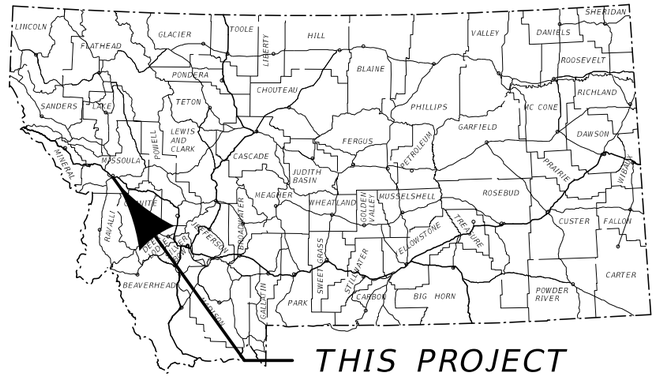
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

MONTANA DEPARTMENT OF TRANSPORTATION



FEDERAL AID PROJECT STPB 8113(9)
BRIDGE REHAB AND PLANT MIX SURFACE
HIGGINS AVE. BR REHAB - MISSOULA
MISSOULA COUNTY

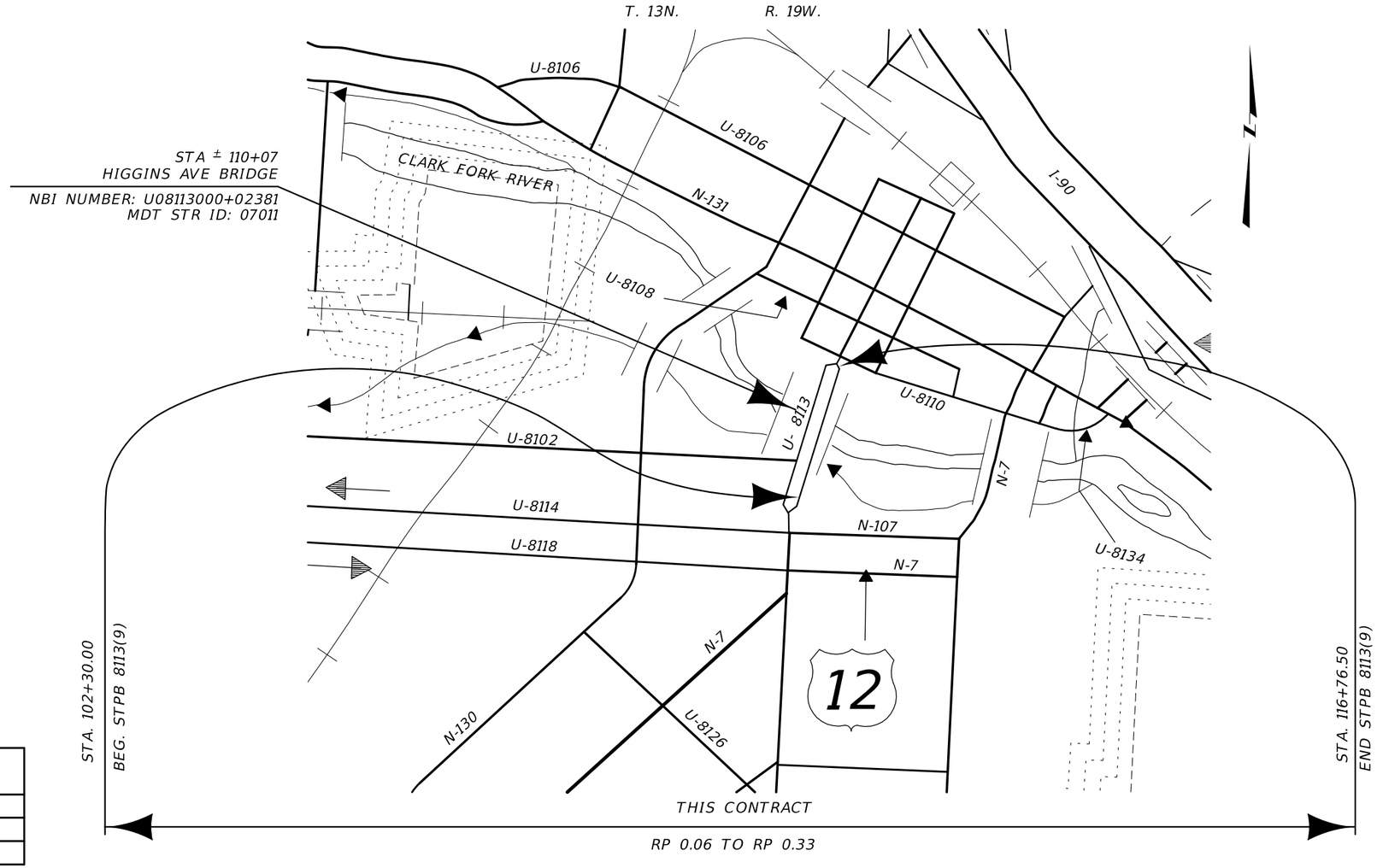
PROJECT DESIGN DATA		
PRESENT	2017	A.D.T. = 14,660
LETTING	2020	A.D.T. = 15,100
DESIGN	2040	A.D.T. = 18,430
		D.H.V. = 1810
		TRUCKS = 1.4%
		V. = 35 MPH
		18 KIP ESAL'S = 66
		GROWTH RATE = 1.0%

LETTING DATE - DECEMBER 12, 2019

CSF = 0.99924502

SURFACING SOURCES -
CONTRACTOR FURNISHED

LENGTH 0.27 MILES



PLANS PREPARED BY
HDR 1715 SOUTH RESERVE ST MISSOULA, MT 59801 PHONE (406) 532-2200

RELATED PROJECTS

ASSOCIATED PROJECT AGREEMENT NUMBERS	
R / W	STPB 8113(10)
I.C.	
P. E.	STPB 8113(8)

HDR

DocuSigned by:
BY 206B39909A8A445...
DATE 5/20/2020

LISA JO FISCHER 28947PE LICENSED PROFESSIONAL ENGINEER MONTANA

MONTANA DEPARTMENT OF TRANSPORTATION

APPROVED 5/21/2020

MICHAEL T. TOOLEY
DIRECTOR, MDT TRANSPORTATION
DocuSigned by:
BY 6BEB50292A10460...

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED :

DIVISION ADMINISTRATOR DATE

3	MDT	MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDTTLZ01.DGN	DESIGNED BY LJF	10/14/2019	ROAD PLANS
2			5/18/2020	REVIEWED BY TDE	10/14/2019	
			10:28:38 AM CCOLLINS	CHECKED BY JDH	10/14/2019	UPN 8807000

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

TABLE OF CONTENTS

ROAD PLANS	SHEET NO.
TITLE SHEET	1
TABLE OF CONTENTS	2
NOTES	2
LINEAR & LEVEL DATA	3
CENTERLINE COORDINATE TABLE	3
CONTROL DIAGRAM	4
TYPICAL SECTIONS	5-10
SUMMARIES	11-14
SURFACING	11
ADDITIONAL SURFACING	11
GRADING	11
MISCELLANEOUS ITEMS - REMOVAL	11
COLD MILLING	11
BITUMINOUS PAVEMENT REMOVAL	12
PEDESTRIAN RAIL	12
STORM DRAIN PIPE	12
TELEPHONE MANHOLES IN PLACE	12
MANHOLES IN PLACE	12
DROP INLET	12
BOLLARDS	12
STORM DRAIN STRUCTURE SCHEDULE	12
MEDIAN CONCRETE CURB	13
CURB	13
SIDEWALK	13
MISCELLANEOUS ITEMS - LNFT	13
LANDSCAPING	14
REVEGETATION	14
MISCELLANEOUS ITEMS - EACH	14
PEDESTRIAN STAIRWAY - STEEL	14
GUARDRAIL	14
TEMPORARY GUARDRAIL	14
PAVEMENT MARKINGS	14
TEMPORARY PEDESTRIAN PROTECTION	14
DETAILS	15-50
BOLLARD, THICKENED EDGE SIDEWALK, CURB, GUTTER & SIDEWALK, & MODIFIED CURB DETAILS	15
PEDESTRIAN RAIL DETAILS	16
PEDESTRIAN RAIL LAYOUT DETAILS	17
S 3RD ST W & S HIGGINS AVE DEMOLITION DETAIL	18
N HIGGINS AVE DEMOLITION DETAIL	19
S 3RD ST W INTERSECTION DETAIL	20
S HIGGINS AVE CURB & GUTTER COORDINATES	21-23
S 3RD ST W CURB & GUTTER COORDINATES	24
S 3RD ST W & HIGGINS AVE CURB & GUTTER COORDINATES	25
S 3RD ST W & S HIGGINS AVE CURB RAMP DETAILS	26
S 3RD ST W & PRIVATE APPROACH CURB RAMP DETAILS	27
NORTH BRIDGE DEPARTURE BIKE LANE TRANSITION DETAIL	28
DIRECTION WARNING DEVICE DETAILS	29-30
STORM DRAIN SYSTEM OVERVIEW DETAILS	31
DRAINAGE DETAILS	32-35
STORM DRAIN SYSTEM DETAILS	36-38
PEDESTRIAN STAIR DETAILS	39-44
LANDSCAPE OVERVIEW AND DETAILS	45-47
CONSTRUCTION PHASING DETAILS	48-50
PLAN & PROFILE	51-52

TABLE OF CONTENTS (CONT.)

SIGNING PLANS	
SUMMARY	S1
SIGN LOCATION & SPECIFICATIONS	S2
DETAILS	S3
PLANS	S4-S7

ELECTRICAL PLANS	SHEET NO.
SUMMARY	E1
DETAILS	E1-E8
PLANS	E9-E10

BRIDGE PLANS	
LIST OF DRAWINGS	B1-B2
QUANTITIES	B3-B4
PLANS	B5-B104
STANDARD DRAWINGS	B-A
STANDARD DRAWINGS	SL-7
STANDARD DRAWINGS	SBR-OR42
STANDARD DRAWINGS	SBR-OR42-PP

NOTES

BASIS OF PLAN QUANTITIES

(QUANTITIES FOR ESTIMATING PURPOSES ONLY)

COMP. AGGREGATE WEIGHT	= 3750 LBS. PER CUBIC YARD
COMP. WEIGHT OF PL. MIX BIT. SURF.	= 3855 LBS. PER CUBIC YARD
ASPHALT CEMENT - GRADE S - 1/2" AGG.	= 5.8% OF PL.MIX BIT.SURF.
ASPHALT CEMENT - GRADE S - 3/8" AGG.	= 6.2% OF PL.MIX BIT.SURF.
HYDRATED LIME	= 1.4% OF PL.MIX BIT.SURF.
BITUMINOUS MATERIAL	= 8.5 LBS. PER GAL.
TACK (ASPHALT SURFACES)	= 0.025 GAL. PER SQ.YARD (UNDILUTED)
TACK (ALL OTHER SURFACES)	= 0.05 GAL. PER SQ.YARD (UNDILUTED)

PUBLIC LAND SURVEY MONUMENTS

ALL MONUMENTS TO BE REMOVED AND RELOCATED OR RESET BY STATE FORCES.

CLEARING AND GRUBBING

CLEAR AND GRUB TO CONSTRUCTION LIMITS. INCLUDE THE COST OF CLEARING AND GRUBBING IN THE UNIT PRICE BID FOR STREET EXCAVATION.

UTILITIES

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

COMBINATION SCALE FACTOR

ALL COORDINATES ARE STATE PLANE (SEE CONTROL DIAGAM)
CSF FOR THE PROJECT IS 0.99924502.

CONSTRUCTION NOTES

USE EXTREME CAUTION WHEN WORKING AROUND THE OVERHEAD POWER LINE CROSSINGS OVER HIGGINS AVE AT THE NORTH AND SOUTH ENDS OF THE HIGGINS AVE BRIDGE.

DO NOT DISTURB

DO NOT DISTURB EXISTING STRUCTURES, ROADWAYS, LANDSCAPING, AND DRAINAGE FEATURES OUTSIDE THE PROPOSED CONSTRUCTION LIMITS OR AS SHOWN IN THE PLANS UNLESS DIRECTED BY THE ENGINEERING PROJECT MANAGER.

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.

SOILS INFORMATION

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

BORING NUMBER

(GEOTECHNICAL BORING)

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

LINEAR AND LEVEL DATA

LENGTH OF ROADWAY	473.40 ft
LENGTH OF BRIDGE	973.10 ft
TOTAL LENGTH OF STPB 8113(9)	1446.50 ft

BEARING SOURCE

GRID -- MONTANA COORDINATE SYSTEM NAD 83- 2011

LEVEL DATUM SOURCE

NAVD 88 (DIGITAL LEVELS HOLDING THE NSS DERIVED ELEVATIONS AT B8807 AND C8807 DERIVED FROM NGS BENCHMARKS 3172, H73, K522TBM, W446 HELD IN THE FINAL GPS ADJUSTMENT)

CENTERLINE COORDINATE TABLE - HIGGINS AVE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
100+00.00	POT	985858.785	844754.558	
102+02.99	PC	986061.464	844765.798	
102+30.00	POC	986088.400	844767.799	BEGIN PROJECT
103+53.80	PI	986212.042	844774.148	
104+49.24	POC	986300.265	844820.807	S 3RD ST. W INTERSECTION
105+00.31	PT	986346.612	844842.225	
114+93.93	PI	987233.239	845290.755	
116+76.50	POT	987397.109	845371.234	END PROJECT
117+23.32	POT	987439.130	845391.871	

OPEN ROADS CHAIN - P_HIGGINS_AVE

CENTERLINE COORDINATE TABLE - S 3RD STREET W

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
10+00.00	POT	986331.962	844627.464	
11+00.00	POT	986325.470	844727.253	BEGIN S 3RD STREET W RECONSTRUCTION
11+31.35	PC	986323.434	844758.536	
11+39.74	PI	986322.889	844766.906	
11+47.97	PT	986319.643	844774.641	
11+74.92	POT	986309.212	844799.492	END S 3RD STREET W RECONSTRUCTION
11+98.04	POT	986300.265	844820.807	

OPEN ROADS CHAIN - P_THIRD_ST

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

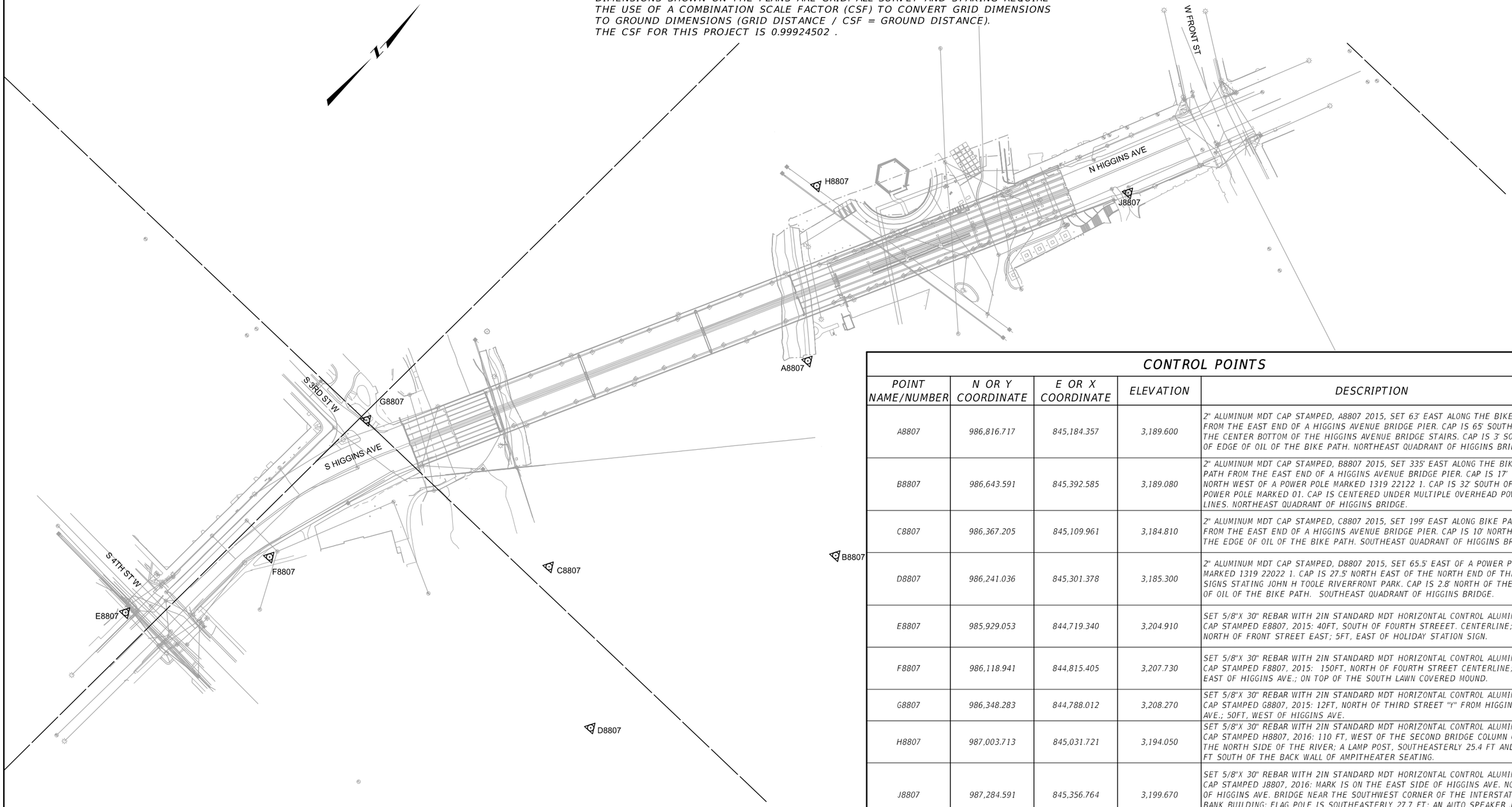
CONTROL DIAGRAM

SCALE: N/A

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 0.99924502 .



CONTROL POINTS

POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	ELEVATION	DESCRIPTION
A8807	986,816.717	845,184.357	3,189.600	2" ALUMINUM MDT CAP STAMPED, A8807 2015, SET 63' EAST ALONG THE BIKE PATH FROM THE EAST END OF A HIGGINS AVENUE BRIDGE PIER. CAP IS 65' SOUTH FROM THE CENTER BOTTOM OF THE HIGGINS AVENUE BRIDGE STAIRS. CAP IS 3' SOUTH OF EDGE OF OIL OF THE BIKE PATH. NORTHEAST QUADRANT OF HIGGINS BRIDGE.
B8807	986,643.591	845,392.585	3,189.080	2" ALUMINUM MDT CAP STAMPED, B8807 2015, SET 335' EAST ALONG THE BIKE PATH FROM THE EAST END OF A HIGGINS AVENUE BRIDGE PIER. CAP IS 17' NORTH WEST OF A POWER POLE MARKED 1319 22122 1. CAP IS 32' SOUTH OF A POWER POLE MARKED 01. CAP IS CENTERED UNDER MULTIPLE OVERHEAD POWER LINES. NORTHEAST QUADRANT OF HIGGINS BRIDGE.
C8807	986,367.205	845,109.961	3,184.810	2" ALUMINUM MDT CAP STAMPED, C8807 2015, SET 199' EAST ALONG BIKE PATH FROM THE EAST END OF A HIGGINS AVENUE BRIDGE PIER. CAP IS 10' NORTH OF THE EDGE OF OIL OF THE BIKE PATH. SOUTHEAST QUADRANT OF HIGGINS BRIDGE.
D8807	986,241.036	845,301.378	3,185.300	2" ALUMINUM MDT CAP STAMPED, D8807 2015, SET 65.5' EAST OF A POWER POLE MARKED 1319 22022 1. CAP IS 27.5' NORTH EAST OF THE NORTH END OF THE SIGNS STATING JOHN H TOOLE RIVERFRONT PARK. CAP IS 2.8' NORTH OF THE EDGE OF OIL OF THE BIKE PATH. SOUTHEAST QUADRANT OF HIGGINS BRIDGE.
E8807	985,929.053	844,719.340	3,204.910	SET 5/8"X 30" REBAR WITH 2IN STANDARD MDT HORIZONTAL CONTROL ALUMINUM CAP STAMPED E8807, 2015: 40FT, SOUTH OF FOURTH STREEET. CENTERLINE; 30FT, NORTH OF FRONT STREET EAST; 5FT, EAST OF HOLIDAY STATION SIGN.
F8807	986,118.941	844,815.405	3,207.730	SET 5/8"X 30" REBAR WITH 2IN STANDARD MDT HORIZONTAL CONTROL ALUMINUM CAP STAMPED F8807, 2015: 150FT, NORTH OF FOURTH STREET CENTERLINE; 45FT, EAST OF HIGGINS AVE.; ON TOP OF THE SOUTH LAWN COVERED MOUND.
G8807	986,348.283	844,788.012	3,208.270	SET 5/8"X 30" REBAR WITH 2IN STANDARD MDT HORIZONTAL CONTROL ALUMINUM CAP STAMPED G8807, 2015: 12FT, NORTH OF THIRD STREET "Y" FROM HIGGINS AVE.; 50FT, WEST OF HIGGINS AVE.
H8807	987,003.713	845,031.721	3,194.050	SET 5/8"X 30" REBAR WITH 2IN STANDARD MDT HORIZONTAL CONTROL ALUMINUM CAP STAMPED H8807, 2016: 110 FT, WEST OF THE SECOND BRIDGE COLUMN ON THE NORTH SIDE OF THE RIVER; A LAMP POST, SOUTHEASTERLY 25.4 FT AND 14 FT SOUTH OF THE BACK WALL OF AMPITHEATER SEATING.
J8807	987,284.591	845,356.764	3,199.670	SET 5/8"X 30" REBAR WITH 2IN STANDARD MDT HORIZONTAL CONTROL ALUMINUM CAP STAMPED J8807, 2016: MARK IS ON THE EAST SIDE OF HIGGINS AVE. NORTH OF HIGGINS AVE. BRIDGE NEAR THE SOUTHWEST CORNER OF THE INTERSTATE BANK BUILDING: FLAG POLE IS SOUTHEASTERLY 27.7 FT; AN AUTO SPEAKER JACK IS SOUTH 22.3 FT AND 2.23 FT NORTH OF A PLANTER RETAINING WALL.

HDR

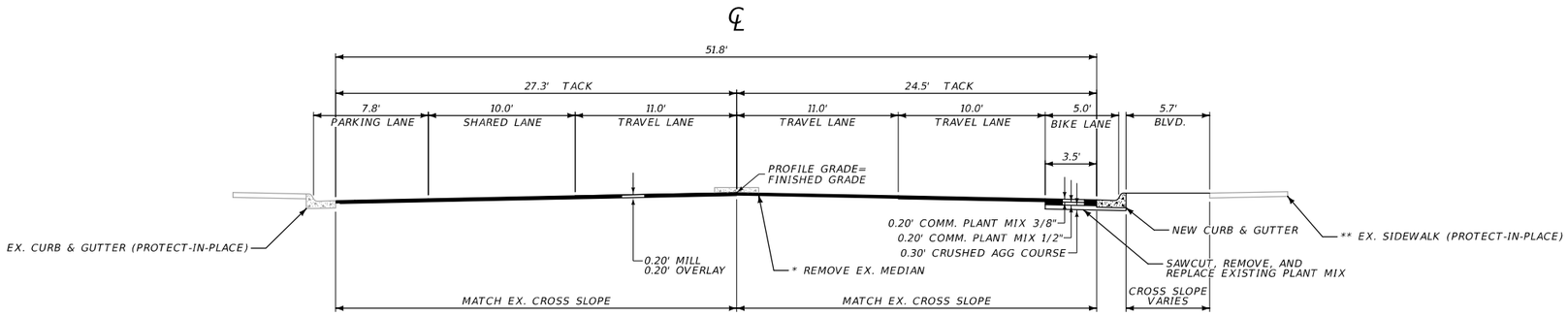
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

TYPICAL SECTION NO. 1

HIGGINS AVE - SOUTH BRIDGE APPROACH

102+30.00	ONLY	BEGIN PROJECT - MATCH EXISTING
102+30.00	TO 102+99.00	TRANS. TYP. NO. 1 TO TYP. NO. 2



SURFACING QUANTITIES BASED ON PLAN VIEW AREA.
SEE PLAN SHEETS FOR LIMITS.

* BEGIN REMOVE EXISTING MEDIAN AT STA. 102+38.54.

** BEGIN NEW SIDEWALK AT STA. 102+41.92.

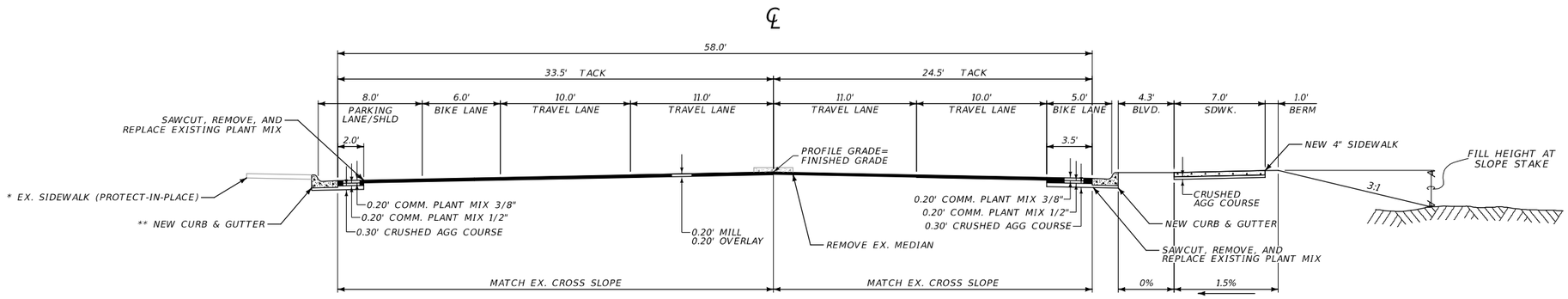
FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
20' - 30'	3:1
OVER 30'	2:1

BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
10' - 15'	3:1
15' - 20'	2:1
OVER 20'	1.5:1

TYPICAL SECTION NO. 2

HIGGINS AVE - SOUTH BRIDGE APPROACH

102+99.00	ONLY	TYP. NO. 2
102+99.00	TO 103+61.78	TRANS. TYP. NO. 2 TO TYP. NO. 3



SURFACING QUANTITIES BASED ON PLAN VIEW AREA.
SEE PLAN SHEETS FOR LIMITS.

* BEGIN NEW 4" COLORED SIDEWALK AT STA. 102+99.

** BEGIN NEW BLVD. AND CURB - SPECIAL DESIGN AT STA. 103+18.88.

HDR

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDTYPZ01.dgn	DESIGNED BY			ROAD PLANS		HIGGINS AVE. BR REHAB – MISSOULA / UPN 8807000	STPB 8113(9)
2		5/18/2020	REVIEWED BY						
		10:28:55 AM CCOLLINS	CHECKED BY			MISSOULA COUNTY			SHEET 5

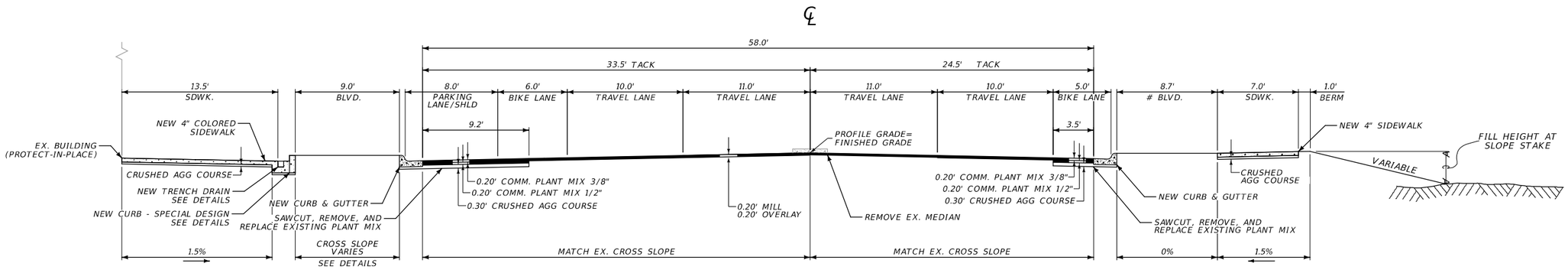
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

TYPICAL SECTION NO. 3

HIGGINS AVE - SOUTH BRIDGE APPROACH

103+61.78	ONLY	TYP. NO. 3
103+61.78	TO 104+00.00	TRANS. TYP. NO. 3 TO TYP. NO. 4



SURFACING QUANTITIES BASED ON PLAN VIEW AREA.
SEE PLAN SHEETS FOR LIMITS.

END NEW BLVD. AT STA. 103+66.46.

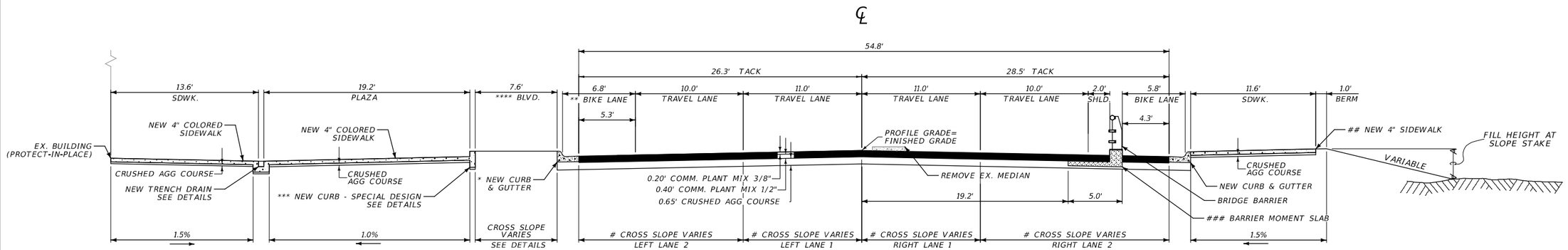
FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
20' - 30'	3:1
OVER 30'	2:1

BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
10' - 15'	3:1
15' - 20'	2:1
OVER 20'	1.5:1

TYPICAL SECTION NO. 4

HIGGINS AVE - SOUTH BRIDGE APPROACH

104+00.00	ONLY		TYP. NO. 4
104+00.00	TO 105+20.54	(BE)	TRANS. TYP. NO. 4 TO TYP. NO. 5



* NEW CURB & GUTTER
STA. 104+00.00 TO 104+15.96
STA. 104+87.20 TO 105+20.04

** END NEW BIKE LANE AT STA. 104+87.20.

*** END NEW CURB - SPECIAL DESIGN AT STA. 104+13.46.

**** END NEW BLVD. AT STA. 104+21.57.

SURFACING QUANTITIES BASED ON PLAN VIEW AREA.
SEE PLAN SHEETS FOR LIMITS.

CROSS SLOPE VARIES. SEE DETAILS FOR CURB ELEVATIONS.
STA. 104+00.00 TO 104+35.00 TRANS. CROSS SLOPE -1.88% TO -2.00% LEFT LANE 1.
STA. 104+00.00 TO 104+35.00 TRANS. CROSS SLOPE -3.52% TO -2.00% LEFT LANE 2.
STA. 104+00.00 TO 104+50.00 TRANS. CROSS SLOPE -1.21% TO -1.28% RIGHT LANE 1.
STA. 104+00.00 TO 104+50.00 TRANS. CROSS SLOPE -2.54% TO -1.28% RIGHT LANE 2.
STA. 104+35.00 TO 104+90.00 CROSS SLOPE -2.00% LEFT LANE 1 AND 2.
STA. 104+50.00 TO 105+20.54 (BE) CROSS SLOPE -1.28% RIGHT LANE 1 AND 2.
STA. 104+90.00 TO 105+20.54 (BE) TRANS. CROSS SLOPE -2.00% TO -1.28% LEFT LANE 1 AND 2.

NEW THICKENED EDGE SIDEWALK
STA. 104+16.40 TO 105+20.04

NEW BARRIER MOMENT SLAB
STA. 104+12.73 TO 105+20.04

HDR

3 / 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDTYPZ01.dgn	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
		5/18/2020	REVIEWED BY				
		10:28:58 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	SHEET 6

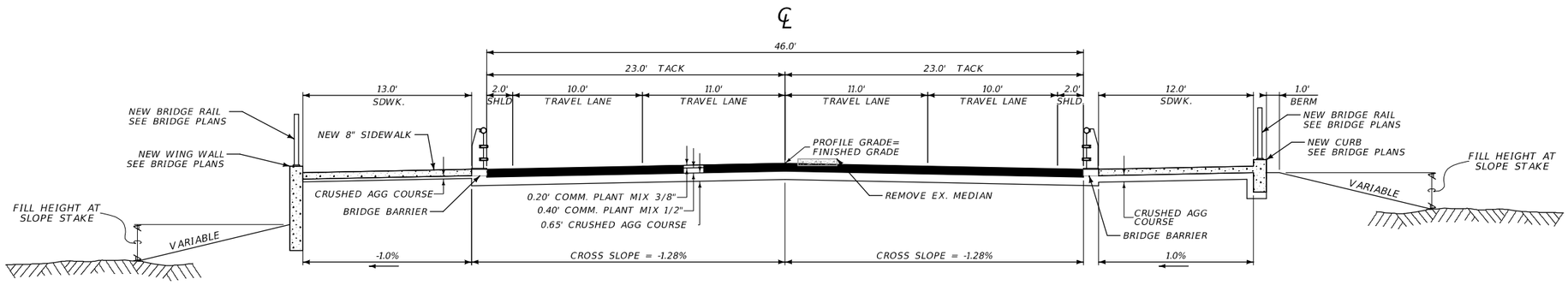
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

TYPICAL SECTION NO. 5

HIGGINS AVE - SOUTH BRIDGE APPROACH

105+20.54 (BE) ONLY TYP. NO. 5, THEN TYP. NO. 6



SURFACING QUANTITIES BASED ON PLAN VIEW AREA.
SEE PLAN SHEETS FOR LIMITS.

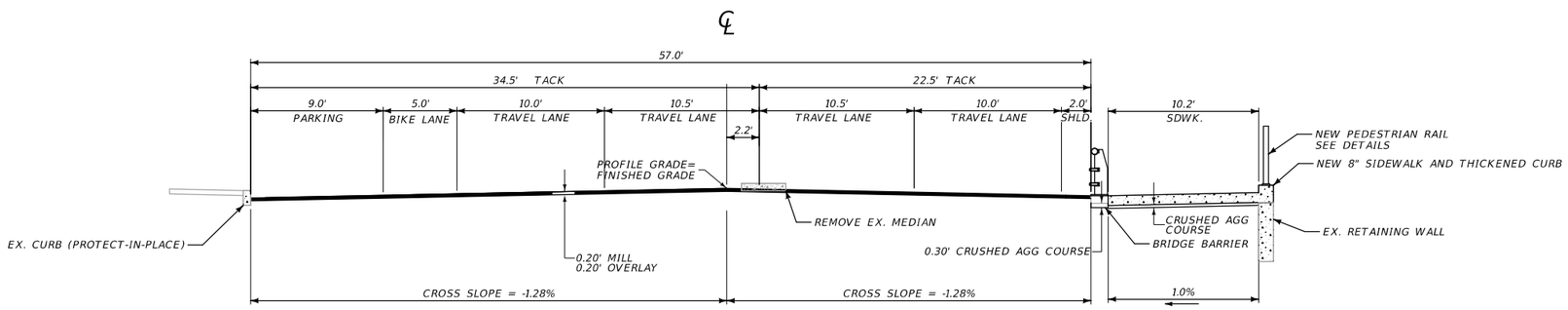
FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
20' - 30'	3:1
OVER 30'	2:1

BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
10' - 15'	3:1
15' - 20'	2:1
OVER 20'	1.5:1

TYPICAL SECTION NO. 6

HIGGINS AVE - NORTH BRIDGE APPROACH

114+93.64 (BE) ONLY TYP. NO. 6
114+93.64 (BE) TO 115+02.23 TRANS. TYP. NO. 6 TO TYP. NO. 7



SURFACING QUANTITIES BASED ON PLAN VIEW AREA.
SEE PLAN SHEETS FOR LIMITS.

HDR

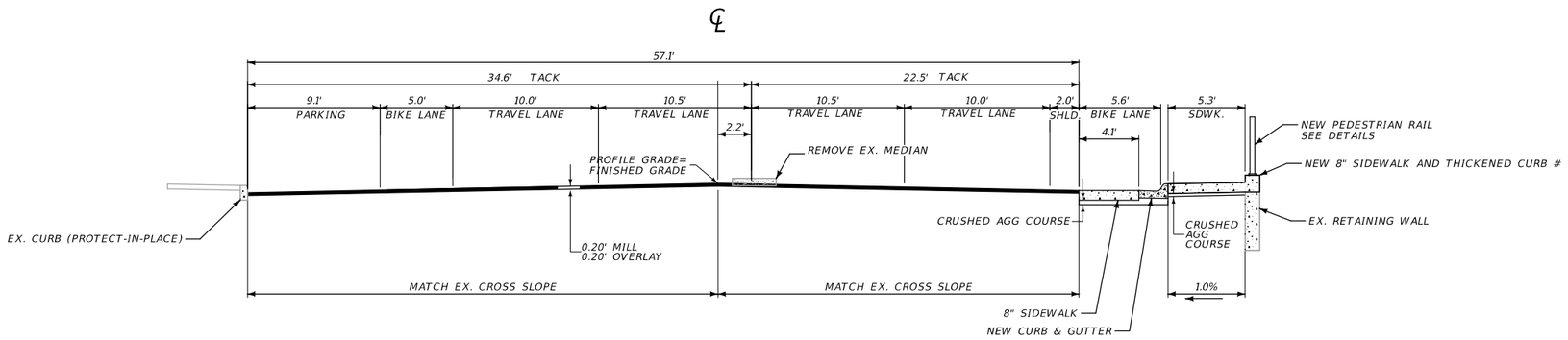
2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDTYPZ01.dgn	DESIGNED BY			ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
1		5/18/2020	REVIEWED BY			MISSOULA COUNTY	UPN 8807000	SHEET 7
		10:29:02 AM CCOLLINS	CHECKED BY					

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

TYPICAL SECTION NO. 7

HIGGINS AVE - NORTH BRIDGE APPROACH

115+02.23	ONLY	TYP. NO. 7
115+02.23	TO 115+15.75	TRANS. TYP. NO. 7 TO TYP. NO. 8



SURFACING QUANTITIES BASED ON PLAN VIEW AREA.
SEE PLAN SHEETS FOR LIMITS.

END THICKENED CURB AT STA. 115+15.59.

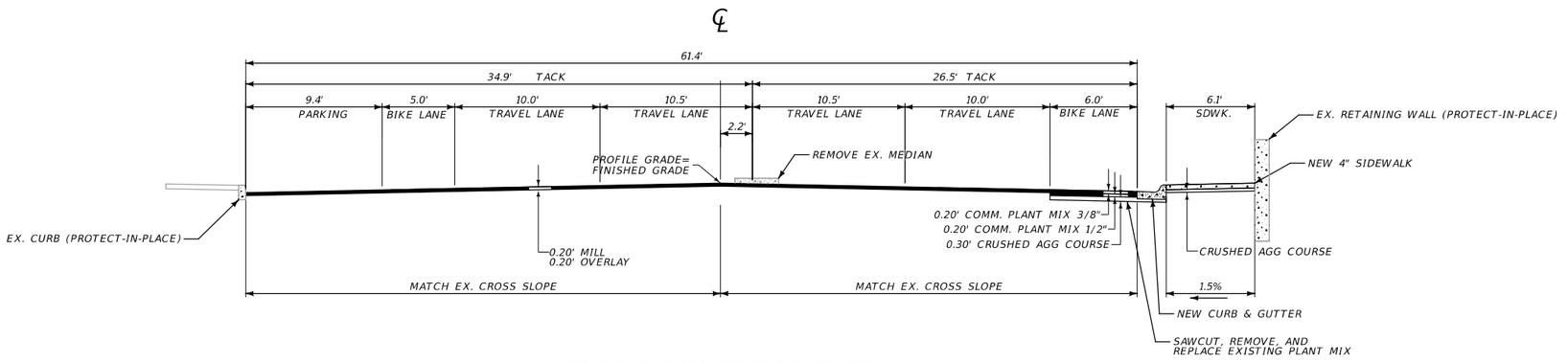
* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
20' - 30'	3:1
OVER 30'	2:1

* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
10' - 15'	3:1
15' - 20'	2:1
OVER 20'	1.5:1

TYPICAL SECTION NO. 8

HIGGINS AVE - NORTH BRIDGE APPROACH

115+15.75	ONLY	TYP. NO. 8
115+15.75	TO 115+47.28	TRANS. TYP. NO. 8 TO TYP. NO. 9



SURFACING QUANTITIES BASED ON PLAN VIEW AREA.
SEE PLAN SHEETS FOR LIMITS.

* BEGIN NEW PATTERNED & COLORED SIDEWALK AT STA. 115+45.53.

HDR

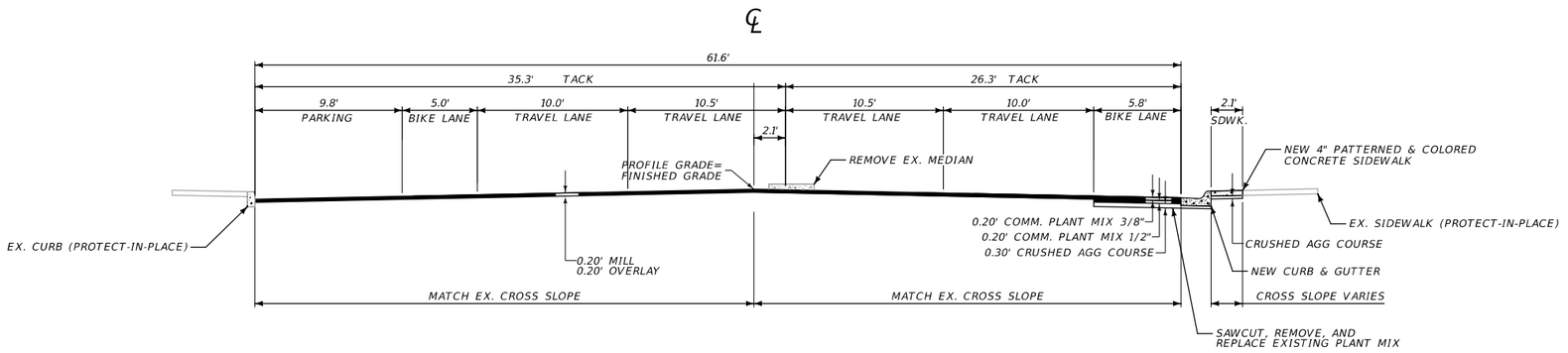
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDTYPZ02.DGN	DESIGNED BY			HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
2		5/18/2020	REVIEWED BY		ROAD PLANS		UPN 8807000 SHEET 8
		10:29:09 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY		

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

TYPICAL SECTION NO. 9

HIGGINS AVE - NORTH BRIDGE APPROACH

115+47.28	ONLY	TYP. NO. 9
115+47.28	TO 115+63.90	TRANS. TYP. NO. 9 TO TYP. NO. 10



SURFACING QUANTITIES BASED ON PLAN VIEW AREA.
SEE PLAN SHEETS FOR LIMITS.

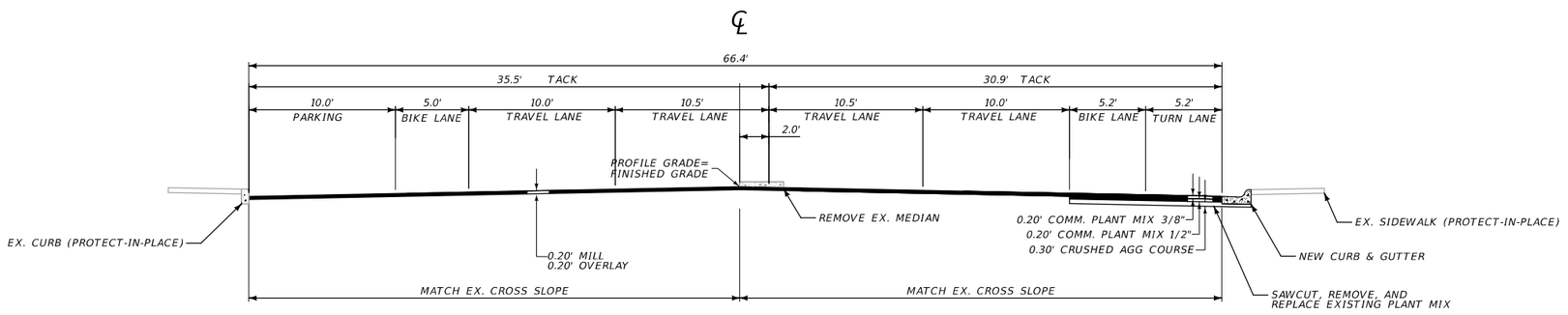
* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
20' - 30'	3:1
OVER 30'	2:1

* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
10' - 15'	3:1
15' - 20'	2:1
OVER 20'	1.5:1

TYPICAL SECTION NO. 10

HIGGINS AVE - NORTH BRIDGE APPROACH

115+63.90	ONLY	TYP. NO. 10, THEN TYP. NO. 11



SURFACING QUANTITIES BASED ON PLAN VIEW AREA.
SEE PLAN SHEETS FOR LIMITS.

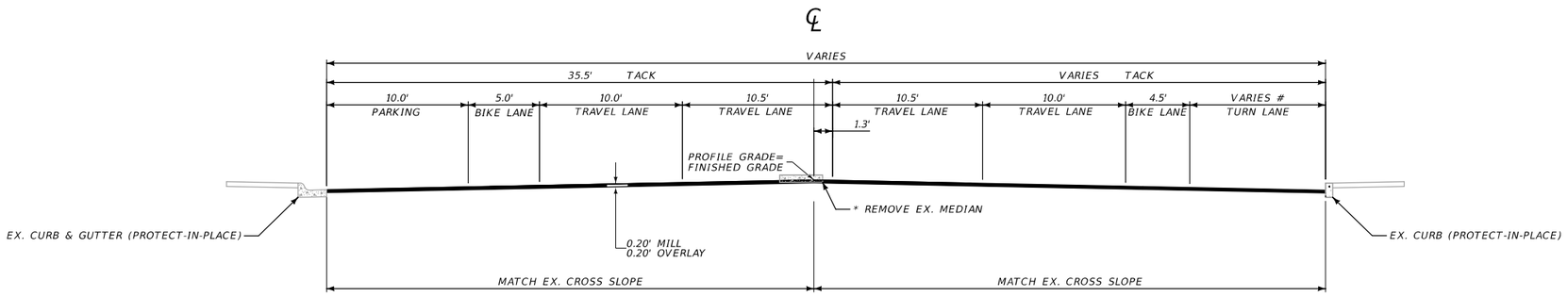
HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

TYPICAL SECTION NO. 11

HIGGINS AVE - NORTH BRIDGE APPROACH

115+63.90	TO	116+76.50	TYP. NO. 11
116+76.50		ONLY	END PROJECT - MATCH EXISTING



SURFACING QUANTITIES BASED ON PLAN VIEW AREA.
SEE PLAN SHEETS FOR LIMITS.

* END REMOVE EXISTING MEDIAN AT STA. 116+75.62.

RIGHT TURN LANE VARIES:
5.2' TO 11.3' (STA. 115+63.90 TO 115+82.98)
11.3' TO 9.7' (STA. 115+82.98 STA. 116+76.50)

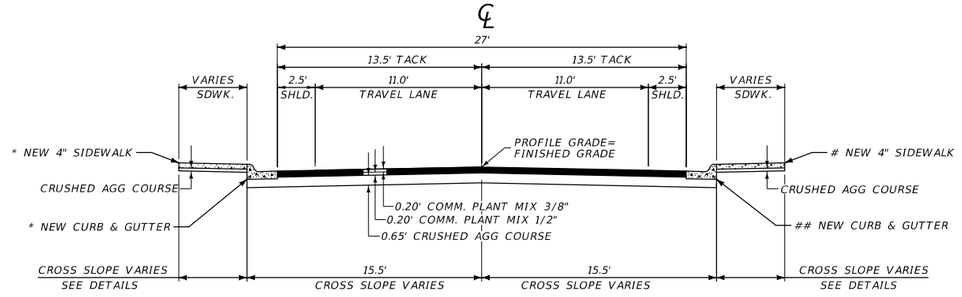
* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
20' - 30'	3:1
OVER 30'	2:1

* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
10' - 15'	3:1
15' - 20'	2:1
OVER 20'	1.5:1

TYPICAL SECTION NO. 12

S 3RD ST W

11+00.00	TO	11+74.92	TYP. NO. 12



SURFACING QUANTITIES BASED ON PLAN VIEW AREA.
SEE PLAN SHEETS FOR LIMITS.

* NEW CURB, GUTTER, & SIDEWALK
STA. 11+14.48 TO 11+77.57

NEW THICKENED EDGE SIDEWALK
STA. 11+36.05 TO 11+63.33

NEW BLVD. WITH VARIABLE WIDTH
STA. 11+20.28 TO 11+52.00

NEW 4" COLORED SIDEWALK ENDS AT STA. 11+69.58.

NEW CURB & GUTTER ENDS AT STA. 11+72.59

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

SUMMARY

GRADING

STATION		cubic yards			REMARKS
		STREET EXC.	EMB.+	UNCL. BORROW	
FROM	TO				
102+30.00	104+00.00	44		60	HIGGINS AVE - SOUTH APPROACH - PAVEMENT REPLACEMENT - RT
102+99.00	104+00.00	85		60	HIGGINS AVE - SOUTH APPROACH - PAVEMENT REPLACEMENT - LT
104+00.00	105+20.54 (BE)	319		42	HIGGINS AVE - SOUTH APPROACH - RECONSTRUCTION
114+93.64 (BE)	115+63.90	16		1	HIGGINS AVE - NORTH APPROACH - PAVEMENT REPLACEMENT - RT
11+00.00	11+74.92	92			S 3RD ST W RECONSTRUCTION
TOTAL		556	~	163	

NOTE: DISPOSE OF UNSUITABLE MATERIAL IN AN APPROPRIATE LANDFILL.

MISCELLANEOUS ITEMS - REMOVAL

STATION		lump sum	REMARKS
		REMOVE STRUCTURE	
FROM	TO		
111+22.03	111+50.00	0.5	EXISTING PEDESTIRAN STAIRWAY - RT
113+19.07	113+56.96	0.5	EXISTING PEDESTRIAN STAIRWAY - LT
TOTAL		1	

SEE LANDSCAPING DETAILS

SURFACING

STATION		linear feet				FOR	AGGREGATE			BITUMINOUS MATERIAL	square yards	REMARKS
							tons		cubic yards	gals		
		GROSS	NET	+	-		COMM. PL MIX 3/8" PG 70-28	COMM. PL MIX 1/2" PG 70-28	CRUSHED AGG. COURSE	EMULSIFIED ASPHALT TACK	AGG. TREAT.	
FROM	TO											
102+30.00	102+99.00	69.00	69.00			HIGGINS AVE	57	4	3	13 **	26	TRANS. TYP. NO. 1 TO TYP. NO. 2
102+99.00	103+61.78	62.78	62.78			HIGGINS AVE	55	10	6	15 **		TRANS. TYP. NO. 2 TO TYP. NO. 3
103+61.78	104+00.00	38.22	38.22			HIGGINS AVE	34	8	5	9 **	118	TRANS. TYP. NO. 3 TO TYP. NO. 4
104+00.00	105+20.54 (BE)	120.54	120.54			HIGGINS AVE	87	174	165	51 ***	713	TRANS. TYP. NO. 4 TO TYP. NO. 5
105+20.54 (BE)	114+93.64 (BE)	973.10			973.10	HIGGINS AVE						HIGGINS AVE BRIDGE
114+93.64 (BE)	115+02.23	8.59	8.59			HIGGINS AVE	6			2 *		TRANS. TYP. NO. 6 TO TYP. NO. 7
115+02.23	115+15.75	13.52	13.52			HIGGINS AVE	12			3 *		TRANS. TYP. NO. 7 TO TYP. NO. 8
115+15.75	115+47.28	31.53	31.53			HIGGINS AVE	28	2	2	7 **	36	TRANS. TYP. NO. 8 TO TYP. NO. 9
115+47.28	115+63.90	16.62	16.62			HIGGINS AVE	16	2	1	5 **		TRANS. TYP. NO. 9 TO TYP. NO. 10
115+63.90	116+76.50	112.60	112.60			HIGGINS AVE	114			23 *		TRANS. TYP. NO. 10 TO TYP. NO. 11
						ADDITIONAL SURFACING	589	35	73	122	303	
TOTAL		1,446.50	473.40		973.10		998	235	255	250	1,196	

QUANTITIES CALCULATED USING PLAN VIEW CADD AREA
* QUANTITY BASED ON ONE APPLICATION
** QUANTITY BASED ON ONE APPLICATION FOR MILL & FILL AREAS AND TWO APPLICATIONS FOR PAVEMENT REPLACEMENT AREAS ADJACENT TO NEW CURB AND GUTTER
*** QUANTITY BASED ON THREE APPLICATIONS

ADDITIONAL SURFACING (INCLUDED IN SURFACING FRAME)

STATION		linear feet				FOR	AGGREGATE			BITUMINOUS MATERIAL	square yards	REMARKS
							tons		cubic yards	tons		
		GROSS	NET	+	-		COMM. PL MIX 3/8" PG 70-28	COMM. PL MIX 1/2" PG 70-28	CRUSHED AGG. COURSE	EMULSIFIED ASPHALT TACK*	AGG. TREAT.	
FROM	TO											
11+00.00	11+74.92	74.92	74.92			S 3RD ST W	35	35	73	14	303	TYP. NO. 12 (INCL. FILLETS)
111+50.95	114+92.76	341.81	341.81			CARAS PARK PAVEMENT REPLACEMENT	554			108		SEE LANDSCAPE DETAILS
SUBTOTAL		~	~	~	~		589	35	73	122	303	

QUANTITIES CALCULATED USING PLAN VIEW CADD AREA
* QUANTITY BASED ON TWO APPLICATIONS

COLD MILLING

STATION		square yards	REMARKS
		COLD MILLING	
FROM	TO	0.2 ft	
102+30.00	104+00.00	931	HIGGINS AVE - SOUTH APPROACH
114+93.64 (BE)	116+76.50	1,324	HIGGINS AVE - NORTH APPROACH
TOTAL		2,255	

NOTE: QUANTITIES ARE CALCULATED BY SURFACE SECTION IN DESIGN FILE
SEE PLAN SHEETS FOR MILLING LIMITS

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

SUMMARY

PEDESTRIAN RAIL

STATION		linear feet				REMARKS
		PEDESTRIAN RAIL		# REMOVE EXISTING PEDESTRIAN RAIL		
FROM	TO	LEFT	RIGHT	LEFT	RIGHT	
104+16.90	105+20.04		98.8			HIGGINS AVE
114+93.93	115+15.08		21.4			HIGGINS AVE
11+36.32	11+63.70	63.3		54.5		S 3RD ST W
SUBTOTAL		63.3	120.2	~	~	
TOTAL		183.5		~		

FOR INFORMATION ONLY - SEE DEMOLITION DETAIL, INCLUDE IN THE COST OF PEDESTRIAN RAIL

BOLLARDS

STATION	each		REMARKS
	REMOVABLE BOLLARD *	BOLLARD *	
105+17.00	1		30.66' LT, HIGGINS AVE - S 3RD ST W INTERSECTION, NW CORNER - SEE DETAIL
113+60.00		1	26.34' RT, CAROUSEL DR.
TOTAL	1	1	

*INCLUDE COST OF FOUNDATION CONCRETE

BITUMINOUS PAVEMENT REMOVAL

STATION		square yards	REMARKS
		BITUMINOUS PAVEMENT REMOVAL	
FROM	TO		
111+50.95	114+92.76	4,304	SEE LANDSCAPE DETAILS
TOTAL		4,304	

STORM DRAIN PIPE

STATION				linear feet									cubic yards		REMARKS
				ALLOWABLE PIPE MATERIALS				STORM DRAIN PIPE					TRENCH DRAIN *	GRANULAR BEDDING MATERIAL #	TRENCH EXC. ##	
FROM		TO		RCP	CMP	PVC	HDPE	6"	8"	12"	18"	24"	6"			
102+74.60	15.10' LT	103+18.37	37.25' LT			X		52.8						10	27	TRENCH DRAIN OUTLET PIPE TO EX. MH-D-01
103+18.37	37.25' LT	104+26.14	64.05' LT										119			TRENCH DRAIN
105+84.66	22.00' LT					X			4.0							BENT 2 - CONNECTION TO BURIED PIPE
105+84.66	22.00' LT	105+84.66	41.98' RT			X			64.0					12	32	BENT 2 - BURIED PIPE TO DW-A-01
105+84.66	28.70' RT					X			5.0							BENT 2 - CONNECTION TO BURIED PIPE
111+46.30	29.00' RT					X			4.0							BENT 7 - CONNECTION TO BURIED PIPE
111+46.30	29.00' RT	111+46.30	26.50' LT			X			55.5					10	28	BENT 7 - BURIED PIPE TO MH-B-01
111+46.30	22.20' LT					X			5.0							BENT 7 - CONNECTION TO BURIED PIPE
111+46.30	26.50' LT	113+00.20	26.50' LT	X						154.0				24	150	MH-B-01 TO MH-B-02
113+00.20	29.00' RT					X			4.0							BENT 10 - CONNECTION TO BURIED PIPE
113+00.20	29.00' RT	113+00.20	26.50' LT			X			55.5					12	28	BENT 10 - BURIED PIPE TO MH-B-02
113+00.20	22.20' LT					X			5.0							BENT 10 - CONNECTION TO BURIED PIPE
113+00.20	26.50' LT	113+29.80	24.75' LT	X						30.0				5	30	MH-B-02 TO EX. 1-B-01
114+17.50	17.10' LT	114+49.60	13.50' LT	X						32.5				5	32	EX. MH-C-01 TO MH-C-02
114+49.60	29.00' LT					X			4.0							BENT 13 - CONNECTION TO BURIED PIPE
114+49.60	29.00' RT	114+49.60	13.50' LT			X			42.5					9	22	BENT 13 - BURIED PIPE TO MH-C-02
114+49.60	26.00' LT					X			4.0							BENT 13 - CONNECTION TO BURIED PIPE
114+49.60	26.00' LT	114+49.60	13.50' LT			X			12.5					3	7	BENT 13 - BURIED PIPE TO MH-C-02
114+98.02	31.19' RT					X		6.9					5		2	TRENCH DRAIN AND OUTLET PIPE
TOTAL				~	~	~	~	59.7	265.0	216.5	~	~	124	~	~	

GRANULAR BEDDING MATERIAL INCIDENTAL TO STORM DRAIN PIPE, SEE DETAILED DRAWINGS FOR BEDDING QUANTITIES AND DETAILS.
FOR INFORMATION ONLY.
* SEE DETAILS FOR BACKFILL REQUIREMENTS

DROP INLET

STATION	each		REMARKS
	ADJUST DROP INLET		
	LEFT	RIGHT	
115+64.00		1	33.56' RT, CITY OF MISSOULA
SUBTOTAL	~	1	
TOTAL	1		

MANHOLES IN PLACE

STATION	each		REMARKS
	ADJUST MANHOLE		
	LEFT	RIGHT	
102+75	1		15.09' LT, CITY OF MISSOULA - STORM DRAIN
SUBTOTAL	1	~	
TOTAL	1		

*FUNDING - 100% STATE

STORM DRAIN STRUCTURE SCHEDULE

NAME	STATION	each							vertical feet	REMARKS
		REMOVE DROP INLET	RESET DROP INLET	CONNECT TO EXISTING MANHOLE	SUMP TYPE 1 48"	STORM DRAIN STRUCTURE ROUND 48"	TOP IRON MH LID	CONCRETE APRON	ADDITIONAL BARREL 48"	
EX. MH-D-01	102+74.60 LT			1						CONNECT TO EX. MH-D-01
DW-A-01	105+84.66 RT				1					BENT 2
MH-B-01	111+46.30 LT					1	1			BENT 7
MH-B-02	113+00.20 LT					1	1			BENT 10
EX. 1-B-01	113+29.80 LT			*1						CONNECT TO EX. 1-B-01
EX. MH-C-01	114+17.50 LT			1						CONNECT TO EX. MH-C-01
MH-C-02	114+49.60 LT					1	1			BENT 13
TOTAL		~	~	3	1	3	3	~	~	

* CONNECT TO EXISTING DROP INLET - PAID FOR AS CONNECT TO EXISTING MANHOLE

TELEPHONE MANHOLES IN PLACE

STATION	each		REMARKS
	ADJUST MANHOLE		
	LEFT	RIGHT	
115+42	1		22.92' LT, TELEPHONE - CENTURY LINK
115+50		1	23.50' RT, TELEPHONE - CENTURY LINK
11+37		1	12.35' RT, TELEPHONE - CENTURY LINK, S 3RD ST W
SUBTOTAL	1	2	
TOTAL	3		

*FUNDING - 75% STATE, 25% UTILITY

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

SUMMARY

MEDIAN CONCRETE CURB

STATION		linear feet	REMARKS
		REMOVE MEDIAN CURB	
FROM	TO		
102+38.54	105+20.54 (BE)	566.1	HIGGINS AVE - SOUTH APPROACH, INCLUDES 62 SY OF CONCRETE REMOVAL BETWEEN CURBS
114+93.64 (BE)	116+75.62	412.9	HIGGINS AVE - NORTH APPROACH, INCLUDES 46 SY OF CONCRETE REMOVAL BETWEEN CURBS
11+50.52	11+71.80	155.0	S 3RD ST W, INCLUDES 85 SY OF CONCRETE REMOVAL BETWEEN CURBS
TOTAL		1,134.0	

SIDEWALK

STATION		square yards										linear feet	REMARKS
		CONCRETE SIDEWALK						DETECTABLE WARNING DEVICES		# REMOVE SIDEWALK		WIDTH	
		4"		4" COLORED		8"		TYPE 1					
FROM	TO	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT		
102+41.92	103+60.83		94.1								76.6	5.0/7.0	WIDTH VARIES - SEE DETAIL
102+99.00	104+14.07			193.6						99.8		0/36.5	WIDTH VARIES - SEE DETAIL - 4" COLORED W/4' JOINTS
103+60.83	105+20.04						167.5				74.7	6.0/15.8	WIDTH VARIES - SEE DETAIL
104+90.04	105+20.04					51.0				37.7		5.0/12.6	WIDTH VARIES - SEE DETAIL - NW CORNER S 3RD ST W/HIGGINS AVE
114+93.64	115+45.53										25.4	VARIES	WIDTH VARIES - SEE DETAIL
114+93.93	115+15.59						26.0					3.8/11.4	WIDTH VARIES - SEE DETAIL
115+15.59	115+46.37		21.4									6.1/6.6	WIDTH VARIES - SEE DETAIL
115+45.53	115+63.90				3.2							0/2.7	WIDTH VARIES - SEE DETAIL - 4" COLORED AND PATTERNED
11+00.00	11+69.58				131.6				1.8		41.0	0/24.8	WIDTH VARIES, SW CORNER S 3RD ST W/HIGGINS AVE - SEE DETAIL - 4" COLORED W/4' JOINTS
11+10.70	11+74.83									98.1		VARIES	WIDTH VARIES, NW CORNER S 3RD ST W/HIGGINS AVE - SEE DETAIL
11+14.48	11+75.79	144.6						2.9				VARIES	WIDTH VARIES, NW CORNER S 3RD ST W/HIGGINS AVE - SEE DETAIL
SUBTOTAL		144.6	115.5	193.6	134.8	51.0	193.5	2.9	1.8	~	~	~	
TOTAL		260.1		328.4		244.5		4.7		~		~	

FOR INFORMATION ONLY - INCLUDE IN THE COST OF CONCRETE SIDEWALK

CURB

STATION		linear feet						square yards		REMARKS
		CONCRETE CURB AND GUTTER		# REMOVE CURB AND GUTTER		CURB - SPECIAL DESIGN		## CONCRETE VALLEY GUTTER		
FROM	TO	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	
102+30.00	105+20.04		279.8							INCL. 693.5', 26' (2 TOTAL), & 689.5' RADIUS
102+30.00	105+20.54				278.9					
102+99.00	104+15.96	123.3								INCL. 755.5', 40.5', 5', & 748.25' RADIUS, ENDING AT S 3RD ST W. CURB RETURN
102+99.00	104+89.00			132.0						
103+18.88	104+13.46					106.3				INCL. 5.5' & 20.5' RADIUS, SEE CURB & GUTTER COORDINATE DETAILS
104+87.20	104+91.04	4.0								STARTING AT S 3RD ST W. CURB RETURN, INCL. 743.5' RADIUS
104+91.04	105+20.04					29.3				SEE MODIFIED CURB DETAIL
105+01.58	105+20.54			18.7						
114+93.64	115+63.90				70.4					
114+98.27	115+63.90		66.3							INCL. 10' (2 TOTAL) RADIUS
11+00.00	11+25.42				28.2					S 3RD ST W
11+00.00	11+72.59		78.0							S 3RD ST W, INCL. 9', 5', 34.5', & 20' RADIUS, ENDING AT S 3RD ST W. CURB RETURN
11+10.70	11+73.18			98.0						S 3RD S W
11+14.48	11+77.57	97.9						15.5		S 3RD ST W, INCL. 52', 20', 65.5', & 25' RADIUS, ENDING AT S 3RD ST W. CURB RETURN
SUBTOTAL		225.2	424.1	248.7	377.5	135.6	~	15.5	~	
TOTAL		649.3		~		135.6		15.5		

FOR INFORMATION ONLY - INCLUDE IN THE COST OF CONCRETE CURB AND GUTTER
FOR NEW CONCRETE CURB RETURN FILLET - SEE S 3RD ST. W CURB & GUTTER COORDINATE DETAIL

MISCELLANEOUS ITEMS - LNFT

STATION		linear feet		REMARKS
		DIRECTIONAL WARNING DEVICES		
FROM	TO	LEFT	RIGHT	
105+16.00	105+39.34	26.0		HIGGINS AVE
105+16.04	105+38.25		24.5	HIGGINS AVE
113+63.20	113+86.23	25.7		HIGGINS AVE
114+76.94	114+97.77		23.1	HIGGINS AVE
SUBTOTAL		51.7	47.6	
TOTAL		99.3		

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

SUMMARY

LANDSCAPING

STATION		lump sum	REMARKS
		LANDSCAPING	
FROM	TO		
102+30.00	105+20.54	0.5	S 3RD ST W & HIGGINS AVE BOULEVARD
111+15.52	113+61.08	0.5	HIGGINS AVE BRIDGE, CARAS PARK
TOTAL		1	

SEE LANDSCAPING DETAILS

MISCELLANEOUS ITEMS - EACH

STATION		each	REMARKS
		TEMPORARY PEDESTRIAN RAILING	
FROM	TO		
105+20.54	114+93.64	1	HIGGINS AVE BR. - PHASE I
105+20.54	114+93.64	1	HIGGINS AVE BR. - PHASE II
TOTAL		2	

SEE CONSTRUCTION PHASING DETAILS

REVEGETATION

STATION		lump sum	REMARKS
		REVEGETATION	
FROM	TO		
103+34.63	105+20.04	0.5	HIGGINS AVE - RT
105+03.14	105+20.04	0.5	HIGGINS AVE - LT
TOTAL		1	

SEE LANDSCAPING DETAIL

PEDESTRIAN STAIRWAY - STEEL

STATION	lump sum	REMARKS
	PEDESTRIAN STAIR STEEL	
113+15.88	1	HIGGINS AVE - LT
TOTAL	1	

GUARDRAIL

STATION		linear feet		each		REMARKS
		REMOVE GUARDRAIL		IMPACT ATTENUATOR 3 BAY*		
FROM	TO	LEFT	RIGHT	LEFT	RIGHT	
103+90.70	105+19.94		129.2			HIGGINS AVE - SOUTH APPROACH - RT
103+99.29	104+12.73				1	HIGGINS AVE - SOUTH APPROACH - RT
105+09.21	105+19.27	10.1				HIGGINS AVE - SOUTH APPROACH - LT
113+86.23	113+99.30			1		HIGGINS AVE - NORTH APPROACH - LT
114+94.04	115+14.99		20.9			HIGGINS AVE - NORTH APPROACH - RT
SUBTOTAL		10.1	150.1	1	1	
TOTAL		160.2		2		

* SEE BRIDGE PLAN FOR BRIDGE RAIL QUANTITIES AND ADDITIONAL INFORMATION

TEMPORARY GUARDRAIL

STATION		linear feet		each		REMARKS
		TEMPORARY CONCRETE BARRIER RAIL	RESET TEMPORARY CONCRETE BARRIER RAIL	TEMPORARY IMPACT ATTENUATOR	RESET TEMPORARY IMPACT ATTENUATOR	
FROM	TO					
105+20.54	114+93.64	980		2		HIGGINS AVE BR. - PHASE I
105+20.54	114+93.64		980		2	HIGGINS AVE BR. - PHASE II
TOTAL		980	980	2	2	

SEE CONSTRUCTION PHASING DETAILS

PAVEMENT MARKINGS

ITEM	UNIT	INTERIM APPLICATION	FINAL APPLICATION *	TOTAL
STRIPING - WHITE PAINT	gallon	25		25
STRIPING - YELLOW PAINT	gallon	11		11
WORDS & SYMBOLS - WHITE PAINT	gallon	29		29
STRIPING - WHITE EPOXY	gallon		34	34
STRIPING - YELLOW EPOXY	gallon		15	15
WORDS & SYMBOLS - WHITE EPOXY	gallon		5	5
WORDS & SYMBOLS - GREEN EPOXY	gallon		6	6
TEMPORARY STRIPING	linear feet			1,446.5

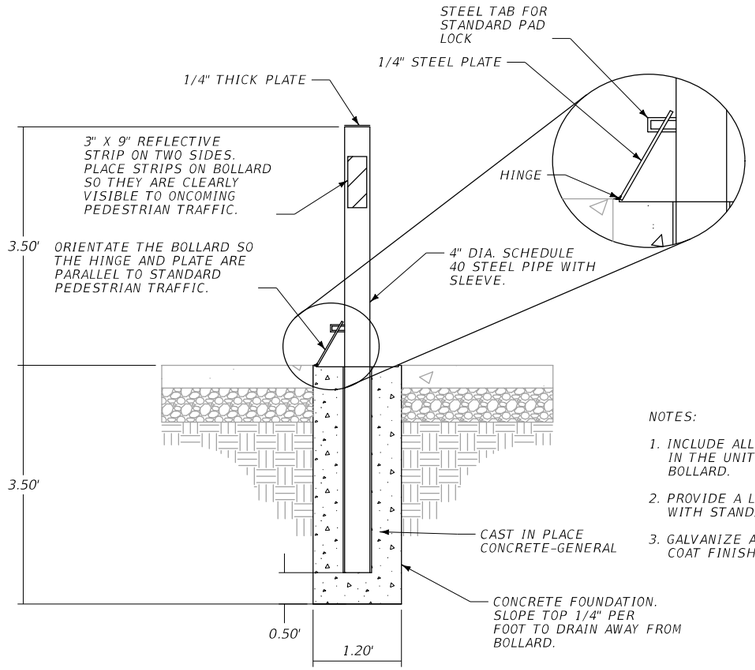
* PAVEMENT MARKING REMOVAL INCLUDED WITH FINAL EPOXY APPLICATION COST.

TEMPORARY PEDESTRIAN PROTECTION

STATION		linear feet	REMARKS
		TEMPORARY PEDESTRIAN PROTECTION	
FROM	TO		
113+60.00	113+85.00	300.0	SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION
TOTAL		300.0	

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

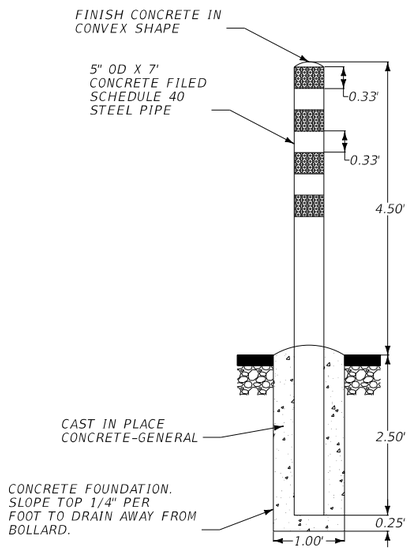


NOTES:

1. INCLUDE ALL WORK SHOWN IN DETAIL IN THE UNIT PRICE BID FOR REMOVABLE BOLLARD.
2. PROVIDE A LOCK SYSTEM COMPATIBLE WITH STANDARD PAD LOCKS.
3. GALVANIZE AND APPLY BLACK POWDER COAT FINISH ON UPPER 42".

REMOVABLE BOLLARD DETAIL

105+17.00, 30.66' LT

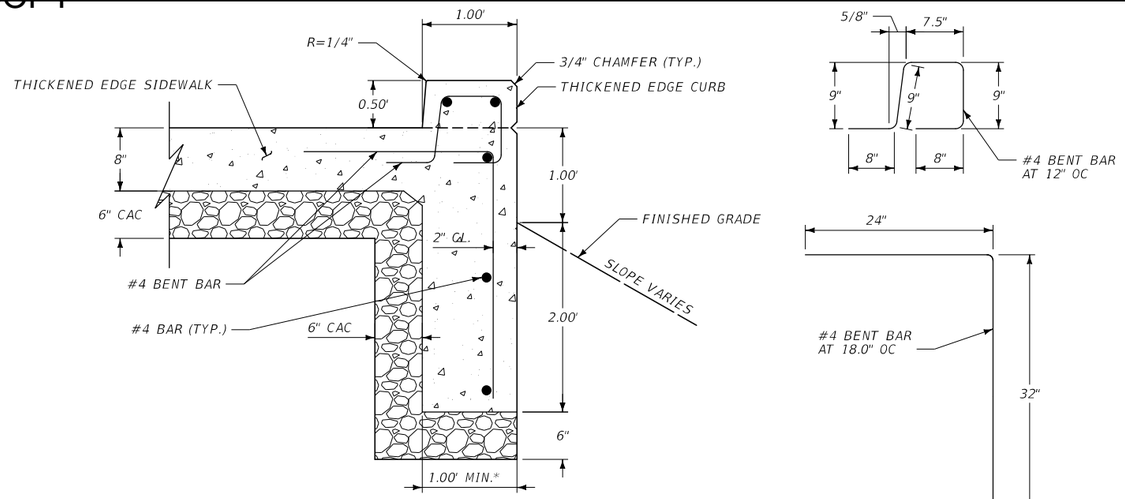


NOTES:

1. BOLLARDS SHALL BE PAINTED WITH AT LEAST ONE PRIME COAT OF RED OXIDE PAINT AND FINISHED WITH A MINIMUM OF 2 COATS DULL BLACK ENAMEL, OTHER COLORS MAY BE USED WITH PRIOR APPROVAL FROM PROJECT MANAGER, STRIPES CONSIST OF 4", WHITE, TYPE 1, RETROREFLECTIVE TAPE 4" APART.
2. PRIOR TO CONSTRUCTION, VERIFY THE BOLLARD LOCATION TO AVOID IMPACTS TO ADJACENT LANSCAPING AND UTILITIES.
3. PAINT FINISH, RETROREFLECTIVE TAPE AND CONCRETE ARE ALL TO BE INCLUDED IN THE UNIT BID PRICE FOR – BOLLARD

BOLLARD DETAIL

113+60.00, 26.34' RT



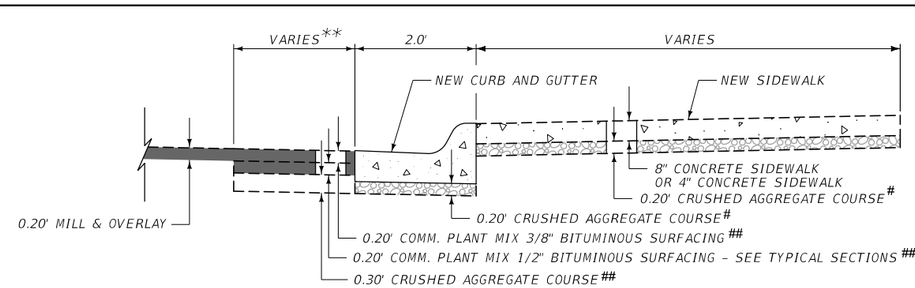
THICKENED EDGE SIDEWALK DETAIL

105+02.11 TO 105+07.67 LT (NW CORNER S 3RD ST W/HIGGINS AVE)
104+16.40 TO 105+20.04 RT (HIGGINS AVE)

NOTES:

INCLUDE ALL WORK SHOWN IN DETAIL IN THE UNIT PRICE BID FOR 8" SIDEWALK. SEE CURB AND GUTTER COORDINATE DETAILS FOR ADDITIONAL INFORMATION.

* WIDEN AS NEEDED SO THAT THE ℄ OF PEDESTRIAN POST IS 0.5' FROM EDGE OF CONCRETE.



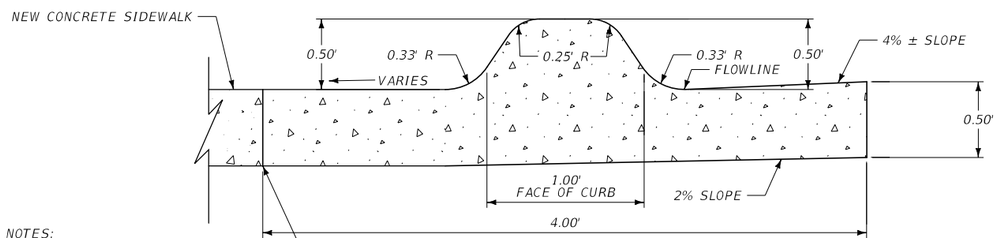
CURB, GUTTER & SIDEWALK DETAIL

NOTES:

ITEMS ARE NOT MEASURED FOR PAYMENT AND INCLUDED IN THE COST OF NEW SIDEWALK OR CURB AND GUTTER. IN AREAS WHERE FULL RECONSTRUCTION OF THE ENTIRE ROADWAY WIDTH IS PERFORMED, THE COST OF CRUSHED AGGREGATE UNDER THE CURB AND GUTTER IS MEASURED FOR PAYMENT.

MEASURED FOR PAYMENT

** WIDTH VARIES SEE CURB & GUTTER COORDINATE DETAILS



NOTES:

1. SEE DETAILED DRAWING NO. 609-05 FOR MORE INFORMATION ON CONCRETE CURB.
2. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
3. MODIFIED CURB IS PAID FOR UNDER THE UNIT COST BID FOR CURB – SPECIAL DESIGN.
4. JOINTS FOR MODIFIED CURB SHALL BE IN ACCORDANCE WITH DETAILED DRAWING NO. 609-05.

MODIFIED CURB DETAIL

104+91.04 TO 105+20.04 LT

BOLLARD, THICKENED EDGE SIDEWALK, CURB, GUTTER & SIDEWALK, & MODIFIED CURB DETAILS

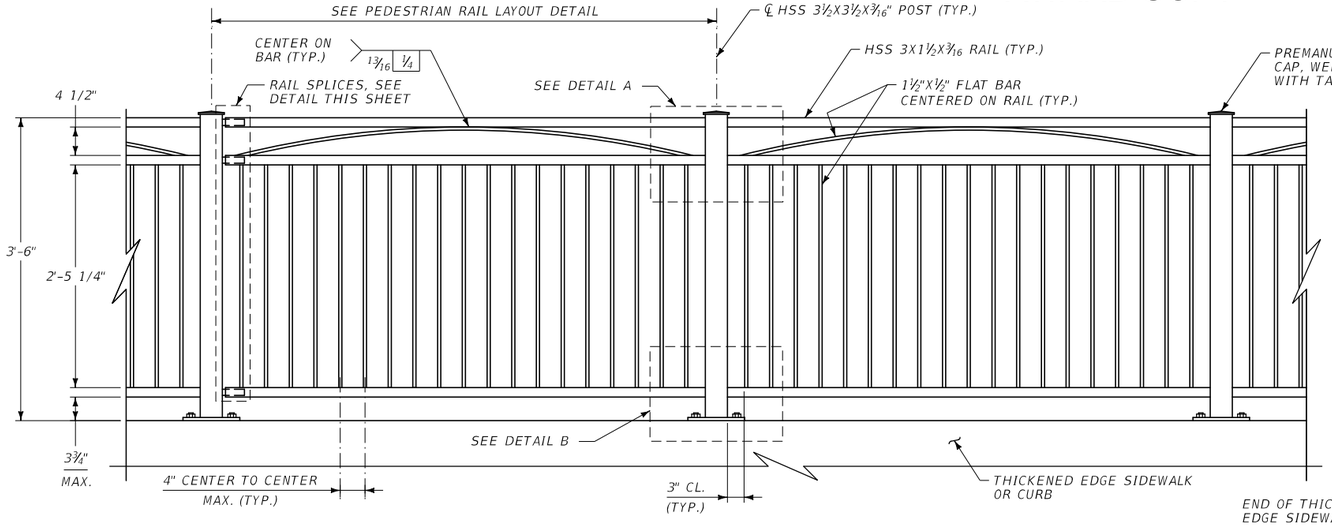
NO SCALE

HDR

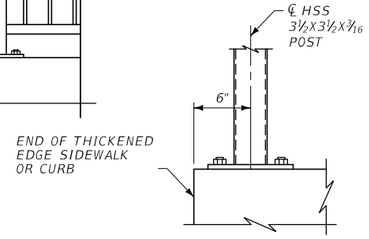
3	MDT	MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ01.dgn	DESIGNED BY			ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA / STPB 8113(9)
2			5/18/2020	REVIEWED BY				
			10:29:30 AM CCOLLINS	CHECKED BY			MISSOULA COUNTY	UPN 8807000 / SHEET 15

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



PEDESTRIAN RAIL ELEVATION



RAIL END POST DETAIL

GENERAL NOTES:

PEDESTRIAN RAIL: DESIGN, FABRICATE, & INSTALL STEEL PEDESTRIAN RAIL AS SHOWN IN THE PLANS. SEE SPECIAL PROVISIONS. INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING PEDESTRIAN RAIL, POSTS, ANCHOR BOLTS, AND ASSOCIATED HARDWARE IN THE UNIT PRICE BID FOR PEDESTRIAN RAIL.

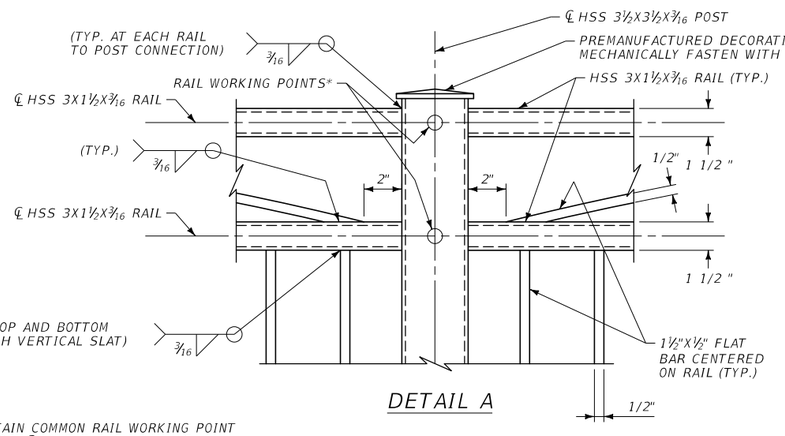
ERECTION: SET THE HORIZONTAL RAILS PARALLEL TO THE TOP OF CURB, AND SET POSTS VERTICAL (PLUMB).

STEEL FINISHES: GALVANIZE AND APPLY POWDER COAT FINISH TO PEDESTRIAN RAIL PER THE SPECIAL PROVISIONS. PROVIDE FINISH IN BLACK, FEDERAL STANDARD COLOR NUMBER 27038. GALVANIZE ANCHOR BOLTS AND HARDWARE IN ACCORDANCE WITH AASHTO M232.

SHIMS: PLACE GALVANIZED SHIMS AS NECESSARY TO ADJUST THE RAIL TO GRADE. PLACE SHIMS BETWEEN FIBER REINFORCED PAD AND THE BASE PLATE.

FIBER REINFORCED PADS: USE FIBER REINFORCED PADS MEETING THE REQUIREMENTS OF SUBSECTION 711.16. SIZE AND POSITION THE PADS SO THAT NOT LESS THAN ½" OF THE PAD PROTRUDES ON ALL SIDES OF THE BASE PLATE. PROVIDE ROUND HOLES IN THE PADS TO MATCH THE BASE PLATE.

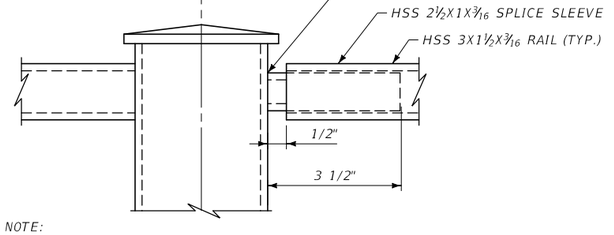
FINISHING: FINISH THE TOP OF CURB UNDER EACH RAIL POST TO A SMOOTH AND UNIFORM SURFACE TO ASSURE A PROPER ALIGNMENT OF THE POST AND A TIGHT FIT BETWEEN THE FIBER REINFORCED PAD AND CONCRETE. BUSH HAMMERING IS ACCEPTABLE ONLY TO REMOVE HIGH SPOTS.



NOTE:

* MAINTAIN COMMON RAIL WORKING POINT AT POST ℄. ANGLE EACH RAIL AS NEEDED TO MAINTAIN HORIZONTAL OR CHORDED POSITION.

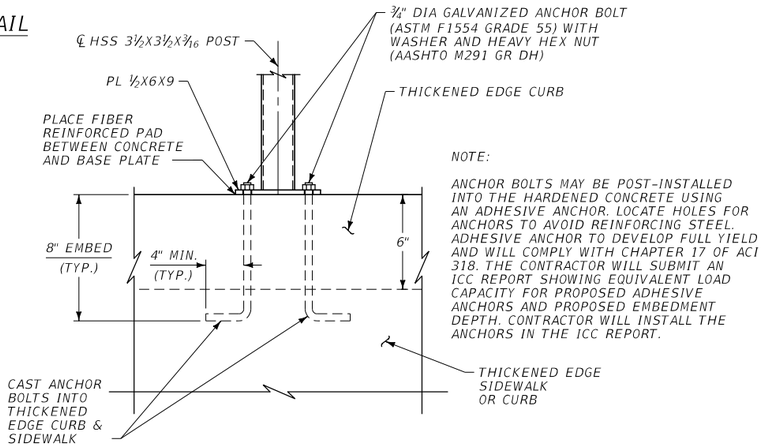
DETAIL A



NOTE:

LOCATE RAIL SPLICES AT 30.0' MAXIMUM INTERVALS.

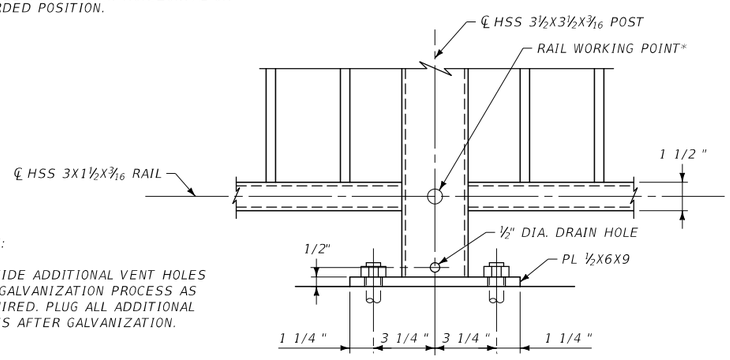
TYPICAL RAIL SPLICE DETAIL



NOTE:

ANCHOR BOLTS MAY BE POST-INSTALLED INTO THE HARDENED CONCRETE USING AN ADHESIVE ANCHOR. LOCATE HOLES FOR ANCHORS TO AVOID REINFORCING STEEL. ADHESIVE ANCHOR TO DEVELOP FULL YIELD AND WILL COMPLY WITH CHAPTER 17 OF ACI 318. THE CONTRACTOR WILL SUBMIT AN ICC REPORT SHOWING EQUIVALENT LOAD CAPACITY FOR PROPOSED ADHESIVE ANCHORS AND PROPOSED EMBEDMENT DEPTH. CONTRACTOR WILL INSTALL THE ANCHORS IN THE ICC REPORT.

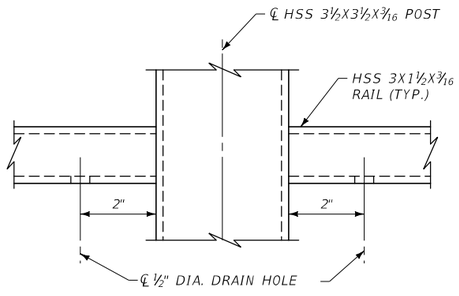
POST ANCHORAGE INTO SIDEWALK



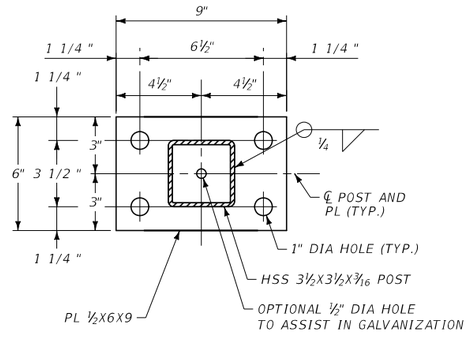
NOTE:

PROVIDE ADDITIONAL VENT HOLES FOR GALVANIZATION PROCESS AS REQUIRED. PLUG ALL ADDITIONAL HOLES AFTER GALVANIZATION.

DETAIL B



TYPICAL RAIL DRAIN HOLE DETAIL



BASE PLATE DETAIL

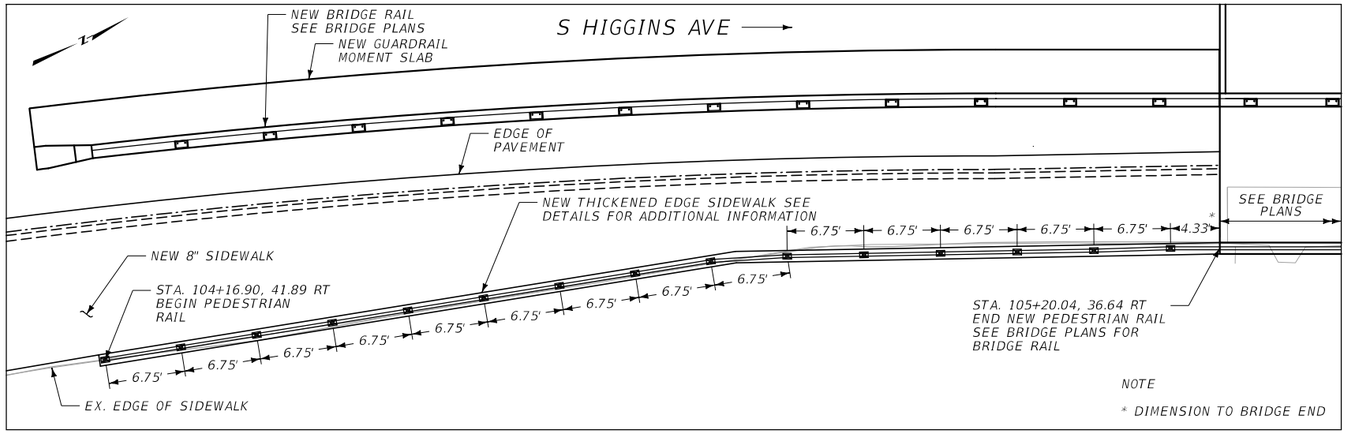
PEDESTRIAN RAIL DETAILS

NO SCALE

HDR

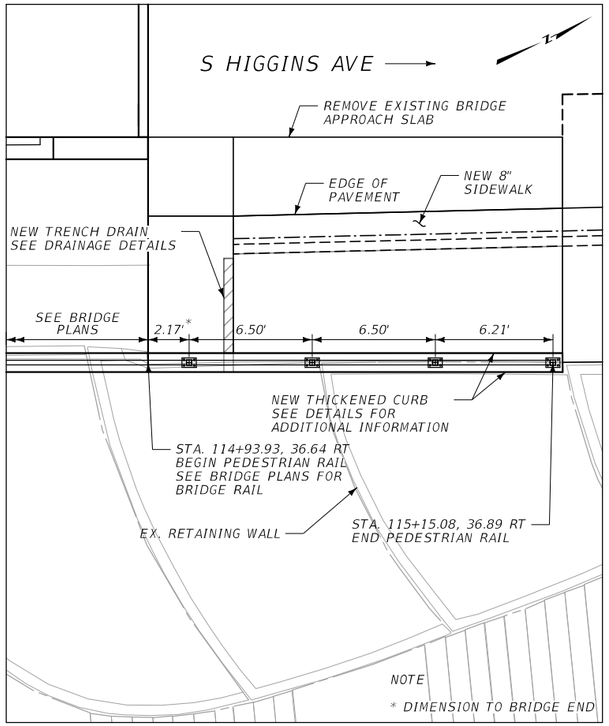
3 / 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ01.dgn 5/18/2020 10:29:32 AM CCOLLINS	DESIGNED BY REVIEWED BY CHECKED BY		ROAD PLANS MISSOULA COUNTY		HIGGINS AVE. BR REHAB – MISSOULA UPN 8807000	STPB 8113(9) SHEET 16

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086



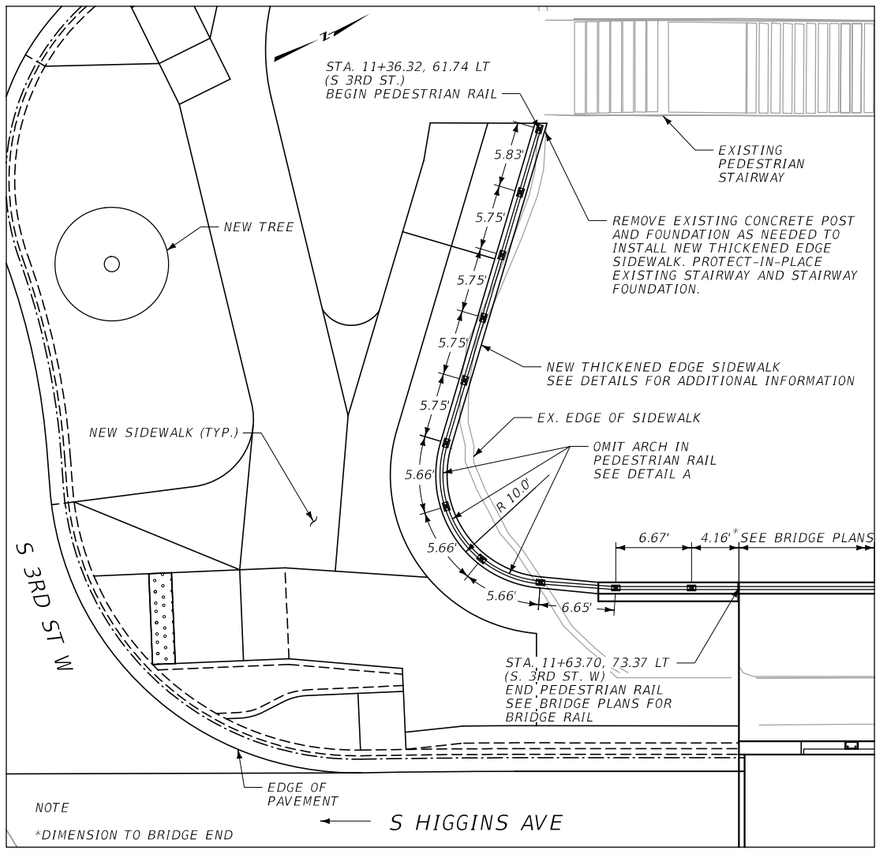
PEDESTRIAN RAIL

STA. 104+16.90 TO STA. 105+20.04 RT



PEDESTRIAN RAIL

STA. 114+93.93 TO STA. 115+15.08 RT



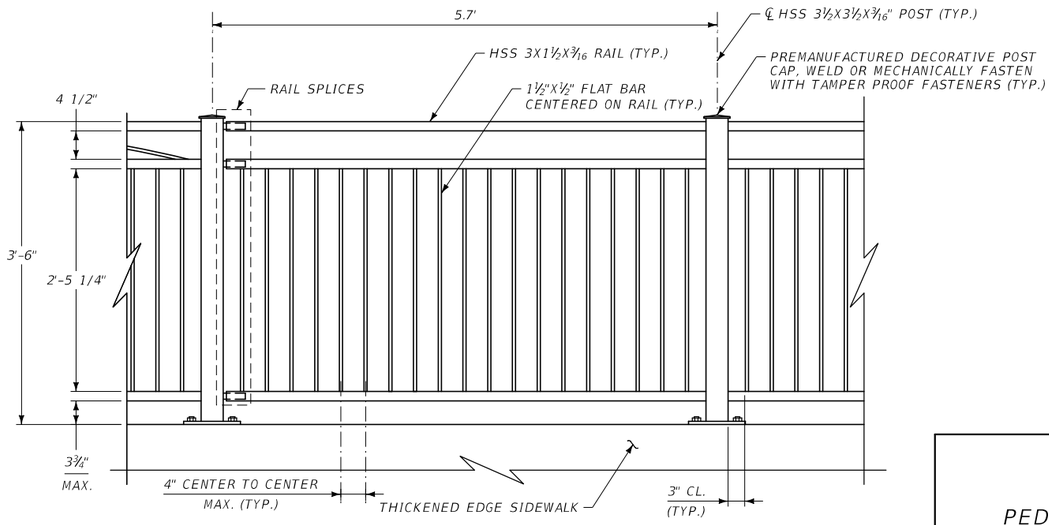
PEDESTRIAN RAIL

STA. 11+36.32 TO STA. 11+63.70 LT (S 3RD ST W)

GENERAL NOTES:

SEE BRIDGE PLANS FOR ADDITIONAL PEDESTRIAN RAIL INFORMATION AND STATION LIMITS OF THE PEDESTRIAN RAIL ON THE BRIDGE.

ALL DIMENSIONS, STATIONS, AND OFFSETS ARE TO CENTER OF POST UNLESS OTHERWISE NOTED.



DETAIL A

PEDESTRIAN RAIL LAYOUT DETAILS

NO SCALE

HDR

2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ01.dgn	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
1		5/18/2020	REVIEWED BY				
		10:29:33 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	SHEET 17

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

ASPHALT MILLING/PAVING AREA

ROADWAY RECONSTRUCTION

CURB & GUTTER REMOVAL

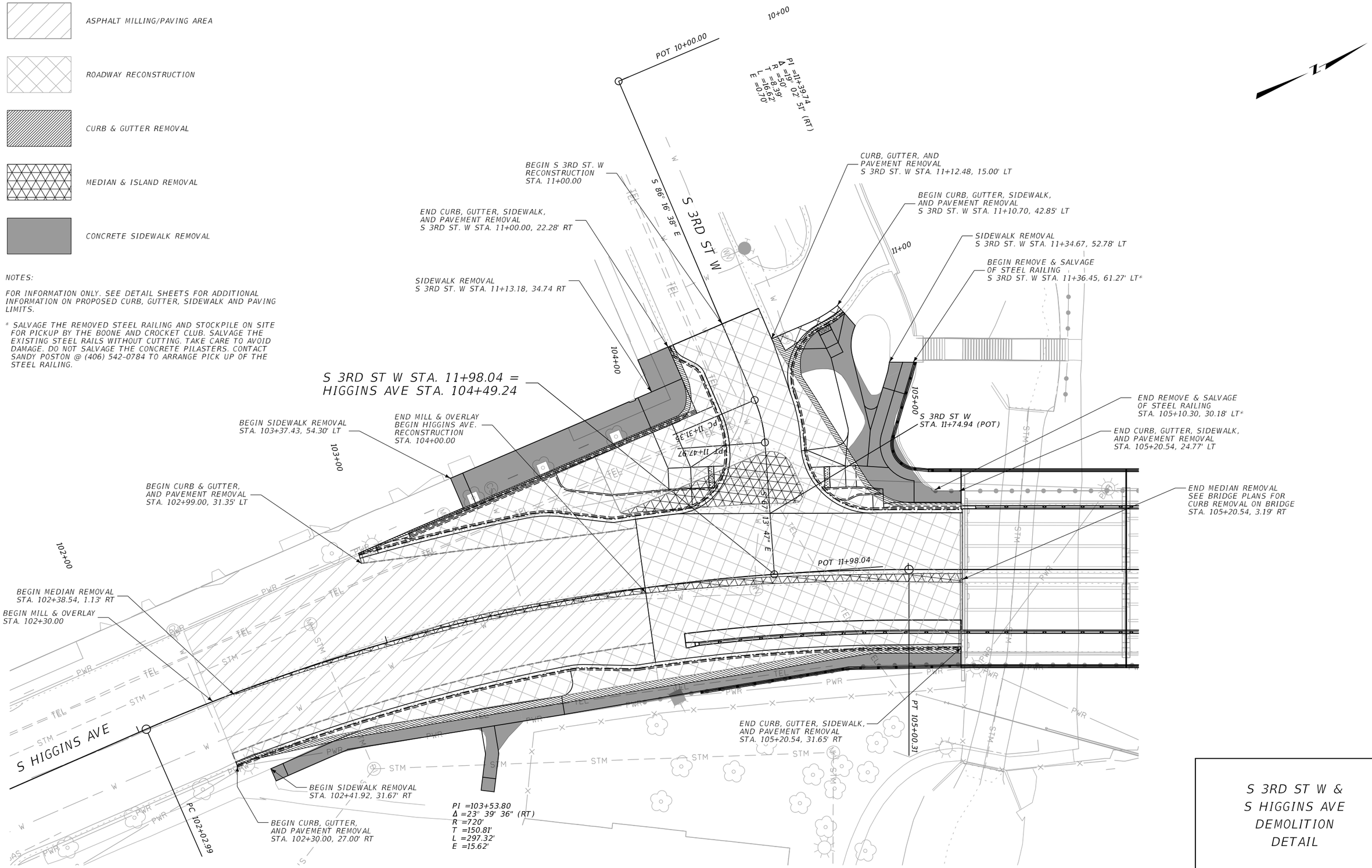
MEDIAN & ISLAND REMOVAL

CONCRETE SIDEWALK REMOVAL

NOTES:

FOR INFORMATION ONLY. SEE DETAIL SHEETS FOR ADDITIONAL INFORMATION ON PROPOSED CURB, GUTTER, SIDEWALK AND PAVING LIMITS.

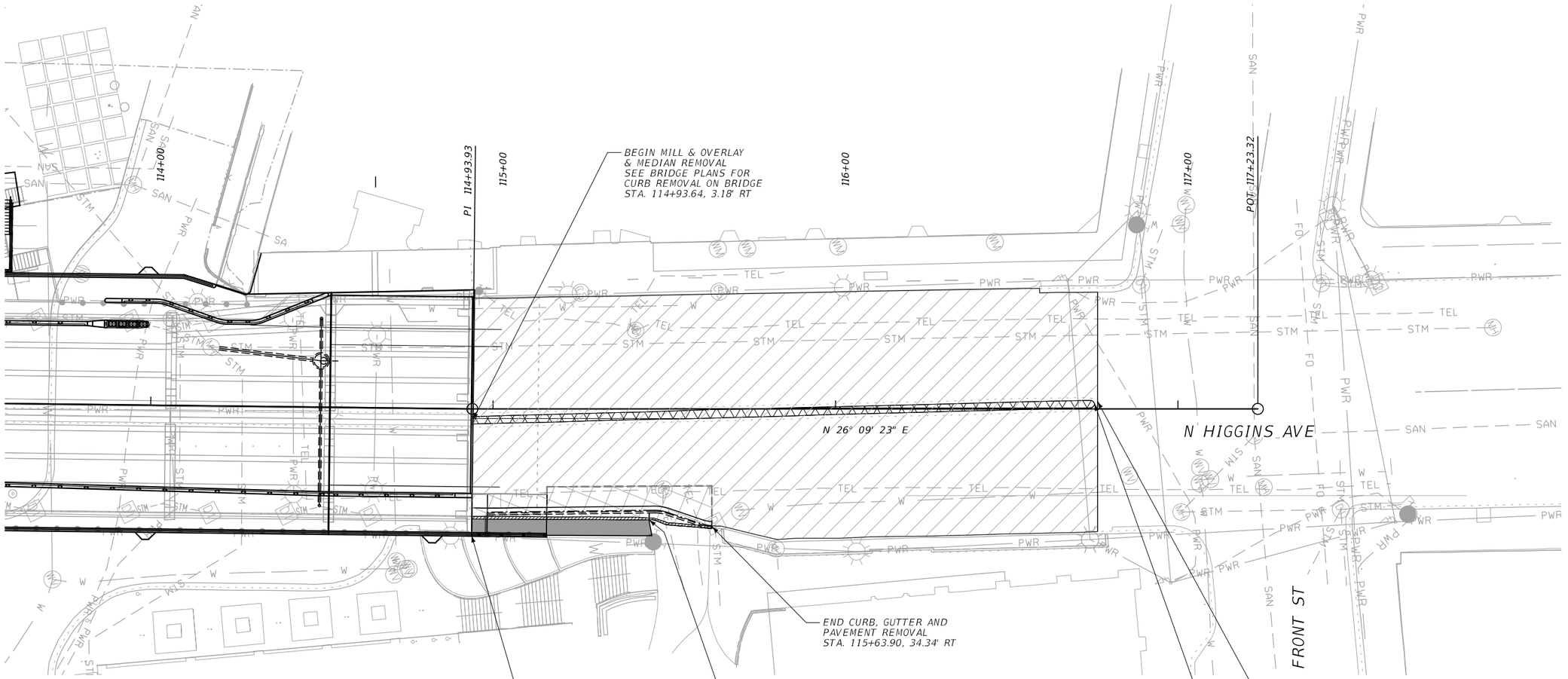
* SALVAGE THE REMOVED STEEL RAILING AND STOCKPILE ON SITE FOR PICKUP BY THE BOONE AND CROCKET CLUB. SALVAGE THE EXISTING STEEL RAILS WITHOUT CUTTING. TAKE CARE TO AVOID DAMAGE. DO NOT SALVAGE THE CONCRETE PILASTERS. CONTACT SANDY POSTON @ (406) 542-0784 TO ARRANGE PICK UP OF THE STEEL RAILING.



S 3RD ST W & S HIGGINS AVE DEMOLITION DETAIL

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ02.dgn	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
2		5/18/2020	REVIEWED BY		MISSOULA COUNTY	UPN 8807000	SHEET 18
		10:29:46 AM CCOLLINS	CHECKED BY				

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086



HDR

ASPHALT MILLING/PAVING AREA

CURB & GUTTER REMOVAL

ROADWAY RECONSTRUCTION

MEDIAN & ISLAND REMOVAL

CONCRETE SIDEWALK REMOVAL

NOTE:

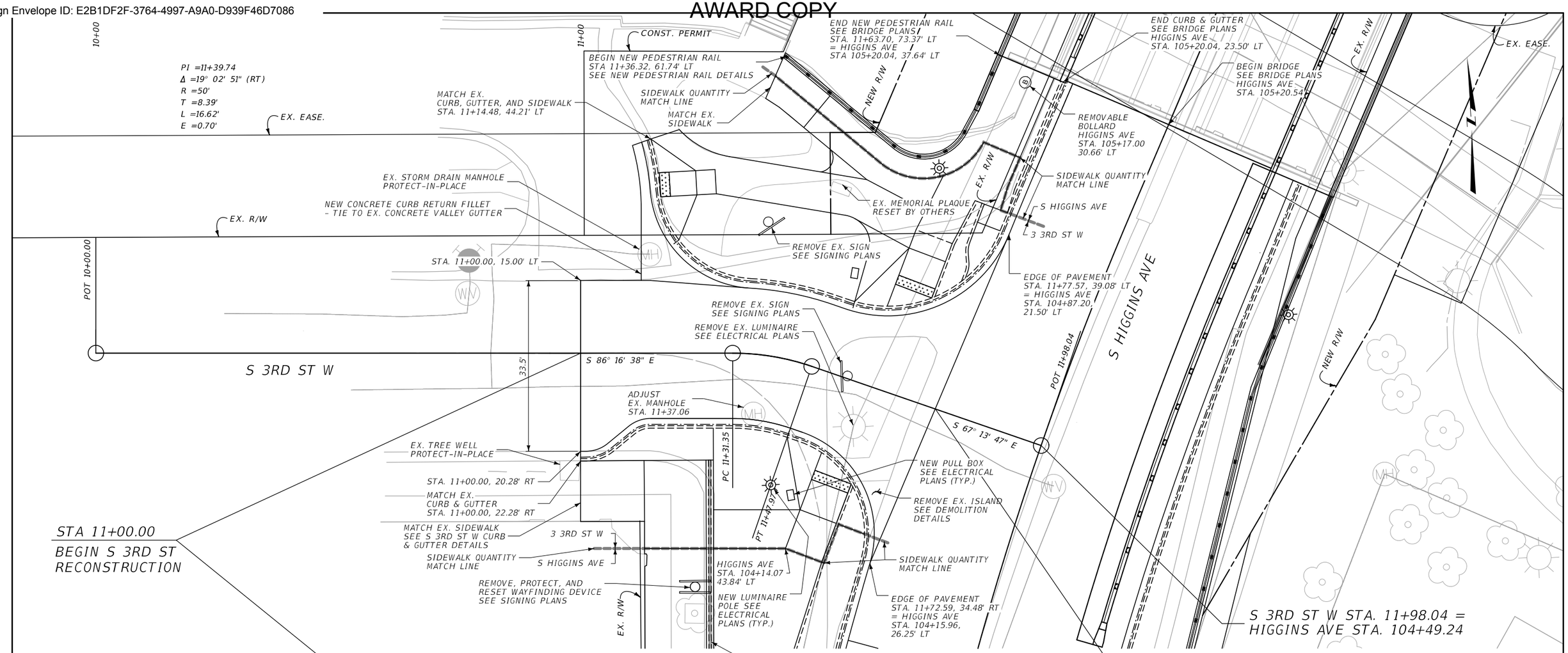
FOR INFORMATION ONLY. SEE DETAIL SHEETS FOR ADDITIONAL INFORMATION ON PROPOSED CURB, GUTTER, SIDEWALK AND PAVING LIMITS.

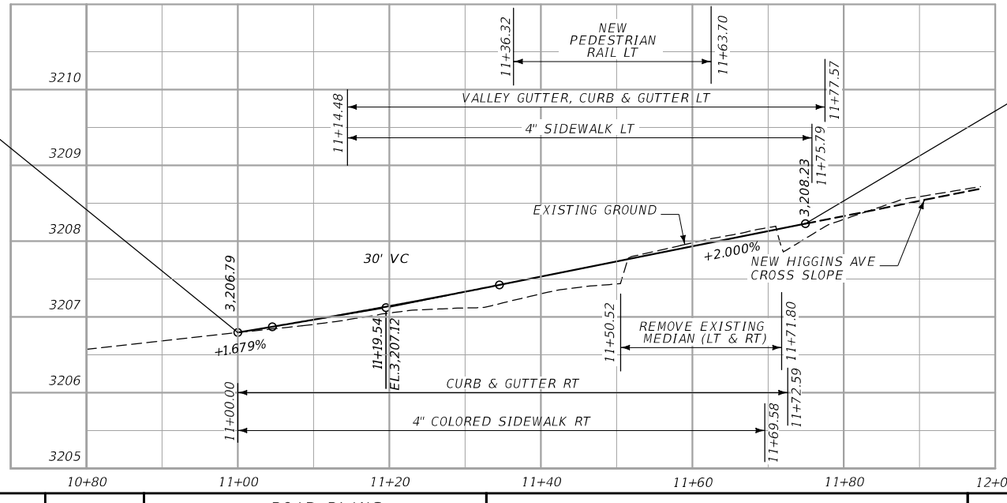
N HIGGINS AVE DEMOLITION DETAIL

3 / 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ02.dgn	DESIGNED BY			ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
		5/18/2020	REVIEWED BY					
		10:29:50 AM CCOLLINS	CHECKED BY			MISSOULA COUNTY	UPN 8807000	SHEET 19

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY





NOTES:

1. SEE DETAIL SHEETS FOR ADDITIONAL INFORMATION ON PROPOSED CURB, GUTTER AND SIDEWALK LIMITS.
2. ALL STATION AND OFFSET LIMITS ARE TAKEN FROM S 3RD ST W CENTERLINE UNLESS OTHERWISE NOTED.
3. ALL CURB REFERENCES ARE FROM TOP BACK OF CURB.

S 3RD ST W INTERSECTION DETAIL

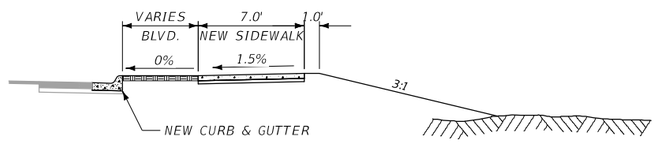
NO SCALE

HDR

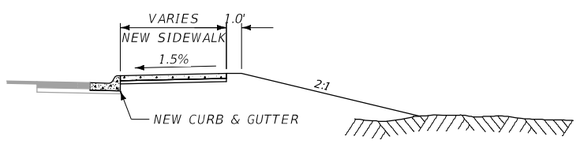
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ03.dgn	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
2		5/18/2020	REVIEWED BY				
		10:30:01 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	SHEET 20

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

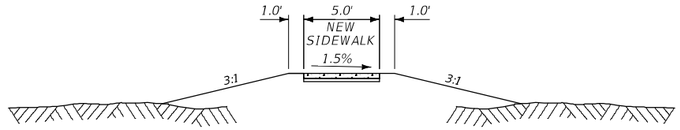
AWARD COPY



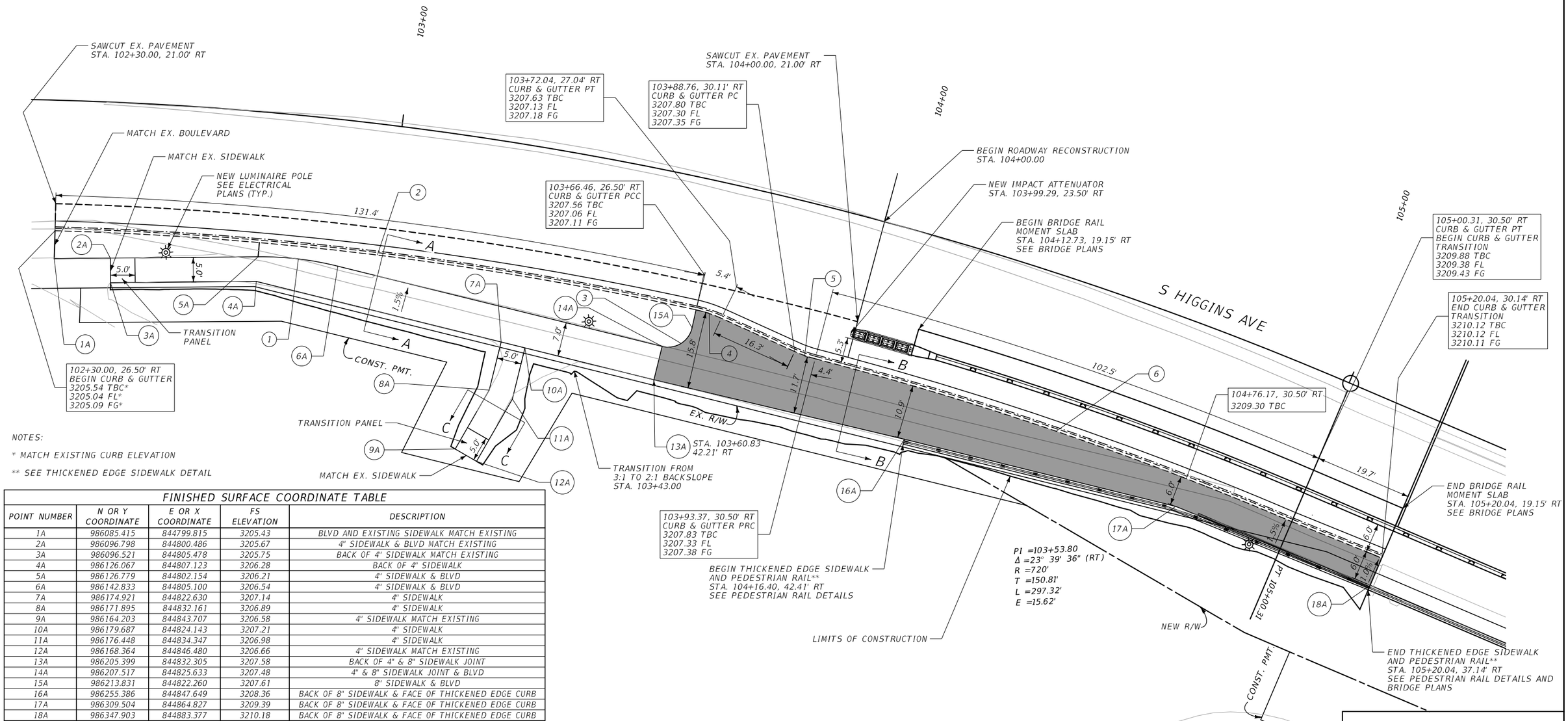
SECTION A-A



SECTION B-B



SECTION C-C



NOTES:

* MATCH EXISTING CURB ELEVATION

** SEE THICKENED EDGE SIDEWALK DETAIL

FINISHED SURFACE COORDINATE TABLE

POINT NUMBER	N OR Y COORDINATE	E OR X COORDINATE	FS ELEVATION	DESCRIPTION
1A	986085.415	844799.815	3205.43	BLVD AND EXISTING SIDEWALK MATCH EXISTING
2A	986096.798	844800.486	3205.67	4" SIDEWALK & BLVD MATCH EXISTING
3A	986096.521	844805.478	3205.75	BACK OF 4" SIDEWALK MATCH EXISTING
4A	986126.067	844807.123	3206.28	BACK OF 4" SIDEWALK
5A	986126.779	844802.154	3206.21	4" SIDEWALK & BLVD
6A	986142.833	844805.100	3206.54	4" SIDEWALK & BLVD
7A	986174.921	844822.630	3207.14	4" SIDEWALK
8A	986171.895	844832.161	3206.89	4" SIDEWALK
9A	986164.203	844843.707	3206.58	4" SIDEWALK MATCH EXISTING
10A	986179.687	844824.143	3207.21	4" SIDEWALK
11A	986176.448	844834.347	3206.98	4" SIDEWALK
12A	986168.364	844846.480	3206.66	4" SIDEWALK MATCH EXISTING
13A	986205.399	844832.305	3207.58	BACK OF 4" & 8" SIDEWALK JOINT
14A	986207.517	844825.633	3207.48	4" & 8" SIDEWALK JOINT & BLVD
15A	986213.831	844822.260	3207.61	8" SIDEWALK & BLVD
16A	986255.386	844847.649	3208.36	BACK OF 8" SIDEWALK & FACE OF THICKENED EDGE CURB
17A	986309.504	844864.827	3209.39	BACK OF 8" SIDEWALK & FACE OF THICKENED EDGE CURB
18A	986347.903	844883.377	3210.18	BACK OF 8" SIDEWALK & FACE OF THICKENED EDGE CURB

RADIUS ORIGIN COORDINATE TABLE

CURVE NO.	NORTHING	EASTING	RADIUS
1	986123.167	844867.054	65.00'
2	986021.598	845484.693	693.50'
3	986209.030	844820.867	5.00'
4	986207.627	844843.640	26.00'
5	986246.543	844805.473	26.00'
6	986021.598	845484.693	689.50'

LEGEND

FG = FRONT OF GUTTER ELEV.
FL = FLOW LINE ELEV.
TBC = TOP BACK OF CURB ELEV.
FS = FINISHED SURFACE ELEV.

4" SIDEWALK

8" SIDEWALK

NOTES:

ALL DIMENSIONS AND ELEVATIONS ARE FEET UNLESS OTHERWISE NOTED.

ALL CURB AND GUTTER DIMENSIONS ARE ALONG TBC.

CONTRACTOR TO VERIFY ELEVATIONS IN THE FIELD PRIOR TO CONSTRUCTION.

MATCH EXISTING ELEVATIONS AT ALL JOINTS BETWEEN NEW AND EXISTING CONCRETE.

ELEVATIONS SHOWN AT MATCH LINE LOCATIONS ARE APPROXIMATE.

SEE DETAILED DRAWINGS FOR STANDARD SIDEWALK, CURB & GUTTER AND RETAINING WALL DETAILS.

S HIGGINS AVE CURB & GUTTER COORDINATES

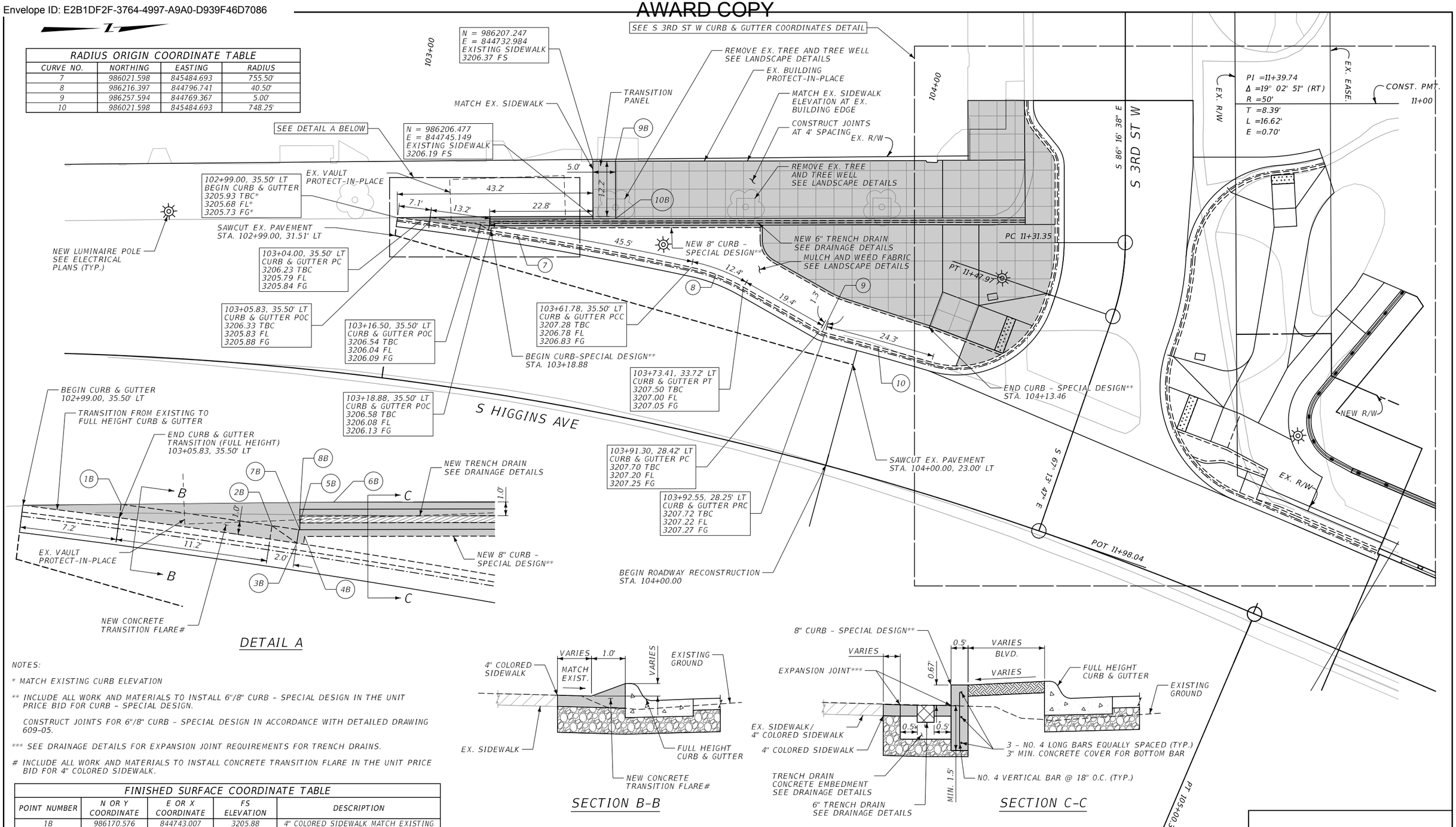
NO SCALE

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ04.dgn	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
2		5/18/2020	REVIEWED BY		MISSOULA COUNTY	UPN 8807000	SHEET 21
		10:30:10 AM CCOLLINS	CHECKED BY				

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

RADIUS ORIGIN COORDINATE TABLE			
CURVE NO.	NORTHING	EASTING	RADIUS
7	986021.598	845484.693	755.50'
8	986216.397	844796.741	40.50'
9	986257.594	844769.367	5.00'
10	986021.598	845484.693	748.25'



DETAIL A

SECTION B-B

SECTION C-C

NOTES:

* MATCH EXISTING CURB ELEVATION

** INCLUDE ALL WORK AND MATERIALS TO INSTALL 6"/8" CURB - SPECIAL DESIGN IN THE UNIT PRICE BID FOR CURB - SPECIAL DESIGN.

CONSTRUCT JOINTS FOR 6"/8" CURB - SPECIAL DESIGN IN ACCORDANCE WITH DETAILED DRAWING 609-05.

*** SEE DRAINAGE DETAILS FOR EXPANSION JOINT REQUIREMENTS FOR TRENCH DRAINS.

INCLUDE ALL WORK AND MATERIALS TO INSTALL CONCRETE TRANSITION FLARE IN THE UNIT PRICE BID FOR 4" COLORED SIDEWALK.

FINISHED SURFACE COORDINATE TABLE				
POINT NUMBER	N OR Y COORDINATE	E OR X COORDINATE	FS ELEVATION	DESCRIPTION
1B	986170.576	844743.007	3205.88	4" COLORED SIDEWALK MATCH EXISTING
2B	986181.554	844745.297	3205.93	4" COLORED SIDEWALK
3B	986183.294	844746.700	3206.57	TOP BACK OF CURB
4B	986183.905	844746.249	3206.59	TOP BACK OF 8" CURB - SPECIAL DESIGN
5B	986183.616	844745.229	3205.94	EDGE OF TRENCH DRAIN
6B	986186.200	844743.866	3205.96	4" COLORED SIDEWALK MATCH EXISTING
7B	986183.585	844745.728	3205.94	4" COLORED SIDEWALK
8B	986183.679	844744.231	3205.94	4" COLORED SIDEWALK
9B	986212.237	844733.299	3206.46	4" COLORED SIDEWALK
10B	986211.435	844745.971	3206.28	4" COLORED SIDEWALK

LEGEND	
FG = FRONT OF GUTTER ELEV. FL = FLOW LINE ELEV. TBC = TOP BACK OF CURB ELEV. FS = FINISHED SURFACE ELEV.	4" COLORED SIDEWALK

NOTES:

ALL DIMENSIONS AND ELEVATIONS ARE FEET UNLESS OTHERWISE NOTED.

ALL CURB AND GUTTER DIMENSIONS ARE ALONG TBC.

CONTRACTOR TO VERIFY ELEVATIONS IN THE FIELD PRIOR TO CONSTRUCTION.

MATCH EXISTING ELEVATIONS AT ALL JOINTS BETWEEN NEW AND EXISTING CONCRETE.

ELEVATIONS SHOWN AT MATCH LINE LOCATIONS ARE APPROXIMATE.

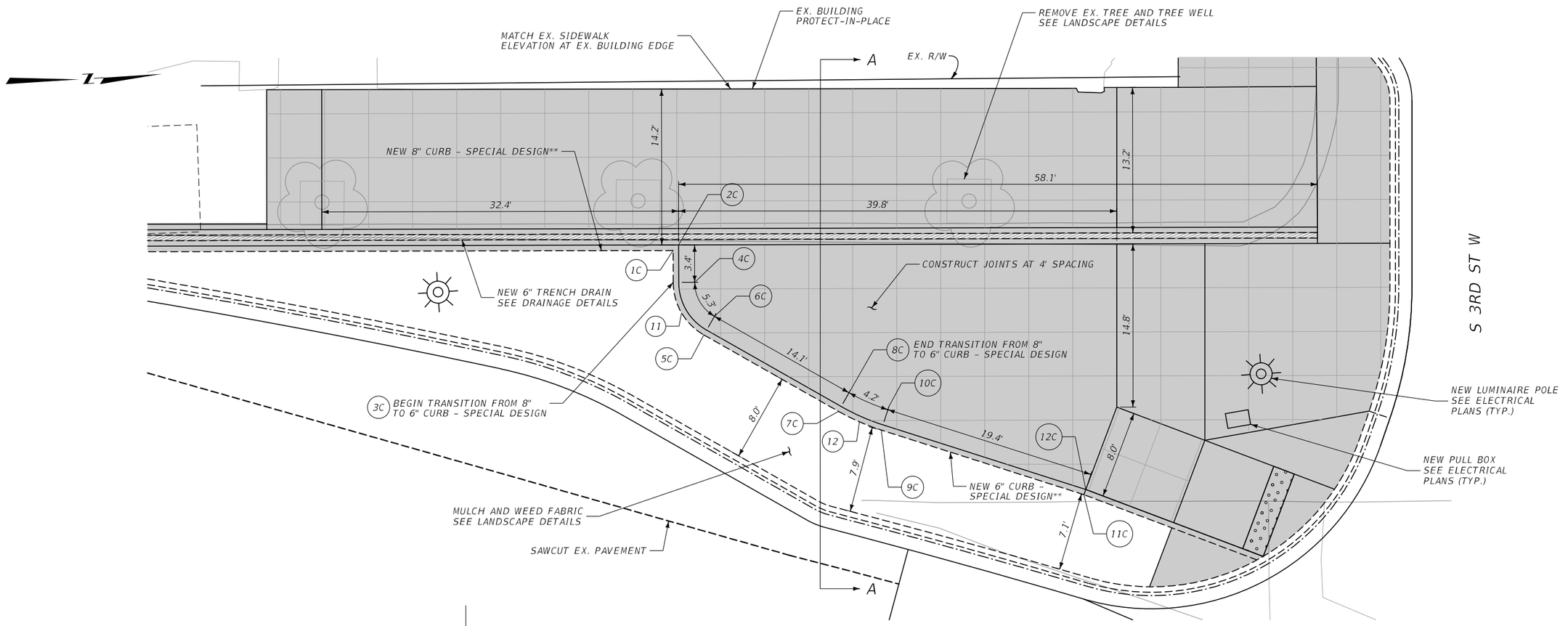
SEE DETAILED DRAWINGS FOR STANDARD SIDEWALK, CURB & GUTTER AND RETAINING WALL DETAILS.

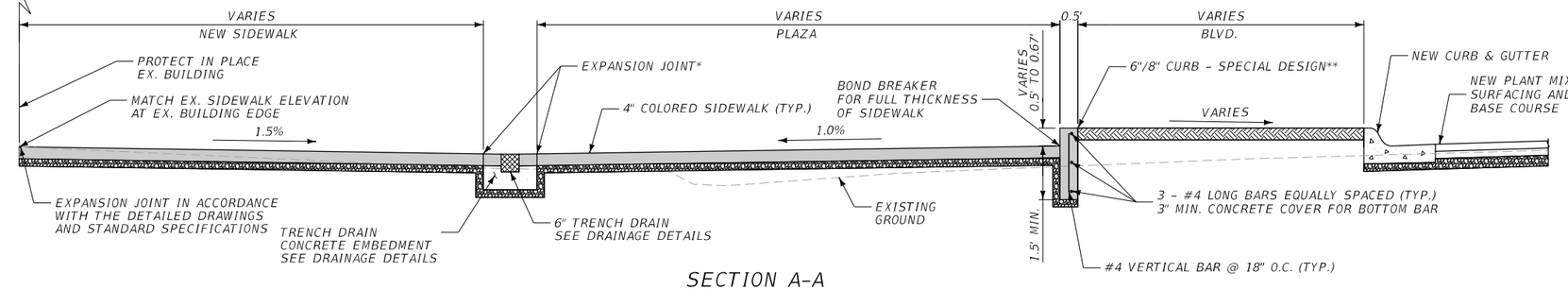
S HIGGINS AVE CURB & GUTTER COORDINATES

NO SCALE

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY





SECTION A-A

NOTES:

* SEE DRAINAGE DETAILS FOR EXPANSION JOINT REQUIREMENTS FOR TRENCH DRAINS.

** INCLUDE ALL WORK AND MATERIALS TO INSTALL 6"/8" CURB - SPECIAL DESIGN IN THE UNIT PRICE BID FOR CURB - SPECIAL DESIGN.

CONSTRUCT JOINTS FOR 6"/8" CURB - SPECIAL DESIGN IN ACCORDANCE WITH DETAILED DRAWING 609-05.

RADIUS ORIGIN COORDINATE TABLE

CURVE NO.	NORTHING	EASTING	RADIUS
11	986248.477	844753.206	5.50
12	986268.474	844748.397	20.50

FINISHED SURFACE COORDINATE TABLE

POINT NUMBER	N OR Y COORDINATE	E OR X COORDINATE	FS ELEVATION	DESCRIPTION
1C	986243.169	844749.965	3207.44	TOP BACK OF 8" CURB - SPECIAL DESIGN
2C	986243.700	844749.498	3206.78	4" COLORED SIDEWALK
3C	986242.988	844752.862	3207.48	TOP BACK OF 8" CURB - SPECIAL DESIGN
4C	986243.487	844752.893	3206.83	4" COLORED SIDEWALK
5C	986245.457	844757.802	3207.53	TOP BACK OF CURB - SPECIAL DESIGN
6C	986245.731	844757.384	3206.90	4" COLORED SIDEWALK
7C	986257.223	844765.534	3207.66	TOP BACK OF 6" CURB - SPECIAL DESIGN
8C	986257.491	844765.111	3207.16	4" COLORED SIDEWALK
9C	986260.992	844767.483	3207.73	TOP BACK OF 6" CURB - SPECIAL DESIGN
10C	986261.175	844767.017	3207.23	4" COLORED SIDEWALK
11C	986278.985	844774.536	3208.07	TOP BACK OF 6" CURB - SPECIAL DESIGN
12C	986279.180	844774.075	3207.57	4" COLORED SIDEWALK

LEGEND

FG = FRONT OF GUTTER ELEV.
FL = FLOW LINE ELEV.
TBC = TOP BACK OF CURB ELEV.
FS = FINISHED SURFACE ELEV.

4" COLORED SIDEWALK

NOTES:

ALL DIMENSIONS AND ELEVATIONS ARE FEET UNLESS OTHERWISE NOTED.

ALL CURB AND GUTTER DIMENSIONS ARE ALONG TBC.

CONTRACTOR TO VERIFY ELEVATIONS IN THE FIELD PRIOR TO CONSTRUCTION.

MATCH EXISTING ELEVATIONS AT ALL JOINTS BETWEEN NEW AND EXISTING CONCRETE.

ELEVATIONS SHOWN AT MATCH LINE LOCATIONS ARE APPROXIMATE.

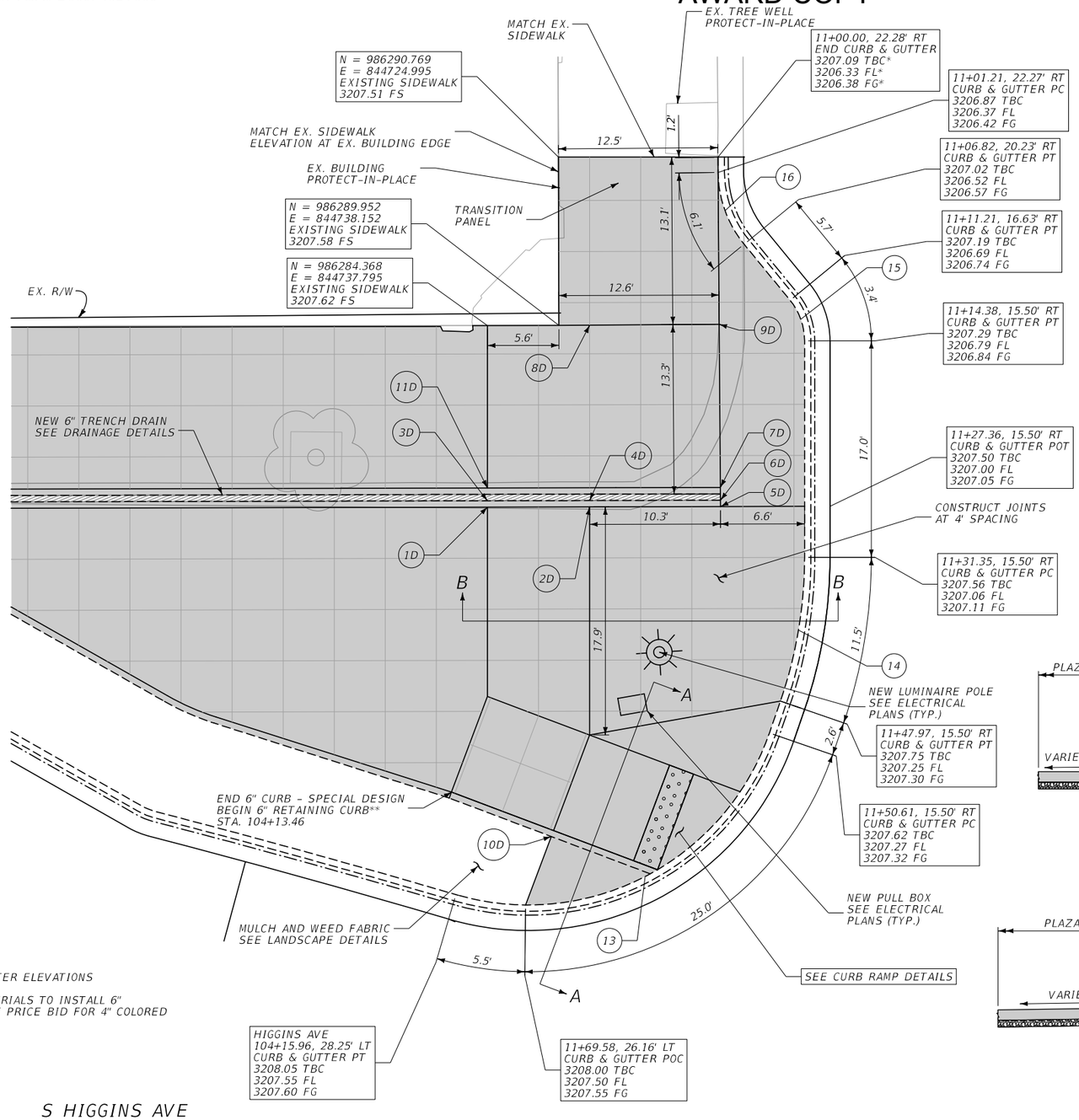
SEE DETAILED DRAWINGS FOR STANDARD SIDEWALK, CURB & GUTTER AND RETAINING WALL DETAILS.

S HIGGINS AVE
CURB & GUTTER
COORDINATES

NO SCALE

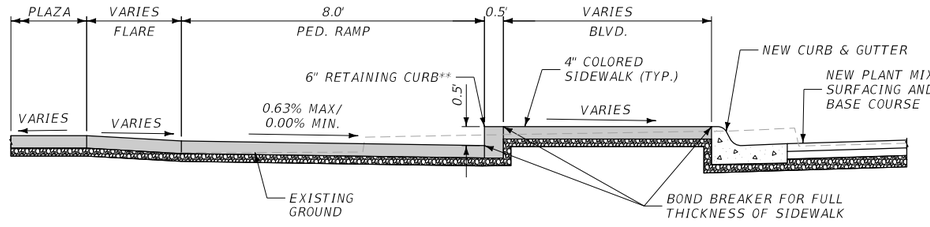
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

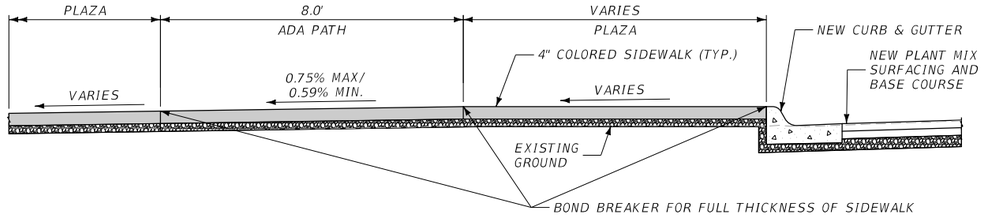


FINISHED SURFACE COORDINATE TABLE				
POINT NUMBER	N OR Y COORDINATE	E OR X COORDINATE	FS ELEVATION	DESCRIPTION
1D	986283.445	844751.990	3207.38	4" COLORED SIDEWALK
2D	986291.429	844752.491	3207.44	4" COLORED SIDEWALK
3D	986283.477	844751.491	3207.38	4" COLORED SIDEWALK & EDGE OF TRENCH DRAIN
4D	986291.462	844751.992	3207.44	4" COLORED SIDEWALK & EDGE OF TRENCH DRAIN
5D	986301.661	844753.133	3207.51	4" COLORED SIDEWALK
6D	986301.690	844752.633	3207.51	4" COLORED SIDEWALK & EDGE OF TRENCH DRAIN
7D	986301.747	844751.635	3207.50	4" COLORED SIDEWALK
8D	986292.353	844738.290	3207.54	4" COLORED SIDEWALK
9D	986302.483	844738.875	3207.38	4" COLORED SIDEWALK
10D	986286.761	844778.059	3208.03	TOP BACK OF RETAINING CURB
11D	986283.542	844750.493	3207.39	4" COLORED SIDEWALK

RADIUS ORIGIN COORDINATE TABLE			
CURVE NO.	NORTHING	EASTING	RADIUS
13	986285.888	844763.334	20.00'
14	986273.540	844755.289	34.50'
15	986304.079	844740.271	5.00'
16	986312.158	844727.505	9.00'



SECTION A-A



SECTION B-B

NOTES:

* MATCH EXISTING CURB & GUTTER ELEVATIONS

** INCLUDE ALL WORK AND MATERIALS TO INSTALL 6" RETAINING CURB IN THE UNIT PRICE BID FOR 4" COLORED SIDEWALK.

LEGEND

FG = FRONT OF GUTTER ELEV.
FL = FLOW LINE ELEV.
TBC = TOP BACK OF CURB ELEV.
FS = FINISHED SURFACE ELEV.
4" COLORED SIDEWALK

NOTES:

ALL DIMENSIONS AND ELEVATIONS ARE FEET UNLESS OTHERWISE NOTED.

ALL CURB AND GUTTER DIMENSIONS ARE ALONG TBC.

CONTRACTOR TO VERIFY ELEVATIONS IN THE FIELD PRIOR TO CONSTRUCTION.

MATCH EXISTING ELEVATIONS AT ALL JOINTS BETWEEN NEW AND EXISTING CONCRETE.

ELEVATIONS SHOWN AT MATCH LINE LOCATIONS ARE APPROXIMATE.

SEE DETAILED DRAWINGS FOR STANDARD SIDEWALK, CURB & GUTTER AND RETAINING WALL DETAILS.

ALL STATION AND OFFSETS REFERENCE THE S 3RD ST W CENTERLINE UNLESS OTHERWISE NOTED.

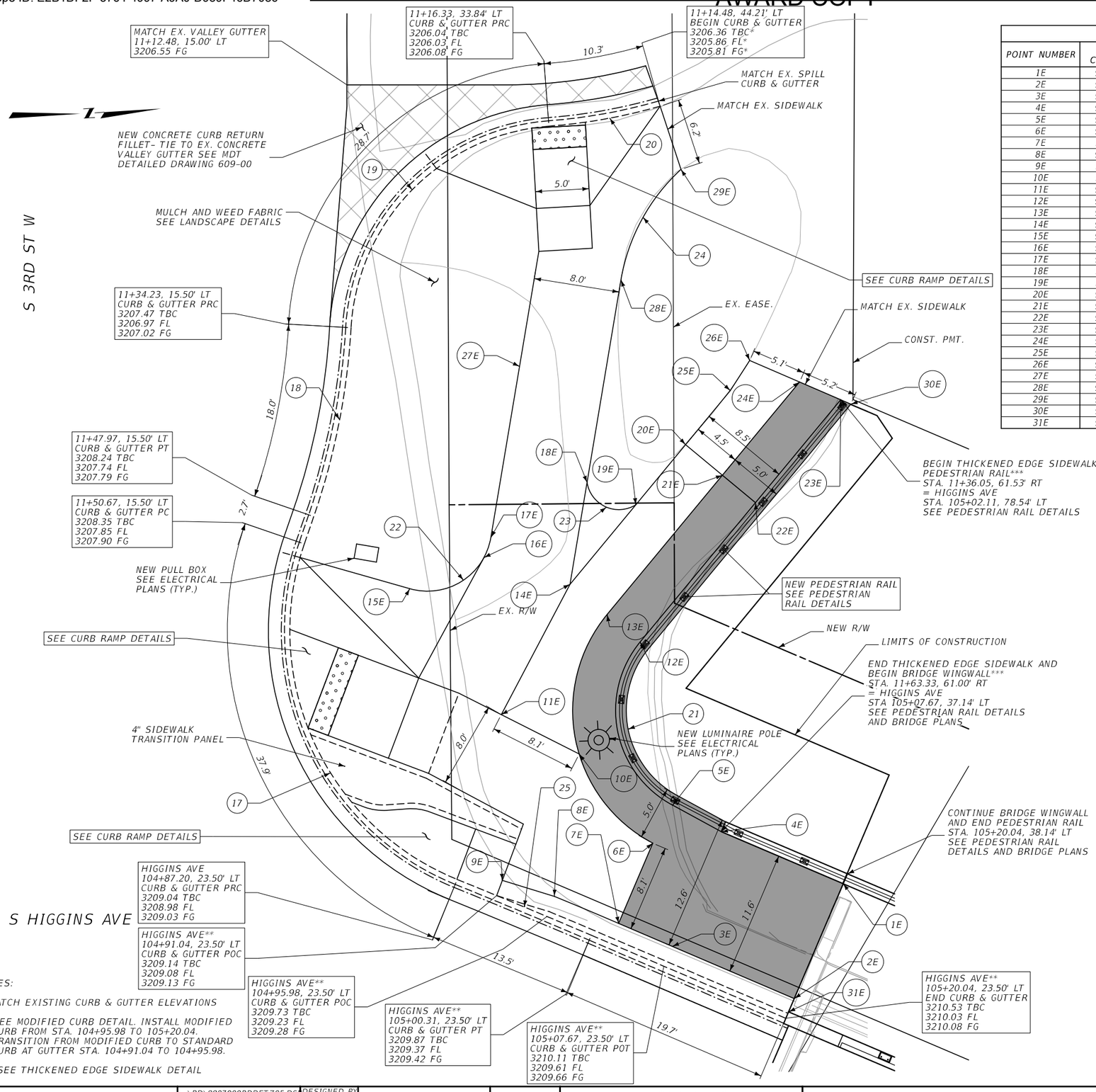
S 3RD ST W
CURB & GUTTER
COORDINATES

NO SCALE

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ05.DGN	DESIGNED BY			ROAD PLANS	HIGGINS AVE. BR REHAB - MISSOULA / STPB 8113(9)
2		5/18/2020	REVIEWED BY			MISSOULA COUNTY	UPN 8807000 / SHEET 24
		10:30:24 AM CCOLLINS	CHECKED BY				

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



FINISHED SURFACE COORDINATE TABLE

POINT NUMBER	N OR Y COORDINATE	E OR X COORDINATE	FS ELEVATION	DESCRIPTION
1E	986380.980	844817.994	3209.93	BACK OF 8" SIDEWALK & FACE OF WINGWALL
2E	986375.727	844828.376	3210.05	8" SIDEWALK & BACK OF MODIFIED CURB
3E	986364.697	844822.788	3209.59	8" SIDEWALK & BACK OF MODIFIED CURB
4E	986369.945	844812.412	3209.52	BACK OF 8" SIDEWALK & FACE OF THICKENED EDGE CURB
5E	986365.586	844809.655	3209.26	BACK OF 8" SIDEWALK & FACE OF THICKENED EDGE CURB
6E	986363.500	844813.068	3209.30	4" & 8" SIDEWALK JOINT
7E	986359.831	844820.322	3209.41	4" AND 8" SIDEWALK JOINT & BACK OF MODIFIED CURB
8E	986354.018	844817.413	3209.23	4" SIDEWALK & BACK OF MODIFIED CURB
9E	986349.271	844815.620	3209.13	4" SIDEWALK & BACK OF MODIFIED CURB
10E	986357.191	844804.332	3209.00	4" & 8" SIDEWALK JOINT
11E	986350.179	844800.189	3208.87	4" SIDEWALK
12E	986363.522	844794.299	3208.28	BACK OF 8" SIDEWALK & FACE OF THICKENED EDGE CURB
13E	986360.640	844791.525	3208.22	4" & 8" SIDEWALK JOINT
14E	986357.368	844788.489	3208.16	4" SIDEWALK
15E	986342.435	844787.932	3208.29	4" SIDEWALK & BLVD
16E	986349.524	844785.476	3208.19	4" SIDEWALK & BLVD
17E	986350.287	844783.652	3208.10	4" SIDEWALK & BLVD
18E	986359.571	844779.119	3207.68	4" SIDEWALK & BLVD
19E	986363.971	844781.493	3207.66	4" SIDEWALK & BLVD
20E	986368.964	844776.203	3207.28	4" SIDEWALK & BLVD
21E	986372.210	844779.266	3207.25	4" & 8" SIDEWALK JOINT
22E	986375.119	844782.012	3207.22	BACK OF 8" SIDEWALK & FACE OF THICKENED EDGE CURB
23E	986383.666	844772.956	3206.33	BACK OF 8" SIDEWALK & FACE OF THICKENED EDGE CURB MATCH EXISTING
24E	986379.954	844771.061	3206.48	4" & 8" SIDEWALK JOINT MATCH EXISTING
25E	986373.454	844771.445	3206.86	4" SIDEWALK & BLVD
26E	986375.438	844768.755	3206.67	4" SIDEWALK & BLVD MATCH EXISTING
27E	986353.987	844767.913	3207.34	4" SIDEWALK & BLVD
28E	986363.952	844760.481	3206.74	4" SIDEWALK & BLVD
29E	986370.199	844750.570	3206.48	4" SIDEWALK & BLVD MATCH EXISTING
30E	986384.594	844773.430	3206.83	TOP BACK OF THICKENED EDGE CURB
31E	986375.117	844829.582	3210.06	MODIFIED CURB POINT

RADIUS ORIGIN COORDINATE TABLE

CURVE NO.	NORTHING	EASTING	RADIUS
17	986355.966	844792.747	25.00'
18	986273.540	844755.289	65.50'
19	986358.398	844765.746	20.00'
20	986357.616	844693.751	52.00'
21	986370.821	844801.135	9.00'
22	986344.446	844782.279	6.00'
23	986362.558	844778.846	3.00'
24	986381.475	844764.600	18.00'
25	986021.598	845484.693	743.50'

NOTES:

* MATCH EXISTING CURB & GUTTER ELEVATIONS

** SEE MODIFIED CURB DETAIL. INSTALL MODIFIED CURB FROM STA. 104+95.98 TO 105+20.04. TRANSITION FROM MODIFIED CURB TO STANDARD CURB AT GUTTER STA. 104+91.04 TO 104+95.98.

*** SEE THICKENED EDGE SIDEWALK DETAIL

NOTES:

ALL DIMENSIONS AND ELEVATIONS ARE FEET UNLESS OTHERWISE NOTED.

ALL CURB AND GUTTER DIMENSIONS ARE ALONG TBC.

CONTRACTOR TO VERIFY ELEVATIONS IN THE FIELD PRIOR TO CONSTRUCTION.

MATCH EXISTING ELEVATIONS AT ALL JOINTS BETWEEN NEW AND EXISTING CONCRETE.

ELEVATIONS SHOWN AT MATCH LINE LOCATIONS ARE APPROXIMATE.

SEE DETAILED DRAWINGS FOR STANDARD SIDEWALK, CURB & GUTTER AND ETAINING WALL DETAILS.

ALL STATION AND OFFSETS REFERENCE THE S 3RD ST W CENTERLINE UNLESS OTHERWISE NOTED.

LEGEND

FG = FRONT OF GUTTER ELEV.
FL = FLOW LINE ELEV.
TBC = TOP BACK OF CURB ELEV.
FS = FINISHED SURFACE ELEV.

4" SIDEWALK

8" SIDEWALK

CONCRETE CURB RETURN FILLET

S 3RD ST W & HIGGINS AVE CURB & GUTTER COORDINATES

NO SCALE

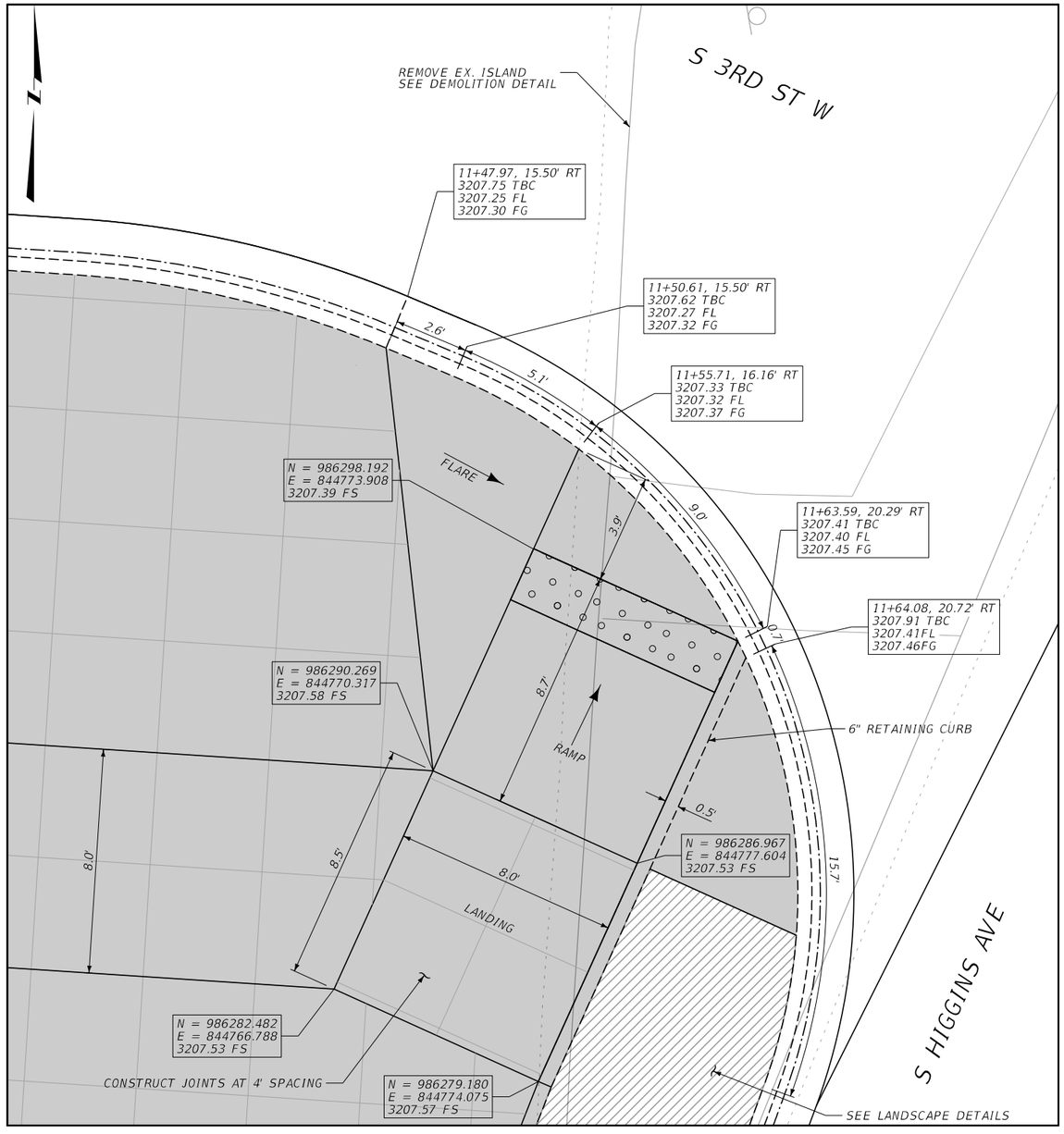
HDR

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ05.DGN	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
1		5/18/2020	REVIEWED BY				
		10:30:26 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	SHEET 25

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

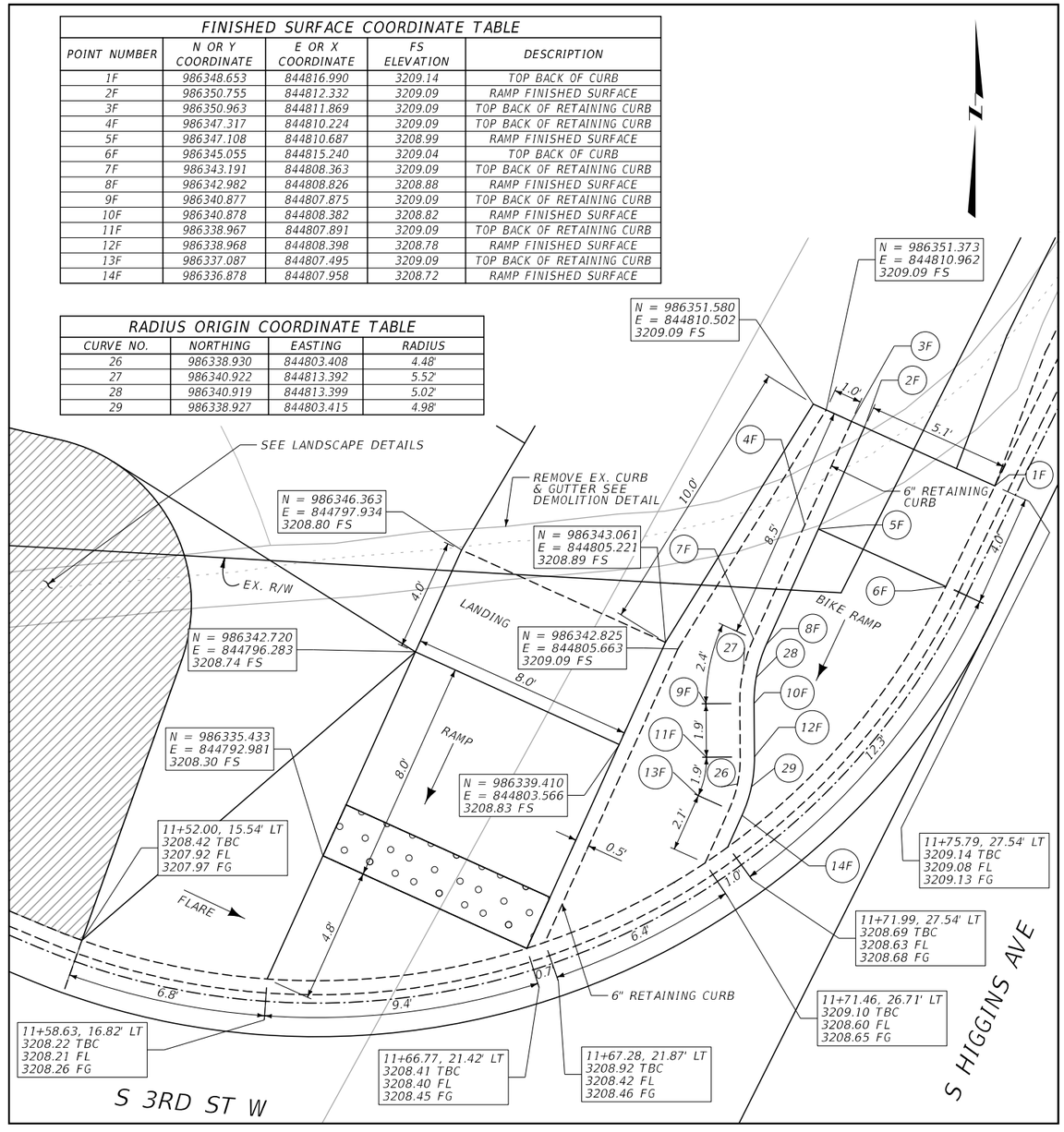
INTERSECTION OF S 3RD ST W – S HIGGINS AVE
SOUTHWEST CORNER



INTERSECTION OF S 3RD ST W – S HIGGINS AVE
NORTHWEST CORNER

FINISHED SURFACE COORDINATE TABLE				
POINT NUMBER	N OR Y COORDINATE	E OR X COORDINATE	FS ELEVATION	DESCRIPTION
1F	986348.653	844816.990	3209.14	TOP BACK OF CURB
2F	986350.755	844812.332	3209.09	RAMP FINISHED SURFACE
3F	986350.963	844811.869	3209.09	TOP BACK OF RETAINING CURB
4F	986347.317	844810.224	3209.09	TOP BACK OF RETAINING CURB
5F	986347.108	844810.687	3208.99	RAMP FINISHED SURFACE
6F	986345.055	844815.240	3209.04	TOP BACK OF CURB
7F	986343.191	844808.363	3209.09	TOP BACK OF RETAINING CURB
8F	986342.982	844808.826	3208.88	RAMP FINISHED SURFACE
9F	986340.877	844807.875	3209.09	TOP BACK OF RETAINING CURB
10F	986340.878	844808.382	3208.82	RAMP FINISHED SURFACE
11F	986338.967	844807.891	3209.09	TOP BACK OF RETAINING CURB
12F	986338.968	844808.398	3208.78	RAMP FINISHED SURFACE
13F	986337.087	844807.495	3209.09	TOP BACK OF RETAINING CURB
14F	986336.878	844807.958	3208.72	RAMP FINISHED SURFACE

RADIUS ORIGIN COORDINATE TABLE			
CURVE NO.	NORTHING	EASTING	RADIUS
26	986338.930	844803.408	4.48'
27	986340.922	844813.392	5.52'
28	986340.919	844813.399	5.02'
29	986338.927	844803.415	4.98'



LEGEND

FG = FRONT OF GUTTER ELEV.
FL = FLOW LINE ELEV.
TBC = TOP BACK OF CURB ELEV.
FS = FINISHED SURFACE ELEV.

4" SIDEWALK
4" COLORED SIDEWALK
MULCH
DETECTABLE WARNING DEVICES

NOTES:

PROVIDE DETECTABLE WARNING DEVICES ON THE BOTTOM 2.0 FEET OF EACH RAMP AS SHOWN. SEE DTL. DWG. NO. 608-40 FOR DETECTABLE WARNING DEVICES DETAILS.

ALL DIMENSIONS AND ELEVATIONS ARE FEET UNLESS OTHERWISE NOTED.

ALL CURB AND GUTTER DIMENSIONS ARE ALONG TBC.

CONTRACTOR TO VERIFY ELEVATIONS IN THE FIELD PRIOR TO CONSTRUCTION.

MATCH EXISTING ELEVATIONS AT ALL JOINTS BETWEEN NEW AND EXISTING CONCRETE.

ELEVATIONS SHOWN AT MATCH LINE LOCATIONS ARE APPROXIMATE.

SEE DETAILED DRAWINGS FOR STANDARD SIDEWALK, CURB & GUTTER AND RETAINING WALL DETAILS.

ALL STATION AND OFFSETS REFERENCE THE S 3RD ST W CENTERLINE UNLESS OTHERWISE NOTED.

SIDEWALK THICKNESS:
4" MINIMUM (TYPICAL)
8" MINIMUM DRIVEWAYS AND BULB-OUTS

CROSS SLOPE = 2.0% MAX.
RAMP SLOPE = 8.3% MAX.
FLARE SLOPE = 10.0% MAX.
LANDING SLOPE = 2.0% MAX. IN ALL DIRECTIONS.

S 3RD ST W & S HIGGINS AVE CURB RAMP DETAILS

NO SCALE

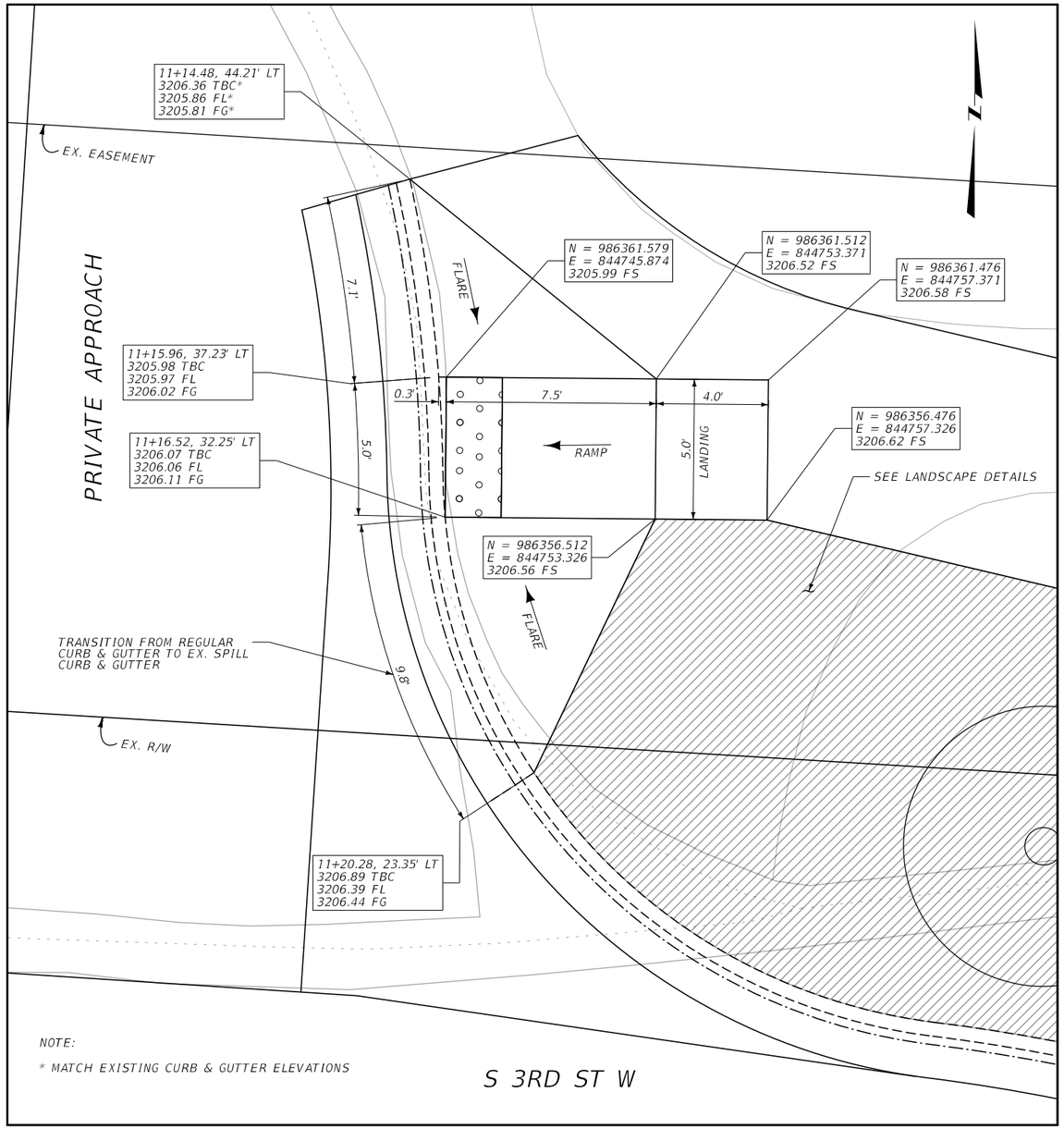
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ06.DGN	DESIGNED BY			HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
2		5/18/2020	REVIEWED BY		ROAD PLANS		
		10:30:32 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	SHEET 26

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

S 3RD ST W & PRIVATE APPROACH
NORTHEAST CORNER



HDR

LEGEND

FG	= FRONT OF GUTTER ELEV.
FL	= FLOW LINE ELEV.
TBC	= TOP BACK OF CURB ELEV.
FS	= FINISHED SURFACE ELEV.
	4" SIDEWALK
	MULCH

DETECTABLE WARNING DEVICES

NOTES:

PROVIDE DETECTABLE WARNING DEVICES ON THE BOTTOM 2.0 FEET OF EACH RAMP AS SHOWN. SEE DTL. DWG. NO. 608-40 FOR DETECTABLE WARNING DEVICES DETAILS.

ALL DIMENSIONS AND ELEVATIONS ARE FEET UNLESS OTHERWISE NOTED.

ALL CURB AND GUTTER DIMENSIONS ARE ALONG TBC.

CONTRACTOR TO VERIFY ELEVATIONS IN THE FIELD PRIOR TO CONSTRUCTION.

MATCH EXISTING ELEVATIONS AT ALL JOINTS BETWEEN NEW AND EXISTING CONCRETE.

ELEVATIONS SHOWN AT MATCH LINE LOCATIONS ARE APPROXIMATE.

SEE DETAILED DRAWINGS FOR STANDARD SIDEWALK, CURB & GUTTER AND RETAINING WALL DETAILS.

ALL STATION AND OFFSETS REFERENCE THE S 3RD ST W CENTERLINE UNLESS OTHERWISE NOTED.

SIDEWALK THICKNESS:
4" MINIMUM (TYPICAL)
8" MINIMUM DRIVEWAYS AND BULB-OUTS

CROSS SLOPE = 2.0% MAX.
RAMP SLOPE = 8.3% MAX.
FLARE SLOPE = 10.0% MAX.
LANDING SLOPE = 2.0% MAX. IN ALL DIRECTIONS.

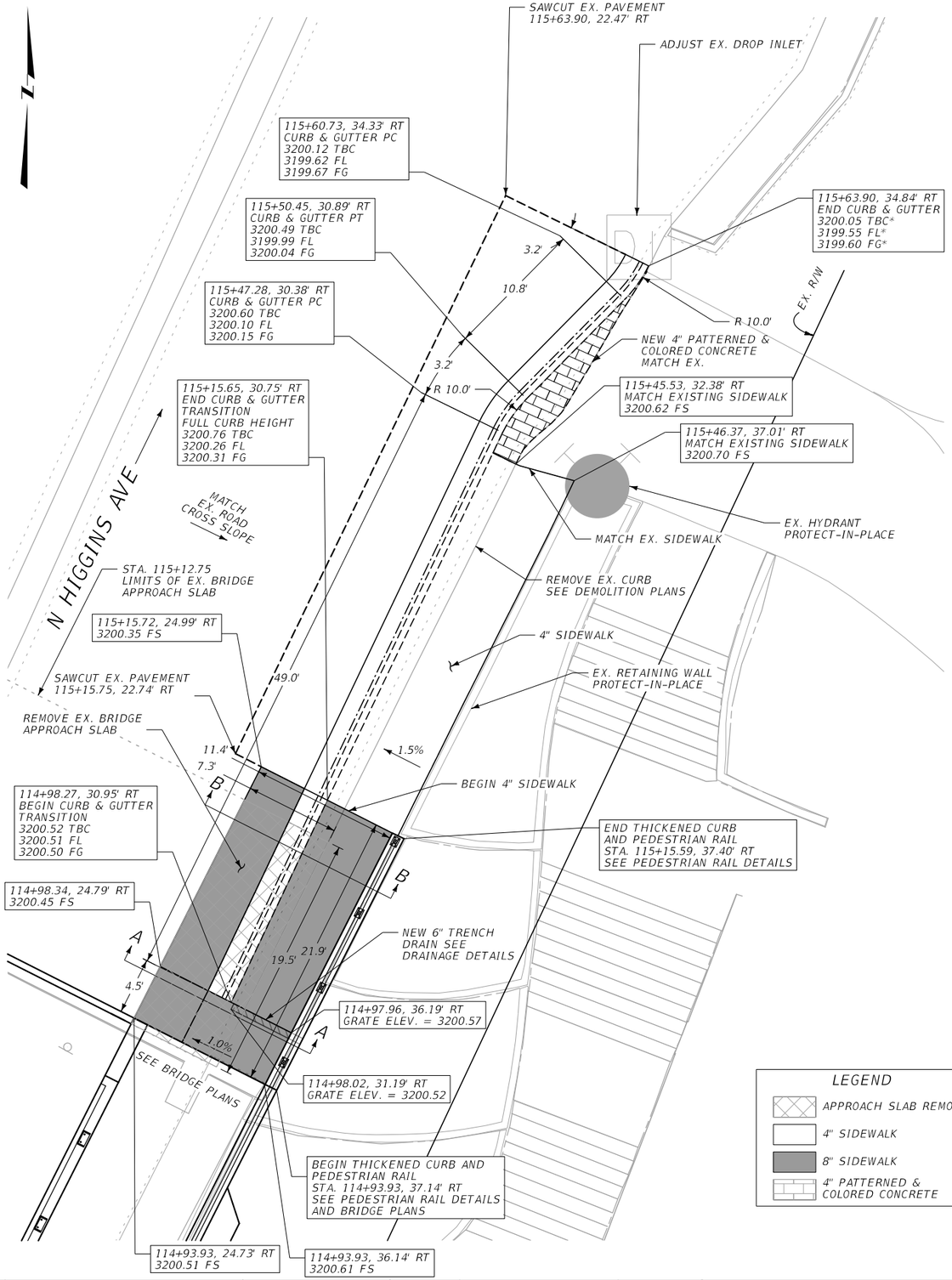
S 3RD ST W & PRIVATE APPROACH CURB RAMP DETAILS

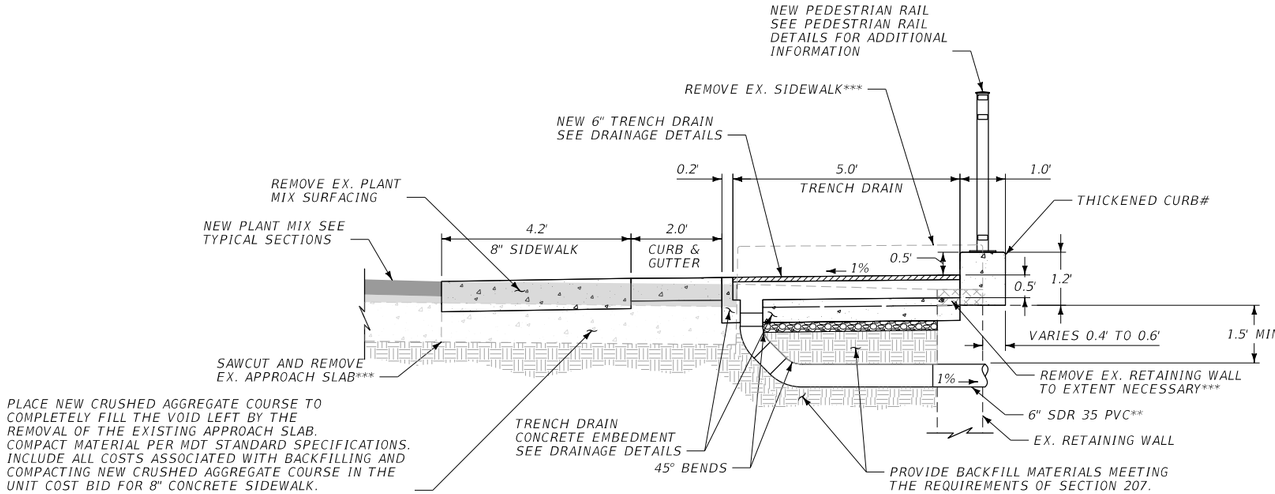
NO SCALE

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	..\RD\8807000RDDETZ06.DGN	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
		5/18/2020	REVIEWED BY				
1		10:30:34 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	SHEET 27

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

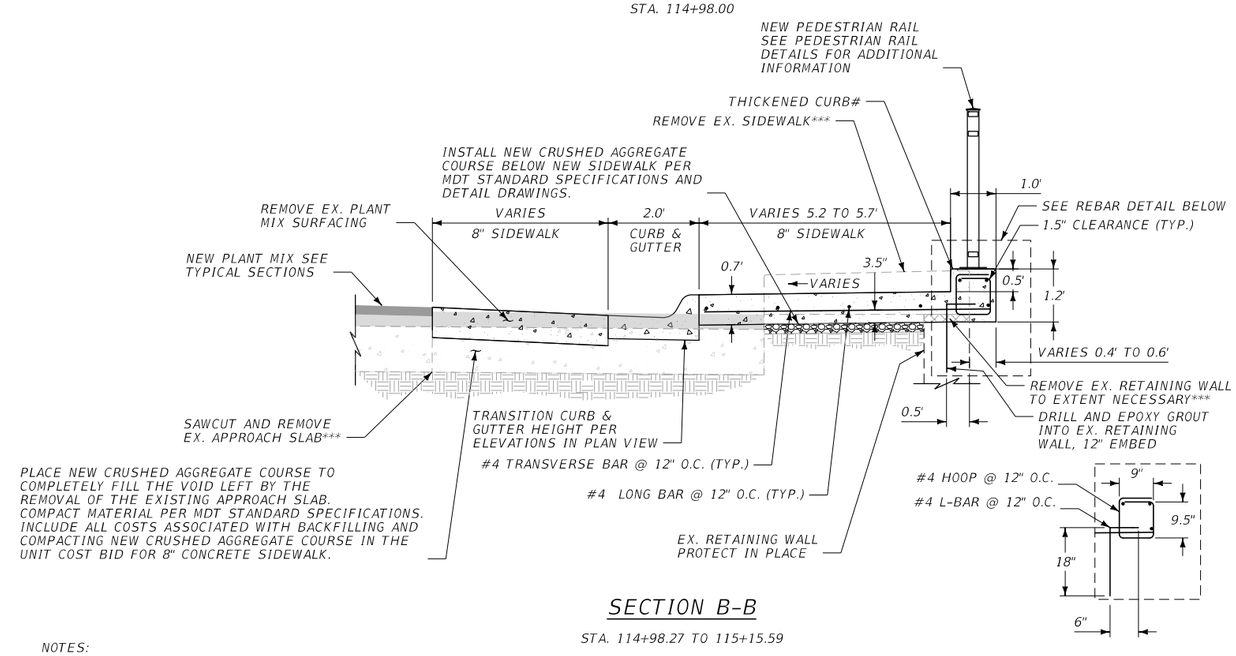
AWARD COPY





SECTION A-A

STA. 114+98.00



SECTION B-B

STA. 114+98.27 TO 115+15.59

SECTION B-B REBAR DETAIL

LEGEND

- APPROACH SLAB REMOVAL
- 4" SIDEWALK
- 8" SIDEWALK
- 4" PATTERNED & COLORED CONCRETE

NOTES:

SLOPES AND ELEVATIONS SHOWN IN PLANS ARE APPROXIMATE. CONTRACTOR TO VERIFY EXISTING CROSS SLOPES AND PROPOSED ELEVATIONS IN FIELD PRIOR TO CONSTRUCTION.

ALL CURB AND GUTTER DIMENSIONS ARE ALONG TBC.

* MATCH EXISTING CURB AND GUTTER ELEVATION

** LOCATE EXISTING REINFORCEMENT PRIOR TO INSTALLING NEW 6" SDR 35 PVC IN EXISTING RETAINING WALL.

*** REMOVAL OF EXISTING RETAINING WALL, SIDEWALK, AND CURB ARE INCIDENTAL TO 8" CONCRETE SIDEWALK. VERIFY LOCATION AND EXTENT OF REMOVAL IN FIELD.

INCLUDE ALL WORK AND MATERIALS TO INSTALL THICKENED CURB IN THE UNIT PRICE BID FOR 8" SIDEWALK.

NORTH BRIDGE DEPARTURE BIKE LANE TRANSITION DETAIL

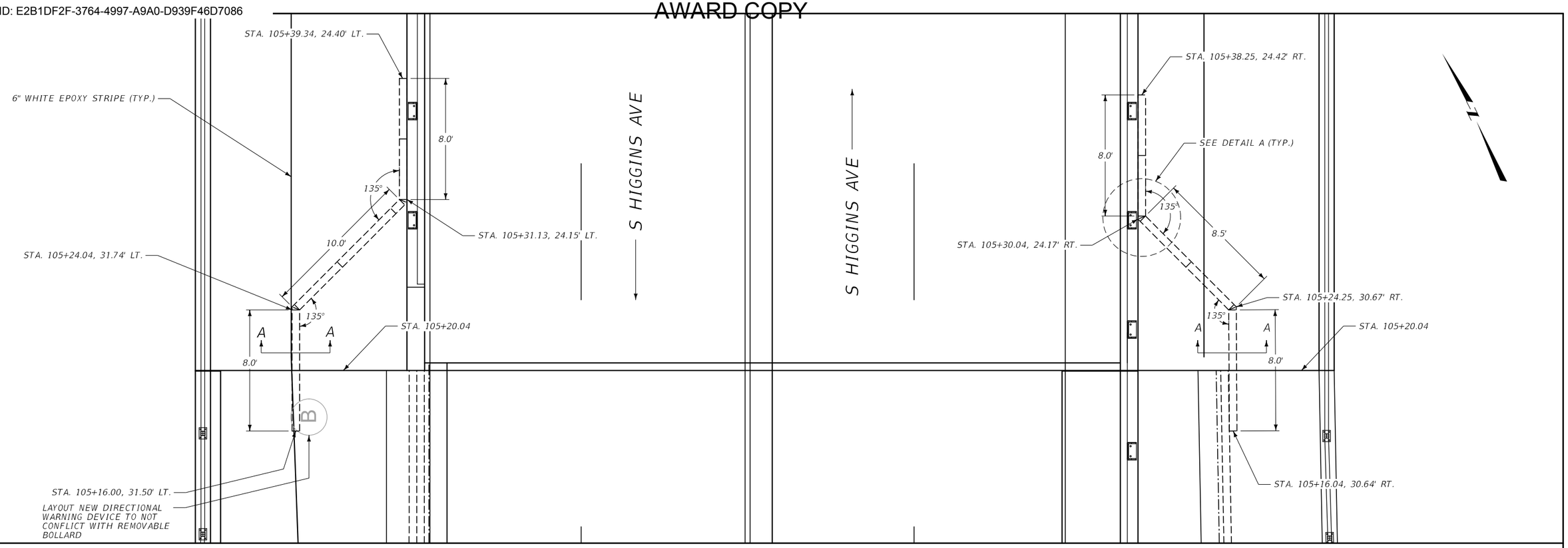
NO SCALE

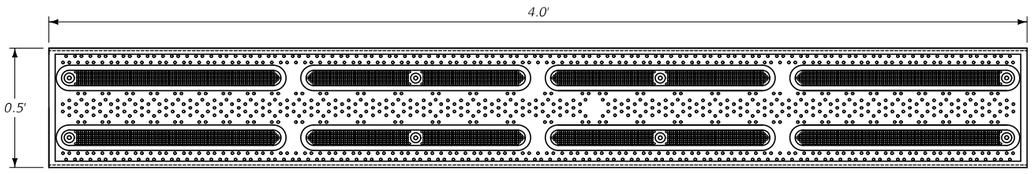
HDR

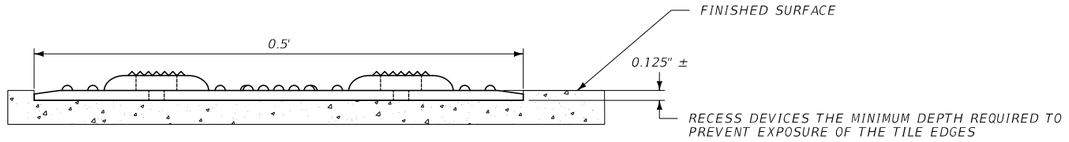
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ07.DGN	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
2		5/18/2020	REVIEWED BY				
		10:30:41 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	SHEET 28

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

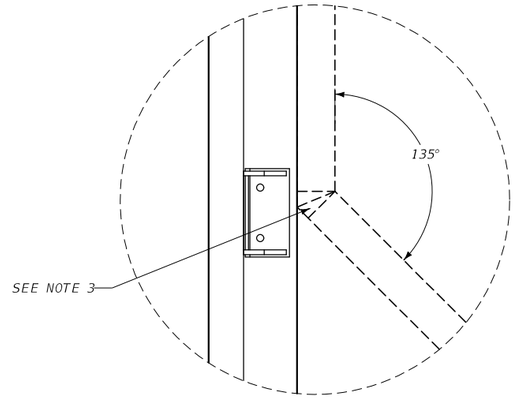
AWARD COPY







SECTION A-A



DETAIL A

NOTES:

1. PROVIDE AND INSTALL ADA-COMPLIANT DIRECTIONAL WARNING DEVICES. PROVIDE DEVICES THAT ARE 0.5' IN WIDTH AND YELLOW IN COLOR.
2. SUBMIT PROPOSED DIRECTIONAL WARNING DEVICE SYSTEM FOR APPROVAL. INCLUDE DRAWINGS, MATERIAL PROPERTIES & MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR CUTTING AND MODIFYING TILES IN THE FIELD. CONSTRUCTION OF FILLETS AT ANGLE POINTS SUBJECT TO APPROVAL BY PROJECT MANAGER.
4. DIMENSIONS SHOWN IN PLANS ARE APPROXIMATE AND ARE FOR ESTIMATING PURPOSES ONLY. PRIOR TO INSTALLING DIRECTIONAL WARNING DEVICES LAYOUT AREA TO RECEIVE TILES AND CONFIRM LAYOUT WITH PROJECT MANAGER.
5. INCLUDE ALL WORK AND MATERIALS TO INSTALL DIRECTIONAL WARNING DEVICES IN THE UNIT PRICE BID FOR MISCELLANEOUS ITEMS - LNFT.
6. MILL THE CONCRETE SURFACE AS APPROVED BY THE PROJECT MANAGER TO RECESS DEVICES.

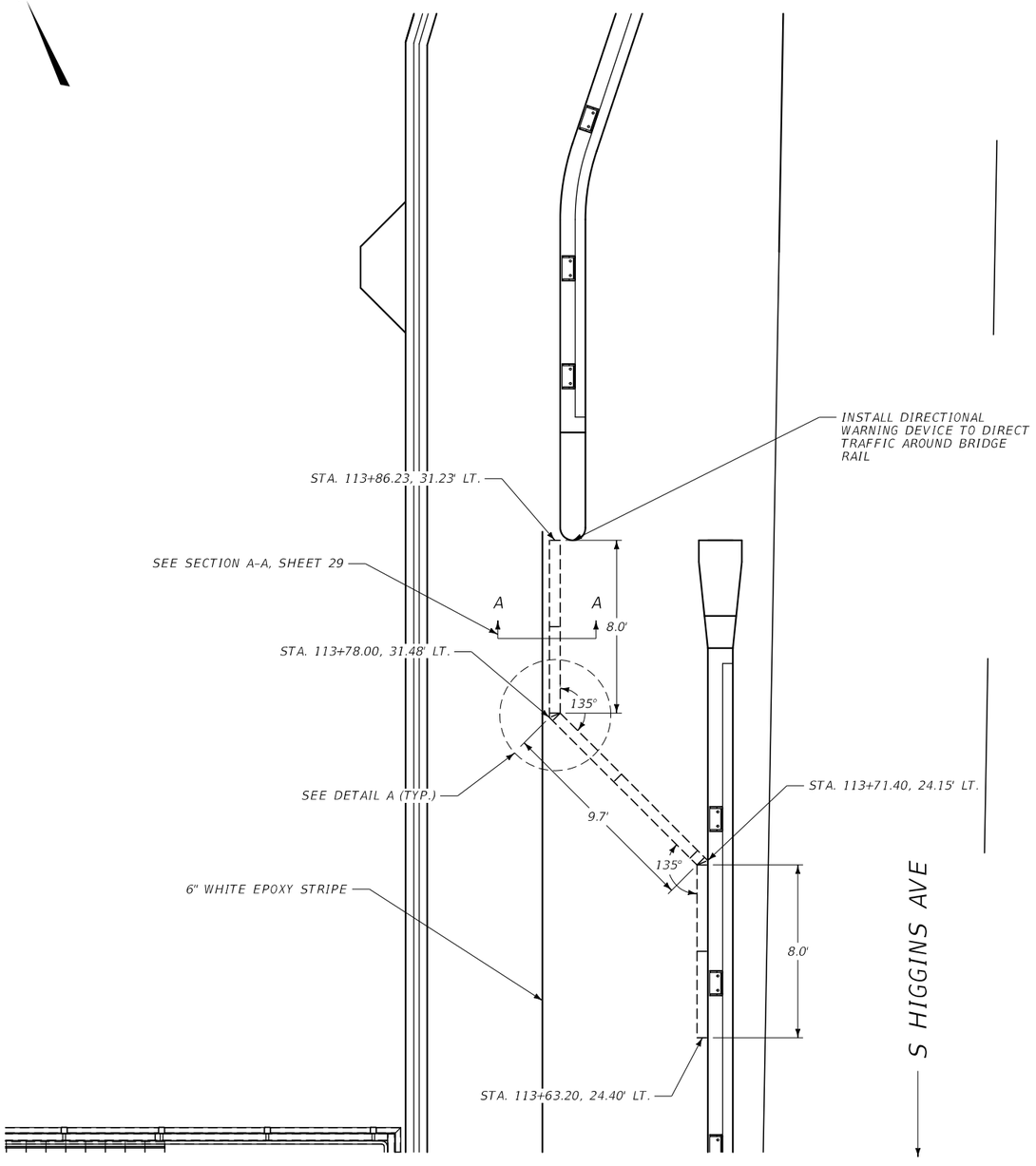
DIRECTION WARNING DEVICE DETAILS

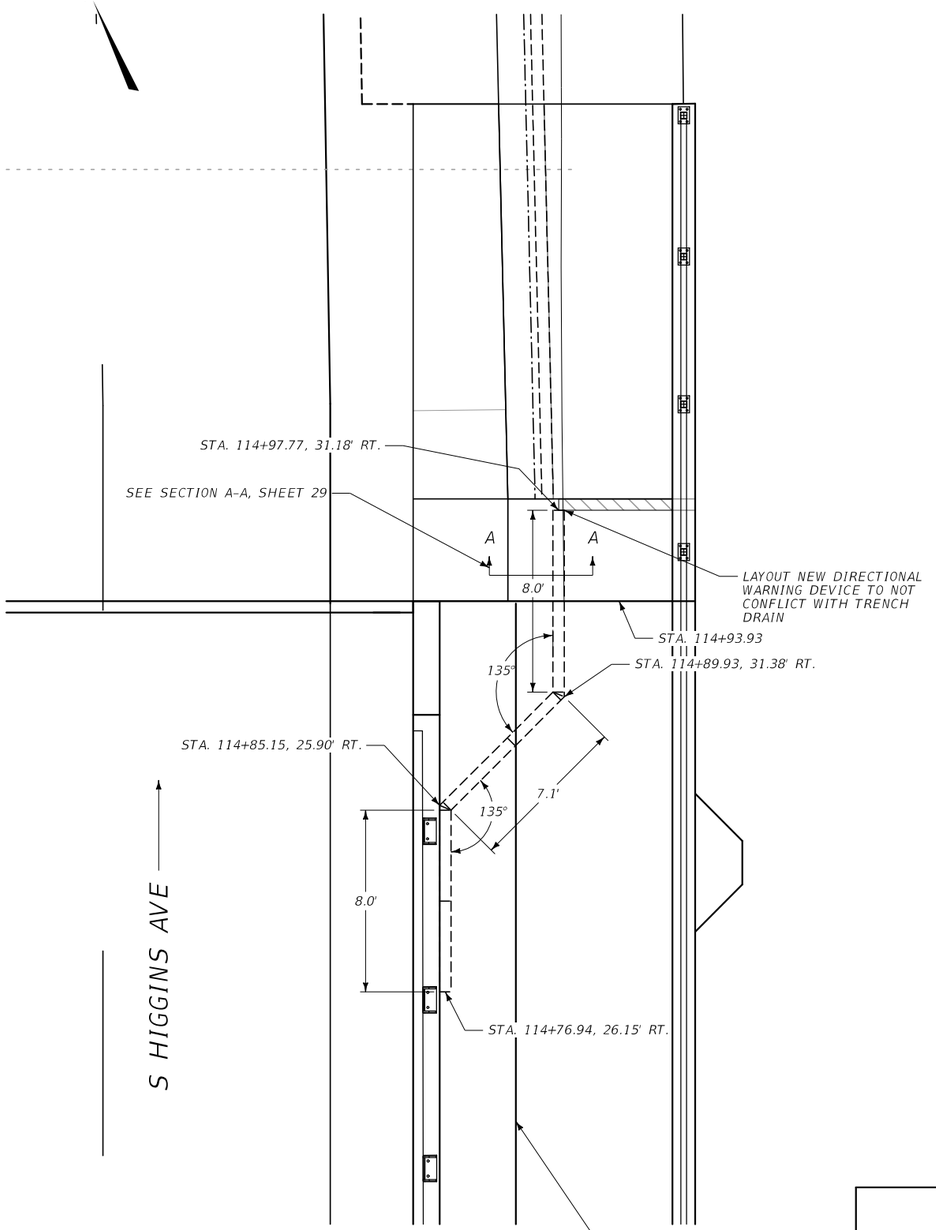
HDR

3 / 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ07.DGN	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
		5/18/2020	REVIEWED BY		MISSOULA COUNTY	UPN 8807000	SHEET 29
		10:30:46 AM CCOLLINS	CHECKED BY				

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



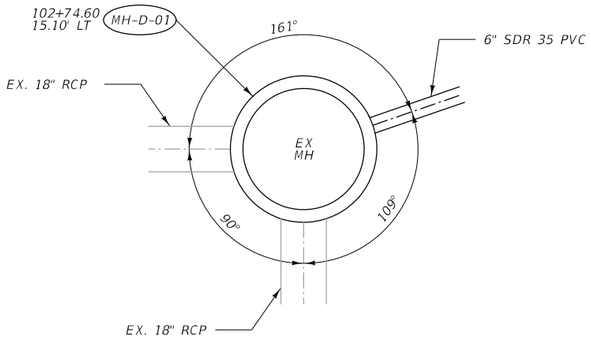


DIRECTION WARNING DEVICE DETAILS

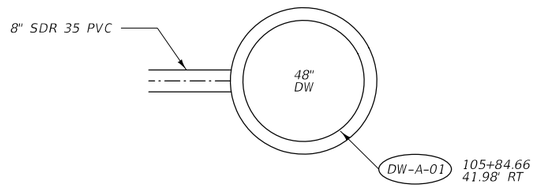
2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDET207.DGN	DESIGNED BY			ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
1		5/18/2020	REVIEWED BY			MISSOULA COUNTY	UPN 8807000	SHEET 30
		10:30:49 AM CCOLLINS	CHECKED BY					

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

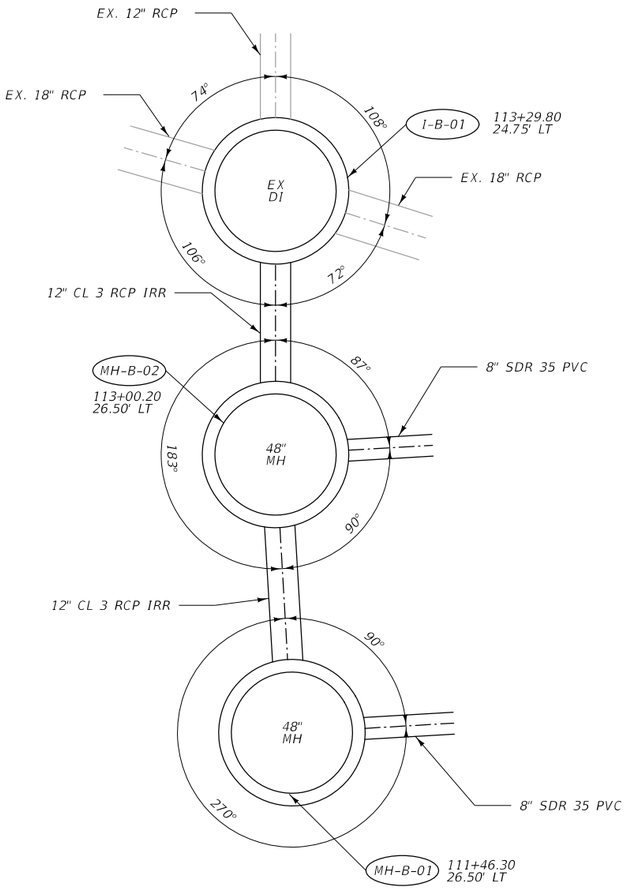
AWARD COPY



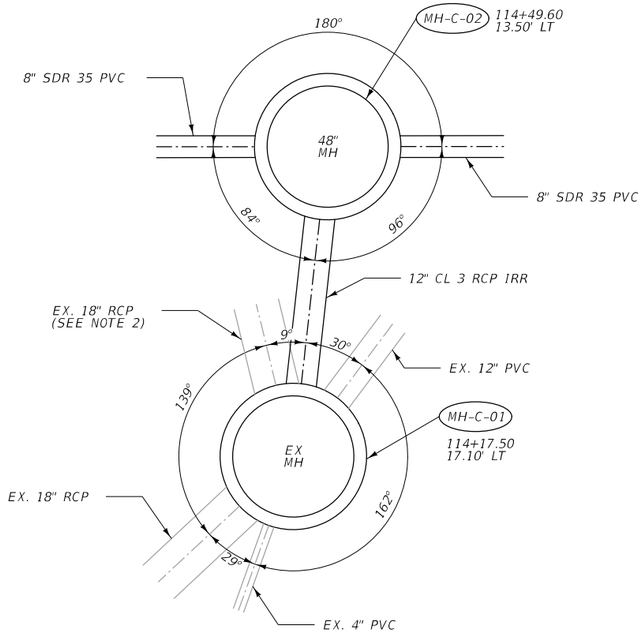
102+74.60



105+84.66



111+46.30 TO 113+29.80



114+17.50 TO 114+49.60

KEY

48" MH	NEW MANHOLE – INSIDE DIAMETER NOTED	EX DI	EXISTING DROP INLET
48" DW	NEW DRYWELL (SUMP) – INSIDE DIAMETER NOTED	EX MH	EXISTING MANHOLE
DW-X-XX	DRYWELL (SUMP) ID		
MH-X-XX	MANHOLE ID		
I-X-XX	INLET ID		

NOTES:

1. SEE BENT PIPE SCHEMATICS AND STORM DRAIN PLAN/PROFILE SHEETS FOR STRUCTURE SIZES, LOCATIONS, AND ELEVATIONS.
2. EXISTING 18" RCP IS BENEATH THE PROPOSED 12" RCP AND DOES NOT CONFLICT WITH THE PROPOSED PIPE. SEE STORM DRAIN PLAN/PROFILE SHEETS FOR ADDITIONAL DETAILS.

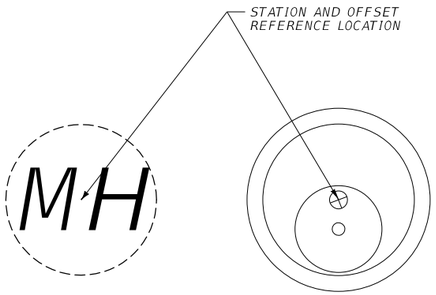
STORM DRAIN SYSTEM OVERVIEW DETAILS

NO SCALE

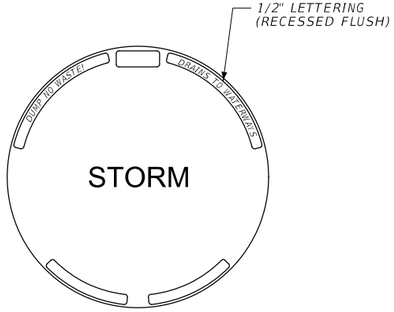
HDR

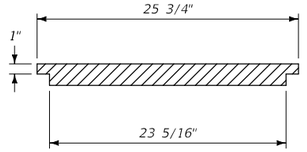
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

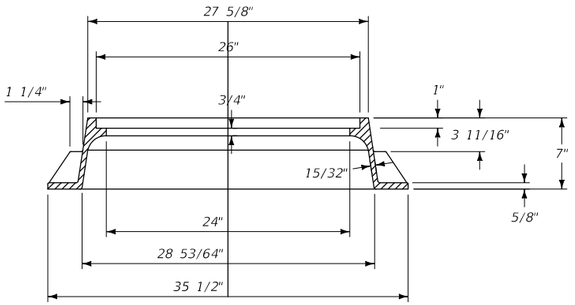


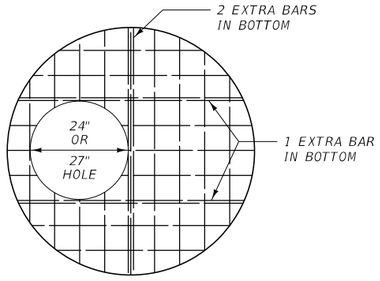
MANHOLE LOCATION



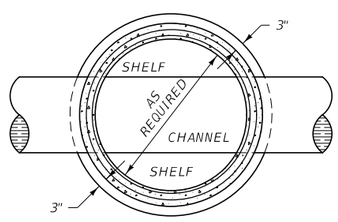


SOLID FRAME AND LID

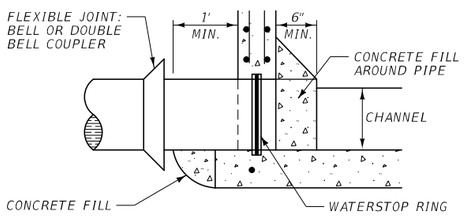




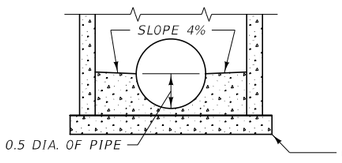
MDT TYPE 3 MANHOLE ROOF SLAB



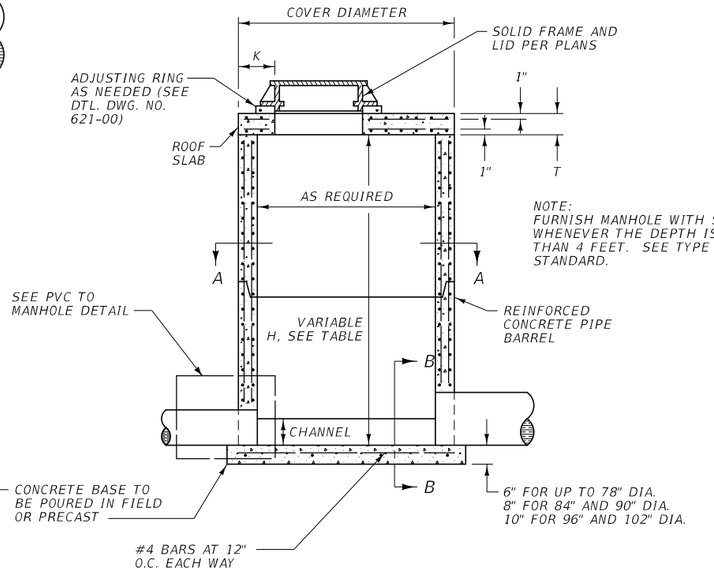
MDT TYPE 3 SECTION A-A



PVC TO MANHOLE DETAIL



MDT TYPE 3 SECTION B-B



MDT TYPE 3 MANHOLE

MANHOLE TYPE 3 NOTES:

1. ALL MANHOLE CONSTRUCTION, EXCEPT FRAME, LID, AND BASE, SHALL CONFORM TO AASHTO M 199(= (199M). THIS PROVIDES THAT REINFORCEMENT MAY BE MADE OF (1) COLD DRAWN STEEL WIRE-AASHTO M 32 (32M). (2) STEEL WIRE FABRIC- AASHTO M 55 (55M), OR (3) STEEL BARS- AASHTO M 31 (31M).
2. THE CONSTRUCTION AND REINFORCEMENT OF THE BASE FOR EACH STRUCTURE TYPE MUST BE COMPATIBLE WITH THE CONDITIONS AND THE WEIGHT OF THE SUPER-STRUCTURE. AASHTO M 199 PROVIDES FOR 4000 PSI CONCRETE. THE MIX CALLS FOR 6 SACKS OF CEMENT PER CUBIC YARD. REINFORCEMENT SHOWN IS ILLUSTRATIVE ONLY. SEE AASHTO M 199.
3. USE MANHOLE STEPS THAT ARE METALLIC AND COATED WITH COPOLYMER POLYPROPYLENE, OR AN APPROVED EQUAL. THE MINIMUM DESIGN LIVE LOAD FOR A SINGLE CONCENTRATED LOAD IS 300 POUNDS.

MDT TYPE 3 MANHOLE		
LOCATION	DIMENSIONS	
	MH DIA.	H
111+46.30, 26.50' LT	48"	4.25'
113+00.20, 26.50' LT	48"	4.25'
114+49.60, 13.50' LT	48"	4.25'

MDT TYPE 3 MANHOLE ROOF SLAB					
MH DIA.	SLAB DIA.	T	K	BOTTOM BARS	TOP BARS
48"	58"	6"	6"	#4 AT 6"	~

DRAINAGE DETAILS
MANHOLE TYPE 3

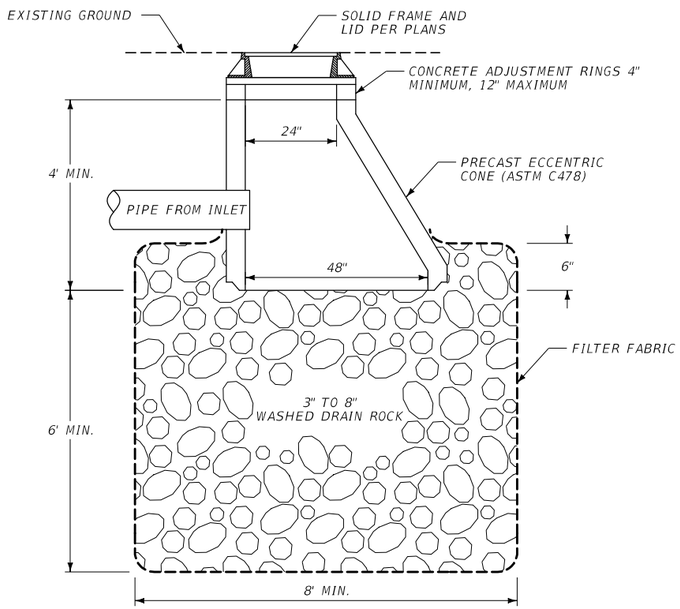
NO SCALE

HDR

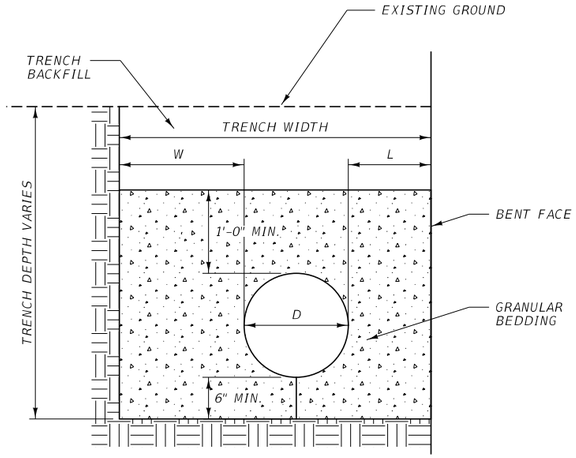
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

DETAIL

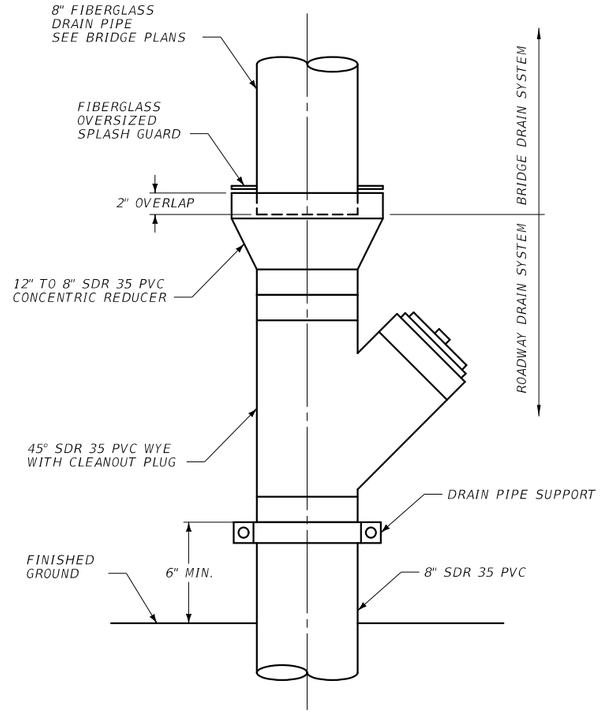


DRYWELL (SUMP) DETAIL

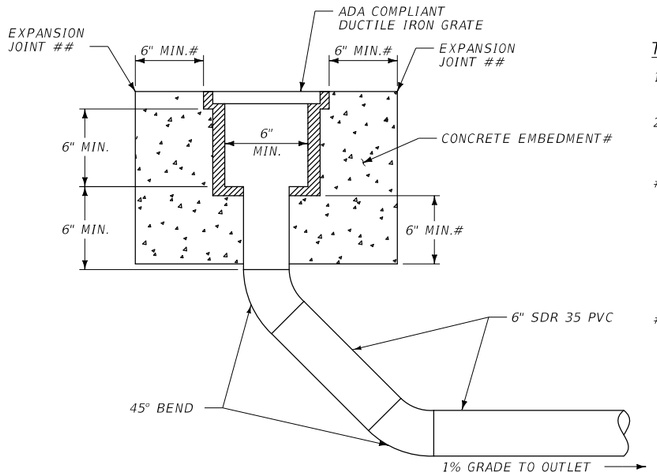


FLEXIBLE PIPE TRENCH/BEDDING DETAIL FOR BENTS 2, 7, 10, AND 13

DIMENSIONS		
PIPE TRENCH AT BENTS		
BENT NO.	W	L
2	1.0'	4.5"
7	1.0'	4.5"
10	1.0'	10.5"
13	1.0'	10.5"



CONNECTION DETAIL



TRENCH DRAIN DETAIL

STA. 103+18.37 TO 104+26.14 LT
STA. 114+98.02 RT

TRENCH DRAIN NOTES:

1) INSTALL TRENCH DRAINS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

2) PROVIDE EXCAVATION AND BACKFILL MATERIALS FOR TRENCH DRAINS MEETING THE REQUIREMENTS OF SECTION 207.

USE CLASS GENERAL CONCRETE FOR TRENCH DRAIN CONCRETE EMBEDMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. FOR THICKNESS REFER TO MANUFACTURER'S RECOMMENDATIONS FOR LOAD CLASS B (MINIMUM) FOR NO LESS THAN 6". INCLUDE ALL WORK AND MATERIAL TO INSTALL CONCRETE EMBEDMENT IN THE UNIT PRICE BID ITEM FOR TRENCH DRAIN.

CONSTRUCT EXPANSION JOINTS FOR TRENCH DRAINS IN ACCORDANCE WITH THE DETAILED DRAWINGS AND STANDARD SPECIFICATIONS FOR SIDEWALK, EXCEPT AS FOLLOWS:

PROVIDE EXPANSION JOINT FILLER MATERIAL MEETING AASHTO M 213.

SEAL EXPANSION JOINTS USING JOINT SEAL MATERIAL IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. RECESS SEAL 1/4" AND EXTEND 1" BELOW THE FINISHED SURFACE (3/4" MINIMUM DEPTH).

INCLUDE ALL WORK AND MATERIALS TO INSTALL EXPANSION JOINTS FOR TRENCH DRAINS IN THE UNIT PRICE BID ITEM FOR THE ADJACENT CONCRETE SIDEWALK.

FLEXIBLE PIPE NOTES:

1. TRENCH BACKFILL: PLACE PER STANDARD SPECIFICATION 603.03.4. GRANULAR BEDDING MAY BE SUBSTITUTED AT NO ADDITIONAL COST.

2. GRANULAR BEDDING: USE COARSE AGGREGATE FOR CONCRETE NO. 2 GRADATION PER TABLE 701-4 IN STANDARD SPECIFICATION 701.01.2.

   THE BEDDING MATERIAL DIRECTLY UNDERNEATH THE PIPE SHOULD BE LEFT UNCOMPACTED TO FACILITATE THE INSTALLATION OF THE PIPE.

   COMPACT GRANULAR BEDDING BY PROOF ROLLING WITH VIBRATORY COMPACTOR IN 8 INCH LIFTS OR BY USING A METHOD APPROVED BY THE PROJECT MANAGER.

3. SAND CUSHION: USE GRADE 5 MATERIAL PER TABLE 701-7 IN STANDARD SPECIFICATION 701.02.3.

   THE SAND MATERIAL SHOULD BE LEFT UNCOMPACTED TO FACILITATE THE INSTALLATION OF THE PIPE.

   INCLUDE THE SAND MATERIAL IN THE COST OF THE BEDDING.

CONNECTION DETAIL NOTES:

1. AN ECCENTRIC CONE REDUCER WILL BE PERMITTED WHEN ITS USE WILL BE AS GOOD OR BETTER THAN THE ONE SHOWN, OR IF IT IS MORE ADAPTABLE TO EXISTING CONDITIONS.

2. USE GREY-COLORED PVC FOR PIPING ABOVE GROUND TO CLOSELY MATCH COLOR OF FIBERGLASS DRAIN PIPE.

3. SEE BENT PIPING SCHEMATICS FOR CLEANOUT ORIENTATION.

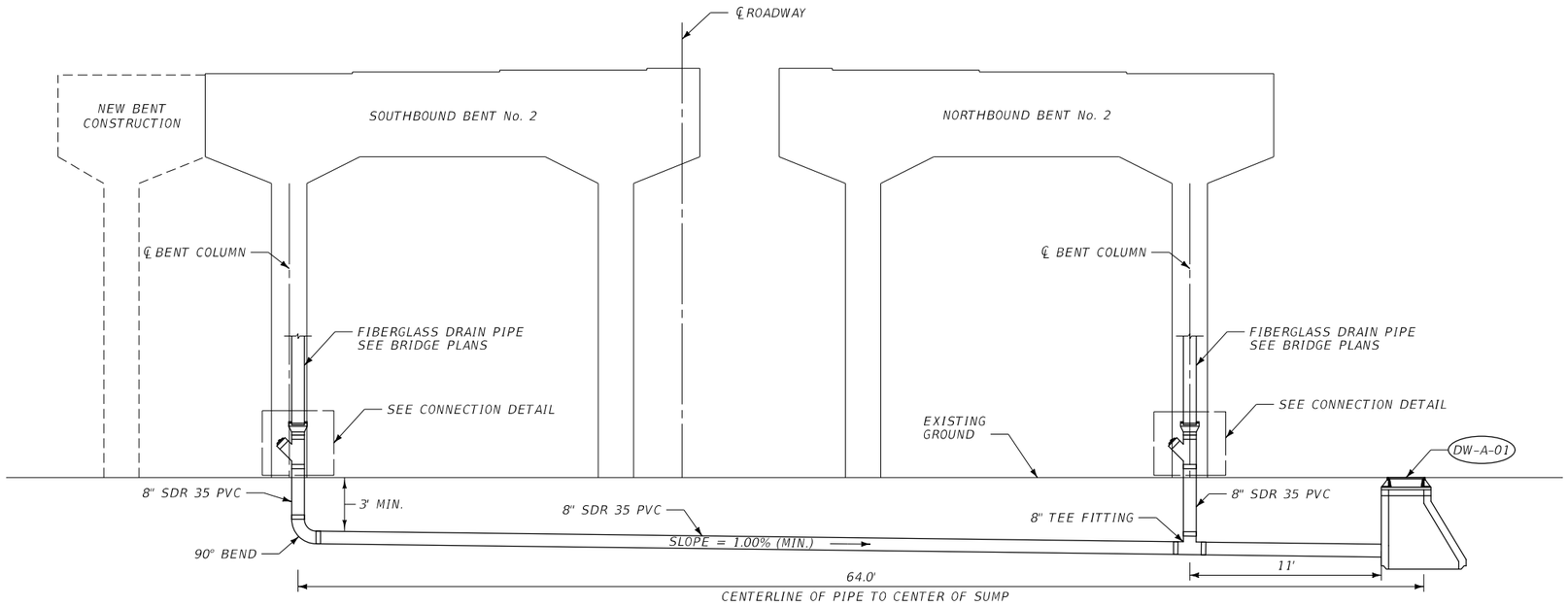
TYPE 1 SUMP		
LOCATION	DIMENSIONS	
	MH DIA.	H
105+84.66, 41.98' RT	48"	SEE DETAIL

DRAINAGE DETAILS
DRYWELL, CONNECTION, & TRENCH DRAIN

NO SCALE

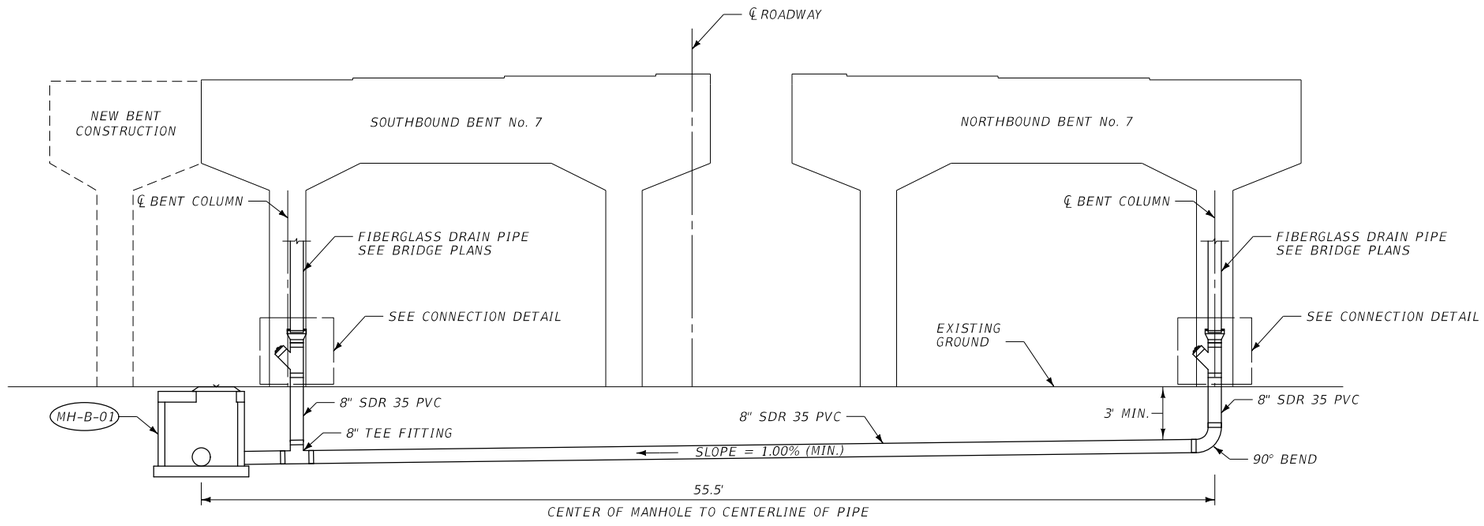
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



BENT No. 2 PIPING SCHEMATIC

LOOKING AHEAD ON CENTERLINE



BENT No. 7 PIPING SCHEMATIC

LOOKING AHEAD ON CENTERLINE

NOTES:

1. AN ECCENTRIC CONE REDUCER WILL BE PERMITTED WHEN ITS USE WILL BE AS GOOD OR BETTER THAN THE ONE SHOWN, OR IF IT IS MORE ADAPTABLE TO FIELD CONDITIONS.
2. USE GREY-COLORED PVC FOR PIPING ABOVE GROUND TO CLOSELY MATCH FIBERGLASS PIPE.

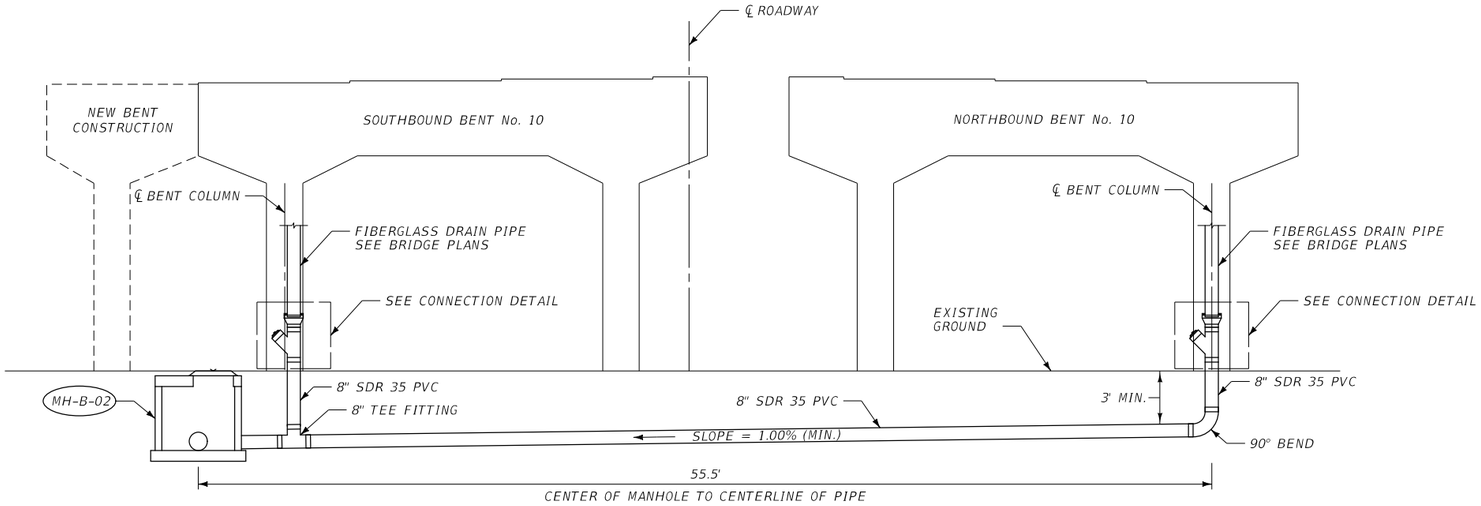
DRAINAGE DETAILS
BENT PIPING SCHEMATICS

NO SCALE

HDR

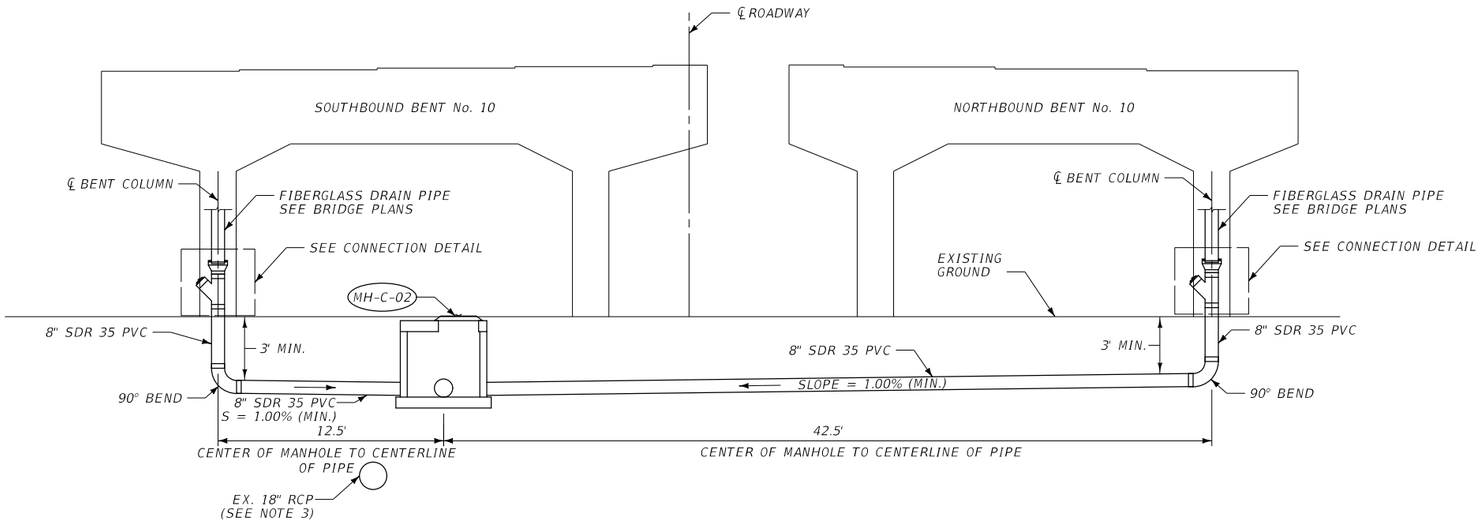
3 / 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ09.dgn 5/18/2020 10:31:01 AM CCOLLINS	DESIGNED BY REVIEWED BY CHECKED BY		ROAD PLANS MISSOULA COUNTY		HIGGINS AVE. BR REHAB - MISSOULA UPN 8807000	STPB 8113(9) SHEET 34

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086



BENT No. 10 PIPING SCHEMATIC

LOOKING AHEAD ON CENTERLINE



BENT No. 13 PIPING SCHEMATIC

LOOKING AHEAD ON CENTERLINE

NOTES:

1. AN ECCENTRIC CONE REDUCER WILL BE PERMITTED WHEN ITS USE WILL BE AS GOOD OR BETTER THAN THE ONE SHOWN, OR IF IT IS MORE ADAPTABLE TO FIELD CONDITIONS.
2. USE GREY-COLORED PVC FOR PIPING ABOVE GROUND TO CLOSELY MATCH FIBERGLASS PIPE.
3. EXISTING 18" RCP IS SHOWN FOR INFORMATION ONLY. SURVEY DATA INDICATES PIPE IS APPROXIMATELY 8.5' BELOW GRADE. SEE STORM DRAIN PLAN/PROFILE FOR ADDITIONAL DETAILS.

DRAINAGE DETAILS
BENT PIPING SCHEMATICS

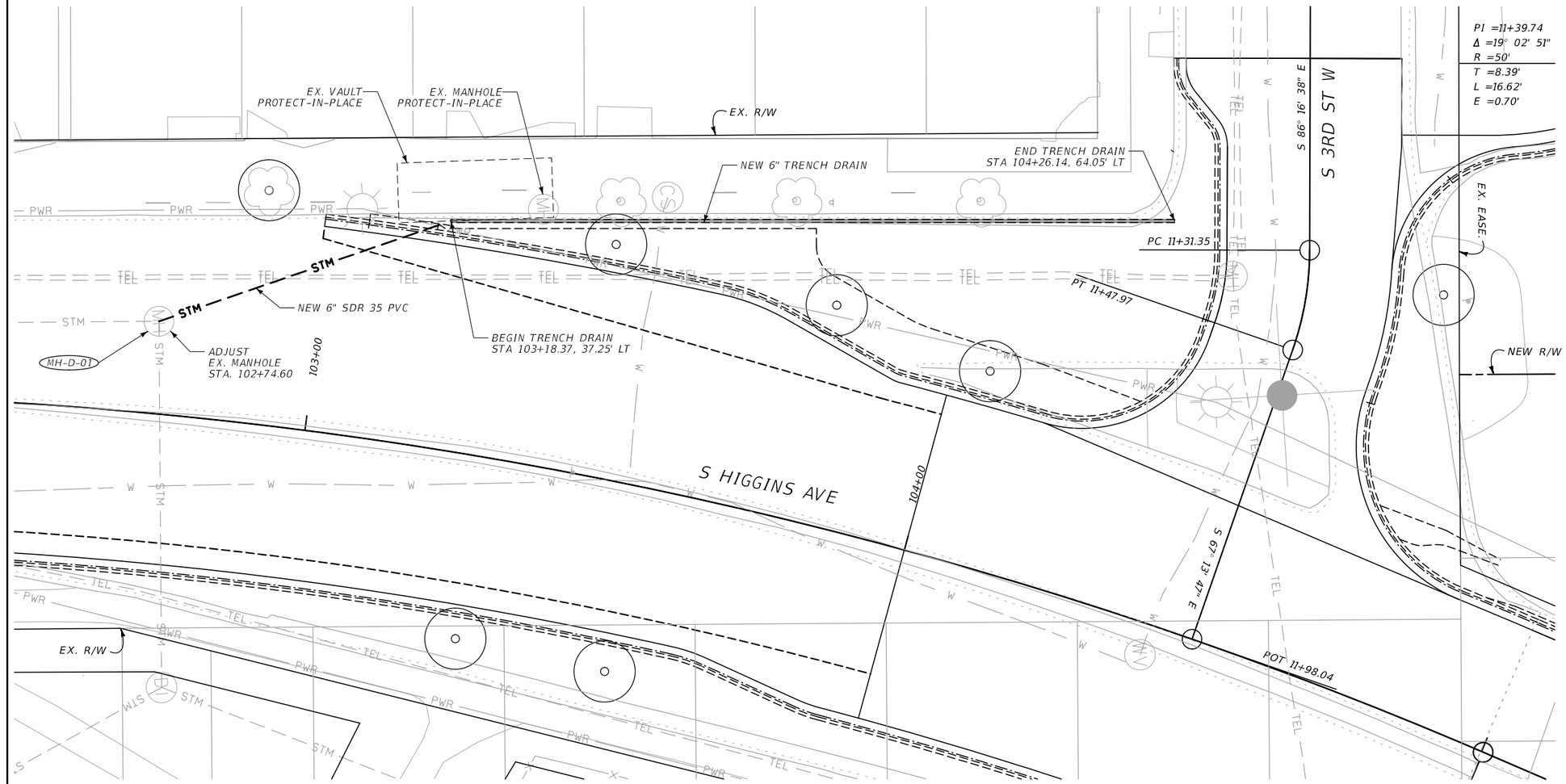
NO SCALE

HDR

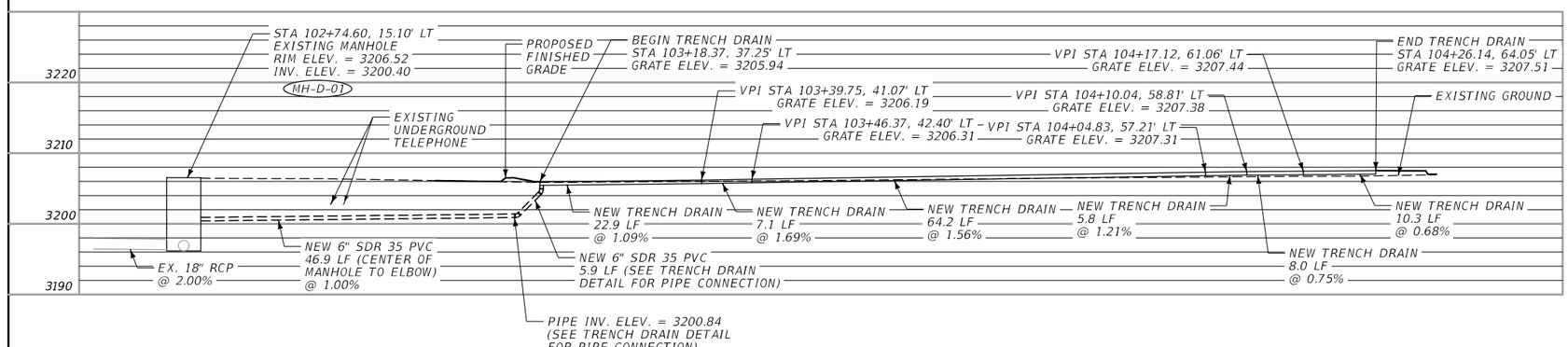
2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ09.dgn	DESIGNED BY			ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
1		5/18/2020	REVIEWED BY			MISSOULA COUNTY	UPN 8807000	SHEET 35
		10:31:02 AM CCOLLINS	CHECKED BY					

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



STATION	TRENCH DRAIN LENGTH	6" SDR 35 PVC
102+74.60, 15.10' LT		
		46.9'
103+15.33, 35.58' LT		
		5.9'
103+18.37, 37.25' LT		
	22.9'	
103+39.75, 41.07' LT		
	7.1'	
103+46.37, 42.40' LT		
	64.2'	
104+04.83, 57.21' LT		
	5.8'	
104+10.04, 58.81' LT		
	8.0'	
104+17.12, 61.06' LT		
	10.3'	
104+26.14, 64.05' LT		



NOTES:

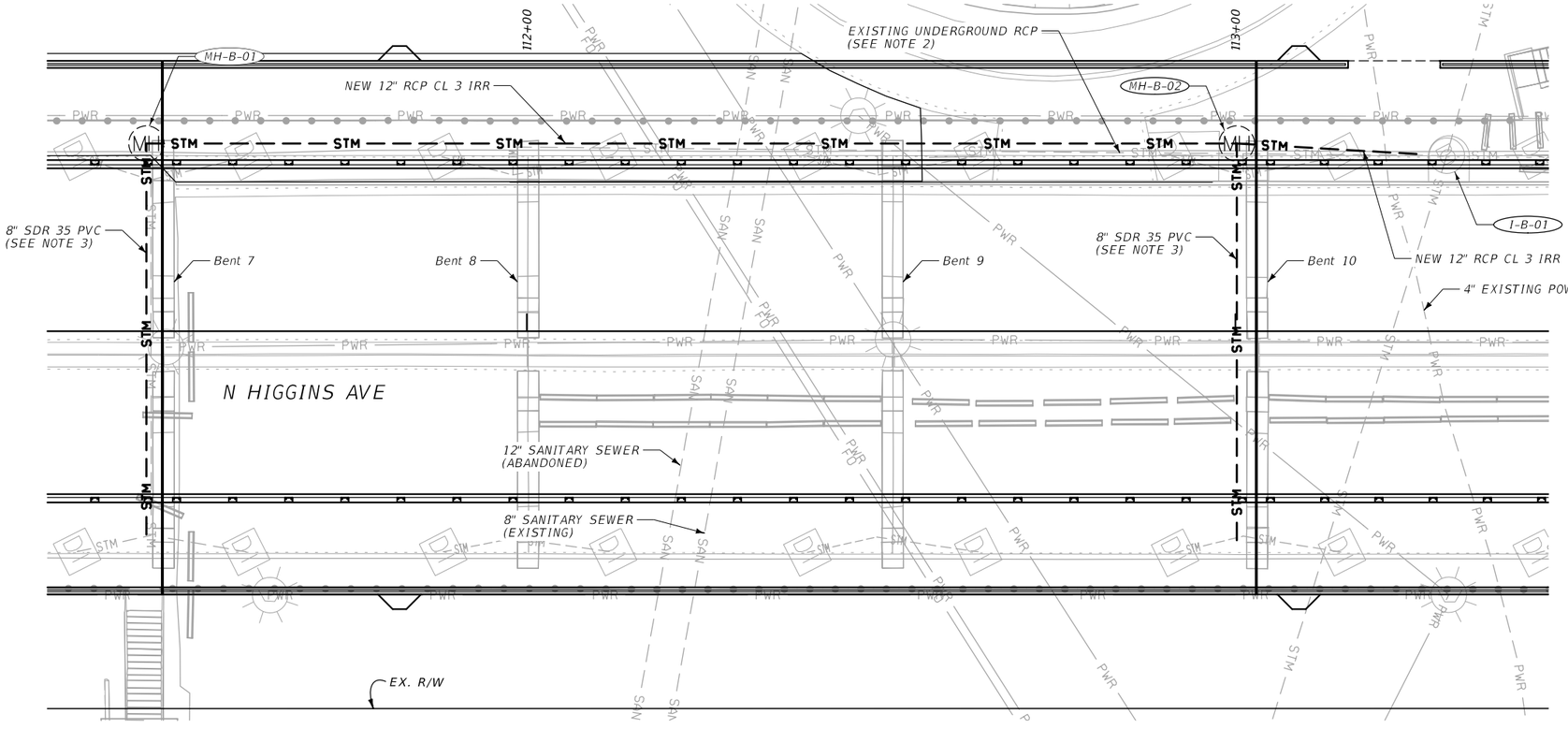
1. LOCATION OF EXISTING AND ABANDONED UTILITIES ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL UTILITY LOCATIONS.

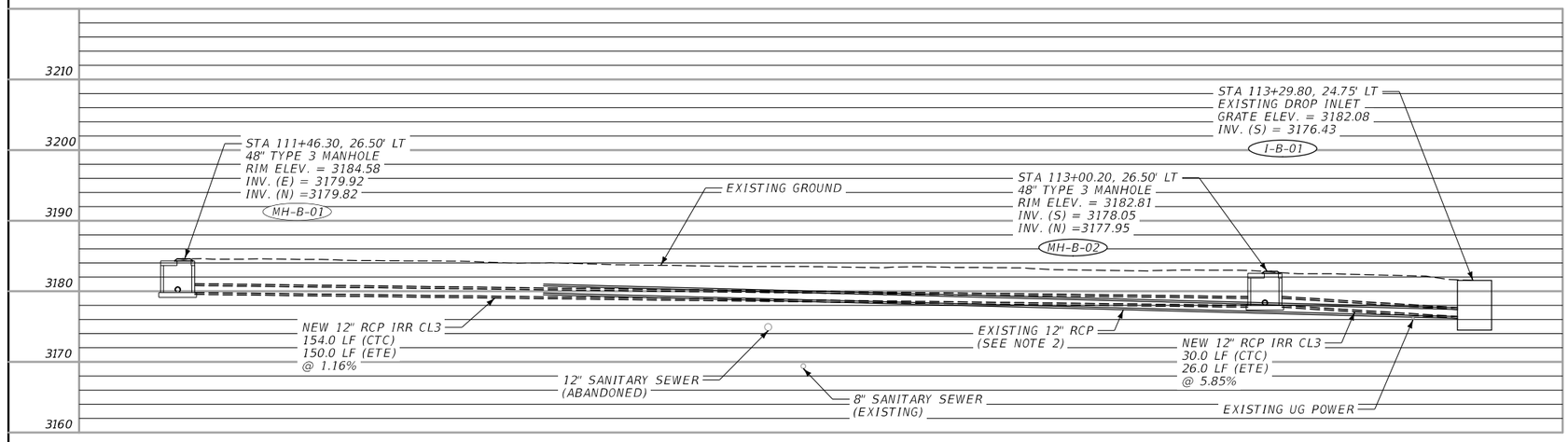
STORM DRAIN SYSTEM DETAILS

HDR

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ10.dgn	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
2		5/18/2020	REVIEWED BY				
		10:31:07 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	SHEET 36

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086





STATION	EDGE TO EDGE LENGTH	CENTER TO CENTER LENGTH
111+46.30, 26.50' LT		
	150.0'	154.0'
113+00.20, 26.50' LT		
	26.0'	30.0'
113+29.80, 24.75' LT		

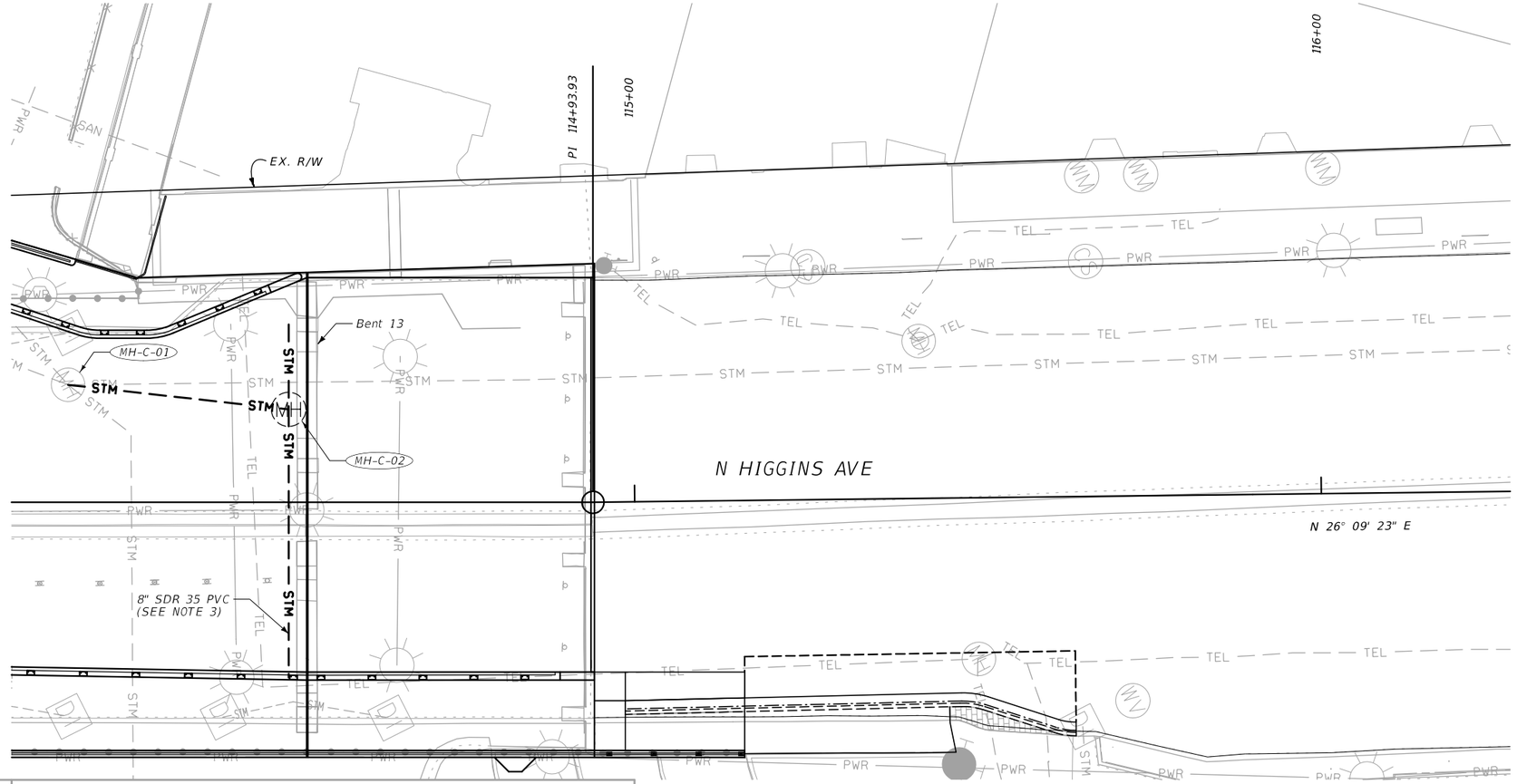
NOTES:

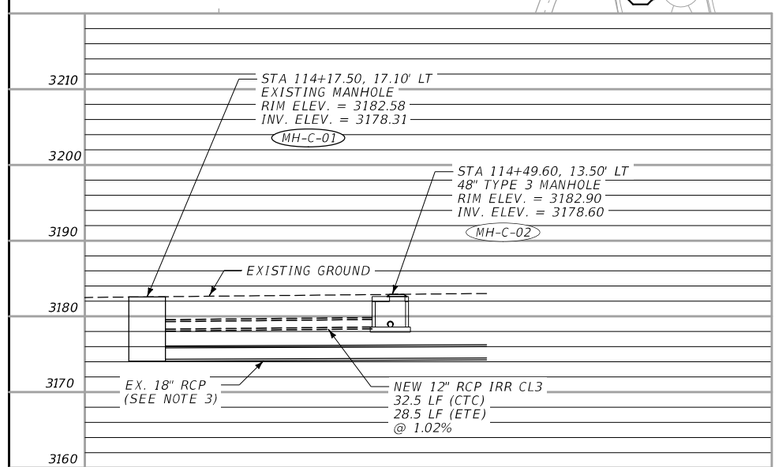
1. LOCATION OF EXISTING AND ABANDONED UTILITIES ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL UTILITY LOCATIONS.
2. AN EXISTING UNDERGROUD 12" RCP COLLECTS RUNOFF FROM THE EXISTING PVC DROP DOWN AT BENT 8 (STA 112+00.00) AND PARALLELS THE BRIDGE UNTIL DISCHARGING INTO THE EXISTING DROP INLET AT STA 113+29.80. LIMITED INFORMATION IS AVAILABLE FOR THIS PIPE. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING THE LOCATION OF THE PIPE AND REMOVING ANY OR ALL PORTIONS OF THE PIPE TO ACCOMMODATE INSTALLATION OF THE NEW 12" RCP.
3. SEE BENT ELEVATION VIEWS ON DRAINAGE DETAILS FOR 8" SDR 35 PVC STORM DRAIN SYSTEM.

STORM DRAIN SYSTEM DETAILS

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086





STATION	EDGE TO EDGE LENGTH	CENTER TO CENTER LENGTH
114+17.50, 17.10' LT		
	28.5'	32.5'
114+49.60, 13.50' LT		

NOTES:

1. LOCATION OF EXISTING AND ABANDONED UTILITIES ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL UTILITY LOCATIONS.
2. SEE BENT ELEVATION VIEWS ON DRAINAGE DETAILS FOR 8" SDR 35 PVC STORM DRAIN SYSTEM.
3. EX. 18" RCP IS PROJECTED ONTO PROFILE TO VERIFY NO CONFLICTS WITH PROPOSED MANHOLE AND PIPE.

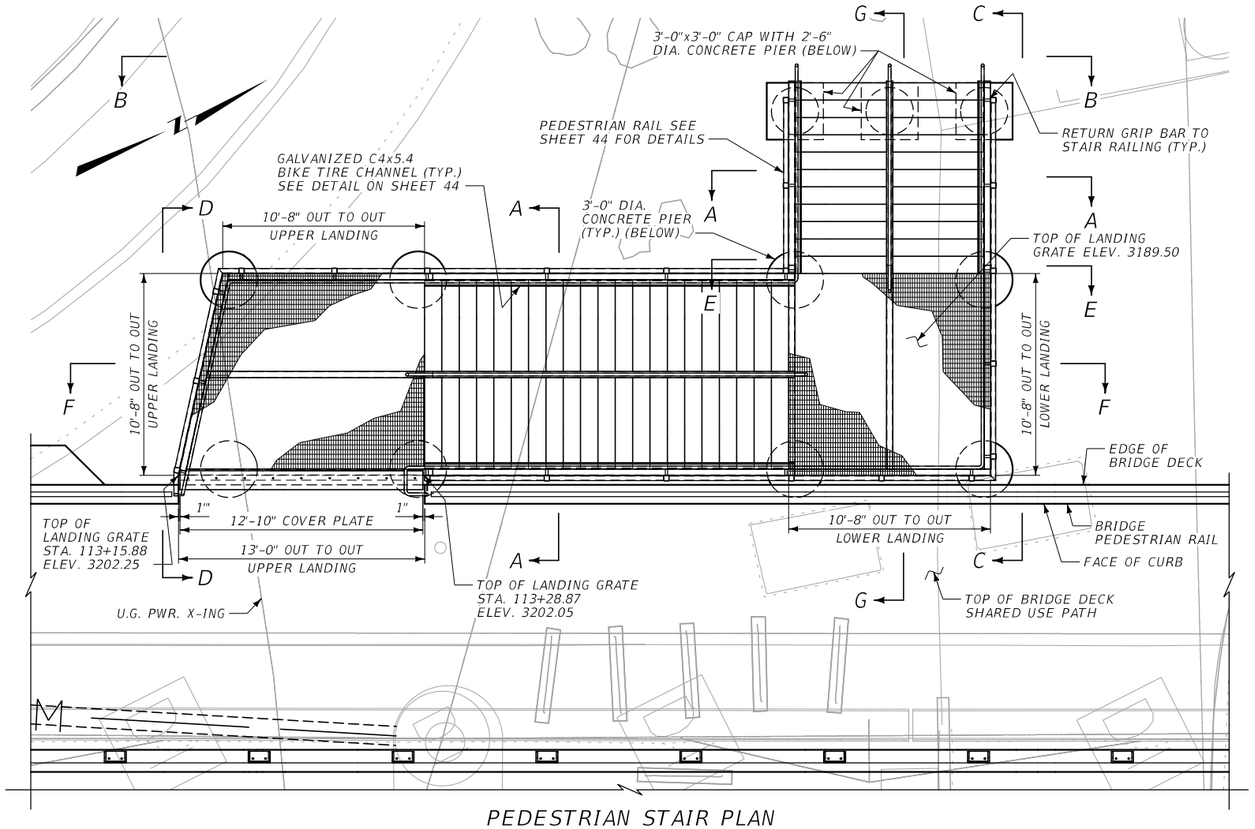
STORM DRAIN SYSTEM DETAILS

HDR

2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ10.dgn	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
1		5/18/2020	REVIEWED BY		MISSOULA COUNTY	UPN 8807000	SHEET 38
		10:31:12 AM CCOLLINS	CHECKED BY				

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



PEDESTRIAN STAIR PLAN
STA. 113+15.88 TO 113+28.87

GENERAL NOTES:

SEE SHEETS 40 THRU 44 FOR ADDITIONAL STAIR DETAILS.

PEDESTRIAN STAIRWAY STEEL: INCLUDE ALL COSTS ASSOCIATED WITH CONSTRUCTING THE STEEL STAIRWAY, INCLUDING STRUCTURAL STEEL, GRIP BARS, STAIR TREADS, LANDING GRATING, BIKE TIRE CHANNEL, CONCRETE FOUNDATION PIERS, AND REINFORCING STEEL IN THE UNIT PRICE BID FOR PEDESTRIAN STAIRWAY-STEEL.

STAIR TREADS AND GRATING: PROVIDE COMMERCIALLY MANUFACTURED, GALVANIZED STAIR TREADS AND GALVANIZED LANDING GRATING PRODUCED FROM WELDED STEEL GRATING WITH 1 ¼" MINIMUM HEIGHT LOAD BEARING BARS WITH A CLEAR SPACING NOT TO EXCEED ½". AND WITH CROSS BARS AT SPACING NOT EXCEEDING 4". DESIGNED TO RESIST A UNIFORM SERVICE LIVE LOAD OF 100 PSF. AND A 300 POUND POINT LOAD APPLIED SEPARATELY, WITH A DEFLECTION NOT EXCEEDING ¼". PROVIDE STAIR TREAD ASSEMBLIES EACH COMPLETE WITH NON-SLIP GRIT NOSING FOR EXTERIOR USE, TOE PLATE, AND CONNECTION END PLATES AS SHOWN IN THE PLANS. PROVIDE CERTIFICATION OF COMPLIANCE WITH THESE REQUIREMENTS AND THE 2012 INTERNATIONAL BUILDING CODE. INSTALL STAIR TREADS AS RECOMMENDED BY MANUFACTURER AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2012 INTERNATIONAL BUILDING CODE. SET BEAM AND COLUMN BASE PLATES ON NON SHRINK GROUT TO ENSURE TREADS AND LANDINGS ARE LEVEL IN EACH DIRECTION EXCEPT AS OTHERWISE INDICATED. PROVIDE AND INSTALL GRATING CLIPS AND ANCHORS AS RECOMMENDED BY GRATING MANUFACTURER.

STRUCTURAL STEEL: USE HSS SECTIONS MEETING THE REQUIREMENTS OF ASTM A500 GRADE B. USE PLATES, BARS, AND HOT-ROLLED SECTIONS MEETING THE REQUIREMENTS OF ASTM A36. USE STAINLESS STEEL PIPE FOR GRIP BARS AND HANDRAIL MEETING THE REQUIREMENTS OF ASTM A269 GRADES 304 OR 316. USE STAINLESS STEEL PLATE FOR HAND RAIL BASE PLATE MEETING THE REQUIREMENTS OF ASTM A666 GRADES 304 OR 316.

SUBMITTALS: SUBMIT FABRICATION PLANS FOR THE ENTIRE STAIR ASSEMBLY PER THE STANDARD SPECIFICATIONS.

WELDS: USE WELDING PROCESSES AND WELD FILLER MATERIALS MEETING THE REQUIREMENTS OF AWS D1.1 AND D1.6.

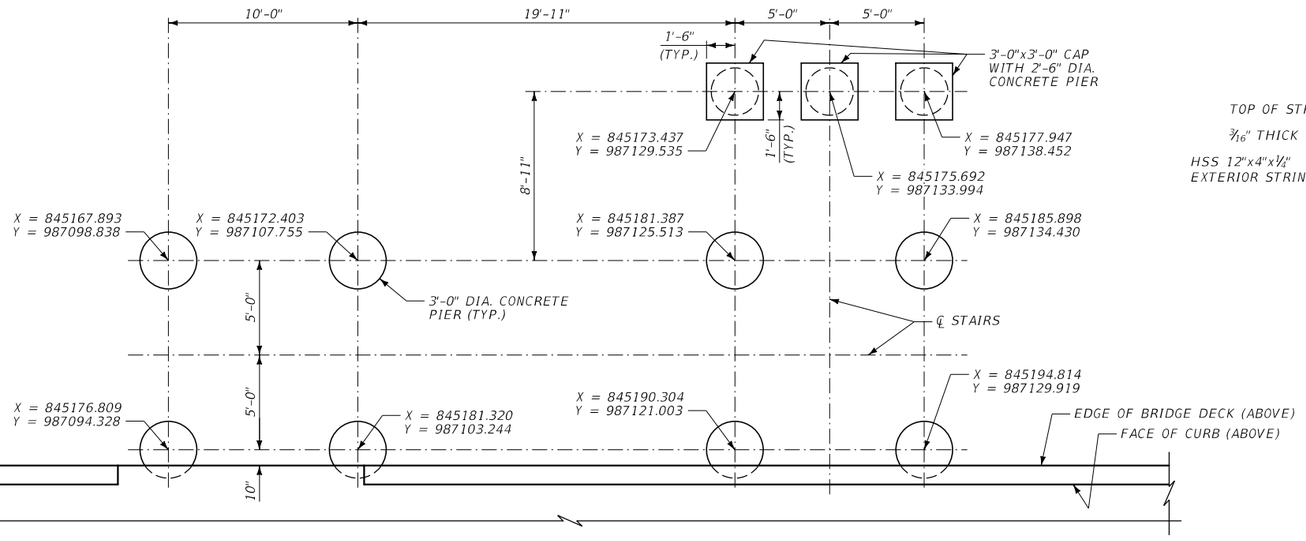
STEEL FINISHES: POWDER COAT ALL STEEL COMPONENTS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT AS INDICATED OTHERWISE. PROVIDE THE FINISH COAT IN BLACK (FS 27038). TOUCH UP IN THE FIELD AS REQUIRED. PASSIVATE STAINLESS STEEL PER ASTM A380 AND PROVIDE AN UNCOATED, SMOOTH BURNISHED FINISH. PROVIDE GALVANIZED FINISH ON BIKE TIRE CHANNEL, STAIR TREADS, AND LANDING GRATING. PROVIDE NO ADDITIONAL COATING ON GALVANIZED COMPONENTS.

FASTENERS: PROVIDE GALVANIZED BOLTS AND OTHER FASTENERS MEETING THE REQUIREMENTS OF ASTM F3125 GRADE A325 OR BETTER, PROVIDE THREADED ROD AND ANCHORS MEETING THE REQUIREMENTS OF ASTM A307 OR BETTER, SUBJECT TO APPROVAL OF THE PROJECT MANAGER. PROVIDE DISSIMILAR METALS PROTECTION.

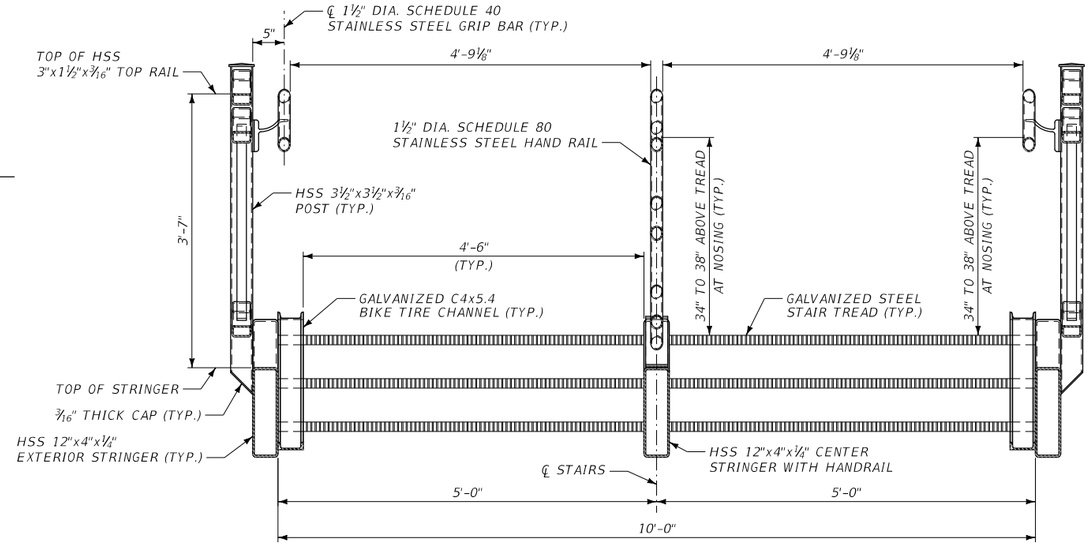
CONCRETE: USE CONCRETE CLASS STRUCTURE FOR FOUNDATION PIERS.

NONSHRINK GROUT: USE A NONSHRINK GROUT MEETING ASTM C1107 WITH A MINIMUM 28-DAY STRENGTH OF 4000 PSI.

PREFORMED JOINT FILLER: USE JOINT FILLER MEETING THE REQUIREMENTS OF SECTION 707.01.3 OF THE STANDARD SPECFICATIONS



PEDESTRIAN STAIR FOUNDATION PLAN



SECTION A-A

PEDESTRIAN STAIR DETAILS

NO SCALE

HDR

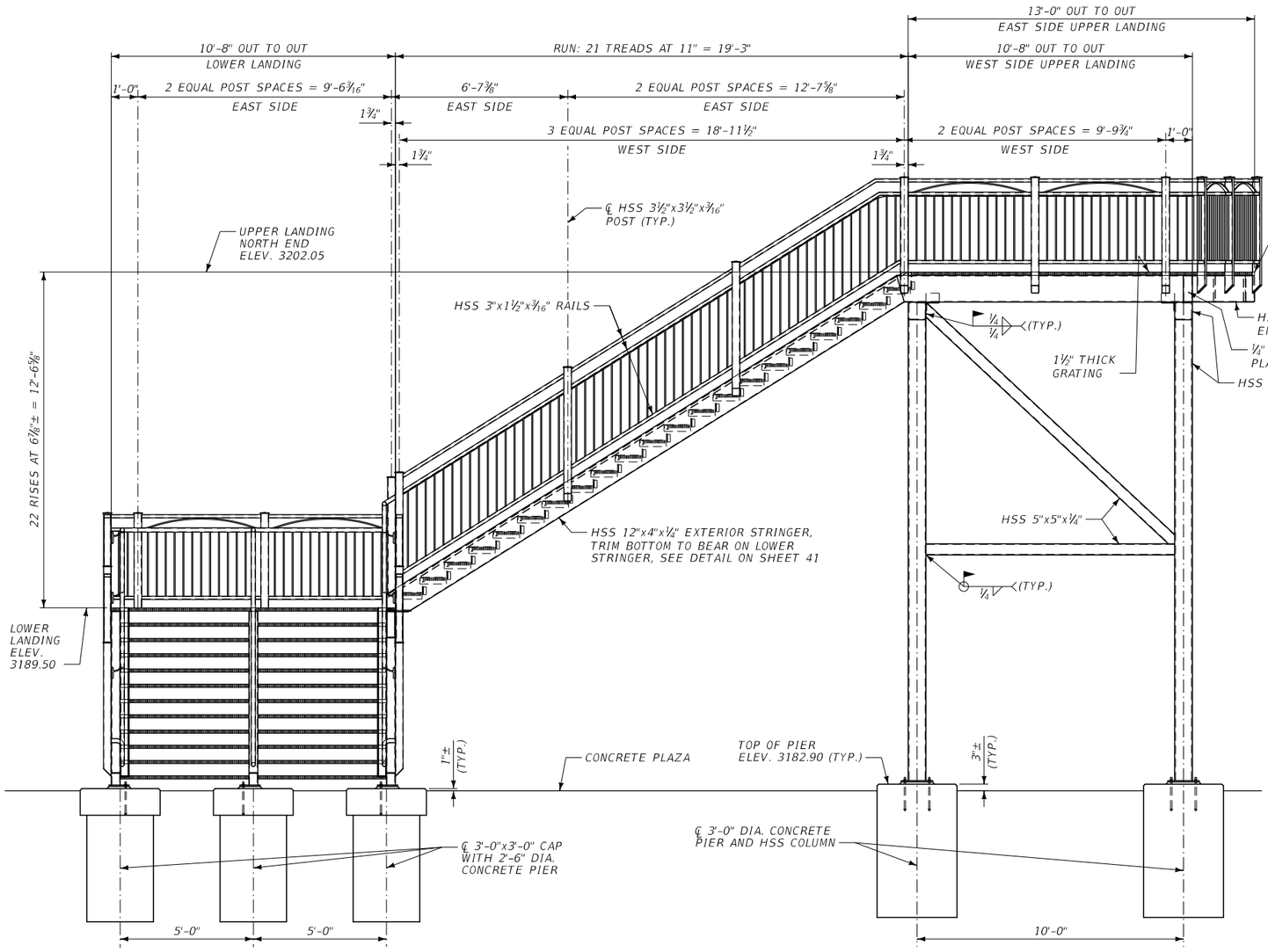
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ11.dgn	DESIGNED BY		ROAD PLANS		HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
2		5/18/2020	REVIEWED BY					
		10:31:21 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY		UPN 8807000	SHEET 39

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

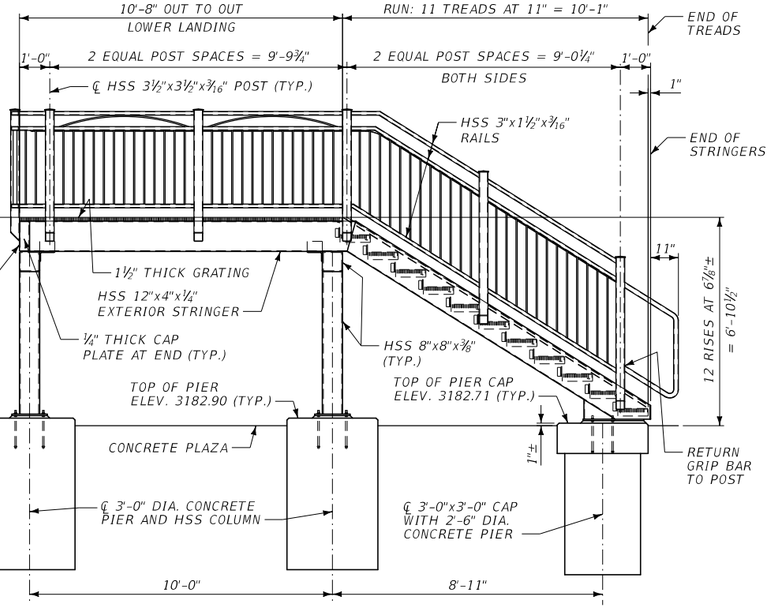
AWARD COPY

NOTES:

SEE SHEET 39 FOR LOCATIONS OF SECTIONS A-A AND B-B.



SECTION B-B



SECTION C-C

PEDESTRIAN STAIR DETAILS

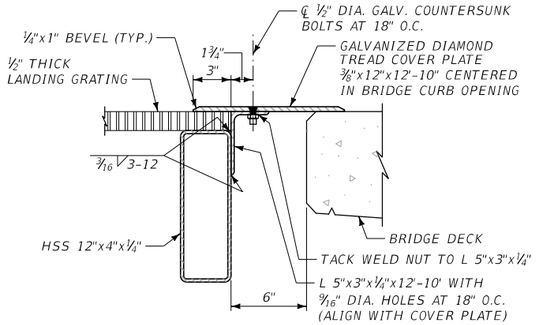
NO SCALE

HDR

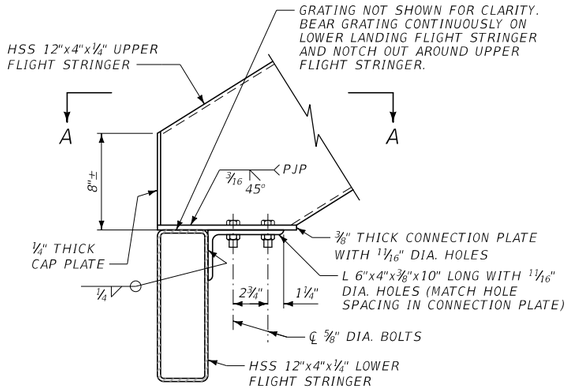
3 / 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ11.dgn	DESIGNED BY		ROAD PLANS		HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
		5/18/2020	REVIEWED BY					
		10:31:29 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY		UPN 8807000	SHEET 40

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



COVER PLATE DETAIL

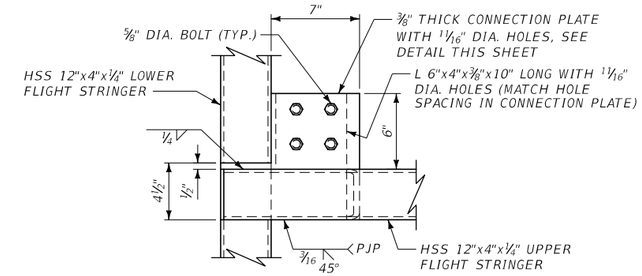


NOTE: CENTER STRINGER SHOWN, EXTERIOR STRINGER SIMILAR. TOTAL OF 3 LOCATIONS.

STRINGER TO STRINGER CONNECTION

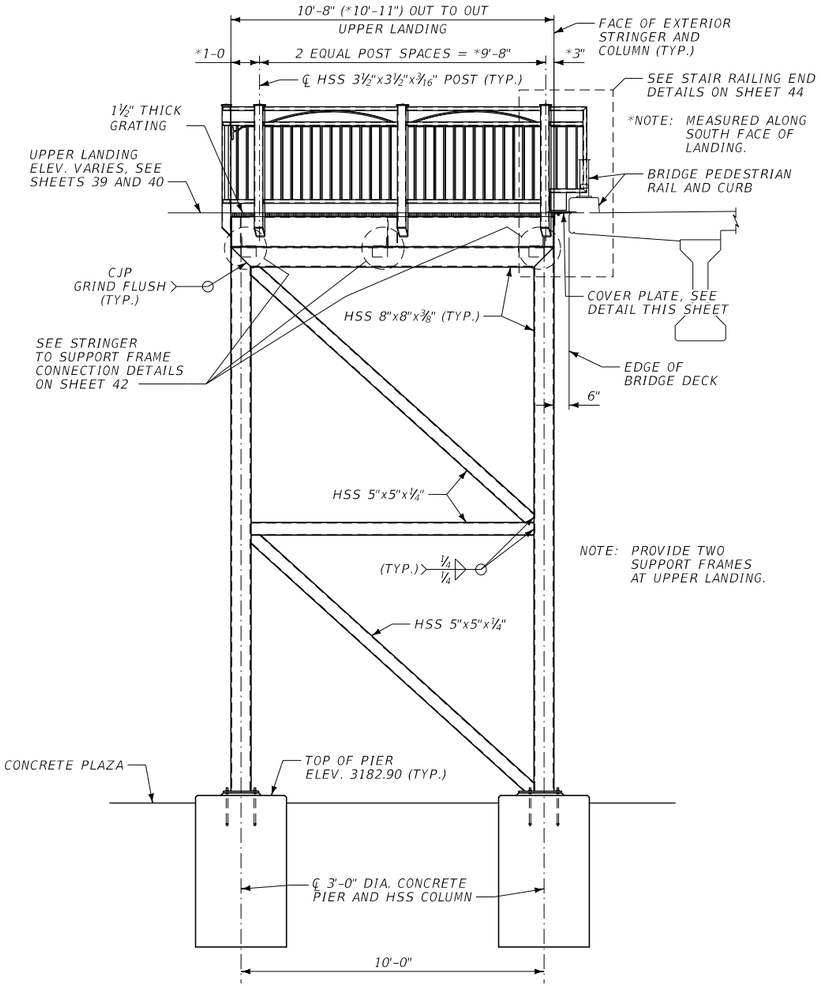
NOTES:

SEE SHEET 39 FOR LOCATIONS OF SECTIONS D-D AND E-E.

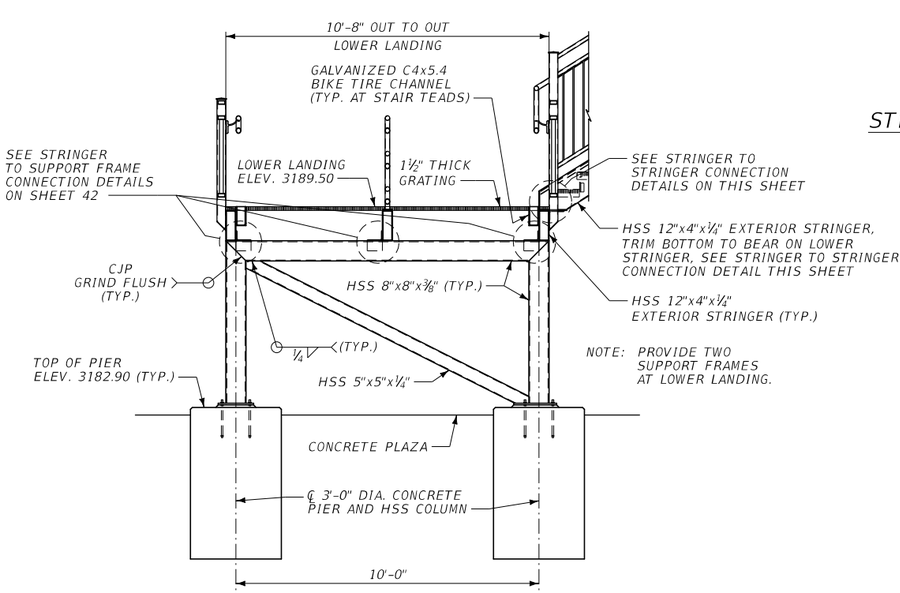


NOTE: OFFSET PLATE AND LOCATE 1 1/16" DIA. HOLES ON TREAD SIDE OF EXTERIOR STRINGERS.

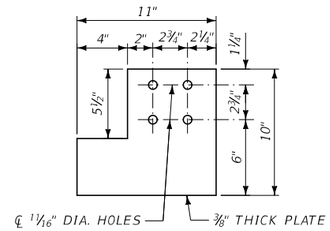
VIEW A-A



SECTION D-D



SECTION E-E



STRINGER TO STRINGER CONNECTION PLATE

PEDESTRIAN STAIR DETAILS

NO SCALE

HDR

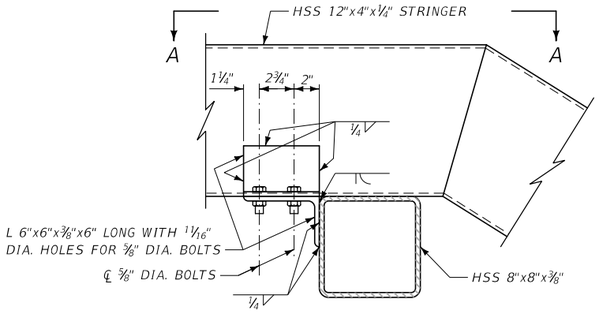
2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ11.dgn	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
1		5/18/2020	REVIEWED BY				
		10:31:33 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	SHEET 41

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

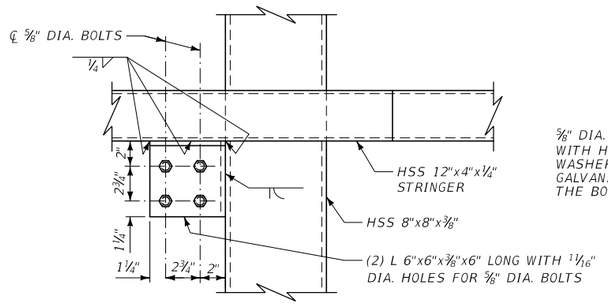
NOTES:

SEE SHEET 39 FOR LOCATIONS OF SECTIONS F-F AND G-G.



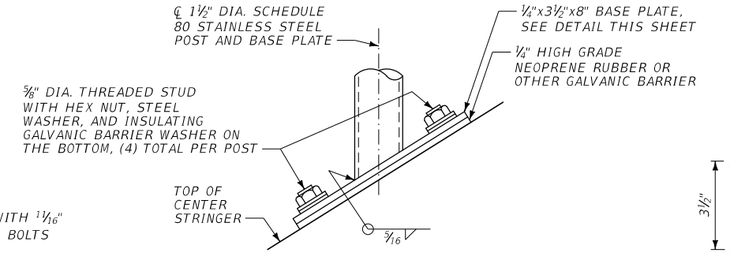
NOTE: CENTER STRINGER SHOWN, EXTERIOR STRINGERS SIMILAR. TOTAL OF 12 LOCATIONS.

STRINGER TO SUPPORT FRAME CONNECTION



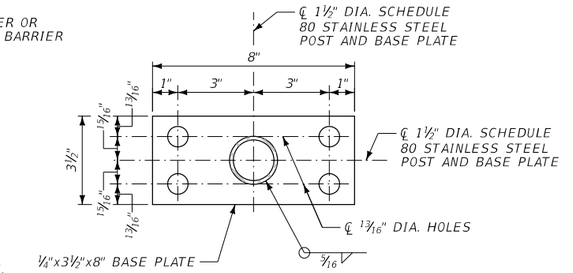
NOTE: OFFSET CONNECTION AND LOCATE 1 1/16" DIA. HOLES ON LANDING SIDE OF EXTERIOR STRINGERS.

VIEW A-A

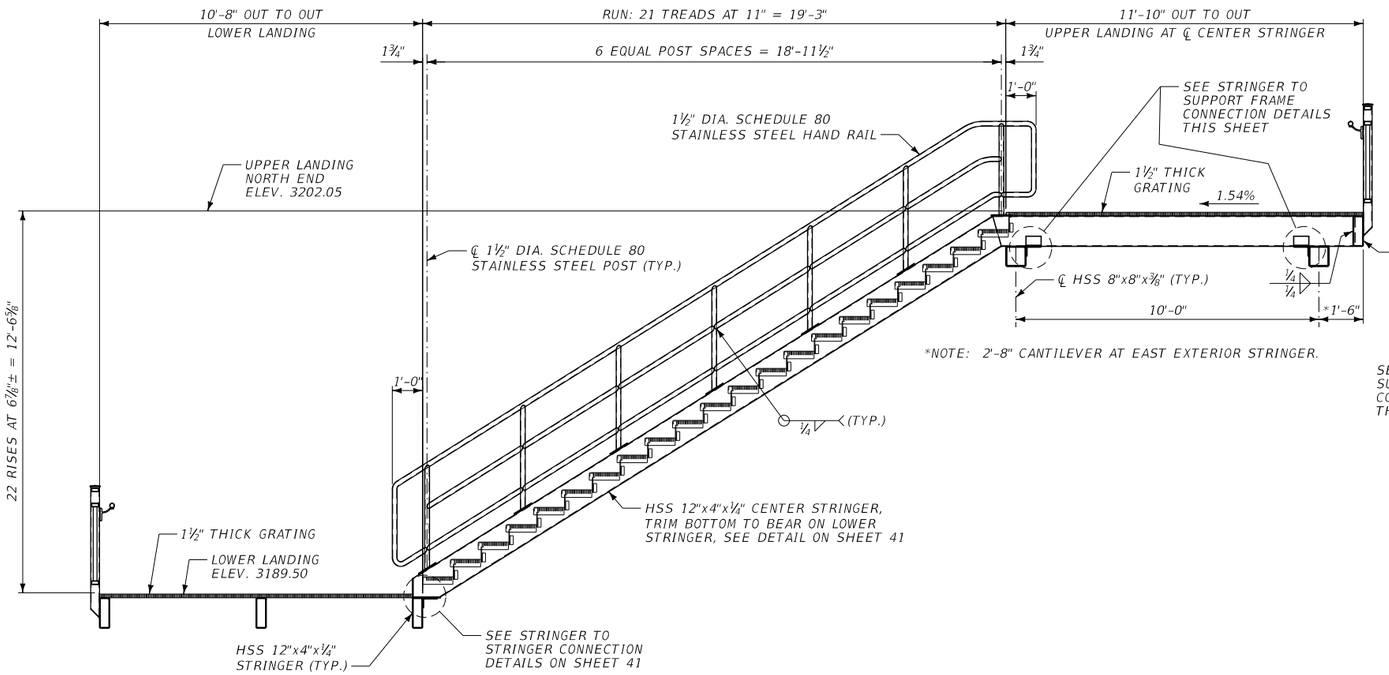


NOTE: PROVIDE THREADED STUDS MEETING THE REQUIREMENTS OF AASHTO M169 GRADES 1010-1020 AND THE MECHANICAL REQUIREMENTS FOR TYPE B STUDS IN ACCORDANCE WITH AWS D1.1 TABLE 7.1. WELD STUDS ONTO TOP OF CENTER STRINGERS.

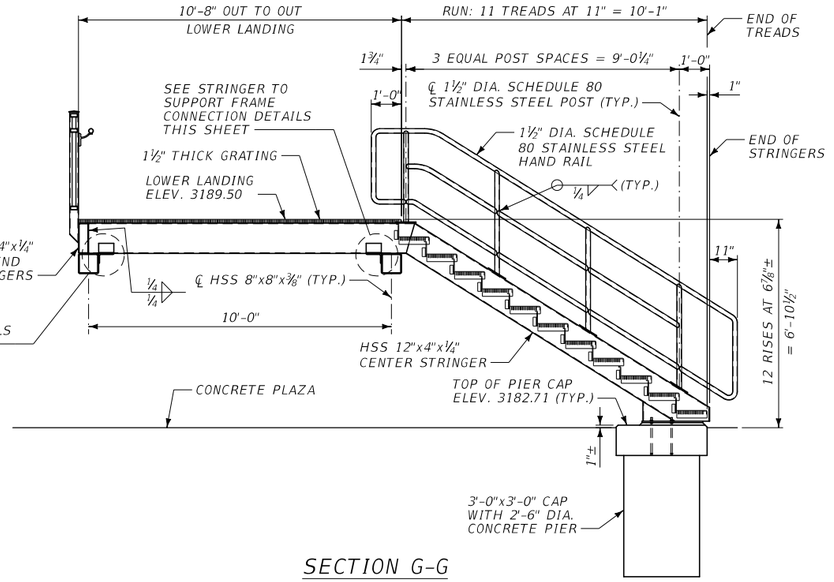
CENTER STRINGER HAND RAIL POST CONNECTION DETAIL



CENTER STRINGER HAND RAIL POST BASE PLATE



SECTION F-F



SECTION G-G

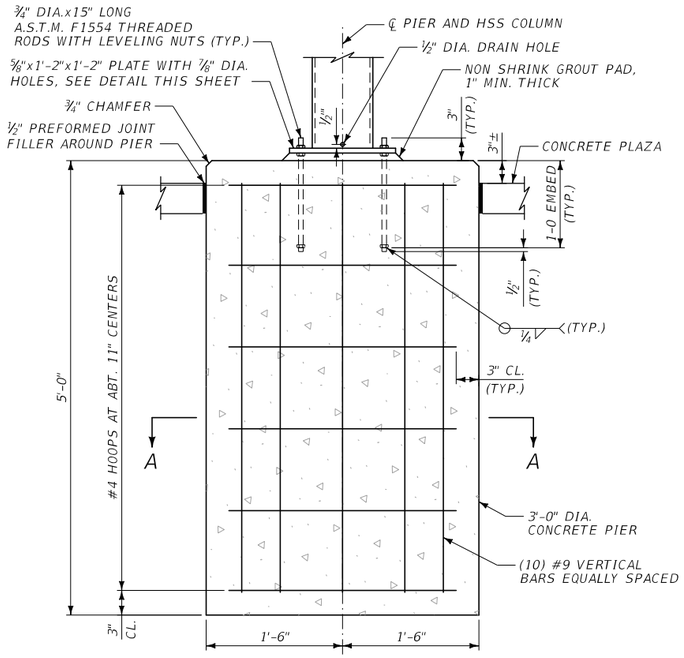
PEDESTRIAN STAIR DETAILS

NO SCALE

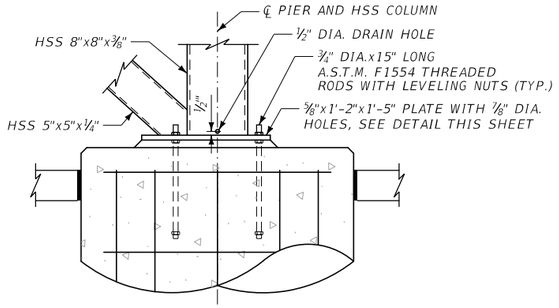
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ12.dgn	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
2		5/18/2020	REVIEWED BY				
		10:31:41 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	SHEET 42

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

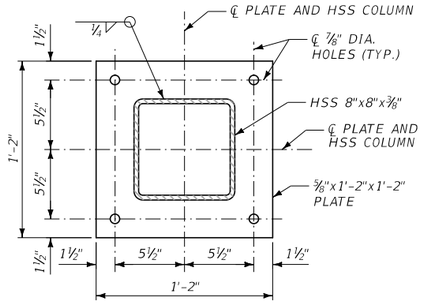


COLUMN FOUNDATION DETAIL

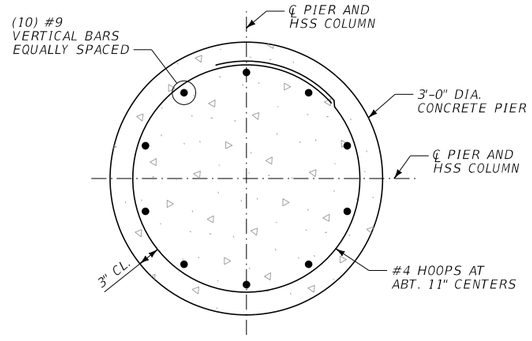


NOTE: FOR DETAILS NOT SHOWN, SEE COLUMN FOUNDATION DETIAL THIS SHEET.

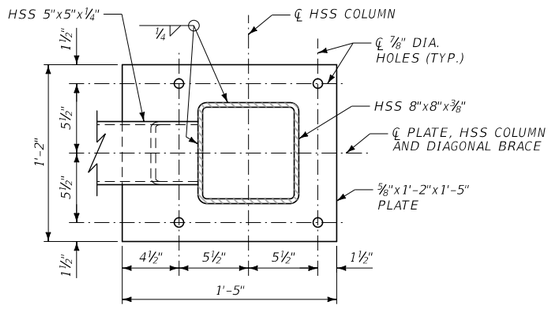
COLUMN BASE WITH DIAGONAL BRACE



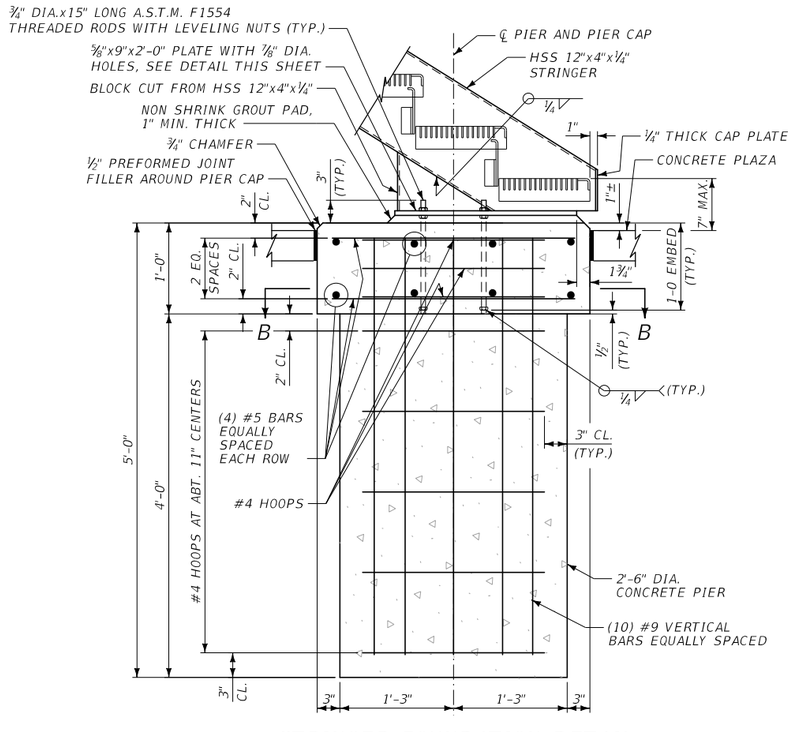
COLUMN BASE PLATE



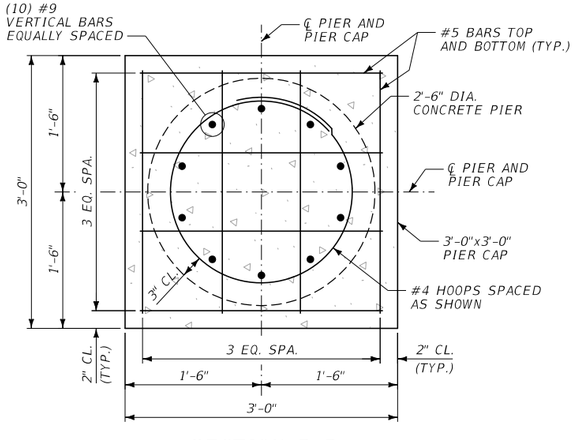
SECTION A-A



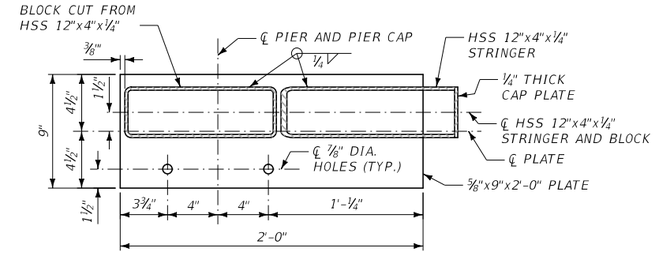
COLUMN WITH DIAGONAL BRACE BASE PLATE



STRINGER FOUNDATION DETAIL



SECTION B-B



NOTE: OFFSET PLATE AND LOCATE ⅞" DIA. HOLES ON TREAD SIDE OF EXTERIOR STRINGERS.

STRINGER BASE PLATE

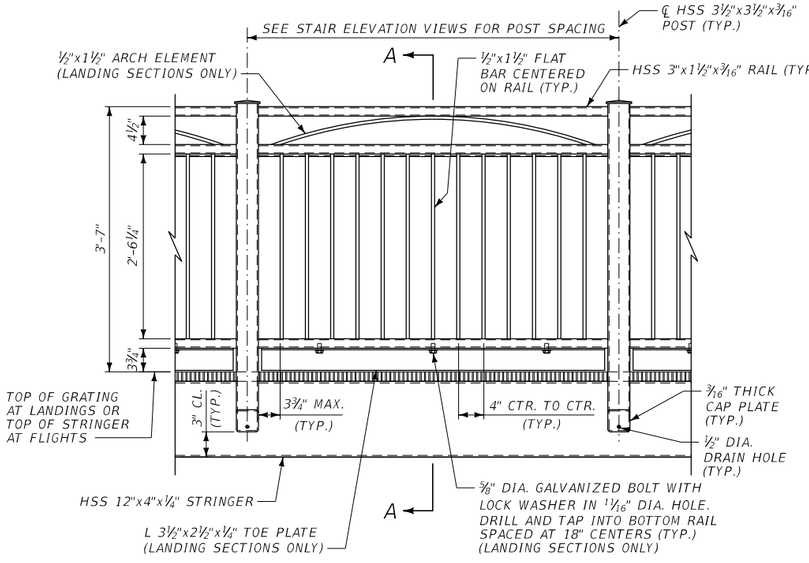
PEDESTRIAN STAIR DETAILS

NO SCALE

3 / 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ12.dgn	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA		STPB 8113(9)
		5/18/2020	REVIEWED BY				UPN 8807000	SHEET 43
		10:31:45 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY			

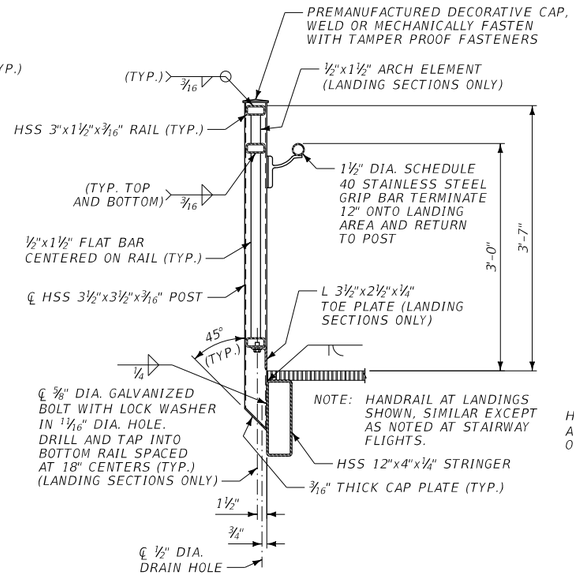
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

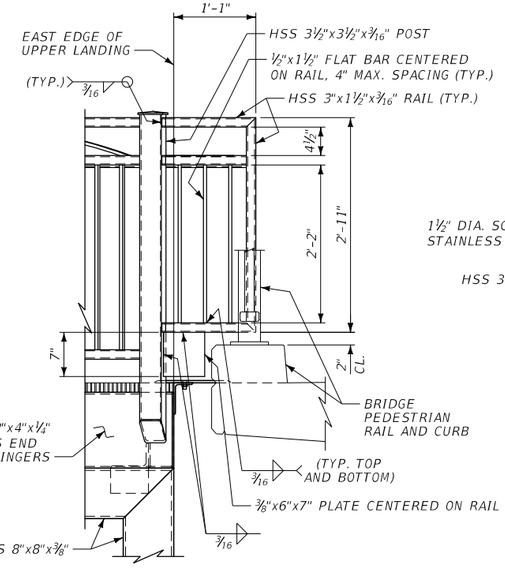


NOTE: HANDRAIL AT LANDINGS SHOWN, SIMILAR EXCEPT AS NOTED AT STAIRWAY FLIGHTS.

STAIRWAY HANDRAIL ELEVATION

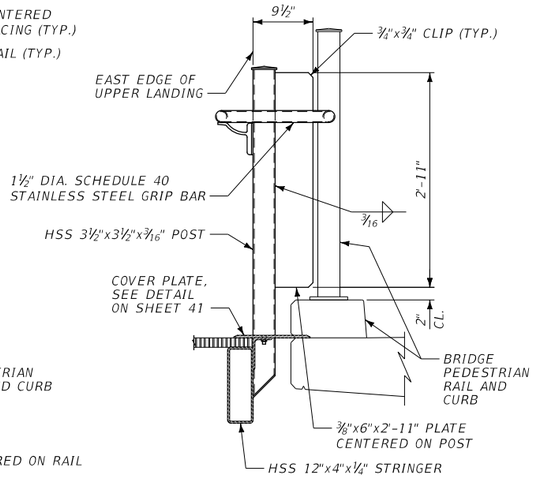


SECTION A-A



NOTE: RAIL END IS PERPENDICULAR TO EDGE OF BRIDGE.

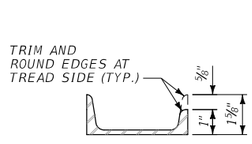
UPPER LANDING SOUTHEAST CORNER STAIR RAILING END DETAIL



NOTE: VIEW IS LOOKING NORTH.

NOTE: RAIL END IS PERPENDICULAR TO EDGE OF BRIDGE.

UPPER LANDING NORTHEAST CORNER STAIR RAILING END DETAIL

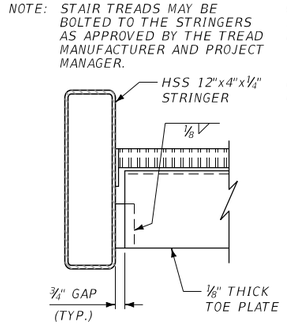


C4x5.4 TRIMMING DETAIL

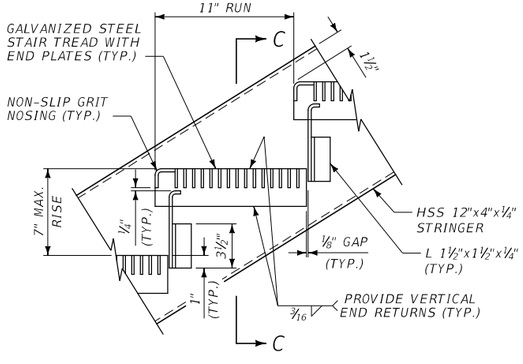
NOTE: TREAD NOT SHOWN FOR CLARITY.

SECTION B-B

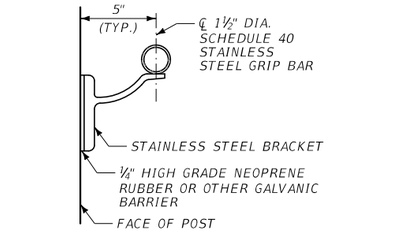
BIKE TIRE CHANNEL DETAIL



SECTION C-C



TYPICAL TREAD DETAIL



NOTE: PROVIDE GRIP BAR BRACKET AND BOLTED CONNECTION DESIGNED TO RESIST A SERVICE LOAD OF 200 LB. OR 50 PLF OF GRIP BAR SPAN APPLIED IN ANY DIRECTION, WHICHEVER PRODUCES THE MAXIMUM EFFECT.

GRIP BAR BRACKET DETAIL

PEDESTRIAN STAIR DETAILS

NO SCALE

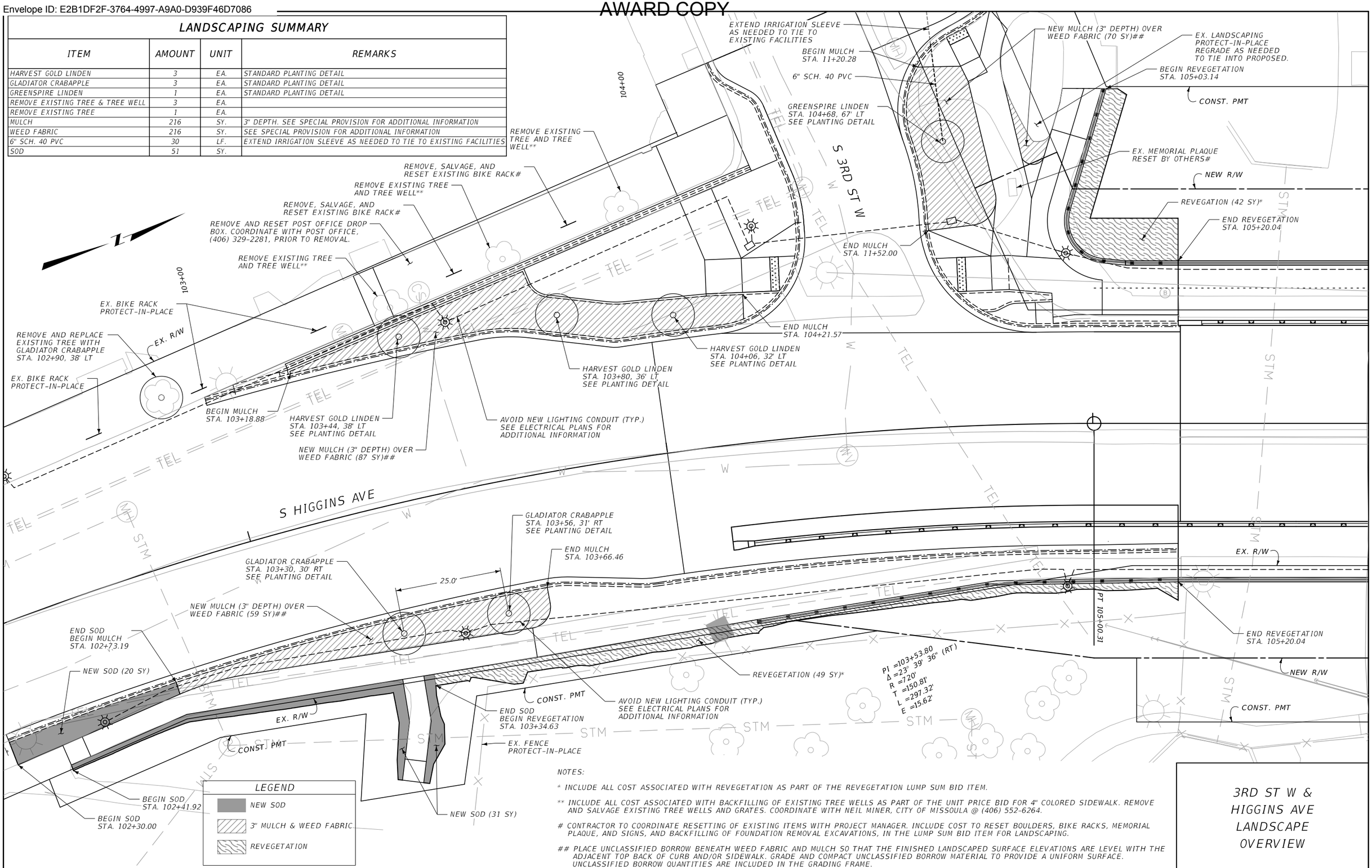
2 / 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ12.dgn	DESIGNED BY			ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
		5/18/2020	REVIEWED BY					
		10:31:48 AM CCOLLINS	CHECKED BY			MISSOULA COUNTY	UPN 8807000	SHEET 44

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

LANDSCAPING SUMMARY

ITEM	AMOUNT	UNIT	REMARKS
HARVEST GOLD LINDEN	3	EA.	STANDARD PLANTING DETAIL
GLADIATOR CRABAPPLE	3	EA.	STANDARD PLANTING DETAIL
GREENSPIRE LINDEN	1	EA.	STANDARD PLANTING DETAIL
REMOVE EXISTING TREE & TREE WELL	3	EA.	
REMOVE EXISTING TREE	1	EA.	
MULCH	216	SY.	3" DEPTH. SEE SPECIAL PROVISION FOR ADDITIONAL INFORMATION
WEED FABRIC	216	SY.	SEE SPECIAL PROVISION FOR ADDITIONAL INFORMATION
6" SCH. 40 PVC	30	LF.	EXTEND IRRIGATION SLEEVE AS NEEDED TO TIE TO EXISTING FACILITIES
SOD	51	SY.	



NOTES:

* INCLUDE ALL COST ASSOCIATED WITH REVEGETATION AS PART OF THE REVEGETATION LUMP SUM BID ITEM.

** INCLUDE ALL COST ASSOCIATED WITH BACKFILLING OF EXISTING TREE WELLS AS PART OF THE UNIT PRICE BID FOR 4" COLORED SIDEWALK. REMOVE AND SALVAGE EXISTING TREE WELLS AND GRATES. COORDINATE WITH NEIL MINER, CITY OF MISSOULA @ (406) 552-6264.

CONTRACTOR TO COORDINATE RESETTING OF EXISTING ITEMS WITH PROJECT MANAGER. INCLUDE COST TO RESET BOULDERS, BIKE RACKS, MEMORIAL PLAQUE, AND SIGNS, AND BACKFILLING OF FOUNDATION REMOVAL EXCAVATIONS, IN THE LUMP SUM BID ITEM FOR LANDSCAPING.

PLACE UNCLASSIFIED BORROW BENEATH WEED FABRIC AND MULCH SO THAT THE FINISHED LANDSCAPED SURFACE ELEVATIONS ARE LEVEL WITH THE ADJACENT TOP BACK OF CURB AND/OR SIDEWALK. GRADE AND COMPACT UNCLASSIFIED BORROW MATERIAL TO PROVIDE A UNIFORM SURFACE. UNCLASSIFIED BORROW QUANTITIES ARE INCLUDED IN THE GRADING FRAME.

3RD ST W & HIGGINS AVE LANDSCAPE OVERVIEW

HDR

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ20.dgn	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
2		5/18/2020	REVIEWED BY				
		10:31:56 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	SHEET 45

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

LANDSCAPING SUMMARY

ITEM	AMOUNT	UNIT	REMARKS
REMOVE EXISTING TREE	9	EA.	
DECOMPOSED GRANITE	260	SY.	3" DEPTH. SEE SPECIAL PROVISION FOR ADDITIONAL INFORMATION
4" CONCRETE	218	SY.	

ALL ITEMS INCLUDED IN THE LUMP SUM BID ITEM FOR LANDSCAPING

LEGEND

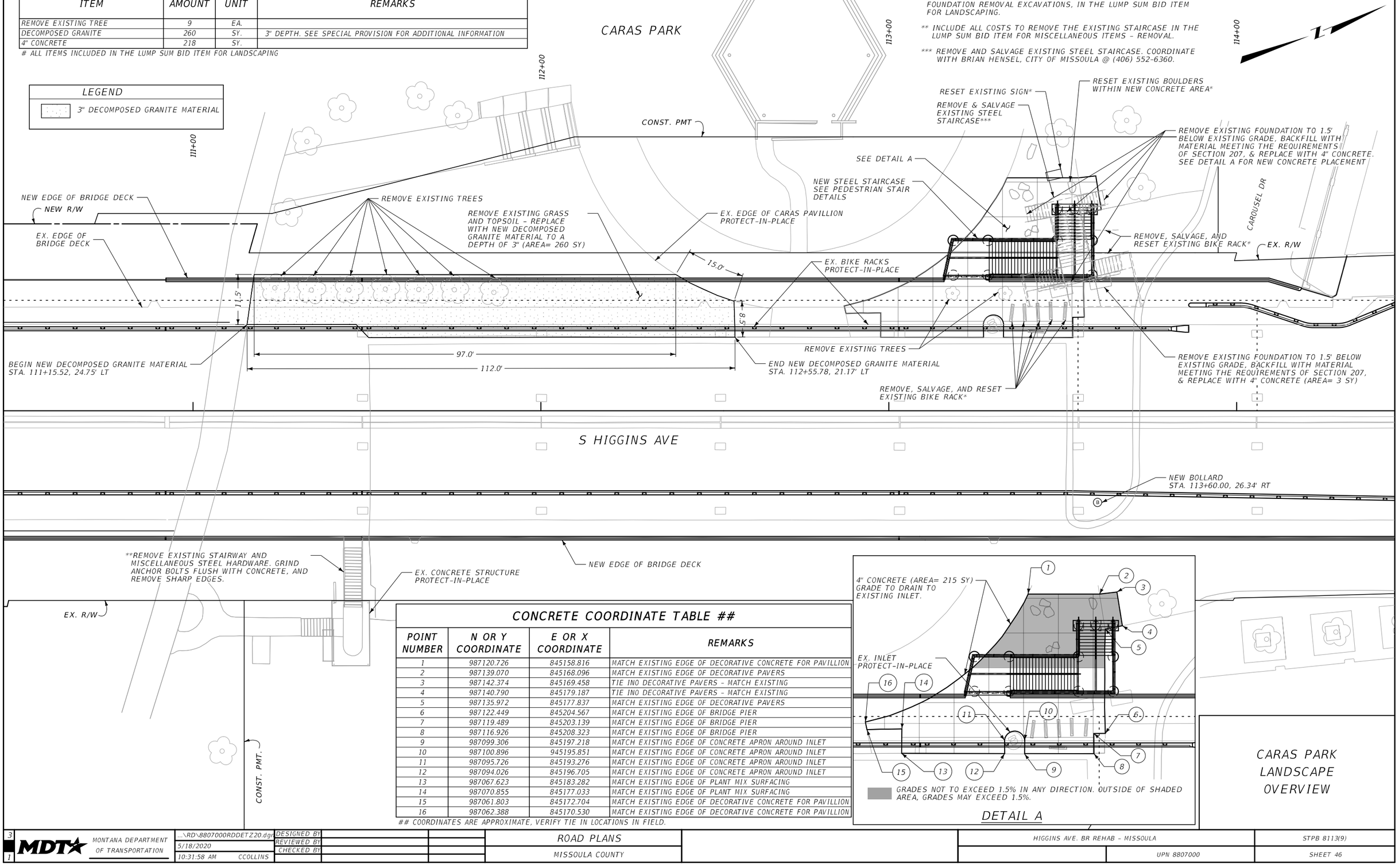
3" DECOMPOSED GRANITE MATERIAL

NOTES:

* CONTRACTOR TO COORDINATE RESETTING OF EXISTING ITEMS WITH PROJECT MANAGER. INCLUDE COST TO RESET BOULDERS, BIKE RACKS, MEMORIAL PLAQUE, AND SIGNS, AND BACKFILLING OF FOUNDATION REMOVAL EXCAVATIONS, IN THE LUMP SUM BID ITEM FOR LANDSCAPING.

** INCLUDE ALL COSTS TO REMOVE THE EXISTING STAIRCASE IN THE LUMP SUM BID ITEM FOR MISCELLANEOUS ITEMS - REMOVAL.

*** REMOVE AND SALVAGE EXISTING STEEL STAIRCASE. COORDINATE WITH BRIAN HENSEL, CITY OF MISSOULA @ (406) 552-6360.



CONCRETE COORDINATE TABLE

POINT NUMBER	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
1	987120.726	845158.816	MATCH EXISTING EDGE OF DECORATIVE CONCRETE FOR PAVILLION
2	987139.070	845168.096	MATCH EXISTING EDGE OF DECORATIVE PAVERS
3	987142.374	845169.458	TIE INO DECORATIVE PAVERS - MATCH EXISTING
4	987140.790	845179.187	TIE INO DECORATIVE PAVERS - MATCH EXISTING
5	987135.972	845177.837	MATCH EXISTING EDGE OF DECORATIVE PAVERS
6	987122.449	845204.567	MATCH EXISTING EDGE OF BRIDGE PIER
7	987119.489	845203.139	MATCH EXISTING EDGE OF BRIDGE PIER
8	987116.926	845208.323	MATCH EXISTING EDGE OF BRIDGE PIER
9	987099.306	845197.218	MATCH EXISTING EDGE OF CONCRETE APRON AROUND INLET
10	987100.896	945195.851	MATCH EXISTING EDGE OF CONCRETE APRON AROUND INLET
11	987095.726	845193.276	MATCH EXISTING EDGE OF CONCRETE APRON AROUND INLET
12	987094.026	845196.705	MATCH EXISTING EDGE OF CONCRETE APRON AROUND INLET
13	987067.623	845183.282	MATCH EXISTING EDGE OF PLANT MIX SURFACING
14	987070.855	845177.033	MATCH EXISTING EDGE OF PLANT MIX SURFACING
15	987061.803	845172.704	MATCH EXISTING EDGE OF DECORATIVE CONCRETE FOR PAVILLION
16	987062.388	845170.530	MATCH EXISTING EDGE OF DECORATIVE CONCRETE FOR PAVILLION

COORDINATES ARE APPROXIMATE, VERIFY TIE IN LOCATIONS IN FIELD.

DETAIL A

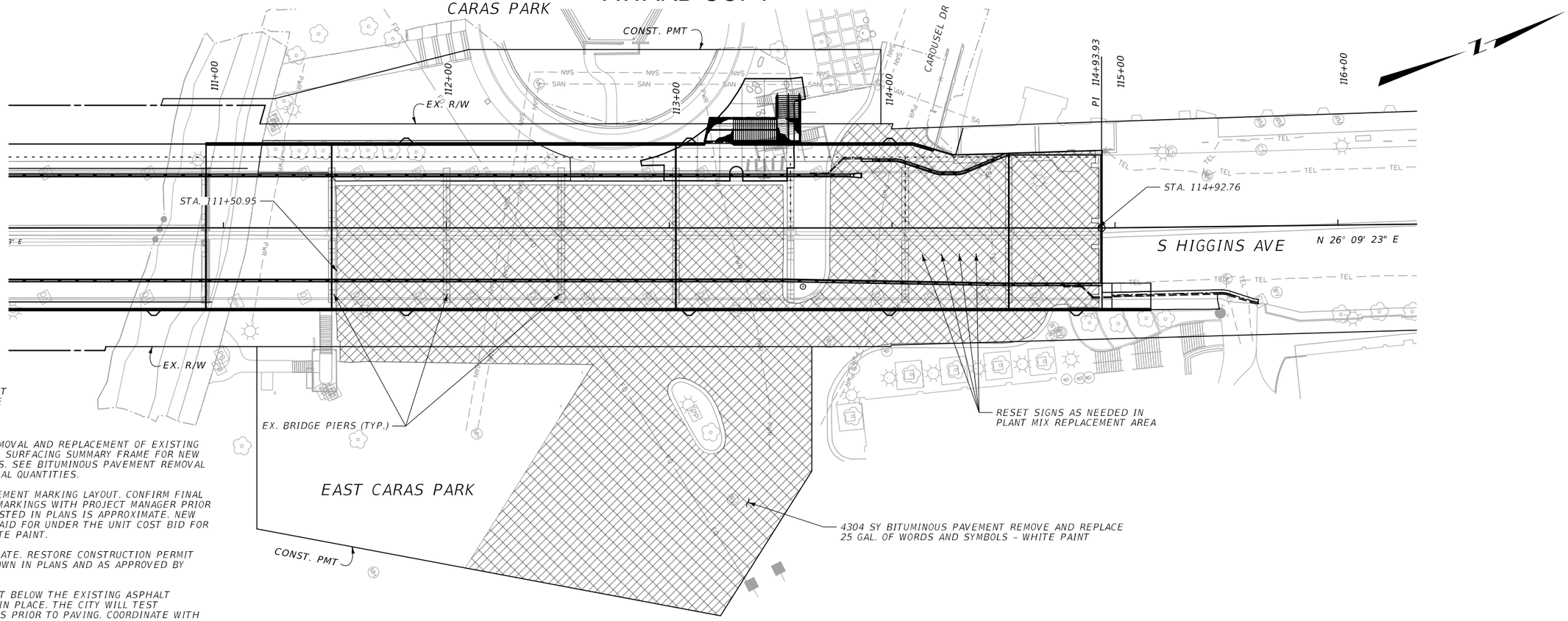
CARAS PARK LANDSCAPE OVERVIEW

HDR

3 / 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ20.dgn	DESIGNED BY	ROAD PLANS	HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
		5/18/2020	REVIEWED BY			
		10:31:58 AM CCOLLINS	CHECKED BY	MISSOULA COUNTY	UPN 8807000	SHEET 46

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

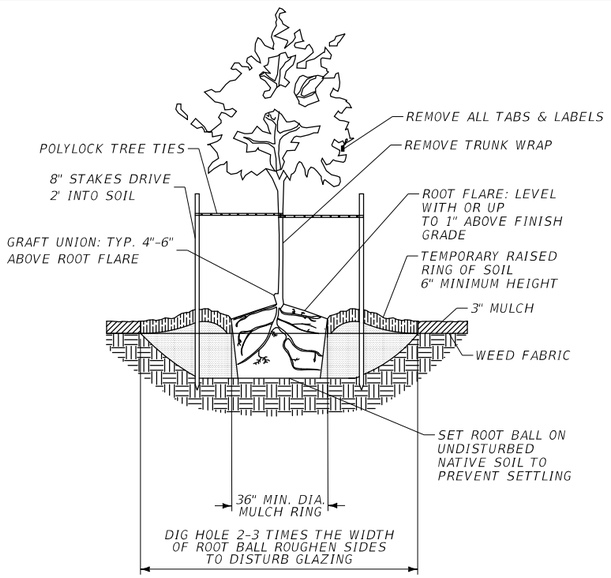
AWARD COPY



BITUMINOUS PAVEMENT REMOVE AND REPLACE

NOTE:

1. ASSUME 0.2' DEPTH FOR REMOVAL AND REPLACEMENT OF EXISTING PLANT MIX. SEE ADDITIONAL SURFACING SUMMARY FRAME FOR NEW COMMERCIAL MIX QUANTITIES. SEE BITUMINOUS PAVEMENT REMOVAL SUMMARY FRAME FOR REMOVAL QUANTITIES.
2. PERPETUATE EXISTING PAVEMENT MARKING LAYOUT. CONFIRM FINAL LAYOUT OF NEW PAVEMENT MARKINGS WITH PROJECT MANAGER PRIOR TO PLACEMENT. QUANTITY LISTED IN PLANS IS APPROXIMATE. NEW PAVEMENT MARKINGS ARE PAID FOR UNDER THE UNIT COST BID FOR WORDS AND SYMBOLS - WHITE PAINT.
3. REMOVAL AREA IS APPROXIMATE. RESTORE CONSTRUCTION PERMIT AND STAGING AREAS AS SHOWN IN PLANS AND AS APPROVED BY PROJECT MANAGER.
4. IRRIGATION LINES MAY EXIST BELOW THE EXISTING ASPHALT PAVEMENT. PROTECT LINES IN PLACE. THE CITY WILL TEST IRRIGATION LINES FOR LEAKS PRIOR TO PAVING. COORDINATE WITH CITY PARKS TO DETERMINE THE LOCATION OF IRRIGATION LINES AND TO SCHEDULE TESTING.



STANDARD TREE PLANTING DETAIL

NOTES:

1. PLANT MATERIAL MUST MEET THE MINIMUM ACCEPTABLE STANDARD SET BY THE AMERICAN ASSOCIATION OF NURSERYMEN'S AMERICAN STANDARD OF NURSERY STOCK: ANSI Z60.1. BROKEN, DAMAGED, DISEASED, OR SUBSTANDARD STOCK ARE PROHIBITED FROM BEING PLANTED IN THE PUBLIC RIGHT-OF-WAY AND WILL BE REJECTED.
2. PRUNE ONLY BROKEN OR DAMAGED BRANCHES. DO NOT APPLY FERTILIZER AT TIME OF PLANTING.
3. THE ROOT FLARE IS THE POINT WHERE THE TOP MOST STRUCTURAL ROOT EMERGES FROM THE TRUNK. THE DEPTH OF THE ROOT BALL SHALL BE MEASURED FROM THE ROOT FLARE TO THE BOTTOM OF THE BALL. HANDLE CONTAINER PLANTS CAREFULLY WHEN TRANSFERRING TO PLANTING HOLE. LIFT OR CARRY BY HOLDING THE ROOT BALL, NOT THE TRUNK.
4. REMOVE ANY EXCESS SOIL FROM THE TOP OF THE ROOT BALL TO EXPOSE THE ROOT FLARE. PLACE TREE IN PLANTING HOLE WITH ROOT FLARE LEVEL WITH OR UP TO 1" ABOVE FINISH GRADE.
5. REMOVE CONTAINER FROM ROOT BALL. BE CAREFUL TO KEEP THE ROOT BALL INTACT.
6. STRAIGHTEN, CUT AND REMOVE ANY CIRCLING ROOTS.
7. BACKFILL PLANTING HOLE WITH 2/3 PREPARED SOIL, SETTLE WITH WATER, AND CONTINUE TO FILL WITH SOIL, WATER AGAIN. WATER THOROUGHLY AFTER INSTALLATION TO ELIMINATE AIR POCKETS.
8. CONSTRUCT MULCH RING WITH MINIMUM 36" DIAMETER TO A DEPTH OF 2"-4"; LEAVE 3" OF BARE GROUND BETWEEN MULCH AND TREE TRUNK.
9. CONSTRUCT A TEMPORARY RAISED RING OF SOIL AT EDGE OF ROOT BALL TO CONTAIN WATER. REMOVE OR BREAK BEFORE WINTER.
10. SET STAKES PARALLEL TO PREVAILING WIND AND OUTSIDE OF ROOT BALL. TIES MUST BE 1" WIDE MINIMUM, FLEXIBLE BELT-LIKE STRAPPING. DO NOT USE ROPE OR WIRE. DO NOT OVER-TIGHTEN AROUND TREE. TIES SHOULD BE TIGHT ENOUGH TO SUPPORT THE TREE WHILE ALLOWING IT TO SWAY. REMOVE STAKES AND TIES WITHIN ONE YEAR AFTER INSTALLATION.
11. TREES BENEFIT WHEN IRRIGATED SEPARATELY FROM TURF. WATER NEW TREES DURING SUMMER MONTHS TO A DEPTH OF 12"-18" ONCE PER WEEK (ABOUT 5 GALLONS OF WATER PER CALIPER INCH) FOR THE FIRST 3 GROWING SEASONS. DURING PERIODS OF DROUGHT, NEW TREES MAY NEED MORE FREQUENT WATERING.

LANDSCAPE DETAILS

HDR

2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ20.dgn	DESIGNED BY			ROAD PLANS	HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
		5/18/2020	REVIEWED BY					
1		10:31:59 AM CCOLLINS	CHECKED BY			MISSOULA COUNTY	UPN 8807000	SHEET 47

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

NOTES:

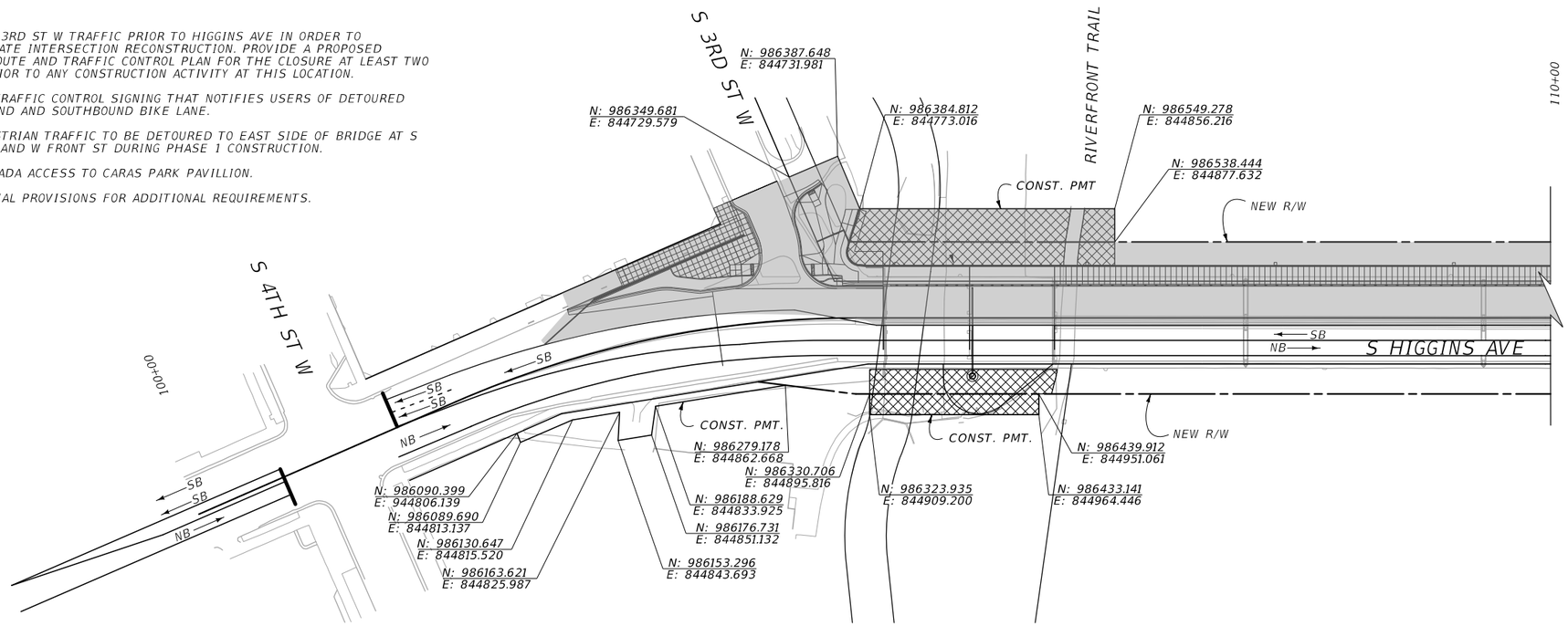
DETOUR S 3RD ST W TRAFFIC PRIOR TO HIGGINS AVE IN ORDER TO ACCOMMODATE INTERSECTION RECONSTRUCTION. PROVIDE A PROPOSED DETOUR ROUTE AND TRAFFIC CONTROL PLAN FOR THE CLOSURE AT LEAST TWO WEEKS PRIOR TO ANY CONSTRUCTION ACTIVITY AT THIS LOCATION.

PROVIDE TRAFFIC CONTROL SIGNING THAT NOTIFIES USERS OF DETOURED NORTHBOUND AND SOUTHBOUND BIKE LANE.

ALL PEDESTRIAN TRAFFIC TO BE DETOURED TO EAST SIDE OF BRIDGE AT S 4TH ST W AND W FRONT ST DURING PHASE 1 CONSTRUCTION.

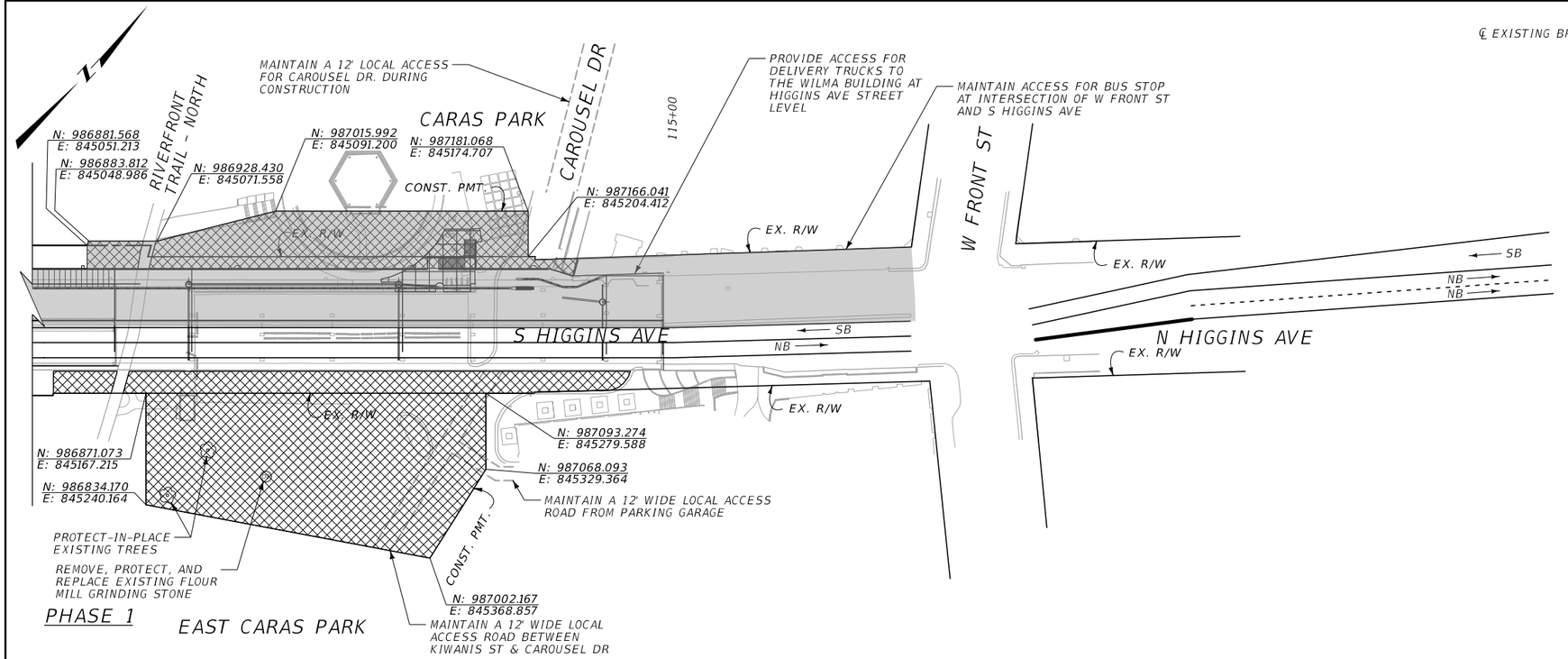
MAINTAIN ADA ACCESS TO CARAS PARK PAVILLION.

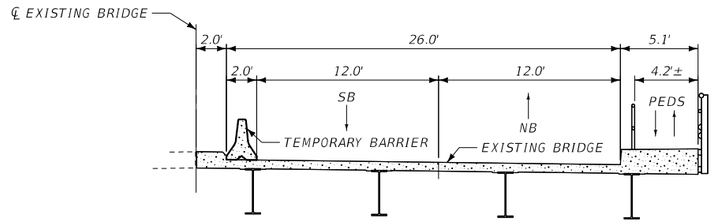
SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.



PHASE 1

COORDS. PROVIDED AT CONSTRUCTION PERMIT BREAK POINTS





PHASE 1 TYPICAL SECTION

EXISTING NB BRIDGE

WORK ZONE

STAGING AREAS

CONSTRUCTION PHASING DETAILS

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ90.dgn	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
2		5/18/2020	REVIEWED BY				
		10:32:04 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	SHEET 48

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

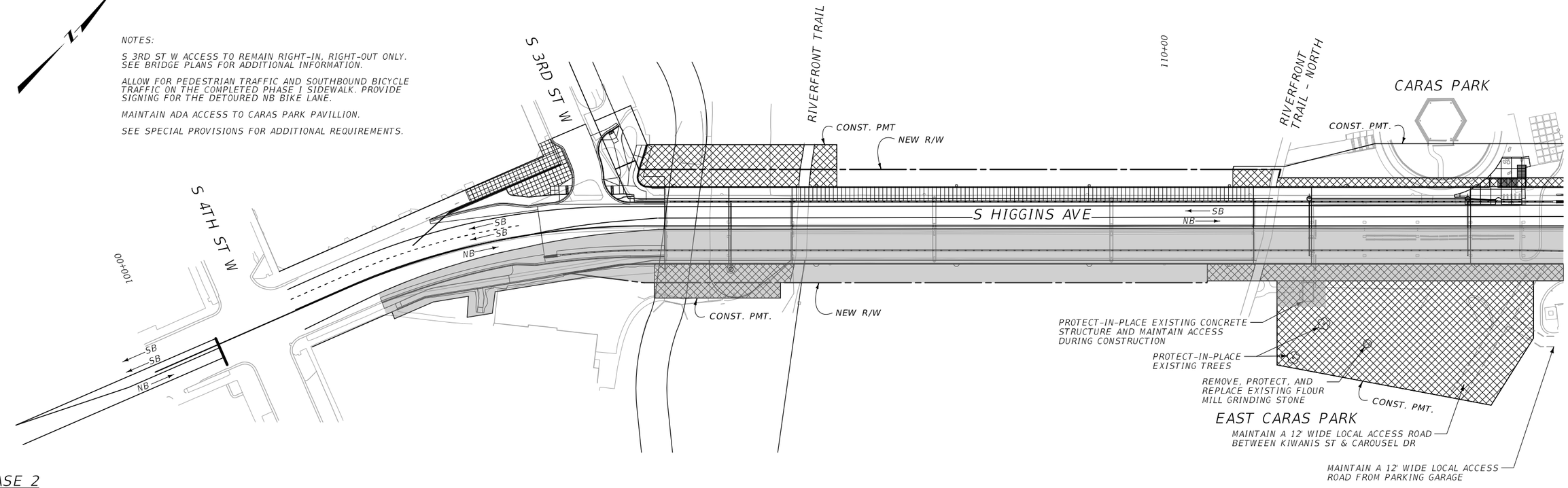
NOTES:

S 3RD ST W ACCESS TO REMAIN RIGHT-IN, RIGHT-OUT ONLY. SEE BRIDGE PLANS FOR ADDITIONAL INFORMATION.

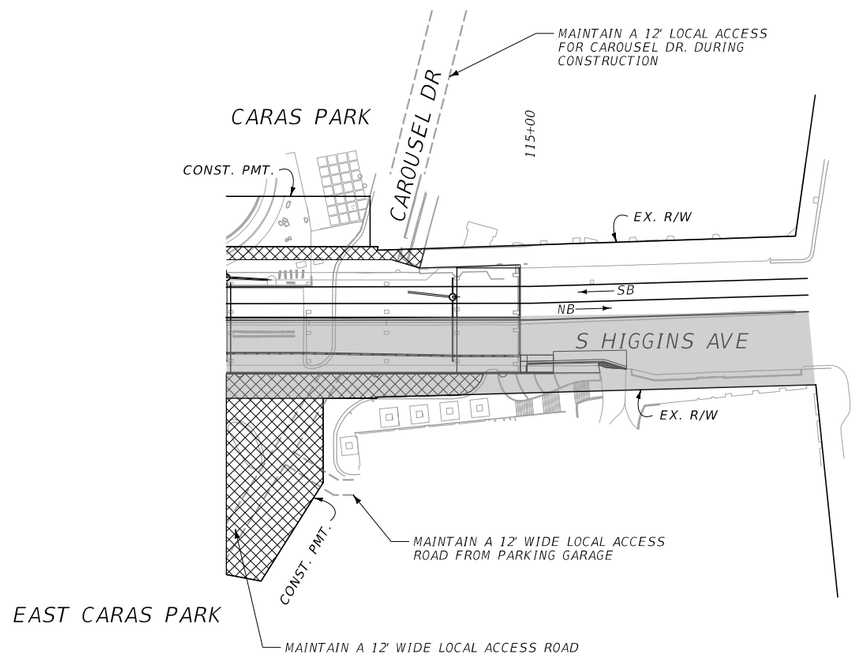
ALLOW FOR PEDESTRIAN TRAFFIC AND SOUTHBOUND BICYCLE TRAFFIC ON THE COMPLETED PHASE 1 SIDEWALK. PROVIDE SIGNING FOR THE DETOURED NB BIKE LANE.

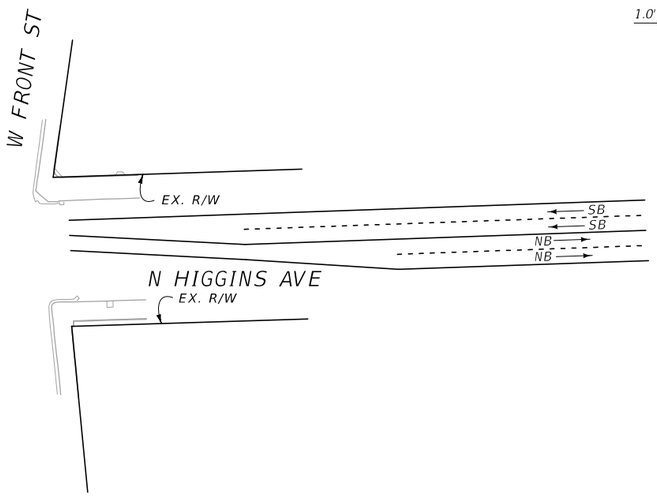
MAINTAIN ADA ACCESS TO CARAS PARK PAVILLION.

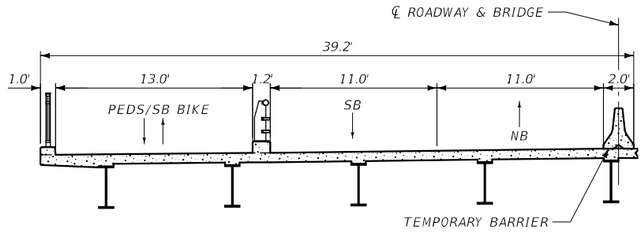
SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.



PHASE 2







PHASE 2 TYPICAL SECTION

PROPOSED SB BRIDGE

WORK ZONE

STAGING AREAS

SEE CONSTRUCTION PHASE 1 FOR CONST. PERMIT COORDS.

PHASE 2

CONSTRUCTION PHASING DETAILS

HDR

3 / 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ90.dgn	DESIGNED BY			ROAD PLANS	HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
		5/18/2020	REVIEWED BY					
		10:32:06 AM CCOLLINS	CHECKED BY			MISSOULA COUNTY	UPN 8807000	SHEET 49

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

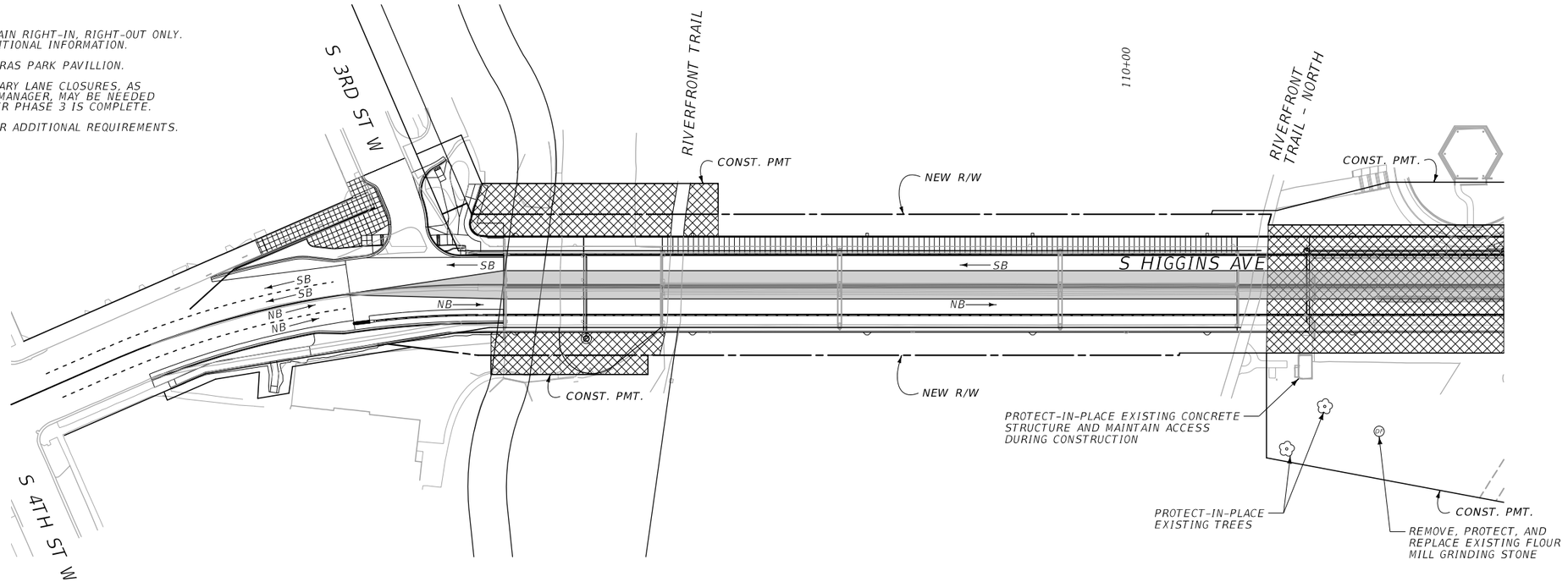
NOTES:

S 3RD ST W ACCESS TO REMAIN RIGHT-IN, RIGHT-OUT ONLY. SEE BRIDGE PLANS FOR ADDITIONAL INFORMATION.

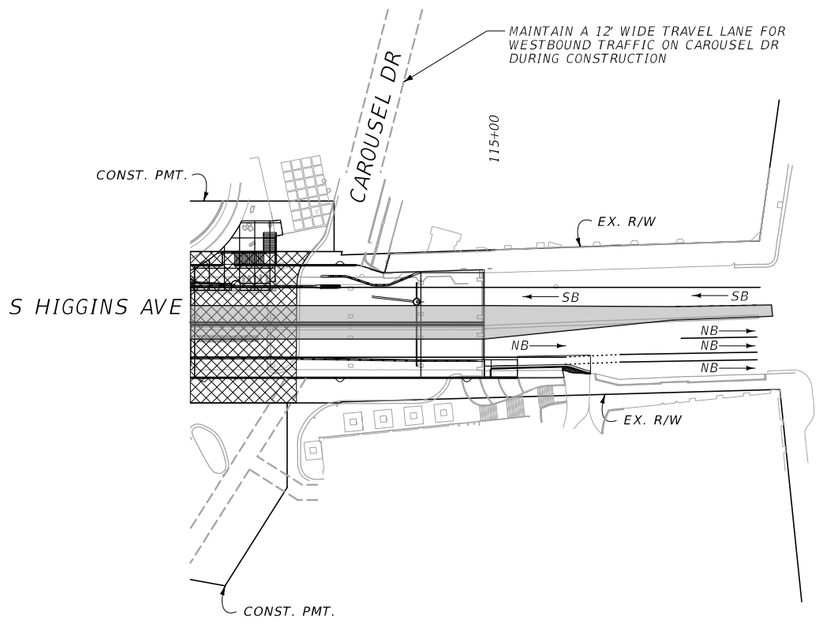
MAINTAIN ADA ACCESS TO CARAS PARK PAVILLION.

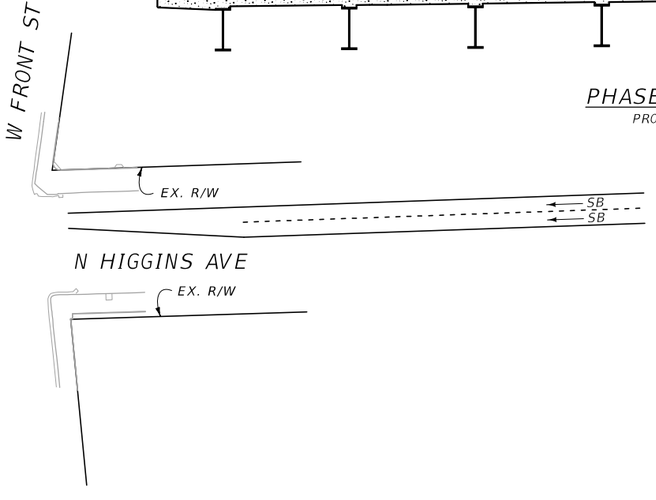
PHASES 1-3 SHOWN. TEMPORARY LANE CLOSURES, AS APPROVED BY THE PROJECT MANAGER, MAY BE NEEDED FOR SUBSEQUENT WORK AFTER PHASE 3 IS COMPLETE.

SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.

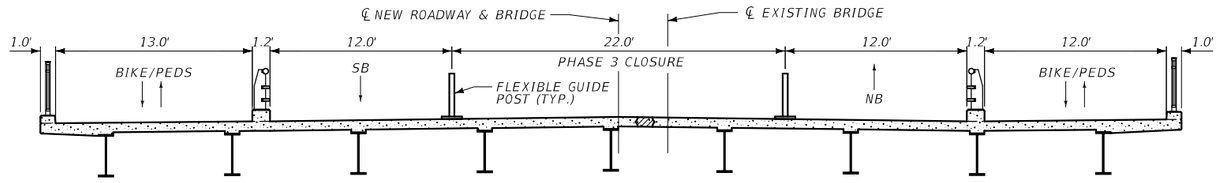


PHASE 3





PHASE 3



PHASE 3 TYPICAL SECTION

PROPOSED BRIDGE (NB AND SB)

WORK ZONE

STAGING AREAS

SEE CONSTRUCTION PHASE 1 FOR CONST. PERMIT COORDS.

CONSTRUCTION PHASING DETAILS

HDR

2 / 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDDETZ90.dgn	DESIGNED BY			ROAD PLANS	HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
		5/18/2020	REVIEWED BY			MISSOULA COUNTY	UPN 8807000	SHEET 50
		10:32:07 AM CCOLLINS	CHECKED BY					

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

102+76.12
U.G. CITY STM. X-ING ℄
DEPTH UNKNOWN

102+30.00 TO 104+35.60
U.G. CL TEL. LT.
DEPTH UNKNOWN

102+30.00 TO 104+42.00
U.G. CITY WATER RT.
DEPTH UNKNOWN
TO BE ABANDONED

102+81.32 TO 104+70.96
U.G. CITY STM. RT.
DEPTH UNKNOWN

102+30.00 TO 116+92.72
O.H. MDT PWR. LT. & RT.
HEIGHT UNKNOWN

102+30.00 TO 104+70.92
U.G. CL TEL. RT.
DEPTH UNKNOWN

103+50.77
CITY WATER VALVE
TO BE ABANDONED

104+78.19
U.G. CL TEL. X-ING ℄
DEPTH UNKNOWN

104+74.37
5570
EX. R/W = R/W

104+58
BEG. 82' CONST. PMT.
BEG. ACQUISITION LT.

105+00

104+89
90' CONST. PMT.

105+03
24' CONST. PMT.

105+40.27
U.G. CITY STM. X-ING ℄
DEPTH UNKNOWN

105+53.21
O.H. MDT PWR. X-ING ℄
HEIGHT UNKNOWN

104+92.31 R/W
63.65'

104+95.67 R/W
55.00'

106+50.09
O.H. UNKNOWN COMM. X-ING ℄
HEIGHT UNKNOWN

106+51.59
U.G. CL TEL. X-ING ℄
DEPTH 3.04'

106+51.51
O.H. NWE PWR. X-ING ℄
HEIGHT UNKNOWN

106+51.78
U.G. NWE PWR. X-ING ℄
DEPTH 2.82'

106+87
END 24' CONST. PMT.

106+60.91
U.G. CITY PWR. X-ING ℄
DEPTH UNKNOWN

111+20.34
U.G CITY PWR.
X-ING ℄
DEPTH UNKNOWN

111+46.86
U.G. MDT STM.
X-ING ℄
DEPTH UNKOWN

110+00

111+88.21 TO 112+12.22
U.G. MDT STM. RT.
DEPTH UNKNOWN

111+48.97 TO 114+52.18
MDT PWR. BELOW BRIDGE

111+23
3' CONST. PMT.

111+18.78
R/W = PROPERTY LINE

110+73
3' CONST. PMT.

110+72
BEG. CONST. PMT.

111+88.02 TO 114+05.67
U.G. MDT STM. LT.
DEPTH UNKNOWN

112+10
33' CONST. PMT.

112+25.17
U.G. CITY SAN. X-ING ℄
DEPTH 7.09'

112+30.15
U.G. CITY SAN. X-ING ℄
DEPTH UNKNOWN

112+36.19
O.H. ZAYO F.O. X-ING ℄
HEIGHT UNKNOWN

112+37.64
O.H.NWE PWR. X-ING ℄
HEIGHT UNKNOWN

112+39.63 TO 112+63.73
U.G. MDT STM. RT.
DEPTH UNKNOWN

112+52.52
O.H. NWE PWR. X-ING ℄
HEIGHT UNKNOWN

112+88.13
O.H. MDT PWR. X-ING ℄
HEIGHT UNKNOWN

112+91.52 TO 113+15.08
U.G. MDT STM. RT.
DEPTH UNKNOWN

HIGGINS AVE STA. 104+49.24=
S 3RD ST W STA. 11+98.04

S 3RD ST W

S 4TH ST W

STA. 104+00.00
BEGIN PAVEMENT
RECONSTRUCTION

S HIGGINS AVE

N 26° 50' 03" E

N 3° 10' 27" E

POT 100+00.00

EX. R/W

EX. EASE.

DH-1 DH-2 DH-3 DH-4 DH-5 DH-6

RIVERFRONT TRAIL

RIVERFRONT TRAIL NORTH

104+25.54
42.55'
EX. R/W = R/W

BEG. 7' CONST. PMT.
BEG. ACQUISITION PC 102+02.99

6' CONST. PMT. 102+36

6' CONST. PMT. 102+79

26' CONST. PMT. 103+09

26' CONST. PMT. 103+16

6' CONST. PMT. 103+36

6' CONST. PMT. 103+44

104+46
END 6' CONST. PMT.

R/W 105+00.31, 55'

PT 105+00.31

EX. PARKING
LOT EASE.

105+10
BEG. 15' CONST. PMT.

106+33
END 15' CONST. PMT.

105+17, 30.66' LT
NEW REMOVABLE
BOLLARD

105+40
15' RCPA IRR. IN PL.
DO NOT DISTURB

105+84.66
NEW 48" SUMP

EX. MULTI-USE
PATH EASE.

PI =103+53.80
Δ =23° 39' 36" (RT)
R =720'
T =150.81'
L =297.32'
E =15.62'

STA. 102+30.00
BEGIN PROJECT
STPB 8113(9)

STA. 105+20.54
BEGIN BRIDGE

110+46.87
R/W = PROPERTY LINE

111+15
BEG. 82' CONST. PMT.

111+46.30
NEW 48" MH

S HIGGINS AVE

UTILITY ADJUSTMENTS
(3RD ST. W STA. & OFFSET)

102+75	15.1' LT.	MH STORM
11+37	12.4' RT.	MH TEL.

102+38.54 TO 105+20.54
REMOVE EXIST. MEDIAN

105+09.21 TO 105+19.27
REMOVE EXIST. GUARDRAIL LT

102+99.00 CURB & GUTTER LT 104+15.96

104+87.20 104+91.04 CURB - SPECIAL DESIGN LT 105+20.04

NEW 6" TRENCH DRAIN LT 103+18.37 CURB & GUTTER LT 104+26.14

105+03.14 REVEGETATION LT 105+20.04

CURB - SPECIAL DESIGN LT 103+18.88 104+90.04 104+13.46 8" SIDEWALK LT

4" COLORED SIDEWALK LT 102+99.00 104+14.07

DIRECTIONAL WARNING DEVICE LT 105+16.00 105+39.34

106+20.10
EL. 3,213.31

3,208.09

100' VC

-1.529%

+2.953%

+0.984%

PROPOSED FINISHED GRADE

EXIST. GROUND

102+30.00 COLD MILLING LT & RT 104+00.00

104+65.00
EL. 3,208.73

105+20.54 (BE)
EL. 3,210.37

STA. 105+20.54 TO 114+93.64
BRIDGE REHAB
(SEE BRIDGE PLANS)

104+16.90 PEDESTRIAN RAIL RT 105+20.04

103+34.63 REVEGETATION RT 105+20.04

NEW LANDSCAPING RT
SEE DETAILS
102+30.00 105+20.54

CURB & GUTTER RT

102+41.92 4" SIDEWALK RT 103+60.83 8" SIDEWALK RT 105+20.04

103+90.70 TO 105+19.94
REMOVE EXIST. GUARDRAIL RT

103+99.29 TO 104+12.73
IMPACT ATTENUATOR 3 BAY RT

105+16.04 DIRECTIONAL WARNING DEVICE RT 105+38.25

111+15.52 NEW LANDSCAPING LT
SEE DETAILS

111+50.95 BITUMINOUS PAVEMENT REMOVAL

STA. 111+22.03 TO 111+50.00
REMOVE EXIST. STAIRWAY RT

100 101 102 103 104 105 106 107 108 109 110 111 112 113

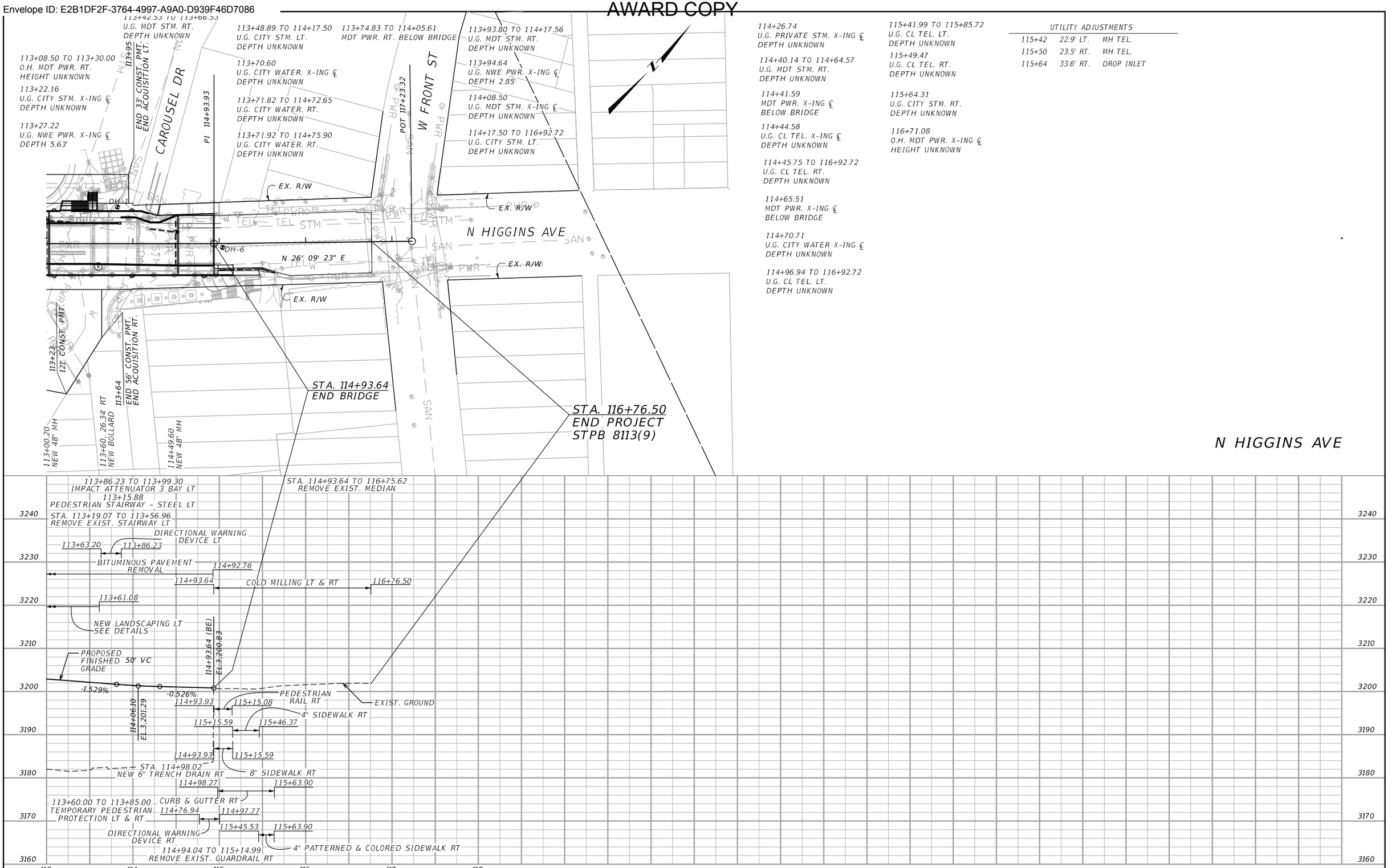
3240 3230 3220 3210 3200 3190 3180 3170 3160

HDR

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDPLPZ01.dgn	DESIGNED BY		ROAD PLANS	HIGGINS AVE. BR REHAB - MISSOULA / STPB 8113(9)
2		5/18/2020	REVIEWED BY			
		10:32:13 AM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000 / SHEET 51

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



HDR

3 / 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\8807000RDPLPZ01.dgn 5/18/2020 10:32:14 AM CCOLLINS	DESIGNED BY REVIEWED BY CHECKED BY	ROAD PLANS MISSOULA COUNTY		HIGGINS AVE. BR REHAB - MISSOULA UPN 8807000	STPB 8113(9) SHEET 52

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

SUMMARY
SIGNING & DELINEATION QUANTITIES

MATERIAL	TOTALS	UNIT
SIGNS-ALUM SHEET INCR IV		SQFT
SIGNS-SHEET ALUM SHT INCR XI		SQFT
SIGNS-ALUM REFL SHEET IV	**15.8**	SQFT
SIGNS-ALUM REFL SHEET XI	**60.5**	SQFT
RESET SIGNS	**1**	EACH
RESET SIGNS-GUIDE	**1**	EACH
REMOVE SIGN	**14**	EACH
REMOVE SIGN-GUIDE		EACH
POSTS-TUBULAR STEEL		LB
POSTS-STEEL U SIGN		LB
POSTS-STEEL STRUCTURAL SIGN		LB
POSTS-TUBULAR STEEL-SQ-PERF	**340**	LB
DELINEATOR DES A		EACH
DELINEATOR DES B		EACH
DELINEATOR DES C		EACH
DELINEATOR DES D		EACH
DELINEATOR DES F		EACH
DELINEATOR DES G		EACH
DELINEATOR DES H		EACH

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

SIGN LOCATION AND SPECIFICATION

Lt.	STATION / M.P.	Rt.	SIGN NO.	PANEL SIZE	REFL SHTG BACK- GRND	REFL SHTG LEGEND	FEET CLEARANCE	FEET SIGN SUPPORT SPACING	TYPE OF SUPPORT	CANTILEVER	FEET SUPPORT LENGTH (ESTIMATED)	FEET SUPPORT LENGTH (INSTALLED)	FEET MOUNTING HEIGHT	FEET FOUNDATION DEPTH	SIGN PANEL (SQ. FT.) SHEET ALUMINUM IV	ALUM. SHEET INCREMENT IV	SHEET ALUMINUM XI	ALUM. SHEET INCREMENT XI	ALUMINUM SHT OVERLAY	TIMBER POLE (LINEAR FT.) 4" TOP DIA.	5" TOP DIA.	6" TOP DIA.	STEEL POST (LBS.) ROUND TUBULAR	SQUARE TUBULAR	STRUCTURAL STEEL	"U" POST	BREAKAWAY	SIGNS REMOVE	SIGNS RESET	GUIDE REMOVE	GUIDE RESET			REMARKS
	102+29	RT.	R2-1	30x36	XI												7.5											1						REPLACE SIGN FACE, R2-1 = 25
LT.	103+04		R7-108	12X18	XI		2-0		2" SQ. TUBE		10-0		7-0	3-0			1.5							43			▲	1						REPLACE
	103+50	RT.	R3-2	36X36	XI	XI	2-0		2 1/2" SQ. TUBE		11-6		7-0	3-0			9.0							59			▲							NEW
LT.	103+75		R1-2	REMOVE																								1						REMOVE
LT.	104+05		CITY-1	RESET																											1			RESET, CITY-1 = HIP STRIP, ROXY THEATER, UNIVERSITY OF MONTANA
LT.	104+33		D3-1 D3-1	36X10 36X10	IV IV	IV IV	2-0		2 1/2" SQ. TUBE		12-8		7-0	3-0	2.5 2.5									63			▲							NEW. D3-1 = S 3RD W ST D3-1 = S 3RD W ST
			D3-1 D3-1	42X10 42X10	IV IV	IV IV									2.9 2.9																			D3-1 = HIGGINS AVE D3-1 = HIGGINS AVE
			R1-1	30X30	XI	XI											5.2																	
LT.	104+40		R3-5 (RT)	24x30	XI		2-0		2 1/2" SQ. TUBE		11-0		7-0	3-0			5.0							58			▲							NEW
	104+46	RT.	R3-2	36X36	XI	XI	2-0		2 1/2" SQ. TUBE		11-6		7-0	3-0			9.0							59			▲							NEW
LT.	104+50		D3-1 D3-1	REMOVE																								1						REMOVE. D3-1 = S 3RD W ST D3-1 = S 3RD W ST
			D3-1 D3-1																															D3-1 = HIGGINS AVE D3-1 = HIGGINS AVE
			W1-6 (RT)																														
LT.	104+73		R5-1	REMOVE																								1						REMOVE
	105+26	RT.	R5-6 R5-MOD	REMOVE																								1						REMOVE
LT.	105+76		R5-6 R5-MOD	REMOVE																								1						REMOVE
LT.	114+14		R5-6 R5-MOD	REMOVE																								1						REMOVE
	114+83	RT.	D4-1	30X24	IV								7-0		5.0													1					*	REPLACE SIGN FACE FROM 114+89
	114+89	RT.	R5-6 R5-MOD	REMOVE																								1						REMOVE
LT.	115+04		R7-6L R7-MOD	12X18 12X6	XI XI								7-0				1.5 0.5											1						REPLACE SIGN FACE
LT.	115+07		R2-1 CITY-2	30X36 USE AS IS	XI								7-0				7.5											1					*	REPLACE SIGN FACE FROM 115+22, R2-1 = 25 CITY-2 = DOG LEASH AND WASTE PICKUP MANDATORY!
LT.	115+47		R4-4	36X30	XI		2-0		2 1/2" SQ. TUBE		11-0		7-0	3-0			7.5							58			▲							NEW
LT.	115+55		CITY-3	USE AS IS																														CITY-3 = PAY PARKING HERE
LT.	116+03		CITY-4 BY OTHERS	RESET									7-0																1				*	BY OTHERS = MOUNTAIN LION, NO PARKING, BUS STOP CITY-4 = PAY TO PARK, ZONE 4061
	116+05	RT.	R3-7	30X30	XI								7-0				6.3											1					*	REPLACE SIGN FACE
	116+74	MED	R4-7	REMOVE																								1						REMOVE
	116+76	RT.	R6-1 CITY-5	USE AS IS																														CITY-5 = DESTINATION DIRECTIONS
														TOTALS	15.8		60.5							340				14	1		1			

SQUARE TUBE SUPPORT		
TUBE SIZE	WEIGHT	WALL THICKNESS
2"	2.42 lbs/ft	0.105" (12 GAUGE)
2½"	2.77 lbs/ft	0.105" (12 GAUGE)
2½"	3.14 lbs/ft	0.105" (12 GAUGE)

SQUARE TUBE ANCHOR		
TUBE SIZE	WEIGHT	WALL THICKNESS
2½"	18.36 lbs ea.	0.135"
3"	22.98 lbs ea.	0.188"

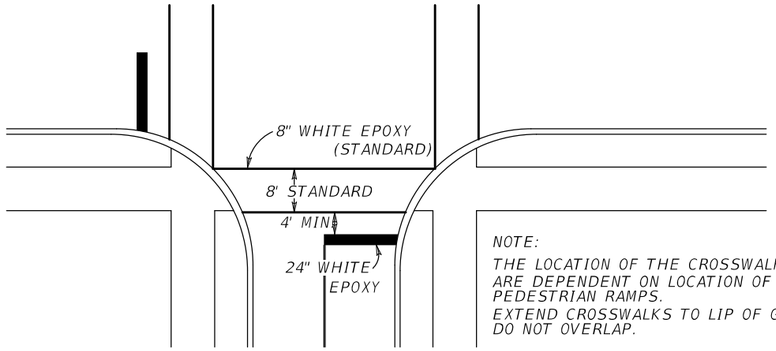
For estimating purposes only.

▲ = SINGLE SQUARE TUBE REQUIRED. MOUNTED IN HEAVY DUTY STUB.

* = MOUNT ON NEW LUMINAIRE POLE.

FDR

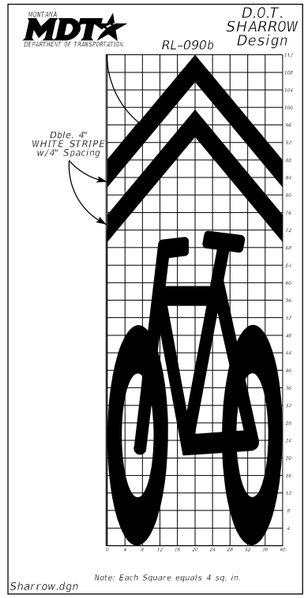
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086



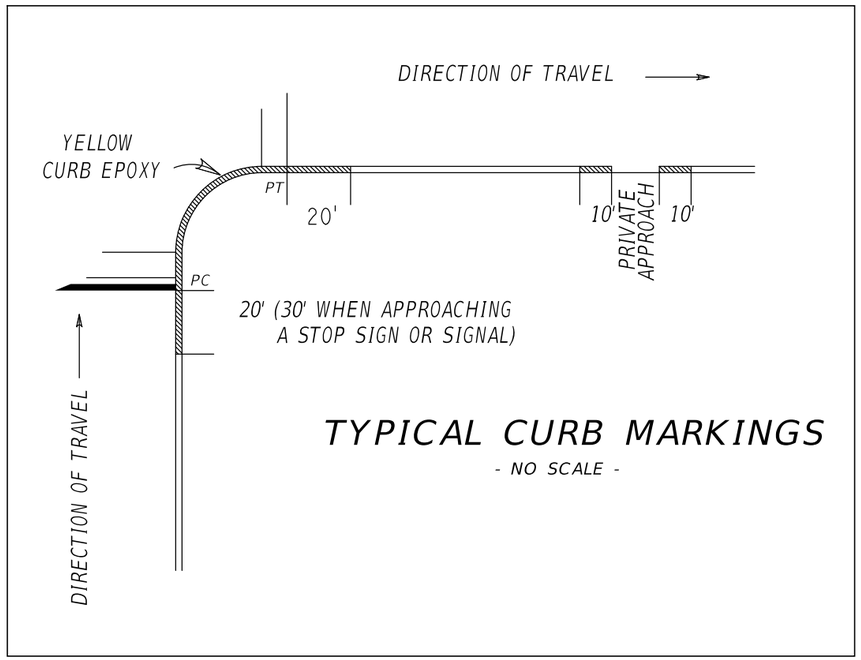
NOTE:
THE LOCATION OF THE CROSSWALK LINES ARE DEPENDENT ON LOCATION OF THE PEDESTRIAN RAMPS.
EXTEND CROSSWALKS TO LIP OF GUTTER DO NOT OVERLAP.

TYPICAL PAVEMENT MARKINGS FOR PEDESTRIAN CROSSINGS

- NO SCALE -







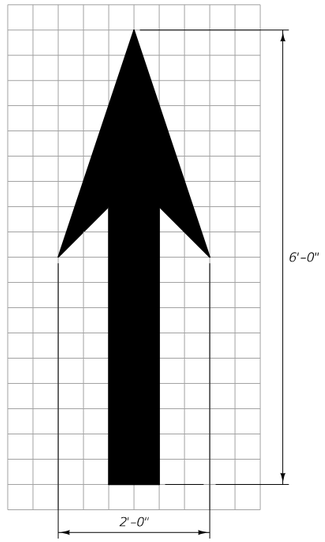
TYPICAL CURB MARKINGS

- NO SCALE -

NOTE:
ALL PAVEMENT MARKINGS TO MATCH EXISTING CONDITIONS, UNLESS OTHERWISE SPECIFIED BY THE PROJECT MANAGER.

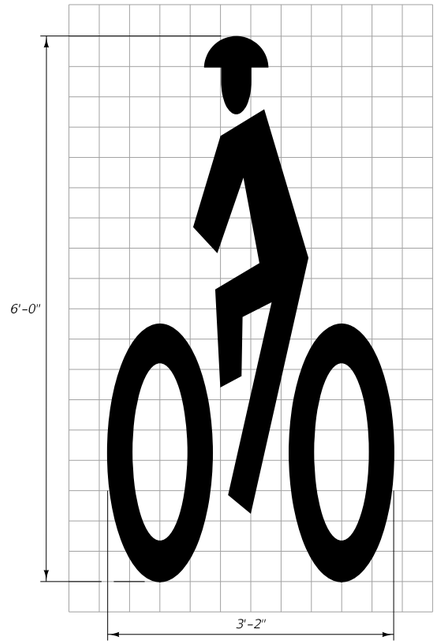
DIRECTIONAL ARROW FOR BIKE LANE

AREA = 4.56 FT²
P = 0.04 GAL.
E = 0.06 GAL.
(1 SQUARE = 4")



BIKE LANE SYMBOL

AREA = 5.95 FT²
P = 0.06 GAL.
E = 0.07 GAL.
(1 SQUARE = 4")

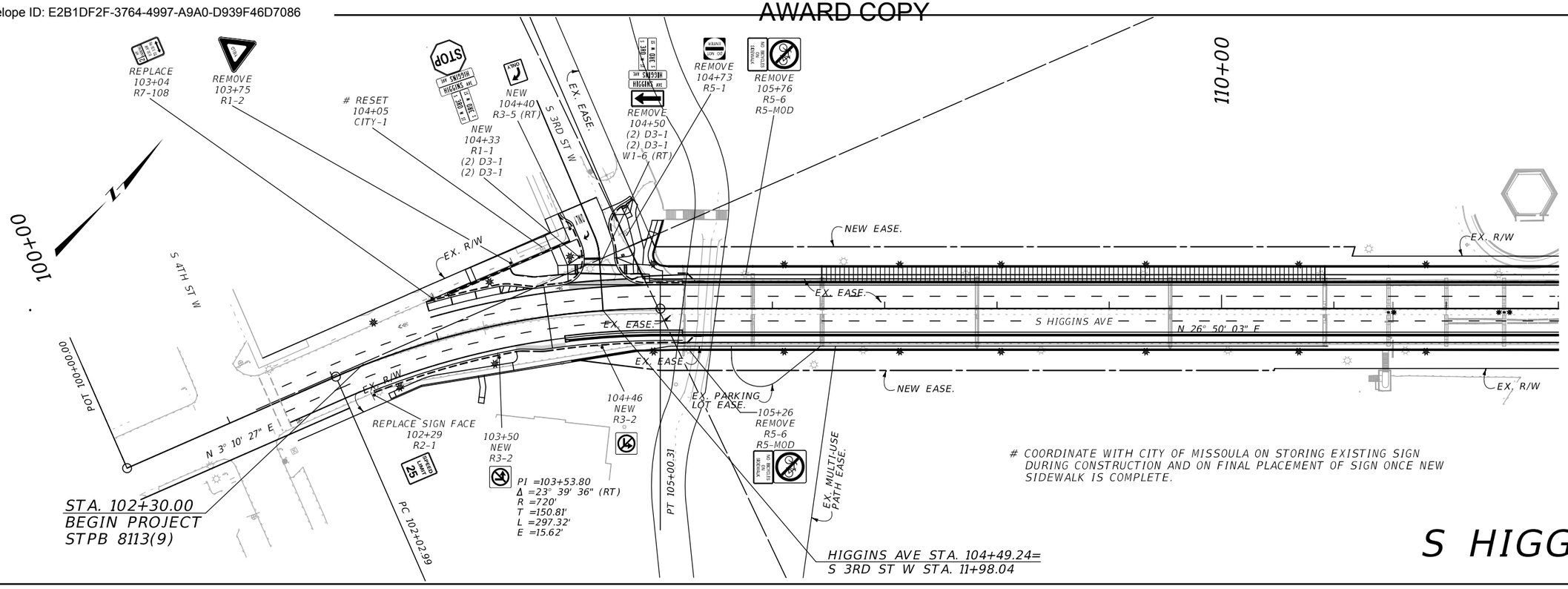


HDR

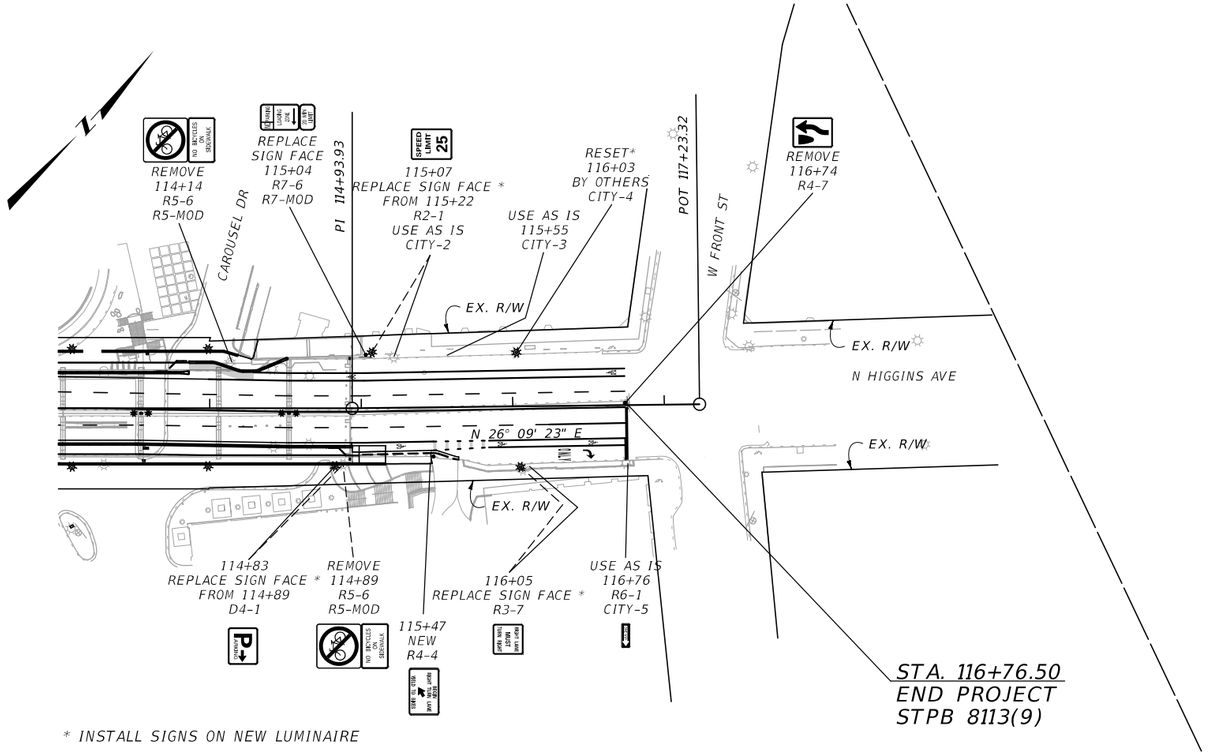
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\S1\8807000SIDETZ01.DGN	DESIGNED BY		SIGNING PLANS	HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
2		5/15/2020	REVIEWED BY				
		2:07:46 PM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	S3

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



S HIGGINS AVE



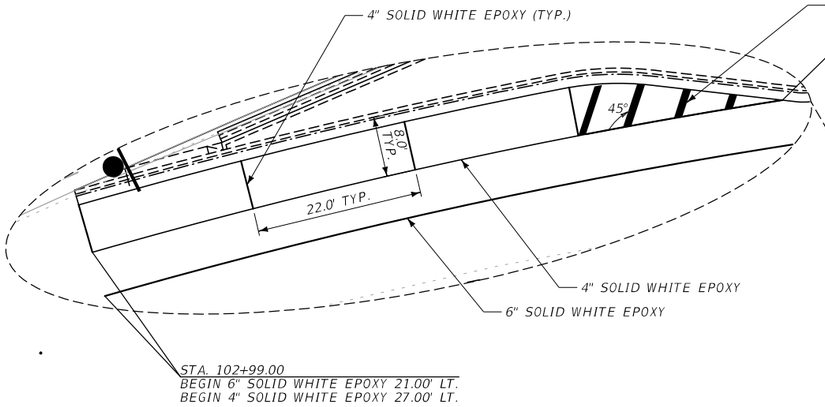
N HIGGINS AVE

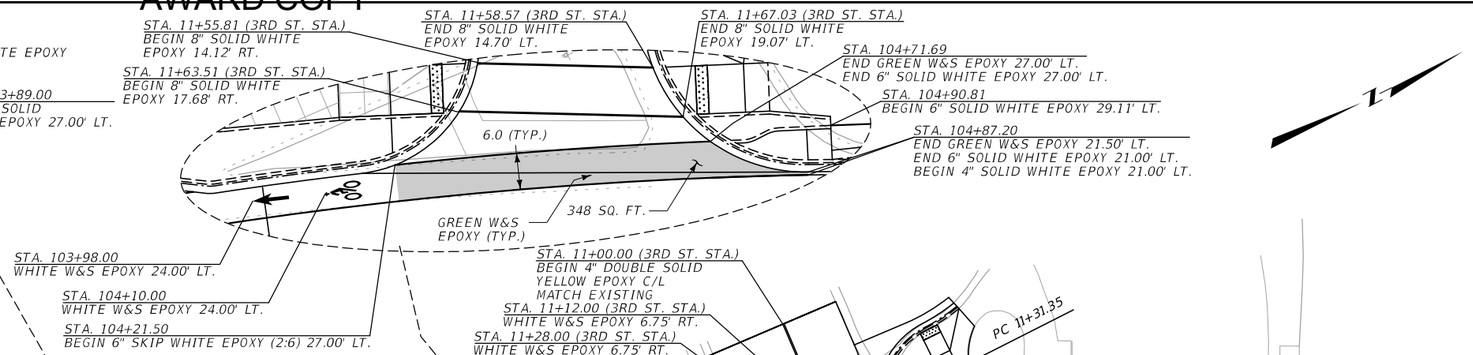
HDR

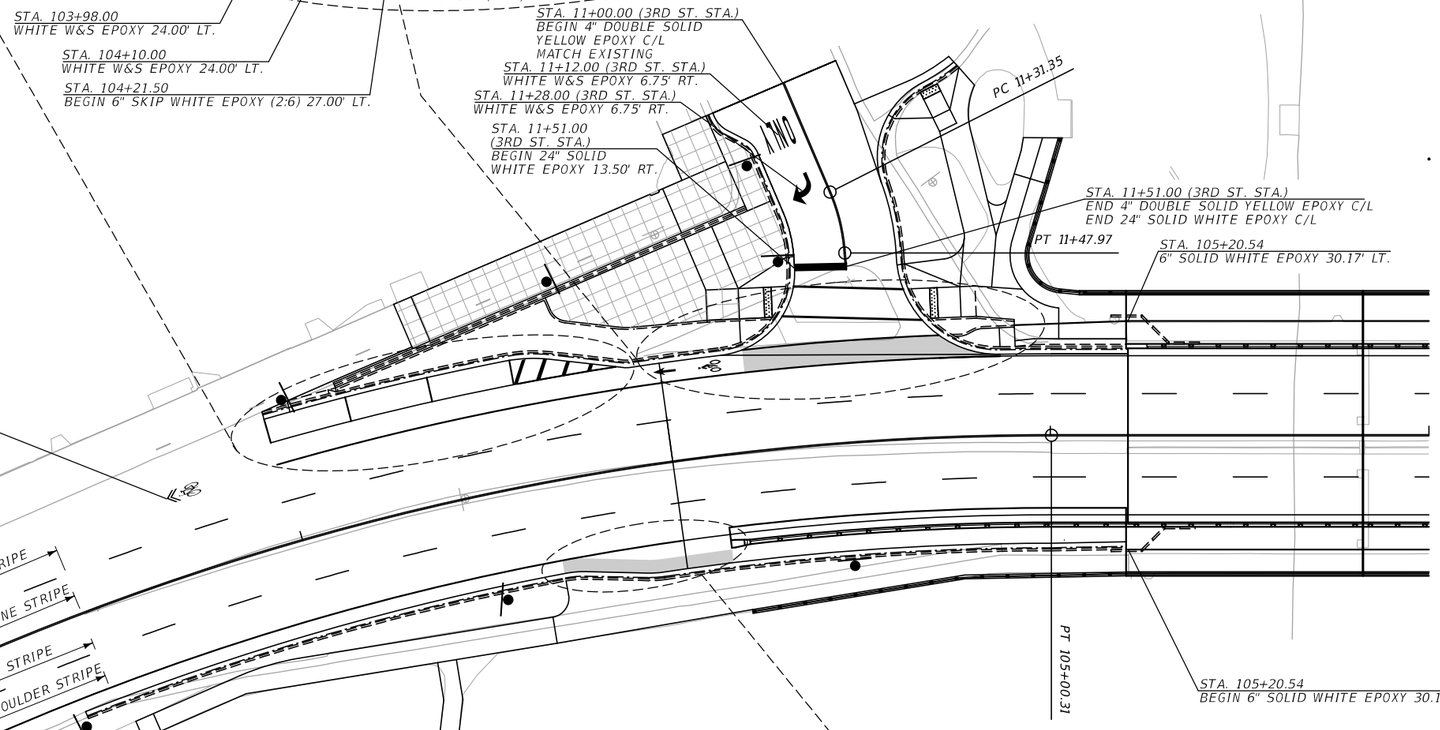
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\S1\8807000SIPLNZ01.dgn	DESIGNED BY			HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
2		5/15/2020	REVIEWED BY		SIGNING PLANS		
		2:07:51 PM CCOLLINS	CHECKED BY		MISSOULA COUNTY	UPN 8807000	S4

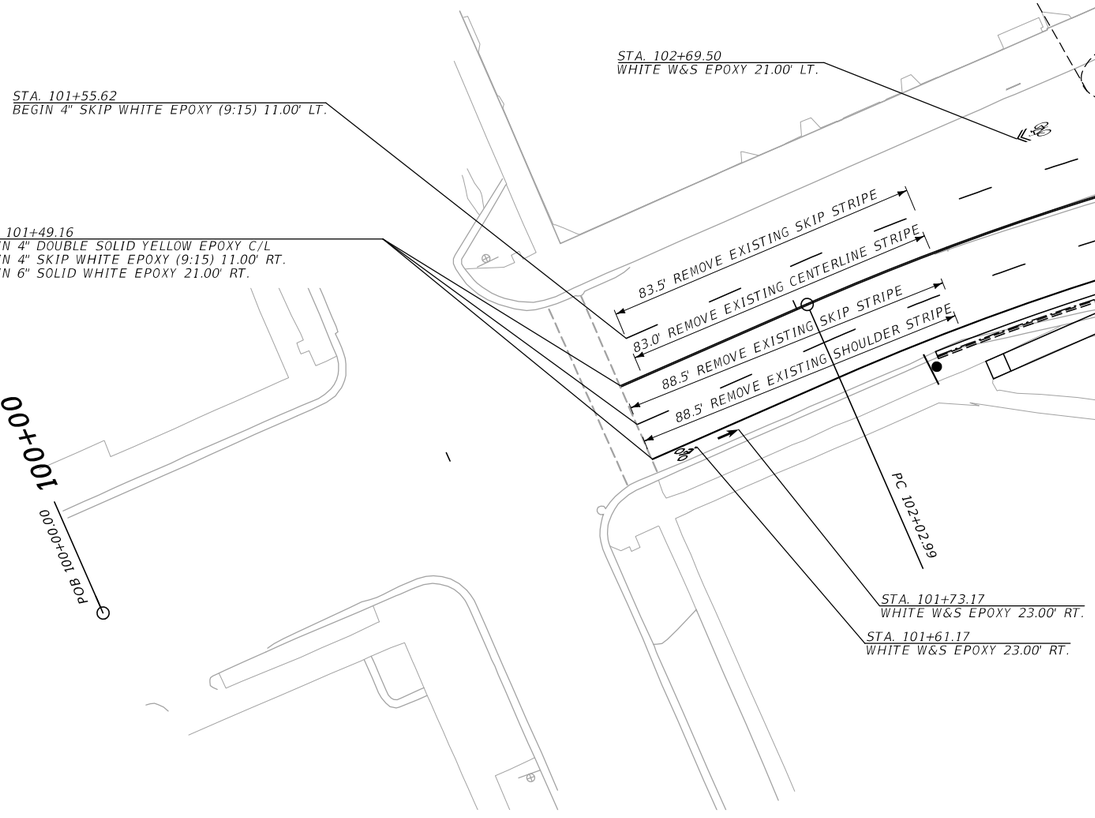
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY







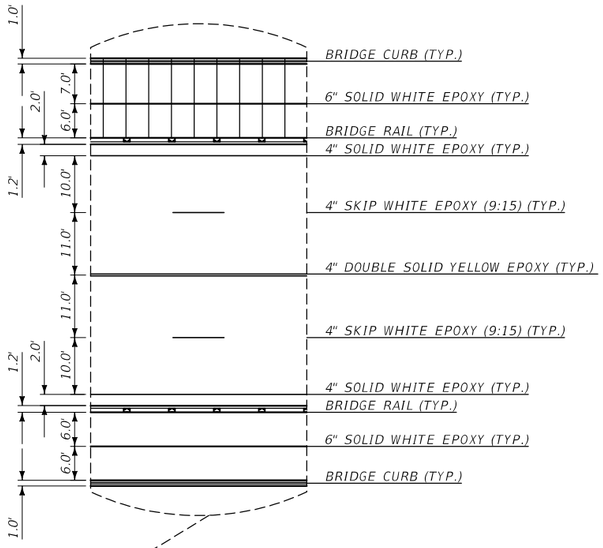


S HIGGINS AVE

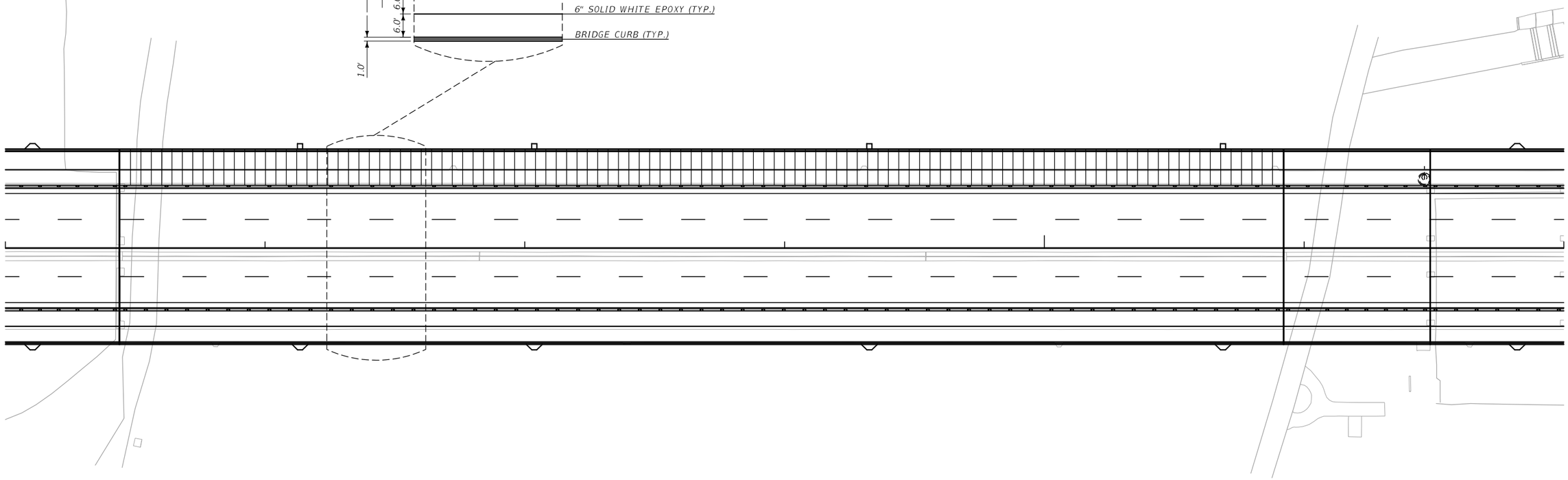
HDR

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\S1\8807000SIPLNZ02.dgn	DESIGNED BY			SIGNING PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
2		5/15/2020	REVIEWED BY			MISSOULA COUNTY	UPN 8807000	S5
		2:07:55 PM CCOLLINS	CHECKED BY					

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086



110+00



NOTE:
SEE LANDSCAPE DETAILS FOR ADDITIONAL PAVEMENT MARKINGS WITHIN CONSTRUCTION PERMIT AREAS IN EAST CARAS PARK.

N HIGGINS AVE

HDR

3 / 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\S1\8807000SIPLNZ02.dgn 5/15/2020 2:07:56 PM CCOLLINS	DESIGNED BY REVIEWED BY CHECKED BY		SIGNING PLANS MISSOULA COUNTY		HIGGINS AVE. BR REHAB – MISSOULA UPN 8807000	STPB 8113(9) S6

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

STA. 113+86.23
BEGIN GREEN W&S EPOXY 29.81' LT.
BEGIN GREEN W&S EPOXY 24.75' LT.
END 6" SOLID WHITE EPOXY 30.17' LT.

STA. 114+28.97
BEGIN 4" SOLID WHITE EPOXY 23.69' LT.
END GREEN W&S EPOXY 23.69' LT.
END GREEN W&S EPOXY 18.69' LT.

218 SQ. FT.

STA. 114+00.00
END 4" SOLID WHITE EPOXY 19.21' LT.
BEGIN 6" SOLID WHITE EPOXY 19.21' LT.

STA. 114+52.34
4" SKIP WHITE EPOXY (9:15) 8.28' LT.

STA. 114+52.25
4" DOUBLE SOLID YELLOW EPOXY 2.22 RT.

STA. 114+52.43
4" SOLID WHITE EPOXY 23.28' LT.

STA. 114+52.43
6" SOLID WHITE EPOXY 18.28' LT.

STA. 114+78.05
WHITE W&S EPOXY 20.78' LT.

STA. 114+90.05
WHITE W&S EPOXY 20.78' LT.

STA. 115+02.26
4" SOLID WHITE EPOXY 23.18' LT.

STA. 115+02.29
6" SOLID WHITE EPOXY 18.18' LT.

STA. 115+02.26
4" SKIP WHITE EPOXY (9:15) 8.18' LT.

STA. 115+02.23
4" DOUBLE SOLID YELLOW EPOXY 2.32' RT.

PI 114+93.93

STA. 116+50.00
WHITE W&S EPOXY 21.65' LT.

STA. 116+62.00
WHITE W&S EPOXY 21.65' LT.

POE 117+23.32

STA. 113+25.25
4" DOUBLE SOLID YELLOW EPOXY C/L

STA. 112+96.79
4" SOLID WHITE EPOXY 21.00' LT.

STA. 112+96.70
4" SKIP WHITE EPOXY (9:15) 11.00' LT.

STA. 113+53.81
4" SKIP WHITE EPOXY (9:15) 11.00' RT.

STA. 113+53.72
4" SOLID WHITE EPOXY 21.00' RT.

STA. 113+53.67
6" SOLID WHITE EPOXY 30.17' RT.

STA. 113+94.70
6" SOLID WHITE EPOXY 30.88' RT.

STA. 114+52.16
4" SKIP WHITE EPOXY (9:15) 12.72' RT.

STA. 114+52.07
4" SOLID WHITE EPOXY 22.72' RT.

STA. 114+93.64
END 4" SOLID WHITE EPOXY 22.72' RT.
BEGIN 6" SOLID WHITE EPOXY 22.72' RT.

STA. 114+93.64
END 6" SOLID WHITE EPOXY 30.88' RT.

STA. 115+02.19
4" SKIP WHITE EPOXY (9:15) 12.82' RT.

STA. 115+02.16
6" SOLID WHITE EPOXY 22.82' RT.

STA. 116+74.00
END 4" SOLID WHITE EPOXY 24.15' LT.
END 6" SOLID WHITE EPOXY 19.15' LT.
END 4" SKIP WHITE EPOXY (9:15) 9.15' LT.
END 4" DOUBLE SOLID YELLOW EPOXY 1.35' RT.
BEGIN 24" SOLID WHITE EPOXY 1.35' RT.
END 8" SOLID WHITE EPOXY 11.85' RT.
END 6" SOLID WHITE EPOXY 21.85' RT.
END 4" SOLID WHITE EPOXY 26.35' RT.
END 24" SOLID WHITE EPOXY 36.00' RT.

STA. 116+68.00
WHITE W&S EPOXY 24.35' RT.

STA. 116+56.00
WHITE W&S EPOXY 24.35' RT.

STA. 116+50.00
WHITE W&S EPOXY 32.00' RT.

STA. 116+34.00
WHITE W&S EPOXY 32.00' RT.

STA. 116+24.00
END 4" SKIP WHITE EPOXY (9:15) 12.13' RT.
BEGIN 8" SOLID WHITE EPOXY 12.13' RT.

STA. 115+47.25
END 6" SOLID WHITE EPOXY 22.56' RT.
BEGIN 6" SKIP WHITE EPOXY (2:6) 22.56' RT.
BEGIN GREEN W&S EPOXY 22.56' RT.
BEGIN 6" SKIP WHITE EPOXY (2:6) 28.38' RT.
BEGIN GREEN W&S EPOXY 28.38' RT.

STA. 115+84.00
END 6" SKIP WHITE EPOXY (2:6) 22.35' RT.
BEGIN 6" SOLID WHITE EPOXY 22.35' RT.
END GREEN W&S EPOXY 22.35' RT.
END 6" SKIP WHITE EPOXY (2:6) 26.85' RT.
BEGIN 4" SOLID WHITE EPOXY 26.85' RT.
END GREEN W&S EPOXY 26.85' RT.

5.0'
2.0 (TYP.)
6.0 (TYP.)
4.5'

STA. 115+29.25
WHITE W&S EPOXY 25.45' RT.

STA. 115+41.25
WHITE W&S EPOXY 25.45' RT.

GREEN W&S EPOXY (TYP.)

STA. 116+08.00
WHITE W&S EPOXY 24.86' RT.

STA. 115+96.00
WHITE W&S EPOXY 24.86' RT.

N HIGGINS AVE

HDR

2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\SI\8807000SIPLNZ02.dgn	DESIGNED BY			SIGNING PLANS	HIGGINS AVE. BR REHAB – MISSOULA	STPB 8113(9)
1		5/15/2020	REVIEWED BY			MISSOULA COUNTY	UPN 8807000	S7
		2:07:57 PM CCOLLINS	CHECKED BY					

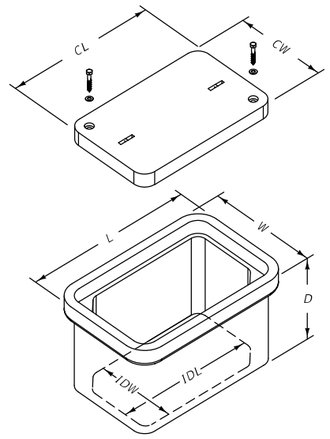
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

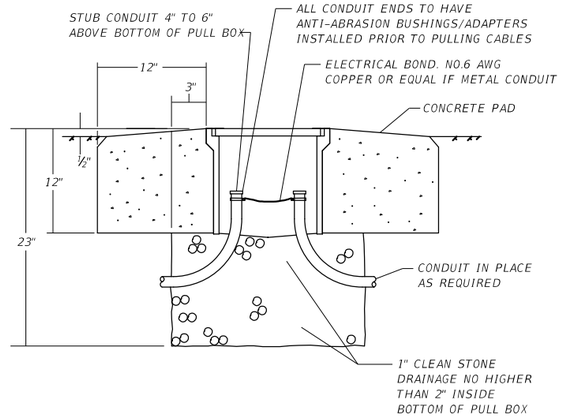
ELECTRICAL QUANTITY SUMMARY

ITEM NO.	MATERIAL	TOTAL	UNIT
616 323 120	CONDUIT - STEEL 2 IN RIGID	2,900	LNFT
616 343 920	CONDUIT - PLASTIC 2 IN	850	LNFT
616 723 003	JUNCTION BOX	9	EACH
616 783 007	PULL BOX - COMPOSITE TYPE 2	2	EACH
616 783 008	PULL BOX - COMPOSITE TYPE 3	1	EACH
617 000 000	FOUNDATION-CONCRETE	5.6	CUYD
617 033 212	CABLE-COPPER 3AWG12-600V	750	LNFT
617 123 106	CONDUCTOR - COPPER AWG6 - 600V	23,825	LNFT
617 123 108	CONDUCTOR - COPPER AWG8 - 600V	13,775	LNFT
617 123 110	CONDUCTOR - COPPER AWG10 - 600V	2,800	LNFT
617 130 066	DECORATIVE LUMINAIRE POLE-TYPE 1 *	27	EACH
617 303 300	HIGH EFFICACY LUMINAIRE LED	7	EACH
617 333 198	SERV ASSEMBLY - 200 AMP	1	EACH
617 783 035	OUTLET RECEPTACLE - 120V GFCI	31	EACH

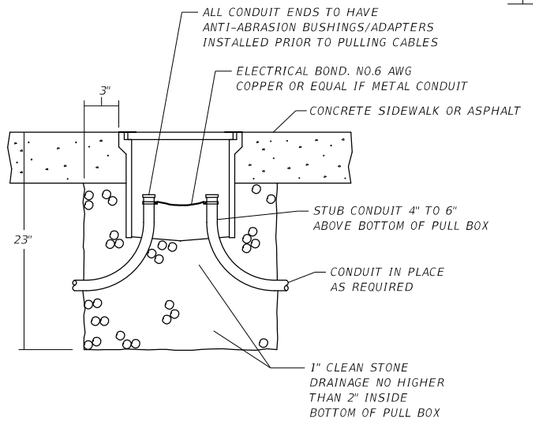
* COST OF LUMINAIRE ASSEMBLY TO BE INCLUDED IN DECORATIVE POLE ASSEMBLY



PULL BOX - COMPOSITE MINIMUM DIMENSIONS		
TYPE 1	TYPE 2	TYPE 3
L = 20"	L = 25"	L = 32"
W = 13"	W = 15"	W = 19"
D = 12"	D = 12"	D = 12"
I D L = 17"	I D L = 21"	I D L = 28"
I D W = 10"	I D W = 11"	I D W = 15"
C L = 18"	C L = 23"	C L = 30"
C W = 11"	C W = 13"	C W = 17"



PULL BOX INSTALLED IN DIRT



PULL BOX INSTALLED IN A SIDEWALK OR ASPHALT

PULL BOX-COMPOSITE

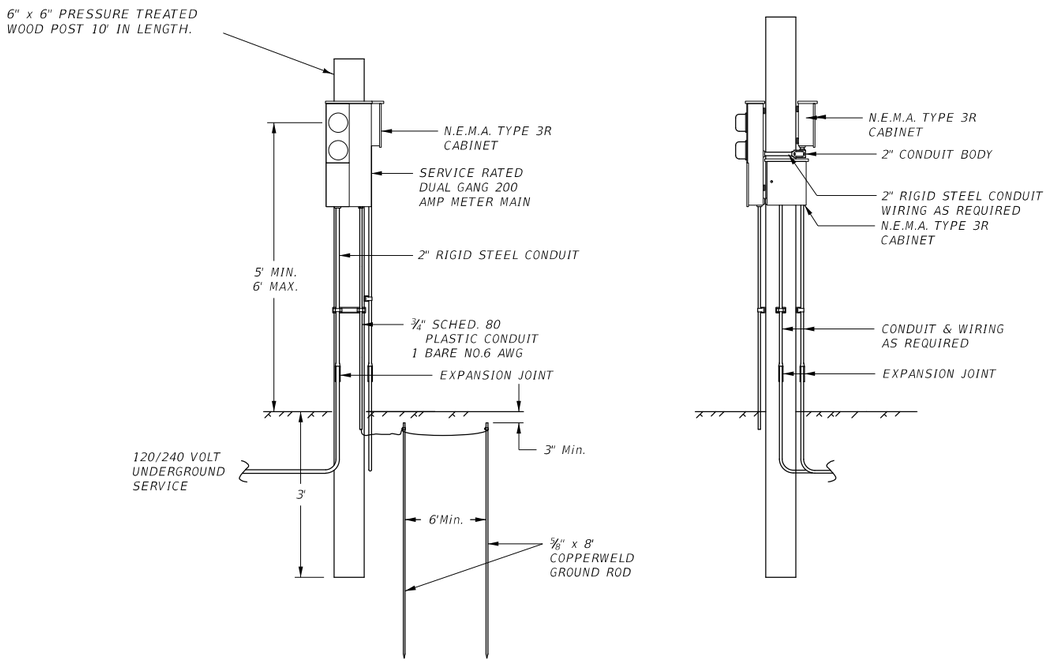
TYPE 1,2 & 3

NO SCALE

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



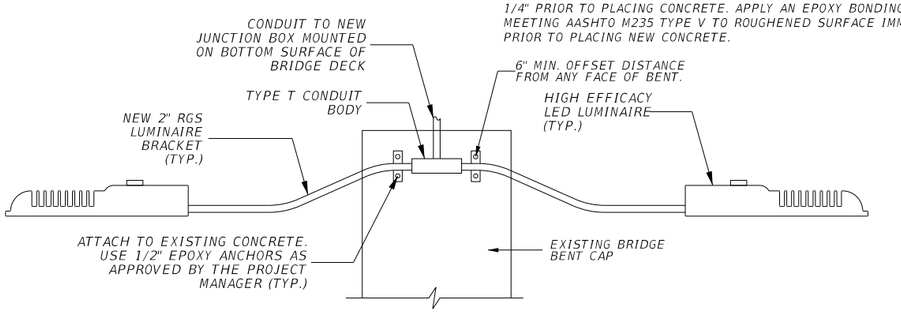
NOTE: A PERMANENT PLACQUE OR DIRECTORY SHALL BE INSTALLED AT EACH SERVICE DISCONNECT LOCATION DENOTING ALL OTHER SERVICES, FEEDERS AND BRANCH CIRCUITS AND AREA SERVED BY EACH PER NEC REQUIREMENT.

UNDER GROUND SERVICE ASSEMBLY DETAIL

NO SCALE

NOTE: UTILIZE A PACHOMETER, GROUND PENETRATING RADAR OR OTHER MEANS TO ACCURATELY LOCATE EXISTING REINFORCING STEEL PRIOR TO DRILLING. RELOCATE HOLES IN CONFLICT WITH THE EXISTING REINFORCING, AS APPROVED, TO MISS THE EXISTING REINFORCING. DO NOT DAMAGE EXISTING REINFORCING STEEL WHILE DRILLING HOLES. CORING HOLES IS NOT PERMITTED. CLEAN HOLES AND INSTALL ADHESIVE PER ADHESIVE MANUFACTURER'S RECOMMENDATIONS.

WHERE NEW CONCRETE IS TO BE PLACED AGAINST THE EXISTING BENT, INTENTIONALLY ROUGHEN THE SURFACE TO A MINIMUM AMPLITUDE OF 1/4" PRIOR TO PLACING CONCRETE. APPLY AN EPOXY BONDING AGENT MEETING AASHTO M235 TYPE V TO ROUGHENED SURFACE IMMEDIATELY PRIOR TO PLACING NEW CONCRETE.



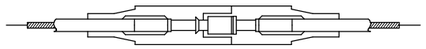
UNDER BRIDGE MOUNTING ASSEMBLY DETAIL (TYPICAL)

NO SCALE

WATERTIGHT CONNECTORS

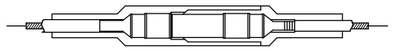
IDENTITY NO.	DESCRIPTIVE SYMBOL & WIRE SIZES
1	8 — 10
2	8 — 10
3	8 — 10, 8
4	8 — 10, 8
5	8 — 8, 8
6	6 — 10
7	6 — 10
8	6 — 10, 6
9	6 — 10, 6
10	6 — 8, 6
11	4 — 8
12	4 — 10
13	4 — 10, 4
14	4 — 4, 4
15	6 — 6, 6
16	10 — 10
17	10 — 10
18	10 — 10, 10
19	10 — 10, 10
20	10 — 10, 10
21	8 — 8, 8 — 10
22	8 — 10, 8 — 10

TYPES 1, 6, 11 & 16



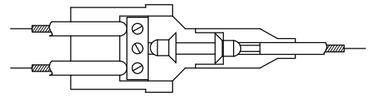
NON-FUSED BREAKAWAY

TYPES 2, 7, 12 & 17



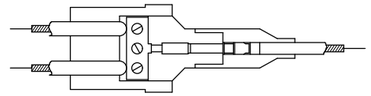
FUSED BREAKAWAY

TYPES 3, 8, 13 & 18



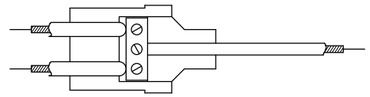
FUSED BREAKAWAY

TYPES 4, 9, 14 & 19



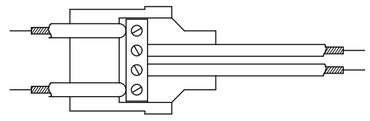
NON-FUSED BREAKAWAY

TYPES 5, 10, 15 & 20



NON-FUSED NON-BREAKAWAY

TYPE 21



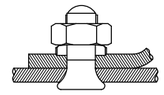
NON-FUSED NON-BREAKAWAY

PROVIDE A PLUG AND RECEPTACLE HOUSED IN WATER-RESISTANT, SYNTHETIC RUBBER CAPABLE OF BURIAL IN THE GROUND OR INSTALLATION IN SUNLIGHT. THE HOUSING, CONSISTING OF 2 SECTIONS, PROVIDES A WATERTIGHT SEAL AROUND THE CABLE AND A WATERTIGHT SEAL BETWEEN THE TWO SECTIONS AT THE POINT OF DISCONNECTION. SUPPLY EACH KIT WITH SUFFICIENT SILICONE COMPOUND TO LUBRICATE METAL PARTS AND THE RUBBER HOUSINGS FOR EASY ASSEMBLY.

WHERE INDICATED, CRIMP A COPPER PIN AND A COPPER RECEPTACLE TO THE CABLE. THE RECEPTACLE IS TO ESTABLISH CONTACT PRESSURE WITH THE PIN THROUGH THE USE OF A COPPER BERYLLIUM SPRING AND BE EQUIPPED WITH A DISPOSABLE MOUNTING PIN. THE PIN IS TO BE CONSTRUCTED OF AT LEAST HALF-HARD MATERIAL. THE CRIMPING PORTION IS TO BE FULLY ANNEALED WHILE THE REST OF THE PIN IS MAINTAINED IN ITS ORIGINAL STATE OF HARDNESS. THE RECEPTACLE IS TO BE FULLY ANNEALED. THE PIN AND RECEPTACLE ARE TO LOCK TOGETHER SO THE CONNECTION IS MAINTAINED WHEN A MINIMUM FORCE OF 20 POUNDS TENSION IS APPLIED TO THE ATTACHED CABLES.

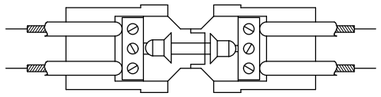
PROVIDE FUSED CONNECTOR KITS CONTAINING A PAIR OF SPRING LOADED 90% CONDUCTIVITY CONTACTS FOR GRIPPING A STANDARD MIDGET FERRULE TYPE FUSE. THE CONTACTS MUST BE FULLY ANNEALED AND ADAPTED TO BE CRIMPED TO THE CABLE.

GROUNDING TERMINATION



COPPER SPLIT BOLT - MAKE WATERTIGHT USING SELF ADHERING MASTIC

TYPE 22



FUSED BREAKAWAY

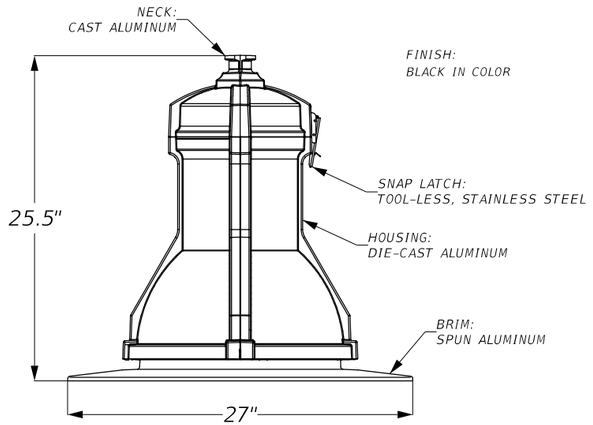
WATERTIGHT CONNECTORS

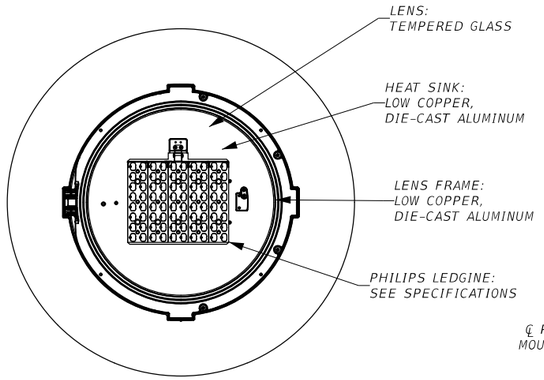
NO SCALE

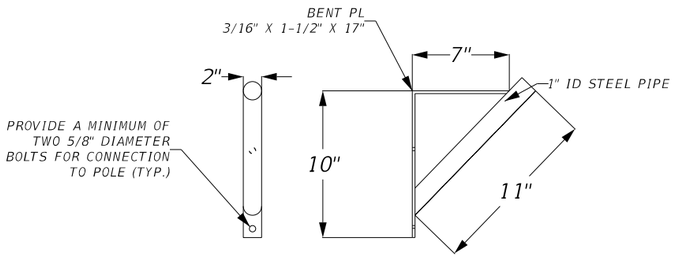
HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

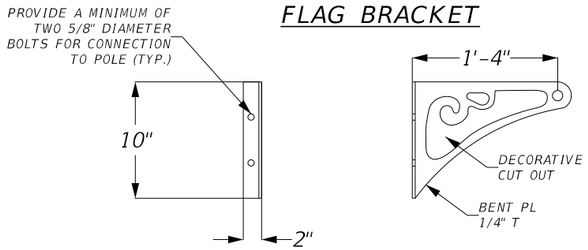
AWARD COPY



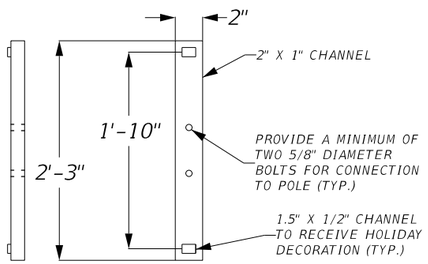




FLAG BRACKET



HANGING FLOWER POT BRACKET



HOLIDAY DECORATION BRACKET

DESIGN REQUIREMENTS

DESIGN ATTACHMENTS IN ACCORDANCE WITH THE 1994 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (AND ANY AMENDMENTS THERETO).

- USE A WIND DESIGN VELOCITY OF 90 MPH
- HOLIDAY DECORATION:
  - SINGLE DECORATION
  - WIREFRAME APPROXIMATELY 2' WIDE X 4' TALL
  - APPROXIMATELY 25 LB
- FLAG
  - POLE - 6' LONG
  - FLAG DIMENSIONS - 34" X 58"
- BANNER
  - DIMENSIONS: 4'-10" TALL X 2'-7" WIDE
  - SINGLE BANNER MOUNTED STREETSIDE
  - ALUMINUM BANNER RODS ARE NOT ACCEPTABLE
- HANGING FLOWER BASKET BRACKET:
  - BASKET HANGER 16" FROM FACE OF POLE
  - MOUNED 90º FROM STREETSIDE
  - CROSS SECTION APPROXIMATELY 1 SQ FT.
  - APPROXIMATE BASKET DIMENSIONS
    - CYLINDRICAL 1'-6" DIAMETER X 2' TALL
    - ASSUMED WEIGHT 50 LB

NOTES

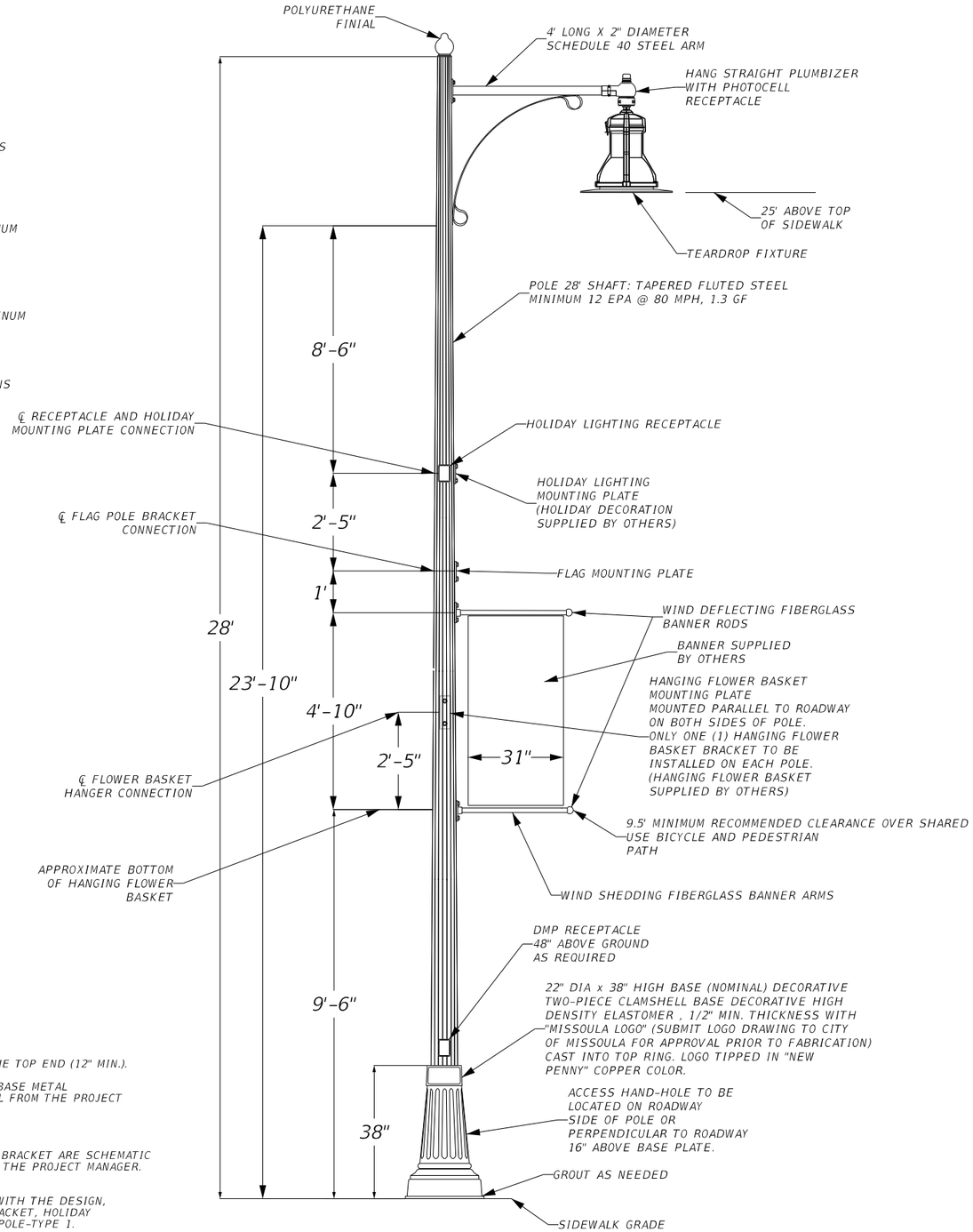
PROVIDE ANCHOR BOLTS CONFORMING TO ASTM F1554 OR EQUAL. GALVANIZE AND THREAD THE TOP END (12" MIN.).

SUBMIT SHOP PLANS FOR THE LUMINAIRE POLE. INCLUDE WELDING PROCEDURES, SYMBOLS, BASE METAL SPECIFICATIONS AND GRADES, AND DECORATIVE CLAMSHELL BASE DETAIL. OBTAIN APPROVAL FROM THE PROJECT MANAGER PRIOR TO FABRICATION.

POWDER COAT POLES BLACK IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

DETAILS SHOWN FOR THE FLOWER POT BRACKET, FLAG BRACKET, AND HOLIDAY DECORATION BRACKET ARE SCHEMATIC ONLY. MODIFY DETAILS AS NECESSARY TO ACCOMMODATE THE DESIGN AND AS APPROVED BY THE PROJECT MANAGER. SUBMIT SHOP PLANS FOR APPROVAL.

SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION. INCLUDE ALL COSTS ASSOCIATED WITH THE DESIGN, FABRICATION, AND INSTALLATION OF LUMINAIRE POLES, FLOWER POT BRACKET, AND FLAG BRACKET, HOLIDAY DECORATION BRACKET, AND RECEPTACLES IN THE UNIT PRICE FOR DECORATIVE LUMINAIRE POLE-TYPE 1.



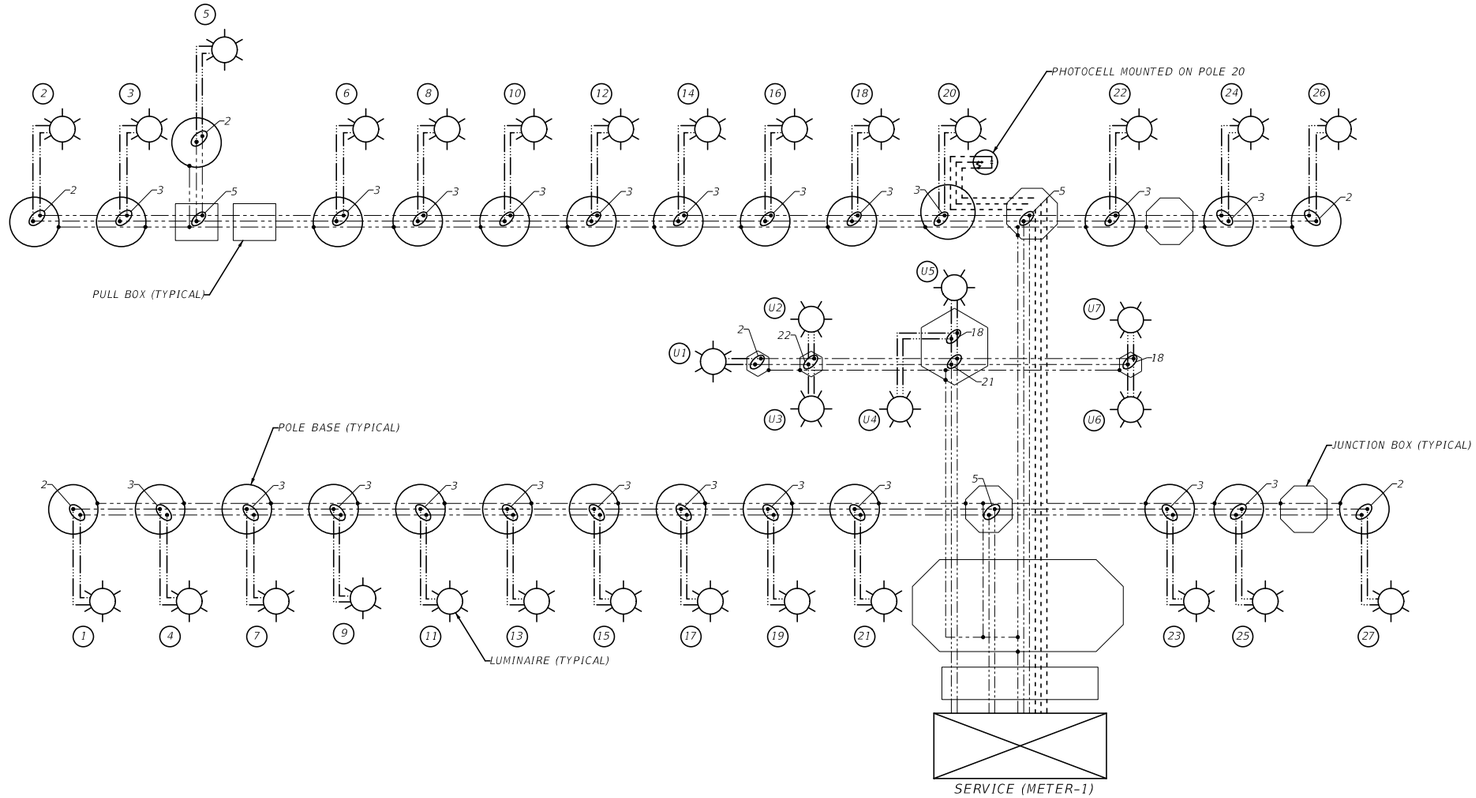
DECORATIVE LUMINAIRE POLE - TYPE 1

HDR

2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\EL\8807000ELDETZ01.dgn	DESIGNED BY		ELECTRICAL PLANS	HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
1		5/15/2020	REVIEWED BY		MISSOULA COUNTY	UPN 8807000	SHEET E3
		2:05:43 PM CCOLLINS	CHECKED BY				

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



LIGHTING WIRING DIAGRAM (METER-1)

LEGEND

- AWG NO. 12
- AWG NO. 10
- AWG NO. 8

- PULL BOX
- JUNCTION BOX (MOUNTED ON BRIDGE)
- POLE NUMBER
- GFCI RECEPTACLE
- LUMINAIRE
- POLE BASE

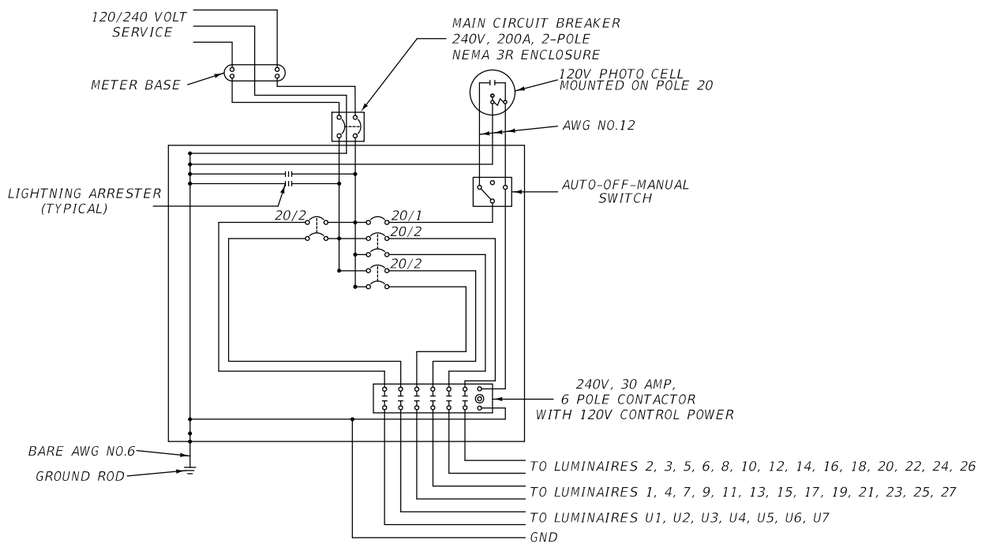
X

INDICATES CONNECTORS PER THE ELECTRICAL DETAIL DRAWING ON SHEET NO. E2
IF NO CONNECTOR DETAIL IS INDICATED, ELECTRICALLY BOND GROUNDING CONDUCTOR TO BONDING CLAMPS IN PULL BOXES, POLE BASES, ETC.

USE MIDGET FERRULE FUSES IN FUSED CONNECTORS.
USE FUSES RATED AT 6 AMPS FOR LED LUMINAIRES.

CONDUCTORS TO BE LABELED PER APPLICABLE NEC REQUIREMENTS FOR MULTIPLE FEEDS IN ONE DUCT.

DESIGN CRITERIA
-MAXIMUM CONDUIT FILL - 25%
-MAXIMUM VOLTAGE DROP - 3% OF NOMINAL VOLTAGE RATING
-STREET LIGHTING SYSTEM - 240V SINGLE-PHASE
-MINIMUM #8 CONDUCTOR FOR BREAK AWAY STRUCTURES
-ROADWAY CLASSIFICATION - COLLECTOR - COMMERCIAL
-LUMINAIRE MOUNTING HEIGHT - 28 FEET
-LUMINAIRE ARM LENGTH - 4 FEET
-REQUIRED MINIMUM AVERAGE ROADWAY ILLUMINATION - 1.4 foot candles
-REQUIRED MINIMUM AVERAGE UNDER BRIDGE ILLUMINATION - 1.0 foot candles
-REQUIRED AVERAGE/MINIMUM RATIO - 4:1

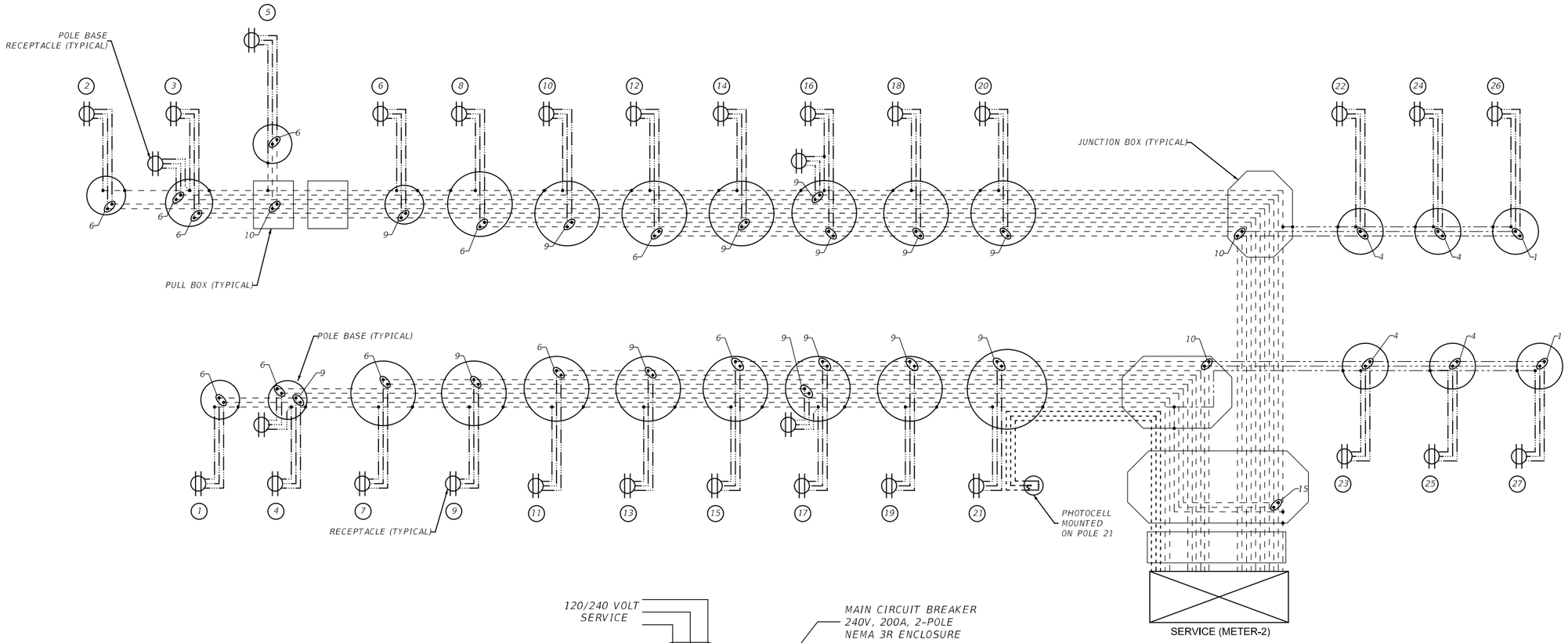


MDT LIGHTING SERVICE WIRING DIAGRAM (METER-1)

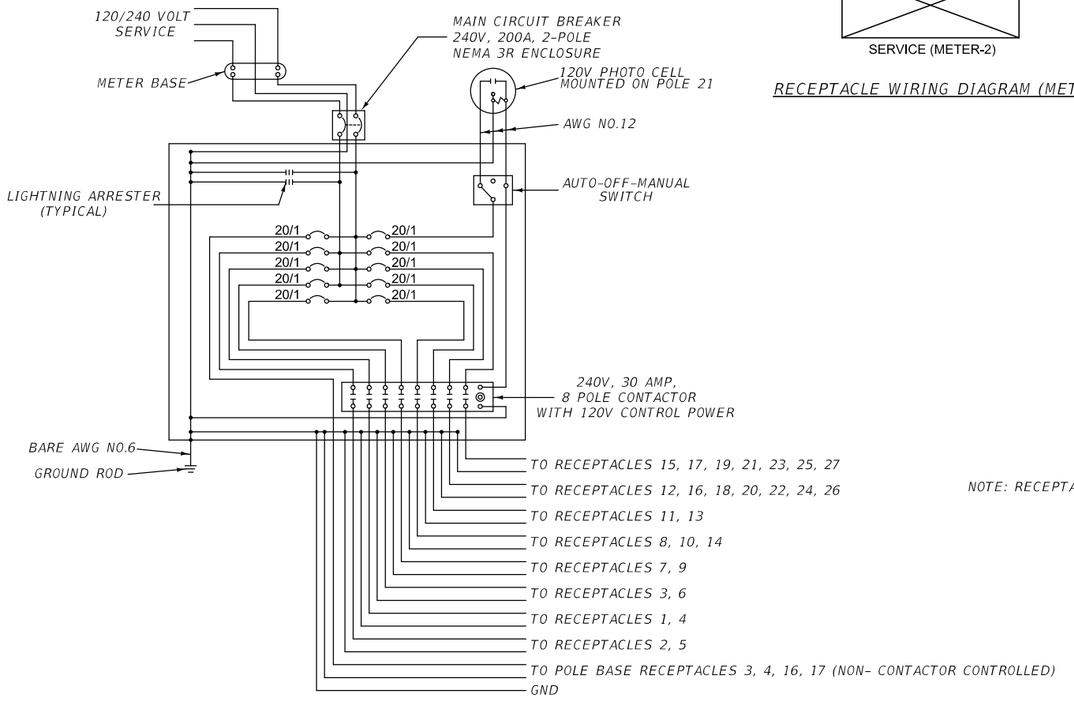
HDR

3 / 2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\EL\8807000ELDETZ02.dgn 5/15/2020 2:05:49 PM CCOLLINS	DESIGNED BY REVIEWED BY CHECKED BY	ELECTRICAL PLANS MISSOULA COUNTY		HIGGINS AVE. BR REHAB - MISSOULA UPN 8807000	STPB 8113(9) SHEET E4

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086



RECEPTACLE WIRING DIAGRAM (METER-2)



DMP SERVICE WIRING DIAGRAM (METER-2)

NOTE: RECEPTACLES FOR POLE TOP HOLIDAY LIGHTING.

LEGEND

- AWG NO. 12
- AWG NO. 10
- AWG NO. 8
- AWG NO. 6

- PULL BOX
- JUNCTION BOX (MOUNTED ON BRIDGE)
- POLE NUMBER
- GFCI RECEPTACLE
- LUMINAIRE
- POLE BASE

X

INDICATES CONNECTORS PER THE ELECTRICAL DETAIL DRAWING ON SHEET NO. E2
IF NO CONNECTOR DETAIL IS INDICATED, ELECTRICALLY BOND GROUNDING CONDUCTOR TO BONDING CLAMPS IN PULL BOXES, POLE BASES, ETC.

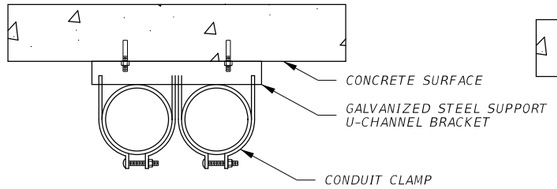
USE MIDGET FERRULE FUSES IN FUSED CONNECTORS.
USE FUSES RATED AT 6 AMPS FOR LED LUMINAIRES.

CONDUCTORS TO BE LABELED PER APPLICABLE NEC REQUIREMENTS FOR MULTIPLE FEEDS IN ONE DUCT.

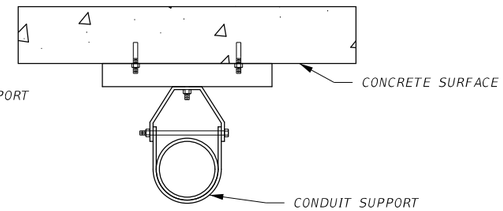
HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

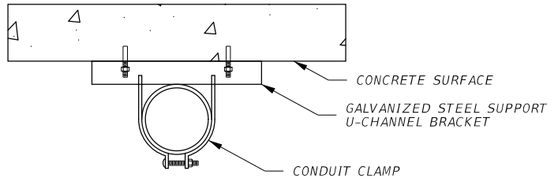
AWARD COPY



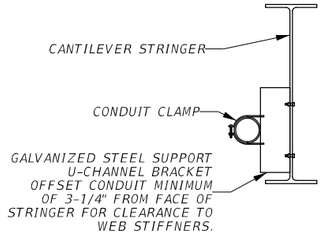
TYPICAL DOUBLE CONDUIT MOUNTING
(HORIZONTAL OR VERTICAL)



TYPICAL SINGLE CONDUIT MOUNTING
(HORIZONTAL ONLY)



TYPICAL SINGLE CONDUIT FIXED MOUNTING
(HORIZONTAL OR VERTICAL)

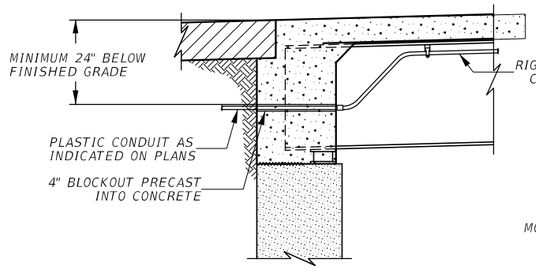


TYPICAL CONDUIT MOUNTING TO CANTILEVER STRINGERS

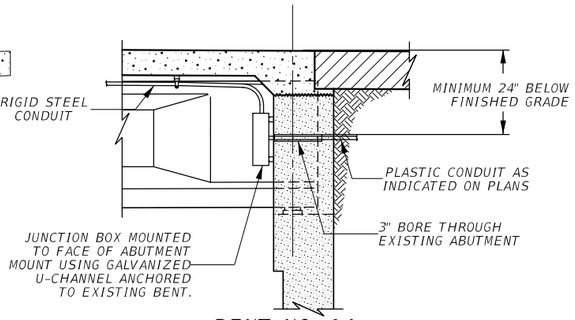
NOTE: REFER TO BRIDGE PLANS FOR CAST-IN-PLACE ANCHOR LOCATIONS PRE-DRILLED LOCATIONS AND DETAILS

TYPICAL CONDUIT MOUNTING TO CONCRETE

NO SCALE



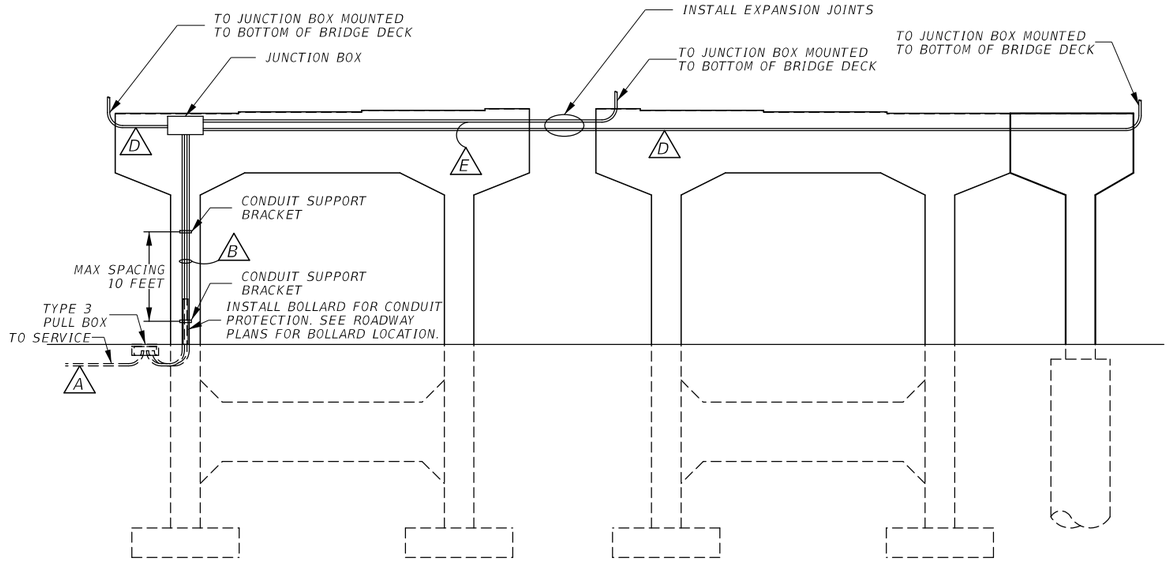
BENT NO. 1
(TYPICAL)



BENT NO. 14
(TYPICAL)

ABUTMENT PENETRATION FOR ELECTRICAL CONDUIT

NO SCALE



CONDUIT MOUNTING TO BRIDGE BENT 11

NO SCALE
(LOOKING BACK)

CONDUIT & WIRING SCHEDULE

A	2 OF 2 in PLASTIC CONDUIT 6 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 16 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 2 OF 3 AWG NO. 12 CABLE (PHOTOCELL) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)
B	2 OF 2 in STEEL CONDUIT 6 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 16 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 2 OF 3 AWG NO. 12 CABLE (PHOTOCELL) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)
C	1 OF 2 in STEEL CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 8 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)
D	1 OF 2 in STEEL CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 8 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 1 OF 3 AWG NO. 12 CABLE (PHOTOCELL) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)
E	1 OF 2 in PLASTIC CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT UNDER BRIDGE LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (LUMINAIRE GROUND)

GENERAL NOTES:

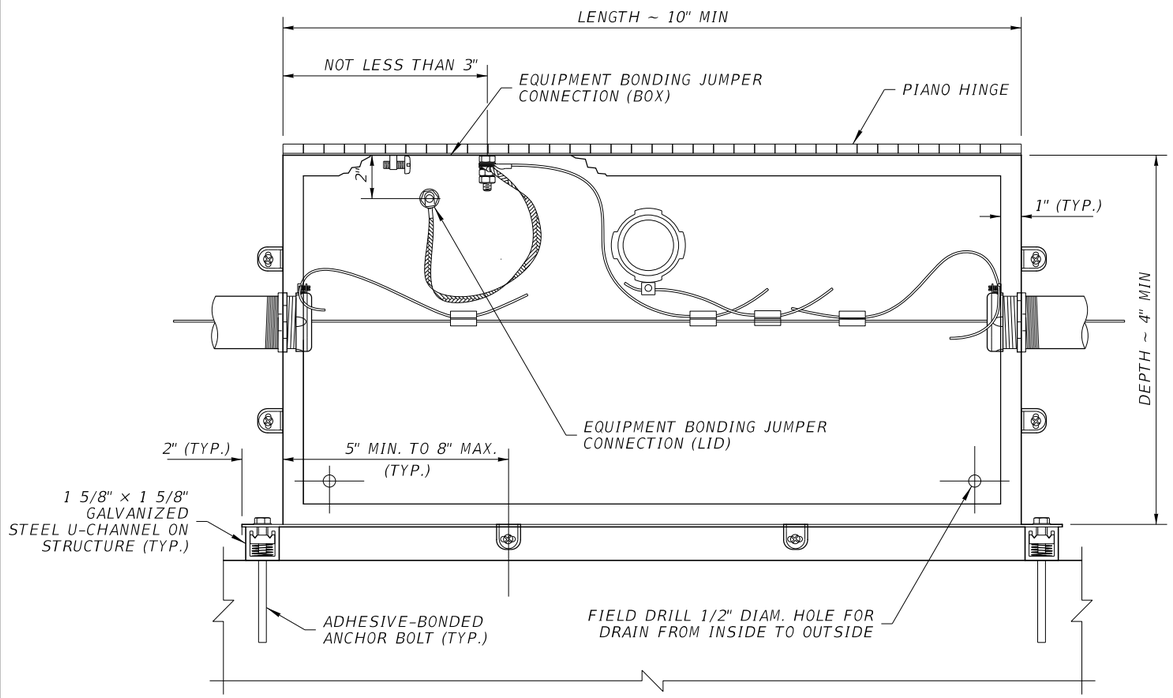
1. CONDUIT SUPPORT SPACING TO BE NO GREATER THAN 10 FEET IN ADHERENCE OF APPLICABLE NEC REQUIREMENTS
2. MOUNT THE GALVANIZED STEEL SUPPORT BRACKET USING CAST IN PLACE ANCHORS IN BRIDGE DECK. WHEN ANCHORING IN EXISTING CONCRETE, MOUNT GALVANIZED STEEL SUPPORT BRACKET USING A ADHESIVE ANCHOR SYSTEM APPROVED BY PROJECT MANAGER, INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. USE GALVANIZED RESIN-BONDED ANCHORS WITH A MINIMUM DIAMETER OF 5/8" (EXPANSION ANCHORS ARE NOT PERMITTED).
3. WHEN ANCHORING OR CORING IN EXISING CONCRETE, LAYOUT HOLES AS REQUIRED USING A PACHOMETER, GROUND PENETRATING RADAR OR OTHER MEANS TO ACCURATELY LOCATE EXISTING REINFORCING STEEL PRIOR TO DRILLING. RELOCATE HOLES IN CONFLICT WITH EXISTING REINFORCING, AS APPROVED, TO MISS EXISTING REINFORCING. DO NOT DAMAGE EXISTING REINFORCING STEEL WHILE DRILLING HOLES. CLEAN HOLES AND INSTALL ADHESIVE PER ADHESIVE MANUFACTURER'S RECOMMENDATIONS.
4. REFER TO BRIDGE PLANS FOR CAST IN PLACE ANCHOR LOCATIONS AND DETAILS

HDR

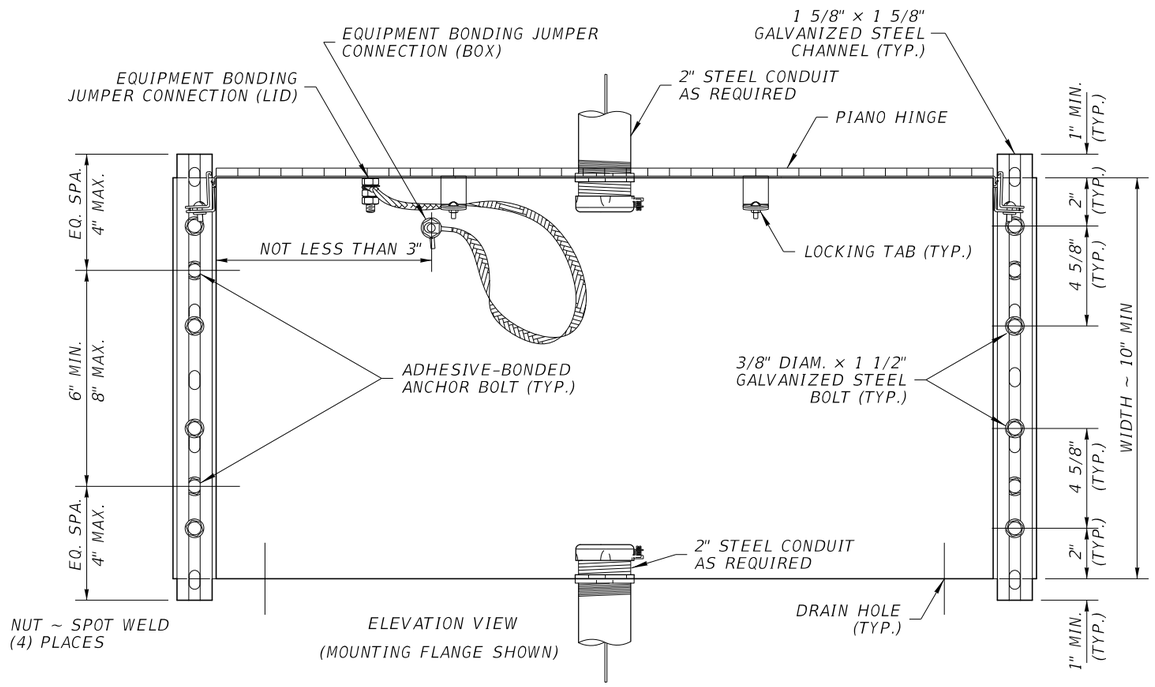
2	MDT	MONTANA DEPARTMENT OF TRANSPORTATION	...\EL\8807000ELDETZ02.dgn	DESIGNED BY		ELECTRICAL PLANS	HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
1			5/15/2020	REVIEWED BY		MISSOULA COUNTY	UPN 8807000	SHEET E6
			2:05:55 PM CCOLLINS	CHECKED BY				

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

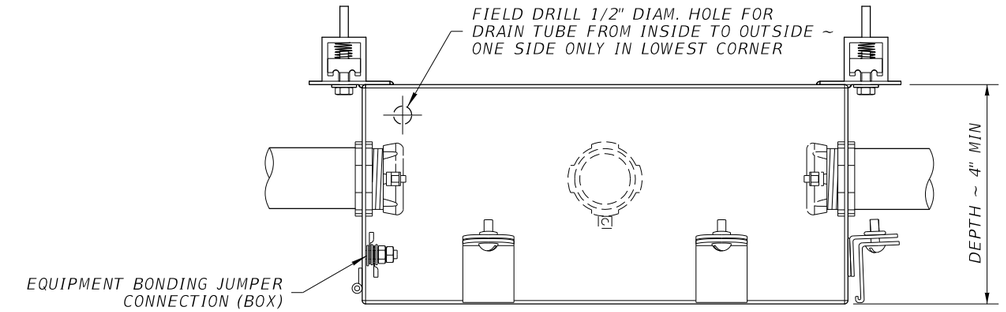
AWARD COPY



PLAN VIEW

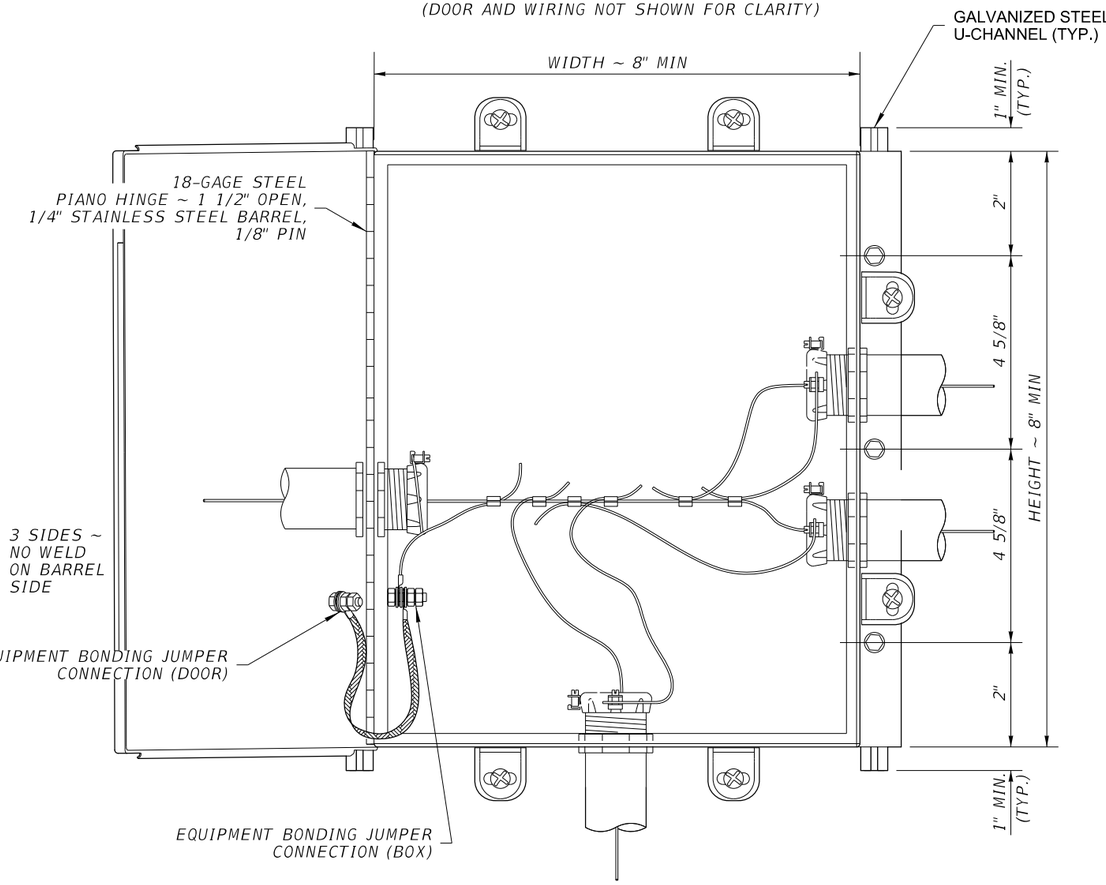


NEMA 3R - JUNCTION BOX



PLAN VIEW

(DOOR AND WIRING NOT SHOWN FOR CLARITY)



FRONT VIEW

(DOOR OPEN TO SHOW WIRE CONNECTION)

NEMA 3R - JUNCTION BOX

(MOUNTED ON BENT 11)

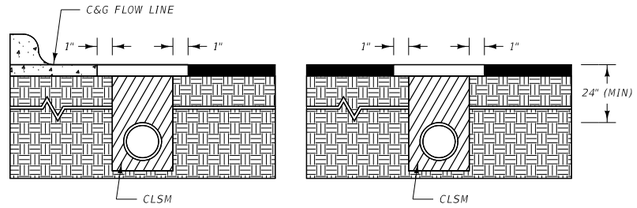
GENERAL NOTES:

COORDINATE LOCATIONS OF THREADED INSERTS CAST IN DECK FOR JUNCTION BOX MOUNTING PRIOR TO CASTING OF BRIDGE DECK.

HDR

3 2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\EL\8807000ELDETZ03.dgn 5/15/2020 2:06:00 PM CCOLLINS	DESIGNED BY REVIEWED BY CHECKED BY		ELECTRICAL PLANS MISSOULA COUNTY	HIGGINS AVE. BR REHAB - MISSOULA UPN 8807000	STPB 8113(9) SHEET E7

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086



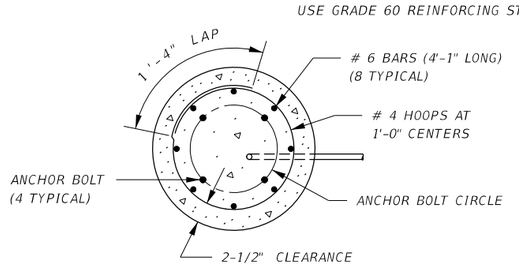
NOTE – COLD MIXED ASPHALT MAY BE USED FOR A TEMPORARY PATCH IF HOT MIX ASPHALT IS NOT AVAILABLE. USE FOUR INCHES OF HOT ASPHALT FOR THE PERMANENT PATCH. CUT EXISTING ASPHALT 1" BEYOND TRENCH AND APPLY A TACK COAT PRIOR TO INSTALLING THE PERMANENT PATCH.

FURNISH CLSM IN ACCORDANCE WITH THE SPECIAL PROVISIONS. IF A SPECIAL PROVISION IS NOT PROVIDED, FURNISH CLSM MEETING SUBSECTION 551.03.2(E) OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.

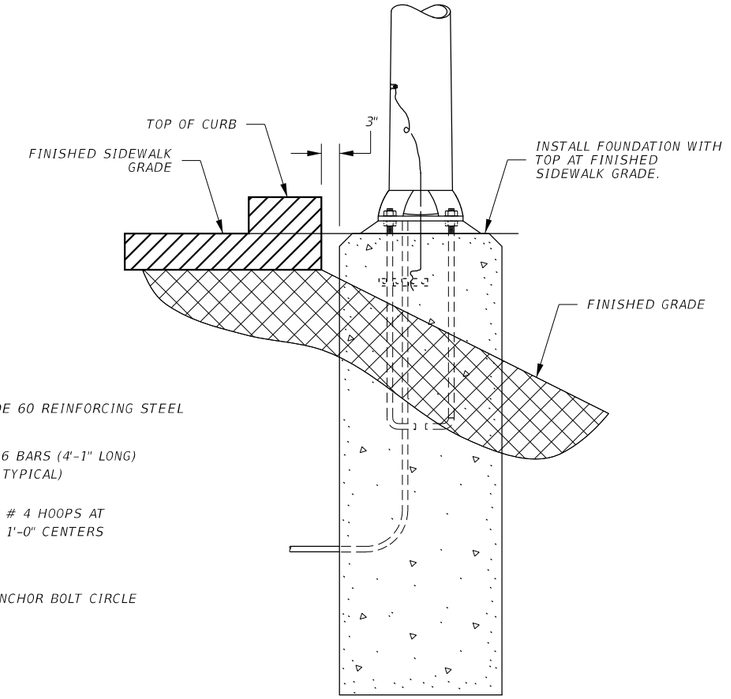
CONTROLLED LOW STRENGTH MATL FOR TRENCHES

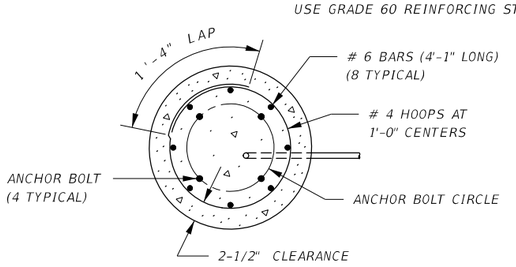
CONTROLLED LOW STRENGTH MATL (CLSM)

NO SCALE

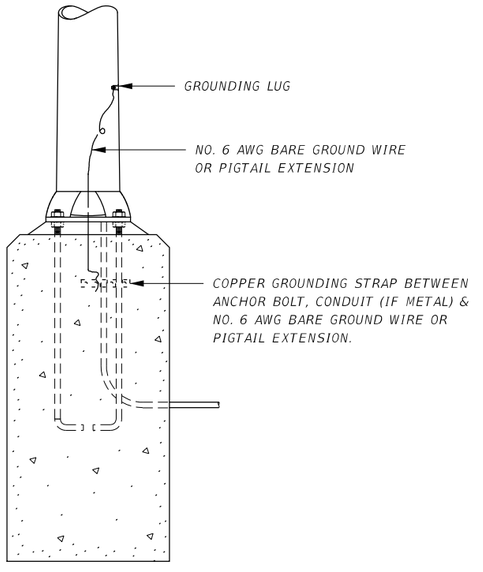


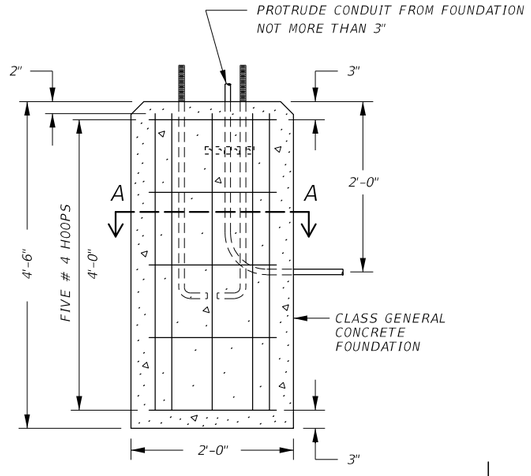
SECTION A-A



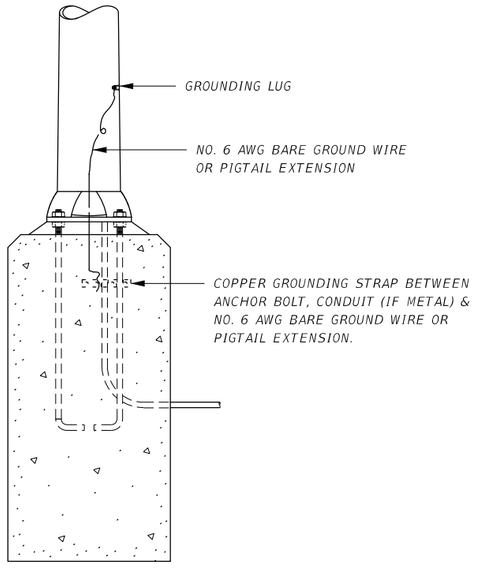


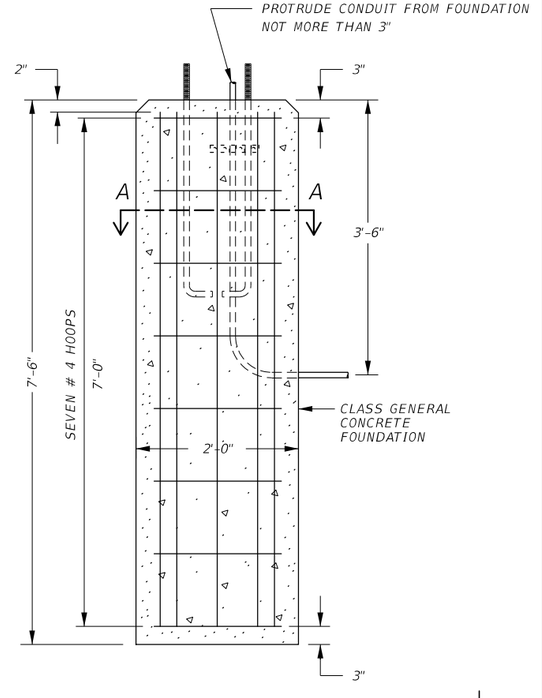
SECTION A-A





TYPICAL OF ALL NON-BRIDGE MOUNTED LUMINAIRES





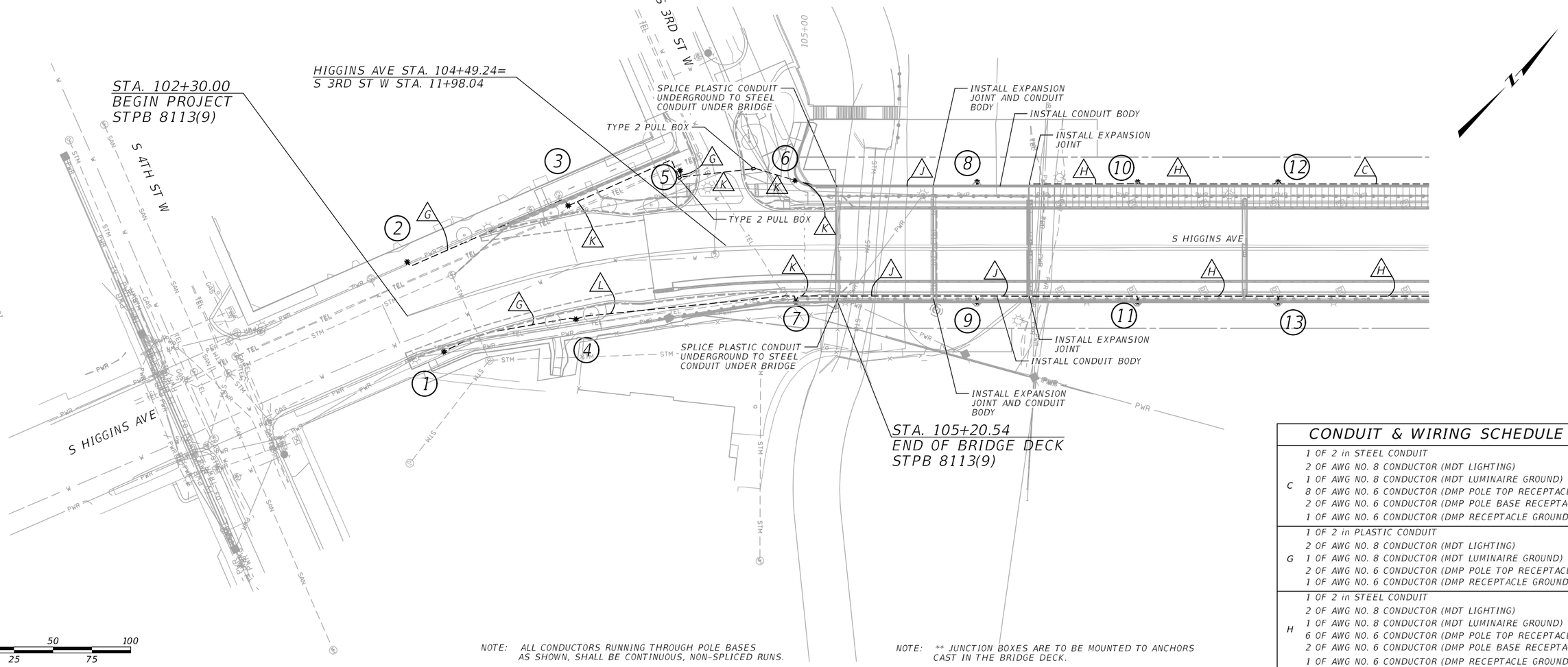
NON-STANDARD FOUNDATION FOR LUMINAIRE POLE 7

HDR

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\EL\8807000ELDETZ03.dgn	DESIGNED BY		ELECTRICAL PLANS		HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
1		5/15/2020	REVIEWED BY		MISSOULA COUNTY		UPN 8807000	SHEET E8
		2:06:04 PM CCOLLINS	CHECKED BY					

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



NOTE: ALL CONDUCTORS RUNNING THROUGH POLE BASES AS SHOWN, SHALL BE CONTINUOUS, NON-SPLICED RUNS.

NOTE: ** JUNCTION BOXES ARE TO BE MOUNTED TO ANCHORS CAST IN THE BRIDGE DECK.

CONDUIT & WIRING SCHEDULE

C	1 OF 2 in STEEL CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 8 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)
G	1 OF 2 in PLASTIC CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)
H	1 OF 2 in STEEL CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 6 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)
I	1 OF 2 in PLASTIC CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 2 OF AWG NO. 8 CONDUCTOR (DMP POLE TOP RECEPTACLES) 1 OF AWG NO. 8 CONDUCTOR (DMP RECEPTACLE GROUND)
J	1 OF 2 in STEEL CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 4 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)
K	1 OF 2 in PLASTIC CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 4 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)
L	1 OF 2 in PLASTIC CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)

POLE SCHEDULE

POLE NO.	POLE TYPE	STATION	ALIGNMENT	OFFSET	NORTHING	EASTING	LUMINAIRE POLE LENGTH	MAST ARM LENGTH	LUMINAIRE	FOUNDATION DIA. X DEPTH	TYPE POLE BASE	RECEPTACLE MOUNTING LOCATION
1	DECORATIVE	102+53.62	HIGGINS AVE.	29.92 RT	986,108.123	844,800.061	28 FT	4 FT	80 LED DECORATIVE	2' X 4'-6"	ANCHOR	HOLIDAY TOP
2	DECORATIVE	102+50.85	HIGGINS AVE.	32.32 LT	986,113.058	844,737.954	28 FT	4 FT	80 LED DECORATIVE	2' X 4'-6"	ANCHOR	HOLIDAY TOP
3	DECORATIVE	103+55.05	HIGGINS AVE.	39.16 LT	986,221.596	844,752.355	28 FT	4 FT	80 LED DECORATIVE	2' X 4'-6"	ANCHOR	HOLIDAY TOP / BOTTOM DMP
4	DECORATIVE	103+44.70	HIGGINS AVE.	33.21 RT	986,192.985	844,819.628	28 FT	4 FT	80 LED DECORATIVE	2' X 4'-6"	ANCHOR	HOLIDAY TOP / BOTTOM DMP
5	DECORATIVE	11+47.97	S 3RD ST. W	25.89 RT	986,295.773	844,764.622	28 FT	4 FT	80 LED DECORATIVE	2' X 4'-6"	ANCHOR	HOLIDAY TOP
6	DECORATIVE	104+94.03	HIGGINS AVE.	39.99 LT	986,358.733	844,803.578	28 FT	4 FT	80 LED DECORATIVE	2' X 4'-6"	ANCHOR	HOLIDAY TOP
7	DECORATIVE	104+93.80	HIGGINS AVE.	38.11 RT	986,323.891	844,873.470	28 FT	4 FT	80 LED DECORATIVE	2' X 7'-6"	ANCHOR	HOLIDAY TOP
8	DECORATIVE	106+10.50	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
9	DECORATIVE	106+10.50	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
10	DECORATIVE	107+13.46	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
11	DECORATIVE	107+13.51	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
12	DECORATIVE	108+03.65	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
13	DECORATIVE	108+03.65	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
14	DECORATIVE	109+32.63	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
15	DECORATIVE	109+32.63	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
16	DECORATIVE	110+68.77	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP / BOTTOM DMP
17	DECORATIVE	110+68.77	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP / BOTTOM DMP
18	DECORATIVE	111+82.03	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
19	DECORATIVE	111+82.03	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
20	DECORATIVE	113+08.95	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
21	DECORATIVE	113+08.95	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
22	DECORATIVE	113+98.88	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
23	DECORATIVE	113+98.88	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
24	DECORATIVE	115+07.37	HIGGINS AVE.	36.75 LT	987,261.498	845,263.693	28 FT	4 FT	80 LED DECORATIVE	2' X 4'-6"	ANCHOR	HOLIDAY TOP
25	DECORATIVE	114+82.63	HIGGINS AVE.	-	-	-	28 FT	4 FT	80 LED DECORATIVE	-	(1)	HOLIDAY TOP
26	DECORATIVE	116+02.79	HIGGINS AVE.	35.56 LT	987,346.623	845,306.818	28 FT	4 FT	80 LED DECORATIVE	2' X 4'-6"	ANCHOR	HOLIDAY TOP
27	DECORATIVE	116+04.68	HIGGINS AVE.	40.05 RT	987,314.987	845,375.523	28 FT	4 FT	80 LED DECORATIVE	2' X 4'-6"	ANCHOR	HOLIDAY TOP

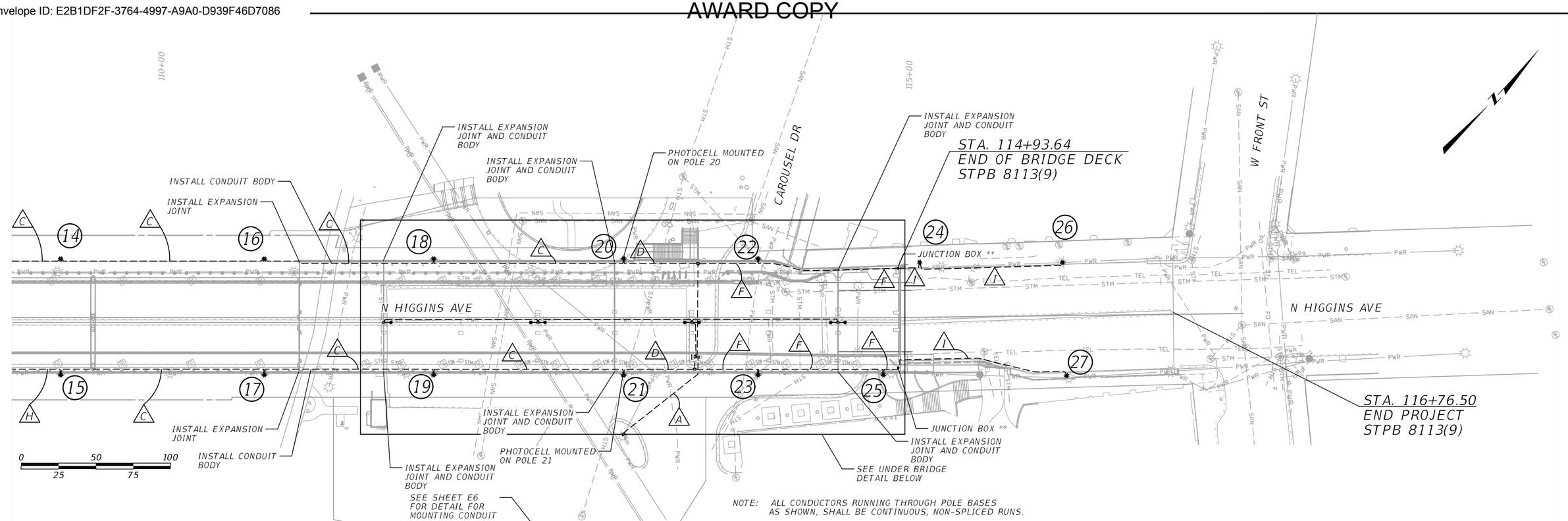
(1) MOUNT ON BRIDGE DECK, SEE BRIDGE PLANS

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\EL\8807000ELPLNZ01.dgn	DESIGNED BY			ELECTRICAL PLANS	HIGGINS AVE. BR REHAB - MISSOULA	STPB 8113(9)
2		5/15/2020	REVIEWED BY			MISSOULA COUNTY	UPN 8807000	SHEET E9
		2:06:09 PM CCOLLINS	CHECKED BY					

HDR

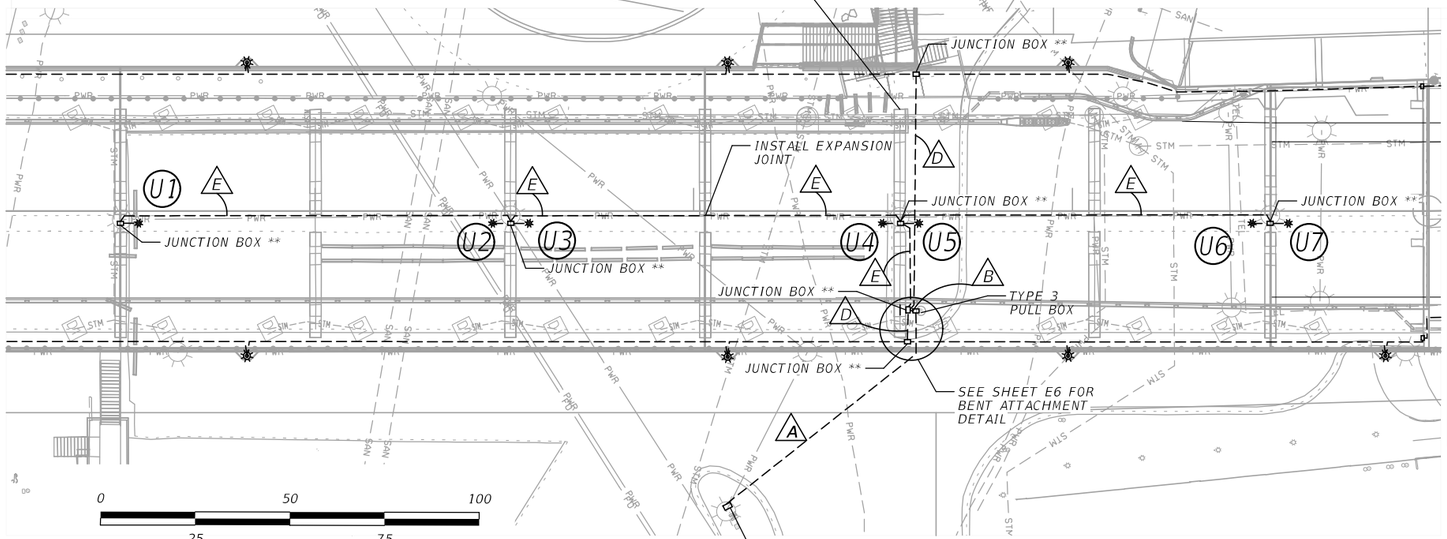
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



NOTE: ALL CONDUCTORS RUNNING THROUGH POLE BASES AS SHOWN, SHALL BE CONTINUOUS, NON-SPLICED RUNS.

NOTE: ** JUNCTION BOXES ARE TO BE MOUNTED TO ANCHORS CAST IN THE BRIDGE DECK.



UNDER BRIDGE LIGHTING DETAIL

CONDUIT & WIRING SCHEDULE

A	2 OF 2 in PLASTIC CONDUIT 6 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 16 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 2 OF 3 AWG NO. 12 CABLE (PHOTOCELL) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)
B	2 OF 2 in STEEL CONDUIT 6 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 16 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 2 OF 3 AWG NO. 12 CABLE (PHOTOCELL) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)
C	1 OF 2 in STEEL CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 8 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)

CONDUIT & WIRING SCHEDULE

D	1 OF 2 in STEEL CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 8 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 1 OF 3 AWG NO. 12 CABLE (PHOTOCELL) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)
E	1 OF 2 in STEEL CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT UNDER BRIDGE LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (LUMINAIRE GROUND)
F	1 OF 2 in STEEL CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 2 OF AWG NO. 8 CONDUCTOR (DMP POLE TOP RECEPTACLES) 1 OF AWG NO. 8 CONDUCTOR (DMP RECEPTACLE GROUND)
H	1 OF 2 in STEEL CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 6 OF AWG NO. 6 CONDUCTOR (DMP POLE TOP RECEPTACLES) 2 OF AWG NO. 6 CONDUCTOR (DMP POLE BASE RECEPTACLES) 1 OF AWG NO. 6 CONDUCTOR (DMP RECEPTACLE GROUND)
I	1 OF 2 in PLASTIC CONDUIT 2 OF AWG NO. 8 CONDUCTOR (MDT LIGHTING) 1 OF AWG NO. 8 CONDUCTOR (MDT LUMINAIRE GROUND) 2 OF AWG NO. 8 CONDUCTOR (DMP POLE TOP RECEPTACLES) 1 OF AWG NO. 8 CONDUCTOR (DMP RECEPTACLE GROUND)

POLE SCHEDULE

POLE NO.	POLE TYPE	STATION	ALIGNMENT	OFFSET	NORTHING	EASTING	LUMINAIRE MOUNTING HEIGHT	MAST ARM LENGTH	LUMINAIRE	FOUNDATION DIA. X DEPTH	TYPE POLE BASE	RECEPTACLE MOUNTING LOCATION
U1	EXISTING	111+53	UNDER BRIDGE	-	-	-	-	-	UNDER BRIDGE	*	*	*
U2/U3	EXISTING	112+47	UNDER BRIDGE	-	-	-	-	-	UNDER BRIDGE	*	*	*
U4/U5	EXISTING	113+50	UNDER BRIDGE	-	-	-	-	-	UNDER BRIDGE	*	*	*
U6/U7	EXISTING	114+47	UNDER BRIDGE	-	-	-	-	-	UNDER BRIDGE	*	*	*

*MOUNTED BELOW BRIDGE ON EXISTING BRACKETS

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

ASSOCIATED PROJECT AGREEMENT NUMBERS	
P. E.	STPB 8113(8)

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE IDENTIFICATION	
MDT STR ID	NBI NUMBER
07011	U08113000+02381

BRIDGE PLANS AND QUANTITIES

FEDERAL AID PROJECT STPB 8113(9)

HIGGINS AVE. BR REHAB–MISSOULA

MISSOULA COUNTY

BY DocuSigned by: 67D41739DA3A4C8...

DATE 5/21/2020

MONTANA J. DUSTIN HIROSE No. 10870PE REGISTERED PROFESSIONAL ENGINEER

SCALES SHOWN ON BRIDGE PLAN SHEETS ARE FOR FULL SIZE (22 X 34) PRINTS REDUCED PRINTS ARE APPROXIMATELY ONE-HALF ORIGINAL SCALE

SHEET NO. B1

LIST OF DRAWINGS (SHEET 1 OF 2)

LIST OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
GENERAL DETAILS		
B1	23899	LIST OF DRAWINGS (SHEET 1 OF 2)
B2	23900	LIST OF DRAWINGS (SHEET 2 OF 2)
B3	23901	ESTIMATED BRIDGE PLAN QUANTITIES (SHEET 1 OF 2)
B4	23902	ESTIMATED BRIDGE PLAN QUANTITIES (SHEET 2 OF 2)
B5	23903	GENERAL LAYOUT (SHEET 1 OF 2)
B6	23904	GENERAL LAYOUT (SHEET 2 OF 2)
B7	23905	CONSTRUCTION PHASING (SHEET 1 OF 3)
B8	23906	CONSTRUCTION PHASING (SHEET 2 OF 3)
B9	23907	CONSTRUCTION PHASING (SHEET 3 OF 3)
B10	23908	FOOTING PLAN
B11	23909	EXISTING STRUCTURE REPAIRS
B12	23910	EXISTING DECK AND STRUCTURE REMOVAL DETAILS
BENT DETAILS		
B13	23911	BENT NO. 1 - PHASE 1
B14	23912	BENT NO. 1 - PHASE 2
B15	23913	BENT NO. 1 DETAILS
B16	23914	BENT NO. 1 WINGWALL DETAILS
B17	23915	BENT NO. 1 DETAILS & BILLS OF REINFORCING STEEL
B18	23916	BENT NO. 2 - PHASE 1
B19	23917	BENT NO. 2 - PHASE 2
B20	23918	BENT NO. 2 DETAILS
B21	23919	BENT NO. 2 BILLS OF REINFORCING STEEL
B22	23920	BENTS NO. 3 & NO. 6 - PHASE 1
B23	23921	BENTS NO. 3 & NO. 6 - PHASE 2
B24	23922	BENTS NO. 3 & NO. 6 DETAILS (SHEET 1 OF 2)
B25	23923	BENTS NO. 3 & NO. 6 DETAILS (SHEET 2 OF 2)
B26	23924	BENTS NO. 3 & NO. 6 BILLS OF REINFORCING STEEL
B27	23925	BENT NO. 7 - PHASE 1
B28	23926	BENT NO. 7 - PHASE 2
B29	23927	BENT NO. 7 DETAILS
B30	23928	BENT NO. 7 BILLS OF REINFORCING STEEL
B31	23929	BENTS NO. 8, NO. 9, NO. 11 & NO. 12
B32	23930	BENTS NO. 8, NO. 9, NO. 11 & NO. 12 DETAILS
B33	23931	BENTS NO. 8, NO. 9, NO. 11 & NO. 12 DETAIL & BILL OF REINFORCING STEEL
B34	23932	BENT NO. 10 - PHASE 1
B35	23933	BENT NO. 10 - PHASE 2
B36	23934	BENT NO. 10 DETAILS
B37	23935	BENT NO. 10 BILLS OF REINFORCING STEEL
B38	23936	BENT NO. 13 - PHASE 1
B39	23937	BENT NO. 13 - PHASE 2 AND BILLS OF REINFORCING STEEL
BEARING DETAILS		
B40	23938	BENTS NO. 3 & NO. 6 JACKING DETAILS
B41	23939	BENTS NO. 7, NO. 10 & NO. 13 JACKING DETAILS
B42	23940	W33x130 STEEL GIRDER BEARING DETAILS
B43	23941	TRANSVERSE GIRDER BEARING DETAILS
B44	23942	EXISTING STEEL GIRDER BEARING DETAILS
B45	23943	TYPE A PRESTRESSED CONCRETE BEAM BEARING DETAILS
BEAM & GIRDER DETAILS		
B46	23944	SPANS NO. 1, NO. 2 & NO. 6 ERECTION PLANS
B47	23945	SPANS NO. 1, NO. 2 & NO. 6 GIRDER ELEVATIONS AND DETAILS
B48	23946	SPANS NO. 1, NO. 2 & NO. 6 CAMBER DETAILS AND DESIGN INFORMATION
B49	23947	SPANS NO. 1, NO. 2 & NO. 6 DIAPHRAGM DETAILS
B50	23948	TRANSVERSE GIRDER ELEVATIONS
B51	23949	TRANSVERSE GIRDER DETAILS
B52	23950	SPANS NO. 3 THRU NO. 5 ERECTION PLAN
B53	23951	SPANS NO. 3 THRU NO. 5 GIRDER ELEVATION AND DETAILS
B54	23952	CANTILEVER BRACKET DETAILS (SHEET 1 OF 7)
B55	23953	CANTILEVER BRACKET DETAILS (SHEET 2 OF 7)
B56	23954	CANTILEVER BRACKET DETAILS (SHEET 3 OF 7)
B57	23955	CANTILEVER BRACKET DETAILS (SHEET 4 OF 7)
B58	23956	CANTILEVER BRACKET DETAILS (SHEET 5 OF 7)
B59	23957	CANTILEVER BRACKET DETAILS (SHEET 6 OF 7)
B60	23958	CANTILEVER BRACKET DETAILS (SHEET 7 OF 7)
B61	23959	CANTILEVER STRINGER DETAILS (SHEET 1 OF 2)
B62	23960	CANTILEVER STRINGER DETAILS (SHEET 2 OF 2)
B63	23961	CANTILEVER BRACKET LUMINAIRE POLE SUPPORT
B64	23962	SPANS NO. 7 THRU NO. 9 ERECTION PLAN
B65	23963	SPANS NO. 10 THRU NO. 13 ERECTION PLAN
B66	23964	SPANS NO. 7 THRU NO. 13 DIAPHRAGM DETAILS

REVISED							B.K.C.	3-29-19
REVISED							G.H.S.	11-15-17
REVISED							G.H.S.	11-15-17
REVISED							CHECKED	
DRAWN								
DESIGNED								

...\8807000brqsh201.dgn

7/16/2019 9:16:37 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE	U-8113
REF POINT	0+0.239
MDT STR. ID	07011
UPN NUMBER	8807000
DRAWING NO.	23899

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE PLANS AND QUANTITIES

FEDERAL AID PROJECT STPB 8113(9)

HIGGINS AVE. BR REHAB-MISSOULA

MISSOULA COUNTY

LIST OF DRAWINGS -CONTINUED

SHEET NO.	DWG. NO.	TITLE
SLAB & JOINT DETAILS		
B67	23965	SPANS NO. 1 & NO. 2 SLAB REINFORCING STEEL PLACEMENT PLANS AND TRANSVERSE SECTION
B68	23966	SPANS NO. 1 & NO. 2 BILLS OF REINFORCING STEEL
B69	23967	SPANS NO. 3 THRU NO. 5 SLAB REINFORCING STEEL PLACEMENT PLAN (SHEET 1 OF 2)
B70	23968	SPANS NO. 3 THRU NO. 5 SLAB REINFORCING STEEL PLACEMENT PLAN (SHEET 2 OF 2)
B71	23969	SPANS NO. 3 THRU NO. 5 SLAB TRANSVERSE SECTIONS
B72	23970	SPANS NO. 3 THRU NO. 5 BILLS OF REINFORCING STEEL
B73	23971	SPANS NO. 3 THRU NO. 5 FRP DECK PANEL DETAILS
B74	23972	SPAN NO. 6 SLAB REINFORCING STEEL PLACEMENT PLAN AND TRANSVERSE SECTION
B75	23973	SPAN NO. 6 BILLS OF REINFORCING STEEL
B76	23974	SPANS NO. 7 THRU NO. 9 SLAB REINFORCING STEEL PLACEMENT PLAN
B77	23975	SPANS NO. 7 THRU NO. 9 TRANSVERSE SECTIONS
B78	23976	SPANS NO. 7 THRU NO. 9 BILLS OF REINFORCING STEEL
B79	23977	SPANS NO. 10 THRU NO. 12 SLAB REINFORCING STEEL PLACEMENT PLAN
B80	23978	SPANS NO. 10 THRU NO. 12 DECK GEOMETRY DETAILS
B81	23979	SPANS NO. 10 THRU NO. 12 TRANSVERSE SECTIONS (SHEET 1 OF 2)
B82	23980	SPANS NO. 10 THRU NO. 12 TRANSVERSE SECTIONS (SHEET 2 OF 2)
B83	23981	SPANS NO. 10 THRU NO. 12 BILLS OF REINFORCING STEEL (SHEET 1 OF 2)
B84	23982	SPANS NO. 10 THRU NO. 12 BILLS OF REINFORCING STEEL (SHEET 2 OF 2)
B85	23983	SPAN NO. 13 SLAB REINFORCING STEEL PLACEMENT PLAN AND TRANSVERSE SECTION
B86	23984	SPAN NO. 13 BILLS OF REINFORCING STEEL (SHEET 1 OF 2)
B87	23985	SPAN NO. 13 BILLS OF REINFORCING STEEL (SHEET 2 OF 2)
B88	23986	MISCELLANEOUS SLAB DETAILS
B89	23987	PRECOMPRESSED EXPANSION JOINT DETAILS
B90	23988	STRIP SEAL EXPANSION JOINT DETAILS (SHEET 1 OF 2)
B91	23989	STRIP SEAL EXPANSION JOINT DETAILS (SHEET 2 OF 2)

SHEET NO.	DWG. NO.	TITLE
DRAINAGE & ELECTRICAL DETAILS		
B92	23990	DECK DRAIN LOCATION DETAILS
B93	23991	DECK DRAIN SCUPPER DETAILS
B94	23992	DECK DRAINAGE DETAILS (SHEET 1 OF 3)
B95	23993	DECK DRAINAGE DETAILS (SHEET 2 OF 3)
B96	23994	DECK DRAINAGE DETAILS (SHEET 3 OF 3)
B97	23995	ELECTRICAL CONDUIT DETAILS (SHEET 1 OF 2)
B98	23996	ELECTRICAL CONDUIT DETAILS (SHEET 2 OF 2)
B99	23997	MOMENT SLAB DETAILS
RAILING DETAILS		
B100	23998	RAILING LAYOUT PLAN
B101	23999	RAILING LAYOUT DETAILS
B102	24000	MODIFIED CONCRETE PARAPET DETAILS
B103	24001	BICYCLE RAIL DETAILS
B104	24002	PEDESTRIAN RAIL DETAILS

DWG. NO.	TITLE
STANDARD DRAWINGS	
B-A (REVISED 2-25-15)	STANDARD PRESTRESSED CONCRETE BEAM TYPE A
SL-7 (REVISED 3-15-17)	STANDARD SLAB AND DIAPHRAGM DETAILS
SBR-0R42 (APPROVED 9-17-19)	STANDARD BRIDGE RAIL TYPE OPEN RAIL 42"
SBR-0R42-PP (APPROVED 9-17-19)	STANDARD BRIDGE RAIL TYPE OPEN RAIL 42" PARAPET

HDR

SHEET NO. B2

LIST OF DRAWINGS (SHEET 2 OF 2)

REVISED				
REVISED				
REVISED				
REVISED				
CHECKED	3-29-19	B.K.C.		
DRAWN	11-15-17	G.H.S.		
DESIGNED	11-15-17	G.H.S.		

...\8807000\prjshz02.dgn

10/10/2019 2:56:01 PM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23900

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

ESTIMATED BRIDGE PLAN QUANTITIES

	MDT STRUCTURE NUMBER 07011	CONCRETE CLASS				REINFORCING STEEL		STRUCTURAL STEEL - GIRDER	STRUCTURAL STEEL - MISC.	PRESTRESSED BEAM - TYPE A	DRILLED SHAFT 3-0	DRILLED SHAFT 4-0	THERMAL INTEGRITY PROFILER	ELASTOMERIC BEARING DEVICE	FRP DECK PANELS	42 IN OPEN RAIL - BR	42 IN OPEN RAIL PARAPET - BR
	LOCATION	STRUCTURE - LOW SLUMP (YD^3)	STRUCTURE (YD^3)	DRILLED SHAFT (YD^3)	UHPC (YD^3)	REGULAR (LB)	CORROSION RESISTANT (LB)	(LS)	(LS)	(LF)	(FT)	(FT)	(EACH)	(EACH)	(FT^2)	(LF)	(EACH)
PHASE 1	Bent No. 1		23.3	6.5		4865.7	652.3				25		1				
	Bent No. 2		9.1	11.7		4731.2						25	1	5			
	Bent No. 3		10.6	11.7		5590.7						25	1	4			
	Bent No. 4																
	Bent No. 5																
	Bent No. 6		8.6	11.7		5039.5						25	1	4			
	Bent No. 7		7.7	11.7		4374.0						25	1	5			
	Bent No. 8		7.1	11.7		4066.2						25	1				
	Bent No. 9		7.1	11.7		4057.6						25	1				
	Bent No. 10		7.7	11.7		4487.6						25	1	10			
	Bent No. 11		7.0	11.7		4022.1						25	1				
	Bent No. 12		6.7	11.7		3952.1						25	1				
	Bent No. 13					198.6								5			
	Bent No. 14																
	Superstructure	849.0	22.4				232030.2	0.6	1	348.8					6272.0	914.1	4
	Subtotal	849.0	117.3	111.8		45385.3	232682.5	0.6	1	348.8	25	225	10	33	6272.0	914.1	4
PHASE 2	Bent No. 1		12.1			714.9	629.4										
	Bent No. 2					203.4								4			
	Bent No. 3					708.0								4			
	Bent No. 4																
	Bent No. 5																
	Bent No. 6					708.0								4			
	Bent No. 7					178.1								4			
	Bent No. 8																
	Bent No. 9																
	Bent No. 10					344.2								8			
	Bent No. 11																
	Bent No. 12																
	Bent No. 13					176.9								4			
	Bent No. 14																
	Superstructure	881.5	45.6		24.3		241166.8	0.4								1069.0	2
	Subtotal	881.5	57.7		24.3	3033.5	241796.2	0.4						28		1069.0	2
	PROJECT TOTAL	1730.5	175.0	111.8	24.3	48418.8	474478.7	1.0	1	348.8	25	225	10	61	6272.0	1983.1	6

HDR

SHEET NO. B3

ESTIMATED BRIDGE PLAN QUANTITIES (SHEET 1 OF 2)

SCALE: None

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED				CHECKED	J.C.M.
REVISED				DRAWN	G.H.S.
REVISED				DESIGNED	P.C.J.
REVISED				6-7-19	7-10-18	7-10-18

...\8807000brgsht03.dgn

5/15/2020 9:22:03 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23901

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

ESTIMATED BRIDGE PLAN QUANTITIES

	MDT STRUCTURE NUMBER 07011 LOCATION	EXPANSION JOINT - STRIP SEAL (LF)	EXPANSION JOINT - PRECOMPRESSED (LF)	*EXPANSION JOINT - ADHERED GLAND (LF)	PREPARE DECK (SY)	POLYMER OVERLAY PRIMER (SY)	POLYMER OVERLAY (SY)	HAND RAIL (LF)	PEDESTRIAN RAIL (LF)	PAINT STRUCTURE (LS)	DRAINAGE STRUCTURE (LS)	REPAIR STRUCTURE (LS)	SUPERSTRUCTURE JACKING (LS)	CONCRETE STRUCTURE MODIFICATION (YD^3)	**REMOVE DECK AND STRINGERS (LS)	REMOVE DECK (YD^2)	TEMPORARY SHORING (LS)
PHASE 1	Bent No. 1																0.5
	Bent No. 2		41.4									0.05		2.4			
	Bent No. 3	26.0		14.9								0.10	0.1	3.6			
	Bent No. 4																
	Bent No. 5																
	Bent No. 6	26.0		14.9								0.05	0.1	3.6			
	Bent No. 7		41.4										0.1	1.4			
	Bent No. 8											0.05					
	Bent No. 9											0.05					
	Bent No. 10	41.4										0.05	0.1	2.8			
	Bent No. 11											0.05					
	Bent No. 12											0.05					
	Bent No. 13		41.4									0.05	0.1	1.6			
	Bent No. 14																
	Superstructure		66.7					482.9	895.5	0.5	0.5				0.5	2921.4	
	Subtotal	93.4	190.9	29.8				482.9	895.5	0.5	0.5	0.50	0.5	15.4	0.5	2921.4	0.5
PHASE 2	Bent No. 1																0.5
	Bent No. 2		37.9									0.05		2.3			
	Bent No. 3	37.9										0.05	0.1	3.6			
	Bent No. 4																
	Bent No. 5																
	Bent No. 6	37.9										0.05	0.1	3.6			
	Bent No. 7		37.9									0.05	0.1	1.4			
	Bent No. 8											0.05					
	Bent No. 9											0.05					
	Bent No. 10	37.9										0.05	0.1	2.8			
	Bent No. 11											0.05					
	Bent No. 12											0.05					
	Bent No. 13											0.05	0.1	1.4			
	Bent No. 14		37.9														
	Superstructure				7015.3	7015.3	7015.3		974.8	0.5	0.5				0.5	2921.4	
	Subtotal	113.7	113.7		7015.3	7015.3	7015.3		974.8	0.5	0.5	0.50	0.5	15.1	0.5	2921.4	0.5
	PROJECT TOTAL	207.1	304.6	29.8	7015.3	7015.3	7015.3	482.9	1870.3	1.0	1.0	1.00	1.0	30.5	1.0	5842.8	1.0

*NOTE: Paid for as Expansion Joint.

**NOTE: Paid for as Remove Structure.

HDR

SHEET NO. B4

ESTIMATED BRIDGE PLAN QUANTITIES (SHEET 2 OF 2)

SCALE: None

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED				CHECKED	6-7-19	J.C.M.
REVISED				DRAWN	7-10-18	G.H.S.
REVISED				DESIGNED	7-10-18	P.C.J.
REVISED						

...\8807000brqslh204.dgn

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

5/15/2020 9:22:45 AM

ROUTE U-8113

REF POINT 0+0.239

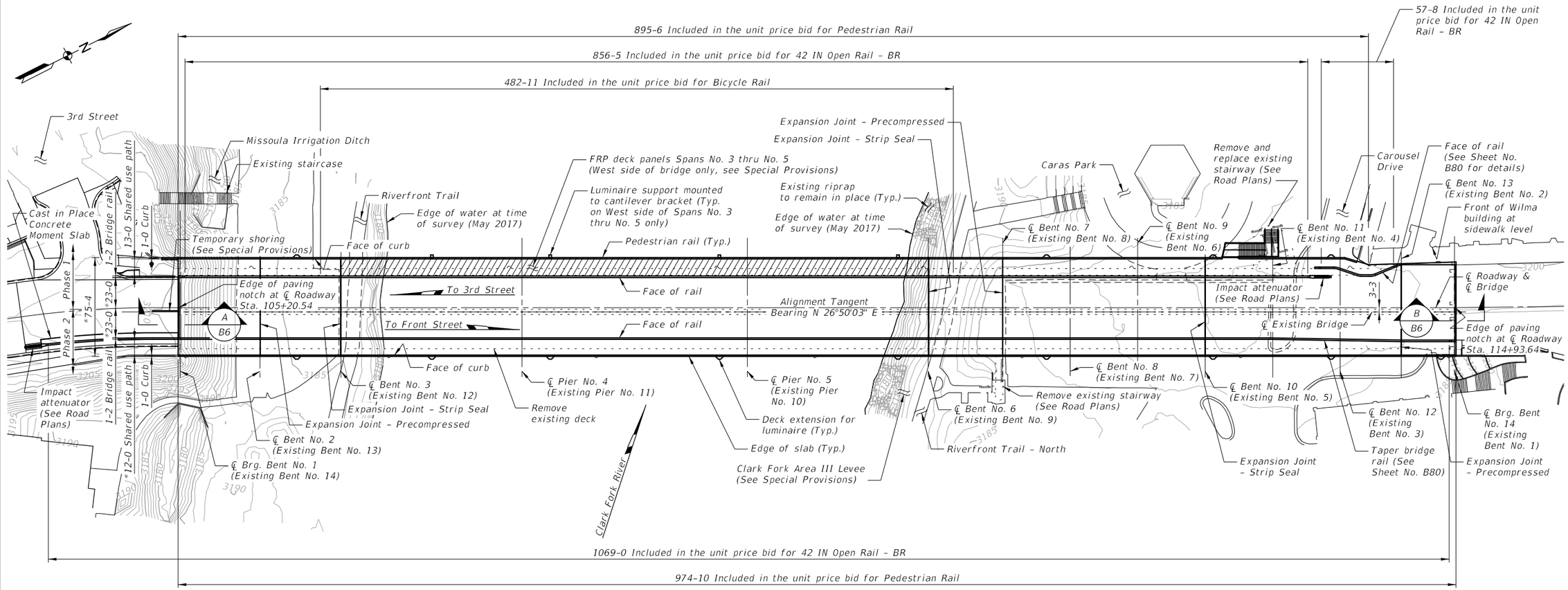
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23902

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



PLAN

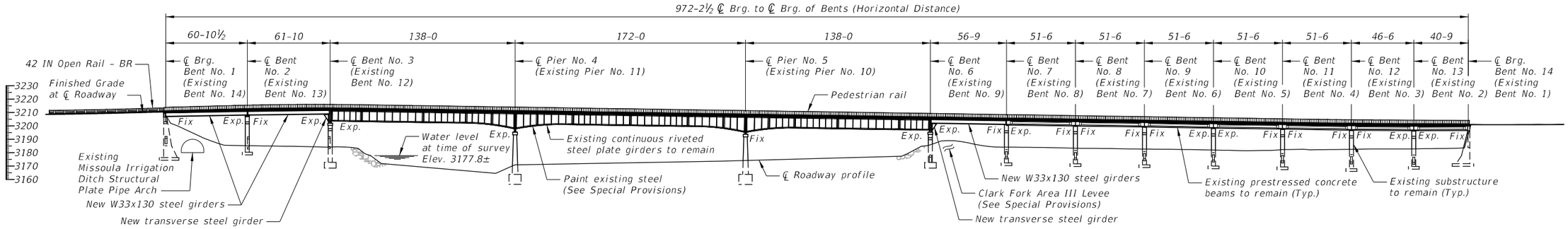
TABLE OF STATIONS AND FINISHED GRADE ELEVATIONS														
	℄ Brg. Bent No. 1	℄ Bent No. 2	℄ Bent No. 3	℄ Pier No. 4	℄ Pier No. 5	℄ Bent No. 6	℄ Bent No. 7	℄ Bent No. 8	℄ Bent No. 9	℄ Bent No. 10	℄ Bent No. 11	℄ Bent No. 12	℄ Bent No. 13	℄ Brg. Bent No. 14
Station	105+21.58	105+82.41	106+44.20	107+82.09	109+53.97	110+91.86	111+48.56	112+00.03	112+51.49	113+02.95	113+54.41	114+05.87	114+52.34	114+93.05
Elevation at ℄ Roadway	3210.40	3212.16	3212.79	3210.83	3208.21	3206.10	3205.23	3204.44	3203.66	3202.87	3202.08	3201.36	3201.05	3200.83

NOTE: Bents and piers have been renumbered from that shown on the As-Built Plans in order to follow the new roadway alignment which increases south to north. All references to bents and piers in this plan set are based on the new numbering scheme unless noted otherwise.

NOTE: See Sheet No. B6 for Profile Grade, and Notes.

*NOTE: See Sheet No. B80 for bridge deck geometry between Bents No. 10 thru No. 14.

NOTE: See Sheets No. B100 thru No. B104 for railing layout and details.



ELEVATION

HDR

SHEET NO. B5

GENERAL LAYOUT (SHEET 1 OF 2)

SCALE: 1" = 40'-0"

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED	REVISED	REVISED	REVISED	CHECKED	J.D.H.
				DRAWN	G.H.S.
				DESIGNED	P.C.J.
				2-25-19	10-30-17
				10-30-17	

...8807000brgen201.dgn
7/25/2019 2:13:00 PM

MONTANA DEPARTMENT OF TRANSPORTATION BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

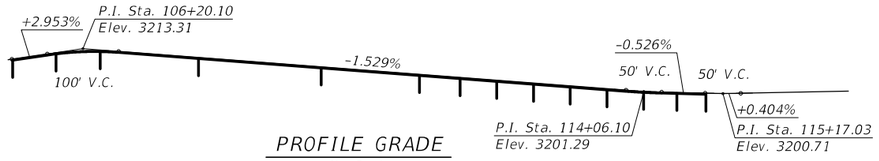
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23903

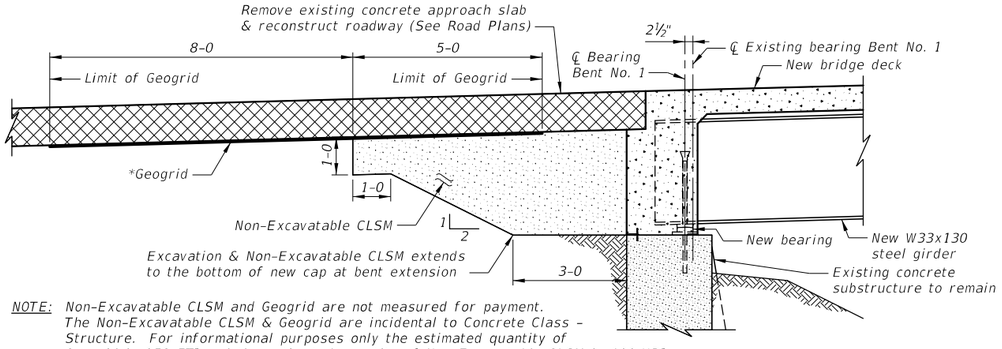
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



PROFILE GRADE

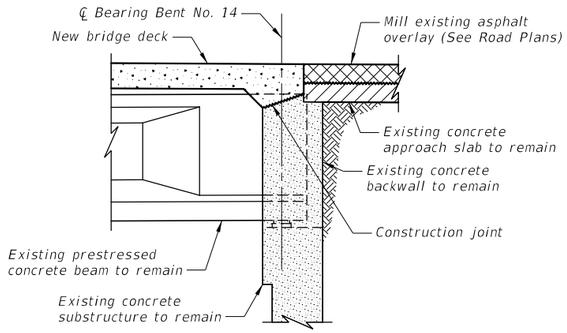
No Scale



NOTE: Non-Excavatable CLSM and Geogrid are not measured for payment. The Non-Excavatable CLSM & Geogrid are incidental to Concrete Class - Structure. For informational purposes only the estimated quantity of Geogrid is 958 FT² and the estimated quantity of Non-Excavatable CLSM is 100 YD³.

*NOTE: Provide a Geogrid that has a minimum radial stiffness of 20,580 lb/ft at 0.5% strain. Submit for approval.

NOTE: Compact backfill within 4-0 of the backwall & wingwalls using a lightweight mechanical tamper, roller, or vibratory roller.

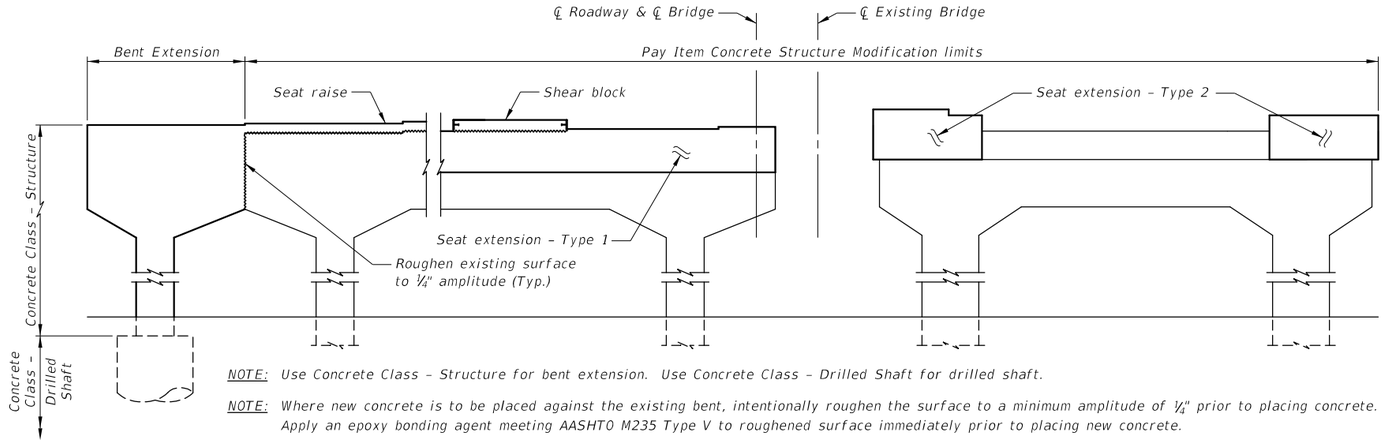


A B5 SECTION A

Scale ~ ½" = 1'-0"

B B5 SECTION B

Scale ~ ½" = 1'-0"



NOTE: Use Concrete Class - Structure for bent extension. Use Concrete Class - Drilled Shaft for drilled shaft.

NOTE: Where new concrete is to be placed against the existing bent, intentionally roughen the surface to a minimum amplitude of ¼" prior to placing concrete. Apply an epoxy bonding agent meeting AASHTO M235 Type V to roughened surface immediately prior to placing new concrete.

BENT CONCRETE PAY ITEM LIMITS

No Scale

(Looking Ahead on Line)

(Bents No. 2, No. 3, No. 6, & No. 7 thru No. 13 General Schematic)

CONCRETE STRUCTURE MODIFICATION: Use Concrete Class - Structure for all new concrete. Include all costs associated with the modifications to the existing interior bents, within the limits shown on this sheet, including shear blocks, seat extensions, and seat raises in the unit bid price. This includes full compensation for cleaning and roughening all concrete surfaces, placement of bonding agent, drilling and adhering all reinforcing into the existing bents, as well as forming and placement of new concrete within these limits, as well as removal of portions of the existing structure, as detailed in the plans. Concrete Structure Modification is measured by the cubic yard of new concrete placed. The cost for furnishing and placing new reinforcing steel will be measured and paid for in the bid item Reinforcing Steel - Regular.

TABLE OF NEW WORK ON EXISTING BENTS

	Bent No. 1	Bent No. 2	Bent No. 3	Pier No. 4	Pier No. 5	Bent No. 6	Bent No. 7	Bent No. 8	Bent No. 9	Bent No. 10	Bent No. 11	Bent No. 12	Bent No. 13	Bent No. 14
Bent Extension	✔	✔	✔			✔	✔	✔	✔	✔	✔	✔		
*Seat Raise		✔												
*Shear Block							✔			✔			✔	
*Seat Extension - Type 1							✔			✔			✔	
*Seat Extension - Type 2			✔			✔								

*NOTE: Include in Concrete Structure Modification pay item.

NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Existing Elements - Superstructure and Substructure: Standard HS 20-44 loading. New Elements - Deck, Superstructure and Substructure: HL-93 Loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 2014 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. For new bridge items the design was prepared in accordance with AASHTO LRFD Bridge Design Specifications, Seventh Edition - 2014 with 2016 Interim Revisions. For existing or rehabilitated bridge items the design was prepared in accordance with AASHTO Standard Specifications for Highway Bridges, 17th Edition - 2002 and any amendments thereto.

DIMENSIONS: All dimensions are in feet and inches except as noted. Verify all necessary dimensions of the existing structures in the field before ordering materials. Obtain approval of shop plans from the State of Montana, Department of Transportation before beginning fabrication. If the dimensions and details of the existing structure are not as shown on the plans, vary construction as necessary to best suit existing conditions and the nature of the intended work as approved by the Project Manager.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31 Grade 60 or ASTM Specification A1035 Type CS Grade 100 as specified. Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for Reinforcing Steel or Reinforcing Steel - Corrosion Resistant.

Clean exposed existing reinforcing steel and replace existing reinforcing steel damaged during construction that is called out to remain in place at no additional cost to the State.

REINFORCING STEEL SUFFIX:
The suffix CR denotes corrosion resistant reinforcing steel.

REINFORCING STEEL COVER: Unless specified otherwise on the drawings, the minimum concrete cover measured from the face of the concrete to the face of any reinforcing steel is 2" except as noted below:

Bottom of Slab	1"
Top of Slab	2½"
Bottom of Bent No. 1 Cap	3"
Concrete Barriers & Curbs	1½"
Edges of Drilled Shafts	4" (Unless Noted Otherwise)

Concrete cover to any tie bar is ½" less than what is listed above.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Concrete Class Drilled Shaft for all drilled shafts, Concrete Class Structure for all substructure concrete and Concrete Class Structure - Low Slump for all superstructure and parapet concrete.

CONCRETE STRENGTH: Use f'c = 4000 p.s.i. for Concrete Class Structure.
Use f'c = 4000 p.s.i. for Concrete Class Structure - Low Slump.
Use f'c = 4000 p.s.i. for Concrete Class Drilled Shaft.

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Concrete Class Structure.

STRUCTURAL STEEL: All structural steel will be measured and paid for on the lump sum basis as set forth in the Standard Specifications. Use structural steel meeting the requirements of AASHTO M270 Grade 36 & Grade 50 as specified in the plans.
Structural Steel - Girder: Estimated weight = 308,345 lbs.
Structural Steel - Misc.: Estimated weight = 103,133 lbs.

HIGH STRENGTH BOLTS: Unless specified otherwise on the drawings, furnish high strength bolts meeting ASTM F3125 Grade A325 Type 1 - galvanized. See the Standard Specifications for the requirements of nuts, washers, and direct tension indicators.

STRUCTURAL STEEL FINISH:
Paint new structural steel beams, girders, plates and angles in accordance with the Standard Specifications. Provide the finish coat in Semi-Gloss Grey, Federal Specification 595B Pigment Code FS26081.

POLYMER OVERLAY:
Apply polymer overlay to the completed concrete deck surface. See Special Provisions.

UTILITIES:
Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS:
See Special Provisions.

STATE PLANE COORDINATES: Stations shown on the bridge plans are state plane grid stations based on (NAD83-2011). Dimensions shown on the bridge plans are horizontal ground distances and not state plane grid distances. The combination scale factor (CSF) at this location is 0.99924502.

Horizontal ground distance x CSF = Grid Distance
Grid Distance/CSF = Distance to stake.

SHEET NO. B6

GENERAL LAYOUT (SHEET 2 OF 2)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
				2-25-19	10-30-17	10-30-17
				J.D.H.	G.H.S.	P.C.J.

...\8807000brgen202.dgn

5/15/2020 9:23:33 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

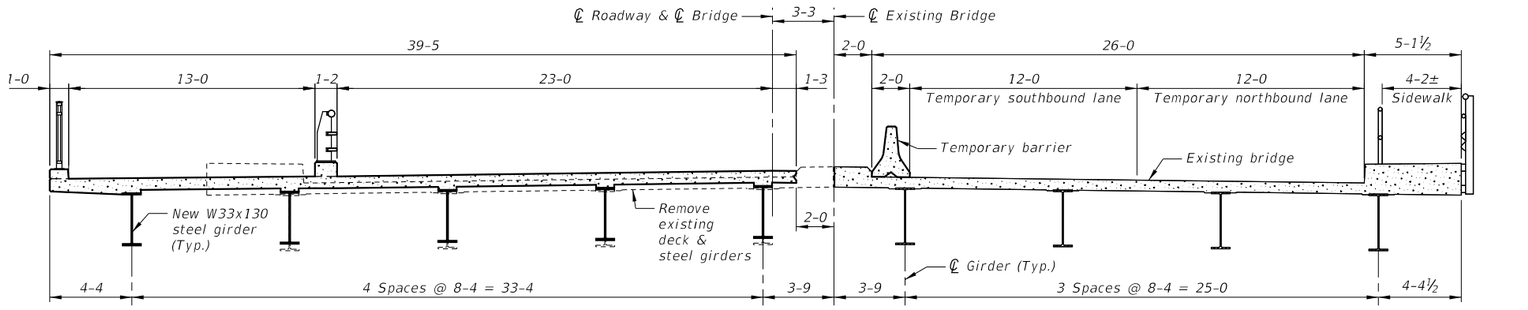
UPN NUMBER 8807000

DRAWING NO. 23904

HDR

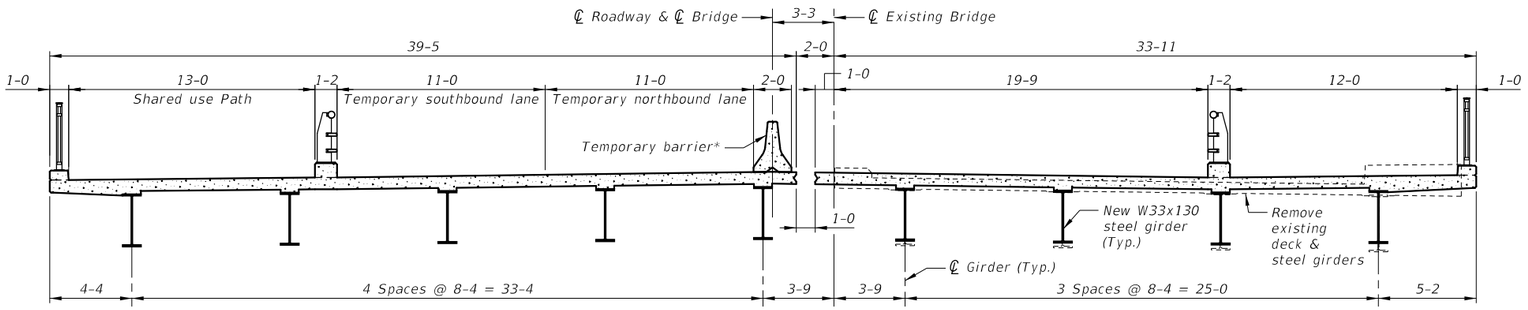
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



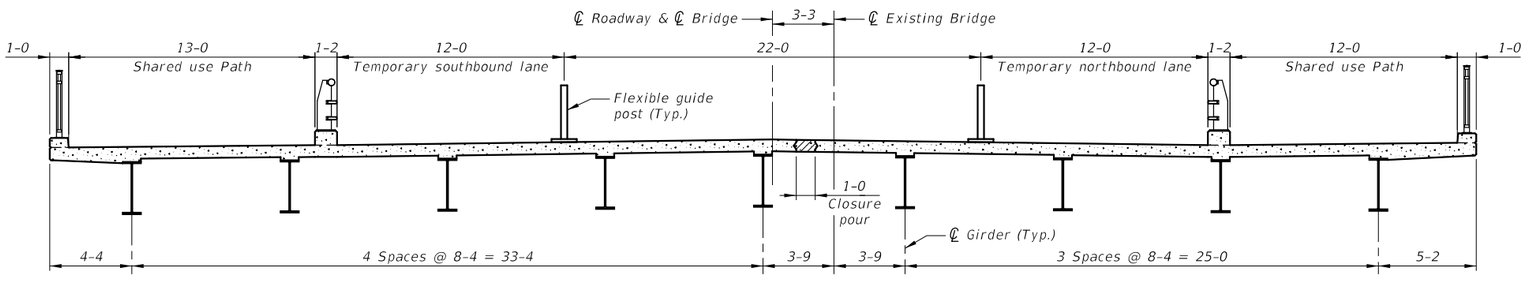
PHASE 1 – SPANS NO. 1, NO. 2 & NO. 6

(Looking Ahead on Line)



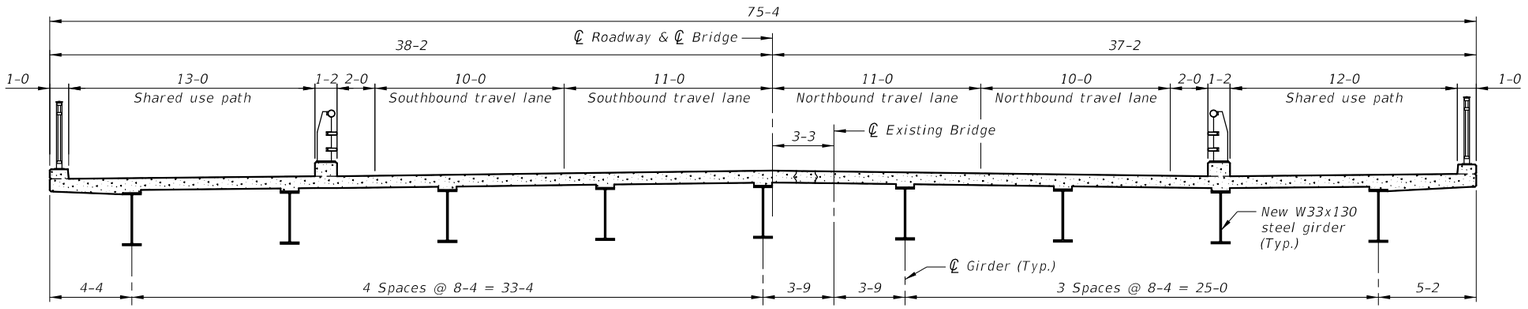
PHASE 2 – SPANS NO. 1, NO. 2 & NO. 6

(Looking Ahead on Line)



PHASE 3 – SPANS NO. 1, NO. 2 & NO. 6

(Looking Ahead on Line)



COMPLETED BRIDGE – SPANS NO. 1, NO. 2 & NO. 6

(Looking Ahead on Line)

PROPOSED CONSTRUCTION PHASING

PHASE 1:
1. Install temporary barrier on existing northbound bridge.
2. Divert and maintain 2-way, 1-lane traffic in each direction on existing northbound bridge.
3. Remove the existing southbound bridge deck and steel beams.
4. Install temporary shoring at Bent No. 1
5. Construct Phase 1 bridge foundations and bent extensions.
6. Place new Phase 1 W33x130 steel girders.
7. Construct Phase 1 bridge deck, bridge rail, pedestrian rail and Southern roadway approach.

PHASE 2:
1. Install temporary barrier on Phase 1 bridge deck.
2. Divert and maintain 2-way, 1-lane traffic in each direction on Phase 1 bridge.
3. Remove the existing northbound bridge deck and steel beams.
4. Place new Phase 2 W33x130 steel girders.
5. Construct Phase 2 bridge deck, cast-in-place moment slab, bridge rail, pedestrian rail, impact attenuator and Southern roadway approach.

PHASE 3:
1. Revise traffic control and maintain one northbound lane on the Phase 2 deck and one southbound lane on the Phase 1 deck.
2. Complete deck closure pour.

PHASE 4:
1. Complete the Polymer Overlay. Shift traffic as necessary to complete the work while maintaining 2-lanes of traffic (1 lane in each direction) at all times.
2. Complete any final painting work below the deck surface. Maintain 4-lanes of traffic (2-lanes in each direction) while the structure painting is completed.

NOTE: See Road Plans and Special Provisions for additional requirements.

*NOTE: Temporarily attach to deck per Detailed Drawing 605-05. Install all anchors on the traffic side of the barrier.

HDR

SHEET NO. B7

CONSTRUCTION PHASING (SHEET 1 OF 3)

SCALE: ½" = 1'-0"

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED						J.D.H.	
REVISED						G.H.S.	
REVISED						B.K.C.	
REVISED						CHECKED	2-25-19
						DRAWN	10-30-17
						DESIGNED	10-30-17

...8807000brphaz01.dgn

7/16/2019 9:40:29 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

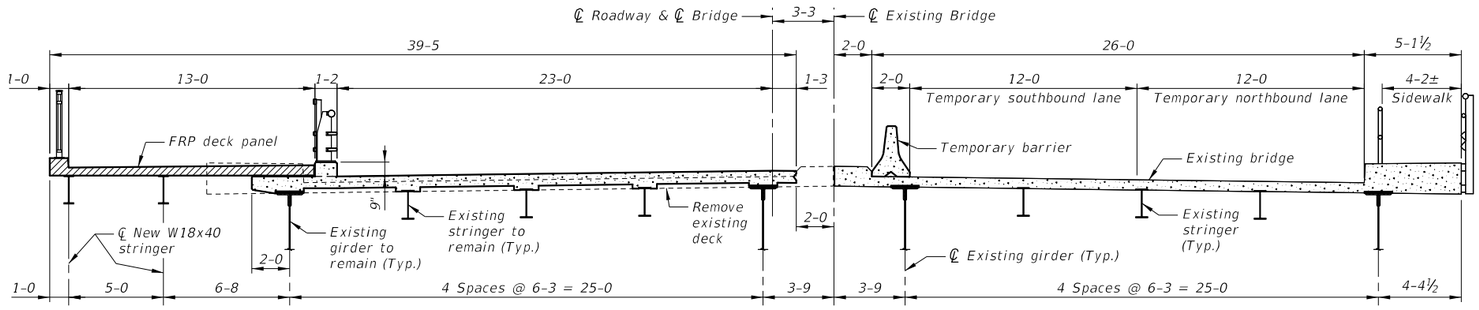
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23905

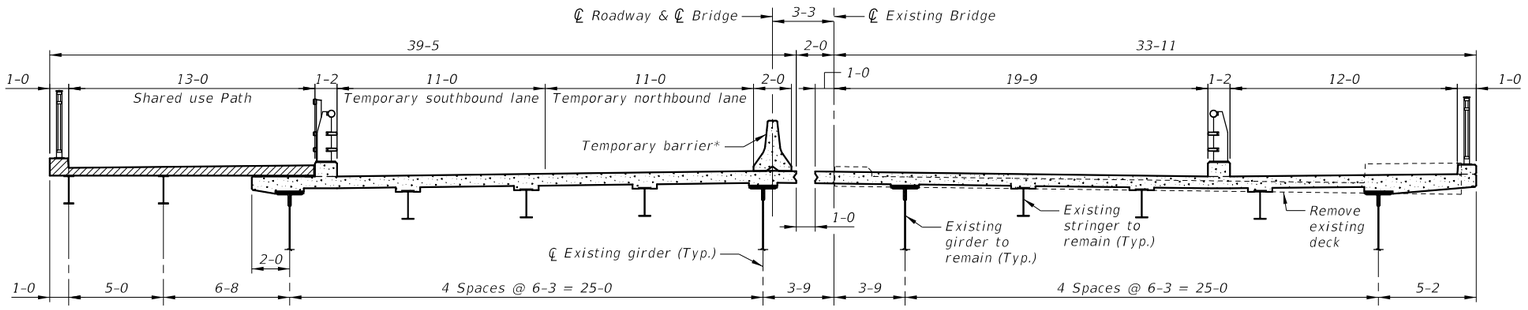
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



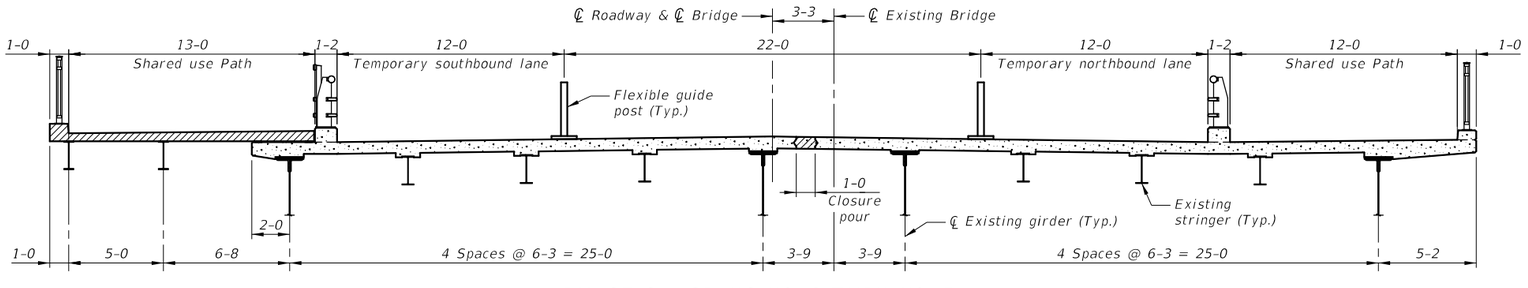
PHASE 1 – SPANS NO. 3 THRU NO. 5

(Looking Ahead on Line)



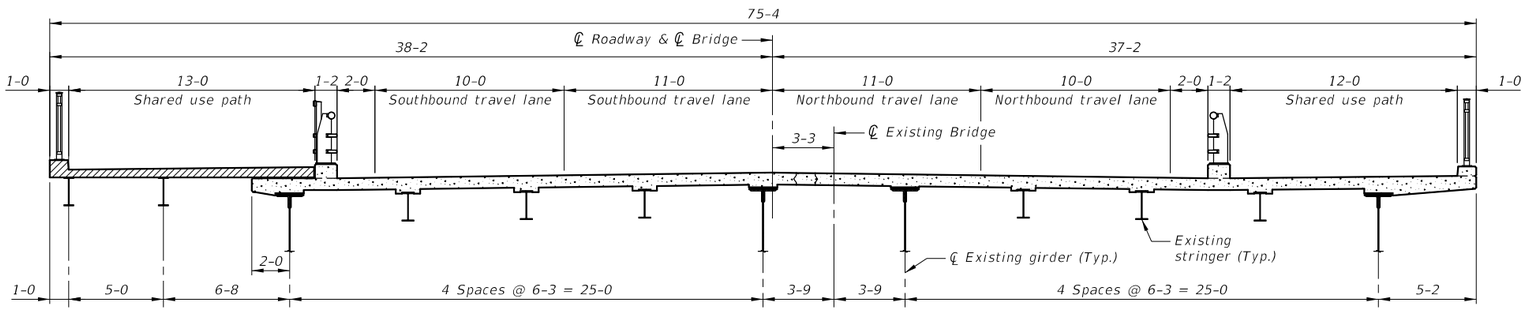
PHASE 2 – SPANS NO. 3 THRU NO. 5

(Looking Ahead on Line)



PHASE 3 – SPANS NO. 3 THRU NO. 5

(Looking Ahead on Line)



COMPLETED BRIDGE – SPANS NO. 3 THRU NO. 5

(Looking Ahead on Line)

PROPOSED CONSTRUCTION PHASING

PHASE 1:
1. Install temporary barrier on existing northbound bridge.
2. Divert and maintain 2-way, 1-lane traffic in each direction on existing northbound bridge.
3. Remove the existing southbound bridge deck.
4. Install cantilever brackets and stringers. Install shear studs on existing main steel girders.
5. Paint Phase 1 steel superstructure.
6. Construct Phase 1 bridge deck and bridge rail.
7. Install FRP panels and pedestrian rail.

PHASE 2:
1. Install temporary barrier on Phase 1 bridge deck.
2. Divert and maintain 2-way, 1-lane traffic in each direction on Phase 1 bridge.
3. Remove the existing northbound bridge deck.
4. Install shear studs on existing main steel girders
5. Paint Phase 2 steel superstructure.
6. Construct Phase 2 bridge deck, bridge rail and pedestrian rail.

PHASE 3:
1. Revise traffic control and maintain one northbound lane on the Phase 2 deck and one southbound lane on the Phase 1 deck.
2. Complete deck closure pour.

PHASE 4:
1. Complete the Polymer Overlay. Shift traffic as necessary to complete the work while maintaining 2-lanes of traffic (1 lane in each direction) at all times.
2. Complete any final painting work below the deck surface. Maintain 4-lanes of traffic (2-lanes in each direction) while the structure painting is completed.

NOTE: See Road Plans and Special Provisions for additional requirements.

*NOTE: Temporarily attach to deck per Detailed Drawing 605-05. Install all anchors on the traffic side of the barrier.

NOTE: Painting the steel superstructure may be completed during Phase 4. See Special Provisions.

HDR

SHEET NO. B8

CONSTRUCTION PHASING (SHEET 2 OF 3)

SCALE: ½" = 1'-0"

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED	REVISED	REVISED	REVISED	CHECKED	2-25-19	J.D.H.	
				DRAWN	10-30-17	G.H.S.	
				DESIGNED	10-30-17	B.K.C.	

...88070000brpha202.dgn

7/16/2019 9:40:59 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

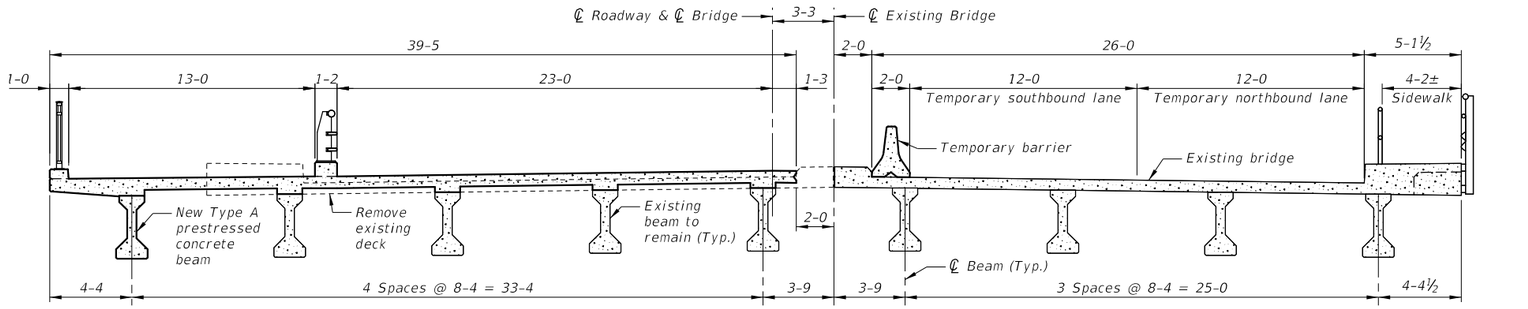
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23906

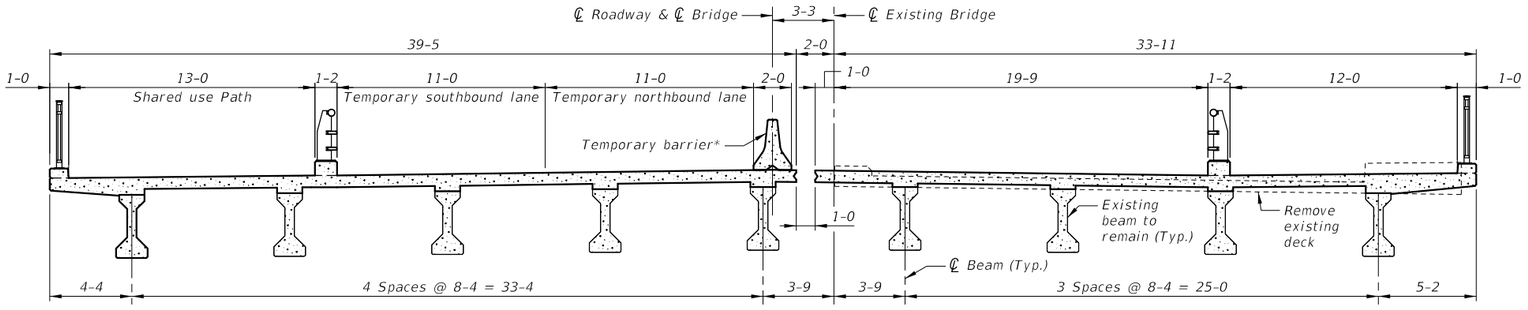
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



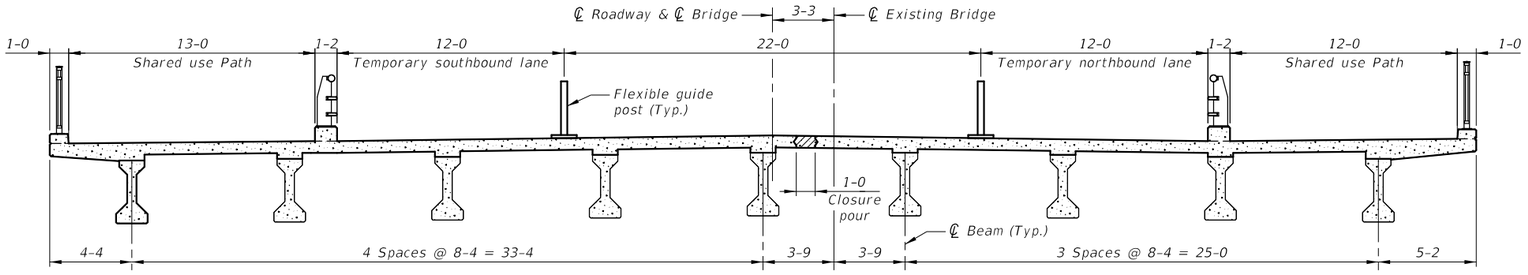
PHASE 1 – SPANS NO. 7 THRU NO. 13

(Looking Ahead on Line)
(Spans No. 7 thru No. 11 shown, Spans No. 12 & No. 13 similar)



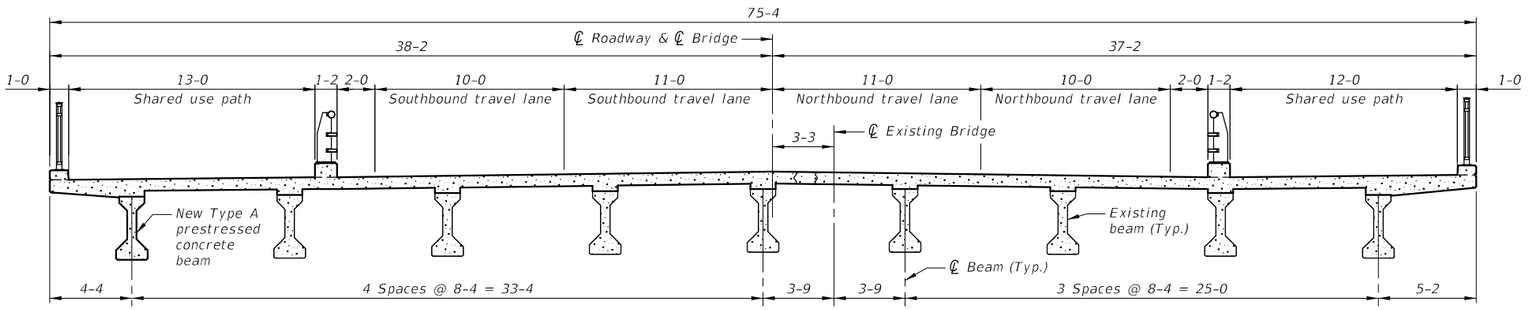
PHASE 2 – SPANS NO. 7 THRU NO. 13

(Looking Ahead on Line)
(Spans No. 7 thru No. 11 shown, Spans No. 12 & No. 13 similar)



PHASE 3 – SPANS NO. 7 THRU NO. 13

(Looking Ahead on Line)
(Spans No. 7 thru No. 11 shown, Spans No. 12 & No. 13 similar)



COMPLETED BRIDGE – SPANS NO. 7 THRU NO. 13

(Looking Ahead on Line)
(Spans No. 7 thru No. 11 shown, Spans No. 12 & No. 13 similar)

PROPOSED CONSTRUCTION PHASING

PHASE 1:
1. Install temporary barrier on existing northbound bridge.
2. Divert and maintain 2-way, 1-lane traffic in each direction on existing northbound bridge.
3. Remove the existing southbound bridge deck and end diaphragms.
4. Construct Phase 1 bridge foundations and bent extensions.
5. Place new Type A prestressed concrete beams.
6. Construct Phase 1 bridge deck, bridge rail, pedestrian rail, impact attenuator and Northern roadway approach.

PHASE 2:
1. Install temporary barrier on Phase 1 bridge deck.
2. Divert and maintain 2-way, 1-lane traffic in each direction on Phase 1 bridge.
3. Remove the existing northbound bridge deck and end diaphragms.
4. Construct Phase 2 bridge deck, bridge rail, pedestrian rail and Northern roadway approach.

PHASE 3:
1. Revise traffic control and maintain one northbound lane on the Phase 2 deck and one southbound lane on the Phase 1 deck.
2. Complete deck closure pour.

PHASE 4:
1. Complete the Polymer Overlay. Shift traffic as necessary to complete the work while maintaining 2-lanes of traffic (1 lane in each direction) at all times.
2. Complete any final painting work below the deck surface. Maintain 4-lanes of traffic (2-lanes in each direction) while the structure painting is completed.

NOTE: See Road Plans and Special Provisions for additional requirements.

*NOTE: Temporarily attach to deck per Detailed Drawing 605-05. Install all anchors on the traffic side of the barrier.

HDR

SHEET NO. B9

CONSTRUCTION PHASING (SHEET 3 OF 3)

SCALE: ½" = 1'-0"

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED				CHECKED	2-25-19	J.D.H.
REVISED				DRAWN	10-30-17	G.H.S.
REVISED				DESIGNED	10-30-17	B.K.C.
REVISED				...\8807000brphaz03.dgn		

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/16/2019 9:41:29 AM

ROUTE U-8113

REF POINT 0+0.239

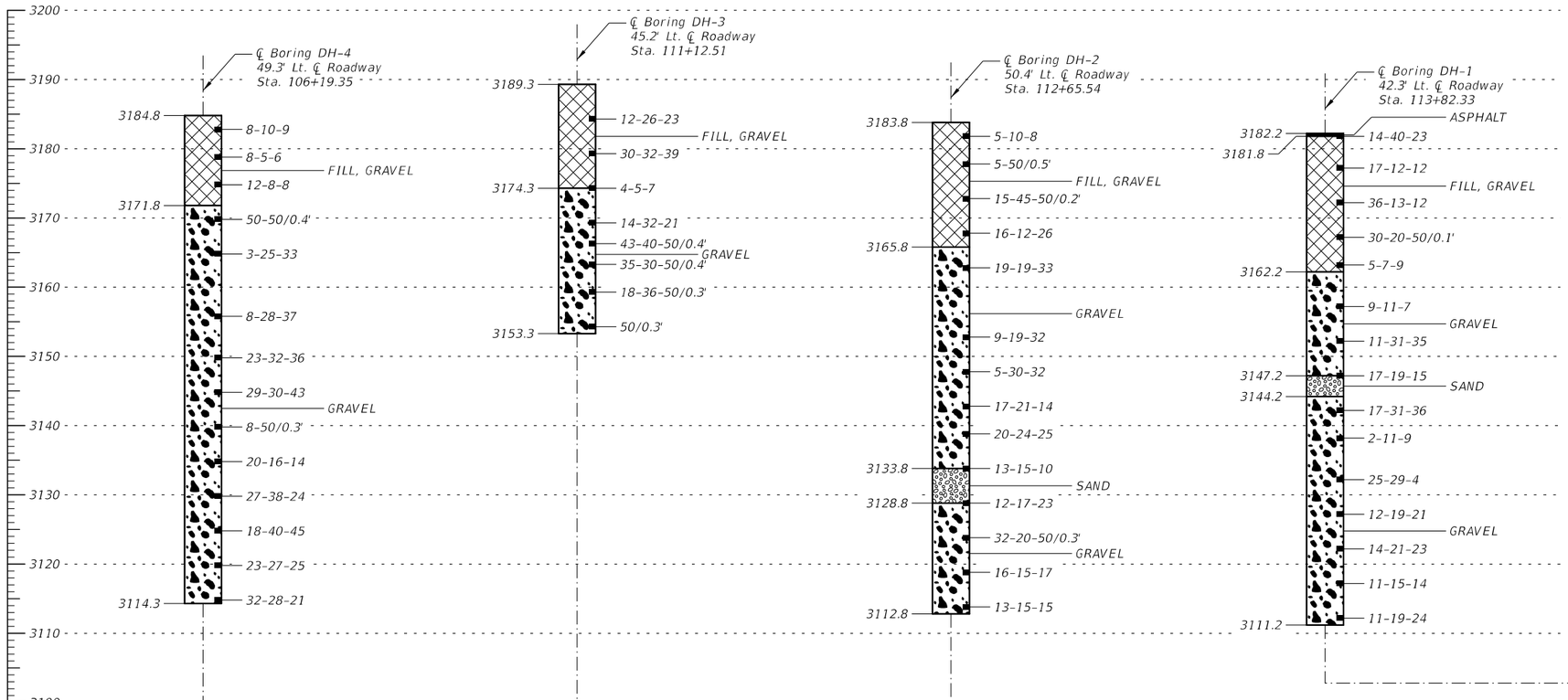
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23907

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



SUMMARY OF LOG OF BORINGS

Scale ~ 1" = 10'-0"

NOTES

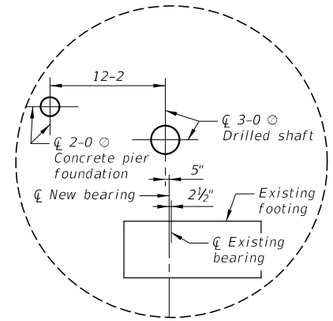
Existing substructure shown is approximate, verify locations and dimensions.

Perform Thermal Integrity Profiler test on all drilled shafts.

SOILS AND FOUNDATION MATERIALS: The Footing Plan shows locations where TetraTech drilled boreholes.

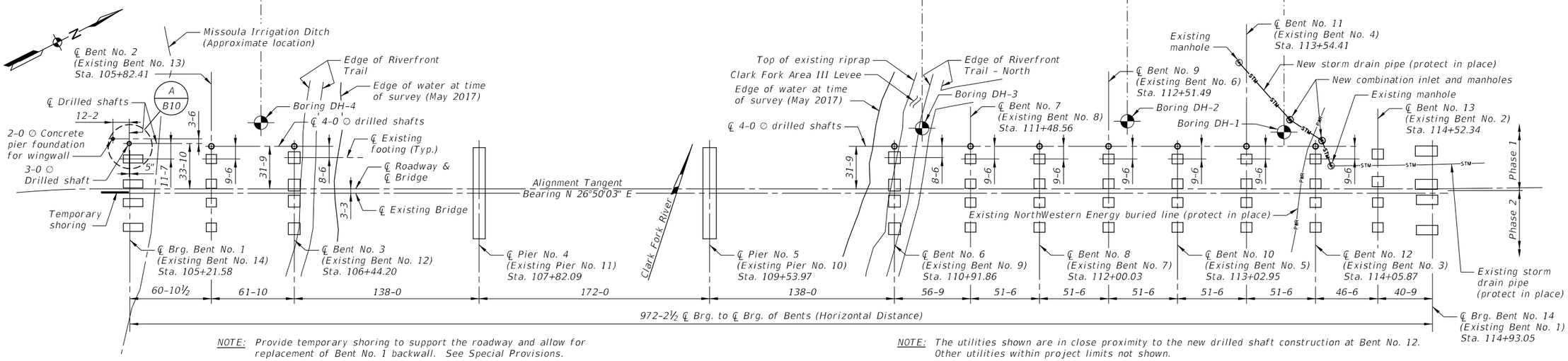
The series of numbers on the Log of Borings shows the number of blows from a 140 pound hammer with a 30" drop required to drive either a 2" split spoon or 2.5" California sampler 6" (Standard Penetration Test). The length of the split spoon sampler is 18". The sampler length is measured as three 6" intervals. If the 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 including type of sampler used.



A / B10 DETAIL A

Scale ~ ⅛" = 1'-0"



NOTE: Provide temporary shoring to support the roadway and allow for replacement of Bent No. 1 backwall. See Special Provisions.

NOTE: The utilities shown are in close proximity to the new drilled shaft construction at Bent No. 12. Other utilities within project limits not shown.

NOTE: Relocation of the storm drain will occur concurrently with this project. Coordinate with the City of Missoula, NorthWestern Energy, and the Project Manager to install the drilled shaft at Bent No. 12 while the new storm drain and existing buried power line are exposed. Complete the drilled shaft construction prior to storm drain excavation being backfilled.

FOOTING PLAN

HDR

SHEET NO. B10

FOOTING PLAN

SCALE: 1" = 40'-0" Except as Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED						J.D.H.	
REVISED						G.H.S.	
REVISED						P.C.J.	
REVISED					2-25-19		
CHECKED					10-30-17		
DRAWN					10-30-17		
DESIGNED							

...8807000brfpfe01.dgn

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/16/2019 9:41:56 AM

ROUTE U-8113

REF POINT 0+0.239

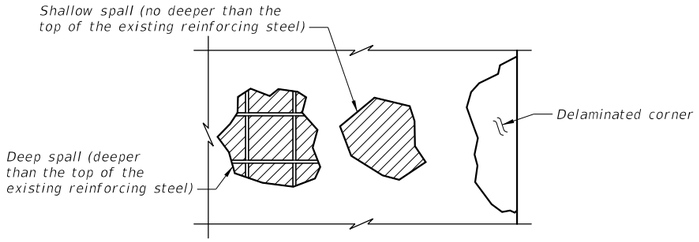
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23908

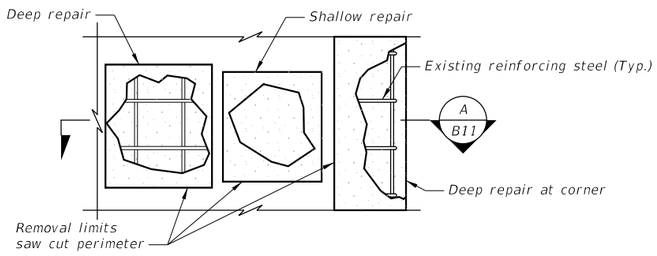
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



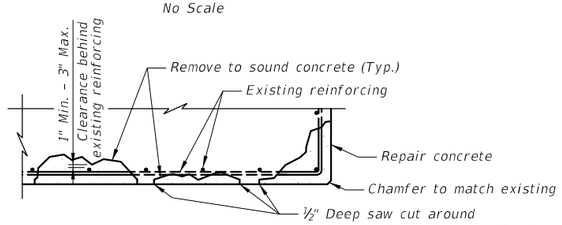
EXISTING DETERIORATED SUBSTRUCTURE CONCRETE

No Scale



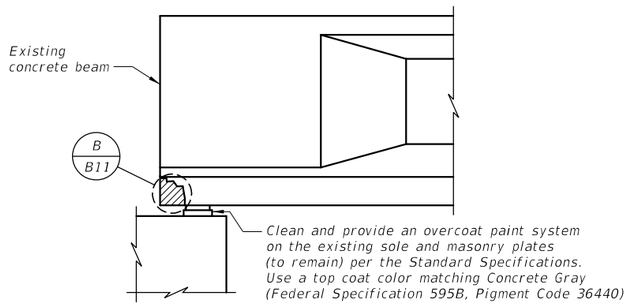
ELEVATION – TYPICAL SUBSTRUCTURE REPAIR AREAS

No Scale



A / B11 SECTION A

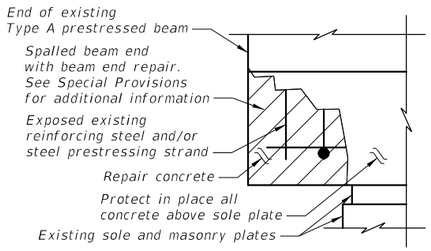
No Scale



SPANS NO. 7 THRU NO. 13

EXISTING PRESTRESSED CONCRETE BEAM REPAIRS

No Scale



B / B11 BEAM END REPAIR DETAIL

No Scale

NOTES

See Special Provisions for additional information on concrete repairs, crack repairs, and pack rust repairs.

Pack rust locations shown are for bidding purposes only. The anticipated length of pack rust at each location is 5 feet or less. For bidding purposes assume a total linear length of 90 feet of pack rust repair. Actual repair locations and lengths to be determined by the Project Manager and may vary from what is shown on this sheet.

Clean all debris off all bent caps and superstructure elements.

Remove and replace all broken or missing existing fasteners with new HS bolts meeting ASTM F3125 Grade A325 Type 1 of the same diameter as the existing fastener. Include all costs associated with the activity in the lump sum price bid for Structural Steel – Misc.

At the direction of the Project Manager remove and replace in kind all distorted connection or gusset plates. As required, provide temporary bracing to prevent deformation or misalignment of existing members during connection or gusset plate replacement. Include all costs associated with the activity, including temporary bracing, in the lump sum price bid for Structural Steel – Misc.

PAINTING EXISTING STEEL: Provide an overcoat paint system on the existing steel in Spans No. 3, No. 4, and No. 5. This includes all existing steel exposed faces that will not be in contact with concrete for all girders, stringers, floor trusses, floorbeams, bracing, connection plates, bearings, and other attachments. Isolated locations of the top surface of the girder top flanges may also require painting based on the steel condition observed once the deck is removed. The Project Manager will determine locations where the existing top flanges require painting. Payment will be made under the bid item Paint Structure. Provide a finish coat color as shown on Sheet No. B6. See Special Provisions for additional information. For information only, the estimated area of existing steel to be painted is approximately 4300 SY per phase or 8600 SY total not including the top surface of girder flanges.

*TABLE OF SUBSTRUCTURE REPAIRS

	WEST SUBSTRUCTURE – PHASE I			EAST SUBSTRUCTURE – PHASE II		
	Area of Deteriorated Substructure Concrete	Substructure Concrete Cracks	Beam End Repair	Area of Deteriorated Substructure Concrete	Substructure Concrete Cracks	Beam End Repair
	(FT²)	(FT)	(EA)	(FT²)	(FT)	(EA)
Bent No. 1						
Bent No. 2	3.0			5.0		
Bent No. 3	45.0			21.0		
Bent No. 4						
Bent No. 5						
Bent No. 6	8.0	4.0		6.0		
Bent No. 7			3	10.0		3
Bent No. 8	5.0	3.0	6	11.0		6
Bent No. 9	16.0		6	5.0		6
Bent No. 10	16.0		6	4.0		6
Bent No. 11	3.0		6	4.0		6
Bent No. 12	30.0	13.0	6	36.0		6
Bent No. 13	3.0		6	10.0		6
Bent No. 14						

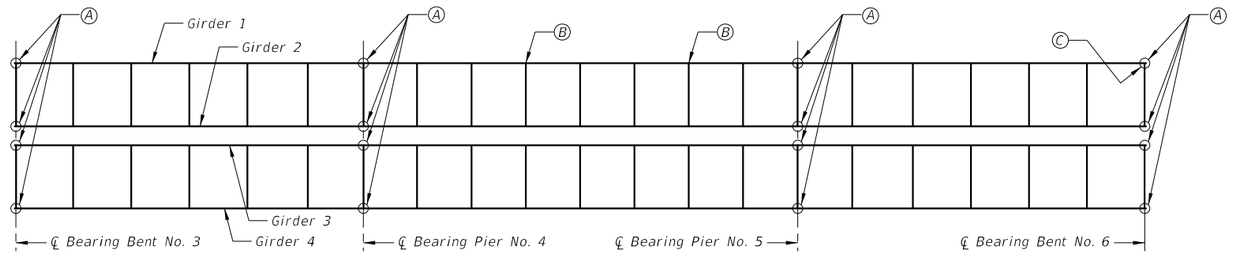
*NOTE: Table of repairs is approximate and provided for informational purposes only. Actual repair locations and areas are to be determined by the Project Manager and may vary from what is shown on this sheet.

LEGEND

Ⓐ Pack rust between bearing stiffeners

Ⓑ Pack rust between flange splice members and girder flange

Ⓒ Distorted lateral connection plate at floor truss connection due to pack rust



SPANS NO. 3 THRU NO. 5 REPAIR ITEMS

No Scale
(Existing stringers not shown for clarity)

HDR

SHEET NO. B11

EXISTING STRUCTURE REPAIRS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED				CHECKED	J.C.M. 3-4-19
REVISED				DRAWN	K.J.A. 2-5-19
REVISED				DESIGNED	B.K.C. 2-2-19
REVISED					...8807000bmdes01.dgn

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

5/18/2020 2:35:31 PM

ROUTE U-8113

REF POINT 0+0.239

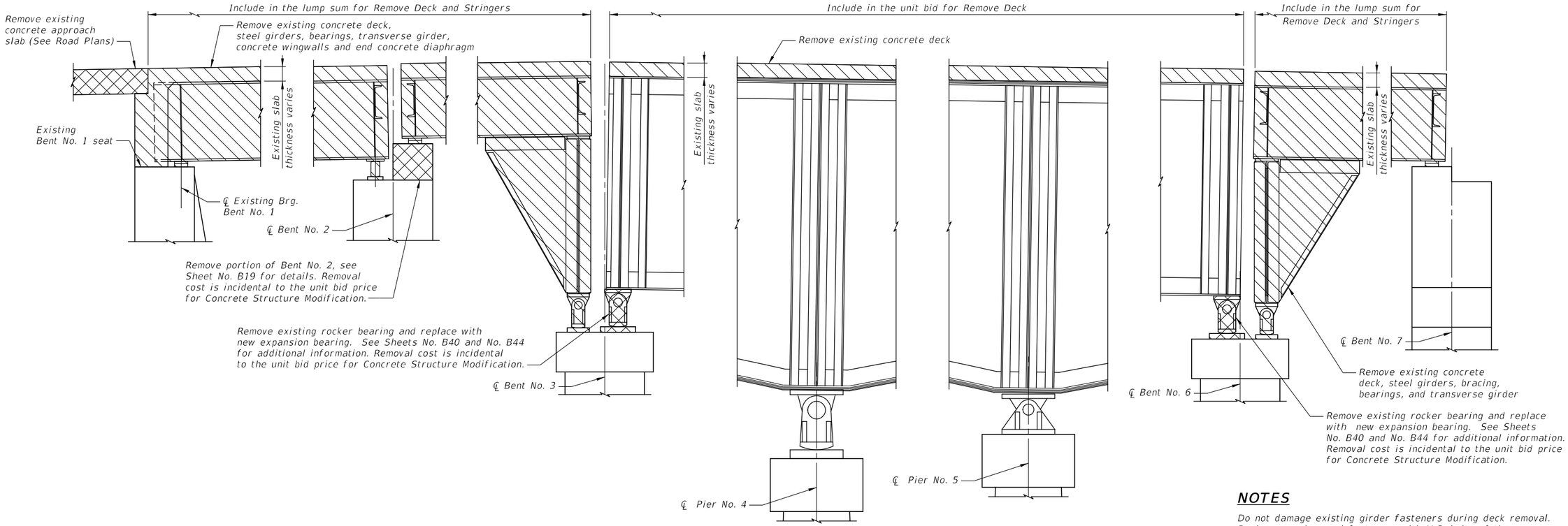
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23909

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



REMOVAL SECTION SPANS NO. 1 THRU NO. 6

No Scale

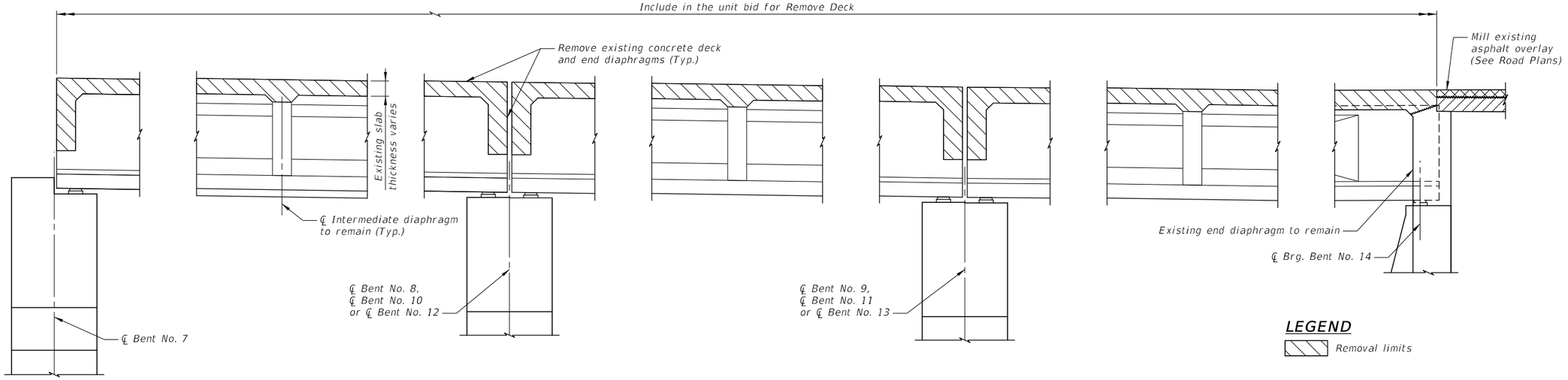
(Spans No. 3 thru No. 5 floor trusses and stringers not shown for clarity.)

NOTES

Do not damage existing girder fasteners during deck removal. Replace any damaged fasteners with H.S. bolts of the same diameter at no cost to the State.

Do not damage existing reinforcing extending from existing prestressed beams or intermediate diaphragms into the existing concrete deck during deck removal.

See Sheet No. B6 for H.S. bolt requirements.



REMOVAL SECTION SPANS NO. 7 THRU NO. 13

No Scale

LEGEND

Removal limits

HDR

SHEET NO. B12

EXISTING DECK AND STRUCTURE REMOVAL DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED			
REVISED			
REVISED			
REVISED			
CHECKED	3-8-19	J.C.M.	
DRAWN	3-5-19	K.J.A.	
DESIGNED	3-5-19	B.K.C.	

...8807000bmdez02.dgn

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

3/16/2020 12:27:51 PM

ROUTE U-8113

REF POINT 0+0.239

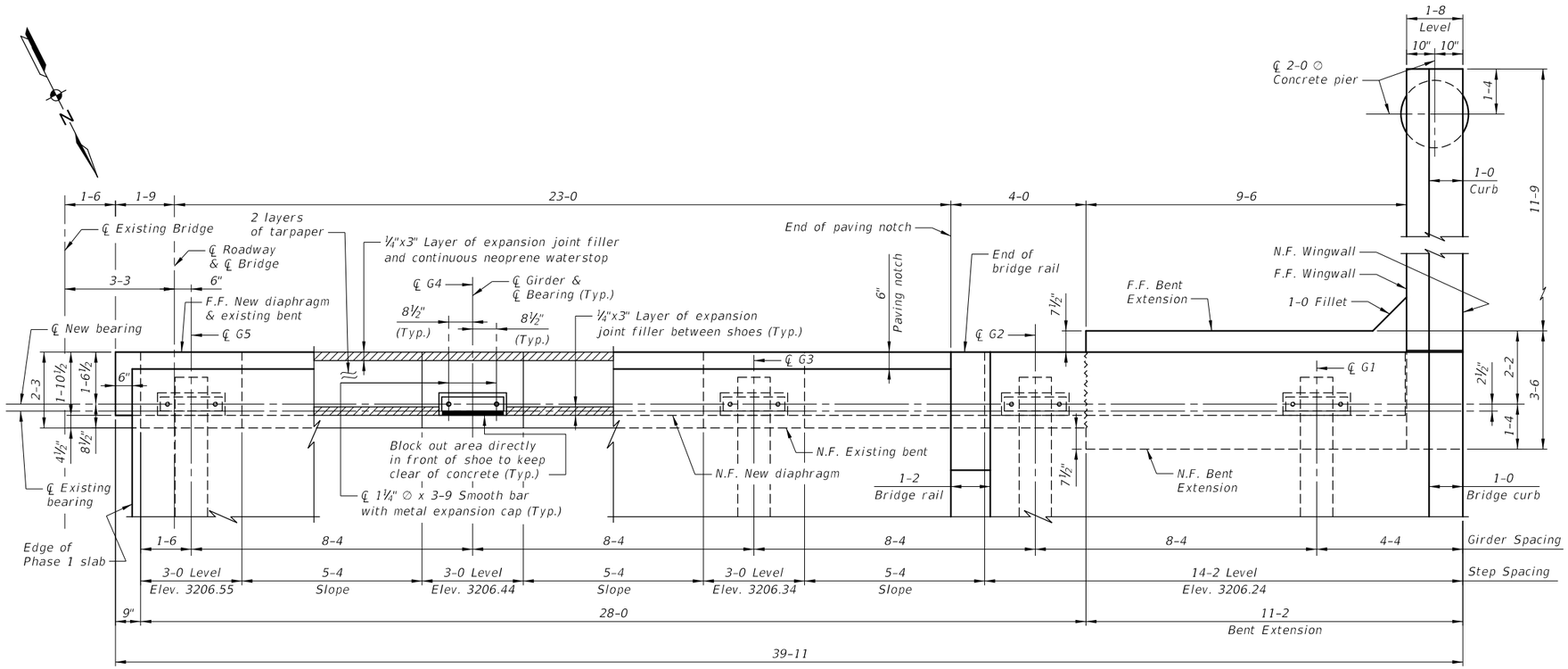
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23910

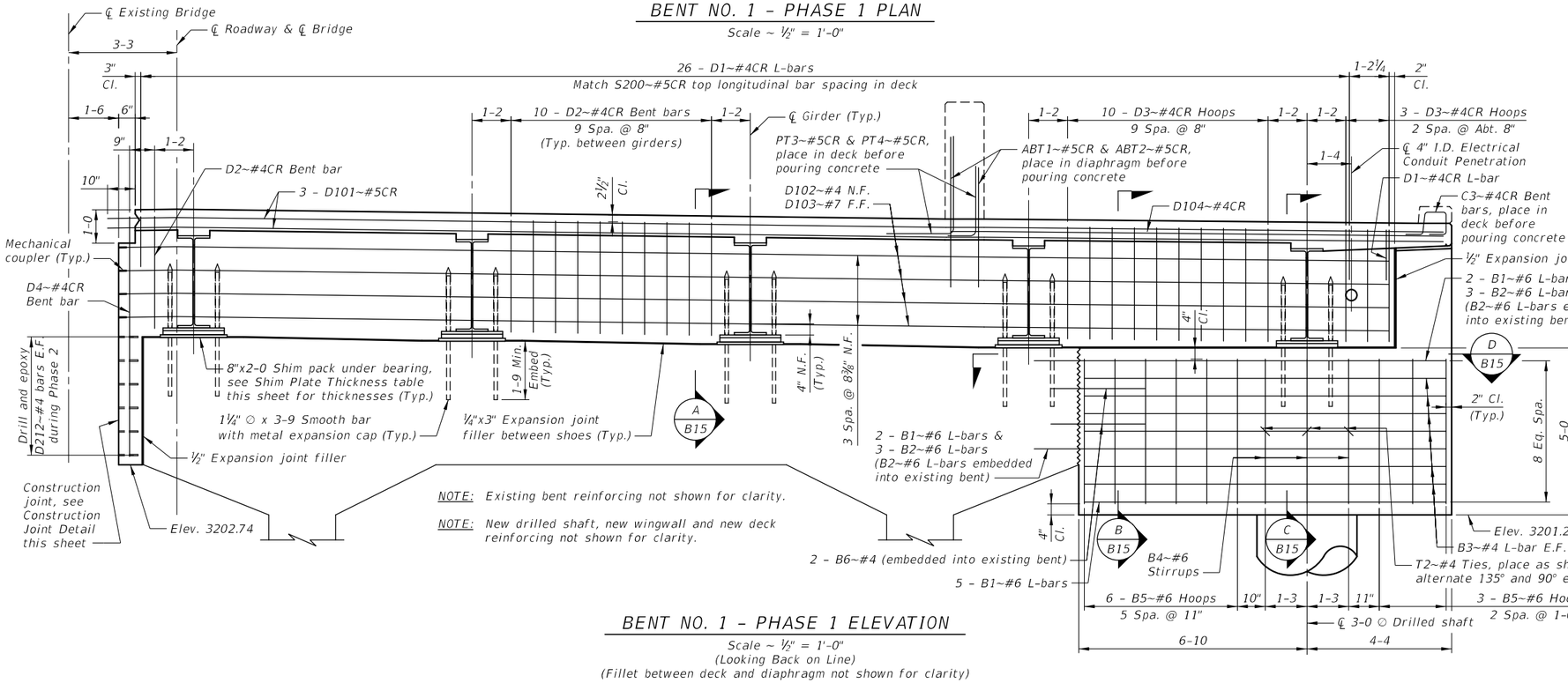
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



BENT NO. 1 - PHASE 1 PLAN

Scale ~ ½" = 1'-0"



NOTE: Existing bent reinforcing not shown for clarity.

NOTE: New drilled shaft, new wingwall and new deck reinforcing not shown for clarity.

BENT NO. 1 - PHASE 1 ELEVATION

Scale ~ ½" = 1'-0"
(Looking Back on Line)
(Fillet between deck and diaphragm not shown for clarity)

NOTES

N.F. = Near Face
F.F. = Fill Face
E.F. = Each Face

Finish beam seat for bent extension level to elevation shown on drawing. Elevation shown is at top of concrete.

Use Concrete Class - Structure for bent cap, diaphragm, wingwall, and concrete pier. Use Concrete Class - Drilled Shaft for drilled shaft.

Include all cost associated with furnishing joint filler, tarpaper, and water stop in the unit bid price for Concrete - Class Structure.

Where new concrete is to be placed against the existing bent, intentionally roughen face of existing cap to a minimum amplitude of ¼" prior to placing new concrete. Apply epoxy bonding agent meeting AASHTO M325 Type V to roughened surface immediately prior to placing new concrete.

For electrical conduit penetration either shift reinforcement or penetration hole to provide a minimum of 1" clear to all reinforcing. The location of the penetration hole can be adjusted a maximum of 2".

Use 1¼" ∅ smooth bars meeting the requirements of ASTM F1554 Grade 55.

See Sheet No. B15 for drilled shaft details.

See Sheet No. B16 for wingwall details.

See Sheet No. B17 for Metal Expansion Cap Detail.

See Sheet No. B17 for Bill of Reinforcing Steel.

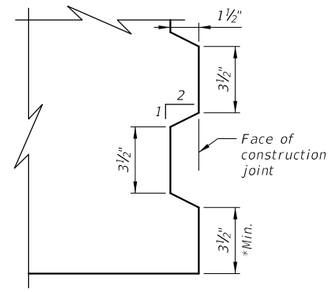
See Sheet No. B17 for minimum embedment details.

See Sheet No. B42 for fixed bearing details.

See Sheet No. B98 for Bent No. 1 Conduit Blockout Detail.

SHIM PLATE THICKNESS

Girder	Thickness
G1	⅛"
G2	1⅛"
G3	1"
G4	1 1/16"
G5	1 1/16"



*NOTE: Adjust dimension to provide evenly spaced keyways over the member's height.

NOTE: Install horizontal keyway as shown above or artificially roughen construction joint to ¼" amplitude.

NOTE: Terminate all key widths 3" clear of exposed faces.

CONSTRUCTION JOINT DETAIL

Scale ~ 3" = 1'-0"
(Elevation)

SHEET NO. B13

BENT NO. 1 - PHASE 1

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		
REVISED		
REVISED		
REVISED	CHECKED	5-29-19 B.K.C.
	DRAWN	2-18-19 G.H.S.
	DESIGNED	2-18-19 P.C.J.
	...8807000brdrtz10.dgn	
	7/16/2019	9:47:26 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

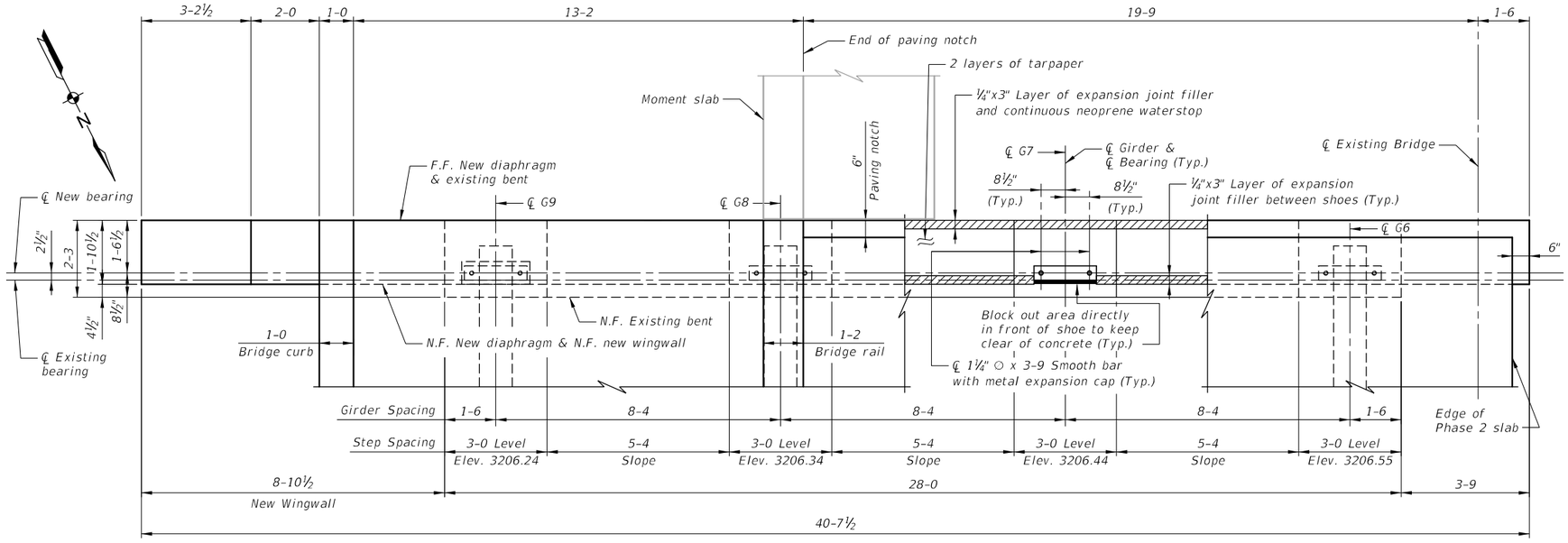
UPN NUMBER 8807000

DRAWING NO. 23911

HDR

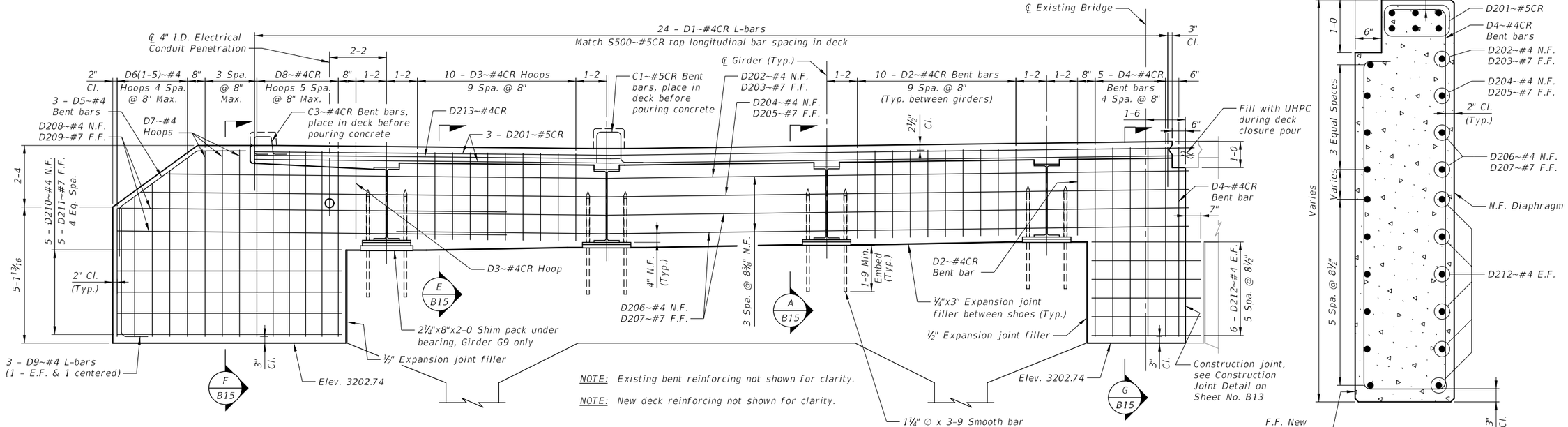
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



BENT NO. 1 - PHASE 2 PLAN

Scale ~ ½" = 1'-0"



NOTE: Existing bent reinforcing not shown for clarity.

NOTE: New deck reinforcing not shown for clarity.

BENT NO. 1 - PHASE 2 ELEVATION

Scale ~ ½" = 1'-0"
(Looking Back on Line)

G B14 **SECTION G**

Scale ~ 1" = 1'-0"

NOTES

N.F. = Near Face
F.F. = Fill Face
E.F. = Each Face

For electrical conduit penetration either shift reinforcement or penetration hole to provide a minimum of 1" clear to all reinforcing. The location of the penetration hole can be adjusted a maximum of 2".

Use 1¼" ○ smooth bars meeting the requirements of ASTM F1554 Grade 55.

See Sheet No. B17 for Metal Expansion Cap Detail.

See Sheet No. B17 for Bill of Reinforcing Steel.

See Sheet No. B17 for minimum embedment details.

See Sheet No. B42 for fixed bearing details.

See Sheet No. B98 for Bent No. 1 Conduit Blockout Detail.

See Sheet No. B99 for moment slab details.

HDR

SHEET NO. B14

BENT NO. 1 - PHASE 2

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		CHECKED	5-29-19 B.K.C.
REVISED		DRAWN	2-18-19 G.H.S.
REVISED		DESIGNED	2-18-19 P.C.J.
REVISED		...\8807000\brdtnt11.dgn	

MONTANA MDT DEPARTMENT OF TRANSPORTATION BRIDGE BUREAU

7/16/2019 9:47:50 AM

ROUTE U-8113

REF POINT 0+0.239

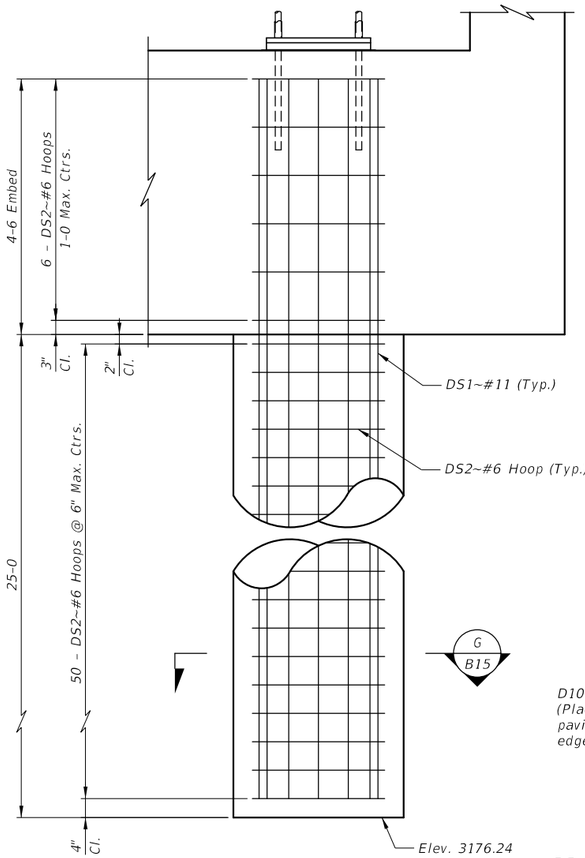
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23912

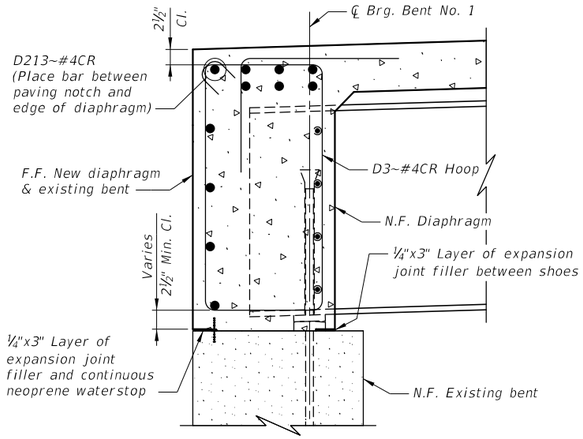
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



BENT NO. 1 - DRILLED SHAFT

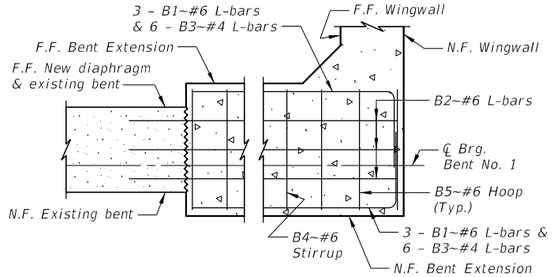
Scale ~ ¾" = 1'-0"



NOTE: See Section A this sheet for diaphragm information not shown.

E B14 **SECTION E**

Scale ~ 1" = 1'-0"



D B13 **SECTION D**

Scale ~ ½" = 1'-0"

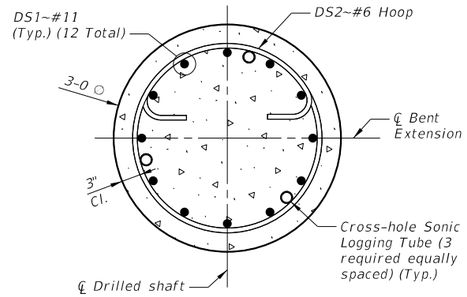
NOTES

N.F. = Near Face
F.F. = Fill Face

Cross-hole Sonic Logging Tubes do not extend more than 1-8 above top of drilled shaft.

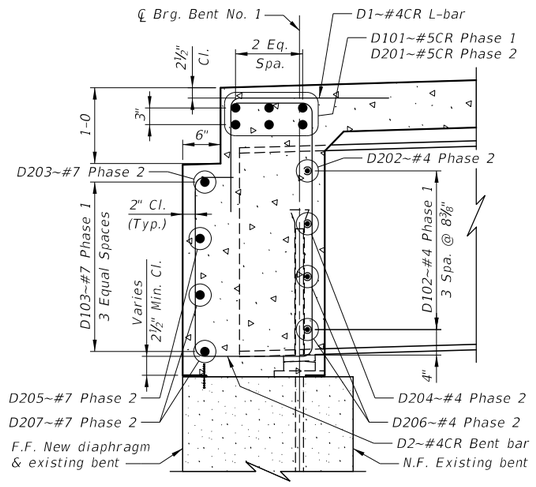
Rotate location of hooks on drilled shaft hoops DS2~#6 90° from adjacent hoops. Rotate hoops in one direction.

See Sheet No. B17 for Bills of Reinforcing Steel.



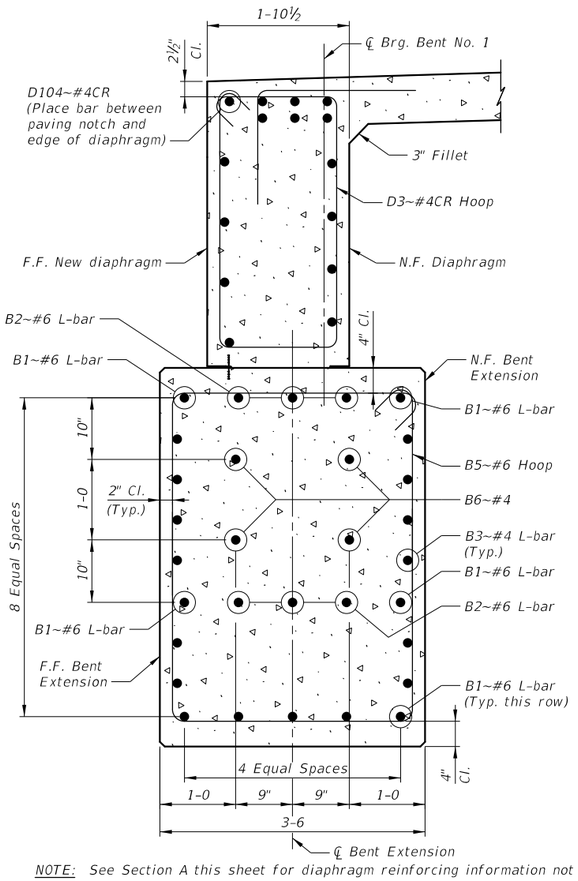
G B15 **DRILLED SHAFT SECTION**

Scale ~ 1" = 1'-0"



A B13 & B14 **SECTION A**

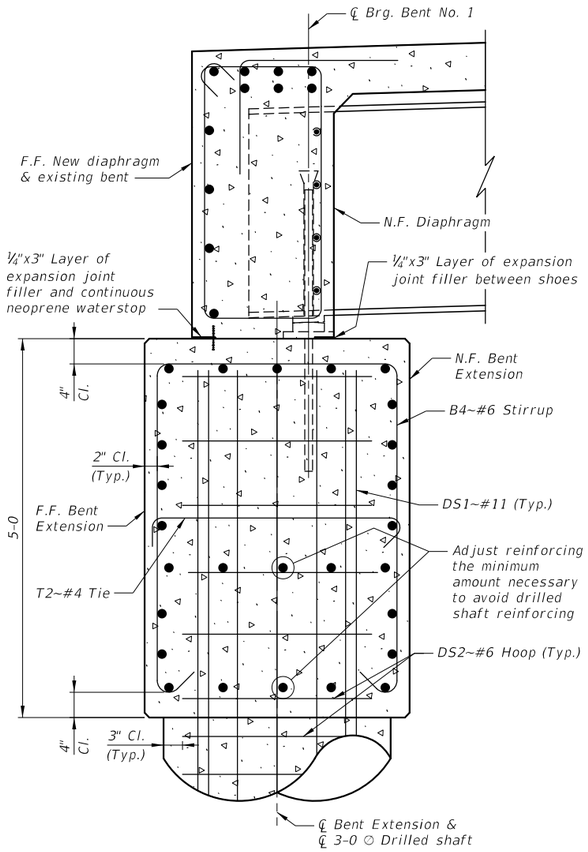
Scale ~ 1" = 1'-0"



NOTE: See Section A this sheet for diaphragm reinforcing information not shown.

B B13 **SECTION AWAY FROM DRILLED SHAFT**

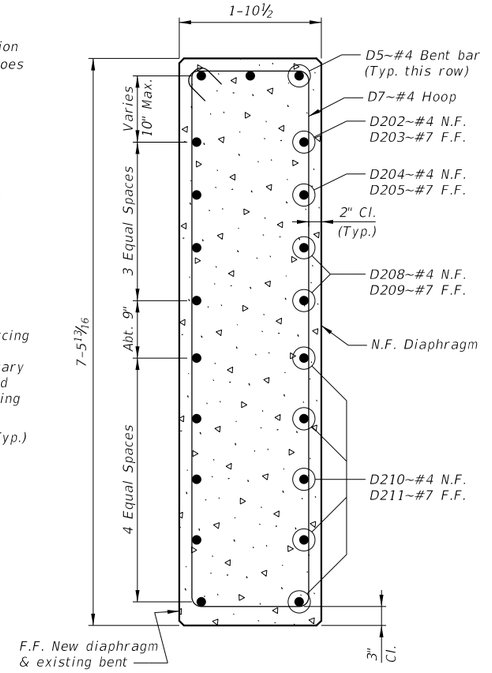
Scale ~ 1" = 1'-0"



NOTE: See Section B and Bent No. 1 - Drilled shaft detail this sheet for information not shown.

C B13 **SECTION AT DRILLED SHAFT**

Scale ~ 1" = 1'-0"



F B14 **SECTION F**

Scale ~ 1" = 1'-0"

SHEET NO. B15

BENT NO. 1 DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED	CHECKED	B.K.C.
REVISED	DRAWN	G.H.S.
REVISED	DESIGNED	P.C.J.
REVISED	5-29-19	2-18-19
	2-18-19	...\8807000\brbntz12.dgn

MONTANA MDT DEPARTMENT OF TRANSPORTATION BRIDGE BUREAU

7/16/2019 9:48:16 AM

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

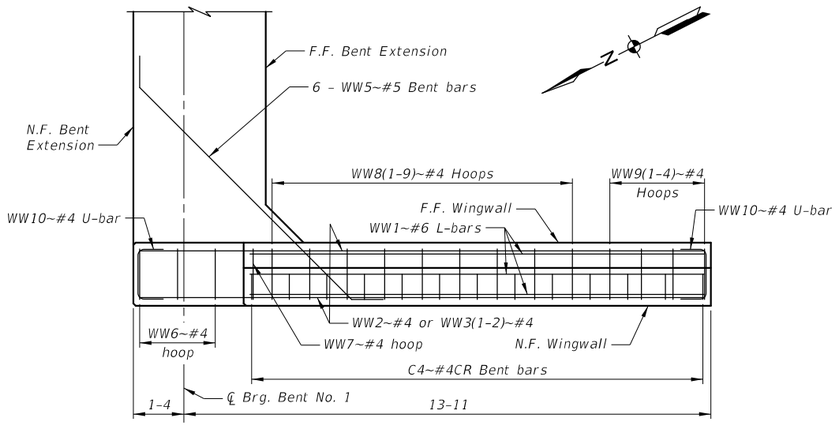
UPN NUMBER 8807000

DRAWING NO. 23913

HDR

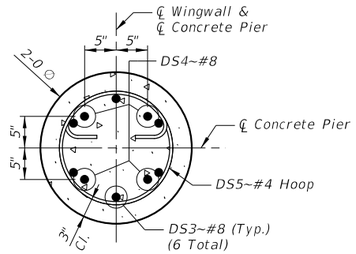
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



WINGWALL PLAN

Scale ~ ½" = 1'-0"
(Bridge deck and diaphragm not shown for clarity)



D / B16 **CONCRETE PIER SECTION**

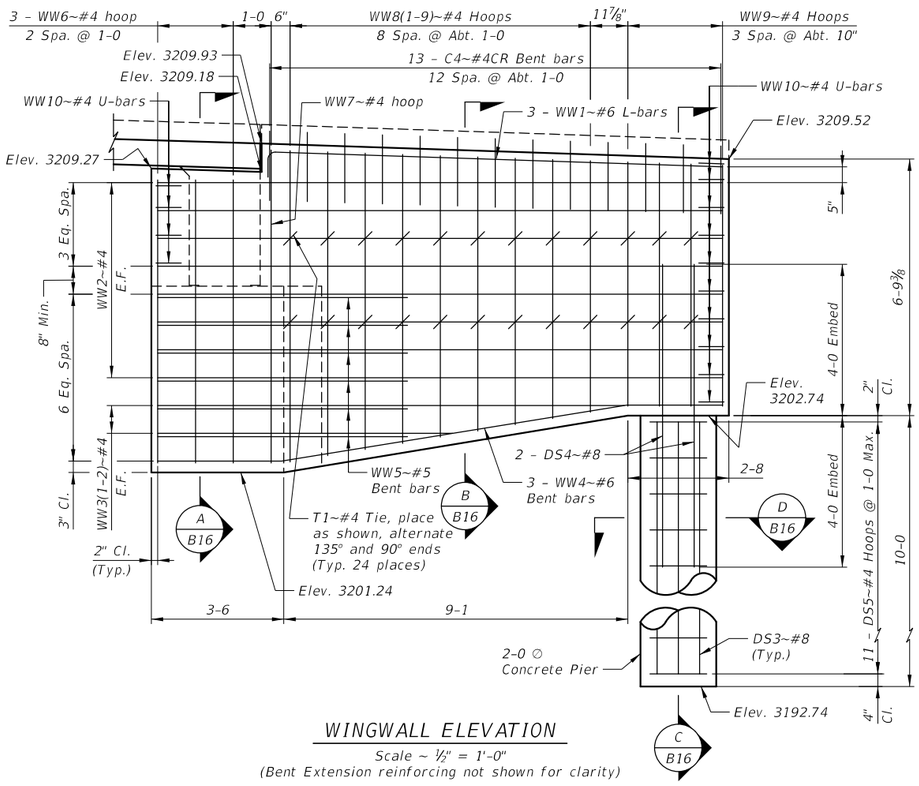
Scale ~ 1" = 1'-0"

NOTES

N.F. = Near Face
F.F. = Fill Face
E.F. = Each Face

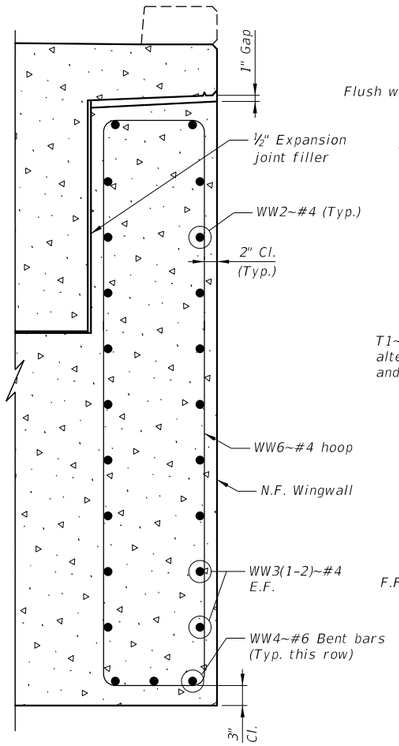
Rotate location of hooks on concrete pier hoops DS5~#4 90° from adjacent hoops. Rotate hoops in one direction.

See Sheet No. B17 for Bills of Reinforcing Steel.



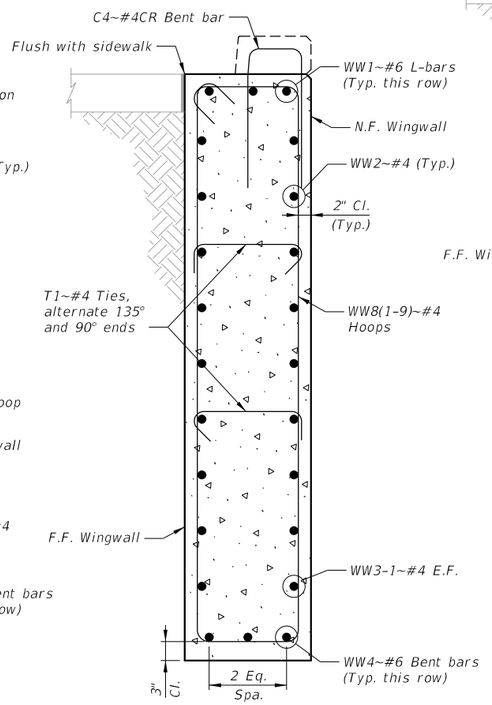
WINGWALL ELEVATION

Scale ~ ½" = 1'-0"
(Bent Extension reinforcing not shown for clarity)



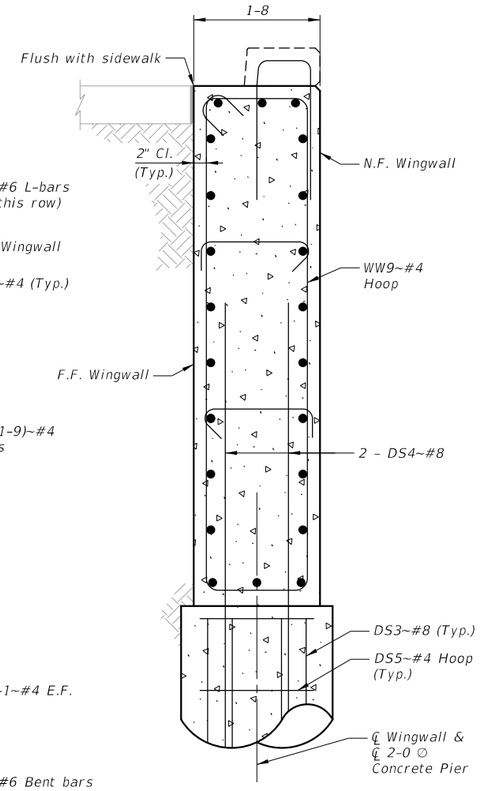
A / B16 **SECTION A**

Scale ~ 1" = 1'-0"



B / B16 **SECTION B**

Scale ~ 1" = 1'-0"



NOTE: See Section B this sheet for information not shown.

C / B16 **SECTION C**

Scale ~ 1" = 1'-0"

HDR

SHEET NO. B16

BENT NO. 1
WINGWALL DETAILS

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED				CHECKED	5-29-19	B.K.C.
REVISED				DRAWN	2-18-19	G.H.S.
REVISED				DESIGNED	2-18-19	P.C.J.
REVISED				...\8807000\bridtxt13.dgn		
7/16/2019	9:48:43 AM					

MONTANA DEPARTMENT OF TRANSPORTATION — MDT — BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

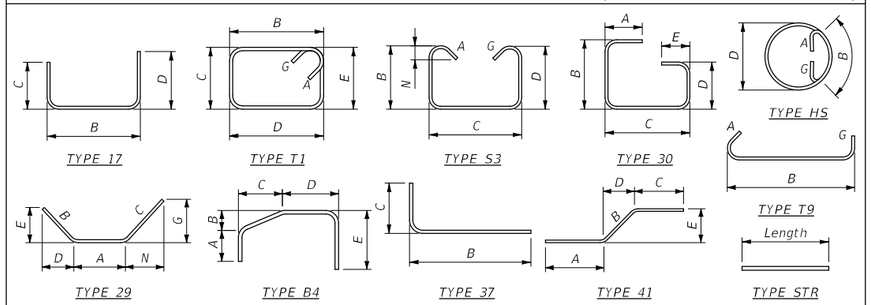
DRAWING NO.
23914

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

BILL OF REINFORCING STEEL

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



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
DS1	#11	12	STR	29-2							
DS2	#6	56	HS	11-10	8"	2-8		2-6		8"	
DS3	#8	6	STR	9-6							
DS4	#8	4	STR	8-0							
DS5	#4	11	HS	7-0	4½"	1-6		1-6		4½"	
B1	#6	9	37	11-10		10-10	1-0				
*B2	#6	6	37	13-8		12-8	1-0				
B3	#4	12	37	11-6		10-10	8"				
B4	#6	3	S3	13-2	8"	4-4	3-2	4-4		8"	4½"
B5	#6	9	T1	16-4	8"	3-2	4-4	3-2	4-4	8"	
*B6	#4	4	STR	2-10							
D101	#5CR	6	STR	40-0							
D102	#4	4	STR	38-0							
D103	#7	4	STR	38-0							
D104	#4CR	1	STR	14-10							
D1	#4CR	27	37	3-7		2-1	1-6				
D2	#4CR	31	30	8-11	1-0	3-4	1-6½	2-4½	8"		
D3	#4CR	13	T1	10-6	4½"	1-6½	3-4	1-6½	3-4	4½"	
D4	#4CR	1	30	16-6½	1-0	7-2	1-6½	6-2	8"		
WW1	#6	3	37	13-0		12-0	1-0				
WW2	#4	16	STR	14-11							
WW3-1	#4	2	STR	7-9							
WW3-2	#4	2	STR	12-4							
WW4	#6	3	41	15-0	3-3	9-3	2-6	9-1	1-6		
WW5	#5	6	29	9-7	7-11	10"	10"	7"	7"	7"	7"
WW6	#4	3	T1	18-5	4½"	1-4	7-6	1-4	7-6	4½"	
WW7	#4	1	T1	19-11	4½"	1-4	8-3	1-4	8-3	4½"	
WW8-1	#4	1	T1	19-9	4½"	1-4	8-2	1-4	8-2	4½"	
WW8-2	#4	1	T1	19-5	4½"	1-4	8-0	1-4	8-0	4½"	
WW8-3	#4	1	T1	19-1	4½"	1-4	7-10	1-4	7-10	4½"	
WW8-4	#4	1	T1	18-7	4½"	1-4	7-7	1-4	7-7	4½"	
WW8-5	#4	1	T1	18-3	4½"	1-4	7-5	1-4	7-5	4½"	
WW8-6	#4	1	T1	17-11	4½"	1-4	7-3	1-4	7-3	4½"	
WW8-7	#4	1	T1	17-5	4½"	1-4	7-0	1-4	7-0	4½"	
WW8-8	#4	1	T1	17-1	4½"	1-4	6-10	1-4	6-10	4½"	
WW8-9	#4	1	T1	16-9	4½"	1-4	6-8	1-4	6-8	4½"	
WW9	#4	4	T1	16-3	4½"	1-4	6-5	1-4	6-5	4½"	
WW10	#4	14	17	3-0		1-4	10"	10"			
C4	#4CR	13	B4	4-8	1-8	4"	1¼"	7¾"	2-0		
T1	#4	24	T9	2-2	4½"	1-5				4½"	
T2	#4	3	T9	4-0	4½"	3-3				4½"	

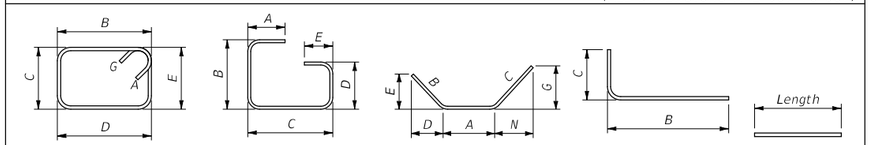
*NOTE: Based on minimum embedment of 1-8 for #6 bars and 10" for #4 bars. Adjust length based upon actual embedment.

NOTE: See Sheets No. B67 & No. B68 for C3~#4CR bent bars that are to be cast into the diaphragm.

NOTE: See Std. Dwg. SBR-OR42-PP for concrete parapet bars ABT1~#5CR, ABT2~#5CR, PT3~4CR & PT4~#5CR that are to be cast into the diaphragm.

BILL OF REINFORCING STEEL

BENT NO. 1 PHASE 2 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
D201	#5CR	6	STR	35-7							
D202	#4	1	STR	38-7							
D203	#7	1	STR	38-7							
D204	#4	1	STR	39-6							
D205	#7	1	STR	39-6							
D206	#4	2	STR	30-0							
D207	#7	2	STR	30-0							
D208	#4	2	STR	14-9							
D209	#7	2	STR	14-9							
D210	#4	5	STR	8-6							
D211	#7	5	STR	8-6							
D212	#4	12	STR	4-1							
D213	#4CR	1	STR	13-10							
D1	#4CR	24	37	3-7		2-1	1-6				
D2	#4CR	21	30	8-11	1-0	3-4	1-6½	2-4½	8"		
D3	#4CR	11	T1	10-6	4½"	1-6½	3-4	1-6½	3-4	4½"	
D4	#4CR	6	30	16-6½	1-0	7-2	1-6½	6-2	8"		
D5	#4	3	29	7-4	3-8	1-10	1-10	1-1	1-6	1-6	1-1
D6-1	#4	1	T1	13-2	4½"	1-6½	4-8	1-6½	4-8	4½"	
D6-2	#4	1	T1	14-4	4½"	1-6½	5-3	1-6½	5-3	4½"	
D6-3	#4	1	T1	15-4	4½"	1-6½	5-9	1-6½	5-9	4½"	
D6-4	#4	1	T1	16-4	4½"	1-6½	6-3	1-6½	6-3	4½"	
D6-5	#4	1	T1	17-4	4½"	1-6½	6-9	1-6½	6-9	4½"	
D7	#4	3	T1	17-10	4½"	1-6½	7-0	1-6½	7-0	4½"	
D8	#4CR	6	T1	17-10	4½"	1-6½	7-0	1-6½	7-0	4½"	
D9	#4	3	37	5-5		4-9	8"				

NOTE: See Sheets No. B67 & No. B68 for C3~#4CR bent bars that are to be cast into the diaphragm.

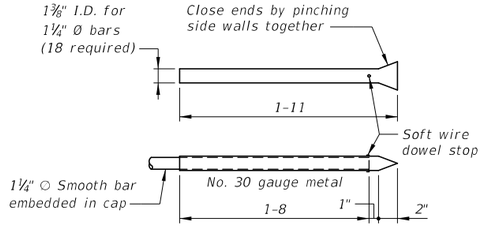
NOTES

Clean and coat cut anchor bolts per Standard Specifications or other approved alternate.

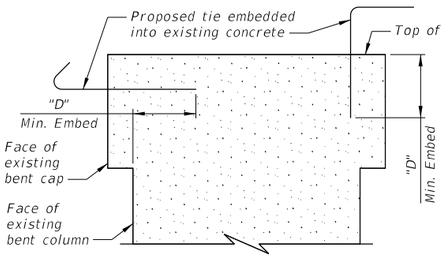
Adjust bar length as necessary to accommodate type and length of mechanical rebar connectors. Use in-line mechanical rebar connectors meeting Standard Specifications 711.18.

Layout holes for new reinforcing and smooth bars as shown on the plans using a pachometer, ground penetrating radar or other means to accurately locate existing reinforcing steel prior to drilling. Relocate holes in conflict with the existing reinforcing, as approved, to miss the existing reinforcing. Do not damage existing reinforcing steel while drilling holes. Coring holes is not permitted. Clean holes and install adhesive per adhesive manufacturer's recommendations.

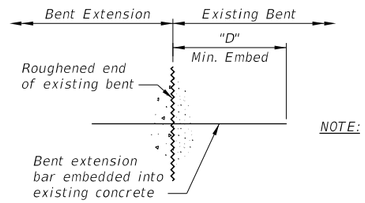
Drill and adhere smooth bars per Section 552.03.13 of the Standard Specifications. Submit adhesive for approval.



METAL EXPANSION CAP DETAIL
No Scale



EMBEDDED TIE BARS



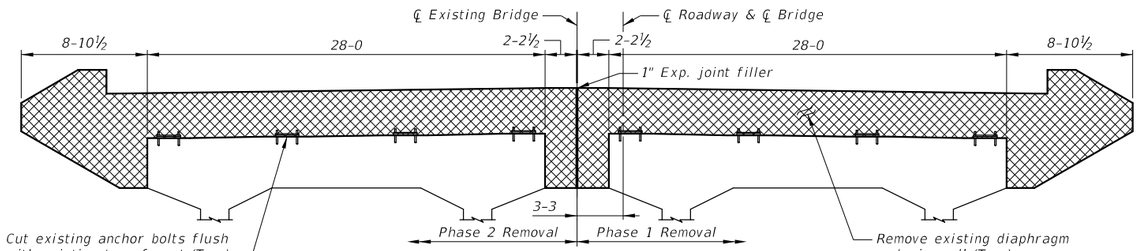
BENT EXTENSION BARS

MIN. EMBED DEPTHS	
Bar Size	"D"
#4	10"
#5	1-0
#6	1-8
#8	2-0

NOTE: Provide a minimum embedment "D" to meet the requirements of the qualified anchor system for sustained tension, but in no case less than the values shown in the table this sheet. See Special Provisions for sustained tension adhesive anchor system.

NOTE: Use adhesive anchors capable of developing the full yield of the reinforcing bar in uncracked concrete. Submit an evaluation service report showing the equivalent load capacity for the qualified adhesive anchor system at the proposed spacing and embedment length.

MINIMUM EMBEDMENT DETAILS
No Scale



EXISTING CONCRETE REMOVAL DETAIL
Scale ~ 3/16" = 1'-0"
(Looking Back on Line)

SHEET NO. B17

BENT NO. 1
DETAILS & BILLS OF
REINFORCING STEEL

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED	CHECKED	B.K.C. 5-29-19
REVISED	DRAWN	G.H.S. 2-18-19
REVISED	DESIGNED	P.C.J. 2-18-19
REVISED		...\8807000brbnt14.dgn

MONTANA DEPARTMENT OF TRANSPORTATION BRIDGE BUREAU
7/29/2019 9:31:54 AM

ROUTE
U-8113

REF POINT
0+0.239

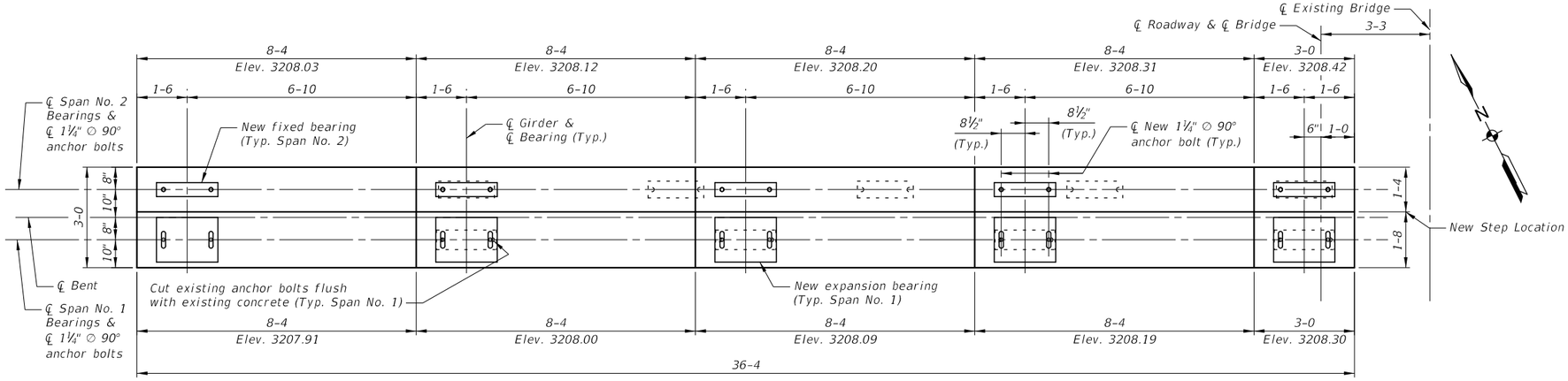
MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23915

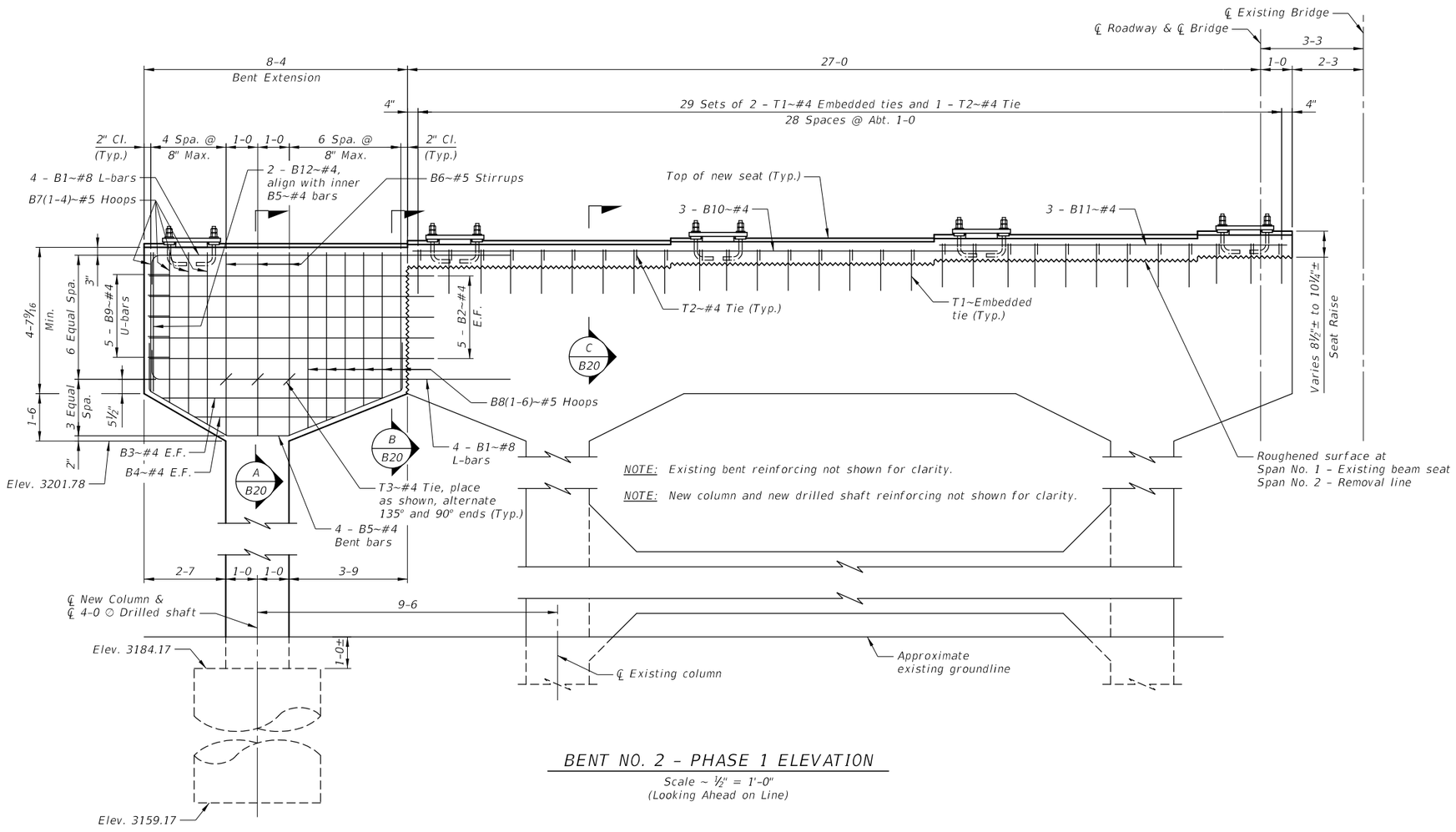
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



BENT NO. 2 – PHASE 1 PLAN

Scale ~ ½" = 1'–0"



BENT NO. 2 – PHASE 1 ELEVATION

Scale ~ ½" = 1'–0"
(Looking Ahead on Line)

NOTES

E.F. = Each Face

Finish beam seats level to elevations shown on drawing. Elevations shown are at top of concrete.

See Sheet No. B19 for Bent No. 2 existing concrete removal detail.

See Sheet No. B20 for column and drilled shaft details.

See Sheet No. B6 for concrete pay items, and additional notes.

See Sheet No. B17 for reinforcing embedment details and additional notes.

See Sheet No. B21 for Bill of Reinforcing Steel.

See Sheet No. B42 for anchor bolt details.

See Sheet No. B42 for rolled steel girder bearing details.

SHEET NO. B18

BENT NO. 2 - PHASE 1

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED			
REVISED			
REVISED			
REVISED			
CHECKED	3-20-19	P.C.J.	
DRAWN	1-21-19	G.H.S.	
DESIGNED	1-21-19	B.K.C.	

...8807000brbnt20.dgn

7/16/2019 9:38:44 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

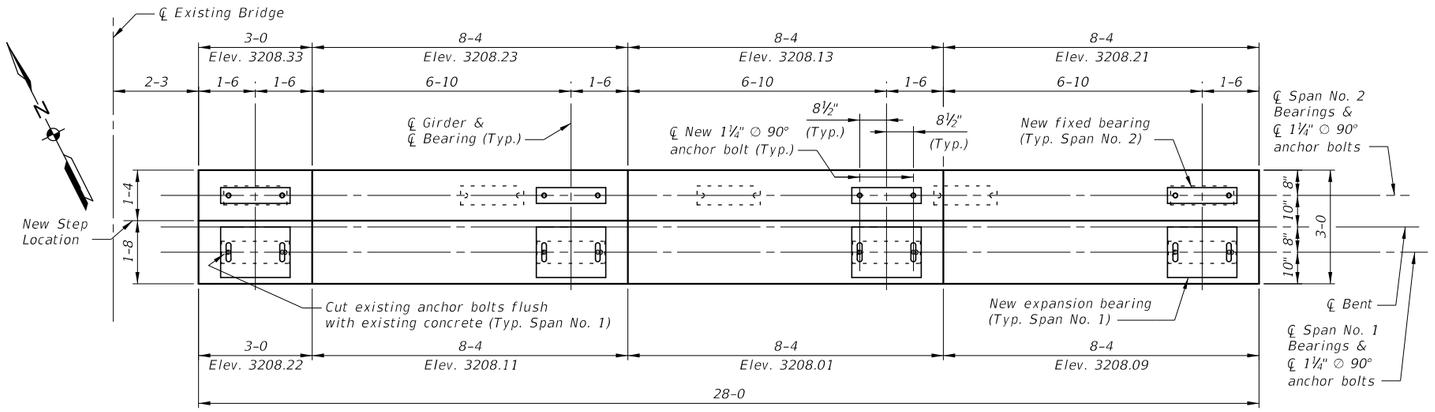
UPN NUMBER 8807000

DRAWING NO. 23916

HDR

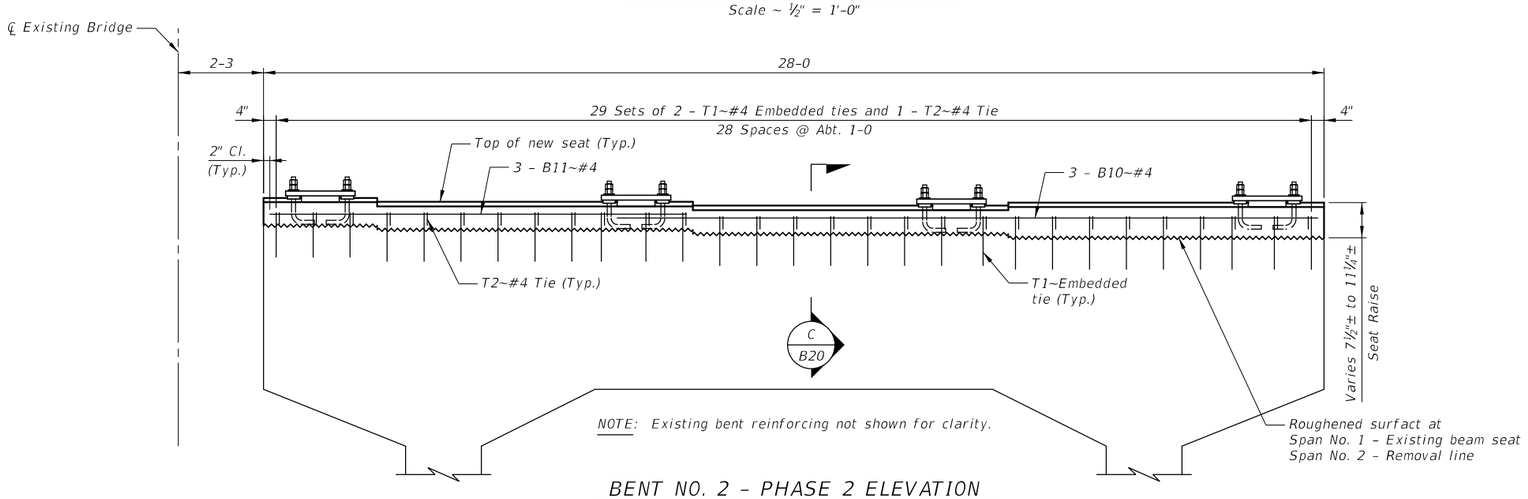
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



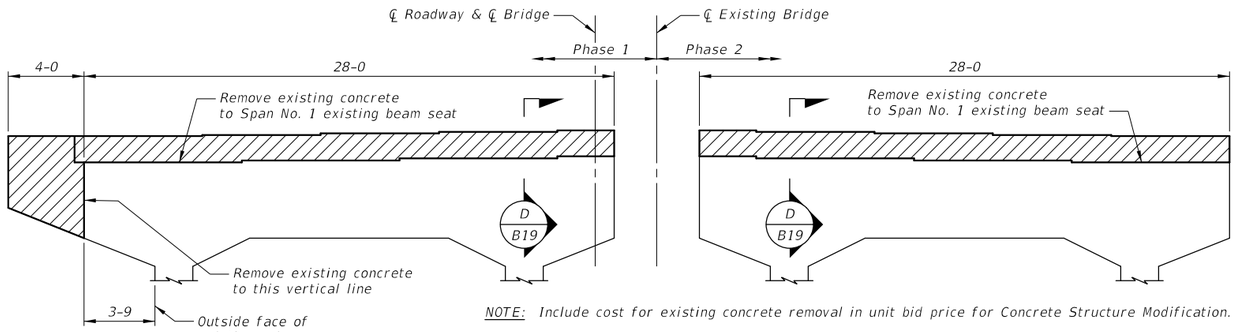
BENT NO. 2 – PHASE 2 PLAN

Scale ~ ½" = 1'–0"



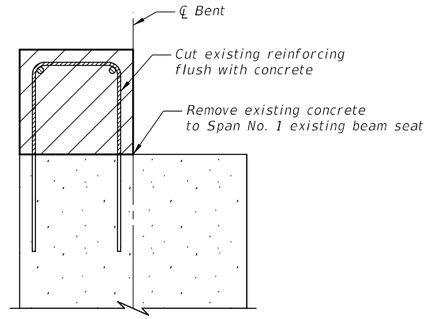
BENT NO. 2 – PHASE 2 ELEVATION

Scale ~ ½" = 1'–0"
(Looking Ahead on Line)



BENT NO. 2 EXISTING CONCRETE REMOVAL DETAIL

Scale ~ ¼" = 1'–0"
(Looking Ahead on Line)



D / B19 **SECTION D**
Scale ~ 1" = 1'–0"

NOTES

See Sheet No. B6 for concrete pay items, and additional notes.

See Sheet No. B17 for reinforcing embedment details and additional notes.

See Sheet No. B21 for Bill of Reinforcing Steel.

See Sheet No. B42 for anchor bolt details.

See Sheet No. B42 for rolled steel girder bearing details.

HDR

SHEET NO. B19

BENT NO. 2 - PHASE 2

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	...\8807000bbnt21.dgn
				P.C.J.	G.H.S.	B.K.C.	
				3-20-19	1-21-19	1-21-19	

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/16/2019 9:59:05 AM

ROUTE
U-8113

REF POINT
0+0.239

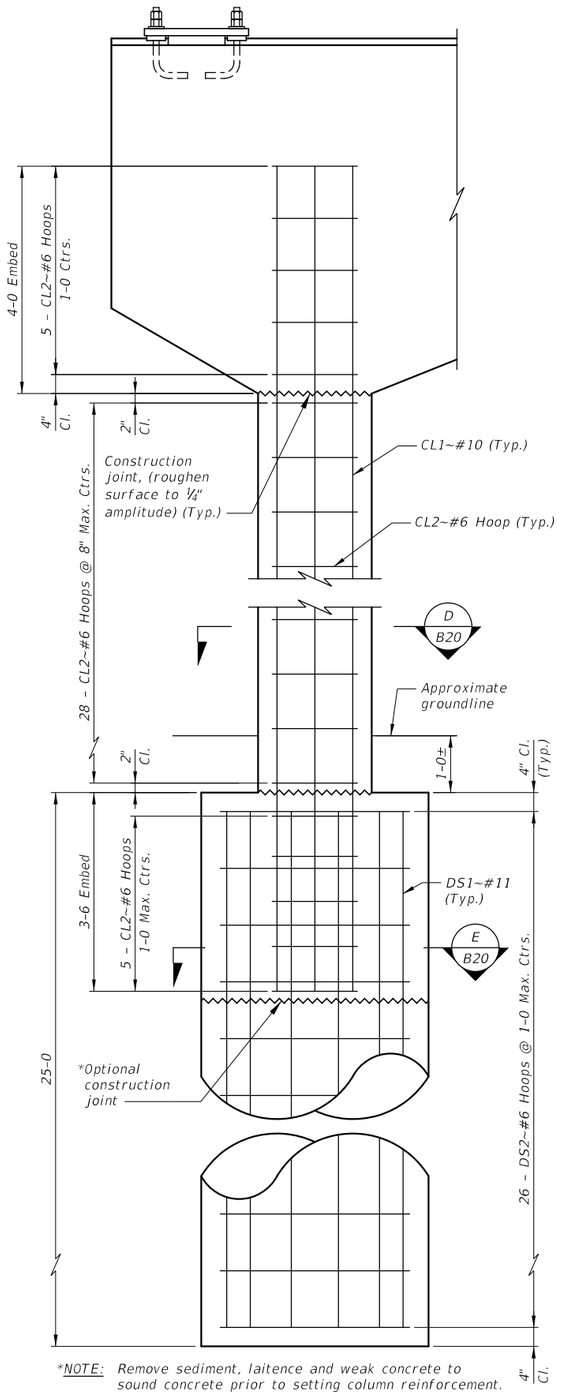
MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23917

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

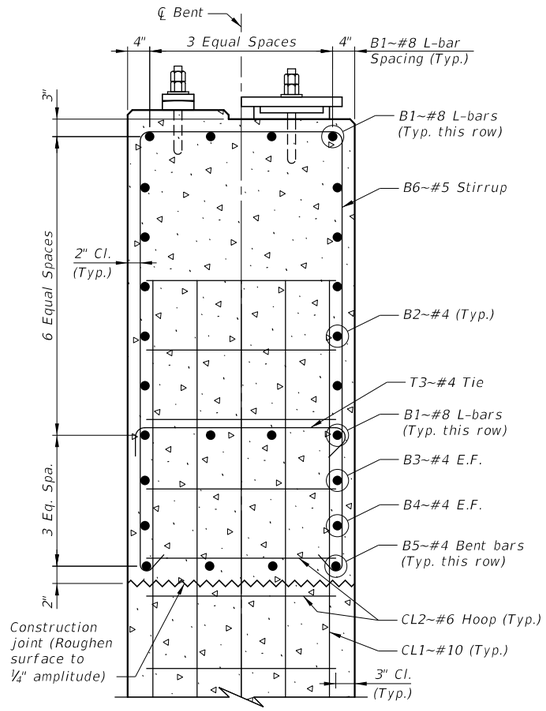
AWARD COPY



*NOTE: Remove sediment, laitence and weak concrete to sound concrete prior to setting column reinforcement.

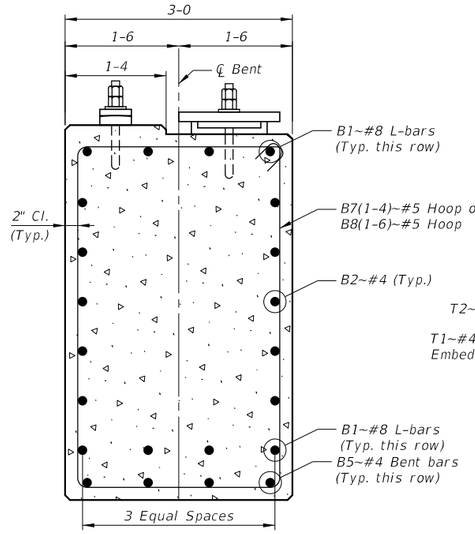
BENT NO. 2 – COLUMN AND DRILLED SHAFT

Scale ~ ¾" = 1'-0"



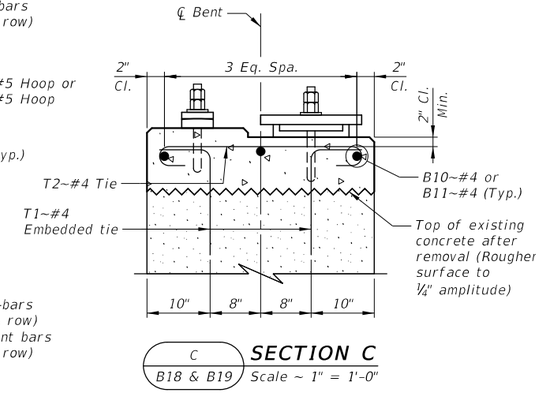
A B18 **SECTION AT COLUMN**

Scale ~ 1" = 1'-0"



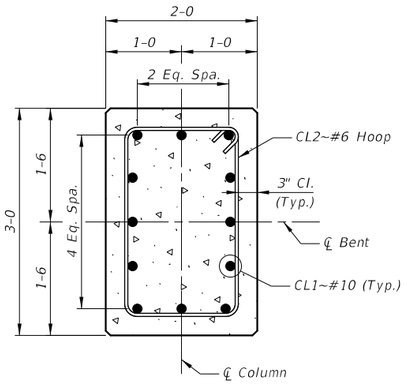
B B18 **SECTION AWAY FROM COLUMN**

Scale ~ 1" = 1'-0"



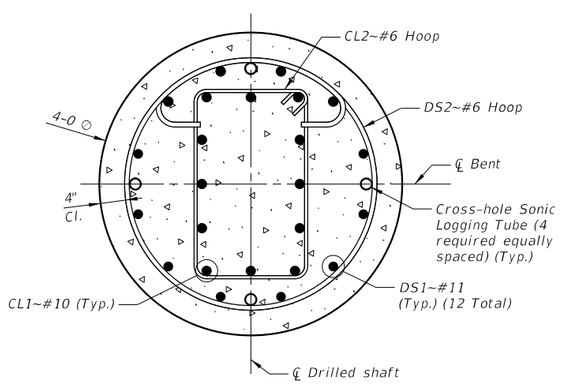
C B18 & B19 **SECTION C**

Scale ~ 1" = 1'-0"



D B20 **COLUMN SECTION**

Scale ~ 1" = 1'-0"



E B20 **DRILLED SHAFT SECTION**

Scale ~ 1" = 1'-0"

NOTES

E.F. = Each Face

Cross-hole Sonic Logging Tubes do not extend more than 1-8 above top of drilled shaft.

Rotate location of hooks on drilled shaft hoops DS2~#6 90° from adjacent hoops. Rotate hoops in one direction.

See Sheet No. B21 for Bills of Reinforcing Steel.

See Sheet No. B17 for reinforcing embedment details.

SHEET NO. B20

BENT NO. 2 DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		CHECKED	P.C.J. 3-20-19
REVISED		DRAWN	G.H.S. 1-21-19
REVISED		DESIGNED	B.K.C. 1-21-19
REVISED			...\8807000\brbnt22.dgn

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/16/2019 9:59:32 AM

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

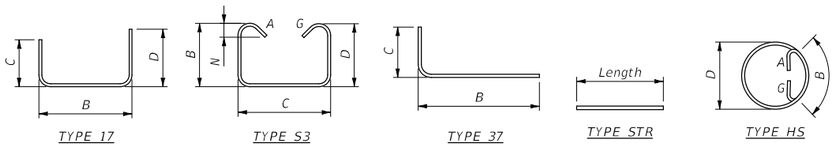
DRAWING NO. 23918

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

BILL OF REINFORCING STEEL

BENT NO. 2 PHASE 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

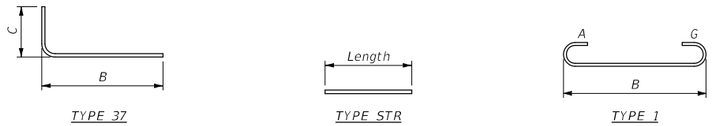


Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
DS1	#11	12	STR	24-4							
DS2	#6	26	HS	14-5	8"	2-7½		3-4		8"	
CL1	#10	12	STR	25-2							
CL2	#6	38	T1	9-4	8"	2-6	1-6	2-6	1-6	8"	
B1	#8	8	37	11-7		10-8	11"				
*B2	#4	10	STR	9-0							
B3	#4	2	STR	6-11							
B4	#4	2	STR	4-5							
B5	#4	4	14	11-8	1-6	2-10	1-11	3-11	1-6	1-5	8-0
B6	#5	3	S3	15-3	5½"	5-10	2-8	5-10		5½"	3"
B7-1	#5	1	T1	14-11	5½"	2-8	4-4	2-8	4-4	5½"	
B7-2	#5	1	T1	15-9	5½"	2-8	4-9	2-8	4-9	5½"	
B7-3	#5	1	T1	16-5	5½"	2-8	5-1	2-8	5-1	5½"	
B7-4	#5	1	T1	17-1	5½"	2-8	5-5	2-8	5-5	5½"	
B8-1	#5	1	T1	17-3	5½"	2-8	5-6	2-8	5-6	5½"	
B8-2	#5	1	T1	16-9	5½"	2-8	5-3	2-8	5-3	5½"	
B8-3	#5	1	T1	16-3	5½"	2-8	5-0	2-8	5-0	5½"	
B8-4	#5	1	T1	15-9	5½"	2-8	4-9	2-8	4-9	5½"	
B8-5	#5	1	T1	15-3	5½"	2-8	4-6	2-8	4-6	5½"	
B8-6	#5	1	T1	14-9	5½"	2-8	4-3	2-8	4-3	5½"	
B9	#4	5	17	5-8		2-8	1-6	1-6			
B10	#4	3	STR	18-2							
B11	#4	3	STR	11-0							
B12	#4	2	STR	4-3							
*T1	#4	58	37	1-11		1-5	6"				
T2	#4	29	1	2-8	6"	2-8				6"	
T3	#4	3	T9	3-6	4½"	2-9				4½"	

*NOTE: Based on minimum embedment of 10" for #4 bars. Adjust length based upon actual embedment.

BILL OF REINFORCING STEEL

BENT NO. 2 PHASE 2 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
B10	#4	3	STR	18-0							
B11	#4	3	STR	11-0							
*T1	#4	58	37	1-11		1-5	6"				
T2	#4	29	1	3-8	6"	2-8				6"	

*NOTE: Based on embedment of 10" for #4 bars. Adjust length based upon actual embedment.

HDR

SHEET NO. B21

BENT NO. 2 BILLS OF REINFORCING STEEL

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED				CHECKED	3-20-19 P.C.J.
REVISED				DRAWN	1-21-19 G.H.S.
REVISED				DESIGNED	1-21-19 B.K.C.
REVISED					...8807000bbnt23.dgn

MONTANA MDT DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

7/16/2019 9:59:55 AM

ROUTE U-8113

REF POINT 0+0.239

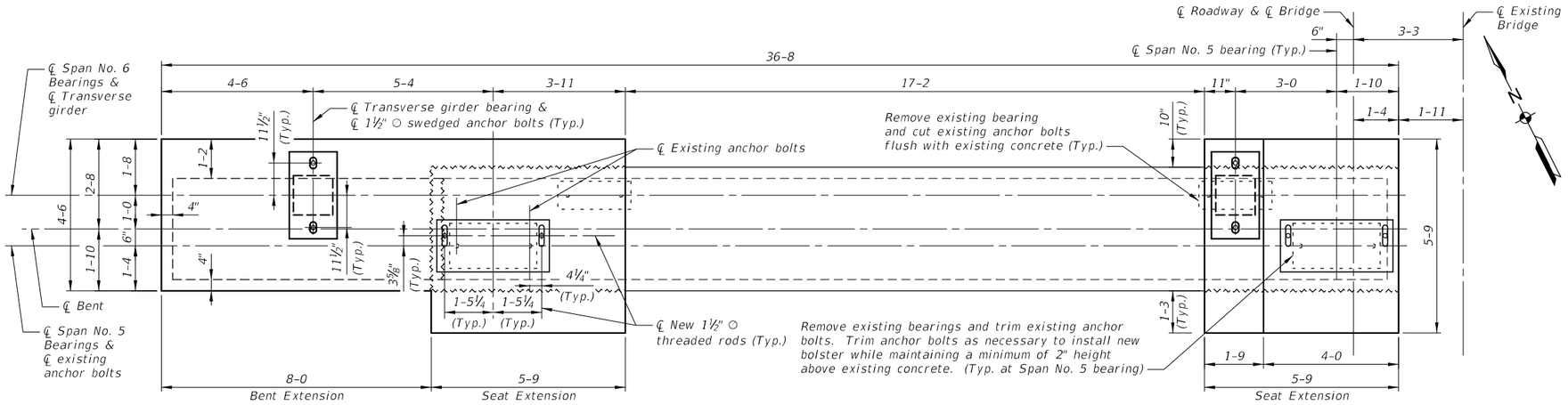
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23919

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

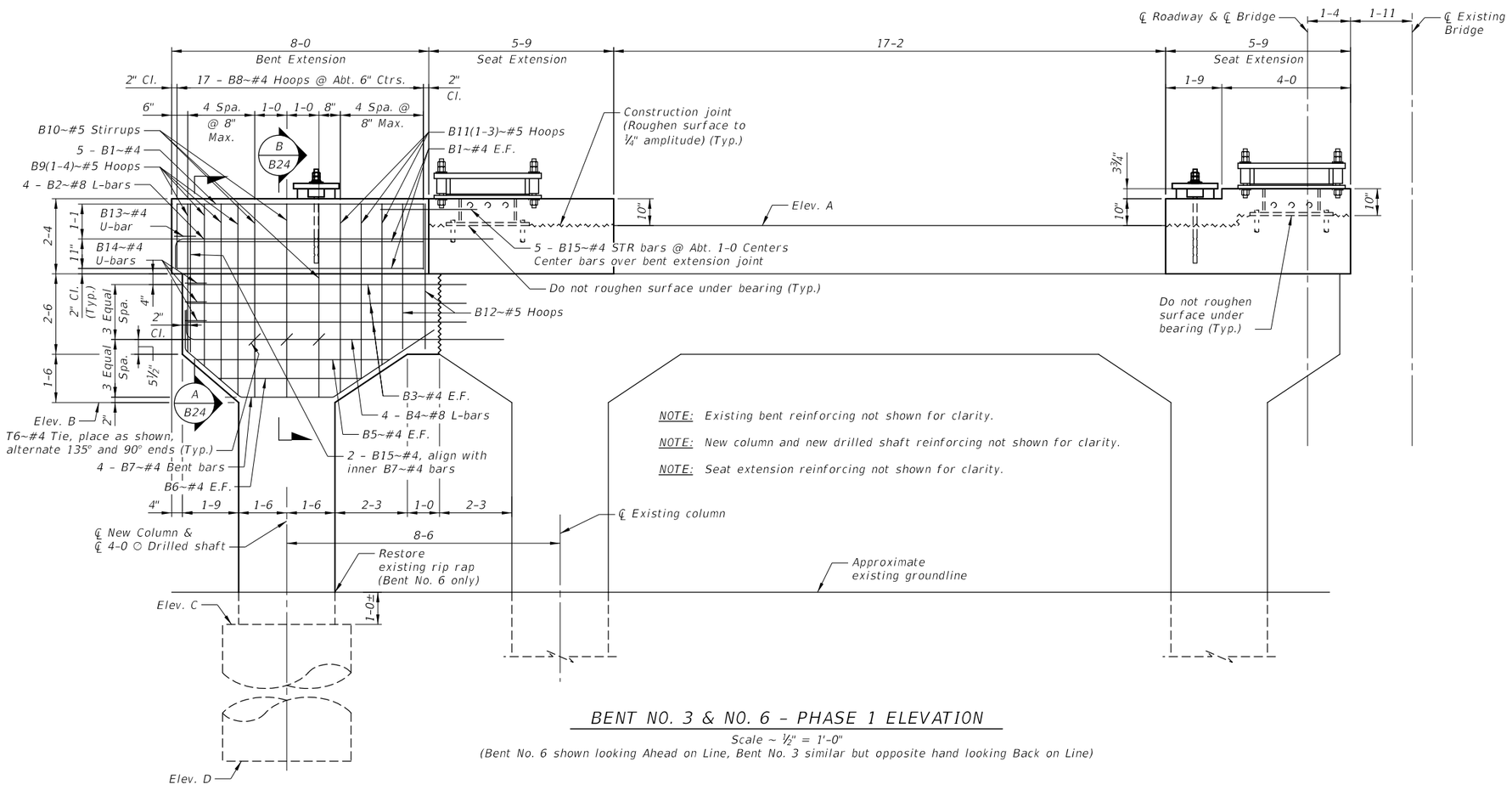
AWARD COPY



BENT NO. 3 & NO. 6 – PHASE 1 PLAN

Scale ~ ½" = 1'-0"

(Bent No. 6 shown, Bent No. 3 similar but mirrored about ℄ Bent)



BENT NO. 3 & NO. 6 – PHASE 1 ELEVATION

Scale ~ ½" = 1'-0"

(Bent No. 6 shown looking Ahead on Line, Bent No. 3 similar but opposite hand looking Back on Line)

NOTES

E.F. = Each Face

Complete seat extensions prior to placing deck in Spans No. 3 thru No. 5.

Finish beam seats level to elevations shown on drawing. Elevations shown are at top of concrete.

See Sheet No. B6 for concrete pay items and additional notes.

See Sheet No. B17 for reinforcing embedment details and additional notes.

See Sheet No. B24 for column and drilled shaft details.

See Sheet Nos. B25 for seat extension details.

See Sheet No. B26 for Bills of Reinforcing Steel.

See Sheet No. B43 for anchor bolt details.

See Sheet No. B43 for transverse girder bearing details.

See Sheet No. B44 for existing steel girder bearing details.

TABLE OF ELEVATIONS

Elevation	Bent No. 3	Bent No. 6
A	3202.00	3195.30
B	3196.50	3189.90
C	3183.30	3182.50
D	3158.30	3157.50

HDR

SHEET NO. B22

BENTS NO. 3 & NO. 6 - PHASE 1

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		CHECKED	P.C.J. 3-20-19
REVISED		DRAWN	G.H.S. 1-21-19
REVISED		DESIGNED	B.K.C. 1-21-19

...8807000brbnt230.dgn

7/16/2019 10:14:13 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

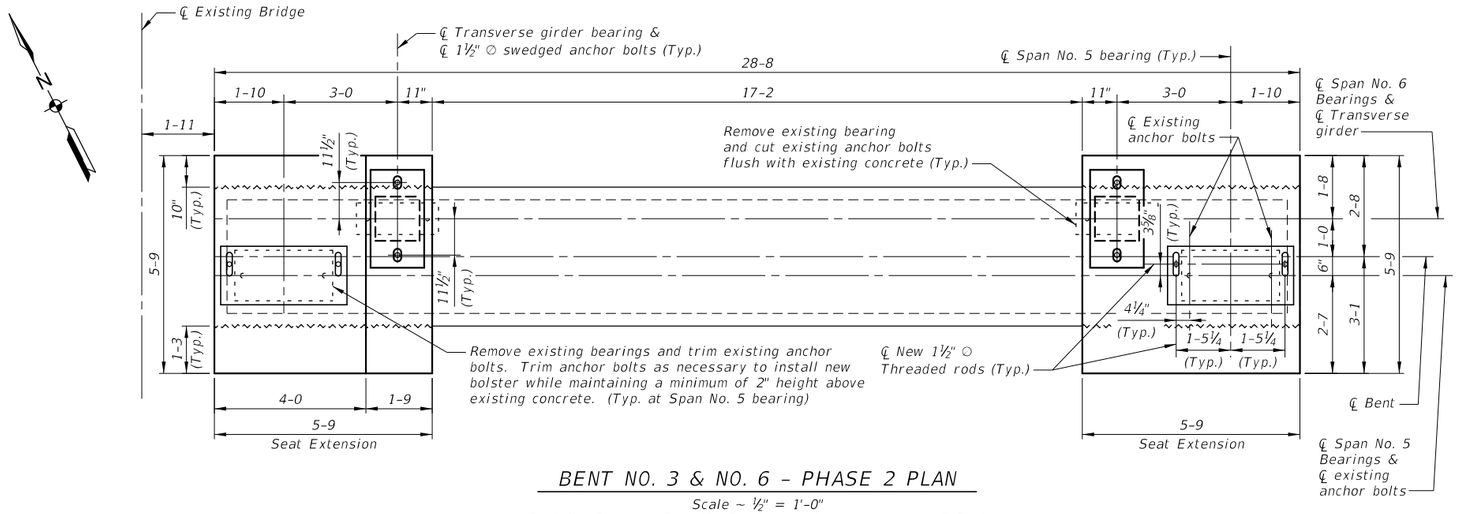
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23920

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

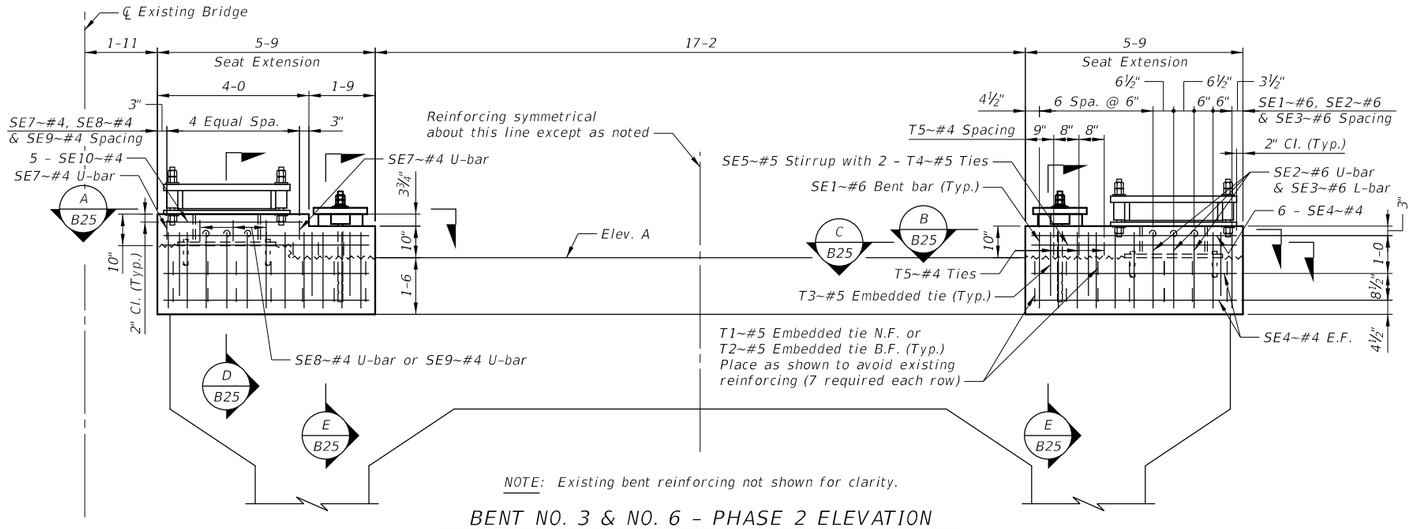
AWARD COPY



BENT NO. 3 & NO. 6 - PHASE 2 PLAN

Scale ~ ½" = 1'-0"

(Bent No. 6 shown, Bent No. 3 similar but mirrored about ℄ Bent)



NOTE: Existing bent reinforcing not shown for clarity.

BENT NO. 3 & NO. 6 - PHASE 2 ELEVATION

Scale ~ ½" = 1'-0"

(Bent No. 6 shown looking Ahead on Line, Bent No. 3 similar but opposite hand looking Back on Line)

NOTES

N.F. = Near Face
B.F. = Back Face
E.F. = Each Face

Finish beam seats level to elevations shown on drawing. Elevations shown are at top of concrete.

Complete seat extensions prior to placing deck in Spans No. 3 thru No. 5.

See Sheet No. B6 for concrete pay items, and additional notes.

See Sheet No. B17 for reinforcing embedment details and additional notes.

See Sheet No. B26 for Bills of Reinforcing Steel.

See Sheet No. B43 for anchor bolt details.

See Sheet No. B43 for transverse girder bearing details.

See Sheet No. B44 for existing steel girder bearing details.

TABLE OF ELEVATIONS		
Elevation	Bent No. 3	Bent No. 6
A	3202.00	3195.30

HDR

SHEET NO. B23

BENTS NO. 3 & NO. 6 - PHASE 2

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

	J.C.M.	3-21-19
	G.H.S.	1-21-19
	B.K.C.	1-21-19
REVISED	CHECKED	
REVISED	DRAWN	
REVISED	DESIGNED	
REVISED		

...8807000brdnt23.dgn

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/16/2019 10:14:37 AM

ROUTE U-8113

REF POINT 0+0.239

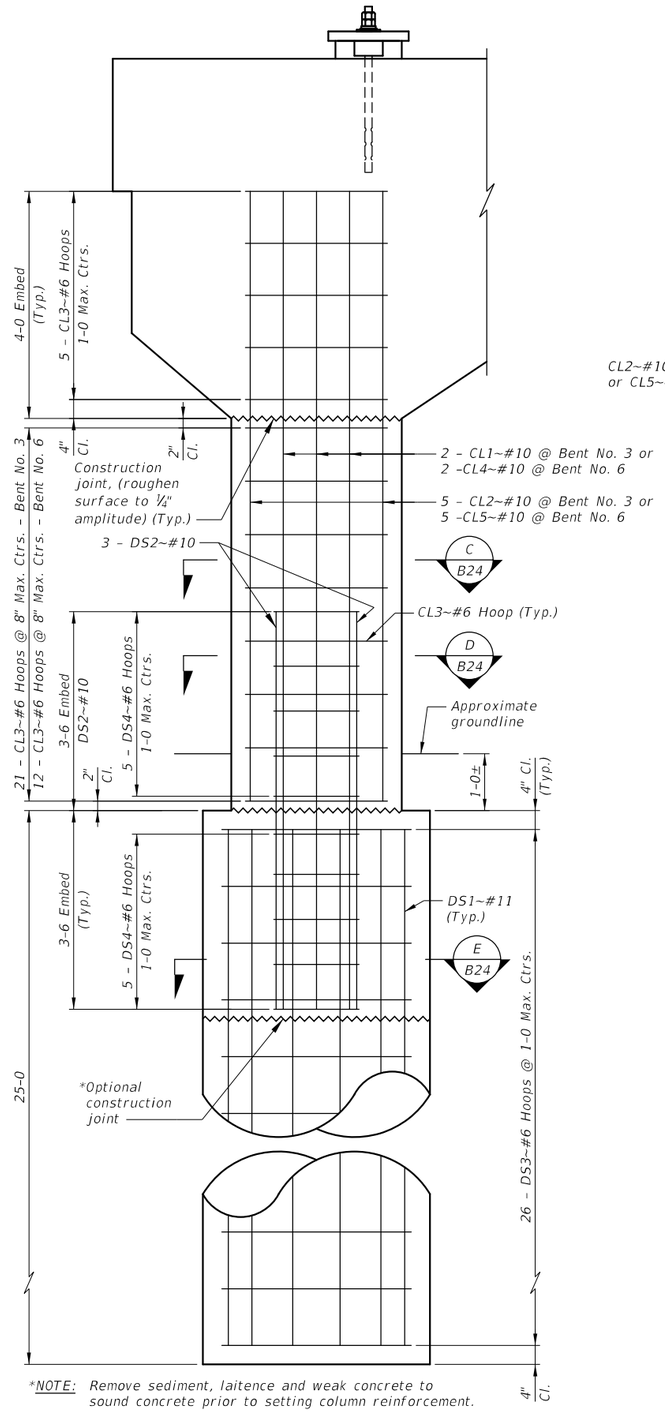
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23921

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

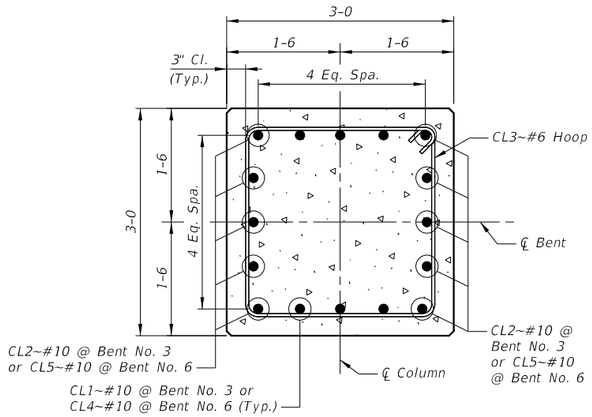
AWARD COPY



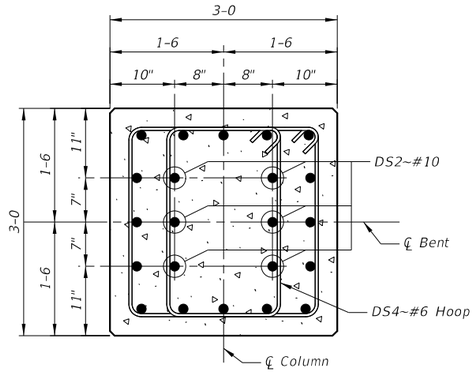
*NOTE: Remove sediment, laitence and weak concrete to sound concrete prior to setting column reinforcement.

BENTS NO. 3 & NO. 6 - COLUMN AND DRILLED SHAFT

Scale ~ ¾" = 1'-0"
(Bent No. 6 shown, Bent No. 3 similar)

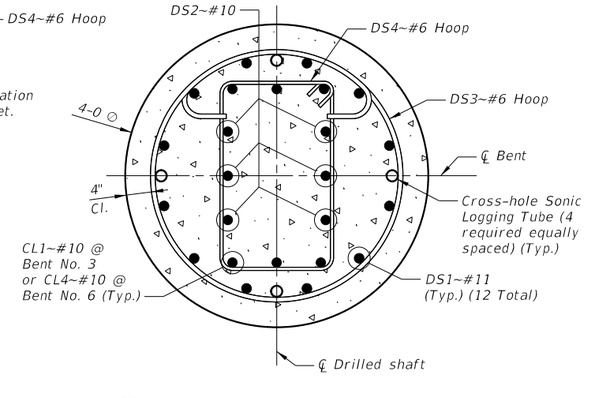


C B24 **COLUMN SECTION**
Scale ~ 1" = 1'-0"

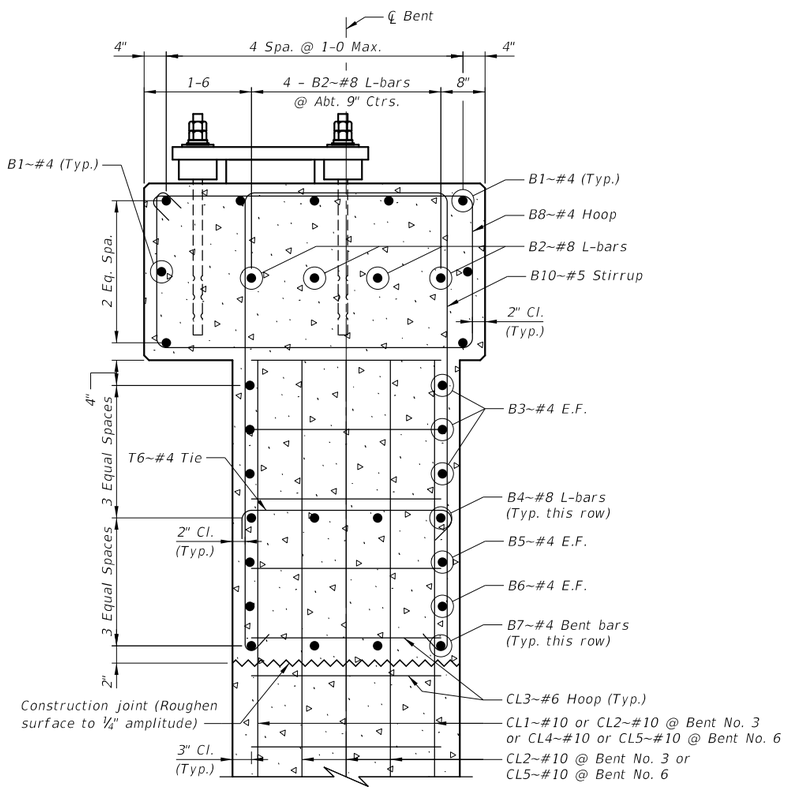


NOTE: See Section C this sheet for information not called out in Section D this sheet.

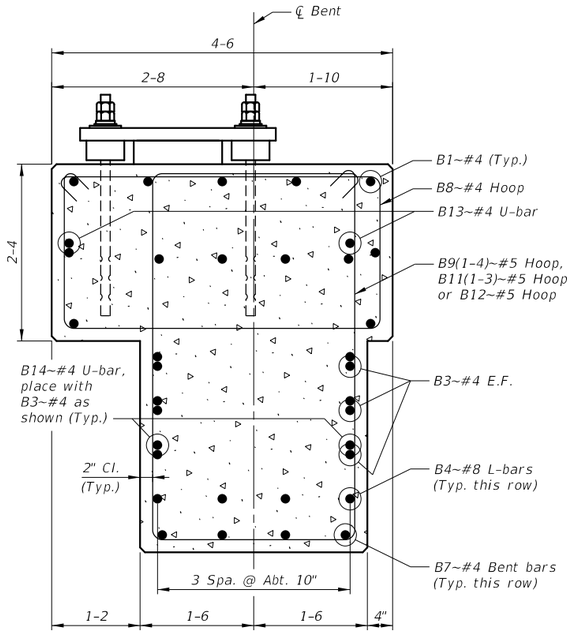
D B24 **COLUMN SECTION**
Scale ~ 1" = 1'-0"



E B24 **DRILLED SHAFT SECTION**
Scale ~ 1" = 1'-0"



B B22 **SECTION AT COLUMN**
Scale ~ 1" = 1'-0"



A B22 **SECTION AWAY FROM COLUMN**
Scale ~ 1" = 1'-0"

NOTES

Cross-hole Sonic Logging Tubes do not extend more than 1-8 above top of drilled shaft.

Rotate location of hooks on drilled shaft hoops DS3~#6 90° from adjacent hoops. Rotate hoops in one direction.

See Sheet No. B26 for Bills of Reinforcing Steel.

HDR

SHEET NO. B24

BENTS NO. 3 & NO. 6 DETAILS (SHEET 1 OF 2)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED			
REVISED			
REVISED			
REVISED		CHECKED	P.C.J. 3-20-19
		DRAWN	G.H.S. 1-21-19
		DESIGNED	B.K.C. 1-21-19

...8807000\brdrt32.dgn 10:15:02 AM 7/16/2019

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

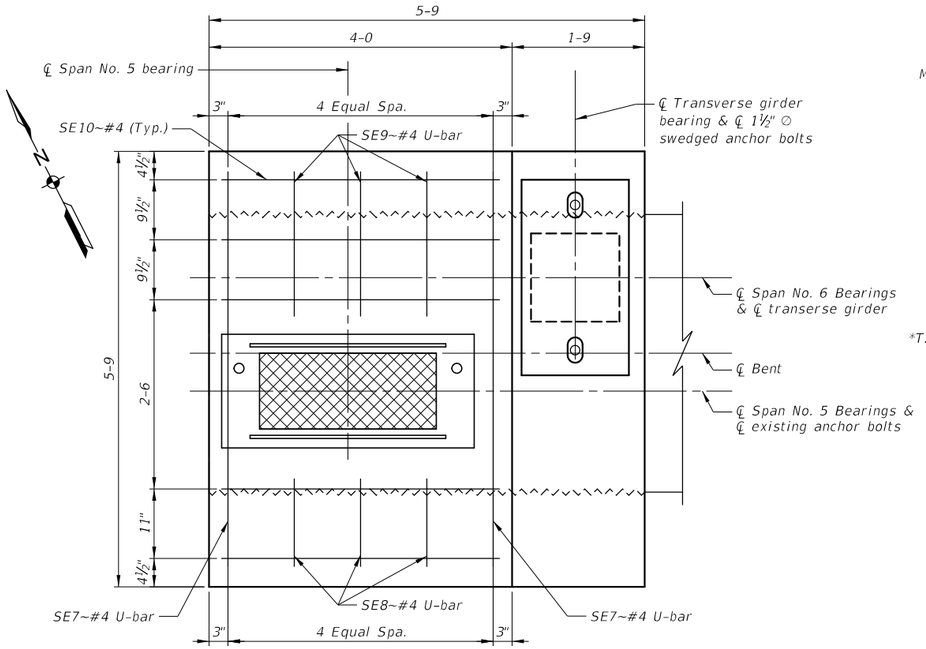
MDT STR. ID 07011

UPN NUMBER 8807000

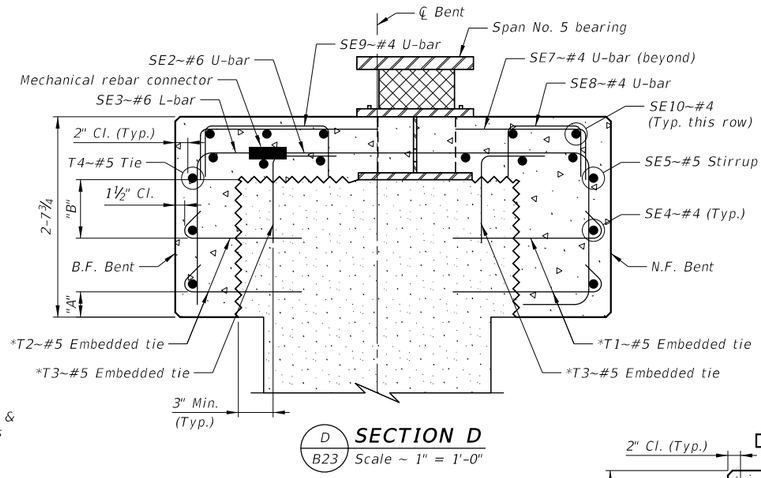
DRAWING NO. 23922

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



A B23 **VIEW A**
Scale ~ 1" = 1'-0"



D B23 **SECTION D**
Scale ~ 1" = 1'-0"

*NOTE: Place embedded ties as shown to avoid existing reinforcing. For the horizontal embedded ties, the vertical position may be adjusted as follows:

Dimension "A" – Minimum of 4" to a maximum of 6"

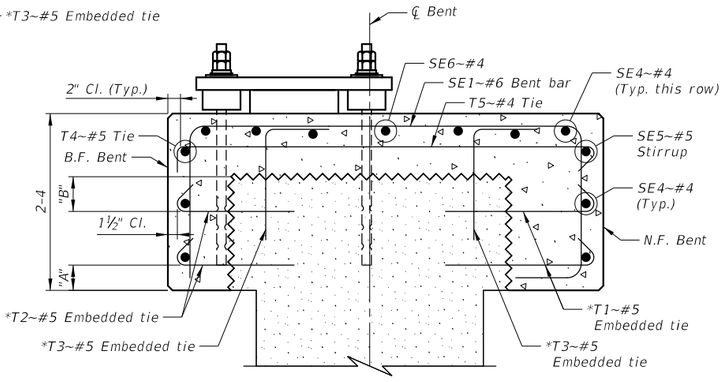
Dimension "B" – Minimum of 4" to a mazimum of 7"

NOTES

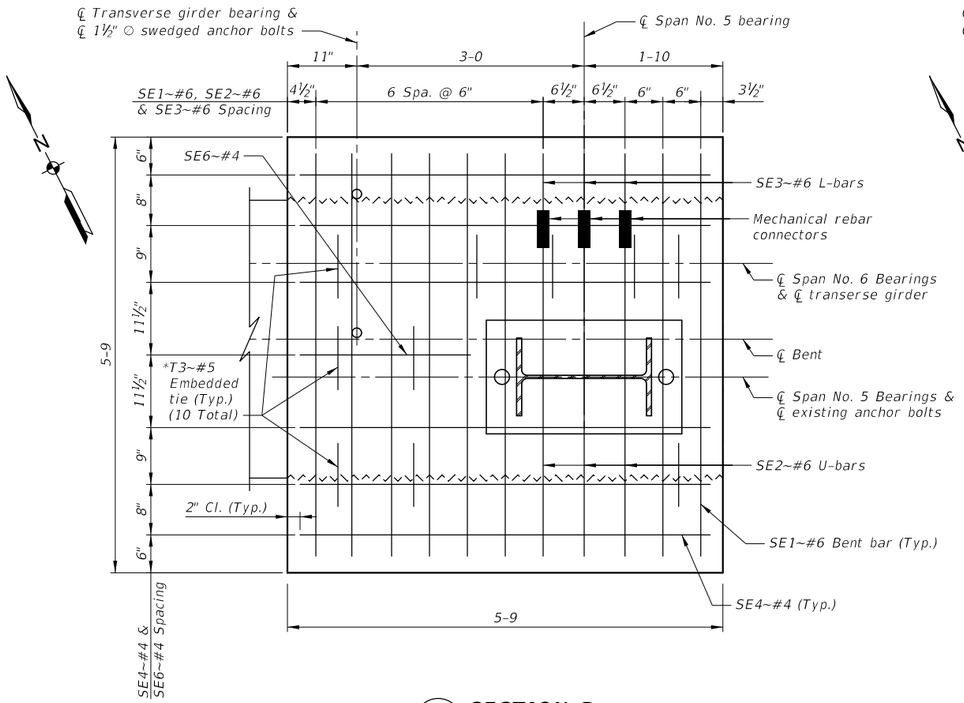
N.F. = Near Face
B.F. = Back Face

See Sheet No. B17 for reinforcing embedment details.

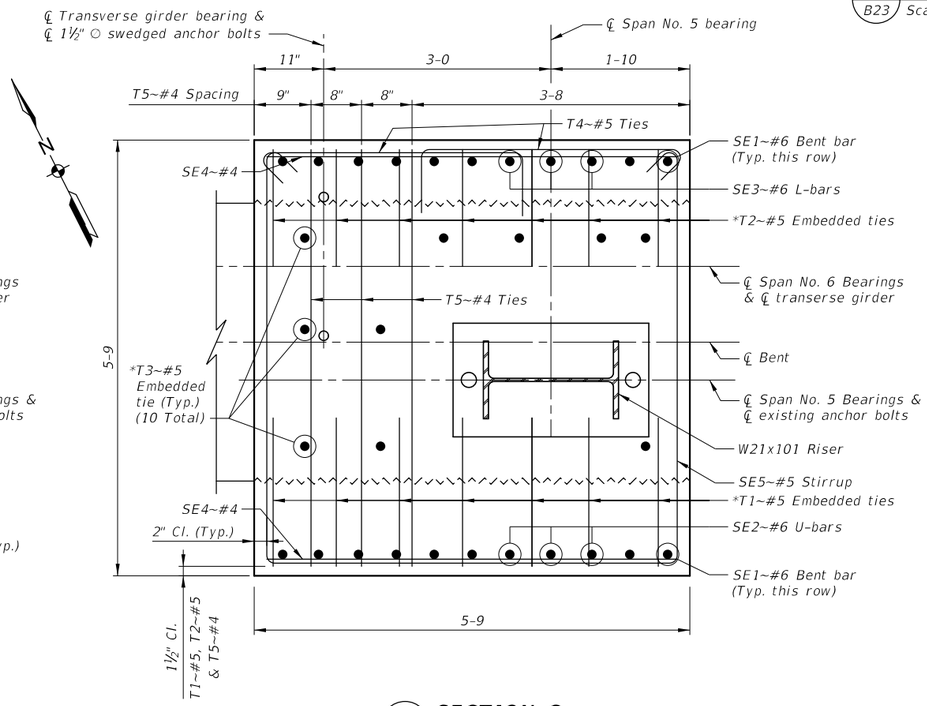
See Sheet No. B26 for Bills of Reinforcing Steel.



E B23 **SECTION E**
Scale ~ 1" = 1'-0"



B B23 **SECTION B**
Scale ~ 1" = 1'-0"



C B23 **SECTION C**
Scale ~ 1" = 1'-0"

HDR

SHEET NO. B25

BENTS NO. 3 & NO. 6
DETAILS (SHEET 2 OF 2)

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED		CHECKED	3-21-19 J.C.M.
REVISED		DRAWN	1-21-19 G.H.S.
REVISED		DESIGNED	1-21-19 B.K.C.

...88070000brdnt23.dgn
7/16/2019 10:15:30 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

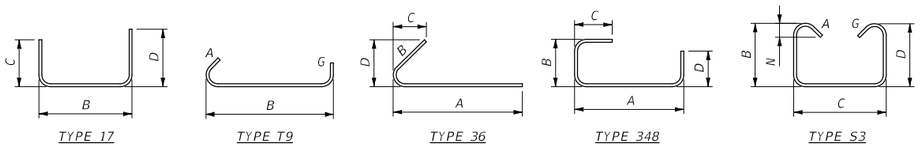
DRAWING NO.
23923

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

BILL OF REINFORCING STEEL

BENTS NO. 3 & NO. 6 PHASE 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

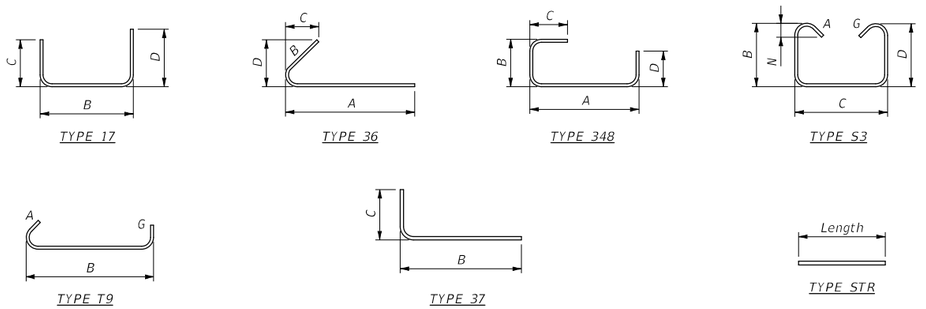


Mark	Size	Bent No. 3 No.	Bent No. 6 No.	Type	Length	A	B	C	D	E	G	N
DS1	#11	12	12	STR	24-4							
DS2	#10	6	6	STR	7-0							
DS3	#6	26	26	HS	14-5	8"	2-7½		3-4		8"	
DS4	#6	10	10	T1	9-4	8"	2-6	1-6	2-6	1-6	8"	
CL1	#10	6		STR	20-9							
CL2	#10	10		STR	17-0							
CL3	#6	26	17	T1	11-4	8"	2-6	2-6	2-6	2-6	8"	
CL4	#10		6	STR	14-11							
CL5	#10		10	STR	11-3							
B1	#4	9	9	STR	7-8							
*B2	#8	4	4	37	10-10		9-10	11"				
*B3	#4	6	6	STR	8-8							
*B4	#8	4	4	37	10-10		9-10	11"				
B5	#4	2	2	STR	6-1							
B6	#4	2	2	STR	4-6							
B7	#4	4	4	99	10-1	2-10	1-8	3-2	1-5	1-3	2-1	
B8	#4	17	17	T1	13-1	4½"	4-2	2-0	4-2	2-0	4½"	
B9-1	#5	1	1	T1	18-1	5½"	2-8	5-11	2-8	5-11	5½"	
B9-2	#5	1	1	T1	17-1	5½"	2-8	5-5	2-8	5-5	5½"	
B9-3	#5	1	1	T1	16-3	5½"	2-8	5-0	2-8	5-0	5½"	
B9-4	#5	1	1	T1	15-5	5½"	2-8	4-7	2-8	4-7	5½"	
B10	#5	3	3	S3	15-7	5½"	6-0	2-8	6-0		5½"	3"
B11-1	#5	1	1	T1	17-11	5½"	2-8	5-10	2-8	5-10	5½"	
B11-2	#5	1	1	T1	16-11	5½"	2-8	5-4	2-8	5-4	5½"	
B11-3	#5	1	1	T1	15-11	5½"	2-8	4-10	2-8	4-10	5½"	
B12	#5	2	2	T1	14-11	5½"	2-8	4-4	2-8	4-4	5½"	
B13	#4	1	1	17	7-2		4-2	1-6	1-6			
B14	#4	3	3	17	5-8		2-8	1-6	1-6			
B15	#4	5	5	STR	3-0							
SE1	#6	16	16	348	10-0½	5-3½	2-0	9"	2-0			
SE2	#6	6	6	17	7-3		2-0	9"	4-6			
SE3	#6	6	6	37	2-11		2-0	11"				
SE4	#4	20	20	STR	5-5							
SE5	#5	2	2	S3	17-2	5½"	5-5	5-5	5-5		5½"	3¾"
SE6	#4	2	2	STR	2-3							
SE7	#4	2	2	17	6-1		5-1	6"	6"			
SE8	#4	3	3	17	2-1		1-1	6"	6"			
SE9	#4	3	3	17	2-9		1-9	6"	6"			
SE10	#4	5	5	STR	3-8							
*T1	#5	28	28	36	2-7	2-1½	5½"	3¾"	3¾"			
*T2	#5	28	28	36	2-2	1-8½	5½"	3¾"	3¾"			
*T3	#5	20	20	37	2-6		1-8	10"				
T4	#5	4	4	T9	4-3½	3-4			6"		5½"	
T5	#4	6	6	T9	6-3	5-6			4½"		4½"	
T6	#4	3	3	T9	3-6	4½"	2-9				4½"	

*NOTE: Based on minimum embedment of 10" for #4 bars, 1-0 for #5 bars, & 2-0 for #8 bars. Adjust length based upon actual embedment.

BILL OF REINFORCING STEEL

BENTS NO. 3 & NO. 6 PHASE 2 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	Bent No. 3 No.	Bent No. 6 No.	Type	Length	A	B	C	D	E	G	N
SE1	#6	16	16	348	10-0½	5-3½	2-0	9"	2-0			
SE2	#6	6	6	17	7-3		2-0	9"	4-6			
SE3	#6	6	6	37	2-11		2-0	11"				
SE4	#4	20	20	STR	5-5							
SE5	#5	2	2	S3	17-2	5½"	5-5	5-5	5-5		5½"	3¾"
SE6	#4	2	2	STR	2-3							
SE7	#4	2	2	17	6-1		5-1	6"	6"			
SE8	#4	3	3	17	2-1		1-1	6"	6"			
SE9	#4	3	3	17	2-9		1-9	6"	6"			
SE10	#4	5	5	STR	3-8							
*T1	#5	28	28	36	2-7	2-1½	5½"	3¾"	3¾"			
*T2	#5	28	28	36	2-2	1-8½	5½"	3¾"	3¾"			
*T3	#5	20	20	37	2-6		1-8	10"				
T4	#5	4	4	T9	4-3½	3-4			6"		5½"	
T5	#4	6	6	T9	6-3	5-6			4½"		4½"	

*NOTE: Based on minimum embedment of 10" for #4 bars, 1-0 for #5 bars, & 2-0 for #8 bars. Adjust length based upon actual embedment.

NOTES

Adjust bar length as necessary to accommodate type and length of mechanical rebar connectors. Use in-line mechanical rebar connectors meeting Standard Specification 711.18.

SHEET NO. B26

BENTS NO. 3 & NO. 6 BILLS OF REINFORCING STEEL

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		
REVISED		
REVISED		
REVISED		
CHECKED	3-20-19	P.C.J.
DRAWN	1-21-19	G.H.S.
DESIGNED	1-21-19	B.K.C.

...18807000brbnt234.dgn
7/16/2019 10:15:57 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

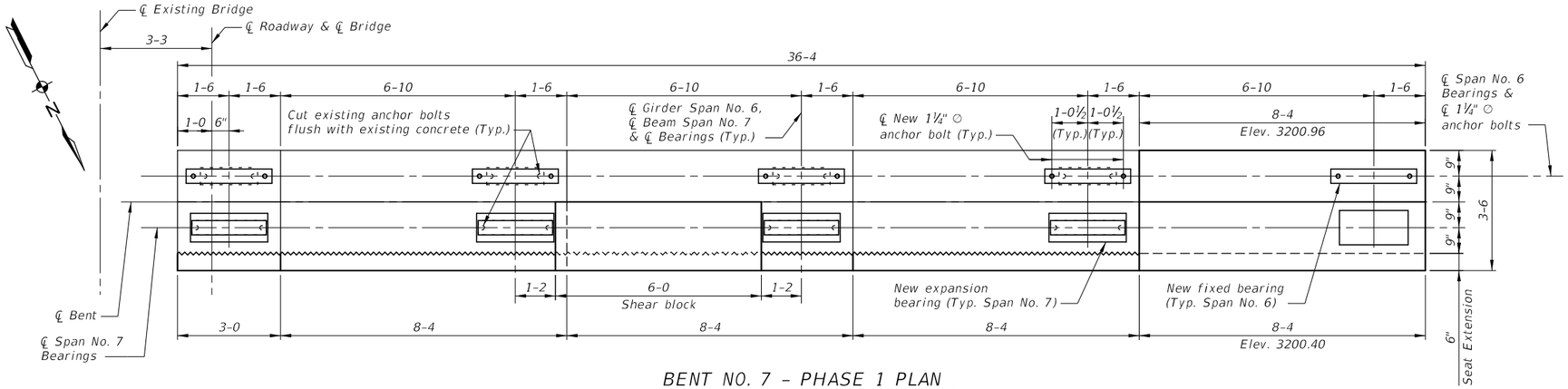
UPN NUMBER 8807000

DRAWING NO. 23924

HDR

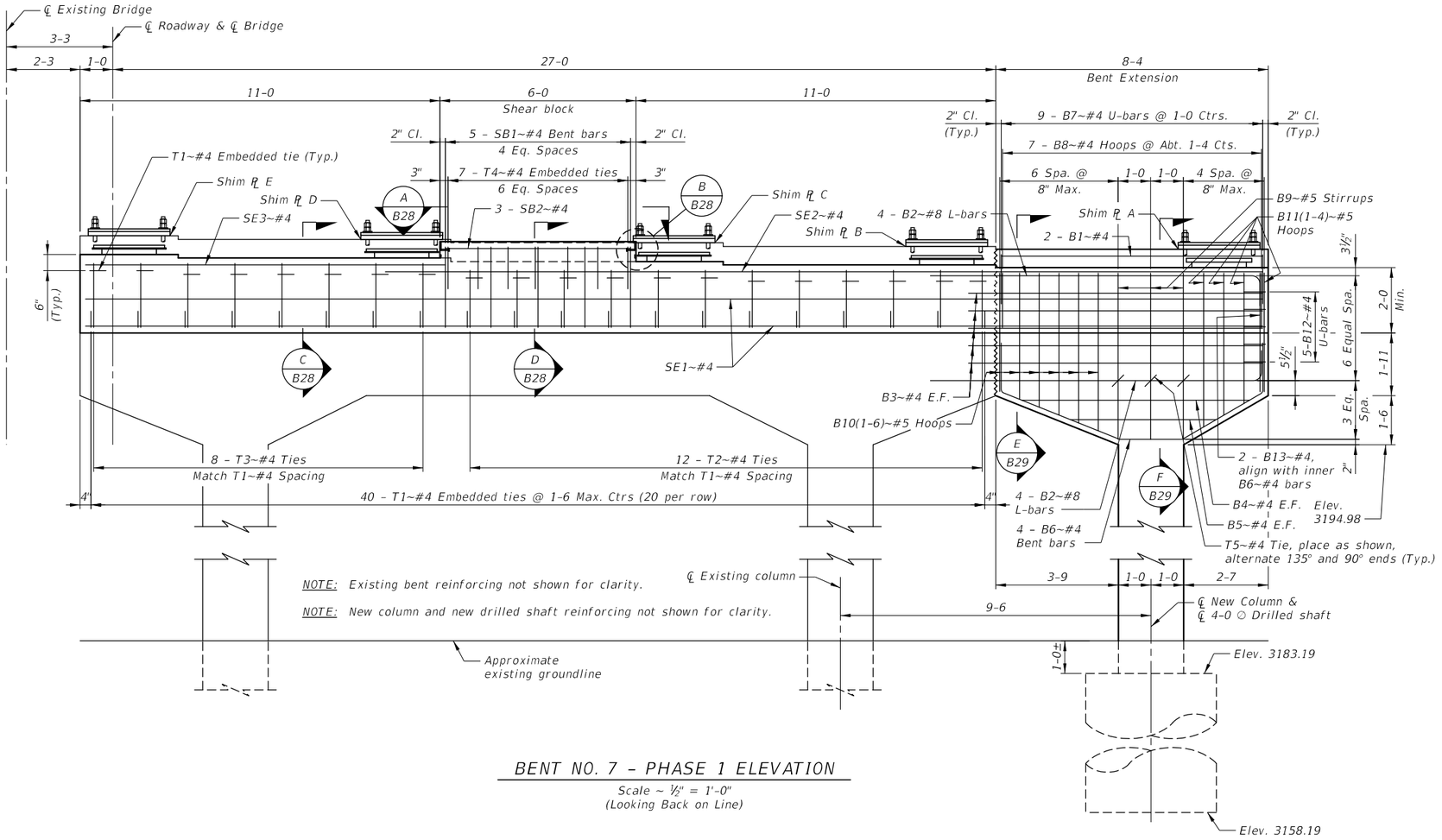
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



BENT NO. 7 - PHASE 1 PLAN

Scale ~ ½" = 1'-0"



NOTE: Existing bent reinforcing not shown for clarity.

NOTE: New column and new drilled shaft reinforcing not shown for clarity.

BENT NO. 7 - PHASE 1 ELEVATION

Scale ~ ½" = 1'-0"
(Looking Back on Line)

NOTES

E.F. = Each Face

Finish beam seats level to elevations shown on drawing. Elevations shown are at top of concrete.

Clean and coat cut anchor bolt ends per Standard Specifications or other approved alternative.

See Sheet No. B6 for concrete pay items, and additional notes.

See Sheet No. B17 for reinforcing embedment details and additional notes.

See Sheet No. B29 for column and drilled shaft details.

See Sheet No. B30 for Bill of Reinforcing Steel.

See Sheet No. B42 for anchor bolt details.

See Sheet No. B42 for rolled steel girder bearing details.

See Sheet No. B45 for Type A prestressed concrete beam bearing details.

SHIM PLATE THICKNESS	
Shim Plate	Thickness
A	1⅝"
B	1⅝"
C	1¼"
D	1⁵⁄₁₆"
E	1¼"

SHEET NO. B27

BENT NO. 7 - PHASE 1

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		
REVISED		
REVISED		
REVISED		
CHECKED	3-23-19	P.C.J.
DRAWN	1-21-19	G.H.S.
DESIGNED	1-21-19	B.K.C.

...\8807000brbntz40.dgn

7/16/2019 10:26:43 AM

MONTANA MDT DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

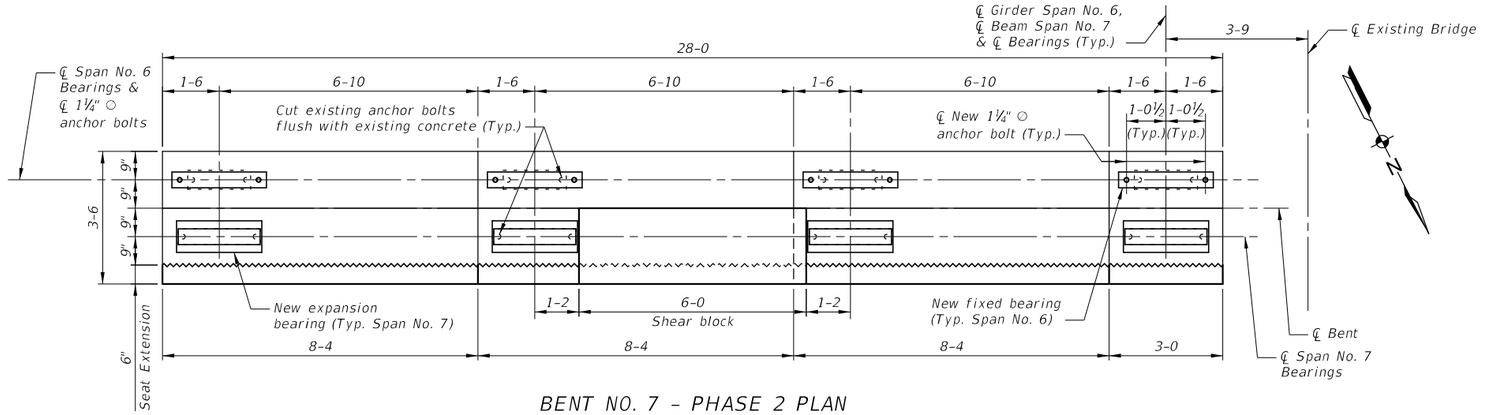
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23925

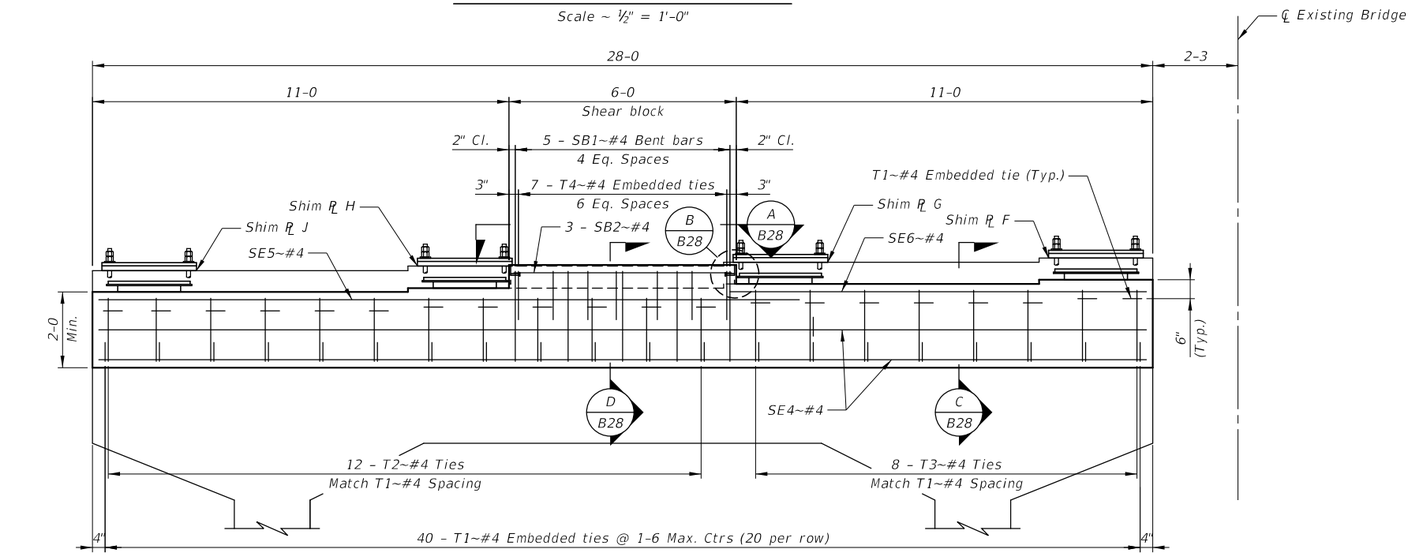
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



BENT NO. 7 - PHASE 2 PLAN

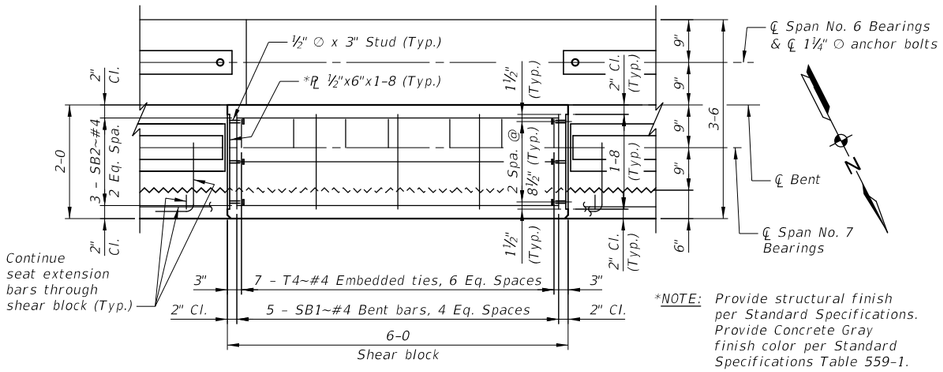
Scale ~ ½" = 1'-0"



NOTE: Existing bent reinforcing not shown for clarity.

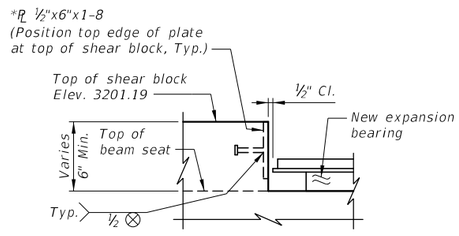
BENT NO. 7 - PHASE 2 ELEVATION

Scale ~ ½" = 1'-0"
(Looking Back on Line)



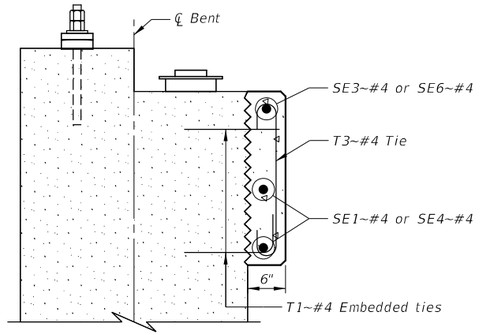
*NOTE: Provide structural finish per Standard Specifications. Provide Concrete Gray finish color per Standard Specifications Table 559-1.

A / B27 & B28 **SHEAR BLOCK PLAN**
Scale ~ ¾" = 1'-0"

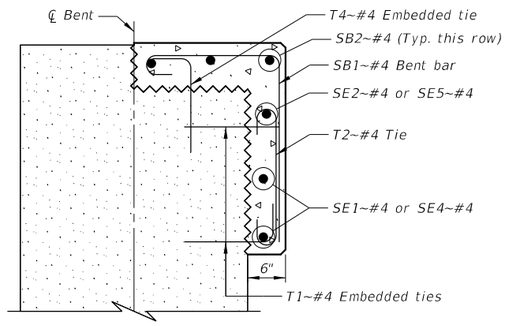


NOTE: Reinforcing not shown for clarity.

B / B27 & B28 **DETAIL B**
Scale ~ 1½" = 1'-0"



C / B27 & B28 **SECTION C**
Scale ~ 1" = 1'-0"



D / B27 & B28 **SECTION D**
Scale ~ 1" = 1'-0"

NOTES

Clean and coat cut anchor bolt ends per Standard Specifications or other approved alternative.

See Sheet No. B6 for concrete pay items, and additional notes.

See Sheet No. B17 for reinforcing embedment details and additional notes.

See Sheet No. B30 for Bill of Reinforcing Steel.

See Sheet No. B42 for anchor bolt details.

See Sheet No. B42 for rolled steel girder bearing details.

See Sheet No. B45 for Type A prestressed concrete beam bearing details.

SHIM PLATE THICKNESS

Shim Plate	Thickness
F	¼"
G	5/16"
H	5/16"
J	2 1/16"

SHEET NO. B28

BENT NO. 7 - PHASE 2

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

				P.C.J.	3-23-19	REVISED
				G.H.S.	1-21-19	REVISED
				B.K.C.	1-21-19	REVISED
				CHECKED		REVISED
				DRAWN		
				DESIGNED		

...\8807000\bbntz41.dgn
10:27:07 AM
7/16/2019

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

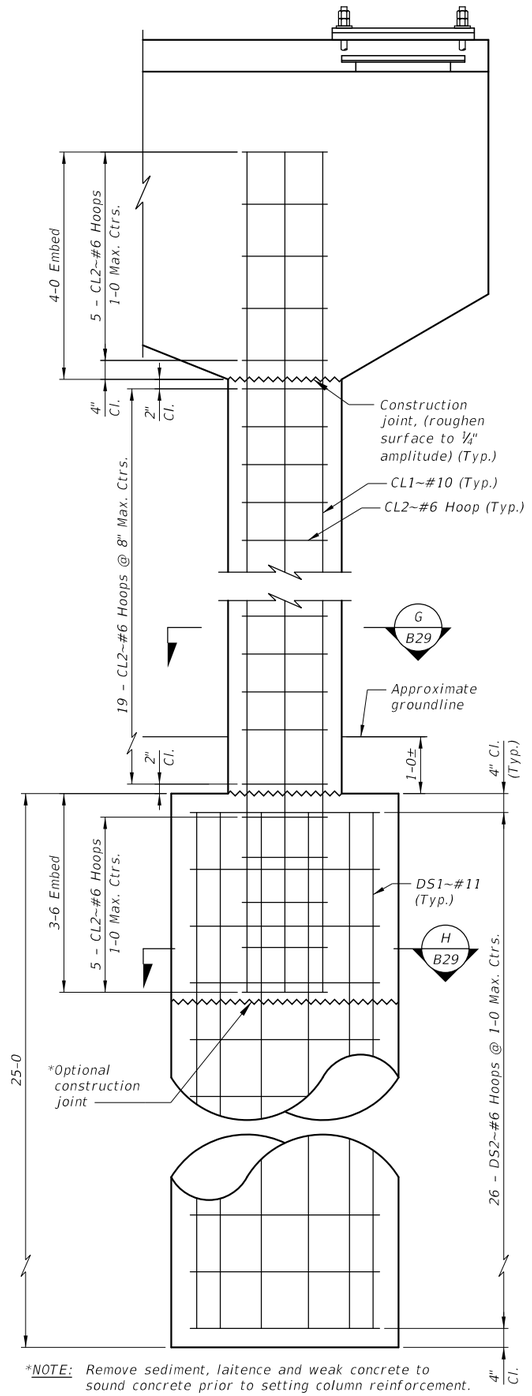
UPN NUMBER
8807000

DRAWING NO.
23926

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

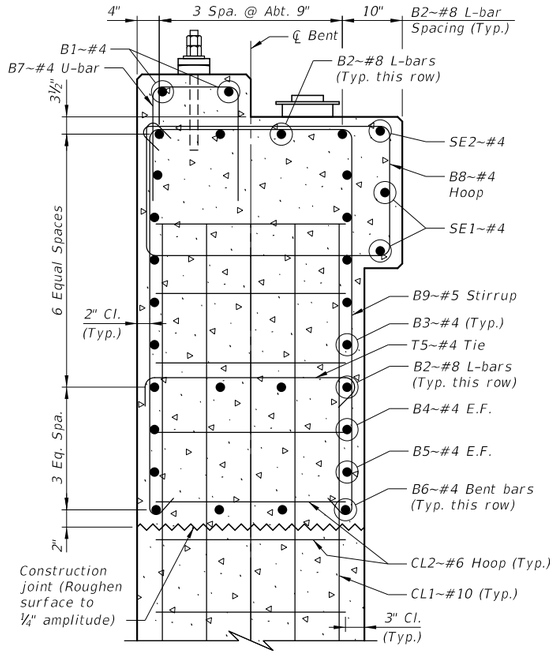
AWARD COPY



*NOTE: Remove sediment, laitence and weak concrete to sound concrete prior to setting column reinforcement.

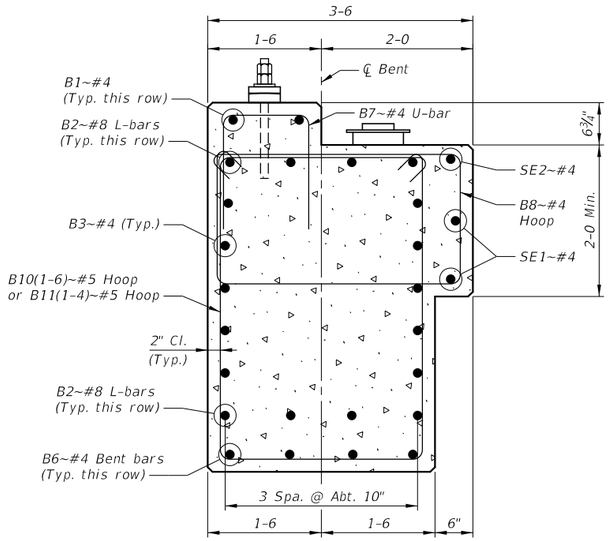
BENT NO. 7 – COLUMN AND DRILLED SHAFT

Scale ~ ¾" = 1'-0"



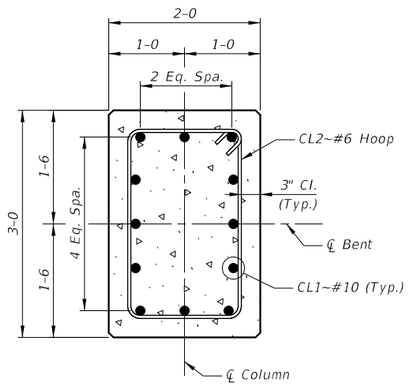
F / B27 **SECTION AT COLUMN**

Scale ~ 1" = 1'-0"



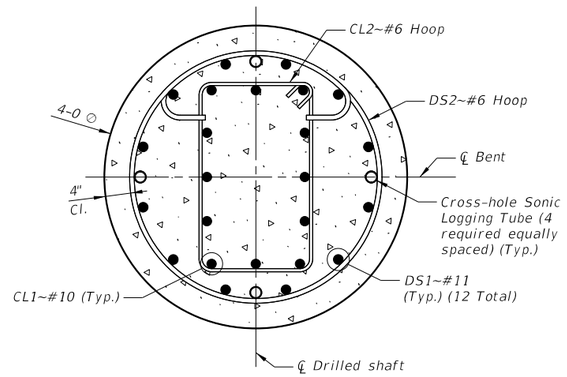
E / B27 **SECTION AWAY FROM COLUMN**

Scale ~ 1" = 1'-0"



G / B29 **COLUMN SECTION**

Scale ~ 1" = 1'-0"



H / B29 **DRILLED SHAFT SECTION**

Scale ~ 1" = 1'-0"

NOTES

E.F. = Each Face

Cross-hole Sonic Logging Tubes do not extend more than 1-8 above top of drilled shaft.

Rotate location of hooks on drilled shaft hoops DS2~#6 90° from adjacent hoops. Rotate hoops in one direction.

See Sheet No. B30 for Bills of Reinforcing Steel.

HDR

SHEET NO. B29

BENT NO. 7 DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		CHECKED	P.C.J. 3-21-19
REVISED		DRAWN	G.H.S. 1-21-19
REVISED		DESIGNED	B.K.C. 1-21-19

...8807000brdrt42.dgn 10:27:33 AM 7/16/2019

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

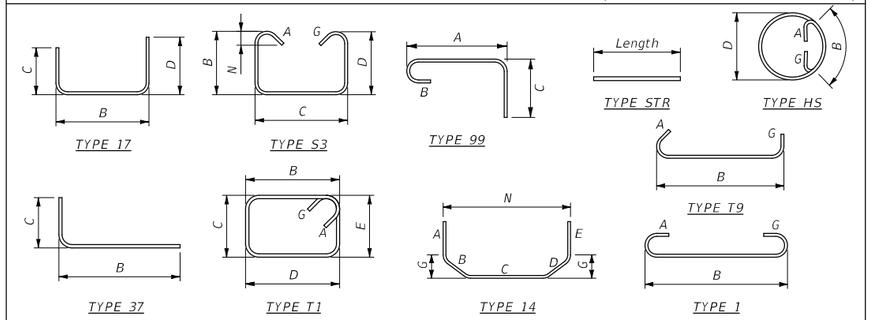
DRAWING NO. 23927

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

BILL OF REINFORCING STEEL

BENT NO. 7 PHASE 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

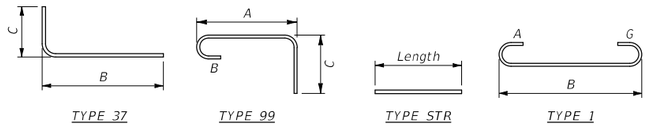


Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
DS1	#11	12	STR	24-4							
DS2	#6	26	HS	14-5	8"	2-7½		3-4		8"	
CL1	#10	12	STR	19-3½							
CL2	#6	29	T1	9-4	8"	2-6	1-6	2-6	1-6	8"	
B1	#4	2	STR	8-0							
*B2	#8	8	37	11-6		10-2	1-4				
*B3	#4	10	STR	9-0							
B4	#4	2	STR	6-11							
B5	#4	2	STR	4-5							
B6	#4	4	14	11-7	1-6	2-10	1-11	3-10	1-6	1-5	8-0
B7	#4	9	17	4-2		1-2	1-6	1-6			
B8	#4	7	T1	10-5	4½"	3-2	1-8	3-2	1-8	4½"	
B9	#5	3	S3	13-9	5½"	5-1	2-8	5-1		5½"	3"
B10-1	#5	1	T1	13-5	5½"	2-8	3-7	2-8	3-7	5½"	
B10-2	#5	1	T1	13-11	5½"	2-8	3-10	2-8	3-10	5½"	
B10-3	#5	1	T1	14-5	5½"	2-8	4-1	2-8	4-1	5½"	
B10-4	#5	1	T1	14-11	5½"	2-8	4-4	2-8	4-4	5½"	
B10-5	#5	1	T1	15-5	5½"	2-8	4-7	2-8	4-7	5½"	
B10-6	#5	1	T1	15-11	5½"	2-8	4-10	2-8	4-10	5½"	
B11-1	#5	1	T1	15-7	5½"	2-8	4-8	2-8	4-8	5½"	
B11-2	#5	1	T1	14-11	5½"	2-8	4-4	2-8	4-4	5½"	
B11-3	#5	1	T1	14-3	5½"	2-8	4-0	2-8	4-0	5½"	
B11-4	#5	1	T1	13-7	5½"	2-8	3-8	2-8	3-8	5½"	
B12	#4	5	17	5-8		2-8	1-6	1-6			
B13	#4	2	STR	3-7							
SB1	#4	5	99	4-5	1-8	6"	2-3				
SB2	#4	3	STR	5-8							
SE1	#4	2	STR	36-0							
SE2	#4	1	STR	26-2							
SE3	#4	1	STR	11-0							
*											
T1	#4	40	37	1-10		1-2	8"				
T2	#4	12	1	2-8	6"	1-8				6"	
*T3	#4	8	1	2-10	6"	1-10				6"	
T4	#4	7	37	2-1		1-5	8"				
T5	#4	3	T9	3-6	4½"	2-9				4½"	

*NOTE: Based on minimum embedment of 10" for #4 bars & 2-0 for #8 bars. Adjust length based upon actual embedment.

BILL OF REINFORCING STEEL

BENT NO. 7 PHASE 2 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
SB1	#4	5	99	4-5	1-8	6"	2-3				
SB2	#4	3	STR	5-8							
SE4	#4	2	STR	27-8							
SE5	#4	1	STR	18-8							
SE6	#4	1	STR	11-0							
*T1	#4	40	37	1-10		1-2	8"				
T2	#4	12	1	2-8	6"	1-8				6"	
T3	#4	8	1	2-10	6"	1-10				6"	
*T4	#4	7	37	2-1		1-5	8"				

*NOTE: Based on minimum embedment of 10" for #4 bars & 2-0 for #8 bars. Adjust length based upon actual embedment.

HDR

SHEET NO.
B30

BENT NO. 7
BILLS OF REINFORCING STEEL

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED	CHECKED	P.C.J.
REVISED	DRAWN	G.H.S.
REVISED	DESIGNED	B.K.C.
REVISED	3-23-19	
	1-21-19	
	1-21-19	

...8807000btbnt243.dgn
7/16/2019 10:27:59 AM

MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

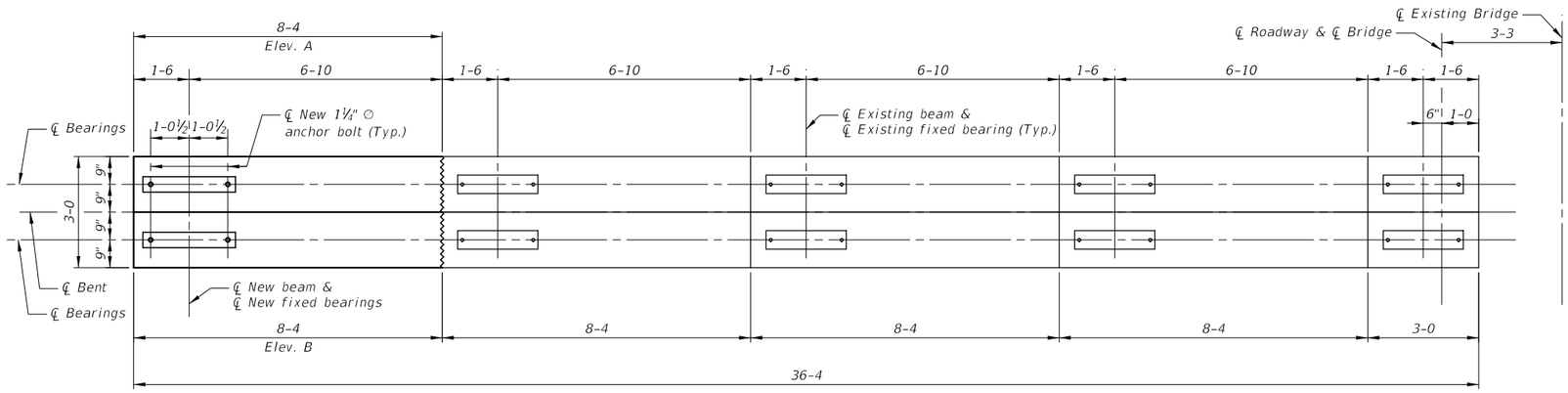
MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23928

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



BENTS NO. 8, NO 9 & NO. 11 – PLAN

Scale ~ ½" = 1'-0"

(Bent No. 8 shown, others similar except Bent No. 12, see detail this sheet)



NOTES

E.F. = Each Face

Finish beam seats level to elevations shown on drawing. Elevations shown are at top of concrete.

Clean and coat anchor bolt ends per Standard Specifications or other approved alternative.

See Sheet No. B6 for pay items, and additional notes.

See Sheet No. B17 for reinforcing embedment details, and additional notes.

See Sheet No. B32 for column and drilled shaft details.

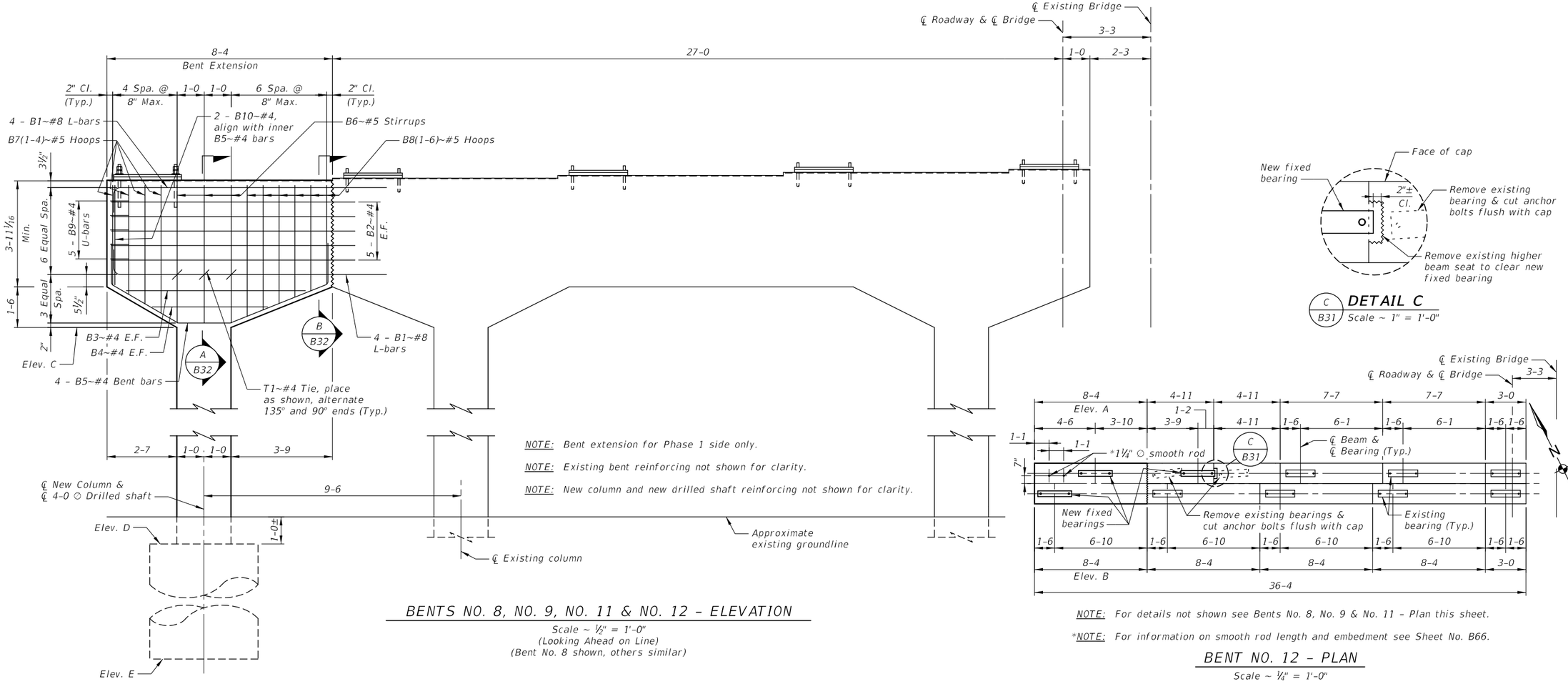
See Sheet No. B33 for Bill of Reinforcing Steel.

See Sheet No. B33 for anchor bolt details.

See Standard Dwg. No. B-A for fixed bearing details.

TABLE OF ELEVATIONS

Elevation	Bent No. 8	Bent No. 9	Bent No. 11	Bent No. 12
A	3199.61	3198.82	3197.25	3196.55
B	3199.63	3198.85	3197.27	3196.55
C	3194.19	3193.40	3191.83	3191.13
D	3182.73	3182.06	3180.92	3181.35
E	3157.73	3157.06	3155.92	3156.35



NOTE: Bent extension for Phase 1 side only.

NOTE: Existing bent reinforcing not shown for clarity.

NOTE: New column and new drilled shaft reinforcing not shown for clarity.

BENTS NO. 8, NO. 9, NO. 11 & NO. 12 – ELEVATION

Scale ~ ½" = 1'-0"

(Looking Ahead on Line)

(Bent No. 8 shown, others similar)

C B31 **DETAIL C**

Scale ~ 1" = 1'-0"

NOTE: For details not shown see Bents No. 8, No. 9 & No. 11 – Plan this sheet.

*NOTE: For information on smooth rod length and embedment see Sheet No. B66.

BENT NO. 12 – PLAN

Scale ~ ¼" = 1'-0"

HDR

SHEET NO. B31

BENTS NO. 8, NO. 9, NO. 11 & NO. 12

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		
REVISED		
REVISED		
REVISED		
CHECKED	3-24-19	P.C.J.
DRAWN	1-21-19	G.H.S.
DESIGNED	1-21-19	B.K.C.

...8807000brbnt250.dgn

7/16/2019 10:39:24 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

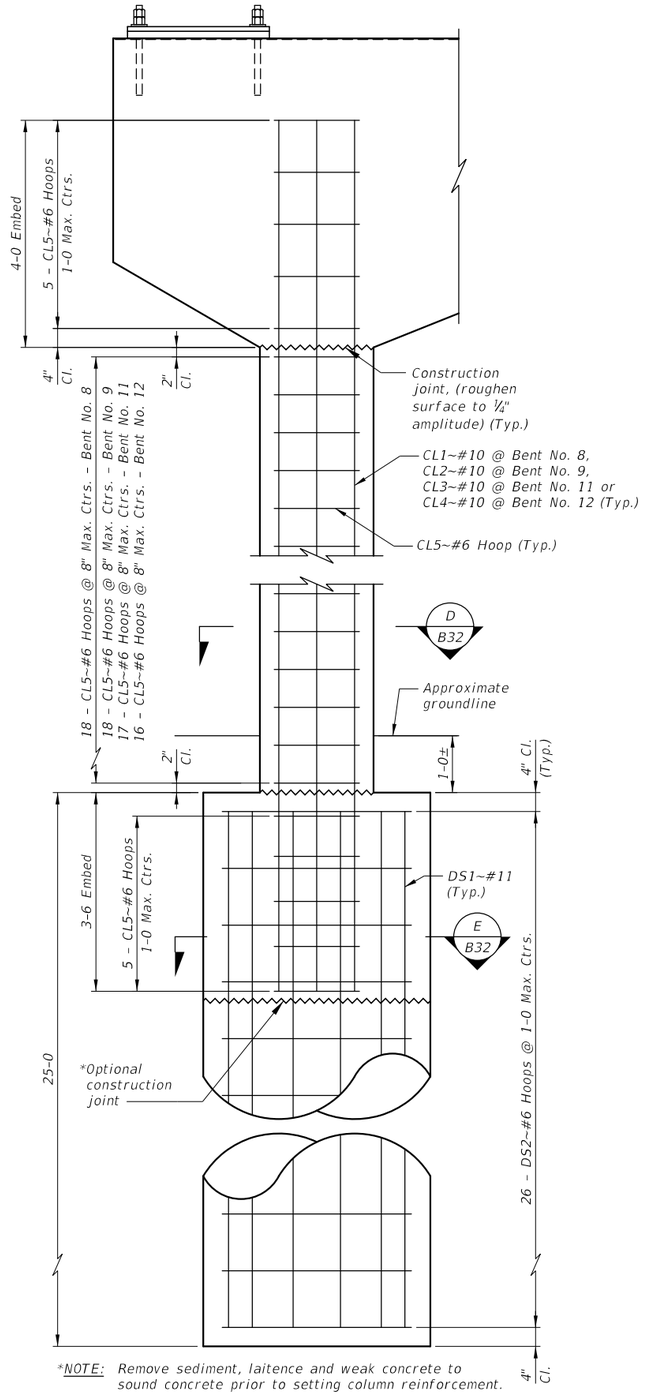
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23929

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

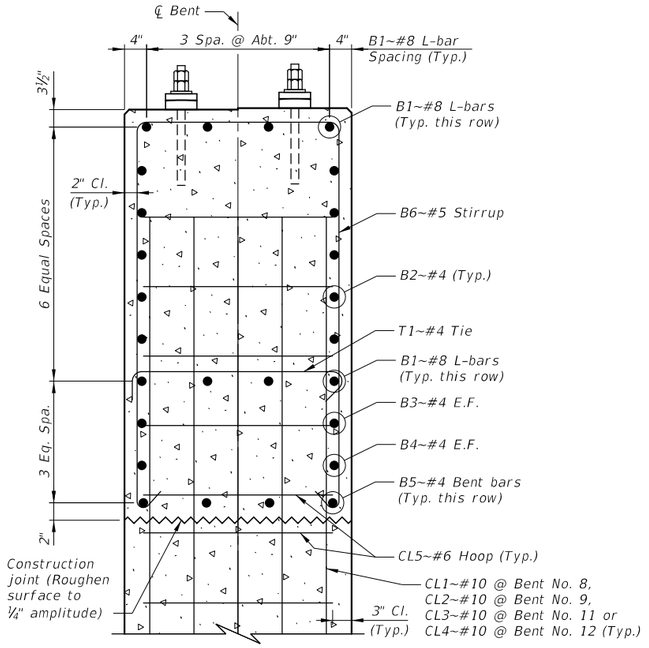
AWARD COPY



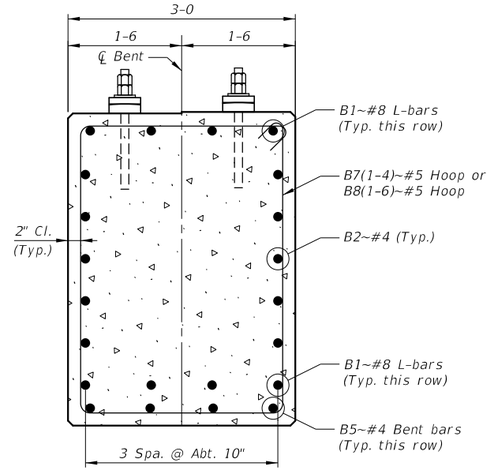
*NOTE: Remove sediment, laitence and weak concrete to sound concrete prior to setting column reinforcement.

BENTS NO. 8, NO. 9, NO. 11 & NO. 12 – COLUMN AND DRILLED SHAFT

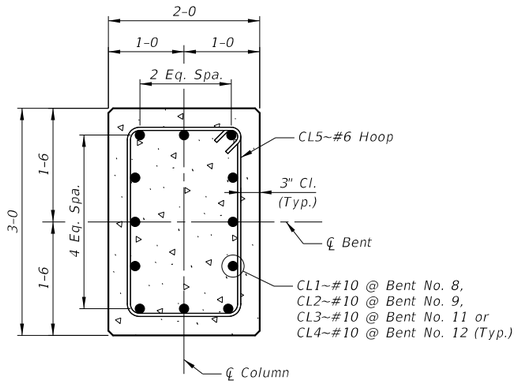
Scale ~ ¾" = 1'-0"
(Bent No. 8 shown, others similar)



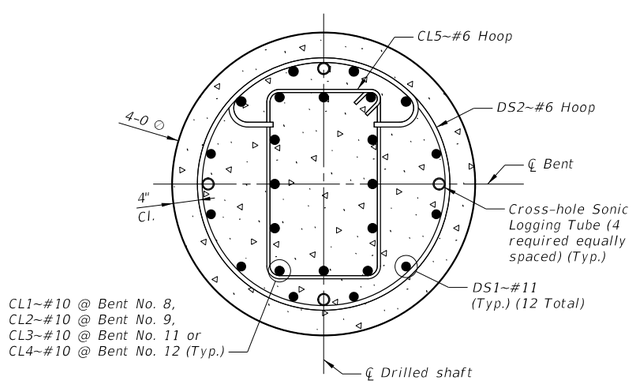
A B31 **SECTION AT COLUMN**
Scale ~ 1" = 1'-0"



B B31 **SECTION AWAY FROM COLUMN**
Scale ~ 1" = 1'-0"



D B32 **COLUMN SECTION**
Scale ~ 1" = 1'-0"



E B32 **DRILLED SHAFT SECTION**
Scale ~ 1" = 1'-0"

NOTES

E.F. = Each Face

Cross-hole Sonic Logging Tubes do not extend more than 1-8 above top of drilled shaft.

Rotate location of hooks on drilled shaft hoops DS2~#6 90° from adjacent hoops. Rotate hoops in one direction.

See Sheet No. B33 for Bills of Reinforcing Steel.

HDR

SHEET NO. B32

BENTS NO. 8, NO. 9, NO. 11 & NO. 12 DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		
REVISED		
REVISED		
REVISED	CHECKED	P.C.J. 3-24-19
	DRAWN	G.H.S. 1-21-19
	DESIGNED	B.K.C. 1-21-19

...8807000\brdtl251.dgn
10:39:48 AM
7/16/2019

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

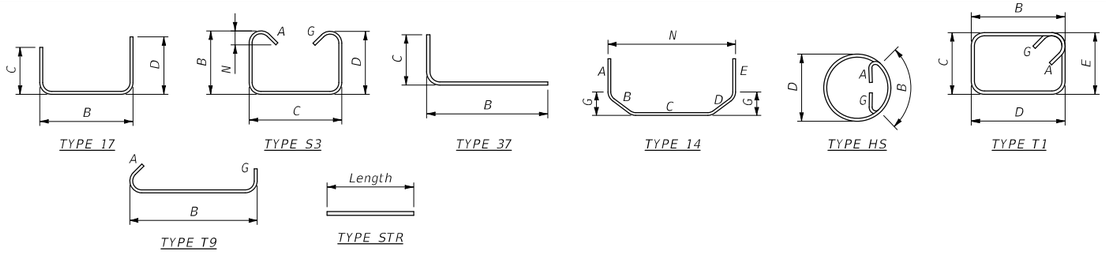
DRAWING NO. 23930

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

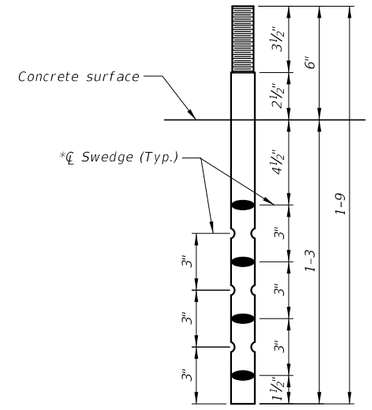
BILL OF REINFORCING STEEL

BENTS NO. 8, NO. 9, NO. 11 & NO. 12 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	Bent No. 8 No.	Bent No. 9 No.	Bent No. 11 No.	Bent No. 12 No.	Type	Length	A	B	C	D	E	G	N
DS1	#11	12	12	12	12	STR	24-4							
DS2	#6	26	26	26	26	HS	14-5	8"	2-7½		3-4		8"	
CL1	#10	12				STR	19-0							
CL2	#10		12			STR	18-10							
CL3	#10			12		STR	18-5							
CL4	#10				12	STR	17-4							
℄CL5	#6	28	28	27	26	T1	9-4	8"	2-6	1-6	2-6	1-6	8"	
*														
B1	#8	8	8	8	8	37	11-6		10-2	1-4				
B2	#4	10	10	10	10	STR	9-0							
B3	#4	2	2	2	2	STR	6-11							
B4	#4	2	2	2	2	STR	4-5							
B5	#4	4	4	4	4	14	11-7	1-6	2-10	1-11	3-10	1-6	1-5	8-0
B6	#5	3	3	3	3	S3	13-9	5½"	5-1	2-8	5-1		5½"	3"
B7-1	#5	1	1	1	1	T1	13-7	5½"	2-8	3-8	2-8	3-8	5½"	
B7-2	#5	1	1	1	1	T1	14-3	5½"	2-8	4-0	2-8	4-0	5½"	
B7-3	#5	1	1	1	1	T1	14-11	5½"	2-8	4-4	2-8	4-4	5½"	
B7-4	#5	1	1	1	1	T1	15-7	5½"	2-8	4-8	2-8	4-8	5½"	
B8-1	#5	1	1	1	1	T1	15-11	5½"	2-8	4-10	2-8	4-10	5½"	
B8-2	#5	1	1	1	1	T1	15-5	5½"	2-8	4-7	2-8	4-7	5½"	
B8-3	#5	1	1	1	1	T1	14-11	5½"	2-8	4-4	2-8	4-4	5½"	
B8-4	#5	1	1	1	1	T1	14-5	5½"	2-8	4-1	2-8	4-1	5½"	
B8-5	#5	1	1	1	1	T1	13-11	5½"	2-8	3-10	2-8	3-10	5½"	
B8-6	#5	1	1	1	1	T1	13-5	5½"	2-8	3-7	2-8	3-7	5½"	
B9	#4	5	5	5	5	17	5-8		2-8	1-6	1-6			
B10	#4	2	2	2	2	STR	3-7							
T1	#4	3	3	3	3	T9	3-6	4½"	2-9				4½"	

*NOTE: Based on minimum embedment of 10" for #4 bars & 2-0 for #8 bars. Adjust length based upon actual embedment.



*NOTE: Make swedge deformations 3/16" deep without removing metal.

NOTE: Use ASTM F1554 GR 55 material meeting supplementary requirement S4 for all swedged anchor bolts. Furnish heavy hex nuts and hardened washers per the Standard Specifications.

NOTE: Galvanize all anchor bolts and hardware according to ASTM F2329.

NOTE: Set anchor bolts prior to placing concrete. Adjust any reinforcing in conflict with the anchor bolts the minimum amount necessary to correctly place the anchor bolts. Secure anchor bolts in the correct position while placing concrete.

SWEDGED ANCHOR BOLT DETAIL – BENTS NO. 8, NO. 9, NO. 11 & NO. 12

Scale ~ 3" = 1'-0"

HDR

SHEET NO. B33

BENTS NO. 8, NO. 9, NO. 11 & NO. 12 DETAIL & BILL OF REINFORCING STEEL

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		
REVISED		
REVISED		
REVISED	CHECKED	3-24-19 P.C.J.
	DRAWN	1-21-19 G.H.S.
	DESIGNED	1-21-19 B.K.C.

...8807000brdnt252.dgn
7/16/2019 10:40:23 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

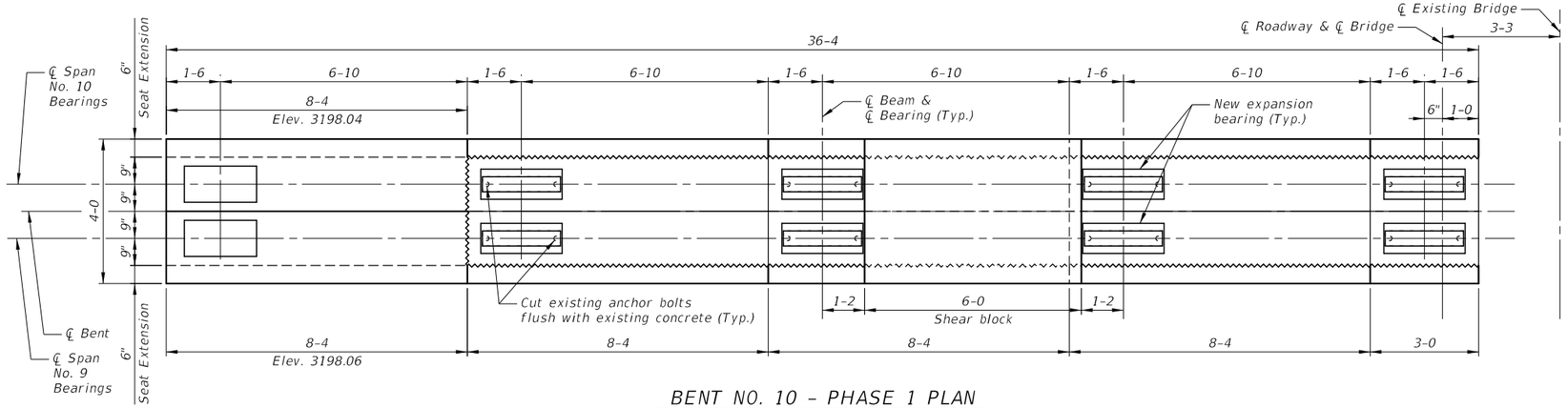
REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

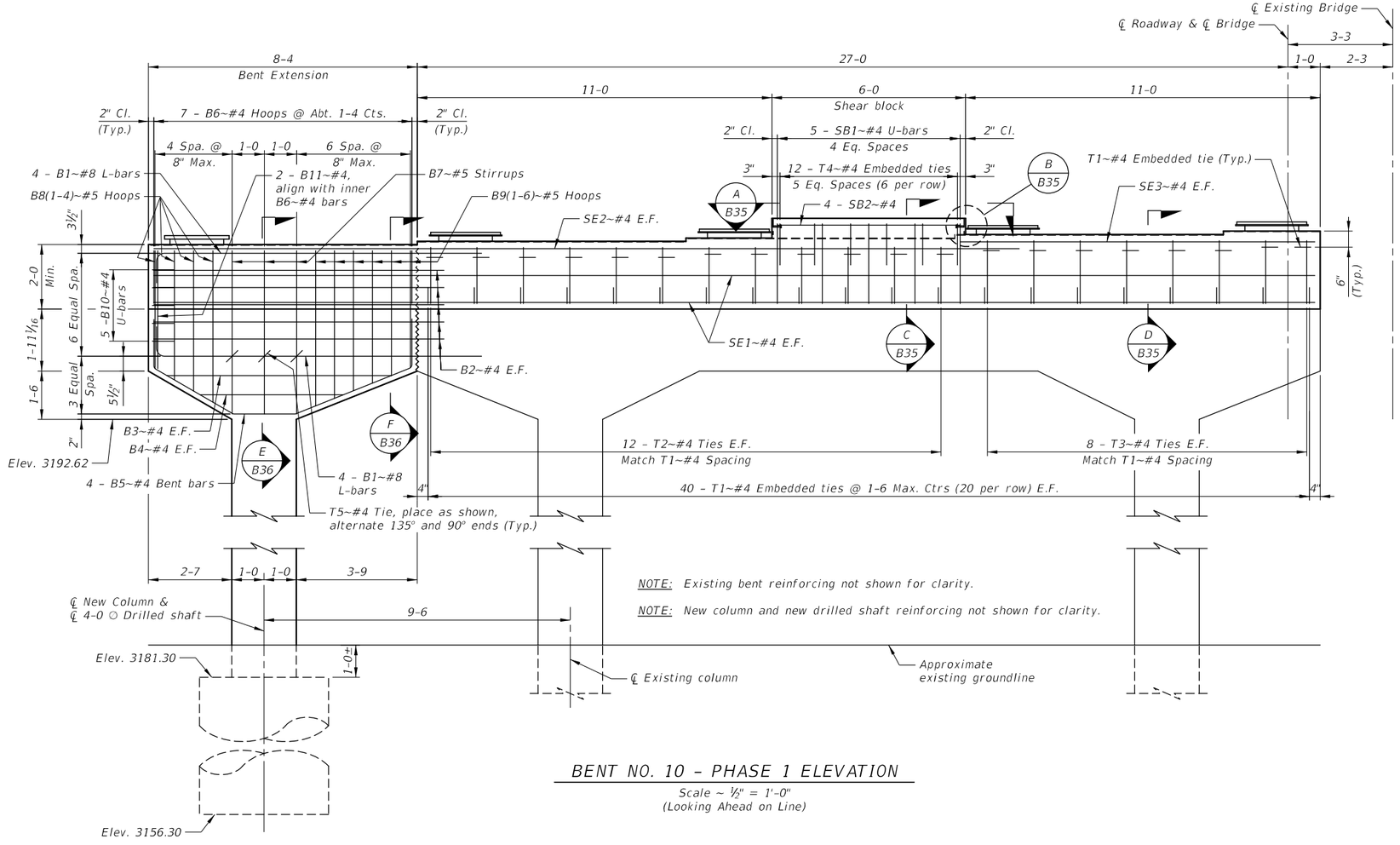
DRAWING NO. 23931

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086



BENT NO. 10 - PHASE 1 PLAN

Scale ~ ½" = 1'-0"



NOTE: Existing bent reinforcing not shown for clarity.

NOTE: New column and new drilled shaft reinforcing not shown for clarity.

BENT NO. 10 - PHASE 1 ELEVATION

Scale ~ ½" = 1'-0"
(Looking Ahead on Line)

NOTES

E.F. = Each Face

Finish beam seats level to elevations shown on drawing. Elevations shown are at top of concrete.

Clean and coat anchor bolt cut ends per Standard Specifications or other approved alternative.

See Sheet No. B6 for concrete pay items, and additional notes.

See Sheet No. B17 for reinforcing embedment details and additional notes.

See Sheet No. B36 for column and drilled shaft details.

See Sheet No. B37 for Bill of Reinforcing Steel.

See Sheet No. B45 for Type A prestressed concrete beam bearing details.

SHEET NO. B34

BENT NO. 10 - PHASE 1

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		
REVISED		
REVISED		
REVISED		
CHECKED	3-24-19	P.C.J.
DRAWN	1-21-19	G.H.S.
DESIGNED	1-21-19	B.K.C.

...\8807000\brbnt260.dgn

7/16/2019 10:50:06 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

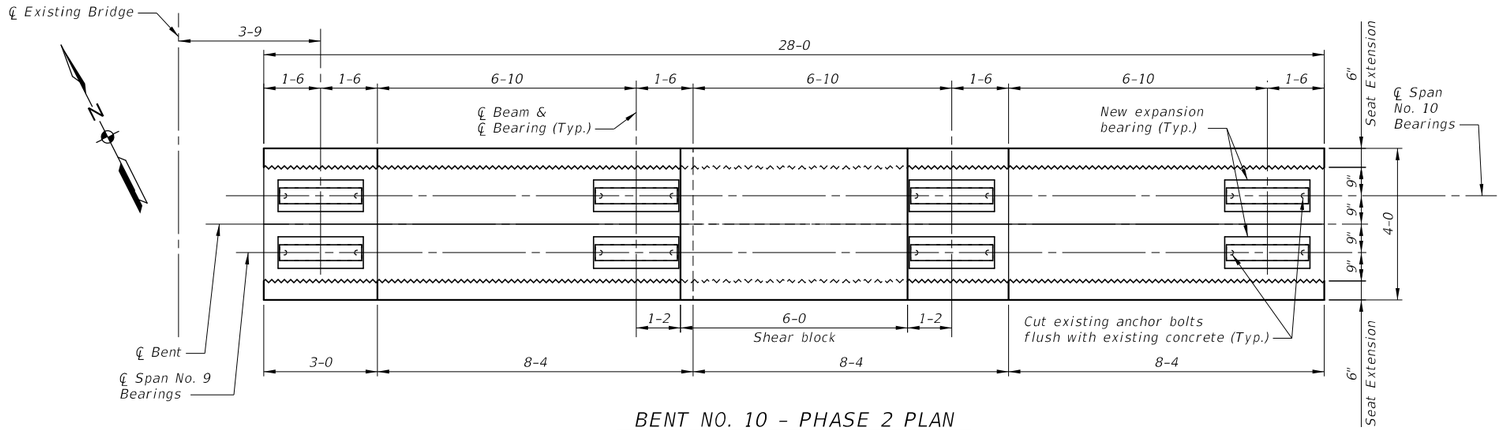
UPN NUMBER 8807000

DRAWING NO. 23932

HDR

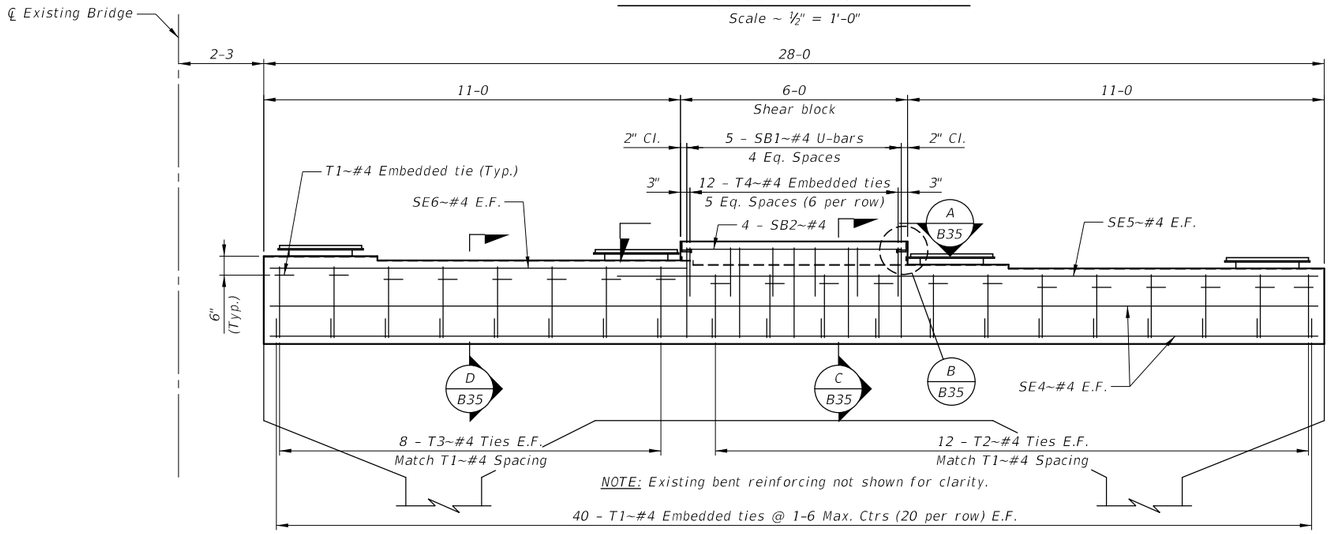
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



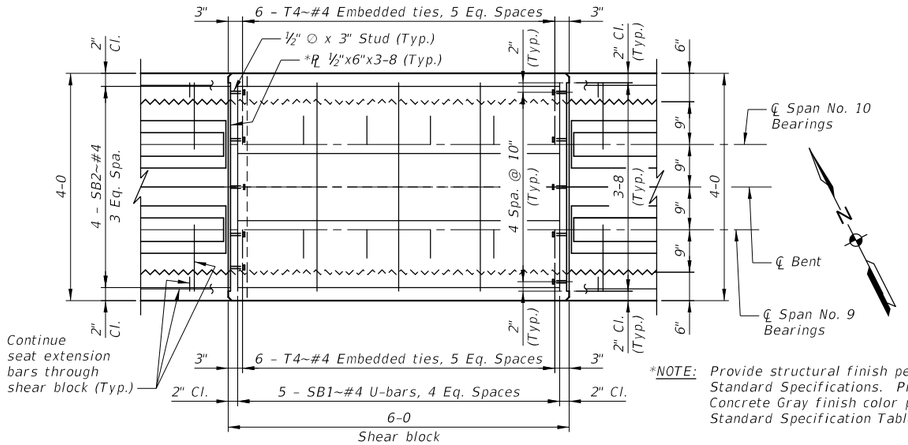
BENT NO. 10 - PHASE 2 PLAN

Scale ~ ½" = 1'-0"



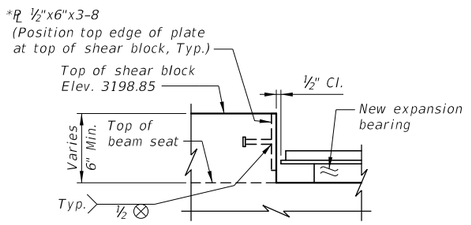
BENT NO. 10 - PHASE 2 ELEVATION

Scale ~ ½" = 1'-0"
(Looking Ahead on Line)



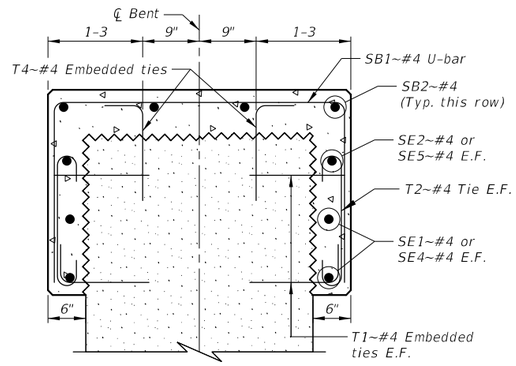
*NOTE: Provide structural finish per the Standard Specifications. Provide Concrete Gray finish color per Standard Specification Table 559-1.

A B34 & B35 **SHEAR BLOCK PLAN**
Scale ~ ¾" = 1'-0"

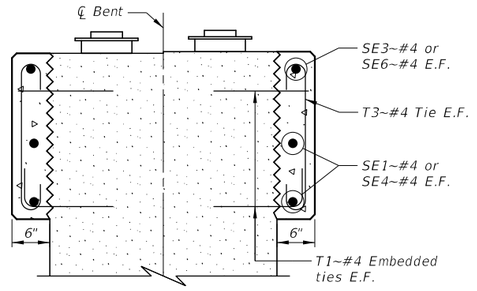


NOTE: Reinforcing not shown for clarity.

B B34 & B35 **DETAIL B**
Scale ~ 1½" = 1'-0"



C B34 & B35 **SECTION C**
Scale ~ 1" = 1'-0"



D B34 & B35 **SECTION D**
Scale ~ 1" = 1'-0"

NOTES

E.F. = Each Face

Clean and coat anchor bolt cut ends per Standard Specifications or other approved alternative.

See Sheet No. B6 for concrete pay items, and additional notes.

See Sheet No. B17 for reinforcing embedment details and additional notes.

See Sheet No. B37 for Bill of Reinforcing Steel.

See Sheet No. B45 for Type A prestressed concrete beam bearing details.

SHEET NO. B35

BENT NO. 10 - PHASE 2

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED	CHECKED	P.C.J.
REVISED	DRAWN	G.H.S.
REVISED	DESIGNED	B.K.C.
REVISED	3-24-19	1-21-19
		1-21-19

...\8807000\brbntz61.dgn
7/16/2019 11:03:02 AM

MONTANA DEPARTMENT OF TRANSPORTATION
MDT
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

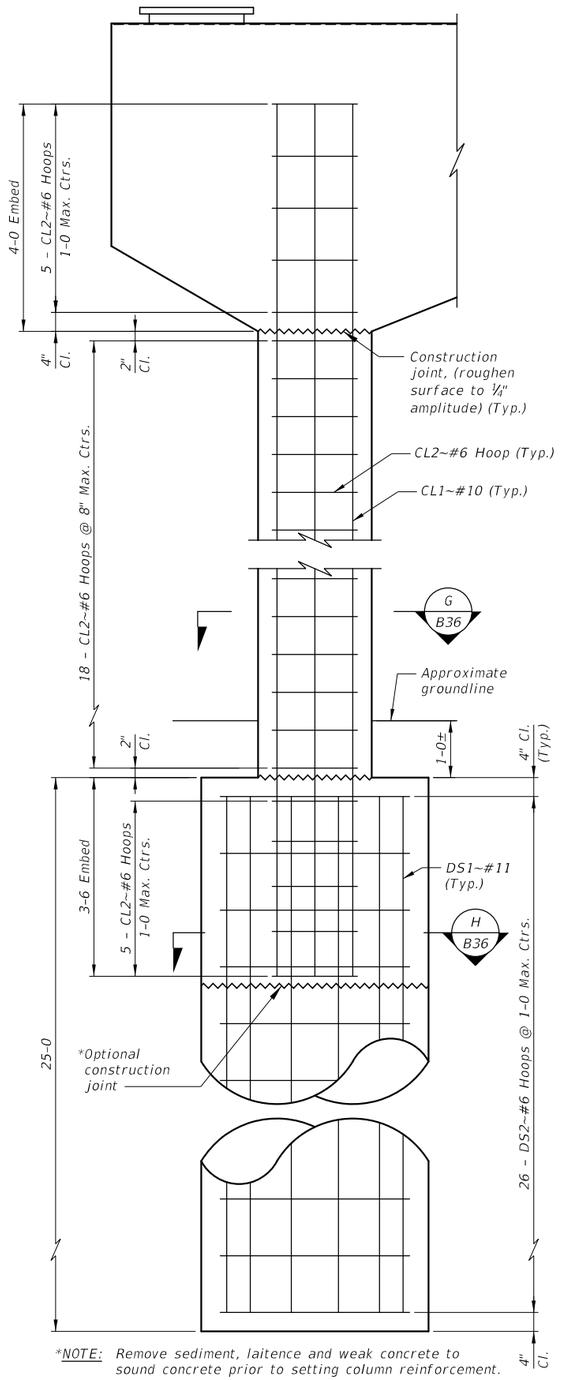
UPN NUMBER
8807000

DRAWING NO.
23933

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

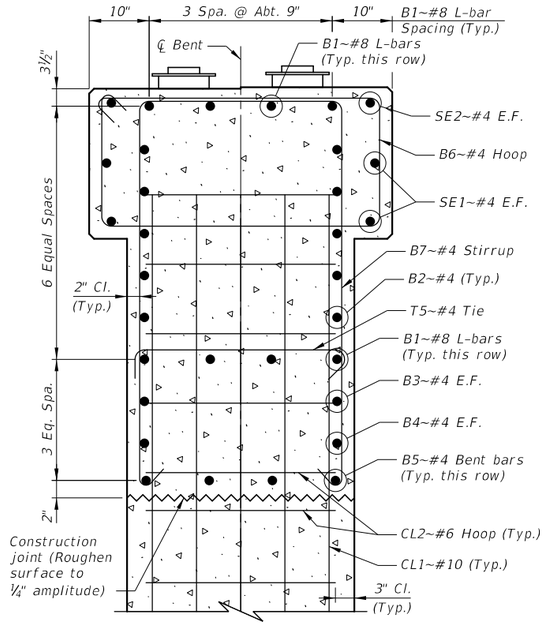
AWARD COPY



*NOTE: Remove sediment, laitence and weak concrete to sound concrete prior to setting column reinforcement.

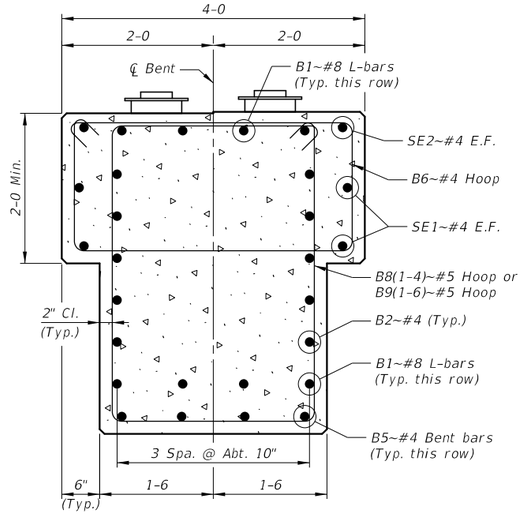
BENT NO. 10 – COLUMN AND DRILLED SHAFT

Scale ~ ¾" = 1'-0"



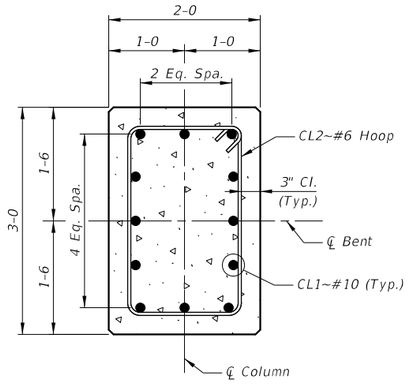
E B34 **SECTION AT COLUMN**

Scale ~ 1" = 1'-0"



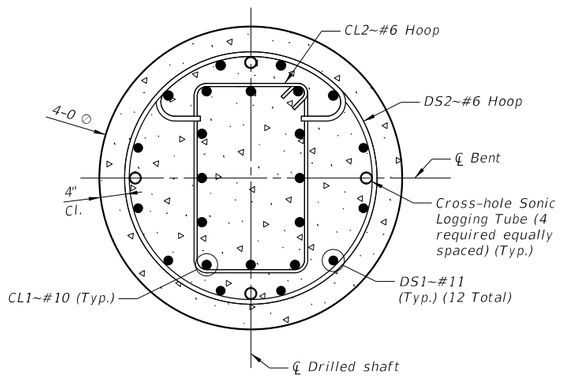
F B34 **SECTION AWAY FROM COLUMN**

Scale ~ 1" = 1'-0"



G B36 **COLUMN SECTION**

Scale ~ 1" = 1'-0"



H B36 **DRILLED SHAFT SECTION**

Scale ~ 1" = 1'-0"

NOTES

E.F. = Each Face

Cross-hole Sonic Logging Tubes do not extend more than 1-8 above top of drilled shaft.

Rotate location of hooks on drilled shaft hoops DS2~#6 90° from adjacent hoops. Rotate hoops in one direction.

See Sheet No. B37 for Bills of Reinforcing Steel.

HDR

SHEET NO. B36

BENT NO. 10 DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED			
REVISED			
REVISED			
REVISED			
CHECKED	3-24-19	P.C.J.	
DRAWN	1-21-19	G.H.S.	
DESIGNED	1-21-19	B.K.C.	

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/16/2019 10:50:52 AM ...\8807000\brbntz82.dgn

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

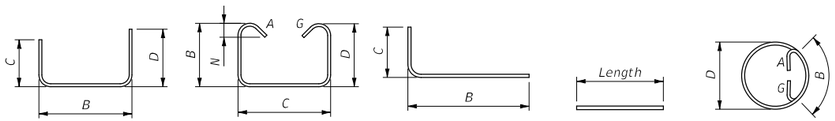
DRAWING NO. 23934

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

BILL OF REINFORCING STEEL

BENT NO. 10 PHASE 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

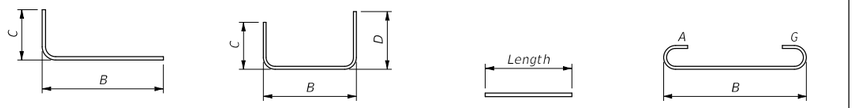


Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
DS1	#11	12	STR	24-4							
DS2	#6	26	HS	14-5	8"	2-7		3-4		8"	
CL1	#10	12	STR	18-10							
CL2	#6	28	T1	9-4	8"	2-6	1-6	2-6	1-6	8"	
*B1	#8	8	37	11-6		10-2	1-4				
*B2	#4	10	STR	9-0							
B3	#4	2	STR	6-11							
B4	#4	2	STR	4-5							
B5	#4	4	14	11-7	1-6	2-10	1-11	3-10	1-6	1-5	8-0
B6	#4	7	T1	11-5	4½"	3-8	1-8	3-8	1-8	4½"	
B7	#5	3	S3	13-9	5½"	5-1	2-8	5-1		5½"	3"
B8-1	#5	1	T1	13-7	5½"	2-8	3-8	2-8	3-8	5½"	
B8-2	#5	1	T1	14-3	5½"	2-8	4-0	2-8	4-0	5½"	
B8-3	#5	1	T1	14-11	5½"	2-8	4-4	2-8	4-4	5½"	
B8-4	#5	1	T1	15-7	5½"	2-8	4-8	2-8	4-8	5½"	
B9-1	#5	1	T1	15-11	5½"	2-8	4-10	2-8	4-10	5½"	
B9-2	#5	1	T1	15-5	5½"	2-8	4-7	2-8	4-7	5½"	
B9-3	#5	1	T1	14-11	5½"	2-8	4-4	2-8	4-4	5½"	
B9-4	#5	1	T1	14-5	5½"	2-8	4-1	2-8	4-1	5½"	
B9-5	#5	1	T1	13-11	5½"	2-8	3-10	2-8	3-10	5½"	
B9-6	#5	1	T1	13-5	5½"	2-8	3-7	2-8	3-7	5½"	
B10	#4	5	17	5-8		2-8	1-6	1-6			
B11	#4	2	STR	3-8							
SB1	#4	5	17	8-4		3-8	2-4	2-4			
SB2	#4	4	STR	5-8							
SE1	#4	4	STR	36-0							
SE2	#4	2	STR	26-2							
SE3	#4	2	STR	11-0							
*T1	#4	80	37	1-10		1-2	8"				
T2	#4	24	1	2-8	6"	1-8				6"	
T3	#4	16	1	2-10	6"	1-10				6"	
*T4	#4	12	37	2-1		1-5	8"				
T5	#4	3	T9	3-6	4½"	2-9				4½"	

*NOTE: Based on minimum embedment of 10" for #4 bars & 2-0 for #8 bars. Adjust length based upon actual embedment.

BILL OF REINFORCING STEEL

BENT NO. 10 PHASE 2 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
SB1	#4	5	17	8-4		3-8	2-4	2-4			
SB2	#4	4	STR	5-8							
SE4	#4	4	STR	27-8							
SE5	#4	2	STR	18-8							
SE6	#4	2	STR	11-0							
*T1	#4	80	37	1-10		1-2	8"				
T2	#4	24	1	2-8	6"	1-8				6"	
T3	#4	16	1	2-10	6"	1-10				6"	
*T4	#4	12	37	2-1		1-5	8"				

*NOTE: Based on minimum embedment of 10" for #4 bars & 2-0 for #8 bars. Adjust length based upon actual embedment.

HDR

SHEET NO.
B37

BENT NO. 10
BILLS OF REINFORCING
STEEL

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED		CHECKED	P.C.J.
REVISED		DRAWN	G.H.S.
REVISED		DESIGNED	B.K.C.
REVISED		3-24-19	1-21-19
		1-21-19	

MONTANA MDT DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU
7/16/2019 10:51:16 AM ...8807000btnt23.dgn

ROUTE
U-8113

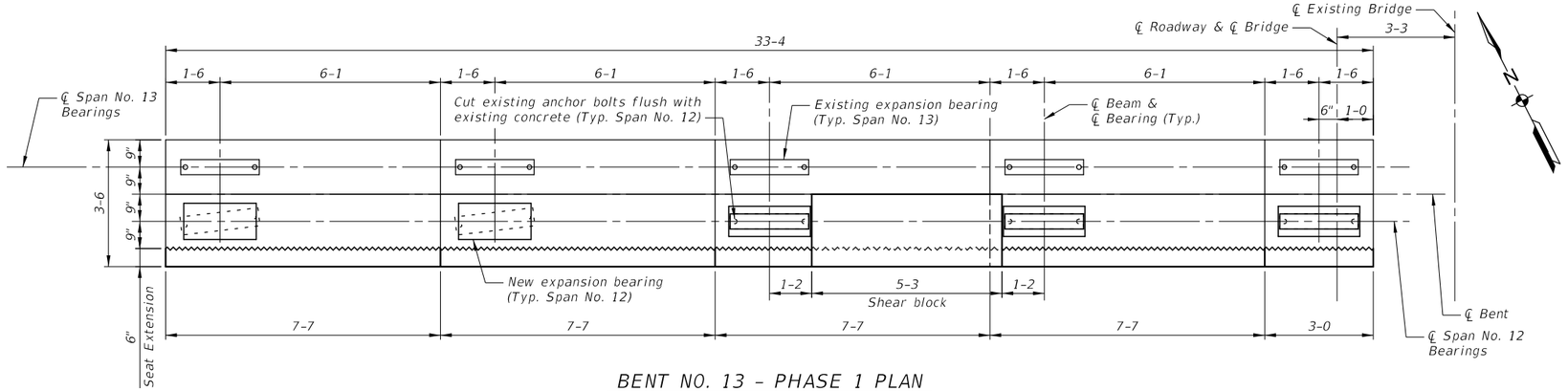
REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

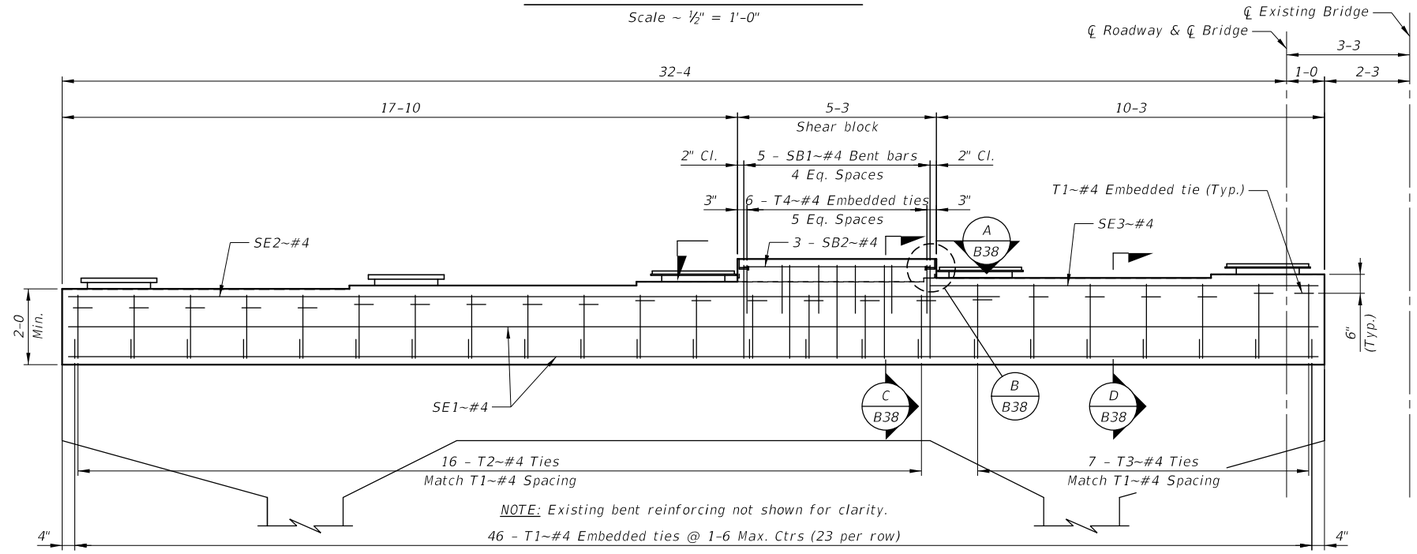
DRAWING NO.
23935

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086



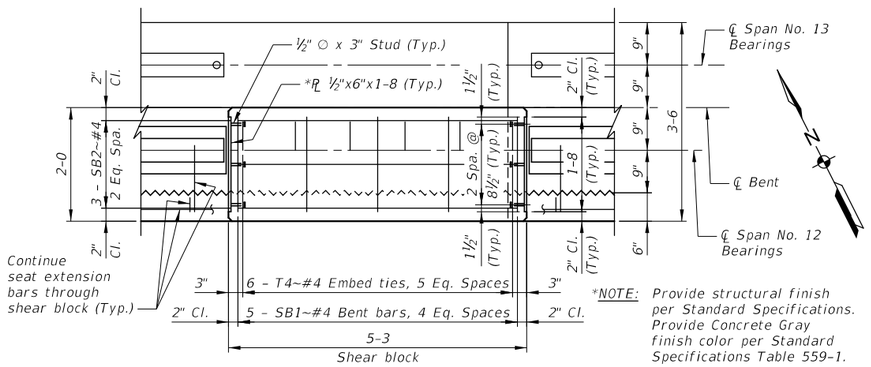
BENT NO. 13 - PHASE 1 PLAN

Scale ~ ½" = 1'-0"

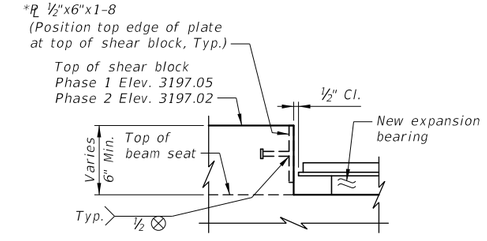


BENT NO. 13 - PHASE 1 ELEVATION

Scale ~ ½" = 1'-0"
(Looking Ahead on Line)

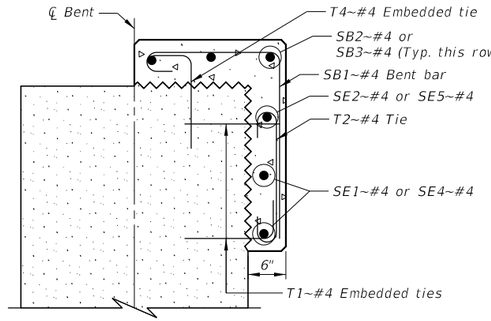


A B38 **SHEAR BLOCK PLAN**
Scale ~ ¾" = 1'-0"

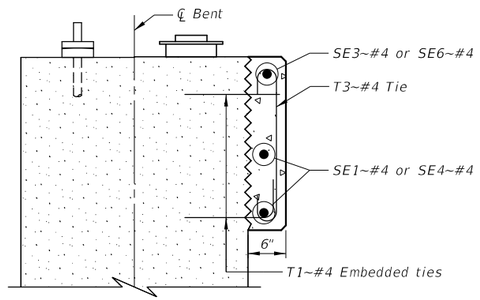


NOTE: Reinforcing not shown for clarity.

B B38 & B39 **DETAIL B**
Scale ~ 1½" = 1'-0"



C B38 & B39 **SECTION C**
Scale ~ 1" = 1'-0"



D B38 & B39 **SECTION D**
Scale ~ 1" = 1'-0"

NOTES

Clean and coat anchor bolt cut ends per Standard Specifications or other approved alternative.

See Sheet No. B6 for concrete pay items, and additional notes.

See Sheet No. B17 for reinforcing embedment details and additional notes.

See Sheet No. B45 for Type A prestressed concrete beam bearing details.

SHEET NO. B38

BENT NO. 13 - PHASE 1

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		
REVISED		
REVISED		
REVISED	CHECKED	3-25-19 P.C.J.
	DRAWN	1-21-19 G.H.S.
	DESIGNED	1-21-19 B.K.C.

...\8807000\bridge\bent\bent13_phase1_plan_elev_details_07016.dgn

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/16/2019 11:04:57 AM

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23936

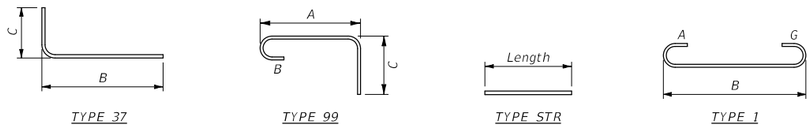
HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

BILL OF REINFORCING STEEL

BENT NO. 13 PHASE 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



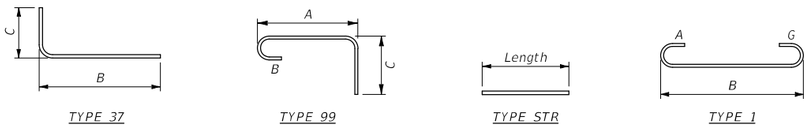
TYPE 37 | TYPE 99 | TYPE STR | TYPE 1

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
SB1	#4	5	99	4-4	1-8	6"	2-2				
SB2	#4	3	STR	4-11							
SE1	#4	2	STR	33-0							
SE2	#4	1	STR	24-8							
SE3	#4	1	STR	10-3							
*T1	#4	46	37	1-10		1-2	8"				
T2	#4	16	1	2-8	6"	1-8				6"	
T3	#4	7	1	2-11	6"	1-11				6"	
*T4	#4	6	37	2-1		1-5	8"				

*NOTE: Based on minimum embedment of 10" for #4 bars. Adjust length based upon actual embedment.

BILL OF REINFORCING STEEL

BENT NO. 13 PHASE 2 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



TYPE 37 | TYPE 99 | TYPE STR | TYPE 1

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
SB1	#4	5	99	4-4	1-8	6"	2-2				
SB3	#4	3	STR	5-8							
SE4	#4	2	STR	27-8							
SE5	#4	1	STR	18-8							
SE6	#4	1	STR	11-0							
*T1	#4	40	37	1-10		1-2	8"				
T2	#4	12	1	2-8	6"	1-8				6"	
T3	#4	8	1	2-11	6"	1-11				6"	
*T4	#4	6	37	2-1		1-5	8"				

*NOTE: Based on minimum embedment of 10" for #4 bars. Adjust length based upon actual embedment.

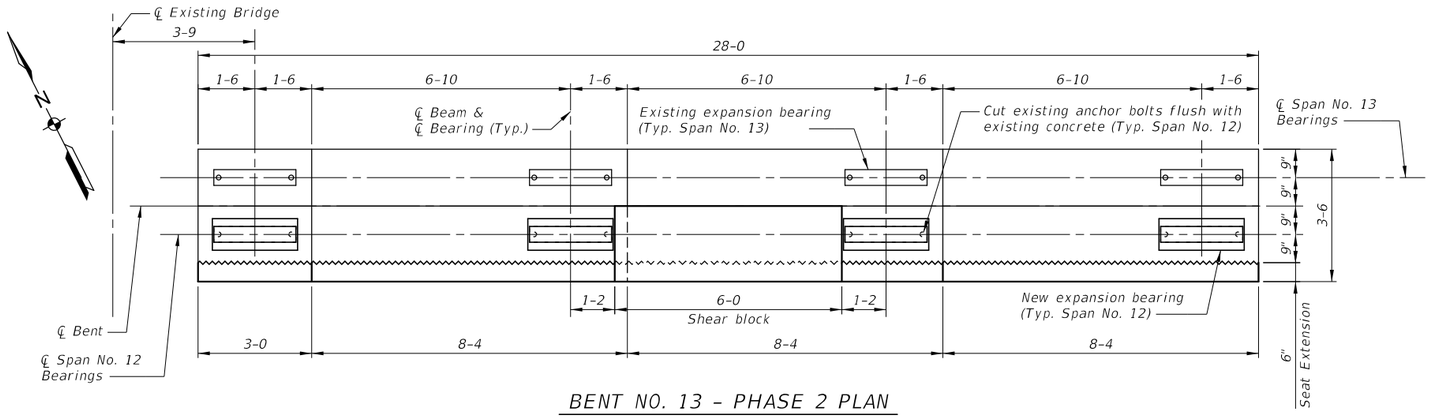
NOTES

Clean and coat anchor bolt cut ends per Standard Specifications or other approved alternative.

See Sheet No. B6 for concrete pay items, and additional notes.

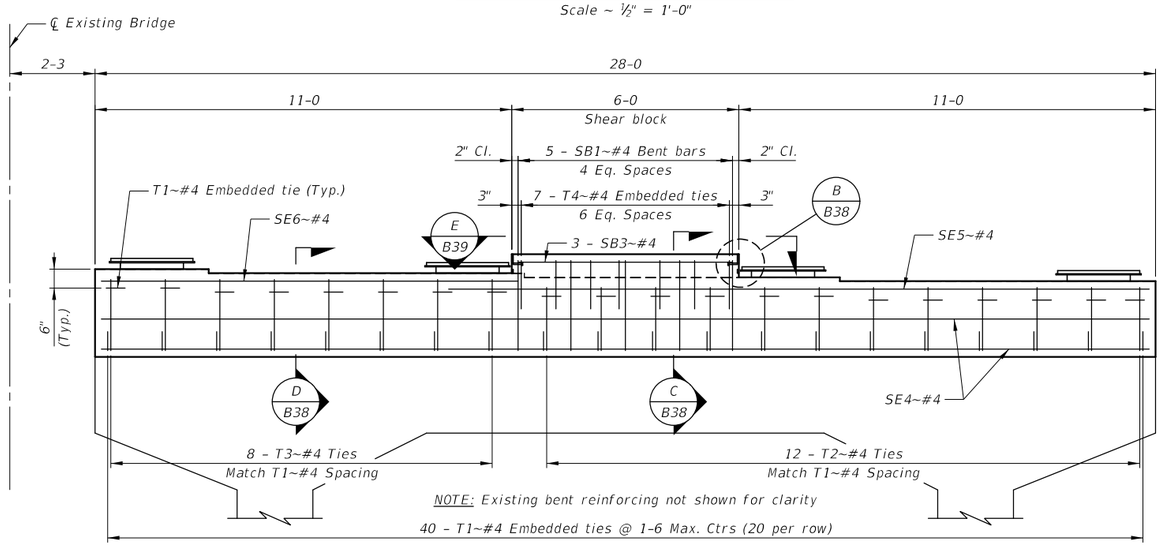
See Sheet No. B17 for reinforcing embedment details and additional notes.

See Sheet No. B45 for Type A prestressed concrete beam bearing details.



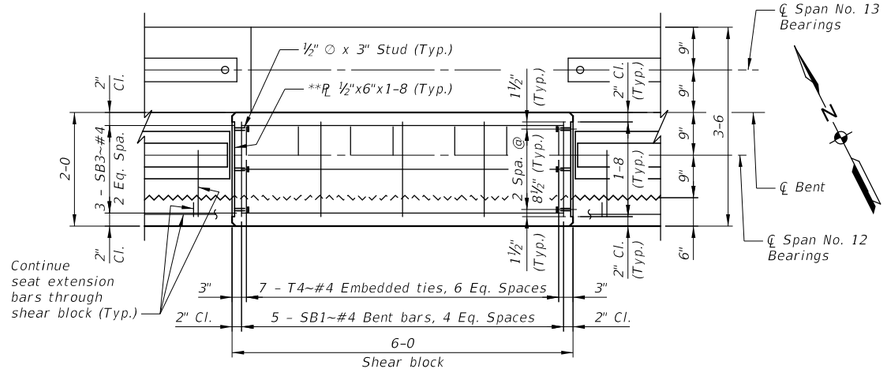
BENT NO. 13 - PHASE 2 PLAN

Scale ~ ½" = 1'-0"



BENT NO. 13 - PHASE 2 ELEVATION

Scale ~ ½" = 1'-0"
(Looking Ahead on Line)



**NOTE: Provide structural finish per the Standard Specifications. Provide Concrete Gray finish color per Standards Specification Table 559-1.

E / B39 **SHEAR BLOCK PLAN**

Scale ~ ¾" = 1'-0"

HDR

SHEET NO. B39

BENT NO. 13 - PHASE 2 & BILLS OF REINFORCING STEEL

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		
REVISED		
REVISED		
REVISED		
CHECKED	3-24-19	P.C.J.
DRAWN	1-21-19	G.H.S.
DESIGNED	1-21-19	B.K.C.

...88070000brintz1.dgn
7/16/2019 11:05:25 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

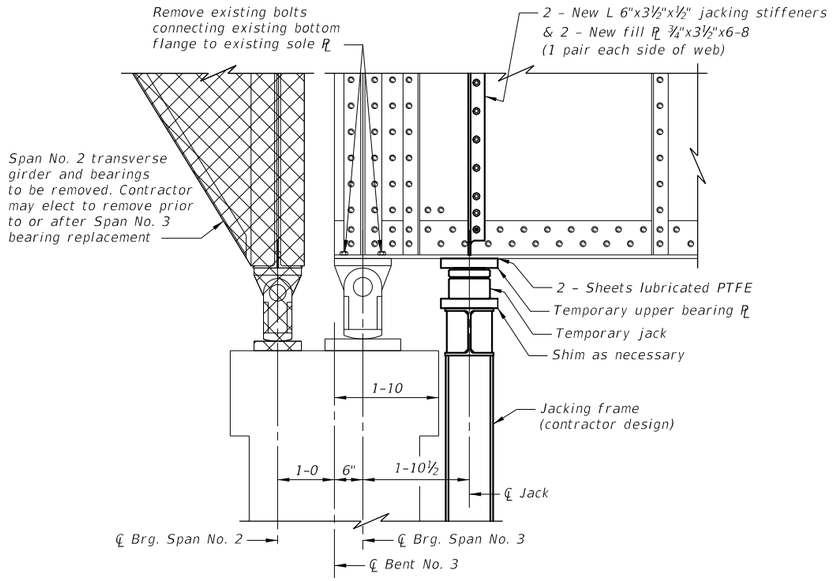
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23937

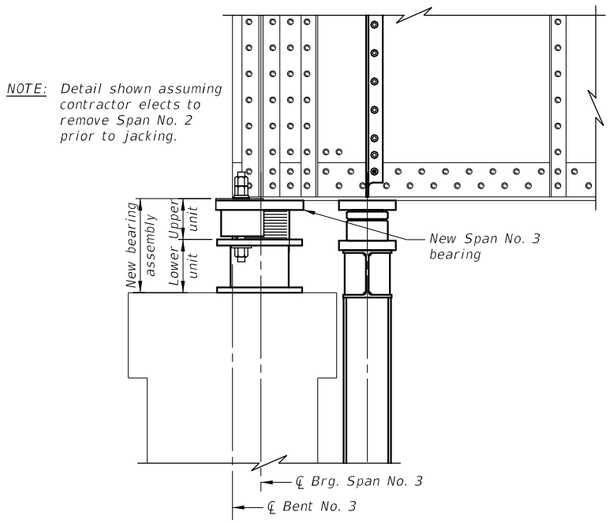
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



BEARING REMOVAL

- Remove concrete deck on Spans No. 3 thru No. 5 per phase.
- Optional, remove Spans No. 2 and No. 6 deck and steel girders, transverse girders and bearings.
- Install new jacking stiffeners per details on this sheet.
- Install jacking frame, jack as well as associated bearing and shim plates centered below new jacking stiffener.
- Remove existing sole plate bolts to allow jacking of the span.
- Lift structure the minimum amount to perform the work, but in no case more than ¼" to allow removal of the existing bearings. Use lock nut collars or other means to support structure while replacing bearings.
- Remove existing bearings, cut existing anchor bolts to allow installation of lower unit of the new bearing assembly. Maintain a minimum existing anchor bolt height of 2" from the top of the existing concrete seat.

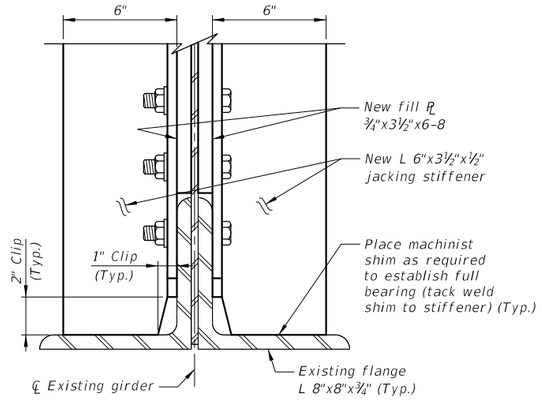


BEARING REPLACEMENT

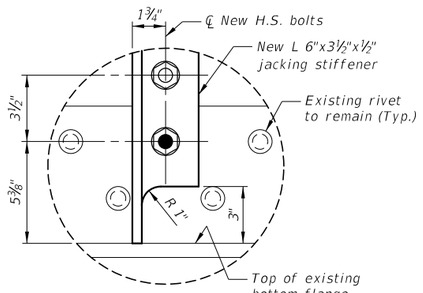
- Install lower unit (upper masonry plate, riser & lower masonry plate) of the new bearing assembly.
- Install upper unit (sole plate & elastomeric pad) of the new bearing assembly.
- Install threaded rods into nut attached to upper masonry plate.
- As necessary adjust the sole plate, deforming the elastomeric pad to match gap between threaded rods and the slot edge in the sole plate, as shown on Sheet No. B44.
- Lower structure and remove jacks.
- Weld sole plate to existing girder and install remaining threaded rod hardware.

SPANS NO. 3 OR NO. 5 BEARING REPLACEMENT SEQUENCE

Scale ~ ¾" = 1'-0"
(Bent No. 3 shown, Bent No. 6 similar but opposite hand)



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



NOTE: Bottom flange shown, top flange similar.

B / B40 **DETAIL B**
Scale ~ 3" = 1'-0"

NOTES

Bearing replacement sequence provided for information only. Submit proposed bearing replacement sequence per the Special Provisions.

Drill 1 3/16" ∅ holes in new jacking stiffeners, new fill plates and in existing web, where required, to accept new ¾" ∅ H.S. bolts.

Jacking stiffener designed for 1.3DC factored design load.
Bent No. 3 = 212 kips
Bent No. 6 = 212 kips

See Special Provisions for additional jacking requirements.

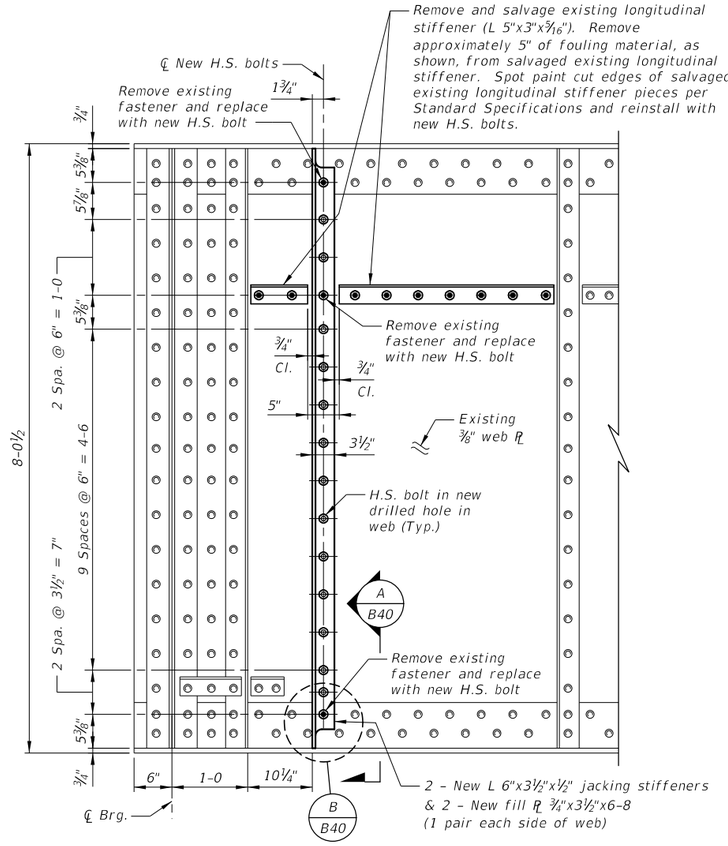
See Sheet No. B6 for H.S. bolt requirements.

See Sheet No. B43 for transverse girder bearing details.

See Sheet No. B44 for existing steel girder bearing details.

LEGEND

- New H.S. bolt in new hole
- New H.S. bolt replacing existing fastener
- Existing rivet to remain



NEW JACKING STIFFENER DETAIL

Scale ~ 1" = 1'-0"
(Span No. 3 shown, Span No. 5 similar but opposite hand)

HDR

SHEET NO. B40

BENTS NO. 3 & NO. 6
JACKING DETAILS

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
					J.C.M.	G.H.S.	B.K.C.
					3-7-19	2-18-19	2-18-19

...8807000brshd01.dgn
9:38:34 AM
7/17/2019

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23938

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

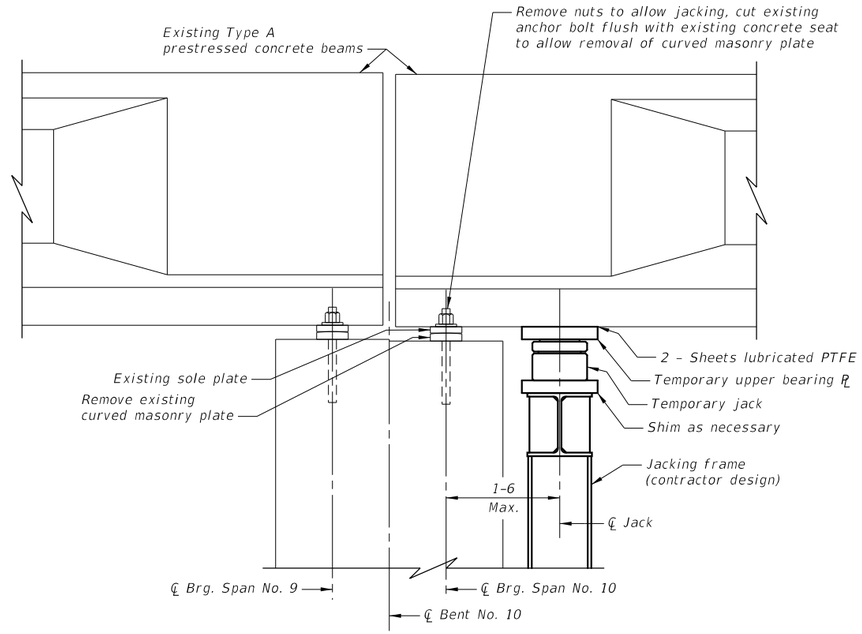
AWARD COPY

NOTES

Bearing replacement sequence provided for information only. Submit proposed bearing replacement sequence per the Special Provisions.

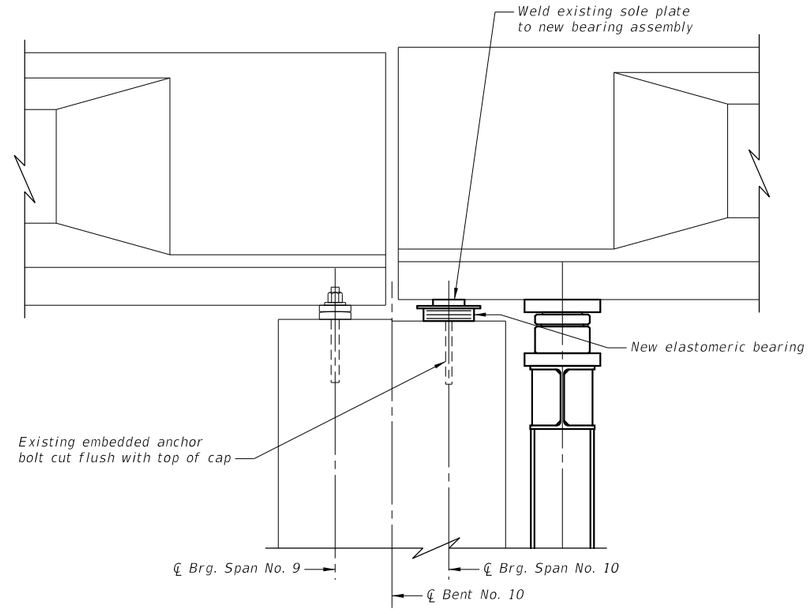
See Special Provisions for additional jacking requirements.

See Sheet No. B45 for Type A prestressed concrete beam bearing details.



BEARING REMOVAL

- Remove concrete deck from spans to be jacked.
- Provide temporary bracing of the beams between the jacking point and the end of the beam.
- Install temporary jacking frame, jack as well as associated bearing and shim plates.
- Remove nuts at the bearing to be replaced and back off nuts on the bearing at the other end of the span a minimum of 3 turns to allow for jacking of the structure.
- Lift structure the minimum amount to perform the work, but in no case more than 2½" to allow removal of existing curved masonry plate and installation of new bearing. Use lock nut collars or other means to support structure while replacing bearings.
- Raise masonry plate off of bent cap to allow access to existing anchor bolts. Cut existing anchor bolts flush with existing concrete seat, then slide existing curved masonry plate out from under beam.



BEARING REPLACEMENT

- Remove any debris, corrosion or other deleterious material that would prevent full bearing of the existing sole plate on the new elastomeric bearing unit or inhibit welding the existing sole plate to the new bearing.
- Install new elastomeric expansion bearing.
- Lower structure and remove jack and temporary jacking frame.
- Re-tighten the nuts on the existing bearing at the other end of the span.
- Weld new bearing assembly to existing sole plate.

EXISTING PRESTRESSED CONCRETE BEAM BEARING REPLACEMENT SEQUENCE

Scale ~ 1" = 1'-0"

(Bent No. 10 Span No. 10 bearing replacement shown, Bent No. 10 Span No. 9 bearing, Bent No. 7 Span No. 7 bearing, and Bent No. 13 Span No. 12 bearing replacement similar)

HDR

SHEET NO. B41

BENTS NO. 7, NO. 10 & NO. 13 JACKING DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED						J.C.M.	
REVISED						G.H.S.	
REVISED						P.C.J.	
REVISED				CHECKED	3-7-19		
				DRAWN	2-25-19		
				DESIGNED	2-25-19		

...\8807000bsht\st02.dgn

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/17/2019 9:38:15 AM

ROUTE U-8113

REF POINT 0+0.239

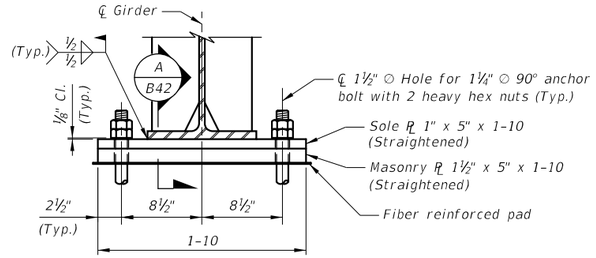
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23939

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

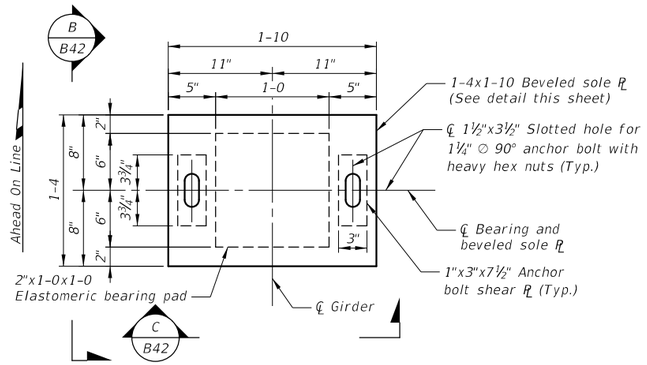
AWARD COPY



NOTE: Bent No. 2 shown, Bent No. 1 similar except use shim plate under masonry plate and use 1¼" smooth bar instead of 90° anchor bolt. See Sheets No. B13 thru No. B15 for Bent No. 1 details.

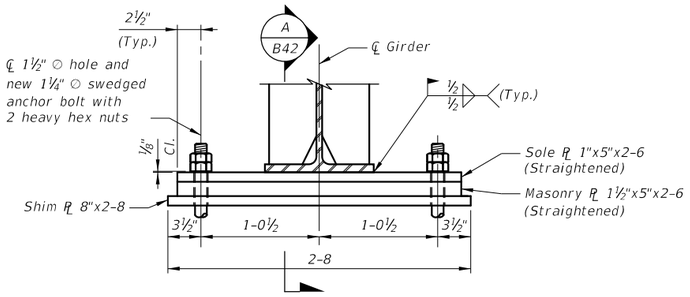
BENT NO. 1 & BENT NO. 2 FIXED BEARING DETAIL

Scale ~ 1½" = 1'-0"
(18 Required)



BENT NO. 2 EXPANSION BEARING

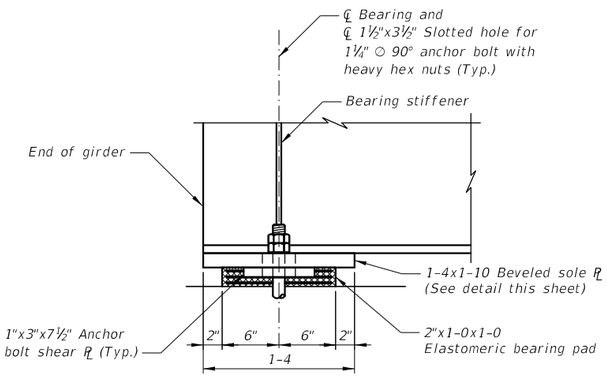
Scale ~ 1½" = 1'-0"
(Girder and anchor bolts not shown for clarity.)
(9 Required)



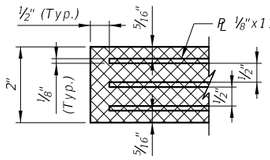
NOTE: Shim plate thickness vary. See Sheets No. B27 and No. B28 for shim plate thickness tables.

BENT NO. 7 FIXED BEARING DETAIL

Scale ~ 1½" = 1'-0"
(9 Required)

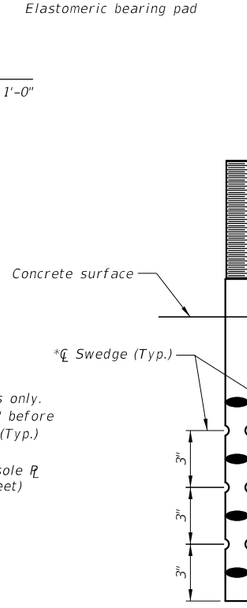


B B42 **VIEW B**
Scale ~ 1½" = 1'-0"



ELASTOMERIC BEARING DETAIL

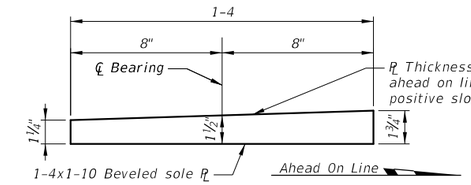
Scale ~ 6" = 1'-0"



*NOTE: Make swedge deformations 3/16" deep without removing metal.

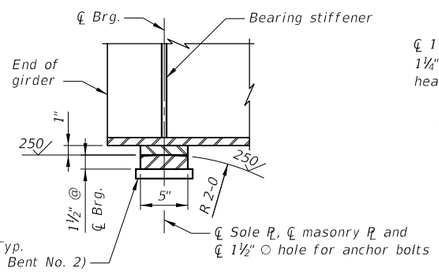
BENT NO. 7 SWEDGED ANCHOR BOLT DETAIL

Scale ~ 3" = 1'-0"



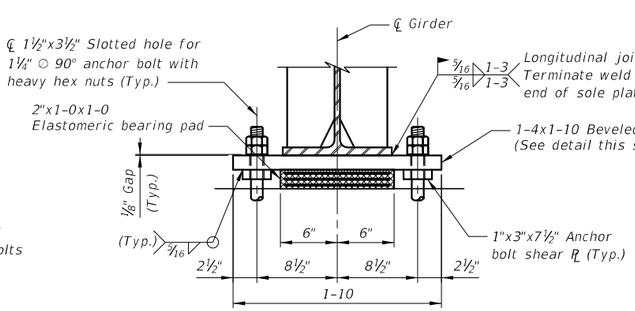
BENT NO. 2 BEVELED SOLE PLATE DETAIL

Scale ~ 3" = 1'-0"

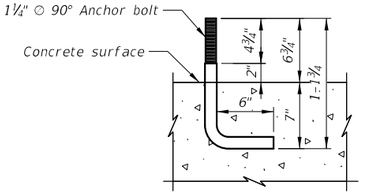


NOTE: Bent No. 2 shown, Bent No. 1 and Bent No. 7 similar.

A B42 **SECTION A**
Scale ~ 1½" = 1'-0"



C B42 **VIEW C**
Scale ~ 1½" = 1'-0"



BENT NO. 2 90° ANCHOR BOLT DETAIL

Scale ~ 1½" = 1'-0"

NOTES

Mark all expansion and fixed bearings prior to shipping. Make all marks permanent and visible after the bearing is installed, include the bearing location on the bridge and a direction arrow that points ahead on line (up-station).

For expansion bearing include all costs associated with furnishing and placing the elastomeric bearing pad, beveled sole plate including anchor bolt shear plates, and anchor bolts in the unit price for Elastomeric Bearing Device.

Test elastomeric bearing pads according to AASHTO M251. Perform test based on the following estimated service design load: DL + LL = 117 kip per bearing pad.

Elastomeric bearing design per AASHTO design Method A. Use Grade 4 elastomer with a minimum shear modulus of 130 psi for the elastomeric bearing pad. Vulcanize – bond elastomeric bearing pad to beveled sole plate.

Use structural steel meeting the requirement of AASHTO M270 Grade 50 for all steel plates.

Include the costs associated with furnishing and installing smooth bars, metal expansion cap, and fixed bearing assemblies in the unit price bid for Structural Steel – Girder.

Weld fixed bearings according to the girder temperature and erection requirements special provision.

Use ASTM F1554 Grade 55 for all anchor bolts and furnish Heavy Hex nuts and hardened washers per the Standard Specifications.

Provide anchor bolts meeting the impact test requirements of ASTM F1554 Supplementary Requirement S4.

Galvanize all anchor bolts and nuts according to ASTM F2329.

Install 90° anchor bolt by locating and securing into position by templates prior to casting concrete. Adjust any reinforcing in conflict with the anchor bolts the minimum amount necessary to correctly place the anchor bolts.

Paint sole plate, masonry plate, and anchor bolt shear plates in accordance with the Standard Specifications and a finish color meeting Concrete Gray per Standard Specification Table 559-1.

See Sheet No. B43 for additional information on drilling and installing swedged anchor bolts.

Tighten anchor bolt nuts to snug tight, mark nuts and sole plate, then turn nuts an additional ⅙ turn.

See Standard Specifications for requirements for fiber reinforced pad under masonry plate.

Do not damage bearing assembly during welding process.

HDR

SHEET NO. B42

W33x130 STEEL GIRDER BEARING DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED				CHECKED	3-1-19	J.C.M.
REVISED				DRAWN	2-22-19	K.J.A.
REVISED				DESIGNED	2-22-18	P.C.J.

...\8807000\bsht\d03.dgn
9:38:43 AM
7/17/2019

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23940

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

BEARING DESIGN TABLE (SERVICE I LIMIT STATE)	
AASHTO design method	Method B
Elastomer grade	Grade 4
Unloaded height	3.75"
Shear modulus at 73° F	140 psi
Dead load reaction	91 kips
Live load reaction (without impact)	121 kips

NOTE: Bearing height only includes elastomeric bearing pad.

NOTES

Install new expansion bearings for all new transverse girders at Bent No. 3, Span 2 side and Bent No. 6, Span 6 side.

Mark all expansion bearings prior to shipping. Make all marks permanent and visible after the bearing is installed, include the bearing location on the bridge and a direction arrow that points ahead on line (up-station).

Vulcanize – bond elastomeric bearing pad to sole plate.

Use structural steel meeting the requirement of AASHTO M270 Grade 50 for all steel plates.

Use ASTM F1554 Grade 55 for all anchor bolts and furnish Heavy Hex nuts and hardened washers per the Standard Specifications.

Provide anchor bolts meeting the impact test requirements of ASTM F1554 Supplementary Requirement S4.

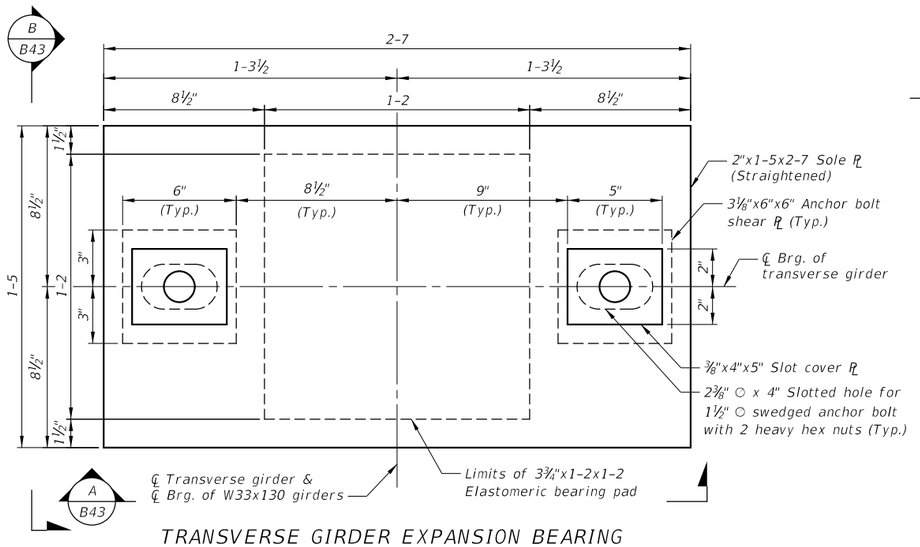
Galvanize all anchor bolts and nuts according to ASTM F2329.

Paint Sole Plate, anchor bolt shear plates, and slot cover plate in accordance with the Standard Specifications and a finish color meeting Concrete Gray per Standard Specifications Table 559-1.

Include all costs associated with furnishing and placing the elastomeric bearing pad, sole plate, anchor bolt shear plates, slot cover plates and anchor bolts in the unit bid price for Elastomeric Bearing Devices.

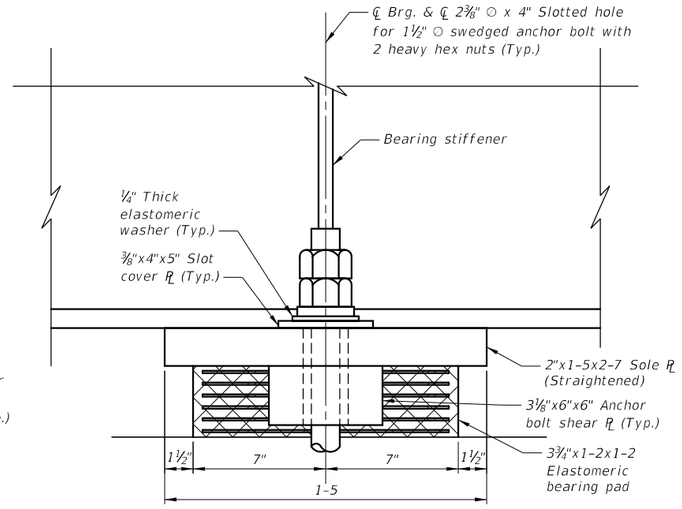
Do not damage bearing assembly during welding process.

See Sheet No. B51 for transverse girder details.



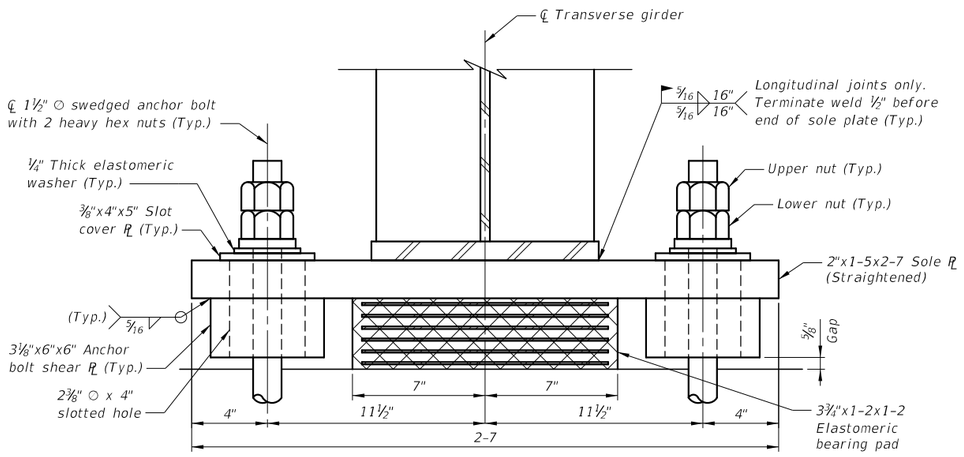
TRANSVERSE GIRDER EXPANSION BEARING

Scale ~ 3" = 1'-0"
(Girder and anchor bolts not shown for clarity.)
(8 Required)



B B43 VIEW B

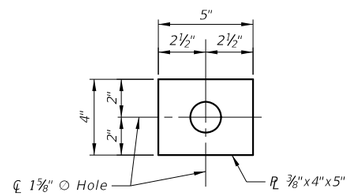
Scale ~ 3" = 1'-0"



NOTE: Install lower nut in contact with slot cover plate and then back off ¾ turn. Install upper nut snug tight to prevent lower nut from loosening.

A B43 VIEW A

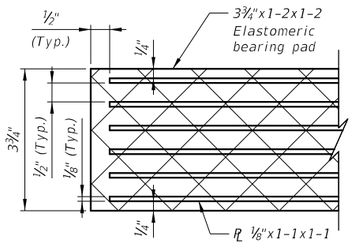
Scale ~ 3" = 1'-0"



NOTE: Install so the 4" sides are parallel to the transverse girder.

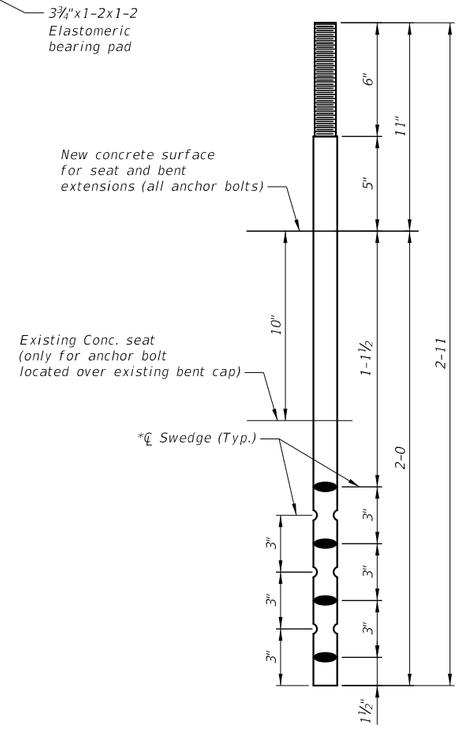
SLOT COVER PLATE DETAIL

Scale ~ 3" = 1'-0"



ELASTOMERIC BEARING PAD DETAIL

Scale ~ 6" = 1'-0"



NOTE: At each bearing location one anchor bolt will be partially drilled and adhered into existing concrete before casting additional seat conc. and one anchor bolt will be cast in place within bent seat extensions. See Sheets No. B22 thru No. B25 for seat extension details.

NOTE: Install anchor bolts into bent seat extensions by locating and securing into position by templates prior to casting concrete. Adjust any reinforcing in conflict with the anchor bolts the minimum amount necessary to correctly place the anchor bolts.

*NOTE: Make swedge deformations 3/16" deep without removing metal

SWEDGED ANCHOR BOLT DETAIL

Scale ~ 3" = 1'-0"

HDR

SHEET NO. B43

TRANSVERSE GIRDER BEARING DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED				CHECKED	3-15-19	B.K.C.
REVISED				DRAWN	3-7-19	K.J.A.
REVISED				DESIGNED	3-7-19	P.J.C.
REVISED				...\8807000brshdz04.dgn		
				7/17/2019	9:40:19 AM	

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

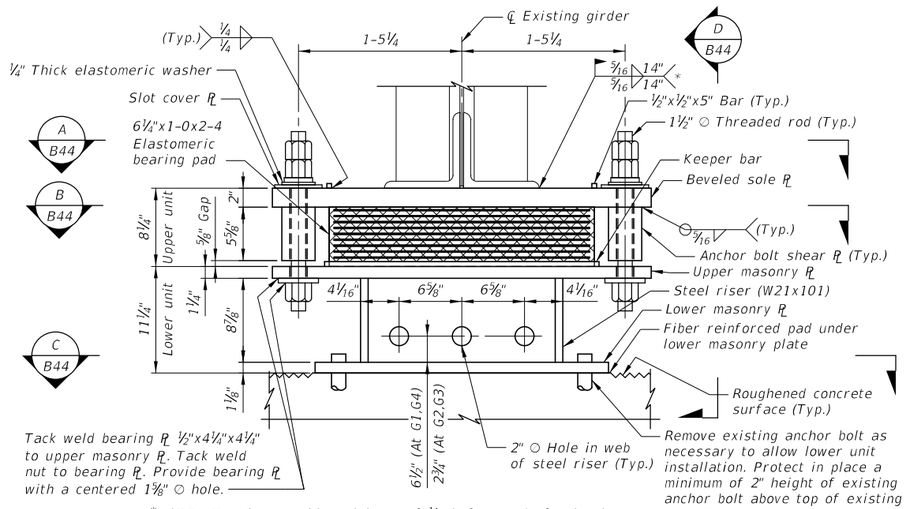
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23941

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



*NOTE: Terminate weld a minimum of ½" before end of sole plate.

END VIEW OF NEW BEARING ASSEMBLY

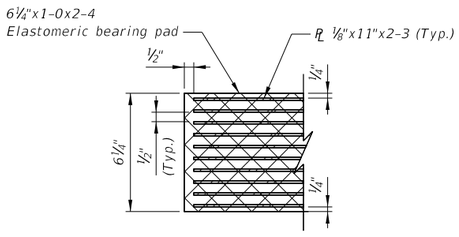
Scale ~ 1½" = 1'-0"

(Looking ahead on line at G2 Bent 3, similiar except as noted at other locations.)
(8 Required)

NOTE: Install lower nut in contact with slot cover plate and then back off ¾" turn.
Install upper nut snug tight to prevent lower nut from loosening.

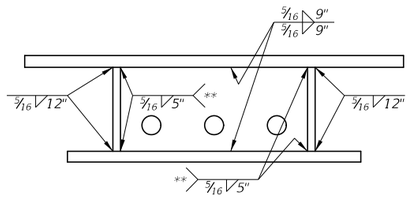
D B44 **BEARING ASSEMBLY SIDE VIEW**

Scale ~ 1½" = 1'-0"



BEARING PAD DETAIL

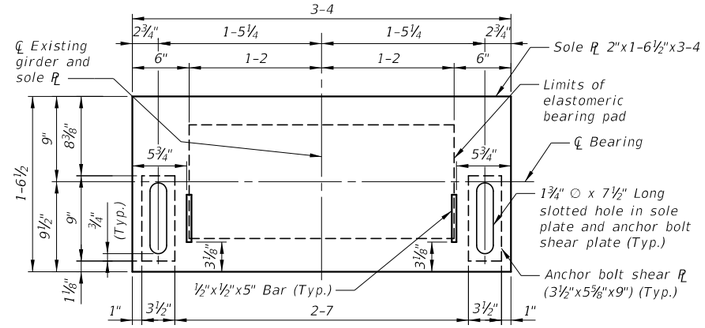
Scale ~ 3" = 1'-0"



**NOTE: Weld flange on near and far side of web.

LOWER UNIT WELDING DETAIL

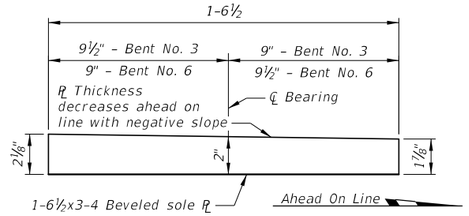
Scale ~ 1½" = 1'-0"



NOTE: Existing girder, threaded rod, and slot cover plate not shown for clarity.

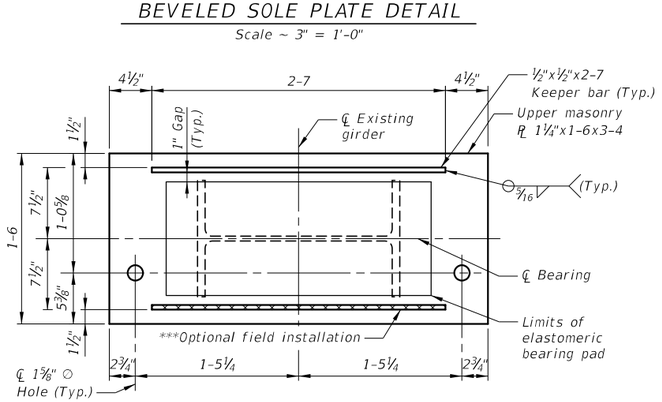
A B44 **BEVELED SOLE PLATE**

Scale ~ 1½" = 1'-0"



BEVELED SOLE PLATE DETAIL

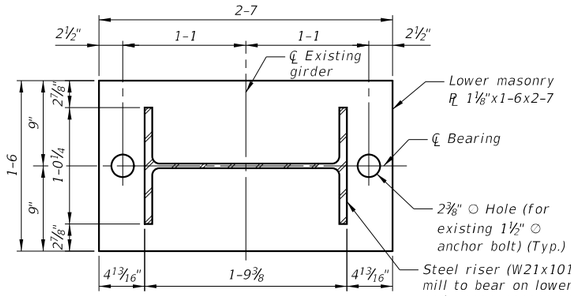
Scale ~ 3" = 1'-0"



***NOTE: Contractor may elect to field install rear keeper bar.
If field installed only provide weld on exterior face.

B B44 **UPPER MASONRY PLATE**

Scale ~ 1½" = 1'-0"



C B44 **LOWER MASONRY PLATE**

Scale ~ 1½" = 1'-0"

NOTES

Install bearing assembly on Bent No. 3, Span No. 3 side, and Bent No. 6, Span No. 5 side.

As required, provide temporary bracing for the entire bearing assembly to prevent overturning until new concrete for the seat extension can be placed. The cost for this temporary bracing is incidental to the unit price bid for Elastomeric Bearing Device.

New reinforcing and new concrete for seat extension not shown for clarity. See Sheets No. B24 thru No. B25 for new reinforcing and concrete details.

The Contractor can increase the upper and/or lower masonry plate thickness provided the overall lower unit height does not change, and at no additional cost to the State.

Furnish ASTM F1554 Grade 55 threaded rods meeting supplement S4 for connection testing to connect the upper masonry plate to the beveled sole plate. Furnish heavy hex nuts meeting and hardened washers per the Standard Specifications. Galvanize rods and all hardware that will not be encased in concrete per ASTM F2329.

Mark all bearings prior to shipping. Make all marks permanent and visible after the bearing is installed, include the bearing location on the bridge and a direction arrow that points ahead on line (up-station).

Include all costs associated with furnishing and placing the new bearing assembly including the: lower masonry plate, steel riser, upper masonry plate, keeper bars, elastomeric pad, beveled sole plate, threaded rods, and associated hardware in the unit price bid for Elastomeric Bearing Devices.

Vulcanize-bond elastomeric bearing pad to beveled sole plate.

Do not damage bearing assembly during welding process.

Paint all steel not in contact with concrete in accordance with the Standard Specifications and a finish color meeting Concrete Gray per Standard Specifications Table 559-1.

See Sheet No. B40 for girder jacking information and suggested installation sequence.

See Standard Specifications for requirements for fiber-reinforced pad under masonry plate.

BEARING DESIGN TABLE (SERVICE I LIMIT STATE)

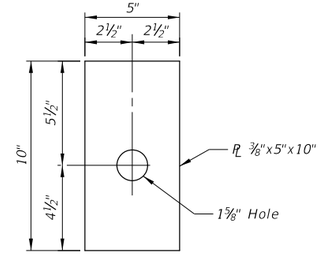
AASHTO design method	Method B
Elastomer grade	Grade 4
Unloaded height	6.25"
Shear modulus at 73° F	140 psi
Dead load reaction	162 kips
Live load reaction (without impact)	154 kips

NOTE: Bearing height only includes elastomeric bearing pad.

TABLE OF D MEASUREMENTS

	TEMPERATURE (°F)					
	-40	0	38	60	90	115
Bent 3	1 9/16	2 9/16	3½	4	4¾	5 5/16
Bent 6	2 15/16	3⅜	3¾	4	4 7/16	4 9/16

NOTE: The movements shown are not factored. They are the actual anticipated movements for the temperature shown.
Change in temperature for 1/16" of unfactored movement = 2.59° for Bent No. 3 and 5.83° for Bent No. 6.



NOTE: Install so 5½" side is on the river side of rod.

SLOT COVER PLATE DETAIL

Scale ~ 3" = 1'-0"

SHEET NO. B44

EXISTING STEEL GIRDER BEARING DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED				J.C.M.	
REVISED				K.J.A.	
REVISED				B.K.C.	
REVISED	CHECKED	3-7-19			
	DRAWN	2-27-19			
	DESIGNED	2-25-19			

...\8807000brsht205.dgn
7/17/2019 9:40:57 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

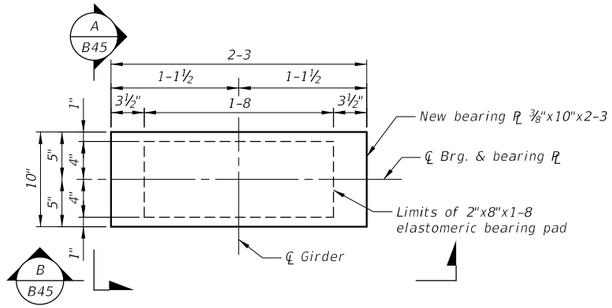
UPN NUMBER 8807000

DRAWING NO. 23942

HDR

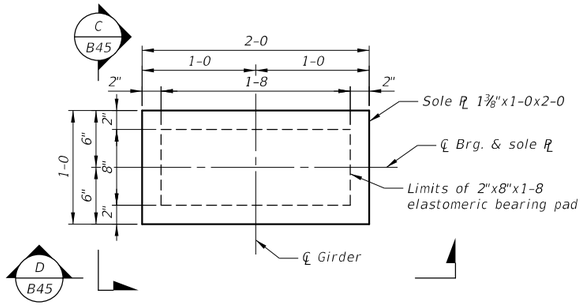
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



EXPANSION BEARING FOR EXISTING TYPE A BEAM

Scale ~ 1½" = 1'-0"
(Beam and existing sole plate not shown for clarity.)
(31 Required)



EXPANSION BEARING FOR NEW TYPE A BEAM

Scale ~ 1½" = 1'-0"
(Beam not shown for clarity.)
(5 Required)

NOTES

Install expansion bearings at Bent No. 7, Span No. 7 side, Bent No. 10 both spans, and Bent No. 13, Span No. 12 side. See Sheet No. B41 for jacking details.

Mark all expansion bearings prior to shipping. Make all marks permanent and visible after the bearing is installed, include the bearing location on the bridge and a direction arrow that points ahead on line (up-station).

Include all costs associated with furnishing and placing the elastomeric bearing pad and sole plate in the unit price for Elastomeric Bearing Device.

Test elastomeric bearing pads according to AASHTO M251. Perform test based on the following estimated service design load: DL + LL = 119.2 kip per bearing pad.

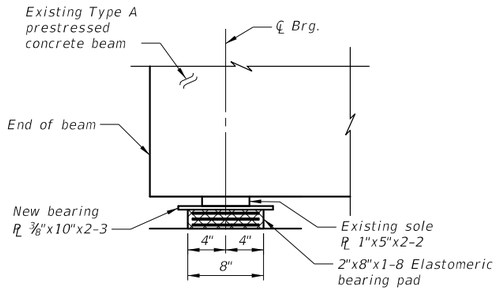
Elastomeric bearing design per AASHTO design Method A.

Use Grade 4 elastomer with a minimum shear modulus of 130 psi for the elastomeric bearing pad.

Vulcanize - bond elastomeric bearing pad to new sole plate or new bearing plate.

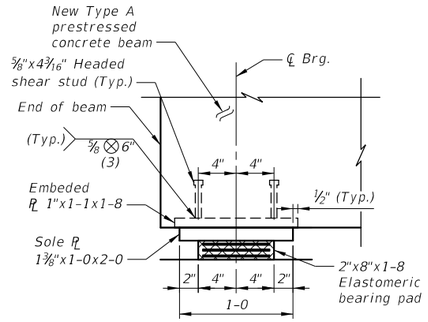
Use structural steel meeting the requirement of AASHTO M270 Grade 50 for all steel plates.

Prevent damage to elastomer during welding. The temperature of the steel adjacent to the elastomer should be kept below 250° F.

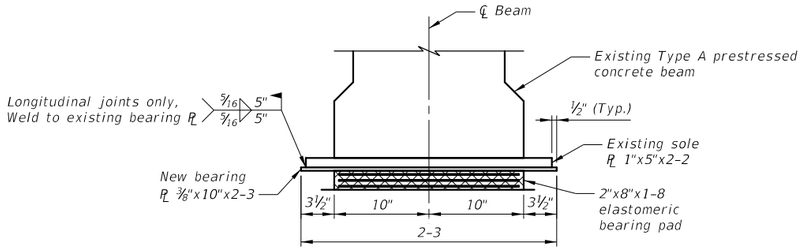


NOTE: Existing embedded plate not shown for clarity.

A B45 VIEW A
Scale ~ 1½" = 1'-0"

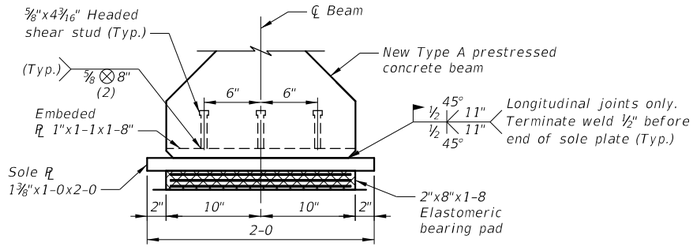


C B45 VIEW C
Scale ~ 1½" = 1'-0"

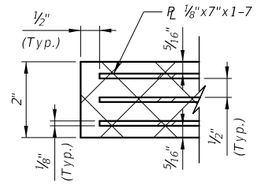


NOTE: Existing embedded plate not shown for clarity.

B B45 VIEW B
Scale ~ 1½" = 1'-0"



D B45 VIEW D
Scale ~ 1½" = 1'-0"



ELASTOMERIC BEARING PAD DETAIL

Scale ~ 6" = 1'-0"

SHEET NO. B45

TYPE A PRESTRESSED CONCRETE BEAM BEARING DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED							
REVISED							
REVISED							
REVISED							
CHECKED	3-22-19	J.D.S.					
DRAWN	3-1-19	K.J.A.					
DESIGNED	3-1-19	P.C.J.					

...8807000brshdz06.dgn
3/16/2020 12:28:39 PM
BRIDGE BUREAU
MONTANA DEPARTMENT OF TRANSPORTATION

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23943

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

NOTES

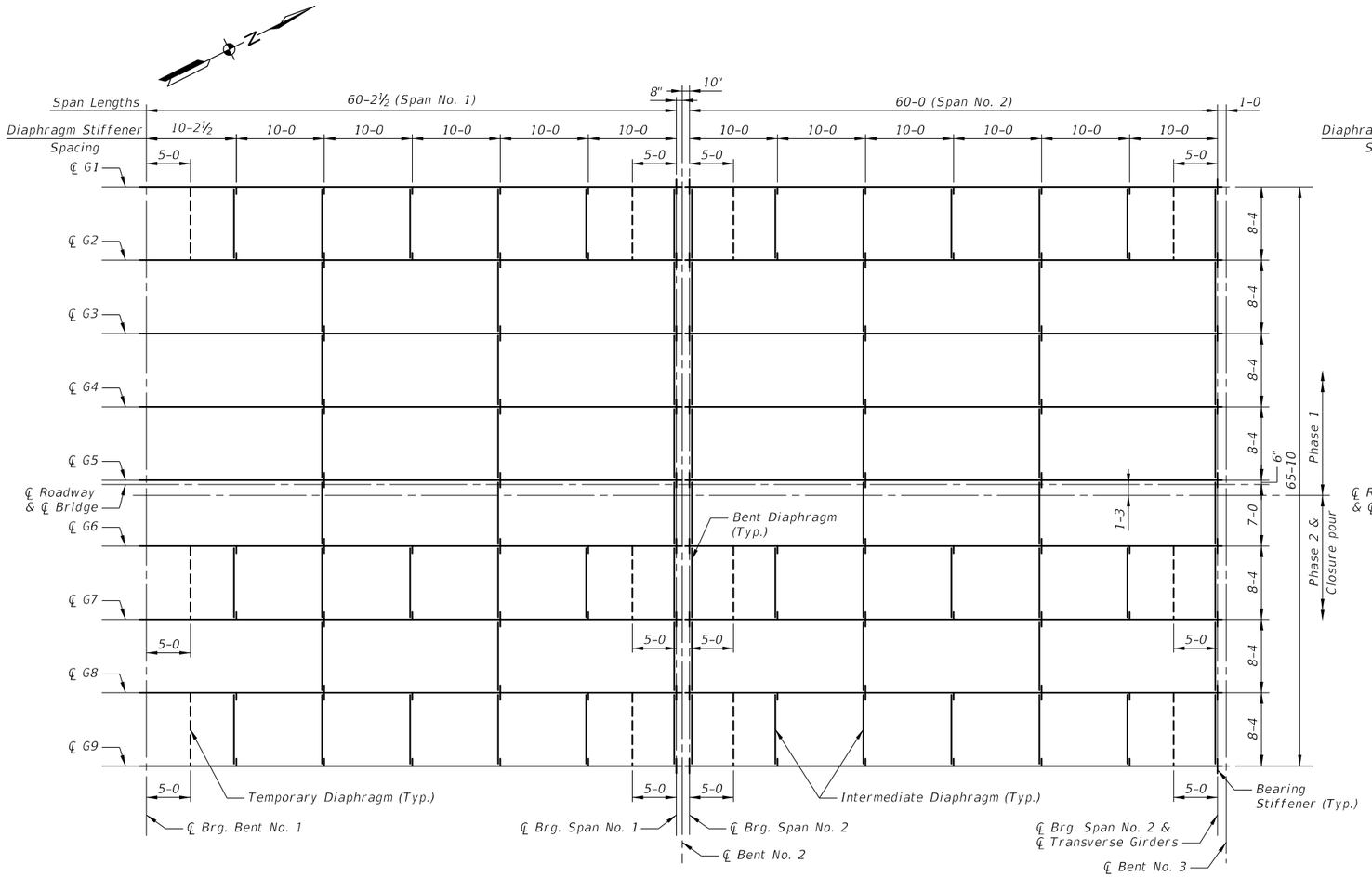
Dimensions shown are horizontal.

See Sheet No. B47 for girder elevations.

See Sheet No. B47 for diaphragm and stiffener details.

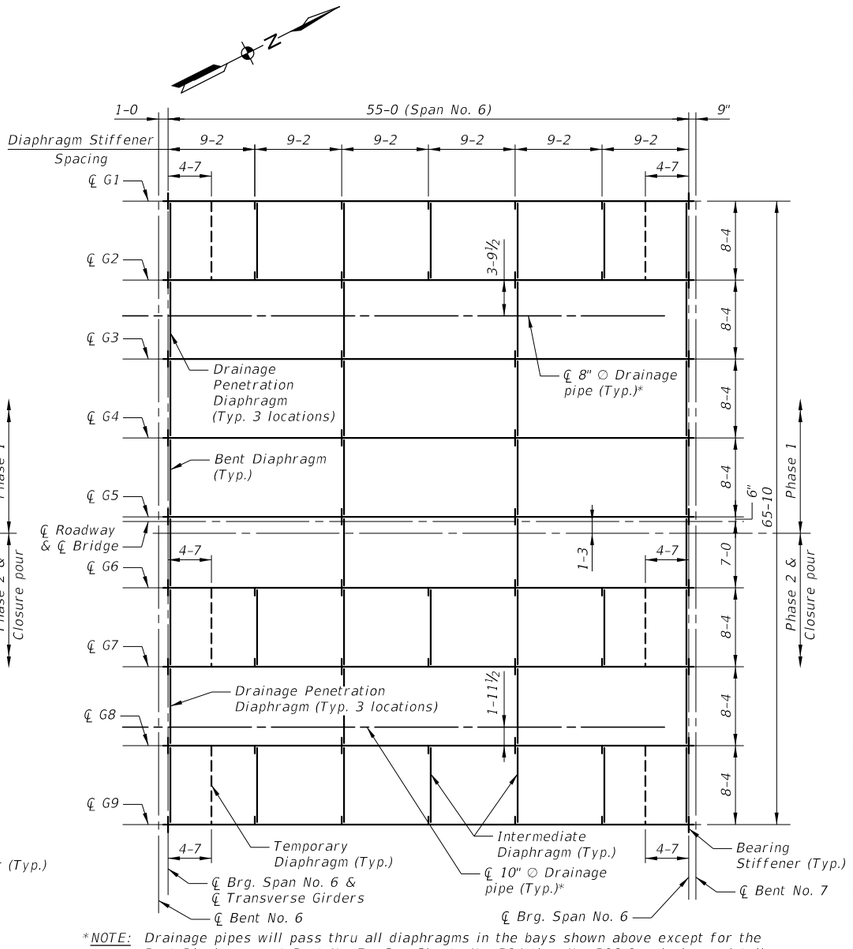
See Sheet No. B48 for camber details.

See Sheet No. B51 for Transverse Girder Details



ERECTION PLAN – SPANS NO. 1 & NO. 2

Scale ~ ⅛" = 1'-0"



*NOTE: Drainage pipes will pass thru all diaphragms in the bays shown above except for the Bent Diaphragms at Bent No. 7. See Sheets No. B94 thru No. B96 for drainage details.

ERECTION PLAN – SPAN NO. 6

Scale ~ ⅛" = 1'-0"

HDR

SHEET NO. B46

SPANS NO. 1, NO. 2 & NO.6 ERECTION PLANS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED							J.C.M.	
REVISED							G.H.S.	
REVISED							P.C.J.	
CHECKED	3-1-19							
DRAWN	12-5-18							
DESIGNED	12-5-18							

...\8807000breplb01.dgn

7/17/2019 1:13:53 PM

MONTANA MDT DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

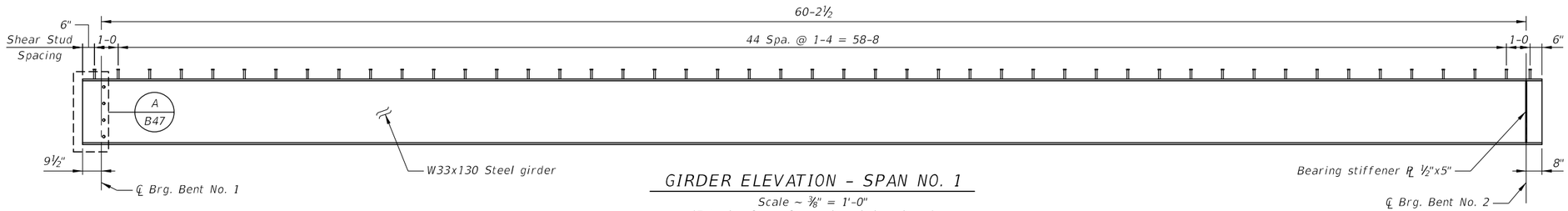
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23944

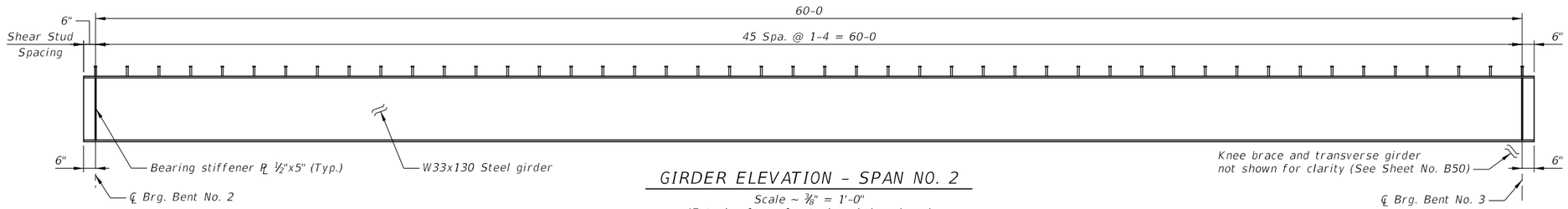
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



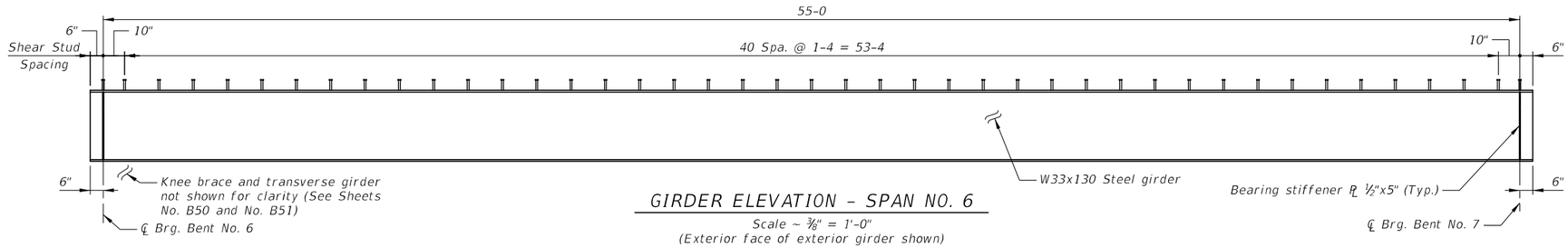
GIRDER ELEVATION – SPAN NO. 1

Scale ~ ⅜" = 1'–0"
(Exterior face of exterior girder shown)



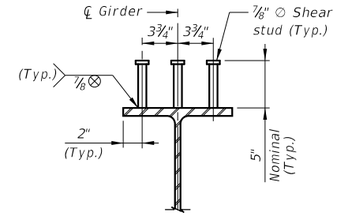
GIRDER ELEVATION – SPAN NO. 2

Scale ~ ⅜" = 1'–0"
(Exterior face of exterior girder shown)



GIRDER ELEVATION – SPAN NO. 6

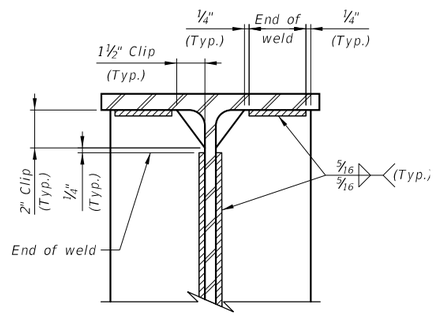
Scale ~ ⅜" = 1'–0"
(Exterior face of exterior girder shown)



SHEAR STUD DETAIL

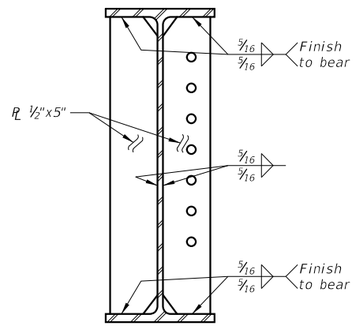
Scale ~ 1½" = 1'–0"

NOTE: Use shear studs meeting the requirements of AASHTO M169 Grades 1010–1020 and the mechanical requirements for Type B studs in accordance with AWS D1.5 Table 7.1.



STIFFENER WELD AND COPE DETAIL

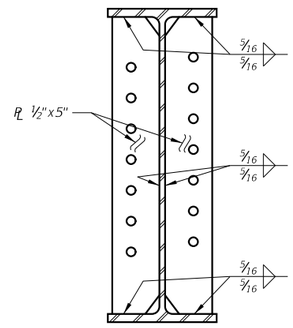
Scale ~ 3" = 1'–0"



NOTE: Bearing stiffeners located at bent diaphragm locations. All girders will have bearing stiffeners on both sides.

BEARING STIFFENER

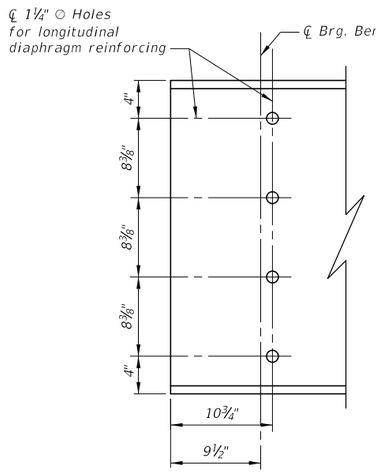
Scale ~ 1½" = 1'–0"
(Exterior girder shown)



NOTE: Girders with diaphragms on only one side do not need stiffener on opposite face of diaphragm.

DIAPHRAGM CONNECTION STIFFENER

Scale ~ 1½" = 1'–0"
(Interior girder shown)



A / B47 SPAN NO. 1 GIRDER END DETAIL

Scale ~ 1½" = 1'–0"

NOTES

Dimensions shown are horizontal.

Use structural steel meeting the requirements of AASHTO M270 Grade 50 for rolled sections and stiffeners.

Fabricate the girders and diaphragms such that the girder webs are vertical (plumb) under the application of total dead load.

See Sheet No. B49 for diaphragm details.

HDR

SHEET NO. B47

SPANS NO. 1, NO. 2 & NO. 6 GIRDER ELEVATIONS AND DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	...\8807000brgirz01.dgn
					3-1-19	12-5-18	12-5-18	
					J.C.M.	G.H.S.	P.C.J.	

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/17/2019 1:14:19 PM

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23945

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

TABLE OF CAMBER INFORMATION

LOCATION		SPAN 1											SPAN 2										
		1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
Exterior Girder	Girder & Diaphragm	0	1/16	1/8	3/16	1/4	1/4	1/4	3/16	1/8	1/16	0	0	1/16	1/8	3/16	1/4	1/4	1/4	3/16	1/8	1/16	0
	Slab & Haunch	0	1/2	1 5/16	1 5/16	1 9/16	1 5/8	1 9/16	1 5/16	1 5/16	1/2	0	0	1/2	1 3/16	1 1/16	1 9/16	1 5/8	1 9/16	1 5/16	1 5/16	1/2	0
	Composite D.L. Deflection	0	0	1/16	1/16	1/8	1/8	1/8	1/16	1/16	0	0	0	0	1/16	1/16	1/8	1/8	1/8	1/16	1/16	0	0
	Total D.L. Deflection	0	9/16	1 1/8	1 9/16	1 15/16	2	1 15/16	1 9/16	1 1/8	9/16	0	0	9/16	1 1/8	1 9/16	1 15/16	2	1 15/16	1 9/16	1 1/8	9/16	0
	Vertical Curve Offset	0	1/16	1/16	1/8	1/8	3/16	3/16	1/4	5/16	1/4	0	0	7/8	1 9/16	2	2 5/16	2 7/16	2 5/16	2	1 9/16	7/8	0
	Total Camber	0	5/8	1 3/16	1 1 1/16	2 1/16	2 3/16	2 1/8	1 1 3/16	1 7/16	1 3/16	0	0	1 7/16	2 1 1/16	3 3/16	4 1/4	4 7/16	4 1/4	3 3/16	2 1 1/16	1 7/16	0
Interior Girder	Girder & Diaphragm	0	1/16	1/8	3/16	1/4	1/4	1/4	3/16	1/8	1/16	0	0	1/16	1/8	3/16	1/4	1/4	1/4	3/16	1/8	1/16	0
	Slab & Haunch	0	1/16	1 3/16	1 1/16	1 1/4	1 5/16	1 1/4	1 1/16	1 3/16	1/16	0	0	1/16	1 3/16	1 1/16	1 1/4	1 5/16	1 1/4	1 1/16	1 3/16	1/16	0
	Composite D.L. Deflection	0	1/16	1/16	1/16	1/8	1/8	1/8	1/16	1/16	1/16	0	0	1/16	1/16	1/16	1/8	1/8	1/8	1/16	1/16	1/16	0
	Total D.L. Deflection	0	9/16	1	1 5/16	1 5/8	1 1 1/16	1 5/8	1 5/16	1	9/16	0	0	9/16	1	1 5/16	1 5/8	1 1 1/16	1 5/8	1 5/16	1	9/16	0
	Vertical Curve Offset	0	1/16	1/16	1/8	1/8	3/16	3/16	1/4	5/16	1/4	0	0	7/8	1 9/16	2	2 5/16	2 7/16	2 5/16	2	1 9/16	7/8	0
	Total Camber	0	5/8	1 1/16	1 7/16	1 3/4	1 7/8	1 1 3/16	1 9/16	1 5/16	1 3/16	0	0	1 7/16	2 9/16	3 5/16	3 15/16	4 1/8	3 15/16	3 5/16	2 9/16	1 7/16	0

TABLE OF CAMBER INFORMATION

LOCATION		SPAN 6										
		6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0
Exterior Girder	Girder & Diaphragm	0	1/16	1/8	1/8	3/16	3/16	3/16	1/8	1/8	1/16	0
	Slab & Haunch	0	3/8	1 1/16	1 5/16	1 1/16	1 1/8	1 1/16	1 5/16	1 1/16	3/8	0
	Composite D.L. Deflection	0	0	1/16	1/16	1/16	1/16	1/16	1/16	1/16	0	0
	Total D.L. Deflection	0	7/16	7/8	1 1/8	1 5/16	1 3/8	1 5/16	1 1/8	7/8	7/16	0
	Vertical Curve Offset	0	0	0	0	0	0	0	0	0	0	0
	Total Camber	0	7/16	7/8	1 1/8	1 5/16	1 3/8	1 5/16	1 1/8	7/8	7/16	0
Interior Girder	Girder & Diaphragm	0	1/16	1/8	1/8	3/16	3/16	3/16	1/8	1/8	1/16	0
	Slab & Haunch	0	5/16	9/16	3/4	7/8	1 5/16	7/8	3/4	9/16	5/16	0
	Composite D.L. Deflection	0	0	1/16	1/16	1/16	1/16	1/16	1/16	1/16	0	0
	Total D.L. Deflection	0	3/8	3/4	1 5/16	1 1/8	1 3/16	1 1/8	1 5/16	3/4	3/8	0
	Vertical Curve Offset	0	0	0	0	0	0	0	0	0	0	0
	Total Camber	0	3/8	3/4	1 5/16	1 1/8	1 3/16	1 1/8	1 5/16	3/4	3/8	0

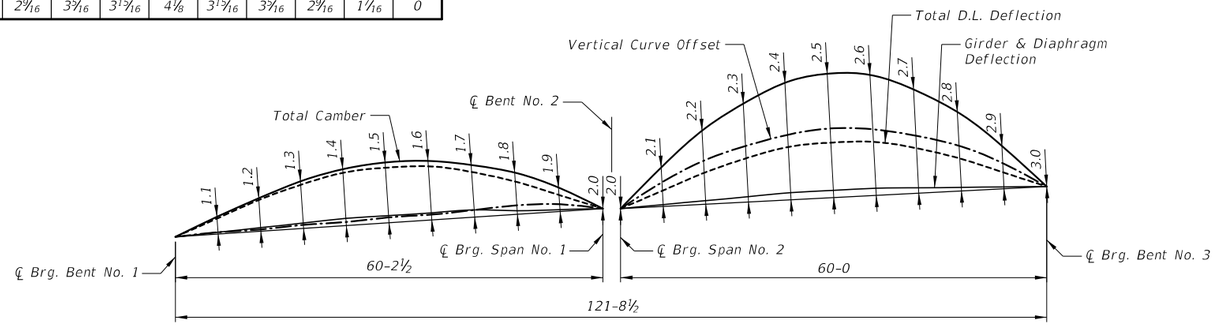
NOTES

Deflection and camber values are reported in inches. Negative values denote an upward deflection.

Total dead load deflections in the camber tables have been increased 10% to account for creep and shrinkage of the concrete slabs.

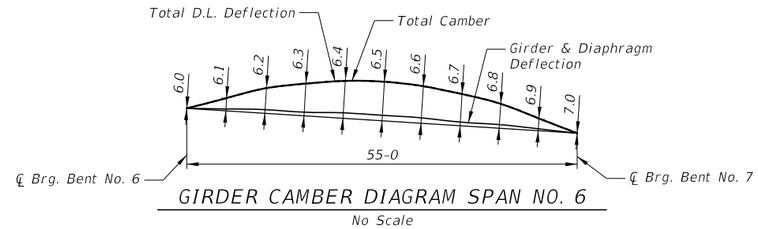
Composite D.L. deflections includes dead load deflection for bridge railing, pedestrian railing, utility load, and 10 P.S.F. future wearing surface.

Deflections are directly proportional to D.L. weights which are as follows:
Total D.L. = 1.30 Kip/ft to Exterior Girder (Average)
Total D.L. = 1.10 Kip/ft to Interior Girder (Average)
D.L. Structural Steel = 0.16 Kip/ft of Girder (Average)



GIRDER CAMBER DIAGRAM SPANS NO. 1 & NO. 2

No Scale



GIRDER CAMBER DIAGRAM SPAN NO. 6

No Scale

TABLE OF DESIGN INFORMATION

D.L. = Dead Load
L.L. + IM = Lane + Truck x Impact (Dynamic Load Allowance) + Pedestrian Load (where applicable)

		SPAN NO. 1		SPAN NO. 2		SPAN NO. 6		R1 / R2		R3 / R4		R5 / R6	
		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 (Kip-ft.)	DL	493	594	493	594	417	500						
	LL + IM	933	813	933	813	838	702						
Shear/Reaction (Kip)	DL							33	40	33	40	31	37
	LL + IM							84	58	84	58	81	55
Bearing pad design reaction (Kip)	DL							33	40	33	40	31	37
	LL W/O IM							67	51	67	51	64	48
Deflection (in.)	DL	1 9/16	1 7/8	1 9/16	1 7/8	1 1/16	1 5/16						
	LL + IM	3/8	3/8	3/8	3/8	1/4	1/4						

NOTE: Dead load deflections shown in table are based on tributary loading. The dead load deflections have not been increased for creep and shrinkage.

NOTE: Exterior girder is controlled by girder 9. Live load moments, shears, and reactions contain affects of pedestrian loads, but deflection listed is only due to design truck.

STRINGLINE SLOPE TABLE (%)

GIRDER	SPAN NO. 1	SPAN NO. 2	SPAN NO. 6
G1	2.903	1.020	-1.529%
G2	2.903	1.020	-1.529%
G3	2.903	1.020	-1.529%
G4	2.903	1.020	-1.529%
G5	2.903	1.020	-1.529%
G6	2.903	1.020	-1.529%
G7	2.903	1.020	-1.529%
G8	2.903	1.020	-1.529%
G9	2.903	1.020	-1.529%

NOTE: Measured along ℄ girder from ℄ Brg. to ℄ Brg.

HDR

SHEET NO. B48

SPANS NO. 1, NO. 2 & NO. 6 CAMBER DETAILS AND DESIGN INFORMATION

SCALE: No Scale

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
				J.C.M.	G.H.S.	P.C.J.
				3-1-19	12-5-18	12-5-18

...8807000bcamd01.dgn

7/17/2019 1:14:45 PM

MONTANA DEPARTMENT OF TRANSPORTATION BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

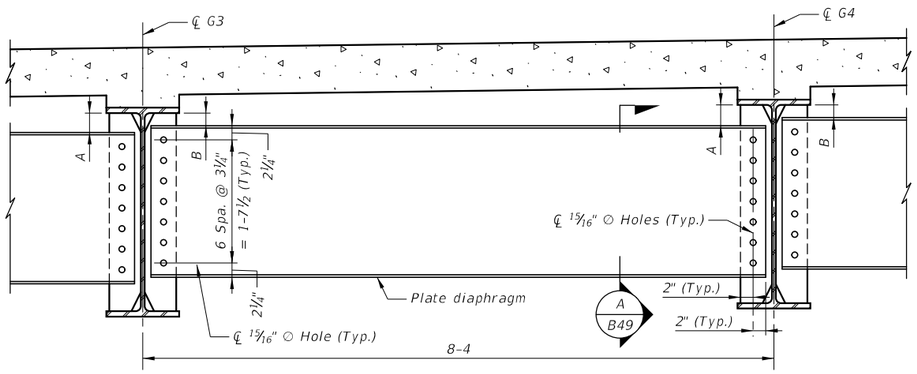
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23946

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



TYPICAL BENT & INTERMEDIATE DIAPHRAGM - ELEVATION

Scale ~ 1" = 1'-0"
(G3 and G4 shown, other locations similar)
(See Diaphragm Offsets table this sheet for "A" and B")

DIAPHRAGM OFFSETS		
GIRDER	A	B
G1	-	2"
G2	3"	2"
G3	3 1⁄16"	2"
G4	3 3⁄16"	2"
G5	3 3⁄16"	3"
G6	2"	3 3⁄16"
G7	2"	3 3⁄16"
G8	2"	2"
G9	2 15⁄16"	-

NOTE: "A" represents the offset on the left side of the girder and "B" represents the offset on the right side of the girder, looking Ahead on Line.

NOTES

Use structural steel meeting the requirements of AASHTO M270 Grade 50 for plate diaphragms and stiffeners.

Use ⅞" ∅ high strength bolts. Exclude bolt threads from shear plane.

Use slip-critical bolted connections. Provide Class A surface conditions.

Fabricate bearing stiffeners and girder ends to be vertical in their final in-place position after total dead load deflection.

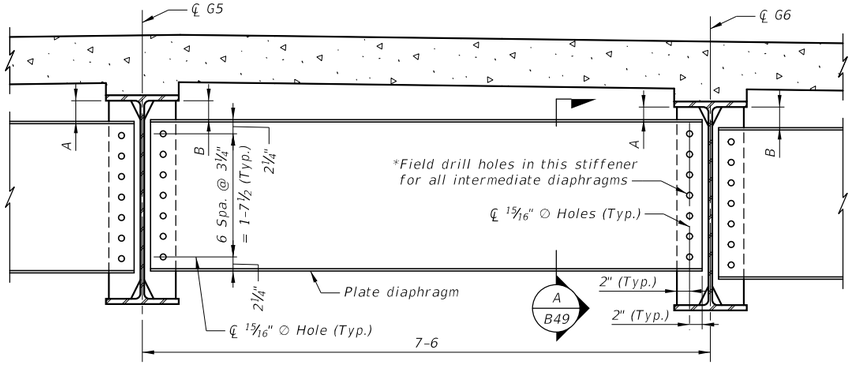
Fabricate intermediate diaphragm stiffeners perpendicular to top flange of girder.

Orient all diaphragms with flanges pointed away from the expansion joint.

Install Bent diaphragms between G5 and G6 prior to Phase 2 deck pour.

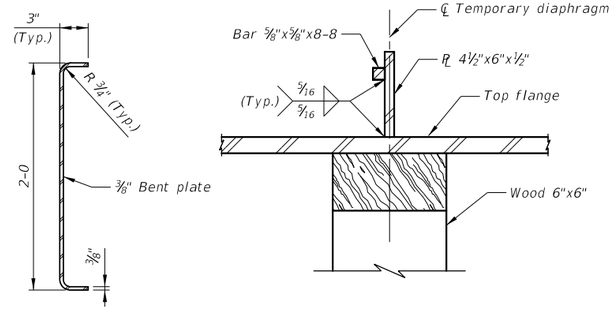
*Install intermediate diaphragms between G5 and G6 after Phase 2 deck concrete has hardened but prior to placing deck closure pour form work. Shop drill diaphragm connection bolt holes in plate diaphragm. Erect diaphragm and install bolts in G5 stiffener plate without tightening. Using the plate diaphragm as a template to field drill bolt holes in G6 stiffener plate making sure to maintain a minimum edge distance of 1.75" from center of holes. Tighten bolts.

See Sheets No. B94 thru No. B96 for deck drainage details.



BENT & INTERMEDIATE DIAPHRAGM BETWEEN G5 & G6 - ELEVATION

Scale ~ 1" = 1'-0"

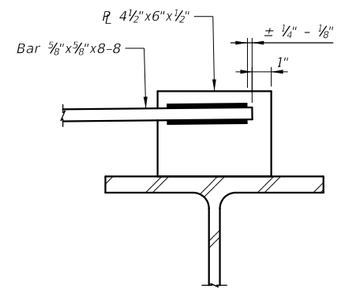


A B49 SECTION A

Scale ~ 1½" = 1'-0"

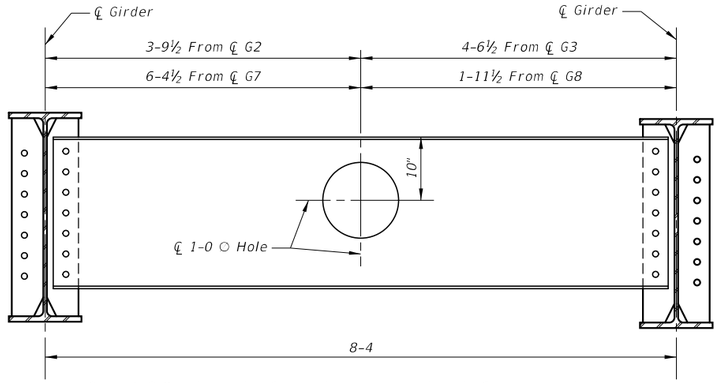
B B49 SECTION B

Scale ~ 3" = 1'-0"



TYPICAL WELD TERMINATION DETAIL

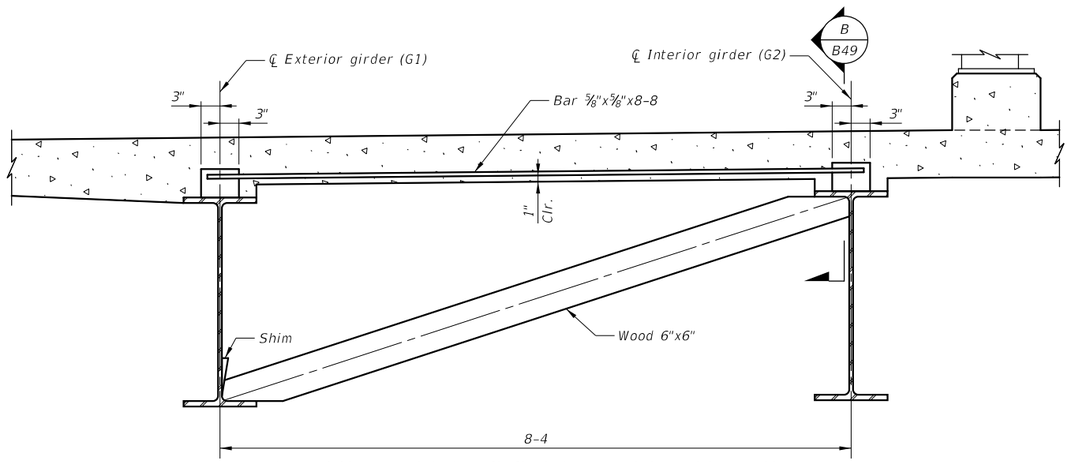
Scale ~ 3" = 1'-0"



NOTE: 1-0 ○ hole needed for drainage penetrations in Span No. 5 diaphragms located in bays between Girders 2 and 3 as well as Girders 7 and 8.

SPAN 5 DRAINAGE PENETRATION DIAPHRAGM - ELEVATION

Scale ~ 1" = 1'-0"



NOTE: Field cut wood 6"x6" to fit firmly between girder and insert shim so the wood 6"x6" is secure. Remove wood 6"x6" after deck is cured.

TEMPORARY DIAPHRAGM - ELEVATION

Scale ~ 1" = 1'-0"
(G1 and G2 shown, G6 and G7, G8 and G9 similar. Brace bottom flange on girder with overhang)

HDR

SHEET NO. B49

SPANS NO. 1, NO. 2 & NO. 6 DIAPHRAGM DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
					J.C.M.	G.H.S.	P.C.J.
					3-1-19	12-5-18	12-5-18

...8807000brdiaz01.dgn
1:15:13 PM
7/17/2019

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

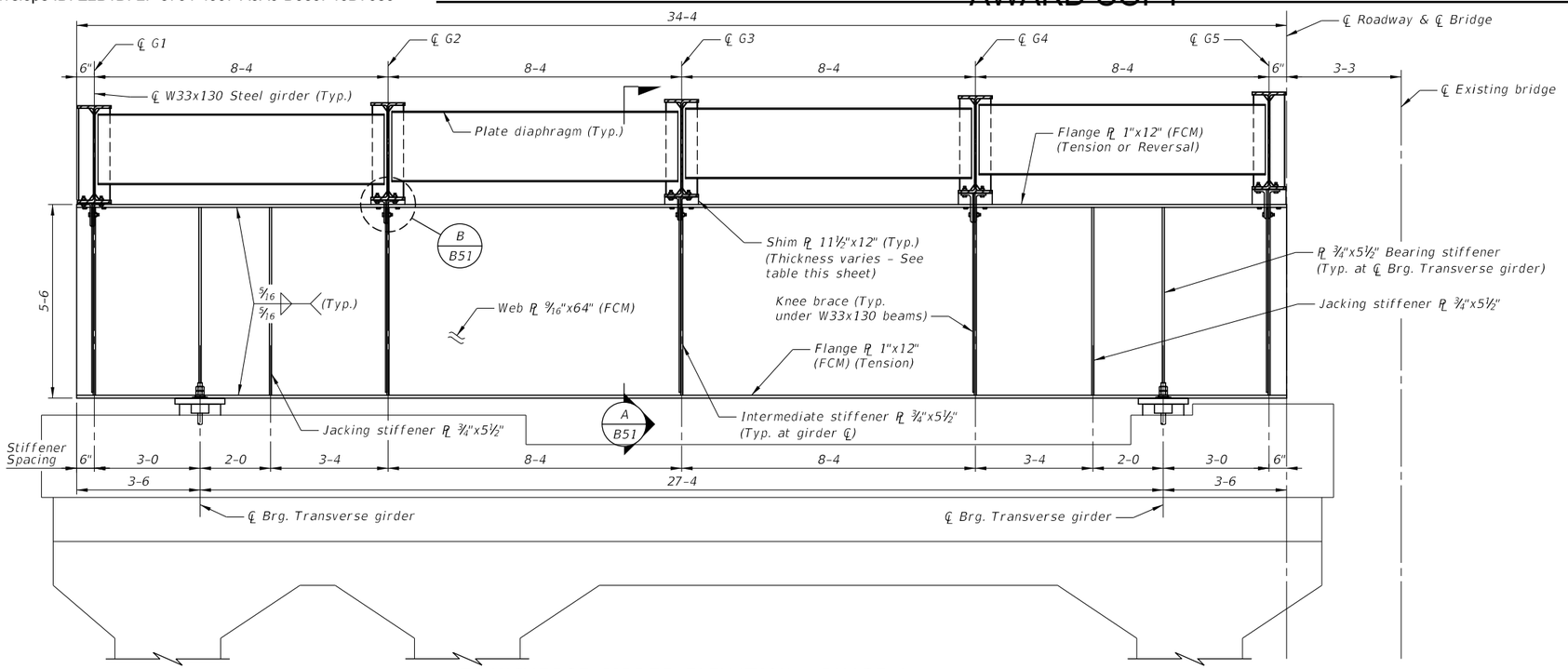
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23947

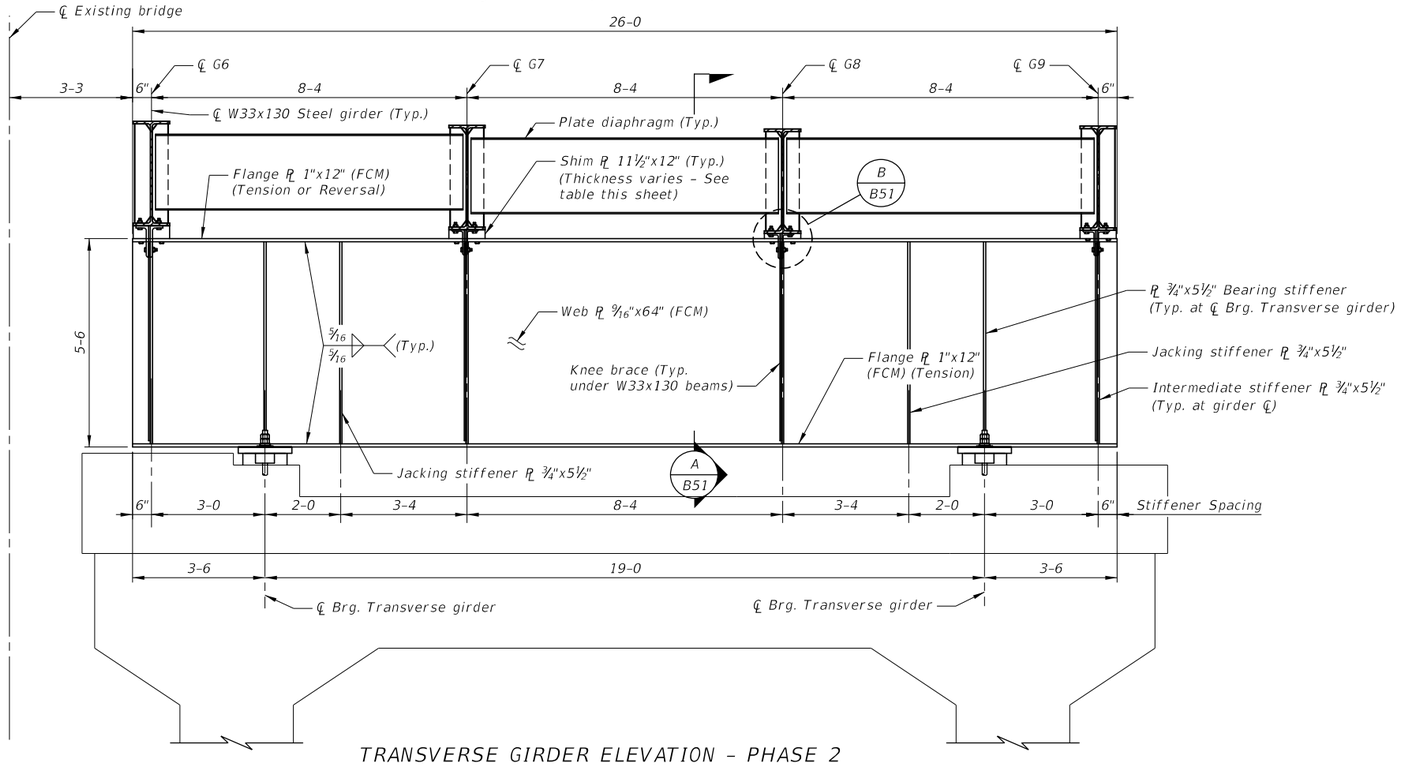
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



TRANSVERSE GIRDER ELEVATION - PHASE 1

Scale ~ ½" = 1'-0"
(Looking ahead on line, Bent No. 3 shown, Bent No. 6 similar)



TRANSVERSE GIRDER ELEVATION - PHASE 2

Scale ~ ½" = 1'-0"
(Looking ahead on line, Bent No. 3 shown, Bent No. 6 similar)

NOTES

Use structural steel meeting the requirements of AASHTO M270 Grade 50 for the transverse girder, knee brace, and stiffeners. Use AASHTO M270 Grade 36 or 50 for connection angles.

Detail and fabricate transverse girder without any camber.

The transverse girder is a primary member. Provide material for transverse girder and stiffener plates meeting Charpy V-Notch requirements of AASHTO M270 Zone 3.

All plates designated FCM are Fracture Critical Members. Furnish and fabricate all FCM members in accordance with the requirements of Section 12 of the AASHTO/AWS Bridge Welding Code D1.5.

Fabricate the girder webs and ends to be vertical (plumb) under the application of total dead load.

All structural steel for the transverse girder, knee braces, connection angles, shim plates, and stiffeners will be measured and paid for on the lump sum basis under the item Structural Steel - Girder.

Use ⅞" ∅ high strength bolts. Exclude bolt threads from shear plane.

See Sheet No. B22 thru No. B25 for Bent No. 3 & No. 6 details.

See Sheet No. B43 for transverse girder bearing details.

See Sheets No. B46 thru No. B49 for rolled girder details.

See Sheet No. B51 for knee brace and other transverse girder details.

SHIM PLATE THICKNESS

GIRDER	BENT NO. 3	BENT NO. 6
G1	½"	⅜"
G2	1½"	1⅜"
G3	$2^{9}/_{16}$"	2⅜"
G4	$3^{13}/_{16}$"	$3^{1}/_{16}$"
G5	5⅛"	$4^{15}/_{16}$"
G6	4⅛"	$3^{15}/_{16}$"
G7	$2^{13}/_{16}$"	$2^{1}/_{16}$"
G8	$1^{11}/_{16}$"	1½"
G9	2⅝"	$2^{7}/_{16}$"

SHEET NO. B50

TRANSVERSE GIRDER ELEVATIONS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		
REVISED		
REVISED		
REVISED	CHECKED	3-15-19 B.K.C.
	DRAWN	3-9-19 K.J.A.
	DESIGNED	3-8-19 P.C.J.

...8807000brgjrz02.dgn
7/17/2019 1:15:40 PM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

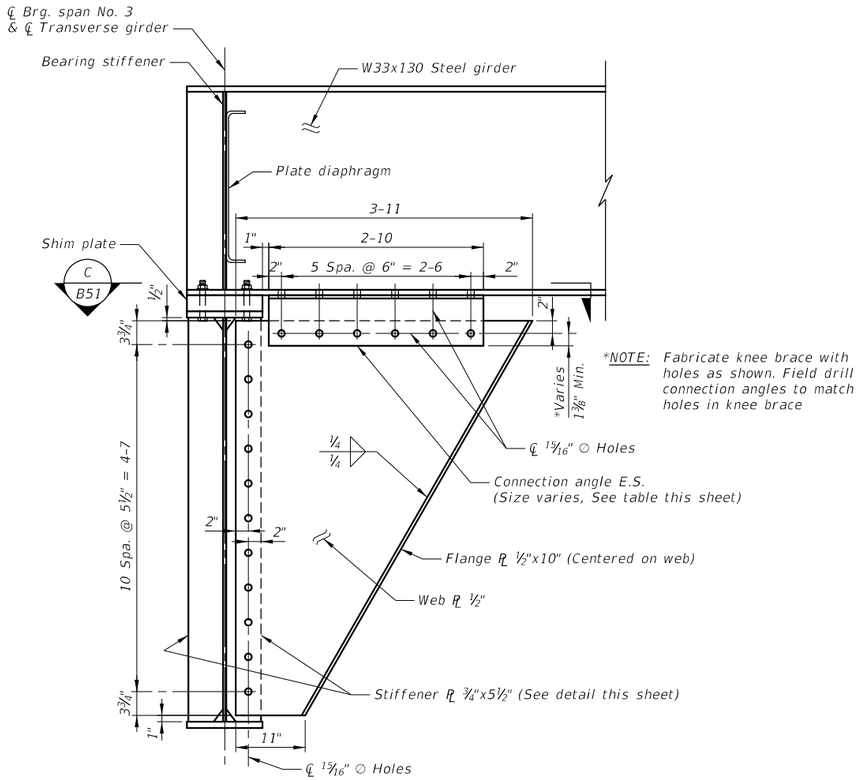
UPN NUMBER 8807000

DRAWING NO. 23948

HDR

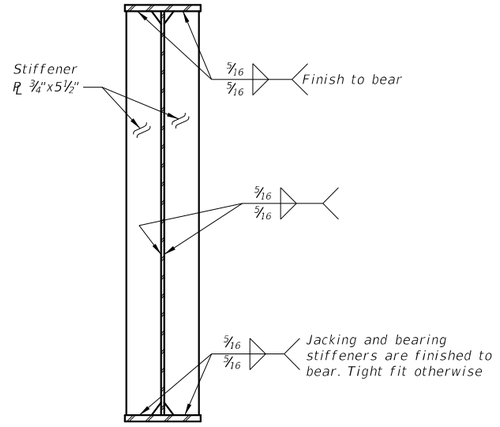
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



*NOTE: Fabricate knee brace with holes as shown. Field drill connection angles to match holes in knee brace

A B50 **SECTION A**
Scale ~ 1" = 1'-0"



NOTE: For additional information see Stiffener Weld and Cope Detail on Sheet No. B47.

TRANSVERSE GIRDER STIFFENER DETAIL
Scale ~ 1" = 1'-0"

NOTES

E.S. = Each Side

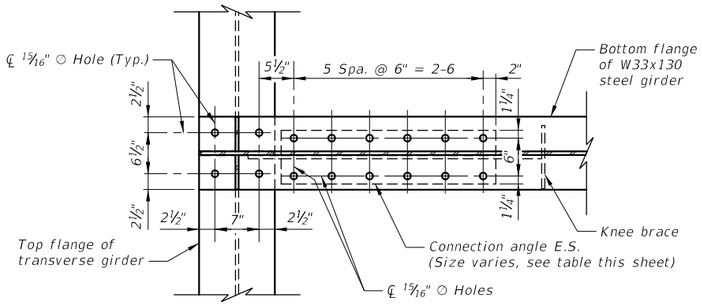
See Sheet No. B50 for additional notes.

See Sheet No. B50 for size of shim plates.

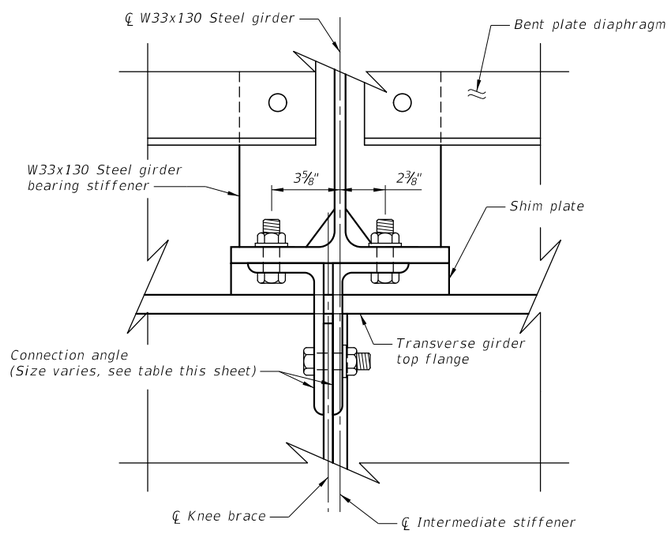
CONNECTION ANGLE SIZE

GIRDER	ANGLE SIZE
G1	L 8"x4"x½"
G2	L 8"x4"x½"
G3	L 8"x4"x½"
G4	**L 10"x10"x¾"
G5	**L 10"x10"x¾"
G6	**L 10"x10"x¾"
G7	L 8"x4"x½"
G8	L 8"x4"x½"
G9	L 8"x4"x½"

**NOTE: See angle cut detail for L 10"x10"x¾" members, this sheet. A weldment of equivalent plate steel material and a complete joint penetration weld may be substituted. Submit shop drawings for approval.

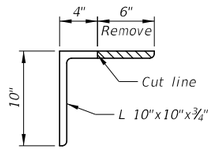


C B51 **SECTION C**
Scale ~ 1" = 1'-0"



NOTE: Bolts connecting beam bottom flange to transverse girder not shown for clarity.

B B50 **DETAIL B**
Scale ~ 3" = 1'-0"



ANGLE CUT DETAIL
Scale ~ 1½" = 1'-0"

HDR

SHEET NO. B51

TRANSVERSE GIRDER DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
					3-15-19	3-1-19	3-8-19
					B.K.C.	K.J.A.	P.C.J.

...\8807000brgirz03.dgn
7/17/2019 1:16:09 PM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

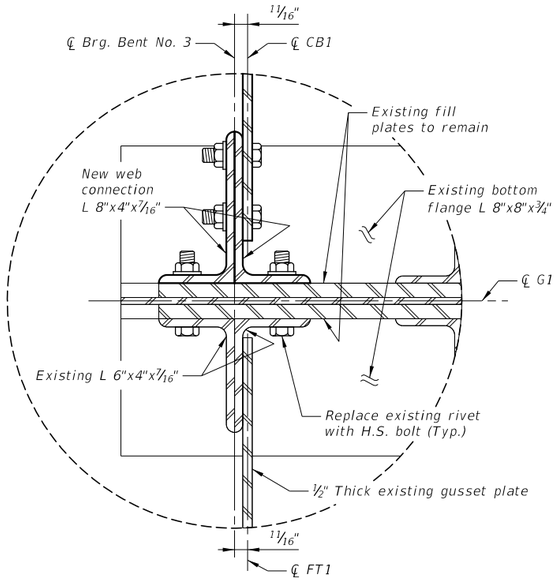
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23949

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

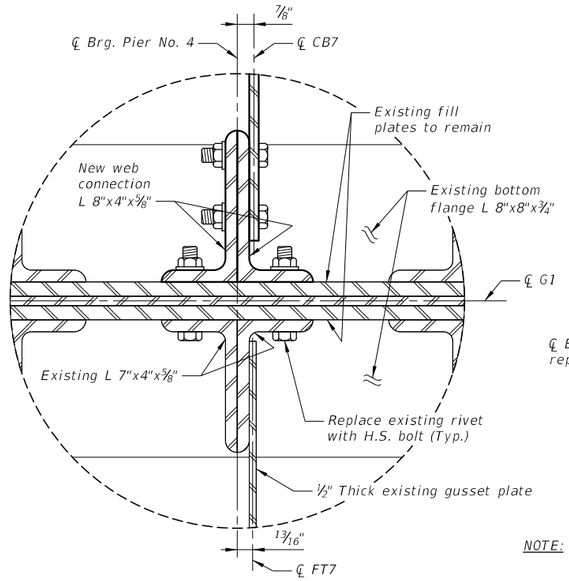
AWARD COPY



NOTE: Bent No. 3 (CB1) shown, Bent No. 6 (CB21) similar but opposite hand.

NOTE: Existing rivets to remain not shown for clarity.

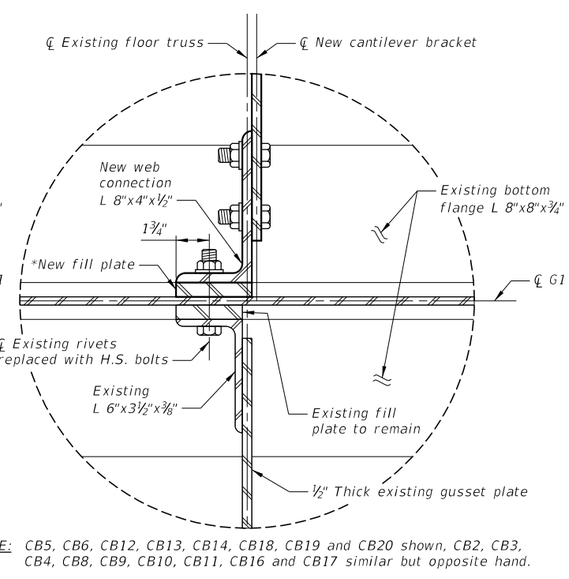
A B52 **DETAIL A**
Scale ~ 3" = 1'-0"



NOTE: Pier No. 4 (CB7) shown, Pier No. 5 (CB15) similar but opposite hand.

NOTE: Existing rivets to remain not shown for clarity.

B B52 **DETAIL B**
Scale ~ 3" = 1'-0"



NOTE: CB5, CB6, CB12, CB13, CB14, CB18, CB19 and CB20 shown, CB2, CB3, CB4, CB8, CB9, CB10, CB11, CB16 and CB17 similar but opposite hand.

NOTE: Existing rivets to remain not shown for clarity.

*NOTE: See Cantilever Bracket Part Identification table on Sheet No. B54 for fill plate thickness.

C B52 **DETAIL C**
Scale ~ 3" = 1'-0"

LEGEND

G# = Existing girder
S# = Existing stringer
CS# = New cantilever stringer
CB# = New cantilever bracket
FT# = Existing floor truss
(U) = Cantilever bracket connected to Up-Station side of web connection angle
(D) = Cantilever bracket connected to Down-Station side of web connection angle

NOTES

LIVE LOAD: New cantilever bracket assembly and cantilever stringer designed for uniform 85 psf pedestrian loading and non-concurrent H5 loading with no impact.

Plans were prepared based on existing steel girder geometry from the original shop drawings. Existing structure dimensions may vary from those shown on the original shop drawings and replicated on these plans. Verify all dimensions necessary to fabricate materials and complete the work. Original shop drawings will be made available for the Contractor's use.

Verify existing structural dimensions in the field prior to steel erection, and notify the Project Manager, in writing, of any conflicts or discrepencies.

Existing as-constructed dimensions are based on the original shop drawings assuming an ambient temperature of 60°F. Correct length used in fabrication 1/16" per 80 feet of beam length for every 10°F difference in temperature.

Dimensions shown are horizontal ground dimensions. Correct for temperature, vertical grade and camber.

Primary members of the proposed cantilever pedestrian walkway include the entire cantilever beam, top & bottom connection assemblies, web connection angles as well as the rolled pedestrian stringers. Provide material for pedestrian stringers as well the following parts of the cantilever bracket assembly: web plate, web stiffeners, tension flange, tension connection plates and web connection angles meeting Charpy V-Notch requirements of AASHTO M270 Zone 3.

Fabricate and install cantilever bracket web connection angles perpendicular to the existing girder's top flange. Fabricate pedestrian stringer stiffeners perpendicular to the stringer's top flange.

Install cantilever brackets so that the web is perpendicular to the existing girder flange. Set pedestrian stringers with webs plumb under steel dead load.

Provide 3/4" diameter high strength bolts for all connections unless otherwise noted.

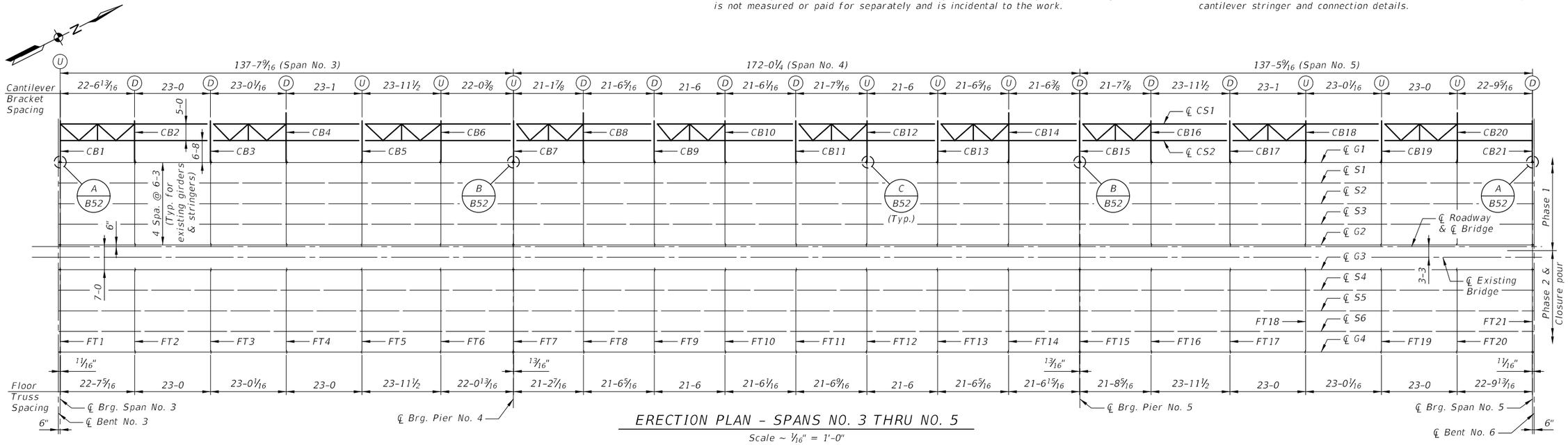
All new structural steel in Spans No. 3, No. 4 and No. 5 will be measured and paid for on the lump sum basis under the item Structural Steel - Misc., as set forth in the Standard Specifications. Use structural steel meeting the requirements of AASHTO M270 Grade 50 for all plate steel and open rolled sections. Use structural steel meeting ASTM A500 Grade B or C, or ASTM 1085 for all structural tube sections.

Submit for approval to the Project Manager the proposed means to field drill connections.

See Sheet No. B11 for additional existing steel repair information and existing steel painting requirements.

See Sheets No. B54 thru No. B62 for cantilever bracket assembly, cantilever stringer and connection details.

FIELD CUTS: Do not modify or field cut any existing steel or new steel unless approved by the Project Manager. If conditions in the field differ from that shown on the original shop drawings, field cutting of new steel may be allowed, subject to review and approval of the proposed method. Immediately notify the Project Manager of any discrepancies between the plans, shop drawings, and field conditions. Flame cutting is not acceptable unless otherwise approved by the Project Manager. On all field cuts, use mechanical guides to provide a regular smooth surface, free from cracks and notches with no peak or valley more than 1/8" from a straight line connecting each end of the cut. Grind smooth any burrs, slivers, slag or other surface defect resulting from field cutting. Field cutting is not measured or paid for separately and is incidental to the work.



ERECTION PLAN - SPANS NO. 3 THRU NO. 5
Scale ~ 1/16" = 1'-0"

SHEET NO. B52

SPANS NO. 3 THRU NO. 5 ERECTION PLAN

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

						J.C.M.	G.H.S.	B.K.C.
						2-21-19	12-5-18	12-5-18
REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	...\8807000brepb02.dgn	

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/17/2019 1:16:49 PM

ROUTE U-8113

REF POINT 0+0.239

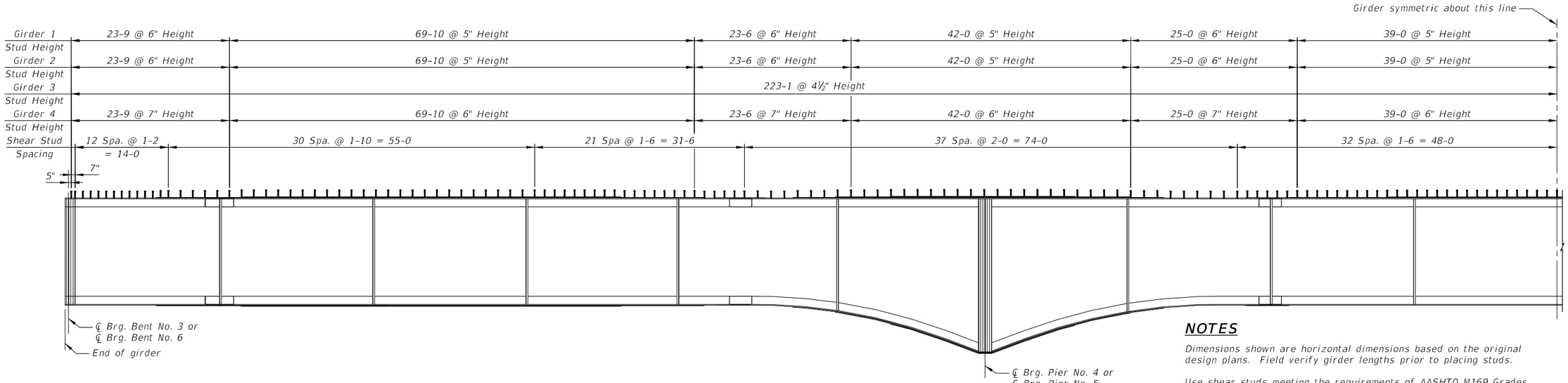
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23950

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



GIRDER ELEVATION

Scale ~ ⅛" = 1'-0"
(Shown with 2x vertical exaggeration)
(Exterior face of Girder 4 shown)

NOTES

Dimensions shown are horizontal dimensions based on the original design plans. Field verify girder lengths prior to placing studs.

Use shear studs meeting the requirements of AASHTO M169 Grades 1010–1020 and the mechanical requirements for Type B Studs in accordance with AWS D1.5 Table 7.1.

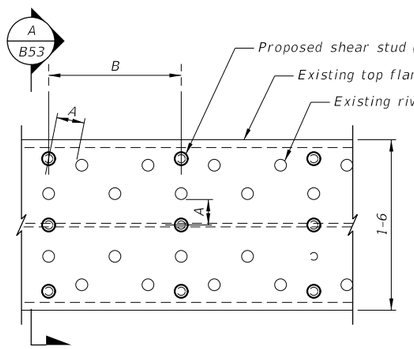
The shear stud height may need to be adjusted in the field based on construction tolerances. Shear studs should penetrate a minimum of 2" and a maximum of 3¾" into the concrete deck measured from the bottom of the 7½" thick deck.

NOTE: For Girder 1 install new cantilever bracket top flange connection plates prior to installing shear studs. Omit studs on top flange connection plate. Reduce spacing to 6" adjacent to connection plate and provide same number required without the connection plate.

ANTICIPATED GIRDER DEAD LOAD DEFLECTION TABLE

LOCATION	SPAN 3														SPAN 4														SPAN 5													
	3.0 FT1	3.1	3.17 FT2	3.2	3.3	3.33 FT3	3.4	3.5 FT4	3.6	3.67 FT5	3.7	3.8	3.83 FT6	3.9	4.0 FT7	4.1	4.13 FT8	4.2	4.25 FT9	4.3	4.38 FT10	4.4	4.5 FT11	4.6	4.63 FT12	4.7	4.75 FT13	4.8	4.88 FT14	4.9	5.0 FT15	5.1	5.17 FT16	5.2	5.3	5.33 FT17	5.4	5.5 FT18	5.6	5.67 FT19	5.7	5.8	5.83 FT20	5.9	6.0 FB21
*Steel Deflection	0"	⅛"	3/16"	¼"	5/16"	5/16"	5/16"	5/16"	¼"	3/16"	3/16"	⅛"	1/16"	0"	0"	0"	1/16"	⅛"	3/16"	3/16"	¼"	5/16"	5/16"	5/16"	¼"	3/16"	3/16"	⅛"	1/16"	0"	0"	0"	1/16"	⅛"	3/16"	3/16"	¼"	5/16"	5/16"	5/16"	¼"	3/16"	⅛"	0"
Slab And Haunch Deflection	0"	3/16"	½"	9/16"	¾"	¾"	13/16"	¾"	⅜"	½"	7/16"	¼"	⅛"	1/16"	0"	1/16"	⅛"	5/16"	7/16"	9/16"	¾"	¾"	13/16"	¾"	¾"	9/16"	7/16"	5/16"	⅛"	1/16"	0"	1/16"	⅛"	¼"	7/16"	½"	⅝"	¾"	13/16"	¾"	¾"	9/16"	½"	3/16"	0"
Composite DL Deflection	0"	1/16"	1/16"	1/16"	⅛"	⅛"	⅛"	⅛"	⅛"	1/16"	1/16"	1/16"	0"	0"	0"	0"	0"	1/16"	1/16"	1/16"	⅛"	⅛"	⅛"	⅛"	⅛"	1/16"	1/16"	1/16"	⅛"	⅛"	0"	0"	0"	0"	0"	1/16"	1/16"	1/16"	⅛"	⅛"	⅛"	⅛"	1/16"	1/16"	1/16"	0"
Total Girder Deflection	0"	½"	¾"	⅞"	1 3/16"	1 3/16"	1¼"	1 3/16"	1"	¾"	1 1/16"	7/16"	3/16"	1/16"	0"	1/16"	3/16"	½"	1 1/16"	1 3/16"	1⅛"	1 3/16"	1¼"	1 3/16"	1⅛"	1 3/16"	1 1/16"	½"	3/16"	1/16"	0"	1/16"	3/16"	7/16"	1 1/16"	¾"	1"	1 3/16"	1¼"	1 3/16"	1 3/16"	⅞"	¾"	½"	0"

*NOTE: Steel deflection includes existing girders, existing stringers, existing floor trusses, existing lateral bracing, new cantilever brackets, new cantilever stringers, and new cantilever bracing.



NOTE: At girder splices with cover plates, follow the spacing requirements shown in this detail.

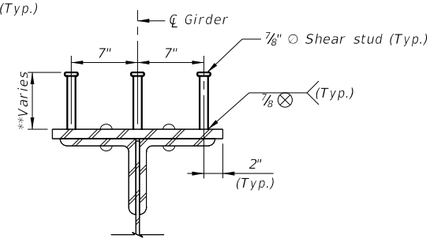
NOTE: At girder splices without cover plates, omit studs on splice plate. Reduce spacing to 6" adjacent to splice plate and provide same number of shear studs required without the splice plate.

NOTE: For "A" maintain a minimum of 1½" clearance between edge of existing rivet head and center of proposed shear stud.

NOTE: For "B" adjust local stud spacing to maintain necessary clearance to existing rivet heads. Maintain the same number of rows in each pitch spacing shown above.

SHEAR STUD DETAIL WITH COVER PLATES

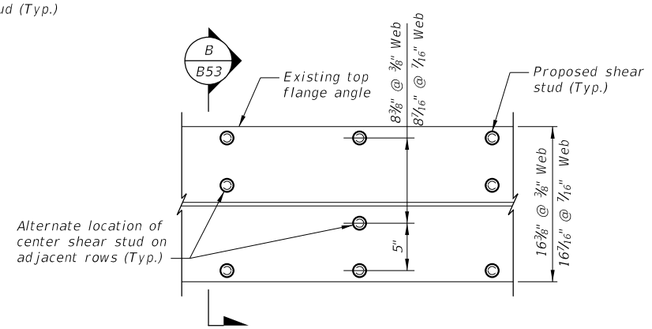
Scale ~ 1½" = 1'-0"



**NOTE: See Girder Elevation this sheet for height.

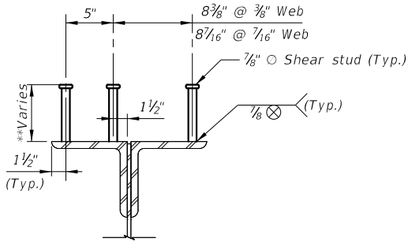
A B53 SECTION A

Scale ~ 1½" = 1'-0"



SHEAR STUD DETAIL WITHOUT COVER PLATES

Scale ~ 1½" = 1"-0'



**NOTE: See Elevation for Height

B B53 SECTION B

Scale ~ 1½" = 1'-0"

SHEET NO. B53

SPANS NO. 3 THRU NO. 5
GIRDER ELEVATION AND DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
				3-4-19	11-28-18	11-28-18
				C.C.A.	K.J.A.	B.K.C.

...8807000brgjr204.dgn
7/17/2019 1:17:20 PM
MONTANA DEPARTMENT OF TRANSPORTATION BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

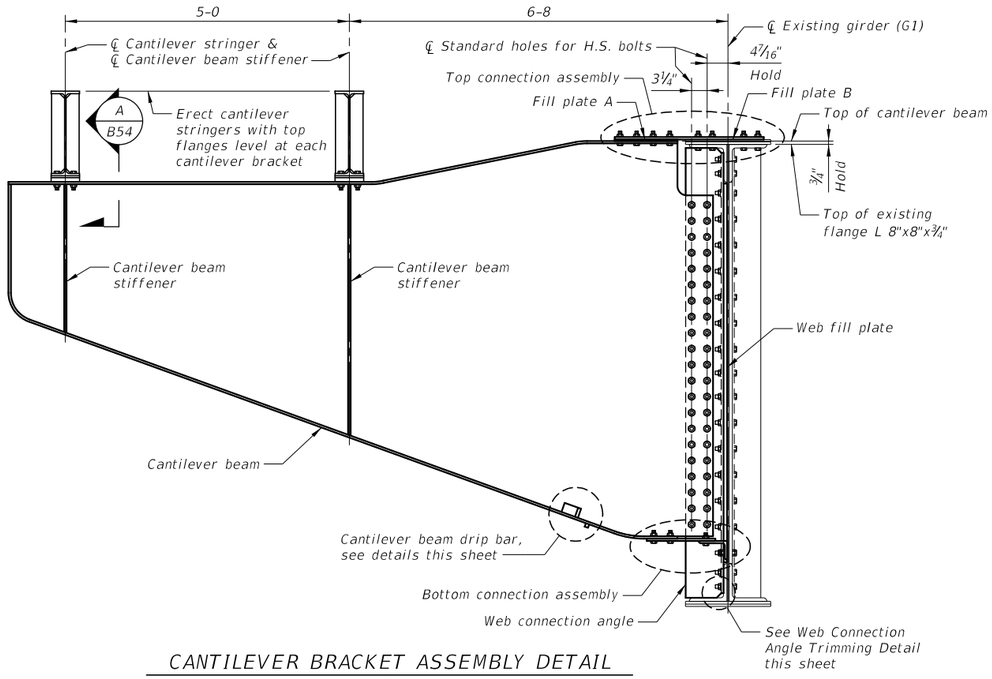
UPN NUMBER 8807000

DRAWING NO. 23951

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

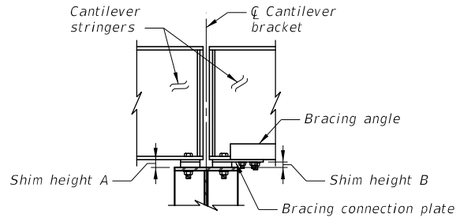
AWARD COPY



CANTILEVER BRACKET ASSEMBLY DETAIL

Scale ~ 3/4" = 1'-0"
Looking Ahead on Line

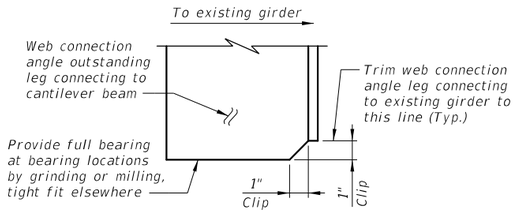
BOLT HOLE SIZES FOR 3/4" ∅ BOLTS	
Standard	13/16" ∅
Oversized	15/16" ∅
Short Slot	13/16"Wx1"L



NOTE: Shim height A is found at CS2 and CS1 where the bracing connection plate is not present. Shim height B is found at CS1 where the bracing connection plate is present. See Sheet No. B61 for bracing locations.

A / B54 CANTILEVER STRINGER SHIMMING

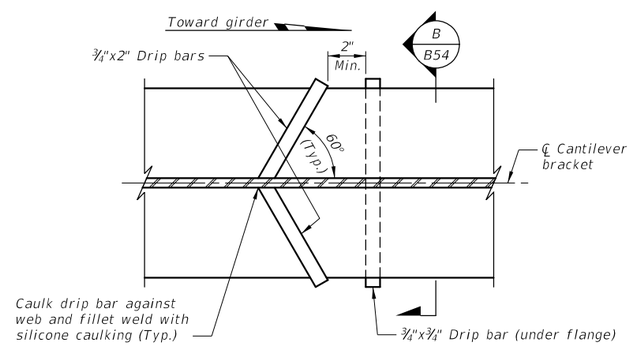
Scale ~ 1" = 1'-0"



NOTE: Web connection angle shown at existing girder bottom flange, similar at existing girder top flange.

WEB CONNECTION ANGLE TRIMMING DETAIL

Scale ~ 3" = 1'-0"



CANTILEVER BEAM DRIP BAR DETAIL

Scale ~ 3" = 1'-0"

NOTES

Fastener spacings shown where new steel connets to the existing girder are based on the original shop drawings. Field verify existing girder dimensions and spacing of existing fasteners to be removed prior to drilling full sized holes in new steel. Holes in new steel connecting to the existing girder may be field drilled as approved by the Project Manager. Provide oversized holes in new steel that will be in contact with the existing girders. For holes in new steel not in contact with the existing girders provide standard holes, unless noted otherwise.

All plates designated FCM are Fracture Critical Members. Furnish and fabricate all FCM members in accordance with the requirements of Section 12 of the AASHTO/AWS Bridge Welding Code D1.5.

Cut plates for the flanges, webs and connection plates for the flanges so that the direction of rolling will be parallel to the longitudinal axis of the cantilever bracket. Show the direction of rolling for these plates on the shop drawings.

Detail and fabricate cantilever brackets without any camber.

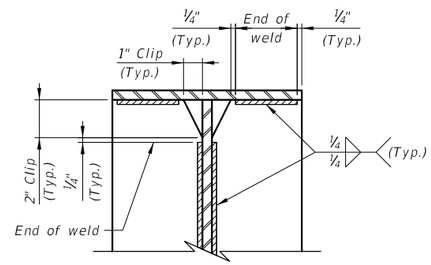
Remove existing fasteners by drilling, chiseling or other mechanical method approved by the Project Manager. During the removal of existing fasteners do not damage the connected elements that are to remain. Submit for approval a method to repair any existing elements damaged during fastener removal. Repair all damage to existing steel to remain at no cost to the State.

For all fill plates required at the cantilever bracket assembly connections, provide fill plates that match the thickness shown in the table on this sheet and the length and width of the faying surface. Achieve total fill plate thickness utilizing two or fewer plates. Protect in place existing web fill plates at bearing locations. At all other locations replace existing web fill plates with new web fill plates

Estimated cantilever stringer shim pack heights are provided for bidding purposes only. Additional shims beyond that shown in the plans are not measured for payment. Field verify the required height prior to setting cantilever stringers. Field adjust the cantilever stringer shim pack height to maintain the FRP pathway geometry. See Sheet No. B73 for FRP pathway geometry.

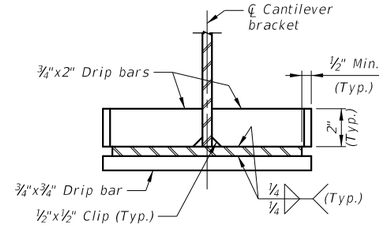
Do not use finger shims in cantilever stringer shim packs. Provide positive connection between shim packs to cantilever stringer and cantilever bracket with high strength bolts as shown on the plans.

See the Standard Specifications for Radiographic, Ultrasonic and Magnetic Particle Inspection Requirements.



CANTILEVER BEAM STIFFENER WELD DETAIL

Scale ~ 3" = 1'-0"



B / B54 SECTION B

Scale ~ 3" = 1'-0"

CANTILEVER BRACKET PART IDENTIFICATION

CANTILEVER BRACKET	CANTILEVER BEAM	TOP CONNECTION ASSEMBLY			WEB CONNECTION ANGLES	WEB FILL PLATE TOTAL THICKNESS (in)	BOTTOM CONNECTION ASSEMBLY	CANTILEVER STRINGER SHIM PACK HEIGHTS	
		ASSEMBLY ID	FILL PLATE THICKNESS						
			A (in)	B (in)				A (in)	**B (in)
CB1	C1	TC1	–	3/4	WC1R, WC1L	–	BC1	–	1/16
CB2	C1	TC2	–	3/16	WC2L	7/8	BC2	15/16	9/16
CB3	C1	TC3	5/16	–	WC3L	3/4	BC3	1 7/16	1 1/16
CB4	C3	TC4	5/16	–	WC4L	1 3/16	BC4	1 7/16	1 1/16
CB5	C1	TC5	–	3/16	WC3R	3/4	BC5	1	5/8
CB6	C1	TC6	1/4	*	WC5	3/4	BC6	1 1/4	7/8
CB7	C1	TC7	1 1/16	–	WC6R, WC6L	–	BC7	1 7/16	1 1/16
CB8	C3	TC8	1/4	*	WC7	3/4	BC8	1 3/8	1
CB9	C1	TC9	–	7/16	WC2L	7/8	BC9	1 3/16	7/16
CB10	C1	TC10	1/8	–	WC3L	3/4	BC10	1 1/4	7/8
CB11	C1	TC11	1/8	–	WC4L	1 3/16	BC11	1 3/8	1
CB12	C1	TC10	1/8	–	WC3R	3/4	BC10	1 5/16	1 5/16
CB13	C1	TC9	–	7/16	WC2R	7/8	BC9	1/8	1/2
CB14	C3	TC8	1/4	*	WC8R	3/4	BC8	1 7/16	1 1/16
CB15	C1	TC7	1 1/16	–	WC6R, WC6L	–	BC7	1 1/2	1 1/8
CB16	C1	TC6	1/4	*	WC8L	3/4	BC6	1 5/16	1 5/16
CB17	C1	TC5	–	3/16	WC3L	3/4	BC5	1 1/16	1 1/16
CB18	C1	TC4	5/16	–	WC4R	1 3/16	BC4	1 1/2	1 1/8
CB19	C1	TC3	5/16	–	WC3R	3/4	BC3	1 1/2	1 1/8
CB20	C3	TC12	–	3/16	WC2R	7/8	BC2	1 1/16	1 1/16
CB21	C2	TC13	–	3/4	WC1R, WC1L	–	BC1	5/8	–

*NOTE: Existing girder requires partial fill plate, 1/2" thick, under the top connection plate, See Sheets No. B57 & No. B58 for additional details.

**NOTE: Heights are exclusive of bracing connection plates.

NOTE: See Sheet No. B62 for additional cantilever stringer shim plate dimensions.

HDR

SHEET NO. B54

CANTILEVER BRACKET DETAILS (SHEET 1 OF 7)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED				CHECKED	J.C.M.
REVISED				DRAWN	G.H.S.
REVISED				DESIGNED	B.K.C.
REVISED				2-21-19	12-5-18	12-5-18

...8807000bmdez03.dgn
2:10:28 PM
7/17/2019

MONTANA DEPARTMENT OF TRANSPORTATION BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

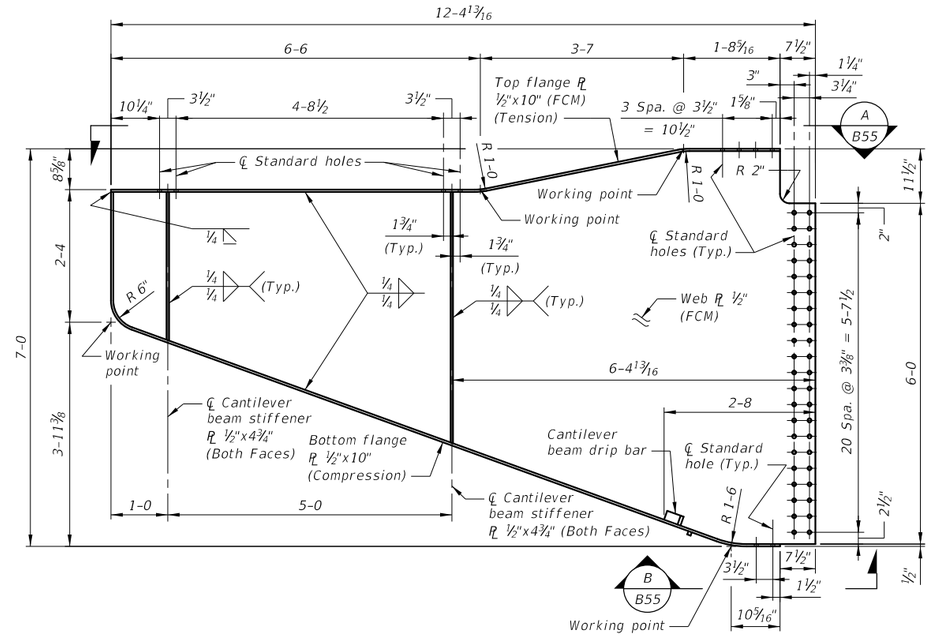
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23952

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



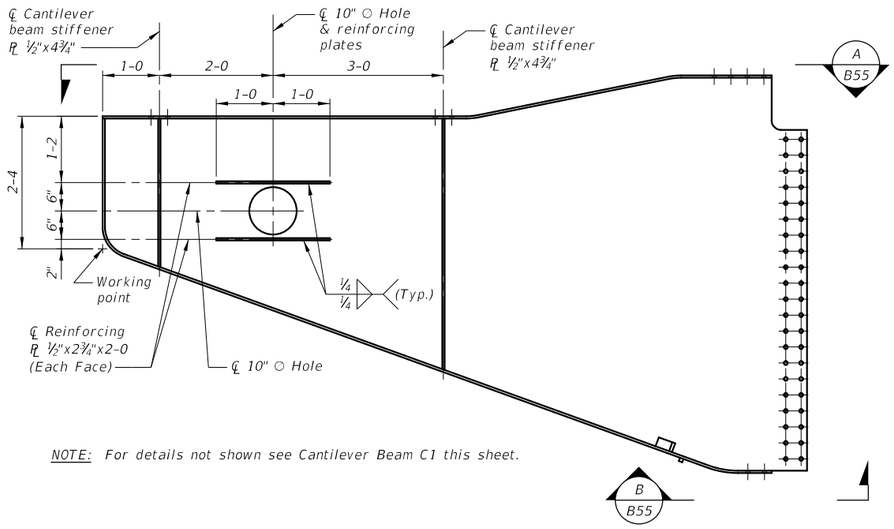
CANTILEVER BEAM C1

Scale ~ ¾" = 1'-0"
(16 Required)

NOTES

For location of pieces see Cantilever Bracket Part Identification Table on Sheet No. B54.

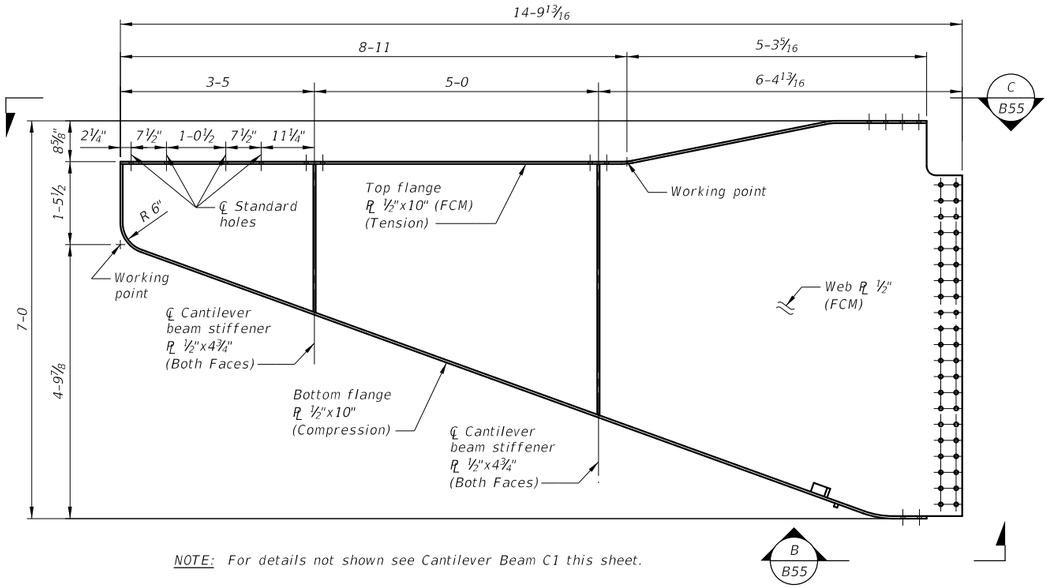
See Sheet No. B54 for additional notes.



NOTE: For details not shown see Cantilever Beam C1 this sheet.

CANTILEVER BEAM C2

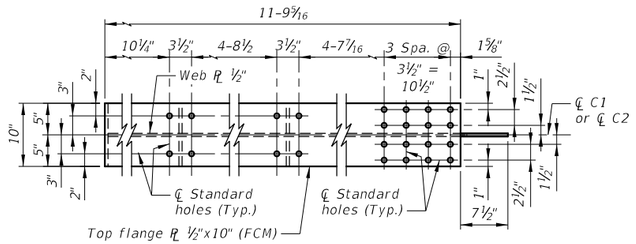
Scale ~ ¾" = 1'-0"
(1 Required)



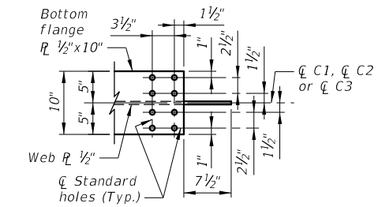
NOTE: For details not shown see Cantilever Beam C1 this sheet.

CANTILEVER BEAM C3

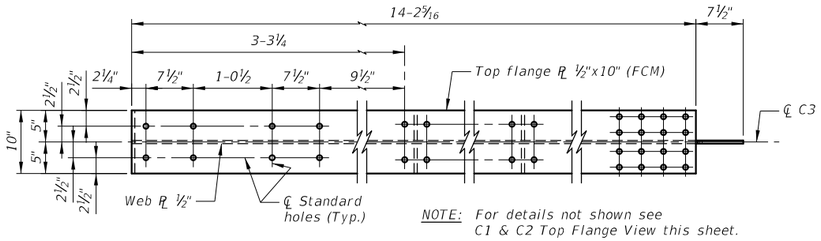
Scale ~ ¾" = 1'-0"
(4 Required)



A B55 **C1 & C2 TOP FLANGE VIEW**
Scale ~ 1" = 1'-0"



B B55 **BOTTOM FLANGE VIEW**
Scale ~ 1" = 1'-0"



NOTE: For details not shown see C1 & C2 Top Flange View this sheet.

C B55 **C3 TOP FLANGE VIEW**
Scale ~ 1" = 1'-0"

HDR

SHEET NO. B55

CANTILEVER BRACKET DETAILS (SHEET 2 OF 7)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED			
REVISED			
REVISED			
REVISED			
CHECKED	2-21-19	J.C.M.	
DRAWN	12-5-18	G.H.S.	
DESIGNED	12-5-18	B.K.C.	

...8807000bmdes04.dgn
7/17/2019 2:10:53 PM

MONTANA DEPARTMENT OF TRANSPORTATION BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

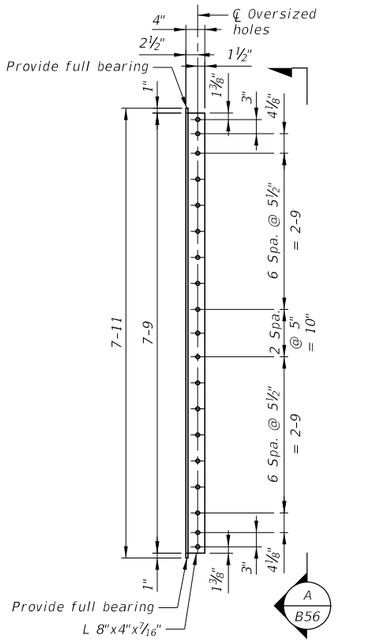
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23953

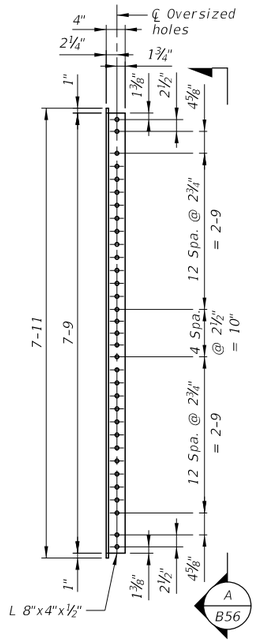
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



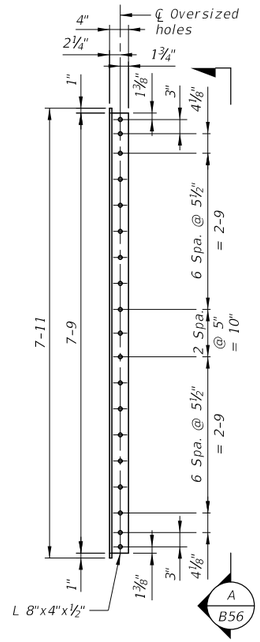
WEB CONNECTION ANGLE WC1

Scale ~ ¾" = 1'-0"
WC1R shown, WC1L similar but opposite hand
2 - WC1R & 2 - WC1L required



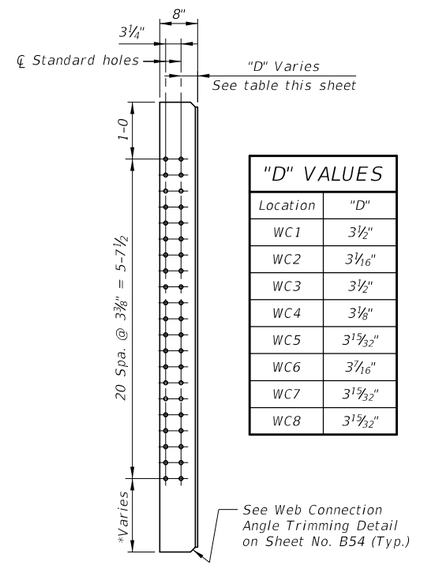
WEB CONNECTION ANGLE WC2

Scale ~ ¾" = 1'-0"
WC2R shown, WC2L similar but opposite hand
2 - WC2R & 2 - WC2L required



WEB CONNECTION ANGLE WC3

Scale ~ ¾" = 1'-0"
WC3R shown, WC3L similar but opposite hand
3 - WC3R & 3 - WC3L required



"D" VALUES	
Location	"D"
WC1	3½"
WC2	3 1/16"
WC3	3½"
WC4	3⅛"
WC5	3 15/32"
WC6	3 7/16"
WC7	3 15/32"
WC8	3 15/32"

*NOTE: 1-3½ for WC1 thru WC4, 1-9 3/16 for WC5, 4-9½ for WC6, 1-10 for WC7, and 1-9 9/16 for WC8.

A B56 **VIEW A**
Scale ~ ¾" = 1'-0"

NOTES

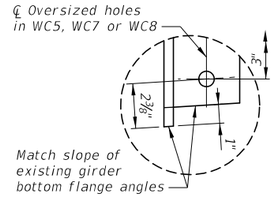
For additional information on existing fastener geometry and spacing relative to the new cantilever bracket, for field verification requirements and field drilling allowances see Sheet No. B54.

All web connection angles are Fracture Critical Members.

See As-Built Shop Drawings for existing girder dimensions.

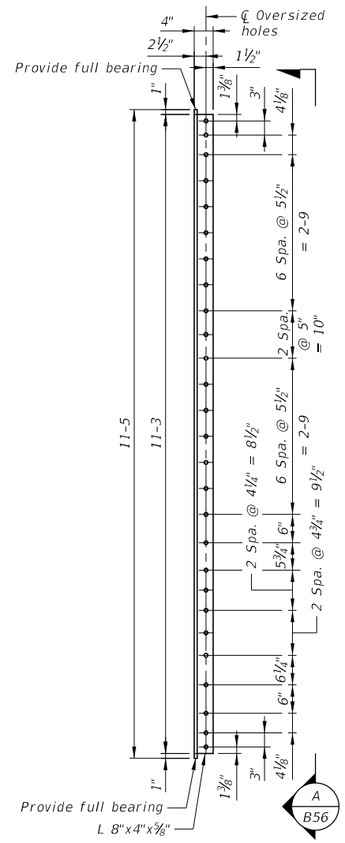
For location of pieces see Cantilever Bracket Part Identification Table on Sheet No. B54.

See Sheet No. B54 for additional notes.



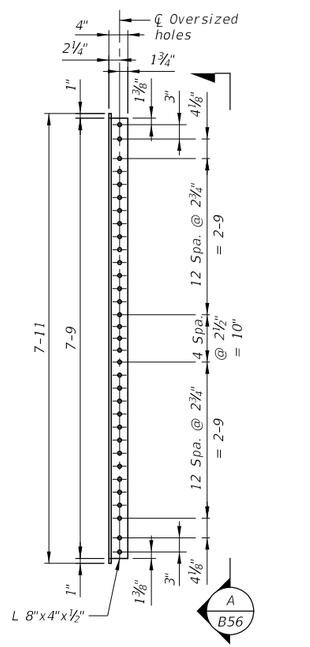
NOTE: WC5 & WC8R shown, WC7 & WC8L similar but opposite hand.

B B56 **DETAIL B**
Scale ~ 3" = 1'-0"



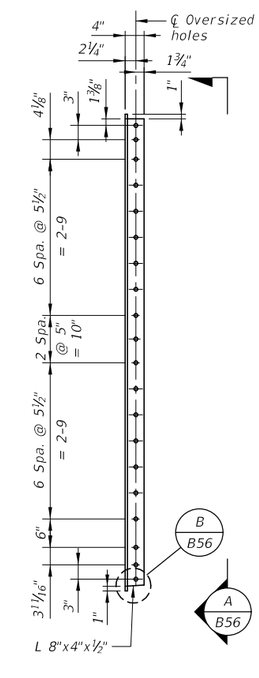
WEB CONNECTION ANGLE WC6

Scale ~ ¾" = 1'-0"
WC6R shown, WC6L similar but opposite hand
2 - WC6R & 2 - WC6L required



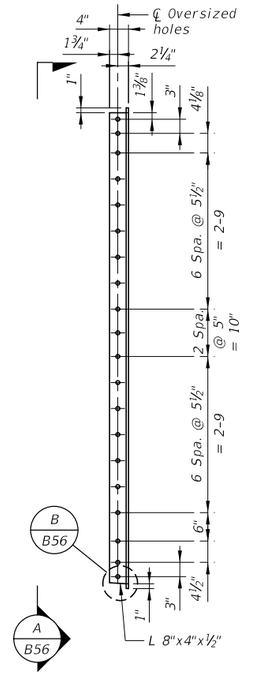
WEB CONNECTION ANGLE WC4

Scale ~ ¾" = 1'-0"
WC4R shown, WC4L similar but opposite hand
1 - WC4R & 2 - WC4L required



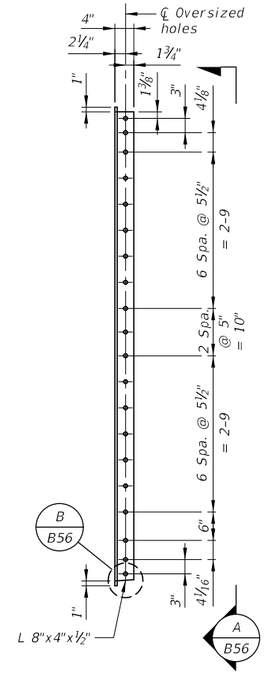
WEB CONNECTION ANGLE WC5

Scale ~ ¾" = 1'-0"
1 - WC5 required



WEB CONNECTION ANGLE WC7

Scale ~ ¾" = 1'-0"
1 - WC7 required



WEB CONNECTION ANGLE WC8

Scale ~ ¾" = 1'-0"
WC8R shown, WC8L similar but opposite hand
1 - WC8R & 1 - WC8L required

SHEET NO. B56

CANTILEVER BRACKET DETAILS (SHEET 3 OF 7)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED	CHECKED	2-21-19	J.C.M.
REVISED	DRAWN	12-5-18	G.H.S.
REVISED	DESIGNED	12-5-18	B.K.C.

MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

7/17/2019 2:11:21 PM ...8807000bmdez05.dgn

ROUTE U-8113

REF POINT 0+0.239

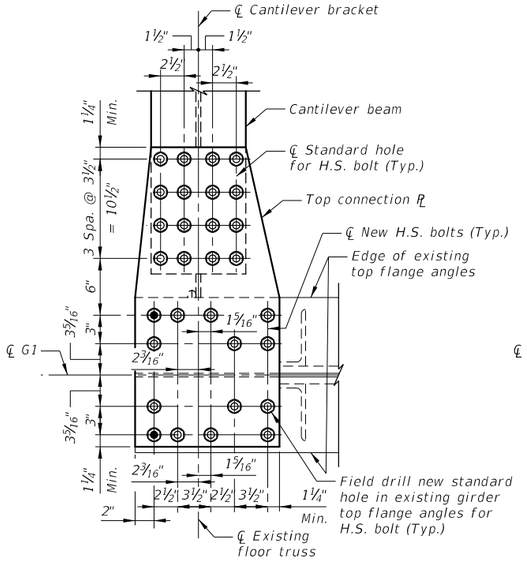
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23954

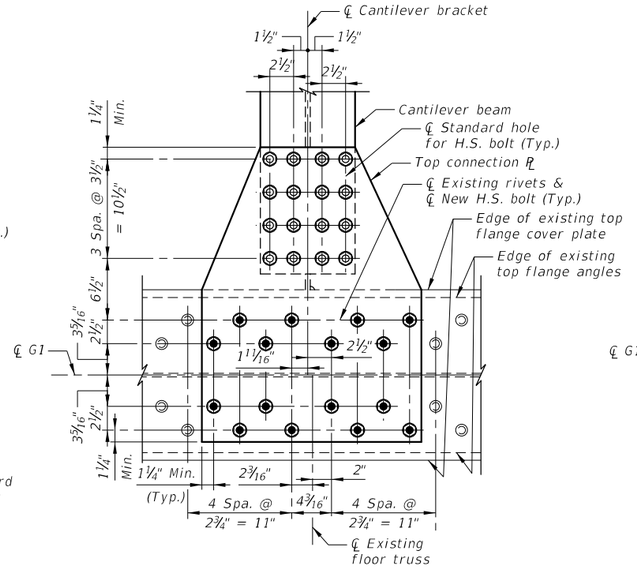
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



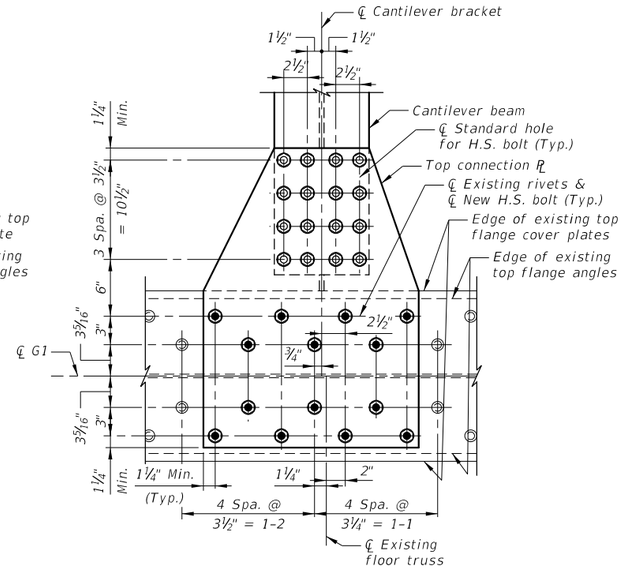
TOP CONNECTION ASSEMBLY TC1

Scale ~ 1½" = 1'-0"



TOP CONNECTION ASSEMBLY TC2

Scale ~ 1½" = 1'-0"



TOP CONNECTION ASSEMBLY TC3

Scale ~ 1½" = 1'-0"
(CB3 shown, CB19 similar but opposite hand)

NOTES

All connection plates ½" thick.

For additional information on existing fastener geometry and spacing relative to the new cantilever bracket, for field verification requirements and field drilling allowances see Sheet No. B54.

Provide a minimum edge distance of 1¼" to center of holes on all connection plates.

Hidden members including web connection angles, splices and floor truss are not shown for clarity. Work this sheet with original shop drawings for clearances to the members not shown.

Do not damage existing rivet heads to remain. Notify the Project Manager of any damage. At the direction of the Project Manager replace any damaged rivets with high strength bolts at no cost to the State.

See Sheet No. B53 for information about shear connectors near top connection plates.

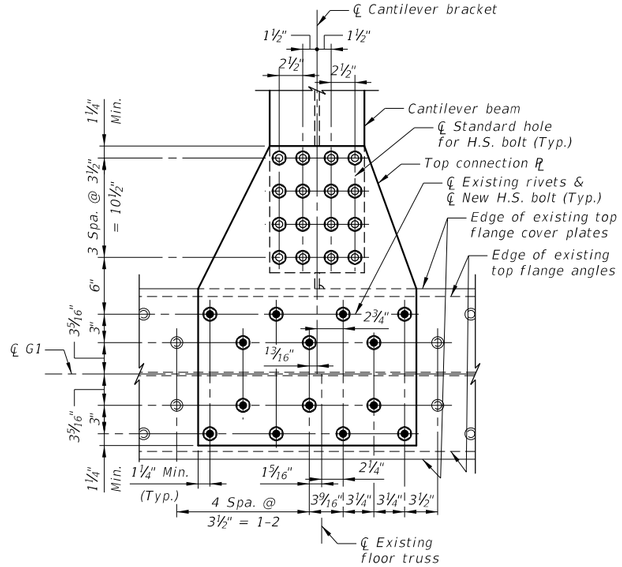
For location of pieces see Cantilever Bracket Part Identification Table on Sheet No. B54.

See Sheet No. B54 for Fill Plate Thicknesses.

See Sheet No. B54 for additional notes.

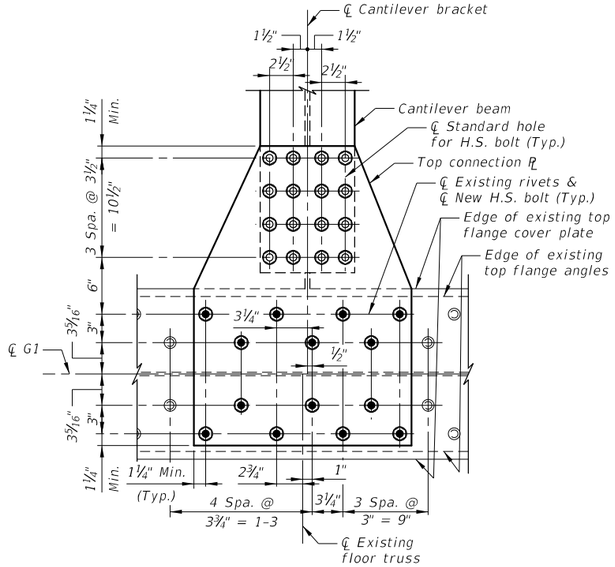
LEGEND

◎ New H.S. bolt
◉ New H.S. bolt replacing existing fastener
◎ Existing rivet to remain



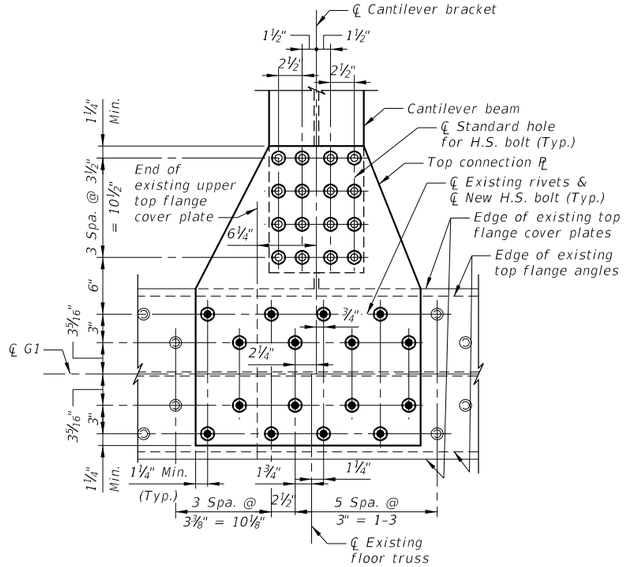
TOP CONNECTION ASSEMBLY TC4

Scale ~ 1½" = 1'-0"
(CB4 shown, CB18 similar but opposite hand)



TOP CONNECTION ASSEMBLY TC5

Scale ~ 1½" = 1'-0"
(CB5 shown, CB17 similar but opposite hand)



TOP CONNECTION ASSEMBLY TC6

Scale ~ 1½" = 1'-0"
(CB6 shown, CB16 similar but opposite hand)

HDR

SHEET NO. B57

CANTILEVER BRACKET DETAILS (SHEET 4 OF 7)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		
REVISED		
REVISED		
REVISED		
CHECKED	2-21-19	J.C.M.
DRAWN	12-5-18	G.H.S.
DESIGNED	12-5-18	B.K.C.

...8807000bmdez06.dgn

MONTANA MDT DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

7/17/2019 2:11:52 PM

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23955

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

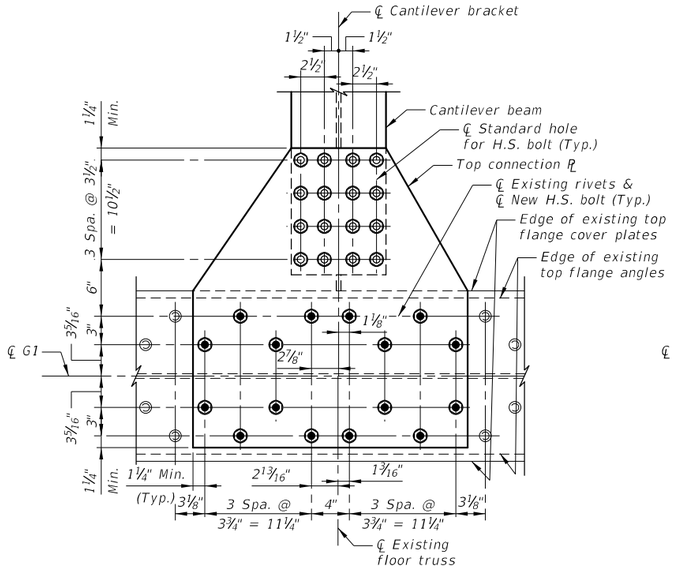
AWARD COPY

NOTES

See Sheet No. B57 for additional notes.

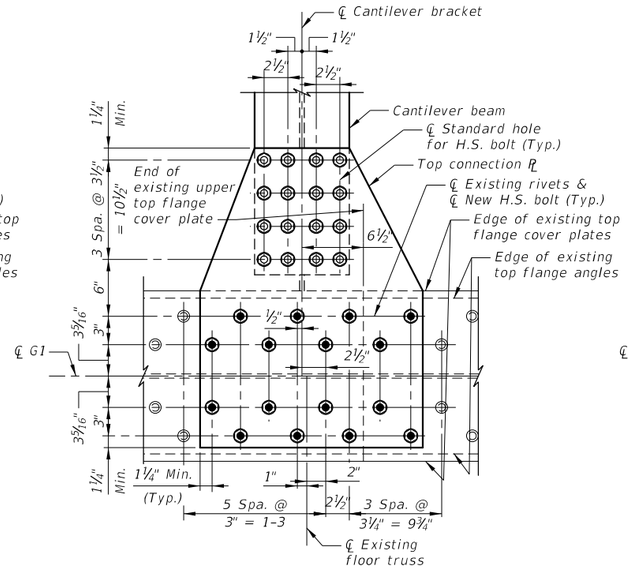
LEGEND

- New H.S. bolt
- New H.S. bolt replacing existing fastener
- Existing rivet to remain



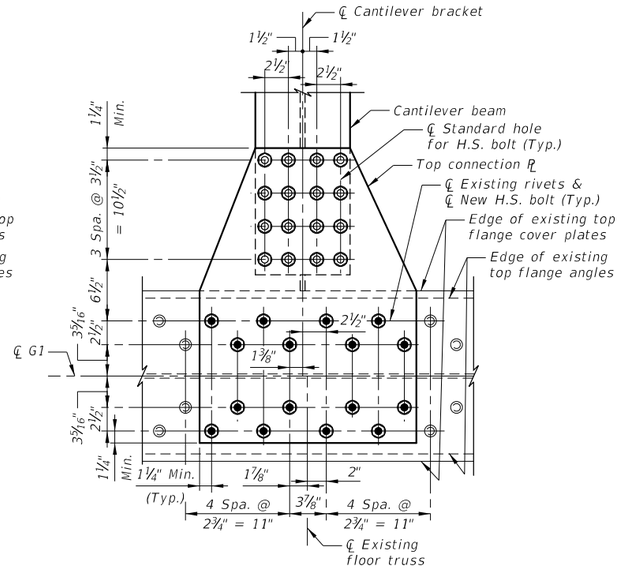
TOP CONNECTION ASSEMBLY TC7

Scale ~ 1½" = 1'-0"
(CB7 shown, CB15 similar but opposite hand)



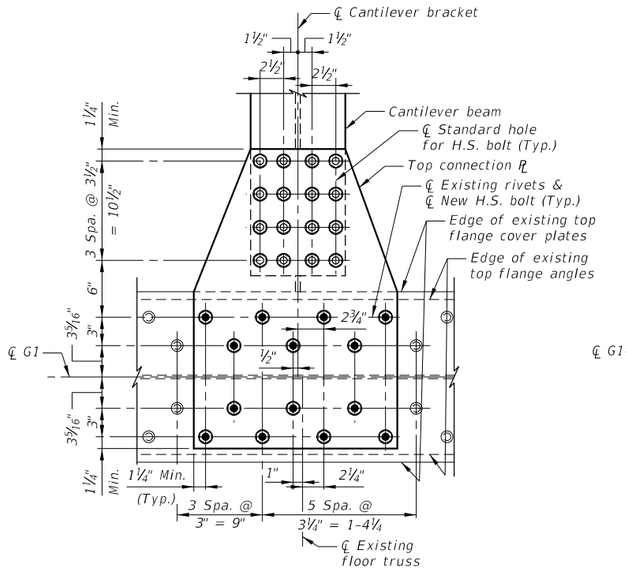
TOP CONNECTION ASSEMBLY TC8

Scale ~ 1½" = 1'-0"
(CB8 shown, CB14 similar but opposite hand)



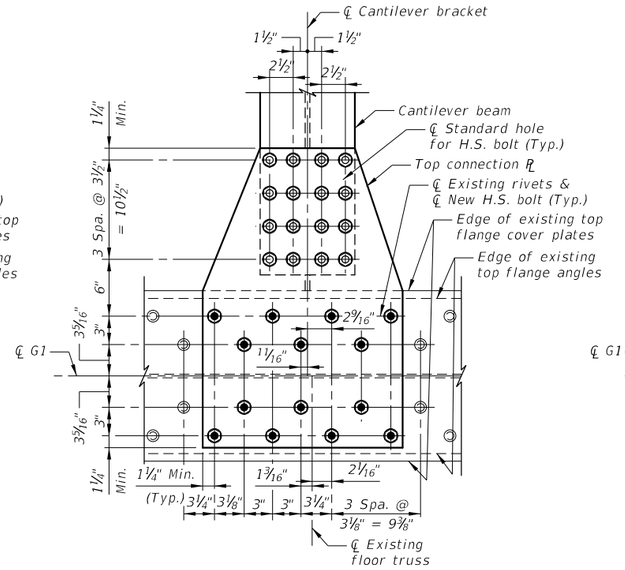
TOP CONNECTION ASSEMBLY TC9

Scale ~ 1½" = 1'-0"
(CB9 shown, CB13 similar but opposite hand)



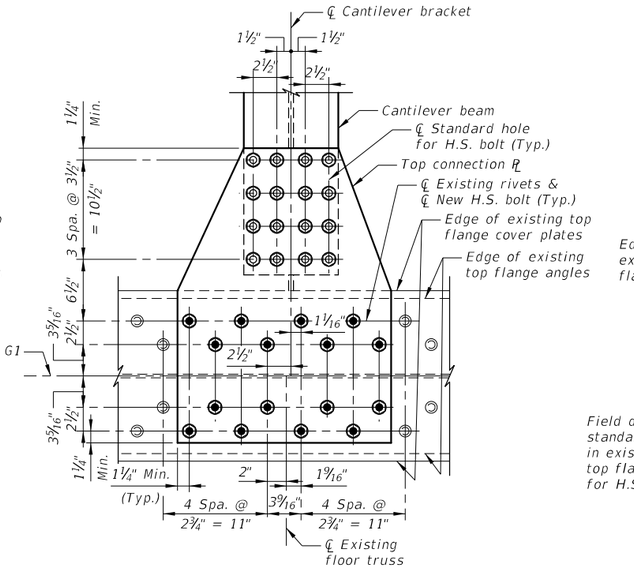
TOP CONNECTION ASSEMBLY TC10

Scale ~ 1½" = 1'-0"
(CB10 shown, CB12 similar but opposite hand)



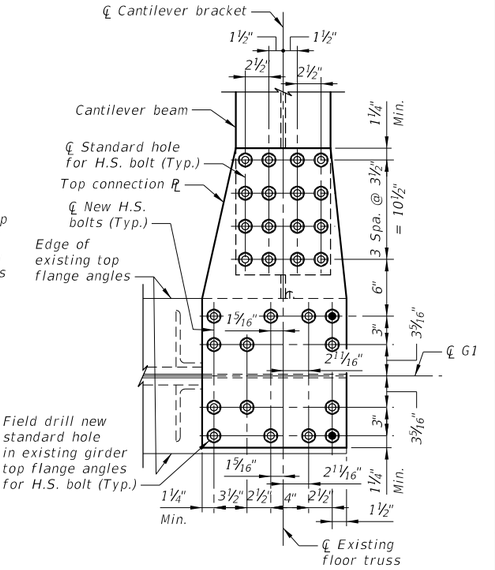
TOP CONNECTION ASSEMBLY TC11

Scale ~ 1½" = 1'-0"



TOP CONNECTION ASSEMBLY TC12

Scale ~ 1½" = 1'-0"



TOP CONNECTION ASSEMBLY TC13

Scale ~ 1½" = 1'-0"

HDR

SHEET NO. B58

CANTILEVER BRACKET DETAILS (SHEET 5 OF 7)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED	CHECKED	J.C.M. 2-21-19
REVISED	DRAWN	G.H.S. 12-5-18
REVISED	DESIGNED	B.K.C. 12-5-18
REVISED		

MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

7/17/2019 2:12:24 PM ...8807000bmdes07.dgn

ROUTE U-8113

REF POINT 0+0.239

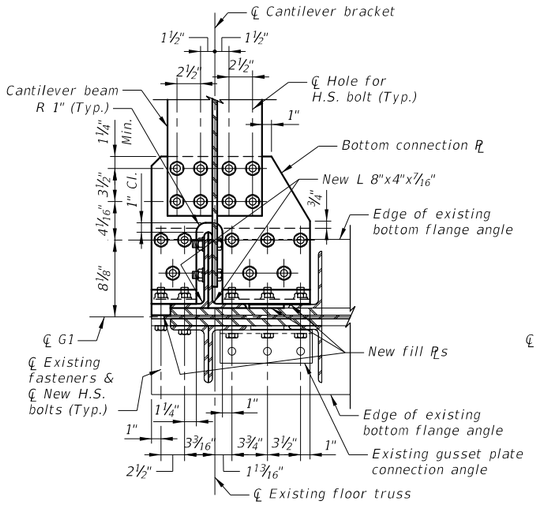
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23956

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

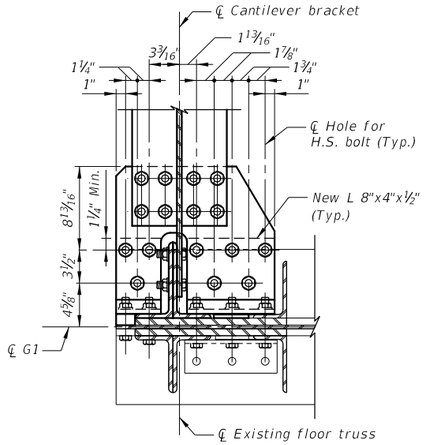


BOTTOM CONNECTION ASSEMBLY

BC1 – DETAIL 1

Scale ~ 1½" = 1'-0"

(CB1 shown, CB21 similar but opposite hand)



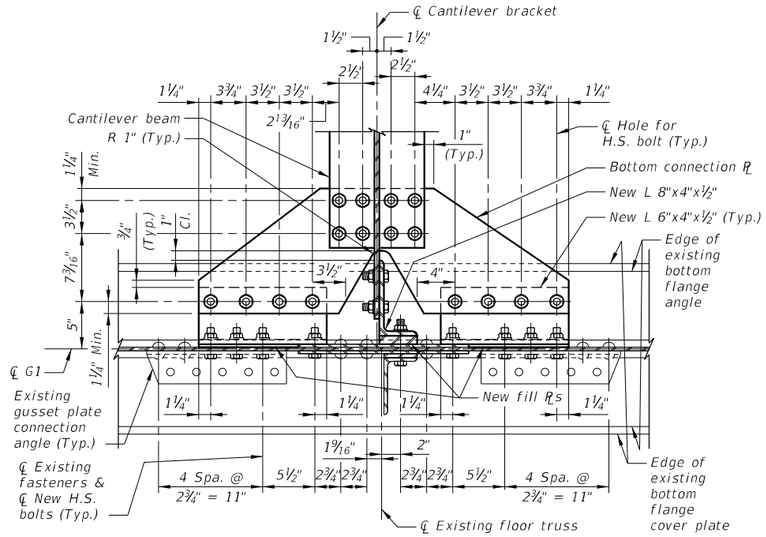
NOTE: For details not shown see Bottom Connection Assembly BC1 – Detail 1 this sheet.

BOTTOM CONNECTION ASSEMBLY

BC1 – DETAIL 2

Scale ~ 1½" = 1'-0"

(CB1 shown, CB21 similar but opposite hand)



BOTTOM CONNECTION ASSEMBLY BC2

Scale ~ 1½" = 1'-0"

(CB2 shown, CB20 similar but opposite hand)

NOTES

For additional information on existing fastener geometry and spacing relative to the new cantilever bracket, for field verification requirements and field drilling allowances see Sheet No. B54.

Provide oversized holes in new bottom connection angles, see detail this sheet. Provide standard sized holes in bottom connection plates.

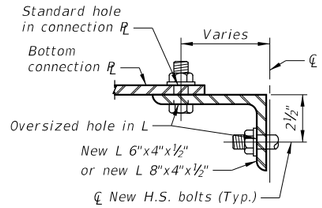
Bottom connection plates ½" thick.

Provide a minimum edge distance of 1¼" to center of hole on all connection angles and connection plates unless noted otherwise.

Stabilize existing lateral bracing system, as necessary, during rivet removal and replacement to prevent misalignment of the existing floortruss and existing lateral bracing system.

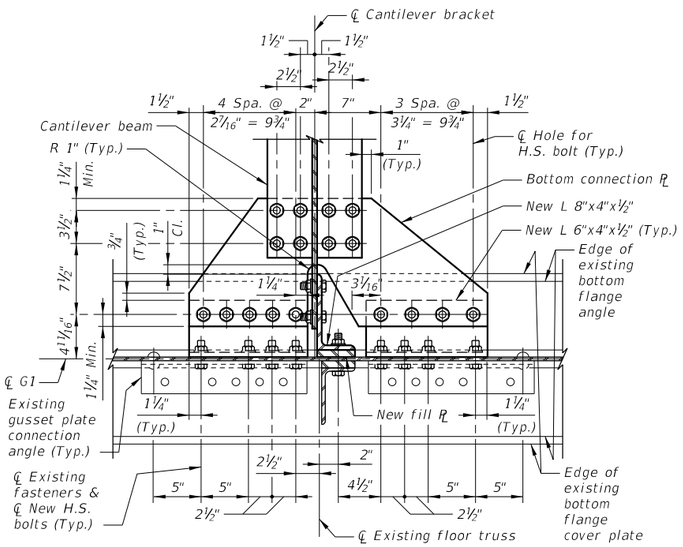
For location of pieces see Cantilever Bracket Part Identification Table on Sheet No. B54.

See Sheet No. B54 for additional notes.



NEW BOTTOM CONNECTION ANGLE DETAIL

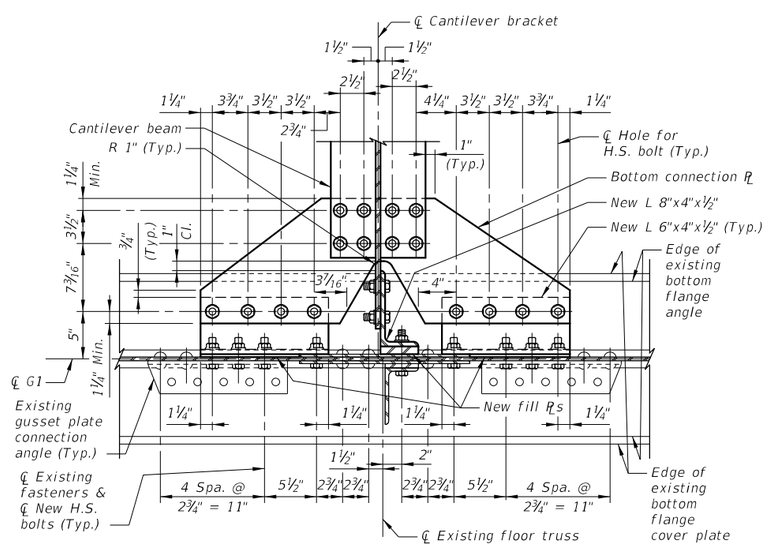
Scale ~ 3" = 1'-0"



BOTTOM CONNECTION ASSEMBLY BC3

Scale ~ 1½" = 1'-0"

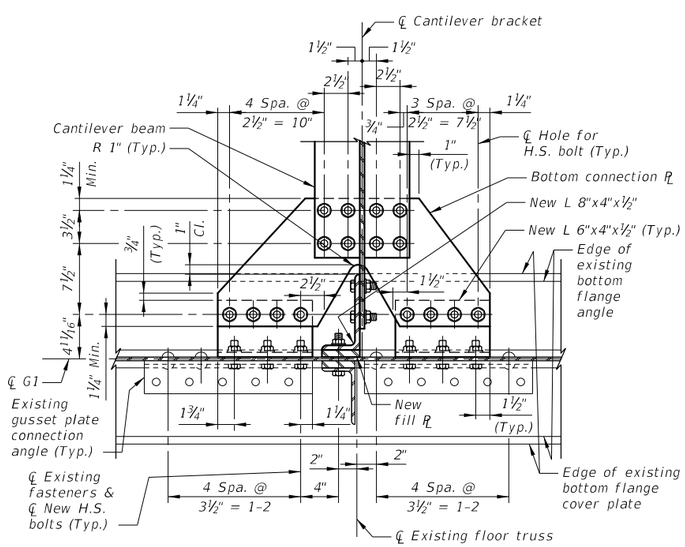
(CB3 shown, CB19 similar but opposite hand)



BOTTOM CONNECTION ASSEMBLY BC4

Scale ~ 1½" = 1'-0"

(CB4 shown, CB18 similar but opposite hand)



BOTTOM CONNECTION ASSEMBLY BC5

Scale ~ 1½" = 1'-0"

(CB5 shown, CB17 similar but opposite hand)

HDR

SHEET NO. B59

CANTILEVER BRACKET DETAILS (SHEET 6 OF 7)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

	J.C.M.	2-21-19	REVISED
	G.H.S.	12-5-18	REVISED
	B.K.C.	12-5-18	REVISED

MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

...8807000bmdet08.dgn

7/17/2019 2:13:05 PM

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

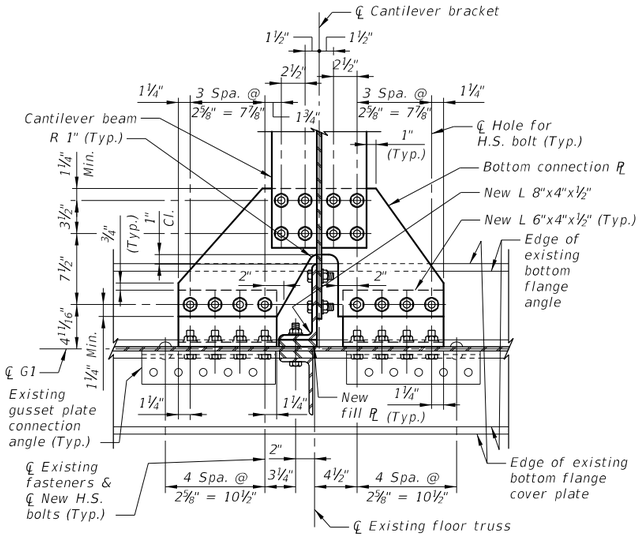
DRAWING NO. 23957

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

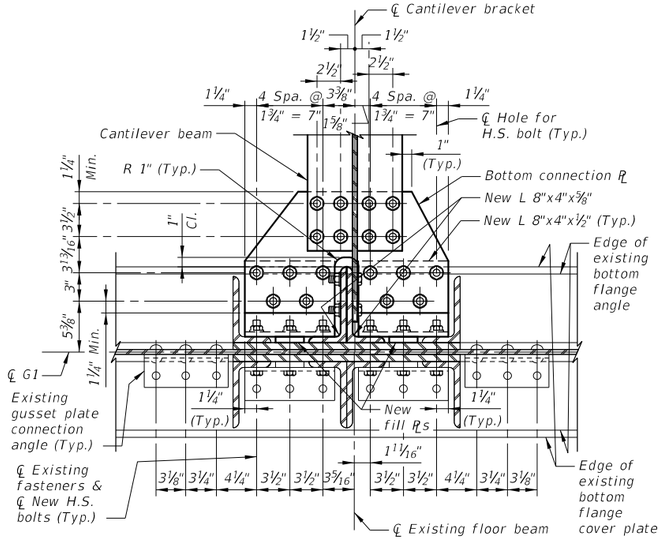
NOTES

See Sheet No. B59 for additional notes.



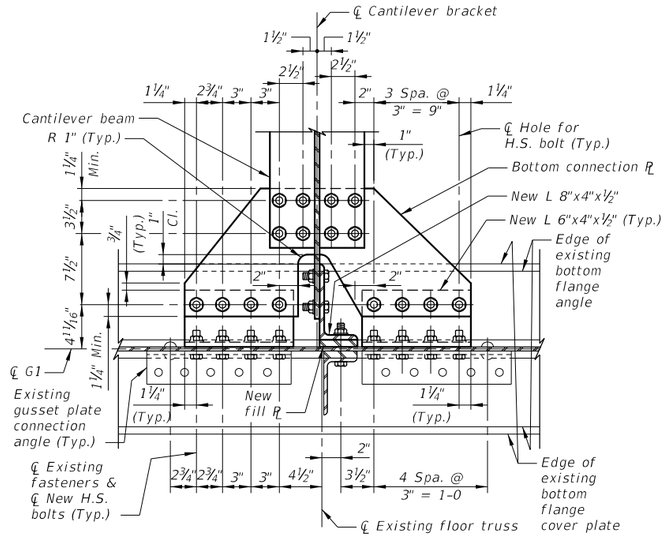
BOTTOM CONNECTION ASSEMBLY BC6

Scale ~ 1½" = 1'-0"
(CB6 shown, CB16 similar but opposite hand)



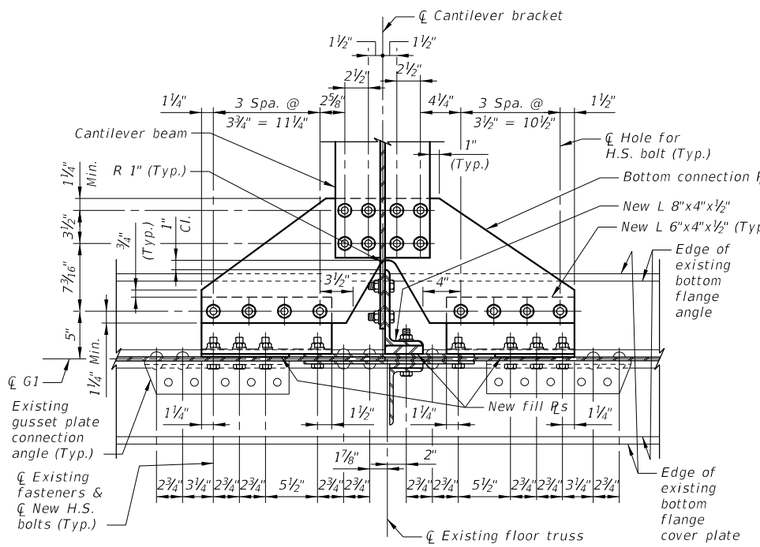
BOTTOM CONNECTION ASSEMBLY BC7

Scale ~ 1½" = 1'-0"
(CB7 shown, CB15 similar but opposite hand)



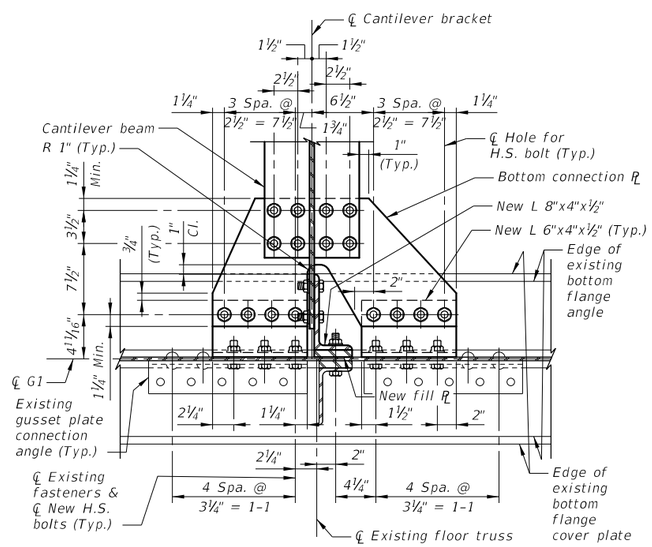
BOTTOM CONNECTION ASSEMBLY BC8

Scale ~ 1½" = 1'-0"
(CB8 shown, CB14 similar but opposite hand)



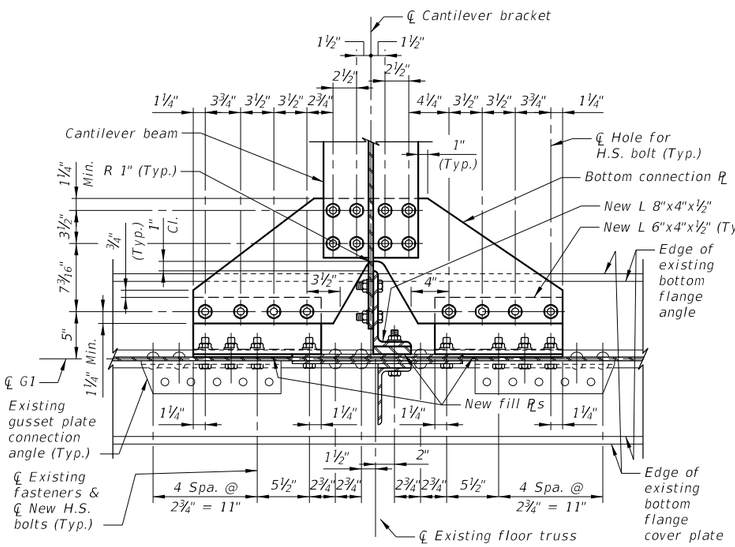
BOTTOM CONNECTION ASSEMBLY BC9

Scale ~ 1½" = 1'-0"
(CB9 shown, CB13 similar but opposite hand)



BOTTOM CONNECTION ASSEMBLY BC10

Scale ~ 1½" = 1'-0"
(CB10 shown, CB12 similar but opposite hand)



BOTTOM CONNECTION ASSEMBLY BC11

Scale ~ 1½" = 1'-0"

HDR

SHEET NO. B60

CANTILEVER BRACKET DETAILS (SHEET 7 OF 7)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

	J.C.M.	2-21-19
	G.H.S.	12-5-18
	B.K.C.	12-5-18
REVISED	CHECKED	
REVISED	DRAWN	
REVISED	DESIGNED	
REVISED		

...8807000bmdez09.dgn

MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

7/17/2019 2:13:38 PM

ROUTE U-8113

REF POINT 0+0.239

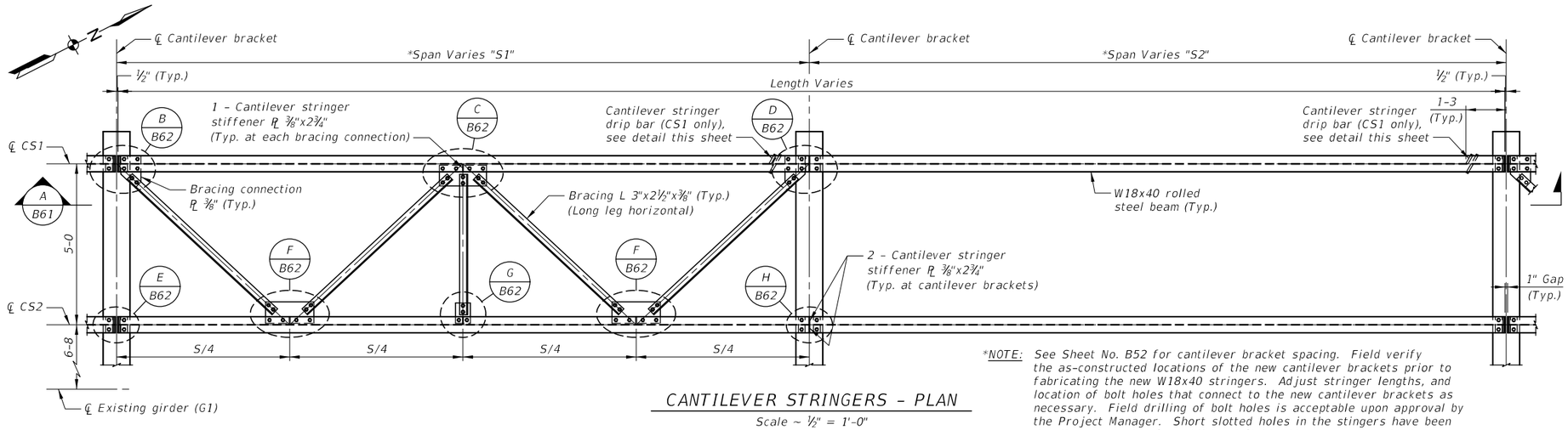
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23958

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

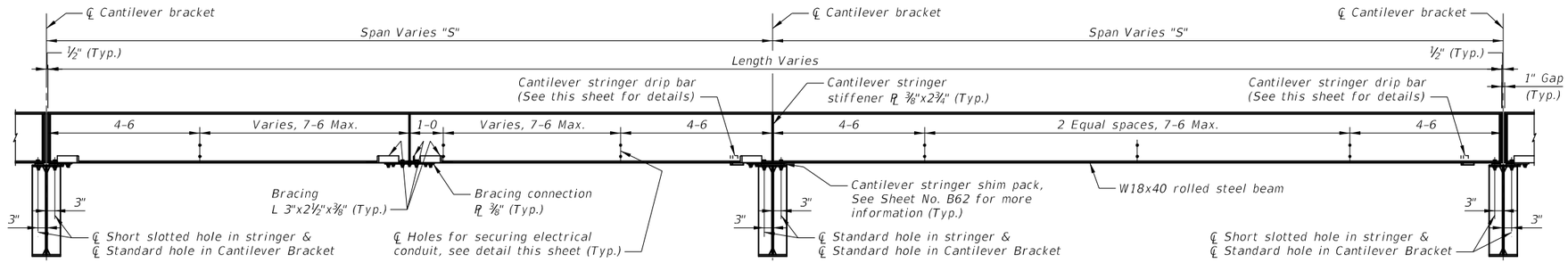
AWARD COPY



CANTILEVER STRINGERS – PLAN

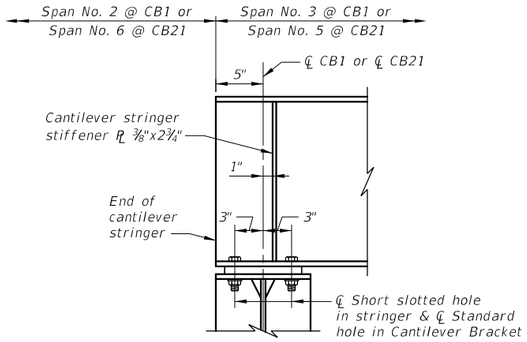
Scale ~ ½" = 1'–0"

*NOTE: See Sheet No. B52 for cantilever bracket spacing. Field verify the as-constructed locations of the new cantilever brackets prior to fabricating the new W18x40 stringers. Adjust stringer lengths, and location of bolt holes that connect to the new cantilever brackets as necessary. Field drilling of bolt holes is acceptable upon approval by the Project Manager. Short slotted holes in the stingers have been detailed to provide for additional field adjustment. Standard or oversized holes may be provided in lieu of slotted holes.



A / B61 SECTION A

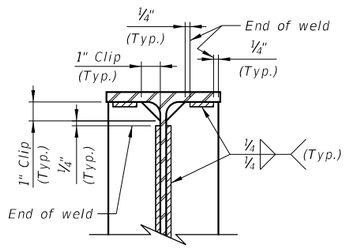
Scale ~ ½" = 1'–0"



NOTE: Provide Type 3 and 4 shims at CB1 and Type 5 shim at CB5.

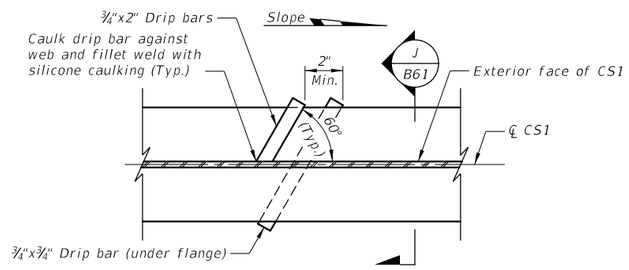
CANTILEVER STRINGER END DETAIL

Scale ~ 1½" = 1'–0"
(Bracing not shown for clarity.)



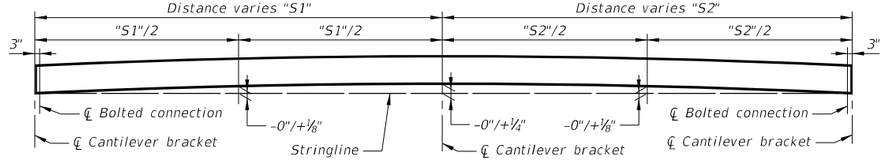
CANTILEVER STRINGER STIFFENER WELD DETAIL

Scale ~ 3" = 1'–0"



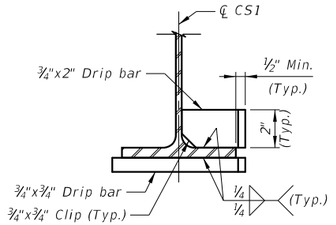
CANTILEVER STRINGER DRIP BAR DETAIL

Scale ~ 3" = 1'–0"



CANTILEVER STRINGER ALLOWABLE CAMBER

Not to Scale



J / B61 SECTION J

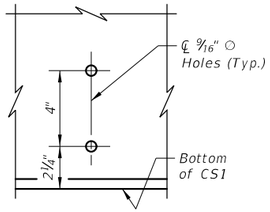
Scale ~ 3" = 1'–0"

NOTES

Fabricate cantilever stringers with mill camber up. Roll cantilever stringers, as necessary, to provide camber as shown on this sheet.

Roll cantilever stringers, as necessary, to provide +/– 0" relative difference between the camber of the adjacent cantilever stringers.

See Sheet No. B54 for additional notes.



NOTE: Only provide holes on Cantilever Stringer 1.

NOTE: See Electrical Plans for electrical conduit information and support information. Coordinate exact hole diameter and spacing with electrical conduit support manufacturer.

ELECTRICAL CONDUIT ATTACHMENT DETAIL

Scale ~ 3" = 1'–0"

HDR

SHEET NO. B61

CANTILEVER STRINGER DETAILS (SHEET 1 OF 2)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED							
REVISED							
REVISED							
REVISED							
CHECKED	2-21-19	J.C.M.					
DRAWN	12-5-18	G.H.S.					
DESIGNED	12-5-18	B.K.C.					

...8807000bmdez10.dgn
2:15:03 PM
7/17/2019

MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

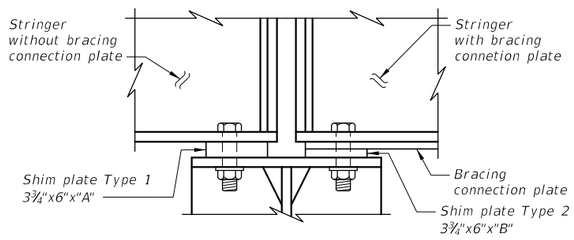
MDT STR. ID 07011

UPN NUMBER 8807000

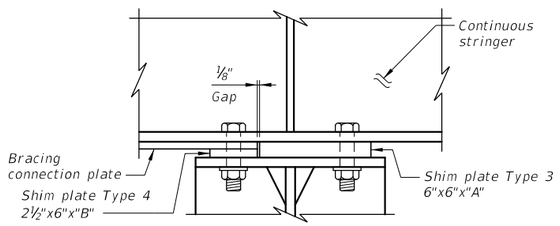
DRAWING NO. 23959

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

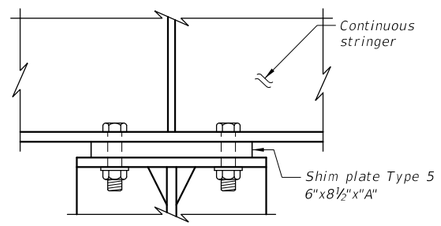
AWARD COPY



ENDS OF STRINGERS



CONTINUOUS STRINGER WITH BRACING CONNECTION



CONTINUOUS STRINGER WITHOUT BRACING CONNECTION

NOTES

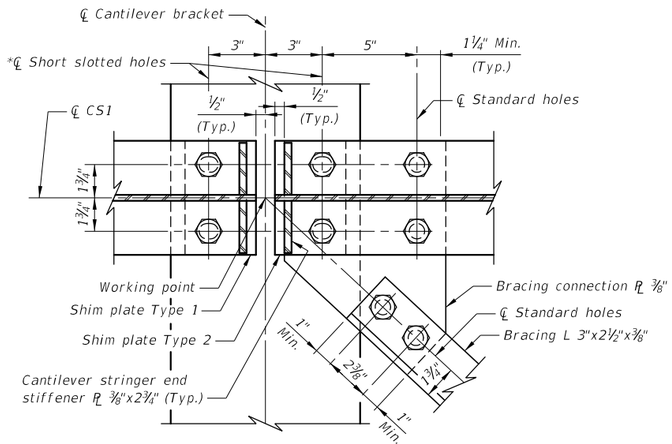
*At the end supports of the cantilever stringers, fabricate the bottom flange and the bracing connection plate in contact with the stringer bottom flange with short slotted holes. At intermediate supports and intermediate bracing connection points of the cantilever stringers fabricate the bottom flange with standard holes. Fabricate the top flange of the cantilever beam, and all bracing connection plate holes not in contact with the stringer end supports with standard holes.

See Sheet No. B54 for Table of "A" and "B" values.

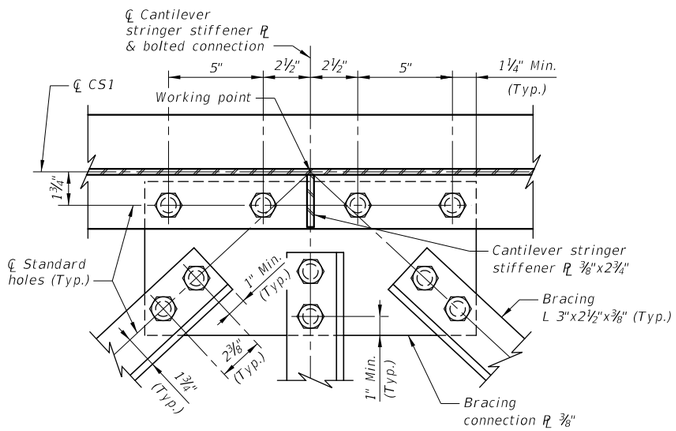
See Sheet No. B54 for additional notes.

CANTILEVER STRINGER SHIMMING DETAILS

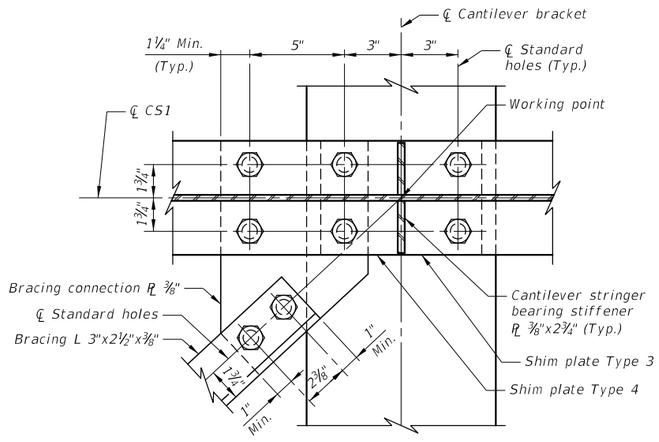
Scale ~ 3" = 1'-0"



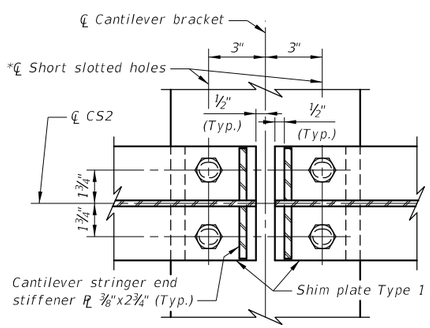
B B61 DETAIL B
Scale ~ 3" = 1'-0"



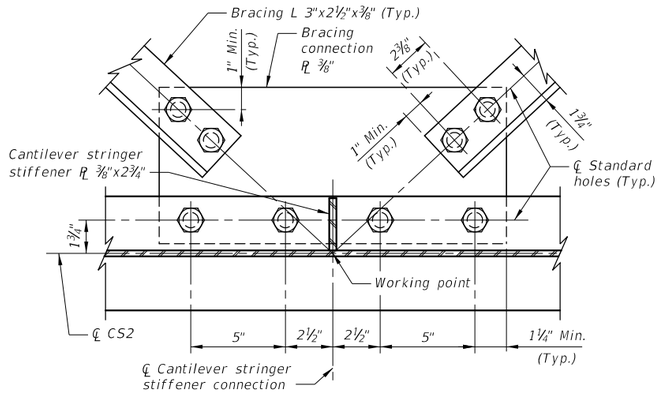
C B61 DETAIL C
Scale ~ 3" = 1'-0"



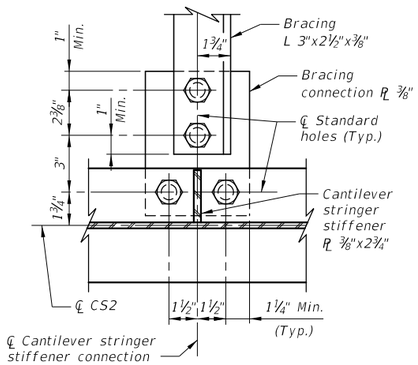
D B61 DETAIL D
Scale ~ 3" = 1'-0"



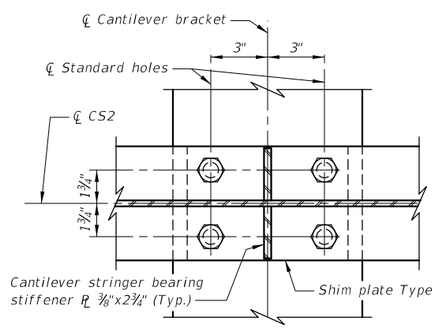
E B61 DETAIL E
Scale ~ 3" = 1'-0"



F B61 DETAIL F
Scale ~ 3" = 1'-0"



G B61 DETAIL G
Scale ~ 3" = 1'-0"



H B61 DETAIL H
Scale ~ 3" = 1'-0"

HDR

SHEET NO. B62

CANTILEVER STRINGER DETAILS (SHEET 2 OF 2)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED						J.C.M.	
REVISED						G.H.S.	
REVISED						B.K.C.	
REVISED				CHECKED	2-21-19		
				DRAWN	12-5-18		
				DESIGNED	12-5-18		

...8807000bmdez11.dgn

7/17/2019 2:15:41 PM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23960

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

NOTES

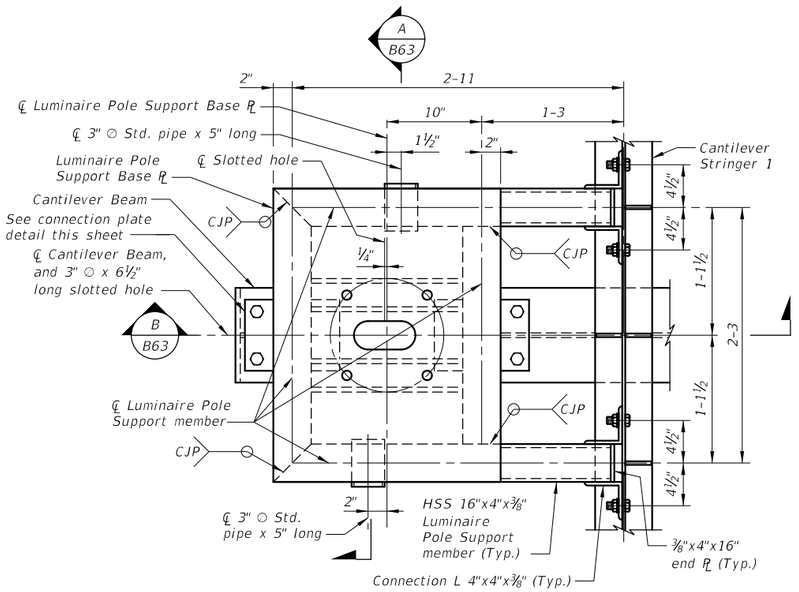
See electrical plans for additional Luminaire Pole and electrical details.

3" diameter standard pipe is positioned to allow passage of 2" diameter steel conduit through the Luminaire Pole Support. Contractor to verify adequate clearance prior to erecting Luminaire Pole Support assembly.

Utilize ¾" diameter high strength bolts for all Luminaire Pole Support connections to the cantilever stringer and cantilever beam.

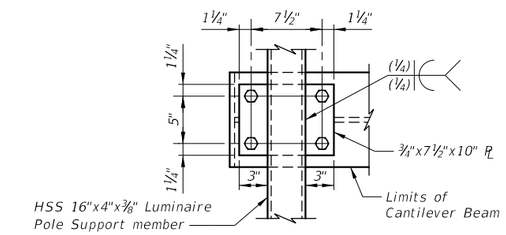
Adjust location of reinforcing plates as needed to accommodate Luminaire Pole anchor bolts, and meet details shown on this sheet.

See Sheet No. B54 for additional notes.



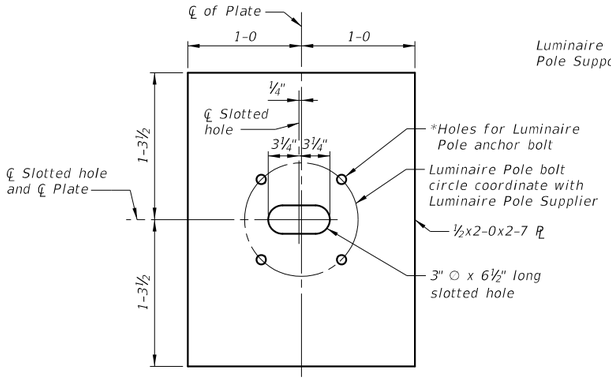
LUMINAIRE POLE SUPPORT PLAN

Scale ~ 1½" = 1'-0"



CONNECTION PLATE DETAIL

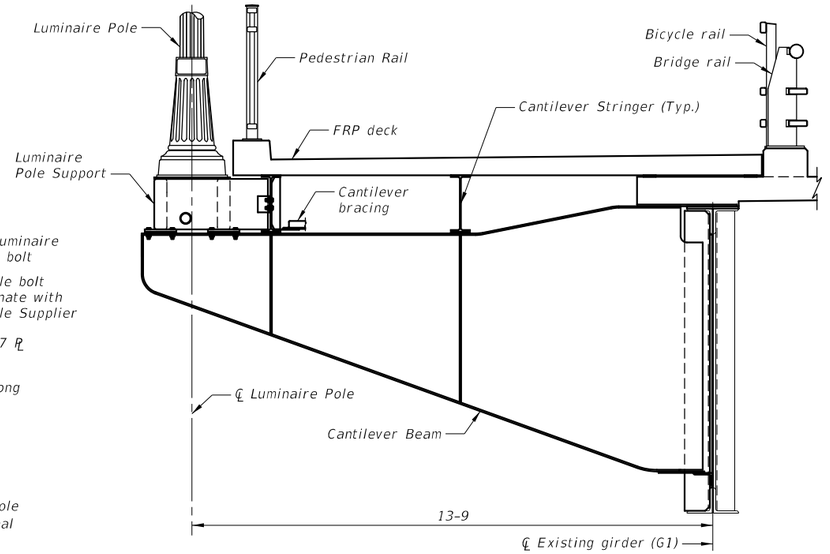
Scale ~ 1½" = 1'-0"



*NOTE: Provide diameter of holes ¼" larger than Luminaire Pole anchor bolt diameter. See electrical plans for additional Luminaire Pole information.

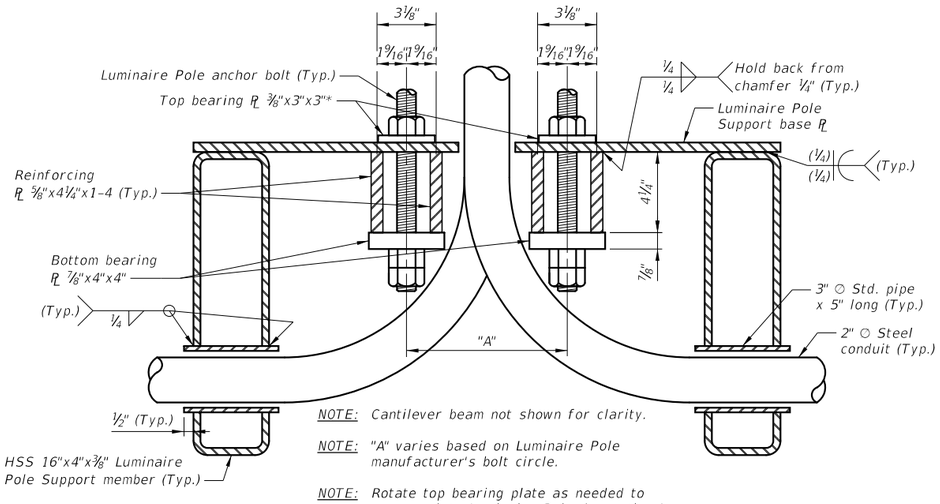
LUMINAIRE POLE SUPPORT BASE PLATE

Scale ~ 1½" = 1'-0"



CANTILEVER ELEVATION AT LUMINAIRE POLE

Scale ~ ½" = 1'-0"



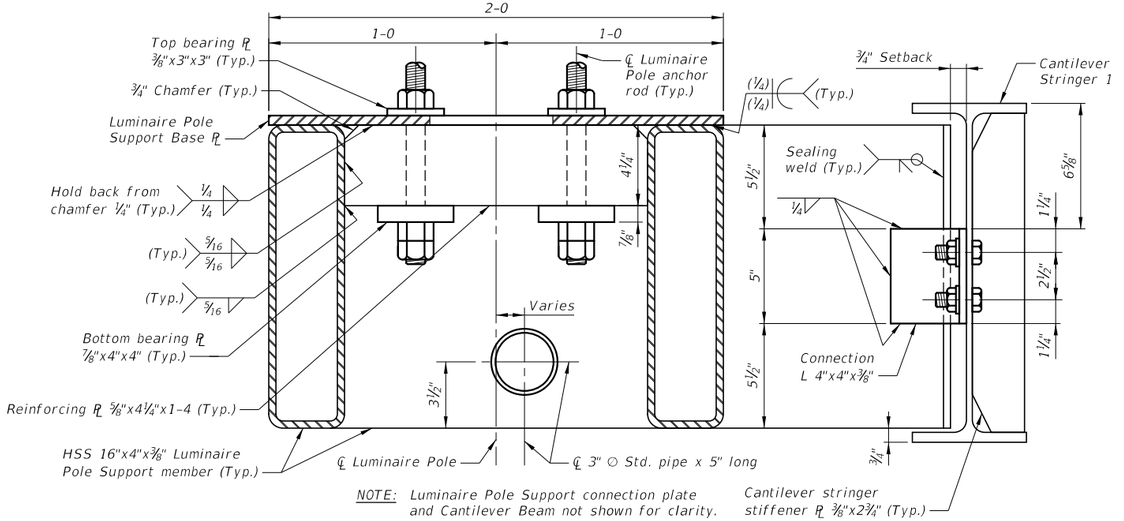
NOTE: Cantilever beam not shown for clarity.

NOTE: "A" varies based on Luminaire Pole manufacturer's bolt circle.

NOTE: Rotate top bearing plate as needed to accommodate Luminaire Pole decorative base.

A / B63 **PLATE REINFORCING**

Scale ~ 3" = 1'-0"



NOTE: Luminaire Pole Support connection plate and Cantilever Beam not shown for clarity.

B / B63 **LUMINAIRE POLE SUPPORT**

Scale ~ 3" = 1'-0"

HDR

SHEET NO. B63

CANTILEVER BRACKET
LUMINAIRE POLE SUPPORT

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	...8807000bmdaz12.dgn
				J.C.M.	K.J.A.	B.K.C.	
				2-21-19	2-7-19	2-1-19	2:18:30 PM
							7/17/2019

MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23961

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

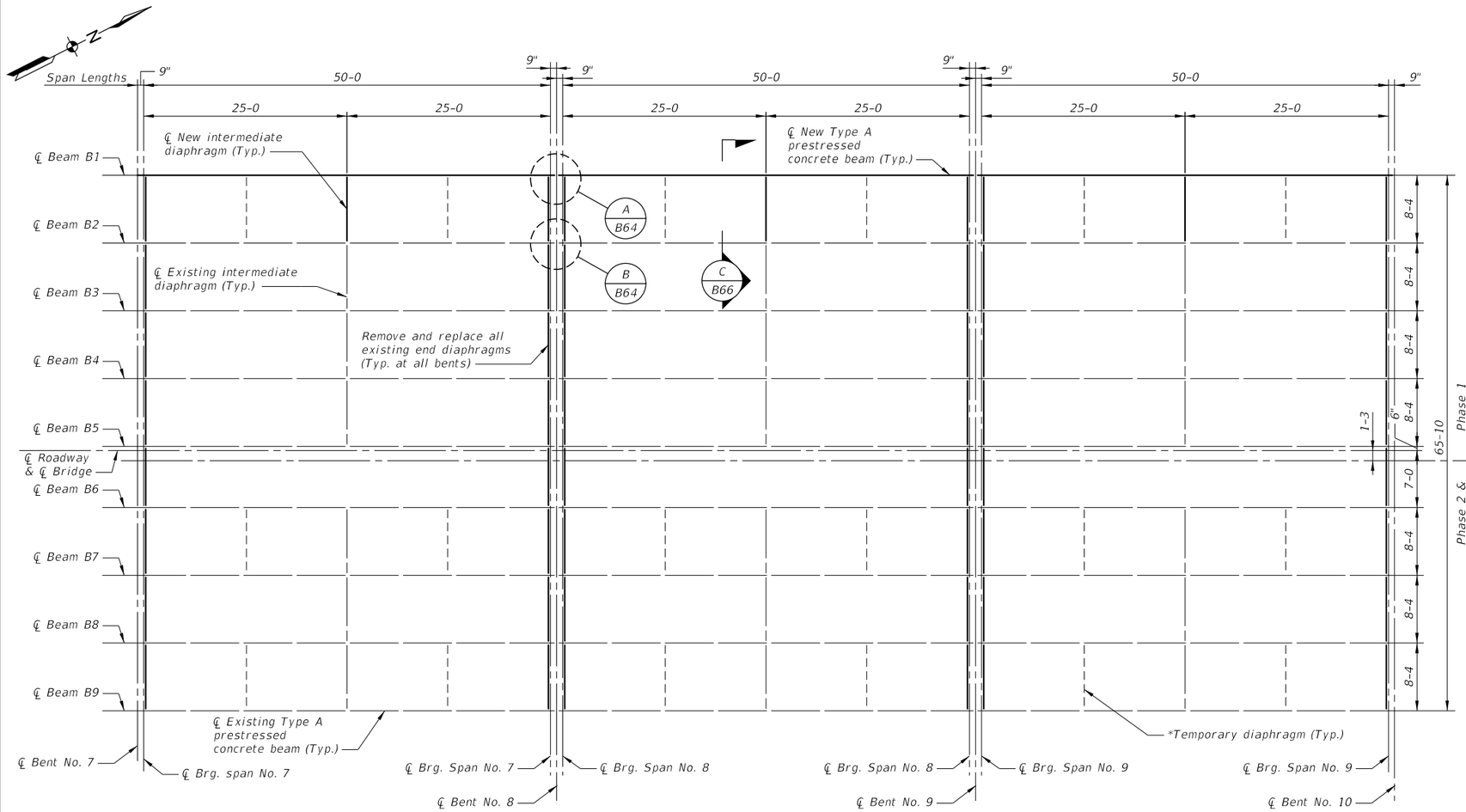
AWARD COPY

NOTES

Dimensions shown are horizontal.

See Sheet No. B41 for Expansion Bearing and Jacking information.

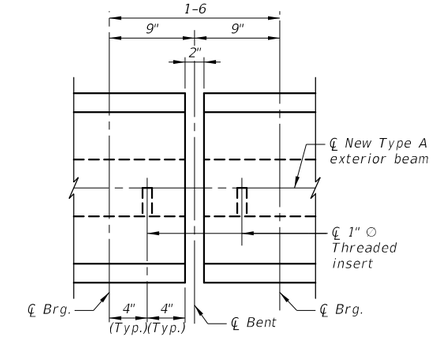
See Standard Drawings B-A & SL-7 for more information.



*NOTE: Provide full depth temporary diaphragms during the concrete deck pour. Submit temporary diaphragm details for approval.

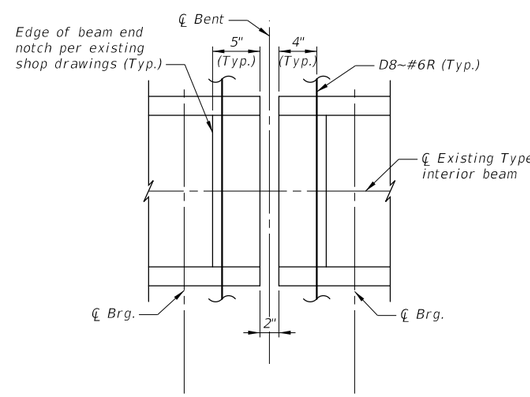
ERECTION PLAN - SPANS NO. 7, NO. 8, & NO. 9

Scale ~ ⅛" = 1'-0"



A B64 & B65 **DETAIL A**

Scale ~ 1½" = 1'-0"



B B64 & B65 **DETAIL B**

Scale ~ 1½" = 1'-0"

PRESTRESSED BEAM DESIGN PARAMETERS

AASHTO Specifications	LRFD 8th Edition
Structure Type	Simple Span
Deck Concrete Strength	4000 psi
Prestressing Strand	270 ksi low relaxation - (0.500" or 0.600" diameter)
Shear Reinforcing	AASHTO M 31 Grade 60
Alternate Shear Reinforcing	Welded Wire Fabric - AASHTO M211 & M225
Section Property Calculations	Gross Section
Prestress Loss Method	Approximate Method per AASHTO
Shear Computation Method	Sectional Model per LRFD 5.7.3
Beam/Slab Interface	Intentionally Roughened to ¼" amplitude
Load Rating Requirements	AASHTO LRFR Design Load

PRESTRESSED BEAM LOAD TABLE

LOAD TYPE	LOADS	APPLICATION METHOD
Traffic Barrier	0.192 kip/ft per barrier	Distribute Equally to All Beams
Pedestrian Rail and Curb	0.115 kip/ft per rail	Distribute Equally to All Beams
Future Wearing Surface	10 lb/ft² applied between traffic barriers	Distribute Equally to All Beams
8-4 Intermediate Diaphragm	2.42 kip/diaphragm	Apply as Point Load
7-7 Intermediate Diaphragm	2.20 kip/diaphragm	Apply as Point Load
8-4 End Diaphragm	1.64 kip/diaphragm	Apply as Point Load
7-7 End Diaphragm	1.49 kip/diaphragm	Apply as Point Load
7-6 End Diaphragm	1.48 kip/diaphragm	Apply as Point Load
Live Load (New Beam Lines)	LRFD - HL-93	Per AASHTO LRFD

HDR

SHEET NO. B64

SPANS NO. 7 THRU NO. 9
ERECTION PLAN

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED							
REVISED							
REVISED							
REVISED							
CHECKED	3-18-19	J.D.S.
DRAWN	3-1-19	K.J.A.
DESIGNED	3-1-19	P.C.J.

...\8807000brejct03.dgn
2:19:17 PM
7/17/2019

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

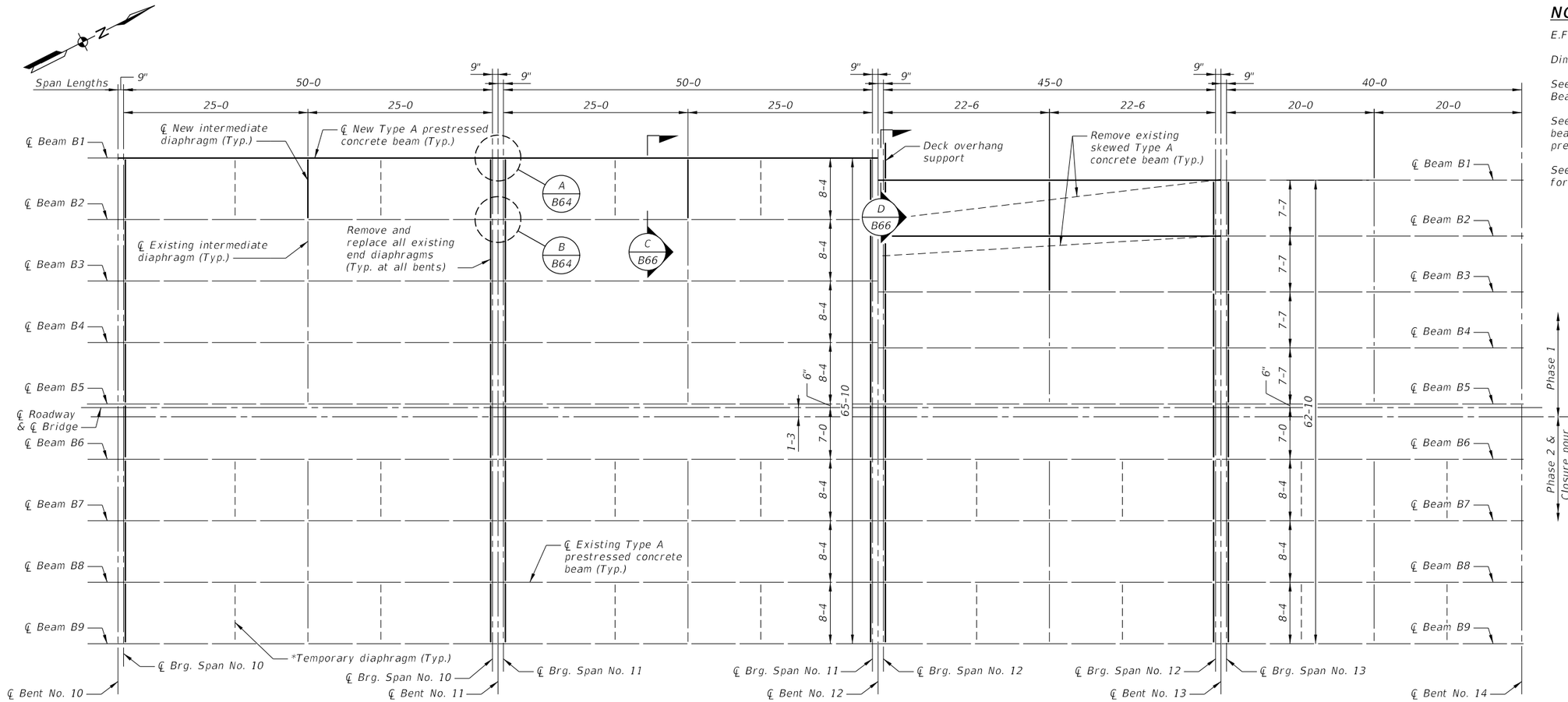
MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23962

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



*NOTE: Provide full depth temporary diaphragms during the concrete deck pour. Submit temporary diaphragm details for approval.

ERECTION PLAN – SPANS NO. 10, NO. 11, NO. 12, & NO. 13

Scale ~ ⅛" =1'-0"

NOTES

E.F. = Each Face

Dimensions shown are horizontal.

See Sheet No. B41 for Expansion Bearing and Jacking information.

See Sheet No. B64 for prestressed beam design parameters and prestressed beam load table.

See Standard Drawings B-A & SL-7 for more information.

DEAD LOAD DEFLECTION TABLE

MDT TYPE A PRESTRESSED CONCRETE BEAM

℄ BRG. TO ℄ BRG. SPAN		TENTH POINT										
		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Span No. 7 thru No. 11, 50-0	B1	0"	3/16"	3/8"	9/16"	5/8"	11 1/16"	5/8"	9/16"	3/8"	3/16"	0"
	B2, B3, B4, B7 & B8	0"	1/8"	3/16"	5/16"	5/16"	3/8"	5/16"	5/16"	3/16"	1/8"	0"
	B5 and B6	0"	1/8"	3/16"	1/4"	5/16"	5/16"	5/16"	1/4"	3/16"	1/8"	0"
	B9	0"	1/8"	1/4"	5/16"	3/8"	3/8"	3/8"	5/16"	1/4"	1/8"	0"
Span No. 12, 45-0	B1	0"	1/16"	1/8"	3/16"	1/4"	1/4"	1/4"	3/16"	1/8"	1/16"	0"
	B2, B3, B4, B7 & B8	0"	1/16"	1/8"	3/16"	3/16"	3/16"	3/16"	3/16"	1/8"	1/16"	0"
	B5 and B6	0"	1/16"	1/8"	3/16"	3/16"	3/16"	3/16"	3/16"	1/8"	1/16"	0"
	B9	0"	1/16"	1/8"	3/16"	1/4"	1/4"	1/4"	3/16"	1/8"	1/16"	0"
Span No. 13, 40-0	B1	0"	1/16"	1/16"	1/8"	1/8"	1/8"	1/8"	1/8"	1/16"	1/16"	0"
	B2, B3, B4, B7 & B8	0"	1/16"	1/16"	1/8"	1/8"	1/8"	1/8"	1/8"	1/16"	1/16"	0"
	B5 and B6	0"	1/16"	1/16"	1/8"	1/8"	1/8"	1/8"	1/8"	1/16"	1/16"	0"
	B9	0"	1/16"	1/8"	1/8"	1/8"	3/16"	1/8"	1/8"	1/8"	1/16"	0"

NOTE: Deflections include deck, bridge rail, pedestrian railing & curb, and luminaire loads. Deflections do not include beam dead load.

HDR

SHEET NO. B65

SPANS NO. 10 THRU NO. 13
ERECTION PLAN

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
					J.D.S.	K.J.A.	P.C.J.
					3-18-19	3-1-19	3-1-19

...8807000brepl204.dgn
7/17/2019 2:19:48 PM

MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

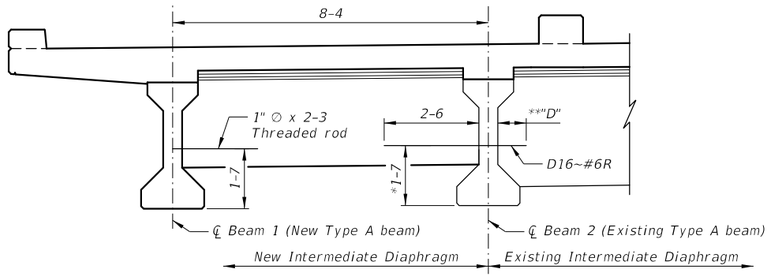
MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23963

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



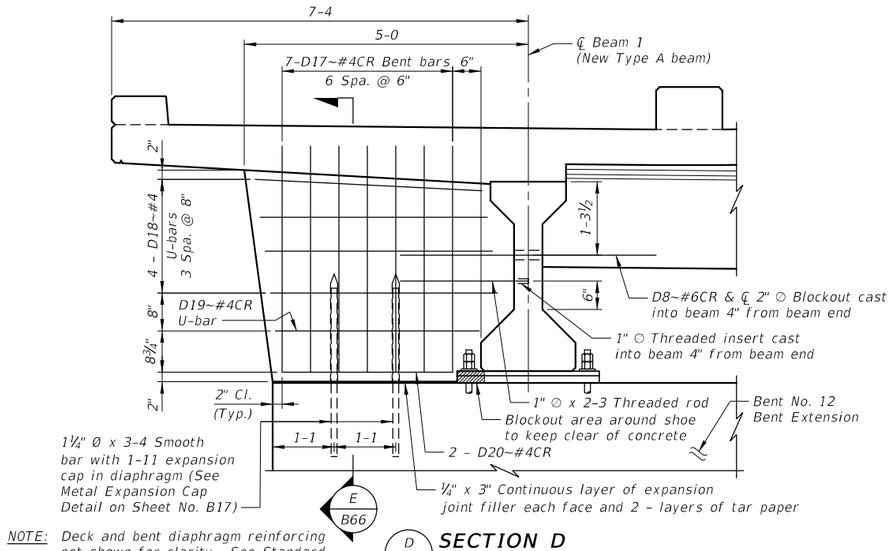
*NOTE: Locate and avoid existing prestressing and post stressing prior to drilling 1" maximum diameter holes thru existing beam.

**NOTE: Drill and adhere new reinforcing into existing diaphragm. See minimum embedment details on Sheet No. B17.

NOTE: Beams 1 and 2 for Spans No. 7 thru No. 11 shown. Beams 2 and 3 for Span No. 12 similar.

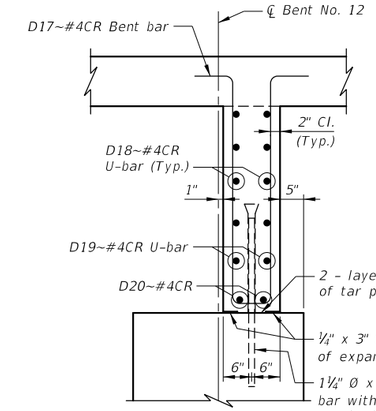
NOTE: Other reinforcing not shown for clarity. See Standard Drawing No. B-A for more information.

C / B64 & B65 **SECTION C**
Scale ~ ½" = 1'-0"



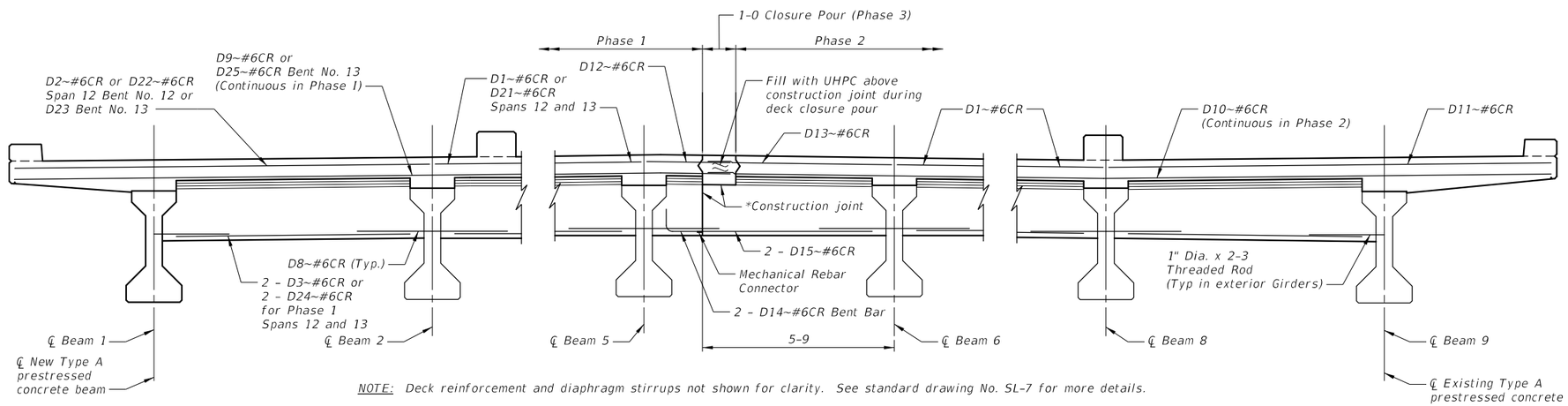
NOTE: Deck and bent diaphragm reinforcing not shown for clarity. See Standard Drawing No. B-A for more information.

D / B65 **SECTION D**
Scale ~ ¾" = 1'-0"



NOTE: Deck reinforcing and Span No. 11 beam not shown for clarity.

E / B66 **SECTION E**
Scale ~ ¾" = 1'-0"



NOTE: Deck reinforcement and diaphragm stirrups not shown for clarity. See standard drawing No. SL-7 for more details.

*NOTE: Intentionally roughen vertical Phase I end diaphragm face to a minimum amplitude of ¼" prior to placing Phase 2 end Diaphragm. Apply epoxy bonding agent (AASHTO M325 Type V) to roughened surface immediately prior to placing new concrete.

NOTE: See Section D and Section E this sheet for Span No. 12 end diaphragm differences at Bent No. 12.

END DIAPHRAGM PARTIAL ELEVATION

Scale ~ ½" = 1'-0"
(Looking Ahead on Line)

HDR

SHEET NO. B66

SPANS NO. 7 THRU NO. 13
DIAPHRAGM DETAILS

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
				J.D.S.	A.B.E.	P.C.J.
				3-22-19	3-19-19	3-19-19

...8807000brdlaz02.dgn
2:20:16 PM
7/17/2019

MONTANA DEPARTMENT OF TRANSPORTATION
MDT
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

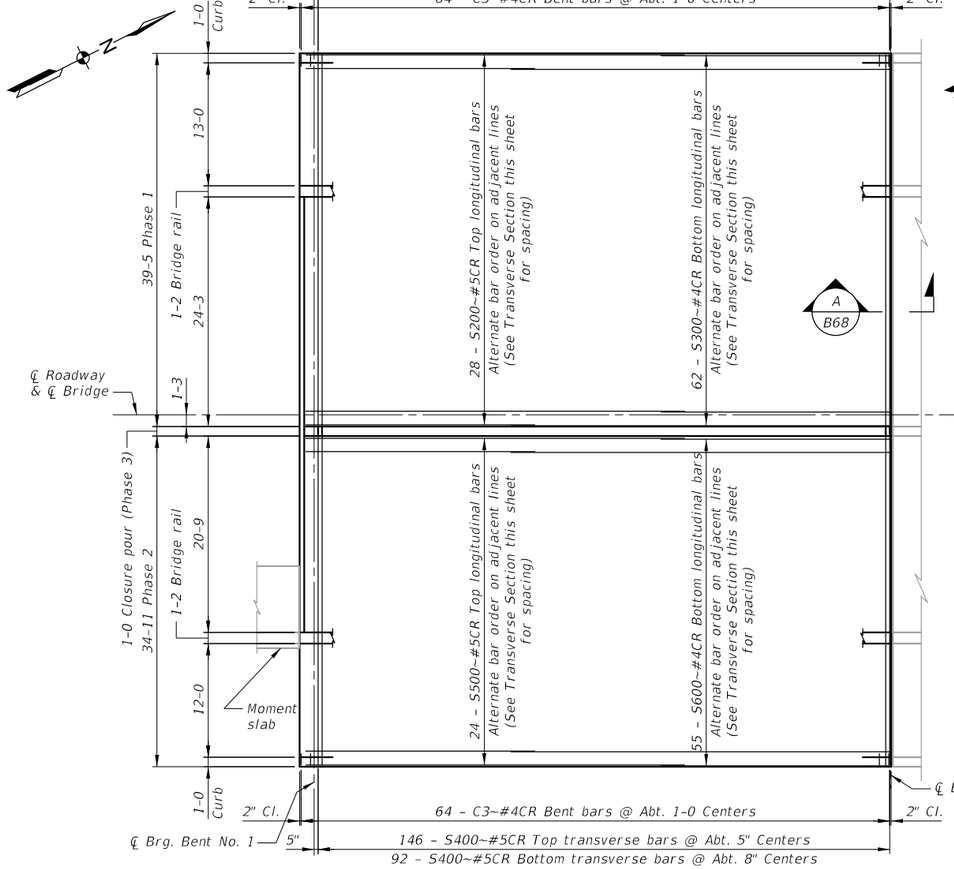
MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23964

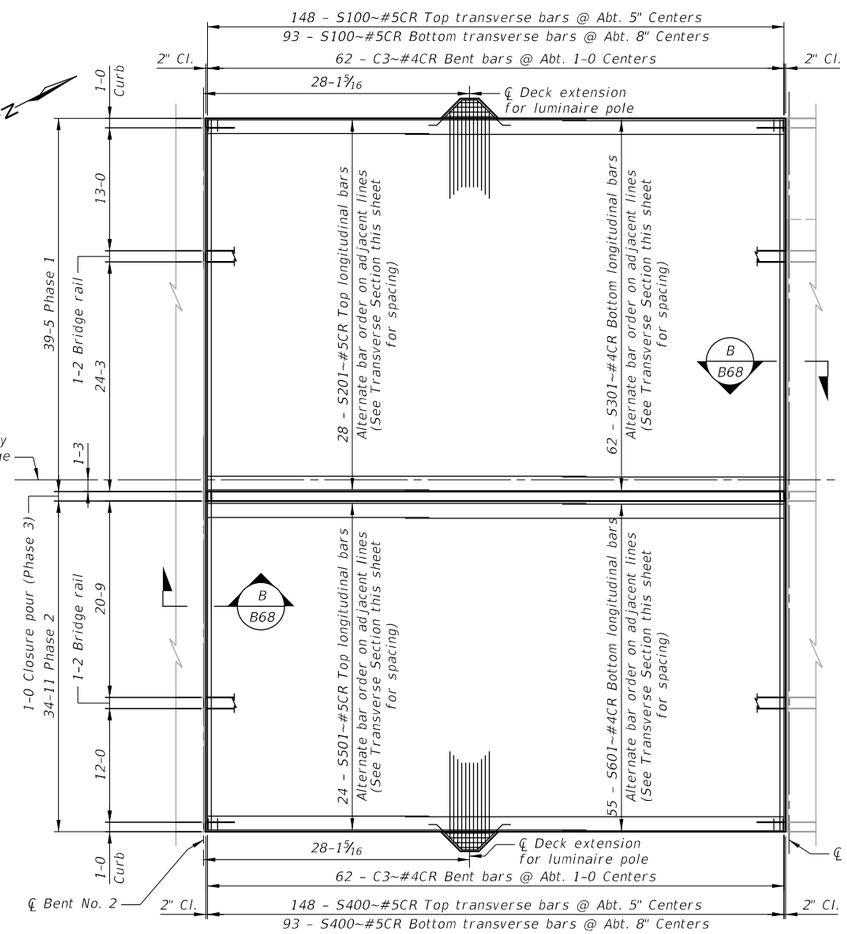
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



SLAB REINFORCING STEEL PLACEMENT PLAN - SPAN NO. 1

Scale ~ ⅛" = 1'-0"



SLAB REINFORCING STEEL PLACEMENT PLAN - SPAN NO. 2

Scale ~ ⅛" = 1'-0"

NOTES

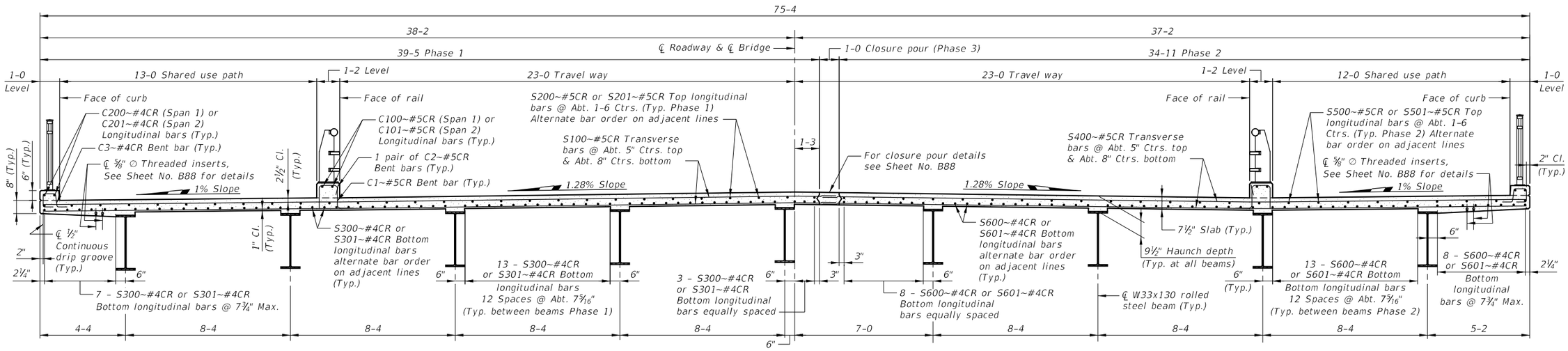
Lap #4CR 2-8 minimum
Lap #5CR 3-4 minimum

See Sheet No. B68 for Bill of Reinforcing Steel.

See Sheet No. B88 for deck extension for luminaire pole details.

See Sheet No. B92 for deck drain locations.

See Std. Dwg. No. SBR-0R42 for bridge rail reinforcing steel.



TRANSVERSE SECTION - SPANS NO. 1 & NO. 2

Scale ~ ⅜" = 1'-0"
(Looking Ahead on Line)

NOTE: Haunch depth is measured from top of slab to top of top flange at ℄ Girder.

HDR

SHEET NO. B67

SPANS NO. 1 & NO. 2
SLAB REINFORCING
STEEL PLACEMENT PLANS
AND TRANSVERSE SECTION

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
				3-14-19	11-1-18	11-1-18
				J.D.S.	G.H.S.	P.C.J.

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU
7/18/2019 12:28:06 PM ...\8807000brsls201.dgn

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

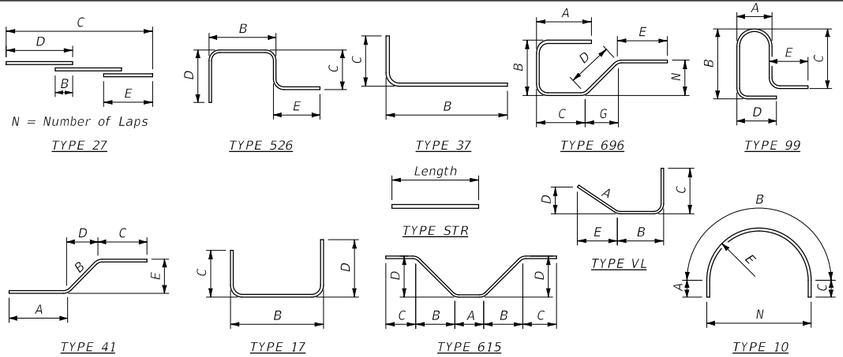
DRAWING NO.
23965

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

BILL OF REINFORCING STEEL

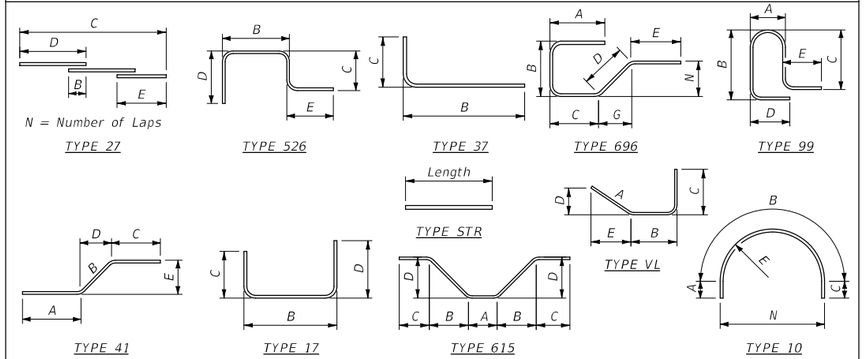
SPANS NO. 1 & NO. 2 DECK SLABS PHASE 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S100	#5CR	479	STR	40-1							
S200	#5CR	28	27	65-0		3-4	61-8	40-0	25-0		1
S201	#5CR	28	27	64-2		3-4	60-10	40-0	24-2		1
S300	#4CR	62	27	64-4		2-8	61-8	40-0	24-4		1
S301	#4CR	62	27	63-6		2-8	60-10	40-0	23-6		1
S1	#6CR	48	STR	7-0							
S2	#6CR	12	STR	1-11							
S4	#4CR	201	VL	2-4⅝	10⅝"	10½"	7½"	7½"	7½"		
S5	#4CR	14	STR	12-0							
S6	#5CR	8	STR	20-0							
S7	#5CR	8	STR	12-0							
C100	#5CR	2	27	65-6		3-4	62-2	40-0	25-6		1
C101	#5CR	2	27	64-2		3-4	60-10	40-0	24-2		1
C200	#4CR	2	27	64-4		2-8	61-8	40-0	24-4		1
C201	#4CR	2	27	63-6		2-8	60-10	40-0	23-6		1
C1	#5CR	238	526	4-0½		11"	1-1¾	1-1¾	10"		
C2	#5CR	32	41	2-6¾	11"	8¾"	11"	6¼"	6¼"		
C3	#4CR	126	696	3-5½	8"	9"	7½"	9"	8"	⅝"	9"
LS1	#4CR	11	17	18-9½		5½"	9-2	9-2			
LS2	#5CR	2	615	10-10	1-8	2-8	10"	2-8			
LS3-1	#4CR	2	STR	5-3							
LS3-2	#4CR	2	STR	4-3							
LS3-3	#4CR	2	STR	3-3							
LS3-4	#4CR	2	STR	2-3							

BILL OF REINFORCING STEEL

SPANS NO. 1 & NO. 2 DECK SLABS PHASE 2 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S400	#5CR	479	STR	35-7							
S500	#5CR	24	27	65-0		3-4	61-8	40-0	25-0		1
S501	#5CR	24	27	64-2		3-4	60-10	40-0	24-2		1
S600	#4CR	55	27	64-4		2-8	61-8	40-0	24-4		1
S601	#4CR	55	27	63-6		2-8	60-10	40-0	23-6		1
S1	#6CR	36	STR	7-0							
S3	#6CR	12	STR	4-11							
S4	#4CR	177	VL	2-4⅝	10⅝"	10½"	7½"	7½"	7½"		
S6	#5CR	8	STR	20-0							
S7	#5CR	8	STR	12-0							
C100	#5CR	2	27	65-6		3-4	62-2	40-0	25-6		1
C101	#5CR	2	27	64-2		3-4	60-10	40-0	24-2		1
C200	#4CR	2	27	64-4		2-8	61-8	40-0	24-4		1
C201	#4CR	2	27	63-6		2-8	60-10	40-0	23-6		1
C1	#5CR	249	526	4-0½		11"	1-1¾	1-1¾	10"		
C2	#5CR	32	41	2-6¾	11"	8¾"	11"	6¼"	6¼"		
C3	#4CR	126	696	3-5½	8"	9"	7½"	9"	8"	⅝"	9"
LS1	#4CR	11	17	18-9½		5½"	9-2	9-2			
LS2	#5CR	2	615	10-10	1-8	2-8	10"	2-8			
LS3-1	#4CR	2	STR	5-3							
LS3-2	#4CR	2	STR	4-3							
LS3-3	#4CR	2	STR	3-3							
LS3-4	#4CR	2	STR	2-3							

NOTES

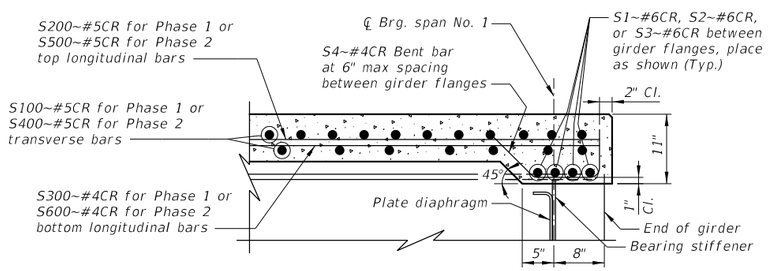
See Sheet No. B74 for Spans No. 1, No. 2, and No. 6 Slab End Detail for more information on bars S1-S4.

See Sheet No. B75 for shared use path ramp detail for more information on bar S5.

See Sheets No. B92 thru No. B96 for drainage and scupper details.

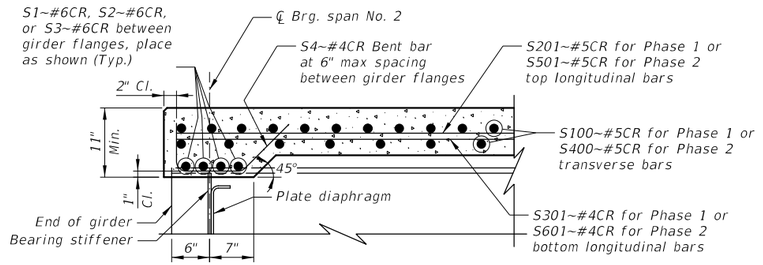
See Std. Dwg. No. SBR-0R42 for additional bridge rail reinforcing.

See Std. Dwg. SBR-0R42-PP for the Bill of Reinforcing Steel for the standard bridge rail parapet located on Span No. 1 Phase 1.



NOTE: Expansion joints vary. Adjust reinforcement the minimum amount necessary to avoid expansion joint anchorage. See Sheets No. B89 thru No. B91 for expansion joint details.

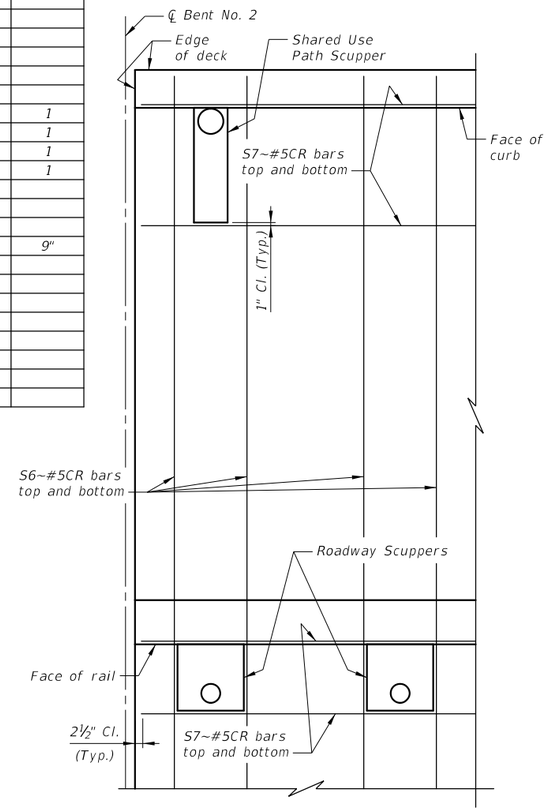
A B67 **SECTION A**
Scale ~ 1" = 1'-0"



NOTE: Expansion joints vary. Adjust reinforcement the minimum amount necessary to avoid expansion joint anchorage. See Sheets No. B89 thru No. B91 for expansion joint details.

*NOTE: Depth will vary at shared use path ramp to FRP. maintain bottom edge 3#4" below the bottom of the top flange.

B B67 **SECTION B**
Scale ~ 1" = 1'-0"



NOTE: Cut deck, barrier and curb bars in conflict with scuppers. Trim bars to maintain 1" clear to the scuppers.

SPAN NO. 2 SCUPPER REINFORCEMENT DETAIL

Scale ~ ½" = 1'-0"
(Scuppers SD1, SD2, and SD3 shown, ND1, ND2, and ND3 similar.)
(Curb and deck reinforcing not shown for clarity.)

SHEET NO. B68

SPANS NO. 1 & NO. 2 BILLS OF REINFORCING STEEL

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
				3-21-19	11-1-18	11-1-18
				J.D.S.	G.H.S.	P.C.J.

...\8807000brsls202.dgn
7/18/2019 12:27:20 PM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

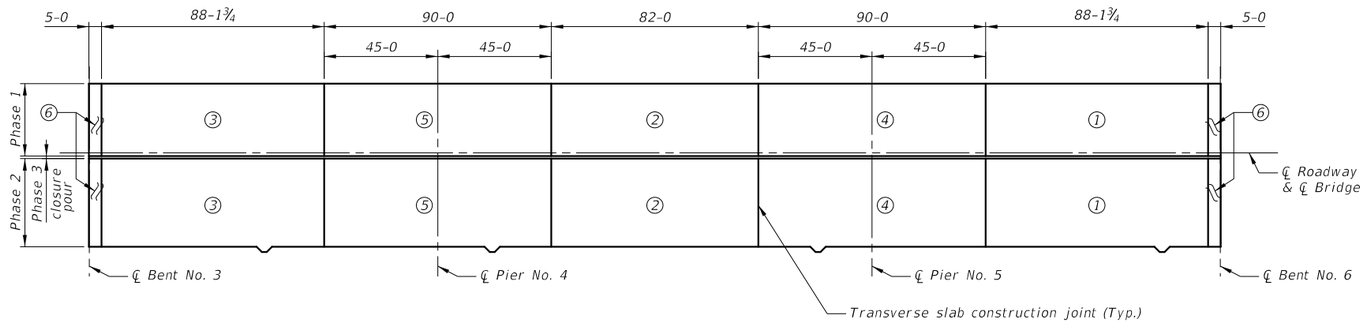
UPN NUMBER 8807000

DRAWING NO. 23966

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



SLAB POURING SEQUENCE – SPANS NO. 3 THRU NO. 5

Scale ~ 1" = 30'-0"

NOTE: The numbers inscribed in the circles represent the sequence of placing sections in the slab. Follow the sequence represented by the numbers inscribed in the circles when placing sections of the slab shown.

NOTE: Allow for a minimum of 48 hours between placements ①, ②, and ③ and placements ④ and ⑤.

NOTE: The dimensions shown are horizontal dimensions measured along ℄ Bridge.

NOTE: Make final adjustments to expansion devices before placing the slab section in which the device is located.

NOTES

Lap #4CR 2-8 minimum
Lap #5CR 3-4 minimum

See Sheet No. B71 for longitudinal curb reinforcing.

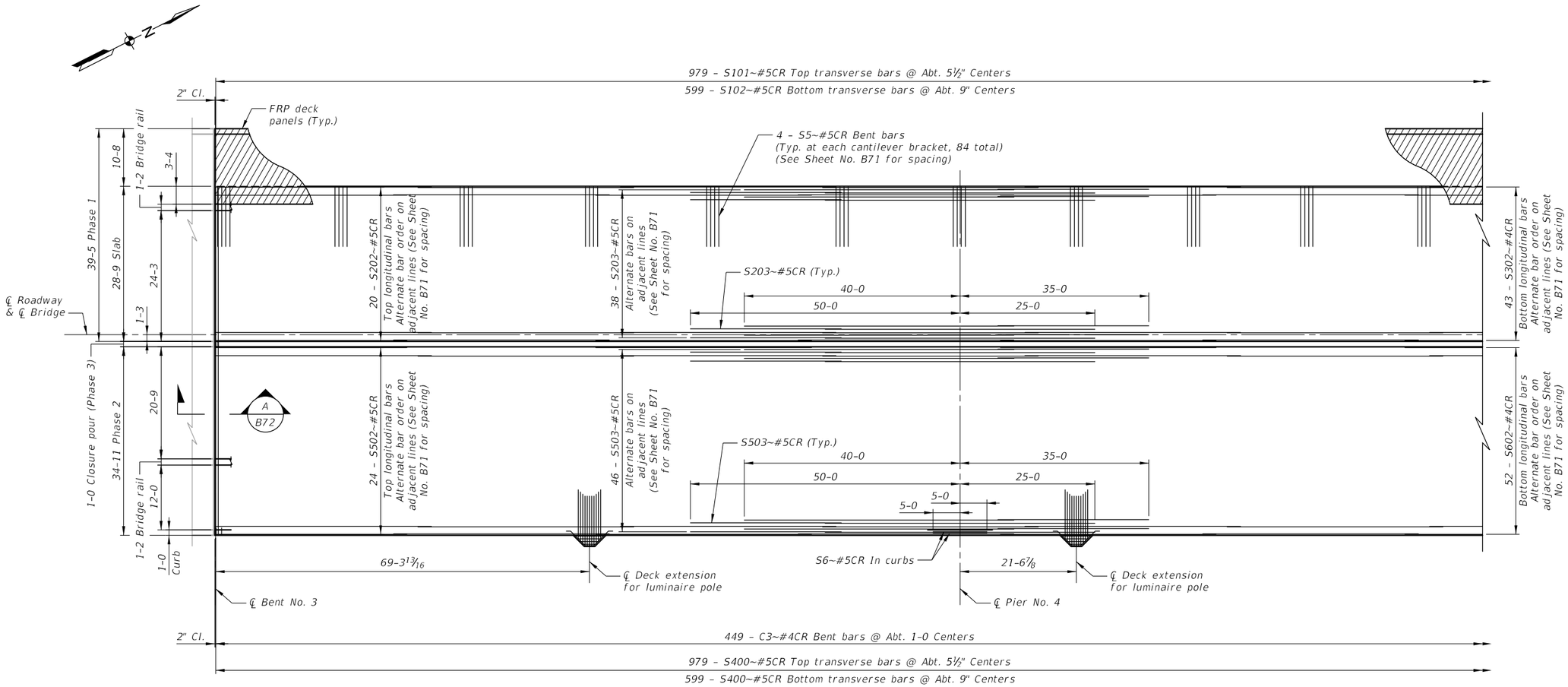
See Sheet No. B72 for Bill of Reinforcing Steel.

See Sheet No. B73 for FRP Panel details.

See Sheet No. B88 for deck extension for luminaire pole details.

See Sheet No. B92 for deck drain locations.

See Std. Dwg. No. SBR-0R42 for bridge rail reinforcing steel.



SLAB REINFORCING STEEL PLACEMENT PLAN – SPANS NO. 3 THRU NO. 5

Scale ~ 3/32" = 1'-0"

HDR

SHEET NO. B69

SPANS NO. 3 THRU NO. 5
SLAB REINFORCING STEEL
PLACEMENT PLAN
(SHEET 1 OF 2)

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED		
REVISED		
REVISED		
REVISED		
CHECKED	3-21-19	J.D.S.
DRAWN	11-1-18	G.H.S.
DESIGNED	11-1-18	P.C.J.

...8807000brsdz03.dgn
12:27:49 PM
7/18/2019

MONTANA DEPARTMENT OF TRANSPORTATION MDT
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

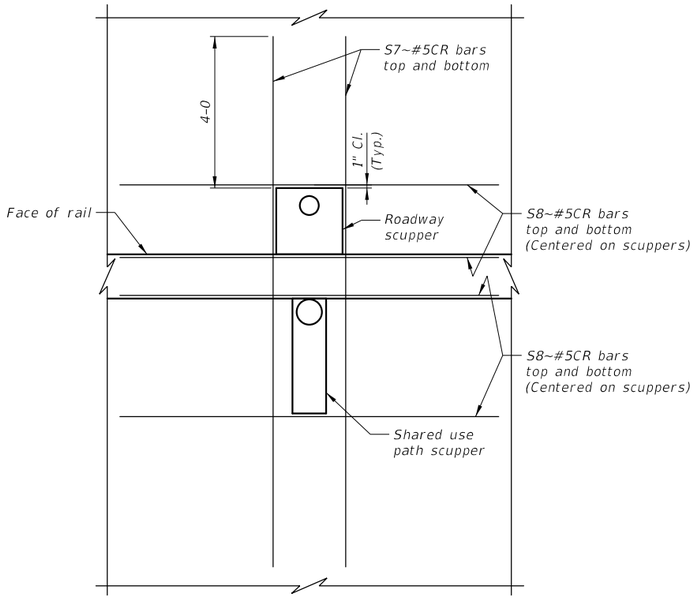
MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23967

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



NOTE: Cut deck, barrier and curb bars in conflict with scuppers.
Trim bars to maintain 1" clear to the scuppers.

SPAN NO. 5 SCUPPER REINFORCEMENT DETAIL

Scale ~ ½" = 1'-0"

(Scuppers ND6 and ND7 shown, other scuppers in Span No. 5 similar.)
(When only a roadway scupper is present, only 2 - S8~#5CR bars top and bottom are required.)
(Curb and deck reinforcing not shown for clarity.)

NOTES

Lap #4CR 2-8 minimum
Lap #5CR 3-4 minimum

See Sheet No. B71 for longitudinal curb reinforcing.

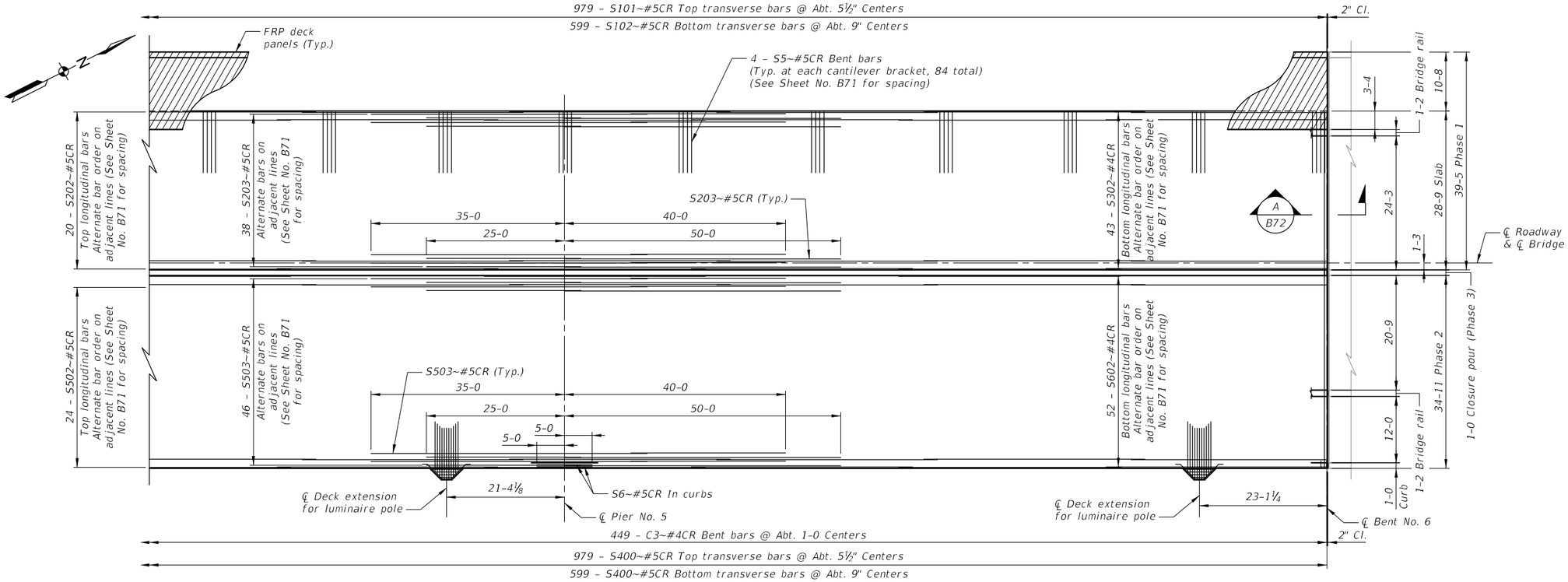
See Sheet No. B72 for Bill of Reinforcing Steel.

See Sheet No. B73 for FRP Panel details.

See Sheet No. B88 for deck extension for luminaire pole details.

See Sheet No. B92 for deck drain locations.

See Std. Dwg. No. SBR-OR42 for bridge rail reinforcing steel.



SLAB REINFORCING STEEL PLACEMENT PLAN - SPANS NO. 3 THRU NO. 5 (CONTINUED)

Scale ~ 3/32" = 1'-0"

HDR

SHEET NO. B70

SPANS NO. 3 THRU NO. 5
SLAB REINFORCING STEEL
PLACEMENT PLAN
(SHEET 2 OF 2)

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

DESIGNED	11-1-18
DRAWN	11-1-18
CHECKED	3-21-19
REVISED	J.D.S.
REVISED	G.H.S.
REVISED	P.C.J.
REVISED	

...88070000brsht204.dgn
12:28:14 PM
7/18/2019

MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23968

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

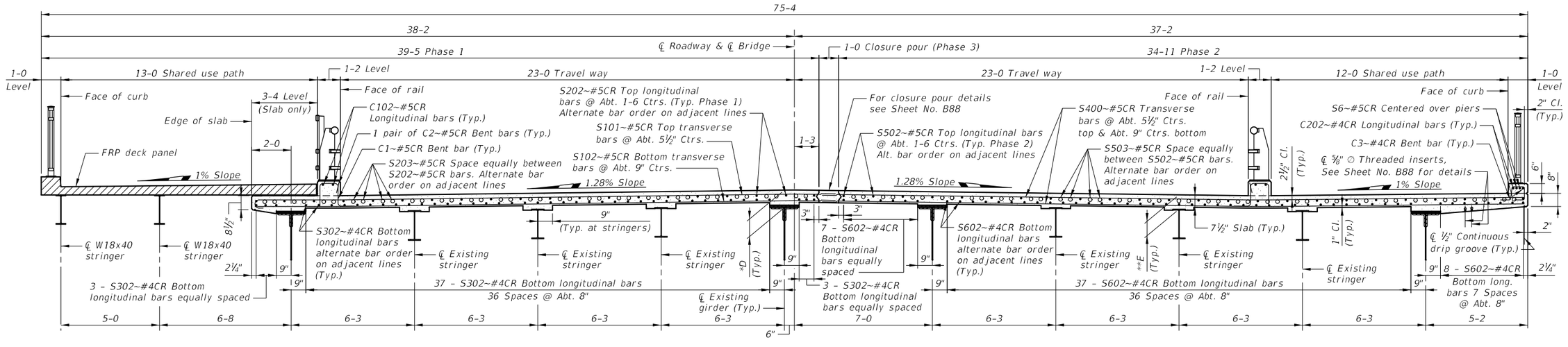
DEPTH OF SLAB "D" @ ℄ BRGS.				
Location	Bent No. 3	Pier No. 4	Pier No. 5	Bent No. 6
Girder 1	9 13/16"	10 15/16"	11"	10 1/8"
Girder 2	9 1/16"	10 1/16"	10 3/4"	9 7/8"
Girder 3	8 1/16"	9 1/16"	9 3/4"	8 7/8"
Girder 4	10 7/8"	11 7/8"	11 15/16"	11 1/16"

DEPTH OF SLAB "E" @ ℄ BRGS.				
Location	Bent No. 3	Pier No. 4	Pier No. 5	Bent No. 6
Stringer 1	9 5/8"	9 3/4"	9 13/16"	9 13/16"
Stringer 2	9 1/16"	9 3/4"	9 13/16"	9 7/8"
Stringer 3	9 1/16"	9 3/4"	9 7/8"	9 7/8"
Stringer 4	8 1/16"	8 3/4"	8 7/8"	8 7/8"
Stringer 5	8 1/16"	8 3/4"	8 13/16"	8 7/8"
Stringer 6	9 1/4"	9 3/8"	9 7/16"	9 7/16"

NOTES

See Sheet No. B72 for Bill of Reinforcing Steel.

See Std. Dwg. No. SBR-0R42 for bridge rail reinforcing details.



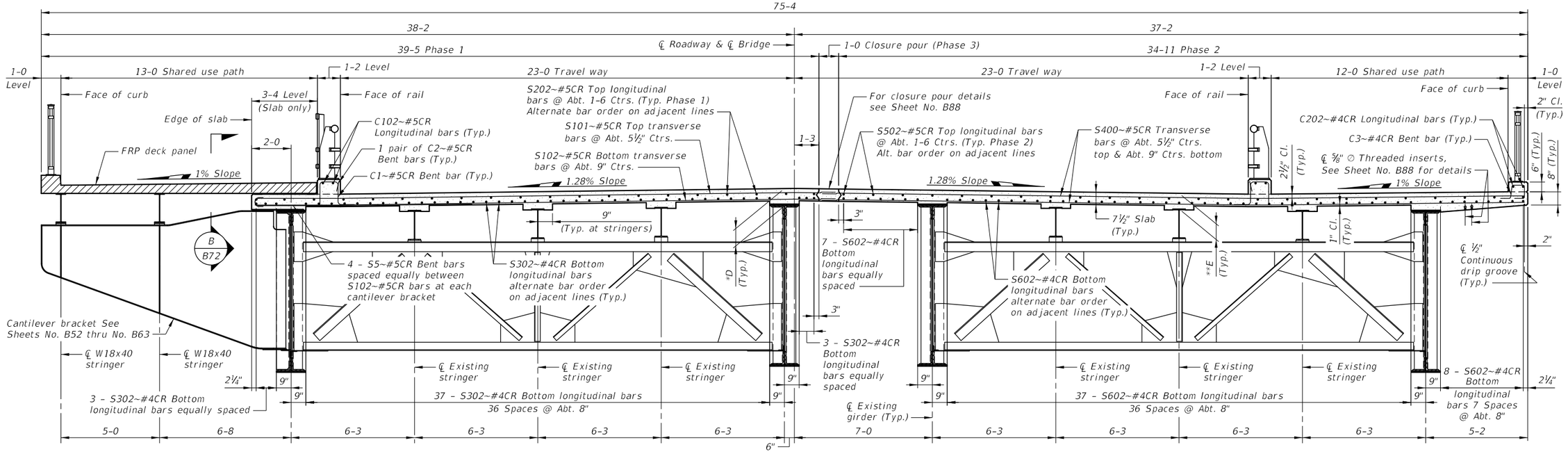
*NOTE: Dimension D varies, see table this sheet. D is measured from the top of deck to top of existing girder top flange angles at ℄ girder (May vary at tenth points; see Dead Load Deflection Table on Sheet No. B53).

**NOTE: Dimension E varies, see table this sheet. E is measured from the top of deck to the top of the top flange of the existing stringer at ℄ stringer (May vary at tenth points; see Dead Load Deflection Table on Sheet No. B53).

TRANSVERSE SECTION – SPANS NO. 3 THRU NO. 5

Scale ~ ⅜" = 1'-0"

(Looking Ahead on Line near piers nonadjacent to cantilever bracket)



TRANSVERSE SECTION – SPANS NO. 3 THRU NO. 5

Scale ~ ⅜" = 1'-0"

(Looking Ahead on Line near end of girders at cantilever bracket)

HDR

SHEET NO. B71

SPANS NO. 3 THRU NO. 5
TRANSVERSE SECTIONS

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED		CHECKED	3-21-19 J.D.S.
REVISED		DRAWN	11-1-18 G.H.S.
REVISED		DESIGNED	11-1-18 P.C.J.
REVISED			

...8807000brsdz05.dgn
7/18/2019 12:28:44 PM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

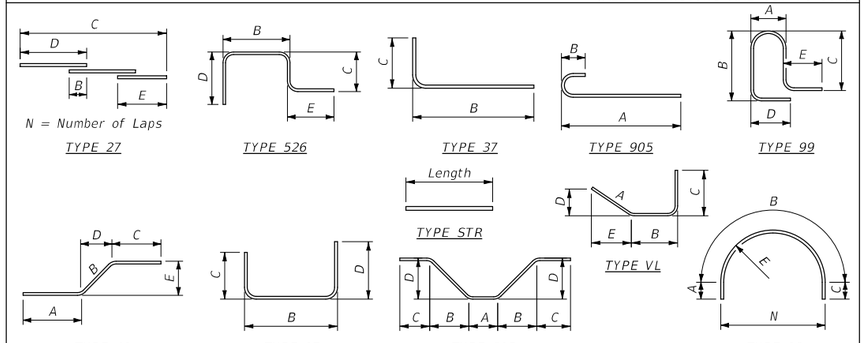
DRAWING NO.
23969

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

BILL OF REINFORCING STEEL

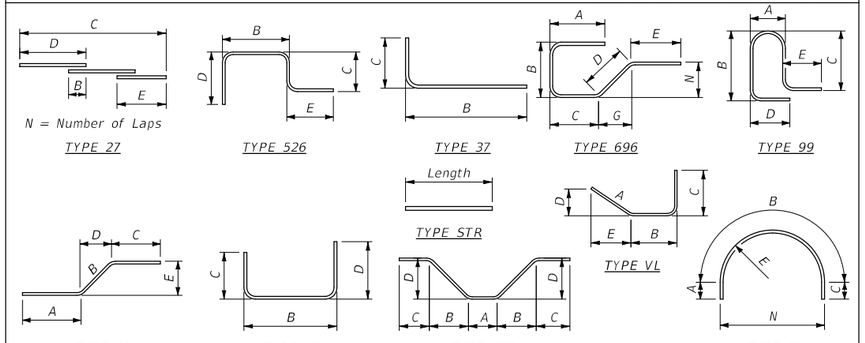
SPANS NO. 3 THRU NO. 5 DECK SLAB PHASE 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S101	#5CR	979	905	30-0	29-5	5"					
S102	#5CR	599	STR	29-5							
S202	#5CR	20	27	487-11		3-4	447-11	40-0	7-11		12
S203	#5CR	76	27	78-4		3-4	75-0	40-0	38-4		1
S302	#4CR	43	27	477-3		2-8	447-11	40-0	37-3		11
S1	#6CR	32	STR	4-11							
S2	#6CR	8	STR	1-9							
S4	#4CR	94	VL	2-4⅜	10⅝"	10½"	7½"	7½"	7½"		
S5	#5CR	84	905	11-7	11-0	5"					
S7	#5CR	20	STR	14-0							
S8	#5CR	32	STR	10-0							
C102	#5CR	2	27	487-11		3-4	447-11	40-0	7-11		12
C1	#5CR	897	526	4-0½		11"	1-1¾	1-1¾	10"		
C2	#5CR	114	41	2-6¾	11"	8¾"	11"	6¼"	6¼"		

BILL OF REINFORCING STEEL

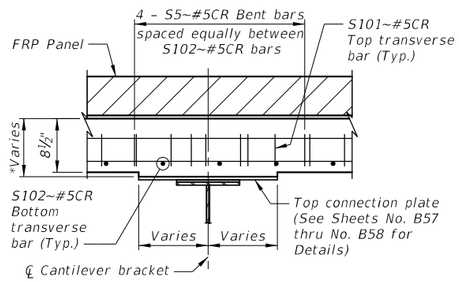
SPANS NO. 3 THRU NO. 5 DECK SLAB PHASE 2 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S400	#5CR	1578	27	35-7							
S502	#5CR	24	27	487-11		3-4	447-11	40-0	7-11		12
S503	#5CR	92	27	78-4		3-4	75-0	40-0	38-4		1
S602	#4CR	52	27	477-3		2-8	447-11	40-0	37-3		11
S1	#6CR	32	STR	4-11							
S3	#6CR	8	STR	4-9							
S4	#4CR	110	VL	2-4⅜	10⅜"	10½"	7½"	7½"	7½"		
S6	#5CR	4	STR	10-0							
S7	#5CR	20	STR	14-0							
S8	#5CR	32	STR	10-0							
C102	#5CR	2	27	487-11		3-4	447-11	40-0	7-11		12
C202	#4CR	2	27	477-3		2-8	447-11	40-0	37-3		11
C1	#5CR	897	526	4-0½		11	1-1¾	1-1¾	10"		
C2	#5CR	114	41	2-6¾	11"	8¾"	11"	6¼"	6¼"		
C3	#4CR	449	696	3-5½	8"	9"	7½"	9"	8"	⅝"	9"
LS1	#4CR	44	17	18-9½		5½"	9-2	9-2			
LS2	#5CR	8	615	10-10	1-8	2-8	10"	2-8			
LS3-1	#4CR	8	STR	5-3							
LS3-2	#4CR	8	STR	4-3							
LS3-3	#4CR	8	STR	3-3							
LS3-4	#4CR	8	STR	2-3							

NOTES

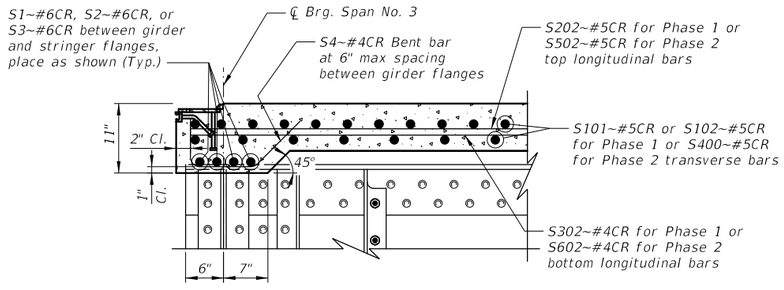
See Std. Dwg. No. SBR-OR42 for additional bridge rail reinforcing.



*NOTE: Height will vary at each cantilever bracket. Cast bottom of deck flush against top connection plate as shown.

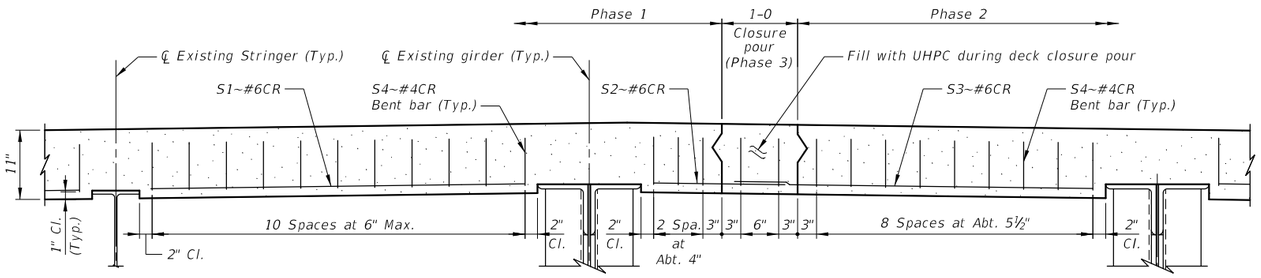
NOTE: Bolts and other hardware associated with cantilever bracket and top connection plate not shown for clarity.

B / B71 **VIEW B**
Scale ~ 1" = 1'-0"



NOTE: Expansion joints vary. Adjust reinforcement the minimum amount necessary to avoid expansion joint anchorage. See Sheet No. B90 and No. B91 for expansion joint details.

A / B69 & B70 **SECTION A**
Scale ~ 1" = 1'-0"



NOTE: Other deck reinforcement not shown for clarity

SPANS NO. 3 & NO. 5 SLAB END DETAIL
Scale ~ 1" = 1'-0"

SHEET NO. B72

SPANS NO. 3 THRU NO. 5
BILLS OF
REINFORCING STEEL

SCALE: As Shown

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED			J.D.S.	
REVISED			G.H.S.	
REVISED			P.C.J.	
REVISED		3-21-19	J.D.S.	
CHECKED		11-1-18	G.H.S.	
DRAWN		11-1-18	P.C.J.	
DESIGNED				

...\8807000bsslz06.dgn
7/18/2019 12:29:20 PM

MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23970

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

NOTES

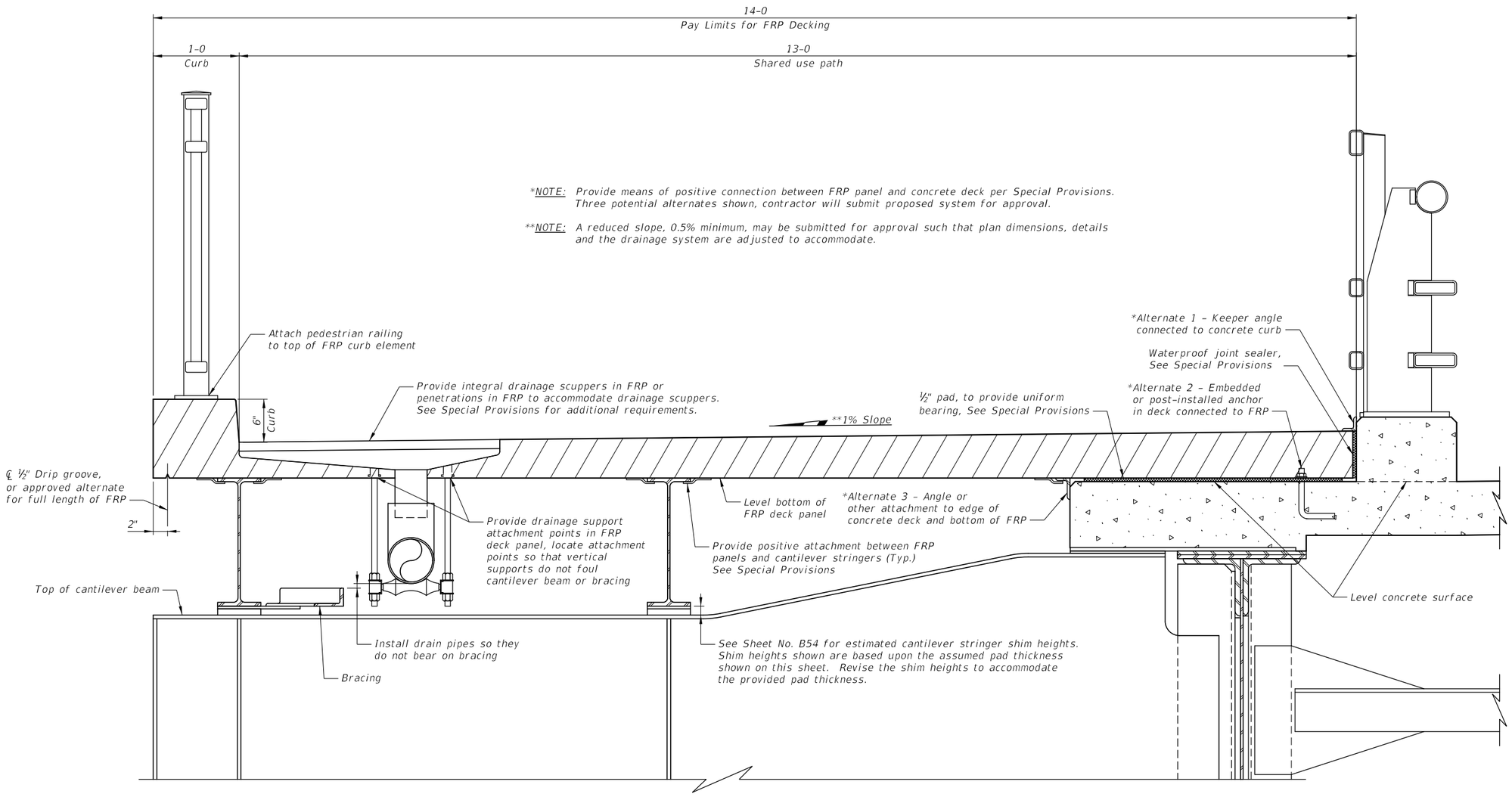
See Sheets No. B54 thru No. B60 for cantilever bracket details.

See Sheets No. B61 and No. B62 for cantilever stringer details.

See Sheets No. B92 thru No. B96 for drainage details.

See Sheets No. B100 and No. B104 for pedestrian rail details.

See Special Provisions for more information on the FRP Deck Panels.



FRP DECK PANEL DETAIL

Scale ~ 1½" = 1'-0"

SHEET NO. B73

SPANS NO. 3 THRU NO. 5
FRP DECK PANEL DETAILS

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED		CHECKED	J.D.S.
REVISED		DRAWN	G.H.S.
REVISED		DESIGNED	B.K.C.
REVISED		3-21-19	
		1-11-19	
		1-11-19	

...\8807000brsldz07.dgn
7/18/2019 12:29:48 PM

MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

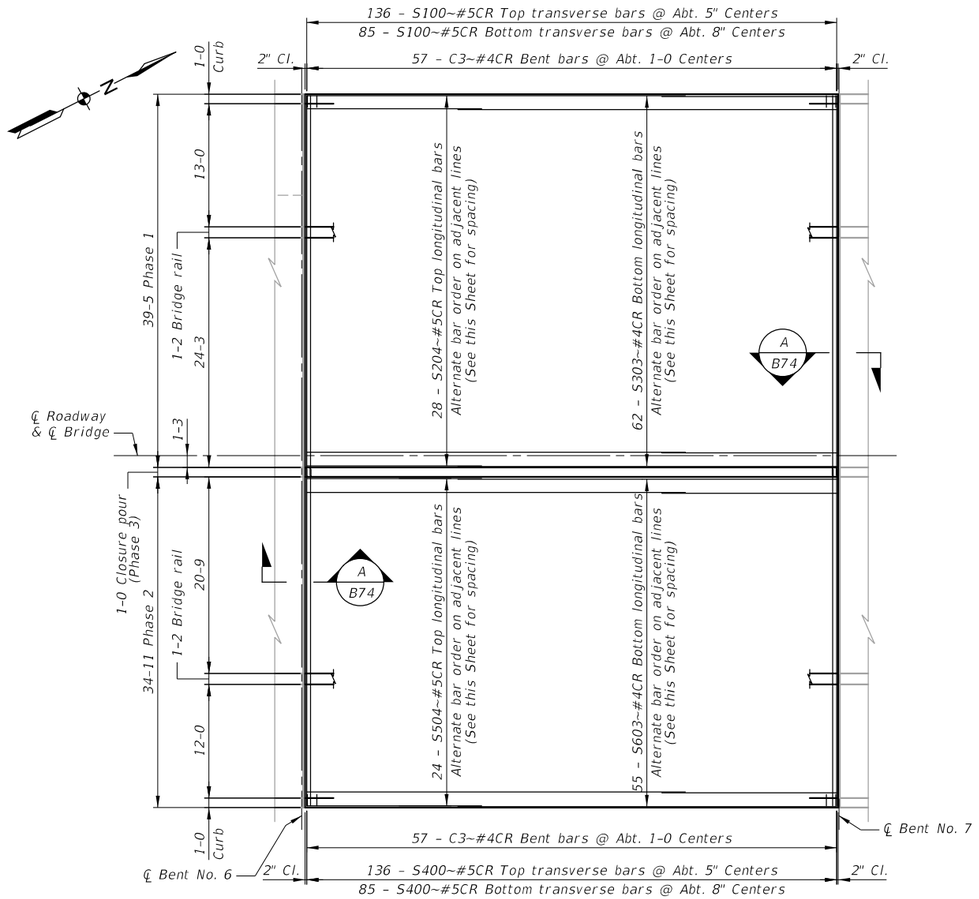
MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23971

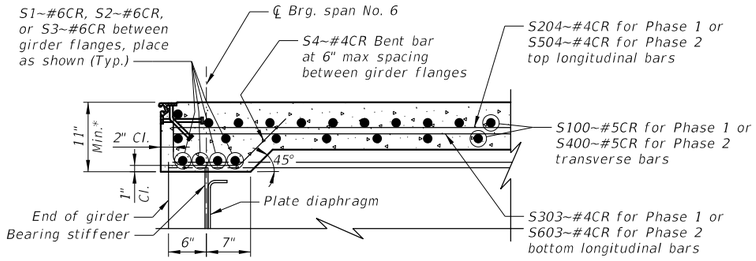
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



SLAB REINFORCING STEEL PLACEMENT PLAN – SPAN NO. 6

Scale ~ ⅛" = 1'-0"

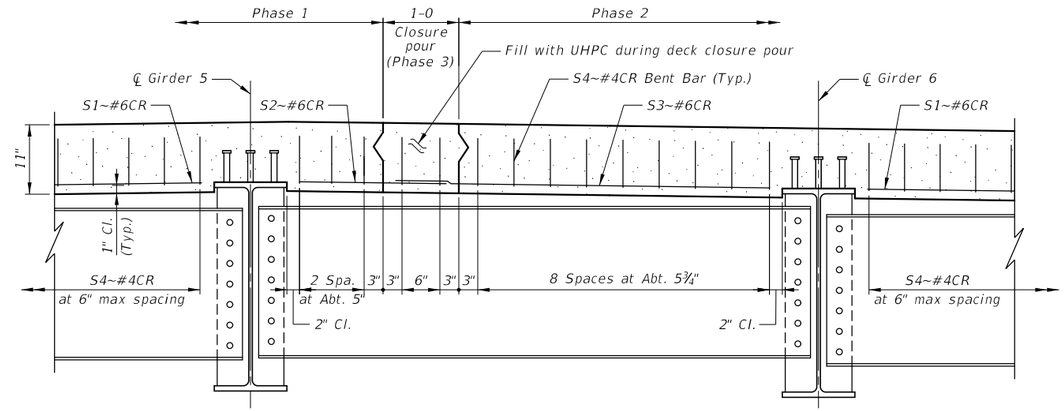


NOTE: Expansion joint at Bent No. 6 shown. Expansion joints vary, there is no anchored armor at Bent No. 7. Adjust reinforcement the minimum amount necessary to avoid expansion joint anchorage. See Sheets No. B89 thru No. B91 for expansion joint details.

*NOTE: Depth will vary at shared use path ramp to FRP. Maintain bottom edge ¾" below the bottom of the top flange.

SECTION A

A / B74 Scale ~ 1" = 1'-0"



NOTE: Other deck reinforcement not shown for clarity

SPANS NO. 1, NO. 2 & NO. 6 SLAB END DETAIL

Scale ~ 1" = 1'-0"

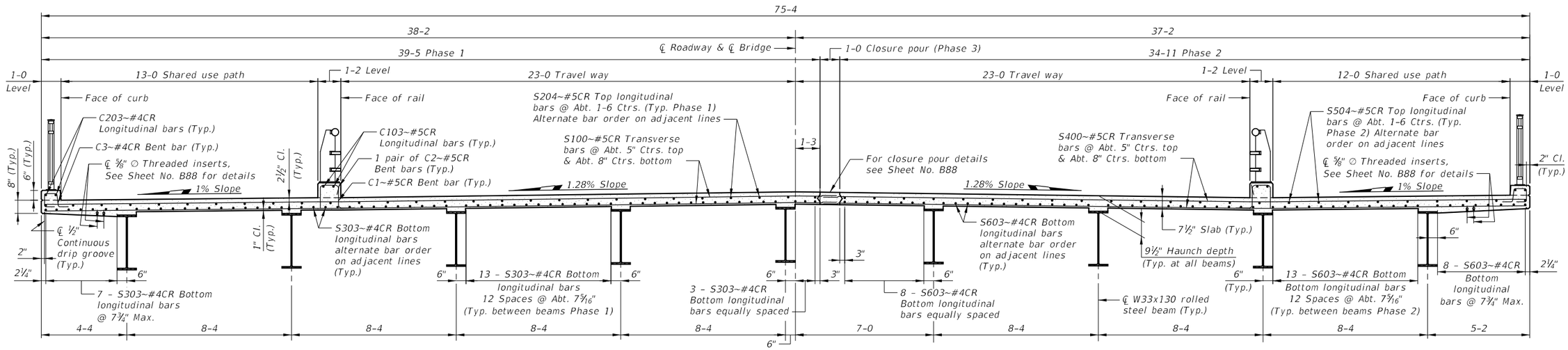
NOTES

Lap #4CR 2-8 minimum
Lap #5CR 3-4 minimum

See Sheet No. B75 for Bill of Reinforcing Steel.

See Sheet No. B92 for deck drain locations.

See Std. Dwg. No. SBR-0R42 for bridge rail reinforcing steel.



TRANSVERSE SECTION – SPAN NO. 6

Scale ~ ⅜" = 1'-0"
(Looking Ahead on Line)

NOTE: Haunch depth is measured from top of slab to top of top flange at ℄ Girder.

HDR

SHEET NO. B74

SPAN NO. 6
SLAB REINFORCING STEEL PLACEMENT PLAN AND TRANSVERSE SECTION

SCALE: As Shown

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
				3-21-19	11-1-18	11-1-18
				J.D.S.	G.H.S.	P.C.J.

...\8807000\brsht208.dgn
7/18/2019 12:30:17 PM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

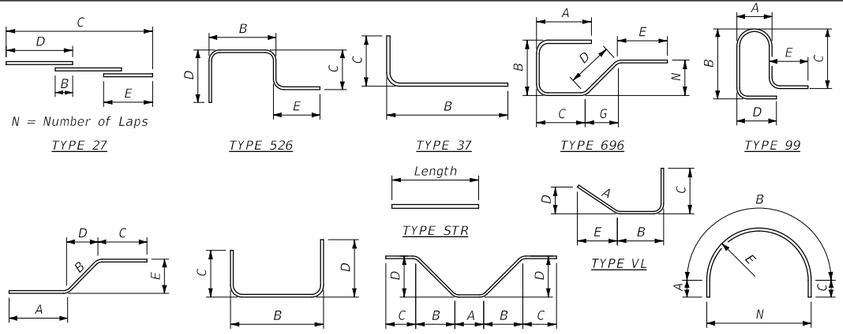
DRAWING NO.
23972

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

BILL OF REINFORCING STEEL

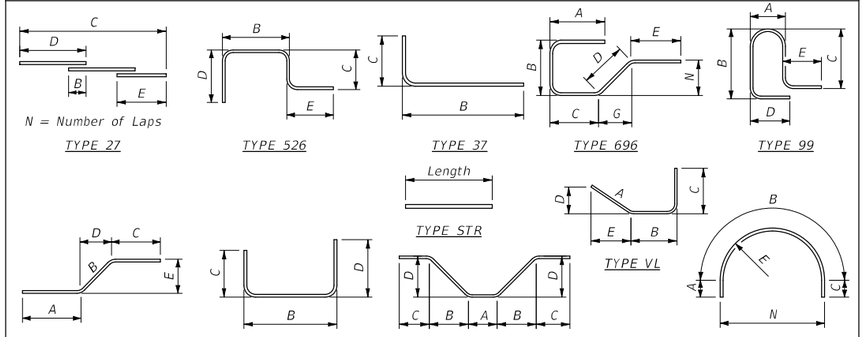
SPAN NO. 6 DECK SLAB PHASE 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S100	#5CR	221	STR	40-1							
S204	#5CR	28	27	59-3		3-4	55-11	40-0	19-3		1
S303	#4CR	62	27	58-7		2-8	55-11	40-0	18-7		1
S1	#6CR	32	STR	7-0							
S2	#6CR	8	STR	1-11							
S4	#4CR	134	VL	2-4⅜	10⅜"	10½"	7½"	7½"	7½"		
S5	#4CR	14	STR	12-0							
S6	#5CR	8	STR	20-0							
S7	#5CR	8	STR	12-0							
C103	#5CR	2	27	59-3		3-4	55-11	40-0	19-3		1
C203	#4CR	2	27	58-7		2-8	55-11	40-0	18-7		1
C1	#5CR	113	526	4-0½		11"	1-1¾	1-1¾	10"		
C2	#5CR	14	41	2-6¾	11"	8¾"	11"	6¼"	6¼"		
C3	#4CR	57	696	3-5½	8"	9"	7½"	9"	8"	⅝"	9"

BILL OF REINFORCING STEEL

SPAN NO. 6 DECK SLAB PHASE 2 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

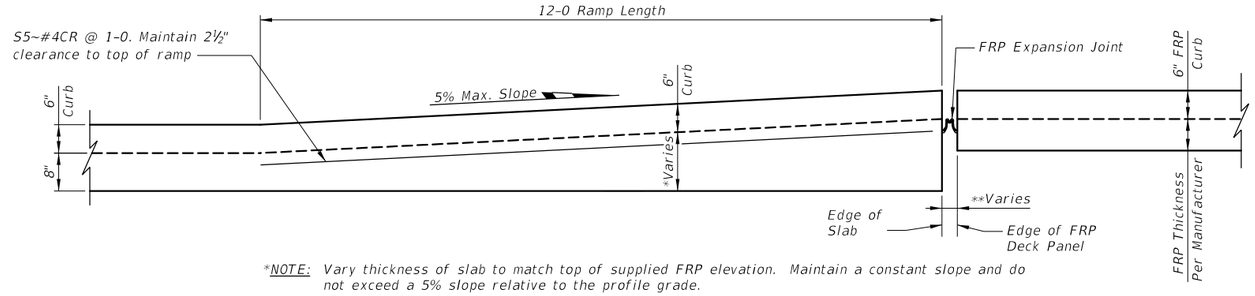


Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S400	#5CR	221	STR	35-7							
S504	#5CR	24	27	59-3		3-4	55-11	40-0	19-3		1
S603	#4CR	55	27	58-7		2-8	55-11	40-0	18-7		1
S1	#6CR	24	STR	7-0							
S3	#6CR	8	STR	4-11							
S4	#4CR	118	VL	2-4⅜	10⅜"	10½"	7½"	7½"	7½"		
S6	#5CR	8	STR	20-0							
S7	#5CR	8	STR	12-0							
C103	#5CR	2	27	59-3		3-4	55-11	40-0	19-3		1
C203	#4CR	2	27	58-7		2-8	55-11	40-0	18-7		1
C1	#5CR	113	526	4-0½		11"	1-1¾	1-1¾	10"		
C2	#5CR	14	41	2-6¾	11"	8¾"	11"	6¼"	6¼"		
C3	#4CR	57	696	3-5½	8"	9"	7½"	9"	8"	⅝"	9"

NOTES

See Std. Dwg. No. SBR-0R42 for additional bridge rail reinforcing.

See Sheets No. B92 thru No. B96 for drainage and scupper details.

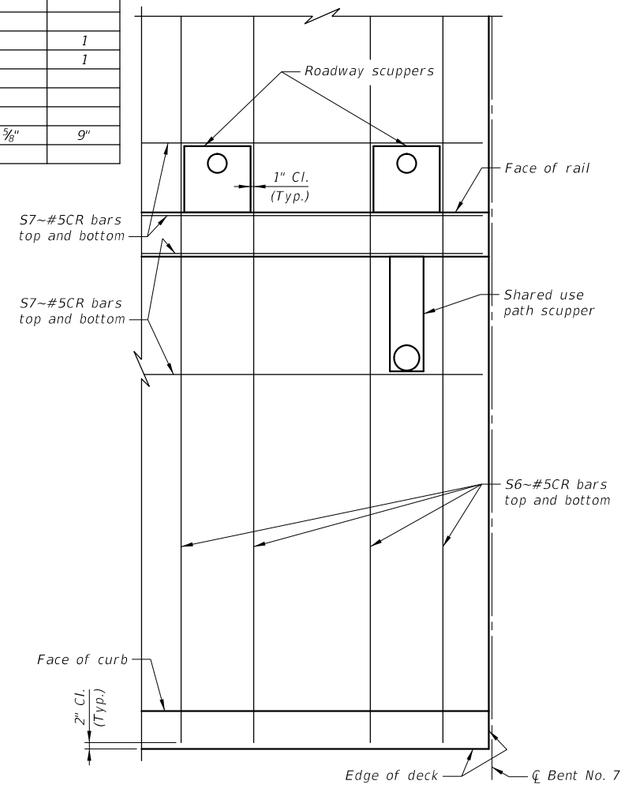


*NOTE: Vary thickness of slab to match top of supplied FRP elevation. Maintain a constant slope and do not exceed a 5% slope relative to the profile grade.

**NOTE: Distance between deck slab and FRP varies, see expansion joint details on Sheets No. B90 and No. B91.

SHARED USE PATH RAMP TO FRP

Scale ~ ¾" = 1'-0"
(Looking at West Edge of Deck, Span 6 ramp shown, Span 2 ramp similar)



NOTE: Cut deck, barrier, and curb bars in conflict with scuppers. Trim bars to maintain 1" clear to the scuppers.

SPAN NO. 6 SCUPPER REINFORCEMENT DETAIL

Scale ~ ½" = 1'-0"
(Scuppers ND12, ND13, and ND14 shown SD12, SD13, and SD14 similar.)
(Curb and deck reinforcing not shown for clarity.)

SHEET NO. B75

SPAN NO. 6 BILLS OF REINFORCING STEEL

SCALE: As Shown

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED				
REVISED				
REVISED				
REVISED				
CHECKED	3-21-19	J.D.S.		
DRAWN	11-1-18	G.H.S.		
DESIGNED	11-1-18	P.C.J.		

...\8807000brsltz09.dgn
7/18/2019 1:47:07 PM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

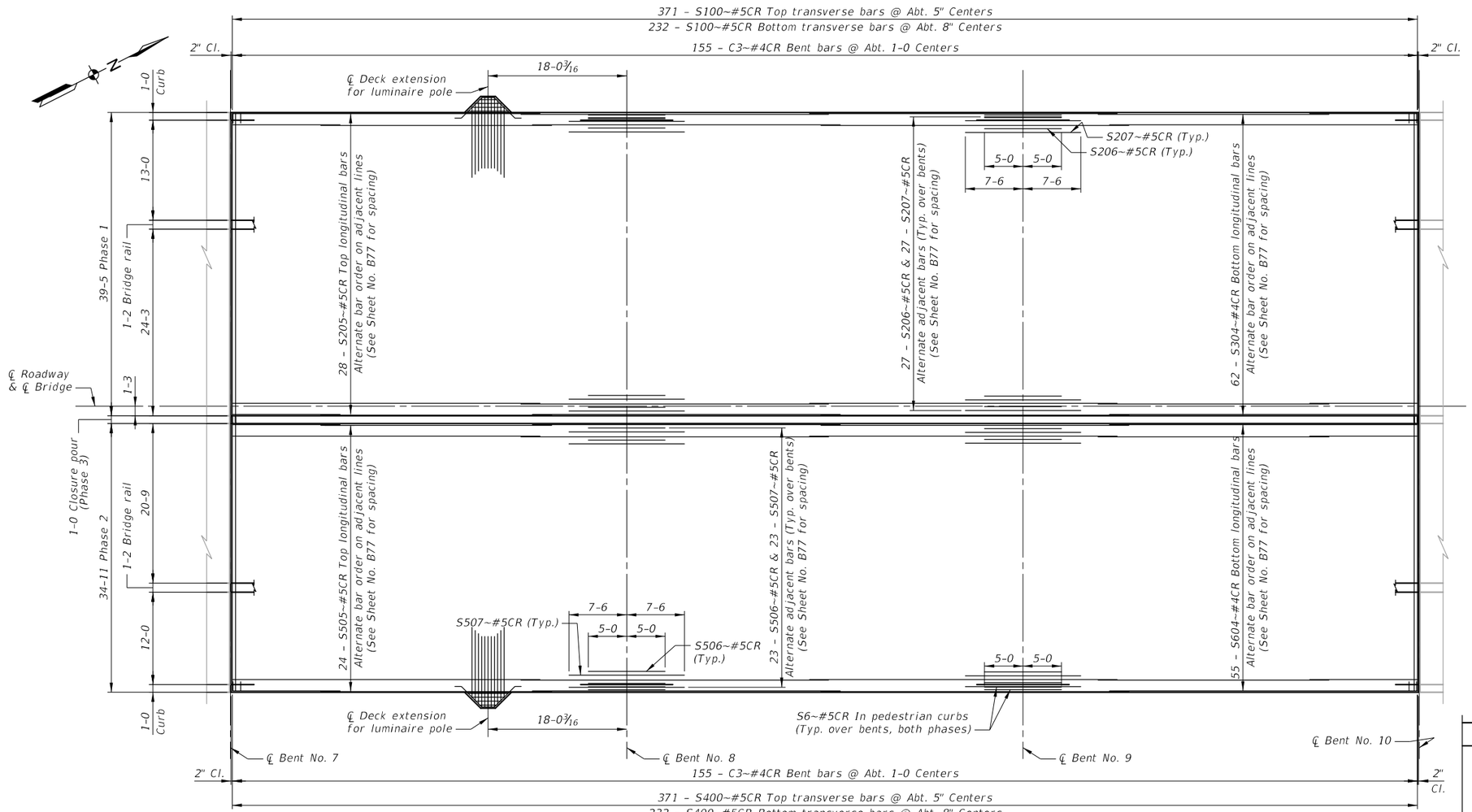
UPN NUMBER 8807000

DRAWING NO. 23973

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



SLAB REINFORCING STEEL PLACEMENT PLAN - SPANS NO. 7 THRU NO. 9

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

NOTES

Lap #4CR 2-8 minimum
Lap #5CR 3-4 minimum

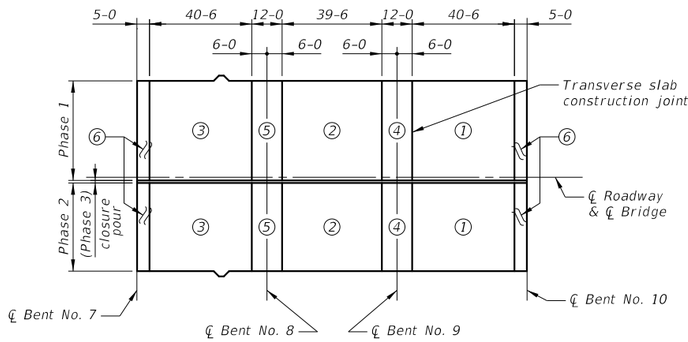
See Sheet No. B77 for longitudinal curb reinforcing.

See Sheet No. B78 for Bill of Reinforcing Steel.

See Sheet No. B88 for deck extension for luminaire pole details.

See Sheet No. B92 for deck drain locations.

See Std. Dwg. No. SBR-0R42 for bridge rail reinforcing steel.



SLAB POURING SEQUENCE - SPANS NO. 7 THRU NO. 9

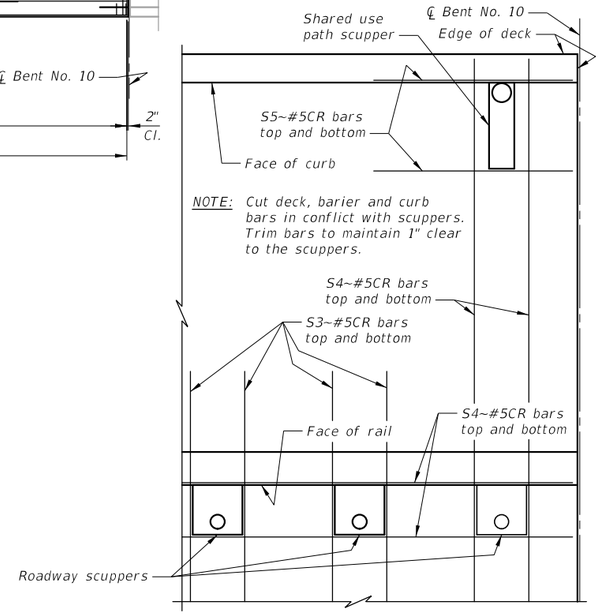
Scale ~ 1" = 30'-0"

NOTE: The numbers inscribed in the circles represent the sequence of placing sections in the slab. Follow the sequence represented by the numbers inscribed in the circles when placing sections of the slab shown.

NOTE: Allow for a minimum of 48 hours between placements ①, ②, ③ and placement ④ and ⑤.

NOTE: The dimensions shown are horizontal dimensions measured along ℄ Bridge.

NOTE: Make final adjustments to expansion devices before placing the slab section in which the device is located.



SPAN NO. 9 SCUPPER REINFORCEMENT DETAIL

Scale ~ 3/8" = 1'-0"
(Scuppers SD15, SD16, SD17, and SD18 shown, ND15, ND16, ND17, and ND18 similar)
(Curb and deck reinforcing not shown for clarity)

HDR

SHEET NO. B76

SPANS NO. 7 THRU NO. 9
SLAB REINFORCING
STEEL PLACEMENT PLAN

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

					J.D.S.	
					G.H.S.	
REVISED	REVISED	REVISED	REVISED	CHECKED	3-21-19	P.C.J.
				DRAWN	11-1-18	
				DESIGNED	11-1-18	

...\8807000brsht210.dgn
7/18/2019 1:47:28 PM

MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

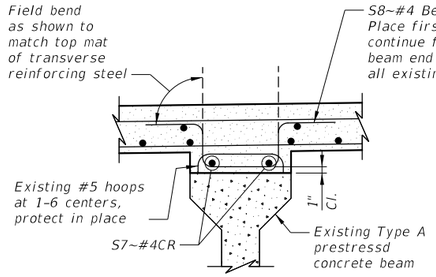
DRAWING NO.
23974

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

DEPTH OF SLAB "D" AT ℄ BRGS.

Location	Span No. 7		Span No. 8		Span No. 9	
	Bent No. 7	Bent No. 8	Bent No. 8	Bent No. 9	Bent No. 9	Bent No. 10
Beam 1	9 13/16"	11"	10 13/16"	10 7/8"	11"	9 13/16"
Beam 2	9 13/16"	11"	10 13/16"	10 7/8"	11"	9 13/16"
Beam 3	9 5/8"	10 13/16"	10 13/16"	10 3/4"	10 7/8"	9 11/16"
Beam 4	9 5/8"	10 13/16"	10 3/4"	10 3/4"	10 13/16"	9 5/8"
Beam 5	9 9/16"	10 3/4"	10 3/4"	10 11/16"	10"	9 5/8"
Beam 6	8 9/16"	9 3/4"	9 3/4"	9 11/16"	9 3/4"	8 5/8"
Beam 7	8 5/8"	9 13/16"	9 3/4"	9 3/4"	9 13/16"	8 5/8"
Beam 8	8 3/4"	9 15/16"	9 15/16"	9 7/8"	9 15/16"	8 3/4"
Beam 9	10 7/8"	1-0 1/16	1-0 1/16	1-0	1-0 1/16	10 15/16"



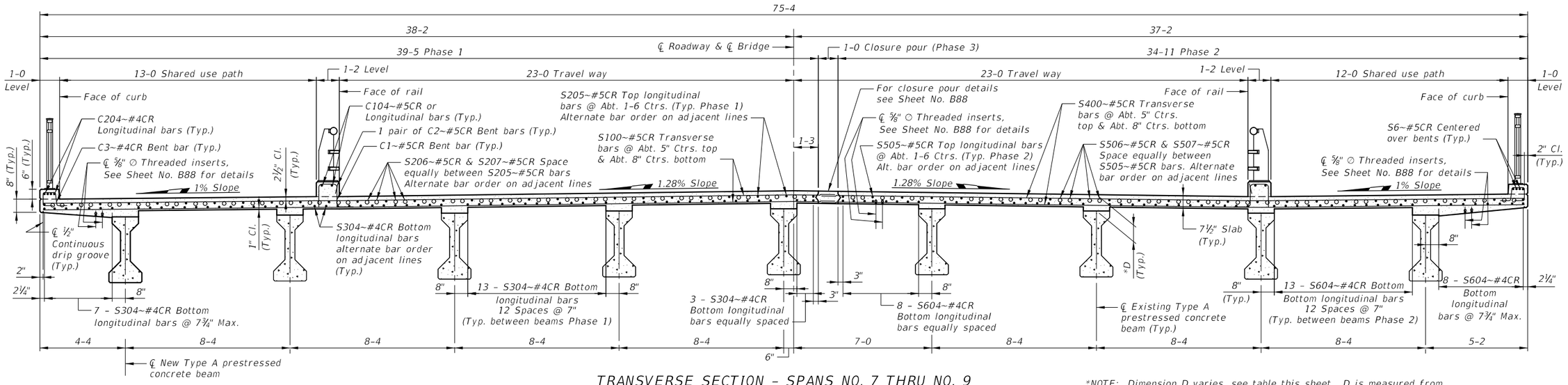
HAUNCH REINFORCING DETAIL

Scale ~ 1" = 1'-0"

NOTES

See Sheet No. B78 for Bill of Reinforcing Steel.

See Std. Dwg. No. SBR-0R42 for bridge rail reinforcing details.

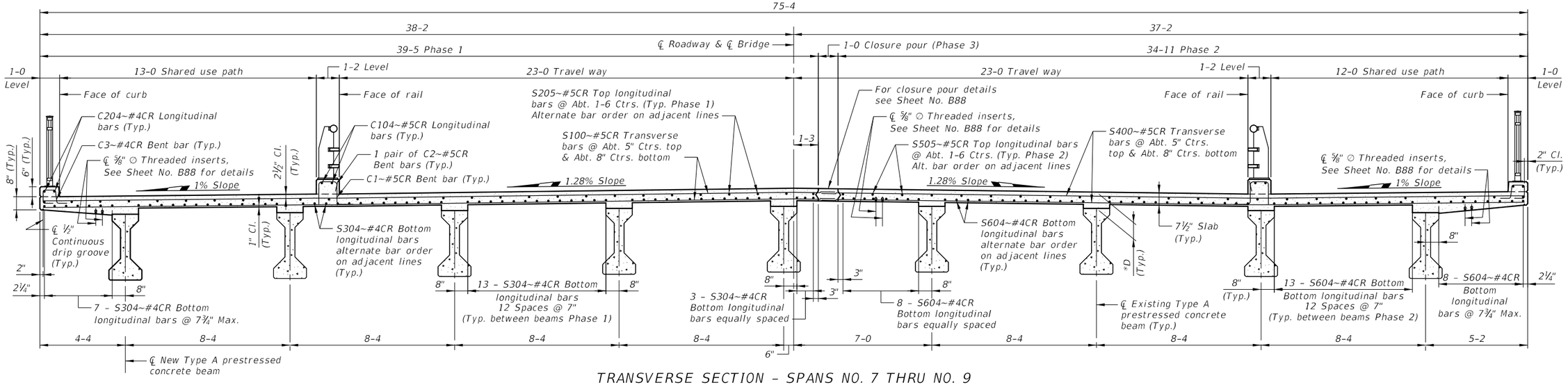


TRANSVERSE SECTION - SPANS NO. 7 THRU NO. 9

Scale ~ ⅜" = 1'-0"

(Looking Ahead on Line adjacent to Bents No. 8 & No. 9)

*NOTE: Dimension D varies, see table this sheet. D is measured from the top of deck to top of beam at ℄ beam (May vary at tenth points; see Dead Load Deflection Table on Sheet No. B65).



TRANSVERSE SECTION - SPANS NO. 7 THRU NO. 9

Scale ~ ⅜" = 1'-0"

(Looking Ahead on Line nonadjacent to Bents No. 8 & No. 9)

HDR

SHEET NO. B77

SPANS NO. 7 THRU NO. 9 TRANSVERSE SECTIONS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED						
REVISED						
REVISED						
REVISED						
CHECKED	3-21-19	J.D.S.				
DRAWN	11-1-18	G.H.S.				
DESIGNED	11-1-18	P.C.J.				

...8807000rsbz211.dgn 12:31:57 PM 7/18/2019

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

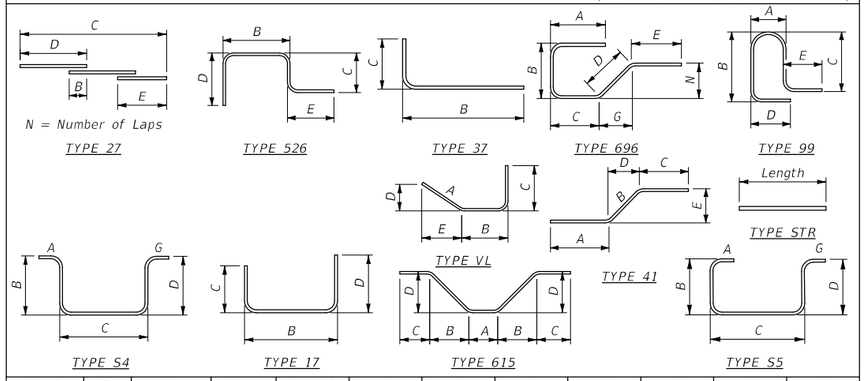
DRAWING NO. 23975

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

BILL OF REINFORCING STEEL

SPANS NO. 7 THRU NO. 9 DECK SLAB PHASE 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

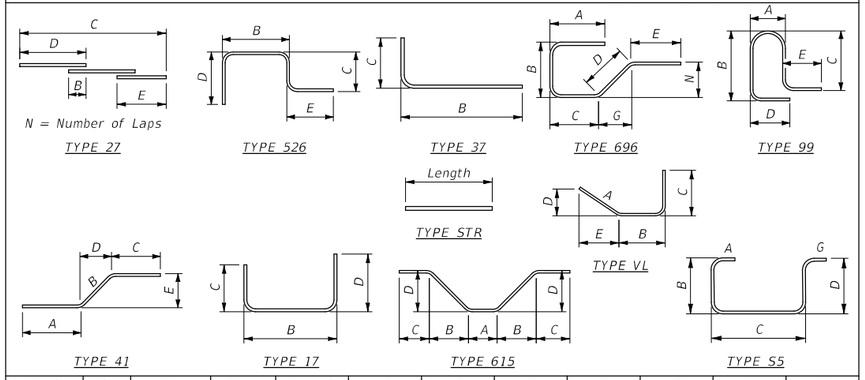


Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S100	#5CR	603	STR	40-1							
S205	#5CR	28	27	167-4		3-4	154-0	40-0	7-4		4
S206	#5CR	54	STR	10-0							
S207	#5CR	54	STR	15-0							
S304	#4CR	62	27	164-8		2-8	154-0	40-0	4-8		4
S2	#5CR	4	STR	18-0							
S3	#5CR	8	STR	10-0							
S4	#5CR	8	STR	20-0							
S5	#5CR	4	STR	7-0							
S6	#5CR	4	STR	10-0							
S7	#4CR	48	STR	15-0							
S8	#4CR	384	17	4-0		1-0	1-6	1-6			
C104	#5CR	2	27	167-4		3-4	154-0	40-0	7-4		4
C204	#4CR	2	27	164-8		2-8	154-0	40-0	4-8		4
C1	#5CR	310	526	4-0½		11"	1-1¾	1-1¾	10"		
C2	#5CR	40	41	2-6¾	11"	8¾"	11"	6¼"	6¼"		
C3	#4CR	155	696	3-5½	8"	9"	7½"	9"	8"	⅝"	9"
LS1	#4CR	11	17	18-9½		5½"	9-2	9-2			
LS2	#5CR	2	615	10-10	1-8	2-8	10"	2-8			
LS3-1	#4CR	2	STR	5-3							
LS3-2	#4CR	2	STR	4-3							
LS3-3	#4CR	2	STR	3-3							
LS3-4	#4CR	2	STR	2-3							
D1	#6CR	18	STR	8-4							
D2	#6CR	6	STR	12-6							
D3	#6CR	48	STR	7-0							
D4	#4CR	174	S5	5-0	4½"	1-10	7"	1-10		4½"	
D5	#4CR	6	STR	7-0							
D6	#6CR	6	STR	7-0							
D7	#4CR	21	S4	6-6	4½"	2-7	7"	2-7		4½"	
D8	#6CR	24	STR	4-6							
D9	#6CR	6	STR	40-1							
D12	#6CR	6	STR	2-7							
D14	#6CR	12	37	1-9		1-1	8"				
*D16	#6CR	3	STR	4-8							

*NOTE: Based on minimum embedment of 1-8 for #6 bars. Adjust length based upon actual embedment.

BILL OF REINFORCING STEEL

SPANS NO. 7 THRU NO. 9 DECK SLAB PHASE 2 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S400	#5CR	603	STR	35-7							
S505	#5CR	24	27	167-4		3-4	154-0	40-0	7-4		4
S506	#5CR	46	STR	10-0							
S507	#5CR	46	STR	15-0							
S604	#4CR	55	27	164-8		2-8	154-0	40-0	4-8		
S2	#5CR	4	STR	18-0							
S3	#5CR	8	STR	10-0							
S4	#5CR	8	STR	20-0							
S5	#5CR	4	STR	7-0							
S6	#5CR	4	STR	10-0							
S7	#4CR	48	STR	15-0							
S8	#4CR	384	17	4-0		1-0	1-6	1-6			
C104	#5CR	2	27	167-4		3-4	154-0	40-0	7-4		4
C204	#4CR	2	27	164-8		2-8	154-0	40-0	4-8		4
C1	#5CR	310	526	4-0½		11"	1-1¾	1-1⅞	10"		
C2	#5CR	40	41	2-6¾	11"	8¾"	11"	6¼"	6¼"		
C3	#4CR	155	696	3-5½	8"	9"	7½"	9"	8"	⅝"	9"
LS1	#4CR	11	17	18-9½		5½"	9-2	9-2			
LS2	#5CR	2	615	10-10	1-8	2-8	10"	2-8			
LS3-1	#4CR	2	STR	5-3							
LS3-2	#4CR	2	STR	4-3							
LS3-3	#4CR	2	STR	3-3							
LS3-4	#4CR	2	STR	2-3							
D1	#6CR	12	STR	8-4							
D3	#6CR	36	STR	7-0							
D4	#4CR	162	S5	5-0	4½"	1-10	7"	1-10		4½"	
D8	#6CR	18	STR	4-6							
D10	#6CR	6	STR	35-7							
D11	#6CR	6	STR	13-4							
D13	#6CR	6	STR	5-7							
D15	#6CR	12	STR	5-1							

NOTES

Adjust bar length as necessary to accommodate type and length of mechanical rebar connectors. Use in-line mechanical rebarconnectors meeting Standard Specification 711.18.

See Std. Dwg. No. SBR-0R42 for additional bridge rail reinforcing.

HDR

SHEET NO. B78

SPANS NO. 7 THRU NO. 9
BILLS OF
REINFORCING STEEL

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED				J.D.S.
REVISED				G.H.S.
REVISED			3-21-19	J.D.S.
REVISED			11-1-18	G.H.S.
CHECKED			11-1-18	P.C.J.
DRAWN				
DESIGNED				

...\8807000bridsz12.dgn

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/18/2019 12:32:30 PM

ROUTE
U-8113

REF POINT
0+0.239

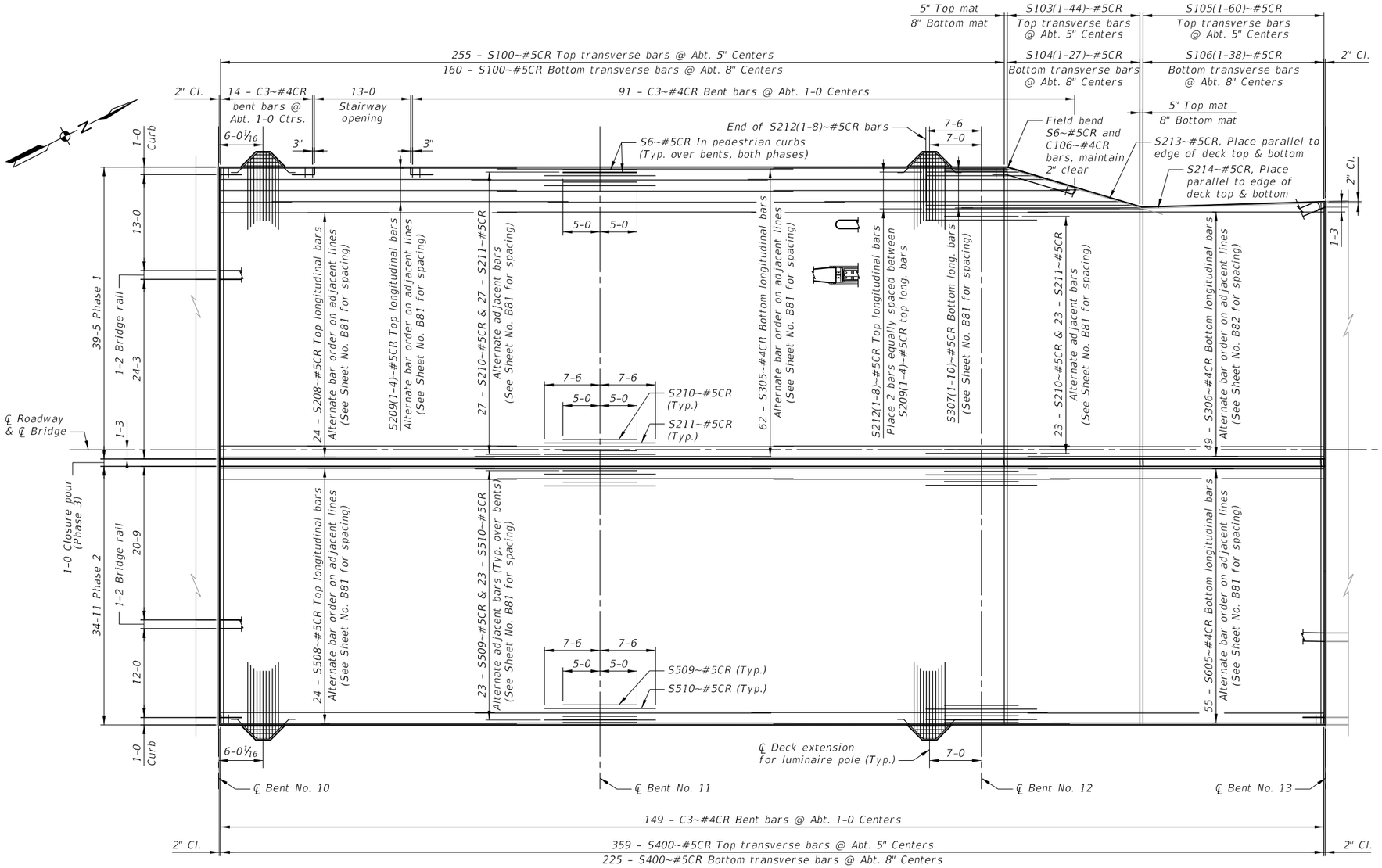
MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23976

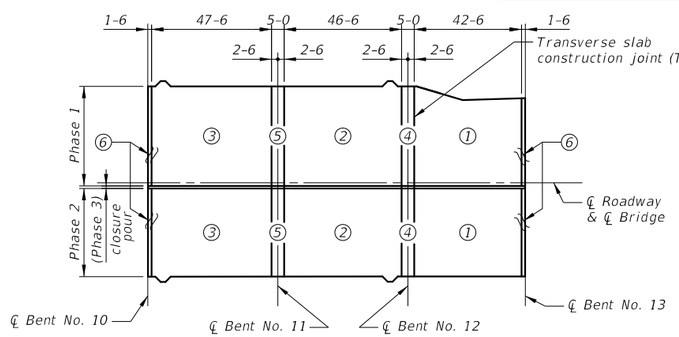
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



SLAB REINFORCING STEEL PLACEMENT PLAN – SPANS NO. 10 THRU NO. 12

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



NOTE: The numbers inscribed in the circles represent the sequence of placing sections in the slab. Follow the sequence represented by the numbers inscribed in the circles when placing sections of the slab shown.

NOTE: Allow for a minimum of 48 hours between placements ①, ②, ③, and placement ④ and ⑤.

NOTE: The dimensions shown are horizontal dimensions measured along ℄ Bridge.

NOTE: Make final adjustments to expansion devices before placing the slab section in which the device is located.

SLAB POURING SEQUENCE – SPANS NO. 10 THRU NO. 12

Scale ~ 1" = 30'-0"

NOTES

Lap #4CR 2-8 minimum
Lap #5CR 3-4 minimum

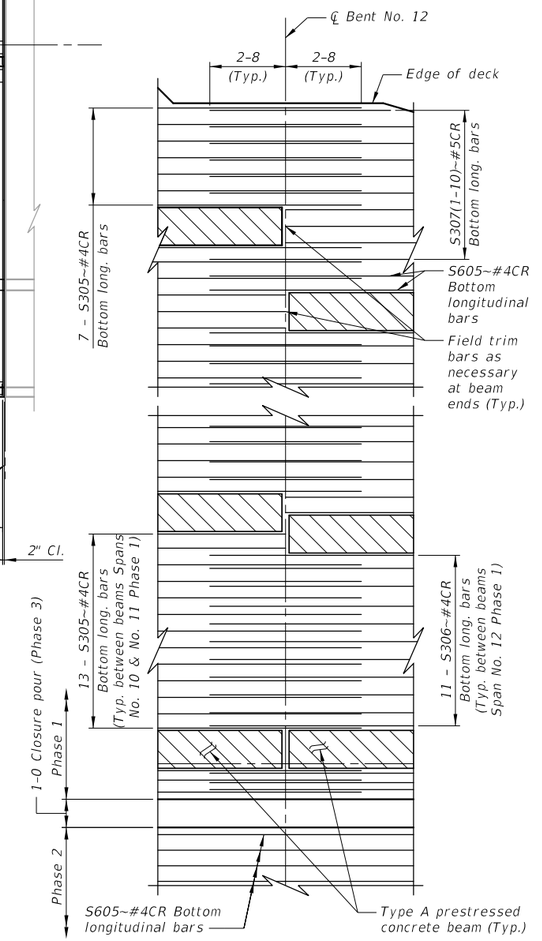
See Sheet No. B81 for longitudinal curb reinforcing.

See Sheet No. B83 and No. B84 for Bill of Reinforcing Steel.

See Sheet No. B88 for deck extension for luminaire pole details.

See Sheet No. B92 for deck drain locations.

See Std. Dwg. No. SBR-0R42 for bridge rail reinforcing steel.



NOTE: Other reinforcing not shown for clarity.

BOTTOM MAT REINFORCING OVER BENT NO. 12

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

HDR

SHEET NO. B79

FEDERAL AID PROJECT
STPB 8113(9)

SPANS NO. 10 THRU NO. 12
SLAB REINFORCING
STEEL PLACEMENT PLAN

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

COUNTY
MISSOULA

REVISED							
REVISED							
REVISED							
REVISED							
CHECKED	5-15-19	A.C.W.					
DRAWN	3-18-19	G.H.S.					
DESIGNED	3-18-19	P.C.J.					
...\8807000\brsldz13.dgn							
7/19/2019	2:50:28 PM						

MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

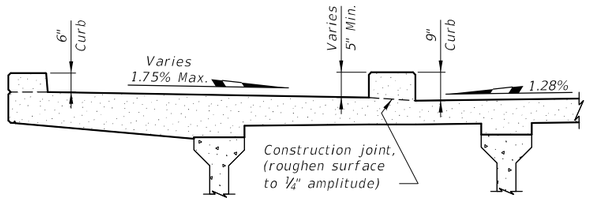
MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23977

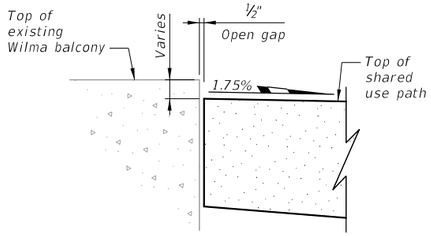
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

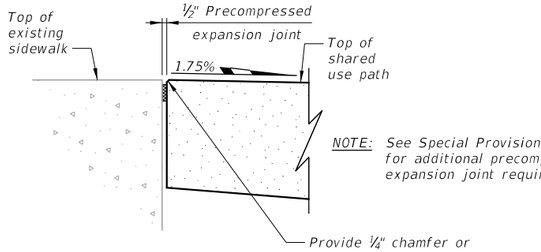


NOTE: Pedestrian rail and traffic rail not shown for clarity.

A / B80 **SECTION A**
No Scale



B / B80 **SECTION B**
No Scale



NOTE: See Special Provisions for additional precompressed expansion joint requirements.

C / B80 **SECTION C**
No Scale

NOTES

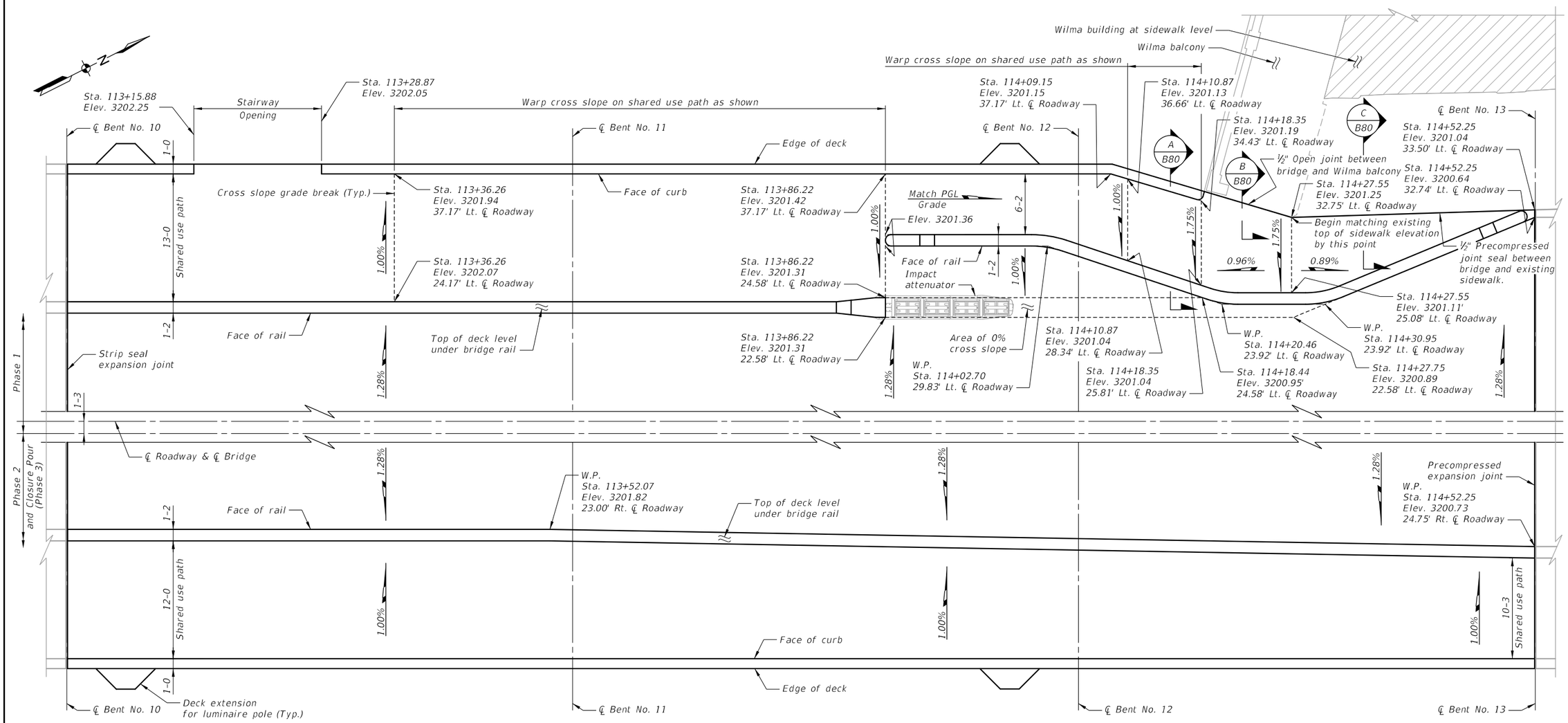
W.P. = Working Point

See Sheets No. B79, B81 & B82 for deck reinforcing details.

See Sheet No. B88 for deck extension for luminaire pole details.

See Sheet No. B92 for deck drain locations.

See Std. Dwg. No. SBR-OR42 for bridge rail reinforcing steel.



NOTE: Bridge rail posts and railing, pedestrian rail posts and railing, and drainage scuppers not shown for clarity.

SPANS NO. 10 THRU NO. 12 DECK GEOMETRY

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

SHEET NO. B80

SPANS NO. 10 THRU NO. 12 DECK GEOMETRY DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED			
REVISED			
REVISED			
REVISED			
CHECKED	3-22-19	P.C.J.	
DRAWN	3-21-19	G.H.S.	
DESIGNED	3-21-19	B.K.C.	

...\8807000bsbz14.dgn

7/29/2019 9:32:29 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

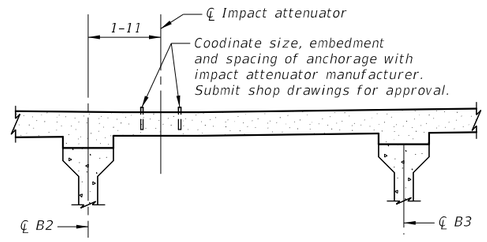
DRAWING NO. 23978

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

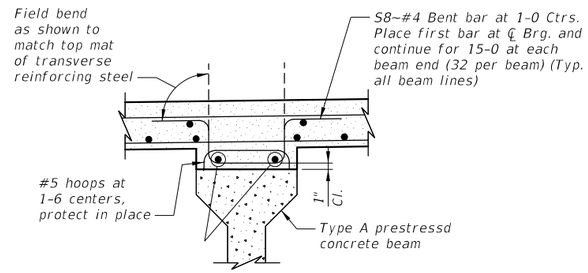
DEPTH OF SLAB "D" AT ℄ BRGS.

Location	Span No. 10		Span No. 11	
	Bent No. 10	Bent No. 11	Bent No. 11	Bent No. 12
Beam 1	9¾"	11½"	11½"	12¾"
Beam 2	9¾"	11 1/16"	11 1/16"	11 3/16"
Beam 3	9⅞"	10 13/16"	10 13/16"	10¾"
Beam 4	9⅞"	10 13/16"	10¾"	10 1/16"
Beam 5	9 9/16"	10¾"	10¾"	10⅝"
Beam 6	8 9/16"	9¾"	9¾"	9⅝"
Beam 7	8⅝"	9 3/16"	9¾"	9 1/16"
Beam 8	8¾"	9 5/16"	9⅞"	9 3/16"
Beam 9	10⅞"	1-0 1/16"	1-0 1/16"	1-0



IMPACT ATTENUATOR ANCHORAGE DETAIL

Scale ~ ½" = 1'-0"



NOTE: Existing Type A prestressed concrete beam shown, new Type A beam similar.

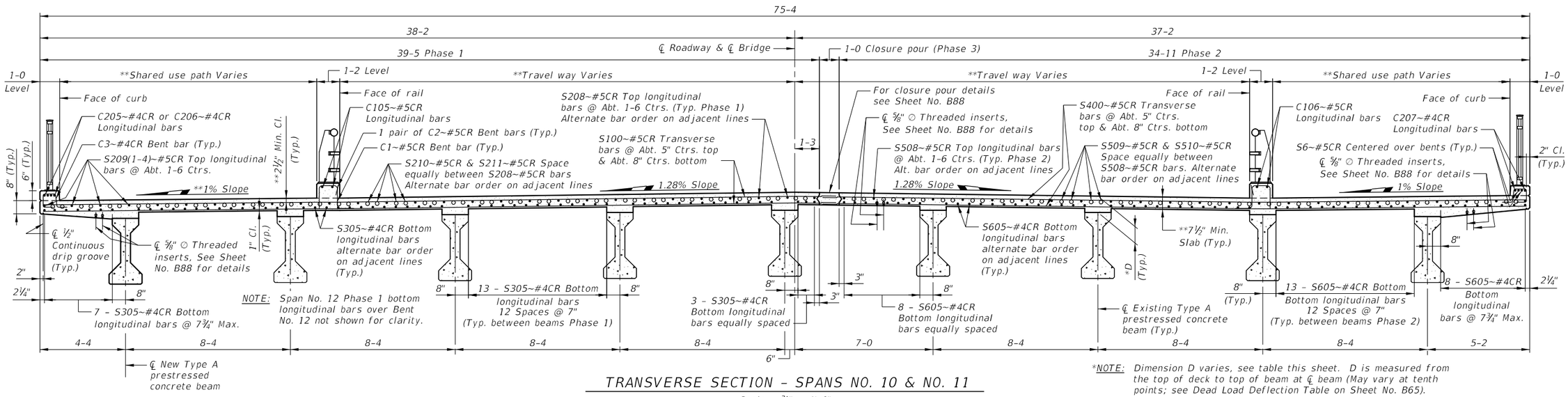
HAUNCH REINFORCING DETAIL

Scale ~ 1" = 1'-0"

NOTES

See Sheet No. B83 and No. B84 for Bill of Reinforcing Steel.

See Std. Dwg. No. SBR-0R42 for bridge rail reinforcing details.



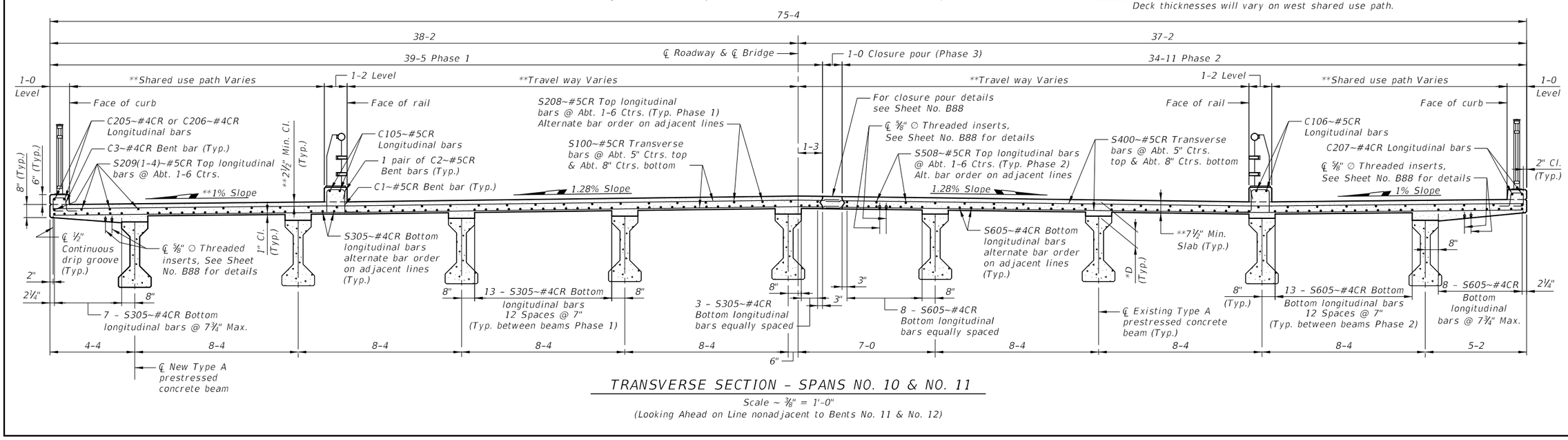
TRANSVERSE SECTION - SPANS NO. 10 & NO. 11

Scale ~ ⅜" = 1'-0"

(Looking Ahead on Line adjacent to Bent No. 11, Bent No. 12 similar except as noted)

*NOTE: Dimension D varies, see table this sheet. D is measured from the top of deck to top of beam at ℄ beam (May vary at tenth points; see Dead Load Deflection Table on Sheet No. B65).

**NOTE: Dimensions and cross slope vary, See Sheet No. B80 for details. Deck thicknesses will vary on west shared use path.



TRANSVERSE SECTION - SPANS NO. 10 & NO. 11

Scale ~ ⅜" = 1'-0"

(Looking Ahead on Line nonadjacent to Bents No. 11 & No. 12)

HDR

SHEET NO. B81

SPANS NO. 10 THRU NO. 12 TRANSVERSE SECTIONS (SHEET 1 OF 2)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	...\8807000\srsb215.dgn
				A.C.W.	G.H.S.	P.C.J.	
				5-15-19	3-18-19	3-18-19	

MONTANA MDT DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU — 7/18/2019 2:51:28 PM

ROUTE U-8113

REF POINT 0+0.239

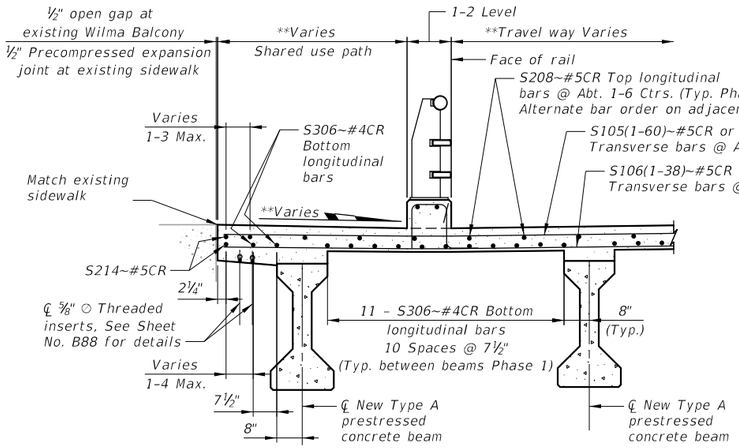
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23979

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

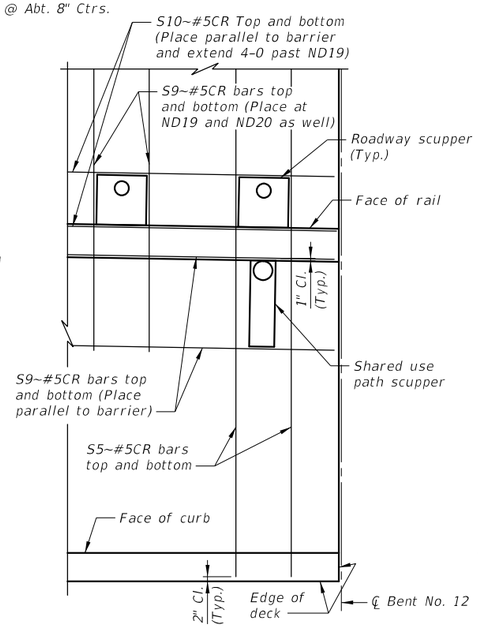


NOTE: For details not shown see Transverse Section - Span No. 12 this sheet.

PARTIAL SECTION - SPAN NO. 12

Scale ~ ½" = 1'-0"
(Looking Ahead on Line along Wilma Balcony and existing sidewalk)

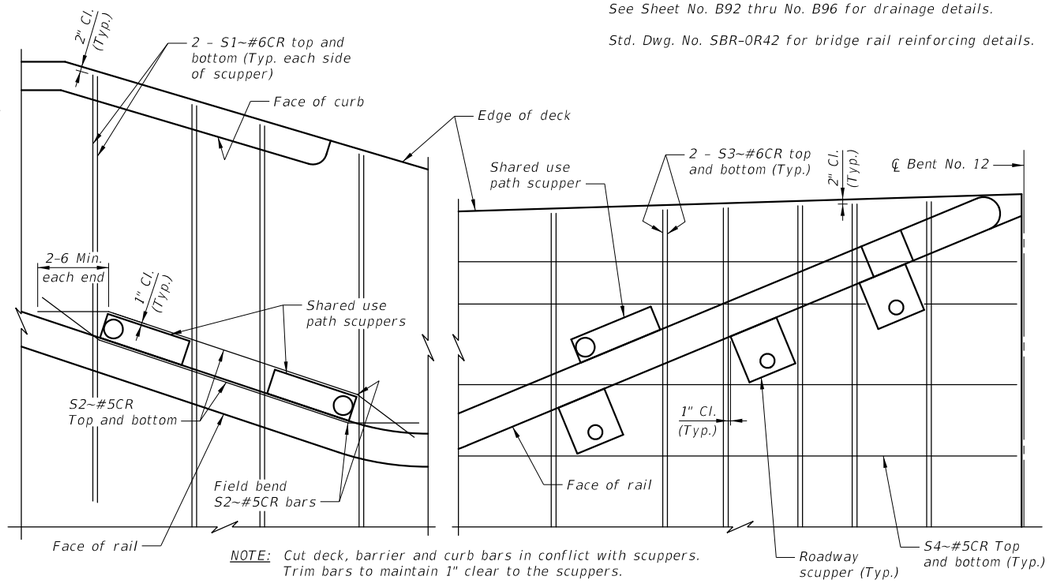
DEPTH OF SLAB "D" AT ℄ BRGS.		
Location	Span No. 12	
	Bent No. 12	Bent No. 13
Beam 1	1-0¼	9¼"
Beam 2	10 15/16"	9⅜"
Beam 3	10 7/16"	9 5/16"
Beam 4	10½"	9 5/16"
Beam 5	10 7/16"	9⅜"
Beam 6	9 11/16"	8⅝"
Beam 7	9¾"	8 11/16"
Beam 8	9⅞"	8 3/16"
Beam 9	1-0	10 15/16"



NOTE: Cut deck, barrier and curb bars in conflict with scuppers. Trim bars to maintain 1" clear to the scuppers.

SPAN NO. 12 PHASE 2 SCUPPER REINFORCEMENT DETAIL

Scale ~ ⅜" = 1'-0"
(Scuppers ND21, ND22, and ND23 shown, ND19 and ND20 similar to ND21.)
(Curb and deck reinforcing not shown for clarity.)



NOTE: Cut deck, barrier and curb bars in conflict with scuppers. Trim bars to maintain 1" clear to the scuppers.

NOTE: For SD19 in span 11 place S2~5CR bars top and bottom in each direction and each side centered on the scupper with 1" clear (4 total S2 bars).

SPAN NO. 12 PHASE 1 SCUPPER REINFORCEMENT DETAIL

Scale ~ ⅜" =1'-0"
(Scuppers SD20, SD21, SD22, SD23, SD24 and SD25 shown.)
(Curb and deck reinforcing not shown for clarity.)

NOTES

See Sheet No. B83 and No. B84 for Bill of Reinforcing Steel.

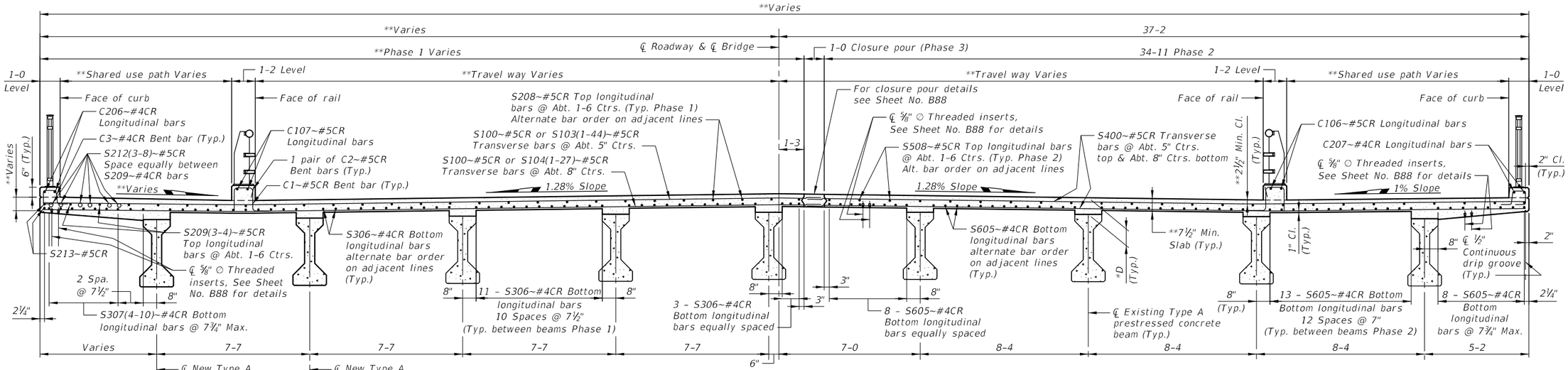
Estimated length of precompressed expansion joint at sidewalk along span No. 12 is 24-9. See Sheet No. B89 for additional precompressed expansion joint details.

**Dimensions and cross slope vary, See Sheet No. B80 for details. Deck thicknesses will vary on west shared use path.

See Sheet No. B81 for Haunch Reinforcing Detail.

See Sheet No. B92 thru No. B96 for drainage details.

Std. Dwg. No. SBR-0R42 for bridge rail reinforcing details.



TRANSVERSE SECTION - SPAN NO. 12

Scale ~ ⅜" = 1'-0"
(Looking Ahead on Line south of Wilma balcony)

*NOTE: Dimension D varies, see table this sheet. D is measured from the top of deck to top of beam at ℄ beam (May vary at tenth points; see Dead Load Deflection Table on Sheet No. B65).

HDR

SHEET NO. B82

SPANS NO. 10 THRU NO. 12 TRANSVERSE SECTIONS (SHEET 2 OF 2)

SCALE: No Scale

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
				5-15-19	3-18-19	3-18-19
				A.C.W.	G.H.S.	P.C.J.

...\B807000brskz16.dgn

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/18/2019 2:52:30 PM

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

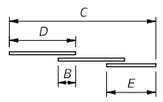
DRAWING NO. 23980

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

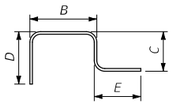
BILL OF REINFORCING STEEL

SPANS NO. 10 THRU NO. 12 DECK SLAB PHASE 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

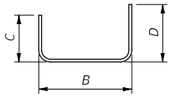


N = Number of Laps

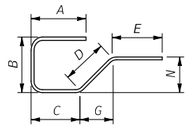
TYPE 27



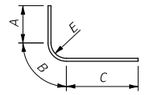
TYPE 526



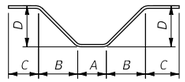
TYPE 17



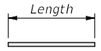
TYPE 696



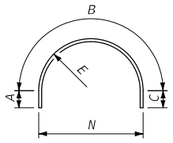
TYPE 424



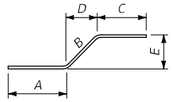
TYPE 615



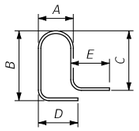
TYPE STR



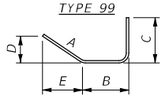
TYPE 10



TYPE 41



TYPE 99



TYPE VL

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S100	#5CR	415	STR	40-1							
S103-1	#5CR	1	STR	40-0½							
S103-2	#5CR	1	STR	39-11							
S103-3	#5CR	1	STR	39-10							
S103-4	#5CR	1	STR	39-8							
S103-5	#5CR	1	STR	39-7							
S103-6	#5CR	1	STR	39-5							
S103-7	#5CR	1	STR	39-4							
S103-8	#5CR	1	STR	39-2							
S103-9	#5CR	1	STR	39-1							
S103-10	#5CR	1	STR	38-11							
S103-11	#5CR	1	STR	38-10							
S103-12	#5CR	1	STR	38-8							
S103-13	#5CR	1	STR	38-7							
S103-14	#5CR	1	STR	38-5							
S103-15	#5CR	1	STR	38-4							
S103-16	#5CR	1	STR	38-2							
S103-17	#5CR	1	STR	38-1							
S103-18	#5CR	1	STR	38-0							
S103-19	#5CR	1	STR	37-10							
S103-20	#5CR	1	STR	37-9							
S103-21	#5CR	1	STR	37-7							
S103-22	#5CR	1	STR	37-6							
S103-23	#5CR	1	STR	37-4							
S103-24	#5CR	1	STR	37-3							
S103-25	#5CR	1	STR	37-1							
S103-26	#5CR	1	STR	37-0							
S103-27	#5CR	1	STR	36-10							
S103-28	#5CR	1	STR	36-9							
S103-29	#5CR	1	STR	36-7							
S103-30	#5CR	1	STR	36-6							
S103-31	#5CR	1	STR	36-4							
S103-32	#5CR	1	STR	36-3							
S103-33	#5CR	1	STR	36-1							
S103-34	#5CR	1	STR	36-0							
S103-35	#5CR	1	STR	35-10							
S103-36	#5CR	1	STR	35-9							
S103-37	#5CR	1	STR	35-7							
S103-38	#5CR	1	STR	35-6							
S103-39	#5CR	1	STR	35-4							
S103-40	#5CR	1	STR	35-3							
S103-41	#5CR	1	STR	35-1							
S103-42	#5CR	1	STR	35-0							
S103-43	#5CR	1	STR	34-10							
S103-44	#5CR	1	STR	34-9							
S104-1	#5CR	1	STR	40-0½							
S104-2	#5CR	1	STR	39-10							
S104-3	#5CR	1	STR	39-8							
S104-4	#5CR	1	STR	39-5							
S104-5	#5CR	1	STR	39-3							
S104-6	#5CR	1	STR	39-0							
S104-7	#5CR	1	STR	38-10							
S104-8	#5CR	1	STR	38-8							
S104-9	#5CR	1	STR	38-5							
S104-10	#5CR	1	STR	38-3							
S104-11	#5CR	1	STR	38-0							
S104-12	#5CR	1	STR	37-10							
S104-13	#5CR	1	STR	37-7							
S104-14	#5CR	1	STR	37-5							
S104-15	#5CR	1	STR	37-2							
S104-16	#5CR	1	STR	37-0							
S104-17	#5CR	1	STR	36-9							
S104-18	#5CR	1	STR	36-7							
S104-19	#5CR	1	STR	36-5							
S104-20	#5CR	1	STR	36-2							
S104-21	#5CR	1	STR	36-0							
S104-22	#5CR	1	STR	35-9							
S104-23	#5CR	1	STR	35-7							
S104-24	#5CR	1	STR	35-4							
S104-25	#5CR	1	STR	35-2							
S104-26	#5CR	1	STR	34-11							
S104-27	#5CR	1	STR	34-9							
S105-1	#5CR	1	STR	34-8							
S105-2	#5CR	1	STR	34-8							
S105-3	#5CR	1	STR	34-8½							
S105-4	#5CR	1	STR	34-8½							
S105-5	#5CR	1	STR	34-8½							
S105-6	#5CR	1	STR	34-9							

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S105-7	#5CR	1	STR	34-9							
S105-8	#5CR	1	STR	34-9							
S105-9	#5CR	1	STR	34-9							
S105-10	#5CR	1	STR	34-9½							
S105-11	#5CR	1	STR	34-9½							
S105-12	#5CR	1	STR	34-9½							
S105-13	#5CR	1	STR	34-10							
S105-14	#5CR	1	STR	34-10							
S105-15	#5CR	1	STR	34-10							
S105-16	#5CR	1	STR	34-10½							
S105-17	#5CR	1	STR	34-10½							
S105-18	#5CR	1	STR	34-10½							
S105-19	#5CR	1	STR	34-10½							
S105-20	#5CR	1	STR	34-11							
S105-21	#5CR	1	STR	34-11							
S105-22	#5CR	1	STR	34-11							
S105-23	#5CR	1	STR	34-11½							
S105-24	#5CR	1	STR	34-11½							
S105-25	#5CR	1	STR	34-11½							
S105-26	#5CR	1	STR	35-0							
S105-27	#5CR	1	STR	35-0							
S105-28	#5CR	1	STR	35-0							
S105-29	#5CR	1	STR	35-0½							
S105-30	#5CR	1	STR	35-0½							
S105-31	#5CR	1	STR	35-0½							
S105-32	#5CR	1	STR	35-0½							
S105-33	#5CR	1	STR	35-1							
S105-34	#5CR	1	STR	35-1							
S105-35	#5CR	1	STR	35-1							
S105-36	#5CR	1	STR	35-1½							
S105-37	#5CR	1	STR	35-1½							
S105-38	#5CR	1	STR	35-1½							
S105-39	#5CR	1	STR	35-2							
S105-40	#5CR	1	STR	35-2							
S105-41	#5CR	1	STR	35-2							
S105-42	#5CR	1	STR	35-2½							
S105-43	#5CR	1	STR	35-2½							
S105-44	#5CR	1	STR	35-2½							
S105-45	#5CR	1	STR	35-2½							
S105-46	#5CR	1	STR	35-3							
S105-47	#5CR	1	STR	35-3							
S105-48	#5CR	1	STR	35-3							
S105-49	#5CR	1	STR	35-3½							
S105-50	#5CR	1	STR	35-3½							
S105-51	#5CR	1	STR	35-3½							
S105-52	#5CR	1	STR	35-4							
S105-53	#5CR	1	STR	35-4							
S105-54	#5CR	1	STR	35-4							
S105-55	#5CR	1	STR	35-4							
S105-56	#5CR	1	STR	35-4½							
S105-57	#5CR	1	STR	35-4½							
S105-58	#5CR	1	STR	35-4½							
S105-59	#5CR	1	STR	35-5							
S105-60	#5CR	1	STR	35-5							
S106-1	#5CR	1	STR	34-8							
S106-2	#5CR	1	STR	34-8							
S106-3	#5CR	1	STR	34-8½							
S106-4	#5CR	1	STR	34-8½							
S106-5	#5CR	1	STR	34-9							
S106-6	#5CR	1	STR	34-9							
S106-7	#5CR	1	STR	34-9½							
S106-8	#5CR	1	STR	34-9½							
S106-9	#5CR	1	STR	34-10							
S106-10	#5CR	1	STR	34-10							
S106-11	#5CR	1	STR	34-10½							
S106-12	#5CR	1	STR	34-10½							
S106-13	#5CR	1	STR	34-11							
S106-14	#5CR	1	STR	34-11							
S106-15	#5CR	1	STR	34-11½							
S106-16	#5CR	1	STR	34-11½							
S106-17	#5CR	1	STR	35-0							
S106-18	#5CR	1	STR	35-0							
S106-19	#5CR	1	STR	35-0½							
S106-20	#5CR	1	STR	35-0½							
S106-21	#5CR	1	STR	35-1							
S106-22	#5CR	1	STR	35-1							
S106-23	#5CR	1	STR	35-1½							
S106-24	#5CR	1	STR	35-1½							

NOTES

See Std. Dwg. No. SBR-0R42 for additional bridge rail reinforcing.

SHEET NO.
B83

SPANS NO. 10 THRU NO 12
BILLS OF REINFORCING
STEEL (SHEET 1 OF 2)

SCALE: No Scale

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED			CHECKED	5-15-19
REVISED			DRAWN	3-18-19
REVISED			DESIGNED	3-18-19
REVISED				

A.C.W.
G.H.S.
P.C.J.

...\8807000brsbz17.dgn
2:53:28 PM
7/18/2019

MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

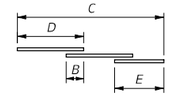
DRAWING NO.
23981

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

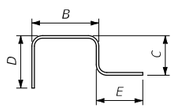
BILL OF REINFORCING STEEL - CONTINUED

SPANS NO. 10 THRU NO. 12 DECK SLAB PHASE 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

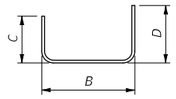


N = Number of Laps

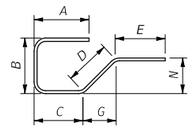
TYPE 27



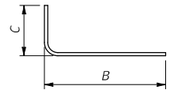
TYPE 526



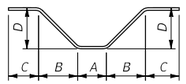
TYPE 17



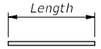
TYPE 696



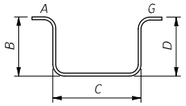
TYPE 37



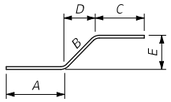
TYPE 615



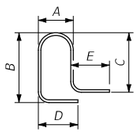
TYPE STR



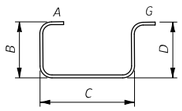
TYPE S4



TYPE 41



TYPE 99



TYPE S5

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S106-25	#5CR	1	STR	35-2							
S106-26	#5CR	1	STR	35-2							
S106-27	#5CR	1	STR	35-2½							
S106-28	#5CR	1	STR	35-2½							
S106-29	#5CR	1	STR	35-3							
S106-30	#5CR	1	STR	35-3							
S106-31	#5CR	1	STR	35-3½							
S106-32	#5CR	1	STR	35-3½							
S106-33	#5CR	1	STR	35-4							
S106-34	#5CR	1	STR	35-4							
S106-35	#5CR	1	STR	35-4½							
S106-36	#5CR	1	STR	35-4½							
S106-37	#5CR	1	STR	35-5							
S106-38	#5CR	1	STR	35-5							
S208	#5CR	24	27	159-0		3-4	149-0	40-0	39-0		3
S209-1	#5CR	1	27	112-10		3-4	106-2	40-0	32-10		2
S209-2	#5CR	1	27	117-10		3-4	111-2	40-0	37-10		2
S209-3	#5CR	1	27	126-0		3-4	116-0	40-0	6-0		3
S209-4	#5CR	1	27	131-4		3-4	121-4	40-0	11-4		3
S210	#5CR	50	STR	10-0							
S211	#5CR	50	STR	15-0							
S212-1	#5CR	1	STR	12-7							
S212-2	#5CR	1	STR	14-3							
S212-3	#5CR	1	STR	17-7							
S212-4	#5CR	1	STR	19-4							
S212-5	#5CR	1	STR	22-8							
S212-6	#5CR	1	STR	24-4							
S212-7	#5CR	1	STR	27-9							
S212-8	#5CR	1	STR	29-5							
S213	#5CR	2	STR	22-0							
S214	#5CR	2	STR	27-7							
S305	#4CR	62	27	110-9		2-8	105-5	40-0	30-9		3
S306	#4CR	49	27	51-7		2-8	48-11	40-0	11-7		1
S307-1	#5CR	1	STR	6-4							
S307-2	#5CR	1	STR	8-4							
S307-3	#5CR	1	STR	10-3							
S307-4	#5CR	1	STR	12-3							
S307-5	#5CR	1	STR	14-2							
S307-6	#5CR	1	STR	16-2							
S307-7	#5CR	1	STR	18-1							
S307-8	#5CR	1	STR	20-1							
S307-9	#5CR	1	STR	22-1							
S307-10	#5CR	1	STR	24-0							
S1	#6CR	16	STR	15-0							
S2	#5CR	8	STR	14-6							
S3	#6CR	24	STR	12-6							
S4	#5CR	8	STR	20-0							
S6	#5CR	4	STR	10-0							
S7	#4CR	60	STR	15-0							
S8	#4CR	480	17	4-0		1-0	1-6	1-6			
C105	#5CR	2	27	89-6		3-4	82-10	40-0	9-6		2
C107	#5CR	2	27	70-4		3-4	67-0	40-0	30-4		1
C205	#4CR	2	STR	12-6							
C206	#4CR	2	27	95-1		2-8	89-9	40-0	15-1		3
C1	#5CR	273	526	4-0½		11"	1-1¾	1-1¾	10"		
C2	#5CR	38	41	2-6¾	11"	8¾"	11"	6¼"	6¼"		
C3	#4CR	105	696	3-5½	8"	9"	7½"	9"	8"	⅝"	9"
LS1	#4CR	22	17	18-9½		5½"	9-2	9-2			
LS2	#5CR	4	615	10-10	1-8	2-8	10"	2-8			
LS3-1	#4CR	4	STR	5-3							
LS3-2	#4CR	4	STR	4-3							
LS3-3	#4CR	4	STR	3-3							
LS3-4	#4CR	4	STR	2-3							
D1	#6CR	12	STR	8-4							
D2	#6CR	4	STR	12-6							
D3	#6CR	32	STR	7-0							
D4	#4CR	174	S5	5-0	4½"	1-10	7"	1-10		4½"	
D5	#4CR	8	STR	7-0							
D6	#6CR	8	STR	7-0							
D7	#4CR	28	S4	6-6	4½"	2-7	7"	2-7		4½"	
D8	#6CR	26	STR	4-6							

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
D9	#6CR	5	STR	40-1							
D12	#6CR	5	STR	2-7							
D14	#6CR	12	37	1-9		1-1	8"				
*D16	#6CR	3	STR	4-8							
D17	#4CR	7	S4	10-0	8"	4-0	8"	4-0		8"	
D18	#4CR	4	17	8-8		8"	4-0	4-0			
D19	#4CR	1	17	7-10		8"	3-7	3-7			
D20	#4CR	2	STR	3-0							
D21	#6CR	6	STR	7-7							
D22	#6CR	1	STR	14-9							
D23	#6CR	1	STR	10-0							
D24	#6CR	16	STR	6-3							
D25	#6CR	1	STR	35-5							

*NOTE: Based on minimum embedment of 1-8 for #6 bars. Adjust length based upon actual embedment.

NOTES

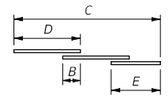
Adjust bar length as necessary to accommodate type and length of mechanical rebar connectors. Use in-line mechanical rebar connectors meeting Standard Specification 711.18.

See Std. Dwg. No. SBR-0R42 for additional bridge rail reinforcing.

See Std. Dwg. No. SBR-0R42-PP for the bill of reinforcing steel for the two standard bridge rail parapets located on Span No. 11 Phase 1 and Span No. 12 Phase 1.

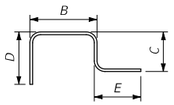
BILL OF REINFORCING STEEL

SPANS NO. 10 THRU NO. 12 DECK SLAB PHASE 2 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

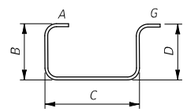


N = Number of Laps

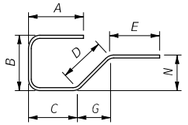
TYPE 27



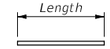
TYPE 526



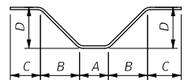
TYPE S5



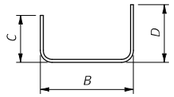
TYPE 696



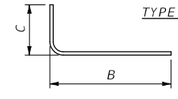
TYPE STR



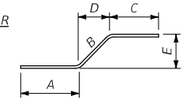
TYPE 615



TYPE 17



TYPE 37



TYPE 41

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S400	#5CR	584	STR	35-7							
S508	#5CR	24	27	159-0		3-4	149-0	40-0	39-0		3
S509	#5CR	46	STR	10-0							
S510	#5CR	46	STR	15-0							
S605	#4CR	55	27	157-0		2-8	149-0	40-0	37-0		3
S5	#5CR	4	STR	18-0							
S6	#5CR	4	STR	10-0							
S7	#4CR	48	STR	15-0							
S8	#4CR	384	17	4-0		1-0	1-6	1-6			
S9	#5CR	16	17	10-0							
S10	#5CR	4	STR	22-0							
C106	#5CR	2	27	159-0		3-4	149-0	40-0	39-0		3
C207	#4CR	2	27	157-0		2-8	149-0	40-0	37-0		3
C1	#5CR	299	526	4-0½		11"	1-1¾	1-1¾	10"		
C2	#5CR	38	41	2-6¾	11"	8¾"	11"	6¼"	6¼"		
C3	#4CR	149	696	3-5½	8"	9"	7½"	9"	8"	⅝"	9"
LS1	#4CR	22	17	18-9½		5½"	9-2	9-2			
LS2	#5CR	4	615	10-10	1-8	2-8	10"	2-8			
LS3-1	#4CR	4	STR	5-3							
LS3-2	#4CR	4	STR	4-3							
LS3-3	#4CR	4	STR	3-3							
LS3-4	#4CR	4	STR	2-3							
D1	#6CR	12	STR	8-4							
D3	#6CR	36	STR	7-0							
D4	#4CR	162	S5	5-0	4½"	1-10	7"	1-10		4½"	
D8	#6CR	18	STR	4-6							
D10	#6CR	6	STR	35-7							
D11	#6CR	6	STR	13-4							
D13	#6CR	6	STR	5-7							
D15	#6CR	12	STR	5-1							

SHEET NO.
B84

SPANS NO. 10 THRU NO 12
BILLS OF REINFORCING
STEEL (SHEET 2 OF 2)

SCALE: No Scale

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED			CHECKED	5-15-19
REVISED			DRAWN	3-18-19
REVISED			DESIGNED	3-18-19

A.C.W.
G.H.S.
P.C.J.

...\8807000\brsbz218.dgn
2:54:00 PM
7/18/2019

MONTANA DEPARTMENT OF TRANSPORTATION
MDT
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

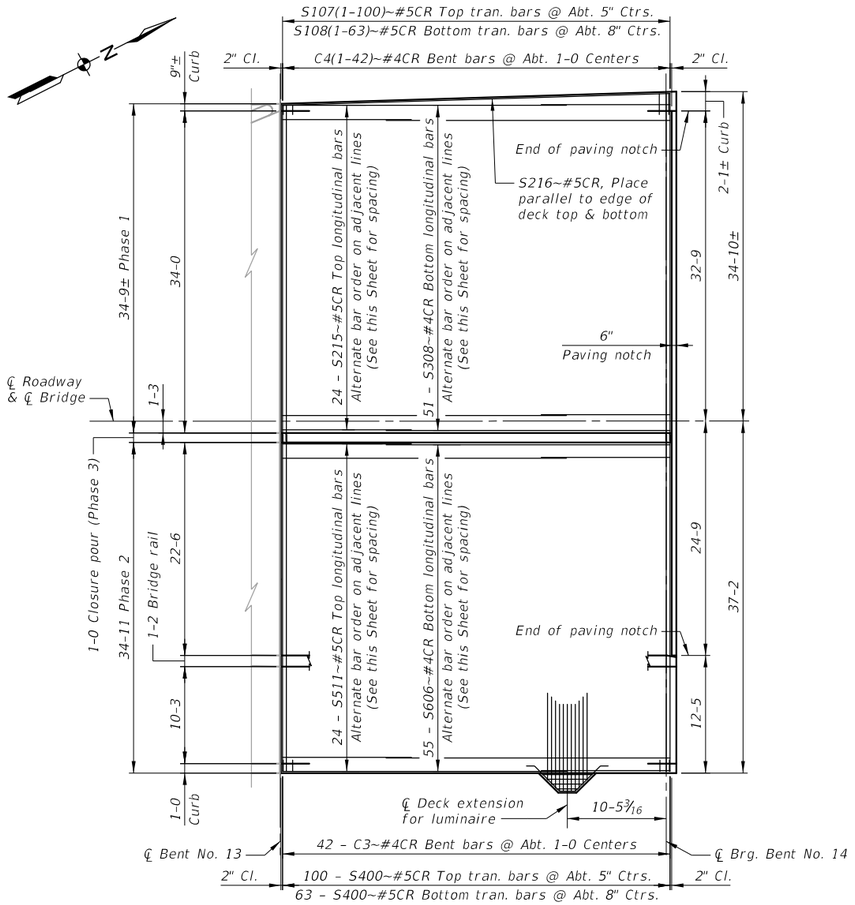
MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23982

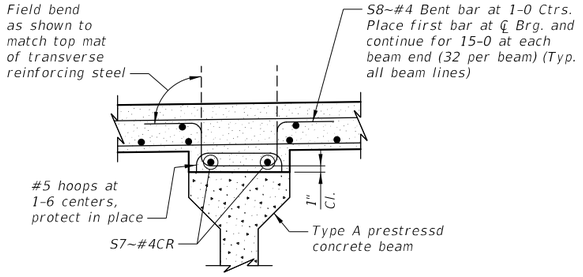
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



SLAB REINFORCING STEEL PLACEMENT PLAN - SPAN NO. 13

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



NOTE: Existing Type A prestressed concrete beam shown, new Type A beam similar.

HAUNCH REINFORCING DETAIL

Scale ~ 1" = 1'-0"

NOTES

Lap #4CR 2-8 minimum
Lap #5CR 3-4 minimum

See Sheet No. B86 and No. B87 for Bill of Reinforcing Steel.

See Sheet No. B88 for deck extension details.

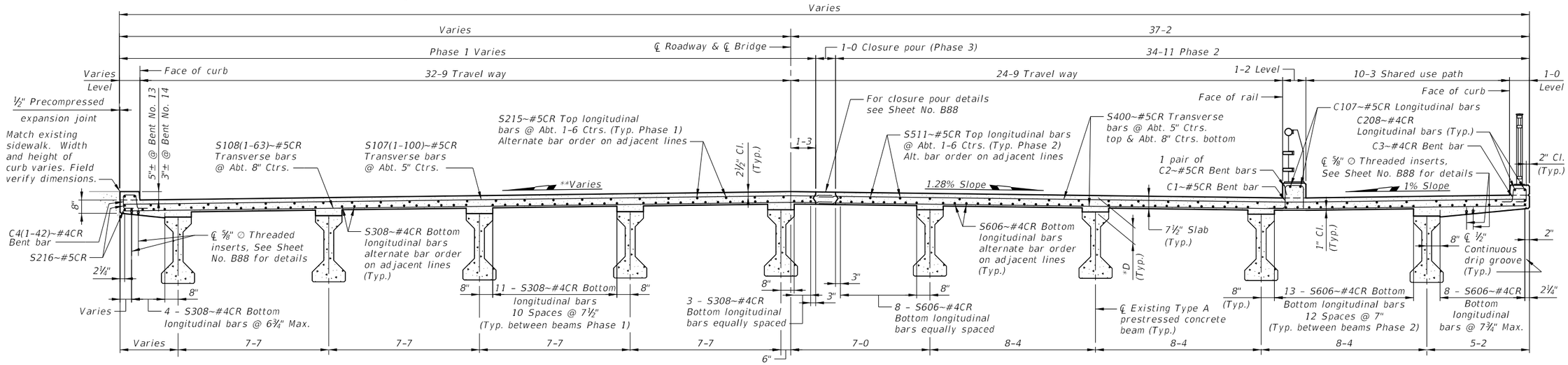
Estimated length of precompressed expansion joint at sidewalk along Span No. 13 is 41-10. See Sheet No. B89 for precompressed expansion joint details.

See Sheet No. B92 for deck drain locations.

See Std. Dwg. No. SBR-0R42 for bridge rail reinforcing steel.

DEPTH OF SLAB "D" AT ℄ BRGS.

Location	Span No. 13	
	Bent No. 13	Bent No. 14
Beam 1	10 7/16"	8 1/16"
Beam 2	10 1/2"	9 3/16"
Beam 3	10 1/2"	9 5/8"
Beam 4	10 7/16"	10"
Beam 5	10 9/16"	10 1/2"
Beam 6	9 3/4"	9 3/4"
Beam 7	9 1/16"	9 13/16"
Beam 8	9 15/16"	9 7/8"
Beam 9	1-0 1/16"	11 5/8"



**NOTE: Cross slope changes from 1.28% at Bent No. 13 to 1.75% at Bent No. 14.

TRANSVERSE SECTION - SPAN NO. 13

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

*NOTE: Dimension D varies, see table this sheet. D is measured from the top of deck to top of beam at ℄ beam (May vary at tenth points; see Dead Load Deflection Table on Sheet No. B65).

HDR

SHEET NO. B85

SPAN NO. 13
SLAB REINFORCING STEEL PLACEMENT PLAN AND TRANSVERSE SECTION

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	...\8807000\sklz19.dgn
					5-15-19	3-19-21	3-19-21	7/18/2019 2:54:31 PM
					A.C.W.	G.H.S.	P.C.J.	

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

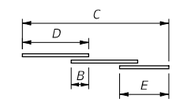
DRAWING NO.
23983

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

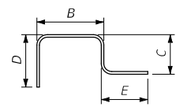
BILL OF REINFORCING STEEL

SPAN NO. 13 DECK SLAB PHASE 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

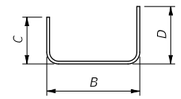


N = Number of Laps

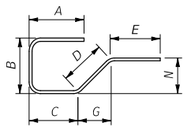
TYPE 27



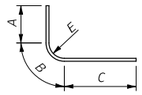
TYPE 526



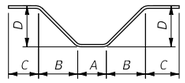
TYPE 17



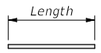
TYPE 696



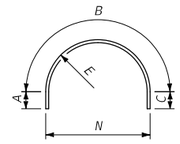
TYPE 424



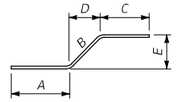
TYPE 615



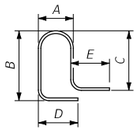
TYPE STR



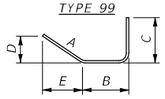
TYPE 10



TYPE 41



TYPE 99



TYPE VL

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S107-1	#5CR	1	STR	35-5							
S107-2	#5CR	1	STR	35-5½							
S107-3	#5CR	1	STR	35-5½							
S107-4	#5CR	1	STR	35-5½							
S107-5	#5CR	1	STR	35-5½							
S107-6	#5CR	1	STR	35-6							
S107-7	#5CR	1	STR	35-6							
S107-8	#5CR	1	STR	35-6							
S107-9	#5CR	1	STR	35-6½							
S107-10	#5CR	1	STR	35-6½							
S107-11	#5CR	1	STR	35-6½							
S107-12	#5CR	1	STR	35-7							
S107-13	#5CR	1	STR	35-7							
S107-14	#5CR	1	STR	35-7							
S107-15	#5CR	1	STR	35-7½							
S107-16	#5CR	1	STR	35-7½							
S107-17	#5CR	1	STR	35-7½							
S107-18	#5CR	1	STR	35-7½							
S107-19	#5CR	1	STR	35-8							
S107-20	#5CR	1	STR	35-8							
S107-21	#5CR	1	STR	35-8							
S107-22	#5CR	1	STR	35-8½							
S107-23	#5CR	1	STR	35-8½							
S107-24	#5CR	1	STR	35-8½							
S107-25	#5CR	1	STR	35-9							
S107-26	#5CR	1	STR	35-9							
S107-27	#5CR	1	STR	35-9							
S107-28	#5CR	1	STR	35-9							
S107-29	#5CR	1	STR	35-9½							
S107-30	#5CR	1	STR	35-9½							
S107-31	#5CR	1	STR	35-9½							
S107-32	#5CR	1	STR	35-10							
S107-33	#5CR	1	STR	35-10							
S107-34	#5CR	1	STR	35-10							
S107-35	#5CR	1	STR	35-10½							
S107-36	#5CR	1	STR	35-10½							
S107-37	#5CR	1	STR	35-10½							
S107-38	#5CR	1	STR	35-11							
S107-39	#5CR	1	STR	35-11							
S107-40	#5CR	1	STR	35-11							
S107-41	#5CR	1	STR	35-11							
S107-42	#5CR	1	STR	35-11½							
S107-43	#5CR	1	STR	35-11½							
S107-44	#5CR	1	STR	35-11½							
S107-45	#5CR	1	STR	36-0							
S107-46	#5CR	1	STR	36-0							
S107-47	#5CR	1	STR	36-0							
S107-48	#5CR	1	STR	36-0½							
S107-49	#5CR	1	STR	36-0½							
S107-50	#5CR	1	STR	36-0½							
S107-51	#5CR	1	STR	36-1							
S107-52	#5CR	1	STR	36-1							
S107-53	#5CR	1	STR	36-1							
S107-54	#5CR	1	STR	36-1							
S107-55	#5CR	1	STR	36-1½							
S107-56	#5CR	1	STR	36-1½							
S107-57	#5CR	1	STR	36-1½							
S107-58	#5CR	1	STR	36-2							
S107-59	#5CR	1	STR	36-2							
S107-60	#5CR	1	STR	36-2							
S107-61	#5CR	1	STR	36-2½							
S107-62	#5CR	1	STR	36-2½							
S107-63	#5CR	1	STR	36-2½							
S107-64	#5CR	1	STR	36-2½							
S107-65	#5CR	1	STR	36-3							
S107-66	#5CR	1	STR	36-3							
S107-67	#5CR	1	STR	36-3							
S107-68	#5CR	1	STR	36-3½							
S107-69	#5CR	1	STR	36-3½							
S107-70	#5CR	1	STR	36-3½							
S107-71	#5CR	1	STR	36-4							
S107-72	#5CR	1	STR	36-4							
S107-73	#5CR	1	STR	36-4							
S107-74	#5CR	1	STR	36-4½							
S107-75	#5CR	1	STR	36-4½							
S107-76	#5CR	1	STR	36-4½							
S107-77	#5CR	1	STR	36-4½							
S107-78	#5CR	1	STR	36-5							
S107-79	#5CR	1	STR	36-5							
S107-80	#5CR	1	STR	36-5							
S107-81	#5CR	1	STR	36-5½							
S107-82	#5CR	1	STR	36-5½							
S107-83	#5CR	1	STR	36-5½							
S107-84	#5CR	1	STR	36-6							
S107-85	#5CR	1	STR	36-6							
S107-86	#5CR	1	STR	36-6							
S107-87	#5CR	1	STR	36-6½							
S107-88	#5CR	1	STR	36-6½							
S107-89	#5CR	1	STR	36-6½							
S107-90	#5CR	1	STR	36-6½							
S107-91	#5CR	1	STR	36-7							
S107-92	#5CR	1	STR	36-7							
S107-93	#5CR	1	STR	36-7							
S107-94	#5CR	1	STR	36-7½							
S107-95	#5CR	1	STR	36-7½							
S107-96	#5CR	1	STR	36-7½							
S107-97	#5CR	1	STR	36-8							
S107-98	#5CR	1	STR	36-8							
S107-99	#5CR	1	STR	36-8							
S107-100	#5CR	1	STR	36-8							
S108-1	#5CR	1	STR	35-5							
S108-2	#5CR	1	STR	35-5½							
S108-3	#5CR	1	STR	35-5½							
S108-4	#5CR	1	STR	35-6							
S108-5	#5CR	1	STR	35-6							
S108-6	#5CR	1	STR	35-6½							
S108-7	#5CR	1	STR	35-6½							
S108-8	#5CR	1	STR	35-7							
S108-9	#5CR	1	STR	35-7							
S108-10	#5CR	1	STR	35-7½							
S108-11	#5CR	1	STR	35-7½							
S108-12	#5CR	1	STR	35-8							
S108-13	#5CR	1	STR	35-8							
S108-14	#5CR	1	STR	35-8½							
S108-15	#5CR	1	STR	35-8½							
S108-16	#5CR	1	STR	35-9							
S108-17	#5CR	1	STR	35-9							
S108-18	#5CR	1	STR	35-9½							
S108-19	#5CR	1	STR	35-9½							
S108-20	#5CR	1	STR	35-10							
S108-21	#5CR	1	STR	35-10							
S108-22	#5CR	1	STR	35-10							
S108-23	#5CR	1	STR	35-10½							
S108-24	#5CR	1	STR	35-10½							
S108-25	#5CR	1	STR	35-11							
S108-26	#5CR	1	STR	35-11							
S108-27	#5CR	1	STR	35-11½							
S108-28	#5CR	1	STR	35-11½							
S108-29	#5CR	1	STR	36-0							
S108-30	#5CR	1	STR	36-0							
S108-31	#5CR	1	STR	36-0½							
S108-32	#5CR	1	STR	36-0½							
S108-33	#5CR	1	STR	36-1							
S108-34	#5CR	1	STR	36-1							
S108-35	#5CR	1	STR	36-1½							
S108-36	#5CR	1	STR	36-1½							
S108-37	#5CR	1	STR	36-2							
S108-38	#5CR	1	STR	36-2							
S108-39	#5CR	1	STR	36-2½							
S108-40	#5CR	1	STR	36-2½							
S108-41	#5CR	1	STR	36-3							
S108-42	#5CR	1	STR	36-3							
S108-43	#5CR	1	STR	36-3½							
S108-44	#5CR	1	STR	36-3½							
S108-45	#5CR	1	STR	36-4							
S108-46	#5CR	1	STR	36-4							
S108-47	#5CR	1	STR	36-4½							
S108-48	#5CR	1	STR	36-4½							
S108-49	#5CR	1	STR	36-5							
S108-50	#5CR	1	STR	36-5							
S108-51	#5CR	1	STR	36-5½							
S108-52	#5CR	1	STR	36-5½							
S108-53	#5CR	1	STR	36-6							
S108-54	#5CR	1	STR	36-6							
S108-55	#5CR	1	STR	36-6½							
S108-56	#5CR	1	STR	36-6½							

NOTES

See Std. Dwg. No. SBR-0R42 for additional bridge rail reinforcing.

SHEET NO.
B86

SPAN NO. 13
BILLS OF REINFORCING
STEEL (SHEET 1 OF 2)

SCALE: No Scale

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED			
REVISED			
REVISED			
REVISED			
CHECKED	5-15-19	A.C.W.	
DRAWN	3-18-19	G.H.S.	
DESIGNED	3-18-19	P.C.J.	
...\8807000brsht220.dgn			
7/18/2019	2:55:03 PM		

MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

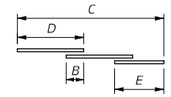
DRAWING NO.
23984

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

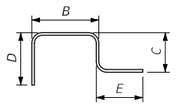
BILL OF REINFORCING STEEL - CONTINUED

SPAN NO. 13 DECK SLAB PHASE 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

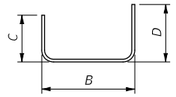


N = Number of Laps

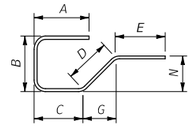
TYPE 27



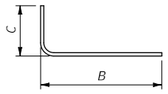
TYPE 526



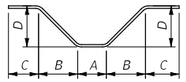
TYPE 17



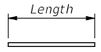
TYPE 696



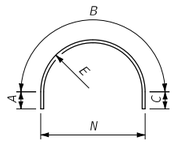
TYPE 37



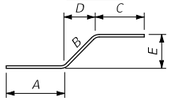
TYPE 615



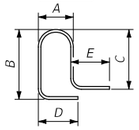
TYPE STR



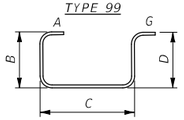
TYPE 10



TYPE 41



TYPE 99

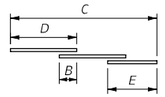


TYPE S5

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S108-57	#5CR	1	STR	36-7							
S108-58	#5CR	1	STR	36-7							
S108-59	#5CR	1	STR	36-7½							
S108-60	#5CR	1	STR	36-7½							
S108-61	#5CR	1	STR	36-8							
S108-62	#5CR	1	STR	36-8							
S108-63	#5CR	1	STR	36-8							
S215	#5CR	24	27	44-3		3-4	40-11	30-0	14-3		1
S216	#5CR	2	STR	40-0							
S308	#4CR	51	27	43-7		2-8	40-11	30-0	13-7		1
S7	#4CR	20	STR	15-0							
S8	#4CR	160	17	4-0		1-0	1-6	1-6			
C208	#4CR	2	27	43-7		2-8	40-11	30-0	13-7		1
C4-1	#4CR	1	696	3-0¾	8"	8"	4¾"	8"	8"	⅝"	8"
C4-2	#4CR	1	696	3-1¼	8"	8"	5¼"	8"	8"	⅝"	8"
C4-3	#4CR	1	696	3-1½	8"	8"	5½"	8"	8"	⅝"	8"
C4-4	#4CR	1	696	3-2	8"	8"	6"	8"	8"	⅝"	8"
C4-5	#4CR	1	696	3-2¼	8"	8"	6¼"	8"	8"	⅝"	8"
C4-6	#4CR	1	696	3-2¾	8"	8"	6¾"	8"	8"	⅝"	8"
C4-7	#4CR	1	696	3-3¼	8"	8"	7¼	8"	8"	⅝"	8"
C4-8	#4CR	1	696	3-3½	8"	8"	7½	8"	8"	⅝"	8"
C4-9	#4CR	1	696	3-4	8"	8"	8"	8"	8"	⅝"	8"
C4-10	#4CR	1	696	3-4¼	8"	8"	8¼"	8"	8"	⅝"	8"
C4-11	#4CR	1	696	3-4¾	8"	8"	8¾"	8"	8"	⅝"	8"
C4-12	#4CR	1	696	3-5	8"	8"	9"	8"	8"	⅝"	8"
C4-13	#4CR	1	696	3-5½	8"	8"	9½"	8"	8"	⅝"	8"
C4-14	#4CR	1	696	3-6	8"	8"	10"	8"	8"	⅝"	8"
C4-15	#4CR	1	696	3-6¼	8"	8"	10¼"	8"	8"	⅝"	8"
C4-16	#4CR	1	696	3-6¾	8"	8"	10¾"	8"	8"	⅝"	8"
C4-17	#4CR	1	696	3-7	8"	8"	11"	8"	8"	⅝"	8"
C4-18	#4CR	1	696	3-7½	8"	8"	11½"	8"	8"	⅝"	8"
C4-19	#4CR	1	696	3-8	8"	8"	1-0	8"	8"	⅝"	8"
C4-20	#4CR	1	696	3-8¼	8"	8"	1-0¼	8"	8"	⅝"	8"
C4-21	#4CR	1	696	3-8¾	8"	8"	1-0¾	8"	8"	⅝"	8"
C4-22	#4CR	1	696	3-9	8"	8"	1-1	8"	8"	⅝"	8"
C4-23	#4CR	1	696	3-9½	8"	8"	1-1½	8"	8"	⅝"	8"
C4-24	#4CR	1	696	3-9¾	8"	8"	1-1¾	8"	8"	⅝"	8"
C4-25	#4CR	1	696	3-10¼	8"	8"	1-2¼	8"	8"	⅝"	8"
C4-26	#4CR	1	696	3-10¾	8"	8"	1-2¾	8"	8"	⅝"	8"
C4-27	#4CR	1	696	3-11	8"	8"	1-3	8"	8"	⅝"	8"
C4-28	#4CR	1	696	3-11½	8"	8"	1-3½	8"	8"	⅝"	8"
C4-29	#4CR	1	696	3-11¾	8"	8"	1-3¾	8"	8"	⅝"	8"
C4-30	#4CR	1	696	4-0¼	8"	8"	1-4¼	8"	8"	⅝"	8"
C4-31	#4CR	1	696	4-0¾	8"	8"	1-4¾	8"	8"	⅝"	8"
C4-32	#4CR	1	696	4-1	8"	8"	1-5	8"	8"	⅝"	8"
C4-33	#4CR	1	696	4-1½	8"	8"	1-5½	8"	8"	⅝"	8"
C4-34	#4CR	1	696	4-1¾	8"	8"	1-5¾	8"	8"	⅝"	8"
C4-35	#4CR	1	696	4-2¼	8"	8"	1-6¼	8"	8"	⅝"	8"
C4-36	#4CR	1	696	4-2½	8"	8"	1-6½	8"	8"	⅝"	8"
C4-37	#4CR	1	696	4-3	8"	8"	1-7	8"	8"	⅝"	8"
C4-38	#4CR	1	696	4-3½	8"	8"	1-7½	8"	8"	⅝"	8"
C4-39	#4CR	1	696	4-3¾	8"	8"	1-7¾	8"	8"	⅝"	8"
C4-40	#4CR	1	696	4-4¼	8"	8"	1-8¼	8"	8"	⅝"	8"
C4-41	#4CR	1	696	4-4½	8"	8"	1-8½	8"	8"	⅝"	8"
C4-42	#4CR	1	696	4-5	8"	8"	1-9	8"	8"	⅝"	8"
D4	#4CR	29	S5	5-0	4½"	1-10	7"	1-10		4½"	
D8	#6CR	4	STR	4-6							
D12	#6CR	1	STR	2-7							
D14	#6CR	2	37	1-3		7"	8"				
D21	#6CR	3	STR	7-7							
D23	#6CR	1	STR	10-0							
D24	#6CR	8	STR	6-3							
D25	#6CR	1	STR	35-5							

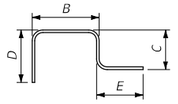
BILL OF REINFORCING STEEL

SPAN NO. 13 DECK SLAB PHASE 2 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

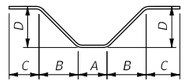


N = Number of Laps

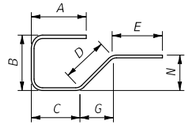
TYPE 27



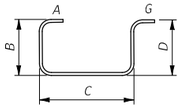
TYPE 526



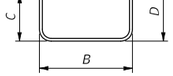
TYPE 615



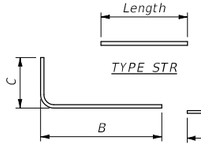
TYPE 696



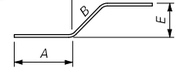
TYPE S5



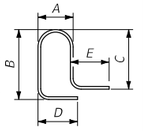
TYPE 17



TYPE STR / TYPE 37



TYPE 41



TYPE 99

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S400	#5CR	163	STR	35-7							
S511	#5CR	24	27	44-3		3-4	40-11	30-0	14-3		1
S606	#4CR	55	27	43-7		2-8	40-11	30-0	13-7		1
S7	#4CR	16	STR	15-0							
S8	#4CR	128	17	4-0		1-0	1-6	1-6			
C107	#5CR	2	STR	38-1							
C208	#4CR	2	27	43-7		2-8	40-11	30-0	13-7		1
C1	#5CR	74	526	4-0½		11"	1-1¾	1-1¾	10"		
C2	#5CR	10	41	2-6¾	11"	6¾"	11"	6¼"	6¼"		
C3	#4CR	42	696	3-5½	8"	9"	7½"	9"	8"	⅝"	9"
LS1	#4CR	11	17	18-9½		5½"	9-2	9-2			
LS2	#5CR	2	615	10-10	1-8	2-8	10"	2-8			
LS3-1	#4CR	2	STR	5-3							
LS3-2	#4CR	2	STR	4-3							
LS3-3	#4CR	2	STR	3-3							
LS3-4	#4CR	2	STR	2-3							
D1	#6CR	2	STR	8-4							
D3	#6CR	6	STR	7-0							
D4	#4CR	27	S5	5-0	4½"	1-10	7"	1-10		4½"	
D8	#6CR	3	STR	4-6							
D10	#6CR	1	STR	35-7							
D11	#6CR	1	STR	13-4							
D13	#6CR	1	STR	5-7							
D15	#6CR	2	STR	5-0							

NOTES

Adjust bar length as necessary to accommodate type and length of mechanical rebar connectors. Use in-line mechanical rebar connectors meeting Standard Specification 711.18.

See Std. Dwg. No. SBR-0R42 for additional bridge rail reinforcing.

See Std. Dwg. No. SBR-0R42-PP for the bill of reinforcing steel for the standard bridge rail parapet located on Span No. 13 Phase 2.

HDR

SHEET NO. B87

SPAN NO. 13
BILLS OF REINFORCING STEEL (SHEET 2 OF 2)

SCALE: No Scale

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

REVISED			A.C.W.	
REVISED			G.H.S.	5-15-19
REVISED			P.C.J.	3-18-19
REVISED			DESIGNED	3-18-19
CHECKED			DRAWN	...8807000brskz21.dgn
DRAWN			CHECKED	2:55:27 PM
DESIGNED			REVISED	7/18/2019

MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

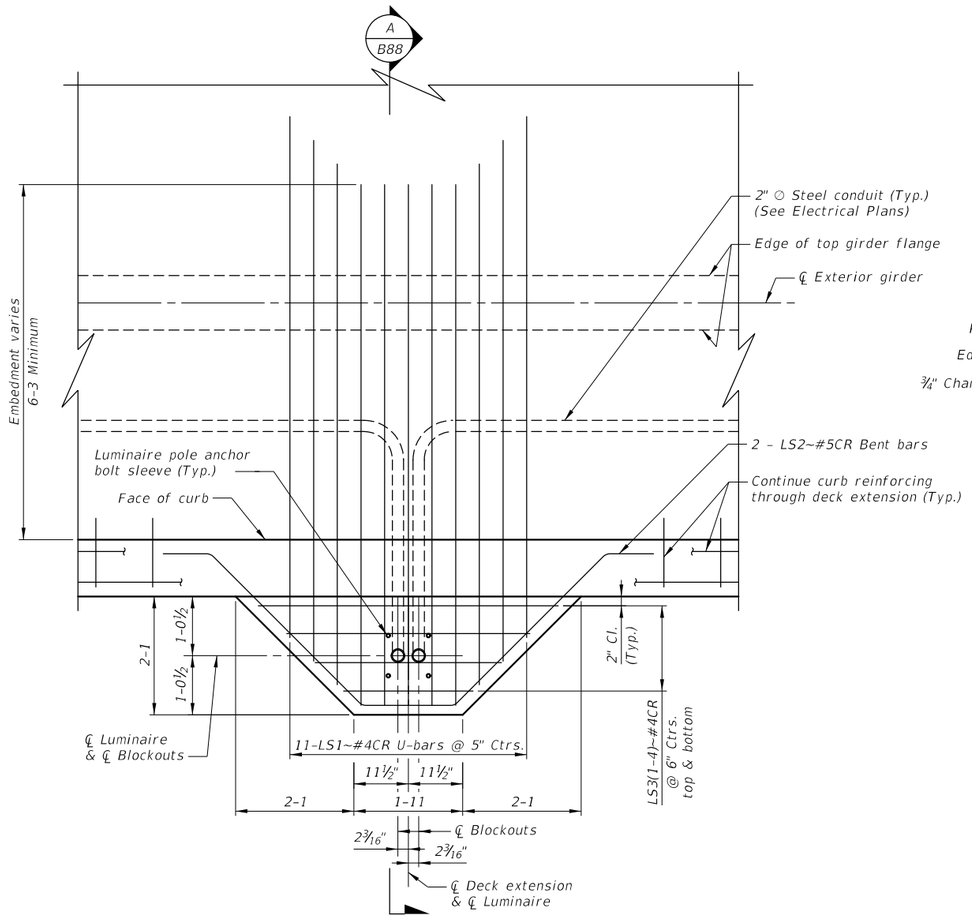
MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23985

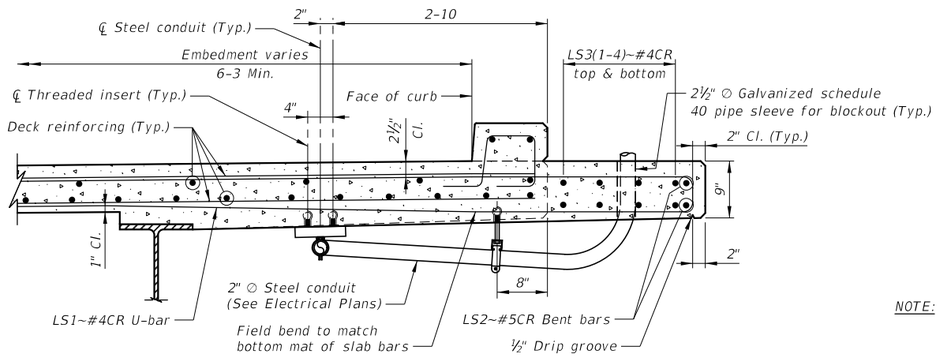
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

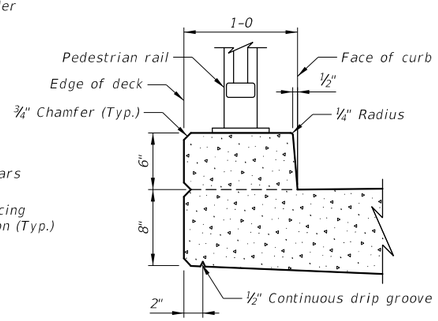


TYPICAL DECK EXTENSION FOR LUMINAIRE POLE - PLAN

Scale ~ ¾" = 1'-0"
Other deck reinforcing not shown for clarity.

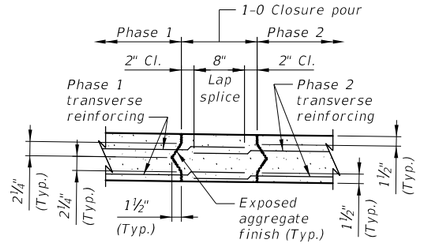


A / B88 **SECTION A**
Scale ~ 1" = 1'-0"



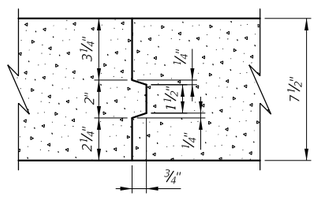
PEDESTRIAN CURB DETAIL

Scale ~ 1½" = 1'-0"



UHPC CLOSURE POUR DETAIL

Scale ~ 1" = 1'-0"
(Looking Ahead on Line)



NOTE: Thoroughly coat the slab construction joint with an epoxy resin bonding agent which meets the requirements of AASHTO M 235 (Type V). Apply the bonding agent within 30 minutes prior to placing concrete. Continue slab reinforcing through the joints.

SLAB TRANSVERSE CONSTRUCTION JOINT

Scale ~ 3" = 1'-0"

NOTES

Cast deck extensions monolithic with deck.

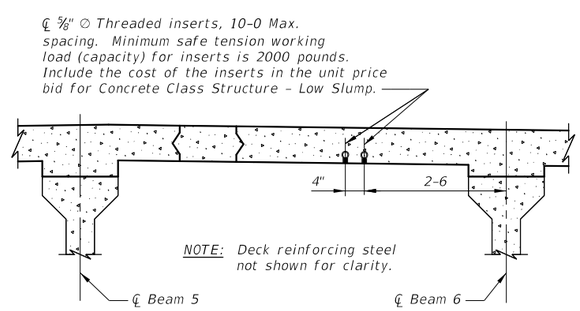
Hold conduit in accurate position while placing concrete to assure proper alignment.

Include all costs associated with furnishing and installing anchor bolts in the unit price bid for the Decorative Luminaire Pole - Type 1.

Adjust the spacing of deck extension reinforcing the minimum amount necessary to allow placement of anchor bolts. Verify location of anchor bolts with luminaire pole supplier.

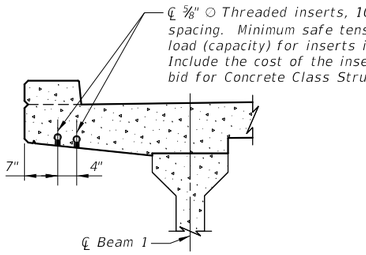
See Special Provisions for more information on UHPC closure pour.

See Sheet No. B67, No. B69, No. B70, No. B76, No. B79 and No. B85 deck extension for luminaire pole locations.



SPANS NO. 7 THRU NO. 12 INTERIOR THREADED INSERT DETAIL

Scale ~ ¾" = 1'-0"

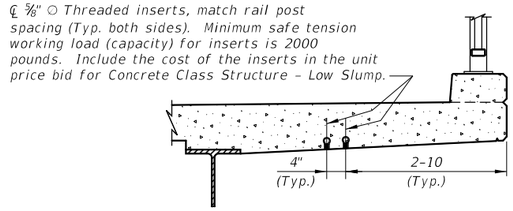


NOTE: Deck reinforcing steel not shown for clarity.

NOTE: This detail is applicable on the Phase 1 overhang for Spans No. 12, No. 13, and in Span No. 11 from the CL of Bent No. 12 to luminaire pole 22 just south of Bent No. 12. See Sheet No. B97 for Span No. 11, Phase 1 Deck Extension detail.

OVERHANG THREADED INSERT DETAIL NEAR WILMA

Scale ~ ¾" = 1'-0"



NOTE: Deck and curb reinforcing steel not shown for clarity.

TYPICAL OVERHANG THREADED INSERT DETAIL

Scale ~ ¾" = 1'-0"

HDR

SHEET NO. B88

MISCELLANEOUS SLAB DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

	CHECKED	DRAWN	DESIGNED
REVISED	5-15-19	11-1-18	11-1-18
REVISED	A.C.W.	G.H.S.	P.C.J.

...88070000rsklz22.dgn 5/15/2020 9:25:10 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

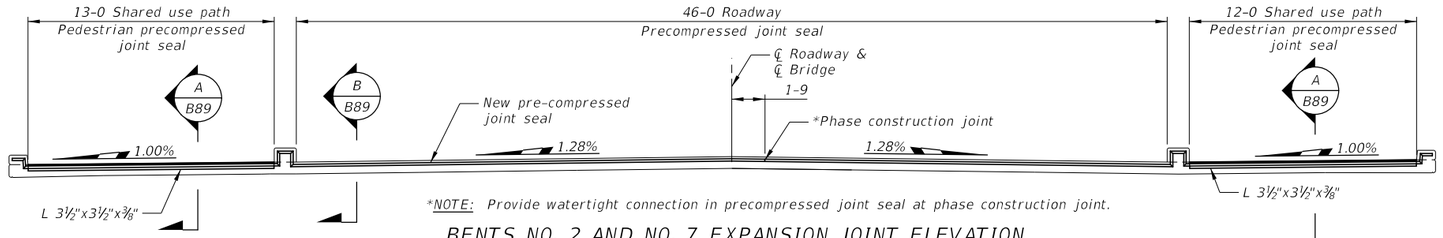
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23986

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

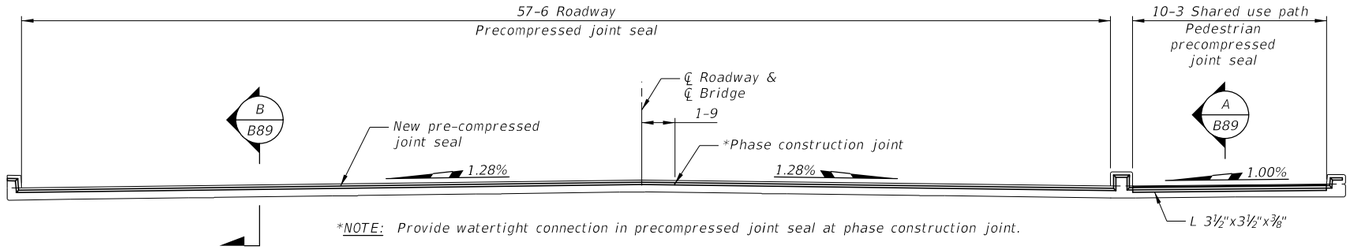
AWARD COPY



*NOTE: Provide watertight connection in precompressed joint seal at phase construction joint.

BENTS NO. 2 AND NO. 7 EXPANSION JOINT ELEVATION

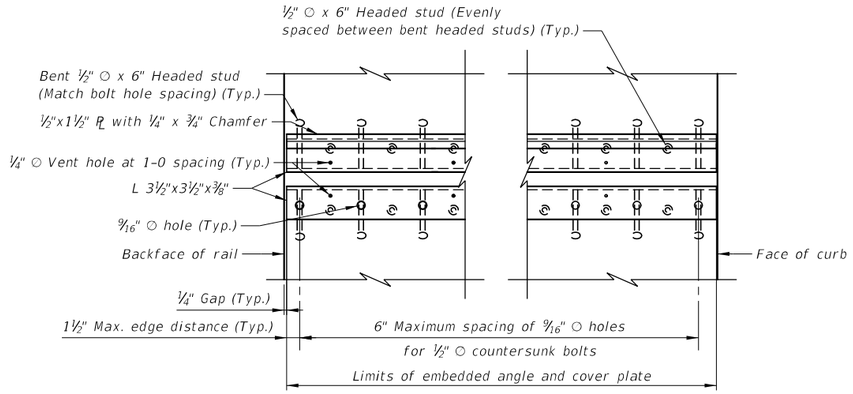
Scale ~ ¼" = 1'-0"



*NOTE: Provide watertight connection in precompressed joint seal at phase construction joint.

BENT NO. 13 EXPANSION JOINT ELEVATION

Scale ~ ¼" = 1'-0"



PARTIAL PLAN OF SIDEWALK EXPANSION JOINT

Scale ~ 1½" = 1'-0"

NOTES

Use rolled and plate steel meeting AASHTO M270 Grade 36 or Grade 50.

Use countersunk bolts meeting ASTM A307.

Galvanize fabricated steel assemblies per Standard Specifications.

Use headed studs meeting the Standard Specifications.

Provide ferrules to accommodate countersunk bolts.

After concrete has cured, fill vent holes flush to the top of the embedded plate with a two part epoxy.

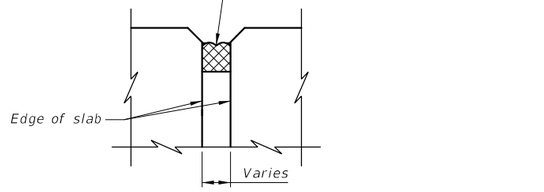
See Special Provisions for additional precompressed joint seal requirements.

TABLE OF EXPANSION GAPS

	TEMPERATURE (°F)					
	-40	0	38	60	90	115
Bent No. 2	2"	1¾"	1⅜"	1½"	1⅛"	1¼"
Bent No. 7	2 1/16"	1 13/16"	1⅜"	1½"	1 1/16"	1 3/16"
Bent No. 13	2 5/16"	2"	1 11/16"	1½"	1¼"	1 1/16"

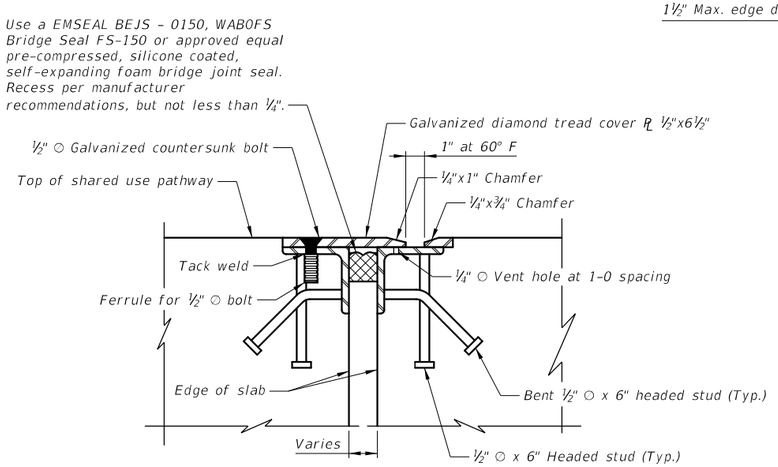
NOTE: The movements shown are not factored. They are the actual anticipated movements for the temperature shown.

NOTE: Change in temperature for 1/16" of unfactored movement = 13.16° F for Bent No. 2, 11.24° F for Bent No. 7, and 7.52° F for Bent No. 13.



B / B89 **ROADWAY PRECOMPRESSED JOINT SEAL**

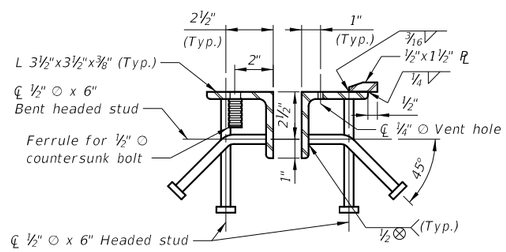
Scale ~ 3" = 1'-0"



NOTE: Alternate bent and straight headed studs.

A / B89 **PEDESTRIAN PRECOMPRESSED JOINT SEAL**

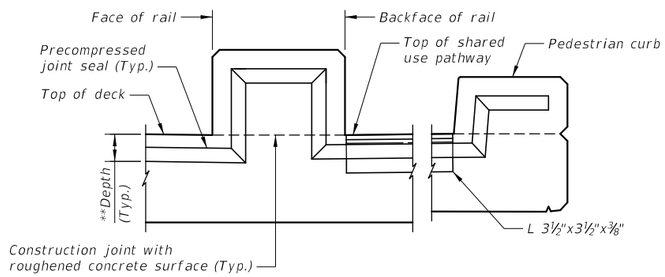
Scale ~ 3" = 1'-0"



NOTE: Bend studs to avoid girder shear studs

GUARD ANGLE DETAIL

Scale ~ 3" = 1'-0"



**NOTE: Set precompressed joint seal to manufacturer recommended depth

NOTE: Headed studs not shown for clarity.

BENT NO. 2, NO. 7 AND NO. 13 CURB CLEARANCE DETAIL

No Scale

HDR

SHEET NO. B89

PRECOMPRESSED EXPANSION JOINT DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED				CHECKED	3-21-19	A.C.W.
REVISED				DRAWN	3-1-19	K.J.A.
REVISED				DESIGNED	3-11-19	B.K.C.

MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

7/19/2019 11:12:35 AM ...\8807000\brejb201.dgn

ROUTE U-8113

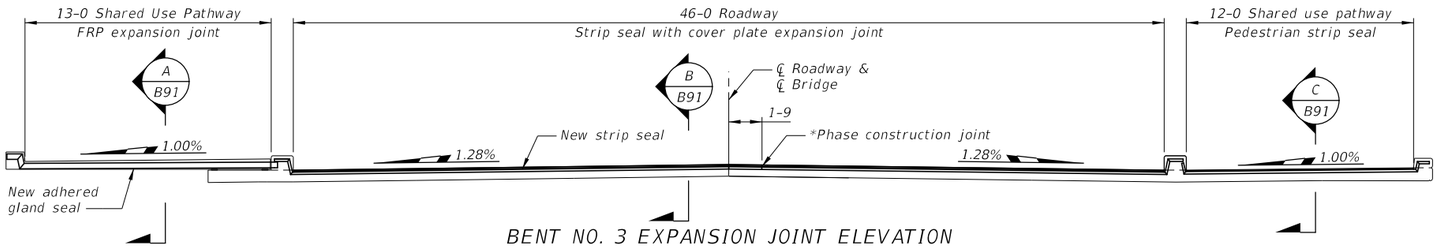
REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

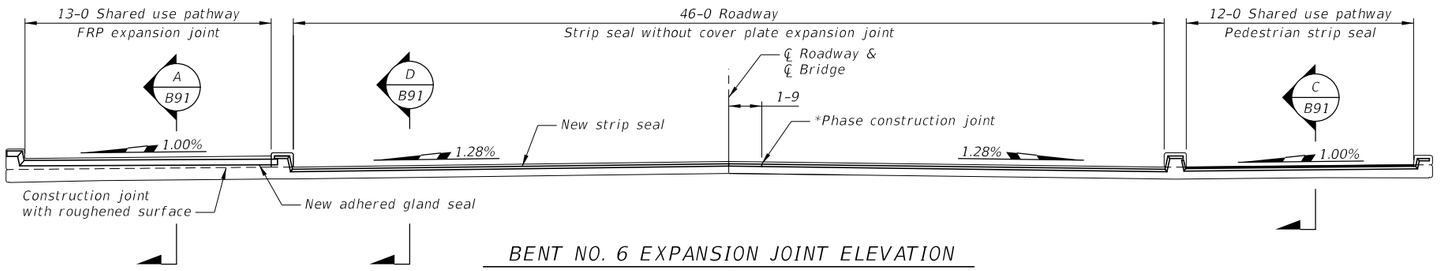
DRAWING NO. 23987

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086



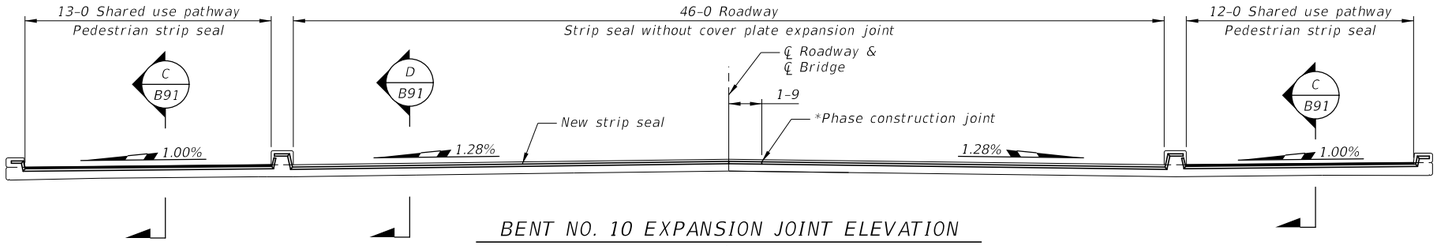
BENT NO. 3 EXPANSION JOINT ELEVATION

Scale ~ ¼" = 1'-0"
(Looking Ahead on Line)



BENT NO. 6 EXPANSION JOINT ELEVATION

Scale ~ ¼" = 1'-0"
(Looking Ahead on Line)



BENT NO. 10 EXPANSION JOINT ELEVATION

Scale ~ ¼" = 1'-0"
(Looking Ahead on Line)

NOTES

Use plate steel meeting AASHTO M270 Grade 36 or Grade 50.

Use countersunk bolts meeting ASTM A307.

Use headed studs meeting the Standard Specifications.

Provide ferrules to accommodate countersunk bolts.

When countersunk bolts are present, place headed studs at countersunk bolt spacing, however, as required, offset horizontal headed studs to avoid ferrules.

When countersunk bolts are not present, place alternating vertical and horizontal headed studs at maximum of 6" centers.

Alternate headed stud between horizontal and vertical positions.

After fabrication galvanize all embedded steel assemblies per the Standard Specifications.

After concrete has cured, fill vent holes flush to the top of the embedded plate with a two part epoxy.

*Field weld strip seal claw at the phase construction joint in accordance with the manufacturer's recommendations. Submit proposed field complete joint penetration welds for the cover plate (where applicable) and the embedded plates.

TABLE OF EXPANSION JOINT GAPS

	TEMPERATURE (°F)					
	-40	0	38	60	90	115
Bent No. 3	6"	4¾"	3 11/16"	3"	2 5/16"	1⅜"
Bent No. 6	3½"	2 13/16"	2 5/16"	2"	1 9/16"	1 3/16"
Bent No. 10	3 1/16"	2 1/16"	2¼"	2"	1 1/16"	⅞"

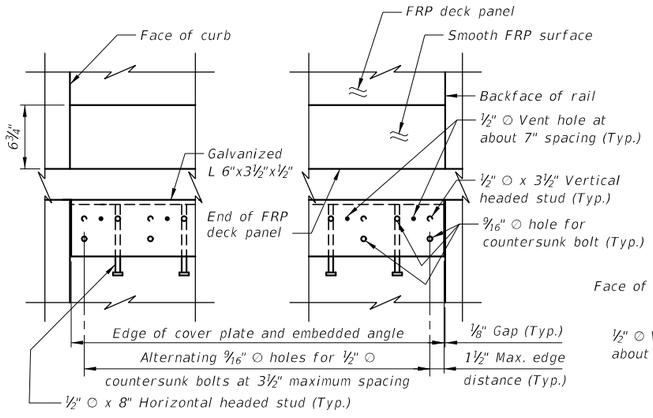
NOTE: The movements shown are not factored. They are the actual anticipated movements for the temperature shown.

NOTE: Change in temperature for 1/16" of unfactored movement = 2.15° for Bent No. 3, 4.11° for Bent No. 6, and 5.71° for Bent No. 10.

NOTE: At Bent No. 3, provide a continuous Watson Bowman WABO SE-800, DS Brown A2R-XTRA, or approved equal strip seal. Provide a continuous Watson Bowman SPS-500, RJ Watson Silicoflex SF-500, DS Brown V-Seal V-500, or approved equal adhered gland for the FRP expansion joint.

NOTE: At Bent No. 6 and No. 10, provide a continuous Watson Bowman WABO SE-400, DS Brown A2R-400, or approved equal strip seal.

NOTE: At Bent No. 6 provide a continuous Watson Bowman WABO SPS-400, RJ Watson Silicoflex SF-325, DS Brown V-Seal V-300 or approved equal adhered gland for the FRP expansion joint.

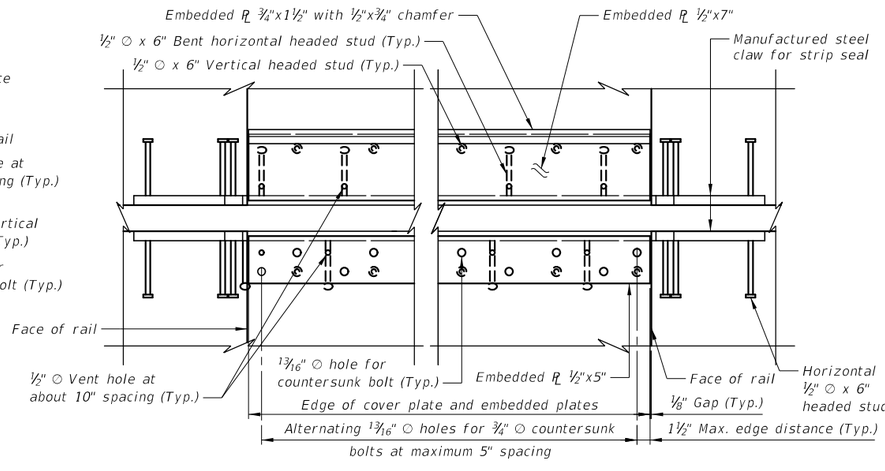


NOTE: Cover plate and adhered gland not shown for clarity.

NOTE: Bent No. 3 shown, Bent No. 6 similar.

FRP EXPANSION JOINT PARTIAL PLAN

Scale ~ 1½" = 1'-0"

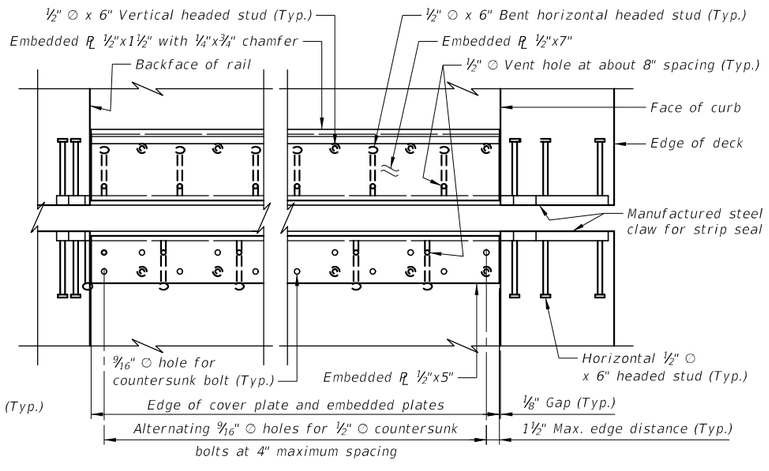


NOTE: Cover plate and strip seal not shown for clarity.

NOTE: Bent No. 3 shown, Bent No. 6 similar.

ROADWAY STRIP SEAL WITH COVER PLATE PARTIAL PLAN

Scale ~ 1½" = 1'-0"



NOTE: Cover plate and strip seal not shown for clarity.

NOTE: Bent No. 3 shown, Bent No. 6 and No. 10 similar.

PEDESTRIAN STRIP SEAL PARTIAL PLAN

Scale ~ 1½" = 1'-0"

HDR

SHEET NO. B90

STRIP SEAL EXPANSION JOINT DETAILS (SHEET 1 OF 2)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED						
REVISED						
REVISED						
REVISED						
CHECKED	3-21-19	A.C.W.				
DRAWN	3-11-19	K.J.A.				
DESIGNED	3-11-19	B.K.C.				

...\8807000\bridgdz02.dgn
7/19/2019 11:13:06 AM

MONTANA MDT DEPARTMENT OF TRANSPORTATION BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

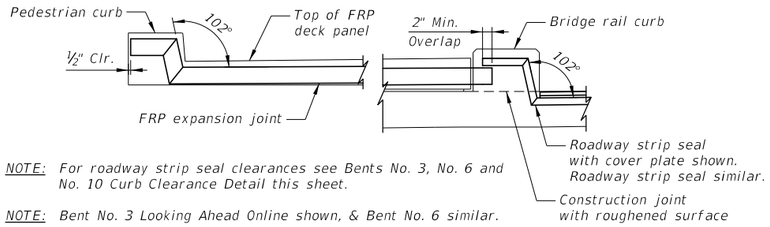
DRAWING NO. 23988

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

NOTES

See Sheet No. B90 for additional notes.

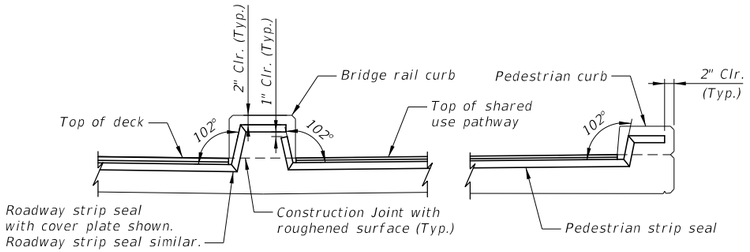


NOTE: For roadway strip seal clearances see Bents No. 3, No. 6 and No. 10 Curb Clearance Detail this sheet.

NOTE: Bent No. 3 Looking Ahead Online shown, & Bent No. 6 similar.

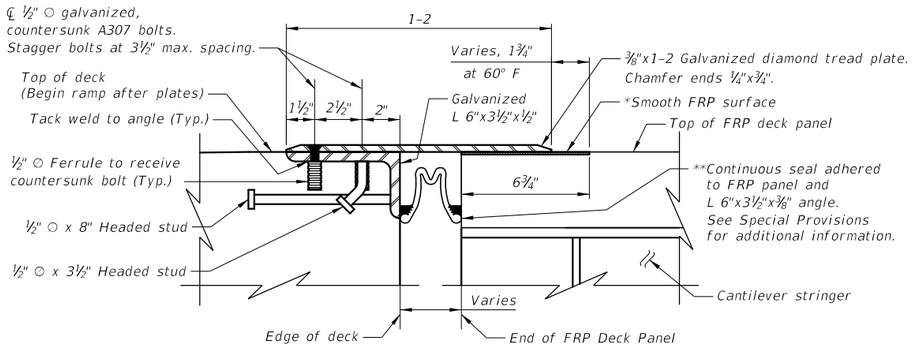
BENTS NO. 3 AND NO. 6 CURB CLEARANCE DETAIL AT FRP

No Scale



BENTS NO. 3, NO. 6 AND NO. 10 CURB CLEARANCE DETAIL

No Scale



*NOTE: Provide smooth surface on top of FRP for the limits shown, that will not gouge, gall or otherwise damage either the FRP or tread plate and does not require lubrication.

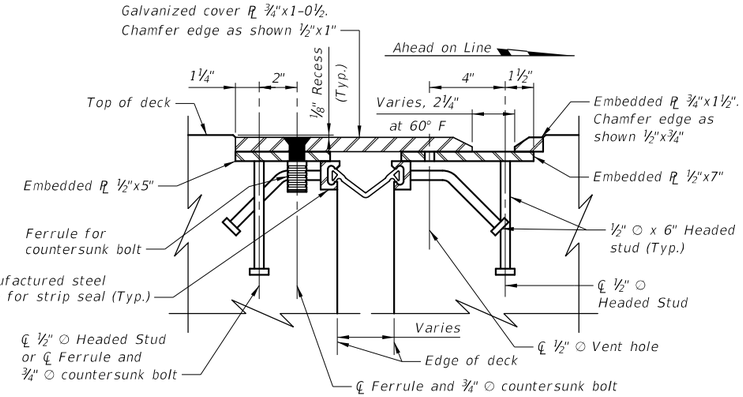
**NOTE: Set depth per manufacturer recommendation. Modify FRP end as needed to meet depth requirement.

NOTE: Alternate horizontal and vertical headed studs, match bolt spacing.

NOTE: Bent No. 3 shown, Bent No. 6 similar but opposite hand.

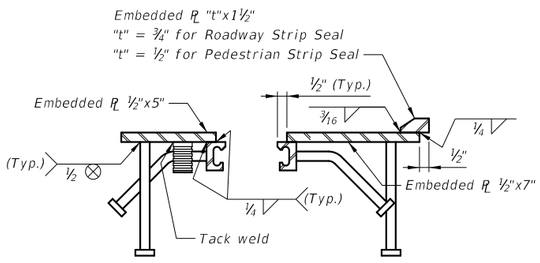
A / B90 FRP EXPANSION JOINT

Scale ~ 3" = 1'-0"



B / B90 ROADWAY STRIP SEAL WITH COVER PLATE

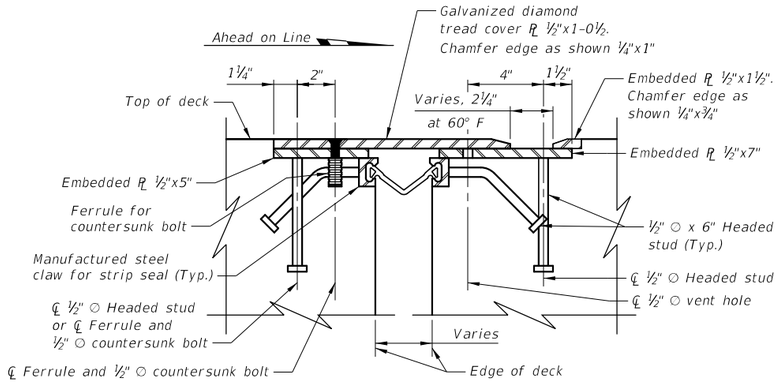
Scale ~ 3" = 1'-0"



NOTE: Vent holes and holes for countersunk bolts not shown for clarity.

EMBEDDED PLATE WELDING DETAIL

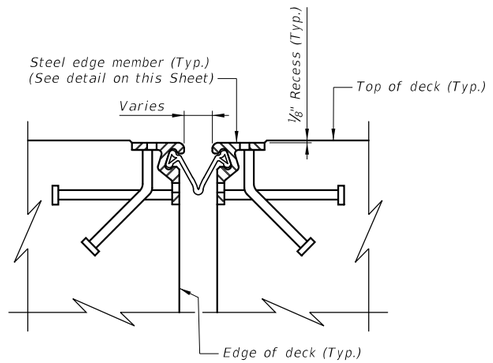
Scale ~ 3" = 1'-0"



NOTE: Bent No. 3 shown, Bent No. 6 and No. 10 similar.

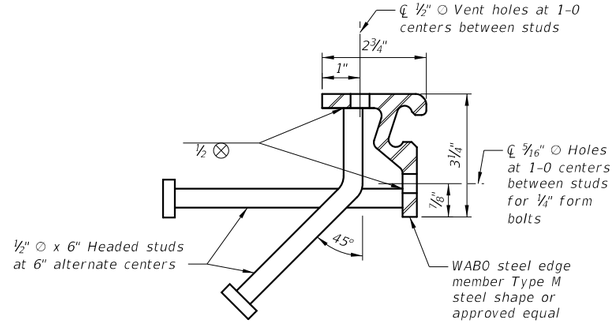
C / B90 PEDESTRIAN STRIP SEAL

Scale ~ 3" = 1'-0"



D / B90 ROADWAY STRIP SEAL WITHOUT COVER PLATE

Scale ~ 3" = 1'-0"



NOTE: Set steel edge members ⅛" below finished grade of deck.

STEEL EDGE MEMBER AND ANCHORAGE SYSTEM

Scale ~ 6" = 1'-0"

HDR

SHEET NO. B91

STRIP SEAL EXPANSION JOINT DETAILS (SHEET 2 OF 2)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED					
REVISED					
REVISED					
REVISED				3-21-19	A.C.W.
CHECKED				3-18-19	K.J.A.
DRAWN				3-01-19	B.K.C.
DESIGNED					

...\8807000\reljdz03.dgn

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/29/2019 9:33:00 AM

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23989

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

DRAIN TYPE & LOCATION - PHASE 1

Drain	Station	Offset	Type
SD1	105+84.66	37.17' Lt.	Shared Use Path Scupper Type 1
SD2	105+84.66	23.0' Lt.	Roadway Scupper Type 1
SD3	105+89.65	23.0' Lt.	Roadway Scupper Type 1
SD4	109+95.85	23.0' Lt.	Roadway Scupper Type 1
SD5	110+18.83	23.0' Lt.	Roadway Scupper Type 1
SD6	110+41.82	23.0' Lt.	Roadway Scupper Type 1
SD7	110+41.82	37.17' Lt.	Shared Use Path Scupper Type 2
SD8	110+64.80	23.0' Lt.	Roadway Scupper Type 1
SD9	110+64.80	37.17' Lt.	Shared Use Path Scupper Type 2
SD10	110+87.78	23.0' Lt.	Roadway Scupper Type 1
SD11	110+87.78	37.17' Lt.	Shared Use Path Scupper Type 2
SD12	111+41.32	23.0' Lt.	Roadway Scupper Type 1
SD13	111+46.32	23.0' Lt.	Roadway Scupper Type 1
SD14	111+46.32	37.17' Lt.	Shared Use Path Scupper Type 1
SD15	112+90.21	23.0' Lt.	Roadway Scupper Type 1
SD16	112+95.21	23.0' Lt.	Roadway Scupper Type 1
SD17	113+00.20	23.0' Lt.	Roadway Scupper Type 1
SD18	113+00.20	37.17' Lt.	Shared Use Path Scupper Type 1
SD19	113+85.80	27.25' Lt.	Shared Use Path Scupper Type 1
SD20	114+11.00	28.73' Lt.	Shared Use Path Scupper Type 1
SD21	114+19.08	26.03' Lt.	Shared Use Path Scupper Type 1
SD22	114+36.77	26.31' Lt.	Roadway Scupper Type 1
SD23	114+37.08	27.71' Lt.	Shared Use Path Scupper Type 1
SD24	114+42.88	28.83' Lt.	Roadway Scupper Type 1
SD25	114+47.35	30.71' Lt.	Roadway Scupper Type 1

NOTE: Offset is measured from ℄ Roadway & ℄ Bridge to flowline at ℄ scupper.

DRAIN TYPE & LOCATION - PHASE 2

Drain	Station	Offset	Type
ND1	105+84.66	24.17' Rt.	Shared Use Path Scupper Type 1
ND2	105+84.66	23.0' Rt.	Roadway Scupper Type 1
ND3	105+89.65	23.0' Rt.	Roadway Scupper Type 1
ND4	109+95.85	23.0' Rt.	Roadway Scupper Type 1
ND5	110+18.83	23.0' Rt.	Roadway Scupper Type 1
ND6	110+41.82	23.0' Rt.	Roadway Scupper Type 1
ND7	110+41.82	24.17' Rt.	Shared Use Path Scupper Type 1
ND8	110+64.80	23.0' Rt.	Roadway Scupper Type 1
ND9	110+64.80	24.17' Rt.	Shared Use Path Scupper Type 1
ND10	110+85.03	24.17' Rt.	Shared Use Path Scupper Type 1
ND11	110+85.03	23.0' Rt.	Roadway Scupper Type 1
ND12	111+41.32	23.0' Rt.	Roadway Scupper Type 1
ND13	111+46.32	23.0' Rt.	Roadway Scupper Type 1
ND14	111+46.32	24.17' Rt.	Shared Use Path Scupper Type 1
ND15	112+90.21	23.0' Rt.	Roadway Scupper Type 1
ND16	112+95.21	23.0' Rt.	Roadway Scupper Type 1
ND17	113+00.20	23.0' Rt.	Roadway Scupper Type 1
ND18	113+00.20	24.17' Rt.	Shared Use Path Scupper Type 1
ND19	114+34.60	24.44' Rt.	Roadway Scupper Type 2
ND20	114+39.60	24.53' Rt.	Roadway Scupper Type 2
ND21	114+44.60	24.61' Rt.	Roadway Scupper Type 2
ND22	114+49.59	24.70' Rt.	Roadway Scupper Type 2
ND23	114+49.59	25.87' Rt.	Shared Use Path Scupper Type 1

NOTE: Offset is measured from ℄ Roadway & ℄ Bridge to flowline at ℄ scupper.

NOTES

For all FRP components including the Shared Use Path Scupper Type 1, Shared Use Path Scupper Type 2, scupper downspouts, and the longitudinal drainage system use a color that matches the steel paint finish coat color. See Sheet No. B6 for additional information. Submit color chip samples for approval.

Use Concrete Gray per Standard Specification Table 559-1 for all fiberglass pipe attached to Bents No. 2, No. 7, No. 10 & No. 13.

Use steel meeting AASHTO M270 GR36 or GR50 for bar and plate steel and split clamps.

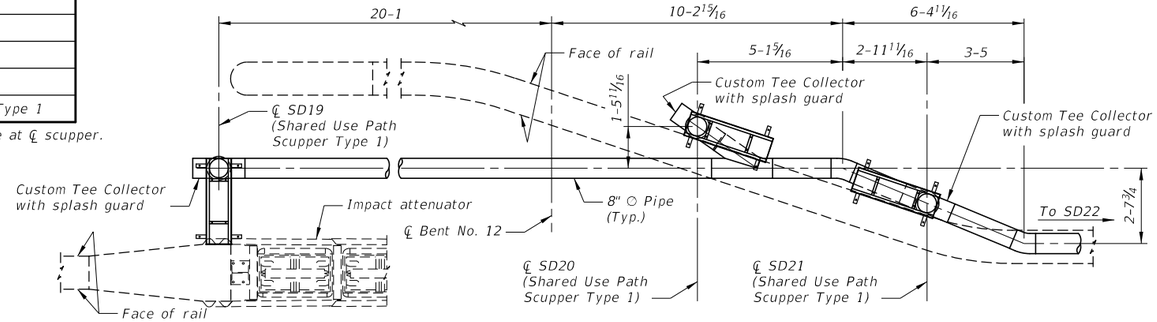
Use structural steel tubing per Standard Specifications.

Use material meeting ASTM A307 for all bolts and threaded rods. Use heavy hex nuts and hardened washers per the Standard Specifications.

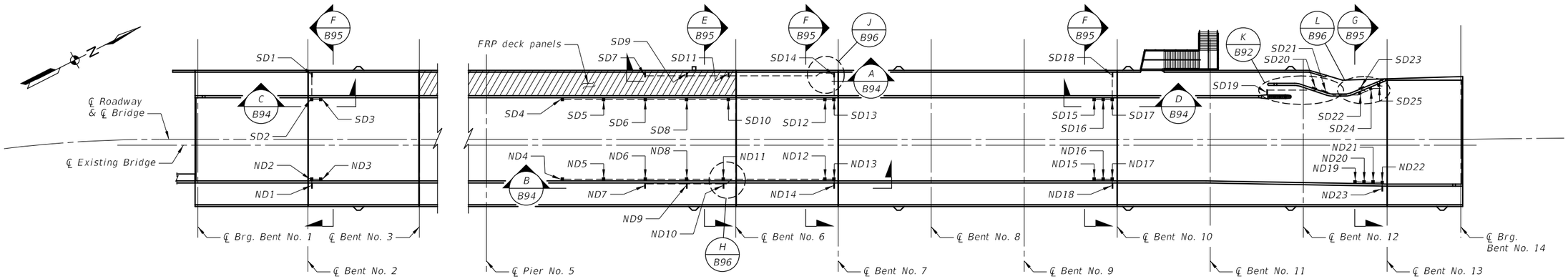
Galvanize all steel per the Standard Specifications.

Include all costs to furnish and install scuppers, FRP pipe and pipe supports in the lump sum price for Drainage Structure.

See Special Provisions for additional requirements.



K / B92 DETAIL K
Scale ~ 3/8" = 1'-0"



DECK DRAIN LOCATION PLAN
Scale ~ 1" = 30'-0"

HDR

SHEET NO. B92

DECK DRAIN LOCATION DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED			
REVISED			
REVISED			
REVISED			
CHECKED	3-28-19	B.K.C.	
DRAWN	2-21-19	G.H.S.	
DESIGNED	2-21-19	S.J.S.	

...8807000bmdaz13.dgn
7/25/2019 2:13:23 PM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

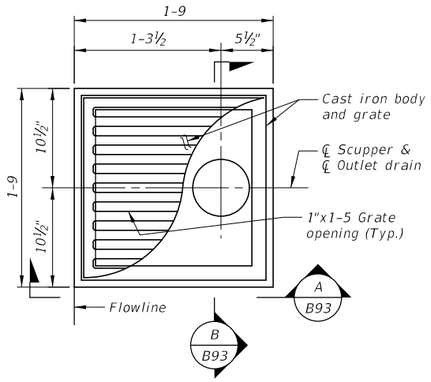
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23990

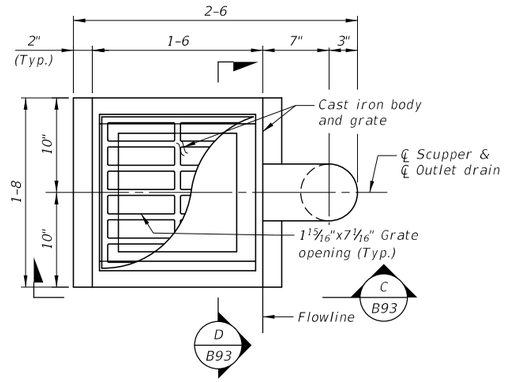
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



ROADWAY SCUPPER TYPE 1 – PLAN

Scale ~ 1½" = 1'-0"



ROADWAY SCUPPER TYPE 2 – PLAN

Scale ~ 1½" = 1'-0"

NOTES

Orientate grate openings to be perpendicular to traffic.

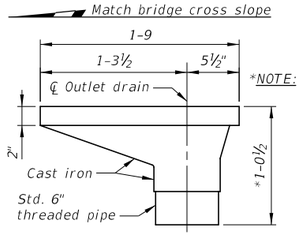
Neenah Foundry Company R-3952 Scupper with R3952 Type "D" Grate shown for Roadway Scupper Type 1. A similar alternate scupper and grate may be submitted for approval. Provide a cast iron scupper that matches the geometry shown and a cast iron grate with at least 158 in² of intake area.

Neenah Foundry Company R-3935 Scupper with R3935 Type "C" Grate shown for Roadway Scupper Type 2. A similar alternate scupper and grate may be submitted for approval. Provide a cast iron scupper that matches the geometry shown and a cast iron grate with at least 86 in² of intake area.

ACO Infrastructure 36" Scupper with galvanized frame with ACO FG200 longitudinal ductile Iron ADA compatible grate shown for Shared Use Path Scupper Type 1. A similar alternate scupper and grate may be submitted for approval. Match the geometry of the scupper and provide an ADA compliant grate with at least 117 in² of intake area.

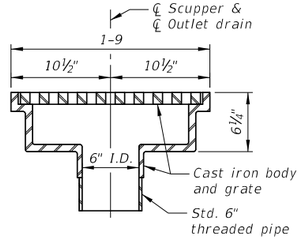
Provide a custom scupper matching the geometry shown with ACO FG200 longitudinal ductile Iron ADA compatible grate for Shared Use Path Scupper Type 2. A similar alternate ADA compatible grate with at least 117 in² of intake area may be submitted for approval. See Special Provisions for additional requirements.

See Sheet No. B92 for additional notes.



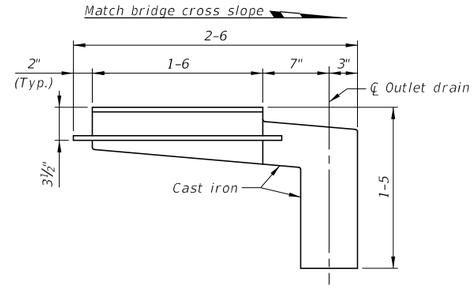
A B93 VIEW A

Scale ~ 1½" = 1'-0"



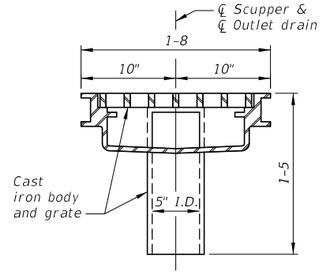
B B93 SECTION B

Scale ~ 1½" = 1'-0"



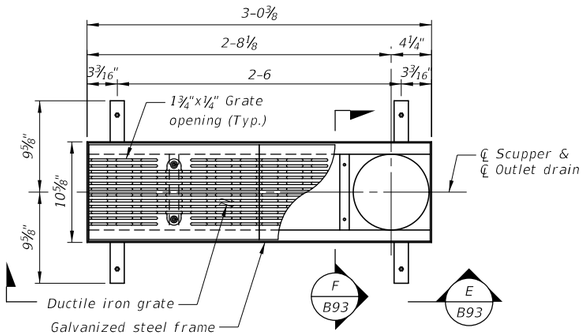
C B93 VIEW C

Scale ~ 1½" = 1'-0"



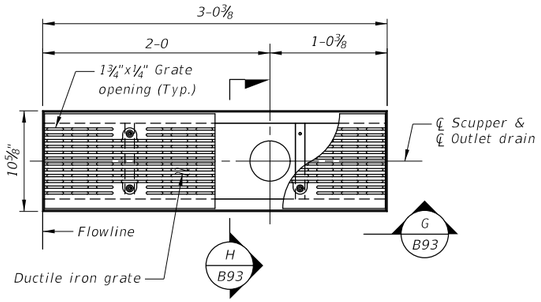
D B93 SECTION D

Scale ~ 1½" = 1'-0"



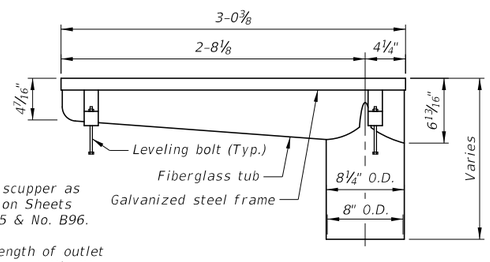
SHARED USE PATH SCUPPER TYPE 1 – PLAN

Scale ~ 1½" = 1'-0"



SHARED USE PATH SCUPPER TYPE 2 – PLAN

Scale ~ 1½" = 1'-0"

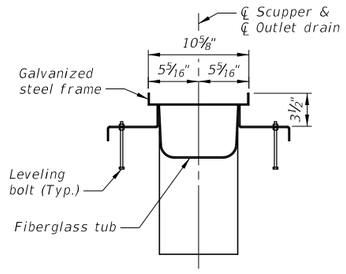


NOTE: Orient scupper as shown on Sheets No. B95 & No. B96.

NOTE: Vary length of outlet pipe to meet Min./Max. overlap with the connector. See Sheet No. B95 for detail.

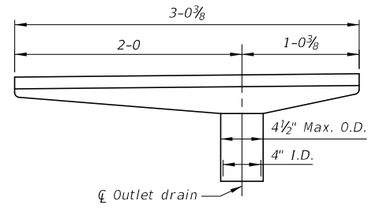
E B93 VIEW E

Scale ~ 1½" = 1'-0"



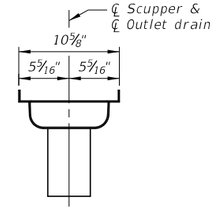
F B93 SECTION F

Scale ~ 1½" = 1'-0"



G B93 VIEW G

Scale ~ 1½" = 1'-0"



H B93 SECTION H

Scale ~ 1½" = 1'-0"

SHEET NO. B93

DECK DRAIN SCUPPER DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		
REVISED		
REVISED		
REVISED	CHECKED	3-28-19 B.K.C.
	DRAWN	2-21-19 G.H.S.
	DESIGNED	2-21-19 S.J.S.

...8807000bmdez14.dgn

3/16/2020 12:28:15 PM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23991

HDR

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

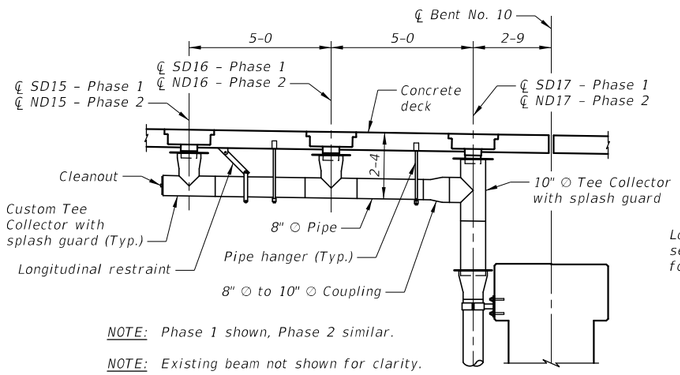
AWARD COPY

NOTES

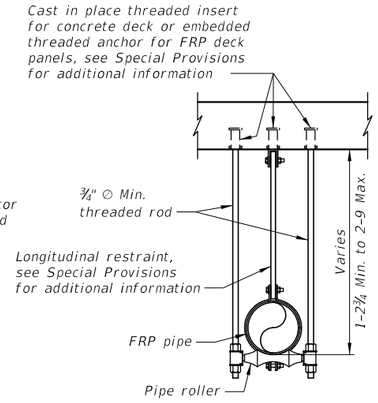
Match longitudinal pipe grade to longitudinal deck grade.

Use inline expansion devices capable of accommodating a total unfactored movement of 4".

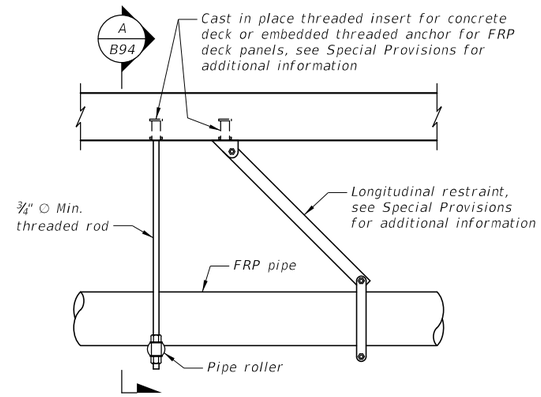
See Sheet No. B92 for additional notes.



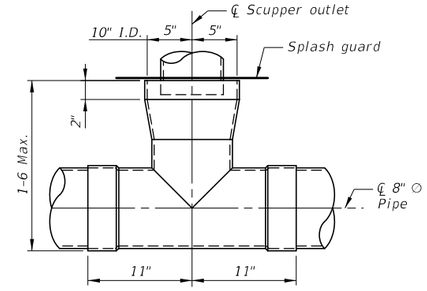
D / B92 **SECTION D**
Scale ~ ⅜" = 1'-0"



A / B94 **SECTION A**
No Scale

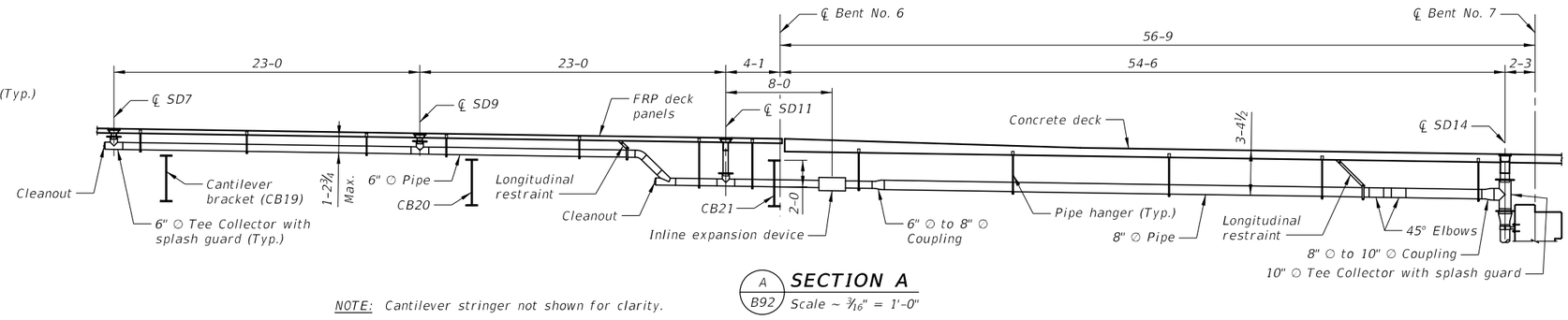


PIPE HANGER & LONGITUDINAL RESTRAINT DETAIL
No Scale



CUSTOM TEE COLLECTOR DETAIL
Scale ~ 1½" = 1'-0"

C / B92 **SECTION C**
Scale ~ ⅜" = 1'-0"



NOTE: Cantilever stringer not shown for clarity.

A / B92 **SECTION A**
Scale ~ 3/16" = 1'-0"

B / B92 **SECTION B**
Scale ~ 3/16" = 1'-0"

HDR

SHEET NO. B94

DECK DRAINAGE DETAILS (SHEET 1 OF 3)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED					B.K.C.
REVISED				3-28-19	G.H.S.
REVISED				2-21-19	S.J.S.
REVISED				2-21-19	...8807000bmdez15.dgn
CHECKED					
DRAWN					
DESIGNED					

MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

7/19/2019 1:31:38 PM

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23992

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

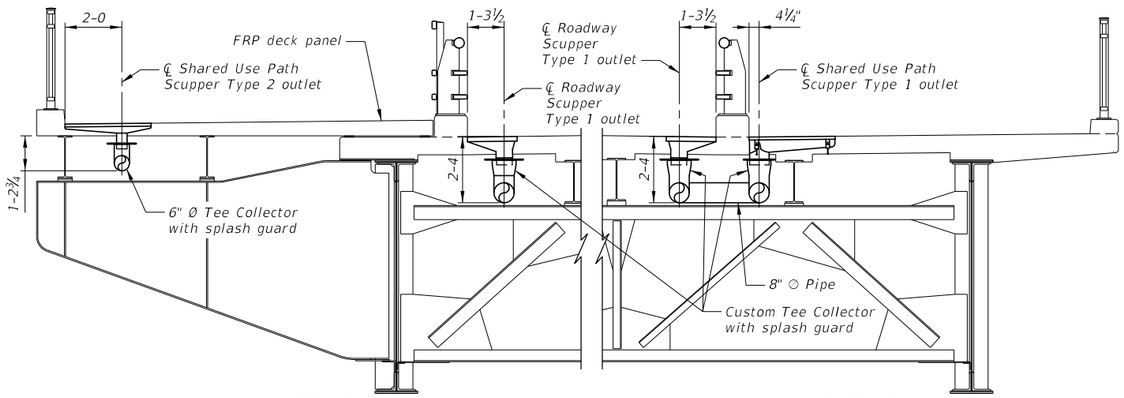
AWARD COPY

NOTES

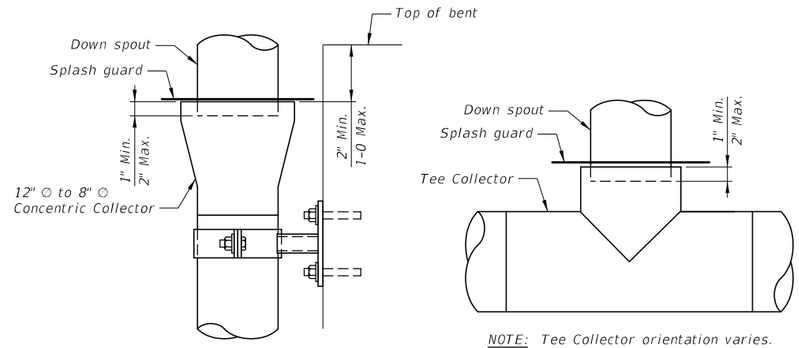
See Sheet No. B92 for additional notes.

See Sheet No. B94 for Custom Tee Collector Details.

See Sheet No. B96 for additional extended drain pipe support details.

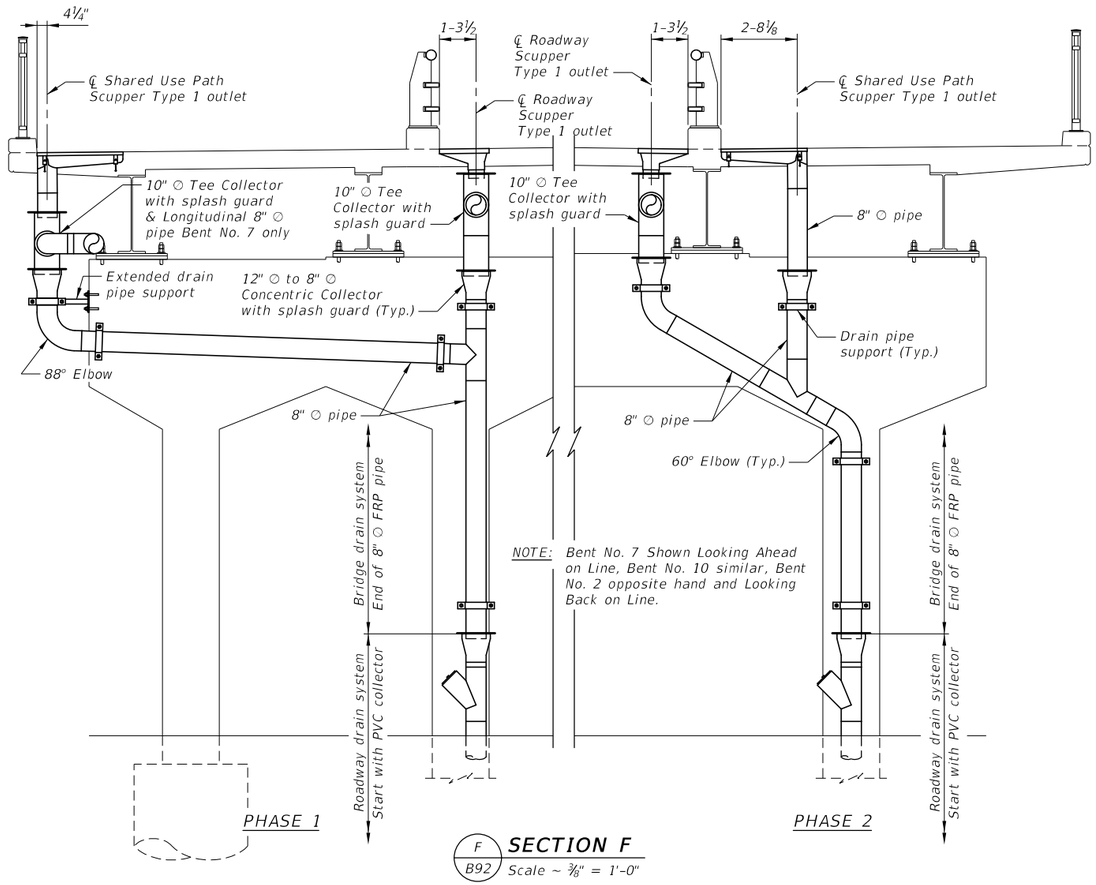


E / B92 **SECTION E**
Scale ~ ⅜" = 1'-0"



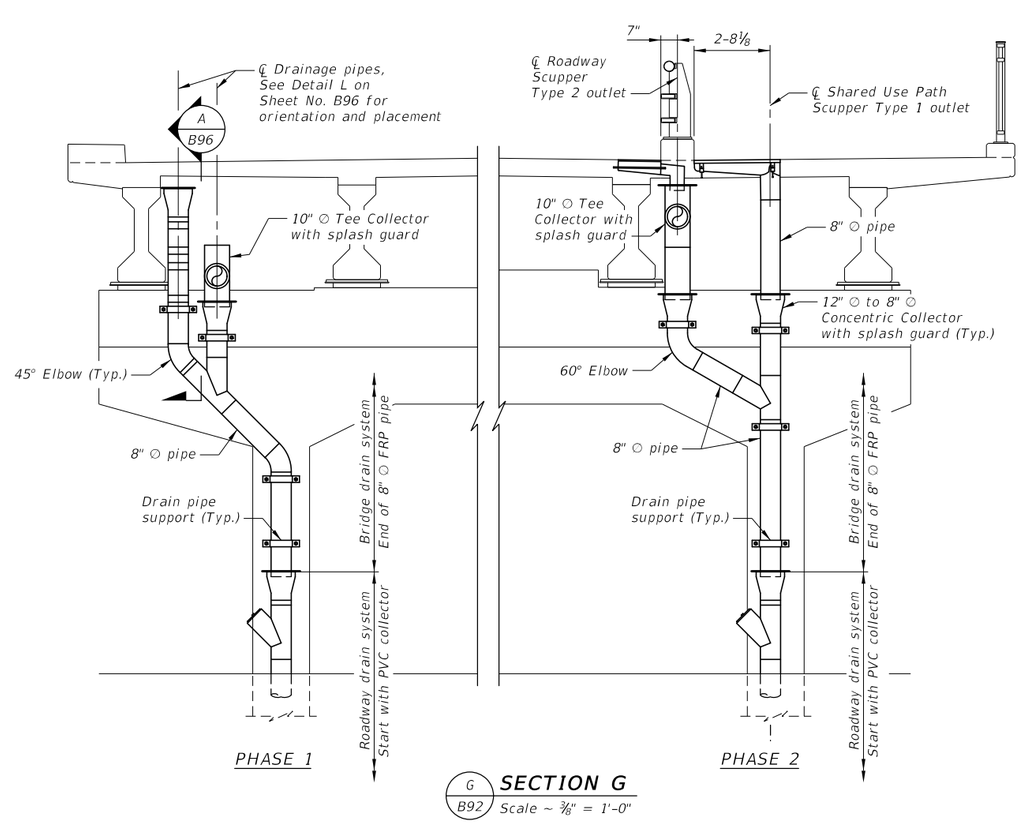
NOTE: Tee Collector orientation varies.

COLLECTOR OVERLAP DETAILS
No Scale



NOTE: Bent No. 7 Shown Looking Ahead on Line, Bent No. 10 similar, Bent No. 2 opposite hand and Looking Back on Line.

F / B92 **SECTION F**
Scale ~ ⅜" = 1'-0"



G / B92 **SECTION G**
Scale ~ ⅜" = 1'-0"

HDR

SHEET NO. B95

DECK DRAINAGE DETAILS (SHEET 2 OF 3)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED				CHECKED	3-28-19	B.K.C.
REVISED				DRAWN	2-21-19	G.H.S.
REVISED				DESIGNED	2-21-19	S.J.S.
REVISED				...\8807000bmdez16.dgn		

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/19/2019 1:32:09 PM

ROUTE U-8113

REF POINT 0+0.239

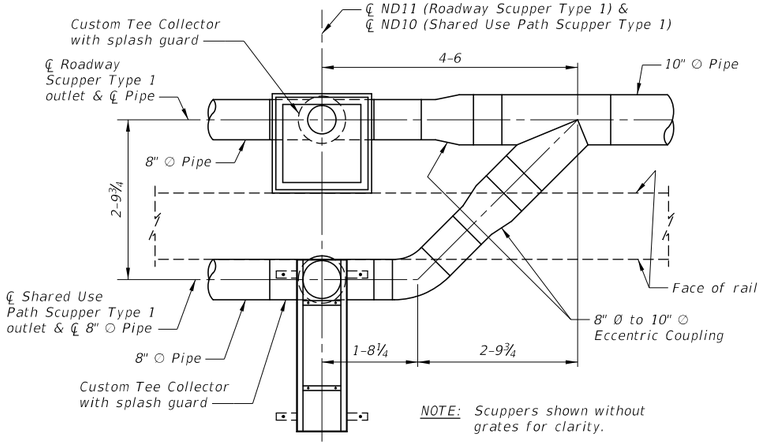
MDT STR. ID 07011

UPN NUMBER 8807000

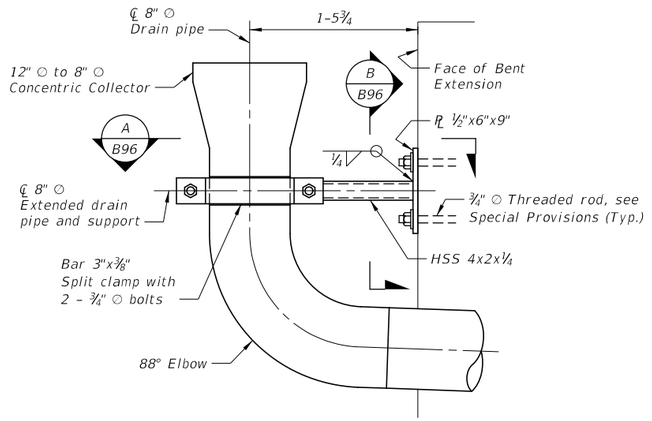
DRAWING NO. 23993

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

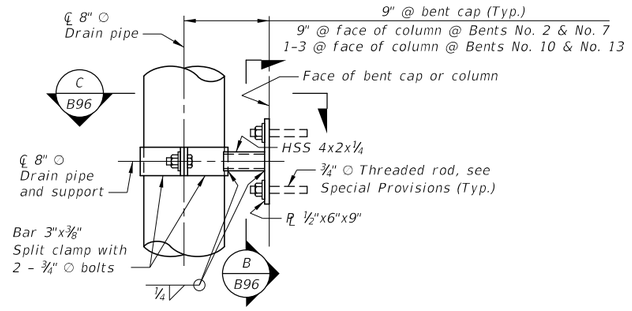
AWARD COPY



H / B92 **DETAIL H**
Scale ~ ¾" = 1'-0"



EXTENDED DRAIN PIPE SUPPORT DETAIL
No Scale

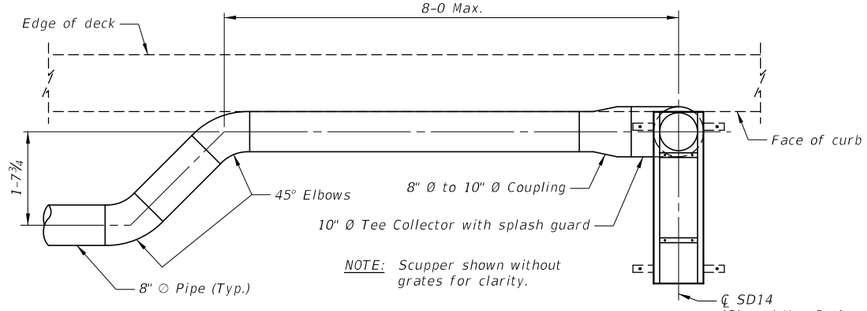


DRAIN PIPE SUPPORT DETAIL
No Scale

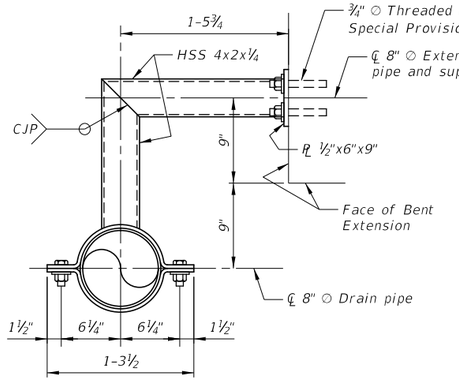
NOTES

See Sheet No. B92 for additional notes.

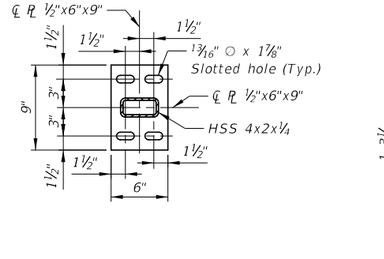
See Sheet No. B94 for Custom Tee Collector Detail.



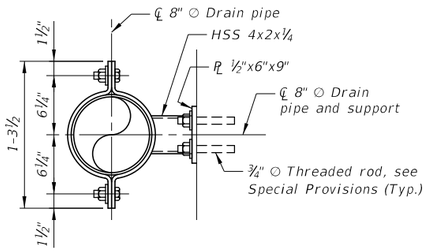
J / B92 **DETAIL J**
Scale ~ ¾" = 1'-0"



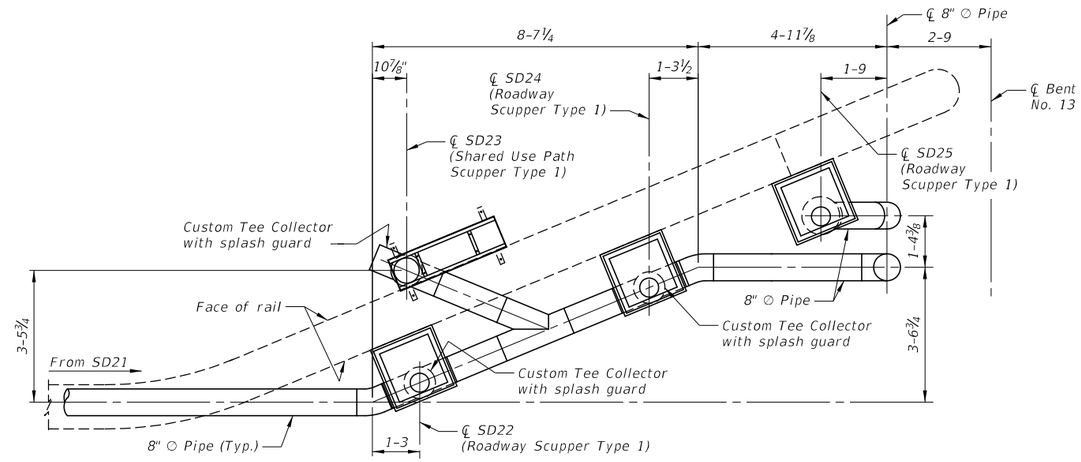
A / B96 **SECTION A**
No Scale



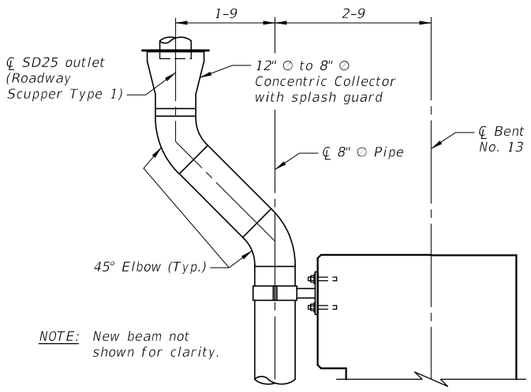
B / B96 **SECTION B**
No Scale



C / B96 **SECTION C**
No Scale



L / B92 **DETAIL L**
Scale ~ ½" = 1'-0"



A / B95 **SECTION A**
Scale ~ ¾" = 1'-0"

HDR

SHEET NO. B96

DECK DRAINAGE DETAILS (SHEET 3 OF 3)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
					B.K.C.	G.H.S.	S.J.S.
					3-28-19	2-21-19	2-21-19

...\8807000\bmdez17.dgn
7/19/2019 1:33:05 PM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

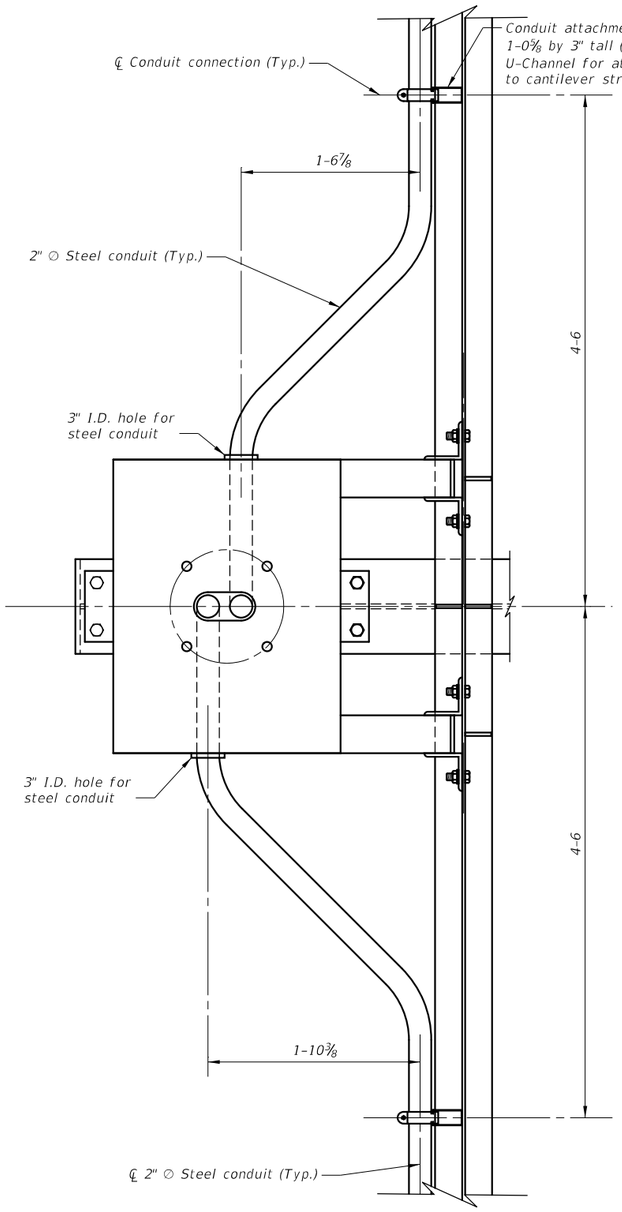
DRAWING NO. 23994

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

NOTES

Use ⅝" ∅ Threaded inserts with a safe tension working load capacity of 2000 pounds. Include the cost of the inserts in the unit price bid for Concrete Class Structure – Low Slump.

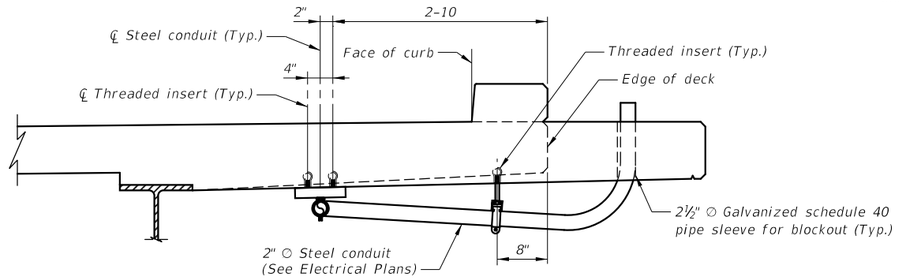


NOTE: Conduit geometry for Spans No. 3 thru No. 5 Cantilever.

CANTILEVER LUMINAIRE POLE SUPPORT PLAN

Scale ~ 1½" = 1'–0"

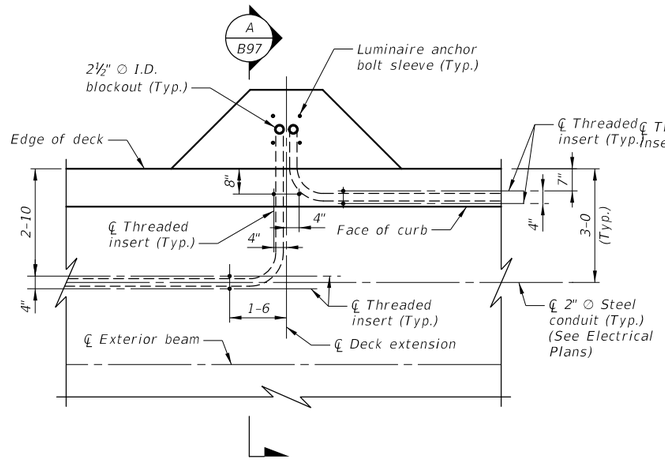
(Alden luminaire pole support components and cantilever beam not shown for clarity.)



NOTE: Deck and curb reinforcing not shown for clarity.

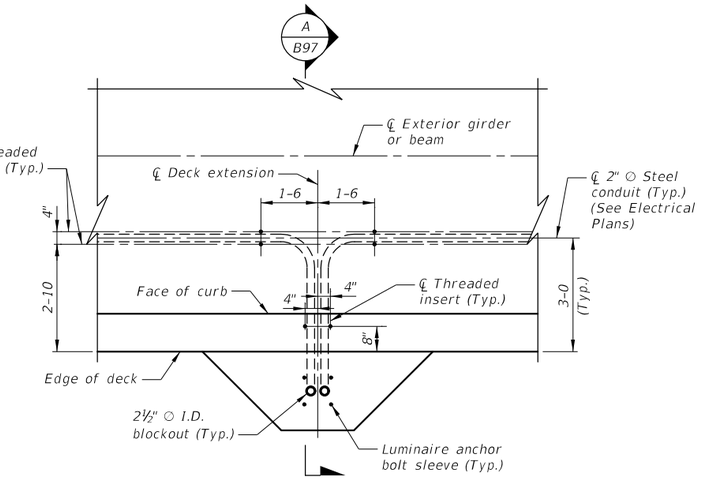
A / B97 SECTION A

Scale ~ 1" = 1'–0"



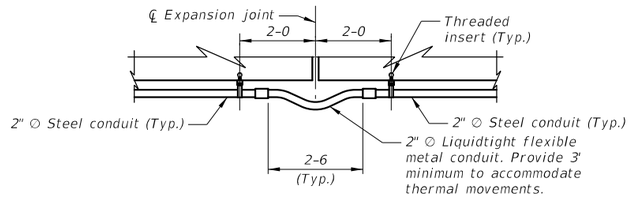
PHASE 1 DECK EXTENSION – SPAN NO. 11

Scale ~ ½" = 1'–0"



TYPICAL DECK EXTENSION FOR LUMINAIRE – PLAN

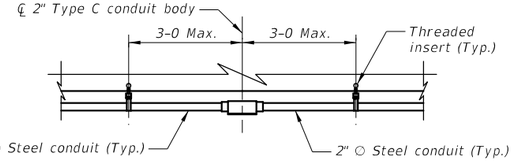
Scale ~ ½" = 1'–0"



TYPICAL CONDUIT EXPANSION JOINT DETAIL

Scale ~ ½" = 1'–0"

(Deck reinforcing not shown for clarity.)



NOTE: See electrical plans for additional conduit body information and locations.

TYPICAL CONDUIT BODY DETAIL

Scale ~ ½" = 1'–0"

(Deck reinforcing not shown for clarity.)

HDR

SHEET NO. B97

ELECTRICAL CONDUIT DETAILS (SHEET 1 OF 2)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
					03–27–19	B.K.C.	T.J.H.
					03–25–19	T.J.H.	T.J.H.
					03–25–19	T.J.H.	

...18807000bmde218.dgn

5/15/2020 9:29:55 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U–8113

REF POINT 0+0.239

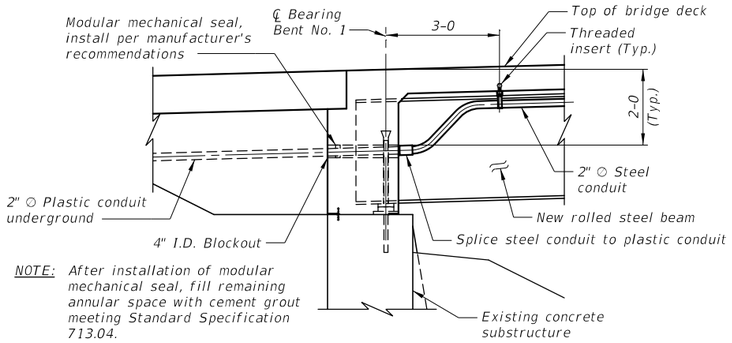
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23995

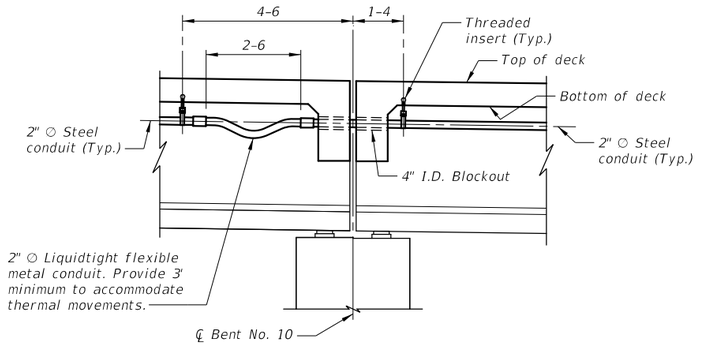
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



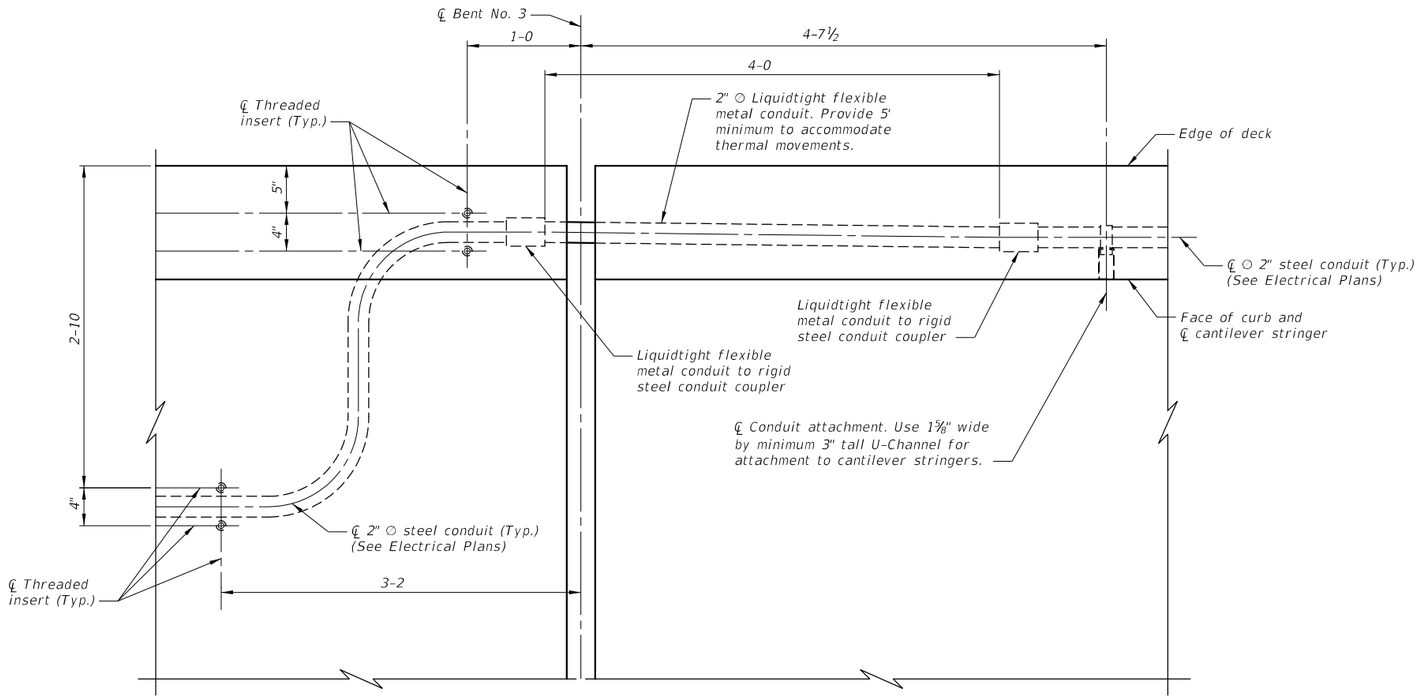
BENT NO. 1 CONDUIT BLOCKOUT DETAIL

Scale ~ ½" = 1'-0"



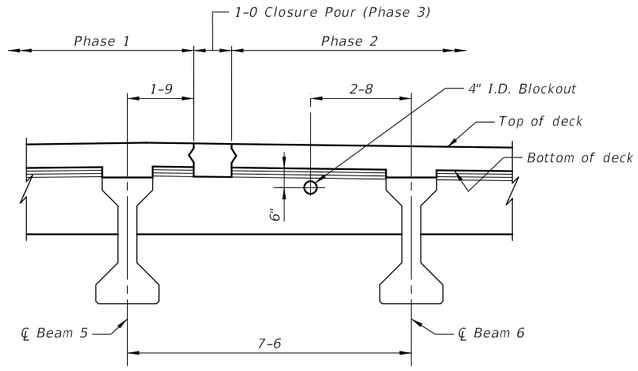
BENT NO. 10 CONDUIT EXPANSION JOINT DETAIL

Scale ~ ½" = 1'-0"
(Deck reinforcing not shown for clarity.)



BENT NO. 3 AND NO. 6 EXPANSION JOINT DETAIL

Scale ~ 1½" = 1'-0"
(Shown at Bent No. 3, Similar at Bent No. 6)



TYPICAL DIAPHRAGM BLOCKOUT

Scale ~ ½" = 1'-0"
(Deck reinforcing not shown for clarity.)
(Shown at Bent No. 8 looking ahead, similar at Bents No. 9 thru No. 12)

NOTES

Use ⅝" ∅ Threaded inserts with a safe tension working load capacity of 2000 pounds. Include the cost of the inserts in the unit price bid for Concrete Class Structure – Low Slump.

Block out all penetrations prior to casting backwall. Core drilling will not be accepted.

Include all costs associated with furnishing and installing the blockouts, modular mechanical seals and cement grout in the unit price bid for Concrete Class – Structure.

Modular mechanical seal is composed of an elastomeric seal element able to resist 15 pounds per square inch gage hydrostatic pressure. Use corrosion resistant mechanical components.

For electrical conduit penetrations either shift reinforcement or penetration hole to provide a minimum of 1" clear to all reinforcing. The location of the penetration hole can be adjusted a maximum of 3".

HDR

SHEET NO. B98

ELECTRICAL CONDUIT DETAILS (SHEET 2 OF 2)

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		CHECKED	B.K.C.
REVISED		DRAWN	T.J.H.
REVISED		DESIGNED	T.J.H.
REVISED	03-27-19	CHECKED	B.K.C.
REVISED	03-25-19	DRAWN	T.J.H.
REVISED	03-25-19	DESIGNED	T.J.H.

...8807000bmdaz19.dgn

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

5/15/2020 9:26:52 AM

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

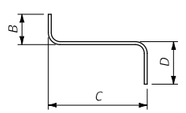
DRAWING NO. 23996

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

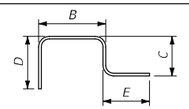
AWARD COPY

BILL OF REINFORCING STEEL

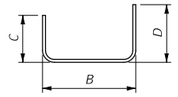
MOMENT SLAB ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



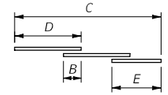
TYPE 20



TYPE 526

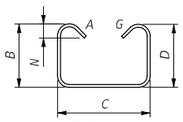


TYPE 17

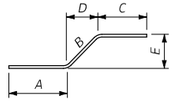


N = Number of Laps

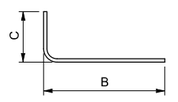
TYPE 27



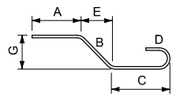
TYPE S3



TYPE 41

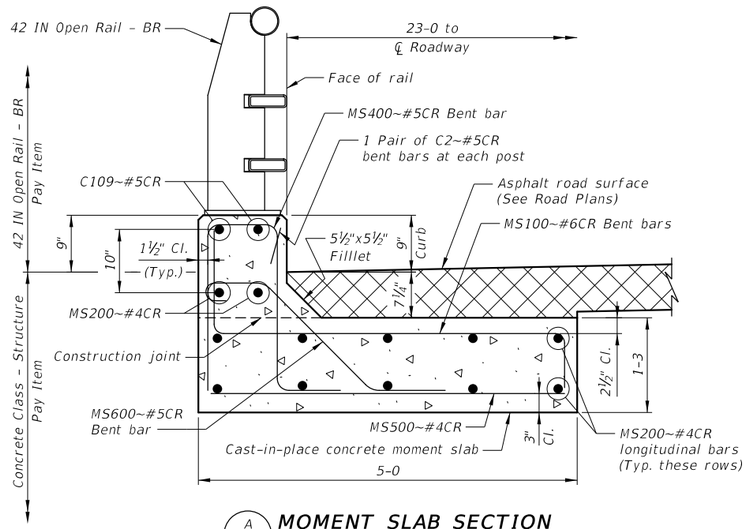


TYPE 37



TYPE 356

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
MS100	#6CR	201	20	6-10		1-5	4-8	9"			
MS101-1	#6CR	1	20	7-2½		1-5	5-0½	9"			
MS101-2	#6CR	1	20	7-2		1-5	5-0	9"			
MS101-3	#6CR	1	20	7-1½		1-5	4-11½	9"			
MS101-4	#6CR	1	20	7-1		1-5	4-11	9"			
MS101-5	#6CR	1	20	7-0½		1-5	4-10½	9"			
MS101-6	#6CR	1	20	7-0		1-5	4-10	9"			
MS101-7	#6CR	1	20	6-11		1-5	4-9	9"			
MS101-8	#6CR	1	20	6-10½		1-5	4-8½	9"			
MS102	#6CR	2	20	7-3		1-5	5-1	9"			
MS200	#4CR	12	27	110		2-8	104-8	40-0	30-0		2
MS400	#5CR	201	526	6-1½		11"	2-2¼	2-2¼	10"		
MS500	#4CR	68	STR	4-8							
MS501-1	#4CR	1	STR	5-1							
MS501-2	#4CR	1	STR	5-0							
MS501-3	#4CR	1	STR	4-10½							
MS501-4	#4CR	1	STR	4-8½							
MS600	#5CR	201	356	4-4	1-0	2-0	9"	7"	1-5	1-5	
C109	#5CR	2	27	111-3		3-4	104-8	50	11-4		2
C2	#5CR	26	41	2-6¾	11"	8¾"	11"	6¼"	6¼"		



A B99 **MOMENT SLAB SECTION**
Scale ~ 1" = 1'-0"

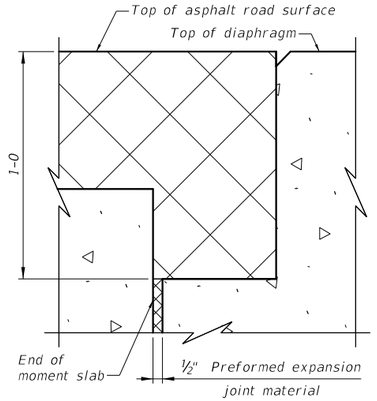
NOTES

Use Concrete Class - Structure for all moment slab concrete.

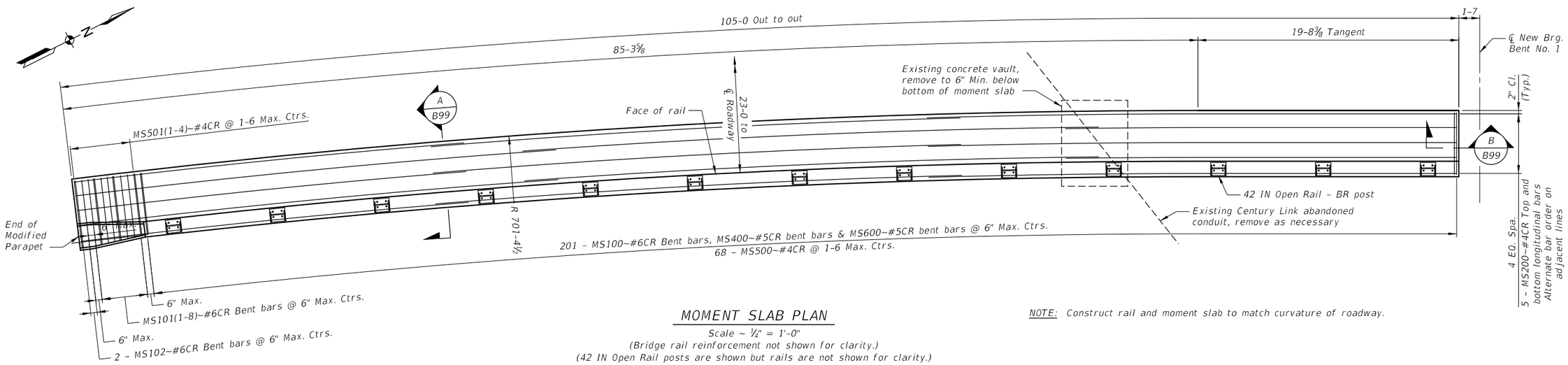
See Sheet No. B100 for bridge rail post spacing.

See Sheet No. B102 for modified parapet details.

See Std. Dwg. No. SBR-0R42 for additional bridge rail details.



B B99 **JOINT AT BRIDGE**
Scale ~ 3" = 1'-0"



MOMENT SLAB PLAN
Scale ~ ¼" = 1'-0"
(Bridge rail reinforcement not shown for clarity.)
(42 IN Open Rail posts are shown but rails are not shown for clarity.)

NOTE: Construct rail and moment slab to match curvature of roadway.

HDR

SHEET NO. B99

MOMENT SLAB DETAILS

SCALE: As Noted

BRIDGE OVER
CLARK FORK RIVER

AT STA.
110+07.43

FEDERAL AID PROJECT
STPB 8113(9)

COUNTY
MISSOULA

	CHECKED	DRAWN	DESIGNED
REVISED	05-28-19	K.J.A.	C.C.A.
REVISED	03-24-19		
REVISED	03-14-19		

...8807000brwad01.dgn
7/19/2019 3:03:50 PM

MONTANA DEPARTMENT OF TRANSPORTATION
MDT
BRIDGE BUREAU

ROUTE
U-8113

REF POINT
0+0.239

MDT STR. ID
07011

UPN NUMBER
8807000

DRAWING NO.
23997

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

NOTES

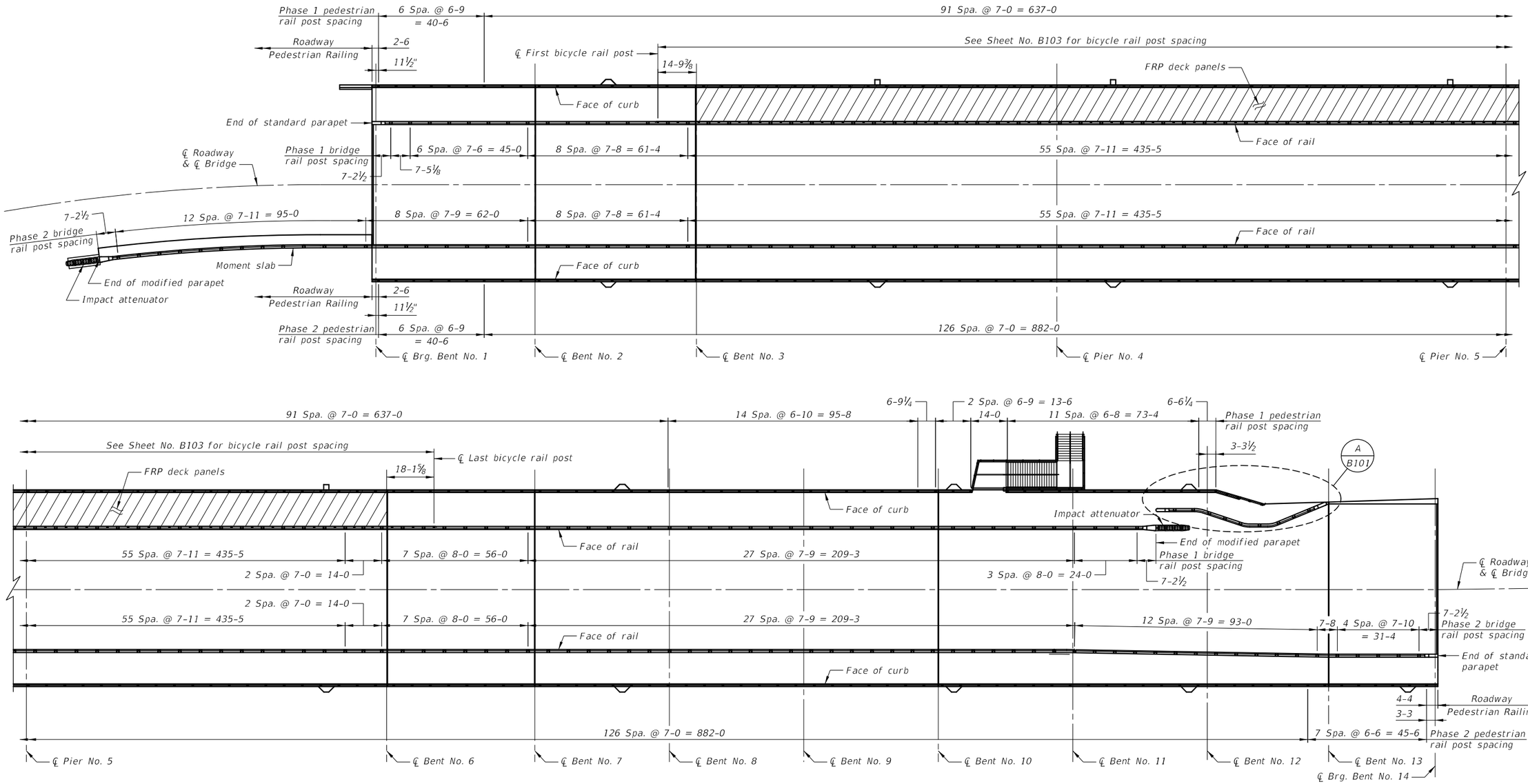
See Sheet No. B102 for modified concrete parapet details.

See Sheet No. B103 for bicycle rail details.

See Sheet No. B104 for pedestrian rail details.

See Std. Dwg. No. SBR-0R42 for 42 IN Open Rail - BR details.

See Std. Dwg. No. SBR-0R42-PP for standard parapet details.



RAILING LAYOUT PLAN

Scale ~ 1" = 20'-0"

HDR

SHEET NO. B100

RAILING LAYOUT PLAN

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED			
REVISED			
REVISED			
REVISED			
CHECKED	6-5-19	P.C.J.	
DRAWN	5-29-19	G.H.S.	
DESIGNED	5-29-19	B.K.C.	

...\8807000brdge01.dgn

7/25/2019 2:13:49 PM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

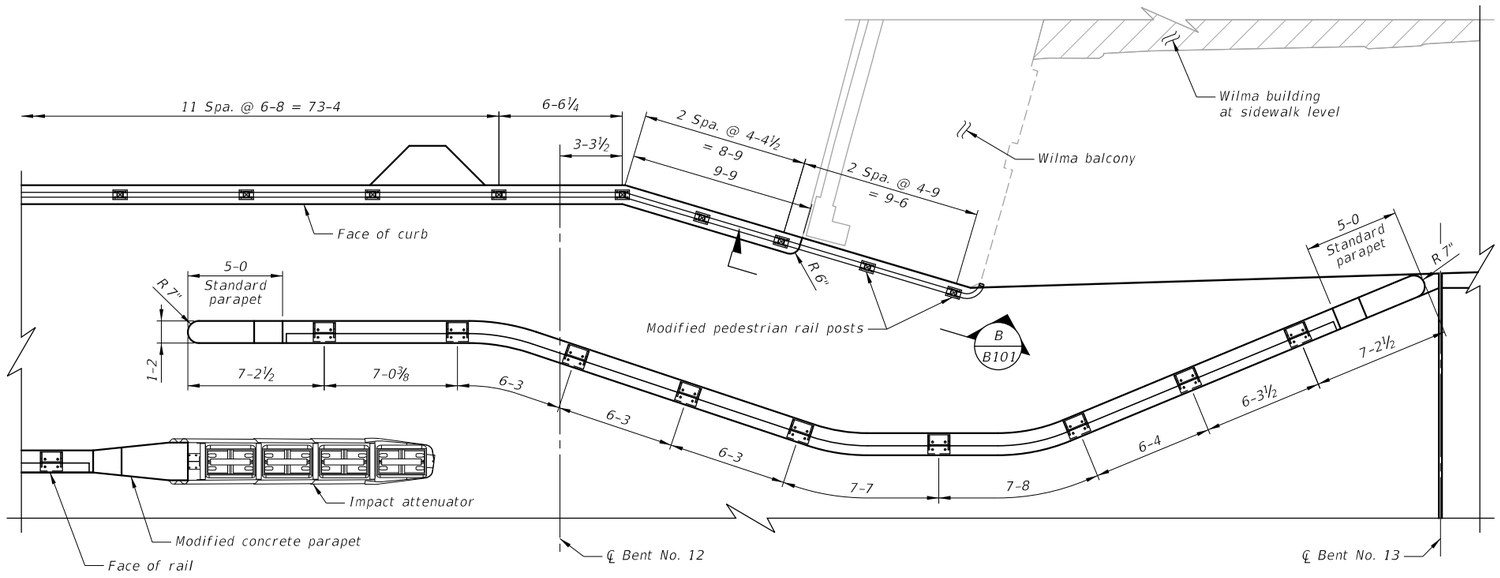
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 23998

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



A B100 **DETAIL A**
Scale ~ ¼" = 1'-0"

NOTES

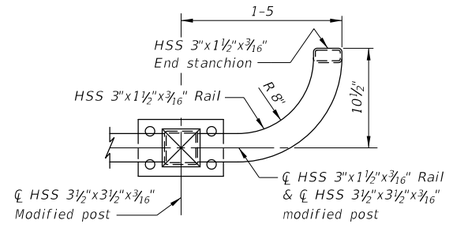
See Sheet No. B102 for modified concrete parapet details.

See Sheet No. B103 for bicycle rail details.

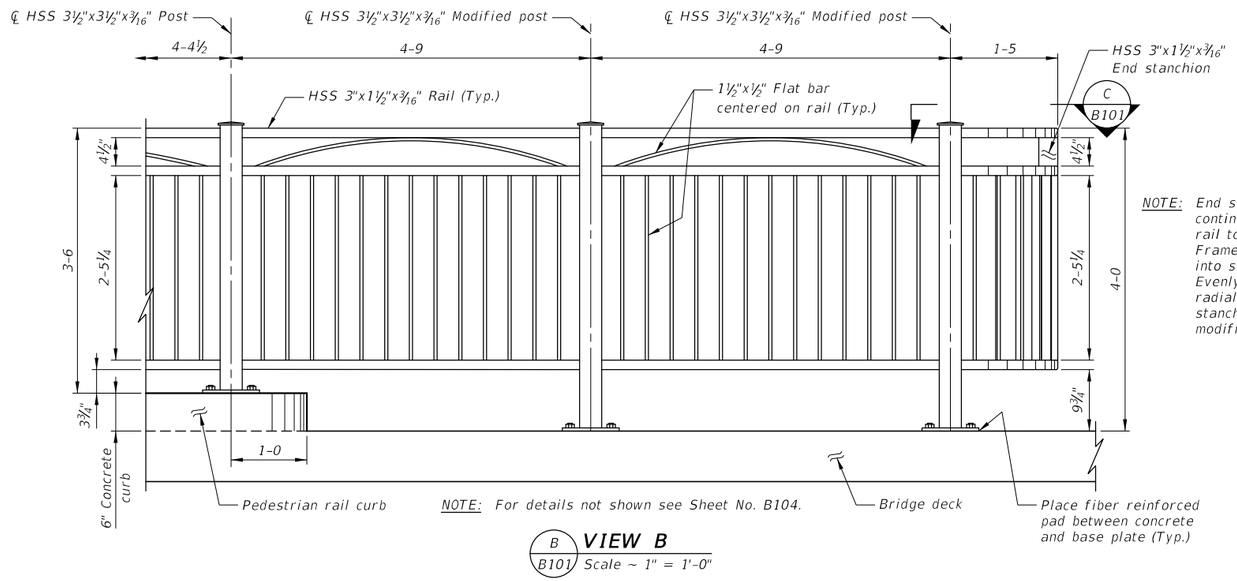
See Sheet No. B104 for pedestrian rail details.

See Std. Dwg. No. SBR-0R42 for 42 IN Open Rail - BR details.

See Std. Dwg. No. SBR-0R42-PP for standard parapet details.



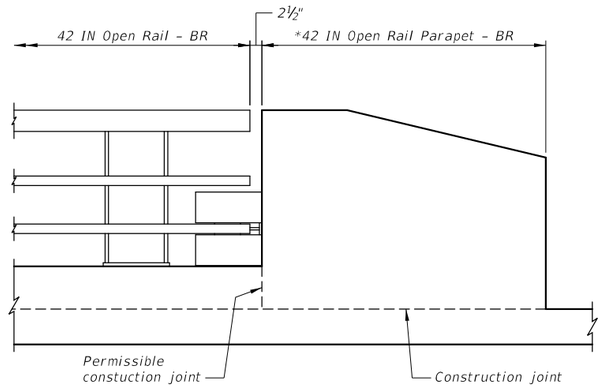
C B101 **VIEW C**
Scale ~ 1½" = 1'-0"



NOTE: End stanchion is continuous from top rail to bottom rail. Frame middle rail into side of stanchion. Evenly space pickets radially between end stanchion and last modified post.

NOTE: For details not shown see Sheet No. B104.

B B101 **VIEW B**
Scale ~ 1" = 1'-0"



*NOTE: Include all costs associated with furnishing and placing reinforcing steel in the parapet in the unit price bid for Reinforcing Steel - Corrosion Resistant.

BRIDGE RAIL PAY ITEM SCHEMATIC
Scale ~ ¾" = 1'-0"
Impact attenuator not shown for clarity.

HDR

SHEET NO. B101

RAILING LAYOUT DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED			CHECKED	P.C.J.
REVISED			DRAWN	G.H.S.
REVISED			DESIGNED	B.K.C.
REVISED	6-5-19			
	5-29-19			
	5-29-19			

...8807000bridge202.dgn
7/19/2019 3:04:47 PM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

MDT STR. ID 07011

UPN NUMBER 8807000

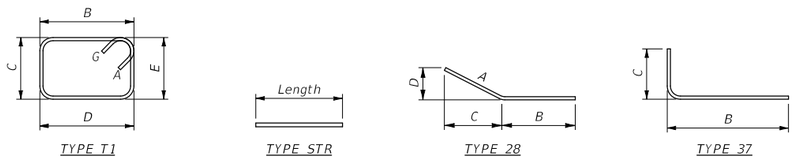
DRAWING NO. 23999

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY

BILL OF REINFORCING STEEL

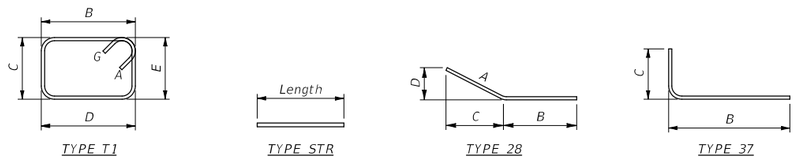
PHASE 1 MODIFIED CONCRETE PARAPETS ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
PT3	#5CR	9	37	4-11		2-0	2-11				
PT4	#5CR	9	37	2-11		10"	2-1				
PT5	#5CR	8	STR	4-8							
PT6	#5CR	3	28	4-10	3-5½	1-4½	3-4½	9¾"			
PT7	#5CR	1	T1	8-11	5½"	1-8	2-4	1-8	2-4	5½"	
PT8	#5CR	1	T1	9-3	5½"	1-8	2-6	1-8	2-6	5½"	
PT9-1	#5CR	1	T1	9-5	5½"	1-7	2-8	1-7	2-8	5½"	
PT9-2	#5CR	1	T1	9-5	5½"	1-6	2-9	1-6	2-9	5½"	
PT9-3	#5CR	1	T1	9-5	5½"	1-4	2-11	1-4	2-11	5½"	
PT9-4	#5CR	1	T1	9-5	5½"	1-3	3-0	1-3	3-0	5½"	
PT10-1	#5CR	1	T1	9-5	5½"	1-1	3-2	1-1	3-2	5½"	
PT10-2	#5CR	1	T1	9-3	5½"	1-0	3-2	1-0	3-2	5½"	
PT10-3	#5CR	1	T1	8-11	5½"	10"	3-2	10"	3-2	5½"	

BILL OF REINFORCING STEEL

PHASE 2 MODIFIED CONCRETE PARAPETS ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
PT5	#5CR	10	STR	4-8							
PT6	#5CR	3	28	4-10	3-5½	1-4½	3-4½	9¾"			
PT11	#5CR	1	T1	10-1	5½"	1-8	2-11	1-8	2-11	5½"	
PT12	#5CR	1	T1	10-5	5½"	1-8	3-1	1-8	3-1	5½"	
PT13-1	#5CR	1	T1	10-7	5½"	1-7	3-3	1-7	3-3	5½"	
PT13-2	#5CR	1	T1	10-7	5½"	1-6	3-4	1-6	3-4	5½"	
PT13-3	#5CR	1	T1	10-7	5½"	1-4	3-6	1-4	3-6	5½"	
PT13-4	#5CR	1	T1	10-9	5½"	1-3	3-8	1-3	3-8	5½"	
PT14-1	#5CR	1	T1	10-7	5½"	1-1	3-9	1-1	3-9	5½"	
PT14-2	#5CR	1	T1	10-5	5½"	1-0	3-9	1-0	3-9	5½"	
PT14-3	#5CR	1	T1	10-1	5½"	10"	3-9	10"	3-9	5½"	
PT15	#5CR	9	37	5-5		2-0	3-5				
PT16	#5CR	9	37	3-5		10"	2-7				

NOTES

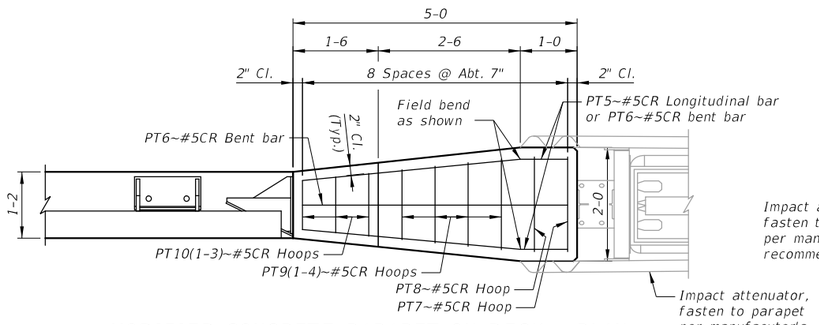
Include all costs associated with furnishing and placing Concrete Class Structure – Low Slump in the parapet in the unit price bid for 42 IN Open Rail Parapet – BR.

Include all costs associated with furnishing and placing reinforcing steel in the parapet in the unit price bid for Reinforcing Steel – Corrosion Resistant.

Include all costs associated with furnishing and installing parapet shoe assembly in the unit price bid for 42 IN Open Rail Parapet – BR.

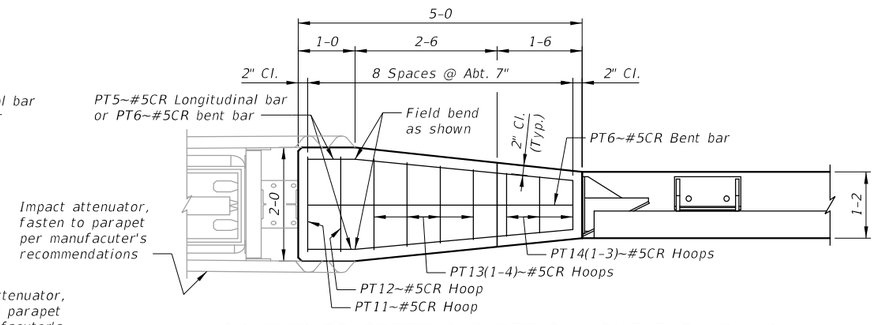
See Sheet No. B99 for moment slab details.

See Std. Dwg. No. SBR-0R42-PP for standard parapet details not shown.



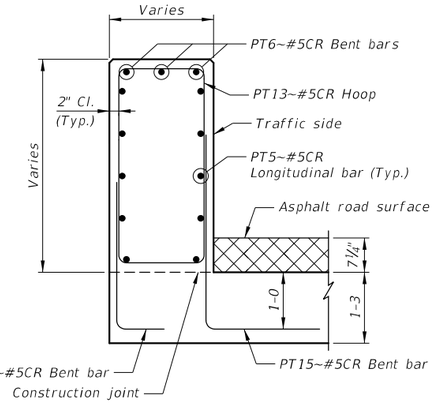
MODIFIED CONCRETE PARAPET ON DECK – PLAN

Scale ~ ¾" = 1'-0"



MODIFIED CONCRETE PARAPET ON MOMENT SLAB – PLAN

Scale ~ ¾" = 1'-0"

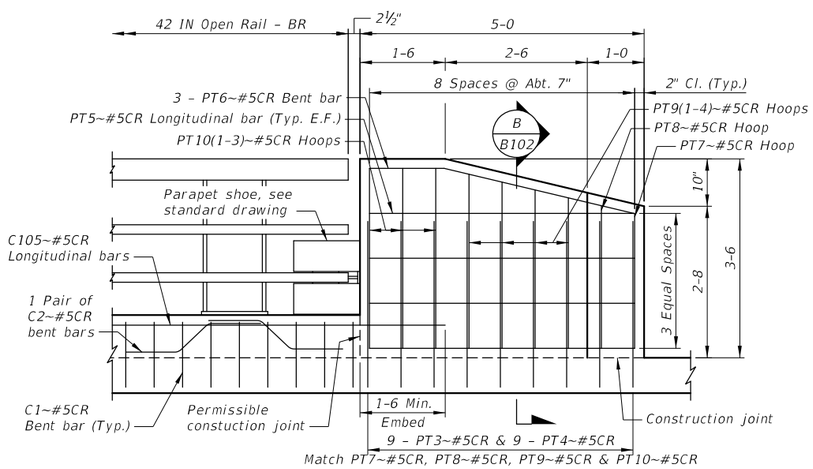


NOTE: Moment slab reinforcing not shown of clarity.

A B102 SECTION ON MOMENT SLAB

Scale ~ ¾" = 1'-0"

NOTE: Submit connection details for the impact attenuator to the deck for approval. Provide anchors cast into the deck.

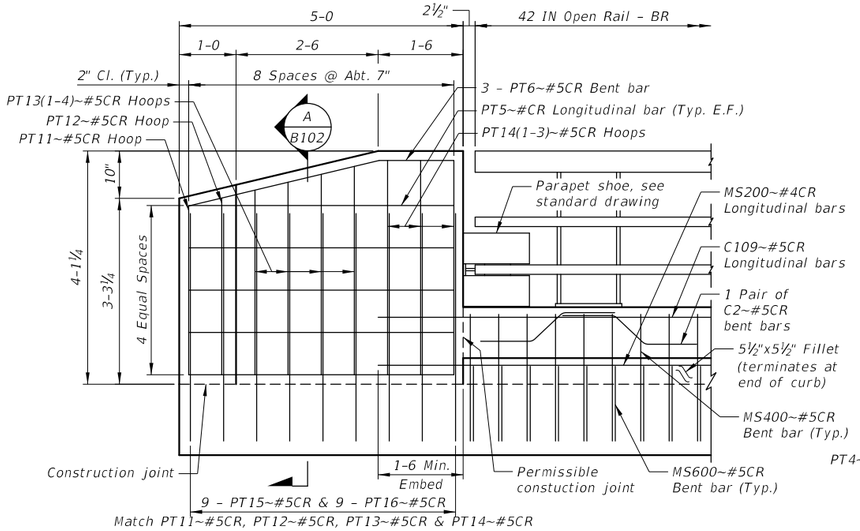


MODIFIED CONCRETE PARAPET ON DECK – ELEVATION

Scale ~ ¾" = 1'-0"

Impact attenuator and additional deck reinforcing not shown for clarity.

Adjust reinforcing the Min. amount necessary to provide 1" Min. Cl. around attachment bolts for the impact attenuator.

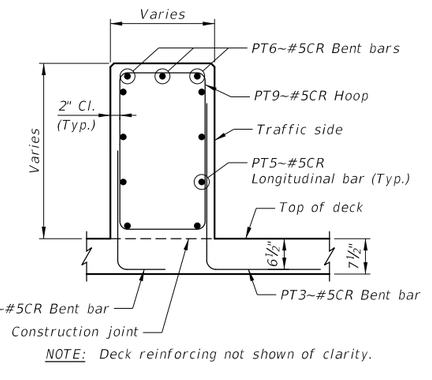


MODIFIED CONCRETE PARAPET ON MOMENT SLAB – ELEVATION

Scale ~ ¾" = 1'-0"

Impact attenuator and additional moment slab reinforcing not shown for clarity.

Adjust reinforcing the Min. amount necessary to provide 1" Min. Cl. around attachment bolts for the impact attenuator.



NOTE: Deck reinforcing not shown of clarity.

B B102 SECTION ON DECK

Scale ~ ¾" = 1'-0"

HDR

SHEET NO. B102

MODIFIED CONCRETE PARAPET DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		B.K.C.
REVISED		G.H.S.
REVISED	6-5-19	P.C.J.
CHECKED	5-29-19	
DRAWN	5-29-19	
DESIGNED		

...\8807000brrdet03.dgn
5/15/2020 9:27:38 AM

MONTANA MDT DEPARTMENT OF TRANSPORTATION BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

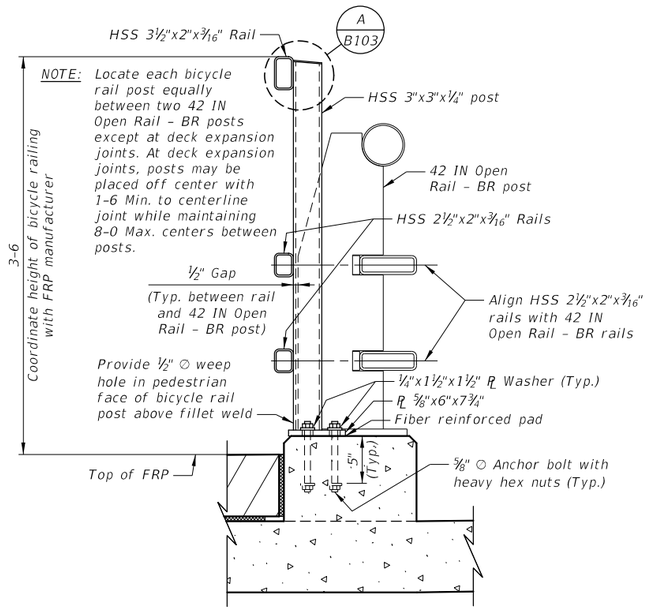
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 24000

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

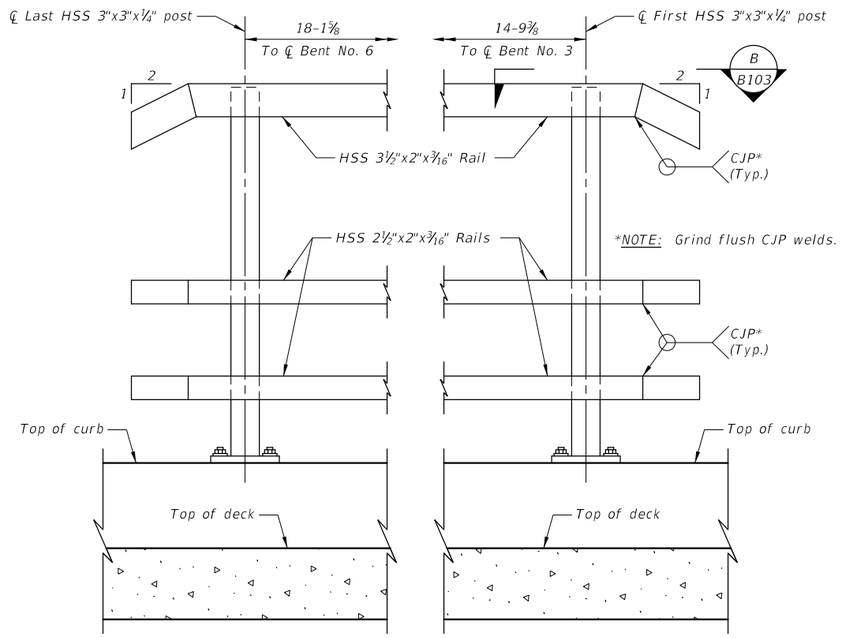
AWARD COPY



NOTE: Deck and curb reinforcing not shown for clarity.

BICYCLE RAIL TYPICAL SECTION

Scale ~ 1½" = 1'-0"



NOTE: 42 IN Open Rail – BR not shown for clarity.

BICYCLE RAIL PARTIAL ELEVATION

Scale ~ 1½" = 1'-0"
(Looking at pedestrian face of bicycle railing)

NOTES

Use structural steel meeting ASTM A500 Grade B for all structural tube sections.

Use structural steel meeting AASHTO M270 Grade 50 for all plate steel.

Use ASTM F1554 Grade 36 for all anchor bolts and furnish heavy hex nuts and hardened washers per the Standard Specifications. Galvanize all anchor bolts, nuts and washers per ASTM F2329.

Use galvanized domed head ⅝" ∅ ASTM A307 Grade A bolts for all connections. Provide 1 1/16" ∅ holes unless noted otherwise.

Submit shop drawings for approval prior to ordering materials.

Install all posts plumb, shim as necessary. Install rails parallel to grade.

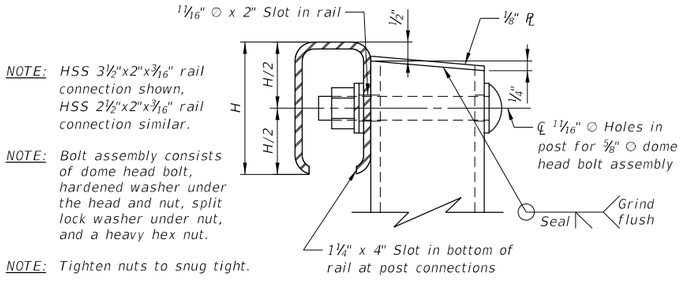
Galvanize and apply powder coat finish to bicycle rail per the Pedestrian Rail Special Provision. Powder coat finish to match Federal Specification 595B Pigment Code FS 27038 Black.

Provide additional vent holes for galvanizing process, as required, and plug all additional holes after galvanization. Show the additional holes in the shop drawings for approval.

See Standard Specifications for requirements for fiber reinforced pads under posts.

Locate rail splices so that the splices are spaced no greater than 60-0, each rail is connected to at least 2 posts, and a splice is located in the bay that crosses an expansion joint.

Include all costs associated with furnishing and installing bicycle rail, posts, anchor rods, and associated hardware in the unit price for Hand Rail.



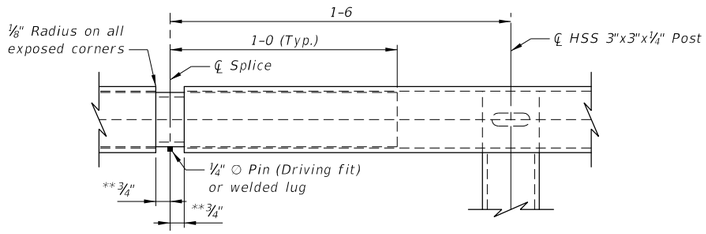
NOTE: HSS 3½"x2"x3/16" rail connection shown, HSS 2½"x2"x3/16" rail connection similar.

NOTE: Bolt assembly consists of dome head bolt, hardened washer under the head and nut, split lock washer under nut, and a heavy hex nut.

NOTE: Tighten nuts to snug tight.

A B103 **DETAIL A**

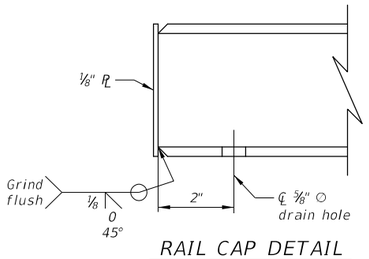
Scale ~ 6" = 1'-0"



**NOTE: Dimension shown is for a standard splice. Match the total width of the splice to the expansion gap shown elsewhere in the plans, for splices crossing expansion joints.

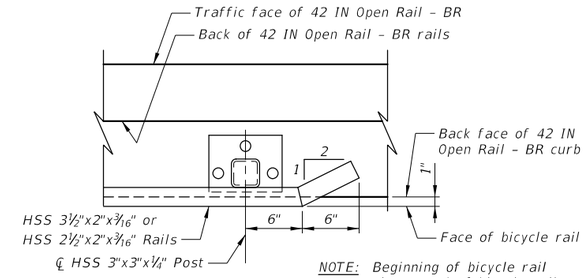
RAIL SPLICE DETAIL

No Scale



RAIL CAP DETAIL

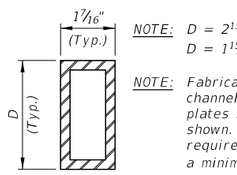
No Scale



NOTE: Beginning of bicycle rail shown, end of bicycle rail similar but opposite hand.

B B103 **VIEW B**

Scale ~ 1½" = 1'-0"

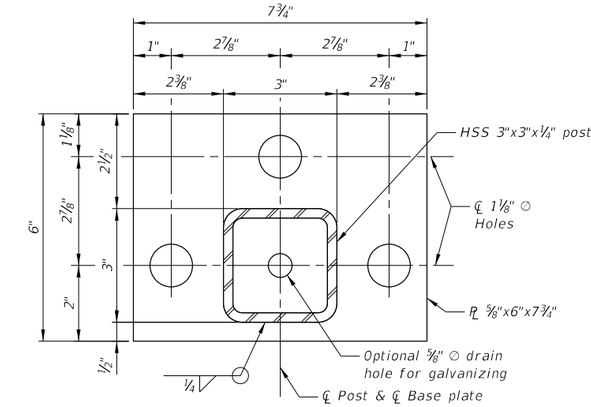


NOTE: D = 2 15/16" for HSS 3½"x2"x3/16"
D = 1 15/16" for HSS 2½"x2"x3/16"

NOTE: Fabricate sleeves using HSS, channels, angles, plates, or bent plates meeting the dimensions shown. Weld and grind smooth as required. Fabricate sleeves with a minimum wall thickness of 3/16".

SPLICE FABRICATION OPTIONS

Scale ~ 6" = 1'-0"



BASE PLATE DETAIL

Scale ~ 6" = 1'-0"

SHEET NO. B103

BICYCLE RAIL DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

REVISED		
REVISED		
REVISED		
REVISED		
CHECKED	6-5-19	P.C.J.
DRAWN	5-28-19	G.H.S.
DESIGNED	5-28-19	B.K.C.

...\8807000brrdet204.dgn

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

7/19/2019 3:05:46 PM

ROUTE U-8113

REF POINT 0+0.239

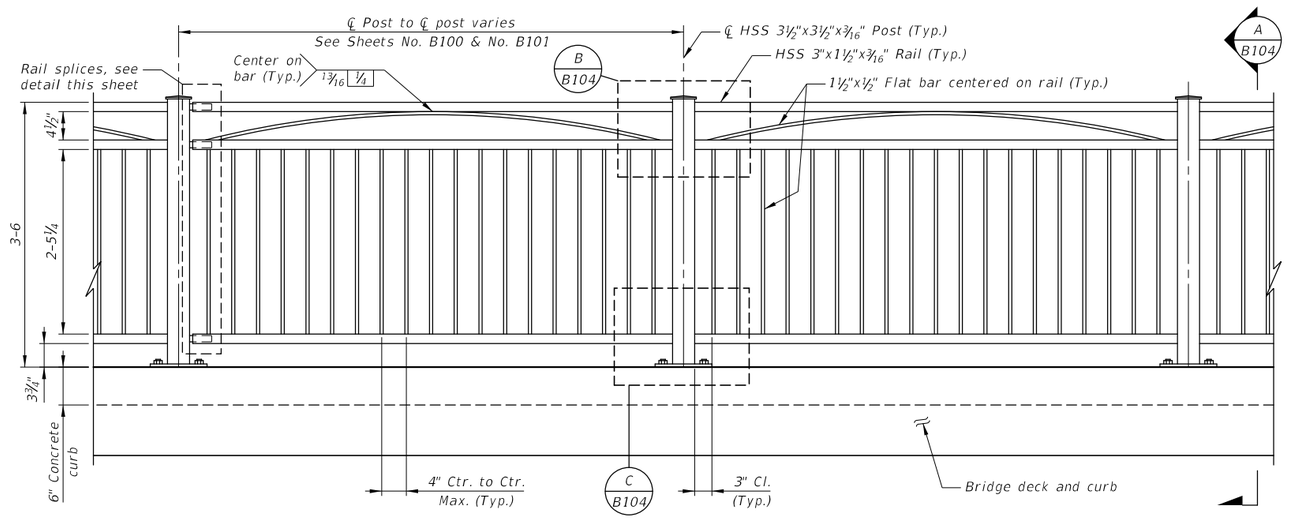
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 24001

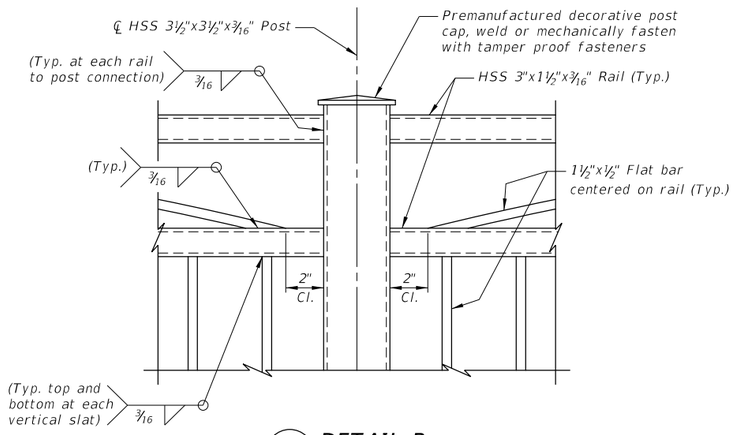
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



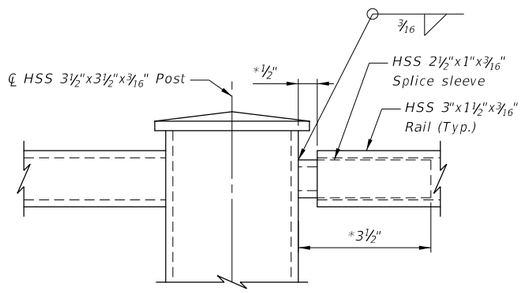
PEDESTRIAN RAIL ELEVATION

Scale ~ 1" = 1'-0"



B B104 **DETAIL B**

Scale ~ 3" = 1'-0"

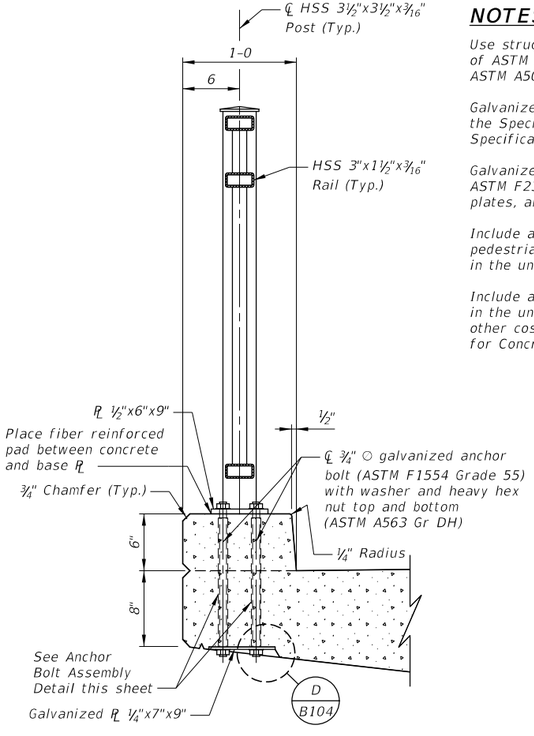


NOTE: Locate rail splices at 30-0 maximum intervals and in bays that cross expansion joints.

*NOTE: Dimension shown is for a standard splice. Match the total width of the splice to the expansion gap shown elsewhere in the plans, for splices crossing expansion joints.

TYPICAL RAIL SPLICE DETAIL

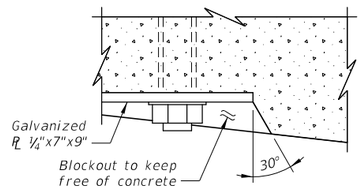
Scale ~ 6" = 1'-0"



NOTE: Deck and curb reinforcing not shown for clarity.

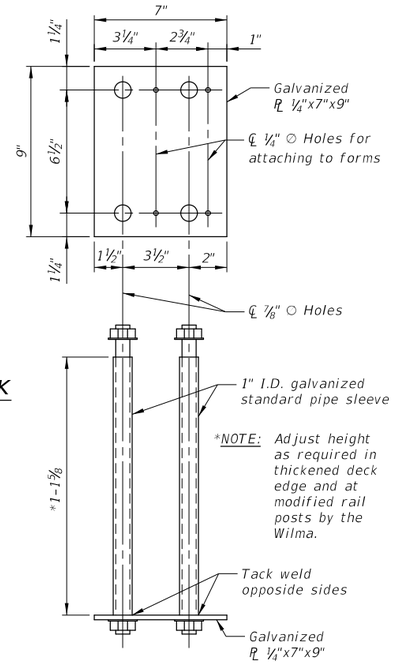
A B104 **POST ANCHORAGE INTO BRIDGE DECK**

Scale ~ 1½" = 1'-0"



D B104 **DETAIL D**

Scale ~ 6" = 1'-0"



ANCHOR BOLT ASSEMBLY DETAIL

Scale ~ 3" = 1'-0"

NOTES

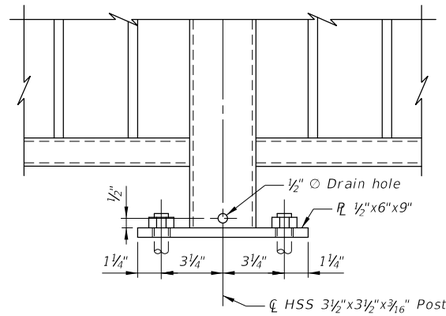
Use structural steel for plates and bars meeting requirements of ASTM A36. Use hollow sections meeting requirements of ASTM A500 Grade B.

Galvanize and apply powder coat finish to pedestrian rail per the Special Provisions. Powder coat finish to match Federal Specification 595B Pigment Code FS 27038 Black.

Galvanize all bolts, nuts, and washers in accordance with ASTM F2329. Galvanize all structural steel, rolled shapes, plates, and fabrications in accordance with ASTM A123.

Include all costs associated with furnishing and installing pedestrian rail, posts, anchor bolts, and associated hardware in the unit price for Pedestrian Rail.

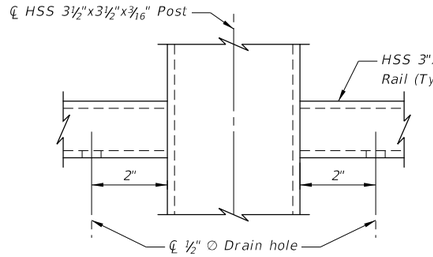
Include all costs associated with reinforcing steel in the curb in the unit price bid for Reinforcing Steel – CR. Include all other costs associated with placing the curb in the unit price for Concrete Class Structure – Low Slump.



NOTE: Provide additional vent holes for galvanizing process as required. Plug all additional holes after galvanization.

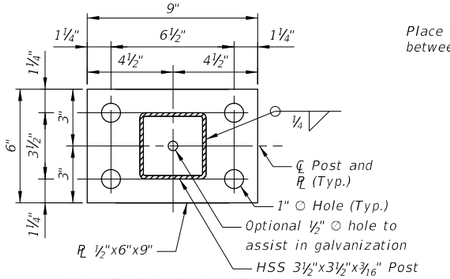
C B104 **DETAIL C**

Scale ~ 3" = 1'-0"



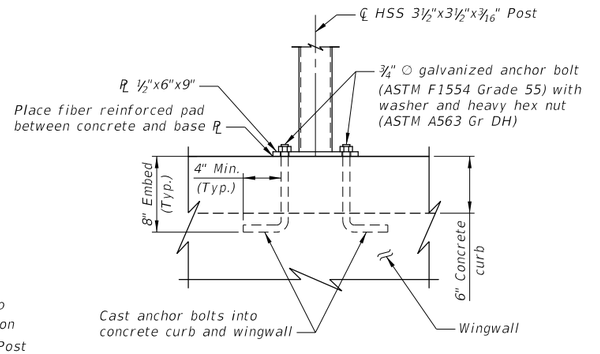
TYPICAL RAIL DRAIN HOLE DETAIL

Scale ~ 6" = 1'-0"



BASE PLATE DETAIL

Scale ~ 3" = 1'-0"



POST ANCHORAGE INTO WINGWALL

Scale ~ 1½" = 1'-0"

HDR

SHEET NO. B104

PEDESTRIAN RAIL DETAILS

SCALE: As Noted

BRIDGE OVER CLARK FORK RIVER

AT STA. 110+07.43

FEDERAL AID PROJECT STPB 8113(9)

COUNTY MISSOULA

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
					B.K.C.	J.P.E.	P.C.J.
					6-4-19	3-25-19	3-25-19

...\8807000\brrdze05.dgn

5/15/2020 9:28:37 AM

MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

ROUTE U-8113

REF POINT 0+0.239

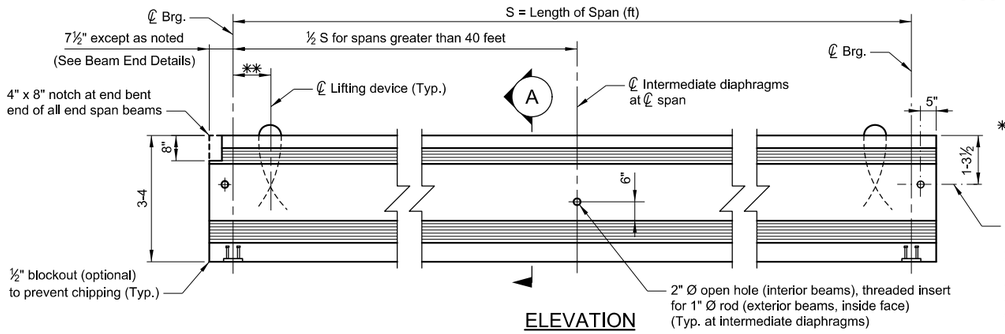
MDT STR. ID 07011

UPN NUMBER 8807000

DRAWING NO. 24002

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



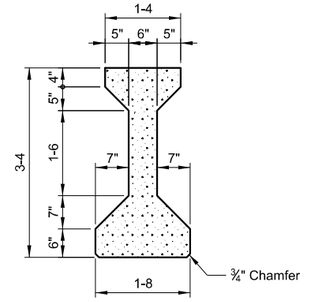
ELEVATION

NOTE: Beam is symmetrical about ℄ of span except as noted.

NOTE: For spans 40 feet or less, intermediate diaphragms are not required.

** NOTE: Locate lifting device as necessary for safe handling.

2" Ø open hole at end bent ~ all beams.
2" Ø open hole at intermediate bents ~ interior beams.
1" Ø threaded insert for 1" Ø x 2-3 rod at inside face of exterior beams at intermediate bents.
Embed rod 2" inside beam.



SECTION A

NOTES

SPECIFICATIONS: For design specifications, see General Layout. Design and fabricate the beam to support the dead load and live load stresses and provide a minimum ultimate moment capacity shown on the Erection Plan. Show stresses in the beam under each loading condition that is anticipated in the manufacture, handling and service life of the beam.

PRESTRESSING STEEL: Use 0.500" diameter or 0.600" diameter, 7 wire strand prestressing steel.

HARDWARE: Threaded inserts, hold down devices, lifting devices and any other hardware which is to be incorporated in the beam will be approved by the Engineer before fabrication is begun.

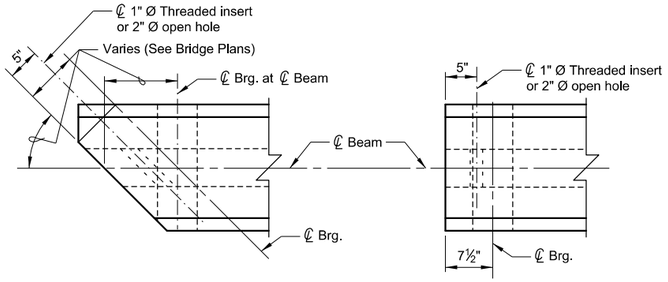
DIAPHRAGMS: See Erection Plan for location of diaphragms when structure is skewed.

BEAM LENGTH: Increase the overall length of the beam 0.0075 inches per foot of length to allow for elastic shortening, shrinkage and creep.

SHOES: Paint shoes according to Standard Specifications. See details on Bridge Plans if expansion shoes are required. See General Layout for type of shoes required.

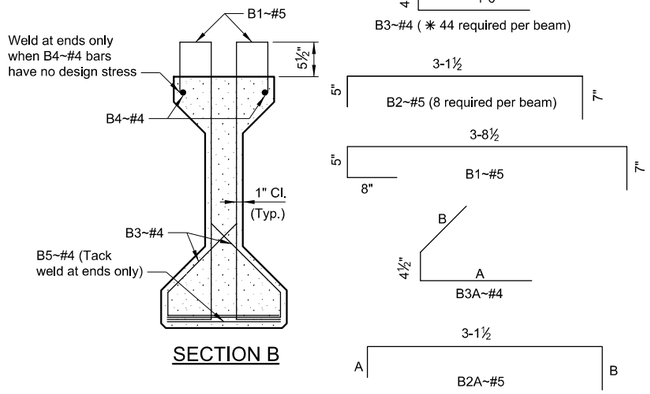
REINFORCING STEEL: See General Layout.

SHEAR REINFORCING: The shear and end reinforcement shown on this drawing is the Department's minimum. Increase reinforcing if needed to meet the requirements of the AASHTO code specified on the General layout.

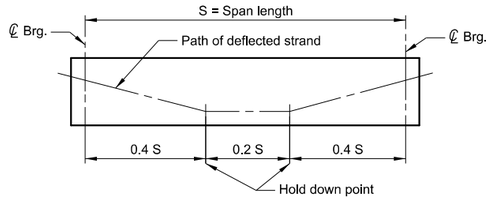


SKEWED BRIDGE SQUARE BRIDGE

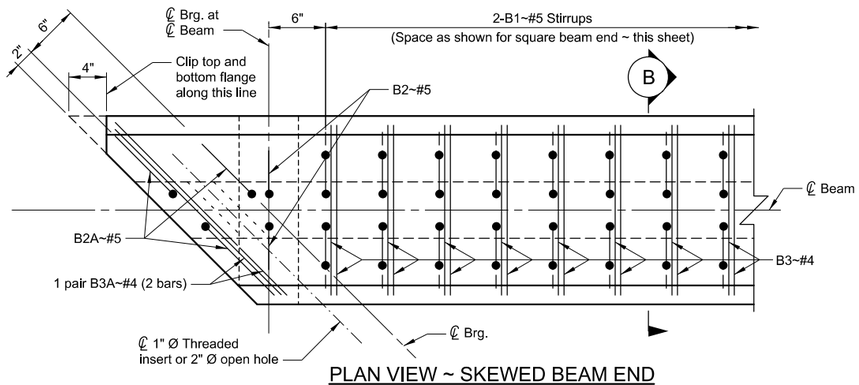
BEAM END DETAILS



SECTION B



TYPICAL DEFLECTED STRAND FOR PRE-TENSIONING SYSTEM



PLAN VIEW ~ SKEWED BEAM END

* NOTE: Number shown is for square beam ends. Number required for skewed beam ends varies.

NOTE: The number of B2A~#5 stirrups required per beam varies due to varying skew.

NOTE: Length of A and B varies due to varying skew.

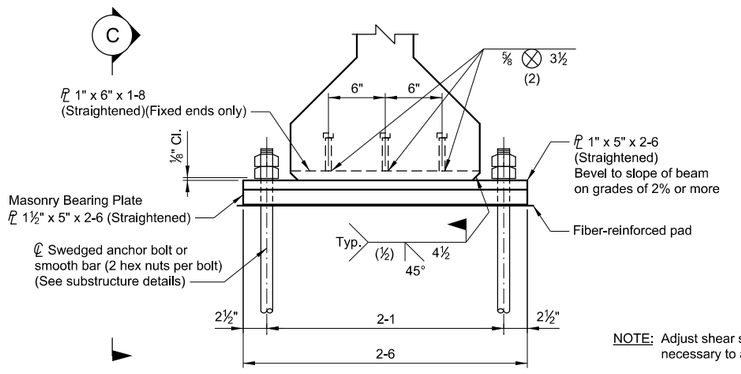
NOTE: Use the following equation to determine the number of B1~#5 stirrups required per beam:
N = ((S - 20) / 2 + 27) x 2

If the result of the equation is an odd number, round to the next largest even whole number.

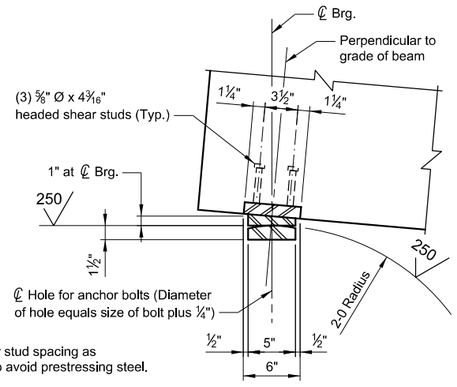
NOTE: Include all costs to furnish and install anchor bolts, nuts, shoes, fiber reinforced pads and embedded plates in the unit price bid for Prestressed Beams ~ Type A.

NOTE: Use structural steel meeting the requirements of AASHTO M 270 Grade 36 for embedded plates and shoes. Use structural steel meeting the requirements of AASHTO M 314 Grade 36 for anchor bolts. Galvanize the anchor bolts meeting the requirements of AASHTO M 232. Use headed shear studs meeting the requirments of AASHTO M 169 Grades 1010 through 1020.

NOTE: See substructure details for length and size of anchor bolts.



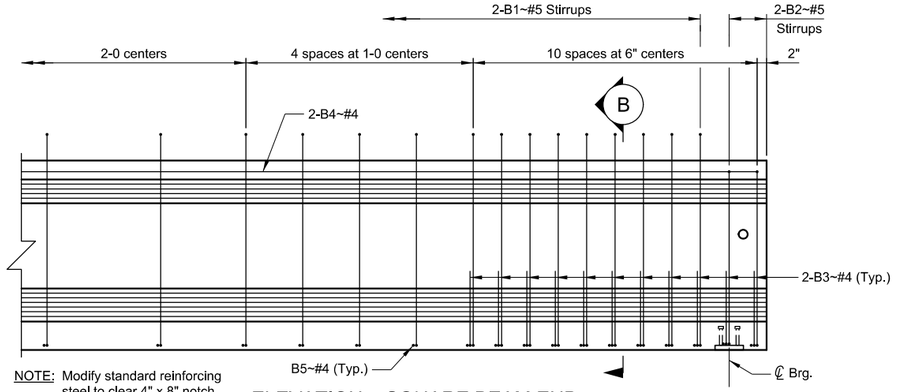
END VIEW



VIEW C

NOTE: Adjust shear stud spacing as necessary to avoid prestressing steel.

FIXED SHOE DETAILS



NOTE: Modify standard reinforcing steel to clear 4" x 8" notch as required.

ELEVATION ~ SQUARE BEAM END

STANDARD PRESTRESSED CONCRETE BEAM TYPE A

No Scale

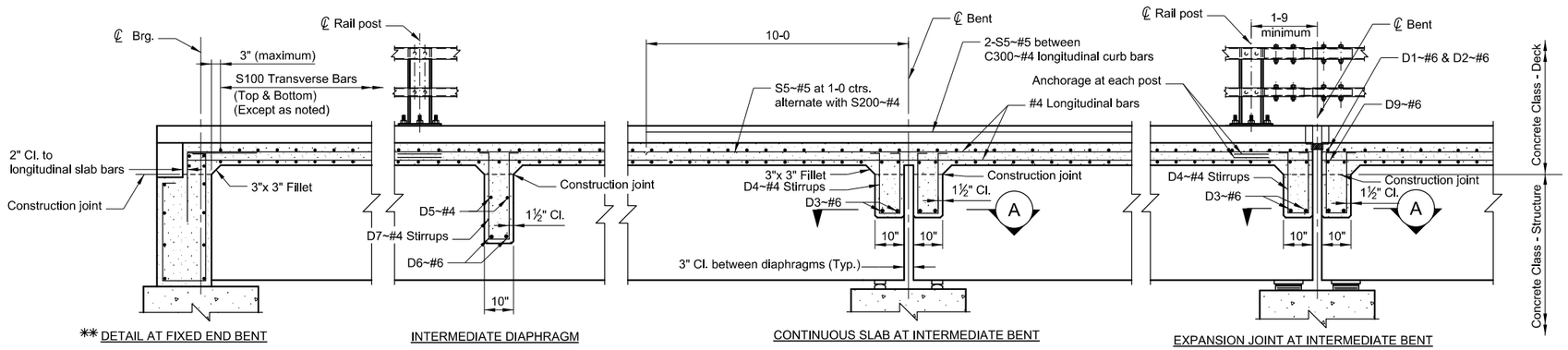
MDT MONTANA DEPARTMENT OF TRANSPORTATION BRIDGE BUREAU

REVISED		
REVISED		
REVISED		
REVISED	2-25-15	D.F.J.
APPROVED	11-12-08	D.F.J.
CHECKED	6-23-08	J.S.O.
DRAWN	3-5-08	T.J.B.
$DATE$	$TIME$	$FILEABBREV$

DRAWING NO. B-A

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



** DETAIL AT FIXED END BENT

INTERMEDIATE DIAPHRAGM

CONTINUOUS SLAB AT INTERMEDIATE BENT

EXPANSION JOINT AT INTERMEDIATE BENT

LONGITUDINAL SECTION

NOTES

Use details shown on this sheet only as they apply to the project. See the General Layout or Other Sheets for beam spacing, slab thickness, size and spacing of S100 bars, number and spacing of S200 and S300~#4 bars, deck joint arrangement, rail and curb length, rail post spacing, bill of reinforcing steel and roadway width.

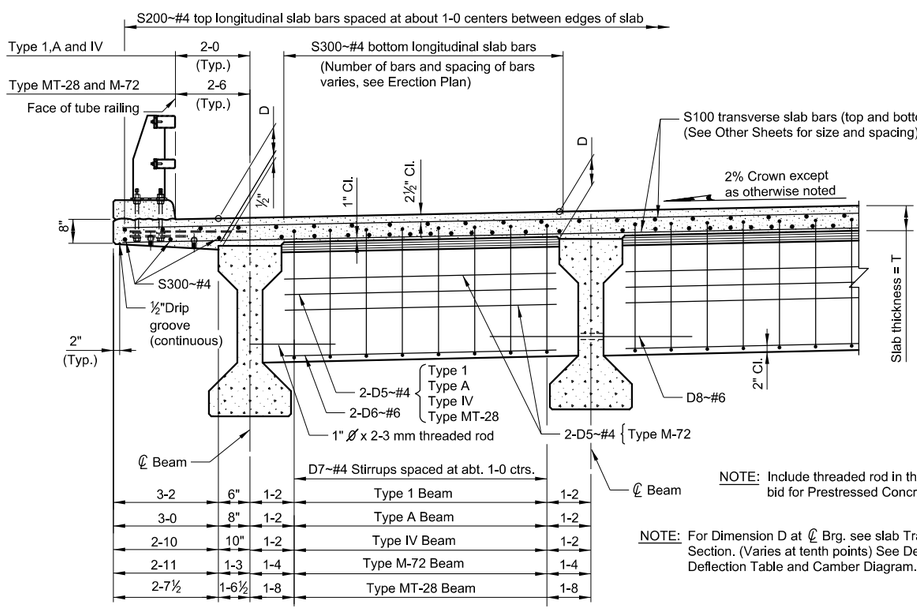
When adjoining spans have a different number of longitudinal slab bars, make the longitudinal bars of the shorter span continuous over the bent and extend them 3-0 into the longer span.

If the bridge is skewed, place the transverse slab reinforcing steel as shown on Other Sheets.

Do not place concrete curb for at least 72 hours after concrete in slab has taken initial set.

See Standard Bridge Rail Type W740 or W830 drawing for rail and slab anchorage details.

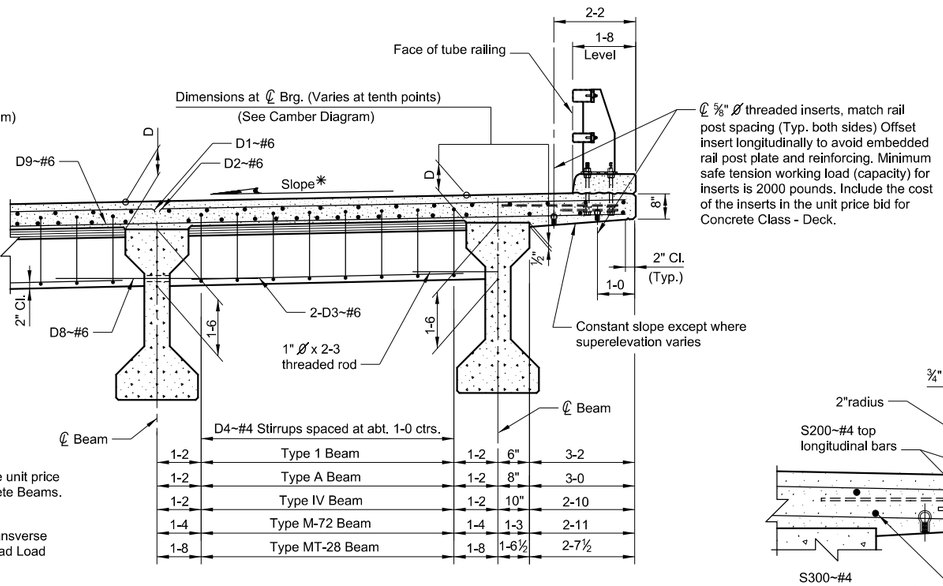
** NOTE: Use a detail for end bents with expansion joints similar to the detail for an expansion joint at an intermediate bent.



NOTE: Include threaded rod in the unit price bid for Prestressed Concrete Beams.

NOTE: For Dimension D at ℄ Brg. see slab Transverse Section. (Varies at tenth points) See Dead Load Deflection Table and Camber Diagram.

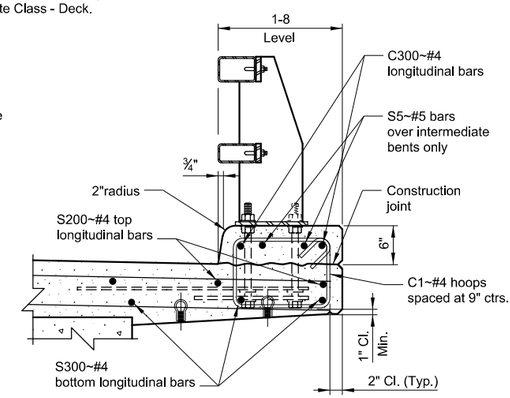
TRANSVERSE SECTION NEAR INTERMEDIATE DIAPHRAGM AT LOW SIDE



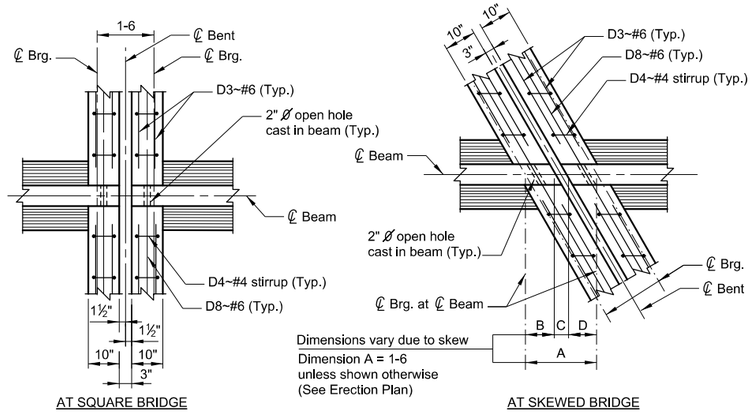
℄ ⅝" Ø threaded inserts, match rail post spacing (Typ. both sides) Offset insert longitudinally to avoid embedded rail post plate and reinforcing. Minimum safe tension working load (capacity) for inserts is 2000 pounds. Include the cost of the inserts in the unit price bid for Concrete Class - Deck.

TRANSVERSE SECTION NEAR INTERMEDIATE BENT AT HIGH SIDE

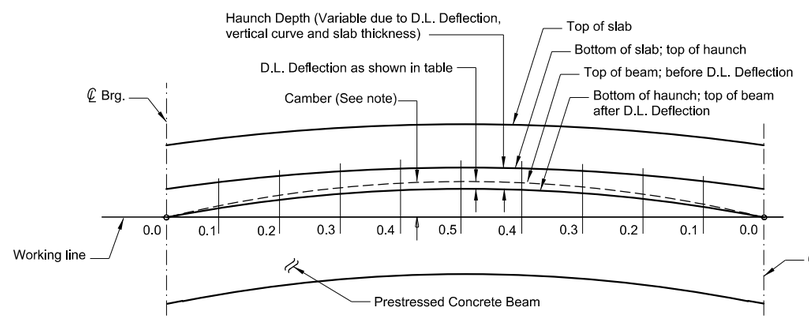
*NOTE: Detail shown is for superelevations other than normal crown.



CURB REINFORCING DETAIL



SECTION A-A



CAMBER DIAGRAM

NOTE: Camber is noted as the distance from the working line to the top of beam and may vary from theoretically calculated D.L. deflection.

NOTE: See Erection plan for theoretical D.L. Deflection Table for Prestressed Concrete Beams.

STANDARD SLAB AND DIAPHRAGM DETAILS

No Scale

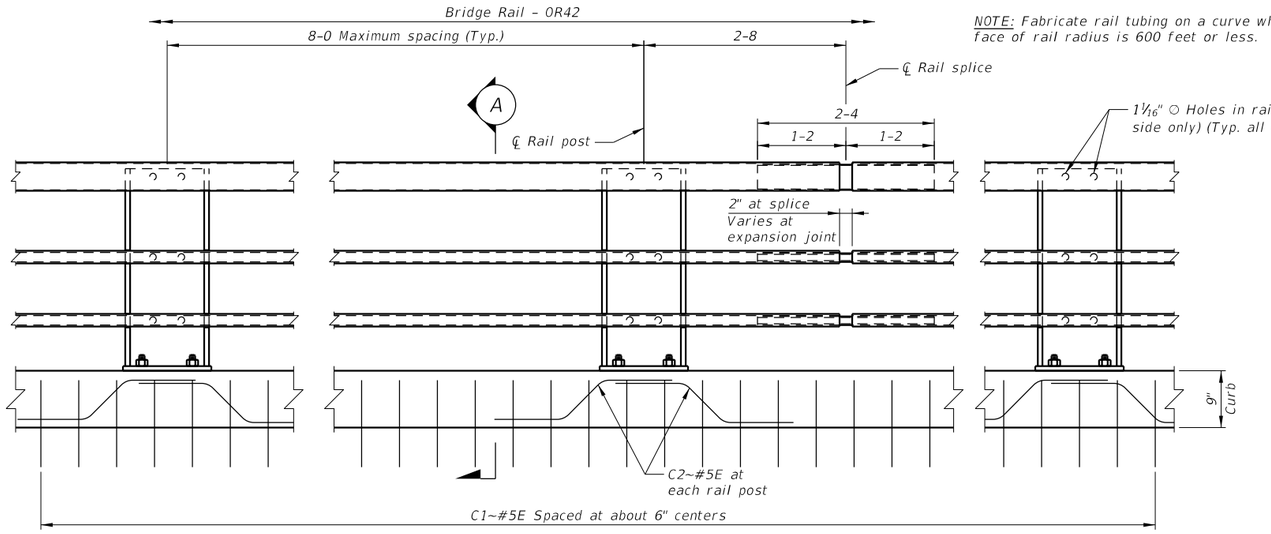
MDT MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

REVISED	3-15-17	D.F.J.	
REVISED	5-30-14	D.F.J.	
REVISED	3-21-12	D.F.J.	
APPROVED	3-26-08	D.F.J.	
CHECKED	10-9-07	D.J.R.	
DRAWN	9-26-07	L.M.S.	$FILEABBREV$
$DATE$		$TIME$	

DRAWING NO. SL-7

DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



NOTE: Fabricate rail tubing on a curve when face of rail radius is 600 feet or less.

NOTE: Locate the splice on either side of post. Tube shop splices are not allowed.

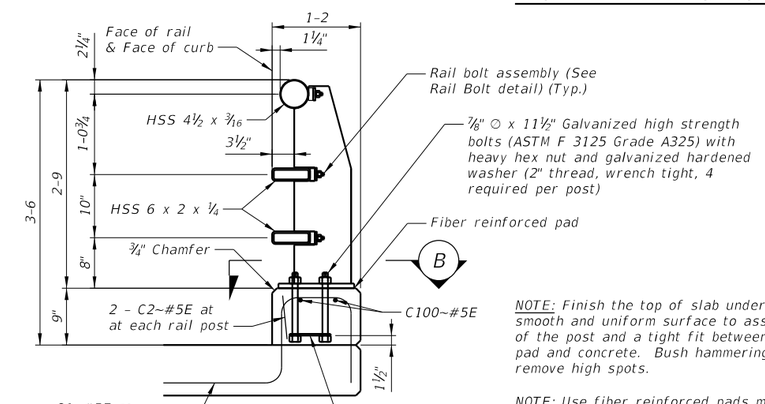
NOTE: Show vent and pickup holes in rails and sleeves on Fabricator's shop drawings. Place vent holes on the underside of the rail members as installed.

NOTE: Attach panel lengths of tube members continuously to a minimum of two posts (except at abutments with expansion joints).

NOTE: Do not provide a tube splice in first panel unless it crosses an expansion joint.

NOTE: Place expansion splice in rail such that it is positioned between the same rail posts as the expansion joint.

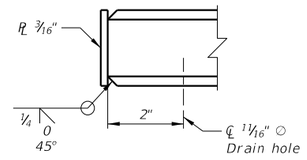
INSIDE ELEVATION OF RAIL



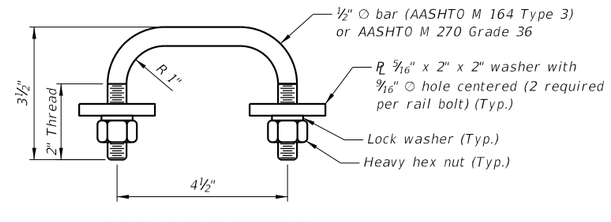
SECTION A

NOTE: Finish the top of slab under each rail post to a smooth and uniform surface to assure a proper alignment of the post and a tight fit between the fiber reinforced pad and concrete. Bush hammering is acceptable only to remove high spots.

NOTE: Use fiber reinforced pads meeting the requirements of subsection 711.16 of the Standard Specifications. Size and position the pads such that not less than ½" of the pad protrudes on all sides of the base plate. Punch slotted holes in pads to match base plate.

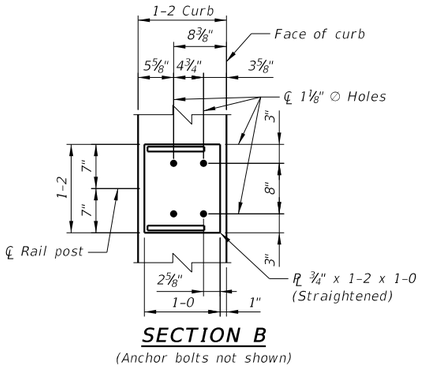


TUBE CAP DETAIL



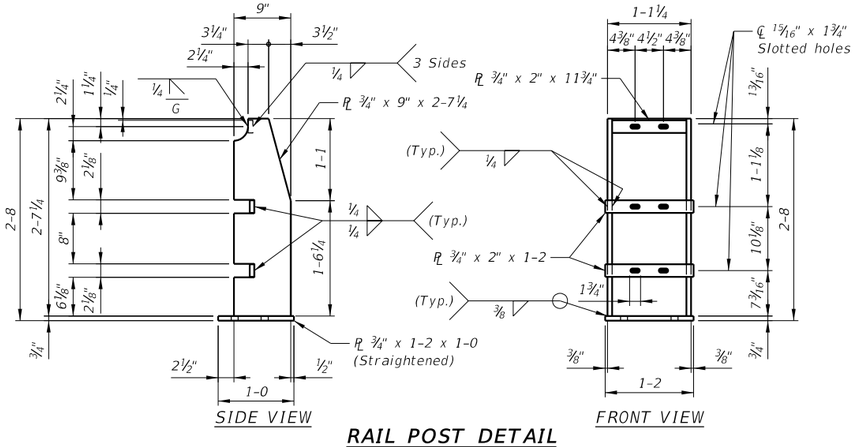
RAIL BOLT DETAIL

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

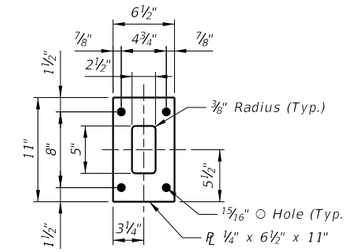


SECTION B

(Anchor bolts not shown)

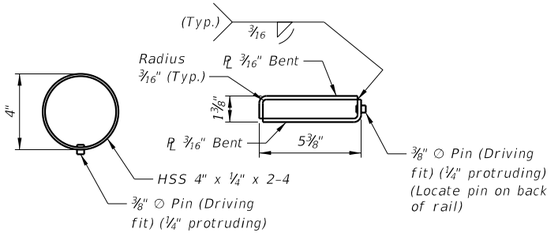


RAIL POST DETAIL



NOTE: Anchor bolts may be tack welded to anchorage (shop or field).

ANCHOR PLATE DETAIL



NOTE: Locate ⅜" ∅ Pin at mid–length of sleeve.

SLEEVE FABRICATION DETAILS

NOTES

PLACEMENT: Do not disturb the deck cure to construct the curb and rail.

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.

GALVANIZING: Galvanize all bolts, nuts, washers and pipe sleeves in accordance with ASTM F 2329.

REFLECTORS: Place a white reflector on top of the top tube rail at equal spacing (not to exceed 30 foot spacing) between ends of rail. See Dtl. Dwg. No. 605–00 for reflector detail. Mount the reflector on the tube rail with an approved adhesive. Include the cost of reflector in the unit price bid for 42 IN Open Rail – BR.

PAYMENT: Payment for 42 IN Open Rail – BR per linear foot includes compensation for the cost of Concrete – Class Deck in the curb and for all resources necessary to complete the work. See the General Layout for the number of linear feet for payment of 42 IN Open Rail – BR. Use rail post plates and base plates conforming to AASHTO M 270 Grade 50 T3. Use AASHTO M 270 Grade 50 for all other plates and ASTM A500 Grade B for structural tubing.

ERECTION: Place rail posts as shown in details, perpendicular to adjacent roadway grade and vertical in relation to roadway cross slopes.

PAINTING: Paint all posts, structural tubing and plates (except as noted) in accordance with the Standard Specifications. Galvanizing the posts, structural tubing and plates in accordance with AASHTO M 111 will be allowed.

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.

FABRICATION: For the purposes of fabrication, this rail system is considered an ancillary item. The requirements of subsection 1.3.7 of AASHTO/AWS D1.5 apply.

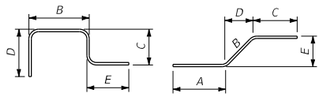
RAIL WEIGHT: For informational purposes only, the rail weight is approximately:
Curb weight = 131.3 lb/ft
Curb volume = 0.875 cu. ft / ft
Rail weight = 52.9 lb/ft

PICKETS: See Std. Dwg. No. SBR–0R42–PK for rail pickets when called for in the Bridge Plans.

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.

BILL OF REINFORCING STEEL

FOR ONE CURB ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	Type	Length	A	B	C	D	E	G	N
C1	#5E	526	4–0½		11"	1–1¾	1–1¾	10"		
C2	#5E	41	2–6¾	11"	8¾"	11"	6¼"	6¼"		

STANDARD BRIDGE RAIL
TYPE OPEN RAIL 42"

No Scale

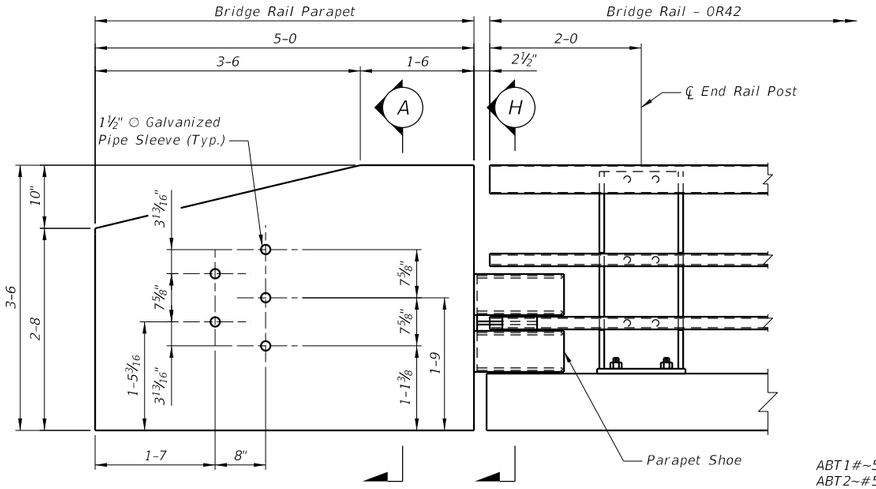
MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

REVISED				
REVISED				
REVISED				
APPROVED	9–17–19	N.A.H.		
CHECKED	2–7–19	L.M.M.		
DRAWN	3–14–18	T.J.B.	SFILEABBREV$	
$DATES	$TIMES			

DRAWING NO.
SBR–0R42

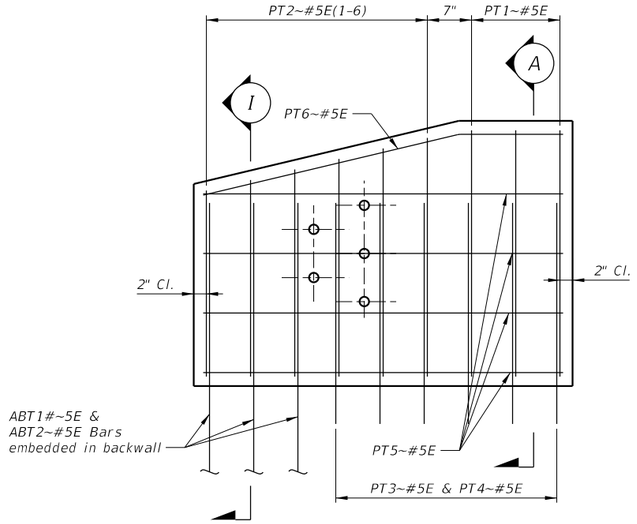
DocuSign Envelope ID: E2B1DF2F-3764-4997-A9A0-D939F46D7086

AWARD COPY



INSIDE ELEVATION OF PARAPET

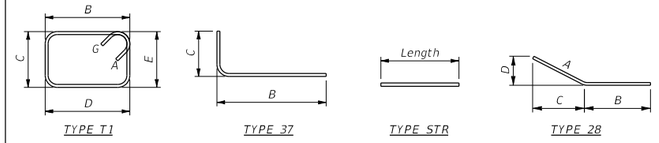
NOTE: Reinforcing steel shown is for a typical stub abutment. For turnback wingwalls substitute ABT1~#5E bars for PT3~#5E and ABT2~#5E bars for PT4~#5E bars shown for the parapet.



PARAPET REINFORCING ELEVATION

BILL OF REINFORCING STEEL

FOR ONE PARAPET ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	Type	Length	A	B	C	D	E	G	N
PT1	#5E	T1	9–3	5½"	11"	3–3	11"	3–3	5½"	
PT2–1	#5E	T1	7–8	5½"	11"	2–5½	11"	2–5½	5½"	
PT2–2	#5E	T1	7–11	5½"	11"	2–7	11"	2–7	5½"	
PT2–3	#5E	T1	8–2½	5½"	11"	2–8¾	11"	2–8¾	5½"	
PT2–4	#5E	T1	8–6	5½"	11"	2–10½	11"	2–10½	5½"	
PT2–5	#5E	T1	8–9	5½"	11"	3–0	11"	3–0	5½"	
PT2–6	#5E	T1	9–0½	5½"	11"	3–1¾	11"	3–1¾	5½"	
PT3	#5E	37	4–11		2–0	2–11				
PT4	#5E	37	2–11		10"	2–1				
PT5	#5E	STR	4–8							
PT6	#5E	28	4–10	3–5½	1–4½	3–4½	9¾			
ABT1	#5E	STR	4–6							
ABT2	#5E	STR	3–7							

RAIL DESIGN CAPACITY

	Parapet
Rw	86 kips
Lc	6'–2"
Mc	292 kip*in/ft

NOTES

GENERAL: See Std. Dwg. No. SBR–0R42 for additional rail details.

REINFORCING STEEL: All parapet reinforcing steel is epoxy coated.

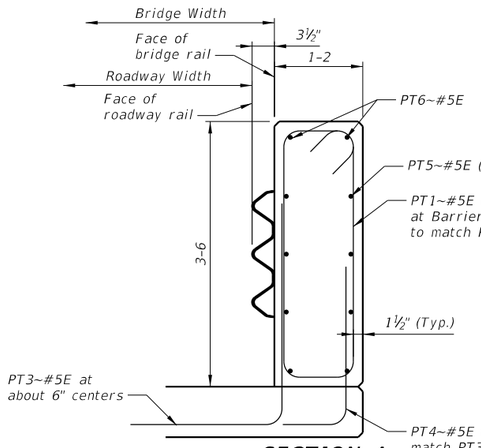
PAYMENT: Include all costs associated with furnishing and placing reinforcing steel in the parapet in the unit price bid for Reinforcing Steel – Epoxy Coated.

Include all costs associated with furnishing and placing Concrete – Class Deck in the parapet in the unit price bid for 42 IN Open Rail Parapet – Br.

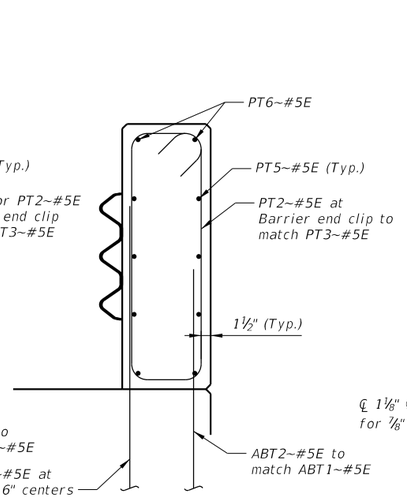
Use structural steel for the shoes meeting the requirements of AASHTO M270 Grade 50. Include all costs associated with furnishing and installing parapet shoes in the unit price bid for 42 IN Open Rail Parapet – BR. Estimated weight = 78.7 lb / per shoe

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 thise details.

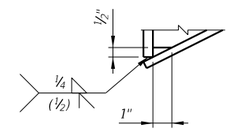
RAIL WEIGHT: For informational purposes only.
Parapet Weight = 2807 lb
Parapet Volume = 18.7 cu. ft



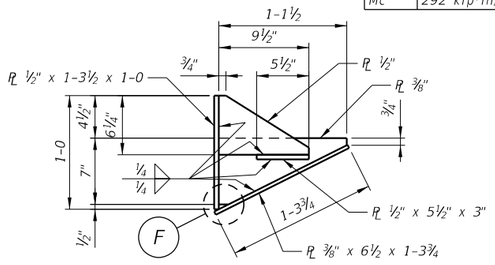
SECTION A



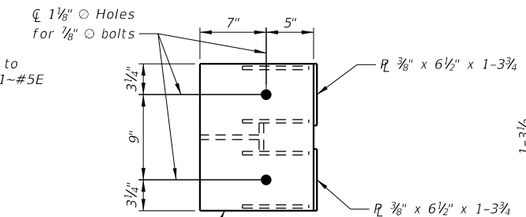
SECTION I



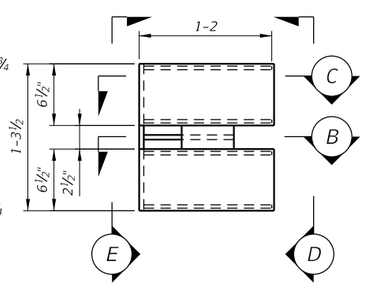
DETAIL F



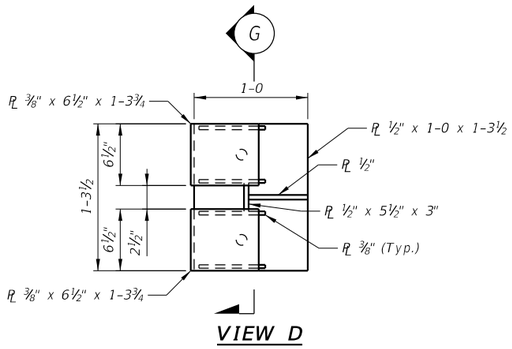
SECTION B



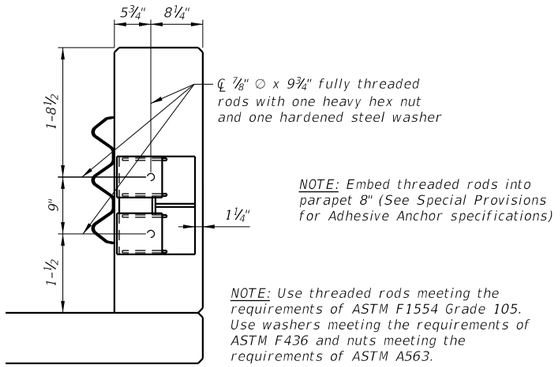
VIEW E



PARAPET SHOE ELEVATION



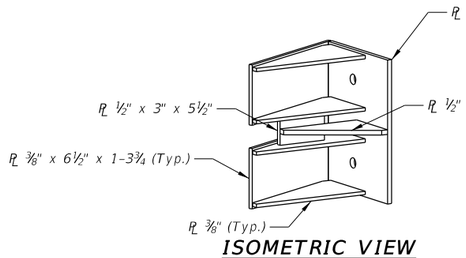
VIEW D



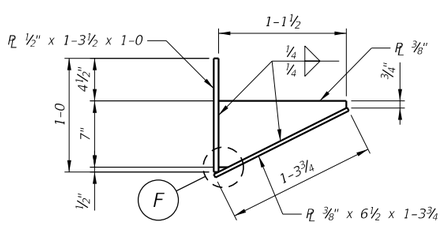
NOTE: Embed threaded rods into parapet 8" (See Special Provisions for Adhesive Anchor specifications)

NOTE: Use threaded rods meeting the requirements of ASTM F1554 Grade 105. Use washers meeting the requirements of ASTM F436 and nuts meeting the requirements of ASTM A563.

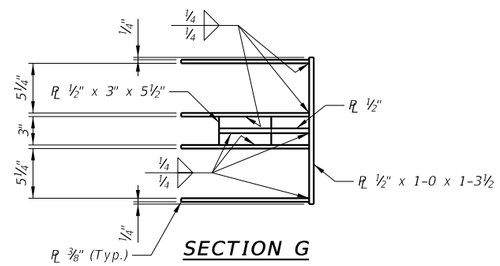
VIEW H



ISOMETRIC VIEW



SECTION C



SECTION G

STANDARD BRIDGE RAIL
TYPE OPEN RAIL 42"
PARAPET

No Scale

MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

REVISED				
REVISED				
REVISED				
APPROVED	9–17–19	N.A.H.		
CHECKED	2–7–19	L.M.M.		
DRAWN	3–14–18	T.J.B.		
$DATE$	$TIME$	SFILEABBREV$		

DRAWING NO.
SBR–0R42–PP