expansion joint system, Watson Bowman Acme (WABO) modular expansion joint system, Mageba Tensa-Modular expansion joint system, or an approved equal.

NOTE: Design live load is HL-93 with impact. See special provisions for additional design and submittal requirements. Submit shop drawings that include expansion devices, method of support during installation, and installation procedures.

NOTE: Manufacturer is responsible for developing a temperature adjustment table for the applicable temperature range of -40°F to 110°F. Set the expansion joint to accommodate the expected movements and adjust joint opening for the structure temperature. The structure temperature is taken as the actual air temperature averaged over the 24-hour period immediately preceding setting. The table should include expected movements, with no factors applied. Clearly show joint opening dimensions with corresponding temperatures on shop drawings and installation instructions.

NOTE: Use steel conforming to AASHTO M 270 Grade 36 or Grade 50. Galvanize assembly after fabrication in accordance with ASTM A 123 or AASHTO M 111. Galvanize all bolts, nuts, washers, and incidentals in accordance with AASHTO M 232. Use headed anchor studs meeting the requirements of AASHTO M 169 Grades 1015 through 1020.

NOTE: See Sheet No. B39 for reinforcing placed in and projected into the blockouts. Shift and bend reinforcing to clear joint anchors and support boxes as much as practical to minimize cutting. Cut bars interfering with expansion joint 2" from conflicting element. Coat cut reinforcing with an approved protection coating. Maintain 2 1/2" minimum clear cover from reinforcing to top of deck. Coordinate all reinforcing adjustments with the Project Manager.

NOTE: Provide continuous rails and seals across the width of the joint, including turn ups. Do not field splice rails or seals unless approved by Project Manager.

NOTE: Install expansion joint after the entire deck slab has been cast. Place prior to casting barriers.

NOTE: Use Concrete - Class Structure Low Slump or approved equal for secondary pours. Place high strength grout below support box if recommended by joint manufacturer. Ensure that concrete completely supports the support boxes and is well consolidated. Quantities of concrete and reinforcing steel in the secondary pours are included in the deck slab quantities.

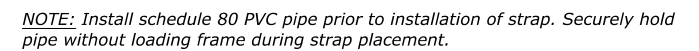
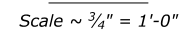
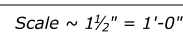
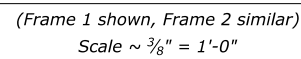
NOTE: Payment for Expansion Joint - Modular per foot includes all resources necessary to complete the work.

NOTE: Install expansion joint device such that it conforms to the roadway grades and slope at the joint location and provides a smooth riding surface. Install rails 1/8-inch below finished grade.

* TEMPERATURE ADJUSTMENT TABLE

Dimension (Inch)	Temperature (°F)																	Adjust for 5° F Temperature Change
	-40°	-30°	-20°	-10°	0°	10°	20°	30°	35°	40°	50°	60°	70°	80°	90°	100°	110°	
G	12.80"	12.22"	11.64"	11.06"	10.48"	9.90"	9.32"	8.74"	8.45"	8.16"	7.58"	7.00"	6.42"	5.84"	5.26"	4.68"	4.10"	0.29"

* NOTE: The movements shown are not factored, they are the anticipated movements for the temperatures shown. Set concrete to concrete distance "G" equal to 7" at 60°F. Verify and adjust "G" based on the temperature adjustment table. Middle movement temperature is assumed at 35°F.



***NOTE:** Provide PVC pipe rated for continuous UV exposure and meeting the requirements of subsection 708.05 of the Standard Specifications.

NOTE: See Sheet No. B6 for scupper locations.

NOTE: Field cut or bend slab reinforcing to clear scuppers as noted in Scupper Detail. Coordinate bar adjustments and cuts with the Project Manager.

NOTE: Neenah Foundry grate and scupper model R-4014-C1 shown. A welded or cast iron frame and grate may be submitted for approval. Clearly show all welds, dimensions, materials, plate thicknesses, and details in submittal. Ensure size and details of grate and frame are similar to scuppers shown and are of heavy duty construction designed for highway traffic loading.

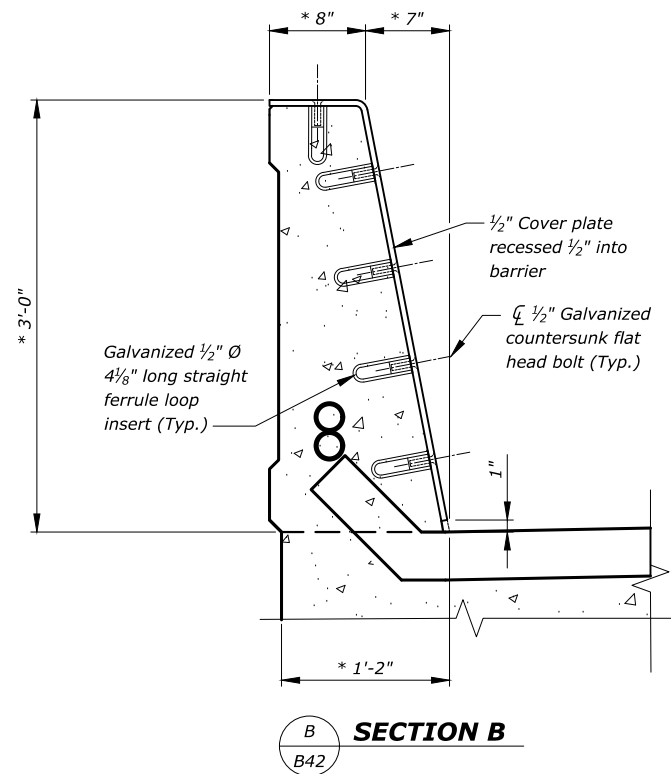
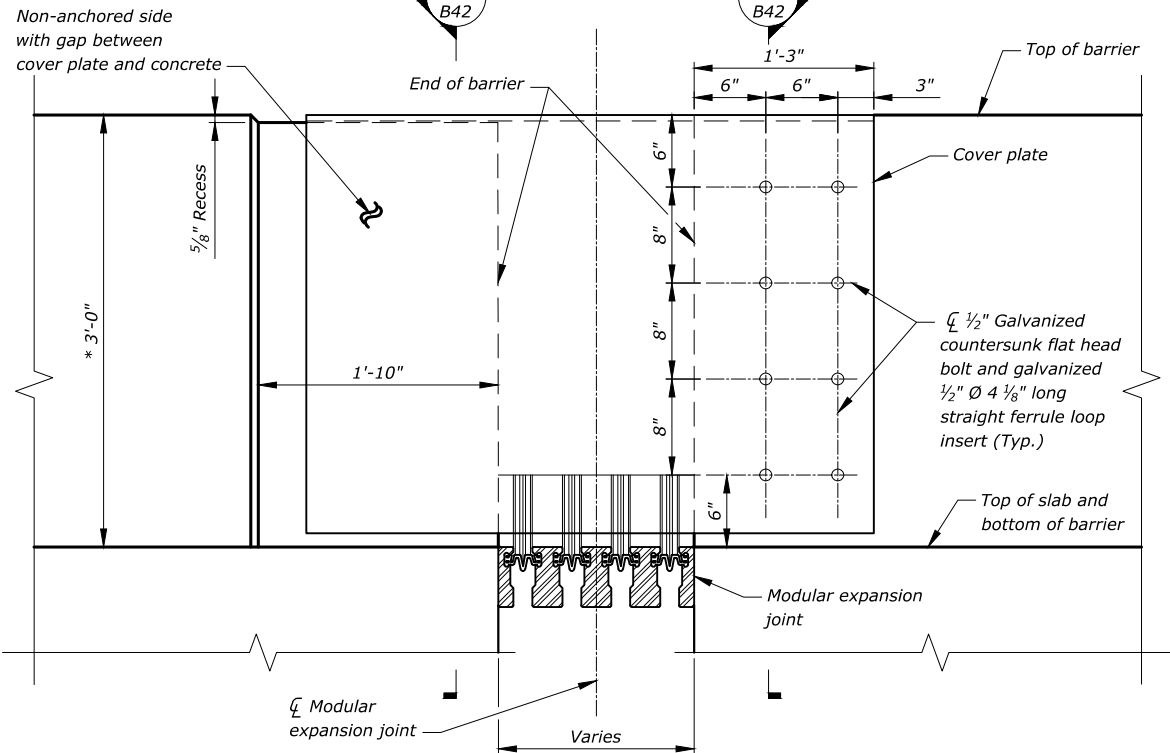
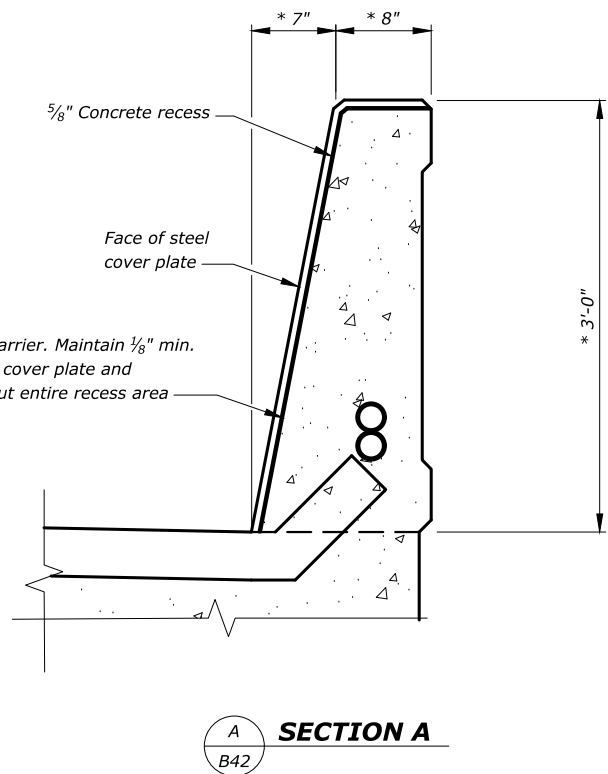
NOTE: Meet the requirements of ASTM A 48 or ASTM A 536 for all cast iron grates and frames.

NOTE: If grate or frame is fabricated from structural steel, use steel with $\frac{3}{4}$ " minimum thickness and meet the requirements of AASHTO M270 Grade 50. Galvanize all structural steel in accordance with AASHTO M 111 after fabrication. Clearly show all welds and fabrication details in submittal.

NOTE: Include all costs for grate, frame, PVC pipe, fittings, and hardware in the unit price bid for Scuppers.

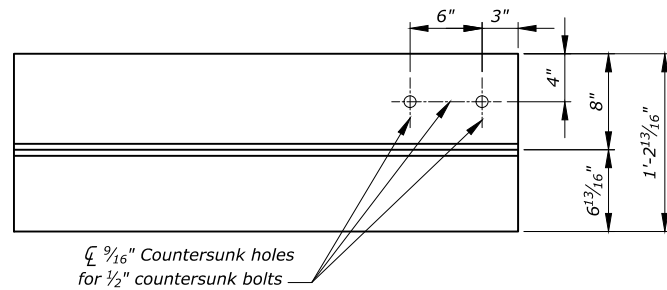
NOTE: Field bend shear studs or shift scupper to provide 1 inch minimum clear to the scupper.



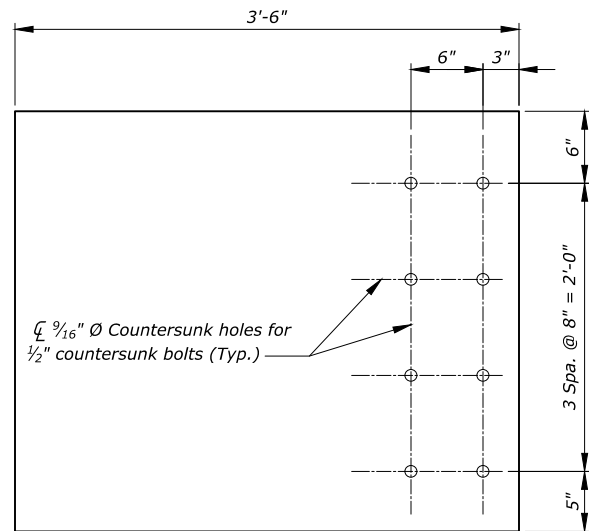


BARRIER COVER PLATE ELEVATION

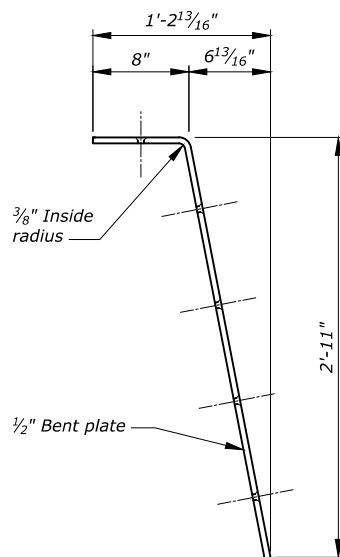
(Inside face of Bent No. 4 left shown, Bent No. 4 right similar)



TOP VIEW



FRONT VIEW



SIDE VIEW

BARRIER COVER PLATE DETAIL

NOTE: Form barrier within 4'-0" of modular expansion joint (slip forming is not allowed within 4'-0" of joint).

***NOTE:** Typical barrier dimensions, see Drawing No. SBR-SS36 for details.

NOTE: See Sheets No. B40 for modular expansion joint details.

NOTE: Take all necessary precautions to ensure that the anchor plate is held firmly in proper place to ensure accurate position and to prevent movement during concrete placement.

NOTE: Use steel conforming to AASHTO M270 Grade 36 or 50 for all plates. Galvanize all steel in accordance with AASHTO M111 after fabrication.

NOTE: Use 1/2" Ø ASTM F3125 Grade A325 Type 1 High Strength countersunk bolts. Galvanize all bolts in accordance with AASHTO M232.

NOTE: Provide shop drawings showing all finishes, dimensions, and details. Include installation procedures.

NOTE: Include all costs for materials, fabrication, and installation in the unit price bid for Structural Steel-Girder. Estimated weight is included in the estimated Structural Steel-Girder quantity shown on Sheet No. B3.

SHEET NO.
B42

BARRIER COVER PLATE
DETAILS

PROJECT NAME
CYR INTERCHANGE STRUCTURE

MDT STRUCTURE ID
01385

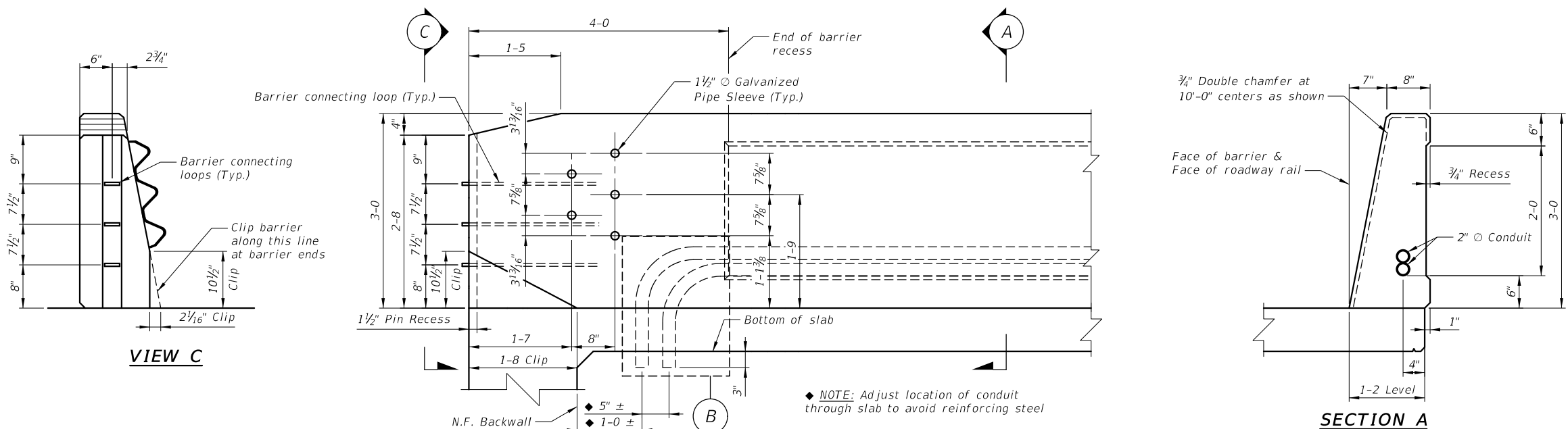
FEDERAL AID PROJECT
NHPB-SSS 90-1(253)69

COUNTY
MINERAL

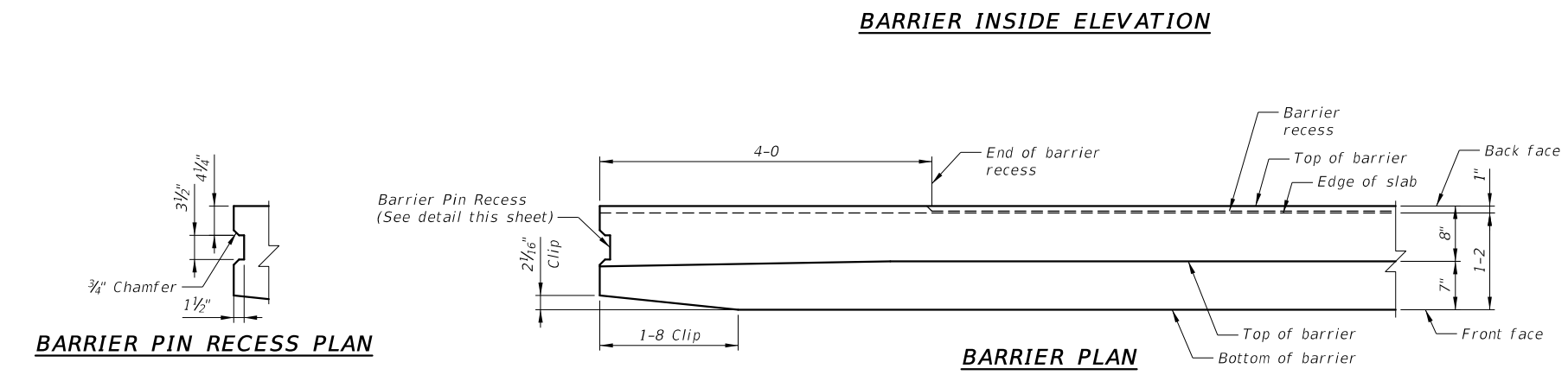
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REVISED	04-10-25	D.A.D.
REVISED	04-07-25	C.C.A.
CHECKED	08-14-25	B.M.M.
DRAWN	04-10-25	D.A.D.
DESIGNED	04-07-25	C.C.A.



UPN NUMBER
9786002
DRAWING NO.
21216



NOTES
PLACEMENT: Do not disturb the deck cure to construct the concrete barrier.
CONCRETE STRENGTH: Do not place construction vehicles or equipment on the deck until the concrete has reached 90% of its specified 28-Day compressive strength or without approval from the Project Manager.
Do not open bridge to traffic for at least 14 days after placement of concrete barrier or until concrete in barrier has reached 90% of its specified 28-Day compressive strength.
CONTROL JOINT: Do not place 3/4" double chamfer in the barrier recess or the bottom outside edge of the barrier.
REFLECTOR: Place a white reflector on the top of barrier rail at 30-foot spacing between the barrier ends. See Dtl. Dwg. No. 605-00 for reflector detail.
TOLERANCES: Construct the concrete bridge rail to the same tolerances specified for concrete barrier rail, see Section 564 of the Standard Specifications.
REINFORCING STEEL: See Std. Dwg. No. SBR-SS36R for reinforcing steel locations.
GALVANIZING: Galvanize pipe sleeves in accordance with AASHTO M 111.
RADIUS: A 3/4" radius may be substituted for the 3/4" chamfers and fillets shown.
PAYMENT: Include all costs associated with the barrier as shown on this sheet in the unit price bid for 36 IN SS Concrete Barrier Rail-Br. See Std. Dwg. No. SBR-SS36R for reinforcing steel payment.
EXCEPTIONS: Use details shown on this drawing only as they apply to the project. Refer to other drawings for variations in these details.
CONDUIT: Omit conduit in any barrier not located at the edge of slab.
RAIL WEIGHT: For informational purposes only and based on Section A dimensions.
Rail weight = 411 lb/ft
Rail Volume = 2.74 ft³/ft
CRASH TEST: This rail has been evaluated and approved to be of equal strength to railings with like geometry, which have been crash tested to meet MASH TL-4 criteria.



RAIL DESIGN CAPACITY		
	Interior Region	End Region
Rw	100 kips	67 kips
Lc	16'-9"	5'-9"
Mc	106 kip*in/ft	209 kip*in/ft

STANDARD BRIDGE RAIL
TYPE SINGLE SLOPE 36"

MDTA
DEPARTMENT OF TRANSPORTATION

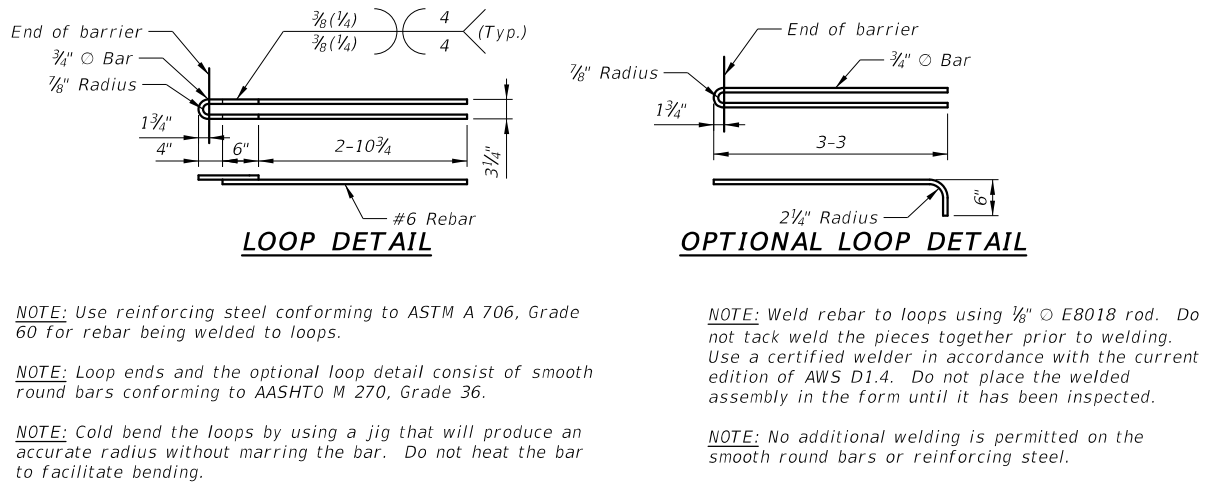
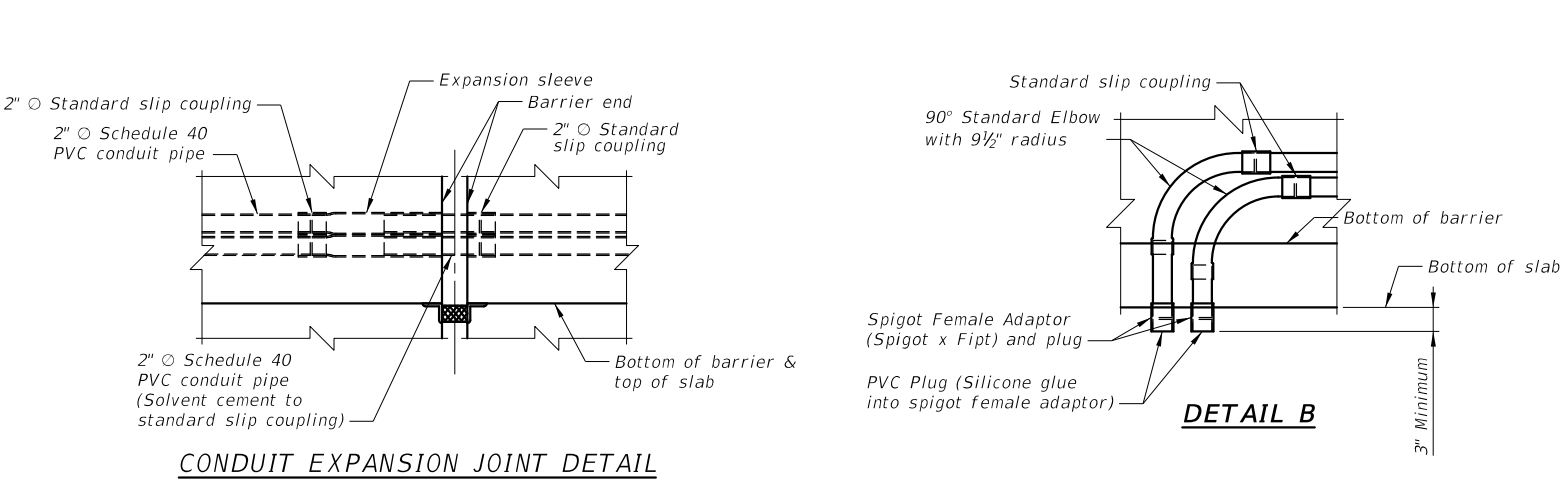
BRIDGE BUREAU

REVISED	REVISED	REVISED	APPROVED	CHECKED	DRAWN
			9-27-18	6-28-18	5-8-18
			U.S.O.	T.W.S.	T.J.B.

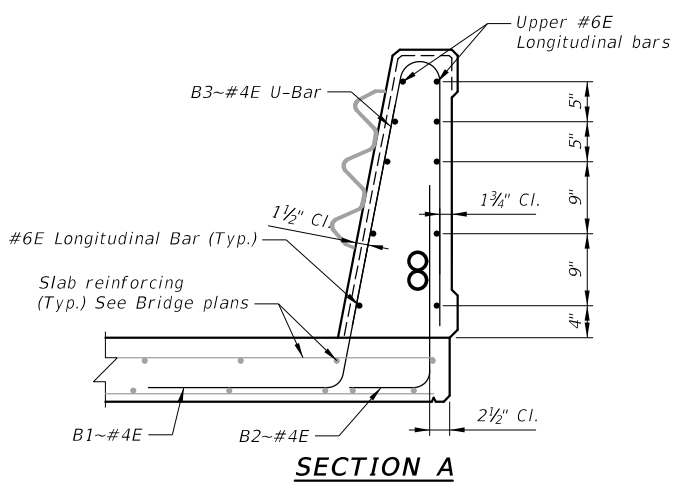
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DRAWING NO.
SBR-SS36

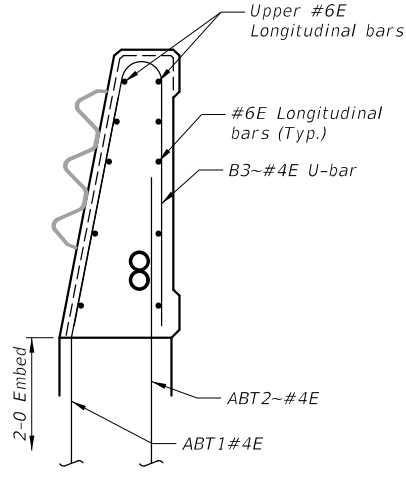
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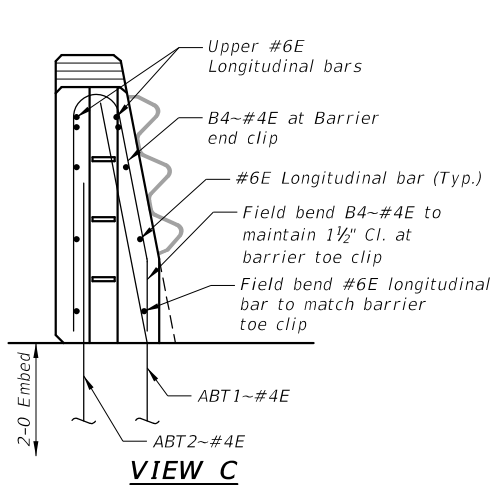
NOTE: Use reinforcing steel conforming to ASTM A 706, Grade 60 for rebar being welded to loops.
NOTE: Loop ends and the optional loop detail consist of smooth round bars conforming to AASHTO M 270, Grade 36.
NOTE: Cold bend the loops by using a jig that will produce an accurate radius without marring the bar. Do not heat the bar to facilitate bending.
NOTE: Weld rebar to loops using 1/8" E8018 rod. Do not tack weld the pieces together prior to welding. Use a certified welder in accordance with the current edition of AWS D1.4. Do not place the welded assembly in the form until it has been inspected.
NOTE: No additional welding is permitted on the smooth round bars or reinforcing steel.



SECTION A



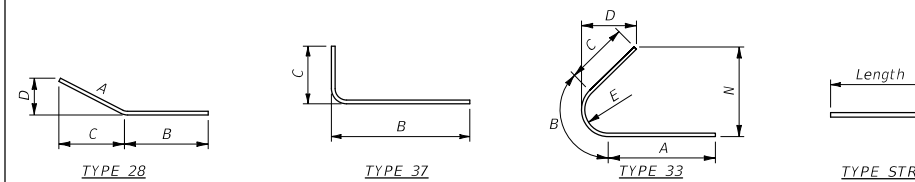
SECTION B



VIEW C

BILL OF REINFORCING STEEL

(ALL DIMENSIONS ARE OUT TO OUT)



NOTE: See Bridge Plans for number of bars required and longitudinal bars.

Mark	Size	Type	Length	A	B	C	D	E	G	N
B1	#4E	28	5-0	3-0	2-0	6 3/4"	2-11 1/4"			
B2	#4E	37	2-11 1/4"		10"	2-1 1/4"				
B3	#4E	33	5-9 1/4"	2-6 1/2"	7 1/4"	2-7 1/2"	2-9"	2"		11"
B4	#4E	33	5-5 3/4"	2-4 1/4"	8 1/4"	2-5 1/4"	2-7"	2 1/4"		11 1/4"
ABT1	#4E	28	4-6 1/2"	2-6 1/2"	2-0	2-6"	5 3/4"			
ABT2	#4E	STR	3-8							

NOTES

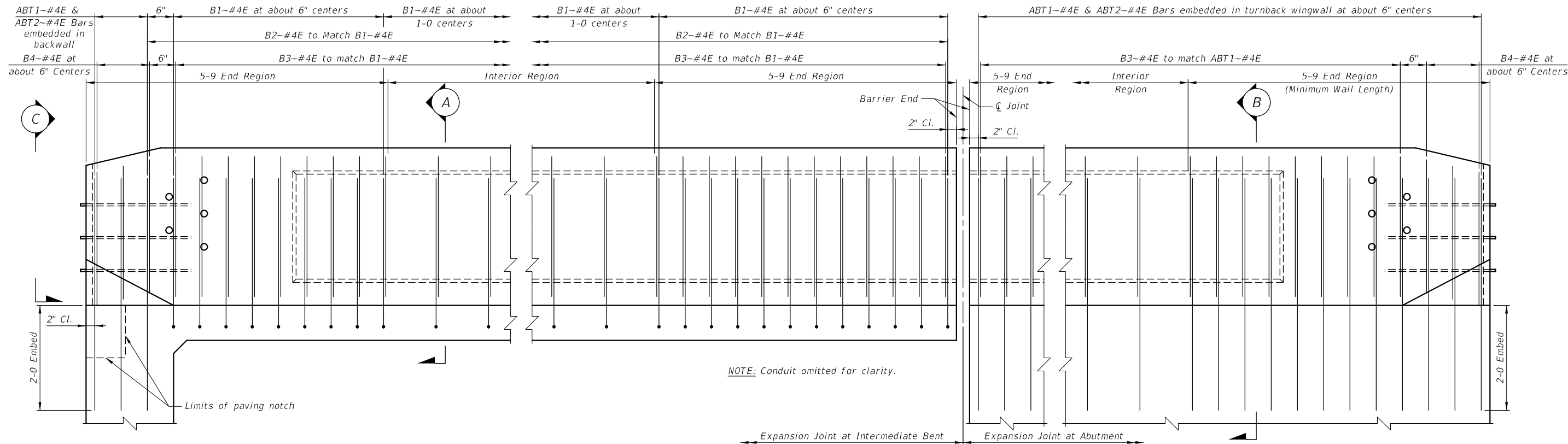
REINFORCING STEEL: All barrier reinforcing steel is epoxy coated.

DETAILS: See Std. Dwg. No SBR-SS36 for barrier details not shown on this drawing.

PAYMENT: Include all costs associated with furnishing and placing reinforcing steel in the barrier in the unit price bid for Reinforcing Steel - Epoxy Coated.

EXCEPTIONS: Use details shown on this drawing only as they apply to the project. Anchorage details may vary. Refer to other drawings for variations in these details.

UPPER LONGITUDINAL BARS: Adjust the lap length by approximately 10 1/2" at the tapered ends of the barrier.



SEMI-INTEGRAL ABUTMENT

ABUTMENT OR INTERMEDIATE BENT WITH EXPANSION JOINT

TURNBACK WINGWALL

BARRIER INSIDE ELEVATION

STANDARD BRIDGE RAIL
TYPE SINGLE SLOPE 36"
REINFORCING



REVISED	9-27-18	U.S.O.
REVISED	6-28-18	T.W.S.
APPROVED	5-8-18	T.J.B.
DRAWN	9/28/2018	9:52:44 AM

DRAWING NO.
SBR-SS36R

No Scale



<i>PIPE PILE DIAMETER</i>	<i>WALL THICKNESS</i>	<i>WEIGHT (LBS / FT)</i>
12"	1/2"	62
16"	1/2"	83
20"	1/2"	104
24"	1/2"	126
24"	3/4"	186
30"	3/4"	235

NOTES

PILE SPLICES: Use only E7018 series electrodes. Prepare the weld surfaces to a smooth, uniform finish. Remove all fins, tears, loose scale, slag, rust, grease, moisture and other material that would prevent proper welding.

PILE TIPS: Use only E7018 series electrodes to attach pile tips.

PILE TYPE: See Footing Plan sheets for correct pile type, pile tip and pile tip elevations.

STANDARD PILE SPLICE DETAILS AND PILE TIPS

MDT
MONTANA
DEPARTMENT OF TRANSPORTATION

No Scale

J.B.	ENCLOSURE REFERENCE
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REVISED			
REVISED			
REVISED	10-10-19	N.A.H.	
REVISED	12-27-18	T.J.B.	
APPROVED	1-30-15	D.F.J.	
CHECKED	1-30-15	D.F.J.	
DRAWN	1-23-15	T.J.B.	
05/01/2020	0.43x5.4 MM	FUNCTION	

DRAWING NO.
PSD