CONTRACT PLANS BUREAU
MONTANA DEPARTMENT OF TRANSPORTATION

As-Built Drawings

The following are as-built drawings for the structures. MDT provides them for informational purposes only. They do not include drawings for modifications to the structures, such as joint replacements and guardrail revisions and may not completely represent current conditions. Thus, some of the information contained in these documents may be out of date or not applicable with regard to the advertised project. The contractor should not rely solely on the as-built drawings provided for bidding purposes nor does any data in these files supersede the data in the contract documents.

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE PLANS & QUANTITIES

FEDERAL AID PROJECT NO. I-15-2(11)111 P.E.
I-15-2(35)111 U2 CONST.

DEER LODGE PASS-NORTH

SILVER BOW COUNTY

LIST OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
1	10,669	GENERAL LAYOUT AT STA. 805+50.00
2	10,670	FOOTING PLAN
3	10,671	BENT NO. 1 & NO. 5
4	10,672	BENT NO. 2 & NO. 4
5	10,673	BENT NO. 3
6	10,674	ERECTION PLAN
7	10,675	GENERAL LAYOUT AT STA. 1074+15.00
8	10,676	FOOTING PLAN
9	10,677	BENTS NO. 1 & NO. 4 N.B. & S.B. RDWY.
10	10,678	BENTS NO. 1 & NO. 4 N.B. & S.B. RDWYS. (ELEVATIONS)
11	10,679	BENTS NO. 2 & NO. 3 N.B. & S.B. RDWYS.
12	10,680	BENTS NO. 2 & NO. 3 N.B. & S.B. RDWYS. (ELEVATIONS)
13	10,681	ERECTION PLAN & SLAB DETAILS
14	SL-1 (Rev. 12-29-72)	STANDARD SLAB, CURB, DIAPHRAGM, & END POST DETAILS
15	B-A (Rev. 3-31-72)	STANDARD PRESTRESSED CONCRETE BEAM - TYPE A
16	B-4 (Rev. 3-31-72)	STANDARD PRESTRESSED CONCRETE BEAMS - TYPE IV
17	SBR-T5 (Rev. 12-29-72)	STANDARD STEEL BRIDGE RAIL - TYPE NO. 5

MOBILIZATION

FEELY INTER.-TYPE CODE X 781 = 0.70 L. SUM = $ 3,070.84
BUXTON INTER.-TYPE CODE X 281 = 0.30 L. SUM = $ 1,316.08
TOTAL = 1.00 L. SUM = $ 4,386.92

TRAFFIC CONTROL

FEELY INTER.-TYPE CODE X 781 = 0 UNITS
BUXTON INTER.-TYPE CODE X 281 = 77.5 UNITS
TOTAL = 77.5 UNITS

COST OF TRAINING PROGRAM

FEELY INTER.-TYPE CODE X 781 = 500 HOURS
BUXTON INTER.-TYPE CODE X 281 = 500 HOURS
TOTAL = 1,000 HOURS

"As Built" FINAL

ESTIMATED BRIDGE PLAN QUANTITIES (QUANTITIES DO NOT INCLUDE ANY CONTINGENCIES)

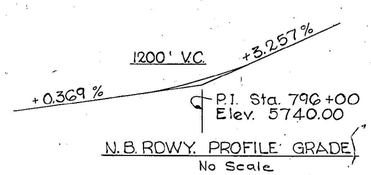
		LOCATION	LENGTH IN FEET	REINFORCING STEEL LBS.	STRUCTURAL STEEL LUMP SUM	STEEL BRIDGE RAIL-TYPE 5 LIN. FT.	STRUCTURE EXC.-TYPE I CU. YDS.	CLASS "AD" CONCRETE CU. YDS.	TRTD. TIMBER PILES FURNISH LIN. FT.	TRTD. TIMBER PILES DRIVE LIN. FT.	TREATED TIMBER TEST PILES LUMP SUM	PREBORE HOLES LIN. FT	PRESTRESSED BEAMS TYPE A-EACH 30'	PRESTRESSED BEAMS TYPE A-EACH 65'	PRESTRESSED BEAMS TYPE IV-EACH 40'	PRESTRESSED BEAMS TYPE IV-EACH 100'	PROTECTIVE COATING SQ. YDS.
FEELY INT'CHG. AT STA. 805+50.00		BENT NO. 1		~~7646~~ 7646			~~165~~ 143.7	~~58.2~~ 58.2									
		BENT NO. 2		~~8111~~ 8103			~~130~~ 122.6	~~55.7~~ 55.7									
		BENT NO. 3		~~9865~~ 7865			~~215~~ 227.8	~~74.1~~ 74.0									
		BENT NO. 4		~~7912~~ 7709	.28 ~~.28~~		~~135~~ 134.2	~~54.3~~ 54.3									
		BENT NO. 5		~~7483~~ 7483	$ 672.00		~~135~~ 141.0	~~57.2~~ 57.2									
		SUPERSTRUCTURE	784.5 ~~284.5~~	~~72678~~ 72678		559.33 559.33		~~268.8~~ 273.7							8	10	~~150~~ 114.7
		SUB-TOTAL	784.5 ~~284.5~~	~~113695~~ 113678	.28 ~~.28~~ $ 672.00	559.33 559.33	~~780~~ 769.3	~~568.3~~ 573.3							8	10	~~150~~ 114.7
BUXTON INT'CHG. AT STA. 1074+15.00	N.B. RDWY.	BENT NO. 1		~~2175~~ 2175			~~25~~ 23.6	~~28.2~~ 28.2	~~450~~ 349.0	~~324~~ 109.6		~~117~~ 117					
		BENT NO. 2		~~4712~~ 4712			~~80~~ 81.7	~~42.2~~ 42.2	~~720~~ 552.0	~~708~~ 409.4							
		BENT NO. 3		~~4712~~ 4712	.36 ~~.36~~		~~50~~ 36.6	~~42.2~~ 42.2	~~720~~ 552.0	~~708~~ 552.0	.5 ~~.5~~						
		BENT NO. 4		~~2175~~ 2175	$ 864.00		~~25~~ 23.6	~~28.2~~ 28.2	~~450~~ 249.0	~~306~~ 157.8	$ 4,000.00	~~135~~ 135					
		SUPERSTRUCTURE	128.0 ~~128.0~~	~~5491~~ 5491.6		246.33 246.33		~~152.7~~ 151.10					10	6			664.
		SUB-TOTAL	128.0 ~~128.0~~	~~6869~~ 6869	.36 ~~.36~~ $ 864.00	246.33 246.33	~~180~~ 165.4	~~293.5~~ 293.5	2340 1788.0	2046 1137.1	.5 ~~.5~~ $ 4000.00	~~252~~ 252	10	6			664
	S.B. RDWY.	BENT NO. 1		~~2175~~ 2175			~~25~~ 23.6	~~28.2~~ 28.2	~~450~~ 433.0	~~261~~ 309.0		~~180~~ 180					
		BENT NO. 2		~~4712~~ 4712			~~10~~ 0.0	~~42.2~~ 42.2	~~720~~ 557.0	~~708~~ 549.7							
		BENT NO. 3		~~4712~~ 4712	.36 .36		~~30~~ 28.5	~~42.2~~ 42.2	~~720~~ 720.0	~~708~~ 641.8	.5 .5						
		BENT NO. 4		~~2175~~ 2175	$ 864.00		~~25~~ 23.6	~~28.2~~ 28.2	~~450~~ 387.0	~~261~~ 202.6	$ 4,000.00	~~180~~ 180					
		SUPERSTRUCTURE	128.0 ~~128.0~~	~~5491~~ 5491.6		246.33 246.33		~~152.7~~ 151.10					10	6			664
		SUB-TOTAL	128.0 ~~128.0~~	~~6869~~ 6869	.36 ~~.36~~ $ 864.00	246.33 246.33	~~90~~ 75.7	~~293.5~~ 293.5	2340 2091.0	1938 1638	.5 ~~.5~~ $ 4000.00	~~360~~ 360	10	6			664
		TOTAL	540.5 ~~540.5~~	~~25107~~ 25091.9	1 / 100.00 $ 2,400.00	1051.99 1051.99	~~1050~~ 1010.4	~~1155.3~~ 1157.20.5	4680 3879.0	3984 2835	1.00 1.00 $ 8,000.00	~~612~~ 612	20	12	8	10	~~2478~~ 2475

DRAWN BY: G. Knudson 6-16-72 CHECKED BY: N.H.R. 6-21-72

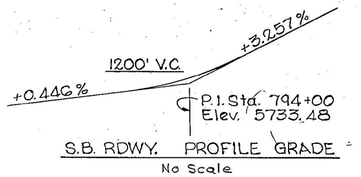
Hzo.

DRAWING NO. 10,669Q

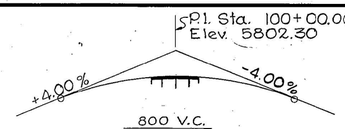
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-15-2(35)111	1	17



N.B. RDWY. PROFILE GRADE
No Scale

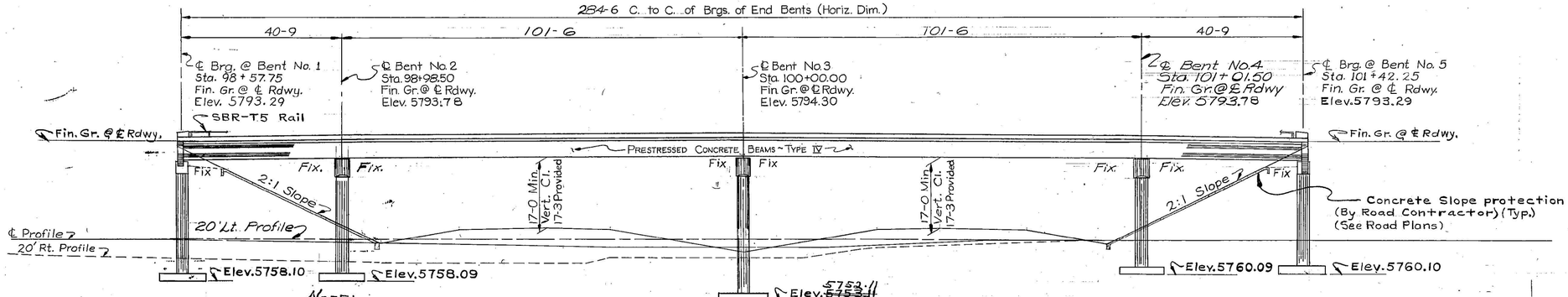


S.B. RDWY. PROFILE GRADE
No Scale



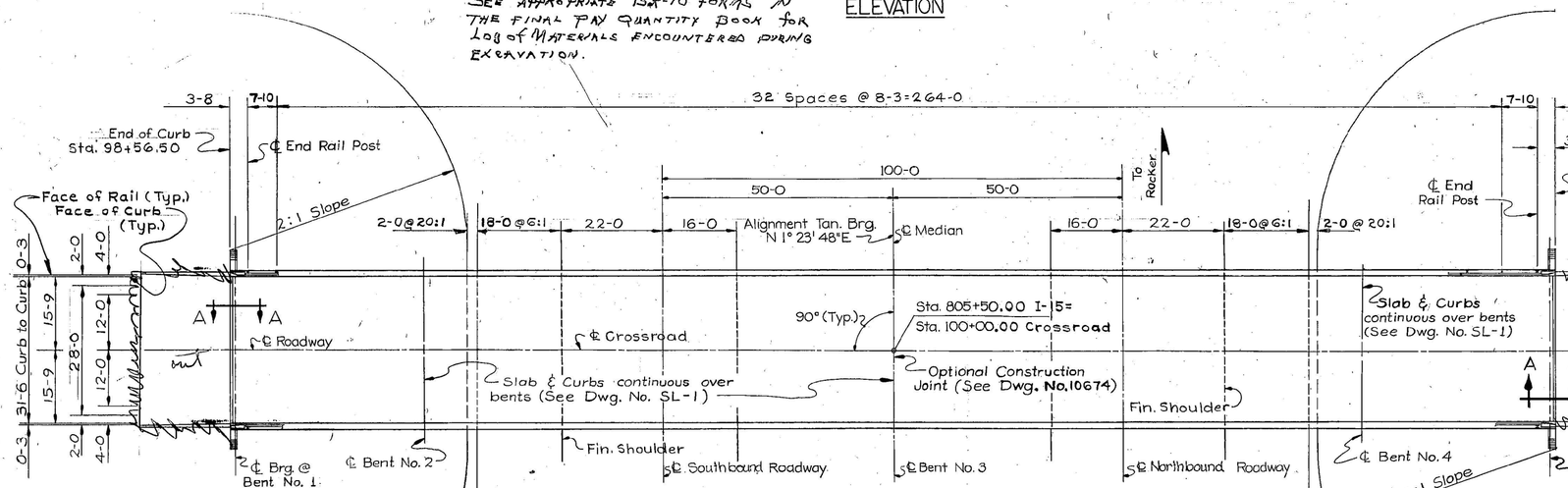
X-ROAD PROFILE GRADE
No Scale

Note: For location of utilities see appropriate Road Plans sheet.

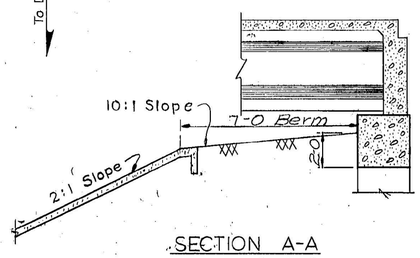


ELEVATION

NOTE: See appropriate TSR-10 forms in the final pay quantity book for log of materials encountered during excavation.



PLAN



SECTION A-A
Scale = 1/4" = 1'-0"

NOTE: For Maintenance Of Traffic and Sequence Of Work see Special Provisions.

NOTE:
Theoretical thermal movement @ each bridge end calculated from +60°F:
Expansion = 5/8" @ +120°F
Contraction = 15/16" @ -30°F

THIS CONTRACT: IM 15-2(111)103

REVISED BRIDGE RAIL AND HMWM DECK (SEE DWG. NO. 21181)

DESIGNED		
DRAWN	9-20-68	LAS
CHECKED	6-21-72	N.H.R.
APPROVED	4-16-73	H.E.S.
1 REVISED	2-1-11	T.J.B.
REVISED		

NOTES:

LIVE LOAD: STANDARD HS 20-44 LOADING.

FINISHED GRADE: FINISH PLAN GRADE OF BRIDGE AT ℄ RDWY. IS THE SAME AS THE PROFILE GRADE SHOWN ON ROAD PLANS.

SPECIFICATIONS: MONTANA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1970 EDITION, AND ANY AMENDMENTS THERETO, AND SPECIAL PROVISIONS SHALL COVERN UNLESS OTHERWISE NOTED. DESIGN PREPARED IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS, 1969 EDITION, AND ANY AMENDMENTS THERETO.

CAST IN PLACE CONCRETE: UNLESS OTHERWISE APPROVED, ALL CONCRETE SHALL BE CLASS "AD", AN "AIR ENTRAINING AGENT" SHALL BE ADDED TO ALL CONCRETE EXCEPT CLASS "AS". CHAMFER ALL EXPOSED EDGES OF CONCRETE WITH ENCLOSED ANGLE LESS THAN 120°, 3/4" AND FILLET ENTRANT ANGLES 3/4" UNLESS OTHERWISE NOTED. ALL FORMS FOR DECK SLAB SHALL BE REMOVED.

STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHALL BE MEASURED AND PAID FOR ON THE LUMP SUM BASIS AS SET FORTH IN THE STANDARD SPECIFICATIONS. ESTIMATED WEIGHT = 641 POUNDS.

FOR REQUIREMENTS GOVERNING THE FABRICATION OF "STRUCTURAL STEEL" SEE THE STANDARD SPECIFICATIONS. TO AVOID OVERSIGHT THESE REQUIREMENTS SHALL BE CLEARLY NOTED ON THE SHOP DRAWINGS.

STRUCTURAL STEEL SHALL RECEIVE ONE (1) SHOP COAT OF RED LEAD OR BASIC LEAD SILICO CHROMATE PRIMER AND TWO (2) FIELD COATS CONSISTING OF FIRST FIELD OR PRIMER COAT AND ONE (1) COAT OF ALUMINUM PAINT AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

APPROVAL: SHOP PLANS SHALL BE APPROVED BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS BEFORE FABRICATION IS BEGUN.

SETTING OF MASONRY PLATES: CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL SO AS TO CLEAR ANCHOR BOLTS. MASONRY PLATES SHALL BE PLACED ON THREE LAYERS OF CANVAS THOROUGHLY SWABBED WITH RED LEAD AS CALLED FOR IN THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL FINISH CONCRETE UNDER MASONRY PLATES TO THE EXACT ELEVATION SHOWN. BUSH HAMMERING WILL BE PERMITTED AND USED ONLY AS A MEANS OF LEVELING THE CONCRETE SURFACE TO ASSURE FULL AND LEVEL BEARING AND TO REMOVE LAITANCE, LOOSE AND FOREIGN MATERIAL. STEEL SHIMS SHALL BE USED TO BRING THE MASONRY PLATES UP TO GRADE IF NECESSARY. STEEL SHIMS SHALL BE THE SAME SIZE EXCEPT FOR THICKNESS, AS THE MASONRY PLATE. MINIMUM THICKNESS OF ANY SHIMS SHALL BE 1/8". THE COST OF BUSH HAMMERING AND SHIMS, IF ANY, SHALL BE INCLUDED IN THE UNIT PRICES BID FOR CLASS "AD" CONCRETE.

BACKFILL: THE BACKFILL AT END BENTS MAY BE COMPLETE UP TO THE BOTTOMS OF THE BACKWALLS BEFORE SUPERSTRUCTURE IS IN PLACE. THE BACKFILL AGAINST THE BACKWALLS SHALL NOT BE PLACED UNTIL AFTER THE CONCRETE ROADWAY SLAB HAS BEEN PLACED.

FOOTINGS: ELEVATIONS SHOWN FOR BOTTOM OF FOOTINGS ARE APPROXIMATE ONLY. FINAL ELEVATIONS TO BE DETERMINED BY THE ENGINEER.

PROTECTIVE COATING: DECK, CURBS AND CONCRETE END POSTS SHALL BE GIVEN A PROTECTIVE COATING OF BOILED LINSEED OIL. "SEE STANDARD SPECIFICATIONS".

COVERING: THE MINIMUM COVERING, MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY REINFORCEMENT BAR, SHALL BE NOT LESS THAN 2 INCHES EXCEPT AS FOLLOWS OR OTHERWISE NOTED:

BOTTOM OF SLAB	1 INCH
STIRRUPS AND TIES	1½ INCHES

IN ALL FOOTINGS AND PIER SHAFTS, THE MINIMUM COVERING SHALL BE 3 INCHES.

STRUCTURE EXCAVATION: Structure excavation for all Bents shall be computed from natural ground lines as they exist before any approach fills are placed or road work performed in the vicinity of the Bents.

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

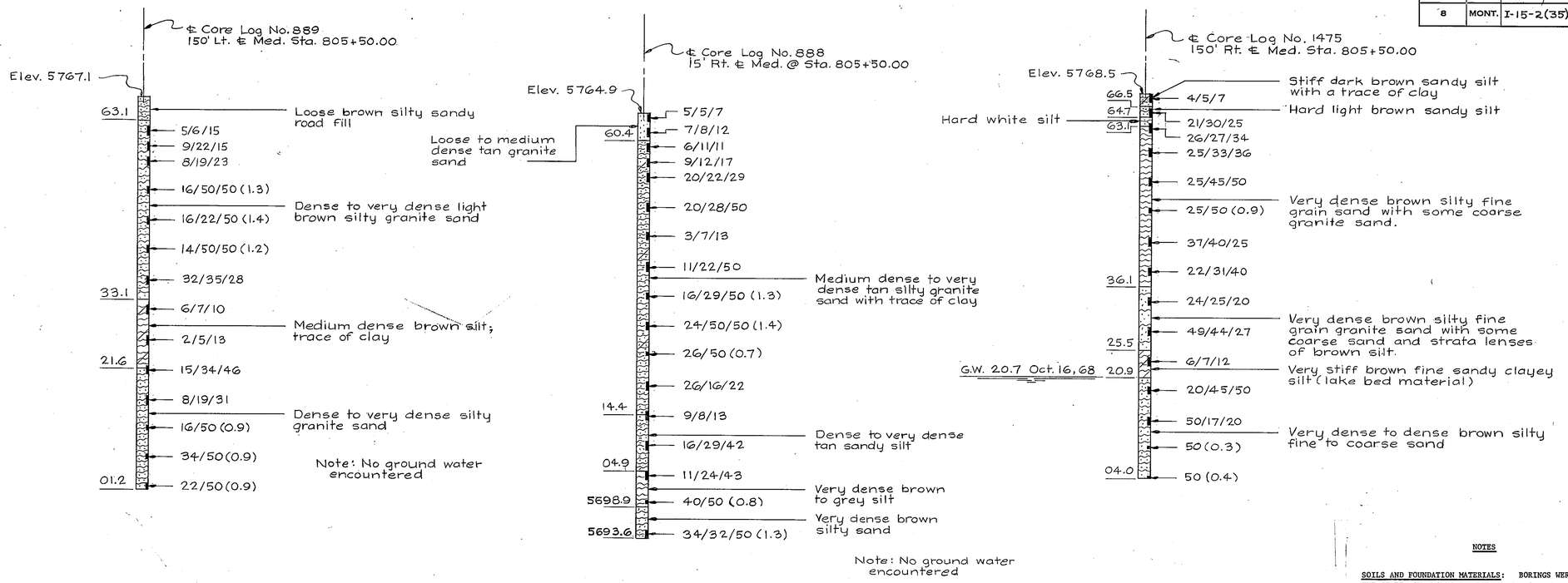
FEELY INTERCHANGE
AT STA. 805+50.00
FEDERAL AID PROJECT NO. I 15-2(35)111
SILVER BOW COUNTY
GENERAL LAYOUT
Scale: 1"=15'-0" (Except as noted)

DRAWING NO. 10669

H.E.S.

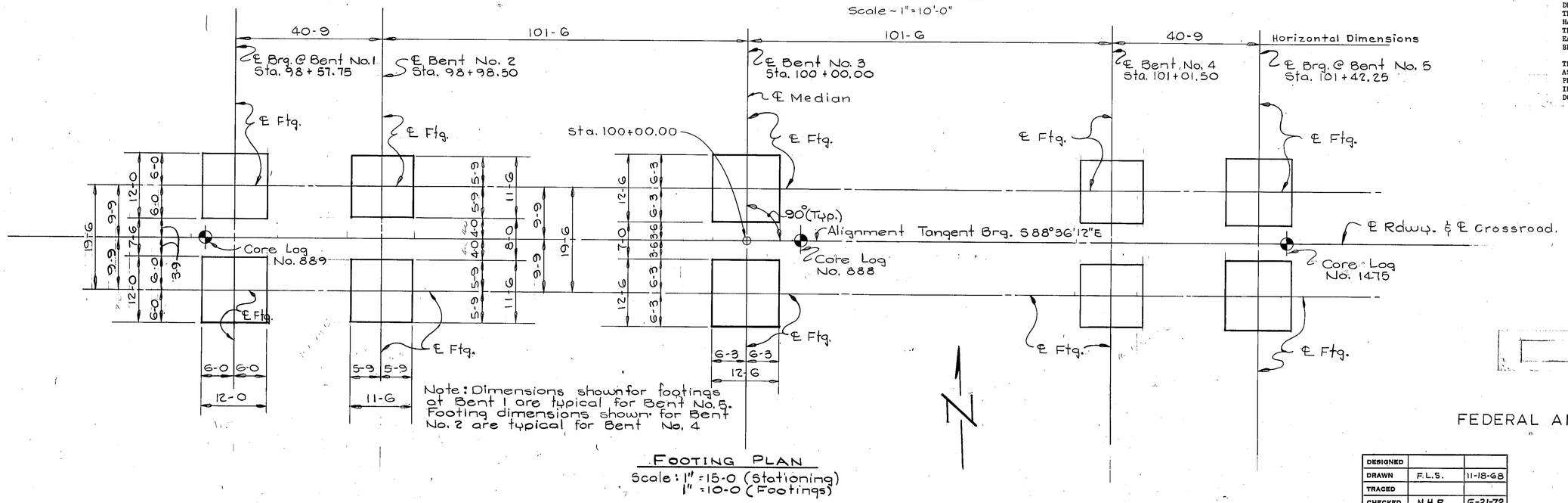
KEUFFEL & ESSER CO.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-15-2(35)111	2	17



LOG OF BORINGS

Scale ~ 1" = 10'-0"



Note: Dimensions shown for footings at Bent 1 are typical for Bent No. 5. Footing dimensions shown for Bent No. 2 are typical for Bent No. 4

FOOTING PLAN

Scale: 1" = 15-0 (Stationing)
1" = 10-0 (Footings)

NOTES

SOILS AND FOUNDATION MATERIALS: BORINGS WERE TAKEN BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS AT THE POINTS SHOWN ON THE GENERAL LAYOUT OR FOOTING PLAN.

THE SERIES OF NUMBERS SHOWN ON THE LOG OF BORINGS INDICATES THE NUMBER OF BLOWS PER 6" PENETRATION FOR EACH NUMBER OF THE SERIES OF A 2" SAMPLE TUBE WHICH WAS DRIVEN IN ACCORDANCE WITH THE STANDARD PENETRATION TEST MADE WITH A 2" SPLIT TUBE SAMPLER USING A 140# HAMMER HAVING A 30" DROP. THE TOTAL PENETRATION OF THE SAMPLER TUBE IS INDICATED ON THE CORE LOGS AFTER EACH SERIES IF 6" PENETRATION WAS NOT ACHIEVED IN 50 BLOWS.

THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS DOES NOT ASSUME ANY RESPONSIBILITY FOR ANY VARIATION OR MISINTERPRETATION OF THE CLASSES OF MATERIALS, AND ADJUSTMENT IN BID PRICES WILL NOT BE MADE IF THE MATERIALS FOUND DO NOT AGREE WITH THOSE SHOWN IN THE LOG OF BORINGS.

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

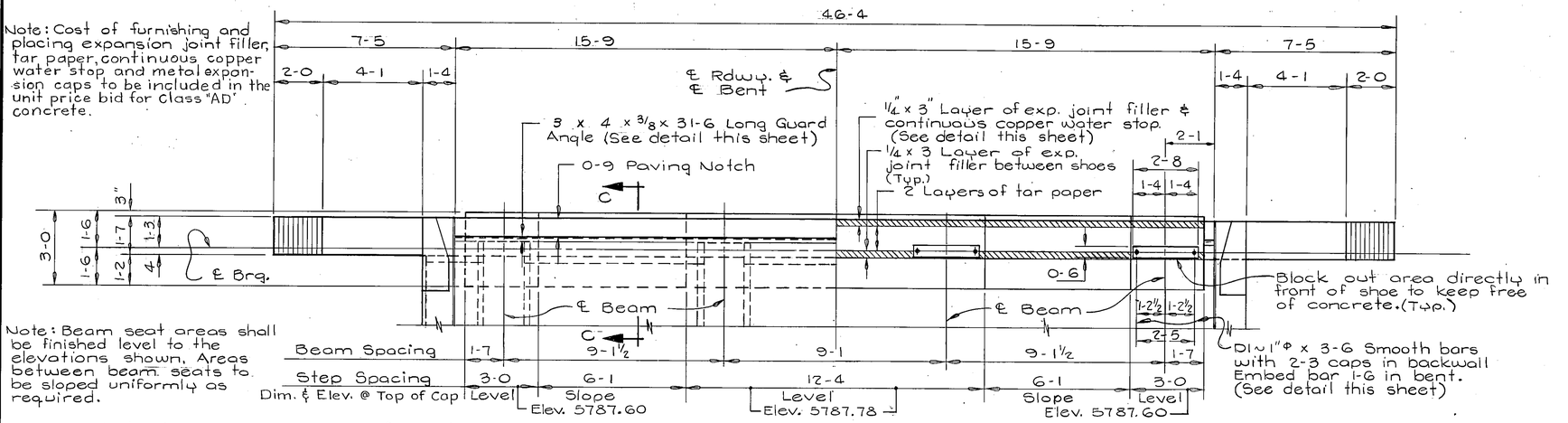
FEELY INTERCHANGE
AT STA. 805+50.00
FEDERAL AID PROJECT NO. I 15-2(35)111
SILVER BOW COUNTY
FOOTING PLAN
Scale ~ As Noted

DESIGNED		
DRAWN	F.L.S.	11-18-68
TRACED		
CHECKED	N.H.R.	6-21-72
REVISED		
REVISED		

DRAWING NO. 10670

KOPPERS KOPPERS CO. MAUPPEL & BAKER CO.

Note: Cost of furnishing and placing expansion joint filler, tar paper, continuous copper water stop and metal expansion caps to be included in the unit price bid for Class "AD" concrete.

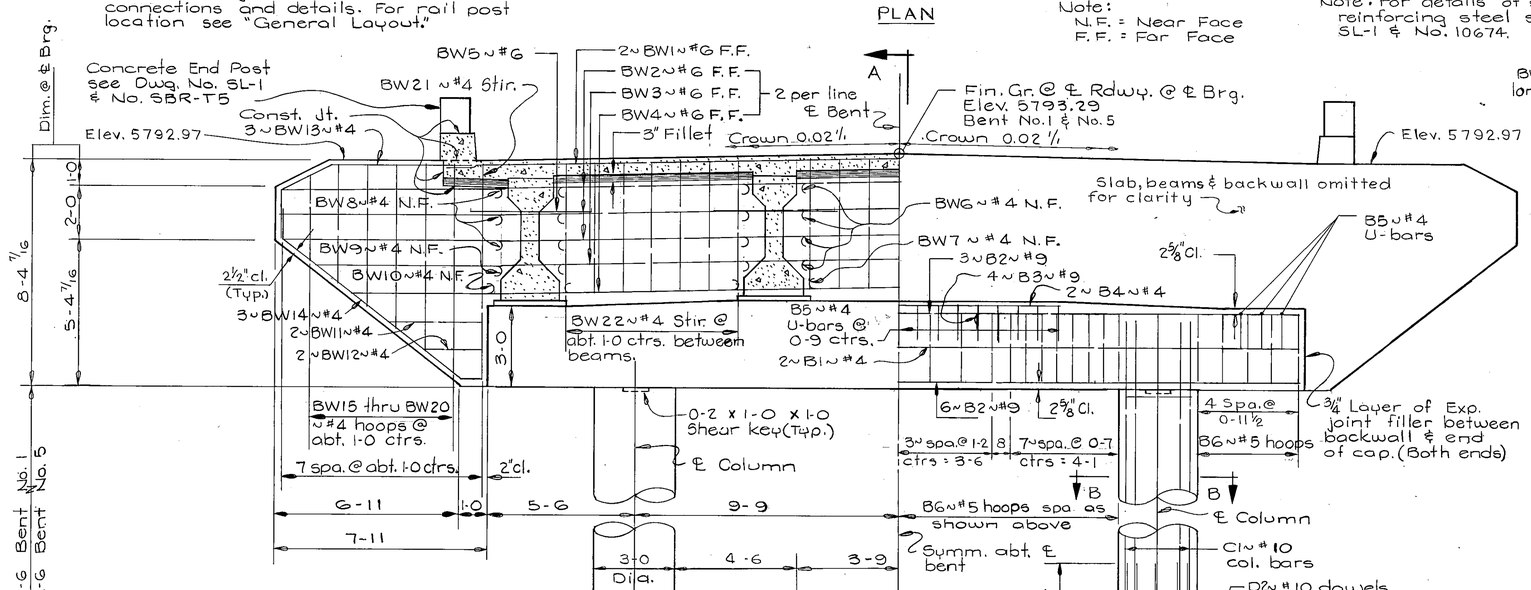


Note: Beam seat areas shall be finished level to the elevations shown. Areas between beam seats to be sloped uniformly as required.

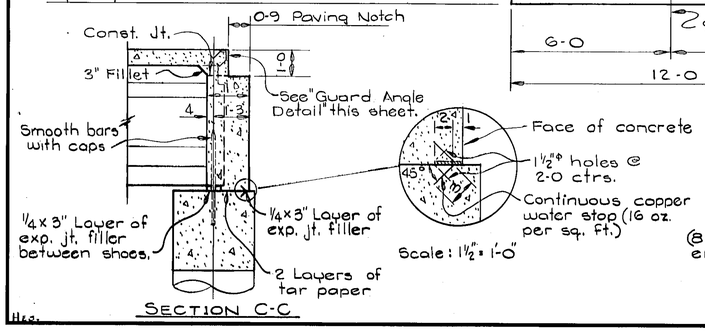
Note: See Dwg. No. SBR-T5 for rail connections and details. For rail post location see "General Layout."

Note:
N.F. = Near Face
F.F. = Far Face

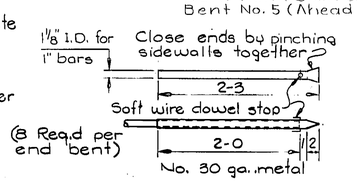
Note: For details of slab & beam reinforcing steel see Dwg. No. B-4, SL-1 & No. 10674.



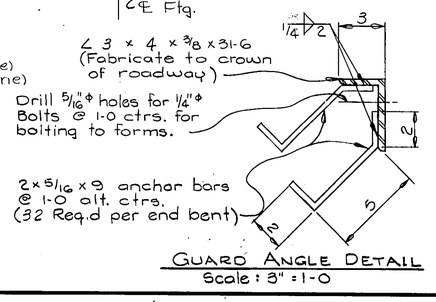
ELEVATION
Bent No. 1 (Back on Line)
Bent No. 5 (Ahead on Line)



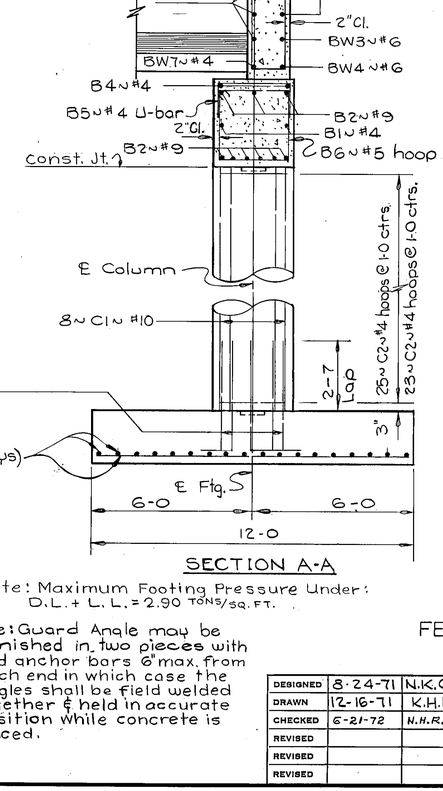
SECTION C-C



METAL EXPANSION CAP
Scale: 1" = 1'-0"



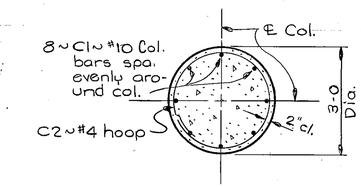
GUARD ANGLE DETAIL
Scale: 3" = 1'-0"



SECTION A-A

Note: Maximum Footing Pressure Under: D.L. + L.L. = 2.90 TONS/SQ. FT.

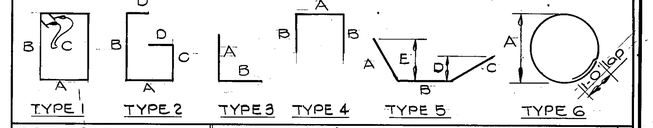
Note: Guard Angle may be furnished in two pieces with end anchor bars 6" max. from each end in which case the angles shall be field welded together & held in accurate position while concrete is placed.



SECTION B-B
Scale: ½" = 1'-0"

BILL OF REINFORCING STEEL (For one Bent only)

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-15-2(35)111	3	17



STRAIGHT BARS				BENT BARS (All dimensions are out to out)								
Mark	Size	No.	Length	Mark	Size	No	Type	Length	A	B	C	D	E
BW1	#6	2	33'-7"	BW13	#4	6	5	9'-1"	5-3	2'-1"	1'-9"	1'-7"	2'-4"
2	6	6	23-9	14		6	5	10-4	1-0	8-7	0-9	0-6	0-9
3	6	2	22-4	15		2	1	9-7	1-3	3-2	0-4½		
4	6	2	20-11	16		2	1	12-1		4-5			
5	6	4	4-6	17		2	1	13-9		5-3			
6	4	12	7-1	18		2	1	15-5		6-1			
7	4	3	6-7	19		2	1	17-1		6-11			
8	4	6	8-4	20		2	1	18-9		7-9	0-4½		
9	4	2	6-11	21		2	2	16-10		8-0	7-0	0-3½	
10	4	2	5-3	22		21	2	10-8	1-3	4-11	3-11	0-3½	
11	4	4	3-5	BW23	4	24	3	4-0	2-0	2-0			
BW12	#4	4	2-1										
D 1	1"Φ sm.	8	3-6	B 5	4	23	4	5-2	2-8	1-3			
B 1	#4	2	30-2	B 6	5	33	1	11-5	2-8	2-8	0-4½		
B 2	9	9	30-2										
B 3	9	8	11-3	D2	#10	16	3	5-9	4-3	1-6			
B 4	4	2	12-0										
F 1	#8	72	11-6										
BENT NO. 1 (ONLY)													
C 1	#10	16	27-0	C2	#4	50	6	9-4	2-8				
BENT NO. 5 (ONLY)													
C 1	#10	16	25-0	C2	#4	46	6	9-4	2-8				

* D1 v 1"Φ smooth bars shall conform to ASTM designation A-36

DESIGNED	8-24-71	N.K.G.
DRAWN	12-16-71	K.H.L.
CHECKED	6-21-72	H.H.R.
REVISED		
REVISED		
REVISED		

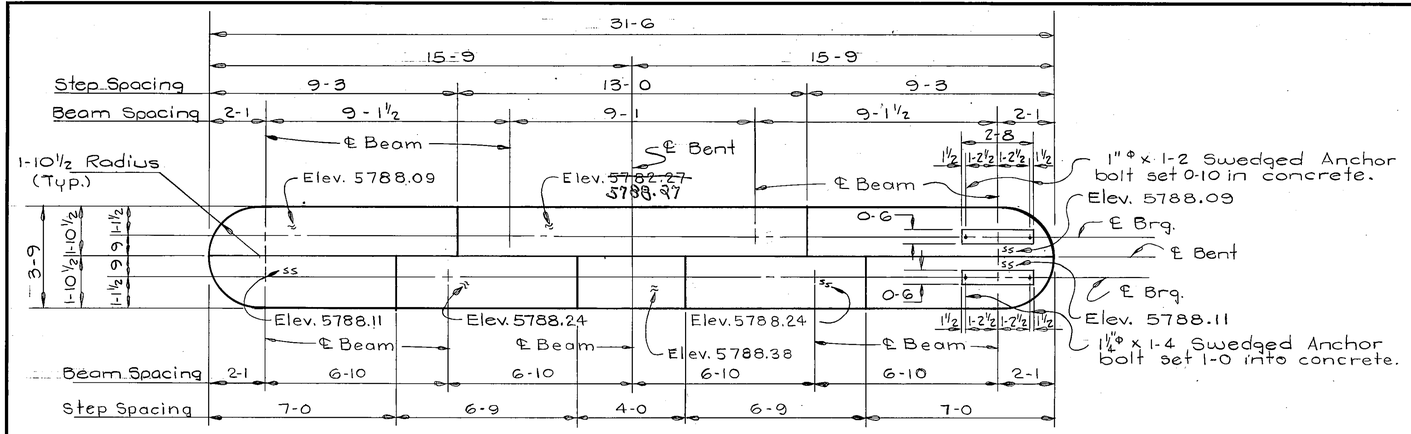
STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

FEELY INTERCHANGE
AT STA. 805+50.00
FEDERAL AID PROJECT NO. I-15-2(35)111
SILVER BOW COUNTY
BENT NO. 1 & NO. 5

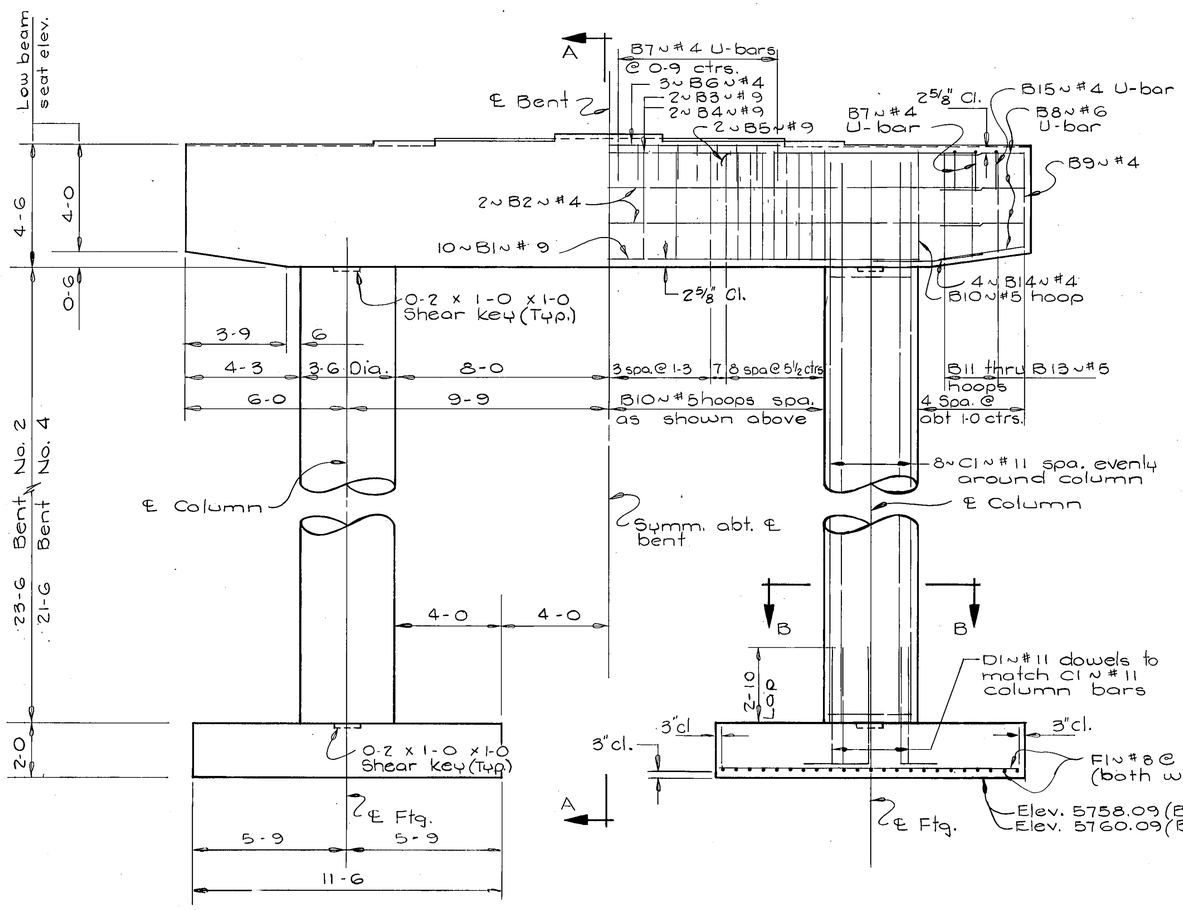
Scale: 3/8" = 1-0 (Except as noted)

DRAWING NO. 10671

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-15-2(35)111	4	17



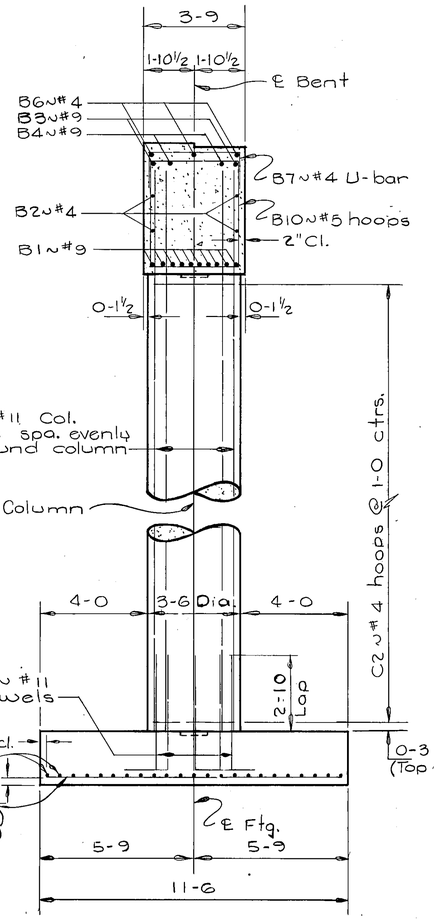
PLAN



ELEVATION

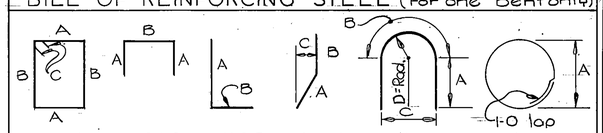
(Bent No. 4 Ahead on line)
(Bent No. 2 Back on line)

Note: Max. Ftg. Pressure Under: D.L.+ L.L. = 2.82 TONS/SQ. FT.



SECTION A-A

BILL OF REINFORCING STEEL (For one Bent only)



TYPE 1 TYPE 2 TYPE 3 TYPE 4 TYPE 5 TYPE 6

STRAIGHT BARS

Mark	Size	No	Length
B 1	#9	10	23'-0"
2	4	4	27-9
3	9	2	27-9
4	9	2	29-0
5	9	4	11-0
B 6	4	3	12-8
F 1	8	92	11-0

BENT BARS (All dim. are out to out)

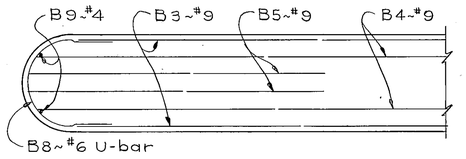
Mark	Size	No	Type	Length	A	B	C	D
B 7	#4	24	2	5'-11"	1'-3"	3'-5		
8	6	8	5	8-3	1-6	5-3	3'-4"	1'-8"
9	4	4	4	6-9	3-1	3-8	3-1	
10	5	27	1	15-11	3-5	4-2	0-4½	
11	5	2	1	15-9	3-5	4-1	0-4½	
12	5	2	1	15-5	3-5	3-11	0-4½	
13	5	2	1	14-7	3-2	3-9	0-4½	
14	4	8	4	4-0	2-0	2-0	0-4	
B15	4	2	2	5-8	1-3	3-2		
D 1	11	16	3	6-1	4-5	1-8		

BENT No. 2 (only)

C 1	11	16	27-6	C 2	4	48	6	11-0	3-2			

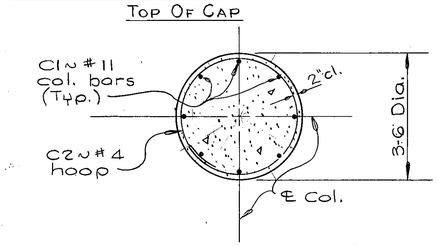
BENT No. 4 (only)

C 1	#11	16	25-6	C 2	#4	44	6	11-0	3-2			



REINFORCING STEEL DIAGRAM

TOP OF CAP



SECTION B-B

Scale: ½" = 1-0

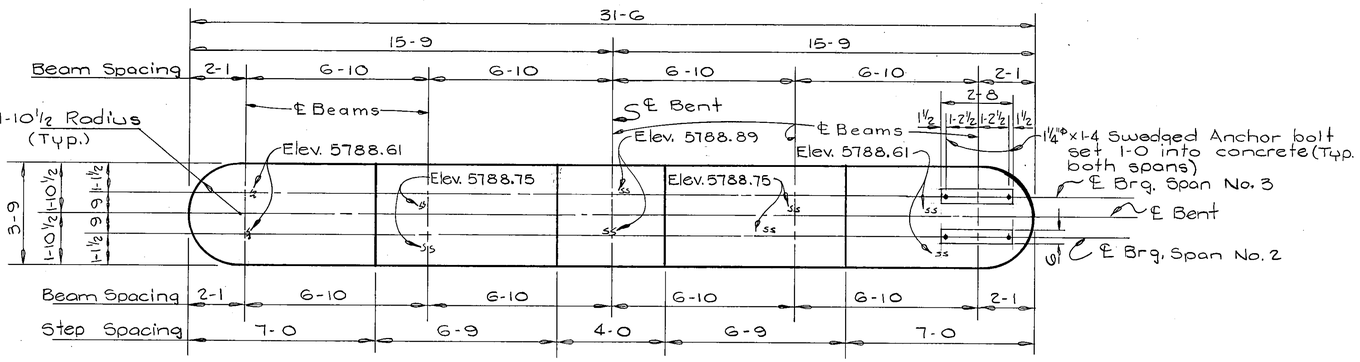
STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

FEELY INTERCHANGE
AT STA. 805+50.00
FEDERAL AID PROJECT NO. I-15-2(35)111
SILVER BOW COUNTY
BENT NO. 2 & NO. 4
Scale: ⅜" = 1-0 (Except as noted)
DRAWING NO. 10672

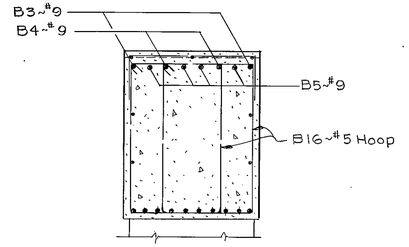
DESIGNED	8-6-71	S.C.C.
DRAWN	1-19-72	K.H.L.
CHECKED	6-21-72	N.H.R.
REVISED		
REVISED		
REVISED		

H&S.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-15-2(35)111	5	17

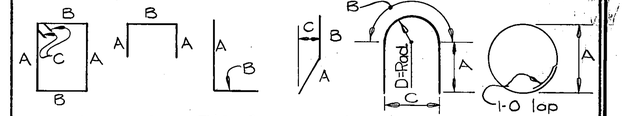


PLAN



SECTION C-C
Scale ~½"=1'-0"

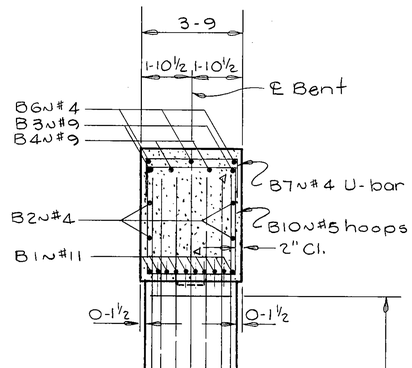
BILL OF REINFORCING STEEL



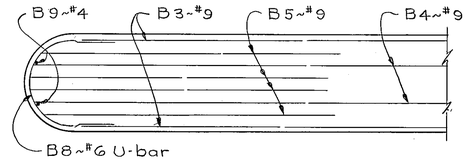
TYPE 1 TYPE 2 TYPE 3 TYPE 4 TYPE 5 TYPE 6

STRAIGHT BARS				BENT BARS (All dim. are out to out)								
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D
B 1	#11	10	23'-0"	B 7	#4	24	2	5'-11"	1'-3"	3'-5		
2	4	4	27-9	8	6	8	5	8-3	1-6	5-3	3'-4"	1'-8"
3	9	2	27-9	9	4	4	4	6-9	3-1	3-8	3-1	
4	9	2	30-11	10	5	13	1	15-11	4-2	3-5	0-4½	
5	9	8	11-0	11	5	2	1	15-9	4-1	3-5	0-4½	
B 6	4	3	12-8	12	5	2	1	15-7	4-0	3-5	0-4½	
				13	5	2	1	15-5	3-11	3-5	0-4½	
				14	5	2	1	14-9	3-10	3-2	0-4½	
F 1	8	76	12-0	15	4	8	4	4-0	2-0	2-0	0-4	
				B16	5	28	1	14-1	4-2	2-6	0-4½	
C 1	#10	24	32-0	C 2	4	56	6	11-0	3-2			
						58						
				D 1	#10	24	3	6-10	5-4	1-6		

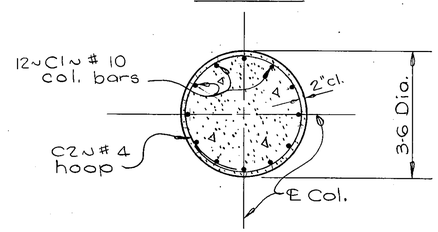
NOTES: 1% Overrun in Ry Quantity Ry = 56
Contractor provided 2-cy of his expense



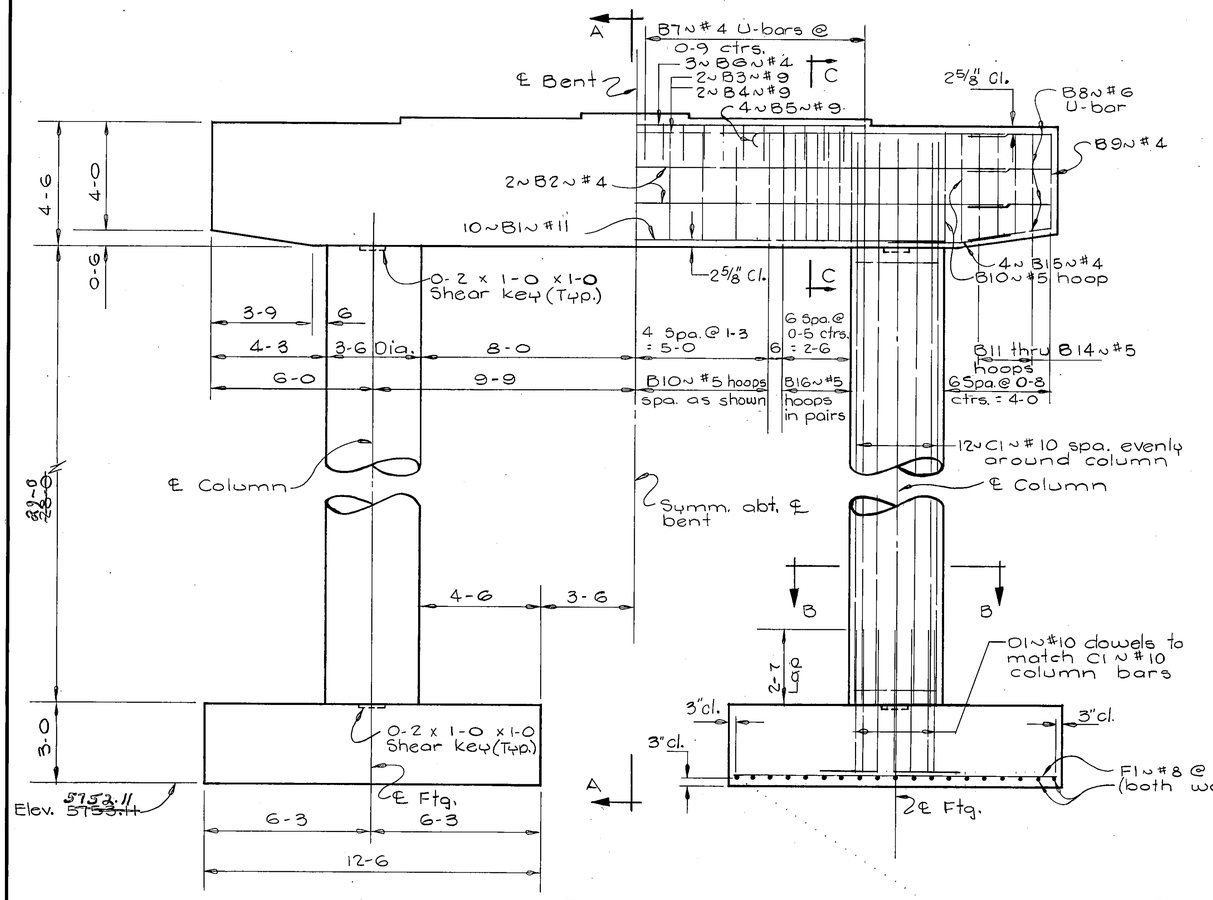
SECTION A-A



REINFORCING STEEL DIAGRAM
TOP OF CAP



SECTION B-B
Scale: ½"=1-0



ELEVATION
(Ahead on line)

Note: Maximum Ftg. Pressure Under:
D.L. + L.L. + .3 W. + L.F. + W.L. = $\frac{3.60 \text{ TONS}}{1.25}$ = 2.86 TONS/SQ.FT.

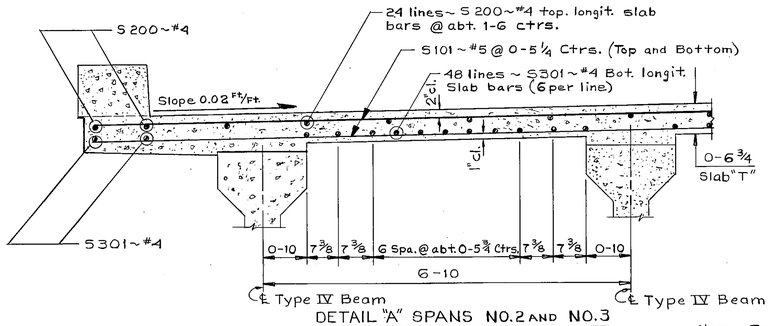
DESIGNED	8-11-71	S.C.C.
DRAWN	1-21-72	K.H.L.
CHECKED	6-21-72	N.H.R.
REVISED		
REVISED		
REVISED		

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

FEELY INTERCHANGE
AT STA. 805+50.00
FEDERAL AID PROJECT NO. I-15-2(35)111
SILVER BOW COUNTY
BENT NO. 3
Scale: 3/8"=1-0 (Except as noted)
DRAWING NO. 10673

HHB-

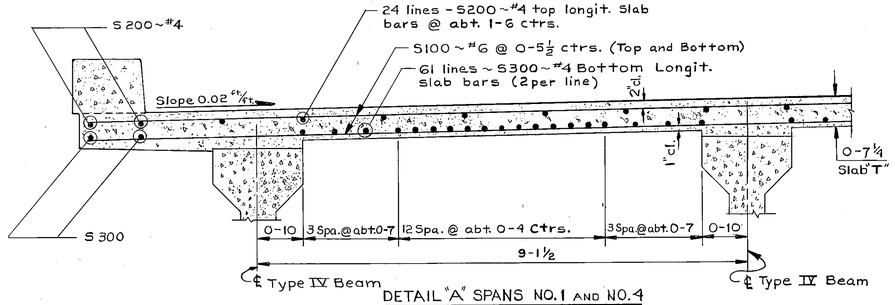
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-15-2(35)111	6	17



DETAIL "A" SPANS NO.2 AND NO.3

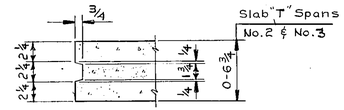
Scale: ¾" = 1'-0"

Note: See Dwg. No. SL-1 for additional slab, curb, end & intermediate diaphragms, and end post details.



DETAIL "A" SPANS NO.1 AND NO.4

Scale: ¾" = 1'-0"



OPTIONAL CONSTRUCTION JOINT IN SLAB

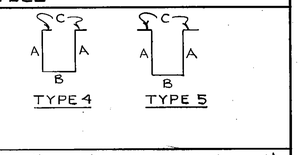
Scale: 1½" = 1'-0"

NOTES

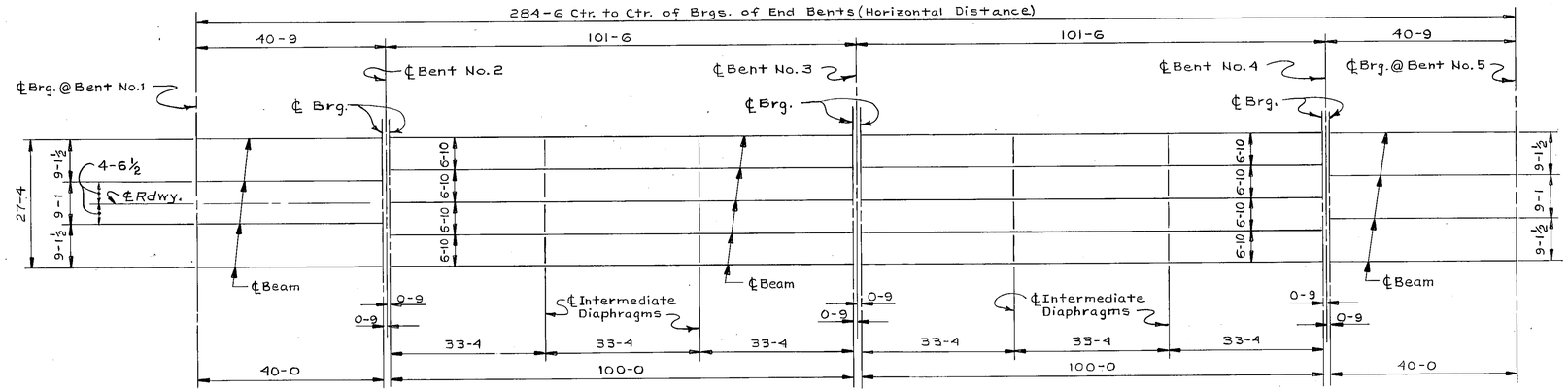
OPTIONAL CONST. JT.: If the contractor elects to use the optional const. Jt. at Bent No. 3 he shall arrange his sequence of pouring the slab so that the last pour is ended at the ℄ Bent No. 3

At construction joint coat the concrete surface thoroughly with epoxy resin bonding agent (AASHO Designation M 235-72 Type I.) just before the last pour at the joint. Slab reinforcing steel shall be continuous thru the joint as shown on Dwg. No. SL-1.

BILL of REINFORCING STEEL



STRAIGHT BARS				BENT BARS (All dimensions are out to out)						
MARK	SIZE	No.	LENGTH	MARK	SIZE	No.	TYPE	LENGTH	A	B	C	D
S100	#6	352	33'-7"	C1	#4	760	1	3'-4"	0'-9"	1'-0"	0'-5"	
S200	4	192	36-7	C2	4	744	2	2-6	0-6	1-0	1-0	
S300	4	122	22-7	C3	4	140	3	3-7	0-10	0-8	0-3½	
S301	4	288	34-8	C4	5	156	2	4-9	0-6	1-0	3-3	
S101	5	928	33-7	C5	4	4	6	2-0	1-0	1-0		
C300	4	64	36-8	P2	5	16	7	2-9	1-1½	1-7½	0-6	
S5	5	51	15-0	P3	4	12	3	6-3	2-0	0-10	0-3½	
S6	5	60	10-0	P4	4	4	3	6-1	″	0-9	″	
				P5	4	4	3	5-11		0-8		
P1	5	24	2-9	P6	4	4	3	5-9		0-7		
				P7	4	4	3	5-7		0-6		
				P8	4	4	3	5-5		0-5		
				P9	4	4	3	5-3	2-0	0-4	0-3½	
SPANS NO.1 AND NO.4												
D3	6	12	7-3	D4	4	48	4	4-10	1-10	0-7	0-3½	
D8	6	4	5-4									
SPANS NO.2 AND NO.3												
D3	6	32	5-0	D4	4	96	4	4-10	1-10	0-7	0-3½	
D5	4	32	5-0	D7	#4	96	5	8-0	3-5	0-7	0-3½	
D6	6	32	5-0									
D8	#6	24	5-4									



ERECTION PLAN

Scale: 1" = 15'-0"

PRESTRESSED CONCRETE BEAMS: Prestressed concrete beams shall be fabricated in accordance with Dwg. No. B-4. Maximum f'_c (Compressive strength of concrete at 28 days) for design shall be 6,000 P.S.I. Design stresses (without Prestress) are as follows:

		40-0 SPAN	100-0 SPAN
Beam D.L. Stresses (P.S.I.)	Ft	221	1384
	Fb	-187	-1169
Total D.L.+L.L. Design Stresses (P.S.I.)	Ft	687	3183
	Fb	-798	-3226
Req'd. Ultimate Moment Capacity (Foot Kips)	M'	1773	5993

DEAD LOAD DEFLECTION TABLE						
POINT	0	0.1	0.2	0.3	0.4	0.5
TOTAL DEFLECTION						
40-0 SPAN	0	0	0	1/16	1/16	1/16
100-0 SPAN	0	7/16	7/8	13/16	13/8	17/16

NOTE: Deflections are symmetrical about ℄ Span.

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

FEELY INTERCHANGE
AT STA. 805+50.00
FEDERAL AID PROJECT NO. I-15-2(35)111
SILVER BOW COUNTY

ERECTION PLAN

Scale: As Noted

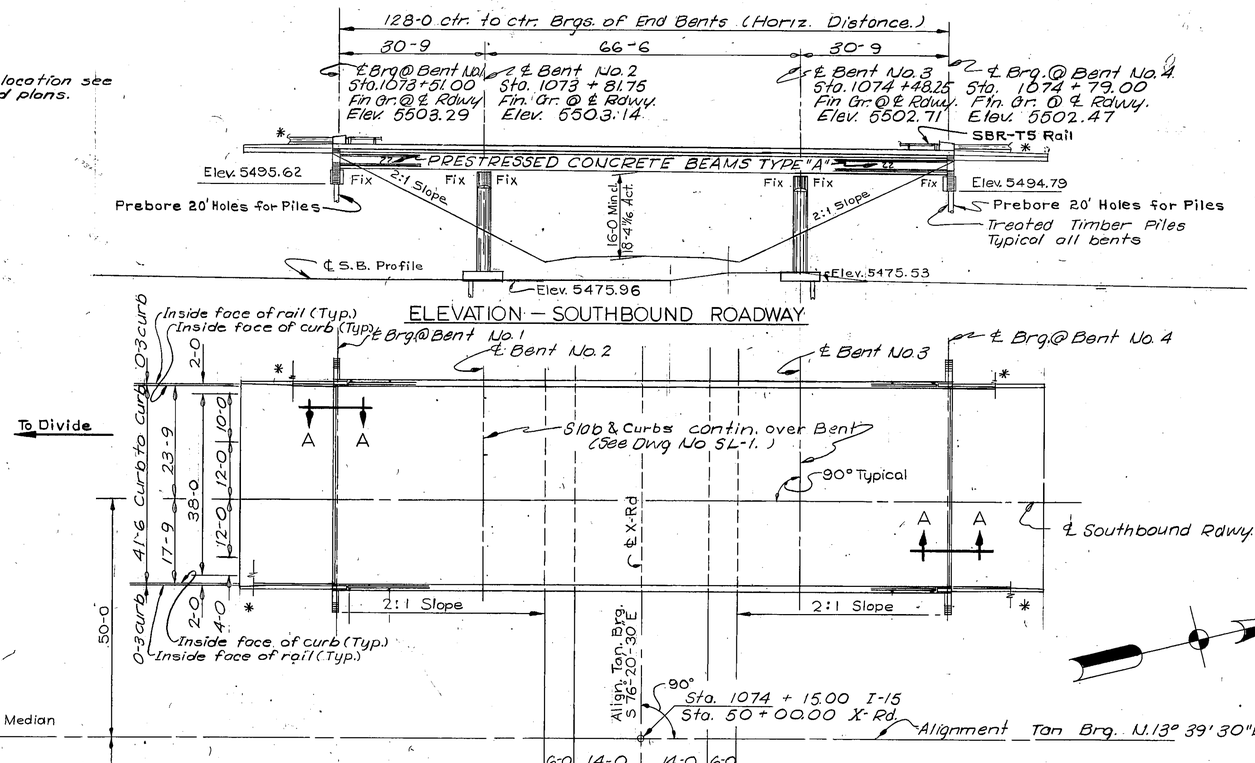
DESIGNED		
DRAWN	J.R.G.	8-10-71
CHECKED	M.H.R.	6-21-72
REVISED		
REVISED		
REVISED		

DRAWING NO. 10674

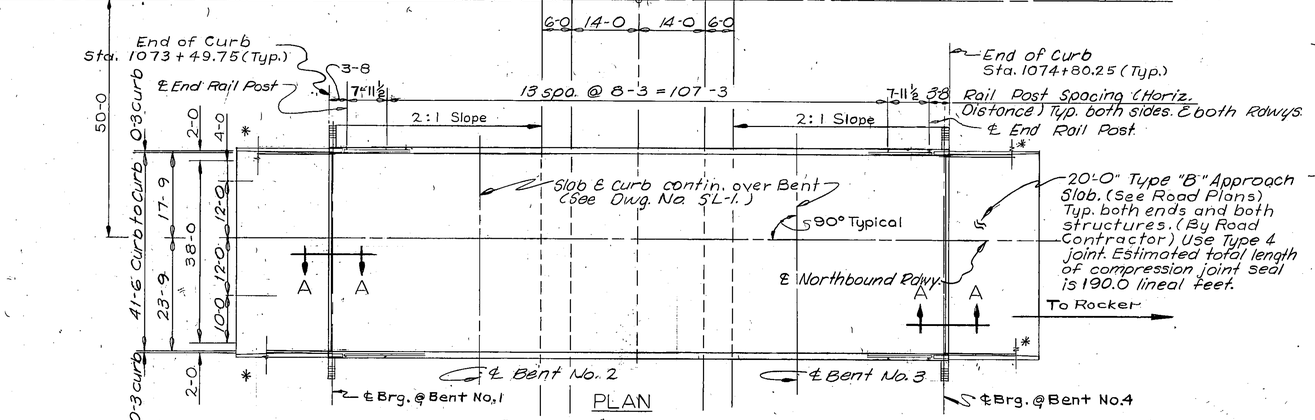
H.R.S.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-15-2(35)111	7	17

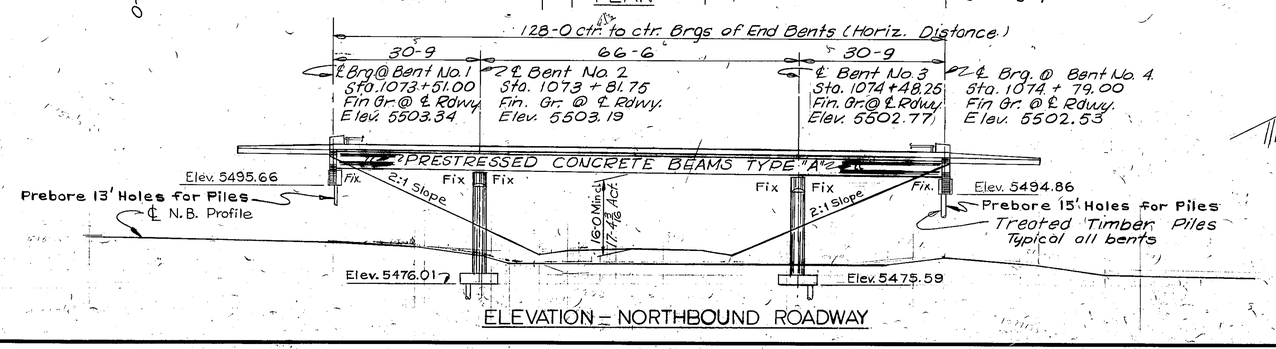
Note: For utilities location see appropriate road plans.



ELEVATION — SOUTHBOUND ROADWAY

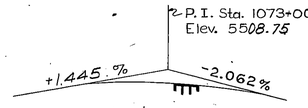


PLAN



ELEVATION — NORTHBOUND ROADWAY

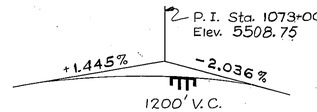
Note: For Sequence of Work and the Maintenance of Traffic see Special Provisions.



S.B. RDWY. PROFILE GRADE (I15)

No Scale

▲ *This Contract*: IM 15-2(68)116 Bridge approach sections Revised. See Dwg. No. 19251 - 19252

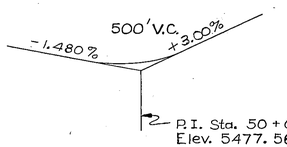


N.B. RDWY. PROFILE GRADE (I15)

No Scale

***THIS CONTRACT:**

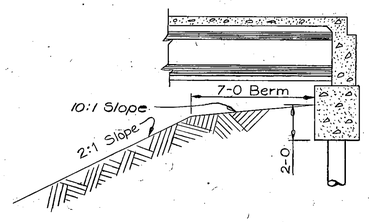
Bridge rail to be blocked out & made continuous with Bridge Approach Rail. See Dwg. No.



X-ROAD PROFILE GRADE

No Scale

Note:
Theoretical thermal movement @ each bridge end calculated from +60° F:
Expansion = 1/4" @ +120° F
Contraction = 7/16" @ -30° F



SECTION A-A

Scale ÷ 1/4" = 1'-0"

NOTES

LIVE LOAD: STANDARD HS 20-44 LOADING OR ALTERNATE LOADING. ALTERNATE LOADING FOR BRIDGES AND FLOOR SYSTEMS WITH SPANS UNDER 40 FEET CONSISTS OF TWO AXLES FOUR FEET APART WITH EACH AXLE WEIGHING 24,000 LBS.

FINISH GRADE: FINISH PLAN GRADE OF BRIDGE AT ℄ RDWY. IS SAME AS PROFILE GRADE SHOWN ON ROAD PLANS.

SPECIFICATIONS: MONTANA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1970 EDITION, AND ANY AMENDMENTS THERETO, AND SPECIAL PROVISIONS SHALL GOVERN UNLESS OTHERWISE NOTED. DESIGN PREPARED IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS, 1969 EDITION, AND ANY AMENDMENTS THERETO.

CAST IN PLACE CONCRETE: UNLESS OTHERWISE APPROVED, ALL CONCRETE SHALL BE CLASS "AD", AN "AIR ENTRAINING AGENT" SHALL BE ADDED TO ALL CONCRETE EXCEPT CLASS "AS". CHAMFER ALL EXPOSED EDGES OF CONCRETE WITH ENCLOSED ANGLE LESS THAN 120°, 3/4" AND FILLET ENTRANT ANGLES 3/4" UNLESS OTHERWISE NOTED. ALL FORMS FOR DECK SLAB SHALL BE REMOVED.

STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHALL BE MEASURED AND PAID FOR ON THE LUMP SUM BASIS AS SET FORTH IN THE STANDARD SPECIFICATIONS.
ESTIMATED WEIGHT = 1688 POUNDS.

FOR REQUIREMENTS GOVERNING THE FABRICATION OF "STRUCTURAL STEEL" SEE THE STANDARD SPECIFICATIONS. TO AVOID OVERSIGHT THESE REQUIREMENTS SHALL BE CLEARLY NOTED ON THE SHOP DRAWINGS.

STRUCTURAL STEEL SHALL RECEIVE ONE (1) SHOP COAT OF RED LEAD OR BASIC LEAD SILICO CHROMATE PRIMER AND TWO (2) FIELD COATS CONSISTING OF FIRST FIELD OR PRIMER COAT AND ONE (1) COAT OF ALUMINUM PAINT AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

APPROVAL: SHOP PLANS SHALL BE APPROVED BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS BEFORE FABRICATION IS BEGUN.

SETTING OF MASONRY PLATES: CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL SO AS TO CLEAR ANCHOR BOLTS. MASONRY PLATES SHALL BE PLACED ON THREE LAYERS OF CANVAS THOROUGHLY SWABBED WITH RED LEAD AS CALLED FOR IN THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL FINISH CONCRETE UNDER MASONRY PLATES TO THE EXACT ELEVATION SHOWN. BUSH HAMMERING WILL BE PERMITTED AND USED ONLY AS A MEANS OF LEVELING THE CONCRETE SURFACE TO ASSURE FULL AND LEVEL BEARING AND TO REMOVE LAITANCE. LOOSE AND FOREIGN MATERIAL. STEEL SHIMS SHALL BE USED TO BRING THE MASONRY PLATES UP TO GRADE IF NECESSARY. STEEL SHIMS SHALL BE THE SAME SIZE EXCEPT FOR THICKNESS, AS THE MASONRY PLATE. MINIMUM THICKNESS OF ANY SHIMS SHALL BE 1/8". THE COST OF BUSH HAMMERING AND SHIMS, IF ANY, SHALL BE INCLUDED IN THE UNIT PRICES BID FOR CLASS "AD" CONCRETE.

BACKFILL: THE BACKFILL AT END BENTS MAY BE COMPLETE UP TO THE BOTTOMS OF THE BACKWALLS BEFORE SUPERSTRUCTURE IS IN PLACE. THE BACKFILL AGAINST THE BACKWALLS SHALL NOT BE PLACED UNTIL AFTER THE CONCRETE ROADWAY SLAB HAS BEEN PLACED.

FOOTINGS: ELEVATIONS SHOWN FOR BOTTOM OF FOOTINGS ARE APPROXIMATE ONLY. FINAL ELEVATIONS TO BE DETERMINED BY THE ENGINEER.

PROTECTIVE COATING: DECK, CURBS AND CONCRETE END POSTS SHALL BE GIVEN A PROTECTIVE COATING OF BOILED LINSEED OIL. "SEE STANDARD SPECIFICATIONS".

COVERING: THE MINIMUM COVERING, MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY REINFORCEMENT BAR, SHALL BE NOT LESS THAN 2 INCHES EXCEPT AS FOLLOWS OR OTHERWISE NOTED:

BOTTOM OF SLAB	1 INCH
STIRRUPS AND TIES	1½ INCHES

IN ALL FOOTINGS AND PIER SHAFTS, THE MINIMUM COVERING SHALL BE 3 INCHES.

STRUCTURE EXCAVATION: STRUCTURE EXCAVATION FOR BENTS NO. 2 AND NO. 3 N.B. AND S.B. RDWYS. SHALL BE COMPUTED FROM NATURAL GROUND LINES AS THEY EXIST BEFORE ANY APPROACH FILLS ARE PLACED.

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BUXTON INTERCHANGE
AT STA. 1074+15.00
FEDERAL AID PROJECT NO. I 15-2(35)111
SILVER BOW COUNTY
GENERAL LAYOUT
Scale ÷ 1" = 15'-0" Except As Noted

DESIGNED		
DRAWN	10-2-68	A. N.
CHECKED	6-21-72	N.H.R.
APPROVED	4-16-73	H.E.D.
* REVISED	5-1-85	R.L.R.
▲ REVISED	3-16-05	T.J.B

DRAWING NO. 10675

5475.00

H.E.D.

KEUFFEL & ESSER CO.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-15-2(35)111	8	17

℄ Core Log No. 890
50' Lt. ℄ Med. Sta. 1073+56

Elev. 5475.9

G.W. 72.9 Oct. 22, 68

73.9	Loose brown silt
	3/5/4
	1/1/2
	7/8/10
	9/13/15
	8/12/14
	12/16/23
	10/11/12
	10/12/16
	5/9/13
	Soft to very hard light brown silt
	8/12/14
	27/31/47
	14/21/28
	17/25/46
25.9	36/50/(0.9)
	25/50/(0.9)
	Very hard light brown silt with small granite sand layers
	50/50/(0.7)
10.0	32/50/(0.9)

℄ Core Log No. 891
50' Rt. ℄ Med. Sta. 1073+56

Elev. 5485.3

G.W. 72.5 Oct. 23, 68

83.3	Medium dense dark brown sandy silt
	4/7/9
	9/19/22
	13/19/15
	14/18/21
	14/17/19
	17/18/45
	Hard to very stiff to very hard light brown silt with small layers of granite sand
	5/10/10
	13/26/25
	12/22/28
48.3	28/33/30
	Very dense tan granite sand
43.5	24/40/50
	13/25/36
	23/50/50/(1.4)
	Very hard light brown silt
	24/50/50/(1.2)
	30/50/(0.9)
19.6	46/50/(0.7)

℄ Core Log No. 893
50' Lt. ℄ Med. Sta. 1074+74

Elev. 5475.6

G.W. 71.2 Oct. 25, 68

75.1	Loose brown granite sand
	3/4/5
	Very loose brown silt
	2/1/2
71.0	5/5/10
	Medium dense brown granite sand
69.2	8/16/14
	7/16/16
	Hard brown silt
	10/13/21
55.6	16/19/27
	18/35/50
	13/26/39
	16/27/38
	17/47/50/(1.3)
	Hard to very hard brown silt with small layers of granite sand
	17/50/(0.8)
	25/40/(0.7)
	10/16/22
	27/42/41
09.1	14/30/50

℄ Core Log No. 892
50' Rt. ℄ Med. Sta. 1074+75

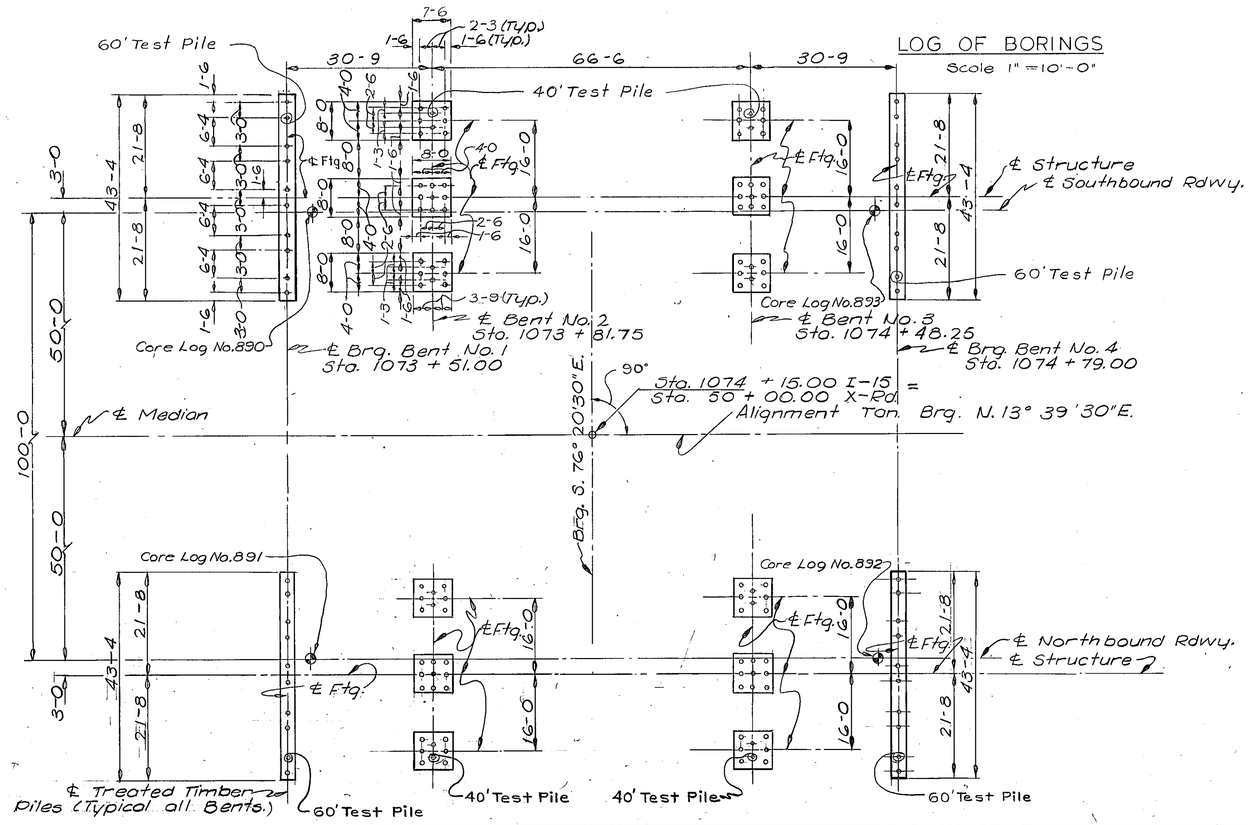
Elev. 5478.5

G.W. 71.3 Oct. 24, 68

	5/8/7
	7/9/11
	Medium dense to dense dark brown changing to light brown silty sand
	20/30/28
	19/9/14
70.5	8/14/15
	7/8/11
	11/23/22
	13/22/24
	11/20/34
	13/24/42
	Very stiff to very hard light brown silt with small layers of granite sand
	50/(0.4)
	9/10/11
	33/48/50/(1.4)
	17/29/41
	19/33/38
12.3	17/50/50/(1.2)

LOG OF BORINGS

Scale 1" = 10'-0"



FOOTING PLAN

Scale : 1" = 15'-0"

Dimensions shown for Bent No.1 Southbound are typical for all Bents No.1 & Bents No.4 on both Roadways. Dimensions shown for Bent No.2 Southbound are typical for all Intermediate Bents on both Roadways.

NOTES

SOILS AND FOUNDATION MATERIALS: BORINGS WERE TAKEN BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS AT THE POINTS SHOWN ON THE GENERAL LAYOUT OR FOOTING PLAN.

THE SERIES OF NUMBERS SHOWN ON THE LOG OF BORINGS INDICATES THE NUMBER OF BLOWS PER 6" PENETRATION FOR EACH NUMBER OF THE SERIES OF A 2" SAMPLE TUBE WHICH WAS DRIVEN IN ACCORDANCE WITH THE STANDARD PENETRATION TEST MADE WITH A 2" SPLIT TUBE SAMPLER USING A 140# HAMMER HAVING A 30" DROP. THE TOTAL PENETRATION OF THE SAMPLER TUBE IS INDICATED ON THE CORE LOGS AFTER EACH SERIES IF 6" PENETRATION WAS NOT ACHIEVED IN 50 BLOWS.

THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS DOES NOT ASSUME ANY RESPONSIBILITY FOR ANY VARIATION OR MISINTERPRETATION OF THE CLASSES OF MATERIALS, AND ADJUSTMENT IN BID PRICES WILL NOT BE MADE IF THE MATERIALS FOUND DO NOT AGREE WITH THOSE SHOWN IN THE LOG OF BORINGS.

FOUNDATION PILES: FOR BIDDING PURPOSES ONLY, PILE LENGTHS HAVE BEEN ESTIMATED AS NOTED ON THE DETAILS. THE "METHOD OF MEASUREMENT" FOR DRIVING TREATED TIMBER PILES SHALL BE AS SET FORTH IN THE STANDARD SPECIFICATIONS EXCEPT THE NUMBER OF LINEAL FEET TO BE MEASURED FOR PAYMENT SHALL BE THE LINEAL FEET OF PILING DRIVEN BELOW THE BOTTOM OF THE PREBORED HOLES. PREBORING OF HOLES FOR TEST PILES SHALL BE INCLUDED IN THE LUMP SUM BID FOR TEST PILES.

DESIGNED		
DRAWN	F.L.S.	11-20-68
TRACED		
CHECKED	N.H.R.	6-21-72
REVISED		
REVISED		

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

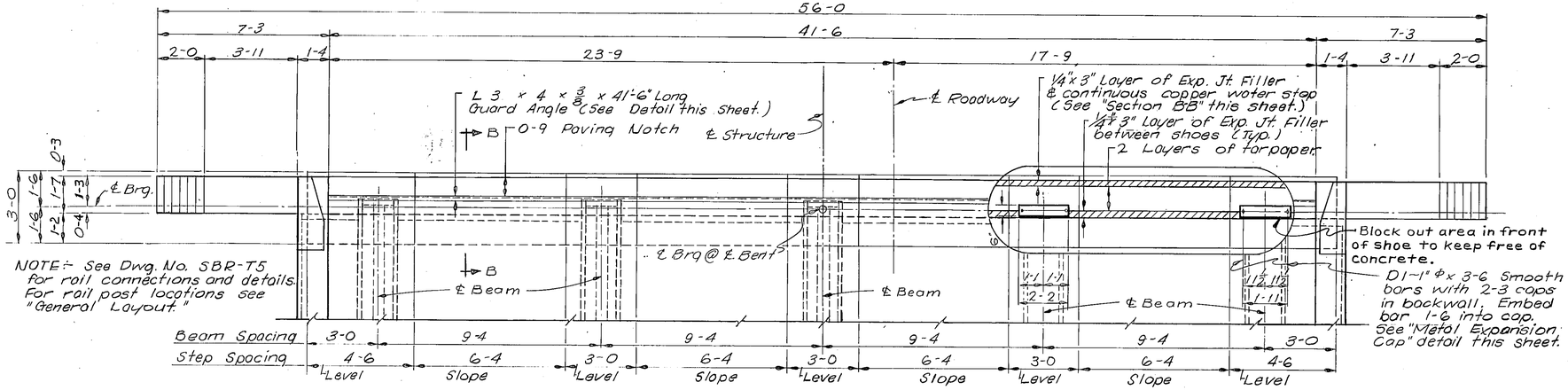
BUXTON INTERCHANGE
AT STA. 1074+15.00
FEDERAL AID PROJECT NO. I-15-2(35)111
SILVER BOW COUNTY
FOOTING PLAN

Scale~As Noted

DRAWING NO. 10676

KEUFFEL & ESSER CO.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-15-2(35)111	9	17



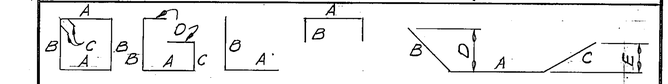
NOTE :- See Dwg. No. SBR-T5 for rail connections and details. For rail post locations see "General Layout."

NOTE: Slab and beam reinforcing steel omitted for clarity. For details see Dwg's. No. SL-1, B-A & Dwg. No. 10681.

NOTE :- Beam seat areas shall be finished level to the elevations shown on Dwg. No. 10678. The areas between beam seats to be sloped uniformly as required.

NOTE: N.F. indicates near face F.F. indicates fill face.

BILL OF REINFORCING STEEL (For one Bent Only.)

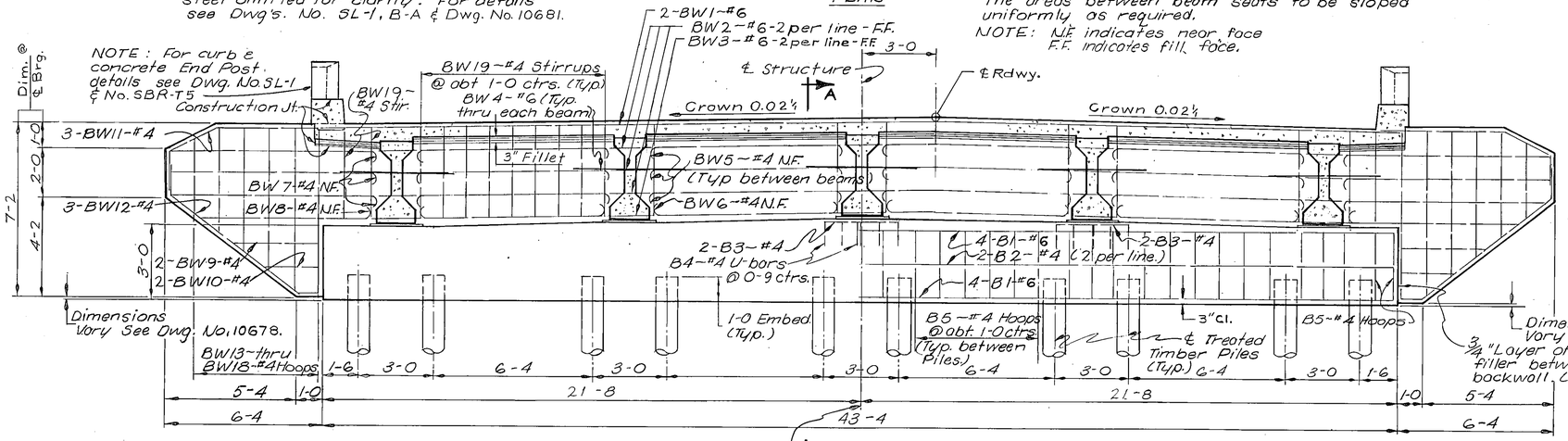


TYPE 1 TYPE 2 TYPE 3 TYPE 4 TYPE 5

STRAIGHT BARS				BENT BARS (All dimensions are out to out.)									
Mark	Size	No	Length	Mark	Size	No	Type	Length	A	B	C	D	E
BW 1	#6	2	43-7	BW11	#4	6	5	8-9"	2-3"	1'-6"	5'-0"	1'-5"	2'-3"
2	6	6	28-2	12	〃	6	6	8-6	6-6	1-3	0-9	1-0	0-6
3	6	2	25-10	13	〃	2	1	9-3	1-3	3-0	0-4½		
4	6	6	5-4	14	〃	〃	〃	11-5	〃	4-2	〃		
5	4	12	7-0	15	〃	〃	〃	13-3	〃	5-0	〃		
6	〃	4	6-8	16	〃	〃	〃	14-11	〃	5-10	〃		
7	〃	6	8-6	17	〃	〃	〃	16-7	〃	6-8	〃		
8	〃	2	7-3	18	〃	2	1	16-11	1-3	6-10	0-4½		
9	〃	4	3-6	19	〃	40	2	8-6	1-3	3-10	2-10	0-3½	
BW10	4	4	2-3	BW20	4	31	3	4-0	2-0	2-0			
B 1	6	8	43-0	B 4	4	15	4	4-8	2-8	1-0			
B 2	4	4	22-0	B 5	#4	43	1	11-3	2-7	2-8	0-4½		
B 3	#4	6	3-0										
#D 1	1"ø Sm	10	3-6										

#D1-1" ø smooth bars to conform to A.S.T.M. designation for A-36 steel.

PLAN



NOTE :- Maximum Pile Pressure under: D.L. + L.L. = 23.1 Tons/pile.

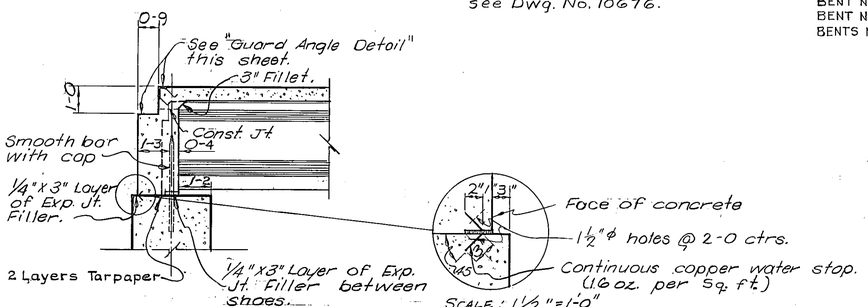
Cap and backwall steel is symmetrical about this line.

NOTE :- For test pile location see Dwg. No. 10676.

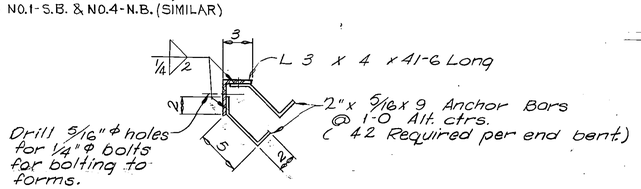
NOTE :- Cost of furnishing and placing expansion jt. filler, tarpaper, copper water stop and metal expansion caps to be included in the unit price bid for class "AD" concrete.

ELEVATION

BENT NO. 1-N.B. (BACK ON LINE)
BENT NO. 4-S.B. (AHEAD ON LINE)
BENTS NO. 1-S.B. & NO. 4-N.B. (SIMILAR)



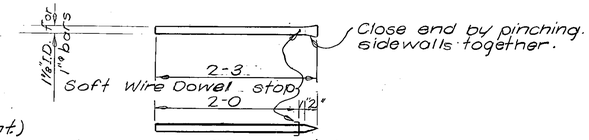
SECTION B-B



GUARD ANGLE DETAIL

Scale : 1½" = 1'-0"

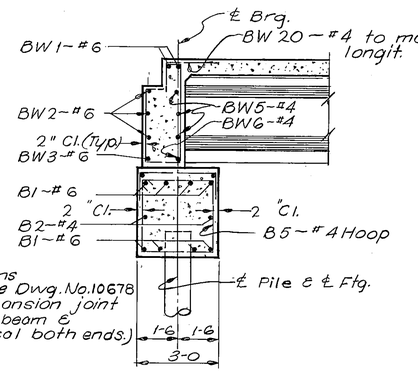
NOTE :- Guard Angle may be furnished in two pieces with end anchor bars 6" max. from each end in which case the angles shall be field welded together & held in accurate position while concrete is placed.



METAL EXPANSION CAP

Scale : 1" = 1'-0"

SECTION A-A



DESIGNED	J.T.W.	2/16/71
DRAWN	J.H.F.	12/16/71
CHECKED	N.H.R.	G-21-72
REVISED		
REVISED		
REVISED		

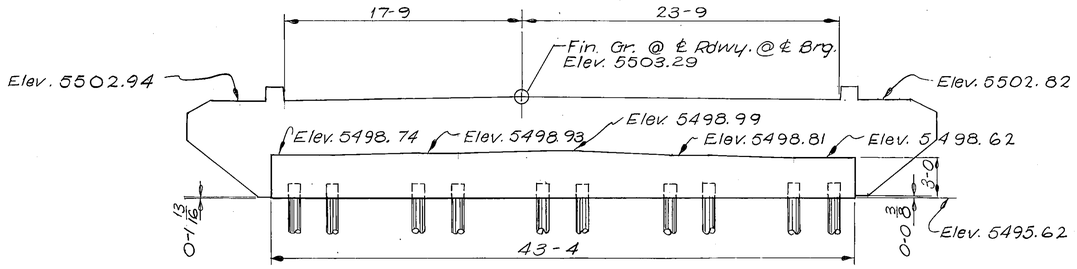
STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BUXTON INTERCHANGE
AT STA. 1074+15.00
FEDERAL AID PROJECT NO. I-15-2(35)111
SILVER BOW COUNTY
BENTS NO. 1 & NO. 4. N.B. & S.B. RDWY.

Scale 3/8" = 1'-0" Except as noted

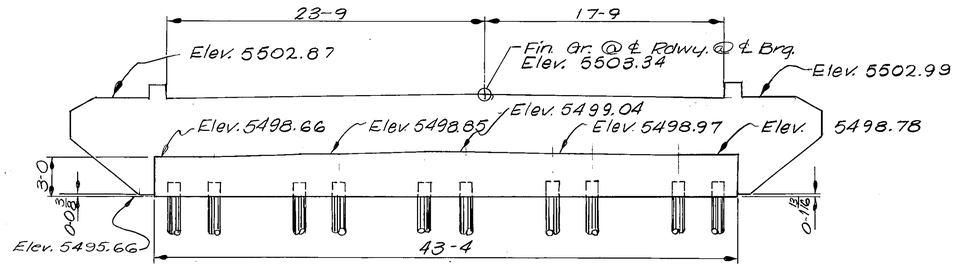
DRAWING NO. 10677

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-15-2(35)111	10	17



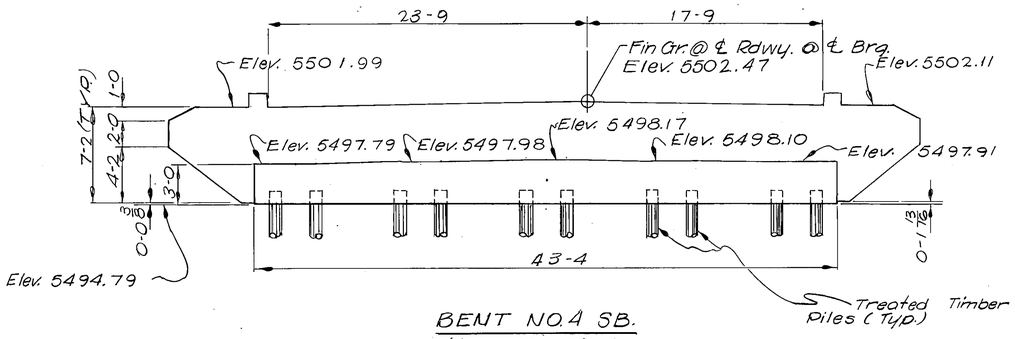
BENT NO. 1 S.B.
(Back On Line.)

Estimated Pile Length = 50 ft.



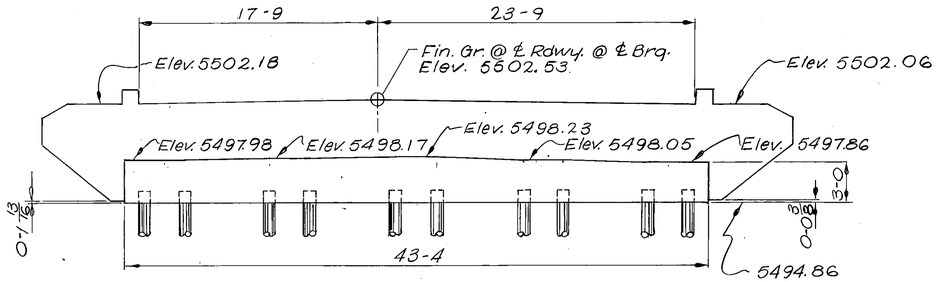
BENT NO. 1 N.B.
(Back On Line)

Estimated Pile Length = 50 ft.



BENT NO. 4 S.B.
(Ahead On Line.)

Estimated Pile Length. = 50 ft.



BENT NO. 4 N.B.
(Ahead On Line.)

Estimated Pile Length = 50 ft

NOTE: For beam & backwall details see Dwg. No. 10677.

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

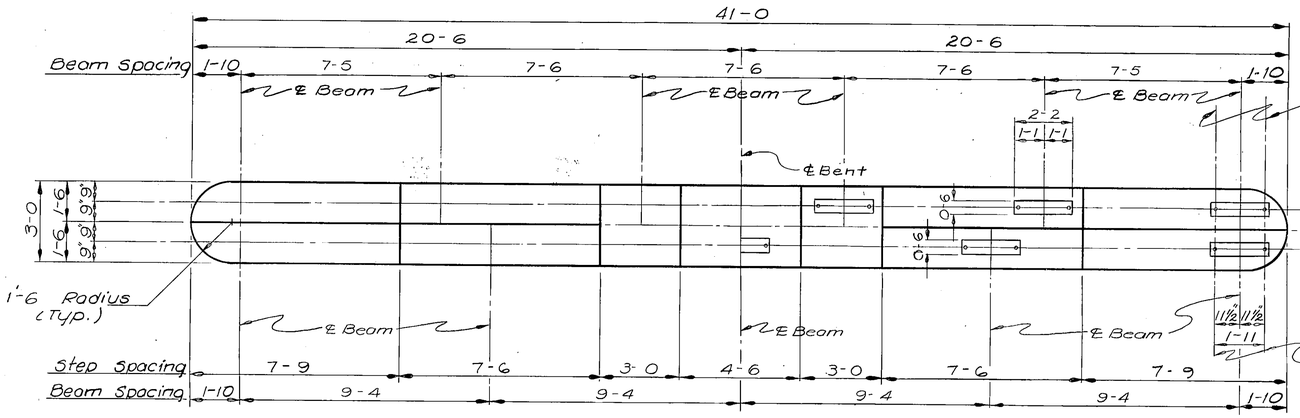
BUXTON INTERCHANGE
AT STA 1074+15.00
FEDERAL AID PROJECT NO I-15-2(35)111
SILVER BOW COUNTY
BENTS NO. 1 & NO. 4
NB & SB RDWYS. (ELEVATIONS)

SCALE — 3/16" = 1'-0"

DRAWING NO. 10678

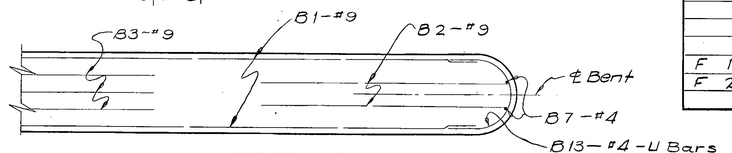
DESIGNED		
DRAWN	J.H.F.	12/17/71
CHECKED	W.H.R.	6-21-72
REVISED		
REVISED		
REVISED		

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-15-2(35)III	11	17

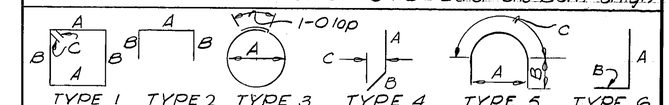


NOTE: For "Elevation" of Intermediate Bents see Dwg. No. 10680

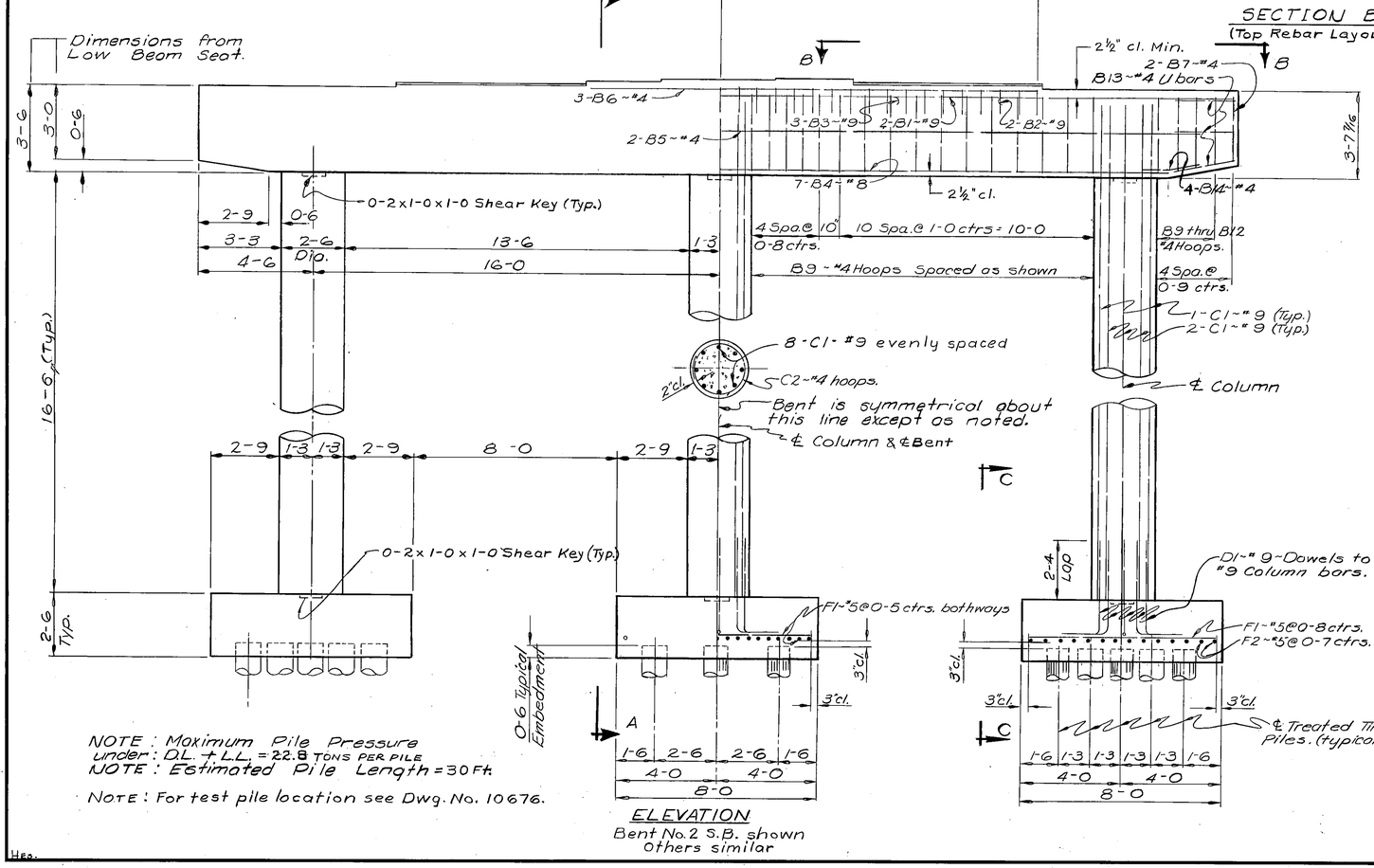
PLAN



BILL OF REINFORCING STEEL (For One-Bent only.)



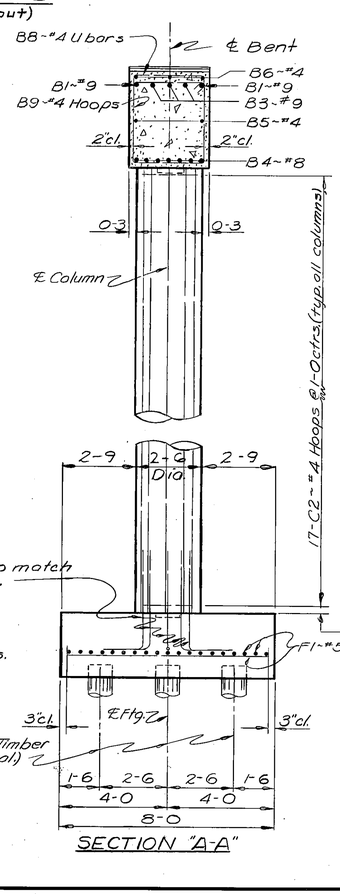
STRAIGHT BARS				BENT BARS (All dimension are out to out)							
Mark	Size	No	Length	Mark	Size	No	Type	Length	A	B	C
B 1	#9	2	38'0"	B 7	#4	4	4	5'-0"	2'-8"	2'-4"	2'-3"
	2	9	4	9-3		8	2	35	4-8	2-8	1-0	
	3	9	3	14-0		9		34	1	12-5	2-8	3-2	0-4½
	4	8	7	34-6		10		32	1	12-3	2-8	3-1	0-4½
	5	4	2	38-0		11		2	1	11-11	2-8	2-11	0-4½
B 6	4	3	17-8		12	4	2	1	10-7	2-2	2-9	0-4½
					13	4	6	5	6-1	2-7	1-0	4-1
				B 14	4	8	4	2-3	1-3	1-0	0-3
C 1	9	24	19-6	C 2	4	51	3	7-10	2-2		
				D 1	#9	24	6	5-4	4-0	1-4	
F 1	#5	60	7-6								
F 2	#5	28	7-0								



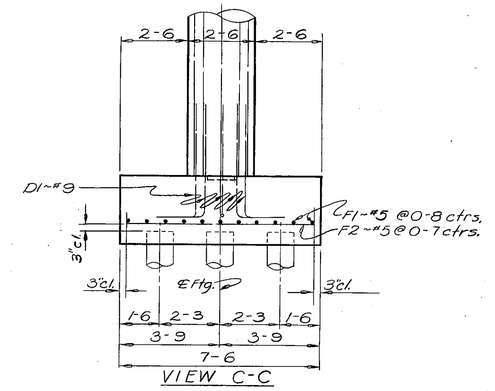
NOTE: Maximum Pile Pressure under: D.L. + L.L. = 22.8 TONS PER PILE
NOTE: Estimated Pile Length = 30 Ft.

NOTE: For test pile location see Dwg. No. 10676.

ELEVATION
Bent No. 2 S.B. shown
Others similar



SECTION "A-A"



VIEW C-C

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

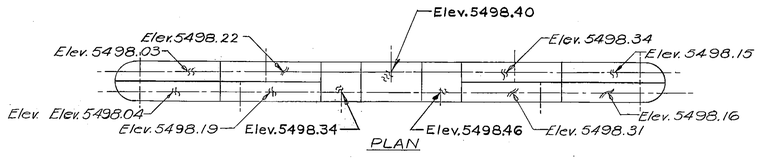
BUXTON INTERCHANGE
AT STA. 1074 + 15.00
FEDERAL AID PROJECT NO I-15-2(35)111
SILVER BOW COUNTY
BENTS NO.2 & NO.3 NB. & SB. RDWYS.

DESIGNED	J.T.W.	3-8-71
DRAWN	J.H.F.	1-18-72
CHECKED	N.H.R.	6-21-72
REVISED		
REVISED		
REVISED		

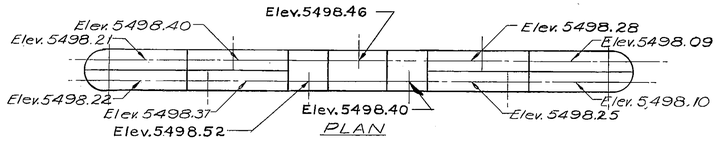
Scale — 3/8" = 1'-0"

DRAWING NO. 10679

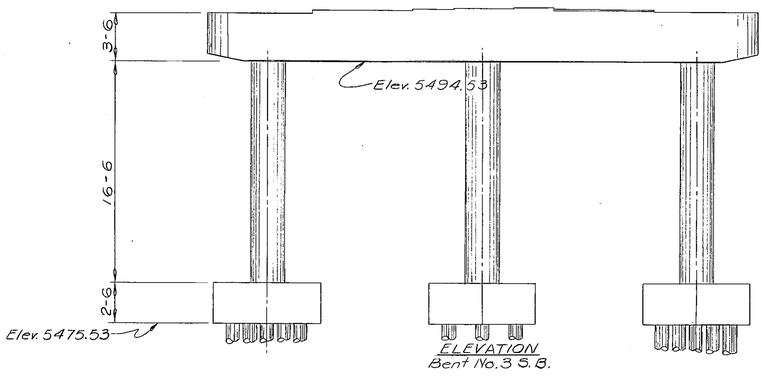
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-15-2(35)111	12	17



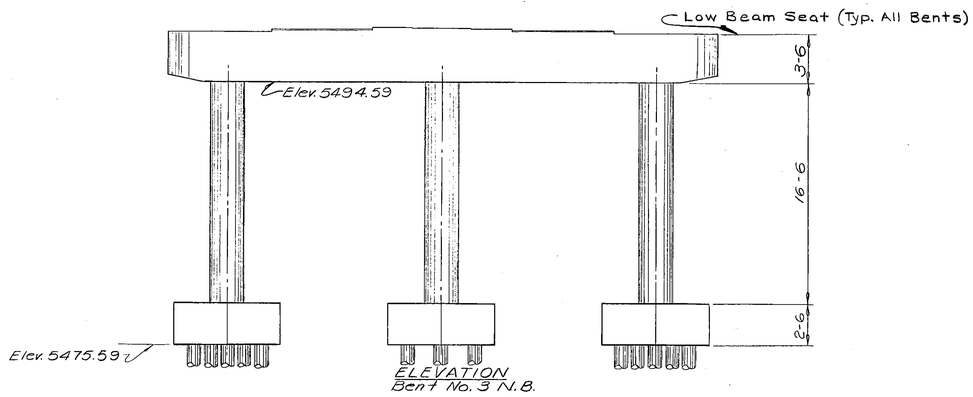
PLAN



PLAN

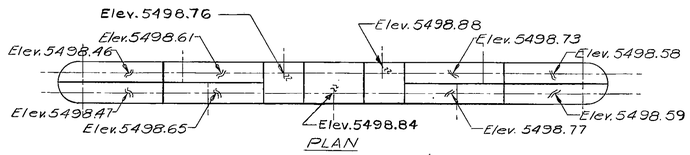


ELEVATION
Bent No. 3 S.B.

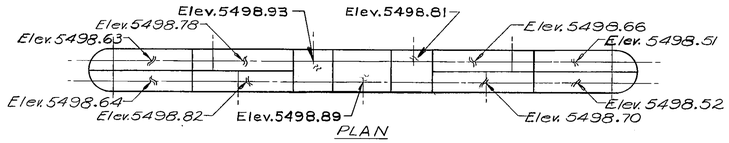


ELEVATION
Bent No. 3 N.B.

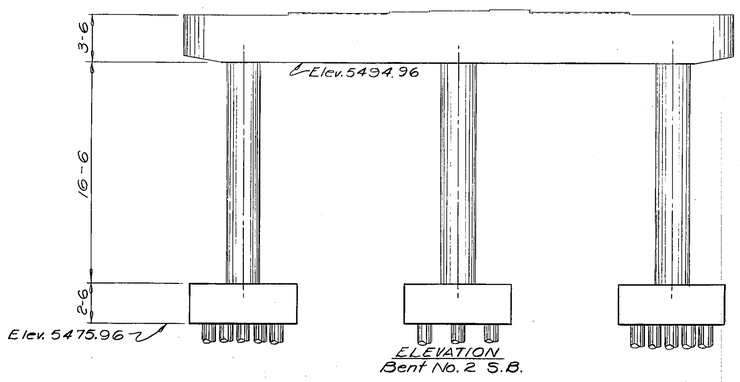
NOTE: Dimensions and Details for Intermediate Bents are shown on Dwg. No. 10673



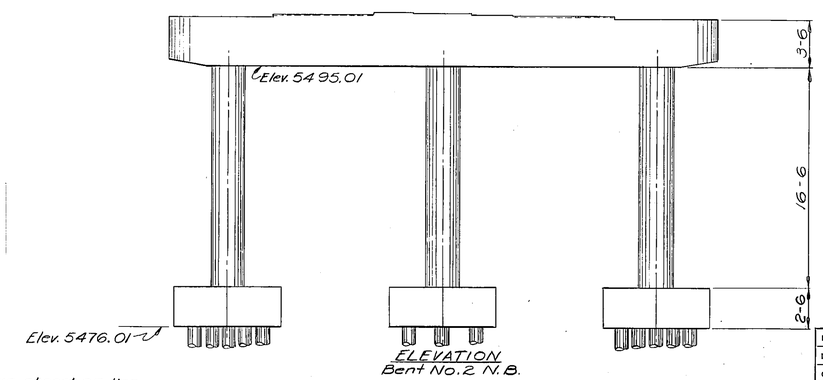
PLAN



PLAN



ELEVATION
Bent No. 2 S.B.



ELEVATION
Bent No. 2 N.B.

NOTE: All Bents shown ahead on line.

DESIGNED	3-8-71	J.T.W.
DRAWN	2-23-72	G.A.P.
CHECKED	6-21-72	N.H.R.
REVISED		
REVISED		
REVISED		

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BUXTON INTERCHANGE
AT STA. 1074+15.00
FEDERAL AID PROJECT NO. I-15-2(35)111

SILVER BOW COUNTY

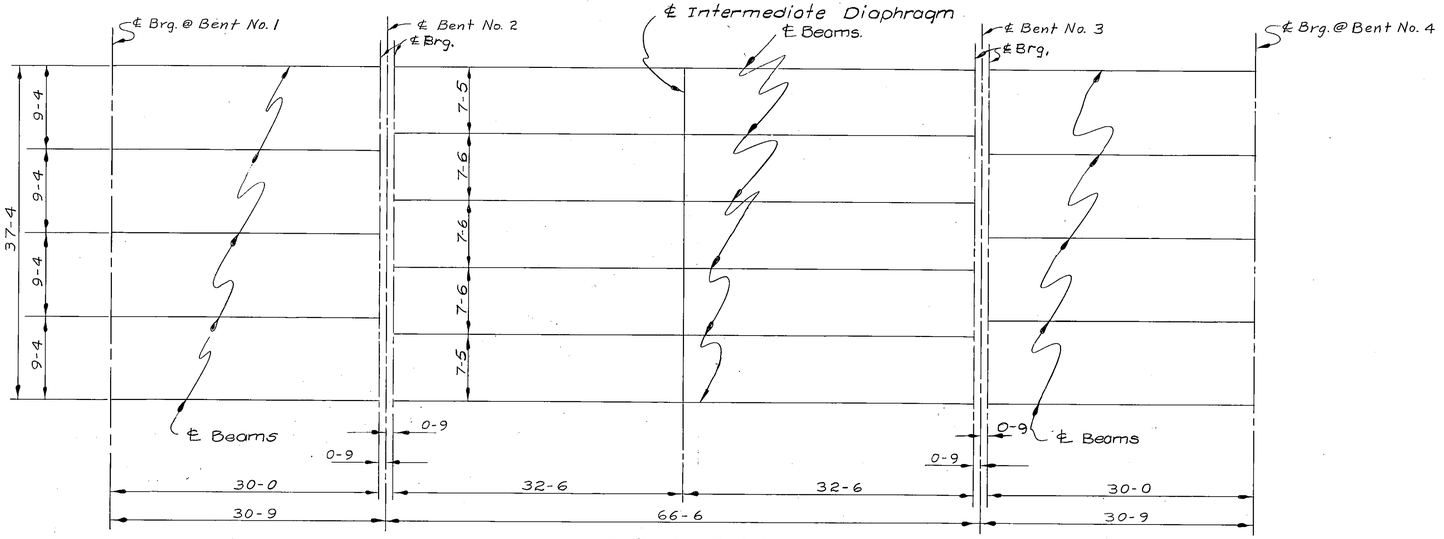
BENTS NO. 2 & NO. 3 N.B. & S.B. RDWYS. (ELEVATIONS)

SCALE: 3/16" = 1'-0"

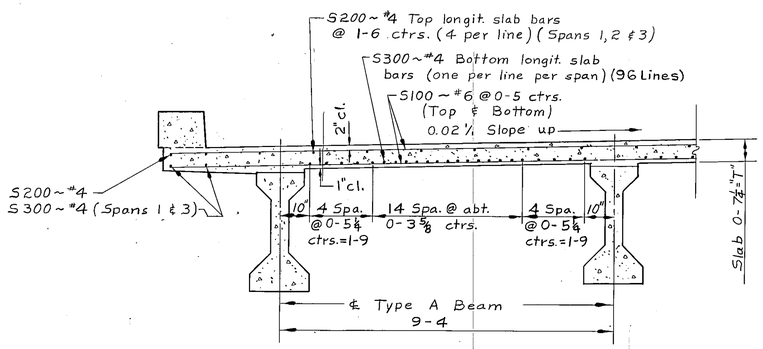
DRAWING NO. 10680

Hee-

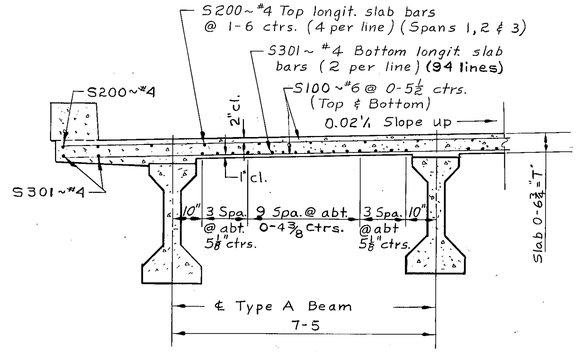
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-15-2(35)111	13	17



ERECTION PLAN
S.B. or N.B. Rdwy.

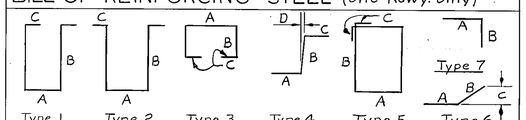


TRANSVERSE SECTION
SPANS NO.1 & NO.3
Scale: ½"=1'-0"



TRANSVERSE SECTION
SPAN NO. 2
Scale: ½"=1'-0"

BILL OF REINFORCING STEEL (One Rdwy. Only)



Bent Bars (All dimensions are out to out)

Mark	Size	No.	Type	Length	A	B	C	D
C1	#4	346	3	3'-4"	1'-0"	0'-9"	0'-5"	
C2	4	330	4	2-6	1-0	1-0	0-6	0'-1"
C3	4	64	5	3-7	0-8	0-10	0-3½	
C4	5	80	4	4-9	3-3	1-0	0-6	0-1
C5	4	4	7	2-0	1-0	1-0		
P2	5	16	6	2-9	1-1½	1-7½	0-6	
P3	4	12	5	6-3	0-10	2-0	0-3½	
P4	↓	4	↓	6-1	0-9	↓	↓	
P5		↓		5-11	0-8			
P6				5-9	0-7			
P7				5-7	0-6			
P8	↓	↓	↓	5-5	0-5	↓	↓	
P9	4	4	5	5-3	0-4	2-0	0-3½	
Spans No. 1 & No. 3								
D4	#4	64	1	4-10	0-7	1-10	0-3½	
Span No. 2								
D4	4	60	1	4-10	0-7	1-10	0-3½	
D7	#4	30	2	6-4	0-7	2-7	0-3½	

Straight Bars

Mark	Size	No.	Length
S5	#5	44	15'-0"
S6	5	50	10-0
S100	6	586	43-7
S200	4	124	33-0
C300	4	32	33-4
P1	5	24	2-9
Spans No. 1 & No. 3			
S300	#4	192	34-2
D3	6	16	7-10
D8	6	6	4-6
Span No. 2			
S301	#4	~~188~~	33-9
D3	6	20	6-0
D5	4	10	6-0
D6	6	10	6:0
D8	#6	12	4-6

PRESTRESSED CONCRETE BEAMS: Prestressed concrete beams shall be fabricated in accordance with Drawing No. B-A. Maximum f'c (Compressive Strength of Concrete at 28 days) for design shall be 6000 p.s.i. Design stresses before prestress are as follows:

SPAN LENGTH		30-0	65-0
Beam D.L. Stresses (psi.)	F_t	+171	803
	F_b	-138	-651
Total D.L.+L.L. Design Stresses (p.s.i.)	F_t	+730	2690
	F_b	-1013	-3126
Required Ultimate Moment Capacity (Ft. Kips)	M	1118	2982

NOTE: For additional Slab, Curb, End Post, & Diaphragm details see Dwg. No. SL-1.

DEAD LOAD DEFLECTION TABLE						
POINT / TOTAL DEFLECTION	0	0.1	0.2	0.3	0.4	0.5
30-0 SPAN	0	0	0	1/16	1/16	1/16
65-0 SPAN	0	1/4	1/2	11/16	13/16	7/8

NOTE: Deflections are symmetrical about ℄ Span.

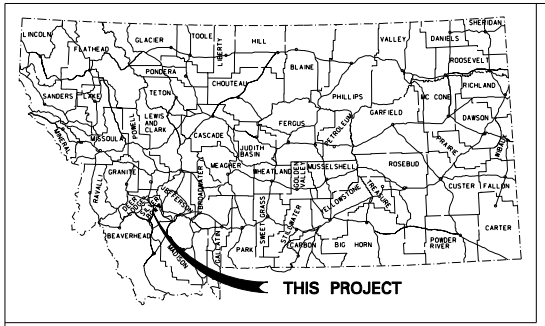
STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BUXTON INTERCHANGE
AT STA. 1074+15.00
FEDERAL AID PROJECT NO. I-15-2(35)111
SILVER BOW COUNTY
ERECTION PLAN & SLAB DETAILS
Scale ⅛" = 1'-0" Except as noted

DESIGNED		
DRAWN	9-3-70	G.V.N.
CHECKED	6-21-72	N.H.R.
REVISED		
REVISED		

DRAWING NO. 10681

H.E.D.



MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT NO. IM 15-2(88)116
OVERLAY, SEAL & COVER
BUXTON- N & S
SILVER BOW COUNTY

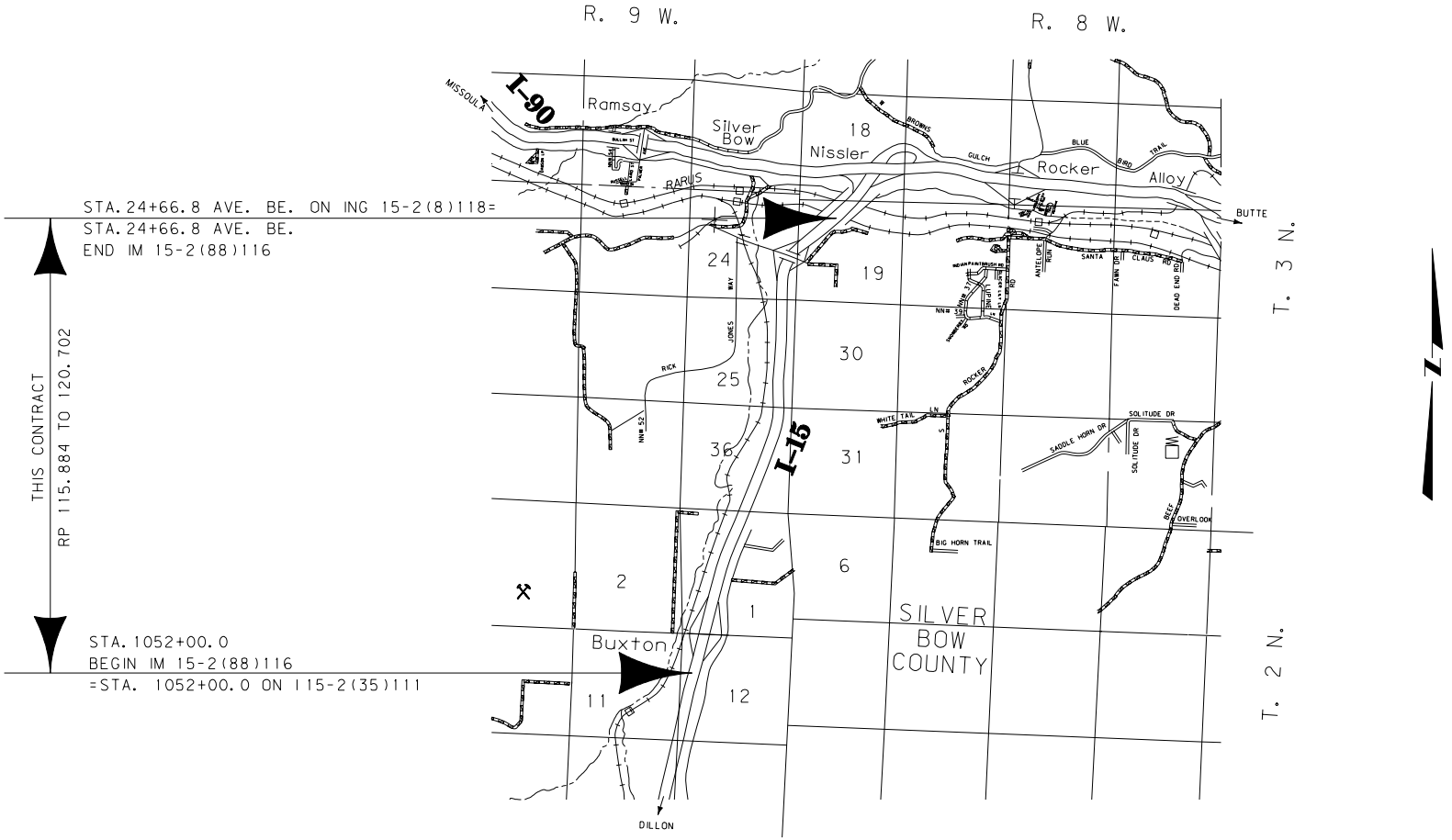
LENGTH 4.8 miles

NO SCALE

DESIGN DATA		
PRESENT	2003 A.D.T. =	4790
LETTING	2004 A.D.T. =	4960
DESIGN	2024 A.D.T. =	9870
	D.H.V. =	1190
	T. =	16.4%
	V. =	
	ESAL'S =	632
	GROWTH RATE =	3.5%

LETTING DATE -

SURFACING SOURCES - CONTRACTOR FURNISHED



MDT serving you with pride — MONTANA DEPARTMENT OF TRANSPORTATION	C:\dgn\4292000RDPVP001.DGN	DESIGNED BY	u6561	10/6/2004	IM 15-2(88)116
	1/18/2006	REVIEWED BY			
	8:39:54 AM u6561	CHECKED BY			UPN NUMBER 4292000 — SHEET 1 OF 9

GENERAL NOTES

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	IM 15-2(88)116	B1

GENERAL: Plans were prepared from original drawings and as-built drawings. No additional survey information was procured for this project. Existing structure dimensions may vary from those shown on the drawings. Verify all dimensions necessary to complete the work.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 1995 edition, and any amendments thereto, and special provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Standard Specifications for Highway Bridges, 17th edition - 2002, and any amendments thereto.

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

DIMENSIONS: All dimensions are in English Units 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.

GALVANIZING: Galvanize all bolts, nuts and washers in accordance with AASHTO M 232.

* For information only. See total on Road Plans Guardrail Summary sheet.

SUMMARY TABLE

FEATURE CROSSED	BRIDGE IDENTIFICATION NUMBER	REFERENCE POINT	GENERAL LAYOUT DWG. NO.	* GUARDRAIL STL/BR APPR TYPE 3 (each)
INT BUXTON-NB	I000151160+0.3161	116.316	10675	2
INT BUXTON-SB	I000151160+0.3162	116.316	10675	2
INT VICTOR I-15	L47534000+0.0101	119.932	4605	4
LOCAL, CREEK, RARUS, MWR RR OVERPASS-NB ONLY	I000151200+0.6971	120.697	4576	2

General Layout Dwg. No. 10675, 4605 & 4576 are available from the MDT Bridge Bureau.

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Montana Department of Transportation

BUXTON - N & S

AT R.P. 116.316, 119.932 & 120.697

FEDERAL AID PROJECT NO. IM 15-2(88)116

SILVER BOW COUNTY

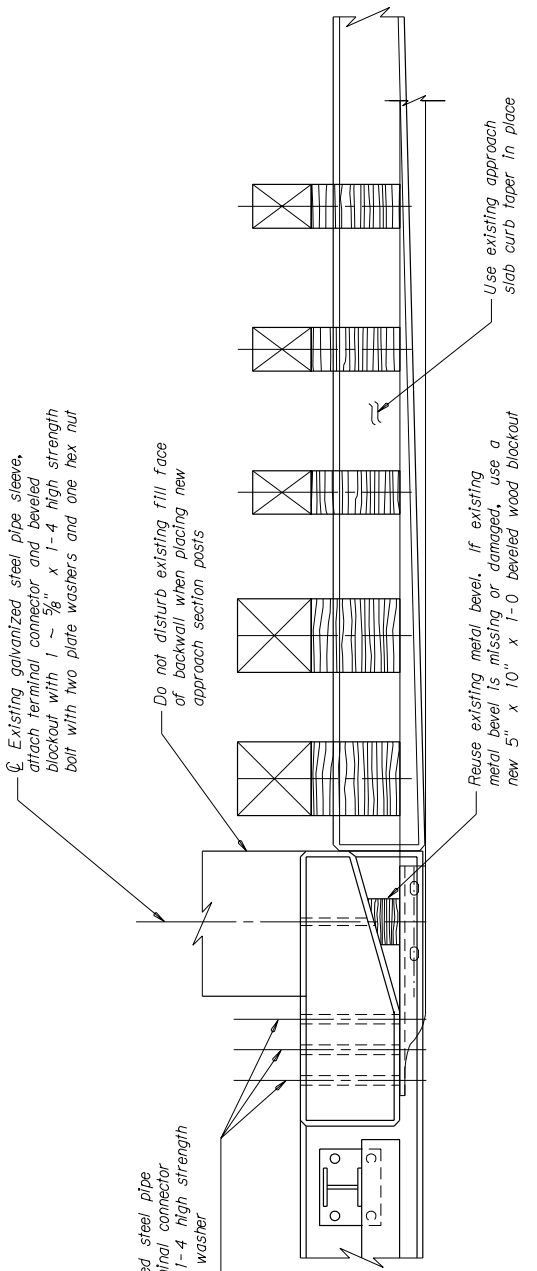
BRIDGE APPROACH REVISION

Scale ~ No Scale

DESIGNED	1/27/05	T. J. B.
DRAWN	1/27/05	T. J. B.
CHECKED	3/2/05	L. M. S.
REVISED		
REVISED		
REVISED		

FILENAME 4292000BRRRV001.DGN DRAWING NO. 19251 A

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	IM 15-2(88)116	B2

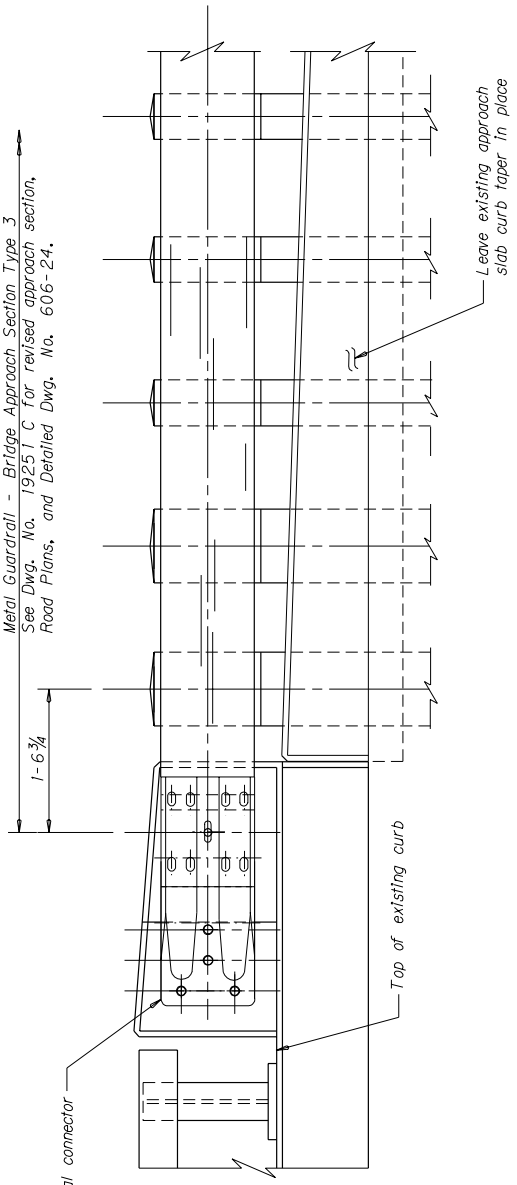


PARTIAL PLAN

NOTE: New approach sections placed at approach ends of bridge only.

NOTE: Include all costs associated with furnishing material, equipment, labor and incidentals necessary to complete the item in the Unit Price Bid for Guard Rail - Steel/Bridge Approach Type 3.

NOTE: Plug pre-drilled holes in rail with standard splice bolts. See Detailed Dwg. No. 606-82.



PARTIAL ELEVATION

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Montana Department of Transportation

BUXTON - N & S

AT R.P. 116.316

FEDERAL AID PROJECT NO. IM 15-2(88)116

SILVER BOW COUNTY

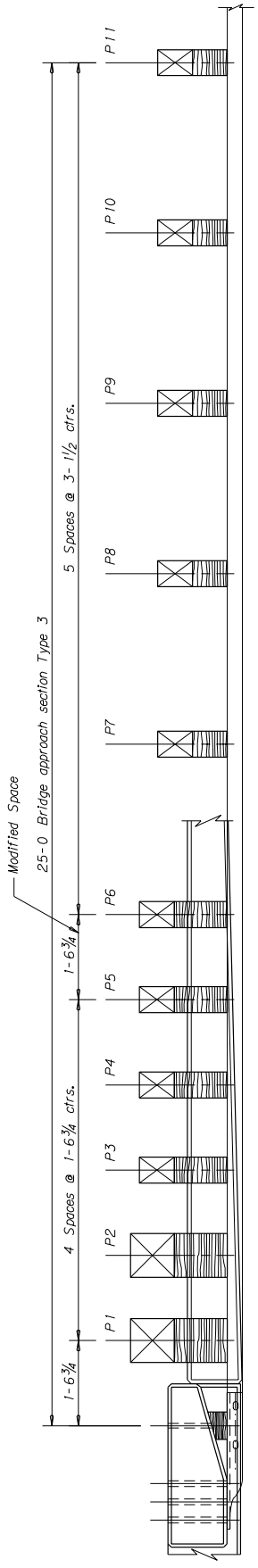
BRIDGE APPROACH REVISION

Scale ~ No Scale

DESIGNED	1/27/05	T. J. B.
DRAWN	1/27/05	T. J. B.
CHECKED	3/2/05	L. M. S.
REVISED		
REVISED		
REVISED		

FILENAME 4292000BRRRV001.DGN DRAWING NO. 19251 B

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	IM 15-2(88)116	B3



REVISED TYPE 3 BRIDGE APPROACH SECTION

See Dwg. No. 19251 B for more details

Montana Department of Transportation

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BUXTON - N & S

AT R.P. 116.316

FEDERAL AID PROJECT NO. IM 15-2(88)116

SILVER BOW COUNTY

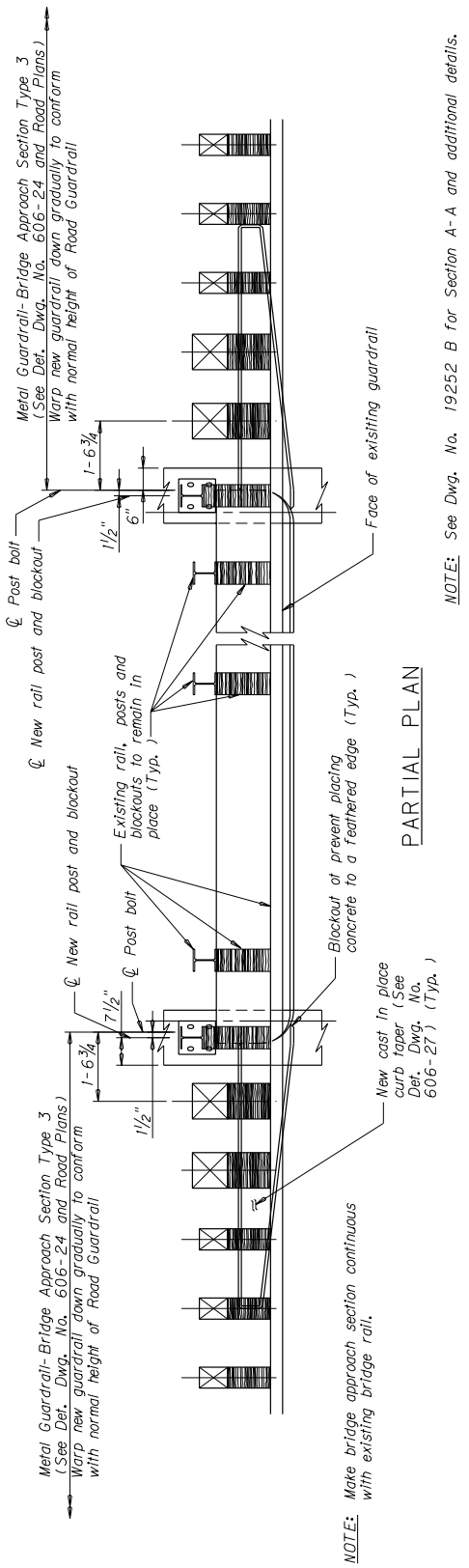
BRIDGE APPROACH REVISION

Scale ~ No Scale

DESIGNED	1/27/05	T. J. B.
DRAWN	1/27/05	T. J. B.
CHECKED	3/2/05	L. M. S.
REVISED		
REVISED		
REVISED		

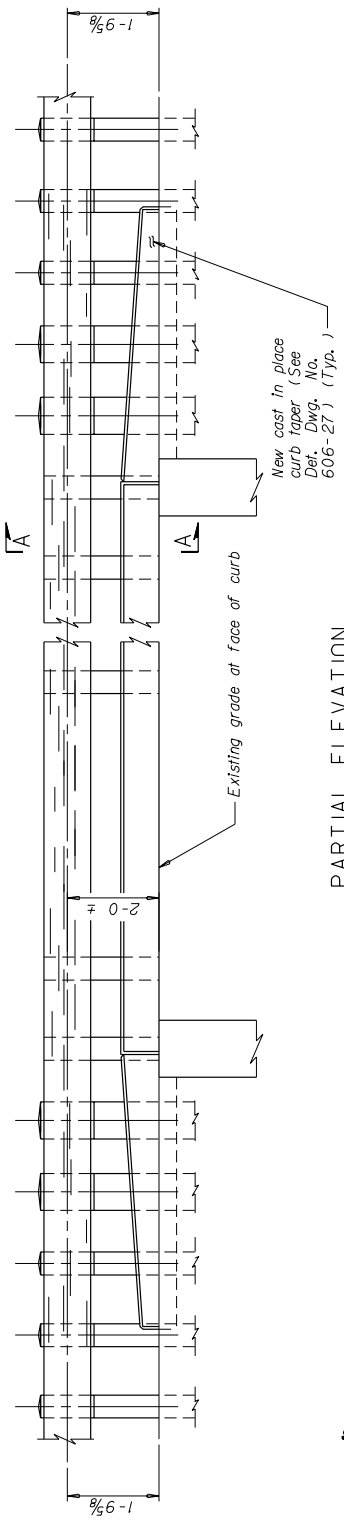
FILENAME 4292000BRRRV001.DGN **DRAWING NO.** 19251 C

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	IM 15-2(88)116	B4



PARTIAL PLAN

NOTE: See Dwg. No. 19252 B for Section A-A and additional details.



PARTIAL ELEVATION

PAINTING: Paint all new posts and plates (except as noted) in accordance with the Standard Specifications. Galvanizing the posts and plates in accordance with AASHTO M 111 will be allowed.

REFLECTORS: Place a reflector on each end rail post and at approximately equal spacing (every third rail post but not to exceed 25 feet) between end rail posts. Mount reflectors with reflectorized face toward oncoming traffic. See Dtl. Dwg. No. 606-05 for reflector detail.

PAYMENT: Include all costs associated with furnishing materials, equipment, labor and incidentals necessary too complete the item in the unit price bid for Guard Rail - Steel/Bridge Approach Type 3. Use new posts and plates conforming to AASHTO M 270 Grade 36T3. Use metal guardrail conforming to AASHTO M 180 and lap in direction of traffic.

ERECTION: Set the rail parallel to the roadway grade. Adjust rail to proper rail height using vertical slots in rail post or post shims.

Cut existing rail sections square. Flame cutting is not permitted. Coat new cut ends and holes with an approved galvanizing paint.

Place blockouts made of treated timber with the wood grain perpendicular to the bolt centerline. The contractor has the option to use other NCHRP 350 approved blocks for the blockouts.

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BUXTON - N & S

AT R.P. 119.932

FEDERAL AID PROJECT NO. IM 15-2(88)116

SILVER BOW COUNTY

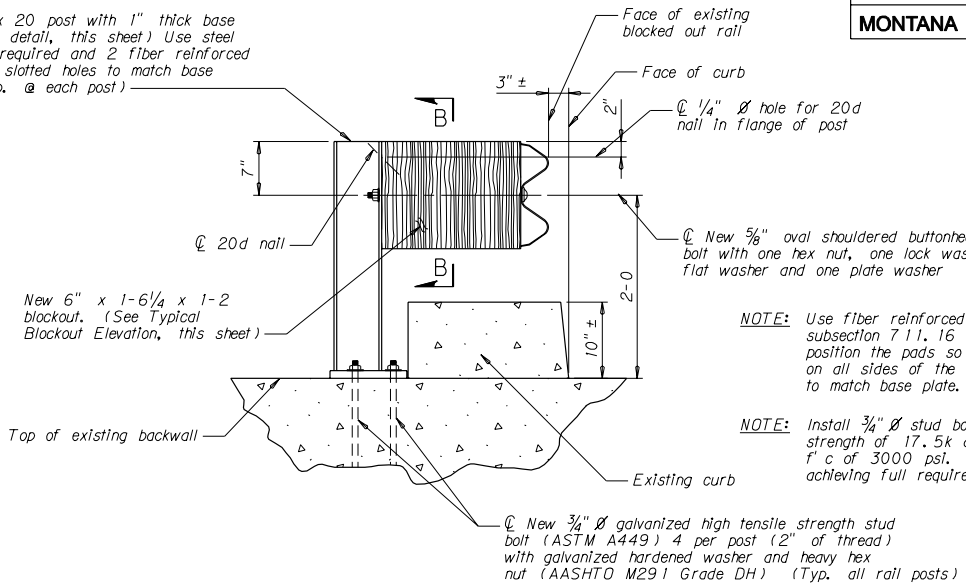
BRIDGE APPROACH REVISION

Scale ~ No Scale

DESIGNED	3/2/05	T. J. B.
DRAWN	3/2/05	T. J. B.
CHECKED	3/9/05	L. M. S.
REVISED		
REVISED		
REVISED		

FILENAME 4292000BRRRV002.DGN **DRAWING NO.** 19252 A

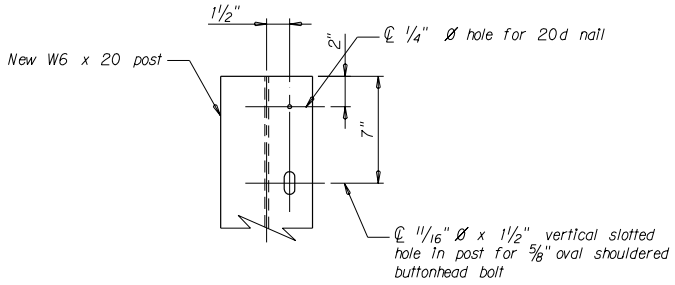
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	IM 15-2(88)116	B5



SECTION A-A

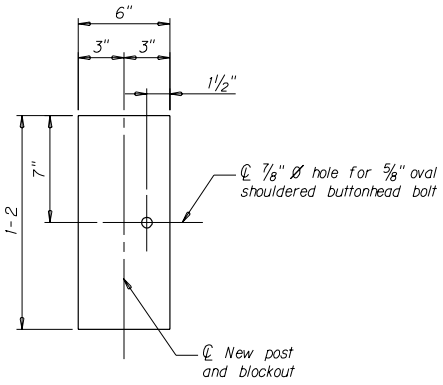
NOTE: Use fiber reinforced pads meeting the requirements of subsection 711.16 of the Standard Specifications. Size and position the pads so that not less than 1/2" of the pad protrudes on all sides of the base plate. Punch slotted holes in pads to match base plate.

NOTE: Install 3/4" Ø stud bolts with a minimum pullout strength of 17.5k assuming a concrete strength of f'c of 3000 psi. Do not tighten nuts before achieving full required strength.



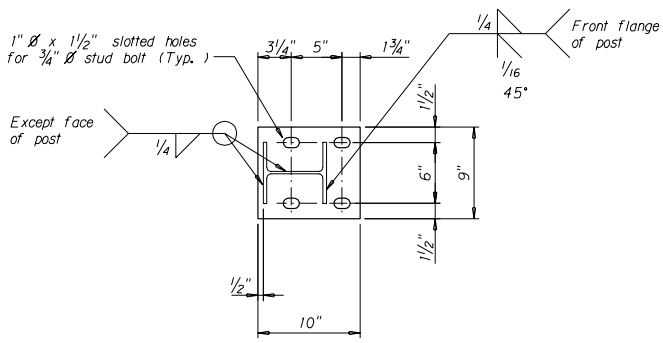
SECTION B-B

NOTE: See Dwg. No. 19252 A for additional notes, details and Section A-A location.

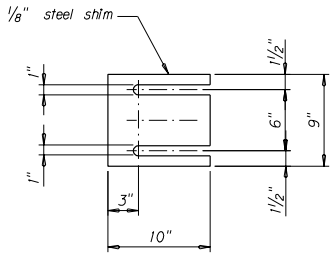


TYPICAL BLOCKOUT ELEVATION

(4 Required)



BASE PLATE DETAIL



RAIL POST SHIM DETAIL

NOTE: Furnish shims as necessary to adjust rail to grade. Place shims between fiber reinforced pads. Place shims with slots toward roadway centerline.

DESIGNED	3/2/05	T. J. B.
DRAWN	3/2/05	T. J. B.
CHECKED	3/9/05	L. M. S.
REVISED		
REVISED		
REVISED		

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Montana Department of Transportation

BUXTON - N & S

AT R.P. 119.932

FEDERAL AID PROJECT NO. IM 15-2(88)116

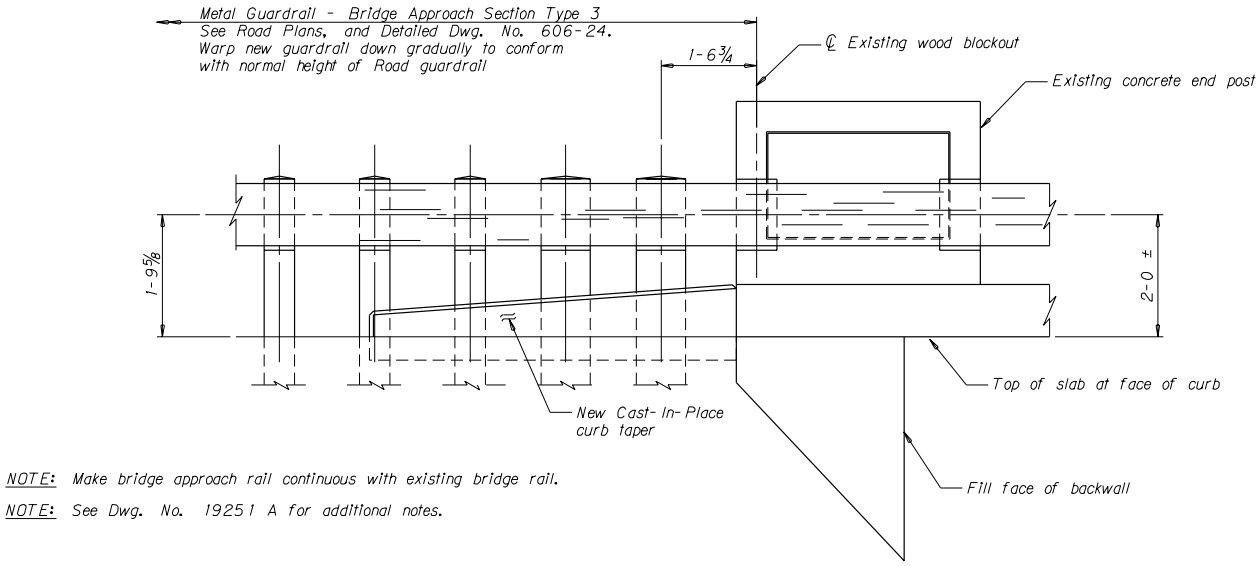
SILVER BOW COUNTY

BRIDGE APPROACH REVISION

Scale ~ No Scale

FILENAME 4292000BRRRV002.DGN **DRAWING NO.** 19252 B

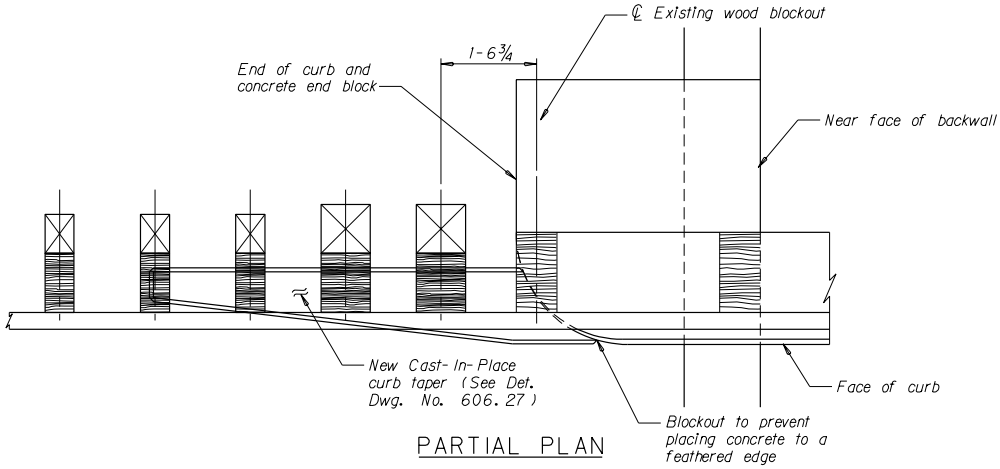
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	IM 15-2(88)116	B6



NOTE: Make bridge approach rail continuous with existing bridge rail.

NOTE: See Dwg. No. 19251 A for additional notes.

PARTIAL ELEVATION



PARTIAL PLAN

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BUXTON - N & S

AT R.P. 120.697 - N.B. ONLY

FEDERAL AID PROJECT NO. IM 15-2(88)116

SILVER BOW COUNTY

BRIDGE APPROACH REVISION

Scale ~ No Scale

DESIGNED	3/2/05	T. J. B.
DRAWN	3/2/05	T. J. B.
CHECKED	3/9/05	L. M. S.
REVISED		
REVISED		
REVISED		

FILENAME 4292000BRRRV002.DGN **DRAWING NO.** 19252 C

FED. ROAD DIV. NO.	STATE	FAP	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	MONT.	I-ING-15-2(8)118		1	188

STATE NUMBER 8152-04

PLANS COMPLETED

CONTRACT COMPLETED July 24, 1961

PRINTS CHECKED BY PLATTS CONST. DEPT. 1-29-62

INDEX OF SHEETS

TITLE PAGE . . . . SHEET No. 1

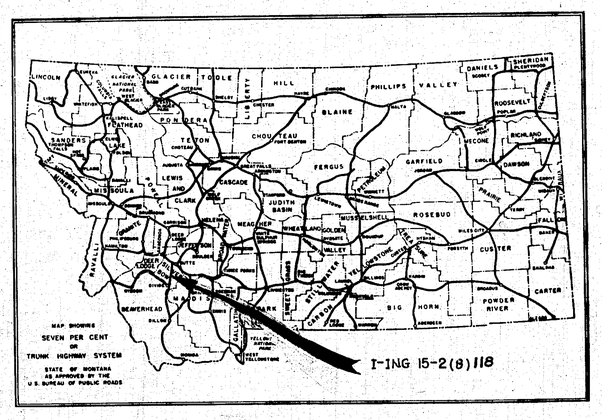
TYPICAL CROSS-SECTIONS OF IMPROVEMENT . SHEET No. 2-4

SUMMARY SHEET . . SHEET No. 2-7

PLAN AND PROFILE . SHEET No. 8-18

CROSS-SECTION . . . SHEET No. 19-182

MASS DIAGRAM . . SHEET No. 183-188



STATE OF MONTANA

STATE HIGHWAY COMMISSION

PLAN AND PROFILE OF PROPOSED

FEDERAL AID PROJECT NO. I-IG-15-2(4)118 (P.E. & R/W & INC.) I-ING-15-2(8)118 (CONST.)

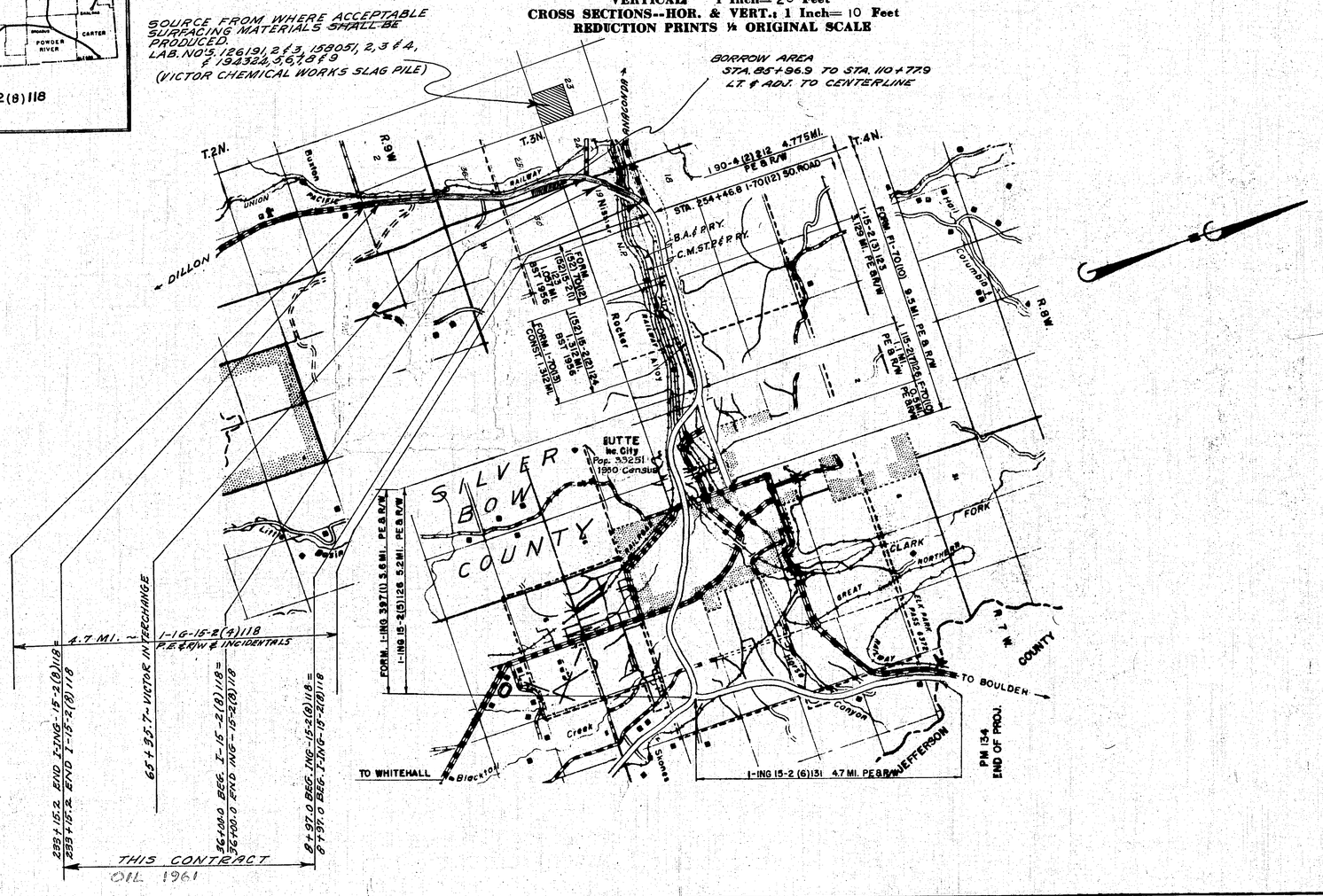
DILLON – BUTTE

SILVER BOW COUNTY

LENGTH 4.245 **MILES**

SCALES

HORIZONTAL: 1 Inch = 200 Feet
VERTICAL: 1 Inch = 20 Feet
CROSS SECTIONS--HOR. & VERT.: 1 Inch = 10 Feet
REDUCTION PRINTS ½ ORIGINAL SCALE



CONVENTIONAL SIGNS

STATE AND NATIONAL LINE
COUNTY LINE
CITY, VILLAGE OR BOROUGH LINE
TOWNSHIP LINE
SECTION LINE
RESERVATION LINE
FENCE LINE
GUARD RAIL
UNFENCED PROPERTY
RIGHT OF WAY LINE
RIGHT OF WAY LINE FENCED
TRAVELED WAY
RAILROADS
RETAINING WALLS
BASE OR SURVEY LINE
LEVEE
CULVERTS IN PLACE (PLAN)
NEW CULVERTS (PLAN)
NEW CULVERTS (PROFILE)
TROLLEY POLE
POWER POLE
TELEPHONE OR TELEGRAPH POLE
MARSH
DITCH
RIPRAP
BRIDGE

LEGEND OF COMPLETED WORK

GRADED ROAD
GRAVELED ROAD
OILED ROAD
PAVED ROAD

I-ING-15-2(8)118

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE PLANS & QUANTITIES

FEDERAL AID PROJECT NO. I-IG 15-2(4)118 PE & RW
I-ING 15-2(8)118 CONST.

DILLON – BUTTE

SILVER BOW COUNTY

LIST OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
1	4576	GENERAL LAYOUT NORTHBOUND STRUCTURE
2	4577	FOOTING PLAN NORTHBOUND & SOUTHBOUND STRUCTURES
3	4578	BENT NO.1 NORTHBOUND STRUCTURE
4	4579	BENT NO.2 NORTHBOUND STRUCTURE
5	4580	BENT NO.3 NORTHBOUND STRUCTURE
6	4581	BENT NO.4 NORTHBOUND STRUCTURE
7	4582	BENT NO.5 NORTHBOUND STRUCTURE
8	4583	BENT NO.6 NORTHBOUND STRUCTURE
9	4584	BENTS NO.7, NO.8, NO.9 & NO.11 NORTHBOUND STRUCTURE
10	4585	BENT NO.10 NORTHBOUND STRUCTURE
11	4586	BENT NO.12 NORTHBOUND STRUCTURE
12	4587	GIRDERS, DIAPHRAMS & SLAB REINFORCING STEEL FOR SPAN NO.4 NORTHBOUND STRUCTURE
13	4588	FLOOR JOINT & SHOE DETAILS FOR SPAN NO.4 NORTHBOUND STRUCTURE
14	4589	BLAST PLATE DETAILS NORTHBOUND STRUCTURE
15	4590	GENERAL LAYOUT SOUTHBOUND STRUCTURE
16	4591	BENT NO. 1 SOUTHBOUND STRUCTURE
17	4592	BENT NO. 2 SOUTHBOUND STRUCTURE
18	4593	BENT NO. 3 SOUTHBOUND STRUCTURE
19	4594	BENT NO. 4 SOUTHBOUND STRUCTURE
20	4595	BENT NO. 5 SOUTHBOUND STRUCTURE
21	4596	BENTS NO.6 & NO.7 SOUTHBOUND STRUCTURE
22	4597	BENT NO. 8 SOUTHBOUND STRUCTURE
23	4598	BENT NO. 9 SOUTHBOUND STRUCTURE
24	4599	BENT NO. 10 SOUTHBOUND STRUCTURE
25	4600	BENT NO. 11 SOUTHBOUND STRUCTURE
26	4601	BENT NO. 12 SOUTHBOUND STRUCTURE
27	4602	GIRDERS, DIAPHRAMS & SLAB REINFORCING STEEL FOR SPAN NO.4 SOUTHBOUND STRUCTURE
28	4603	FLOOR JOINT & SHOE DETAILS FOR SPAN NO.4 SOUTHBOUND STRUCTURE
29	4604	BLAST PLATE DETAILS SOUTHBOUND STRUCTURE
30	4605	GENERAL LAYOUT
31	4606	BENTS NO.1 & NO.5 BACKWALL DETAILS
32	4607	BENTS NO.1 & NO.5 COLUMN & FOOTING DETAILS
33	4608	BENT NO.2
34	4609	BENT NO.3
35	4610	BENT NO.4
36	PRE-35&40-R28-LIS	STANDARD PRE-TENSIONED PRESTRESSED CONCRETE BEAMS
37	POST-35&40-R28-LIS	STANDARD POST-TENSIONED PRESTRESSED CONCRETE BEAMS
38	SLAB-35&40-R28-5B	STANDARD SLAB & CURB FOR PRESTRESSED CONCRETE BEAMS
39	PRE-45&50-R28-LIS	STANDARD PRE-TENSIONED PRESTRESSED CONCRETE BEAMS
40	POST-45&50-R28-LIS	STANDARD POST-TENSIONED PRESTRESSED CONCRETE BEAMS
41	SLAB-45&50-R28-5B	STANDARD SLAB & CURB FOR PRESTRESSED CONCRETE BEAMS
42	PRE-55-R28-LIS	STANDARD PRE-TENSIONED PRESTRESSED CONCRETE BEAMS
43	POST-55-R28-LIS	STANDARD POST-TENSIONED PRESTRESSED CONCRETE BEAMS
44	SLAB-55-R28-6B	STANDARD SLAB & CURB FOR PRESTRESSED CONCRETE BEAMS
45	PRE-60-R28-LIS	STANDARD PRE-TENSIONED PRESTRESSED CONCRETE BEAMS
46	POST-60-R28-LIS	STANDARD POST-TENSIONED PRESTRESSED CONCRETE BEAMS
47	SLAB-60-R28-7B	STANDARD SLAB & CURB FOR PRESTRESSED CONCRTE BEAMS
48	SBR-T3 (Rev.I-27-59)	STANDARD STEEL BRIDGE RAIL – TYPE NO.3
49	SBBR (Rev.I-27-59)	STEEL BEAM BRIDGE RAIL AND DETAILS

ESTIMATED BRIDGE PLAN QUANTITIES

5% Swell in Class "A" Concrete
15% Swell in Structure Excavation

	LOCATION	LENGTH IN FEET	REINFORCING STEEL LBS.	STRUCTURAL STEEL LUMP SUM	CLASS "A" CONCRETE CU. YDS.	CLASS "AD" CONCRETE CU. YDS.	STEEL BRIDGE RAIL LIN. FT.	STEEL BEAM BRIDGE RAIL LIN. FT.	STRUCTURE EXCAVATION CU. YDS.	UNCLASSIFIED EXCAVATION CU. YDS. *	TREATED TIMBER PILES FURNISHING LIN. FT.	TREATED TIMBER PILES DRIVING LIN. FT.	TREATED TIMBER TEST PILES LUMP SUM	PRESTRESSED BEAMS EACH 35	40	45	50	55	60	GUARD FENCE LIN. FT.	CORR. ASBESTOS CEMENT SHEETS SQ. FT.	REMOVAL OF EXISTING STRUCTURE AND MAINTAINING TRAFFIC
ING 15-2(8)118	NORTHBOUND STRUCTURE STA.21+46.78																					
	BENT NO. 1		3278		17	10.6			15		270.0	265.5										
	BENT NO. 2		3827		38				75		375.0	367.5										
	BENT NO. 3		7889		28	46.3			160													
	BENT NO. 4		8103		28	46.9			205													
	BENT NO. 5		8557		32	46.9			180													
	BENT NO. 6		5983		49	7.8			125													
	BENT NO. 7		5768	1/2 LUMP SUM	57				205				LUMP SUM									
	BENT NO. 8		4553		47				105													
	BENT NO. 9		5100		51				110													
	BENT NO. 10		4683		49				95													
	BENT NO. 11		5999		59				220													
	BENT NO. 12		5202		37	10.5			130		380.0	370.5										
	SUPERSTRUCTURE	613.5	80,972			440.4	1225.5							5	5		42	7		120.48	392.0	
	SUB TOTAL	613.5	149,914	1/2 LUMP SUM	492	609.4	1225.5		1,625		1025.0	1003.5	LUMP SUM	5	5		42	7		120.48	392.0	
	SOUTHBOUND STRUCTURE STA.21+80.75																					
	BENT NO. 1		9914		77	10.6			275													
	BENT NO. 2		5696		59				245													
	BENT NO. 3		7889		28	46.3			165													
	BENT NO. 4		8103		28	46.9			195													
	BENT NO. 5		8327		29	46.9			140													
	BENT NO. 6		5592		47	7.8			140													
	BENT NO. 7		5397	1/2 LUMP SUM	53				235													
	BENT NO. 8		4713		46				95													
	BENT NO. 9		4935		49				75													
	BENT NO. 10		5046		51				145													
	BENT NO. 11		5796		57				170													
	BENT NO. 12		8833		63	10.5			170													
	SUPERSTRUCTURE	598.5	79,081			430.8	1195.5							5	5	10	36			120.48	392.0	
	SUB TOTAL	598.5	159,322	1/2 LUMP SUM	587	599.8	1195.5		2050					5	5	10	36			120.48	392.0	
I 15-2(8)118	VICTOR INTERCHANGE STA.65+35.70																					
	BENT NO. 1		3710		17	6.9			90													
	BENT NO. 2		3419		31				55													
	BENT NO. 3		3734		33				55													
	BENT NO. 4		4587		40				85													
	BENT NO. 5		3932		18	6.9			105													
	SUPERSTRUCTURE	209.5	28,347			155.8		420.58						5			5		14			
	SUB TOTAL	209.5	47,729		139	169.6		420.58	390					5			5		14			
	GRAND TOTAL	1,421.5	356,965	LUMP SUM	1,218	1,378.8	2421.0	420.58	4,065		1,025.0	1,003.5	LUMP SUM	5	10	10	15	78	21	240.96	784.0	LUMP SUM

*See Road Plans

Made By: R.T.B. 2-17-59 Checked By: HES. 2-18-59

DRAWING NO. 4576Q

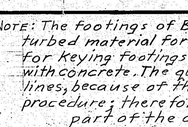
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15-2 (2) 118	1	49

Z.S.-2(38)125 — Bridge
IR0002(22)U2 8.40

NOTE: No reflector signals will be required on this bridge. No Bridge Markers will be required on this bridge.

NOTE: The Steel Bridge Rail shall be fabricated and erected in accordance with the details as shown on Dwg. No. SBR-T3 with the following modifications; (1) Curb Expansion joints shall be as detailed on Dwg. No. 4588. (2) View 'D-D' Railing over Expansion Joint shall be as detailed on Dwg. No. 4588.

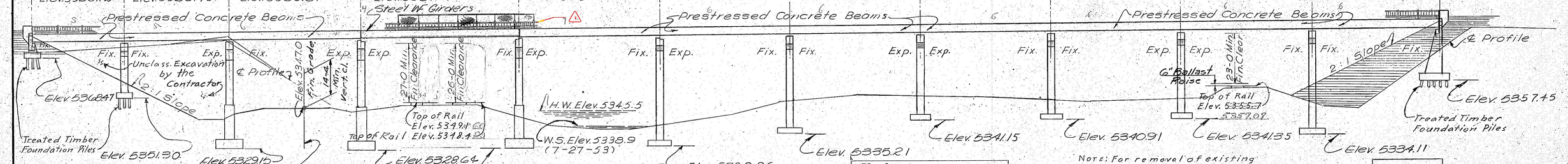
NOTE: The footings of Bents No. 3 thru No. 11 shall be keyed into undisturbed material for a minimum depth of 1-0. The area excavated for keying footings into the material shall be completely filled with concrete. The quantity of concrete deposited outside of neat lines, because of this requirement, depends upon the contractors procedure; therefore it will vary and its cost shall be considered a part of the cost of the concrete inside of neat lines. The quantity of concrete for Bents to be paid for shall be the amount only within neat lines shown on the details. If changes in the details of the Bents are ordered by the Engineer, the quantities will be revised according to the revised details.



NOTE: No work will be done on Bents No. 2 & No. 3 until after the unclassified excavation has been made by the contractor. The structure excavation for Bents No. 2 & No. 3 shall be computed using the ground elevations that will exist after unclassified excavation for Frontage Roadway has been made.

613-6 ctr. to ctr. of Brg. of Five Bents (Horiz. Distance)

40-9	46-6	56-6	70-0	61-6	56-6	56-6	56-6	56-6	56-6	56-6	55-9
℄ Brg @ Bent No. 1 Sta. 18+40.08 Fin. Gr. @ ℄ Rdwy. Elev. 5380.12	℄ Bent No. 2 Sta. 18+80.78 Fin. Gr. @ ℄ Rdwy. Elev. 5380.46	℄ Bent No. 3 Sta. 19+27.28 Fin. Gr. @ ℄ Rdwy. Elev. 5380.81	℄ Bent No. 4 Sta. 19+83.78 Fin. Gr. @ ℄ Rdwy. Elev. 5381.19	℄ Bent No. 5 Sta. 20+53.78 Fin. Gr @ ℄ Rdwy. Elev. 5381.63	℄ Bent No. 6 Sta. 21+15.28 Fin. Gr. @ ℄ Rdwy. Elev. 5382.01	℄ Bent No. 7 Sta. 21+71.78 Fin. Gr @ ℄ Rdwy. Elev. 5382.37	℄ Bent No. 8 Sta. 22+28.28 Fin. Gr. @ ℄ Rdwy. Elev. 5382.72	℄ Bent No. 9 Sta. 22+84.78 Fin. Gr. @ ℄ Rdwy. Elev. 5383.07	℄ Bent No. 10 Sta. 23+41.28 Fin. Gr. @ ℄ Rdwy. Elev. 5383.42	℄ Bent No. 11 Sta. 23+97.78 Fin. Gr. @ ℄ Rdwy. Elev. 5383.77	℄ Brg @ Bent No. 12 Sta. 24+53.53 Fin. Gr. @ ℄ Rdwy. Elev. 5384.11



ELEVATION

†FOR REQUIRED STATIONS, SEE ROAD PLANS. GUARDRAIL TO BE INSTALLED THE FULL LENGTH OF THE BRIDGE, AND CONTINUOUS WITH THE BRIDGE APPROACH GUARDRAIL SECTION, LT. & RT. (SHEET NO. 82) - Dwg. No. 11582

THIS CONTRACT: IR 0002 (22)U2

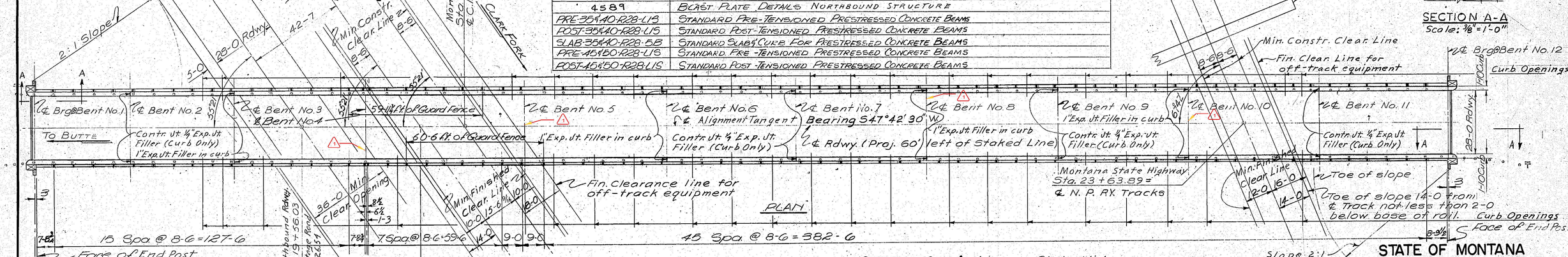
For revisions see Summary of Bridge Rehabilitation Dwg. No. 15136.

REFERENCES	
DWG. NO.	DESCRIPTION
4577	Footing Plan Northbound & Southbound Structures
4578	Bent No. 1 Northbound Structure
4579	Bent No. 2 Northbound Structure
4580	Bent No. 3 Northbound Structure
4581	Bent No. 4 Northbound Structure
4582	Bent No. 5 Northbound Structure
4583	Bent No. 6 Northbound Structure
4584	Bents No. 7, No. 8, No. 9 & No. 11 Northbound Structure
4585	Bent No. 10 Northbound Structure
4586	Bent No. 12 Northbound Structure
4587	Girders, Diaphrams & Slab Reinforcing Steel For Span No. 4 Northbound Structure
4588	Floor Joint & Shoe Details For Span No. 4 Northbound Structure
4589	Blast Plate Details Northbound Structure
PRE-35§40-R28-L18	Standard Pre-Tensioned Prestressed Concrete Beams
POST-35§40-R28-L18	Standard Post-Tensioned Prestressed Concrete Beams
SLAB-35§40-R28-5B	Standard Slab & Curb For Prestressed Concrete Beams
PRE-45§50-R28-L18	Standard Pre-Tensioned Prestressed Concrete Beams
POST-45§50-R28-L18	Standard Post-Tensioned Prestressed Concrete Beams

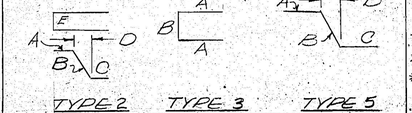
△ This Contract: IM 15-2(88)116
Bridge approach sections revised.
See Dwg. No. 19251-19252

NOTE: For removal of existing structure and maintaining traffic see Special Provisions.





* PARTIAL BILL OF REINFORCING STEEL



All dimensions are out to out

MARK	NO.	SIZE	TYPE	LENGTH	A	B	C	D	E
C1	1028	#4	5	3'-11"	1'-6"	1'-2"	1'-3"	0'-1½"	
C3	1288	4	Str.	1-2					
C4	720	6	2	9-2	1-6	1-2	1-6	0'-1½"	0'-10"
C5	720	#4	3	5-4	2-3	0-10			

* This Bill of Reinforcing Steel shall be used in conjunction with the Bills of Reinforcing Steel shown on Dwgs. No. SLAB-35§40-R28-5B, No. SLAB-45§50-R28-5B, No. SLAB-55-R28-6B & No. SLAB-60R28-7B.

REFERENCES (Continued)	
DWG. NO.	DESCRIPTION
SLAB-45§50-R28-5B	Standard Slab & Curb For Prestressed Concrete Beams
PRE-55-R28-L18	Standard Pre-Tensioned Prestressed Concrete Beams
POST-55-R28-L18	Standard Post-Tensioned Prestressed Concrete Beams
SLAB-55-R28-6B	Standard Slab & Curb For Prestressed Concrete Beams
PRE-60-R28-L18	Standard Pre-Tensioned Prestressed Concrete Beams
POST-60-R28-L18	Standard Post-Tensioned Prestressed Concrete Beams
SLAB-60-R28-7B	Standard Slab & Curb For Prestressed Concrete Beams
S.B.R-T3. (Rev. 1-27-59)	Standard Steel Bridge Rail - Type No. 3

SPECIFICATIONS ÷ Montana State Highway Commission Standard Specifications for Road and Bridge Construction, 1959 Edition, and any amendments thereto, and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.O. Specifications, 1957 Edition.

LIVE LOAD ÷ Standard H20-S16 Special Loading Alternate loading for bridges and floor systems with spans under 40 feet consists of two axles, four feet apart with each axle weighing 24,000 lbs.

FINISHED GRADE ÷ Finished plan grade of bridge is same as Profile Grade shown on Road Plans.

OTHER NOTES ÷ For other notes see Dwg. No. 4577.

△ REVISED	P. H. Jr.	9-8-11
Revised	T. J. B.	3-16-05
REVISED	L. R. [illegible]	12-16-91
REVISED	N H R	6-6-75
DESIGNED	J. D. S.	3-6-58
DRAWN	H. K. L.	7-31-58
TRACED		
CHECKED	H E S.	11-3-58
REVISED	J W A	4-6-59
REVISED	H E S.	7-6-59

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY, C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING 15-2(8)118
SILVER BOW COUNTY
GENERAL LAYOUT
NORTHBOUND STRUCTURE
Scale: 1" = 20'-0" Except As Noted

APPROVED BY.. [signature] BRIDGE ENGINEER

DRAWING NO. 4576

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15-2 (83) 118		2	49

S.B. 598-6
N.B. 613-6 ctr. to ctr. Brg. of End Bents (Horizontal Distance)

S.B. 40-9 N.B. 40-9 | S.B. 46-6 N.B. 46-6 | S.B. 56-6 N.B. 56-6 | S.B. 70-0 N.B. 70-0 | S.B. 56-6 N.B. 61-6 | S.B. 56-6 N.B. 56-6 | S.B. 56-6 N.B. 56-6 | S.B. 51-6 N.B. 56-6 | S.B. 51-6 N.B. 56-6 | S.B. 56-6 N.B. 56-6 | S.B. 55-9 N.B. 55-9

TEST PILES: For Test Pile requirements see Special Provisions.

NOTE: S.B. denotes Southbound. N.B. denotes Northbound.

℄ Brg. @ Bent No. 1 Sta. S.B. 18+81.50 Sta. N.B. 18+40.05 Fin. Gr. @ ℄ Rdwy. Elev. S.B. 5380.46 Elev. N.B. 5380.12

℄ Bent No. 2 Sta. S.B. 19+22.25 Sta. N.B. 18+80.78 Fin. Gr. @ ℄ Rdwy. Elev. S.B. 5380.77 Elev. N.B. 5380.46

℄ Bent No. 3 Sta. S.B. 19+68.75 Sta. N.B. 19+27.28 Fin. Gr. @ ℄ Rdwy. Elev. S.B. 5381.10 Elev. N.B. 5380.81

℄ Bent No. 4 Sta. S.B. 20+25.25 Sta. N.B. 19+83.78 Fin. Gr. @ ℄ Rdwy. Elev. S.B. 5381.46 Elev. N.B. 5381.19

℄ Bent No. 5 Sta. S.B. 20+95.25 Sta. N.B. 20+53.78 Fin. Gr. @ ℄ Rdwy. Elev. S.B. 5381.89 Elev. N.B. 5381.63

℄ Bent No. 6 Sta. S.B. 21+61.75 Sta. N.B. 21+15.28 Fin. Gr. @ ℄ Rdwy. Elev. S.B. 5382.24 Elev. N.B. 5382.01

℄ Bent No. 7 Sta. S.B. 22+08.25 Sta. N.B. 21+71.78 Fin. Gr. @ ℄ Rdwy. Elev. S.B. 5382.59 Elev. N.B. 5382.37

℄ Bent No. 8 Sta. S.B. 22+64.75 Sta. N.B. 22+28.28 Fin. Gr. @ ℄ Rdwy. Elev. S.B. 5382.94 Elev. N.B. 5382.72

℄ Bent No. 9 Sta. S.B. 23+16.25 Sta. N.B. 22+84.78 Fin. Gr. @ ℄ Rdwy. Elev. S.B. 5383.26 Elev. N.B. 5383.07

℄ Bent No. 10 Sta. S.B. 23+67.75 Sta. N.B. 23+41.28 Fin. Gr. @ ℄ Rdwy. Elev. S.B. 5383.58 Elev. N.B. 5383.42

℄ Bent No. 11 Sta. S.B. 24+24.25 Sta. N.B. 23+97.78 Fin. Gr. @ ℄ Rdwy. Elev. S.B. 5383.93 Elev. N.B. 5383.77

℄ Brg. @ Bent No. 12 Sta. S.B. 24+80.00 Sta. N.B. 24+53.53 Fin. Gr. @ ℄ Rdwy. Elev. S.B. 5384.27 Elev. N.B. 5384.11

Fin Grade

℄ Brg. Span No. 1 — 4-0 7/16 S.B., 4-0 7/16 N.B.

℄ Brg. Span No. 2 — 4-0 7/16 S.B., 4-0 7/16 N.B., 4-5 13/16 N.B., 4-5 13/16 S.B., 4-0 7/16 S.B., 4-0 7/16 N.B.

℄ Brg. Span No. 3 — 4-0 7/16 S.B., 4-0 7/16 N.B., 4-5 13/16 N.B., 4-5 13/16 S.B., 4-11 7/16 S.B., 4-11 7/16 N.B.

℄ Brg. Span No. 4 — 220.0 Min. Clearance, Top of Rail, 226.0 Min. Clear.

℄ Brg. Span No. 5 — 4-5 13/16 S.B., 4-5 13/16 N.B., 4-0 7/16 S.B., 4-0 7/16 N.B., 4-11 7/16 S.B., 4-11 7/16 N.B.

℄ Brg. Span No. 6 — 4-5 7/16 S.B., 4-5 7/16 N.B., 4-5 13/16 S.B., 4-0 7/16 N.B.

℄ Brg. Span No. 7 — 4-0 7/16 S.B., 4-0 7/16 N.B., 4-5 13/16 S.B., 4-5 13/16 N.B.

℄ Brg. Span No. 8 — 4-0 7/16 S.B., 4-5 13/16 N.B.

℄ Brg. Span No. 9 — 4-0 7/16 S.B., 4-0 7/16 N.B., 4-5 13/16 N.B., 4-5 7/16 S.B., 4-5 7/16 N.B.

℄ Brg. Span No. 10 — 4-0 7/16 S.B., 4-0 7/16 N.B.

℄ Brg. Span No. 11 — 4-0 7/16 S.B., 4-0 7/16 N.B.

Clearance 30'-0" Min. Clear

Top of Rail Elev. S.B. 5354.9 Elev. N.B. 5355.7

℄ Profile North Bound Rdwy.

S.B. Elev. 5343.12 N.B. Elev. 5357.45

℄ Profile Southbound Rdwy.

Elev: 5355.77

Elev: 5340.60 (Bot. of Casing)

Elev: 5325.52

Elev: 5316.77

Sandy Clay with Granules of Decomp. Granite

Granite Boulder 20" thick

Elev. 5323.85

Sandy Clay with Granules of Decomp. Granite

S.B. Elev. 5331.31
N.B. Elev. 5368.47

Fine Clayey Sand
Sandy Granules of Decomposed Granite
Clayey Decomposed Granite
Granite Rock
Altered Granite with seams of solid Granite.

Elev. 5346.01
Elev. 5336.51
Elev. 5325.84 (Bot. of Casing)
Elev. 5327.76
Elev. 5326.93
Elev. 5313.01
Elev. 5305.01

℄ Core Hole No. 4, 2' Rt. of Staked Line @ Sta. 18+82.00

S.B. Elev. 5330.37 N.B. Elev. 5351.30

S.B. Elev. 5329.44 N.B. Elev. 5329.15

S.B. Elev. 5328.90 N.B. Elev. 5328.64

S.B. Elev. 5329.33 N.B. Elev. 5329.08

S.B. Elev. 5348.8 N.B. Elev. 5349.1 S.B. Elev. 5348.2 N.B. Elev. 5348.5

H.W. Elev: 5345.5

W.S. Elev. 5338.9 (7-27-53)

S.B. Elev. 5330.19 N.B. Elev. 5329.96

S.B. Elev. 5337.93 N.B. Elev. 5335.21

S.B. Elev. 5340.88 N.B. Elev. 5341.15

S.B. Elev. 5341.10 N.B. Elev. 5340.91

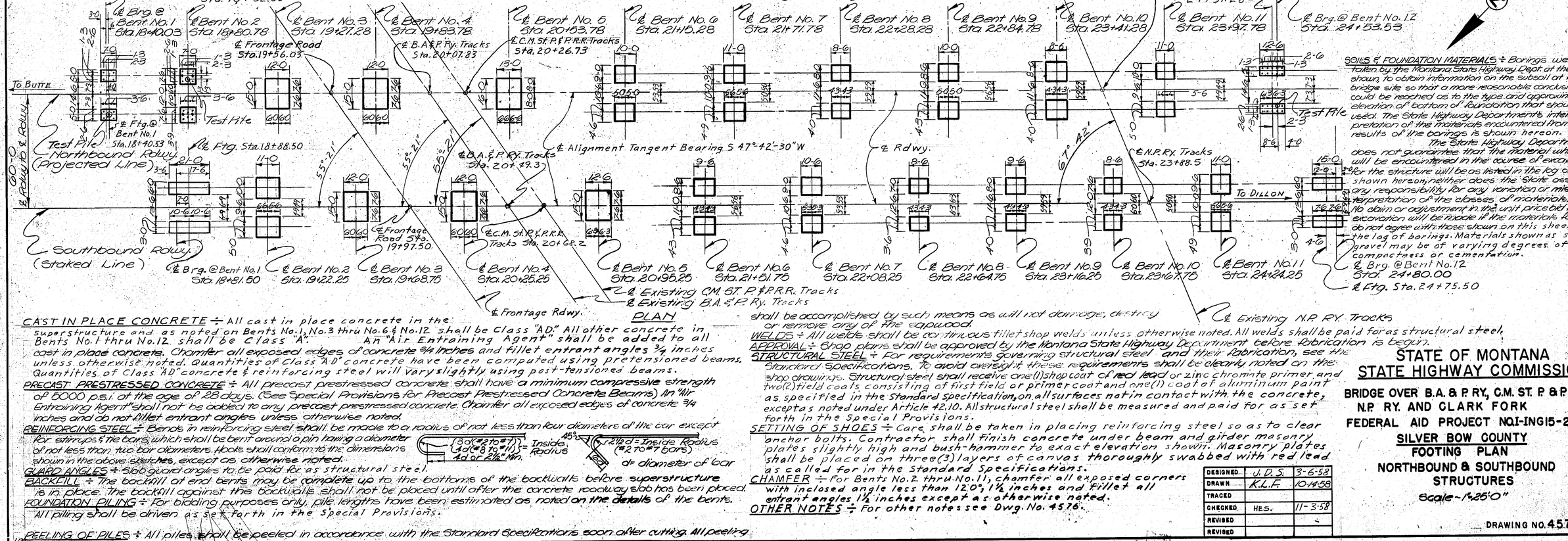
S.B. Elev. 5333.03 N.B. Elev. 5341.35 S.B. Elev. 5336.27 N.B. Elev. 5334.11

Note: Footing elevations determined from Construction records of existing structure & From Core Holes No. 4 & 5 as shown on this drawing.

ELEVATION
(Southbound Structure Shown)
(Northbound Structure Similar)

NOTE: Elevations shown for bottom of footings are approximate only. Final elevations to be determined by the engineer.

℄ Core Hole No. 5 on Staked Line @ Sta. 24+80.00



PLAN

SOILS & FOUNDATION MATERIALS: Borings were taken by the Montana State Highway Dept. at the points shown, to obtain information on the subsoil at this bridge site so that a more reasonable conclusion could be reached as to the type and approximate elevation of bottom of foundation that should be used. The State Highway Departments interpretation of the materials encountered from the results of the borings is shown hereon.

The State Highway Department does not guarantee that the material which will be encountered in the course of excavation for the structure will be as listed in the log of borings shown hereon, neither does the State assume any responsibility for any variation or misinterpretation of the classes of materials. No claim or adjustment in the unit price bid for excavation will be made if the materials found do not agree with those shown on this sheet in the log of borings. Materials shown as sand & gravel may be of varying degrees of compactness or cementation.

℄ Brg. @ Bent No. 12 Sta. 24+80.00
℄ Ftg. Sta. 24+75.50

CAST IN PLACE CONCRETE: All cast in place concrete in the superstructure and as noted on Bents No. 1, No. 3 thru No. 6 & No. 12 shall be Class "AD". All other concrete in Bents No. 1 thru No. 12 shall be Class "A". An "Air Entraining Agent" shall be added to all cast in place concrete. Chamfer all exposed edges of concrete ¾ inches and fillet entrant angles ¾ inches unless otherwise noted. Quantities of Class "AD" concrete have been computed using pretensioned beams. Quantities of Class "AD" concrete & reinforcing steel will vary slightly using post-tensioned beams.

PRECAST PRESTRESSED CONCRETE: All precast prestressed concrete shall have a minimum compressive strength of 5000 p.s.i. at the age of 28 days. (See Special Provisions for Precast Prestressed Concrete Beams) An "Air Entraining Agent" shall not be added to any precast prestressed concrete. Chamfer all exposed edges of concrete ¾ inches and do not fillet entrant angles unless otherwise noted.

REINFORCING STEEL: Bends in reinforcing steel shall be made to a radius of not less than four diameters of the bar except for stirrups & tie bars, which shall be bent around a pin having a diameter of not less than two bar diameters. Hooks shall conform to the dimensions shown in the above sketches, except as otherwise noted.

GUARD ANGLES: Slab guard angles to be paid for as structural steel.

BACKFILL: The backfill at end bents may be completed up to the bottoms of the backwalls before superstructure is in place. The backfill against the backwalls shall not be placed until after the concrete roadway slab has been placed.

FOUNDATION PILING: For bidding purposes only, pile lengths have been estimated as noted on the details of the bents. All pilling shall be driven as set forth in the Special Provisions.

PEELING OF PILES: All piles shall be peeled in accordance with the Standard Specifications soon after cutting. All peeling shall be accomplished by such means as will not damage, destroy or remove any of the sapwood.

WELDS: All welds shall be continuous fillet shop welds unless otherwise noted. All welds shall be paid for as structural steel.

APPROVAL: Shop plans shall be approved by the Montana State Highway Department before fabrication is begun.

STRUCTURAL STEEL: For requirements governing structural steel and their fabrication, see the Standard Specifications. To avoid overweight, these requirements shall be clearly noted on the shop drawings. Structural steel shall receive one (1) shop coat of red lead or zinc chromate primer and two (2) field coats consisting of first field or primer coat and one (1) coat of aluminum paint as specified in the Standard Specifications, on all surfaces not in contact with the concrete, except as noted under Article 12.10. All structural steel shall be measured and paid for as set forth in the Special Provisions.

SETTING OF SHOES: Care shall be taken in placing reinforcing steel so as to clear anchor bolts. Contractor shall finish concrete under beam and girder masonry plates slightly high and bush-hammer to exact elevation shown. Masonry plates shall be placed on three (3) layers of canvas thoroughly swabbed with red lead as called for in the Standard Specifications.

CHAMFER: For Bents No. 2 thru No. 11, chamfer all exposed corners with inclosed angle less than 120°, 1½ inches and fillet all entrant angles 1½ inches except as otherwise noted.

OTHER NOTES: For other notes see Dwg. No. 4576.

DESIGNED	J.D.S.	3-6-58
DRAWN	K.L.F.	10-14-58
TRACED		
CHECKED	H.E.S.	11-3-58
REVISED		
REVISED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY, C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK

FEDERAL AID PROJECT NO. I-ING 15-2(8)118

SILVER BOW COUNTY

FOOTING PLAN

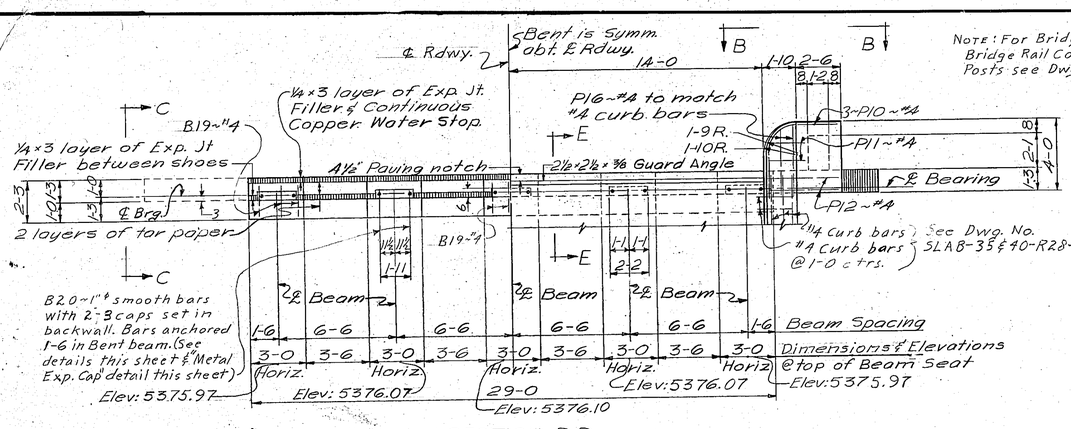
NORTHBOUND & SOUTHBOUND STRUCTURES

Scale - 1"=25'-0"

DRAWING NO. 4577

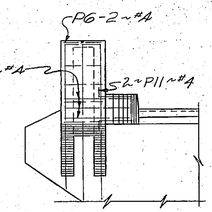
4577

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15-2 (8) 118		3	49

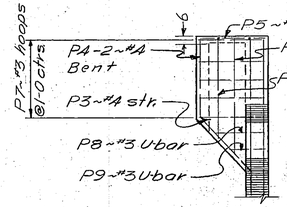


SECTION D-D

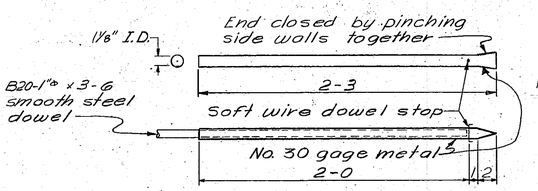
NOTE: For Bridge Rail Details & Bridge Rail Connections to End Posts see Dwg. No. SBR-T3.



VIEW B-B



VIEW C-C



METAL EXPANSION CAP
Scale: 1½" = 1'-0"

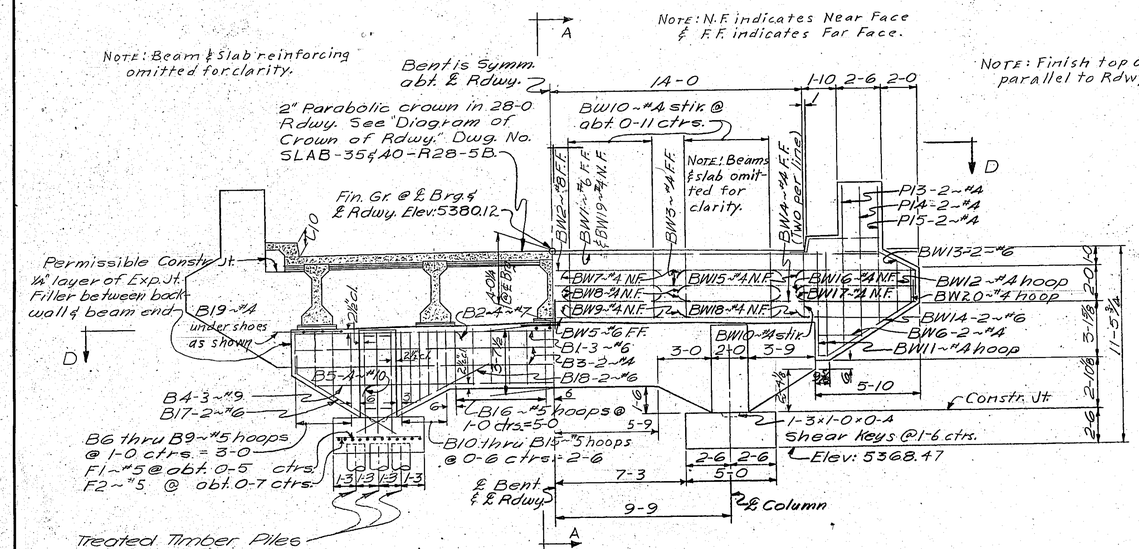
NOTE: 10 required for Bent No. 1. Caps shall be paid for at the unit price bid for Reinforcing Steel.

NOTE: 1-6 each side of ℄ of beams shall be finished level to elevations shown. The 3-6 area between beam seats shall be sloped uniformly as required.

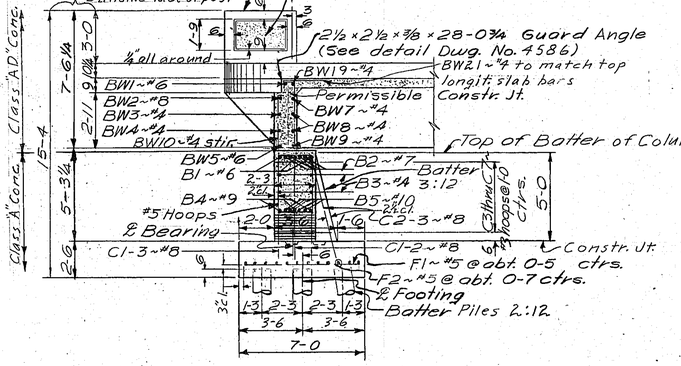
NOTE: Beam & slab reinforcing omitted for clarity.

NOTE: N.F. indicates Near Face & F.F. indicates Far Face.

NOTE: Finish top of curb parallel to Rdwy grade.

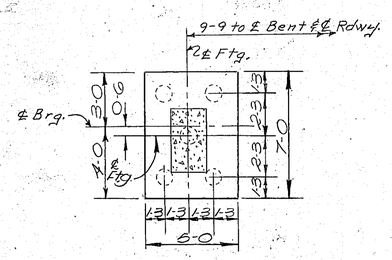


ELEVATION
(Back On Line)



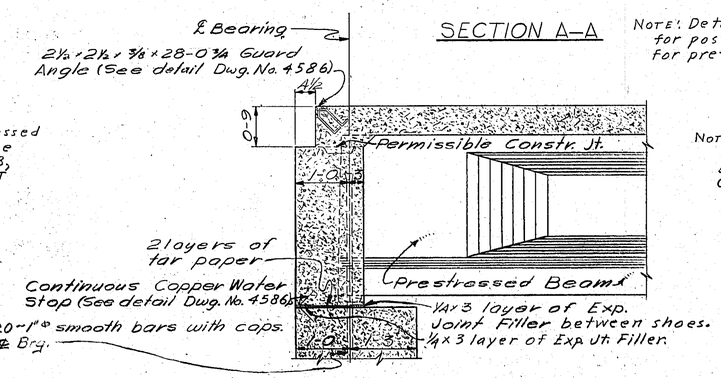
SECTION A-A

NOTE: Details of Bent are typical for post-tensioned beams: Details for pre-tensioned beams are similar.



FOOTING PLAN

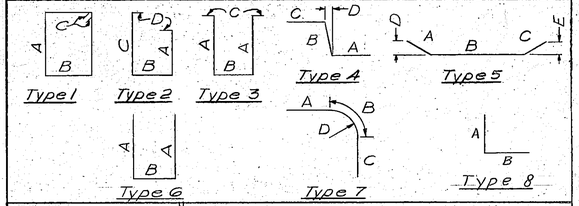
NOTE: For details of slab, prestressed beams & reinforcing steel, see Dwgs. No. SLAB-35 & 40-RA8-5B, PRE-35 & 40-R28-L15 and POST-35 & 40-R28-L15.



SECTION E-E
Scale: ¾" = 1'-0"

NOTE: Cost of furnishing and placing preformed expansion joint filler, tar paper & copper water stop to be included in the unit price bid for Class "AD" Concrete.

BILL OF REINFORCING STEEL



STRAIGHT BARS				BENT BARS (All dimensions are out to out.)								
MARK	SIZE	No.	LENGTH	MARK	SIZE	No.	TYPE	LENGTH	A	B	C	D	E
B1	#6	3	28'-8"	B6	#5	2	1	9'-7"	2'-5½	1'-11"	0'-5"		
B2	7	8	9-6	B7	↓	↓	↓	10-10	3-1	↓	↓		
B3	4	4	28-8	B8				12-1	3-8½				
B4	9	3	26-8	B9				13-4	4-4				
B5	10	4	21-6	B10				13-10	4-7				
B18	6	4	8-0	B11				13-4	4-4				
B19	4	9	1-11	B12				12-10	4-1				
B20	1" ϕ Sm.	10	3-6	B13				12-4	3-10				
BW1	6	1	36-9	B14				11-10	3-7				
BW2	8	1	39-4	B15	↓	2	↓	11-4	3-4				
BW3	4	2	21-0	B16	5	12	1	11-0	3-2	1-11	0-5		
BW4	4	2	21-0	B17	6	4	5	7-6	1-0	6-6		0-10½	
BW5	6	1	37-6										
BW6	4	4	2-5	BW10	4	26	2	8-2	2-11	0-11	3-8	0-4	
BW7	4	4	5-0	BW11	4	4	1	14-3	5-10	0-11	0-4½		
BW8	4	8	5-0	BW12	4	2	1	8-5	2-11	0-11	0-4½		
BW9	4	4	4-8	BW13	6	4	5	5-5	1-8	2-1	1-8	0-9½	1'-5½"
BW15	4	2	6-3	BW14	6	4	5	7-4	1-0	5-10	0-6	0-3	0-10
BW16	4	2	6-5	BW20	4	2	1	6-1	1-9	0-11	0-4½		
BW17	4	2	6-5	BW21	4	23	8	3-3	1-3	2-0			
BW18	4	2	5-0	P4	4	4	5	9-2	1-0	3-9	4-5	0-8½	3-0
BW19	4	1	36-9	P7	3	10	1	12-4	3-8	2-2	0-4		
C1	8	14	6-10	P8	3	2	6	8-1	2-11½	2-2			
C2	8	6	6-10	P9	3	2	6	6-2	2-0	2-2			
				P10	4	6	7	6-11	2-4	2-6	2-1	1-7	
F1	5	24	6-6	P11	4	4	3	5-9	2-0	1-3	0-3		
F2	5	24	4-6	P12	4	4	4	6-3	1-3	1-2	3-10	0-1½	
P1	4	4	6-4										
P2	↓	4	5-5	C3	3	2	1	8-0	2-0	1-8	0-4		
P3		2	4-5	C4	3	2	1	8-6	2-3	1-8	0-4		
P5		2	3-8	C5	3	2	1	9-0	2-6	1-8	0-4		
P6		4	2-2	C6	3	2	1	9-6	2-9	1-8	0-4		
P13		4	9-1	C7	#3	2	1	10-0	3-0	1-8	0-4		
P14		4	8-6										
P15		4	7-10										
P16	#4	4	3-8										

NOTES

OTHER NOTES: For other notes see Dwgs. No. 4576 & No. 4577.

DESIGNED	J.D.S.	9-30-58
DRAWN	T.W.M.	10-1-58
TRACED		
CHECKED	H.E.S.	11-5-58
REVISED		
REVISED		

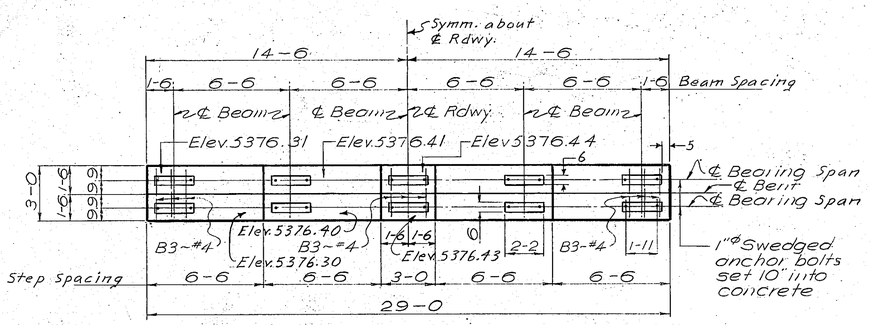
STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING 15-2(8)118
SILVER BOW COUNTY
BENT NO. 1
NORTHBOUND STRUCTURE
Scale - ¼" = 1'-0" Except As Noted

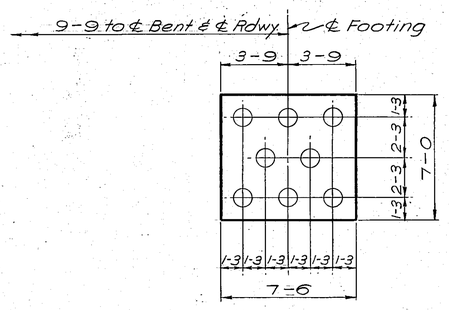
DRAWING NO. 4578

J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING15-2 (8)118		4	49

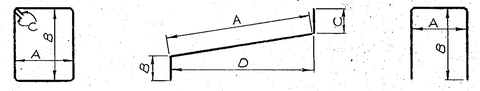


PLAN



FOOTING PLAN

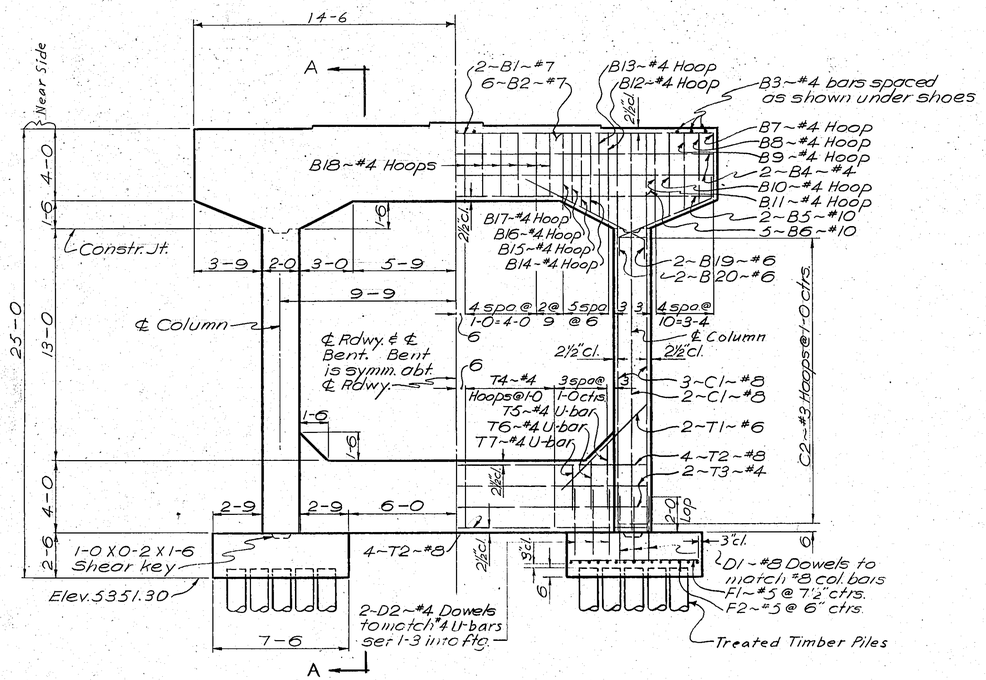
BILL OF REINFORCING STEEL



STRAIGHT BARS				BENT BARS (All dimensions are out to out)								
MARK	SIZE	No.	LENGTH	MARK	SIZE	No.	TYPE	LENGTH	A	B	C	D	E
B1	#7	2	28'-8"	B7	#4	2	1	13'-6"	2-8	3-8½	0-4½"		
B2	7	12	9-0	B8	↓	↑	↓	14-2	↑	4-0½	↓		
B3	4	9	2-8	B9				14-10		4-4½			
B4	4	4	28-8	B10				15-6		4-8½			
B5	10	2	28-8	B11				16-2		5-0½			
B6	10	5	20-10	B12				16-1		5-0			
				B13				15-7		4-9			
				B14				15-1		4-6			
C1	8	16	22-4	B15				14-7		4-3			
				B16				14-1		4-0			
				B17	↓	2	↓	13-7	↓	3-9	↓		
T1	6	4	5-6	B18	4	12	1	13-5	2-8	3-8	0-4½		
T2	8	8	21-2	B19	6	4	2	7-11	6-11	1-0		6-2	
T3	4	4	20-0	B20	6	4	2	7-9	5-9	1-0	1-0	5-4	
D1	8	16	4-0	C2	3	34	1	9-4	1-8	2-8	0-4		
D2	4	12	4-1										
				T4	4	12	1	10-5	1-2	3-8	0-4½		
F1	5	22	6-10	T5	4	2	3	8-4	1-2	3-7			
F2	#5	30	6-4	T6	4	2	3	6-4	1-2	2-7			
				T7	#4	2	3	5-10	1-2	2-4			

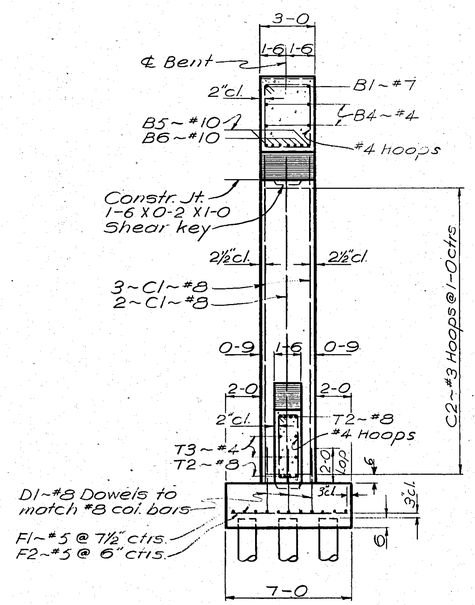
NOTES

OTHER NOTES ÷ For other notes see Dwgs. No. 4576 & No. 4577.



ELEVATION
(Ahead On Line)

NOTE :- Max Pile Pressure Under:
D.L.+L.L.+I.F.+Wind = 34.03 T/pile.
Estimated Pile Lengths = 25 ft.



SECTION A-A

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING15-2(8)118
SILVER BOW COUNTY
BENT NO. 2
NORTHBOUND STRUCTURE
Scale - ¼"=1'0"

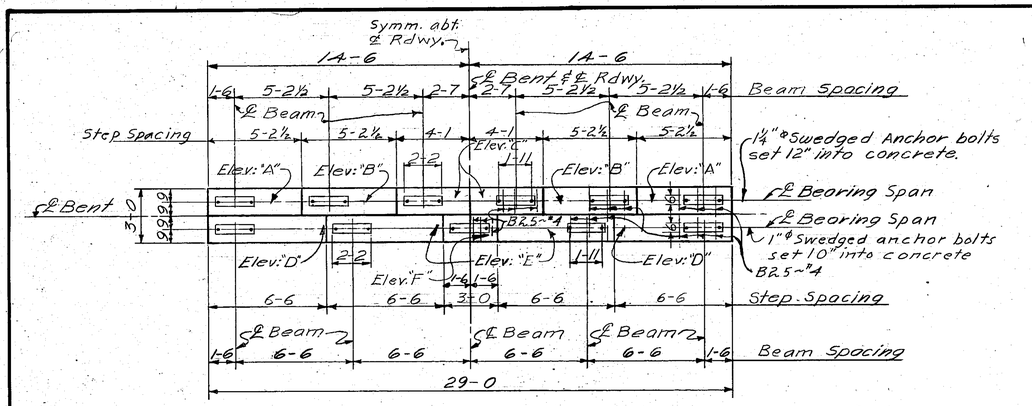
DESIGNED	J.D.S.	9-30-53
DRAWN	H.K.L.	10-3-53
TRACED		
CHECKED	H.E.S.	11-14-53
REVISED		
REVISED		

DRAWING NO. 4579

J.P.B.

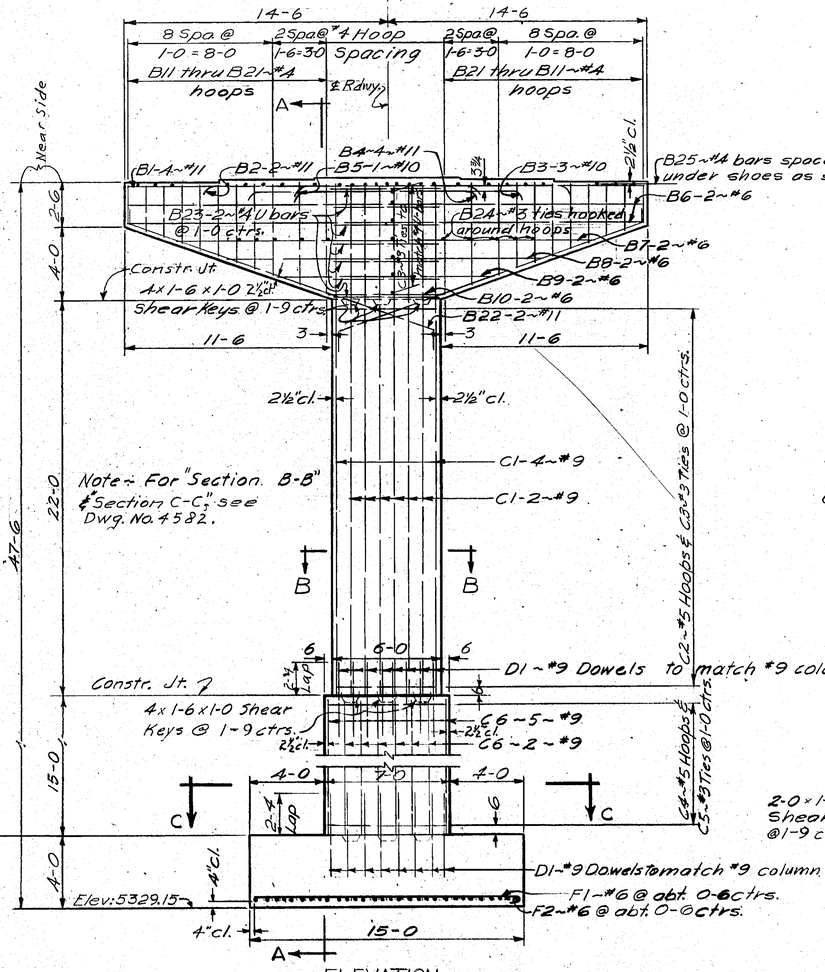
No. FSI 241(13) North Bound Rdwy.
BENT No. 2 Scale: ¼" = 1'-0"

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15 -2(8)118		5	49

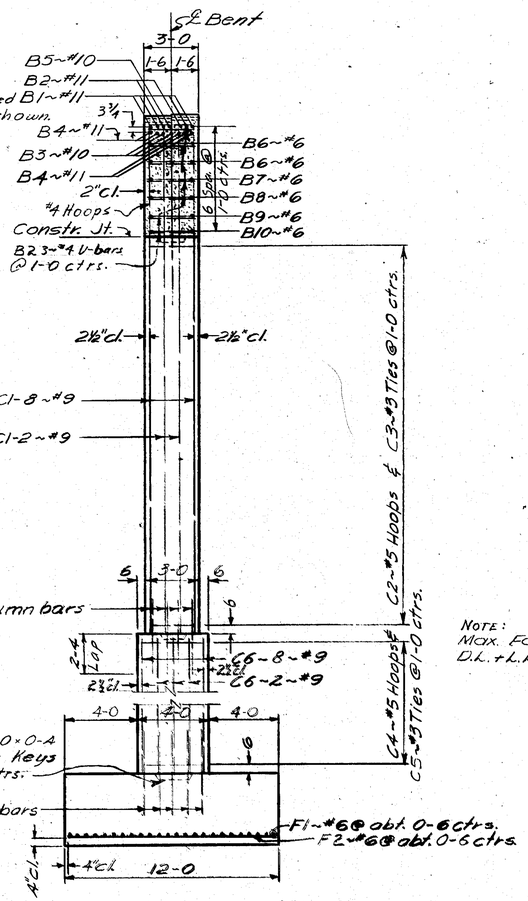


PLAN

BEAM SEAT ELEVATIONS	
POINT	ELEVATIONS
"A"	5376.67
"B"	5376.75
"C"	5376.79
"D"	5376.65
"E"	5376.75
"F"	5376.78



ELEVATION
(Ahead on Line)



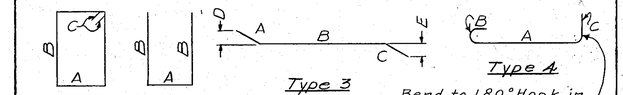
SECTION A-A

Footing Log

Final 3.5' of excavation above base of footing elevation consisted of a firm gray disintegrated granite Sand with some clay and 2" to 3" rock scattered throughout the footing base.

NOTE:
Max. Footing Pressure Under:
D.L. + L.L. + Wind + L.F. = 3.72 Tons/sq. ft.

BILL OF REINFORCING STEEL



STRAIGHT BARS				BENT BARS (All dimensions are out to out.)								
MARK	SIZE	No.	LENGTH	MARK	SIZE	No.	TYPE	LENGTH	A	B	C	D	E
B1	#11	4	28-8	B11	#4	2	1	10'-7"	2'-8"	2'-3"	0'-4½		
B2	11	2	19-6	B12	↑	↑	↑	11-3	↑	2-7	↑		
B3	10	3	14-8	B13				11-11		2-11			
B4	11	4	9-2	B14				12-7		3-3			
B5	10	1	9-2	B15				13-3		3-7			
B6	6	4	28-8	B16				14-0		3-11½			
B7	6	2	23-11	B17				14-8		4-3½			
B8	6	2	18-1	B18				15-5		4-8			
B9	6	2	12-5	B19				16-1		5-0			
B10	6	2	6-7	B20				17-1		5-6			
B25	4	35	1-2	B21	4	2	1	18-2	2-8	6-0½	0-4½		
				B22	11	4	3	20-1	1-0	18-1	1-0	0'-11	0'-11
C1	9	20	28-3	B23	4	14	2	9-8	5-8	2-0			
				B24	3	10	4	3-7	2-9	0-5	0-5		
D1	9	42	4-8										
F1	6	24	14-4	C3	3	29	4	3-7	2-9	0-5	0-5		
F2	6	30	11-4	C2	5	22	1	17-6	2-8	5-8	0-5		
				C5	3	15	4	4-7	3-9	0-5	0-5		
C6	#9	22	14-10	C4	#5	15	1	21-6	3-8	6-8	0-5		

NOTES

OTHER NOTES:- For other notes see Dwgs. No. 4576 & No. 4577.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

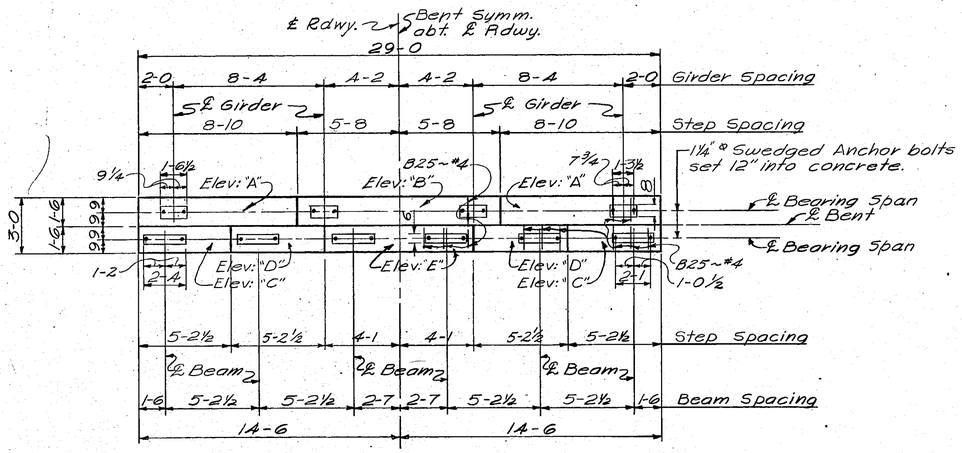
BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING15-2(8)118
SILVER BOW COUNTY
BENT NO. 3
NORTHBOUND STRUCTURE
Scale ~ ¼"=1'-0"

DESIGNED	J.D.S.	11-25-58
DRAWN	C.C.	12-5-58
TRACED		
CHECKED	H.E.S.	12-4-58
REVISED		
REVISED		

DRAWING NO. 4580

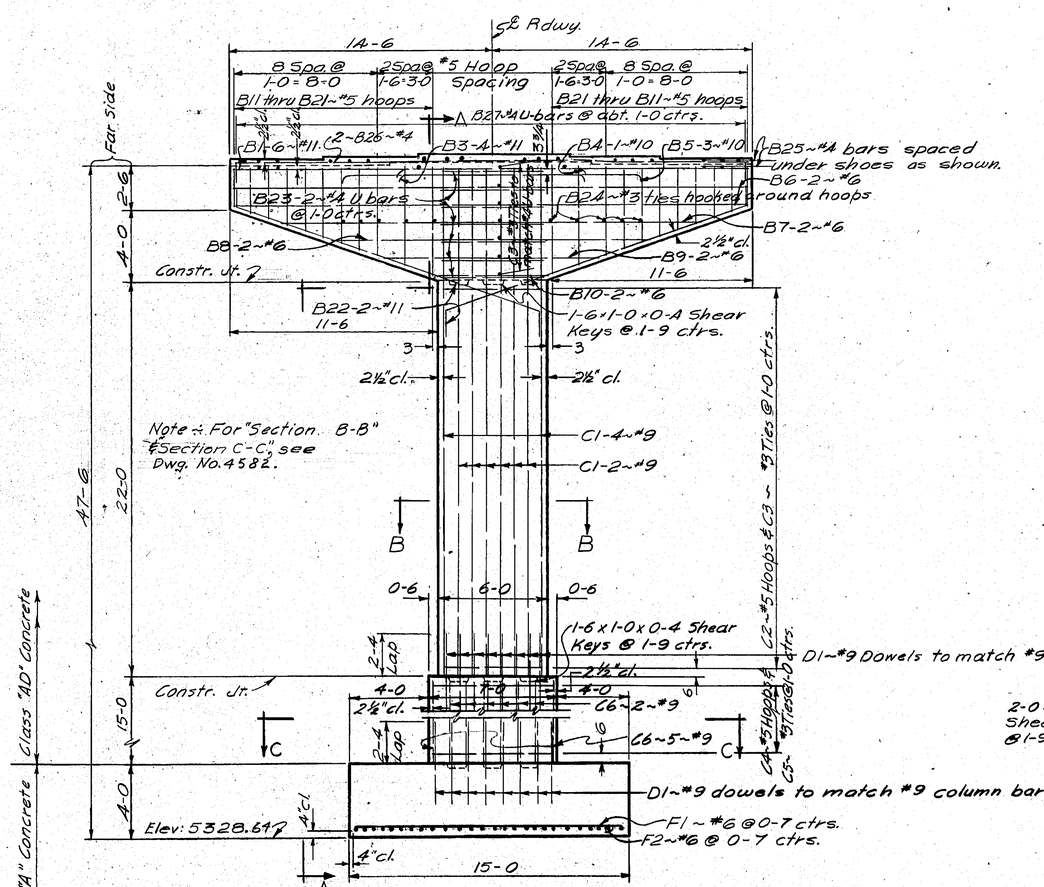
J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15-2(8) 118		6	49

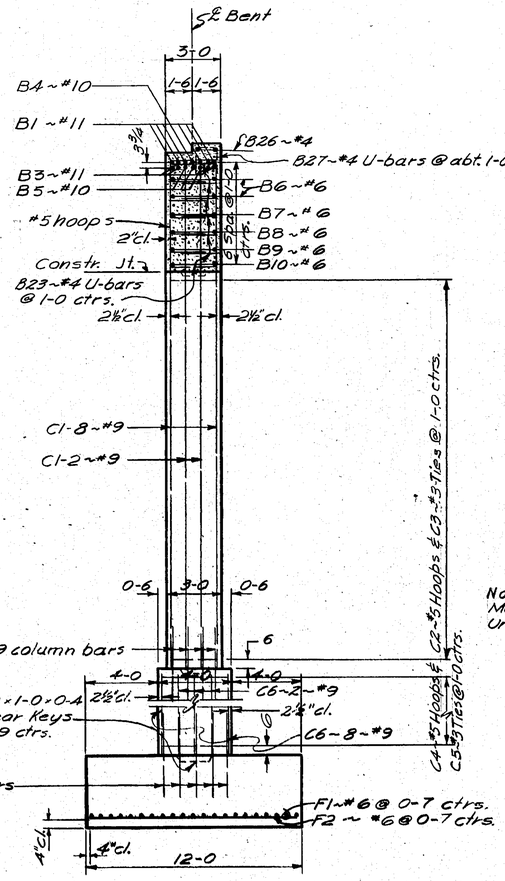


PLAN

BEAM SEAT ELEVATIONS	
POINT	ELEVATION
"A"	5376.14
"B"	5376.25
"C"	5376.69
"D"	5376.72
"E"	5376.76



ELEVATION
(Ahead on Line)



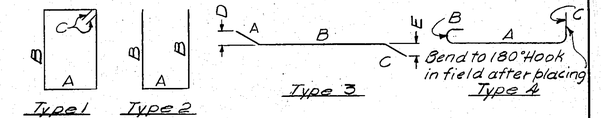
SECTION A-A

Footing Log

Final 3.0' of excavation above base of footing elevation consisted of grey disintegrated granite sand and rock. Base firm.

NOTE:
Max. Footing Pressure Under: D.L.+L.L.+ Wind + L.F. = 3.76 Tons/FT.²

BILL OF REINFORCING STEEL



STRAIGHT BARS				BENT BARS (all dimensions are out to out.)								
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	TYPE	LENGTH	A	B	C	D	E
B1	#11	6	28-8	B11	#5	2	1	10-8"	2'-8"	2'-3"	0'-5"		
				B12	↑	↑	↑	11-4	↑	2-7	↑		
B3	11	4	9-6	B13				12-0		2-11			
B4	10	1	9-6	B14				12-8		3-3			
B5	10	3	16-0	B15				13-4		3-7			
B6	6	4	28-8	B16				14-1		3-11½			
B7	6	2	23-11	B17				14-9		4-3½			
B8	6	2	18-1	B18				15-6		4-8			
B9	6	2	12-5	B19				16-2		5-0			
B10	6	2	6-7	B20	↓	↓	↓	17-2	↓	5-6	↓		
B25	4	24	1-2	B21	5	2	1	18-3	2-8	6-0½	0-5		
B26	4	2	28-8	B22	11	4	3	20-1	1-0	18-1	1-0	0'-11"	0'-11"
				B23	4	14	2	9-8	5-8	2-0			
C1	9	20	28-3	B24	3	10	4	3-7	2-9	0-5	0-5		
				B27	4	30	2	3-10	1-2	1-8			
D1	9	42	4-8										
				C3	3	29	4	3-7	2-9	0-5	0-5		
F1	6	21	14-4	C2	5	22	1	17-6	2-8	5-8	0-5		
F2	6	26	11-4	C4	5	15	1	21-6	3-8	6-8	0-5		
				C5	#3	15	4	4-7	3-9	0-5	0-5		
C6	#9	22	14-10										

NOTES

OTHER NOTES: For other notes see Dwgs. No. 4576 & No. 4577.

DESIGNED	J.O.J.	11-25-58
DRAWN	C.G.	12-3-58
TRACED		
CHECKED	H.E.S.	12-4-58
REVISED		
REVISED		

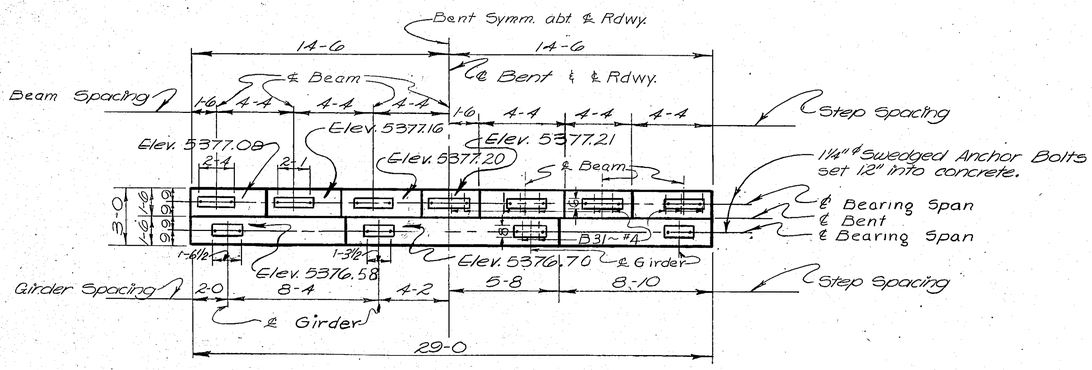
STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY, C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING15-2(8)118
SILVER BOW COUNTY
BENT NO. 4
NORTHBOUND STRUCTURE
Scale: ¼" = 1'-0"

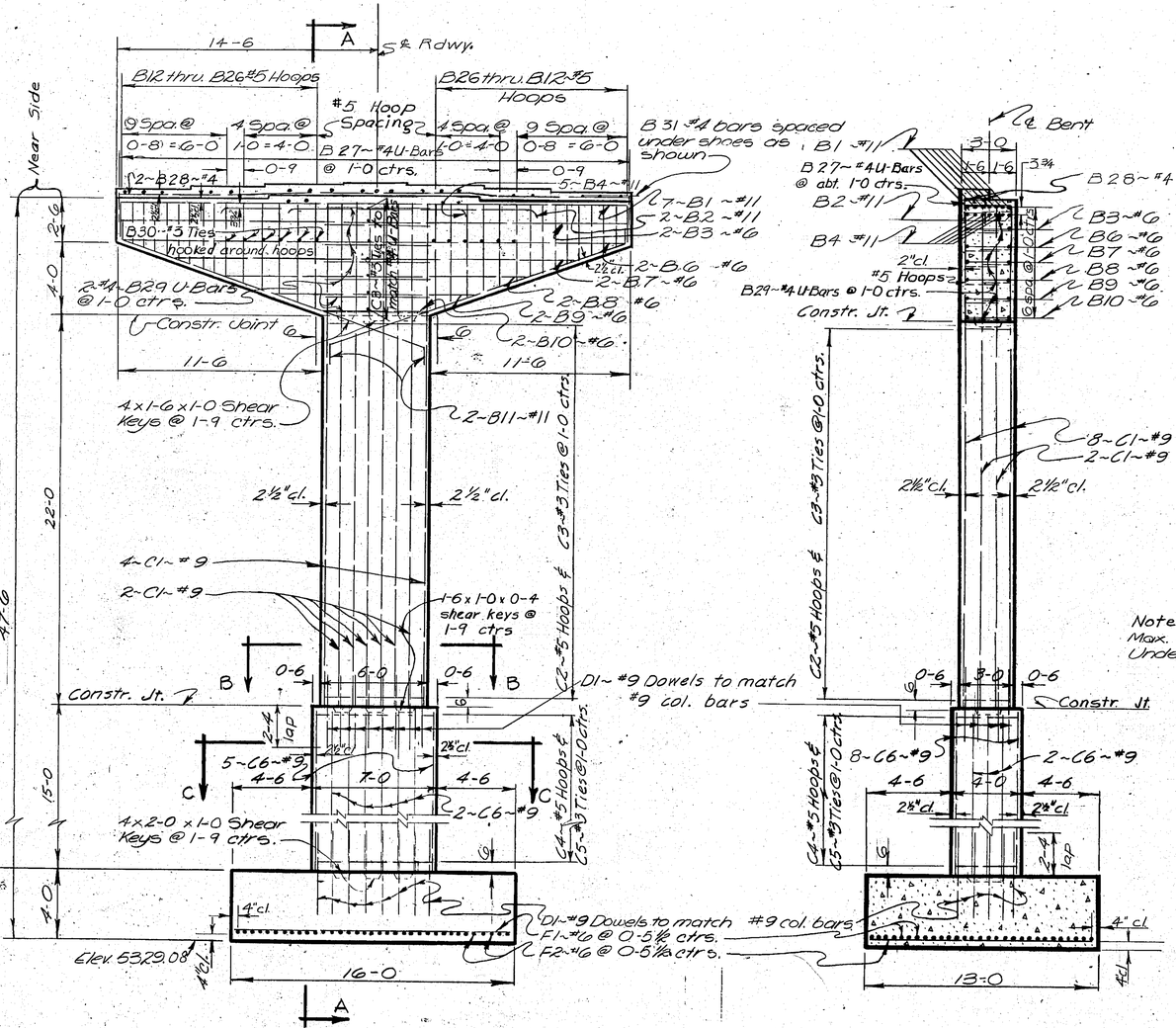
DRAWING NO. 4581

J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	ING 15-2 (8) 118		7	49

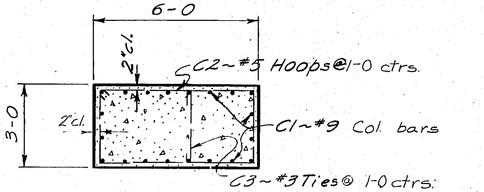


PLAN

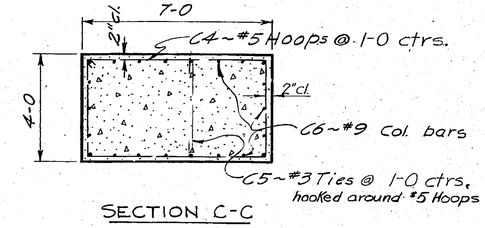


ELEVATION (Ahead on Line)

SECTION A-A



SECTION B-B
Scale ÷ 3/8" = 1-0"



SECTION C-C
Scale ÷ 3/8" = 1-0"

BILL OF REINFORCING STEEL



STRAIGHT BARS				BENT BARS (dimensions are out to out)									
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	TYPE	LENGTH	A	B	C	D	E
B1	#11	7	28-8	B12	#5	X	1	10-8	2-8	2-3	0-5		
B2	11	2	17-0	B13	"	"	"	11-2	"	2-6	"		
B3	6	2	28-8	B14	"	"	"	11-7	"	2-3½	"		
B4	11	5	9-6	B15	"	"	"	12-0	"	2-11	"		
B28	4	2	28-8	B16	"	"	"	12-6	"	3-2	"		
B6	6	2	28-8	B17	"	"	"	13-0	"	3-5	"		
B7	6	2	23-11	B18	"	"	"	13-5	"	3-7½	"		
B8	6	2	18-1	B19	"	"	"	13-10	"	3-10	"		
B9	6	2	12-5	B20	"	"	"	14-4	"	4-1	"		
B10	6	2	6-7	B21	"	"	"	14-10	"	4-4	"		
B31	4	23	1-2	B22	"	"	"	15-4	"	4-7	"		
C1	9	20	28-3	B23	5	X	1	16-0	2-8	4-11	0-5		
C6	9	22	14-10	B24	5	X	1	16-8	2-8	5-3	0-5		
				B29	4	14	4	9-8	5-8	2-0			
D1	9	42	4-8	B30	3	12	3	3-7	2-9	0-5	0-5		
				B11	11	4	2	20-1	1-0	18-1	1-0	0-11	0-11
F1	6	29	15-4	B25	5	X	1	17-4	2-8	5-7	0-5		
F2	#6	35	12-4	B26	5	X	1	18-1	2-8	5-11	0-5		
				C2	5	22	1	17-6	2-8	5-8	0-5		
				C3	3	29	3	3-7	2-9	0-5	0-5		
				C4	5	15	1	21-6	3-8	6-8	0-5		
				C5	3	15	3	4-7	3-6	0-5	0-5		
				B27	#4	30	4	3-10	1-2	1-8			

NOTES

OTHER NOTES: For other notes see Dwgs. No. 4576 & No. 4577.

Footing Log
Fill of 3.5' to 4.0' of excavation above base of footing elevation consisted of tan gray "disintegrated granite sand with some clay".
Base of footing fill.

Note:
Max. Footing Pressure Under: D.L. + L.L. + Wind + I.F. = 3.83 Tons/FT²

STATE OF MONTANA
STATE HIGHWAY COMMISSION

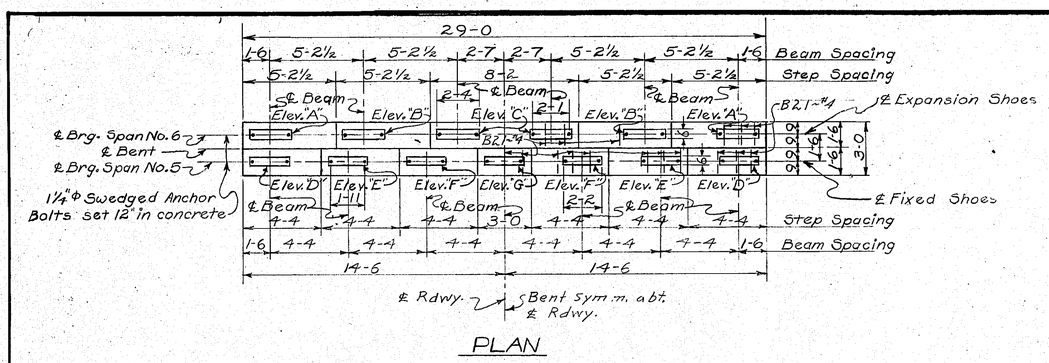
BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING15-2(8)118
SILVER BOW COUNTY
BENT NO. 5
NORTHBOUND STRUCTURE
Scale: ¼" = 1-0" Except As Noted

DESIGNED	J.D.S.	8-21-58
DRAWN	K.L.F.	8-23-58
TRACED		
CHECKED	H.E.S.	12-8-58
REVISED		
REVISED		

DRAWING NO. 4582

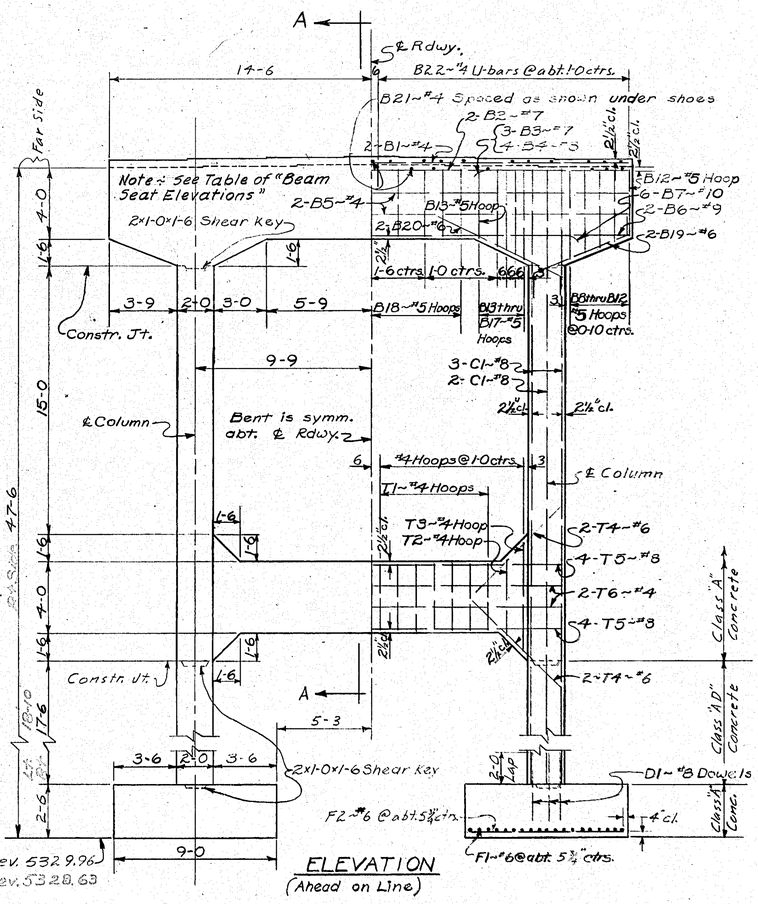
J.R.B.

FED ROAD DIV. NO	STATE	FED AID PROJ. NO.		SHEET NO	TOTAL SHEETS
8	MONT.	I-ING 15-2 (8) 118		8	49

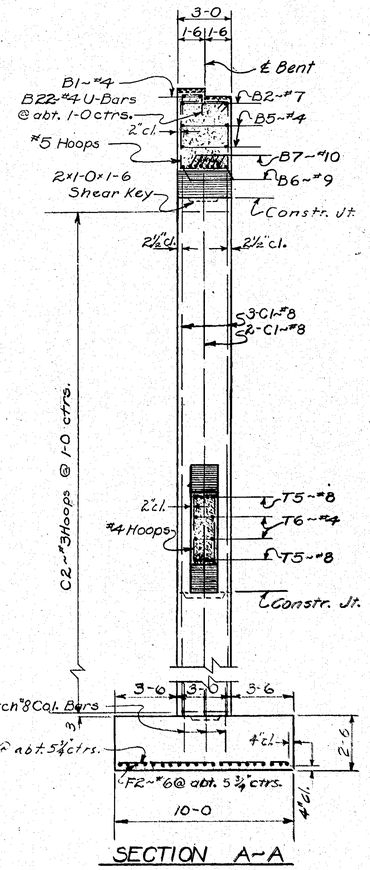


PLAN

BEAM SEAT ELEVATIONS	
POINT	ELEVATION
"A"	5377.46
"B"	5377.55
"C"	5377.59
"D"	5377.86
"E"	5377.93
"F"	5377.98
"G"	5377.99



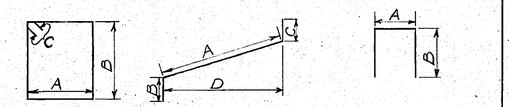
ELEVATION
(Ahead on Line)



SECTION A-A

Footing Logs.
Left footing lowered 1.33' to elevation 5328.53. No change in right footing elevation. Rock layer covers most of portion of west half of left footing. Material encountered in the final 3.5' of excavation to footing grades noted above consisted of a grey decomposed granite.

BILL OF REINFORCING STEEL



TYPE 1 TYPE 2 TYPE 3

Straight Bars				Bent Bars (All dimensions out to out)								
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D	E
B1	#4	2	28'-8"	B8	#5	2	1	16'-3"	2'-8"	5'-0½"	0'-5"		
B2	7	2	28-8	B9				15-7		4'-8½"			
B3	7	6	8-7	B10				14-11		4'-4½"			
B4	8	8	8-7	B11				14-3		4'-0½"			
B5	4	2	28-8	B12				13-7		3'-8½"			
B6	9	2	28-8	B13				13-9		3'-9½"			
B7	10	6	21-0	B14				14-9		4'-3½"			
B21	4	33	1-2	B15				15-3		4'-6½"			
				B16				15-9		4'-9½"			
				B17		2	1	16-3		5'-0½"			
T4	6	8	5-6	B18	5	9	1	13-6	2'-8	3'-8	0'-5		
T5	8	8	21-2	B19	6	4	2	7'-9	5'-9	1'-0	1'-0	5'-4"	
T6	4	4	20-0	B20	6	4	2	7'-11	6'-11	1'-0		6'-2	
				B22	4	30	3	3'-10	1'-2	1'-4			
F1	6	38	9-4										
F2	6	42	8-4	T1	4	14	1	10'-5	1'-2	3'-8	0'-4½"		
				T2	4	2	1	11'-1	1'-2	4'-0	0'-4½"		
				T3	4	2	1	15'-1	1'-2	6'-0	0'-4½"		
D1	8	16	4'-0										
				C2	#3	80	1	9'-4	1'-8	2'-8	0'-4		
C1	#8	16	44'-9										

"13 col. steel addition - Fig board column lengthened 1'-4"

NOTES

OTHER NOTES: For other notes see Dwgs. No. 4576 & No. 4577.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

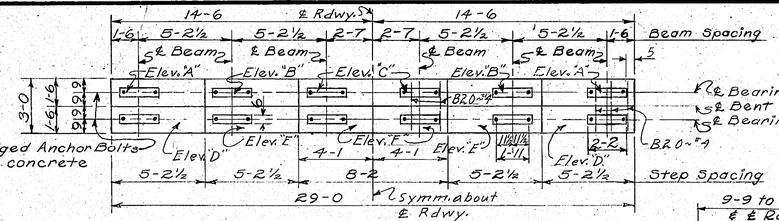
BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING 15-2(8)118
SILVER BOW COUNTY
BENT NO. 6
NORTHBOUND STRUCTURE
Scale- 1/4"=1'-0"

DESIGNED	U.D.S.	8-25-58
DRAWN	D.A.W.	10-2-58
TRACED		
CHECKED	H.E.S.	11-17-58
REVISED		
REVISED		

DRAWING NO. 4583

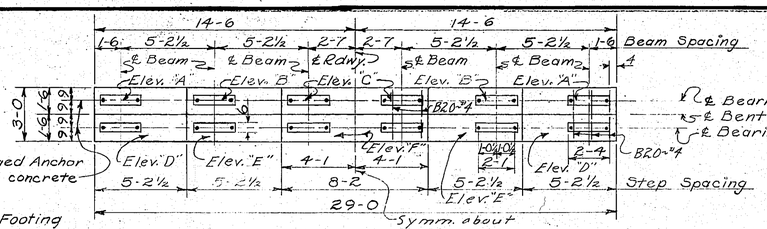
J.R.B.

FED ROAD DIV. NO	STATE	FED AID PROJ. NO		SHEET NO	TOTAL SHEETS
8	MONT	ING 15-2 (8) 118		9	49



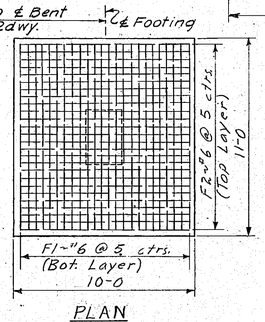
PLAN

(Bents No.7, No.9, & No.11 ~ Fixed Shoe)



PLAN

(Bent No.8 ~ Expansion Shoe)



PLAN

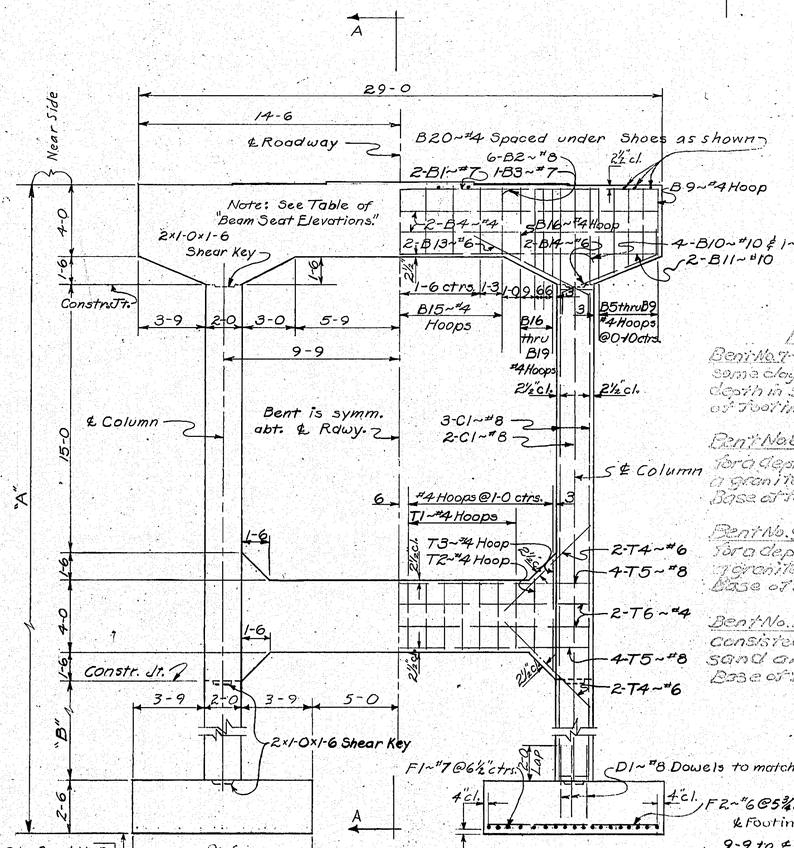
(Footing For Bent No.11)

BEAM SEAT ELEVATIONS

Elevation	Bent No.7	Bent No.8	Bent No.9	Bent No.11
"A"	5378.22	5378.16	5378.92	5379.62
"B"	5378.31	5378.25	5379.01	5379.71
"C"	5378.35	5378.29	5379.05	5379.75
"D"	5378.21	5378.15	5378.91	5379.61
"E"	5378.30	5378.24	5379.00	5379.70
"F"	5378.34	5378.28	5379.04	5379.74

VARIABLE DIMENSIONS

Dimension	Bent No.7	Bent No.8	Bent No.9	Bent No.11
"A"	43-0	37-0	38-0	45-6
"B"	13-0	7-0	8-0	15-6



Elev. 5335.21 ~ Bent No.7
Elev. 5341.15 ~ Bent No.8
Elev. 5340.91 ~ Bent No.9
Elev. 5334.11 ~ Bent No.11

ELEVATION

(Ahead on Line)

(Footings shown for Bent No.7 only)
(Footings for Bents No.8, No.9 & No.11 shown on this sheet)

Note: Max. Footing Pressures Under:
Bent #7 & #11 = D.L. + L.L. + Wind + L.F. = 3.75 T/FT.²
Bent #8 = D.L. + L.L. = 2.96 T/FT.²
Bent #9 = D.L. + L.L. + Wind + L.F. = 3.60 T/FT.²

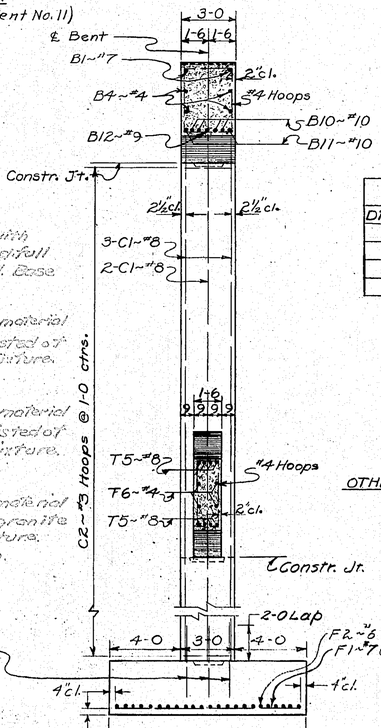
Footing Logs

Bent No.7 - Granite sand with some clay. Footings keyed full depth in same material. Base of footings firm.

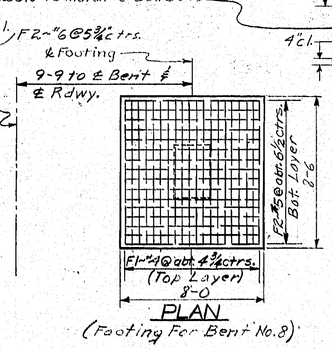
Bent No.8 - Excavated material for a depth of 8.0' consisted of a granite sand clay mixture. Base of footing firm.

Bent No.9 - Excavated material for a depth of 8.0' consisted of granite sand clay mixture. Base of footing firm.

Bent No.11 - Excavated material consisted of a grey granite sand and clay mixture. Base of footing firm.

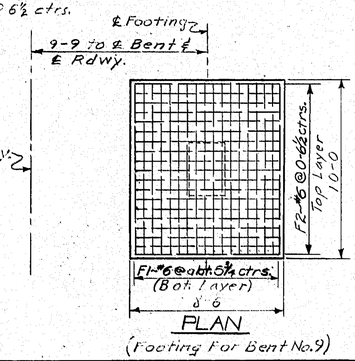


SECTION A-A



PLAN

(Footing For Bent No.8)



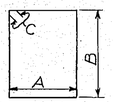
PLAN

(Footing For Bent No.9)

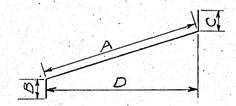
NOTES

OTHER NOTES: For other notes see Dwgs. No. 4576 & No. 4577.

BILL OF REINFORCING STEEL (one Bent only)



TYPE 1



TYPE 2

STRAIGHT BARS				BENT BARS (All dimensions out to out)								
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D	E
B1	#7	2	28'-8"	B5	#4	2	1	16'-2"	2'-8"	5'-0½	0'-4½		
B2	8	12	8-7	B6				15-6		4-6½			
B3	7	2	8-7	B7				14-10		4-4½			
B4	4	4	28-8	B8				14-2		4-0½			
B10	10	4	21-0	B9		2		13-6		3-8½			
B11	10	2	28-8	B15		9		13-5		3-8			
B12	9	1	21-0	B16		2		14-1		4-1½			
B20	4	10	2-8	B17				15-1		4-6			
				B18				15-7		4-9			
T4	6	8	5-6	B19	4	2	1	16-1	2-8	5-0	0-4½		
T5	8	8	21-2	B13	6	4	2	7-11	6-11	1-0		6-2	
T6	4	4	20-0	B14	6	4	2	7-9	5-9	1-0	1-0	5-4	
D1	#8	16	4-0	T1	4	14	1	10-5	1-2	3-8	0-4½		
				T2	4	2	1	11-1	1-2	4-0	0-4½		
				T3	#4	2	1	15-1	1-2	6-0	0-4½		

Reinforcing Steel For Bent No.7 Only

C1	#8	16	40'-3"	C2	#3	70	1	9'-4"	1'-8"	2'-8	0'-4	
F1	7	36	10-4									
F2	#6	46	8-10									

Reinforcing Steel For Bent No.8 Only

C1	#8	16	34'-3"	C2	#3	58	1	9'-4"	1'-8"	2'-8	0'-4	
F1	4	40	7-10									
F2	#5	32	7-4									

Reinforcing Steel For Bent No.9 Only

C1	#8	16	35'-3"	C2	#3	60	1	9'-4"	1'-8"	2'-8	0'-4	
F1	6	36	9-4									
F2	#6	38	7-10									

Reinforcing Steel For Bent No.11 Only

C1	#8	16	42'-9"	C2	#3	76	1	9'-4"	1'-8"	2'-8	0'-4	
F1	6	48	10-4									
F2	#6	52	9-4									

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK

FEDERAL AID PROJECT NO. I-ING 15-2(8)118

SILVER BOW COUNTY

BENTS NO.7, NO.8, NO.9 & NO.11

NORTHBOUND STRUCTURE

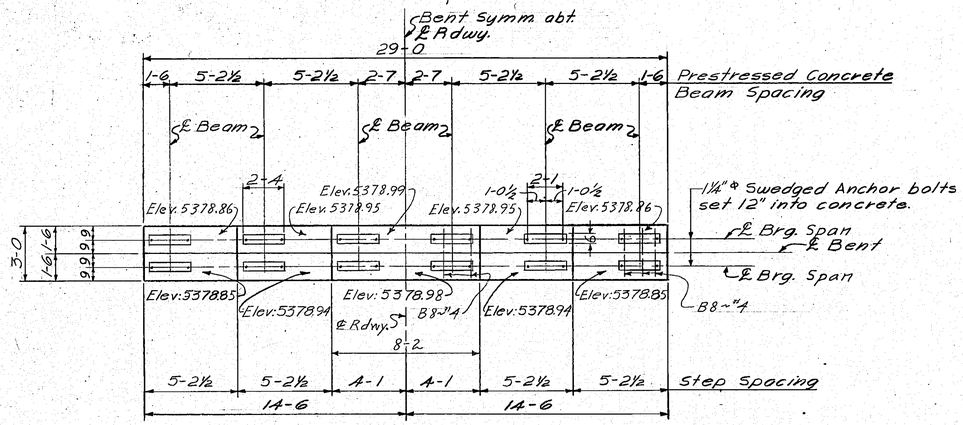
Scale ~ 1" = 1'-0"

DESIGNED	J.D.S.	8-19-58
DRAWN	D.A.W.	9-28-58
TRACED		
CHECKED	H.E.S.	11-14-58
REVISED		
REVISED		

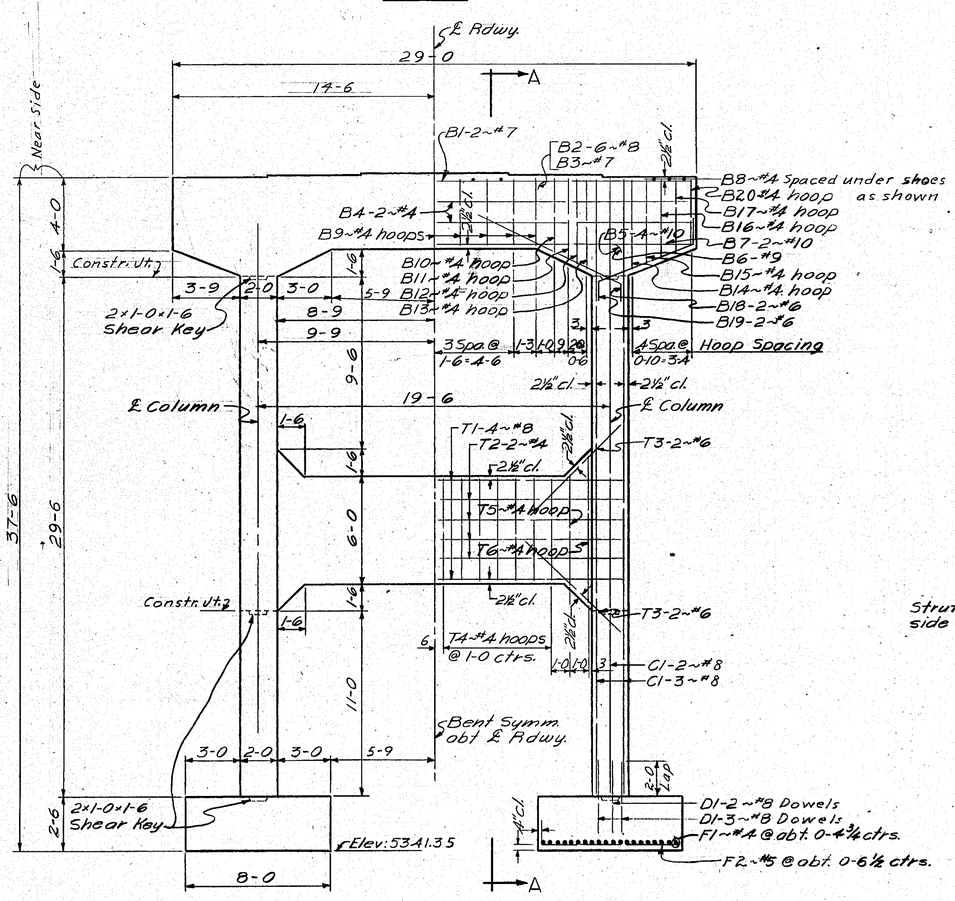
DRAWING NO. 4584

J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15-2 (8) 118		10	49

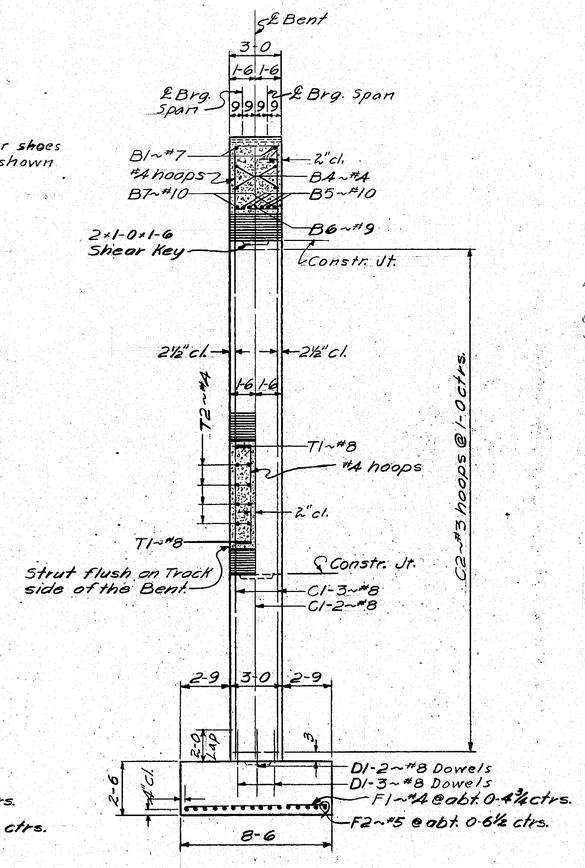


PLAN



ELEVATION
(Ahead on Line)

NOTE:
Max. Footing Pressure Under: D.L. + L.L. = 2.96 Tons/Ft.²

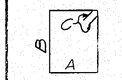


SECTION A-A

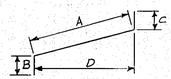
Footing Log

Material excavated from both footings consisted of a grey decomposed granite sand with some clay.
Base of footings in m.m.

BILL OF REINFORCING STEEL



Type 1



Type 2

STRAIGHT BARS				BENT BARS (All dimensions are out to out)							
MARK	SIZE	No	LENGTH	MARK	SIZE	No	Type	LENGTH	A	B	C	D
B1	#7	2	28'-8"	B9	#4	9	1	13'-5"	3'-8"	2-8	0-4½	
B2	8	12	8-7	B10	"	2	"	14-4	4-1½	"	"	
B3	7	2	8-7	B11		"	"	15-1	4-6			
B4	4	4	28-8	B12				15-7	4-9			
B5	10	4	21-0	B13				16-1	5-0			
B6	9	1	21-0	B14				16-2	5-0½			
B7	10	2	28-8	B15				15-6	4-8½			
B8	4	10	2-8	B16				14-10	4-4½			
				B17	4	2	1	14-2	4-0½	2-8	0-4½	
				B18	6	4	2	7-11	6-11	1-0		6-2
C1	8	16	34-9	B19	6	4	2	7-9	5-9	1-0	1-0	5-4
				B20	4	2	1	13-6	3-8½	2-8	0-4½	
T1	8	8	21-2	C2	3	60	1	9-4	2-8	1-8	0-4	
T2	4	8	20-0									
T3	6	8	5-6									
				T4	4	14	1	14-5	1-2	5-8	0-4½	
				T5	4	2	1	15-1	1-2	6-0	0-4½	
D1	8	16	4-0	T6	#4	2	1	19-1	1-2	8-0	0-4½	
F1	4	40	7-10									
F2	#5	32	7-4									

NOTES

OTHER NOTES : For other notes see Dwgs. No. 4576 & No. 4577.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING 15-2(8)118
SILVER BOW COUNTY
BENT NO. 10
NORTHBOUND STRUCTURE
Scale - ¼" = 1'-0"

DESIGNED	J. D. S.	8-20-58
DRAWN	D. A. W.	9-30-58
TRACED		
CHECKED	HES.	11-17-58
REVISED		
REVISED		

DRAWING NO. 4585

J.R.B.

241(13) D-1-10 Sheet 10

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	FING-152(8)118		11	49

Bent is symm. abt. ℄ Rdwy.

℄ Roadway

14-0

1-10 2-6 2-0

1-10 A.

B1-28

C

E

B

B

C

¼"x3 layer of Exp. Jt. Filler & Continuous Copper Water Stop

¼"x3 layer of Exp. Jt. Filler between shoes

2½"x2½"x⅜ Guard Angle

4½" Paving notch

P11~#4

3~P10~#4

5-0

2-1

1-3 1-0

℄ Bearing

℄ Brg.

B20~#4

2 layers of tar paper

P12~#4

P16~#4 to match #4 curb bars.

#4 curb bars } See Dwg. No. SLAB-55-R28-6B.

½" curb bars @1'-0 ctrs.

B2.1~1¼"ø Smooth bars with 2-3 caps set in backwall. Bars anchored 1-6 in Bent beam. See details this sheet & "Metal Exp. Cap" detail this sheet.

1-1 1-1

2-2

2-7 2-7

1-11

11⅛ 11⅛

℄ Beam

℄ Beam

℄ Beam

Beam Spacing 1-6 5-2½ 5-2½ 5-2 5-2½ 5-2½ 1-6

3-0 2-2½ 3-0 2-2½ 8-2 2-2½ 3-0 2-2½ 3-0

Horiz. Horiz. Horiz. Horiz. Horiz.

Elev: 5379.95 Elev: 5380.04 29-0 Elev: 5380.04

Elev: 5380.09

Dimen. & Elev. @ top of Beam Seat Elev. 5379.95

SECTION D-D

NOTE: For Bridge Rail Details & Bridge Rail Connections to End Post's see Dwg. No. SBR-T3.

P6-2~#4

P10~#4

2~P11~#4

P7~#3 Lpops @ 1'-0 ctrs.

P4-2~#4 (Bent)

P3~#4 (str.)

P5~#4

P1-2~#4

P2-2~#4

P8~#3 U-bar

P9~#3 U-bar

VIEW B-B

VIEW C-C

2½"x2½"x⅜ L-2'-0 3/4" long Bend to crown of Rdwy.

See Detail Dwg. No. SLAB-55-R28-6B.

¼V2

Drill 3/16" ø holes @ 2'-0 ctrs. for nailing to forms.

2x⅜"x9" Anchor Bars @ 1-6 alt. ctrs.

GUARD ANGLE DETAIL

Scale: 3"=1'-0"

2

Face of concrete

1½" ø holes @ 2'-0 ctrs.

Contin. Copper Water Stop (2.3 ga. 16oz./sq.ft.)

45°

WATER STOP DETAIL

Scale: 3"=1'-0"

NOTE: Beam and slab reinforcing omitted for clarity.

NOTE: N.F. indicates Near Face and F.F. indicates Far face.

Bent symm. abt. ℄ Roadway

14-0

1-10 2-6 2-0

A

D

Permissible Constr. Joint

BW1A~#4 stir. @ abt 0-11 ctrs.

BW2~#8 F.F.

BW3~#6 F.F. & BW9~#4 N.F.

℄ Rdwy.

Fin. G.F. @ ℄ Brg. & ℄ Rdwy. Elev: 5384.11

P13-2~#4

P14-2~#4

P15-2~#4

BW5-2~#6

BW12 0-3¼ hoop

BW3 3¼ F.F.

BW6~#4 N.F.

BW7~#4 N.F.

BW8 N.F.

BW9~#4 N.F.

BW12~#4 hoop

BW14~#4 stir.

BW15-2~#6

BW13~#4 hoop

BW10 3¼ N.F.

BW11~#4 A.N.F.

BW16-2~#4

¼" layer of Exp. Jt. Filler between backwall & beam end

Constr. Jt.

5-10 3-9 2-0 3-0 5-9

0-4x1-0x1-3 Shear Keys @ 1-6 ctrs.

Elev: 5357.45

℄ Column

8-9

9-9

7-3

1-6 1-6

B2~#7

B5A~#10

B7~#5 hoops

B8~#5 hoop

B9~#5 hoop

B10~#5 hoop

B11~#5 hoop

B12~#5 hoop

B13~#5 hoop

#5 Hoop Spacing

3@1-6 = 4-6

2@1-0 = 2-0

5@0-5 = 2-1

3@1-0 = 3-0

2½" cl.

B4~#4

B2.0~¾ under shoes as shown

B17~#5 hoop

B6-2~#10

B16~#5 hoop

B15~#5 hoop

B14~#5 hoop

B18-2~#6

B19-2~#6

(2-B3~#9 B1-4~#8)

2½" cl.

37½

2-10½

3-1½

2-11 9/16

3-0

30-4

19-9¾

14-6

2-0 Lap

3-0

D1~#8 Dowels to match #8 col. bars

F1~#5 @ 0-6 ctrs.

F2~#6 @ abt. 0-7 ctrs.

3" cl.

Treated Timber Piles

1-3 2-6 1-3

5-0

ELEVATION

A

Note: Finish top of curb parallel to Rdwy. grade.

Finish top of end post ½" high @ ctr. to provide for drainage

℄ Bearing

Bush-hammered panel recessed ¾"

BW2.1~#4 to match top longit. slab bars

BW19~#4

Permissible Constr. Jt.

BW6~#4

BW7~#4

BW8~#4

2" cl.

2½" cl.

Top of Batter on Pile

Batter 3:12

2½" cl.

2-3

℄ Ftg.

1-0

3-0

7-1½

2-4½

C1-3~#8

C1-2~#8

C2-2~#8

C3-2~#8

C4-2~#8

C5-2~#8

℄ Brg.

C6-3~#8

C thru C26-#3 hoops @ 1'-0 ctrs.

0-4x1-0x1-3 Shear Keys @ 1-6 ctrs.

D1-2~#8 Dowels } to match #8 col. bars

D1-3~#8 Dowels)

3" cl.

Batter piles 2:12

F1~#5 @ 0-6 ctrs.

F2~#6 @ abt. 0-7 ctrs.

1-3 2-6 2-6 2-6 2-6 1-3

12-6

Dimen. @ face of post

Class "A" Conc.

BW1~#6

BW2~#8

BW3~#4

BW3~#4

BW4~#6

BW14~#4 stir.

B1~#8

B2~#7

B5~#10

B3~#8

B4~#4

#5 Hoops

B6~#10

Constr. Jt.

C26-3~#8

2½"x2½"x⅜x2'-8 3/4" Guard L. (See Detail this sheet)

℄ Bearing

4½

0-9

Permissible Constr. Jt.

B2.1~1¼"ø smooth bars with caps @ ℄ Brg.

4x3 layer Exp. Jt. Filler

1'-6

¼" layer of Exp. Joint filler 2 layers tar paper Contin. Copper Water Stop (See detail this sheet.)

1-0

1-5

Prestressed Beam

SECTION E-E

Scale: ¾"=1'-0"

End closed by pinching side walls together

1½" I.D.

2-3

Soft wire dowel stop

No. 30 ga. metal

B2.1~1¼"ø x 3-6 smooth steel dowel

2-0

1/2

METAL EXPANSION CAP

Scale: 1½"=1'-0"

(12 required per End Bent)

Note: Caps shall be paid for at the unit price bid for reinforcing steel.

Note: Max. pile pressure under: DL. + L.L. + I.E. = 20.91 Tons per pile. Estimated Pile Lengths = 20 Ft.

Note: For details of slab, prestressed beams & reinforcing steel, see Dwgs. No. SLAB-55-R28-6B, No. PRE-55-R28-L15 and No. POST-55-R28-L15.

Note: Cost of furnishing and placing preformed expansion joint filler, tar paper & copper water stop to be included in the unit price bid for Class "AD" Concrete.

Note: Details of Bent are typical for post-tensioned beams. Details for pre-tensioned beams are similar.

BILL OF REINFORCING STEEL

Type 1 Type 2 Type 3 Type 4 Type 5 Type 6

Type 7 Type 8 Type 9

STRAIGHT BARS				BENT BARS (All dimensions are out to out)								
MARK	SIZE	No.	LENGTH	MARK	SIZE	No.	TYPE	LENGTH	A	B	C	D	E
B1	#8	8	9'-6"	B7	#5	9	1	11'-0"	3'-2"	1'-11"	0'-5"		
B2	7	2	9-6	B8		2	1	11-11	3-7½				
B3	8	2	28-8	B9			1	12-4	3-10				
B4	4	2	28-8	B10			1	12-9	4-0½				
B5	10	4	21-6	B11			1	13-2	4-3				
B6	10	2	26-8	B12			1	13-7	4-5½				
B20	4	10	1-11	B13			1	14-0	4-8				
B21	11⅜ sm.	12	3-6	B14			1	13-4	4-4				
				B15			1	12-1	3-8½				
BW1	6	1	36-9	B16			1	10-10	3-1				
BW2	8	1	39-4	B17	5	2	1	9-7	2-5½	1-11	0-5		
BW3	4	4	21-0	B18	6	4	7	8-6	1-0	7-6			0-10½
BW4	6	1	37-6	B19	6	4	7	8-3	1-0	6-3	1-0	0-10	0-10
BW6	4	5	3-8										
BW7	4	10	3-8	BW5	6	4	5	5-5	1-8	2-1	1-8	0-3¾	1-5½
BW8	4	5	3-4	BW12	4	2	1	8-5	2-11	0-11	0-4½		
BW9	4	2	6-3	BW13	4	4	1	14-3	5-10	0-11	0-4½		
BW10	4	2	5-0	BW14	4	27	2	8-2	2-11	0-11	3-8	0-4	
BW11	4	2	6-5	BW15	6	4	3	7-7	1-0	5-10	0-6	0-3	0-10
BW16	4	4	2-5	BW20	4	2	1	6-7	1-9	0-11	0-4½		
BW18	4	2	6-5	C7	3	2	1	17-5	6-8½	1-8	0-4		
BW19	4	1	36-9	C8				16-11	6-5½				
				C9				16-5	6-2½				
				C10				15-11	5-11½				
C1	8	14	19-3	C11				15-5	5-8½				
C2	8	4	14-11	C12				14-11	5-5½				
C3	8	4	10-11	C13				14-5	5-2½				
C4	8	4	6-11	C14				13-11	4-11½				
C5	8	4	5-0	C15				13-5	4-8½				
C6	8	6	19-11	C16				12-11	4-5½				
				C17				12-5	4-2½				
D1	8	32	4-0	C18				11-11	3-11½				
				C19				11-5	3-8½				
F1	5	50	4-6	C20				10-11	3-5½				
F2	6	18	12-0	C21				10-5	3-2½				
				C22				9-11	2-11½				
P1	4	4	6-4	C23				9-5	2-8½				
P2	4	4	5-5	C24				8-11	2-5½				
P3	4	4	4-6	C25				8-5	2-2½				
P5	4	4	3-8	C26	3	2	1	7-11	1-11½	1-8	0-4		
P6	4	4	2-2	BW21	4	23	9	3-3	1-3	2-0			
P13	4	4	7-10	P4	4	4	5	9-2	1-0	3-9	4-5	0-8½	3-0
P14	4	4	8-6	P7	3	10	1	12-4	3-8	2-2	0-4		
P15	4	4	9-1	P8	3	2	8	8-1	2-11½	2-2			
P16	4	4	3-8	P9	3	2	8	6-2	2-0	2-2			
				P10	4	6	6	6-11	2-4	2-6	2-1	1-7	
				P11	4	4	3	5-9	2-0	1-3	0-3		
				P12	#4	4	4	6-3	1-3	1-2	3-10	0-6	

NOTES

OTHER NOTES: For other notes see Dwgs. No. 4576 & No. 4577.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A.&P. RY., C.M. ST. P.&P. R.R., N.P. RY. AND CLARK FORK

FEDERAL AID PROJECT NO. FING-15-2(8)118

SILVER BOW COUNTY

BENT NO. 12

NORTHBOUND STRUCTURE

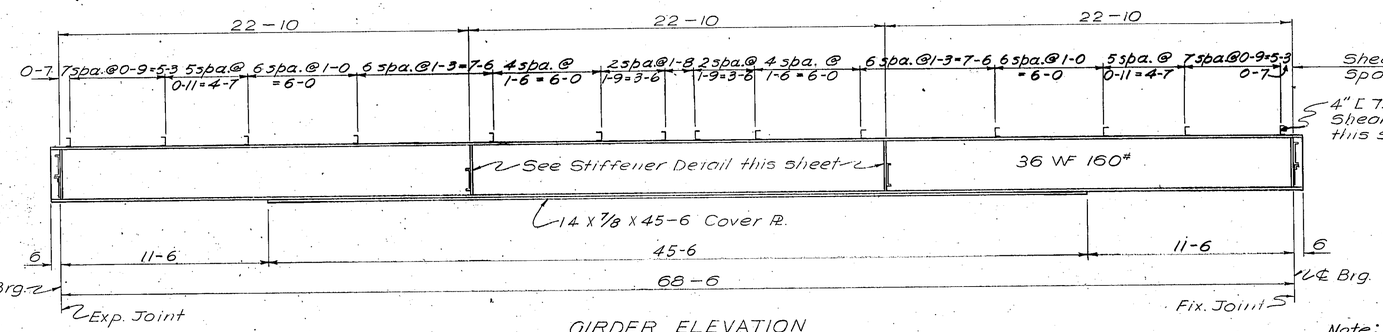
Scale - ¼"=1'-0" Except As Noted

DESIGNED	J.D.S.	10-1-58
DRAWN	T.W.M.	10-9-58
TRACED		
CHECKED	H.E.S.	11-19-58
REVISED		
REVISED		

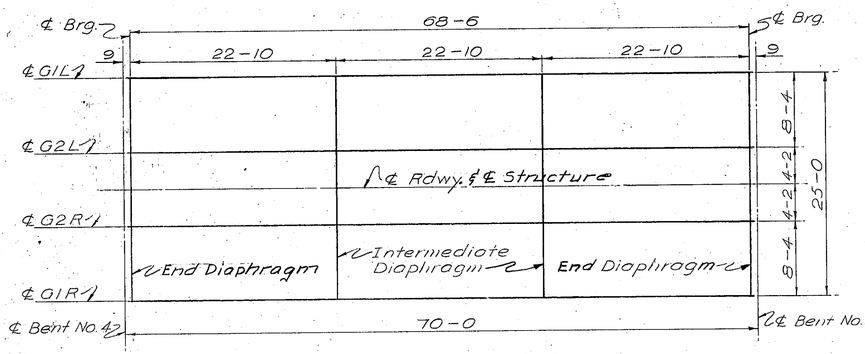
DRAWING NO. 4586

J.R.B.

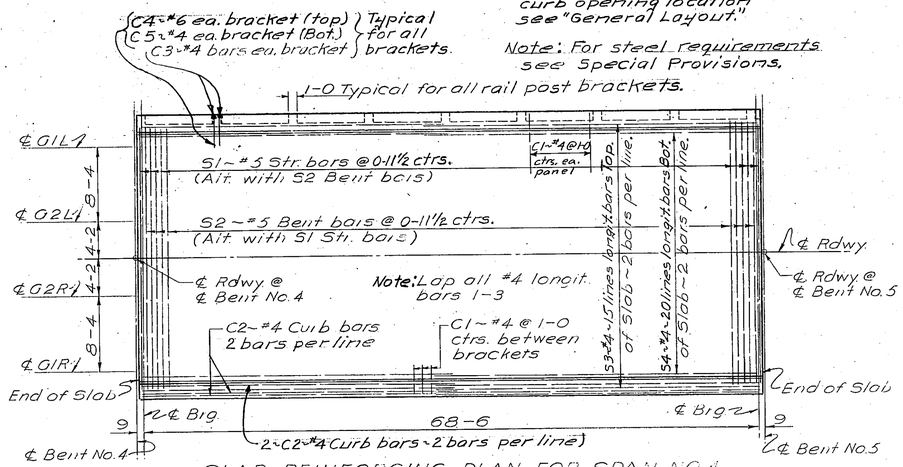
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING.15-2 (8)118		12	49



GIRDER ELEVATION
(All Girders same)
Scale: 1/4" = 1'-0"



ERECTION PLAN SPAN NO.4
Scale: 1/8" = 1'-0"

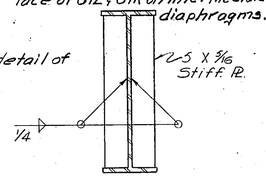


SLAB REINFORCING PLAN FOR SPAN NO.4
Scale: 1/8" = 1'-0"

Note: For rail post spacing & curb opening location see "General Layout."

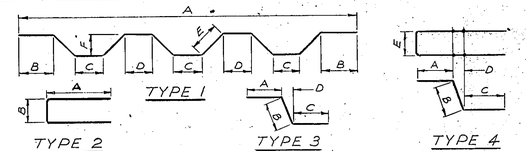
Note: For steel requirements see Special Provisions.

Omit 5x5/16 Stiff Pl. on outside face of G1L & G1R on intermediate diaphragms.



STIFFENER DETAIL
Scale: 3/4" = 1'-0"

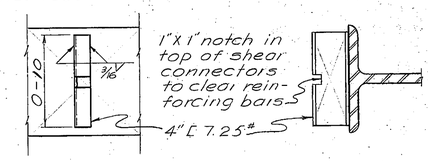
BILL OF REINFORCING STEEL (For Span No. 4 Only)



STRAIGHT BARS				BENT BARS (All dimensions are out to out)								
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	TYPE	LENGTH	A	B	C	D	E	F
S1	#5	146	29'-4"	S2	#5	72	1	30'-4"	29-4	3-10	4-3"	3-4"	0-7"	0-5"
S3	4	30	35-4											
S4	4	40	35-4											
				C1	4	128	3	4-0	1-6	1-2½	1-3	0-1½		
				C4	6	18	4	9-3	1-6	1-2½	1-6	0-1½	0-10	
C2	4	16	35-4	C5	#4	18	2	5-4	2-3	0-10				
C3	#4	36	1-2											

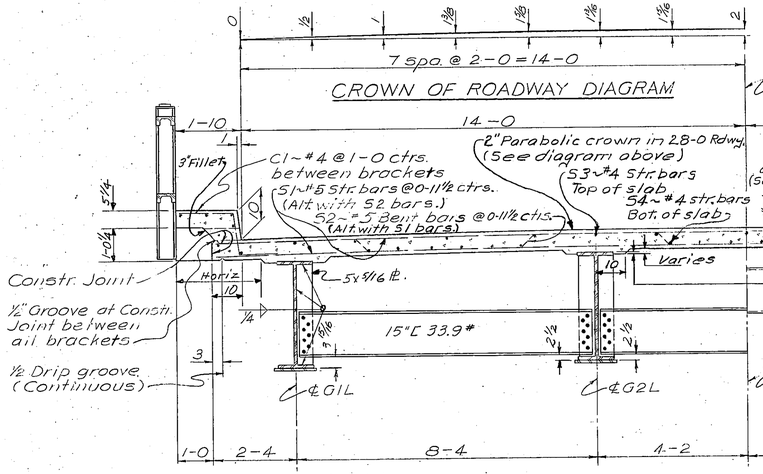
NOTES

OTHER NOTES: For other notes see Dwgs No. 4576, No. 4577 & No. 4588.

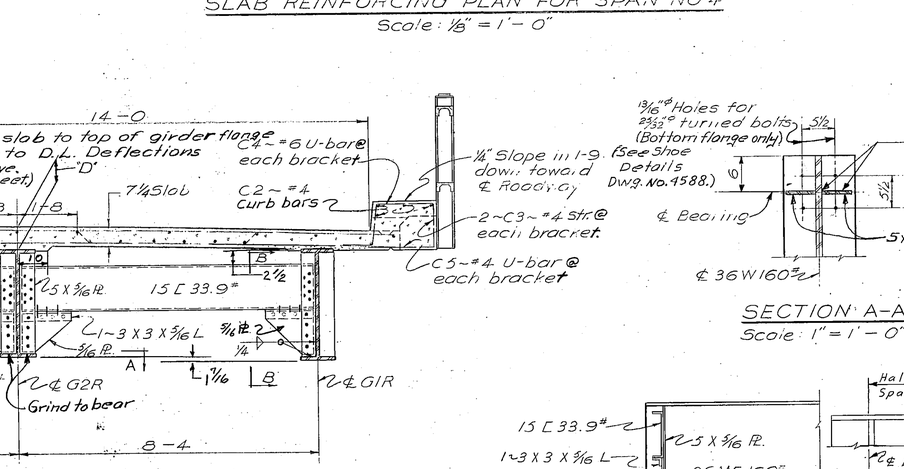


SHEAR DEVICE WELDING DETAILS
Scale: 1½" = 1'-0"

NOTE: The Contractor will be permitted to substitute stud-welded shear connectors in place of the channel shear devices shown on the girder details. Size and spacing of stud-welded connectors shall be designed to provide shear resistance equal to that of the channel shear device shown. Shear resistance for channels is as follows:
4" [@ 7.25# = 1473# per lineal inch.
Shear resistance for stud-welded shear connectors is as follows:
¾"ø = 2592# per stud
⅞"ø = 3459# per stud
Substitutions shall be approved by the Engineer prior to fabrication of the girders.

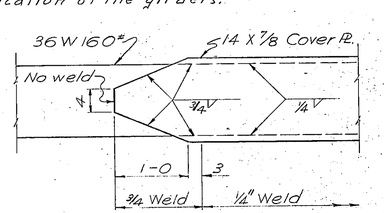


HALF SECTION AT TYPICAL INTERMEDIATE DIAPHRAGM
Scale: ½" = 1'-0"



HALF SECTION NEAR BENTS NO.4 & NO.5
Scale: ½" = 1'-0"

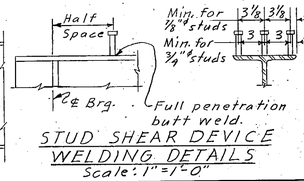
SECTION A-A
Scale: 1" = 1'-0"



DETAIL OF COVER PLATE WELDING
Scale: 1" = 1'-0"

DEPTH OF SLAB "D" (In inches) SPAN NO.4											
Point	R1	.1	.2	.3	.4	.5	.6	.7	.8	.9	R2
G1 or G2	7 1/8	7 5/8	8	8 3/8	8 3/8	8 5/8	8 5/8	8 3/8	8	7 7/8	7 7/8

SECTION B-B
Scale: ½" = 1'-0"



STUD SHEAR DEVICE WELDING DETAILS
Scale: 1" = 1'-0"

Note: For location of curb openings, see Dwg. No. 4576. For details of curb openings see Dwg. No. SBR-T3.

NOTE:- See Dwg. No. SBR-T3 for details of Bridge Rail and Bridge Rail Supporting bolts.

DESIGNED	J.C.B	8-1-58
DRAWN	H.K.L.	8-5-58
TRACED		
CHECKED	H.E.S.	1-23-59
REVISED		
REVISED		

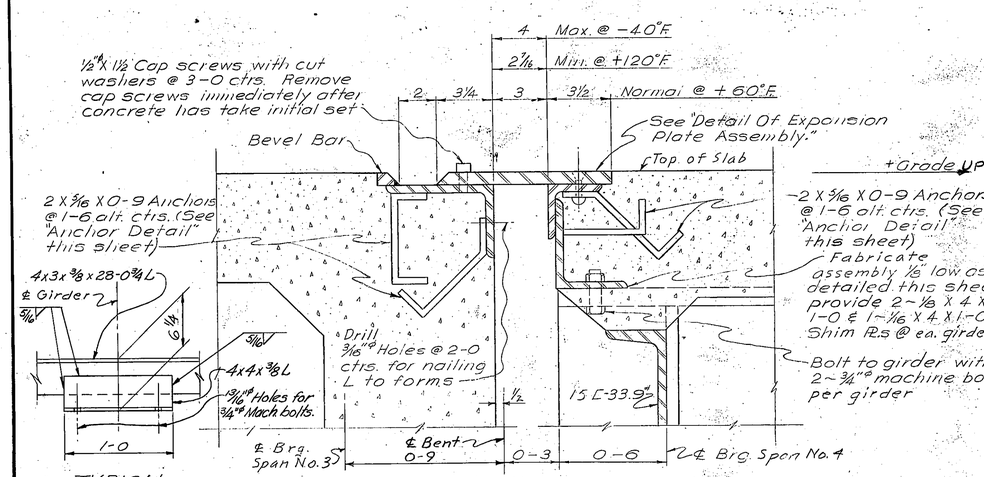
STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING 15-2(8)118
SILVER BOW COUNTY
GIRDERS, DIAPHRAGMS & SLAB REINFORCING STEEL
FOR SPAN NO. 4
NORTHBOUND STRUCTURE
Scale: As Noted

DRAWING NO. 4587

J.K.B.

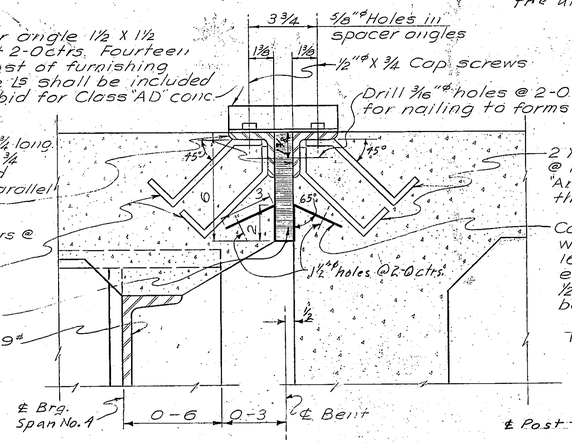
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15-2 (8) 118		13	49



TYPICAL CLIP L DETAIL
Scale: 1 1/2" = 1'-0"

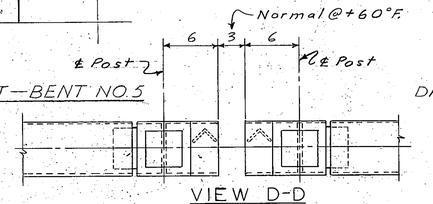
EXPANSION JOINT DETAIL—BENT NO.4
Scale: 3" = 1'-0"

Note: Cost of furnishing & placing preformed expansion joint filler, tar paper and copper water stop to be included in the unit price bid for Class "AD" concrete.

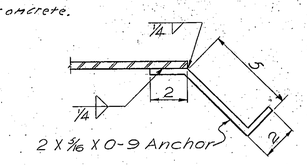


DETAIL OF EXPANSION JOINT—BENT NO.5
Scale 3" = 1'-0"

Note: See Dwg. No. 5 BR-T3 for location of View D-D.

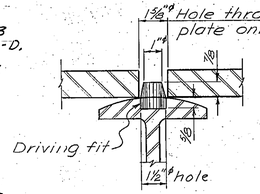


VIEW D-D
RAILING OVER EXPANSION JOINT
Scale: 1 1/2" = 1'-0"

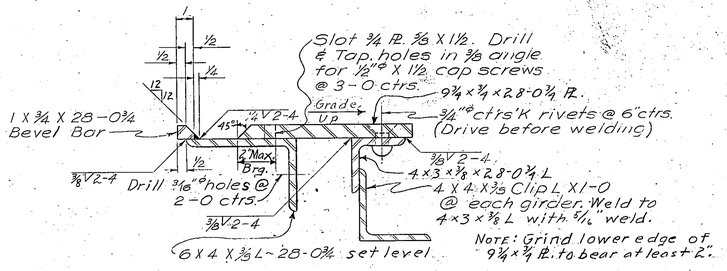


Note:- Detail typical for all anchors except @ curb expansion joints.

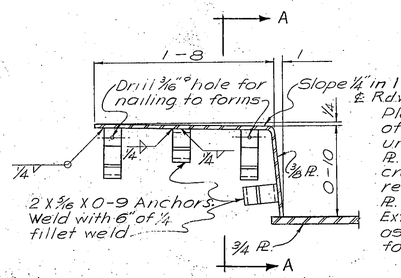
ANCHOR DETAIL
Scale: 3" = 1'-0"



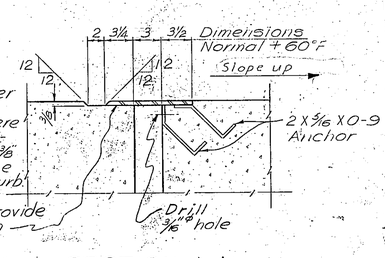
PINTLE DETAIL
Scale: 3" = 1'-0"



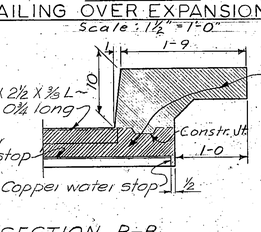
DETAIL OF EXPANSION PLATE ASSEMBLY
Scale: 3" = 1'-0"



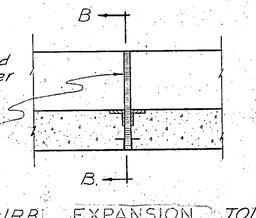
DETAIL OF CURB EXPANSION JOINT BENT NO.4
Scale: 1 1/2" = 1'-0"



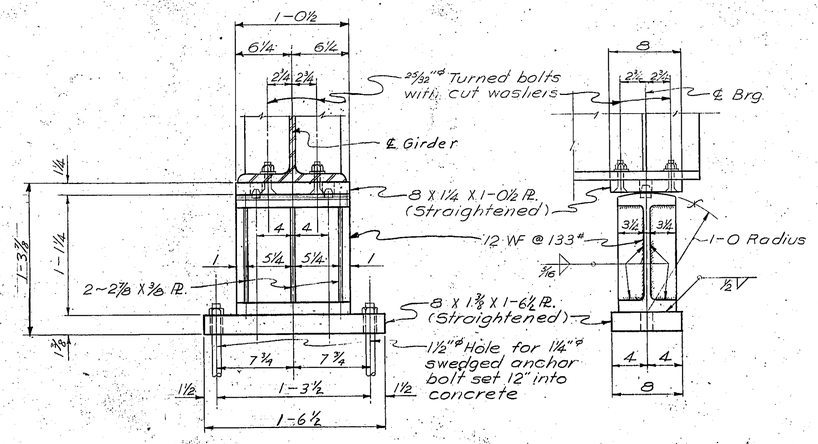
SECTION A-A
Scale: 1 1/2" = 1'-0"



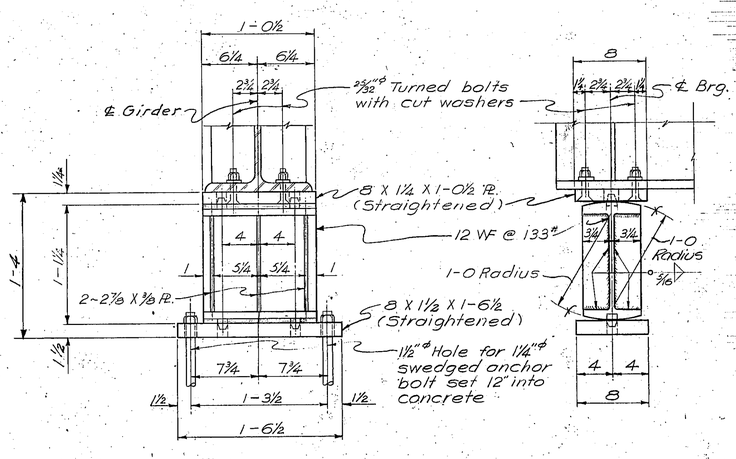
SECTION B-B
Scale: 1" = 1'-0"



CURB EXPANSION JOINT
BENT NO. 5
Scale: 1" = 1'-0"



SHOES FOR BENT NO.5
Scale: 1 1/2" = 1'-0"



SHOES FOR BENT NO.4
Scale: 1 1/2" = 1'-0"

NOTES

RIVETS ÷ The Contractor will be permitted to use High Strength Bolts in place of 3/4"ø rivets for all field connections if he so desires. (See Art. 42.06 R. of the Stand. Spec.) This substitution would be for the Contractors convenience and all costs connected therewith shall be included in the payment for Structural Steel. If High Strength Bolts are to be used, the Contractor shall so notify the Engineer within 30 days after award of contract.

REAMING ÷ Where turned bolts are used, holes shall be sub-punched 1/16" and reamed to 1/16" or drilled.

GIRDERS ÷ Girders shall be fabricated without camber.

SETTING OF ROCKER SHOES ÷ Rocker shoes at Bent No. shall be set vertical under full dead load of 60°F. If rockers are not in correct position with final dead load on spans, spans shall be jacked and adjustments made.

FINISHING SHOES ÷ Shoe are to be fully annealed after all welding is completed & before curved bearing surfaces are finished. Base plates under rockers shall be hot straightened before finishing.

WELDING ÷ Welding is symmetrical about ℄'s of shoes.

SETTING OF SHOES ÷ Care shall be taken in placing reinforcing steel so as to clear anchor bolts. Contractor shall finish concrete under girder shoes slightly high and bushhammer to exact elevation shown. Shoes shall be placed on three (3) layers of canvas thoroughly swabbed with red lead as called for in the Standard Specifications.

RIVETS ÷ 3/4"ø unless otherwise noted.

WELDS ÷ All welds shall be continuous fillet shop welds unless otherwise noted. All weld shall be paid for as structural steel.

OTHER NOTES ÷ For other notes see Dwgs. No. 4576 & No. 4577.

STATE OF MONTANA
STATE HIGHWAY COMMSSION

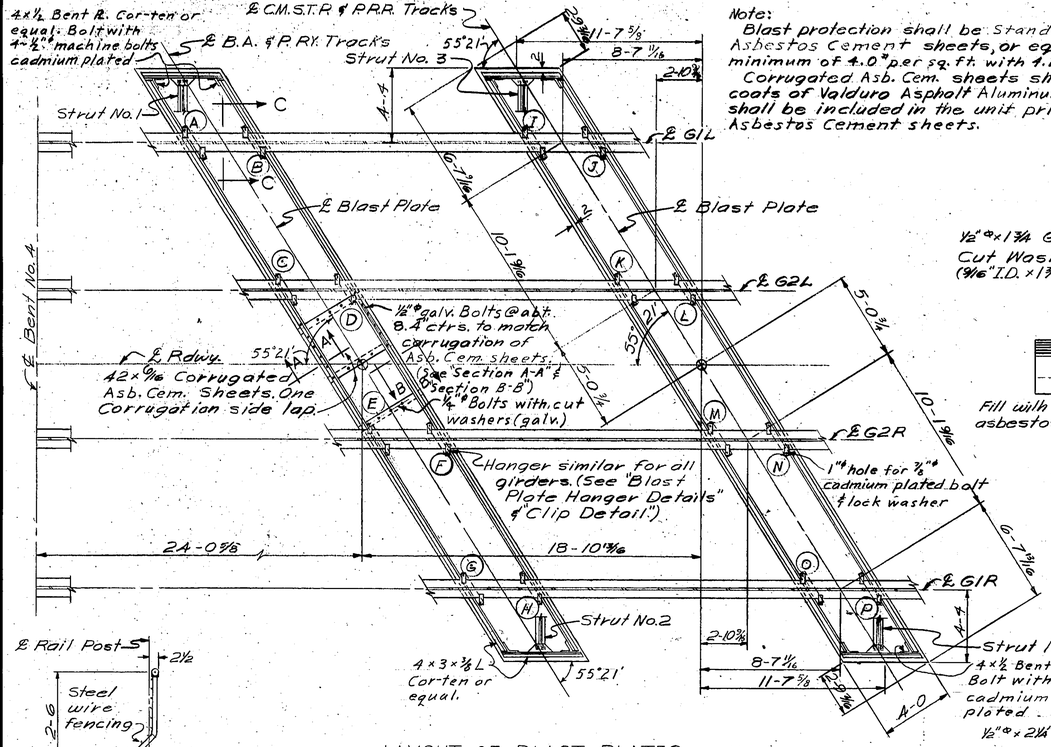
BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING 15-2(8)118
SILVER BOW COUNTY

FLOOR JOINT & SHOE DETAILS FOR SPAN NO. 4 NORTHBOUND STRUCTURE
Scale: As Noted

DESIGNED	J.C.B.	8-1-58
DRAWN	H.K.L.	8-12-58
TRACED		
CHECKED	H.E.S.	11-17-58
REVISED		
REVISED		

DRAWING NO. 4588

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	IGNG-15-2(8)118		14	49

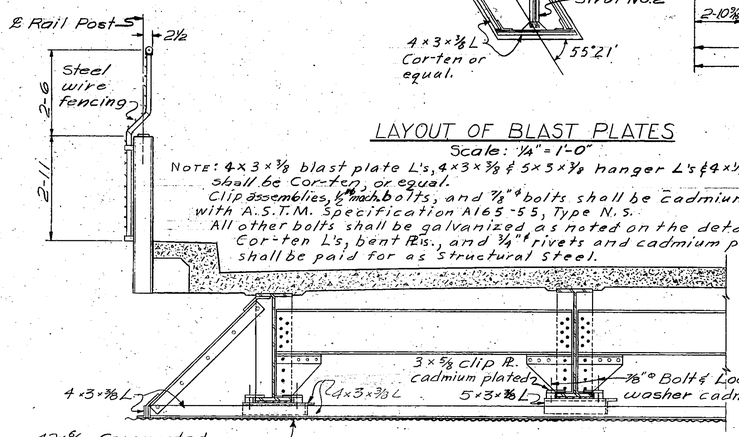


LAYOUT OF BLAST PLATES

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

NOTE: 4×3×⅜ blast plate L's, 4×3×⅜ ℄ 5×3×⅜ hanger L's ℄ 4×½ bent plates shall be Cor-ten, or equal.
Clip assemblies, ¾"ø mach. bolts, and ⅞"ø bolts shall be cadmium plated in accordance with A.S.T.M. Specification A165-55, Type N.S.
All other bolts shall be galvanized as noted on the details.
Cor-ten L's, bent Pls., and ¾"ø rivets and cadmium plated clips and bolts shall be paid for as Structural Steel.

Note:
Blast protection shall be Standard Corrugated Asbestos Cement sheets, or equal, 5/16" thick weighing a minimum of 4.0 #per sq. ft. with 4.2" pitch on corrugations.
Corrugated Asb. Cem. sheets shall be painted with two coats of Valduro Asphalt Aluminum Paint, or equal. Cost of painting shall be included in the unit price bid for Corrugated Asbestos Cement sheets.

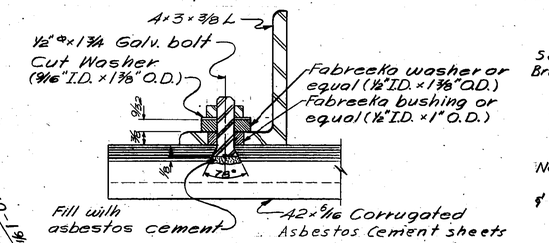


SECTION SHOWING GUARD FENCE AND OVERHEAD PROTECTION

Scale: ½" = 1'-0"

TYPICAL BLAST PLATE END CONNECTION

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

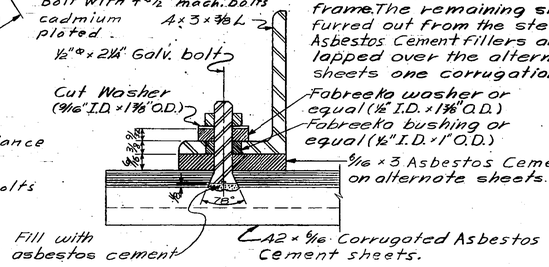


SECTION A-A

Scale: 6" = 1'-0"

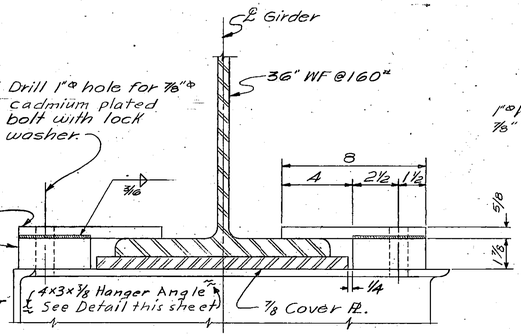
NOTE: Cost of furnishing ℄ placing ½"ø ℄ ½"ø galvanized bolts, washers, insulators, fillers ℄ asbestos cement to be included in the unit price bid for Corrugated Asbestos Cement sheets.

Note:
Corrugated Asbestos Cement sheets shall be erected with rough side towards the tracks and with alternate sheets bolted in contact with the steel frame. The remaining sheets shall be furred out from the steel frame with 5/16×3 Asbestos Cement fillers and shall be lapped over the alternate sheets one corrugation.



SECTION B-B

Scale: 6" = 1'-0"

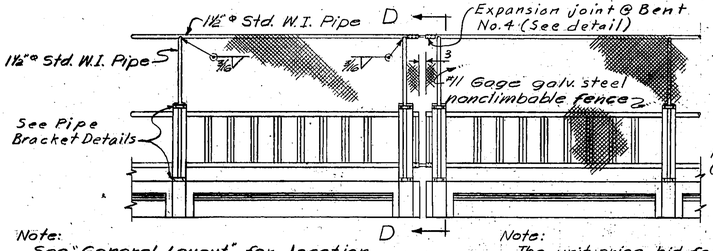


Note:
3×⅝×8 Clip Pl. ℄ 3½×4×1⅞ Pl. to be cadmium plated after welding is complete.

SECTION C-C CLIP DETAIL

Scale: 3" = 1'-0"

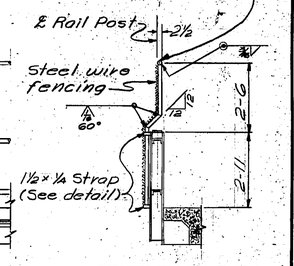
Note:
All pipes shall be Standard Wrought Iron Pipe. All pipe fittings shall be Malleable Iron.
Galv. Steel Wire Fencing shall be "Continental Chain Link Fence, Style NB-R" or equal. All exposed surfaces of fence, except steel wire fencing, shall receive three coats of paint as specified for Structural Steel.



Note:
See "General Layout" for location ℄ length of guard fence.

Note:
The unit price bid for Guard Fence shall be payment for fence complete in place.

Steel wire fencing to be fastened to 1½"ø pipe by means of #8 galv. steel wire ties @ abt. 8" ctrs.

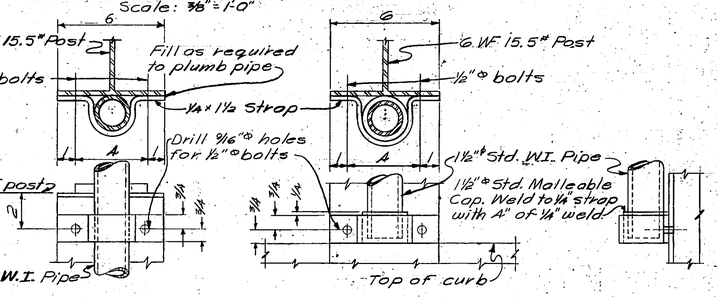


SECTION D-D

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

ELEVATION OF GUARD FENCE

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

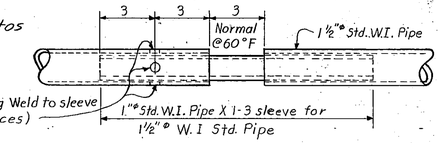


TOP BRACKET

BOTTOM BRACKET

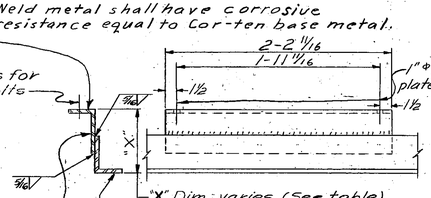
PIPE BRACKET DETAILS

Scale: 3" = 1'-0"



GUARD FENCE EXPANSION JOINT

Scale: 3" = 1'-0"



BLAST PLATE HANGER DETAILS

Scale: 1½" = 1'-0"

HANGER, CLIP ℄ STRUT TABLE

CONNECTION POINT	DIM. "Y"	DIM. "X"	CONNECTION POINT	DIM. "Y"	DIM. "X"
"A"		4½"	"I"		4½"
"B"		4 9/16	"J"		4 3/4
"C"		6 1/16	"K"		6 3/8
"D"		6 3/16	"L"		6 11/16
"E"		6 5/16	"M"		6 13/16
"F"		6 7/16	"N"		7 1/4
"G"		5 3/16	"O"		6 1/8
"H"		5 7/16	"P"		6 9/16
Strut No. 1	3'-4½"		Strut No. 3	3'-4 7/16"	
Strut No. 2	3'-5½"		Strut No. 4	3'-6 9/16"	

NOTES

OTHER NOTES ÷ For other notes see Dwgs. No. 4576, No. 4577 ℄ No. 4588.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NOI-ING15-2(8)118
SILVER BOW COUNTY
BLAST PLATE DETAILS
NORTHBOUND STRUCTURE
Scale: As Noted

DESIGNED		
DRAWN	T.W.M.	10-2-58
TRACED		
CHECKED	HES.	1-23-59
REVISED		
REVISED		

DRAWING NO. 4589

J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	F.ING 15-2 (28)118	15	49

Note: No reflector signals will be required on this bridge. No Bridge Markers will be required on this bridge.

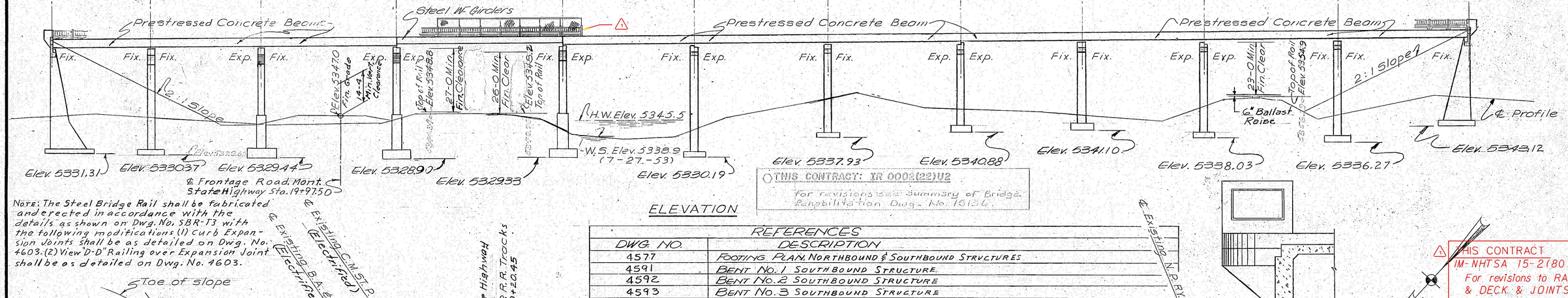
Note: All footings shall be keyed into undisturbed material for a minimum depth of 1-0. The area excavated for keying footings into the material shall be completely filled with concrete. The quantity of concrete deposited outside of neat lines, because of this requirement, depends upon the contractors procedure; therefore, it will vary and its cost shall be considered a part of the cost of the concrete inside neat lines. The quantity of concrete for bents to be paid for shall be the amount only within neat lines shown on the details. If changes in the details of the Bents are ordered by the engineer, the quantities will be revised according to the revised details.

P.I. Sta. 17+00.00
Elev. 5379.44
+1.51% Fin. Gr.
-0.62% Fin. Gr.
600' V.C.
598-6 ctr. to ctr. of Brg. of End Bents (Horiz. Dist.)

Note: For removal of existing structure and maintaining traffic see Special Provisions.

† FOR REQUIRED STATIONS, SEE ROAD PLANS. GUARDRAIL TO BE INSTALLED THE FULL LENGTH OF THE BRIDGE, AND CONTINUOUS WITH THE BRIDGE APPROACH GUARDRAIL SECTION, LT. & RT. (SHEET NO. B2) Dwg. No. 11582

40-9	46-6	56-6	70-0	56-6	56-6	56-6	51-6	51-6	56-6	55-9
℄ Brg. @ Bent No. 1 Sta. 18+81.50 Fin. Gr. @ ℄ Rdwy. Elev. 5380.46	℄ Bent No. 2 Sta. 19+22.25 Fin. Gr. @ ℄ Rdwy. Elev. 5380.77	℄ Bent No. 3 Sta. 19+68.75 Fin. Gr. @ ℄ Rdwy. Elev. 5381.10	℄ Bent No. 4 Sta. 20+25.25 Fin. Gr. @ ℄ Rdwy. Elev. 5381.46	℄ Bent No. 5 Sta. 20+95.25 Fin. Gr. @ ℄ Rdwy. Elev. 5381.89	℄ Bent No. 6 Sta. 21+51.75 Fin. Gr. @ ℄ Rdwy. Elev. 5382.24	℄ Bent No. 7 Sta. 22+08.25 Fin. Gr. @ ℄ Rdwy. Elev. 5382.59	℄ Bent No. 8 Sta. 22+64.75 Fin. Gr. @ ℄ Rdwy. Elev. 5382.94	℄ Bent No. 9 Sta. 23+16.25 Fin. Gr. @ ℄ Rdwy. Elev. 5383.26	℄ Bent No. 10 Sta. 23+67.75 Fin. Gr. @ ℄ Rdwy. Elev. 5383.58	℄ Bent No. 11 Sta. 24+24.25 Fin. Gr. @ ℄ Rdwy. Elev. 5383.93	℄ Brg @ Bent No. 12 Sta. 24+80.00 Fin. Gr. @ ℄ Rdwy. Elev. 5384.27

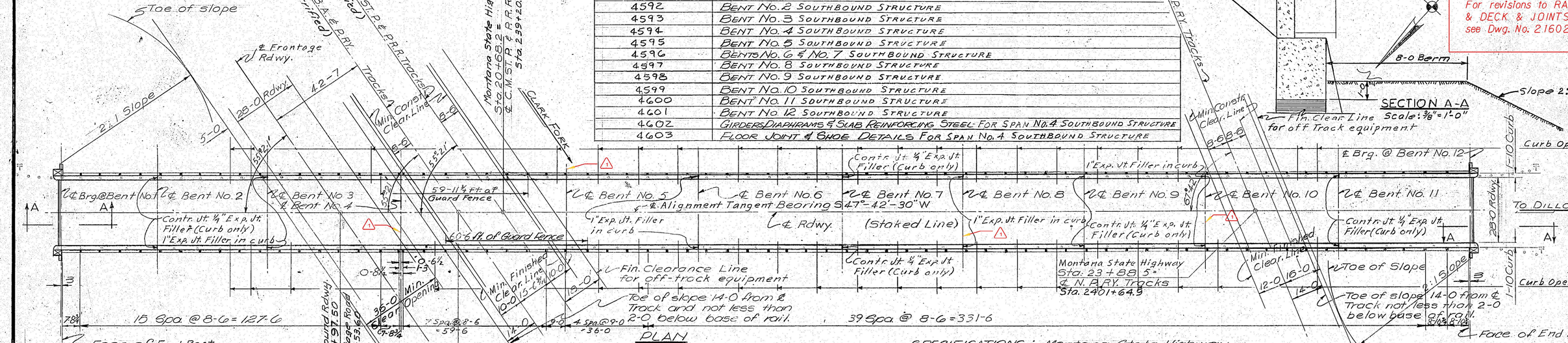


THIS CONTRACT: IR 0008(22)142
For revisions see Summary of Bridge Rehabilitation Dwg. No. 15156

ELEVATION

Note: The Steel Bridge Rail shall be fabricated and erected in accordance with the details as shown on Dwg. No. SBR-T3 with the following modifications (1) Curb Expansion Joints shall be as detailed on Dwg. No. 4603. (2) View "D-D" Railing over Expansion Joint shall be as detailed on Dwg. No. 4603.

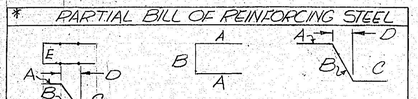
REFERENCES	
DWG. NO.	DESCRIPTION
4577	FOOTING PLAN, NORTHBOUND & SOUTHBOUND STRUCTURES
4591	BENT NO. 1 SOUTHBOUND STRUCTURE
4592	BENT NO. 2 SOUTHBOUND STRUCTURE
4593	BENT NO. 3 SOUTHBOUND STRUCTURE
4594	BENT NO. 4 SOUTHBOUND STRUCTURE
4595	BENT NO. 5 SOUTHBOUND STRUCTURE
4596	BENTS NO. 6 & NO. 7 SOUTHBOUND STRUCTURE
4597	BENT NO. 8 SOUTHBOUND STRUCTURE
4598	BENT NO. 9 SOUTHBOUND STRUCTURE
4599	BENT NO. 10 SOUTHBOUND STRUCTURE
4600	BENT NO. 11 SOUTHBOUND STRUCTURE
4601	BENT NO. 12 SOUTHBOUND STRUCTURE
4602	GIRDERS DIAPHRAMS & SLAB REINFORCING STEEL FOR SPAN NO. 4 SOUTHBOUND STRUCTURE
4603	FLOOR JOINT & SHOE DETAILS FOR SPAN NO. 4 SOUTHBOUND STRUCTURE



PLAN

REFERENCES (Continued)	
DWG. NO.	DESCRIPTION
4604	BLAST PLATE DETAILS SOUTHBOUND STRUCTURE
PRE-35&40-R28-L15	STANDARD PRE-TENSIONED PRESTRESSED CONCRETE BEAMS
POST-35&40-R28-L15	STANDARD POST-TENSIONED PRESTRESSED CONCRETE BEAMS
SLAB-35&40-R28-5B	STANDARD SLAB & CURB FOR PRESTRESSED CONCRETE BEAMS
PRE-45&50-R28-L15	STANDARD PRE-TENSIONED PRESTRESSED CONCRETE BEAMS
POST-45&50-R28-L15	STANDARD POST-TENSIONED PRESTRESSED CONCRETE BEAMS
SLAB-45&50-R28-5B	STANDARD SLAB & CURB FOR PRESTRESSED CONCRETE BEAMS
PRE-55-R28-L15	STANDARD PRE-TENSIONED PRESTRESSED CONCRETE BEAMS
POST-55-R28-L15	STANDARD POST-TENSIONED PRESTRESSED CONCRETE BEAMS
SLAB-55-R28-6B	STANDARD SLAB & CURB FOR PRESTRESSED CONCRETE BEAMS
SBR-T3 (Rev. 1-27-59)	STANDARD STEEL BRIDGE RAIL - TYPE NO. 3

* PARTIAL BILL OF REINFORCING STEEL



All dimensions are out to out

MARK	No.	Size	Type	Length	A	B	C	D	E
C1	176	#4	5	3'-11"	1'-6"	1'-2"	1'-3"	0'-1½	
C3	224	4	Str.	1-2					
C4	352	6	2	9-2	1-6	1-2	1-6	0-1½	0'-10"
C5	176	#4	3	5-4	2-3	0-10			

J.L.B.

* This Bill of Reinforcing Steel shall be used in conjunction with the Bills of Reinforcing Steel shown on Dwgs. No. SLAB-35&40-R28-5B, No. SLAB 45&50-R28-5B, & No. SLAB-55-R28-6B.

SPECIFICATIONS ÷ Montana State Highway Commission Standard Specifications for Road and Bridge Construction, 1969 Edition, and any amendments thereto, and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.O. Specifications, 1957 Edition.

LIVE LOAD ÷ Standard H20-S16 Special loading. All loading for bridges and floor systems with spans under 40 feet consists of two axles four feet apart with each axle weighing 24,000 lbs.

FINISHED GRADE ÷ Finished plan grade of bridge is same as Profile Grade shown on Road Plans.

OTHER NOTES ÷ For other notes see Dwgs. No. 4576 & No. 4577.

†† Note: Expansion Joints replaced @ Bent No. 4 See Dwg. No. 12692

REVISED	P. H. Jr.	9-8-11
REVISED	C.R.T.	12-16-91
REVISED	N.H.R.	6-6-75
DESIGNED	J.D.S.	3-6-58
DRAWN	H.M.L.	7-30-58
TRACED		
CHECKED	H.E.S.	11-20-58
REVISED	J.W.H.	4-6-59
REVISED	H.E.S.	7-8-59
†† REVISED	R.D.M.	4-30

THIS CONTRACT IM-NHTSA 15-2(80)120 For revisions to RAIL & DECK & JOINTS see Dwg. No. 21602

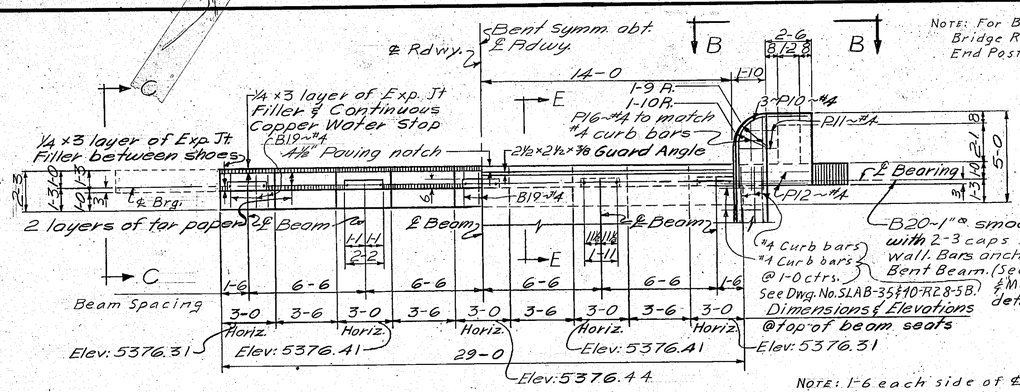
STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P.R.R. N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING15-2(81)118
SILVER BOW COUNTY
GENERAL LAYOUT
SOUTHBOUND STRUCTURE
Scale: 1"=20'-0" Except As Noted

APPROVED BY _____ BRIDGE ENGINEER

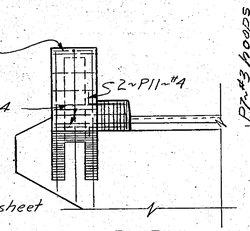
DRAWING NO. 4590

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	F-ING 15-2 (8) 118		16	49

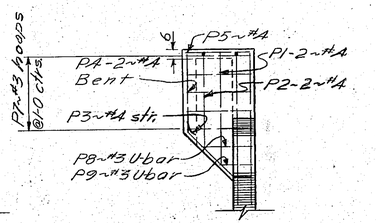


SECTION D-D

NOTE: For Bridge Rail Details & Bridge Rail Connections to End Posts see Dwg. No. SBR-T3.



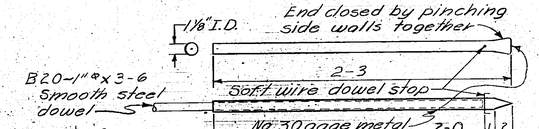
VIEW B-B



VIEW C-C

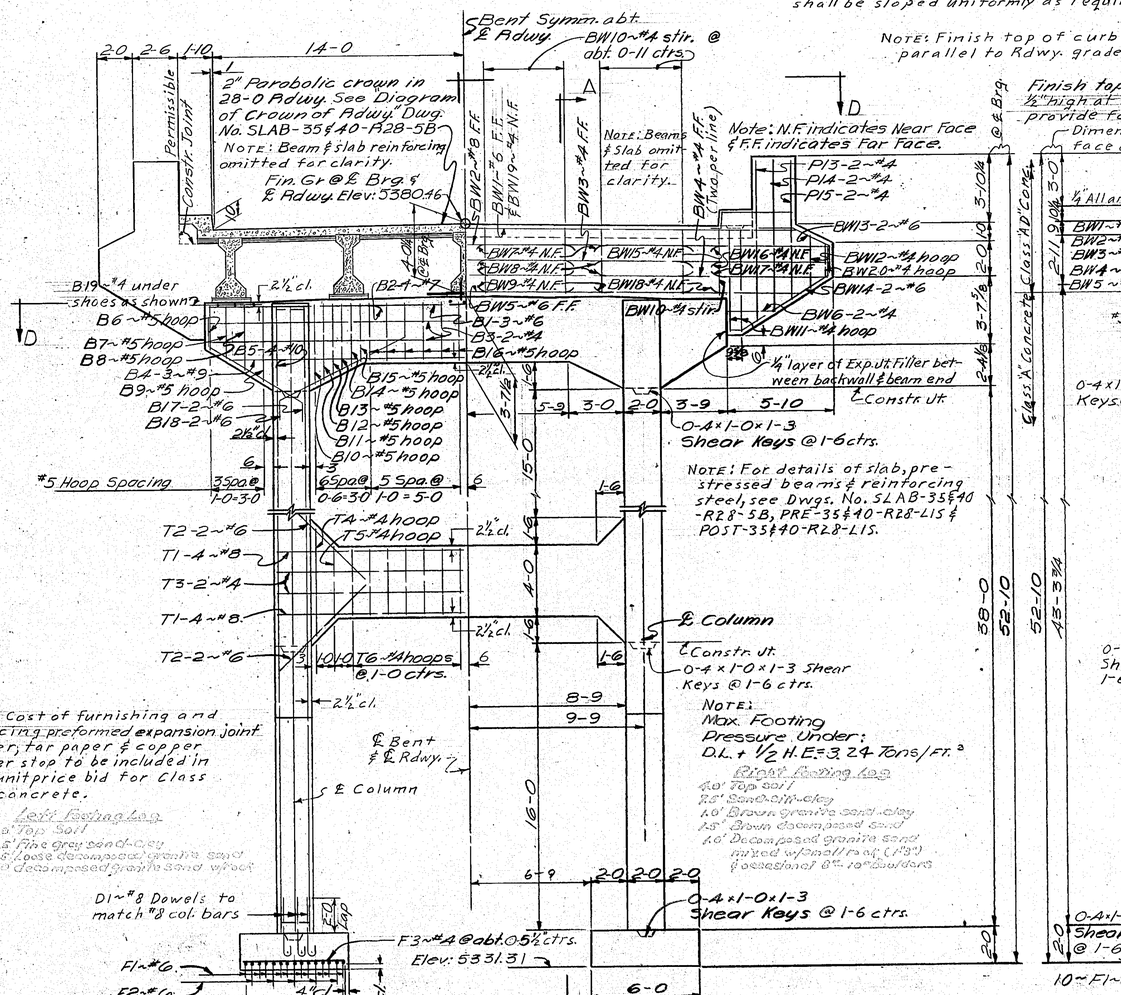
NOTE: 1-6 each side of ℄ of beams shall be finished level to elevations shown. The 3-6 area between Beam Seats shall be sloped uniformly as required.

NOTE: Finish top of curb parallel to Rdwy. grade.

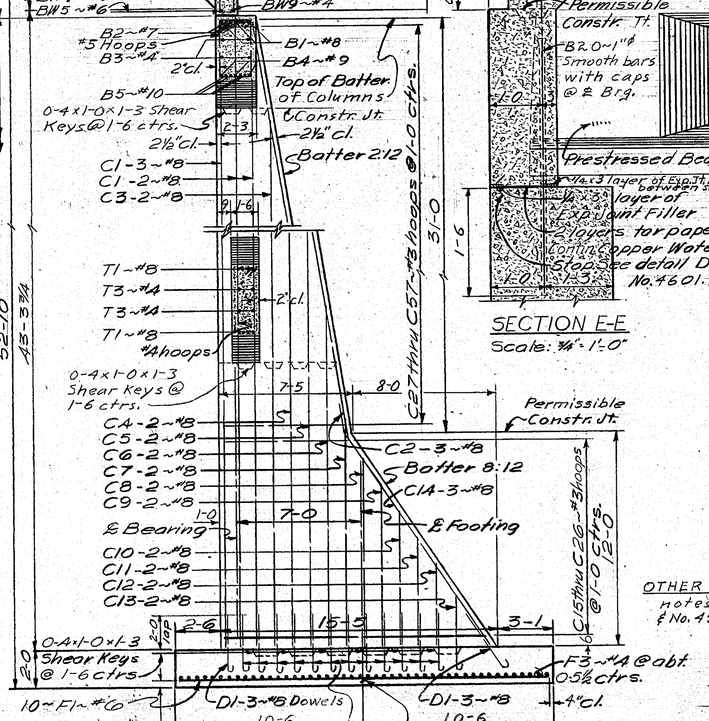


METAL EXPANSION CAP
Scale: 1½" = 1'-0"

Note: 10 required for Bent No. 1. Cops shall be paid for of the unit price bid for Reinforcing Steel.



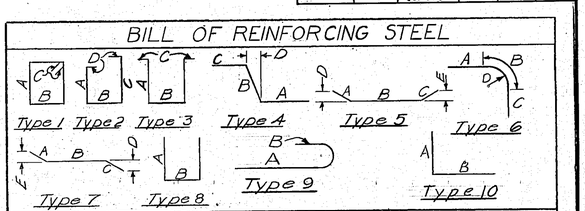
ELEVATION
(Back On Line)



SECTION A-A

SECTION E-E
Scale: ¾" = 1'-0"

BILL OF REINFORCING STEEL



STRAIGHT BARS

Mark	Size	No.	Length
B1	#6	3	28-8
B2	7	8	9-6
B3	4	4	28-8
B4	9	3	26-8
B5	10	4	21-6
B19	4	9	1-11
B20	1" ø Stl.	10	3-6
BW1	6	1	36-9
BW2	8	1	39-4
BW3	4	2	21-0
BW4	4	2	21-0
BW5	6	1	37-6
BW6	4	4	2-5
BW7	7	4	5-0
BW8	4	8	5-0
BW9	4	4	4-8
BW13	7	2	6-3
BW6	4	2	6-3
BW7	4	2	6-3
BW8	4	2	5-0
BW9	7	1	36-9
C1	8	14	42-9
C2	1	6	31-6
C3	4	4	37-3
C4		4	31-3
C5			25-3
C6			19-3
C7			13-3
C8			10-9
C9			9-3
C10			7-9
C11			6-3
C12	8	1	4-9
F1	6	20	20-4
F2	6	10	10-3
F3	4	92	5-4
D1	4	4	6-4
P2		4	5-5
P3		2	4-5
P5		2	3-8
P6		4	2-2
P13		4	9-1
P14		4	7-6
P15		4	7-10
P16	4	4	3-8
T1	8	8	21-2
T2	6	8	5-6
T3	#4	4	20-0

BENT BARS (All dimensions are out to out)

Mark	Size	No.	Type	Length	A	B	C	D	E
B6	#5	2	1	9-7"	25-5½	1-11	0-5		
B7				10-10	3-1				
B8				12-1	3-8½				
B9				13-4	4-4				
B10				13-10	4-7				
B11				13-4	4-4				
B12				12-10	4-1				
B13				12-4	3-10				
B14				11-10	3-7				
B15		2		11-4	3-4				
B16	5	12	1	11-0	3-2	1-11	0-5		
B17	6	4	7	8-3	1-0	6-3	1-0	0-10	0-10
B18	6	4	7	8-6	1-0	7-6			0-10½
BW21	4	23	10	3-3	1-3	2-0			
BW10	4	26	2	8-2	2-11	0-11	3-8	0-4	
BW11	4	4	1	14-3	3-10	0-11	0-4½		
BW12	4	2	1	8-5	2-7	0-11	0-4½		
BW13	6	4	5	5-5	1-8	2-1	1-8	0-9½	1-5½
BW14	6	4	5	7-4	1-10	5-10	0-6	0-3	0-10
BW20	4	2	1	6-7	1-9	0-11	0-4½		
D1	8	60	9	4-10	3-9	1-1			
D4	4	4	5	9-2	1-0	3-9	4-5	0-8½	3-0
D7	3	10	1	12-4	3-8	2-2	0-4		
D8	3	2	8	8-1	2-11½	2-2			
D9	3	2	8	6-2	2-0	2-2			
D10	4	6	6	6-11	2-4	2-6	2-1	1-7	
D11	4	4	3	5-9	2-0	1-3	0-3		
D12	4	4	4	6-3	1-3	1-2	3-10	0-1½	
T4	4	2	1	15-1	6-0	1-2	0-4½		
T5	4	2	1	11-1	4-0	1-2	0-4½		
T6	4	14	1	10-5	3-8	1-2	0-4½		
T7	8	4	9	6-0	4-11	1-1			
T8	8	6	5	16-6	2-1	14-5			0-11½
C15	3	2	1	33-4	14-8	1-8	0-4		
C16				32-0	14-0				
C17				30-8	13-4				
C18				29-4	12-8				
C19				28-0	12-0				
C20				26-8	11-4				
C21				25-4	10-8				
C22				24-0	10-0				
C23				22-8	9-4				
C24				21-4	8-8				
C25				20-0	8-0				
C26				18-8	7-4				
C27				18-0	7-0				
C28				17-8	6-10				
C29				17-4	6-8				
C30				17-0	6-6				
C31	#3	2	1	16-8	6-4	1-8	0-4		

BENT BARS

Mark	Size	No.	Type	Length	A	B	C
C32	#3	2	1	16-4	6-2	1-8	0-4
C33				16-0	6-0		
C34				15-8	5-10		
C35				15-4	5-8		
C36				15-0	5-6		
C37				14-8	5-4		
C38				14-4	5-2		
C39				14-0	5-0		
C40				13-8	4-10		
C41				13-4	4-8		
C42				13-0	4-6		
C43				12-8	4-4		
C44	#3	2	1	12-4	4-2	1-8	0-4
C45	#3	2	1	12-0	4-0	1-8	0-4
C46				11-8	3-10		
C47				11-4	3-8		
C48				11-0	3-6		
C49				10-8	3-4		
C50				10-4	3-2		
C51				10-0	3-0		
C52				9-8	2-10		
C53				9-4	2-8		
C54				9-0	2-6		
C55				8-8	2-4		
C56				8-4	2-2		
C57	#3	2	1	8-0	2-0	1-8	0-4

NOTES

OTHER NOTES ÷ For other notes see Dwgs. No. 4577 & No. 4590.

DESIGNED	J.D.S.	9-29-58
DRAWN	T.W.M.	10-15-58
TRACED		
CHECKED	H.E.S.	11-25-58
REVISED		
REVISED		

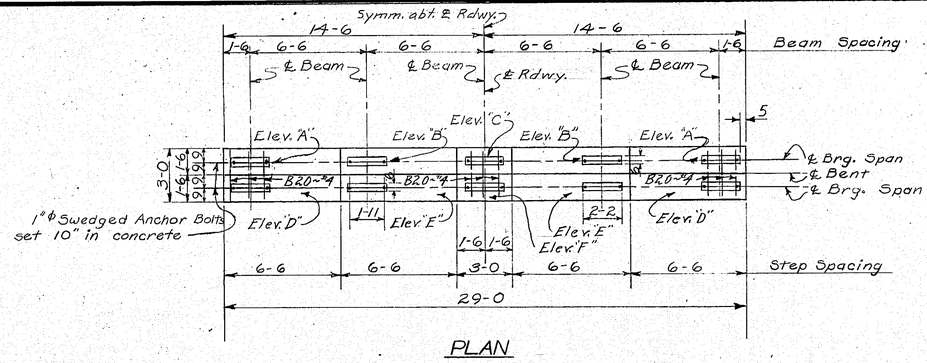
STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY, G.M. ST. P & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING 15-2(8)118
SILVER BOW COUNTY
BENT NO. 1
SOUTHBOUND STRUCTURE
Scale: ¼" = 1'-0" Except As Noted

DRAWING NO. 4591

J.R.B.

FED. ROAD DIV. NO.	STATE	FED AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15-2 (8) 118		17	49

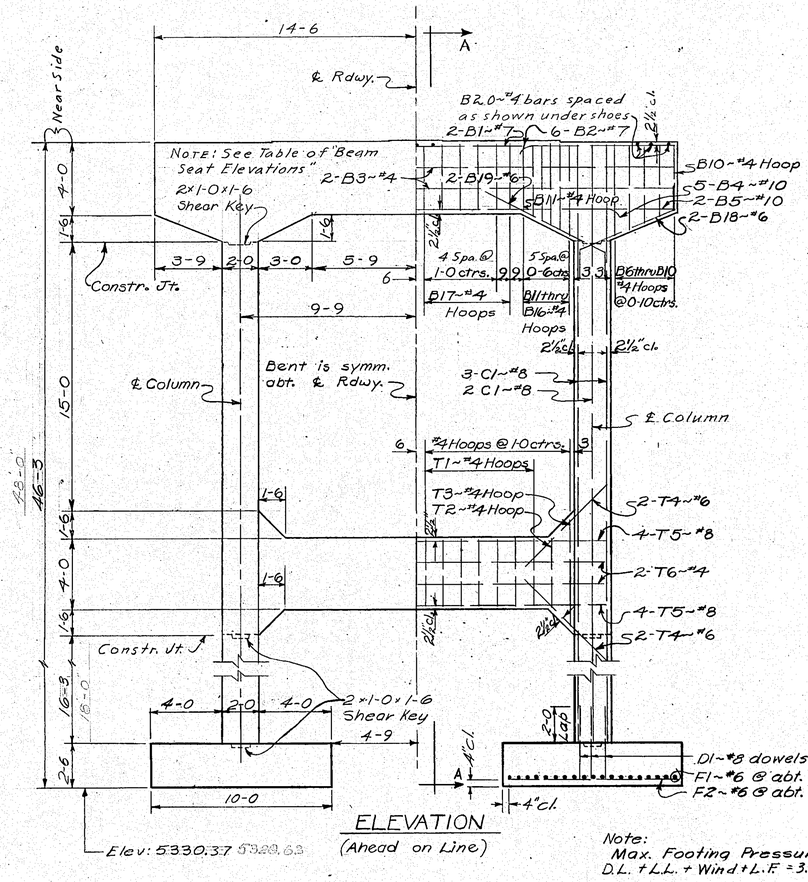


PLAN

BEAM SEAT ELEVATIONS		
Point		Elevation
"A"		5376.63
"B"		5376.73
"C"		5376.76
"D"		5376.62
"E"		5376.72
"F"		5376.75

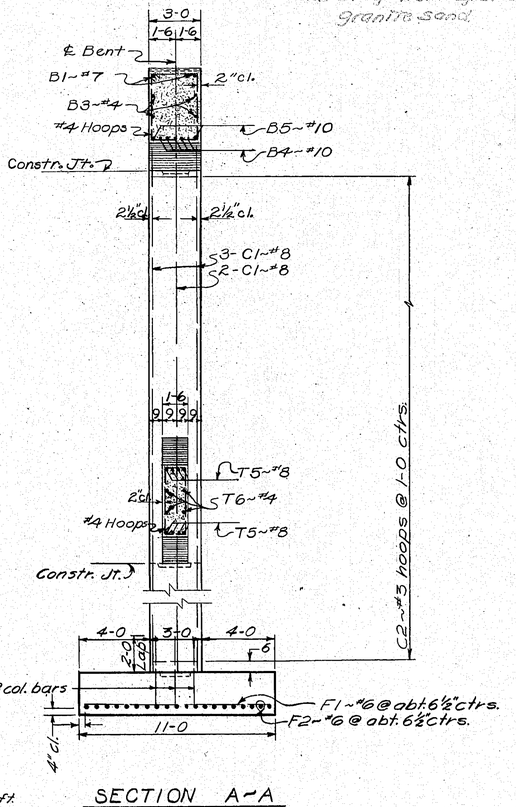
Footing Logs

Left Footing	Right Footing
4.0' Top Soil	4.5' Top Soil
5.5' Grey Granite sandclay	5.5' Grey granite - sandclay
5.0' Brown to grey disinte- grated granite sand.	2.5' Disintegrated granite and small gravel
2.5' Grey disintegrated granite sand.	2.0' Brown to grey disinte- grated granite sand.



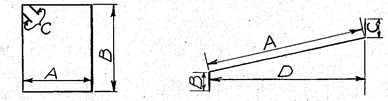
ELEVATION
(Ahead on Line)

Note:
Max. Footing Pressure under:
D.L. + L.L. + Wind + L.F. = 3.62 Tons/sq. ft.



SECTION A-A

BILL OF REINFORCING STEEL



TYPE 1 TYPE 2

STRAIGHT BARS				BENT BARS (All dimensions out to out)								
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D	E
B1	#7	2	28'-8"	B6	#4	2	1	16'-2"	2'-8"	5-0½	0'-4½"		
B2	7	12	9-0	B7				15-6		4-8½			
B3	4	4	28-8	B8				14-10		4-4½			
B4	10	5	20-10	B9				14-2		4-0½			
B5	10	2	28-8	B10				13-6		3-8½			
B20	4	9	2-8	B11				13-7		3-9			
				B12				14-1		4-0			
				B13				14-7		4-3			
T4	6	8	5-6	B14				15-1		4-6			
T5	8	8	21-2	B15				15-7		4-9			
T6	4	4	20-0	B16		2		16-1		5-0			
				B17	4	12	1	13-5	2-8	3-8	0-4½		
				B18	6	4	2	7-9	5-9	1-0	1-0	5'-4"	
C1	8	16	43-6	B19	6	4	2	7-11	6-11	1-0		6-2	
D1	8	16	4-0										
				T1	4	14	1	10-5	1-2	3-8	0-4½		
F1	6	38	10-4	T2	4	2	1	11-1	1-2	4-0	0-4½		
F2	#6	40	9-4	T3	4	2	1	15-1	1-2	6-0	0-4½		
				C2	#3	76	1	9-4	1-8	2-8	0-4		

NOTES

OTHER NOTES: For other notes see Dwgs. No. 4577 & No. 4590.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK

FEDERAL AID PROJECT NO. I-ING 15-2(8)118

SILVER BOW COUNTY

BENT NO. 2

SOUTH BOUND STRUCTURE

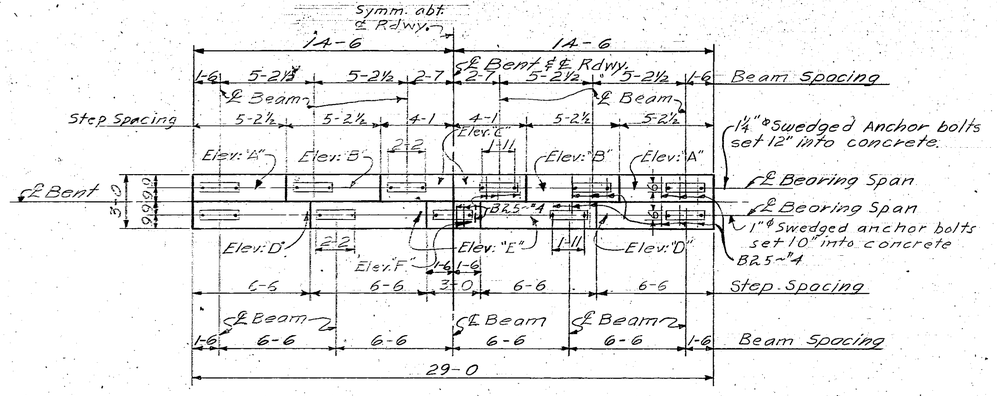
Scale-1/4"=1'0"

DESIGNED	J.C.B.	9-15-58
DRAWN	D.A.W.	9-22-58
TRACED		
CHECKED	H.E.S.	11-19-58
REVISED		
REVISED		

DRAWING NO. 4592

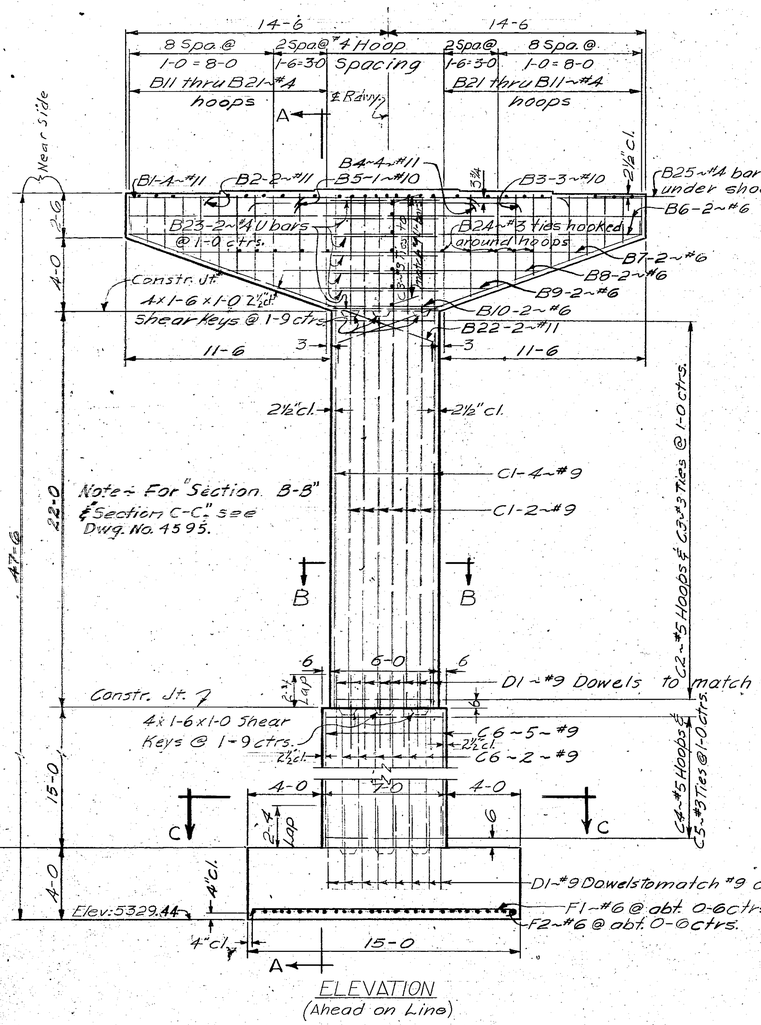
J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15-2(8)118		18	49

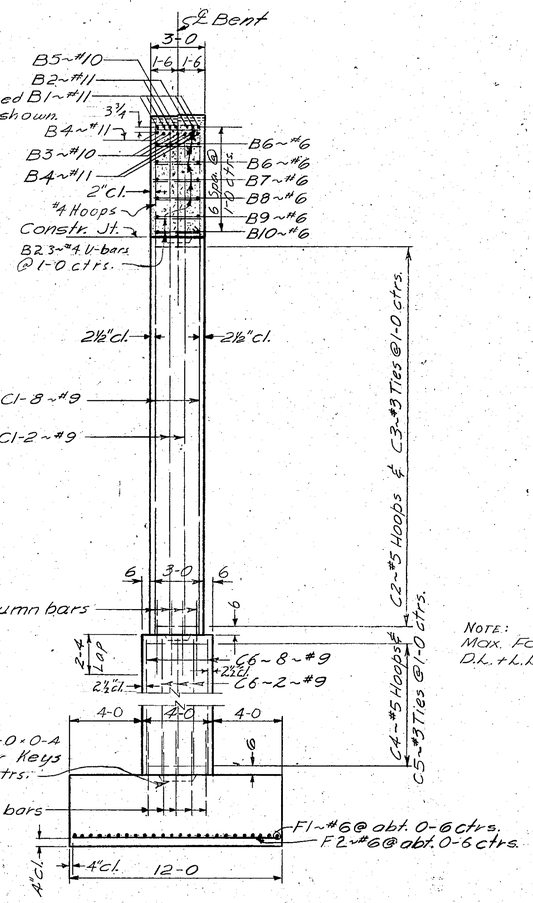


PLAN

BEAM SEAT ELEVATIONS	
POINT	ELEVATIONS
"A"	5376.95
"B"	5377.04
"C"	5377.08
"D"	5376.94
"E"	5377.04
"F"	5377.07

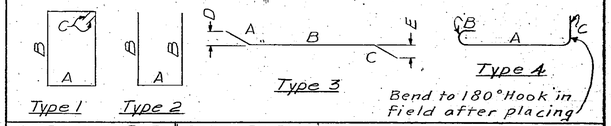


ELEVATION
(Ahead on Line)



SECTION A-A

BILL OF REINFORCING STEEL



STRAIGHT BARS				BENT BARS (All dimensions are out to out.)								
MARK	SIZE	No.	LENGTH	MARK	SIZE	No.	TYPE	LENGTH	A	B	C	D	E
B1	#11	4	28-8	B11	#4	2	1	10'-7"	2'-8	2'-3"	0'-4½		
B2	11	2	19-6	B12				11-3		2-7			
B3	10	3	14-8	B13				11-11		2-11			
B4	11	4	9-2	B14				12-7		3-3			
B5	10	1	9-2	B15				13-3		3-7			
B6	6	4	28-8	B16				14-0		3-11½			
B7	6	2	23-11	B17				14-8		4-3½			
B8	6	2	18-1	B18				15-5		4-8			
B9	6	2	12-5	B19				16-1		5-0			
B10	6	2	6-7	B20				17-1		5-6			
B25	4	35	1-2	B21	4	2	1	18-2	2-8	6-0½	0-4½		
				B22	11	4	3	20-1	1-0	18-1	1-0	0-11	0-11
C1	9	20	28-3	B23	4	14	2	9-8	5-8	2-0			
				B24	3	10	4	3-7	2-9	0-5	0-5		
D1	9	42	4-8										
F1	6	24	14-4	C3	3	29	4	3-7	2-9	0-5	0-5		
F2	6	30	11-4	C2	5	22	1	17-6	2-8	5-8	0-5		
				C5	3	15	4	4-7	3-9	0-5	0-5		
C6	#9	22	14-10	C4	#5	15	1	21-6	3-8	6-8	0-5		

NOTES

OTHER NOTES: For other notes see Dwgs. No. 4577 & No. 4590.

Bent No. 3-Footing Log
Final 3.5' of excavation above base of footing elevation consisted of a firm grey disintegrated granite sand with some clay and 2" to 3" rock scattered throughout the footing base.

NOTE:
Max. Footing Pressure Under:
D.L. + L.L. + Wind + L.F. = 3.72 Tons/sq. ft.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

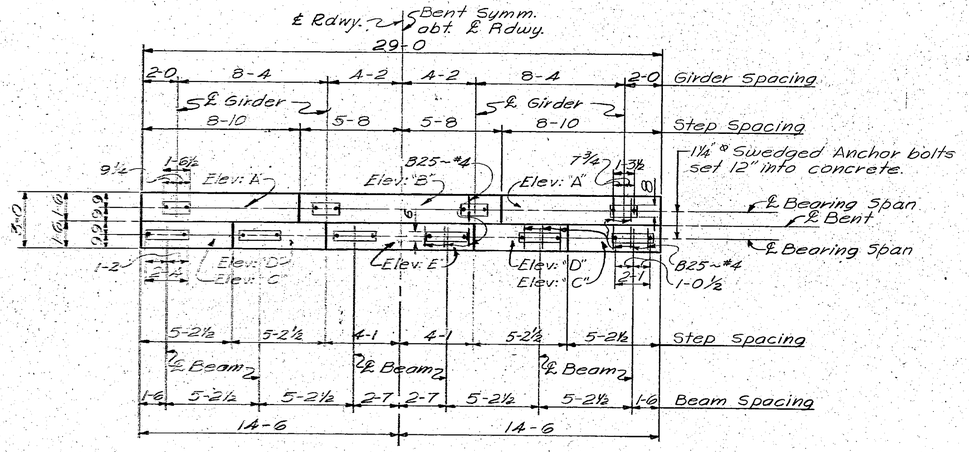
BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING15-2(8)118
SILVER BOW COUNTY
BENT NO. 3
SOUTHBOUND STRUCTURE
Scale-¼"=1'-0"

DESIGNED	J.D.S.	11-25-58
DRAWN	C.G.	12-3-58
TRACED		
CHECKED	H.E.S.	12-4-58
REVISED		
REVISED		

DRAWING NO. 4593

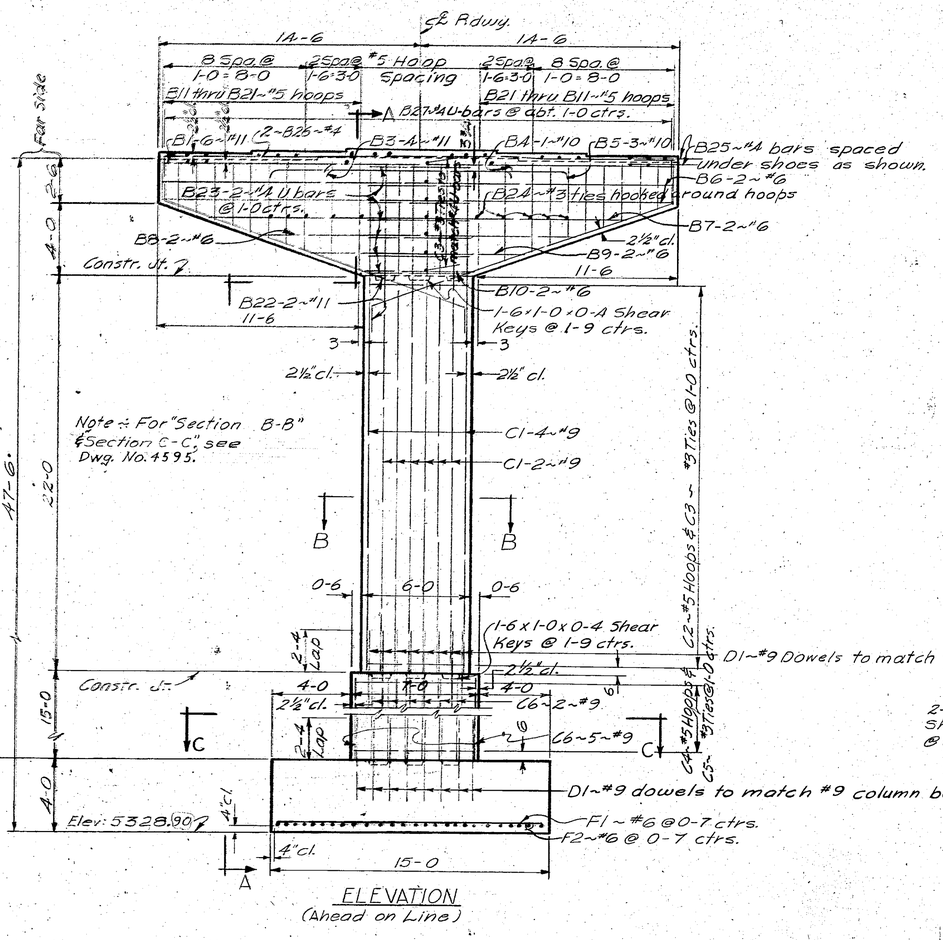
J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15-2(8) 118		19	49

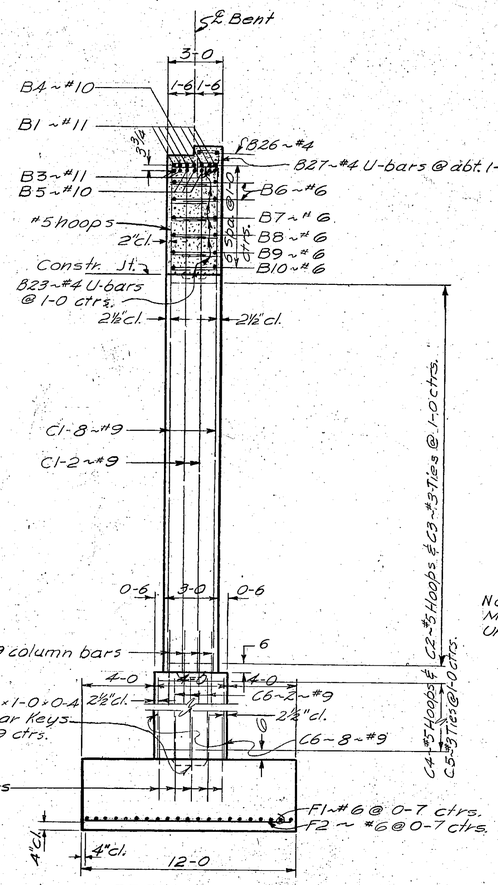


PLAN

BEAM SEAT ELEVATIONS	
POINT	ELEVATION
"A"	5376.84
"B"	5376.52
"C"	5376.90
"D"	5376.98
"E"	5377.02



ELEVATION
(Ahead on Line)



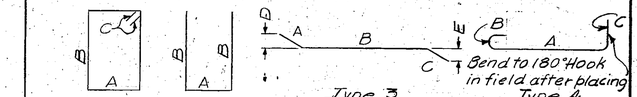
SECTION A-A

Footing Log

Final 2.0' above plan base of footing elevation consisted of a hard decomposed grey granite sand.

NOTE:
Max. Footing Pressure Under: D.L.+L.L.+ Wind + L.F. = 3.76 Tons/FT.²

BILL OF REINFORCING STEEL



STRAIGHT BARS				BENT BARS (All dimensions are out to out.)								
MARK	SIZE	No.	LENGTH	MARK	SIZE	No.	TYPE	LENGTH	A	B	C	D	E
B1	#11	6	28'-8"	B11	#5	2	1	10'-8"	2'-8"	2'-3"	0'-5"		
				B12	↑	↑	↑	11'-4	↑	2'-7	↑		
B3	11	4	9-6	B13				12-0		2-11			
B4	10	1	9-6	B14				12-8		3-3			
B5	10	3	16-0	B15				13-4		3-7			
B6	6	4	28-8	B16				14-1		3-11½			
B7	6	2	23-11	B17				14-9		4-3½			
B8	6	2	18-1	B18				15-6		4-8			
B9	6	2	12-5	B19				16-2		5-0			
B10	6	2	6-7	B20	↓	↓	↓	17-2	↓	5-6	↓		
B25	4	24	1-2	B21	5	2	1	18-3	2-8	6-0½	0-5		
B26	4	2	28-8	B22	11	4	3	20-1	1-0	18-1	1-0	0'-11	0'-11
				B23	4	14	2	9-8	5-8	2-0			
C1	9	20	23-3	B24	3	10	4	3-7	2-9	0-5	0-5		
				B27	4	30	2	3-10	1-2	1-8			
D1	9	42	4-8					4-6					
				C3	3	29	4	3-7	2-9	0-5	0-5		
F1	6	21	14-4	C2	5	22	1	17-6	2-8	5-8	0-5		
F2	6	26	11-4	C4	5	15	1	21-6	3-8	6-8	0-5		
				C5	#3	15	4	4-7	3-9	0-5	0-5		
C6	#9	22	14-10										

NOTES

OTHER NOTES: For other notes see Dwgs. No. 4577 & No. 4590.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

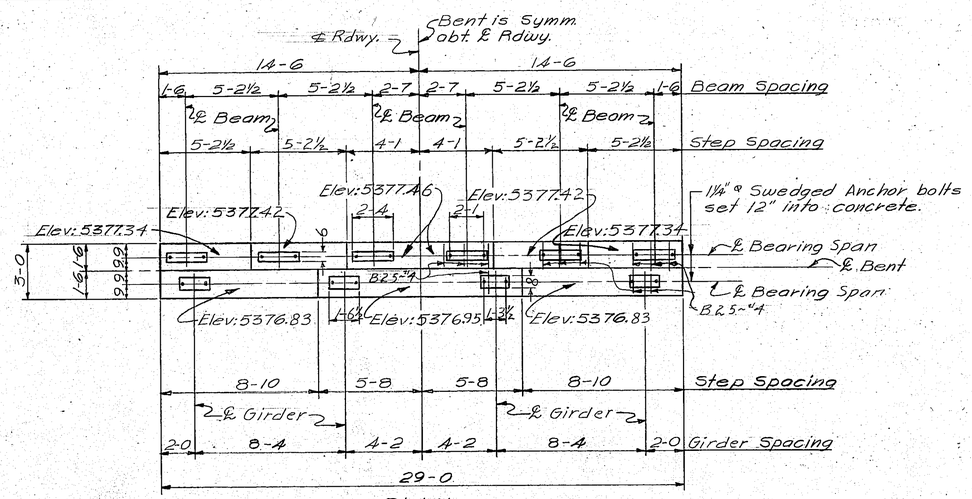
BRIDGE OVER B.A. & P. RY, C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING15-2(8)118
SILVER BOW COUNTY
BENT NO. 4
SOUTHBOUND STRUCTURE
Scale: ¼" = 1'-0"

DESIGNED	J. D. S.	11-25-58
DRAWN	C. G.	12-3-58
TRACED		
CHECKED	H.E.S.	12-4-58
REVISED		
REVISED		

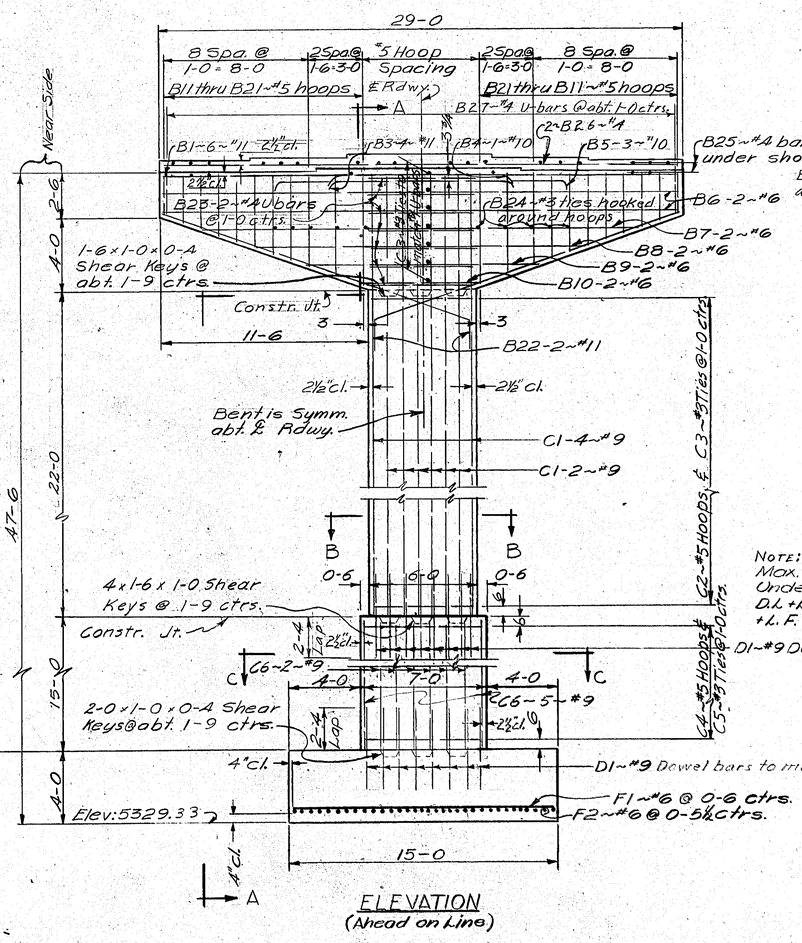
DRAWING NO. 4594

J.R.B.

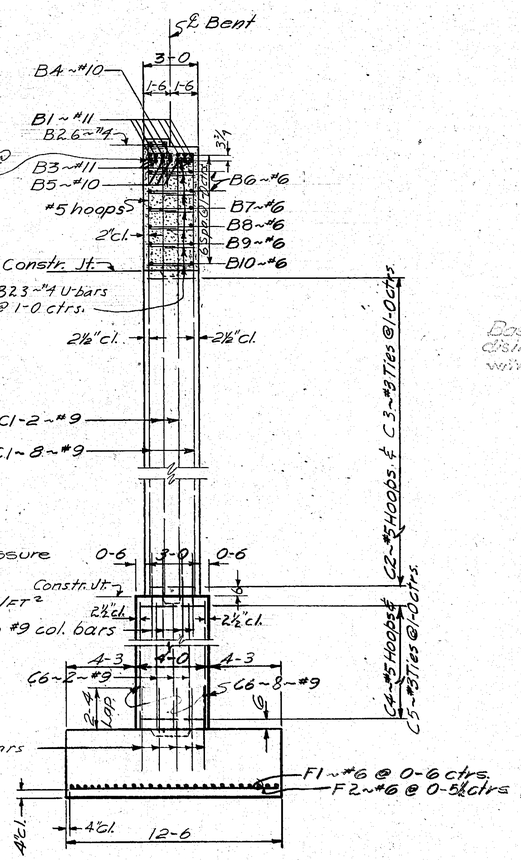
FED. ROAD DIV. No.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15-2 (8)118		20	49



PLAN



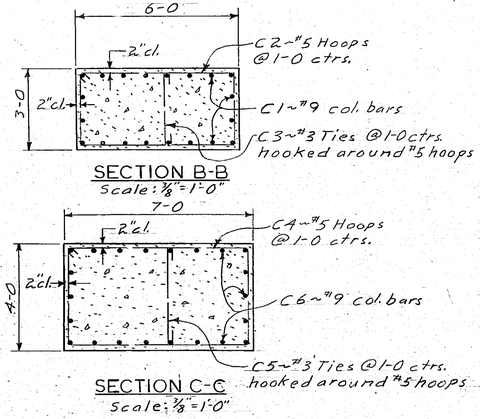
ELEVATION
(Ahead on Line)



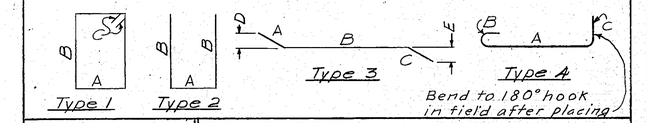
SECTION A-A

Footing Log
Base of footing 16" into a gray dense disintegrated granite material. Cut with jackhammer and spade alternately.

NOTE:
Max. Footing Pressure Under:
D.L. + L.L. + Wind
+ L.F. = 3.81 Tons/Ft²



BILL OF REINFORCING STEEL



STRAIGHT BARS				BENT BARS (All dimensions are out to out)									
MARK	SIZE	No.	LENGTH	MARK	SIZE	No.	TYPE	LENGTH	A	B	C	D	E
B1	#11	6	28'-8	B11	#5	2	1	10'-8"	2'-8	2'-3"	0'-5"		
				B12				11-4		2-7			
B3	11	4	9-6	B13				12-0		2-11			
B4	10	1	9-6	B14				12-8		3-3			
B5	10	3	16-0	B15				13-4		3-7			
B6	6	4	28-8	B16				14-1		3-11½			
B7	6	2	23-11	B17				14-9		4-3½			
B8	6	2	18-1	B18				15-6		4-8			
B9	6	2	12-5	B19				16-2		5-0			
B10	6	2	6-7	B20				17-2		5-6			
B25	4	24	1-2	B21	5	2	1	18-3	2-8	6-0½	0-5		
B26	4	2	28-8	B22	11	4	3	20-1	1-0	18-1	1-0	0'-11"	0'-11"
				B23	4	14	2	9-8	5-8	2-0			
C1	9	20	28-3	B24	3	10	4	3-7	2-9	0-5	0-5		
				B27	4	30	2	3-10	1-2	1-8			
D1	9	42	4-8										
				C3	3	29	4	3-7	2-9	0-5	0-5		
F1	6	25	14-4	C2	5	22	1	17-6	2-8	5-8	0-5		
F2	6	33	11-10	C4	5	15	1	21-6	3-8	6-8	0-5		
				C5	#3	15	4	4-7	3-9	0-5	0-5		
C6	#9	22	14-10										

NOTES

OTHER NOTES ÷ For other notes see Dwgs. No. 4577 & No. 4590.

DESIGNED	J.C.B.	9-20-58
DRAWN	T.W.M.	9-23-58
TRACED		
CHECKED	H.E.S.	12-8-58
REVISED		
REVISED		

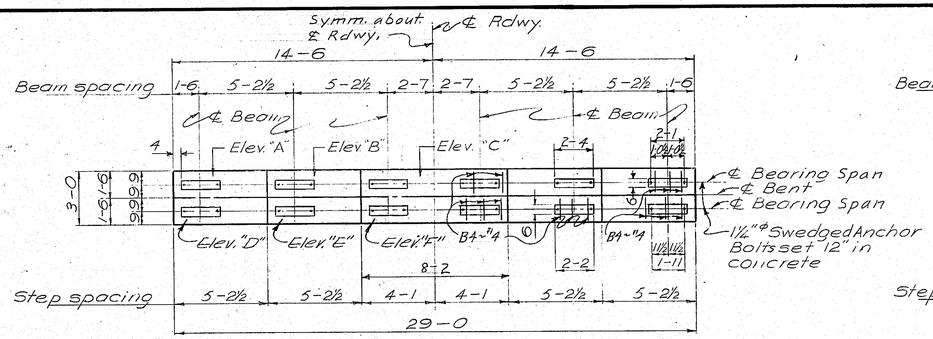
STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING 15-2(8)118
SILVER BOW COUNTY
BENT NO. 5
SOUTHBOUND STRUCTURE
Scale - ¼" & 1'-0" Except As Noted

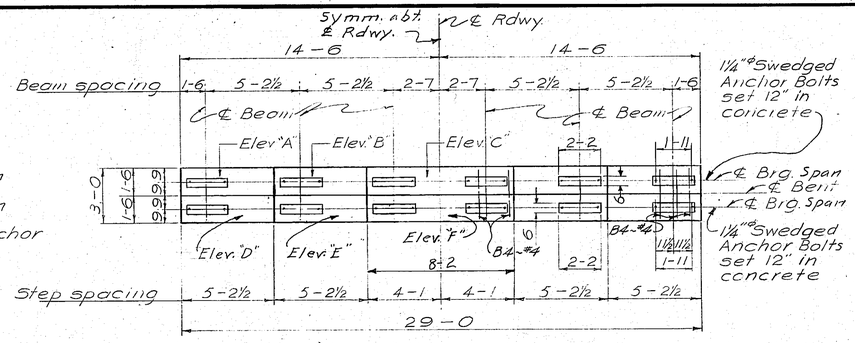
DRAWING NO. 4595

J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO	TOTAL SHEETS
8	MONT.	I-ING 15-2 (8) 118	21	49

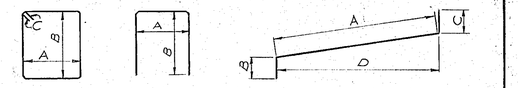


PLAN FOR BENT NO.6



PLAN FOR BENT NO.7

BILL OF REINFORCING STEEL (For One Bent Only)



TYPE 1 TYPE 2 TYPE 3

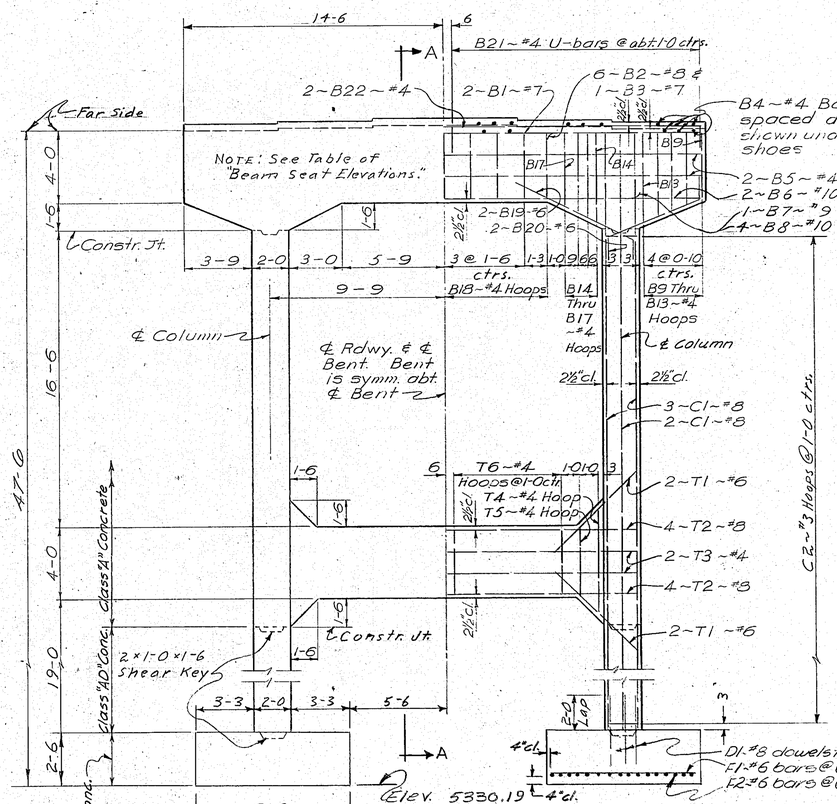
STRAIGHT BARS				BENT BARS (All dimensions are out to out)								
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D	E
B1	#7	2	28-8	B9	#4	2	1	13-6	2-8	3-6½	0-4½		
B2	8	12	8-7	B10	↑	↑	↑	14-2	↑	4-0½	↑		
B3	7	2	8-7	B11				14-10		4-4½			
				B12				15-6		4-8½			
B5	4	4	28-8	B13				16-2		5-0½			
B6	10	2	28-8	B14				16-1		5-0			
B7	9	1	21-0	B15				15-7		4-9			
B8	10	4	21-0	B16				15-1		4-6			
				B17	↓	↓	↓	14-4	↓	4-1½	↓		
				B18	4	9	1	13-5	2-8	3-8	0-4½		
T1	6	8	5-6	B19	6	4	3	7-11	6-11	1-0		6-2	
T2	8	8	21-2	B20	6	4	3	7-9	5-9	1-0	1-0	5-4	
T3	4	4	20-0										
				T4	4	2	1	15-1	1-2	6-0	0-4½		
D1	#8	16	4-0	T5	4	2	1	11-1	1-2	4-0	0-4½		
				T6	#4	14	1	10-5	1-2	3-8	0-4½		

BARS FOR BENT NO.6 ONLY												
B22	#4	2	28-8	B21	#4	30	2	3-10	1-2	1-4		
B4	4	28	1-2									
C1	8	16	44-9	C2	#3	80	1	9-4	1-8	2-8	0-4	
F1	6	36	7-10									
F2	#6	32	8-10									

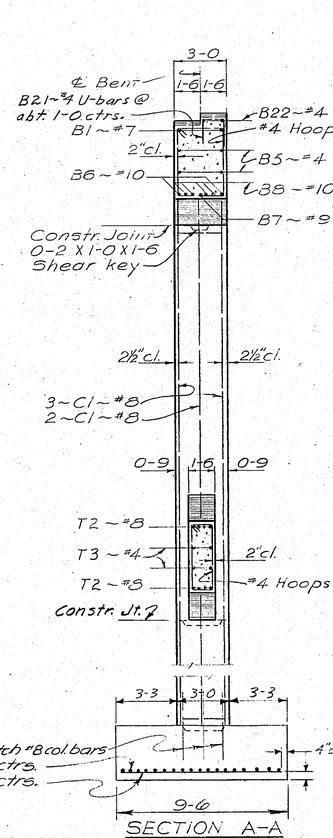
BARS FOR BENT NO.7 ONLY												
B4	#4	10	2-8									
C1	8	16	37-9	C2	#3	66	1	9-4	1-8	2-8	0-4	
F1	6	42	8-4									
F2	#6	40	9-10									

NOTES

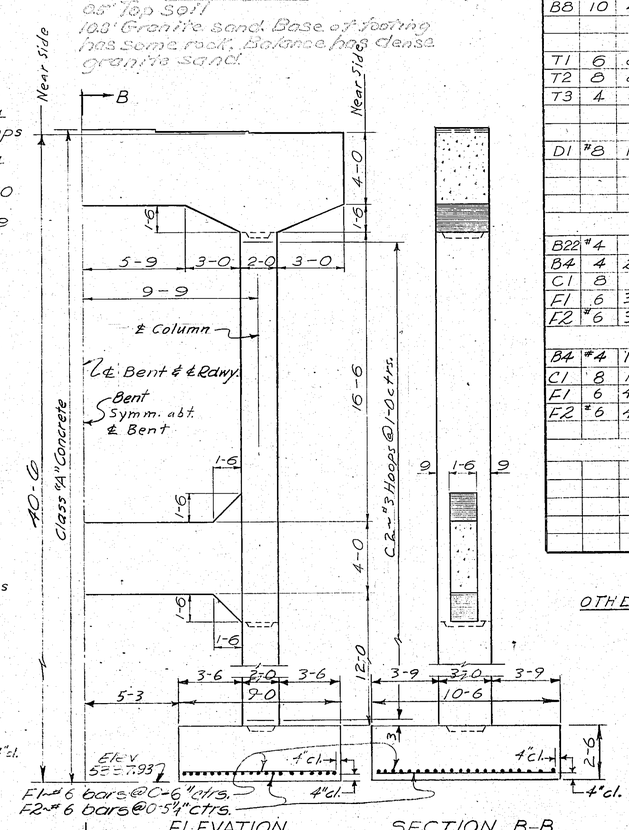
OTHER NOTES: For other notes see Dwgs. No. 4577 & No. 4590.



ELEVATION BENT NO.6
(Ahead On Line)



SECTION A-A



ELEVATION BENT NO. 7
(Ahead On Line)

SECTION B-B

NOTE: Max. Footing Pressure under: D.L. + L.L. + Wind + L.F. = 3.77 Tons/sq. ft.

NOTE: Max. Footing Pressure Under: D.L. + L.L. + Wind + L.F. = 3.76 T/Ft²

Footing Logs

Lt. Footing: 8.5' Top soil; 9.5' Firm granite sand with some clay. Base firm.

Rt. footing: 3.0 Gravel-rock and sand. 5.0' Decomposed granite sand. Base firm.

BEAM SEAT ELEV.		
Elev.	Bent-No6	Bent No.7
"A"	5377.69	5378.44
"B"	5377.77	5379.53
"C"	5377.81	5378.57
"D"	5379.08	5378.43
"E"	5379.17	5378.52
"F"	5378.21	5378.56

NOTE: Bent No.7 similar to Bent No.6 with exceptions noted.

DESIGNED	J.D.S.	8-13-58
DRAWN	HRL.	8-14-58
TRACED		
CHECKED	NES.	11-19-58
CHECKED		
REVISED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

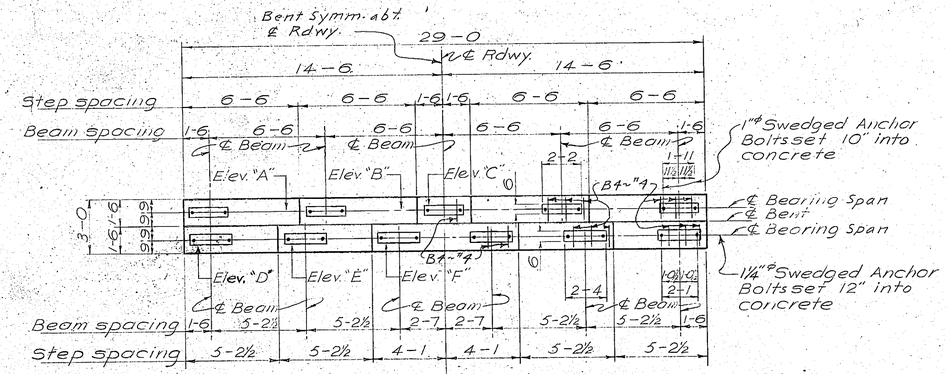
BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING 15-2(8)118
SILVER BOW COUNTY
BENTS NO.6 & NO.7
SOUTHBOUND STRUCTURE
Scale-¼"=1'0"

DRAWING NO. 4596

J.R.B.

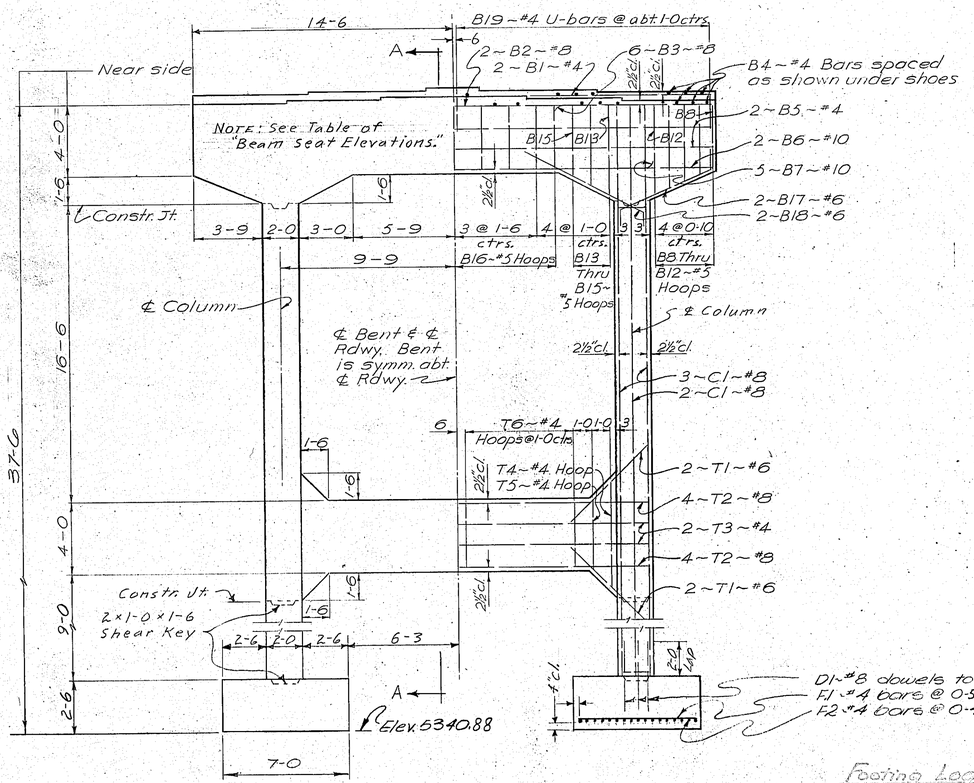
47.63

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING-15-2(8)118		22	49



PLAN

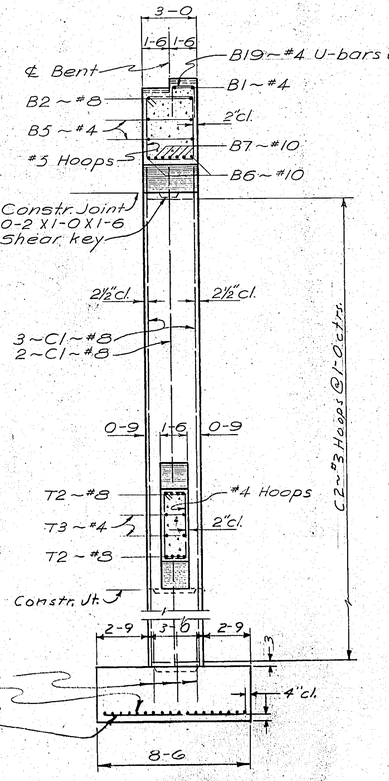
BEAM SEAT ELEV.	
Point	Elevation
"A"	5378.79
"B"	5378.89
"C"	5378.92
"D"	5378.38
"E"	5378.46
"F"	5378.50



ELEVATION
(Ahead On Line)

NOTE:
Max. Footing Pressure Under:
D.L. + L.L. = 2.95 Tons/sq. ft.

Footing Leg
1.0' Topsoil
8.0' Decomposed granite sand
Base Firm



SECTION A-A

BILL OF REINFORCING STEEL



TYPE 1 TYPE 2 TYPE 3

STRAIGHT BARS				BENT BARS (All dimensions are out to out)								
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	TYPE	LENGTH	A	B	C	D	E
B1	#4	2	28'-8	B8	#5	2	1	13'-7"	2'-8	3-8½	0-5		
B2	8	2	28-8	B9	↓	↓	↓	14-3	↑	4-0½	↓		
B3	8	12	8-7	B10				14-11		4-4½			
B4	4	30	1-2	B11				15-7		4-8½			
B5	4	4	28-8	B12				16-3		5-0½			
B6	10	2	28-8	B13				16-2		5-0			
B7	10	5	21-0	B14				15-2		4-6			
				B15	↓	2	↓	14-2	↓	4-0	↓		
				B16	5	9	1	13-6	2-8	3-8	0-5		
T1	6	8	5-6	B17	6	4	3	7-9	5-9	1-0	1-0	5"-4	
T2	8	8	21-2	B18	6	4	3	7-11	6-11	1-0		6-2	
T3	4	4	20-0	B19	4	30	2	3-10	1-2	1'-4			
D1	8	16	4-0	T4	4	2	1	15-1	1-2	6-0	0-4½		
F2	4	34	7-10	T5	4	2	1	11-1	1-2	4-0	0-4½		
F1	4	36	6-4	T6	4	14	1	10-5	1-2	3-8	0-4½		
C1	#8	16	34-9	C2	#3	60	1	9-4	1-8	2-8	0-4		

NOTES

OTHER NOTES: For other notes see Dwgs. No. 4577 & No. 4590.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

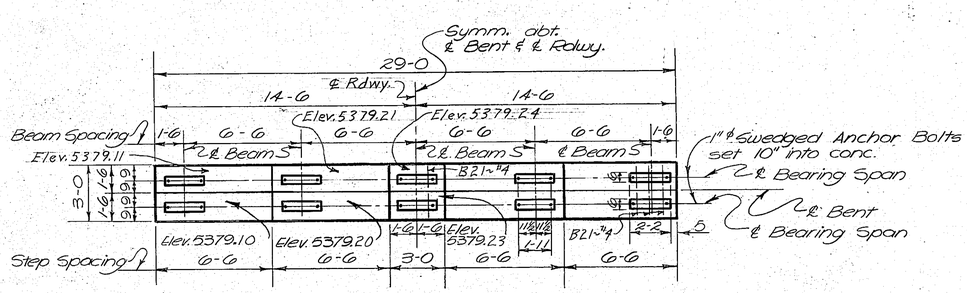
BRIDGE OVER B.A. & P. RY, C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING-15-2(8)118
SILVER BOW COUNTY
BENT NO. 8
SOUTHBOUND STRUCTURE
Scale - 1/4"=1'-0"

DESIGNED	J.D.S.	8-21-58
DRAWN	H.K.L.	8-18-58
TRACED		
CHECKED	H.E.S.	11-24-58
REVISED		
REVISED		

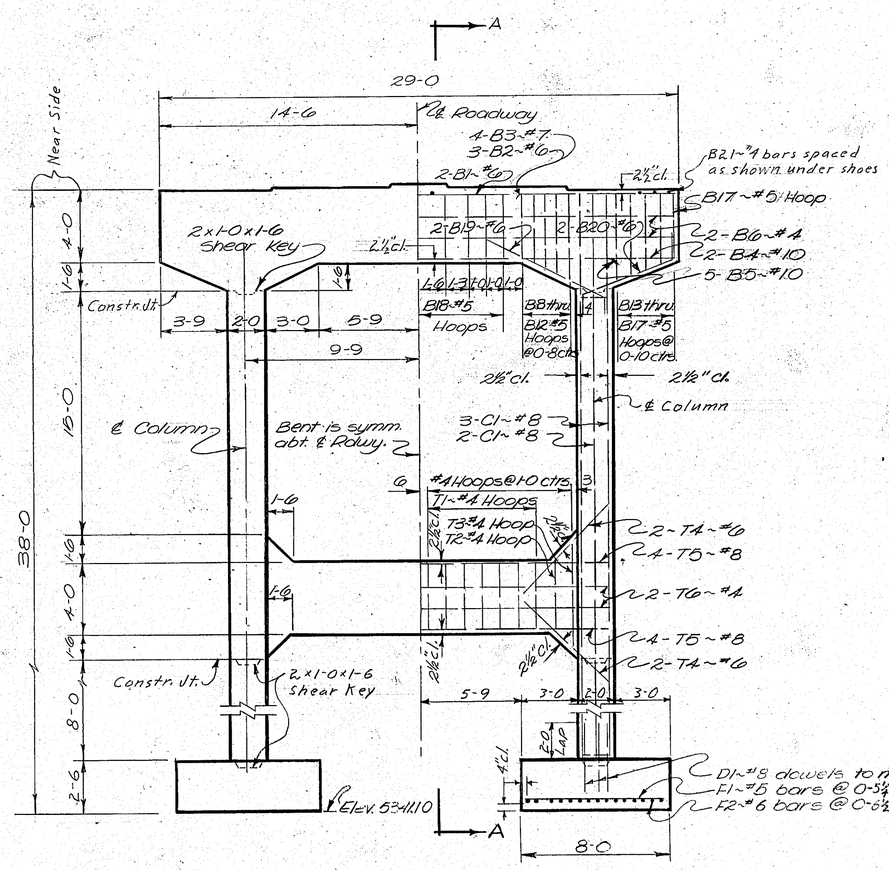
DRAWING NO. 4597

J.R.B

FED ROAD DIV NO.	STATE	FED AID PROJ NO		SHEET NO	TOTAL SHEETS
8	MONT	I-ING 15-2 (8)118		23	49

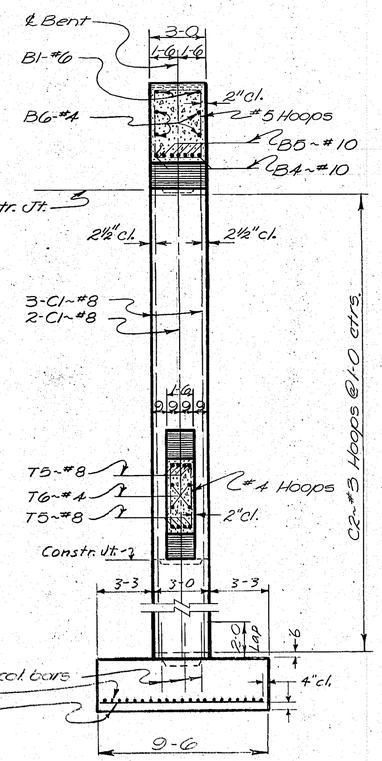


PLAN



ELEVATION
(Ahead On Line)

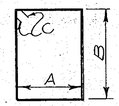
NOTE!
Max. Footing Pressure Under: DL.+L.L.+Wind +L.F = 3.58 T/FT²



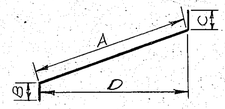
SECTION A-A

Footing Log.
0.5' Top Soil
6.5' Decomposed granite sand
Base firm

BILL OF REINFORCING STEEL



TYPE 1



TYPE 2

STRAIGHT BARS				BENT BARS (All dimensions are out to out)								
MARK	SIZE	NO	LENGTH	MARK	SIZE	NO	TYPE	LENGTH	A	B	C	D	E
B1	#6	2	28'-8"	B8	#5	2	1	13'-6"	2'-8"	3'-8	0'-5"		
B2	6	6	8'-7	B9				14-2		4-0	0-5		
B3	7	8	8-7	B10				14-10		4-4	0-5		
B4	10	2	28-8	B11				15-6		4-8	0-5		
B5	10	5	21-0	B12				16-2		5-0	0-5		
B6	4	4	28-8	B13				16-3		5-0½	0-5		
B21	4	8	2-8	B14				15-7		4-8½	0-5		
				B15				14-11		4-4½	0-5		
C1	8	16	35-3	B16				14-3		4-0½	0-5		
				B17		2		13-7		3-8½	0-5		
T4	6	8	5-6	B18	5	9	1	13-6	2-8	3-8	0-5		
T5	8	8	21-2	B19	6	4	2	7-11	6-11	1-0		6'-2"	
T6	4	4	20-0	B20	6	4	2	7-9	5-9	1-0	1-0	5-4	
D1	8	16	4-0										
F1	5	42	7-4										
F2	#6	30	8-10	T1	4	14	1	10-5	1-2	3-8	0-4½		
				T2	4	2	1	11-1	1-2	4-0	0-4½		
				T3	4	2	1	15-1	1-2	6-0	0-4½		
				C2	#3	60	1	9-4	1-8	2-8	0-4		

NOTES

OTHER NOTES : For other notes see Dwgs. No. 4577 & No. 4590.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

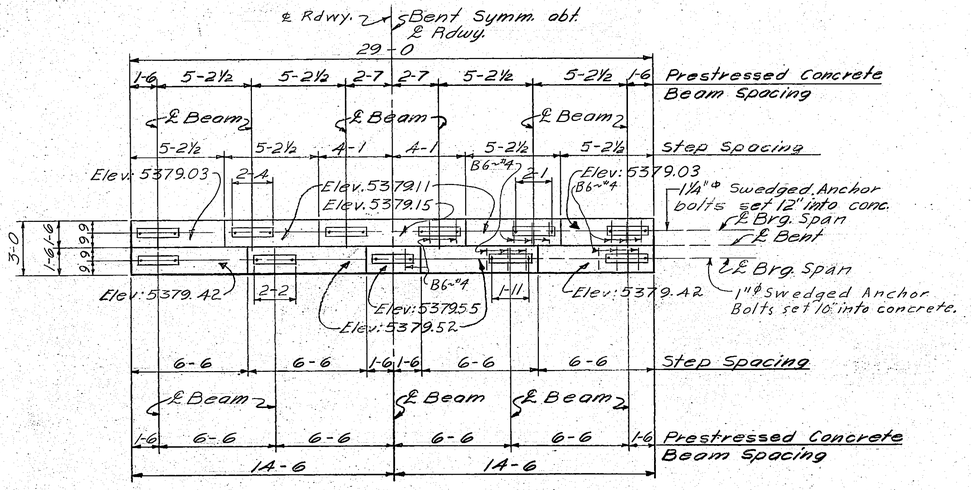
BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING 15-2(8)118
SILVER BOW COUNTY
BENT NO. 9
SOUTHBOUND STRUCTURE
Scale ½"=1'-0"

DESIGNED	J.D.S.	8-20-58
DRAWN	K.L.F.	8-18-58
TRACED		
CHECKED	H.E.S.	11-24-58
REVISED		
REVISED		

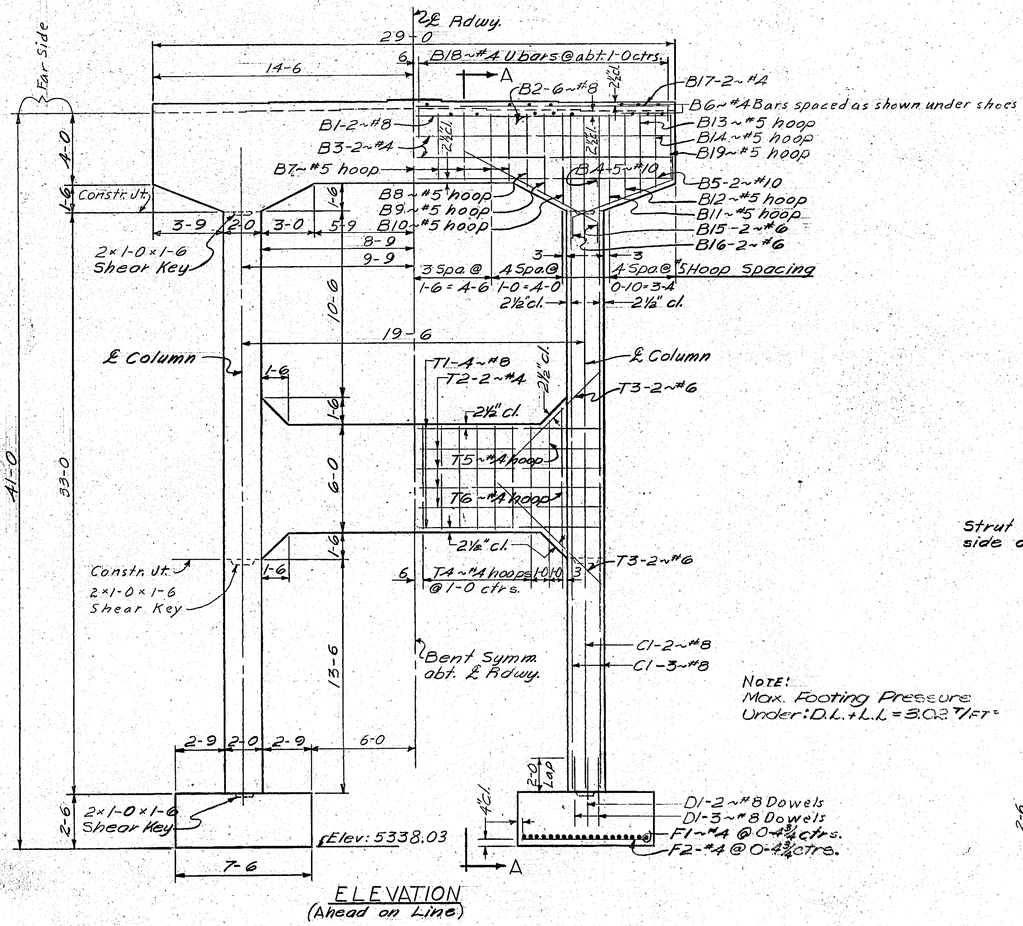
DRAWING NO. 4598

J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15-2 (8) 118		24	49

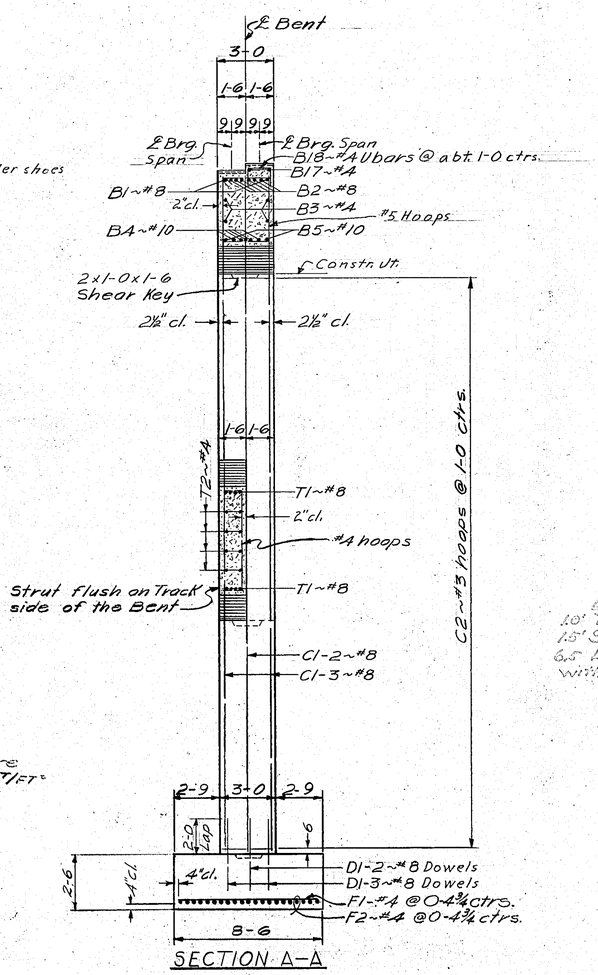


PLAN



ELEVATION
(Ahead on Line)

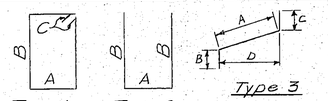
NOTE:
Max. Footing Pressure Under: D.L.+L.L. = 3.02 T/FT²



SECTION A-A

Footing Log
10' Top Soil
15' Sand and gravel
6.5 Decomposed granite sand with some clay. Base firm.

BILL OF REINFORCING STEEL



STRAIGHT BARS				BENT BARS (All dimensions are out to out)								
MARK	SIZE	No.	LENGTH	MARK	SIZE	No.	TYPE	LENGTH	A	B	C	D
B1	#8	2	28-8"	B7	#5	9	1	13-6"	2-8"	3-8"	0-5"	
B2	8	12	8-7	B8	″	2	″	1A-2	″	4-0	″	
B3	4	4	28-8	B9	″	″	″	15-2	″	4-6	″	
B4	10	5	21-0	B10	″	″	″	16-2	″	5-0	″	
B5	10	2	28-8	B11	″	″	″	16-3	″	5-0½	″	
B6	4	30	1-2	B12	″	″	″	15-7	″	4-8½	″	
B17	4	2	28-8	B13	″	″	″	1A-11	″	4-4½	″	
				B14	5	2	1	14-3	2-8	4-0½	0-5	
				B15	6	4	3	7-11	6-11	1-0		6'-2"
C1	8	16	38-3	B16	6	4	3	7-9	5-9	1-0	1-0	5-4
				B18	4	30	2	3-10	1-2	1-4		
D1	8	16	4-0	B19	5	2	1	13-7	2-8	3-8½	0-5	
F1	4	38	7-10	C2	3	66	1	9-4	2-8	1-8	0-4	
F2	4	42	6-10									
T1	8	8	21-2	T4	4	14	1	14-5	1-2	5-8	0-4½	
T2	4	8	20-0	T5	4	2	1	15-1	1-2	6-0	0-4½	
T3	#6	8	5-6	T6	#4	2	1	19-1	1-2	8-0	0-4½	

NOTES

OTHER NOTES: For other notes see Dwgs. No. 4577 & No. 4590.

DESIGNED	J.D.S.	8-21-58
DRAWN	T.W.M.	9-3-58
TRACED		
CHECKED	H.E.S.	11-25-58
REVISED		
REVISED		

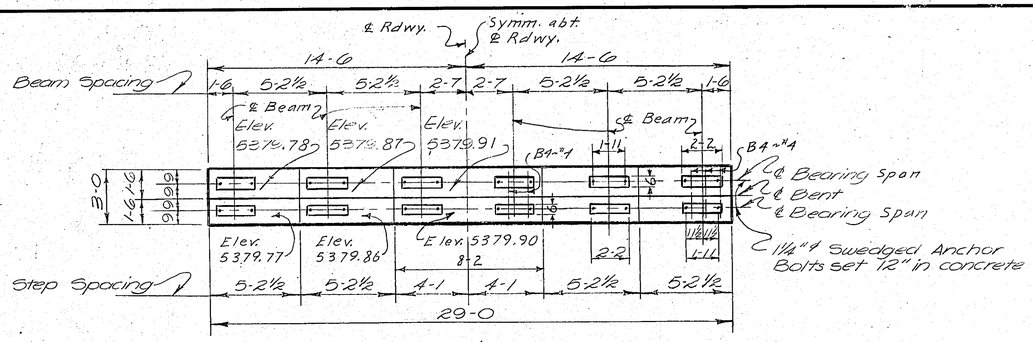
STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY., C.M. ST. P&P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING15-2(8)118
SILVER BOW COUNTY
BENT NO. 10
SOUTHBOUND STRUCTURE
Scale-¼"=1'0"

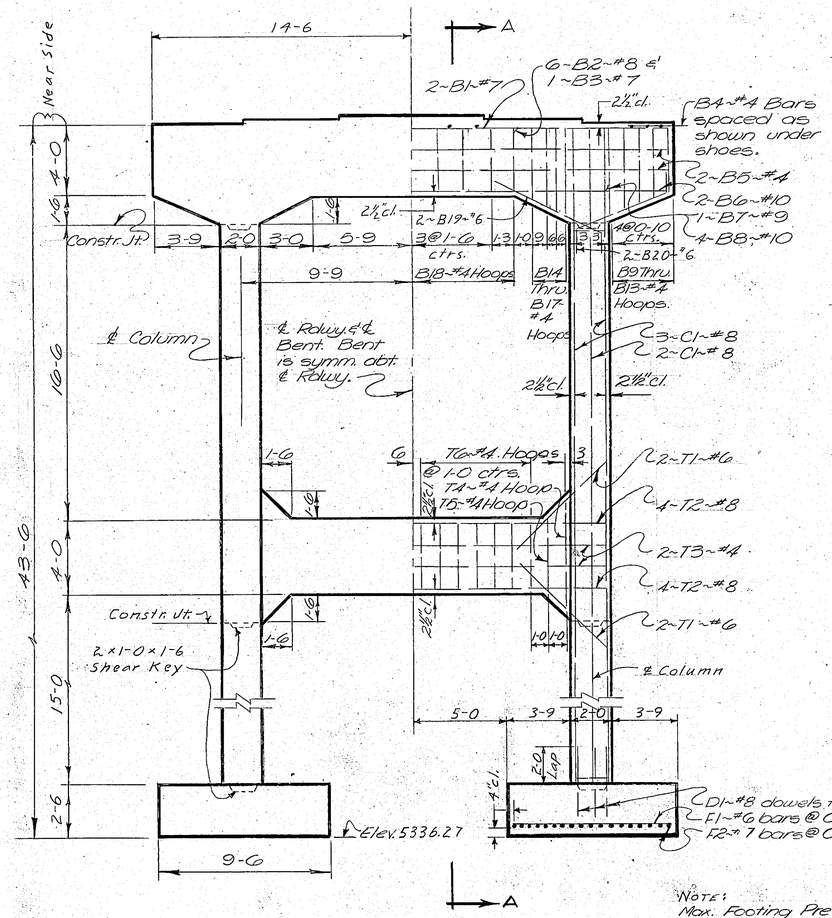
DRAWING NO. 4599

J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15-2 (8) 118		25	49

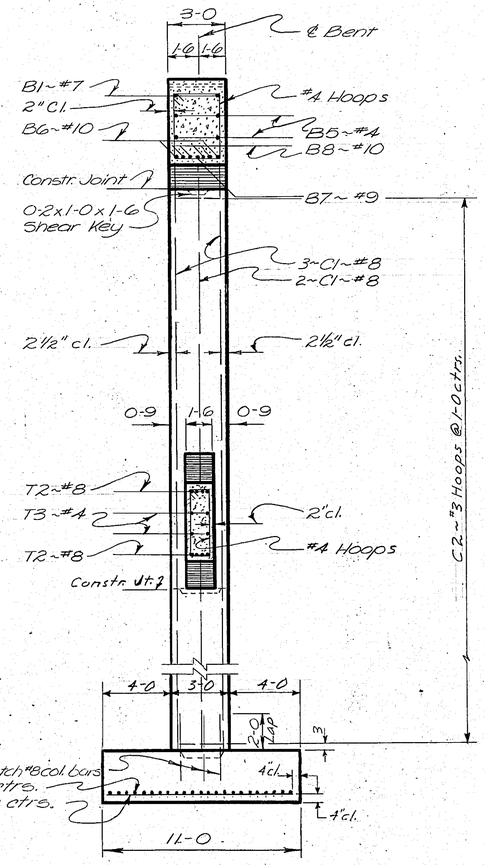


PLAN



ELEVATION
(Ahead On Line)

NOTE:
Max. Footing Pressure Under: D.L. + L.L. + Wind + L.F. = 3.73 T/FT.²



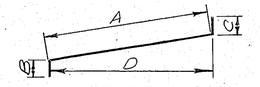
SECTION A-A

Footing Log
Final 45' of excavation consisted of decomposed granite sand. Base firm

BILL OF REINFORCING STEEL



TYPE 1



TYPE 2

STRAIGHT BARS				BENT BARS (All dimensions are out to out)								
MARK	SIZE	NO	LENGTH	MARK	SIZE	NO	TYPE	LENGTH	A	B	C	D	E
B1	#7	2	28'-8"	B9	#4	2	1	13'-6"	2'-8	3-8½"	0-4½		
B2	8	12	8-7	B10	"	"	"	14-2	"	4-0½	"		
B3	7	2	8-7	B11	"	"	"	14-10	"	4-4½	"		
B4	4	10	2-8	B12	"	"	"	15-6	"	4-8½	"		
B5	4	4	28-8	B13	"	"	"	16-2	"	5-0½	"		
B6	10	2	28-8	B14	"	"	"	16-1	"	5-0	"		
B7	9	1	21-0	B15	"	"	"	15-7	"	4-9	"		
B8	10	4	21-0	B16	"	"	"	15-1	"	4-6	"		
C1	8	16	40-9	B17	"	2	"	14-4	"	4-1½	"		
				B18	4	9	1	13-5	2-8	3-8	0-4½		
T1	6	8	5-6	B19	6	4	3	7-11	6-11	1-0		6'2"	
T2	8	8	21-2	B20	6	4	3	7-9	5-9	1-0	1-0	5-4	
T3	4	4	20-0	C2	3	72	1	9-4	1-8	2-8	0-4		
				T4	4	2	1	15-1	1-2	6-0	0-4½		
D1	8	16	4-0	T5	4	2	1	11-1	1-2	4-0	0-4½		
F1	6	46	8-10	T6	#4	14	1	10-5	1-2	3-8	0-4½		
F2	#7	36	10-4										

NOTES

OTHER NOTES :- For other notes see Dwgs. No. 4577 & No. 4590.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING 15-2 (8) 118
SILVER BOW COUNTY
BENT NO. 11
SOUTHBOUND STRUCTURE
Scale-1¼"=1'0"

DESIGNED	J. D. S.	8-19-58
DRAWN	K. L. F.	9-16-58
TRACED		
CHECKED	H. E. S.	11-25-58
REVISED		
REVISED		

DRAWING NO. 4600

J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	I-ING 15-2 (8)118		26	49

Bent is Symm. abt. ℄ Rdwy.

℄ Roadway

14-0

1-9 R.

1-10 R.

2-6

8 1-8

P11~#4 3~P10~#4

P12~#4

5-0

℄ Bearing

NOTE: For Bridge Rail Details & Bridge Rail Connections to End Posts. see Dwg. No. SBR-T3.

¼ x 3 layer of Exp. Jt. Filler & Continuous Copper Water Stop

¼ x 3 layer of Exp. Jt. Filler between shoes

4½ Paving notch

2½ x 2½ x ⅜ Guard Angle

℄ Brg.

2 layers of tar paper

B20~#4

B20~#4

P16~#4 to match #4 curb bars

#4 curb bars

#4 curb bars @ 10 ctrs.) See Dwg. No. SLAB-55-R28&B

B21-1¼"ø smooth bars with 2-3 caps set in backwall. Bars anchored 1-6 in Bent Beam. See details this sheet & "Metal Exp. Cap" detail this sheet.

Dimensions & Elevations.

2 x ⅜ x 9 Anchor bars @ 1-6 o/t. ctrs.

@ top of Beam seats.

℄ Beam 2 ℄ Beam 2 ℄ Beam

Beam Spacing 1-6 5-2½ 5-2½ 5-2 5-2½ 5-2½ 1-6

3-0 2-2½ 3-0 2-2½ 8-2 2-2½ 3-0 2-2½ 3-0

Horiz. Horiz. Horiz. Horiz. Horiz.

Elev: 5380.12 Elev. 5380.21 29-0 Elev: 5380.21 Elev: 5380.12

Elev: 5380.25

NOTE: N. F. indicates Near Face & F. F. indicates Far Face.

NOTE: Beam & slab reinforcing omitted for clarity.

NOTE: Beam & slab omitted for clarity.

NOTE: Beam seat areas shown as horiz. shall be finished level to the elevation shown. The area between beam seats to be sloped uniformly as required.

SECTION D-D

P6-2~#4

P10~#4

2~P11~#4

P7 ~#3 hoops @ 0-0 ctrs.

P5~#4

P4-2~#4 Bent

P1-2~#4

P2-2~#4

P3~#4 (str.)

P8~#3 U-bar

P9~#3 U-bar

VIEW B-B

VIEW C-C

2½ x 2½ x ⅜ L x 2-0¾ long. Bend to Crown of Rdwy. (See Detail Dwg. No. SLAB-55-R28-68)

½ W 2

℄ Drill ⅜ø holes @ 2-0 ctrs. for nailing to forms.

GUARD ANGLE DETAIL

Scale: 3" = 1'-0"

1½" ø holes @ 2-0 ctrs.

Contin. Copper Water Stop (23 ga. 16 oz./sq. ft.)

Face of concrete

45°

WATER STOP DETAIL

Scale: 3" = 1'-0"

BW14~#4 stir. @ abt. 0-11 ctrs.

Bent Symm. abt. ℄ Roadway

14-0

1-10 2-6 2-0

2" Parabolic crown in 28-0 Rdwy. see Diagram of Crown of Rdwy. Dwg. No. SLAB-55-R28-6B.

A

℄ Rdwy.

Fin. Gr. @ ℄ Rdwy. & ℄ Brg. Elev. 5384.27

Permissible Constr. Joint

BW9~#4 N.F.

BW1~#6 E.F. & BW19~#4 N.F.

BW2~#8 F.F.

P13-2~#4

P14-2~#4

P15-2~#4

BW5-2~#6

BW20~#4 hoop

BW12~#4 hoop

BW14~#4 stir.

BW15-2~#6

BW13~#4 hoop

BW3~#4 F.F. BW6~#4 N.F.

BW8~#6 F.F. BW7~#4 N.F.

BW4~#6 F.F. BW8~#4 N.F.

BW10~#4 N.F.

BW11~#4 N.F.

BW16-2~#4

B7~#5 hoops

B8~#5 hoop

B9~#5 hoop

B10~#5 hoop

B11~#5 hoop

B12~#5 hoop

B13~#5 hoop

#5 Hoop Spacing 3@1-6 = 1-6 20@5 = 2-0 = 21 3@1-0 = 3-0

(2~B3~#8 4~B1~#8)

2½" cl.

B4-2~#4

B20~#4 bars under stage as shown

B17~#5 hoop

B2~#7

B5-4~#10

B6-2~#10

B16~#5 hoop

B15~#5 hoop

B14~#5 hoop

B18-2~#6

B19-2~#6

2" cl.

6

℄ Column

T4~#4 hoop

T5~#4 hoop

T2-2~#6

T1-4~#8

T3-2~#4

T1-4~#8

T6~#4 hoops @ 1-0 ctrs.

T2-2~#6

2½" cl.

1-6

4-0

8-0

0-4 x 1-0 x 1-3 Shear Keys @ 1-6 ctrs.

¼" layer of Exp. Jt. Filler between backwall & beam end

Constr. Jt.

5-10 3-9 2-0 3-0 5-9

0-4 x 1-0 x 1-3 Shear Keys @ 1-6 ctrs.

NOTE: Cost of furnishing and placing preformed expansion joint filler, tar paper & copper water stop to be included in the unit price bid for Class "AD" concrete.

NOTE: For details of slab, prestressed beams & reinforcing steel, see Dwgs. No. SLAB-35-R28-6B, No. PRE-55-R28-L15 & No. POST-55-R28-L15.

Elev: 5343.12

Footing Log

1.0' Top Soil

6.0' Decomposed Granite Sand

Base of Footings Firm

J.R.B.

F1~#6 @ abt. 5½" ctrs.

F2~#6 @ abt. 5½" ctrs.

D1~#8 Dowels to match #8 col. bars

4" cl.

6-0

ELEVATION

NOTE: Details of Bent are typical for post-tensioned beams. Details for pre-tensioned beams are similar.

NOTE: Finish top of curb parallel to Rdwy. grade.

℄ Bearing

Finish top of post ½" high @ ctr. to provide for drainage

Bush-hammered panel recessed ¾"

2½ x 2½ x ⅜ x 2-0¾ Guard L (See detail this sheet)

BW2 1~#4 to match top longit. slab bars.

¼" All around

BW19~#4

BW1~#6

BW2~#8

BW3~#4

2" cl.

Permissible Constr. Jt.

BW6~#4

BW7~#4

BW8~#4

Top of Batter of col.

BW4~#6

BW14~#4 stir.

B3~#8

B4~#4

#5 Hoops

B6~#10

Constr. Jt.

Batter 3:12

2½" cl.

0-4 x 1-0 x 1-3 Shear Keys @ 1-6 ctrs.

B1~#8

B2~#7

B5~#10

C1-3~#8

C1-2~#8

C2-2~#8

C3-2~#8

C10-3~#8

1-0

4-6

℄ Bearing

℄ Ftg.

T1~#8

T3~#4

T3~#4

T1~#8

#4 hoops

Constr. Joint

C6-2~#8

C7-2~#8

C8-2~#8

C9-2~#8

0-4 x 1-0 x 1-3 Shear Keys @ 1-6 ctrs.

D1-2~#8 Dowels

Dimensions @ face of post

D1-3~#8 Dowels

F1~#6 @ abt. 5½" ctrs.

F2~#6 @ abt. 5½" ctrs.

C11 thru C45~#3 hoops @ 1-0 ctrs.

Class "AD" Concrete

2-0 11-0 2-0

7-6 7-6

15-0

SECTION A-A

NOTE: Max. Footing Pressure under: D.L. + ½ H.E. = 3.53 Tons/sq. ft.

¼ x 3 layer of Exp. Joint Filler

2 layers tar paper

Contin. Copper Water Stop (See detail this sheet)

Permissible Constr. Jt.

B21-1¼"ø smooth bars with caps @ ℄ Brg.

Prestressed Beam

SECTION E-E

Scale: ¾" = 1'-0"

1⅞" I.D.

End closed by pinching side walls together

2-3

Soft wire dowel stop

B21-1¼"ø x 3-6 smooth steel dowels

2-0

METAL EXPANSION CAP

Scale: 1½" = 1'-0"

(12 required per End Bent)

NOTE: Caps shall be paid for at the unit price bid for Reinforcing Steel.

NOTES

OTHER NOTES: For other notes see Dwgs. No. 4577 & No. 4590.

BILL OF REINFORCING STEEL

Type 1 Type 2 Type 3 Type 4 Type 5 Type 6

Type 7 Type 8 Type 9 Type 10

STRAIGHT BARS				BENT BARS (All dimensions are out to out)									
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	TYPE	LENGTH	A	B	C	D	E
B1	#8	8	9-6	B7	#5	9	1	11-0	3-2	1-11	0-3		
B2	7	2	9-6	B8		2		11-11	3-7½				
B3	8	2	28-8	B9				12-4	3-10				
B4	4	2	28-8	B10				12-9	4-0½				
B5	10	4	21-6	B11				13-2	4-3				
B6	10	2	26-8	B12				13-7	4-5½				
B20	4	10	1-11	B13				14-0	4-8				
B21	1¼"ø	12	3-6	B14				13-4	4-4				
				B15				12-1	3-8½				
BW1	6	1	36-9	B16				10-10	3-1				
BW2	8	1	39-4	B17	5	2	1	9-7	2-5½	1-11	0-5		
BW3	4	4	21-0	B18	6	4	7	8-6	1-0	7-6			0-10½
BW4	6	1	37-6	B19	6	4	7	8-3	1-0	6-3	1-0	0-10	0-10
BW6	4	5	3-8										
BW7	4	10	3-8	BW21	4	23	10	3-3	1-3	2-0			
BW8	4	5	3-4	BW5	6	4	5	5-5	1-8	2-1	1-8	0-9½	1-5½
BW9	4	2	6-3	BW12	4	2	1	8-5	2-11	0-11	0-4½		
BW10	4	2	5-0	BW13	4	4	1	14-3	5-10	0-11	0-4½		
BW11	4	2	6-5	BW14	4	27	2	8-2	2-11	0-11	3-8	0-4	
BW16	4	4	2-5	BW15	6	4	5	7-4	1-0	5-10	0-6	0-3	0-10
BW17	4	2	6-5	BW20	4	2	1	8-7	1-9	0-11	0-4½		
BW19	4	1	36-9	C11	3	2	1	24-10	10-5	1-8	0-4		
				C12				24-4	10-2				
C1	8	14	34-9	C13				23-10	9-11				
C2		4	30-5	C14				23-4	9-8				
C3			26-5	C15				22-10	9-5				
C4			22-5	C16				22-4	9-2				
C5			18-5	C17				21-10	8-11				
C6			14-5	C18				21-4	8-8				
C7			10-5	C19				20-10	8-5				
C8		4	6-5	C20				20-4	8-2				
C10	8	6	35-9	C21				19-10	7-11				
				C22				19-4	7-8				
				C23				18-10	7-5				
F1	6	66	5-4	C24				18-4	7-2				
F2	6	26	14-4	C25				17-10	6-11				
				C26				17-4	6-8				
P1	4	4	6-4	C27				16-10	6-5				
P2		4	5-5	C28				16-4	6-2				
P3		2	4-9	C29				15-10	5-11				
P5		2	5-8	C30				15-4	5-8				
P6		4	2-2	C31				14-10	5-5				
P13		4	7-10	C32				14-4	5-2				
P14		4	8-6	C33				13-10	4-11				
P15		4	9-1	C34				13-4	4-8				
P16	4	4	3-8	C35				12-10	4-5				
				C36				12-4	4-2				
T1	8	8	21-2	C37				11-10	3-11				
T2	6	8	5-6	C38				11-4	3-8				
T3	#4	4	20-0	C39				10-10	3-5				
				C40				10-4	3-2				
				C41				9-10	2-11				
				C42				9-4	2-8				
				C43				8-10	2-5				
				C44				8-4	2-2				
				C45	3	2	1	7-10	1-11	1-8	0-4		
				C9	8	1	9	7-2	6-1	1-1			
				D1	8	48	9	4-10	3-9	1-1			
P4	4	4	5	9-2	1-0	3-9	4-5	0-8½	3-0				
P7	3	10	1	12-4	3-8	2-2	0-4						
P8	3	2	8	8-1	2-1½	2-2							
P9	3	2	8	6-2	2-0	2-2							
P10	4	6	6	6-11	2-4	2-6	2-1	1-7					
P11	4	4	3	5-9	2-0	1-3	0-3						
P12	4	4	4	6-3	1-3	1-2	3-10	0-1½					
T4	4	2	1	15-1	6-0	1-2	0-4½						
T5	4	2	1	11-1	4-0	1-2	0-4½						
T6	#4	14	1	10-5	3-8	1-2	0-4½						

DESIGNED	J.C.B.	9-22-58
DRAWN	T.W.M.	10-1058
TRACED		
CHECKED	H.E.S.	12-1-58
REVISED		
REVISED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK

FEDERAL AID PROJECT NO. I-ING 15-2(8)118

SILVER BOW COUNTY

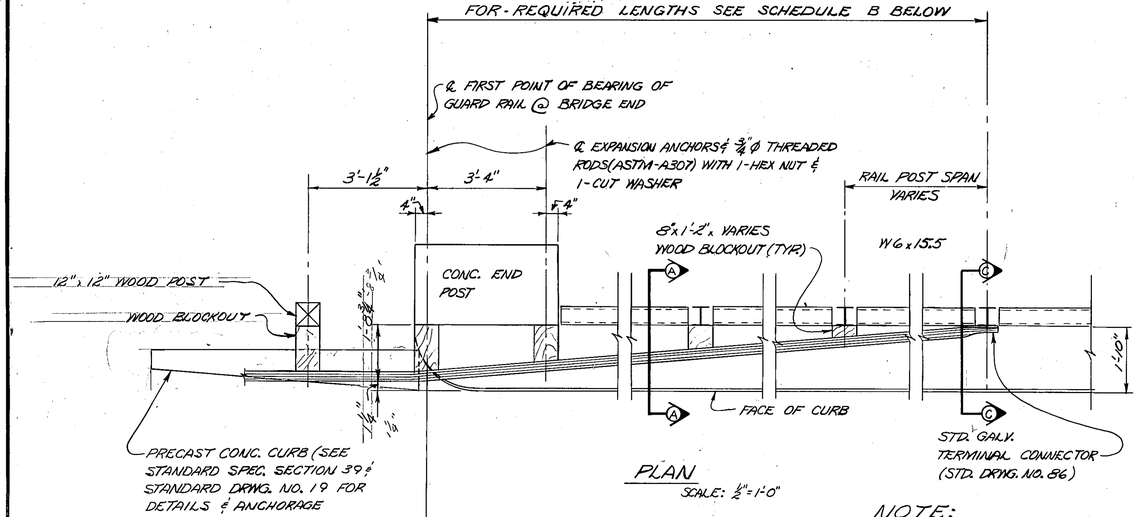
BENT NO. 12

SOUTHBOUND STRUCTURE

Scale - ¼" = 1'-0" Except As Noted

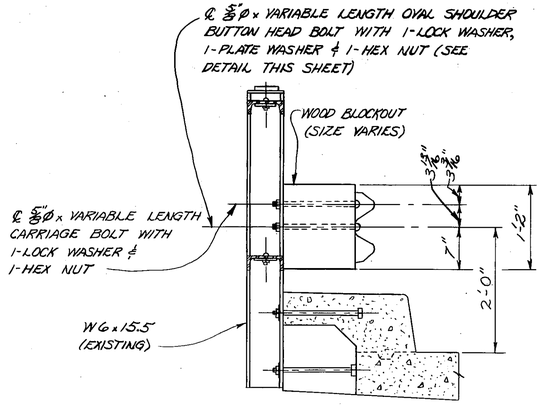
DRAWING NO. 4601

STATE	PROJECT NO.	SHEET NO.
MONTANA	I-15-2(38)120	B2



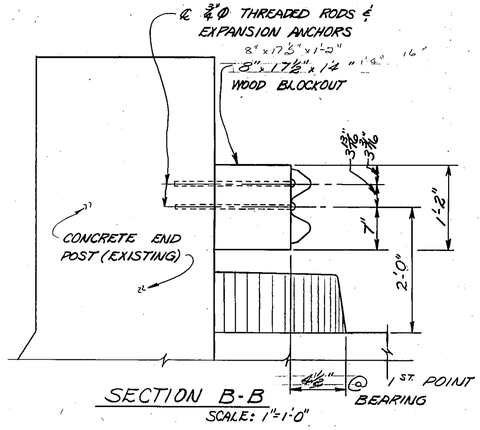
PLAN

SCALE: ½"=1'-0"



SECTION A-A

SCALE: 1"=1'-0"



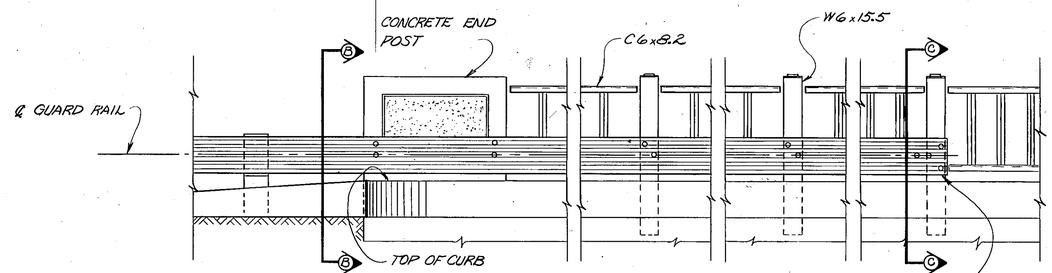
SECTION B-B

SCALE: 1"=1'-0"

NOTE:

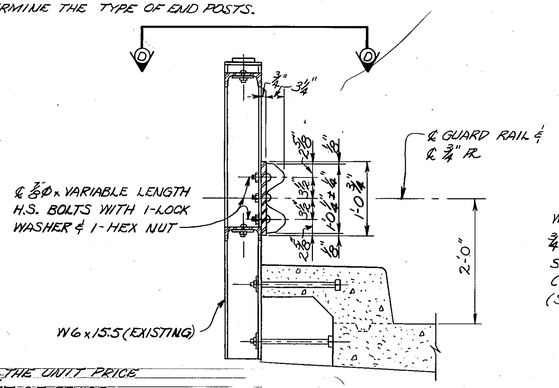
ALL SBR-T3 BRIDGE RAILS DO NOT HAVE CONCRETE END POSTS. AT ALL SUCH LOCATIONS, THE 1ST POINTS OF BEARING SHALL BE THE FIRST & LAST WIDE FLANGE BRIDGE RAIL POSTS. SEE BRIDGE GENERAL LAYOUT DRAWINGS TO DETERMINE THE TYPE OF END POSTS.

TYPE 3 BR. APPROACH SECTION MODIFIED (SEE ROAD PLANS FOR REQ'D LOCATIONS)
(Warp up to match bridge rail)



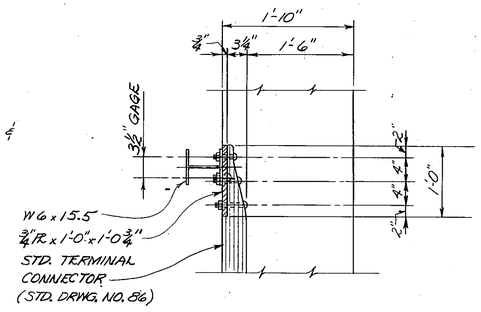
ELEVATION

SCALE: ½"=1'-0"



SECTION C-C

SCALE: 1"=1'-0"

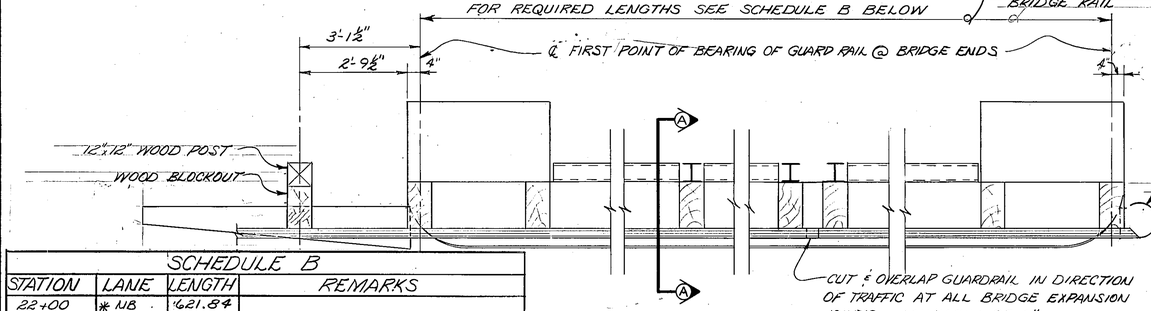


SECTION D-D

SCALE: 1"=1'-0"

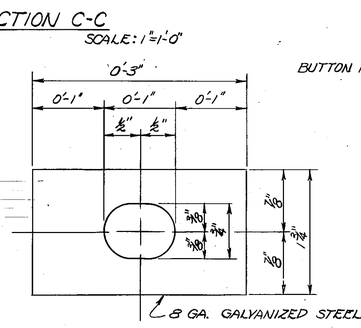
TO BE INCLUDED IN THE UNIT PRICE BID FOR LINEAR FEET OF REVISE BRIDGE RAIL

FOR REQUIRED LENGTHS SEE SCHEDULE B BELOW



PLAN

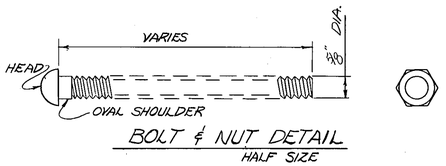
SCALE: ½"=1'-0"



NOTE: PLATE WASHER TO BE PLACED BETWEEN RAIL AND HEAD OF POST BOLT.

PLATE WASHER DETAIL

FULL SIZE



BOLT & NUT DETAIL

HALF SIZE

SCHEDULE B

STATION	LANE	LENGTH	REMARKS
22+00	* NB	1621.84	
22+00	* SB	1606.84	
401+49.5	* NB & SB	138.76	
519+81.0	* NB & SB	167.16	MONTANA ST. INTCH.
605+15.44	SB-LT	209.73	HARRISON AVE. INTCH
605+15.44	SB-RT	211.06	↓ ↓
605+15.44	NB-LT	209.95	
605+15.44	NB-RT	211.0	HARRISON AVE. INTCH

* BLOCK OUT RAILING ON BOTH SIDES OF EACH BRIDGE AS SHOWN ON THESE DETAILS FOR THE ENTIRE LENGTH OF THE BRIDGE

NOTE:

ALL EXPOSED METAL PARTS TO BE PAINTED WITH ONE COAT OF RED OXIDE AND TWO COATS OF ALUMINUM PAINT.

for General Layouts
* Refer to Dwg. No. 4895 - Sta. 605+51.03
* Refer to Dwg. No. 4590, 4596 - Sta. 21+44.81
* Refer to Dwg. No. 4999 - Sta. 519+81.10
* Refer to Dwg. No. 4884 - Sta. 605+15.44
* Refer to Dwg. No. 3502, 3503 - 401+65.0

STATE OF MONTANA

DEPARTMENT OF HIGHWAYS

BRIDGE END RAIL REVISIONS

BRIDGE RAIL ATTACHMENT DETAILS FOR SBR-T3 RAIL

SCALE & AS NOTED

DRAWING NO. 11582

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B1

MONTANA

DEPARTMENT OF TRANSPORTATION

BRIDGE REHABILITATION PLANS & QUANTITIES

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2 P.E. AND CONST.

DISTRICT 2 BRIDGE REHABILITATION

DEER LODGE, SILVER BOW, JEFFERSON, GALLATIN AND PARK COUNTIES

SUMMARY OF BRIDGE REHABILITATION *(REFER TO PARENTHESIS FOR DETAIL AT SPECIFIC LOCATION)*

	ROUTE	MILE POST	ROADWAY	GENERAL LAYOUT DRAWING NO.	SLIDING PLATE JOINT: REPLACE EXISTING JOINT AT BENT NO.	SLIDING PLATE JOINT: REMOVE EXISTING JOINT AT BENT NO.	REPLACE EXISTING NEOPRENE EXP. JT. OR EXP. JT. FILLER AT BENT NO.	REMOVE COMP. SEAL, RUBBER JOINT OR ARMORED JOINT AT BENT NO.	RESEAL EXISTING SLAB JOINTS AT BENT NO.	≠≠ REPAIR GUARD ANGLES AT BENT NO.	REVISE BRIDGE RAIL	NEW BRIDGE APPROACH RAIL ○ END POST MODIFICATION REQUIRED	PATCH DECK	OVERLAY DECK
* Section 1	I 90	195+0.713	E.B.	11094			1,4(A)							YES(A)
			W.B.	11094			1,4(A)							YES(A)
	I 90	210+0.803	E.B.	6276			3(B)			6(L)		○ YES(P)		
			W.B.	6276			3(B)			1(L)		○ YES(P)		
	I 90	216+0.672	E.B.	7838				2,3(H)		*1,4(L)*	YES(Q)	○ YES(Q)		
			W.B.	7838				2,3(H)		*1*, 4(L)	YES(Q)	○ YES(Q)		
	I 90	243+0.322	E.B.	7074			2,5(C)		3,TG,6(K)					
			W.B.	7073	2(C)				3,TG,6(K)					
** Section 2	I 90	292+0.425	E.B.	6846						*1,5(M)		○ YES(P)		
			W.B.	6845						*1,5(M)		○ YES(P)		
	I 90	293+0.213	E.B.	6887						*1,4(M)		○ YES(P)		
			W.B.	6887						*1,4(M)		○ YES(P)		
	I 90	314+0.083	E.B.	5106			3(D)		2,6(K(a)),TG(K)			○ YES(P)		
			W.B.	5105					2,6(K(a)),TG(K)			○ YES(P)		
	I 90	316+0.767	E.B.	5119			*3(E) ~~4-3~~*	2(I)				○ YES(P)		
			W.B.	5119				2(I)				○ YES(P)		
	I 90	321+0.895	E.B.	11419					2,3(K)			○ YES(O)		
			W.B.	11419					2,3(K)			○ YES(O)		
	I 90	330+0.991	E.B.	4959		3(J)		2(J)				○ YES(P)		
			W.B.	4959		3(J)		2(J)				○ YES(P)		
** Section 1	I 15	120+0.697	N.B.	4576			8,10(E)		3,5,6(K)			YES	YES(N)	
			S.B.	4590			4(D) 8,10(E)		3,5,6(K)			YES	YES(N)	
	I 15	124+0.690	N.B.	5336			2(E)			* 6(M)		○ YES(P)		
	I 15	124+0.826	S.B.	5346			2(E)					○ YES(P)		
	I 15	124+0.870	N.B.	5356			2(E),6(D)					○ YES(P)	YES(N)	
	I 15	125+0.084	S.B.	5374			2(E),6(D)			*1,9(M)		○ YES(P)	YES(N)	
	I 15	125+0.883	N.B.	5960			4(G),6(F) 7(D)		NEAR 5(K)			○ YES(P)		
			S.B.	5959			4(G),6(F) 7(D)		NEAR 5(K)			○ YES(P)		
	I 15	126+0.316	N.B.	4999			2(D)					YES		
			S.B.	4999			2(D)					YES		
	I 15	129+0.807		5922							YES(R)	YES(R)		

* *Add new compression seal and guard angle on approach slabs.*

≠ *Portions of this joint are currently damaged or missing. The Contractor shall replace damaged and missing portions of the joint with similar joints removed from elsewhere on this project. Installation shall be similar to existing attachments and shall be approved by the Engineer. All costs associated with this item shall be included with other items.*

≠≠ *Guard angles not included in other repairs.*

** *See Special Provision "Limitation of Operation".*

NOTE: *"TG" denotes Transverse Girder.*

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15158	B23	DETAIL O AND P
15159	B24	DETAIL Q
15160 AND 15161	B25 AND B26	DETAIL R
	B27 THRU B49	EXISTING GENERAL LAYOUTS

DESIGNED		
DRAWN	5-13-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

DRAWING NO. 15136

[60, 5] 137 NUTWO1. BRG

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B2

ESTIMATED BRIDGE PLAN QUANTITIES (BASE BID)

LOCATION				REVISE BRIDGE RAIL - THRIE BEAM (LIN. FT.)	CLASS "A" BRIDGE DECK REPAIR (SQUARE YARDS)	CLASS "B" BRIDGE DECK REPAIR (SQUARE YARDS)	RESEAL EXISTING JOINTS (LIN. FT.)	JOINT SEAL - POLYMER FOAM (LIN. FT.)	REINFORCING STEEL REGULAR (LBS.)	BRIDGE DECK TREATMENT (SQ. YARDS) SILANE	BRIDGE DECK OVERLAY (SQ. YARDS)	IMPACT ATTENUATORS (EACH)	TEMPORARY CONC. MEDIAN RAIL (LIN. FT.)
ROUTE	MILE POST	ROADWAY											
I 90	195+0.713	E.B.			*42.671*	~~19.3~~ *19.311*			1,391		~~1,781.6~~ *1782.0*		
		W.B.			*117.775*	~~19.3~~ *19.311*			1,391		~~1,783.3~~ *1782.0*		
I 90	210+0.803	E.B.				~~24.3~~ *24.312*			634	~~896.6~~ *992.2*			
		W.B.				~~24.3~~ *24.312*			634	~~896.6~~ *992.2*			
I 90	216+0.672	E.B.		~~318.4~~ *320.0*	40.0				1,603	~~654.4~~ *693.0*			
		W.B.		~~318.4~~ *320.0*	46.0				1,905	~~760.5~~ *730.1*			
I 90	243+0.322	E.B.				~~28.1~~ *31.796*	143.3		2,124	~~982.9~~ *983.1*			
		W.B.				~~14.1~~ *15.898*	143.3		1,062	~~982.9~~ *983.1*			
I 90	292+0.425	E.B.							261	~~851.8~~ *803.6*			
		W.B.							261	~~851.8~~ *803.6*			
I 90	293+0.213	E.B.							231	~~472.5~~ *405.3*			
		W.B.							231	~~472.5~~ *405.3*			
I 90	314+0.083	E.B.				~~14.1~~ *14.639*	67.4	67.4	1,081	~~1,053.6~~ *0.0*			
		W.B.					67.4	67.4		~~1,022.5~~ *0.0*			
I 90	316+0.767	E.B.			~~17.5~~ *18.250*	*17.236*			~~680~~ *1270*	~~473.6~~ *0.0*			
		W.B.			~~17.1~~ *18.250*				665	~~473.6~~ *298.7*			
I 90	321+0.895	E.B.					92.4			~~618.7~~ *557.3*			
		W.B.					92.4			~~826.2~~ *747.3*			
I 90	330+0.991	E.B.			~~41.0~~ *43.000*				1,333	~~482.0~~ *0.0*			
		W.B.			~~41.0~~ *43.000*				1,333	~~482.0~~ *0.0*			
I 15	120+0.697	N.B.			~~11.4~~ *17.892*	~~20.1~~ *23.311*	100.0		1,900	~~1,912.6~~ *0.0*			
		S.B.			~~42.0~~ *47.107*	42.3	100.0		3,038	~~1,865.9~~ *0.0*			
I 15	124+0.690	N.B.				~~14.1~~ *15.361*			484	~~940.4~~ *980.0*			
I 15	124+0.826	S.B.				~~14.1~~ *16.000*			374	~~1,002.9~~ *1381.4*			
I 15	124+0.870	N.B.			~~41.7~~ *49.444*	~~28.1~~ *28.200*			2,081	~~1,378.7~~ *930.2*			
I 15	125+0.084	S.B.			~~8.3~~ *80.111*	~~28.1~~ *28.200*			2,268	~~1,523.4~~ *1398.2*			
I 15	125+0.883	N.B.				~~42.2~~ *42.222*	33.7		3,412	~~1,411.4~~ *1468.4*			
		S.B.				~~42.2~~ *42.222*	33.7		3,412	~~1,473.6~~ *1363.5*			
I 15	126+0.316	N.B.				~~14.1~~ *16.074*			1,080	~~526.3~~ *450.6*			
		S.B.				~~14.1~~ *16.074*			1,080	~~526.3~~ *497.6*			
I 15	129+0.807			~~533.4~~ *0.0*						~~831.2~~ *642.9*			
TOTAL				1,~~170.2~~ *640.0*	~~306.0~~ *563.500*	~~410.9~~ *441.780*	873.6	134.8	~~35,949.0~~ *36539.0*	26,~~647.4~~ *18507.6*	~~3,564.9~~ *3564.0*	6	4,000

(ALT.A-1)		(ALT.A-2)	
EXP. JT. (LIN. FT.)	STRUCTURAL STEEL (LUMP SUM)	NEOPRENE JT. SEAL (LIN. FT.)	STRUCTURAL STEEL (LUMP SUM)
105.2	.0948	105.2	.1022
105.2	.0944	105.2	.1016
49.0	.0437	49.0	.0466
49.0	.0437	49.0	.0466
	.0992		
	~~.0427~~ .0854		
67.4		67.4	.0396
33.7		33.7	.0198
	.1377		.0490
	.1377		.0490
	.1221		.0435
	.1221		.0435
33.7		33.7	.0198
36.0			
66.7		66.7	.0396
100.0		100.0	.0594
36.6	.0570	36.6	.0422
38.0		38.0	.0230
67.4		67.4	.0396
67.4	.1041	67.4	.0766
101.0		101.0	.0594
101.0		101.0	.0594
33.7		33.7	.0198
33.7		33.7	.0198
~~1,088.7~~	~~1.0~~	1,088.7	1.0
1124.70	*1.1419*		

NOTES

"BD MODIFIED" CONCRETE : Article 551.06(c)(1) of the Standard Specifications for Road & Bridge construction shall not apply to guardrail and joint work. Concrete not meeting the strength required of "BD Modified" concrete (3500 p.s.i. @ 28 days) shall be subject to rejection. For requirements of "BD Modified" concrete see "Standard Specifications".

All concrete ~~shown as Class~~ "BD Modified" may be replaced with an approved High Strength Polymeric ~~Concrete to shorten cure time~~ requirements for Traffic Control. (See Standard Specifications and "Special Provisions".)

All necessary precautions shall be taken to assure that concrete is well compacted under the guard angles and joint extrusions. The guard angles and extrusions shall be accurately and firmly held in place while concrete is placed. The method of holding the joint assemblies shall be strong enough to withstand contact with concrete vibrators.

TRAFFIC CONTROL AND SEQUENCE OF OPERATION : See "Special Provisions".

REINFORCING STEEL: All new reinforcing steel shall be of the deformed type and shall meet the requirements of ASTM Specification A615, Grade 60 (AASHTO M-31). The cost of cleaning all exposed reinforcing steel as well as the furnishing and the placing of new reinforcing steel shall be included in the unit price bid for Reinforcing Steel.

SPECIFICATIONS : Montana Department of Highways and the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1987 edition, and any amendments thereto, and special provisions shall govern unless otherwise noted. Design prepared in accordance with A. A. S. H. T. O. specifications, 1989 edition and any amendments thereto.

STRUCTURAL STEEL : All structural steel shall be measured and paid for on the lump sum basis as set forth in the Standard Specifications and shall conform to ASTM A36.
Estimated Weight = 7,582 pounds (Alt. A-1)
21,309 pounds (Alt. A-2)

DIMENSIONS : The contractor shall verify all necessary dimensions of the existing structures in the field before ordering material. Shop plans shall be approved by the State of Montana, Department of Transportation before fabrication is begun. In the event that the dimensions and details of the existing structure are not as shown on the plans the contractor shall vary the construction as necessary to best suit existing conditions and the nature of the intended work.

OVERLAY TREATMENT : See "Special Provisions".

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

DEER LODGE, SILVER BOW, JEFFERSON, GALLATIN AND PARK COUNTIES

ESTIMATED BRIDGE PLAN QUANTITIES AND NOTES

DRAWING NO. 15137

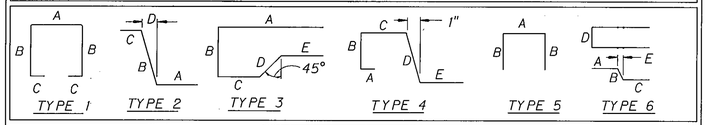
DESIGNED		
DRAWN	5-13-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

[60,5] 137 IU22.BRG

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B3

16-DEC-1991 15:11 BRAUN MONTANA CADD E:\STRUCTDGN\53.10.STRUCTS_DTL\ 1

BILL OF REINFORCING STEEL



STRAIGHT BARS				BENT BARS (All dimensions are out to out.)									
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D	E
M. P. 195+0.713 (Both Structures)													
BW1	#5	24	25'-2"	C1	#4	16	1	3'-4"	1'-0"	0'-9"	0'-5"		
				C2	4	16	2	2-6	1-0	1-0	0-6	0'-1"	
C3	4	16	1-6										
C4	4	16	1-0	S1	4	174	3	4-0	1-9	0-5½	0-5	0-3	1-1½
D1	6	40	26-7										
M. P. 210+0.803 (Both Structures)													
C5	4	40	1-9	C6	4	24	4	5-4	0-8	0-9	1-3½	1-4	1-3½
S2	4	324	1-9										
D2	6	8	46-8										
S300	4	4	22-5										
S301	6	4	22-8										
M. P. 216+0.672 (Eastbound Structure only)													
S100	5	14	39-4										
S200	5	24	4-3										
S201	5	80	3-0										
S110	5	16	7-8										
C200	5	16	4-3										
D100	6	8	39-4										
M. P. 216+0.672 (Westbound Structure only)													
S101	5	28	23-8										
S110	5	16	7-8										
S200	5	20	4-3										
S201	5	80	3-0										
C200	5	16	4-3										
S302	4	2	22-2										
S303	6	2	22-6										
D101	6	16	24-1										
M. P. 243+0.322 (Both Structures)													
C5	4	60	1-9	C7	4	36	4	5-8	0-8	0-9	1-7½	1-4	1-3½
S2	4	195	1-9	S1	4	78	3	4-0	1-9	0-5½	0-5	0-3	1-1½
S3	5	54	30-6										
D3	6	18	30-6										
M. P. 292+0.425 (Both Structures)													
S304	4	8	21-8										
S305	6	8	21-10										
AS1	4	8	26-9										

STRAIGHT BARS				BENT BARS (All dimensions are out to out.)									
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D	E
M. P. 293+0.213 (Both Structures)													
S306	#4	8	19-2										
S307	6	8	19-4										
AS2	4	8	23-9										
M. P. 314+0.083 (Eastbound Structure only)													
C5	4	16	1-9	C8	4	8	2	4-3	1-3½	1-4	1-7½	0-1	
C9	4	8	1-4	C10	4	4	5	5-6	0-10	2-4			
				C11	6	4	6	9-9	1-7½	1-4	1-6	0-10	0-1
S2	4	38	1-9										
S5	5	19	29-4	S1	4	26	3	4-0	1-9	0-5½	0-5	0-3	1-1½
D4	6	6	29-4										
M. P. 316+0.767 (Eastbound Structure only)													
S102	5	7	34-9										
S110	5	8	7-8										
S200	5	8	4-3										
S201	5	32	3-0										
C200	5	4	4-3										
D104	6	4	34-9										
M. P. 316+0.767 (Westbound Structure only)													
S103	5	7	33-8										
S110	5	8	7-8										
S200	5	8	4-3										
S201	5	32	3-0										
C200	5	4	4-3										
D105	6	4	33-8										
M. P. 330+0.991 (Both Structures)													
S104	5	56	20-9										
S110	5	32	7-8										
S200	5	32	4-3										
S201	5	120	3-0										
C200	5	40	4-3										
D102	6	16	20-11										
M. P. 120+0.697 (Southbound Structure Only)													
C5	4	48	1-9	C10	4	8	5	5-6	0-10	2-4			
C14	4	16	1-2	C12	4	28	2	4-0	1-3½	1-2½	1-6	0-1½	
				C13	6	8	6	9-3	1-6	1-2½	1-6	0-10	0-1½
S2	4	225	1-9										
S5	5	59	29-4	S1	4	26	3	4-0	1-9	0-5½	0-5	0-3	1-1½
D4	6	14	29-4										
M. P. 120+0.697 (Northbound Structure Only)													
C5	4	16	1-9	C10	4	2	5	5-6	0-10	2-4			
				C12	4	20	2	4-0	1-3½	1-2½	1-6	0-1½	
C14	4	8	1-2	C13	#6	2	6	9'-3"	1'-6"	1'-2½"	1'-6"	0'-10"	0'-1½"
S2	4	180	1-9										
S5	5	40	29-4										
D4	6	8	29-4										

STRAIGHT BARS				BENT BARS (All dimensions are out to out.)									
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D	E
M. P. 124+0.690													
C5	#4	16	1'-9"	C8	#4	11	2	4'-3"	1'-3½"	1'-4"	1'-7½"	0'-1"	
C9	4	2	1-4	C10	4	1	5	5-6	0-10	2-4			
				C11	6	1	6	9-9	1-7½	1-4	1-6	0-10	0'-1"
D5	6	4	32-0										
S2	4	100	1-9										
S308	4	2	16-0										
S309	6	2	16-2										
AS3	4	2	26-3										
M. P. 124+0.826													
C5	4	16	1-9	C8	4	12	2	4-3	1-3½	1-4	1-7½	0-1	
S2	4	100	1-9										
D5	6	4	34-0										
M. P. 124+0.870													
C5	4	32	1-9	C8	4	18	2	4-3	1-3½	1-4	1-7½	0-1	
C9	4	12	1-4	C10	4	6	5	5-6	0-10	2-4			
				C11	6	6	6	9-9	1-7½	1-4	1-6	0-10	0-1
S2	4	144	1-9										
S5	5	39	29-4	S1	4	26	3	4-0	1-9	0-5½	0-5	0-3	1-1½
D4	6	10	29-4										
M. P. 125+0.084													
C5	4	32	1-9	C8	4	18	2	4-3	1-3½	1-4	1-7½	0-1	
C9	4	12	1-4	C10	4	6	5	5-6	0-10	2-4			
				C11	6	6	6	9-9	1-7½	1-4	1-6	0-10	0-1
D4	6	10	29-4										
				S1	4	26	3	4-0	1-9	0-5½	0-5	0-3	1-1½
S2	4	141	1-9										
S5	5	39	29-4										
S310	4	4	14-8										
S311	6	4	14-9										
AS4	4	4	23-9										
M. P. 125+0.883 (Both Structures)													
C5	4	96	1-9	C8	4	48	2	4-3	1-3½	1-4	1-7½	0-1	
C9	4	48	1-4	C10	4	24	5	5-6	0-10	2-4			
				C11	6	24	6	9-9	1-7½	1-4	1-6	0-10	0-1
S2	4	80	1-9										
S5	5	110	29-4	S1	4	260	3	4-0	1-9	0-5½	0-5	0-3	1-1½
D4	6	44	29-4										
M. P. 126+0.316 (Both Structures)													
C5	4	32	1-9	C8	4	16	2	4-3	1-3½	1-4	1-7½	0-1	
C9	4	16	1-4	C10	4	8	5	5-6	0-10	2-4			
S2	4	76	1-9	C11	6	8	6	9-6	1-6	1-4	1-6	0-10	0-1
S5	5	38	29-4										
				S1	4	52	3	4-0	1-9	0-5½	0-5	0-3	1-1½
D4	#6	12	29'-4"										

MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

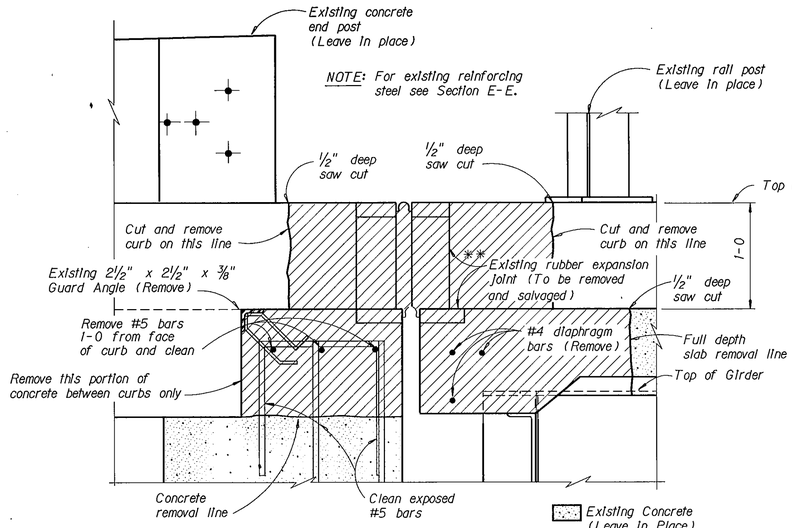
DEER LODGE, SILVER BOW, JEFFERSON GALLATIN AND PARK COUNTIES

BILL OF REINFORCING STEEL

DESIGNED		
DRAWN	5-13-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

DRAWING NO. 15138

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B4

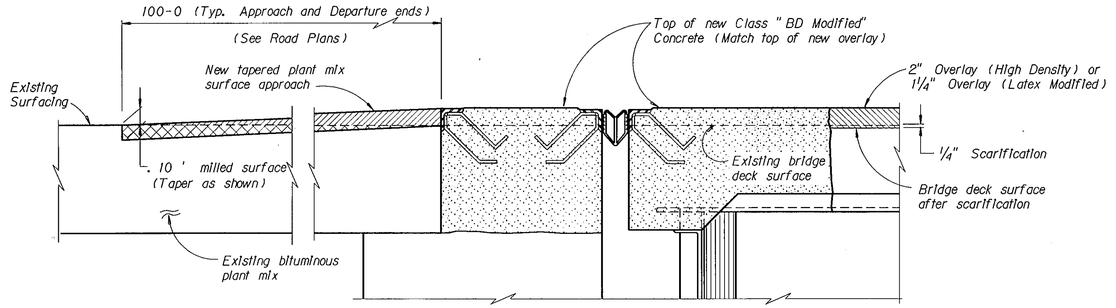


SECTION D-D

NOTE: Remove all full length reinforcing steel. Clean all exposed vertical reinforcing steel in the backwall and all exposed transverse slab bars. Cut existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. Interior bays of slab.)

NOTE: Longitudinal slab steel on the outside of the exterior girders shall not be cut but shall be cleaned prior to placing new concrete.

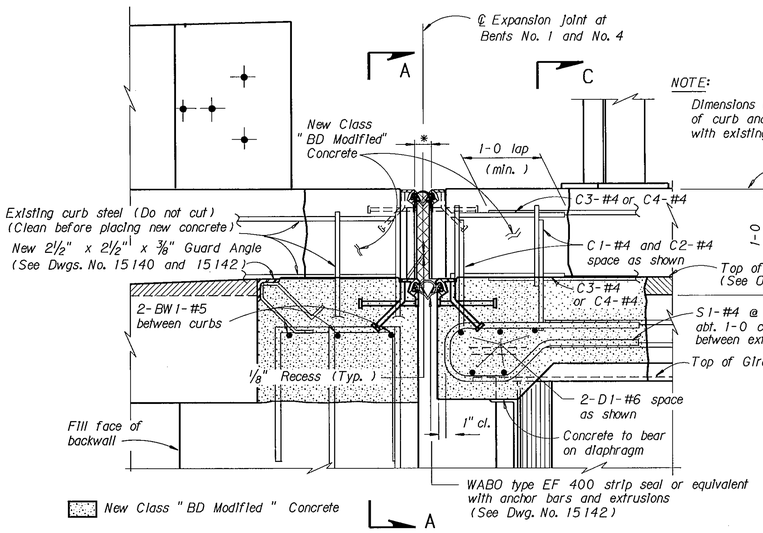
** NOTE: Exact method of anchoring existing joint system is not known. Remove all necessary hardware and assesories as needed to remove concrete as shown on this sheet.



PLANT MIX SURFACING AND APPROACH TREATMENT

Scale ~ 1 1/2" = 1-0

NOTE: The Contractor may remove and replace sections of P. M. S. which are called out as scarify and overlay in this detail. Payment for Plant Mix Surfacing is included in the Surfacing Summary. (See Road Plans)



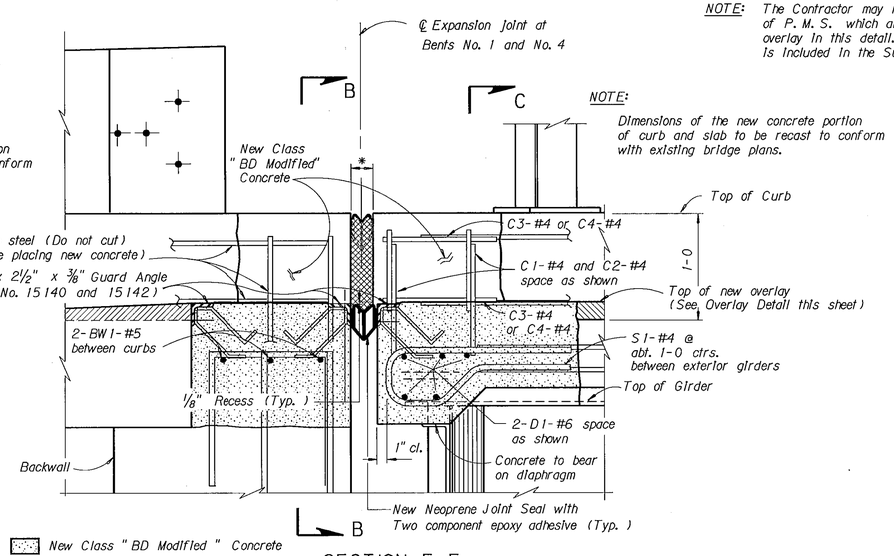
SECTION E-E

NEW EXPANSION JOINT DETAIL

(ALTERNATE A-1)

NOTE: The cost of furnishing and installing new expansion joint including metal extrusion, strip seal and anchor bars to be included in the unit price bid for Expansion Joint.

NOTE: For requirements of Expansion Joint see "Special Provisions".



SECTION F-F

NEW NEOPRENE JOINT SEAL DETAIL

(ALTERNATE A-2)

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seal. Neoprene joint seals shall be recessed 1/8" below guard angles.

NOTE: Cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

* NOTE: Dimension depends on manufacturer' s recommendations. (1" min. @ 105° F).

NOTE: Temperature range: -45° F to 105° F with mean temperature of 30° F.

NOTE: The joint used must be capable of providing for a total minimum allowable movement for both structures as follows: 1 1/2" - Bent No. 1
3 1/8" - Bent No. 4

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing with new Class "BD Modified" Concrete to be included in the unit price bid for Class "B" Deck Repair.

NOTE: The cost of furnishing and placing new reinforcing steel shall be included in the unit price bid for Reinforcing Steel.

NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of ther new joint opening prior to placing new concrete. (Except as noted.)

NOTE: The cost of removing and replacing guard angle, anchor bars and concrete in the backwall shall be included in the unit price bid for Structural Steel.

NOTE: For Sections A-A, B-B and C-C see Dwg. No. 15140.

NOTE: For additional details see Dwg. No. 15140.

NOTE: For Bill of Reinforcing Steel see Dwg. No. 15138.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

DEER LODGE COUNTY

EXPANSION JOINT REPAIR DETAILS BENTS NO. 1 AND NO. 4 AND OVERLAY AT M. P. 195+0.713 DETAIL "A"

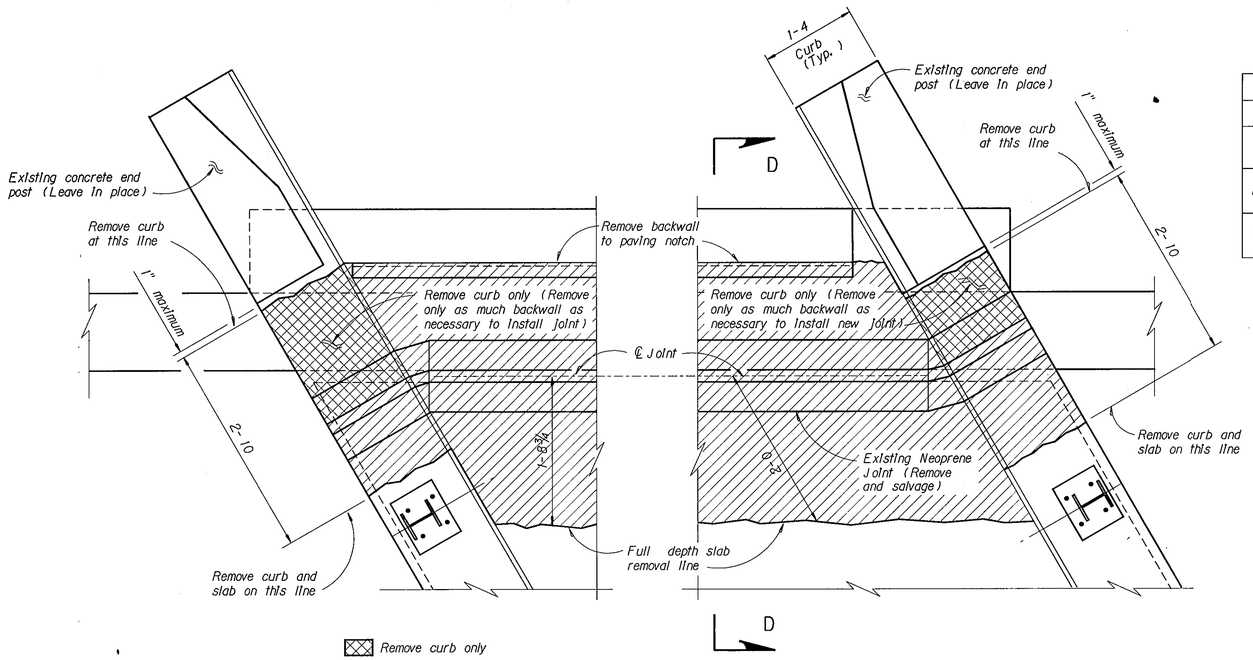
Scale ~ 1 1/2" = 1-0

DRAWING NO. 15139

DESIGNED	5-15-91	L. R. T.
DRAWN	5-15-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

MONTANA CADD 10-DEC-1991 11:51 BRUCE 2ZCAD1\5000\51\15140A_B80.1

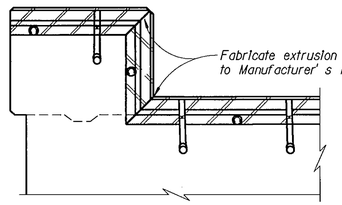
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B5



PLAN VIEW OF EXISTING JOINT

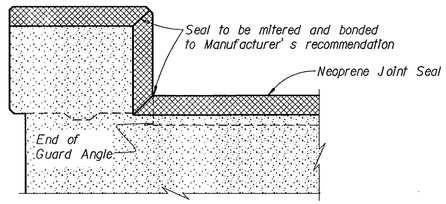
Scale ~ 1" = 1-0

TABLE OF GUARD ANGLE LENGTHS							
		@ PAVING NOTCH			@ JOINT		
		Length	Qty.	Anchor Bars per Angle	Length	Qty.	Anchor Bars per Angle
E. B.	Bent No. 1	48-3	1	48	48-10	2	49
	Bent No. 4	47-3	1	47	47-11	2	48
W. B.	Bent No. 1	47-8	1	48	48-3	2	48
	Bent No. 4	47-3	1	47	47-11	2	48



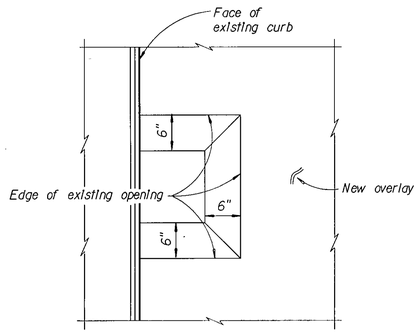
SECTION A-A

Scale ~ 1½" = 1-0

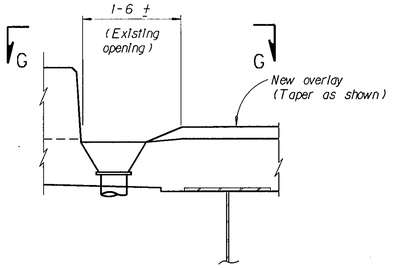


SECTION B-B

Scale ~ 1½" = 1-0

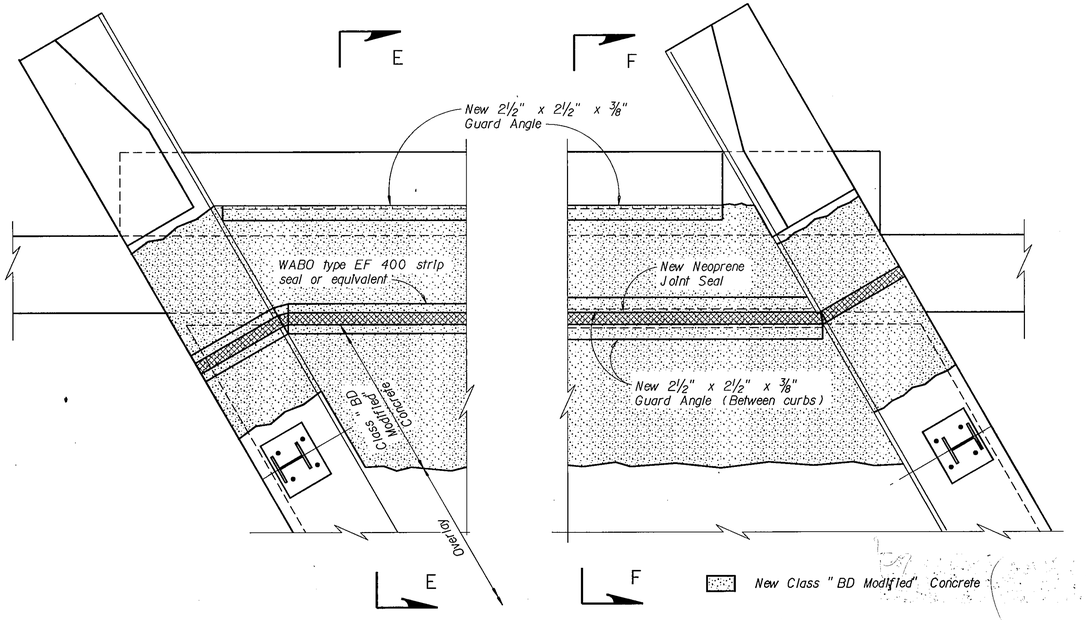


VIEW G-G



OVERLAY AT EXISTING DRAIN LOCATIONS

Scale ~ 1" = 1-0



PLAN VIEW OF NEW JOINT

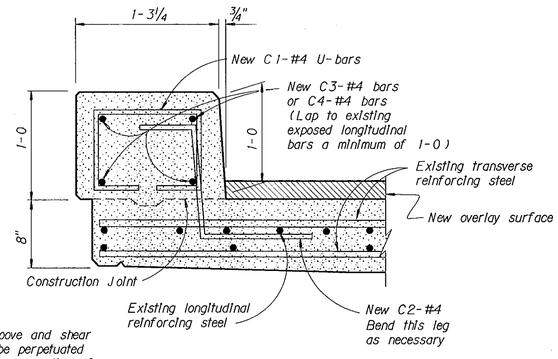
(ALTERNATE A-1)

Scale ~ 1" = 1-0

PLAN VIEW OF NEW JOINT

(ALTERNATE A-2)

Scale ~ 1" = 1-0



NOTE: Drip groove and shear key to be perpetuated through new section of slab.

SECTION C-C

Scale ~ 1½" = 1-0

NOTE: For Sections D-D, E-E and F-F See Dwg. No. 15139.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

DEER LODGE COUNTY

EXPANSION JOINT REPAIR DETAILS BENTS NO. 1 AND NO. 4 AND OVERLAY AT M.P. 195+0.713

DETAIL "A"

Scale as Noted

DRAWING NO. 15140

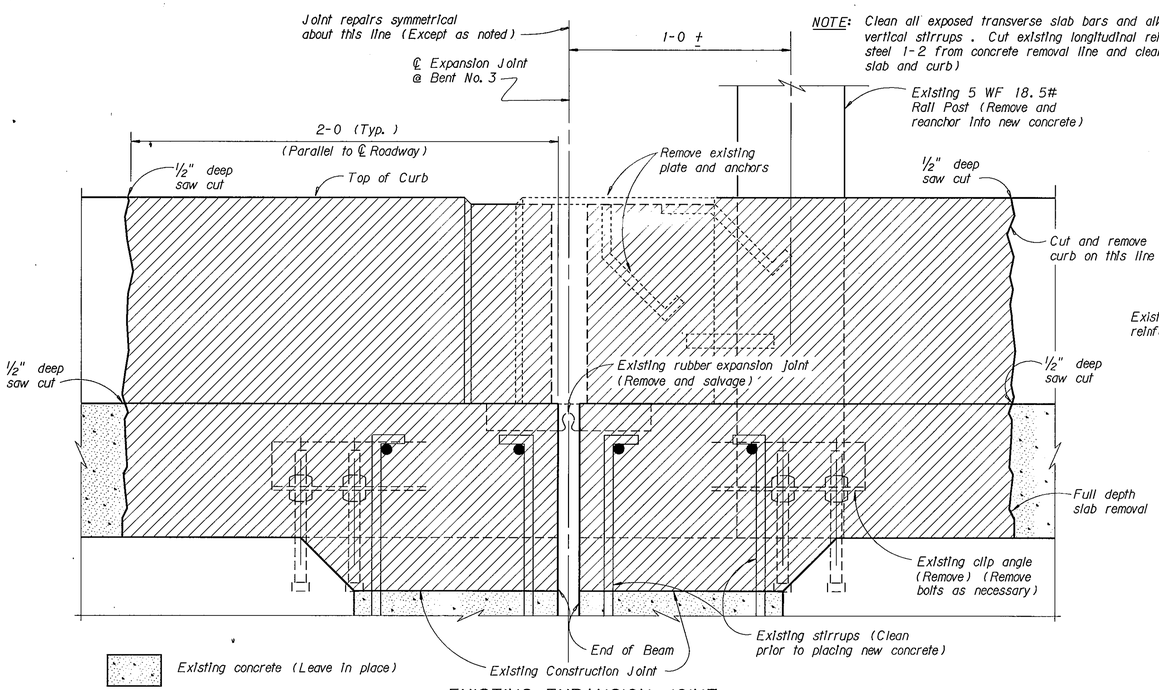
DESIGNED	5-15-91	L.R.T.
DRAWN	5-15-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

MONT-WA CADD
18-DEC-1991 09:11:42
Z:\2600\05\1ST_INTMDL_BRG_I

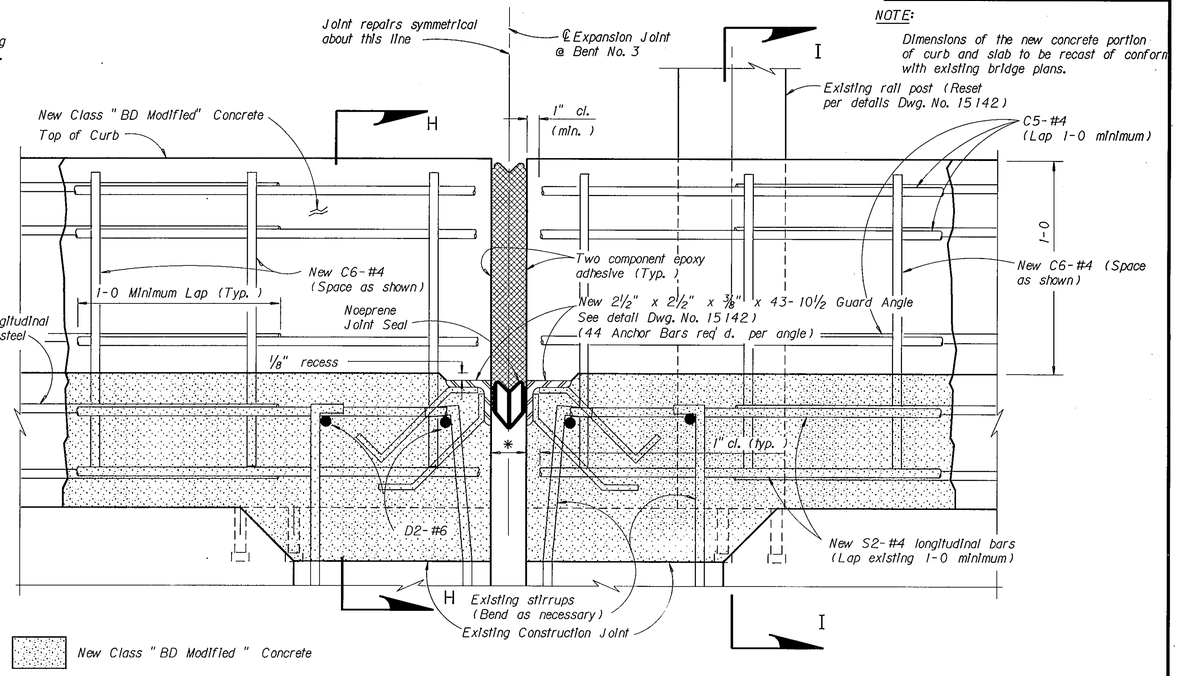
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B6

NOTE: These structures are skewed 30° with curb joints perpendicular to curb.

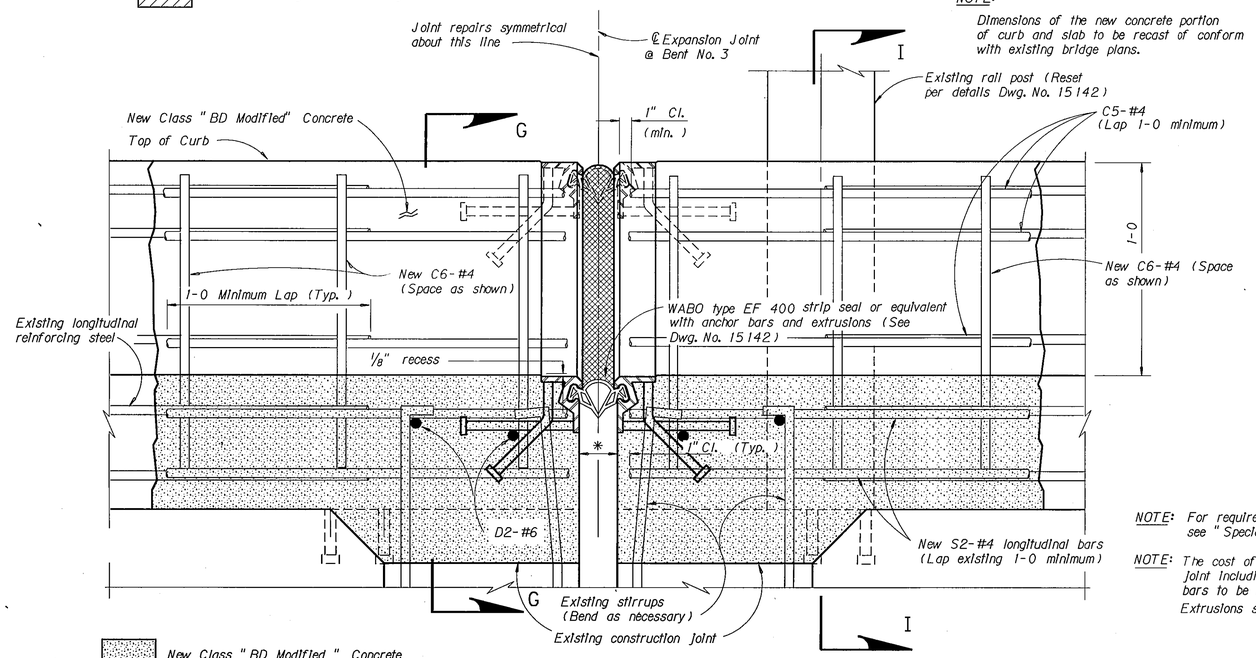
NOTE: Clean all exposed transverse slab bars and all vertical stirrups . Cut existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. slab and curb)



EXISTING EXPANSION JOINT



NOTE: Dimensions of the new concrete portion of curb and slab to be recast of conform with existing bridge plans.



NEW EXPANSION JOINT DETAIL
(ALTERNATE A-1)

NEW NEOPRENE JOINT SEAL DETAIL
(ALTERNATE A-2)

NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of new joint opening prior to placing new concrete.

NOTE: For Bill of Reinforcing Steel see Dwg. No. 15138.

*NOTE: Dimension depends on manufacturer's recommendations (1" minimum @ 105°.)

NOTE: Temperature range: -45° F to 105° F with mean temperature of 30° F.

NOTE: The joint used must be capable of providing for a total minimum allowable movement of 1⅛".

NOTE: For Sections G-G, H-H and I-I see Dwg. No. 15142.

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing new Class "BD Modified" Concrete to be included in the unit price bid for Class "B" Bridge Deck Repair.

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seals.

NOTE: The cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

NOTE: For requirements of Expansion Joint see "Special Provisions".

NOTE: The cost of furnishing and installing new expansion joint including metal extrusions, strip seal and anchor bars to be included in the unit price bid for Expansion Joint. Extrusions shall be set ⅛" below adjacent surfaces.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION
FEDERAL AID PROJECT NO. IR0002(22) UNIT 2
SILVER BOW COUNTY

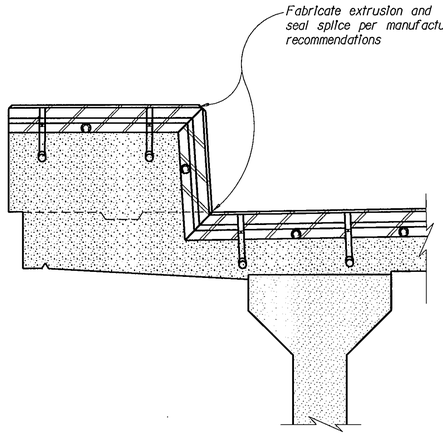
EXPANSION JOINT REPAIR DETAILS
AT MILEPOST 210+0.803
BENT NO.3 E.B. AND W.B. ROADWAYS
DETAIL "B"

DESIGNED	5-22-91	L. R. T.
DRAWN	5-22-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

Scale ~ 3" = 1-0 DRAWING NO. 15141

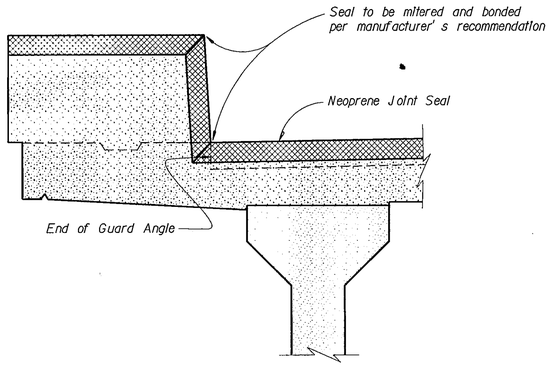
MONTANA DEPT. OF TRANSPORTATION 10-SEC-1991 12:15 PM PLOTTED BY: [illegible] FILE: C:\USERS\LIT\DWGS\B6D.T

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B7



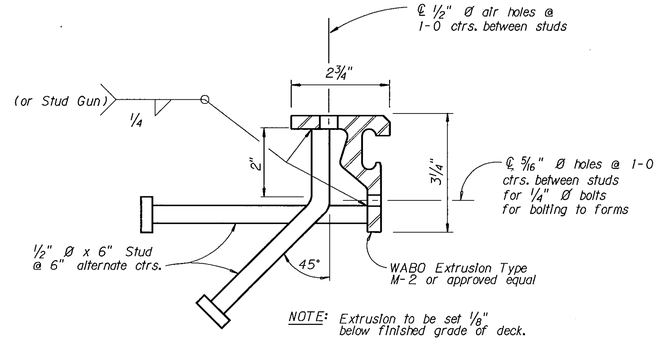
SECTION G-G

No Scale



SECTION H-H

No Scale



NOTE: Extrusion to be set ⅛" below finished grade of deck.

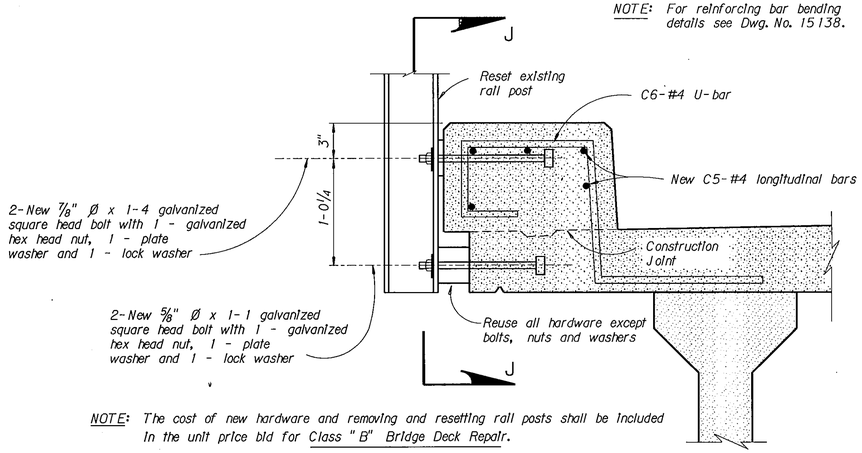
STEEL EXTRUSION AND ANCHORAGE SYSTEM

(Half Scale)

NOTE: Slab reinforcing steel removed for clarity.

NOTE: Full design concrete strength shall be achieved prior to attaching rail post to bolts.

NOTE: For reinforcing bar bending details see Dwg. No. 15138.

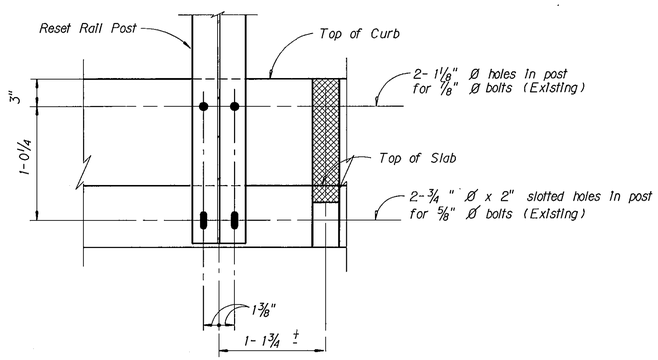


NOTE: The cost of new hardware and removing and resetting rail posts shall be included in the unit price bid for Class "B" Bridge Deck Repair.

SECTION I-I

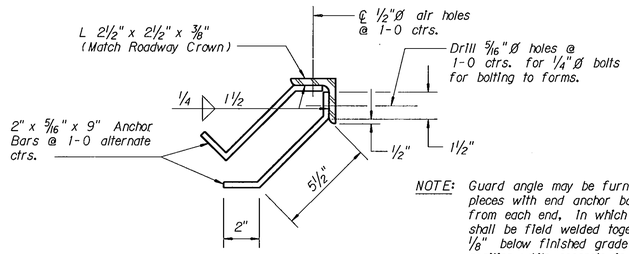
Scale ~ 1½" = 1-0

(2 locations only)



SECTION J-J

Scale ~ 1½" = 1-0



GUARD ANGLE DETAIL

Scale ~3" = 1'-0"

NOTE: Guard angle may be furnished in two pieces with end anchor bars 6" maximum from each end. In which case the angles shall be field welded together. Recess angle ⅛" below finished grade and hold in accurate position while concrete is being placed.

NOTE: Guard angle and anchor bars shall be painted in accordance with Standard Specifications.

NOTE: See specific details for guard angle lengths and number of anchor bars.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS AT MILEPOST 210+0.803 BENT NO.3 E.B. AND W.B. ROADWAYS DETAIL "B"

Scale ~ As Noted

DRAWING NO. 15142

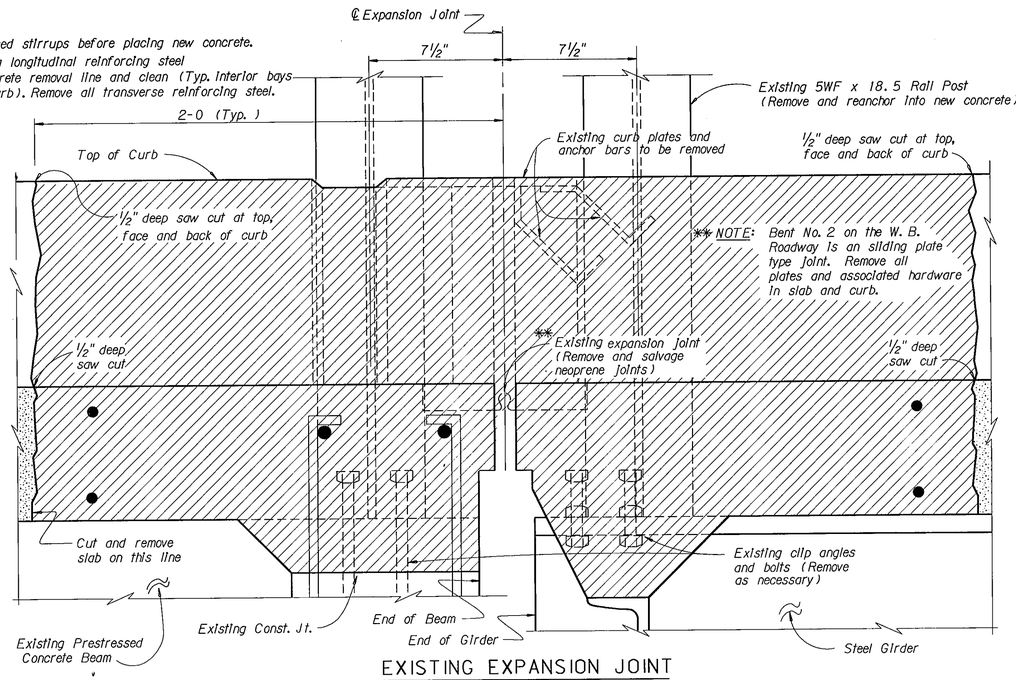
DESIGNED	5-22-91	L.R.T.
DRAWN	5-22-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

18-DEC-1991 11:55 BRUM MONTANA CADD 22:[1060035]13T-UTM05_BRG_1

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B8

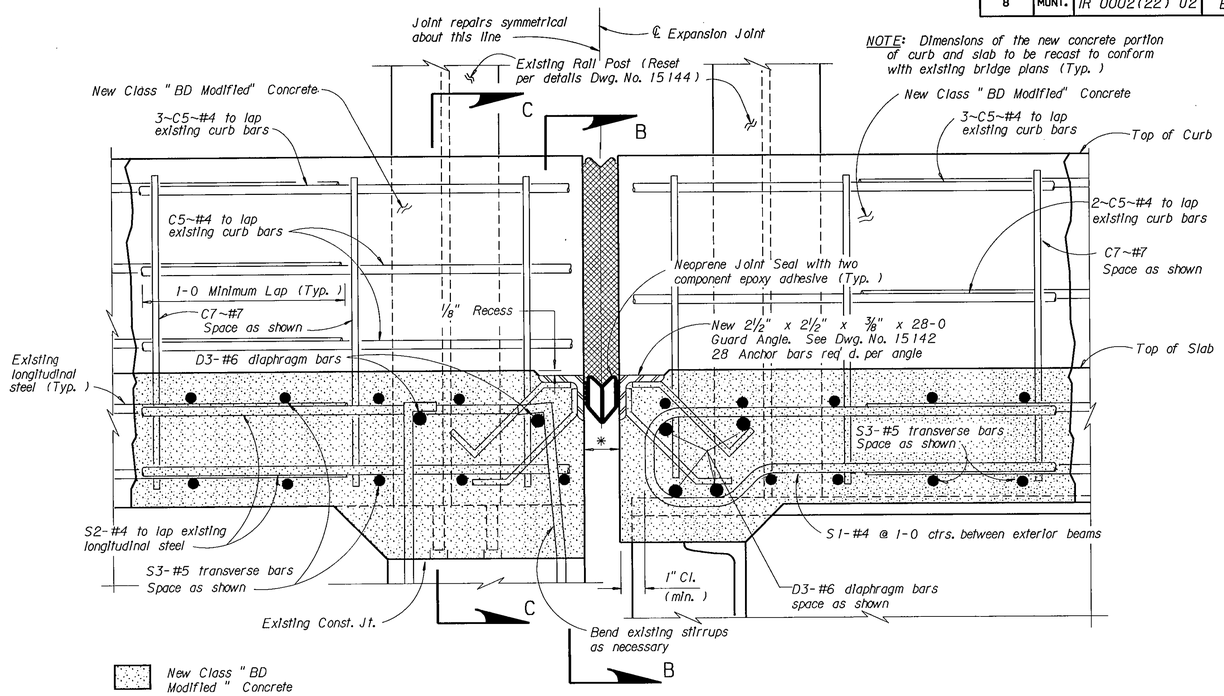
WRIGHT-MAN CADD 16-DEC-1991 11:57 BMAN T:\0000051\TIF\0TH05_B05.1

NOTE:
Clean all exposed stirrups before placing new concrete.
Cut all existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. interior bays of slab and curb). Remove all transverse reinforcing steel.

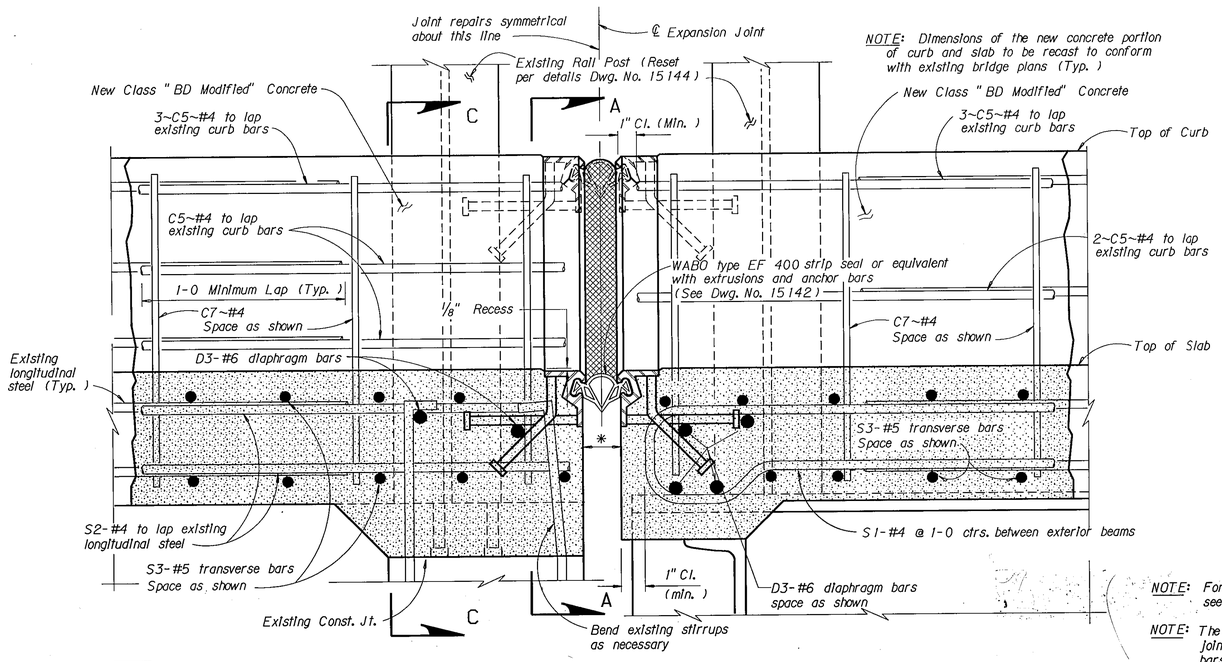


EXISTING EXPANSION JOINT

(Bents No. 2 and No. 5 E. B. Roadway)
(Bent No. 2 shown, Bent No. 5 similar)
**(Bent No. 2 W. B. Roadway)



NEW EXPANSION JOINT (ALTERNATE A-2)



NEW EXPANSION JOINT (ALTERNATE A-1)

NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of new joint opening prior to placing new concrete.

*NOTE: Dimension depends on manufacturer's recommendations (1" minimum @ 105°).

NOTE: Temperature range: -45° F to 105° F with mean temperature of 30° F.

NOTE: The joint used must be capable of providing for a total minimum allowable movement of 1¾" - Bent No. 2 and 1½" - Bent No. 5.

NOTE: For Sections A-A, B-B and C-C see Dwg. No. 15144.

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing new Class " BD Modified" Concrete to be included in the unit price bid for Class " B" Bridge Deck Repair.

NOTE: For Bill of Reinforcing Steel see Dwg. No. 15138.

NOTE: For requirements of Expansion Joint see " Special Provisions. ".

NOTE: The cost of furnishing and installing new expansion joint including metal extrusions, strip seal and anchor bars to be included in the unit price bid for Expansion Joint. Extrusions shall be set ⅛" below adjacent concrete surfaces.

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seals.

NOTE: The cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION
FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2
JEFFERSON COUNTY

EXPANSION JOINT REPAIR DETAILS
AT M.P. 243+0.322
BENTS NO. 2 AND NO. 5 (E.B. ROADWAY)
BENT NO.2 (W.B. ROADWAY)
DETAIL "C"

Scale ~ 3" = 1-0

DRAWING NO. 15143

DESIGNED	5-24-91	L. R. T.
DRAWN	5-24-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

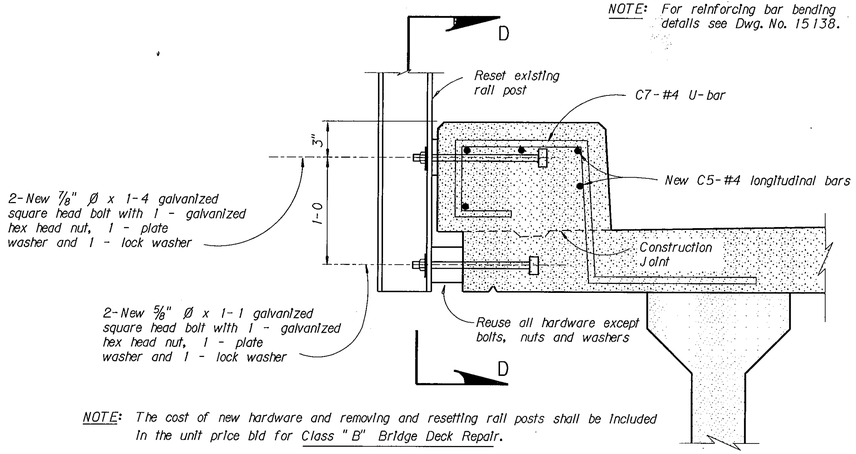
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B9

MONTANA CADD 18-DEC-1991 15:55 BRAM I:\BRAM\DWGS\15144.MSM(MODEL_SPACE)

NOTE: Slab reinforcing steel removed for clarity.

NOTE: Full design concrete strength shall be achieved prior to attaching rail post to bolts.

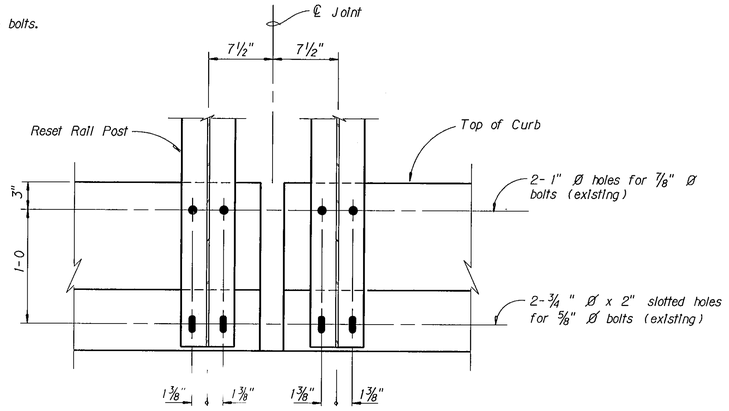
NOTE: For reinforcing bar bending details see Dwg. No. 15138.



NOTE: The cost of new hardware and removing and resetting rail posts shall be included in the unit price bid for Class "B" Bridge Deck Repair.

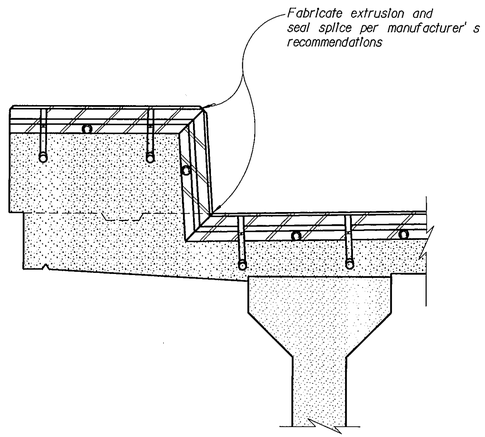
SECTION C-C

Scale ~ 1½" = 1-0
(2 locations only)



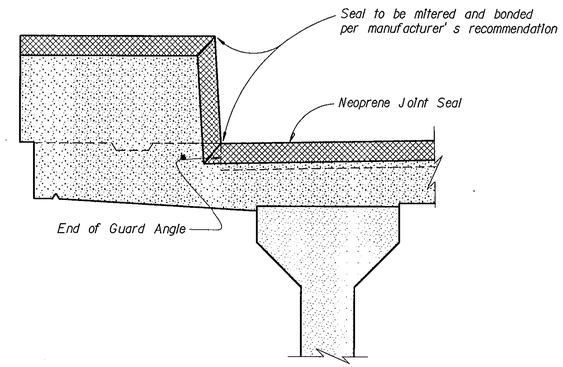
SECTION D-D

Scale ~ 1½" = 1-0



SECTION A-A

No Scale



SECTION B-B

No Scale

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION
FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

JEFFERSON COUNTY

EXPANSION JOINT REPAIR DETAILS
AT M.P. 243+0.322
BENTS NO. 2 AND NO. 5 (E.B. ROADWAY)
BENT NO.2 (W.B. ROADWAY)
DETAIL "C"

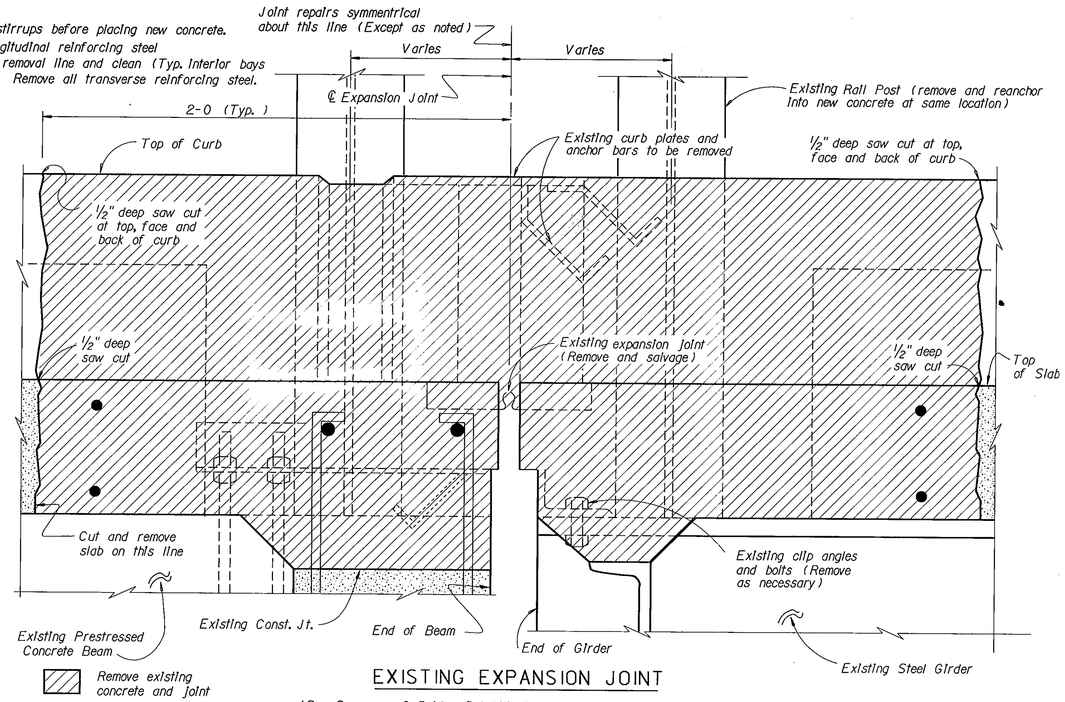
DESIGNED	5-24-91	L. R. T.
DRAWN	5-24-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

Scale ~ As Noted

DRAWING NO. 15144

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B10

NOTE:
Clean all exposed stirrups before placing new concrete.
Cut all existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. Interior bays of slab and curb). Remove all transverse reinforcing steel.

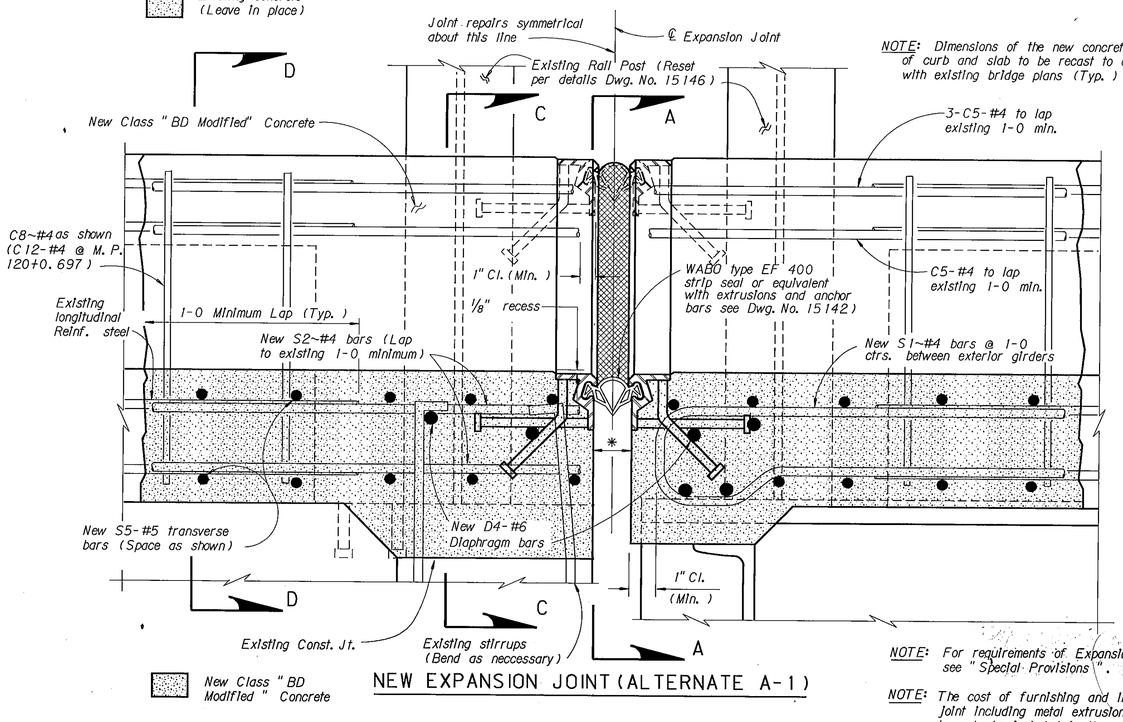


Remove existing concrete and joint

Existing concrete (Leave in place)

EXISTING EXPANSION JOINT

(See Summary of Bridge Rehabilitation on Dwg. No. 15136 for location)



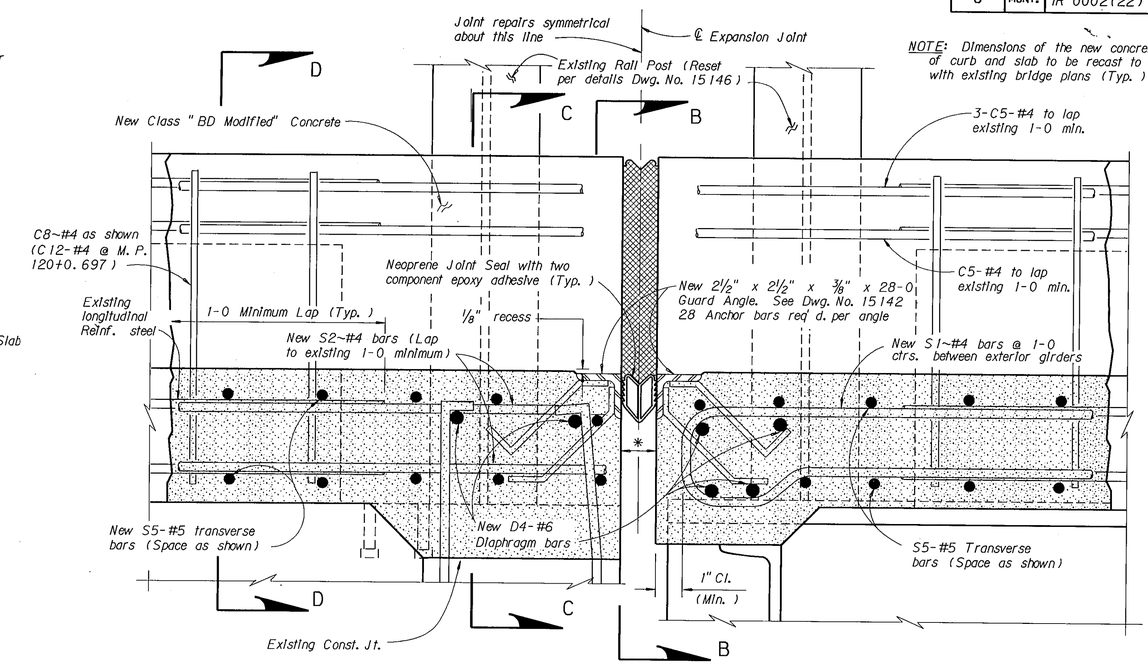
New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-1)

NOTE: Dimensions of the new concrete portion of curb and slab to be recast to conform with existing bridge plans (Typ.)

NOTE: For requirements of Expansion Joint see "Special Provisions".

NOTE: The cost of furnishing and installing new expansion joint including metal extrusions, strip seal and anchor bars to be included in the unit price bid for Expansion Joint. Extrusions to be set ⅛" below adjacent concrete surfaces.



New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-2)

NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of new joint opening prior to placing new concrete.

NOTE: For Bill of Reinforcing Steel see Dwg. No. 15138.

*NOTE: Dimension depends on manufacturer's recommendations (1" minimum @ 100°). (1¾" min. opening at M.P. 125+0.0883 S.B. Roadway at Bent No. 7)

NOTE: For joint information see table this sheet.

NOTE: For Sections A-A, B-B, C-C and D-D see Dwg. No. 15146.

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing new Class "BD Modified" Concrete to be included in the unit price bid for Class "B" Bridge Deck Repair.

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seals.

NOTE: The cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

TABLE OF JOINT INFORMATION

LOCATION	High Temp.	Low Temp.	Mean Temp.	Minimum allowable joint movement
I 90 M.P. 314+0.083 E.B. Rdwy. Bent No. 3	100° F	-40° F	30° F	1¼"
I 15 M.P. 120+0.697 S.B. Rdwy. Bent No. 4	100° F	-55° F	23° F	1½"
I 15 M.P. 124+0.870 N.B. Rdwy. Bent No. 6	100° F	-55° F	23° F	1¾"
I 15 M.P. 125+0.084 S.B. Rdwy. Bent No. 6	100° F	-55° F	23° F	1⅞"
I 15 M.P. 125+0.883 N.B. Rdwy. Bent No. 7	100° F	-55° F	23° F	1¼"
I 15 M.P. 125+0.883 S.B. Rdwy. Bent No. 7	100° F	-55° F	23° F	1⅞"
I 15 M.P. 126+0.316 N.B. Rdwy. Bent No. 2	100° F	-55° F	23° F	1⁷⁄₁₆"
I 15 M.P. 126+0.316 S.B. Rdwy. Bent No. 2	100° F	-55° F	23° F	1⁷⁄₁₆"

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

GALLATIN AND SILVER BOW COUNTIES

EXPANSION JOINT REPAIR DETAILS

DETAIL "D"

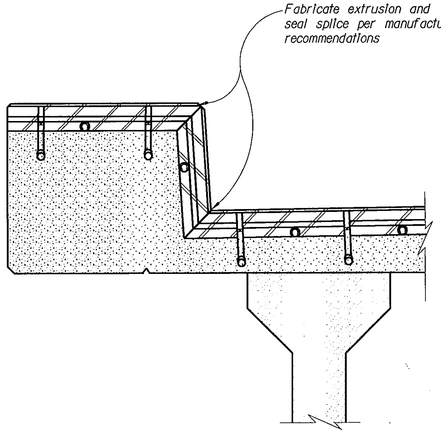
Scale ~ 3" = 1-0

DRAWING NO. 15145

DESIGNED	5-28-91	L. R. T.
DRAWN	5-28-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

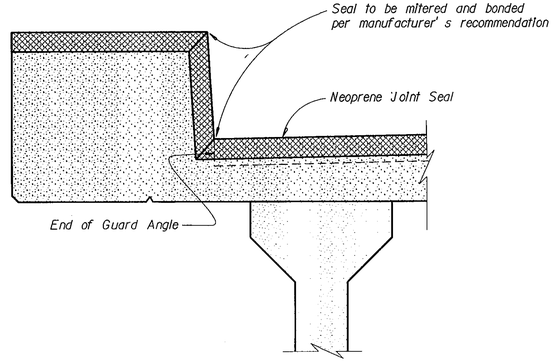
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FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B11



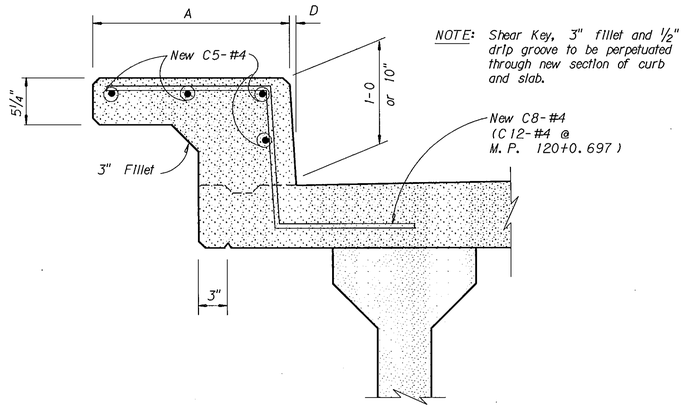
SECTION A-A

No Scale



SECTION B-B

No Scale



NOTE: Shear Key, 3" fillet and ½" drip groove to be perpetuated through new section of curb and slab.

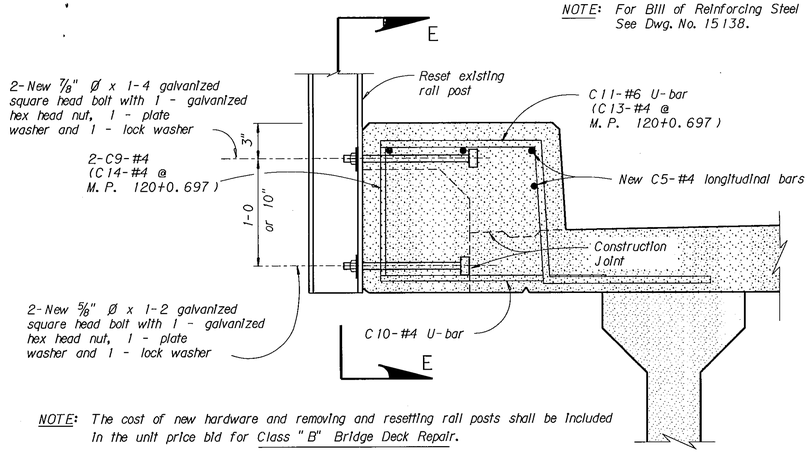
SECTION D-D

Scale ~ 1½" = 1-0

NOTE: Slab reinforcing steel removed for clarity.

NOTE: Full design concrete strength shall be achieved prior to attaching rail post to bolts.

NOTE: For Bill of Reinforcing Steel See Dwg. No. 15138.

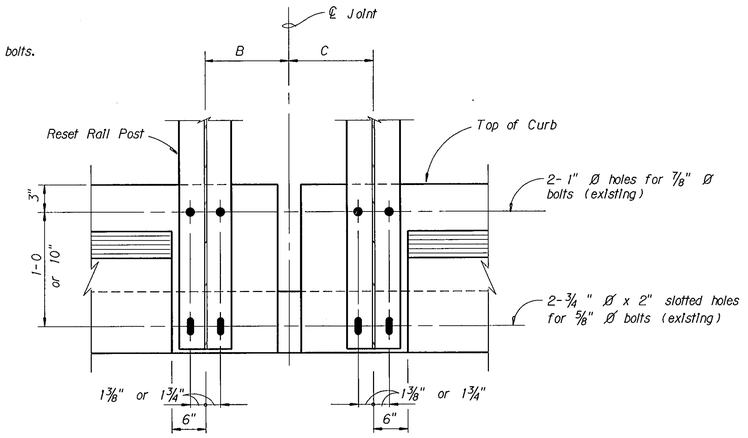


NOTE: The cost of new hardware and removing and resetting rail posts shall be included in the unit price bid for Class "B" Bridge Deck Repair.

NOTE: Reuse all hardware except bolts, nuts and wahsers.

SECTION C-C

Scale ~ 1½" = 1-0



SECTION E-E

Scale ~ 1½" = 1-0

TABLE OF DIMENSIONS				
Location	A	B	C	D
I 90 M. P. 314+0.083	1-10¾"	9½"	9½"	¾"
I 15 M. P. 120+0.697	1-9	6½"	8½"	1"
I 15 M. P. 124+0.870	1-10¾"	10"	9"	¾"
I 15 M. P. 125+0.084	1-10¾"	10"	9"	¾"
I 15 M. P. 125+0.883	1-10¾"	10"	9"	¾"
I 15 M. P. 126+0.316	1-10	7"	8"	¾"

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

GALLATIN AND SILVER BOW COUNTIES

EXPANSION JOINT REPAIR DETAILS

DETAIL "D"

Scale ~ As Noted

DRAWING NO. 15146

DESIGNED	5-28-91	L. R. T.
DRAWN	5-28-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

18-DEC-1991 10:00 BMAN
JOINT.MA CADD
Z:\2\C0600053\LIT\MISC.BRG.1

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B12

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Existing Rail Post (remove and reanchor into new concrete at same location)
(One location at M.P. 124+0.690)
(Two locations at M.P. 124+0.870)
(Two locations at M.P. 125+0.084)
(Six locations at M.P. 120+0.697)

Joint repairs symmetrical about this line (Except as noted)

≠ Varies

≠ 2-0 (Typ.) (Parallel to ℄ Rdwy.)

℄ Expansion Joint

NOTE:
Clean all exposed stirrups before placing new concrete.
Cut all existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. interior bays of slab and curb). Clean all transverse reinforcing steel on skewed structures.

Top of Curb

Existing curb plates and anchor bars to be removed

½" deep saw cut at top, face and back of curb

NOTE:
Structure @ M.P. 124+0.690 is skewed 25°.
Structure @ M.P. 124+0.826 is skewed 30°42'.
Curb joints are perpendicular to curb.

½" deep saw cut at top, face and back of curb

½" deep saw cut

Cut and remove slab on this line

Cut and remove slab on this line

Existing clip angles (Remove) (Remove bolts as necessary)

Existing Prestressed Concrete Beam

Existing Const. Jt.

End of Beam

NOTE: Existing joint may vary from detail shown.

Remove existing concrete and joint

Existing concrete (Leave in place)

EXISTING EXPANSION JOINT

Joint repairs symmetrical about this line

℄ Expansion Joint

Existing Rail Post (Reset per details Dwg. No. 15148)

NOTE: Dimensions of the new concrete portion of curb and slab to be recast to conform with existing bridge plans (Typ.)

New Class "BD Modified" Concrete

C8-#4 (C12-#4 @ M.P. 120+0.697) (Location varies - See Section E-E on Dwg. No. 15148)

Existing longitudinal Reinf. steel

1-0 Minimum Lap (Typ.)

⅛" recess

WABO type EF 400 strip seal or equivalent with extrusions and anchor bars see Dwg. No. 15142

3-C5-#4 to lap existing 1-0 min.

Top of Curb

C5-#4 to lap existing 1-0 min.

C8-#4 as shown (C12-#4 @ M.P. 120+0.697)

New S5-#5 Transverse bars (Space as shown) (At M.P. 124+0.870, 125+0.084 and 120+0.697 only)

S2-#4 to lap existing 1-0 min.

Existing stirrups (Bend as necessary)

New D4-#6 or D5-#6 Diaphragm bars

Existing Const. Jt.

D C A

New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-1)

Joint repairs symmetrical about this line

℄ Expansion Joint

Existing Rail Post (Reset per details Dwg. No. 15148)

NOTE: Dimensions of the new concrete portion of curb and slab to be recast to conform with existing bridge plans (Typ.)

New Class "BD Modified" Concrete

C8-#4 (C12-#4 @ M.P. 120+0.697) (Location varies - See View E-E on Dwg. No. 15148)

Existing longitudinal Reinf. steel

1-0 Minimum Lap (Typ.)

Neoprene Joint Seal with two component epoxy adhesive (Typ.)

New 2½" x 2½" x ⅜" Guard Angle. See Dwg. No. 15142 and note this sheet.

⅛" recess

3-C5-#4 to lap existing 1-0 min.

Top of Curb

C5-#4 to lap existing 1-0 min.

C8-#4 as shown (C12-#4 @ M.P. 120+0.697)

S2-#4 to lap existing 1-0 min.

New S5-#5 Transverse bars (Space as shown) (At M.P. 124+0.870, 125+0.084 and 120+0.697 only)

Existing stirrups (Bend as necessary)

New D4-#6 or D5-#6 Diaphragm bars

Existing Const. Jt.

D C B

New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-2)

NOTE: The cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of new joint opening prior to placing new concrete.

*NOTE: Dimension depends on manufacturer's recommendations (1" min. @ 100°).

NOTE: Temperature range: -55° F to 100° F with mean temperature of 23° F.

NOTE: The joint used must be capable of providing for a minimum allowable movement of 1 1/16" except at M.P. 120+0.697 @ Bents No. 8 and No. 10 which shall be 1¼"

NOTE: For Sections A-A, B-B, C-C and D-D see Dwg. No. 15148.

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing new Class "BD Modified" Concrete to be included in the unit price bid for Class "B" Bridge Deck Repair.

NOTE: Guard Angle Lengths are as follows:

- M.P. 120+0.697 ~ 28-0 with 28 anchor bars per angle.
- M.P. 124+0.690 ~ 30-10¾ with 31 anchor bars per angle
- M.P. 124+0.826 ~ 32-4 with 33 anchor bars per angle
- M.P. 124+0.870 ~ 28-1 with 28 anchor bars per angle
- M.P. 125+0.084 ~ 28-1¼ with 28 anchor bars per angle

NOTE: For requirements of Expansion Joint see "Special Provisions".

NOTE: The cost of furnishing and installing new expansion joint including metal extrusions, strip seal and anchor bars to be included in the unit price bid for Expansion Joint.

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seals.

≠ NOTE: Longitudinal curb bars shall be cut as to insure a 1-0 minimum lap to the new C5 bars.

JOINT REPAIR LOCATIONS

M.P. 120+0.697 - N.B. Rdwy. Bents No. 8 and No. 10
M.P. 120+0.697 - S.B. Rdwy. Bents No. 8 and No. 10
M.P. 124+0.690 Bent No. 2
M.P. 124+0.826 Bent No. 2
M.P. 124+0.870 Bent No. 2
M.P. 125+0.084 Bent No. 2

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS

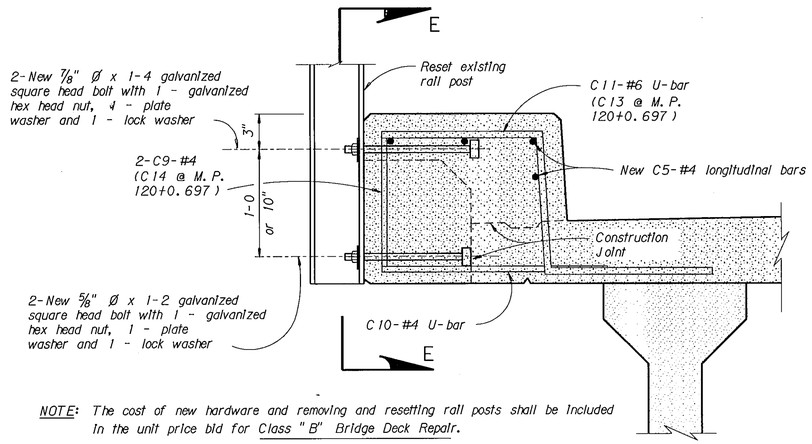
DETAIL "E"

Scale ~ 3" = 1-0

DRAWING NO. 15147

DESIGNED	5-29-91	L.R.T.
DRAWN	5-29-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B13

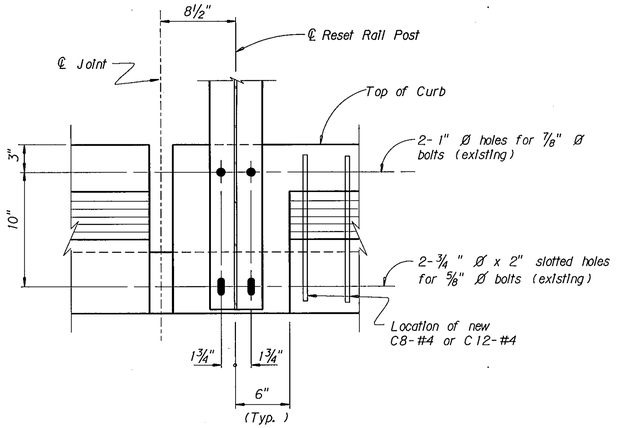


NOTE: The cost of new hardware and removing and resetting rail posts shall be included in the unit price bid for Class "B" Bridge Deck Repair.

NOTE: Reuse all hardware except bolts, nuts and wahsers.

SECTION C-C

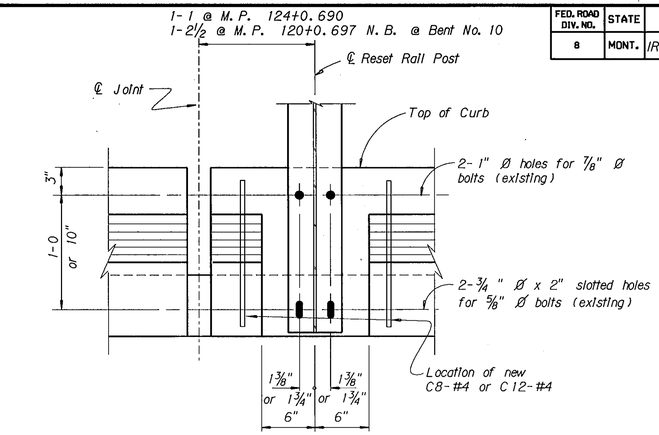
Scale ~ 1½" = 1-0



SECTION E-E

Scale ~ 1½" = 1-0

(M.P. 120+0.697 S.B. @ Bent No. 10)



SECTION E-E

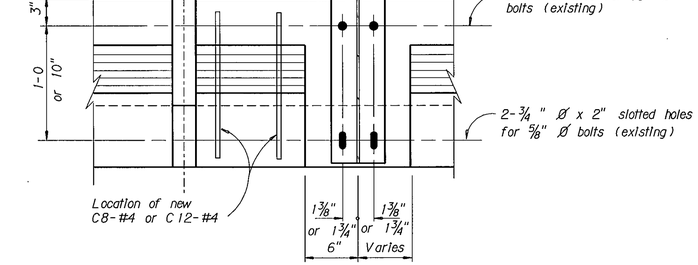
Scale ~ 1½" = 1-0

(M.P. 124+0.690 N.B. @ Bent No. 2 and M.P. 120+0.697 N.B. @ Bent No. 10)

NOTE: Slab reinforcing steel removed for clarity.

NOTE: Full design concrete strength shall be achieved prior to attaching rail post to bolts.

NOTE: For Bill of Reinforcing Steel See Dwg. No. 15138.

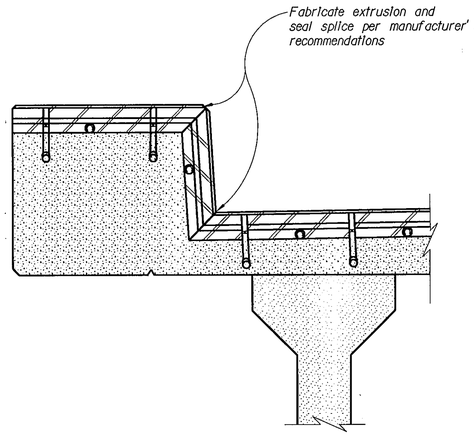


SECTION E-E

Scale ~ 1½" = 1-0

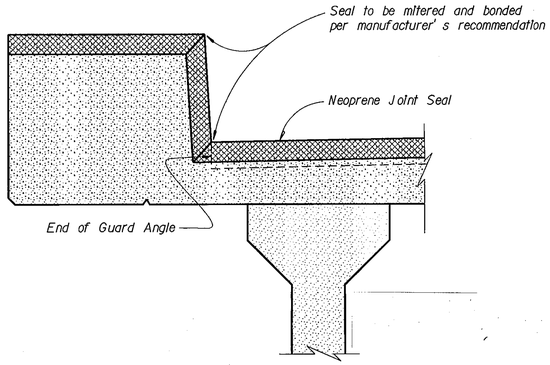
(M.P. 125+0.084, M.P. 124+0.870)

(M.P. 120+0.697 S.B. @ Bent No. 8)



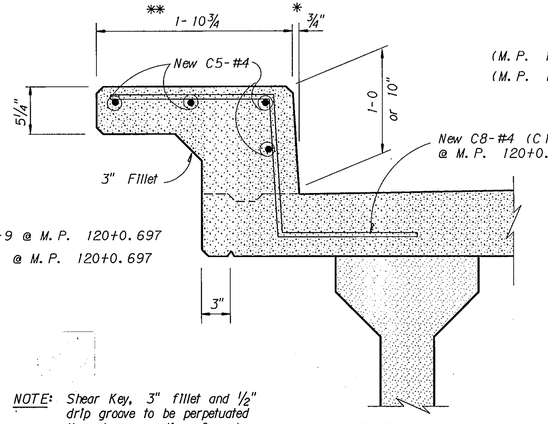
SECTION A-A

No Scale



SECTION B-B

No Scale



NOTE: Shear Key, 3" fillet and ½" drip groove to be perpetuated through new section of curb and slab.

SECTION D-D

Scale ~ 1½" = 1-0

DESIGNED	5-29-91	L.R.T.
DRAWN	5-29-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS

DETAIL "E"

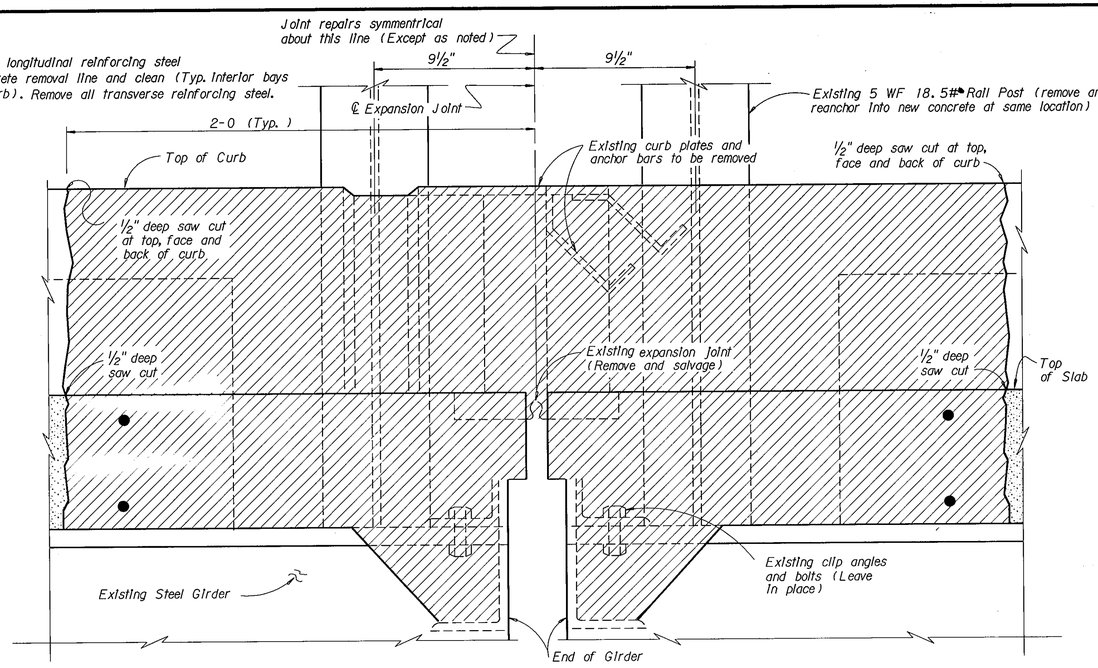
Scale as Noted

DRAWING NO. 15148

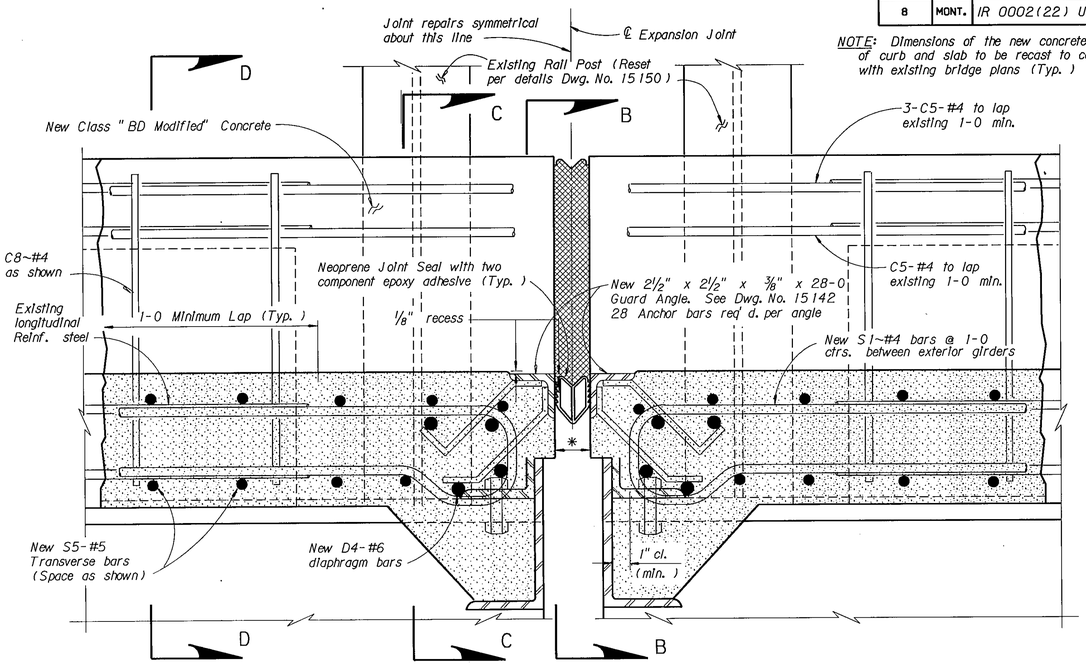
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FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B14

NOTE:
Cut all existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. interior bays of slab and curb). Remove all transverse reinforcing steel.



EXISTING EXPANSION JOINT



New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-2)

NOTE: Dimensions of the new concrete portion of curb and slab to be recast to conform with existing bridge plans (Typ.)

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seals.

*NOTE: Dimension depends on manufacturer's recommendations. 1" minimum @ 100°.

NOTE: Temperature range -55 F to 100 F with mean temperature of 23 .

Joint used must be capable of providing for a total minimum allowable movement of $1\frac{7}{16}$".

NOTE: For Sections A-A, B-B, C-C and D-D see Dwg. No. 15150.

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing new Class "BD Modified" Concrete to be included in the unit price bid for Class "B" Bridge Deck Repair.

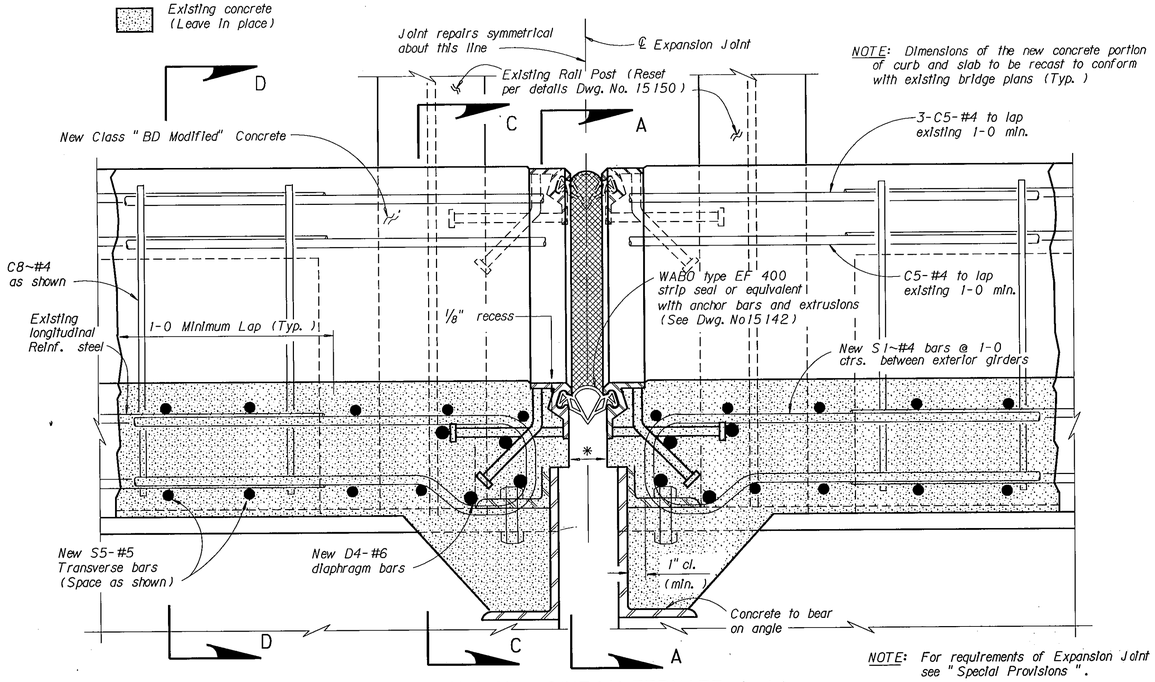
NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of new joint opening prior to placing new concrete.

NOTE: For Bill of Reinforcing Steel see Dwg. No. 15138.

NOTE: The cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

Remove existing concrete and joint

Existing concrete (Leave in place)



New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-1)

NOTE: For requirements of Expansion Joint see "Special Provisions".

NOTE: The cost of furnishing and installing new expansion joint including metal extrusions, strip seal and anchor bars to be included in the unit price bid for Expansion Joint.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS

M.P.125+0.833 N.B. AND S.B.

SUSPENSION SPAN NEAR BENT NO.6

DETAIL "F"

Scale ~ 3" = 1-0

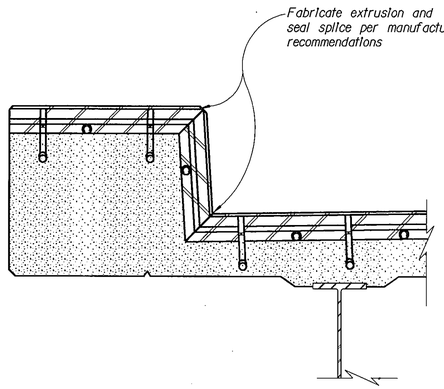
DRAWING NO. 15149

DESIGNED	6-3-91	L. R. T.
DRAWN	6-3-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

[60 51137 U1211 BRG (2 SHTS)]

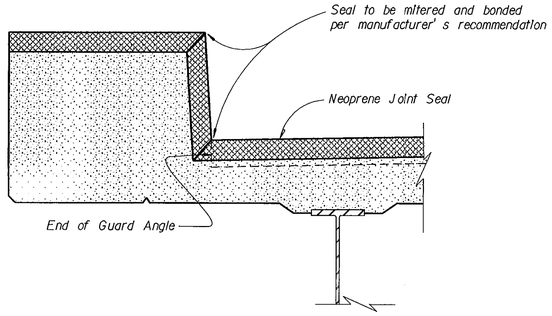
19-DEC-1991 14:40 BRIAN
MONT.MVA CADD
\\ZEUS\DISK01\ACAD\15149\15149_1.DWG

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B15



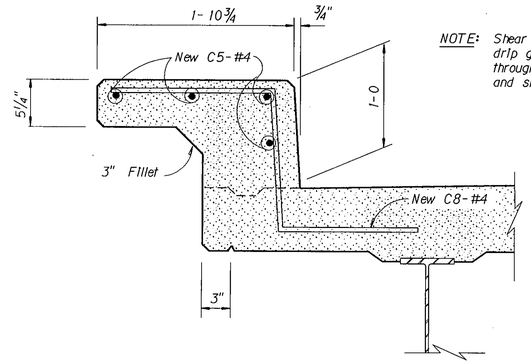
SECTION A-A

No Scale



SECTION B-B

No Scale



NOTE: Shear Key, 3" fillet and ½" drip groove to be perpetuated through new section of curb and slab.

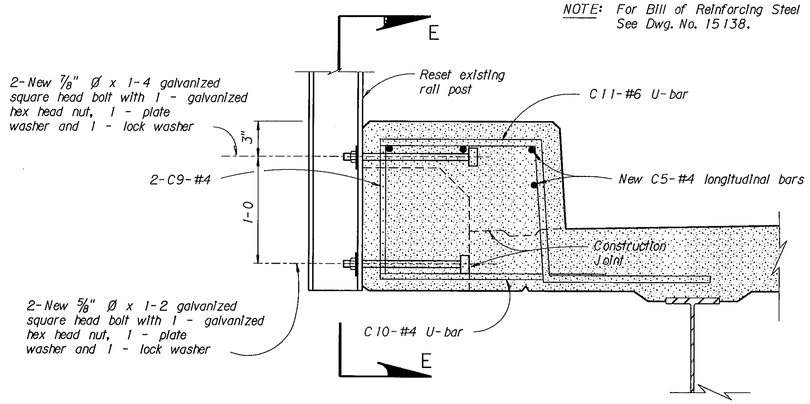
SECTION D-D

Scale ~ 1½" = 1-0

NOTE: Slab reinforcing steel removed for clarity.

NOTE: Full design concrete strength shall be achieved prior to attaching rail post to bolts.

NOTE: For Bill of Reinforcing Steel See Dwg. No. 15138.

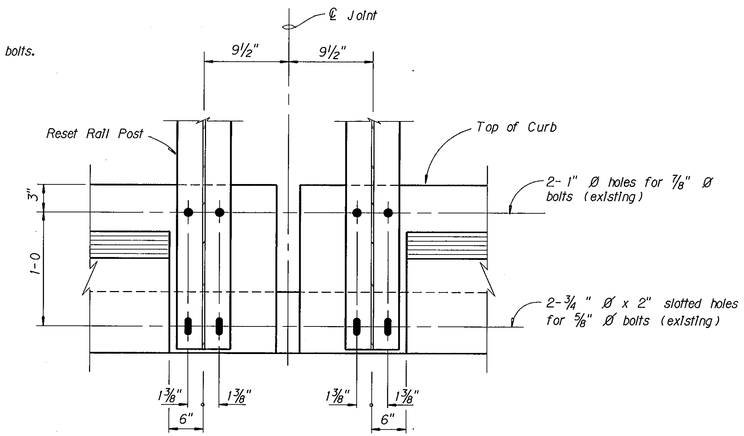


NOTE: The cost of new hardware and removing and resetting rail posts shall be included in the unit price bid for Class "B" Bridge Deck Repair.

NOTE: Reuse all hardware except bolts, nuts and washers.

SECTION C-C

Scale ~ 1½" = 1-0



SECTION E-E

Scale ~ 1½" = 1-0

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS

M.P.125+0.833 N.B. AND S.B.

SUSPENSION SPAN NEAR BENT NO.6

DETAIL "F"

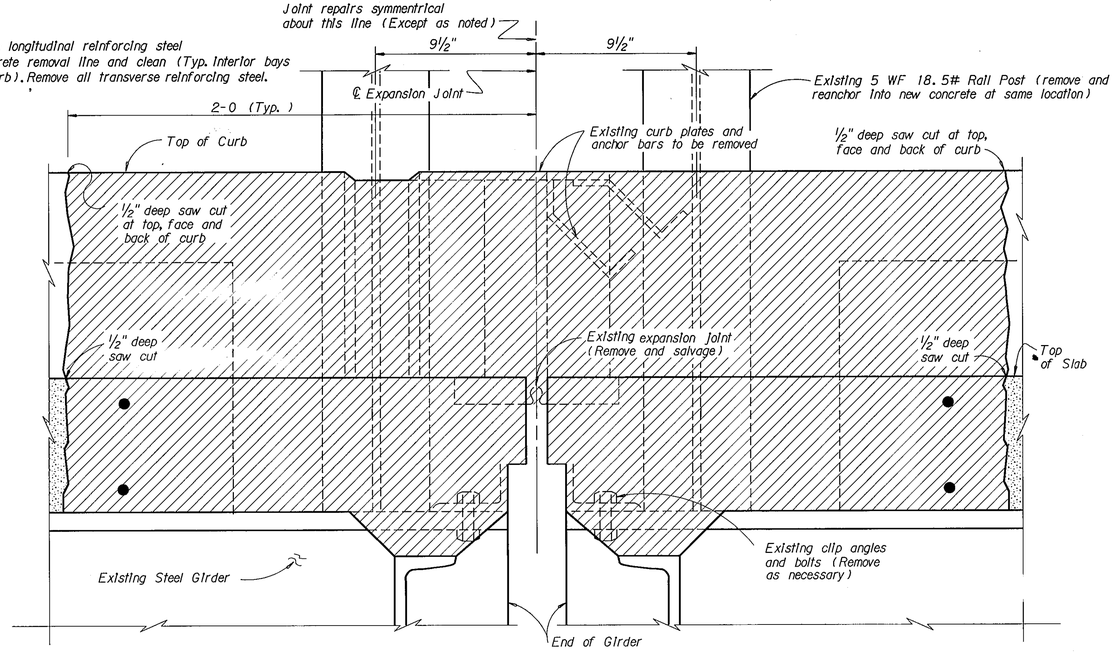
Scale ~ 1½" = 1-0 DRAWING NO. 15150

DESIGNED	6-3-91	L. R. T.
DRAWN	6-3-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

19-DEC-1991 08:43 $USER1 $DRW1
MDOT/HQ CADD
\PTS\DGN0053.137 1821.1 DRW=1

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B16

NOTE:
Cut all existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. Interior bays of slab and curb). Remove all transverse reinforcing steel.

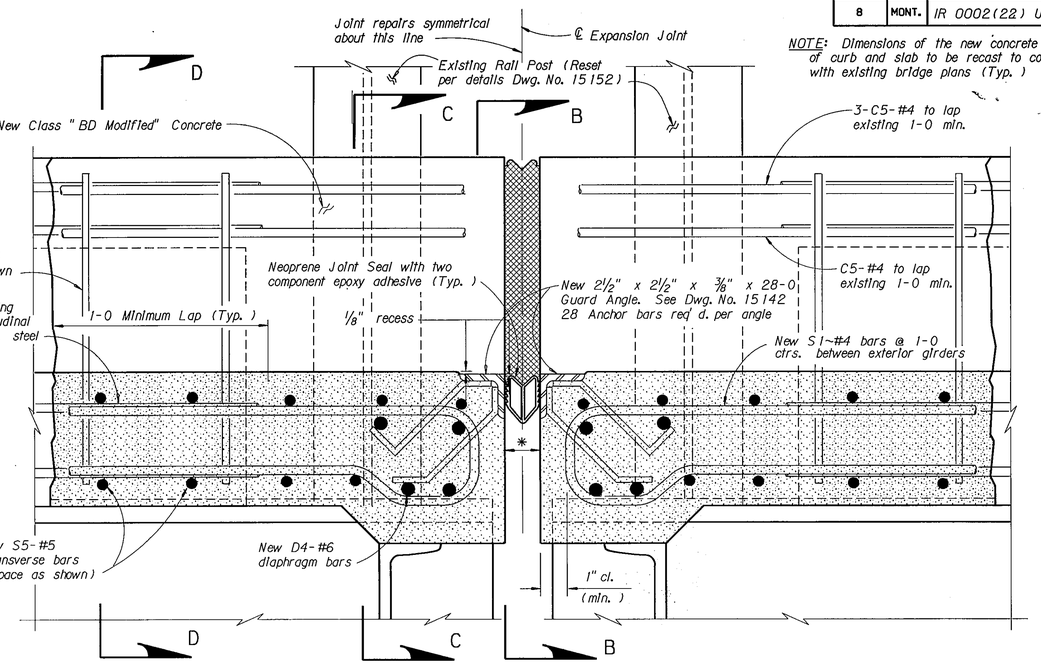


EXISTING EXPANSION JOINT

(M. P. 125+0.883 N.B. and S.B. ~ Bent No. 4)

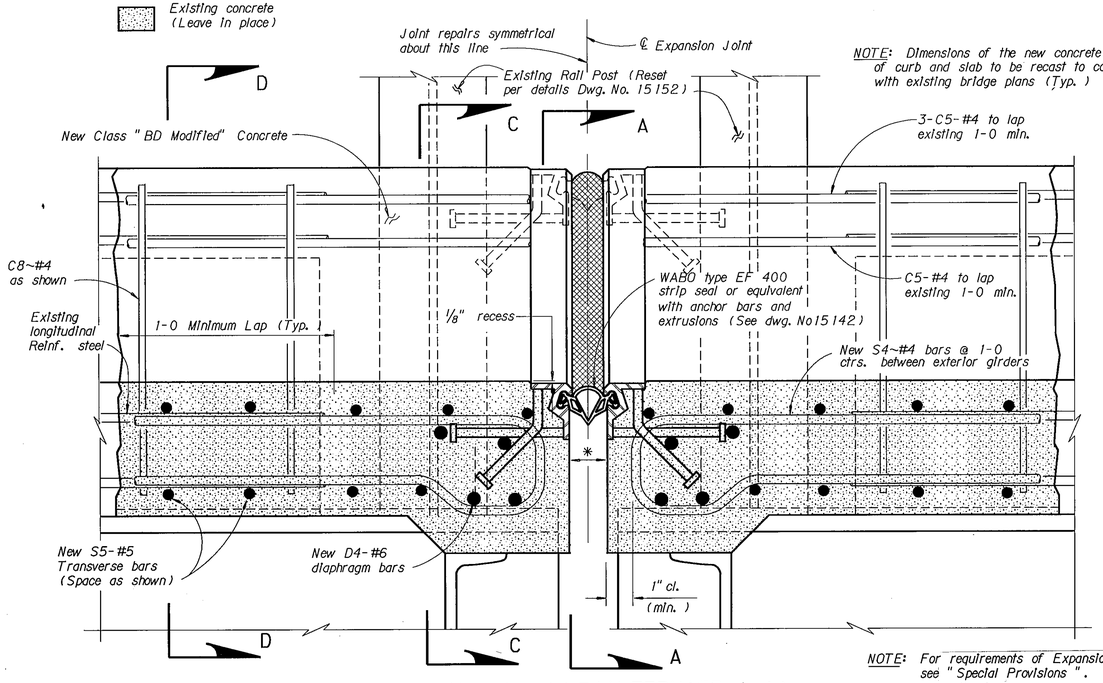
Remove existing concrete and joint

Existing concrete (Leave in place)



New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-2)



New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-1)

NOTE: For requirements of Expansion Joint see "Special Provisions".

NOTE: The cost of furnishing and installing new expansion joint including metal extrusions, strip seal and anchor bars to be included in the unit price bid for Expansion Joint.

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seals.

*NOTE: Dimension depends on manufacturer's recommendations (1" minimum @ 100°). (1¾" minimum opening @ 100° at Bent No. 4 S.B. Roadway.)

NOTE: Temperature range -55° F to 100° F with mean temperature of 23° F. Joint used must be capable of providing for a total minimum allowable movement of 1 13/16.

NOTE: For Sections A-A, B-B, C-C and D-D see Dwg. No. 15152.

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing new Class "BD Modified" Concrete to be included in the unit price bid for Class "B" Bridge Deck Repair.

NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of new joint opening prior to placing new concrete.

NOTE: For Bill of Reinforcing Steel see Dwg. No. 15138.

NOTE: The cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS

M.P. 125+0.883 N.B. & S.B.

BENT NO. 4

DETAIL "G"

DESIGNED	6-3-91	L. R. T.
DRAWN	6-3-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

Scale ~ 1½" = 1-0

DRAWING NO. 15151

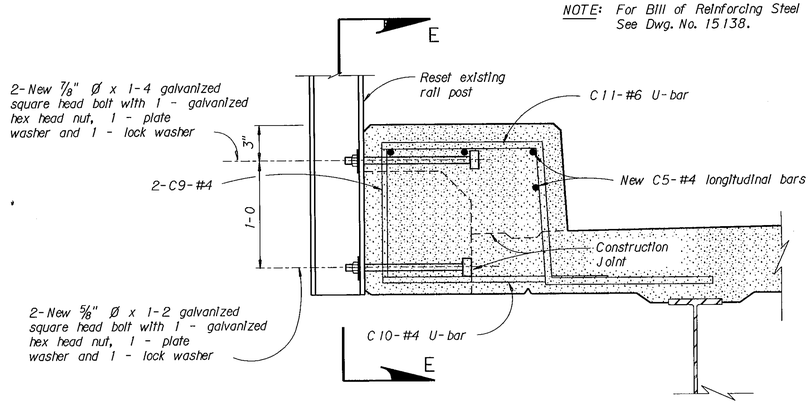
[60 51137 111210 BBG (2 SHTS)]

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B17

NOTE: Slab reinforcing steel removed for clarity.

NOTE: Full design concrete strength shall be achieved prior to attaching rail post to bolts.

NOTE: For Bill of Reinforcing Steel See Dwg. No. 15138.

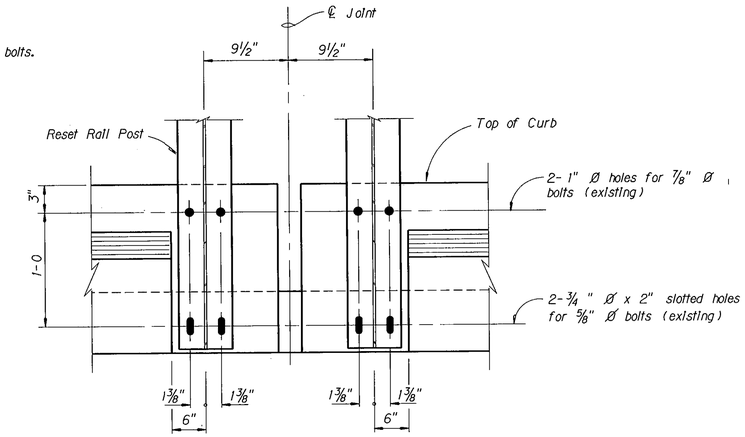


NOTE: The cost of new hardware and removing and resetting rail posts shall be included in the unit price bid for Class "B" Bridge Deck Repair.

NOTE: Reuse all hardware except bolts, nuts and washers.

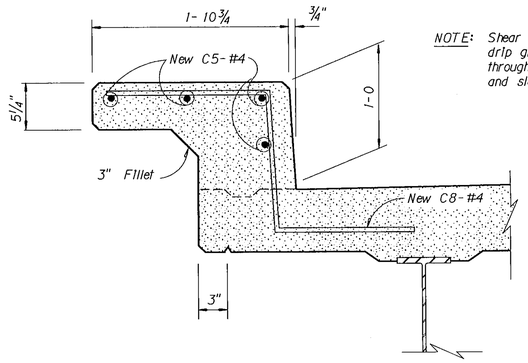
SECTION C-C

Scale ~ 1½" = 1-0



SECTION E-E

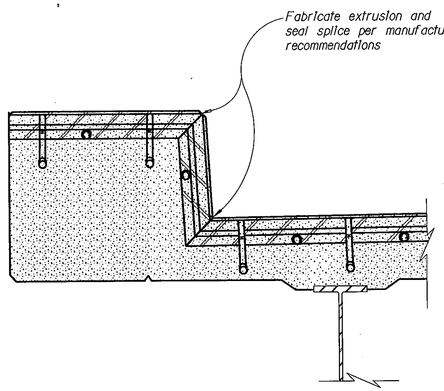
Scale ~ 1½" = 1-0



NOTE: Shear Key, 3" fillet and ½" drip groove to be perpetuated through new section of curb and slab.

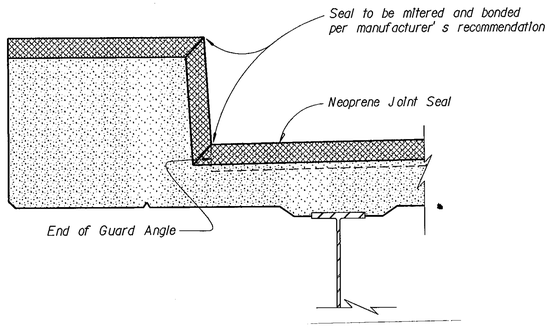
SECTION D-D

Scale ~ 1½" = 1-0



SECTION A-A

No Scale



SECTION B-B

No Scale

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS

M.P. 125+0.883 N.B. & S.B.

BENT NO. 4

DETAIL "G"

Scale ~ 3" = 1-0 DRAWING NO. 15152

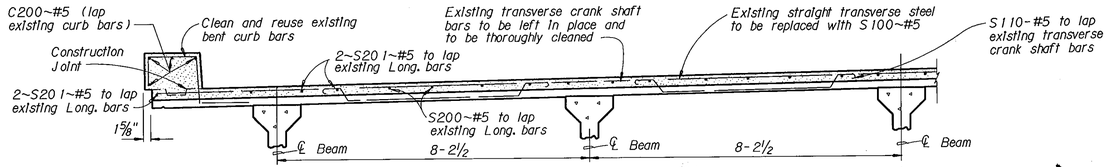
DESIGNED	6-3-91	L. R. T.
DRAWN	6-3-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

[60, 5] 137 IU2 10. BRG (2 SHTS)

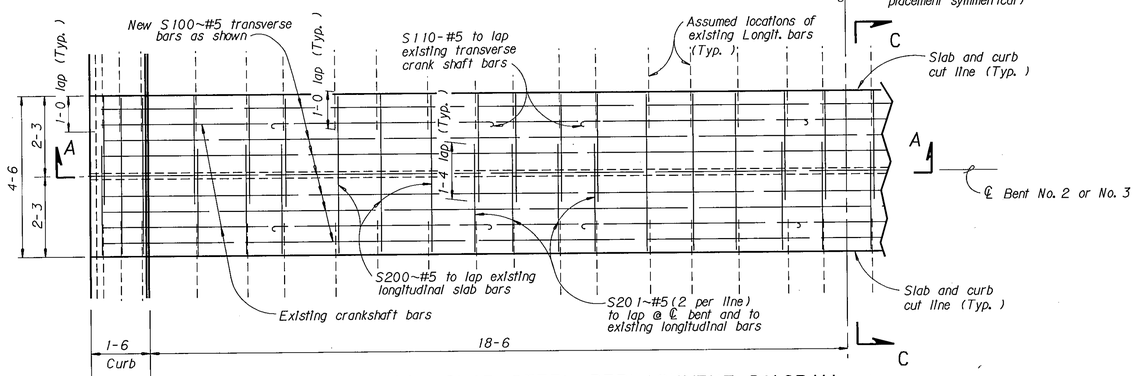
MONTANA CADD 19-DEC-1991 08:48 BRAM [60000513] 137 IU2 10. BRG; 1

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B18

NOTE: Remove concrete and joint system in curb and slab as shown below. Replace with Class "BD Modified" Concerete and make continuous over bents.



SECTION A-A



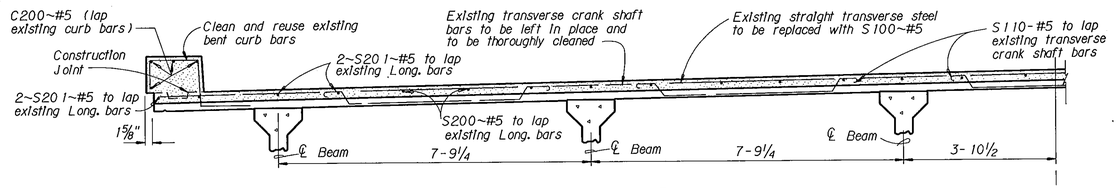
TYPICAL SLAB STEEL REPLACEMENT DIAGRAM

(Bents No. 2 and No. 3 - Eastbound Roadway)
No Scale

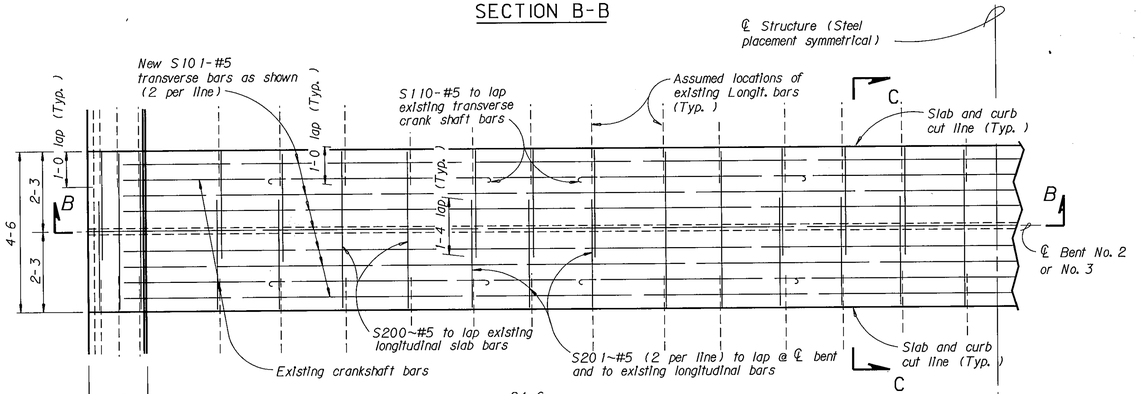
NOTE: Contractor shall take precaution to avoid cutting the existing transverse steel when removing concrete at joints.

NOTE: Remove concrete and joint system in curb and slab as shown below. Replace with Class "BD Modified" Concerete and make continuous over bents.

NOTE: Contractor shall take precaution to avoid cutting the existing transverse steel when removing concrete at joints.



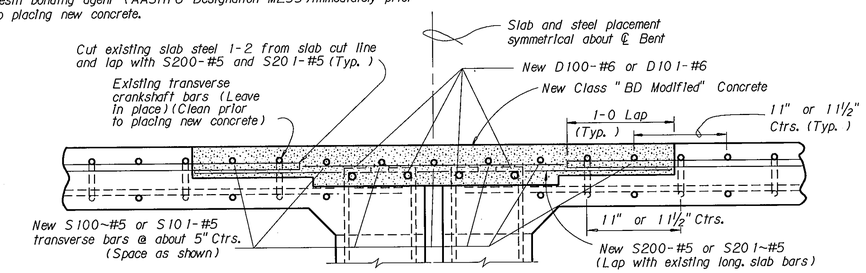
SECTION B-B



TYPICAL SLAB STEEL REPLACEMENT DIAGRAM

(Bents No. 2 and No. 3 - Westbound Roadway)
No Scale

NOTE: At all locations where new concrete contacts the existing concrete, the existing concrete shall be thoroughly coated with an approved epoxy resin bonding agent (AASHTO Designation M235) immediately prior to placing new concrete.



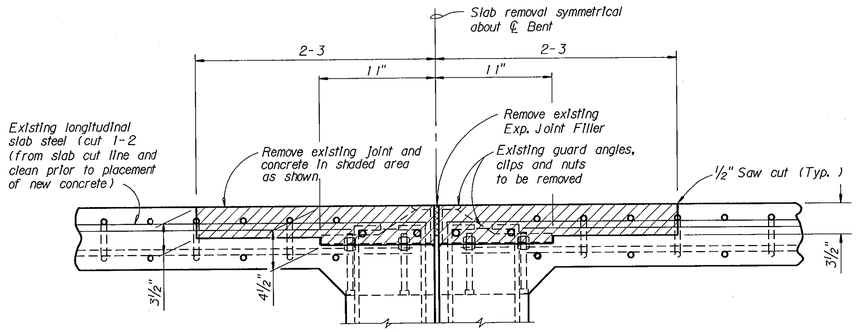
SECTION C-C

CONTINUOUS SLAB DETAILS

Scale ~ 1½" = 1'-0"

NOTE: All cost associated with the existing joint and concrete removal and placement of new concrete to be included in the unit price bid for Class "A" Bridge Deck Repair

NOTE: The cost of new reinforcing steel and the cost of cleaning existing reinforcing steel shall be included in the unit price bid for Reinforcing Steel. For Bill of Reinforcing Steel see Dwg. No. 15138.



SECTION C-C

EXISTING ARMORED SLAB JOINT

Scale ~ 1½" = 1'-0"

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

ARMORED SLAB JOINT REMOVAL DETAILS
M.P.216+0.672 E.B. AND W.B.
BENTS NO. 2 AND NO. 3
DETAIL "H"

DESIGNED	6-5-91	L. R. T.
DRAWN	6-5-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

Scale as Shown

DRAWING NO. 15153

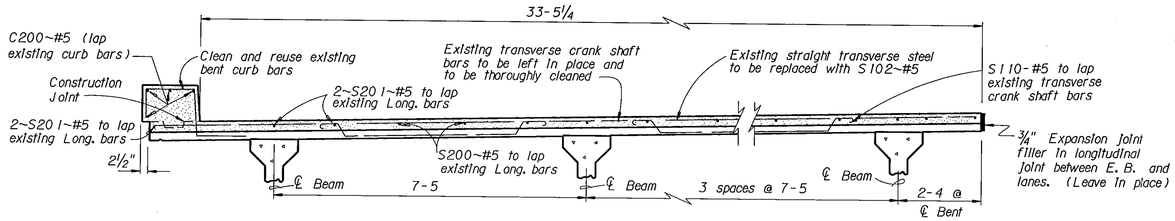
[60, 5] 137 1u212. brg (3 Dwgs.)

MONT AVA CADD 1991 10-25-91 BRAD 1 SHEET 16 OF 16 SHEETS 15153 0124

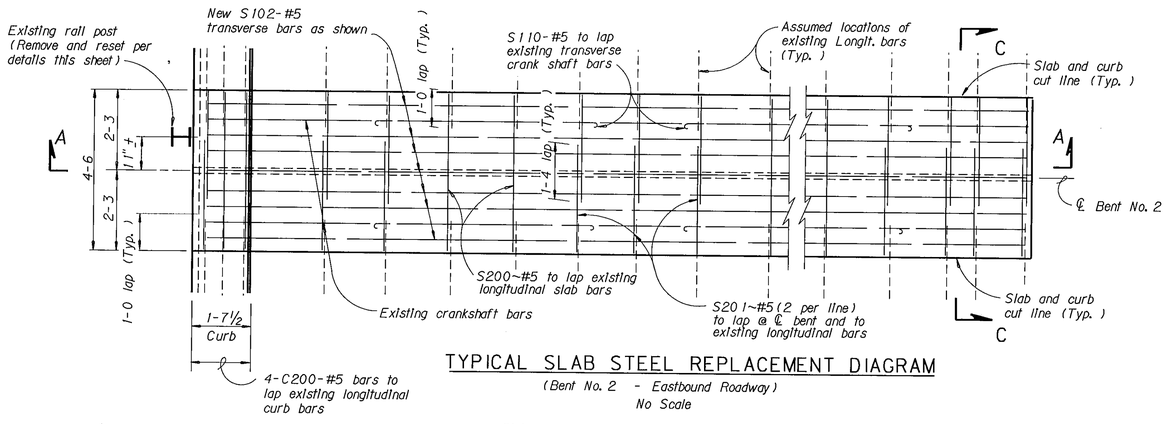
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B19

NOTE: Remove concrete and joint system in curb and slab as shown below. Replace with Class "BD Modified" Concrete and make continuous over bents.

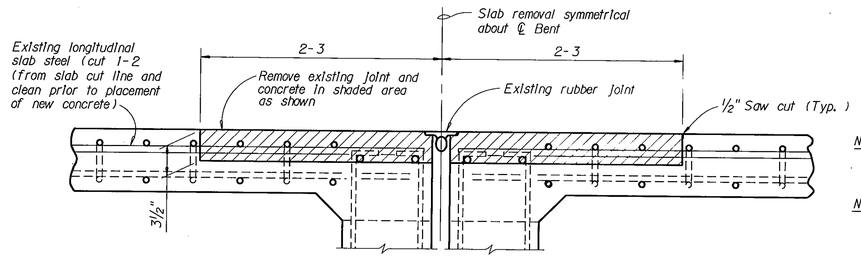
NOTE: Contractor shall take precaution to avoid cutting the existing transverse steel when removing concrete at joints.



SECTION A-A
(Back on Line)



TYPICAL SLAB STEEL REPLACEMENT DIAGRAM
(Bent No. 2 - Eastbound Roadway)
No Scale

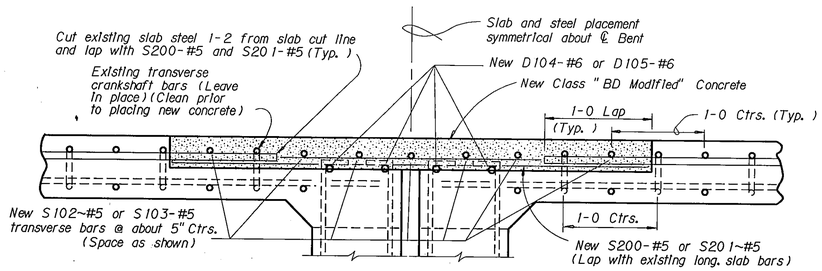


SECTION C-C
EXISTING RUBBER SLAB JOINT
Scale ~ 1½" = 1'-0"

NOTE: All cost associated with the existing joint and concrete removal and placement of new concrete to be included in the unit price bid for Class "A" Bridge Deck Repair

NOTE: The cost of new reinforcing steel and the cost of cleaning existing reinforcing steel shall be included in the unit price bid for Reinforcing Steel. For Bill of Reinforcing Steel see Dwg. No. 15138.

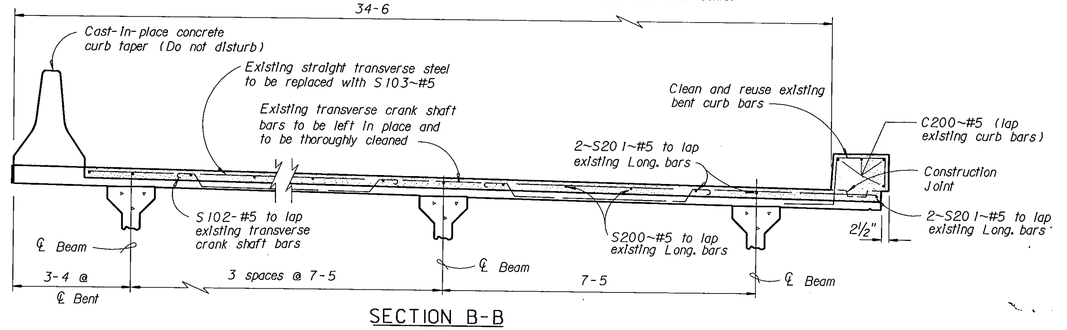
NOTE: At all locations where new concrete contacts the existing concrete, the existing concrete shall be thoroughly coated with an approved epoxy resin bonding agent (AASHTO Designation M235) immediately prior to placing new concrete.



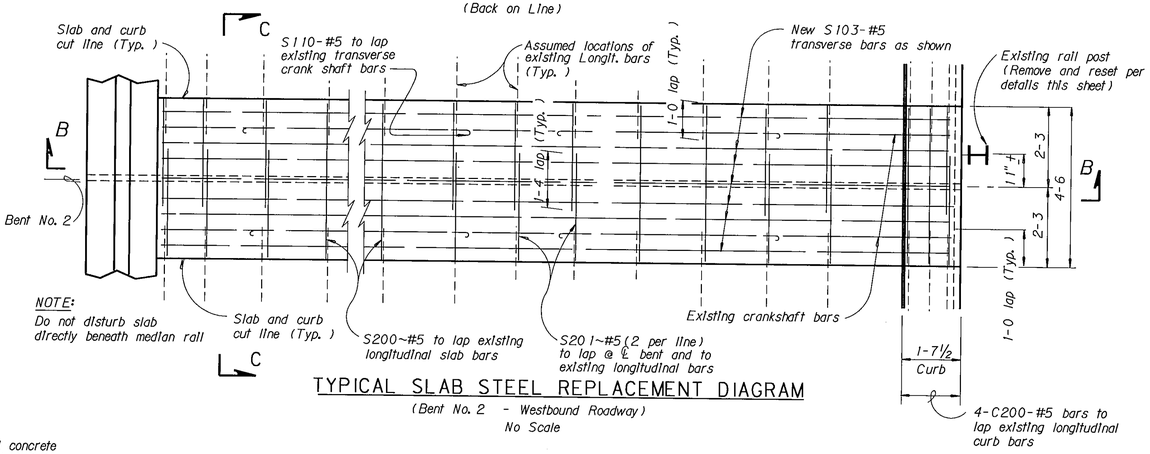
SECTION C-C
CONTINUOUS SLAB DETAILS
Scale ~ 1½" = 1'-0"

NOTE: Contractor shall take precaution to avoid cutting the existing transverse steel when removing concrete at joints.

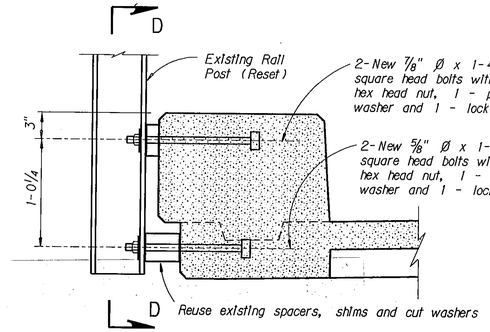
NOTE: Remove concrete and joint system in curb and slab as shown below. Replace with Class "BD Modified" Concrete and make continuous over bents.



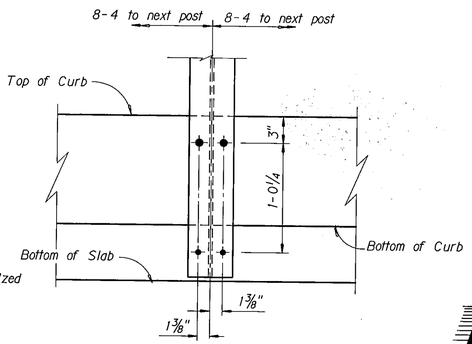
SECTION B-B
(Back on Line)



TYPICAL SLAB STEEL REPLACEMENT DIAGRAM
(Bent No. 2 - Westbound Roadway)
No Scale



RAIL POST REATTACHMENT DETAIL
Scale ~ 1½" = 1-0



SECTION D-D
Scale ~ 1½" = 1-0

NOTE: Remove curb and slab entirely 8" on each side of post. Replace with Class "BD Modified" Concrete. Clean existing slab and curb steel encountered before placing new concrete.

DESIGNED	6-6-91	L.R.T.
DRAWN	6-6-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

GALLATIN COUNTY

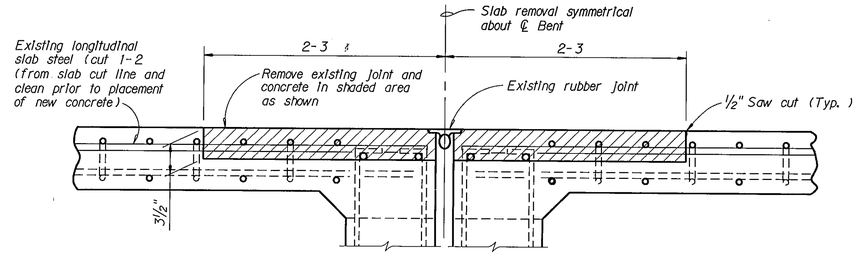
RUBBER SLAB & CURB JOINT DETAILS
M.P. 316+0.767 E.B. AND W.B.
BENT NO. 2
DETAIL "I"

Scale as shown

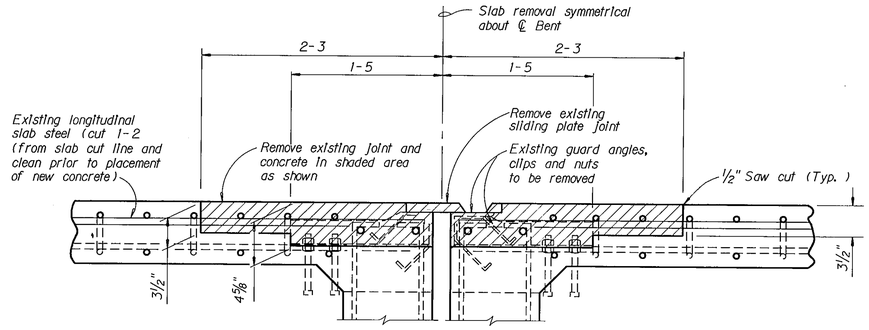
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MONTANA DEPT. OF HIGHWAYS 1991 09:00 ZYZ-DGOOOO3.13F MAP.B86.1

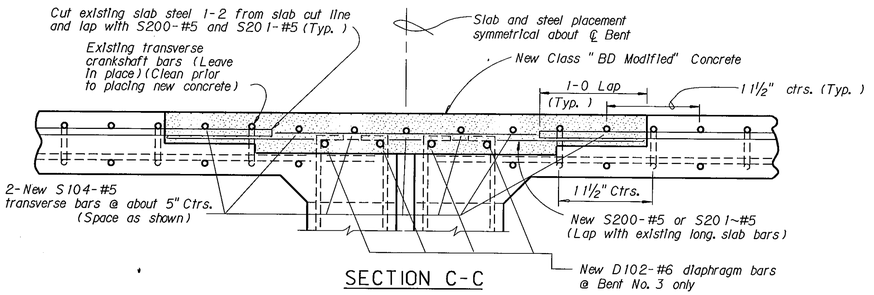
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B20



SECTION C-C
EXISTING RUBBER SLAB JOINT
(Bent No. 2)
Scale ~ 1½" = 1'-0"



SECTION C-C
EXISTING ARMORED SLAB JOINT
(Bent No. 3)
Scale ~ 1½" = 1'-0"



SECTION C-C
CONTINUOUS SLAB DETAILS
(Bents No. 2 and No. 3)
Scale ~ 1½" = 1'-0"

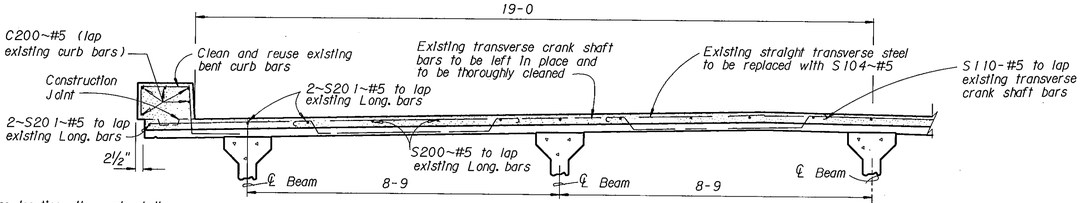
NOTE: All cost associated with the existing joint and concrete removal and placement of new concrete to be included in the unit price bid for Class "A" Bridge Deck Repair

NOTE: The cost of new reinforcing steel and the cost of cleaning existing reinforcing steel shall be included in the unit price bid for Reinforcing Steel. For Bill of Reinforcing Steel see Dwg. No. 15138 .

NOTE: At all locations where new concrete contacts the existing concrete, the existing concrete shall be thoroughly coated with an approved epoxy resin bonding agent (AASHTO Designation M235) immediately prior to placing new concrete.

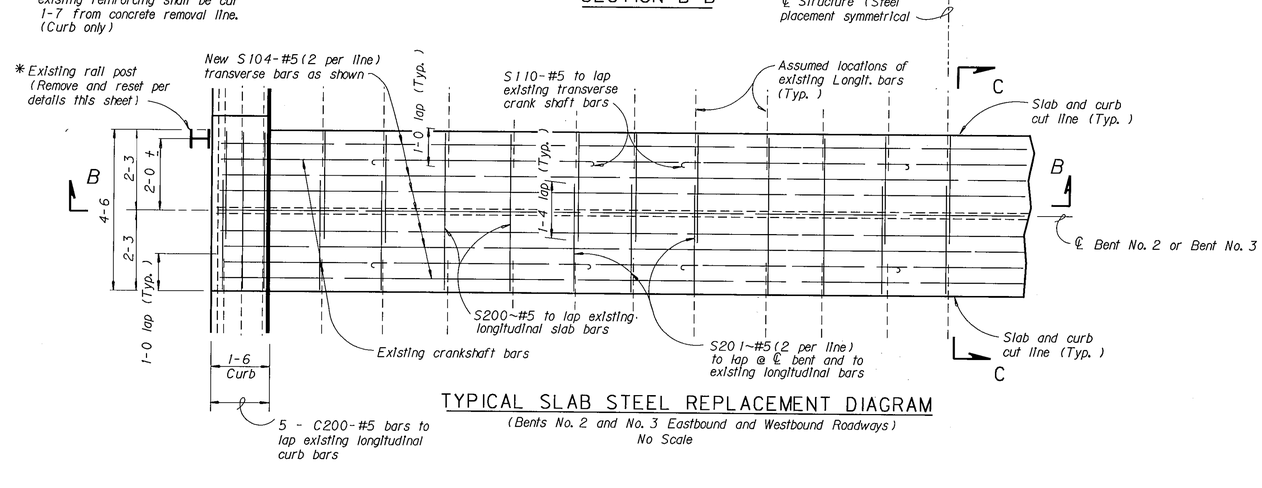
NOTE: Remove concrete and joint system in curb and slab as shown below. Replace with Class "BD Modified" Concrete and make continuous over bents.

NOTE: Contractor shall take precaution to avoid cutting the existing transverse steel when removing concrete at joints.

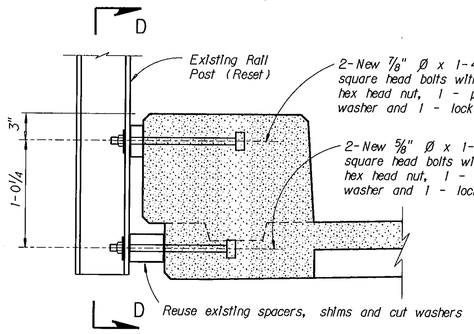


SECTION B-B

* In these locations the curb shall be cut 8" from ℄ rail post. The existing reinforcing shall be cut 1-7 from concrete removal line. (Curb only)

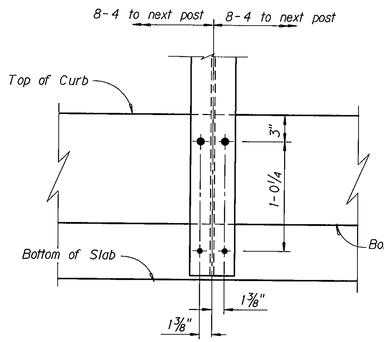


TYPICAL SLAB STEEL REPLACEMENT DIAGRAM
(Bents No. 2 and No. 3 Eastbound and Westbound Roadways)
No Scale



RAIL POST REATTACHMENT DETAIL
Scale ~ 1½" = 1-0

NOTE: Remove curb and slab entirely 8" on each side of post. Replace with Class "BD Modified" Concrete. Clean existing slab and curb steel encountered before placing new concrete.



SECTION D-D
Scale ~ 1½" = 1-0

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

PARK COUNTY

EXPANSION JOINT REMOVAL DETAILS
M.P. 330+0.991 E.B. AND W.B.
BENTS NO. 2 AND NO. 3
DETAIL "J"

DESIGNED	6-6-91	L.R.T.
DRAWN	6-6-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

Scale as shown

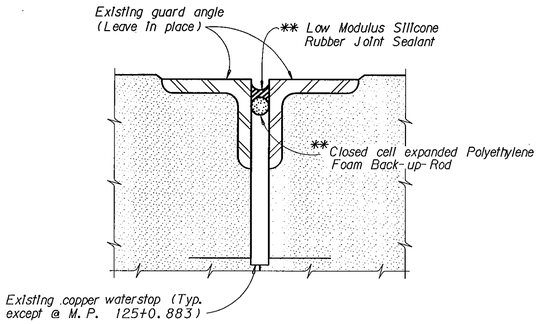
DRAWING NO. 15155

[60 51137 U1212 PDC 13 SHTS]

19-DEC-1991 09:00 BRUCE
MONTANA CADD
M:\TECH\DESIGN\15138.DGN; 1

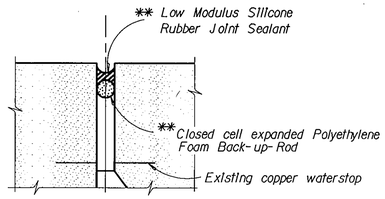
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B21

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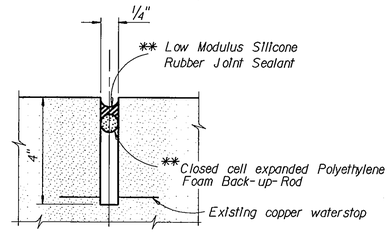
@ ARMORED JOINT

(M.P. 243+0.322 E.B. and W.B. @ Bent No. 6)
(M.P. 321+0.895 E.B. and W.B. @ Bents No. 2 and No. 3)
(M.P. 120+0.697 N.B. and S.B. @ Bents No. 3, No. 5 and No. 6)
(M.P. 125+0.883 N.B. and S.B. near Bent No. 5)



@ TRANSVERSE GIRDER

(M.P. 243+0.322 E.B. and W.B. @ Bent No. 4)
(M.P. 314+0.083 E.B. and W.B. @ Bent No. 4)



@ CONTRACTION JOINT

(M.P. 243+0.322 E.B. and W.B. @ Bent No. 3)

** NOTE: Joint sealant shall be Dow Corning 888 Silicone or approved equal and installed in accordance with the manufacturer's recommendation. Asphalt based sealant will not be acceptable. All cost associated with furnishing and installing backup rod and silicone sealant shall be included in the unit price bid for Reseal Existing Joints. The angles to be included in the lump sum bid for Structural Steel.

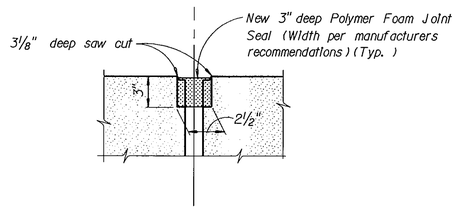
JOINT SEALANT DETAILS
DETAIL K

No Scale

NOTE: Curb faces and top surfaces shall be sealed similar to details shown on this sheet. All costs to be included in the unit price bid for Reseal Existing Joints.

NOTE: Joint openings vary in width. Contractor shall determine joint opening sizes before ordering materials.

NOTE: Clean existing opening throughly and sand blast existing armor angles prior to placement of new back up rod and joint sealant or polymer foam.



NOTE: For requirements of the joint seal, see "Special Provisions". Set all Polymer Foam Joint Seals 1/8" below nearest concrete surface. All costs associated with furnishing and installation of the seals shall be included in the unit price bid per linear foot for Joint Seal-Polymer Foam. The length of Joint Seals to be paid for is the actual length placed. Estimated lengths are shown in the Estimated Bridge Plan Quantities Dwg. No. 15137.

DETAIL K(a)
@ RUBBER SLAB AND CURB JOINTS

(M.P. 314+0.083 E.B. and W.B. @ Bents No. 2 and No. 6)

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

JEFFERSON, GALLATIN, PARK AND SILVER BOW COUNTIES

JOINT REPAIR DETAILS
DETAIL "K" & "K(a)"

DESIGNED	7-18-91	L.R.T.
DRAWN	7-18-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

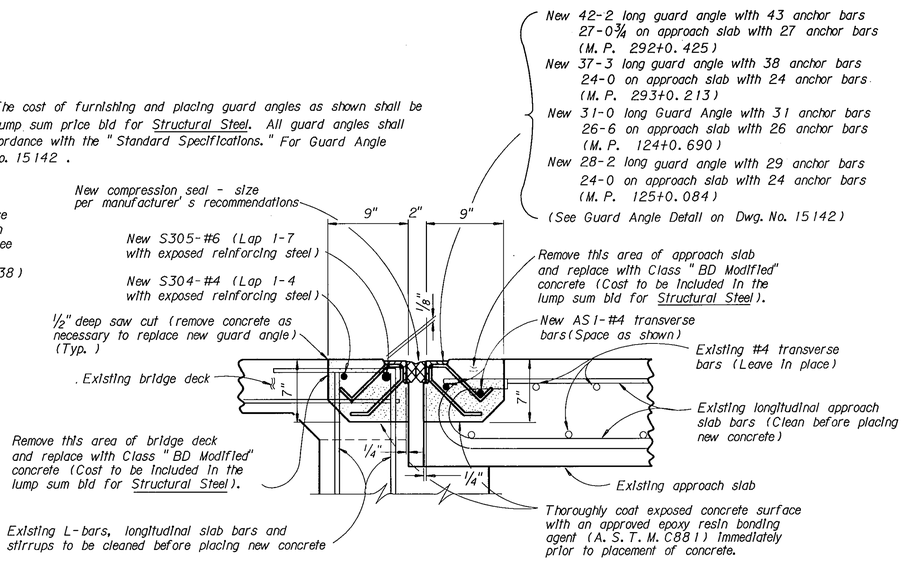
Scale ~ As Noted

DRAWING NO. 15156

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B22

GUARD ANGLES: The cost of furnishing and placing guard angles as shown shall be included in the lump sum price bid for Structural Steel. All guard angles shall be painted in accordance with the "Standard Specifications." For Guard Angle detail see Dwg. No. 15142 .

NOTE: Bar callouts increase in number with each successive joint. See Bill of Reinforcing Steel Dwg. No. 15138)

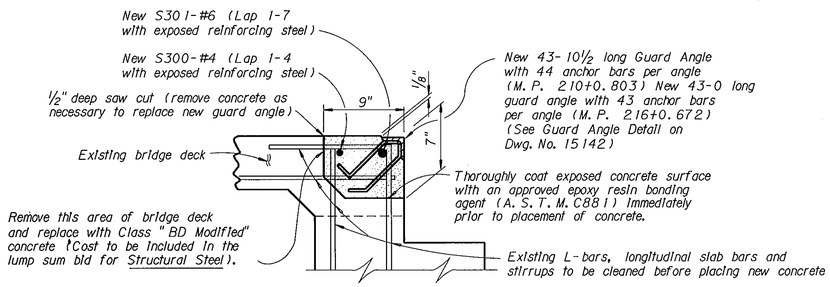


NOTE: Remove all existing guard angles, anchors and transverse reinforcing steel. All concrete shall be removed to dimensions shown or to sound concrete as determined by the Engineer. Clean existing reinforcement prior to placing new guard angle and concrete. Cut existing transverse reinforcing steel 1-7 from face of curb or paving notch and clean. Clean existing transverse bars on skewed structures only. New transverse bars shall be included in the lump sum bid for Reinforcing Steel.

DETAIL M

Scale ~ 1½" = 1-0

M. P. 292+0.425 E. B. and W. B. - Bents No. 1 and No. 5
M. P. 293+0.213 E. B. and W. B. - Bents No. 1 and No. 4
M. P. 124+0.690 - Bent No. 6
M. P. 125+0.084 - Bents No. 1 and No. 9



NOTE: Remove all existing guard angles, anchors and transverse reinforcing steel. All concrete shall be removed to dimensions shown or to sound concrete as determined by the Engineer. Clean existing reinforcement prior to placing new guard angle and concrete. Cut existing transverse reinforcing steel 1-7 from face of curb or paving notch and clean. New transverse bars shall be included in the lump sum bid for Reinforcing Steel.

DETAIL L

Scale ~ 1½" = 1-0

M. P. 210+0.803 E. B. - Bent No. 6
M. P. 210+0.803 W. B. - Bent No. 1
M. P. 216+0.672 W. B. - Bent No. 4

NOTE: For structure @ M. P. 216+0.672 replace S301 with S303 and replace S300 with S302.

NOTE: Lap #4 bars 1-4 minimum.
Lap #6 bars 1-7 minimum.

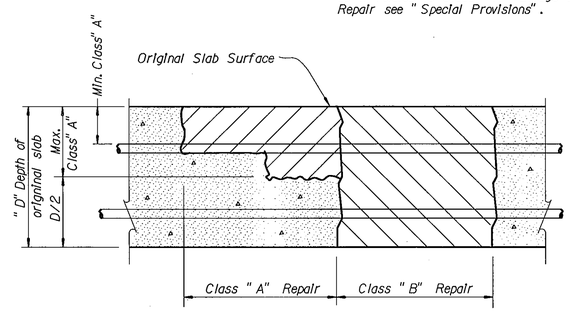
COMPRESSION SEALS: See Standard Specifications Section 711.20. The amount to be paid for is the actual length placed Estimated lengths are the same as the length of guard angle specified on the approach slab side of each joint. No movement is specified at these locations.

NOTE: For structure @ M. P. 125+0.084 replace S305 with S311, replace S304 with S310 and replace AS1 with AS4.

NOTE: For structure @ M. P. 124+0.690 replace S305 with S309, replace S304 with S308 and replace AS1 with AS3.

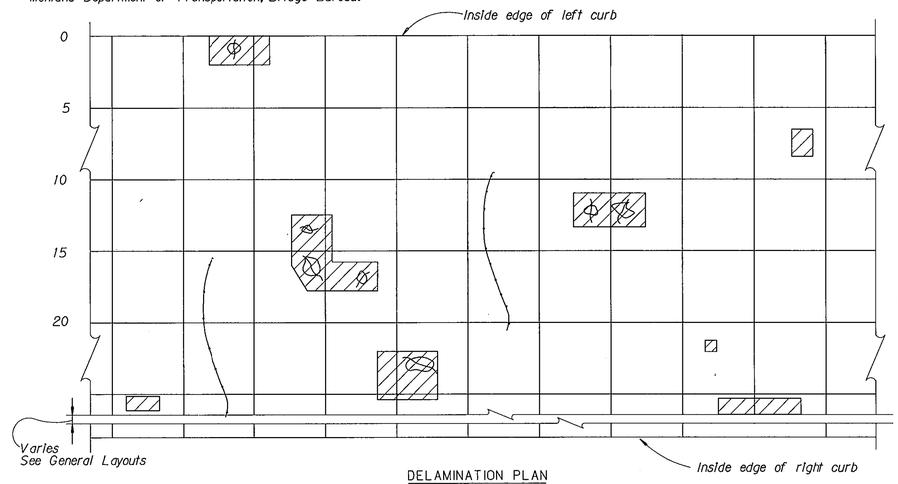
NOTE: For structure @ M. P. 293+0.213 replace S305 with S307, replace S304 with S306 and replace AS1 with AS2.

NOTE: For description of Bridge Deck Overlay as it relates to Class "A" Bridge Deck Repair see "Special Provisions".



BRIDGE FLOOR REPAIR DEFINITION

NOTE: The complete bridge deck delamination plan shall be made available to the Contractor upon request to the Montana Department of Transportation, Bridge Bureau.



DELAMINATION PLAN
(Section is shown for general information)

NOTE: Bridge deck patching shall be done on the following structures with estimated delaminated areas shown :

M. P. 120+0.697 N. B. - 11.4 Sq. Yds.
M. P. 120+0.697 S. B. - 42 Sq. Yds.
M. P. 124+0.870 N. B. - 41.7 Sq. Yds.
M. P. 125+0.084 S. B. - 8.3 Sq. Yds.

All costs associated with patching existing decks shall be included in the unit price bid for Class "A" Bridge Deck Repair.

DETAIL N

No Scale

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW AND GALLATIN COUNTIES

DESIGNED	7-18-91	L. R. T.
DRAWN	7-18-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

GUARD ANGLE REPAIR AND DECK PATCHING DETAILS
DETAILS "L", "M" AND "N"

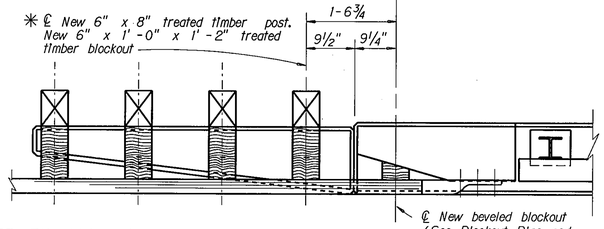
Scale ~ As Noted DRAWING NO. 15157

560 51 137 W1213 RBG

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B23

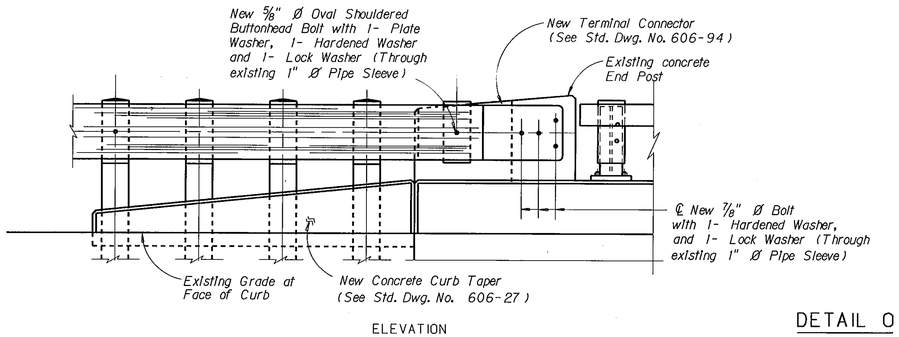
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To be included in the unit price bid for "Bridge Approach Section" (See Road Plans and Standard Dwg. No. 606-25)

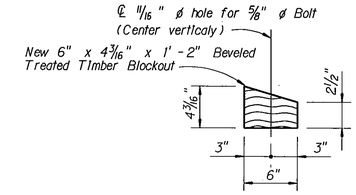


NOTE: This detail applies to approach ends only.

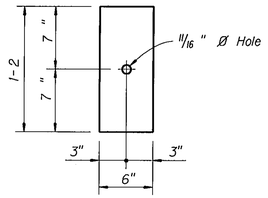
PLAN



ELEVATION



BLOCKOUT PLAN
Scale ~ 1½" = 1-0



BLOCKOUT ELEVATION
Scale ~ 1½" = 1-0

Bridge Approach Rail Attachment N. B. and S. B. Roadways M. P. 120+0.697 and 126+0.316

These structures requires no bridge modification to attach the Bridge Approach Section. The connection of the approach rail shall be at the first blockout on the approach ends. See Std. Dwg. No. 606-25 - Bridge Approach Section Type-3. Blockout size shall be similar to those shown in Detail P this sheet.

NOTES

The contractor shall determine actual bolt lengths.

The contractor shall verify all dimensions in the field before ordering any materials.

Lap all rail splices in the direction of traffic flow.

For location of required approach rail to bridge rail connections, curb tapers and guardrail revisions see General Layouts referred to in the Summary of Bridge Rehabilitation Dwg. No. 15136.

For Plate Washer Detail see Std. Dwg. No. 606-84.

All new hardware except posts and base plates shall be galvanized. The posts and base plates may either be painted or galvanized in accordance with Standard Specifications.

All new wood blockouts shall be treated timber and shall be placed with the wood grain perpendicular to the bolt centerline.

Bridge rail to be continuous with bridge approach rail.

All posts and plates shall conform to ASTM A36.

The cost of all materials, tools, equipment, labor and incidentals necessary to complete this work shall be included in the unit price bid for Bridge Approach Section.

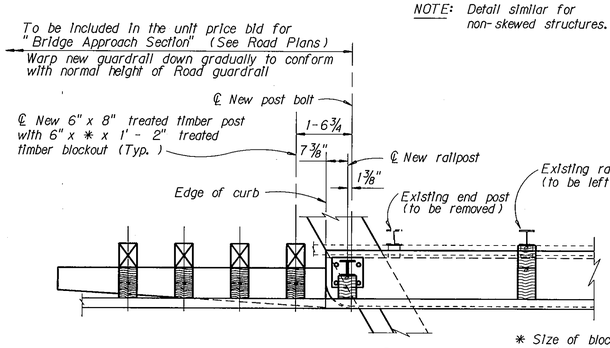
DETAIL O

Scale ~ ¾" = 1-0

(M. P. 195+0.713 E. B. and W. B. on approach ends only)
(M. P. 321+0.895 E. B. and W. B. on approach ends only)

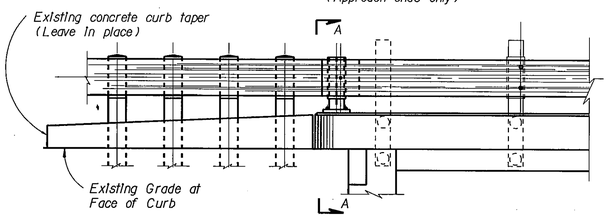
NOTE: Detail similar for non-skewed structures.

To be included in the unit price bid for "Bridge Approach Section" (See Road Plans)
Warp new guardrail down gradually to conform with normal height of Road guardrail

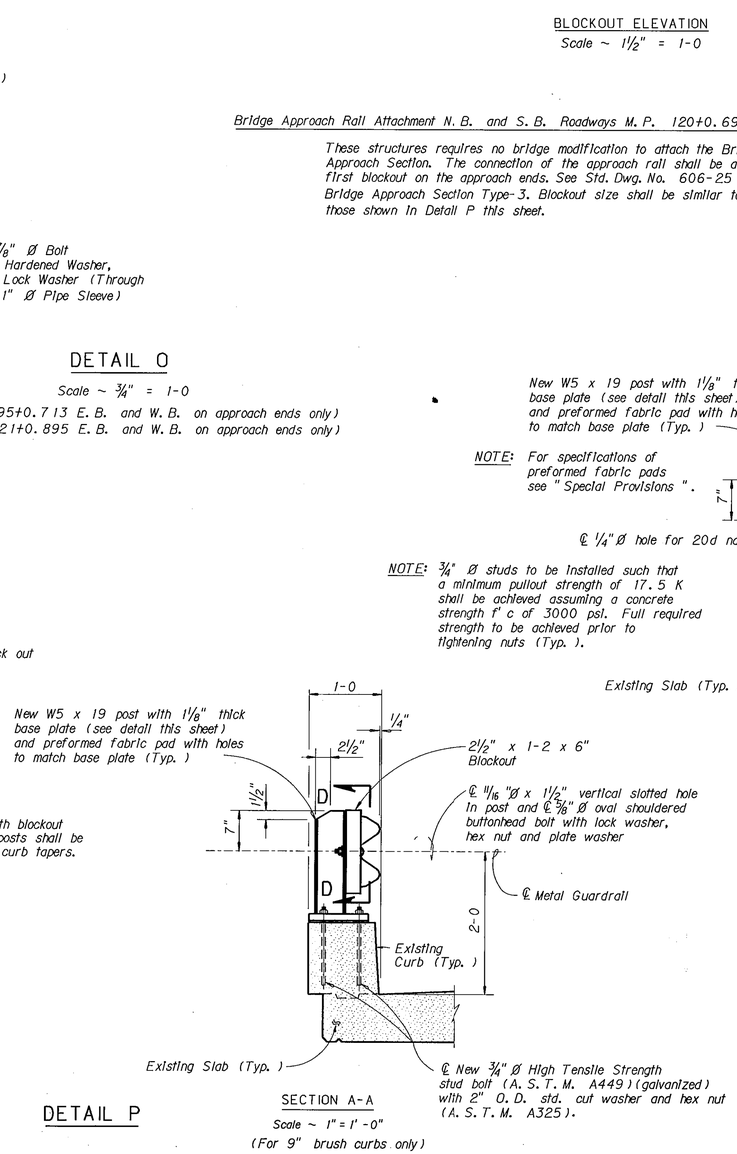


PLAN
(Approach ends only)

✳ Size of blockout varies with blockout detail. New treated timber posts shall be positioned against existing curb tapers.



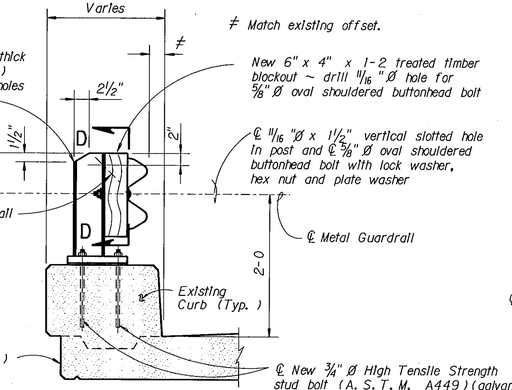
ELEVATION
(Approach ends only)
Scale ~ ½" = 1-0



SECTION A-A
Scale ~ 1" = 1'-0"
(For 9" brush curbs only)

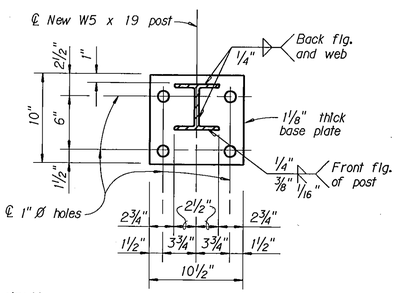
DETAIL P

(For location see "Summary of Bridge Rehabilitation Dwg. No. 15136)

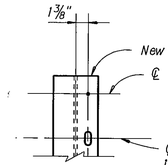


NOTE: ¾" Ø studs to be installed such that a minimum pullout strength of 17.5 K shall be achieved assuming a concrete strength f' c of 3000 psi. Full required strength to be achieved prior to tightening nuts (Typ.).

SECTION A-A
Scale ~ 1" = 1'-0"
(For 1-6 and 1-10 wide curbs only)



BASE PLATE DETAIL
Scale ~ 1½" = 1'-0"



SECTION D-D
Scale ~ 1½" = 1'-0"

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

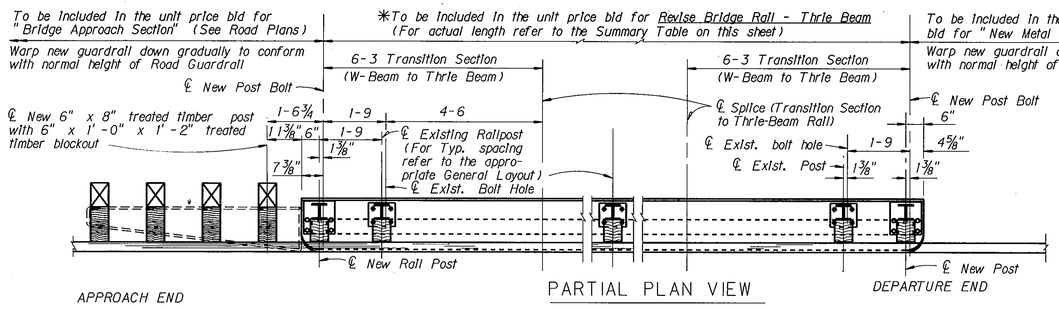
RAIL REVISION DETAILS
DETAILS "O" AND "P"

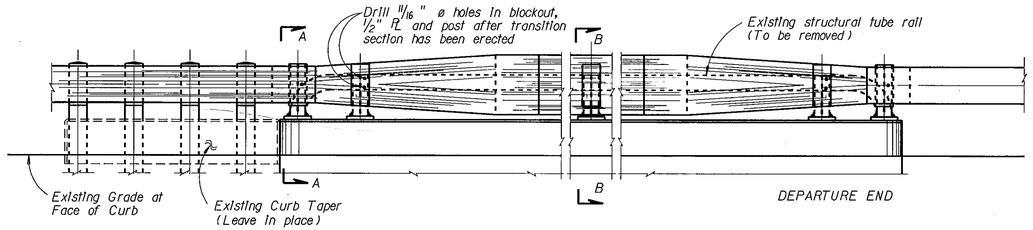
DESIGNED	7-25-91	L. R. T.
DRAWN	7-25-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

Scale ~ As Noted

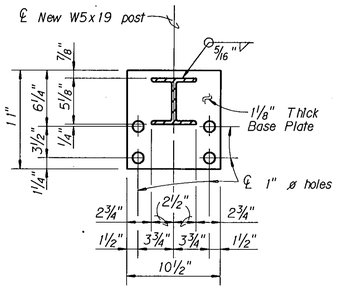
DRAWING NO. 15158

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B24



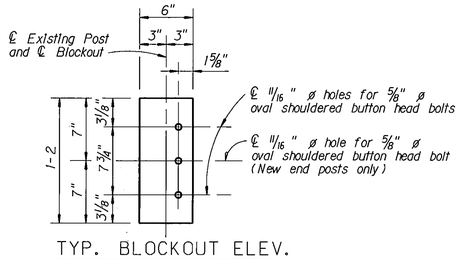


PARTIAL ELEVATION VIEW



NOTE: Reuse existing bolts, nuts and washers.

NEW BASE PLATE DETAIL
Scale: 1½" = 1'-0"



TYP. BLOCKOUT ELEV.
Scale: 1½" = 1'-0"

NOTES:

Details shown on this drawing shall apply to both sides for the entire length of each structure.

The contractor shall determine actual bolt lengths.

The contractor shall verify all dimensions in the field before ordering any materials.

Lap all rail splices in the direction of traffic flow.

For location of required approach rail to bridge rail connections and guardrail revisions see General Layouts referred to in the Summary Table on this sheet.

Place a reflectorized washer approximately every 25'-0". See Standard Dwg. No. 606-05.

Plug predrilled holes in rail with standard splice bolts. See Standard Dwg. No. 606-05.

For Plate Washer Detail see Standard Dwg. No. 606-84.

All new hardware except for the ½" plates, posts & base plates shall be galvanized. The ½" plates, posts & base plates may be either painted in accordance with the Standard Specifications or galvanized.

Rail sections which are cut shall be cut square. Flame cutting will not be permitted. New cut ends or holes shall be coated with an approved galvanizing paint.

Bridge rail to be continuous with bridge approach rail.

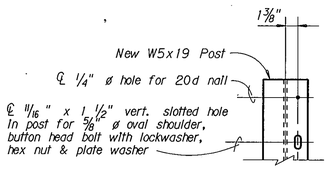
The existing structural tube rail shall become the property of the State. The contractor shall stockpile the structural tube rail at a site designated by the Engineer for pickup by State forces.

The 6'-3" transition section from standard metal guardrail to Thrie beam shall be A. A. S. H. T. O. designation Type I, Class A.

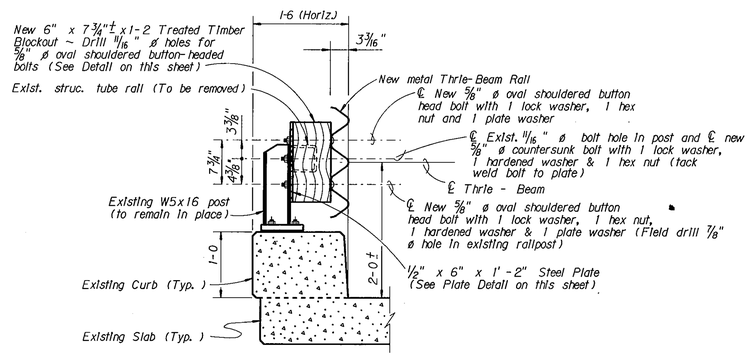
All Thrie beam sections shall be A. A. S. H. T. O. designation Type I, Class B.

The cost of furnishing & placing new metal thrie beam, transition sections, base plates, posts, preformed fabric pads, T. T. blockouts, plates, washers, nuts, bolts & reflectorized washers shall be included in the unit price bid for "Revise Bridge Rail - Thrie Beam". Also included in the subject bid item shall be the cost of removing and stockpiling the existing structural tube rail. "Revise Bridge Rail - Thrie Beam" shall be paid for by the lineal foot which shall be full compensation for furnishing all materials, equipment and labor necessary to complete the item. The number of lineal feet for payment is shown in the Summary Table on this sheet.

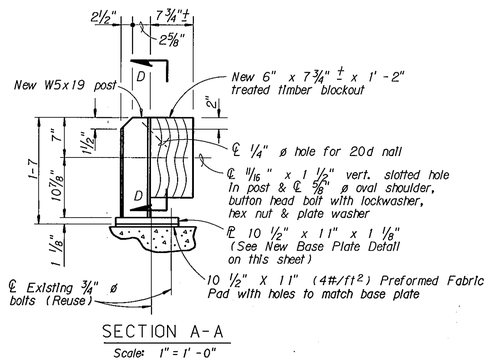
All new wood blockouts shall be treated timber and shall be placed with the wood grain perpendicular to the bolt centerline.



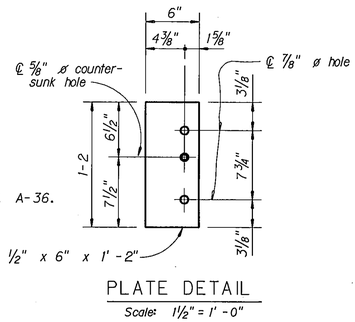
SECTION D-D
Scale: 1½" = 1'-0"



SECTION B-B
Scale: 1" = 1'-0"



SECTION A-A
Scale: 1" = 1'-0"



NOTE: Plates to be A. S. T. M. A-36.

PLATE DETAIL
Scale: 1½" = 1'-0"

SUMMARY TABLE

MILE POST	GENERAL LAYOUT DWG. NO.	*Length of Rail (One side only)	TOTAL LENGTH		CURB TAPERS	
			Eastbound	Westbound	E. B.	W. B.
216+0.672	7838	159-2	318-4	318-4	0	0

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

RAIL REVISION DETAILS
M.P. 216+0.672
E.B. AND W.B. ROADWAYS
DETAIL "Q"

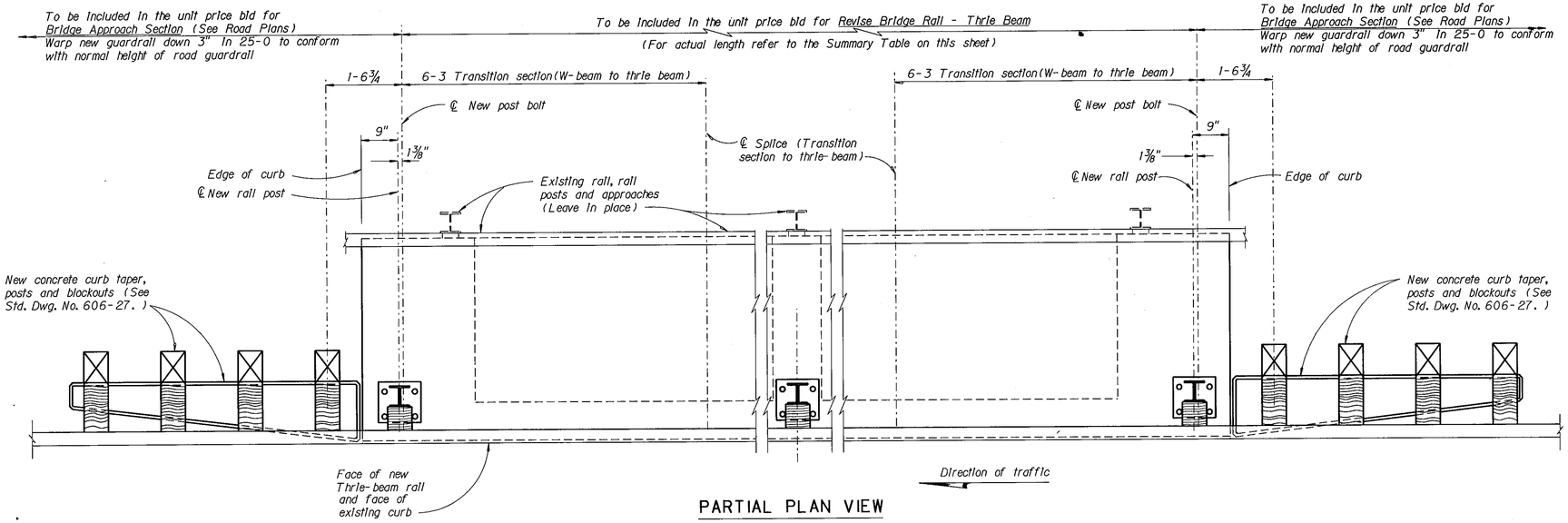
Scale: ~~1/2"~~ = 1'-0" Except as noted

DESIGNED	7-25-91	L. R. T.
DRAWN	7-25-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
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REVISED		

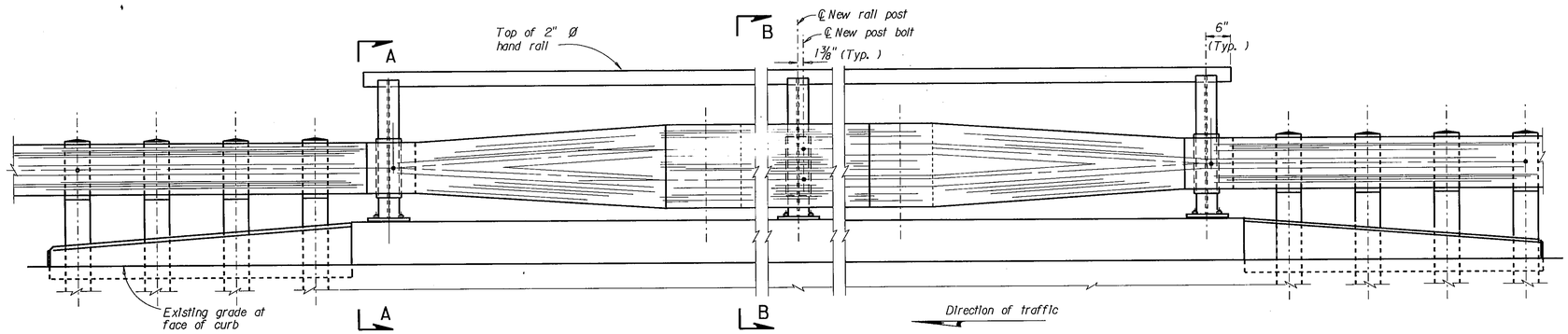
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FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B25



PARTIAL PLAN VIEW



PARTIAL ELEVATION VIEW

SUMMARY TABLE			
Mile Post	General Layout Drawing Number	Length of Rail (One side only)	Total Length
129+0.807	5922	266-8	533-4

NOTES

Details shown on this drawing shall apply to both sides for the entire length of the structure unless otherwise noted.

The contractor shall determine actual bolt lengths.

The contractor shall verify all dimensions in the field before ordering any materials.

Lap all rail splices in the direction of traffic flow.

For location of required approach rail to bridge rail connections, curb tapers, and guardrail revisions see General Layout referred to in the Summary Table on this sheet.

Place a reflectorized washer approximately every 25' -0". See Std. Dwg. No. 606-05.

Plug predrilled holes in rail with std. splice bolts. See Std. Dwg. No. 606-05.

For Plate Washer Detail see Std. Dwg. No. 606-84.

All new hardware shall be galvanized.

Rail sections which are cut shall be cut square. Flame cutting will not be permitted. New cut ends or holes shall be coated with an approved galvanizing paint.

Bridge rail to be continuous with bridge approach rail.

The 6' -3" transition section from standard metal guardrail to Thrie beam shall be A. A. S. H. T. O. designation Type I, Class A.

All Thrie beam sections shall be A. A. S. H. T. O. designation Type I, Class B.

The cost of furnishing and placing new metal thrie beam, transition sections, base plates, posts, preformed fabric pads, treated timber blockouts, plates, washers, nuts, bolts and reflectorized washers shall be included in the unit price bid for Revise Bridge Rail-Thrie Beam. Revise Bridge Rail - Thrie Beam shall be paid for by the linear foot which shall be full compensation for furnishing all materials, equipment and labor necessary to complete the item. The total estimated number of linear feet for payment is shown in the Summary Table on this sheet.

All costs associated with the furnishing of materials, equipment, and labor necessary to install Bridge Approach Section - Type 3, including any required asphalt material removal, shall be included in the unit price bid for Bridge Approach Section.

For Section A-A, Section B-B, Base Plate Detail, and rail expansion details see Dwg. No. 15161.

New rail post spacing shall match existing post spacing as shown on the General Layout except as shown on this sheet.

The existing pedestrian rail and related hardware shall become the property of the State. The contractor shall stockpile the pedestrian rail, rail posts and related hardware at a site designated by the Engineer for pickup by State forces. All costs associated with salvaging and stockpiling the existing pedestrian rail shall be included in the unit price bid for Revise Bridge Rail - Thrie Beam.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION
FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

RAIL REVISION AT M.P. 129+0.807

DETAIL "R"

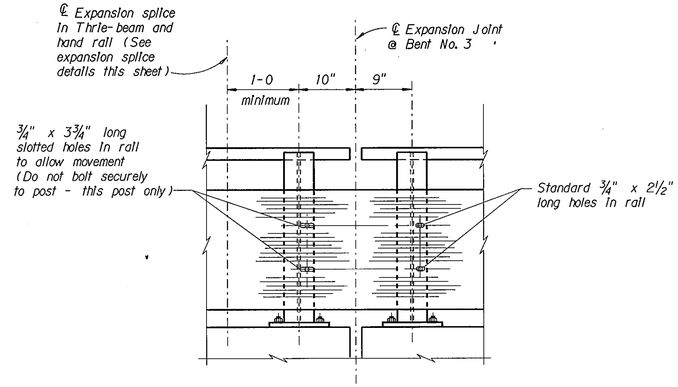
DESIGNED	7-30-91	L. R. T.
DRAWN	7-30-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

Scale ~ ¾" = 1' - 0" Except as noted

DRAWING NO. 15160

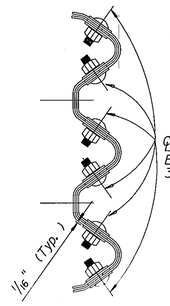
MONTANA CADD
19-DEC-1991 09:30
BRIAN W
Z:\PLOTS\06000253\ST\U02\T7_B86.1

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B26



RAIL ATTACHMENT DETAIL AT BENT NO. 3

Scale ~ 1" = 1-0

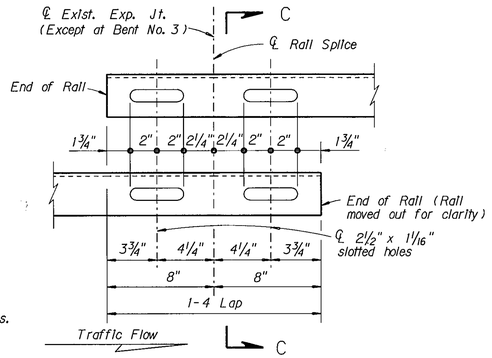


NOTE: Expansion joints in the new metal Thrie Beam are necessary only where there are expansion joints in the existing rail.

℄ 5/8" ø x 2" Splice Bolt with 1 Hex Nut and 3 Plate Washers

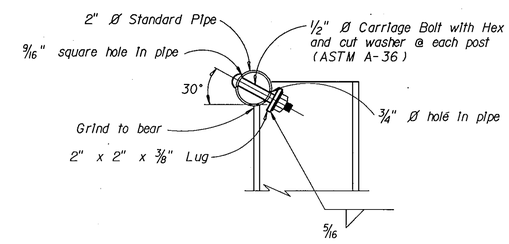
SECTION C-C

No Scale



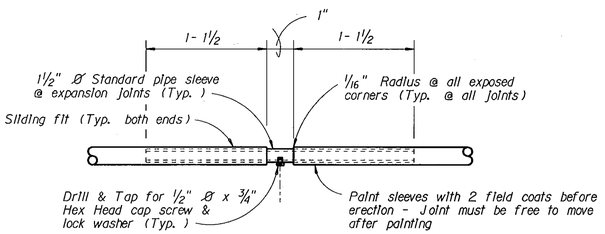
EXPANSION SPLICE DETAIL

No Scale



HAND RAIL ATTACHMENT DETAIL

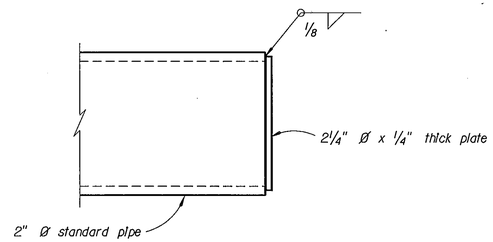
Scale ~ 3" = 1-0



HAND RAIL SPLICE DETAIL

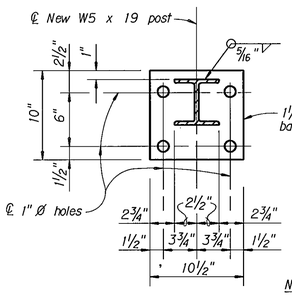
Scale ~ 1 1/2" = 1'-0"

NOTE: Locate hand rail splice at same location as Thrie-beam rail slices.



HAND RAIL END PLUG DETAIL

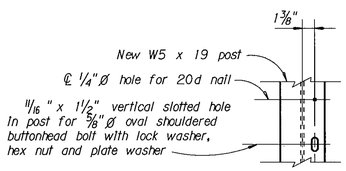
No Scale



Note: Plate to be ASTM A-36

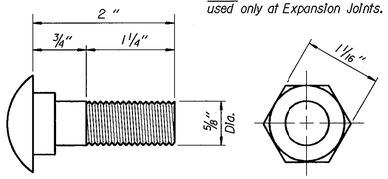
NEW BASE PLATE DETAIL

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



SECTION D-D

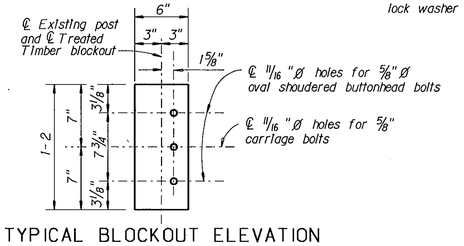
Scale ~ 1" = 1'-0"



NOTE: This bolt is to be used only at Expansion Joints.

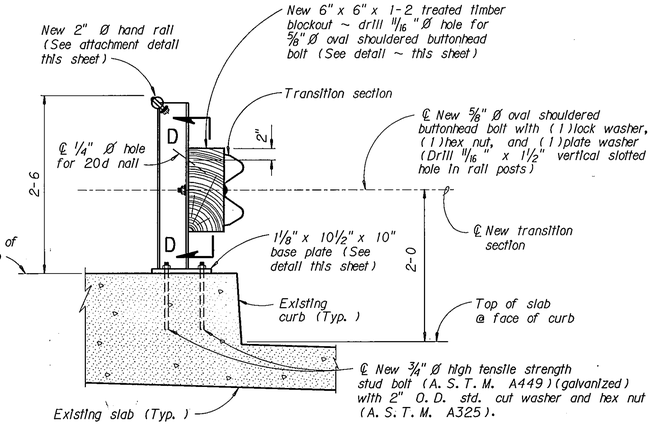
SPLICE BOLT & NUT DETAIL

Full Scale



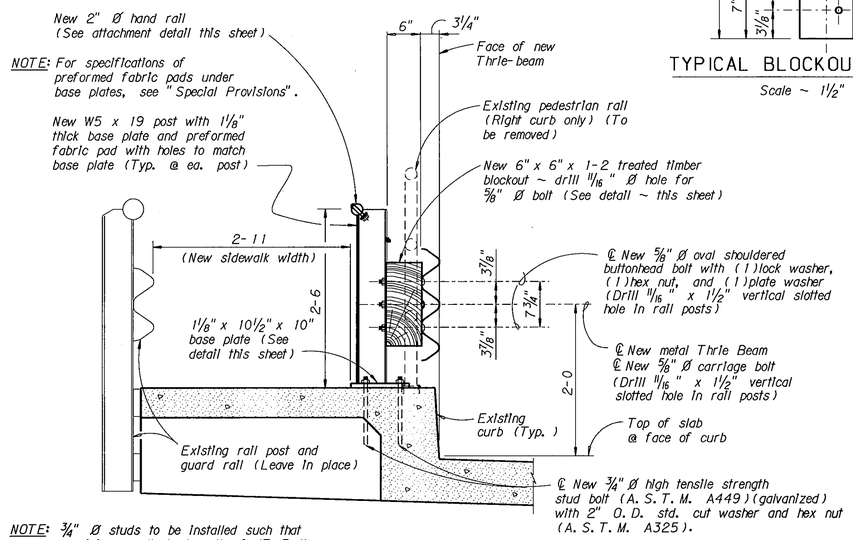
TYPICAL BLOCKOUT ELEVATION

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



SECTION A-A

Scale ~ 1" = 1'-0"



NOTE: 3/4" ø studs to be installed such that a minimum pullout strength of 17.5 K shall be achieved assuming a concrete strength f' c of 3000 psi. Full required strength to be achieved prior to tightening nuts.

SECTION B-B

Scale ~ 1" = 1'-0"

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

RAIL REVISION AT M.P. 129+0.807

DETAIL "R"

Scale ~ As Noted

DRAWING NO. 15161

DESIGNED	8-1-91	L. R. T.
DRAWN	8-1-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

19-DEC-1991 09:30 BRUCE MONTANA DEPT OF HIGHWAYS I:\BRIDGE\15161\DGN\15161.DGN

AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY

11/04/2015
Highways & Engineering Division

MONTANA DEPARTMENT OF TRANSPORTATION

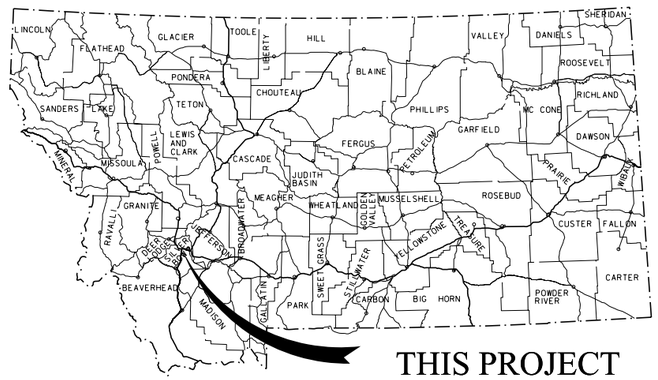
PRESENT 2002	A.D.T.	= 520
LETTING 2005	A.D.T.	= 570
DESIGN 2025	A.D.T.	= 1060
	D.H.V.	= 260
	TRUCKS	= 20.4%
	V.	= NA
	18 KIP ESAL'S	= 222.21
	GROWTH RATE	= 3.2%

CSF = 0.99929033

LETTING DATE - 5/9/2013
COMPLETION DATE - 6/10/2015

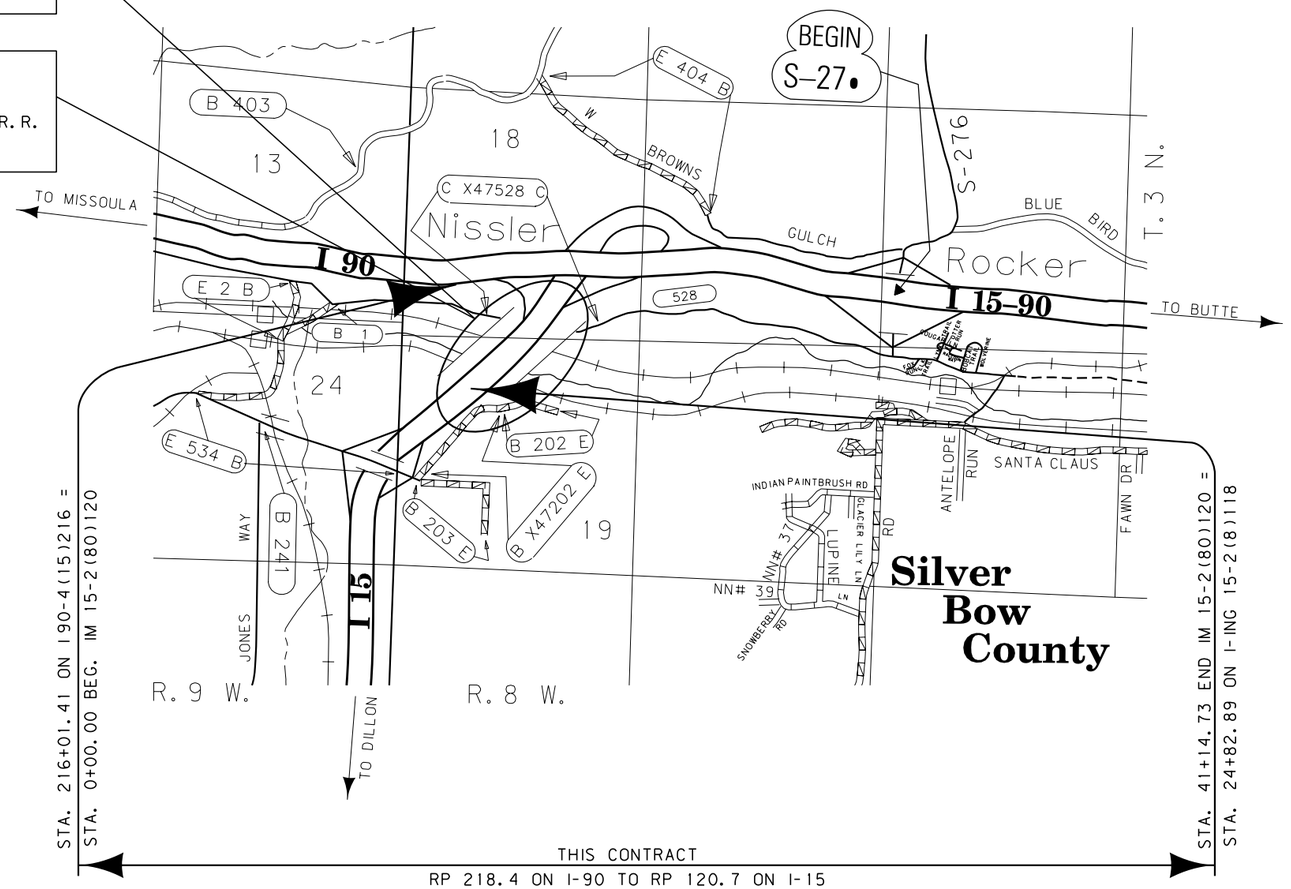
AS–BUILTS

FEDERAL AID PROJECT IM- NHTSA 15-2(80)120
STRUCTURE AND RAMP REVISION
NISSLER INTERCHANGE
SILVER BOW COUNTY



36+81.51 (ENG.); RP 120.7
28' X 613.5' CONC. O'PASS - NB
#100015120+0.6971
LOCAL RD., CREEK, RARUS R.R. & MWR R.R.
I 15-2(8)118
THIS CONTRACT

37+15.48 (ENG.); RP 120.7
28' X 598.5' CONC. O'PASS - SB
#100015120+0.6972
LOCAL RD., CREEK, RARUS R.R. & MWR R.R.
I 15-2(8)118
THIS CONTRACT



LENGTH 0.8 MILES

SURFACING SOURCES -
CONTRACTOR FURNISHED

AN ACCESS CONTROLLED FACILITY

RELATED PROJECTS
MT-STPX 47(24)

ASSOCIATED PROJECT AGREEMENT NUMBERS

R / W	IM 15-2(115)120
P. E.	IM 15-2(77)120

MONTANA DEPARTMENT OF TRANSPORTATION	
APPROVED : _____ 20 ____ MICHAEL T. TOOLEY DIRECTOR OF TRANSPORTATION BY _____ HIGHWAYS ENGINEER	MONTANA PAUL R. FERRY 8425PE REGISTERED PROFESSIONAL ENGINEER
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED : _____ DIVISION ADMINISTRATOR _____ DATE	

3 2 1	MDT MONTANA DEPARTMENT OF TRANSPORTATION	c:\dgn\4571rdtl001ab.dgn 11/4/2015 7:38:31 AM CPS - U4820		RANDALL PERKINS 	3/18/2010 	ROAD PLANS UPN 4571

AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY
11/04/2015
Highways & Engineering

STATE	PROJECT NUMBER	SHEET NO.
Division MONTANA	IM-NHTSA 15-2(80)120	B1

AS-BUILTS

MONTANA

DEPARTMENT OF TRANSPORTATION

BRIDGE PLANS AND QUANTITIES

FEDERAL AID PROJECT NO. IM 15-2(77)121 P.E.
IM-NHTSA 15-2(80)120 CONSTRUCTION

NISSLER INTERCHANGE

SILVER BOW COUNTY

LIST OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
B1	21602	BRIDGE PLAN QUANTITIES
B2	21603	REHABILITATION DETAILS
B3	21604	BARRIER RAIL REVISIONS
B4	21605	NORTHBOUND BARRIER REINFORCING STEEL PLACEMENT DIAGRAM
B5	21606	SOUTHBOUND BARRIER REINFORCING STEEL PLACEMENT DIAGRAM
B6	21607	BILL OF REINFORCING STEEL AND BARRIER DETAILS
B7	21608	JOINT REPLACEMENT AT BENTS 8 & 10 N.B. & S.B.
B8	21609	JOINT REPLACEMENT AT BENTS 4 & 5 N.B. & S.B.
B9	21610	EXPANSION JOINT BENT 4 N.B., DECK JOINT REMOVAL DETAILS, HALF CROSS SECTION OF DECK
B10	4576	EXISTING GENERAL LAYOUT NORTHBOUND
B11	4590	EXISTING GENERAL LAYOUT SOUTHBOUND

ESTIMATED BRIDGE PLAN QUANTITES

STRUCTURE NAME	REFERENCE POST	BRIDGE ID NUMBER	GENERAL LAYOUT DWG. NO.		BRIDGE DECK HYDRODEMOLITION (YD²)	MODIFIED CONCRETE OVERLAY (YD³) *	JOINT SEALS - SILICONE (FT)	REVISE BRIDGE RAIL CONCRETE BARRIER (FT)	CLASS B BRIDGE DECK REPAIR (YD²)	TRANSVERSE DECK GROOVING (YD²)	EXPANSION JOINT (FT)
NISSLER INTER. NB	120.69	I00015120+06971	4576	BRIDGE TOTAL	1912.6	*145.5* ~~182.2~~	*99.0* ~~89.0~~	1242.0	*125.5* ~~117.0~~	*1725.5* ~~1774.0~~	*99.0* ~~89.0~~
NISSLER INTER. SB	120.69	I00015120+06972	4590	BRIDGE TOTAL	*1864.9* ~~1865.8~~	*148.0* ~~177.8~~	*99.0* ~~89.0~~	1212.0	*130.9* ~~117.0~~	*1706.3* ~~1730.6~~	*99.0* ~~89.0~~
				PROJECT TOTAL	*3777.5* ~~3778.4~~	*293.5* ~~360.0~~	*198.0* ~~178.0~~	2454.0	*256.4* ~~234.0~~	*3431.8* ~~3504.6~~	*198.0* ~~178.0~~

* Modified Concrete Overlay quantity is based on an average deck removal depth of 2½ inches to account for the removal of additional unsound concrete expected below the nominal removal depth shown on the plans.

MDT MONTANA DEPARTMENT OF TRANSPORTATION

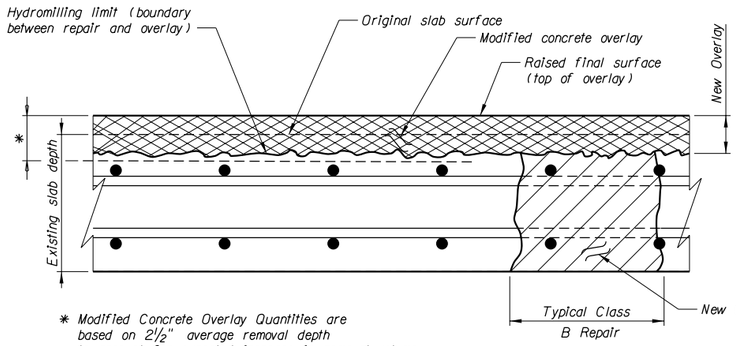
PREPARED	9-7-11	M. S. K.	c:\dgn\4571brqsh001ab.dgn		UPN NUMBER 4571
CHECKED	9-8-11	P. H. Jr.	CPS - U4820	11/4/2015 7:44:39 AM	DRAWING NO. 21602

AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY
AS-BUILTS 11/04/2015 Highways & Engineering

STATE	PROJECT NUMBER	SHEET NO.
Division MONTANA	IM-NHTSA 15-2(80)120	B2

BRIDGE WORK SUMMARY

STRUCTURE ID	STRUCTURE NAME	GENERAL LAYOUT DWG. NO.	REMOVE GUARD ANGLES	REMOVE EXISTING DECK JOINT	NEW SILICONE DECK JOINT	REVISE CONCRETE BARRIER	REMOVE 1½" OF DECK CONCRETE	MODIFIED CONCRETE OVERLAY	NEW EXPANSION JOINT
100015120+06971	NISSLER INTERCHANGE NB	4576	BENTS 1 through 12	BENTS 2, 7, 9, 11	BENTS 3, 5, 6	✓	✓	✓	BENTS 4, 8, 10
100015120+06972	NISSLER INTERCHANGE SB	4590	BENTS 1 through 12	BENTS 2, 7, 9, 11	BENTS 3, 5, 6	✓	✓	✓	BENTS 4, 8, 10



* Modified Concrete Overlay Quantities are based on 2½" average removal depth to account for expected increase in removal volume.

NOTE: For new overlay thickness, See Dwg. No. 21610.

NOTE: See Special Provisions for definitions of Class B repair.

NOTE: See details for overlay treatment at guard angles and expansion joints at specific locations.

NOTE: See Bridge Work Summary and Special Provisions for overlay treatment at a specific location.

NOTE: Reinforcing steel may be located above the hydromilling limit.

BRIDGE DECK REPAIR AND OVERLAY DEFINITION

GENERAL NOTES

GENERAL: Plans were prepared from original drawings and as-built drawings. No additional survey information was procured for this project. Existing structure dimensions may vary from those shown on the drawings. Verify all dimensions necessary to complete the work.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 2006 edition, and amendments, and special provisions govern unless otherwise noted.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31 Grade 60. Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

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

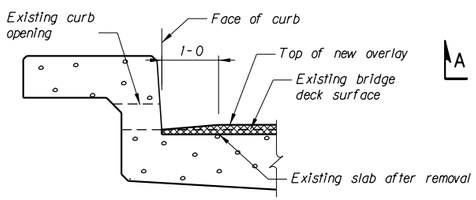
Include the cost of cleaning exposed existing reinforcing steel in other items of work.

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

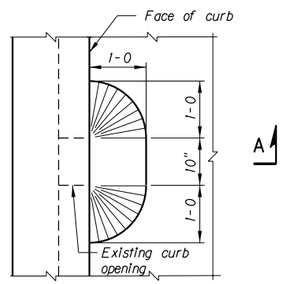
Include all costs associated with removing existing guard angle and concrete in the unit price bid for Class B Bridge Deck Repair.

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.

REPAIR CONCRETE: Submit for approval any substitution of rapid setting Portland cement concrete for Concrete - Class DD-Bridge. Traffic will not be permitted on concrete repairs until the specified strength is attained.



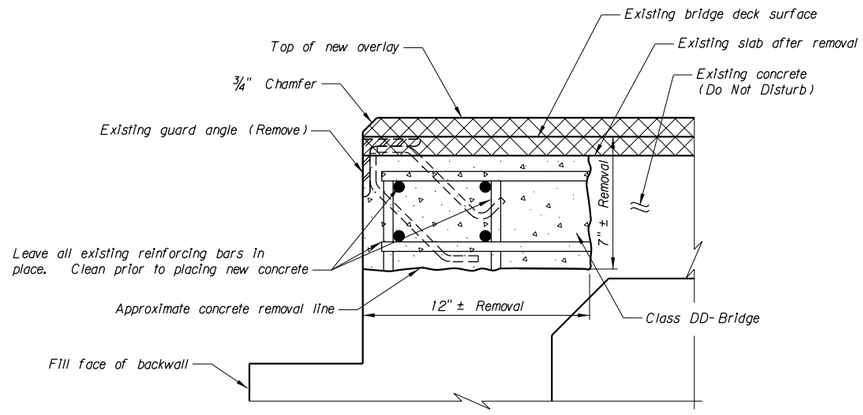
SECTION A-A



CURB OPENING PLAN

OVERLAY TREATMENT AT CURB OPENINGS

Scale ~ ¾" = 1'-0"



NOTE: Do not disturb existing longitudinal slab reinforcing steel or backwall stirrups.

GUARD ANGLE REMOVAL WITH OVERLAY DETAIL

DESIGNED	9-7-11	M. S. K.
DRAWN	9-8-11	P. H. Jr.
CHECKED	10-6-11	D. M. P.
REVISED		
REVISED		
REVISED		

MDT Montana Department of Transportation

NISSLER INTERCHANGE
AT 100015120+06971 &
AT 100015120+06972

FEDERAL AID PROJECT NO.
IM-NHTSA 15-2(80)120

SILVER BOW COUNTY

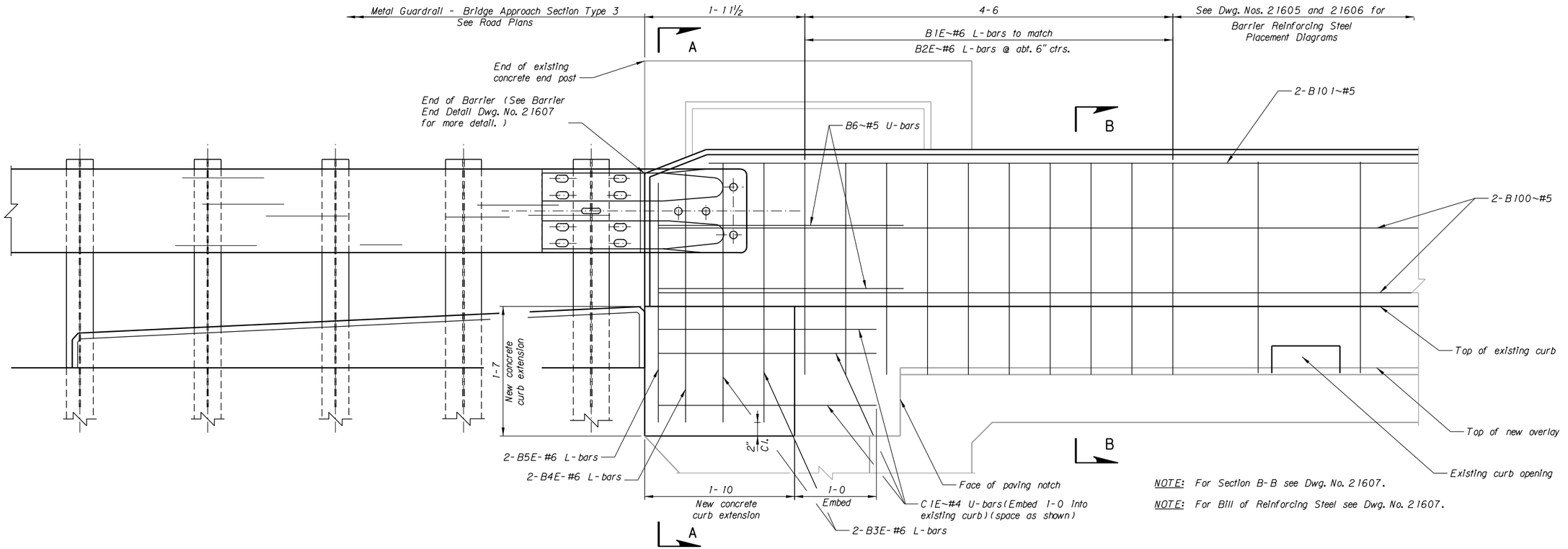
REHABILITATION DETAILS

Scale ~ No Scale

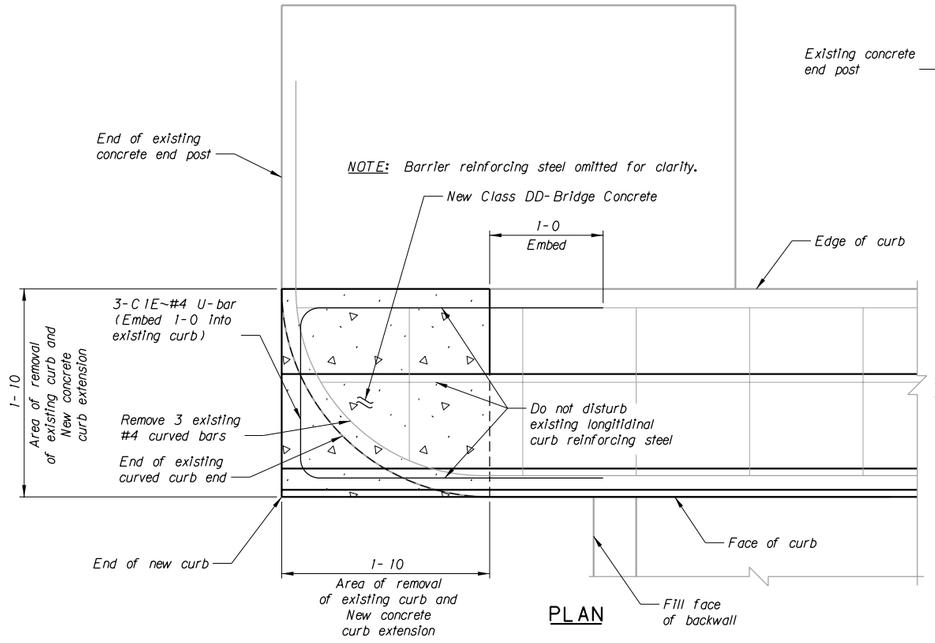
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CPS - U4820 11/4/2015 7:44:49 AM DRAWING NO. 21603

AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY
11/04/2015
Highways & Engineering
AS-BUILTS

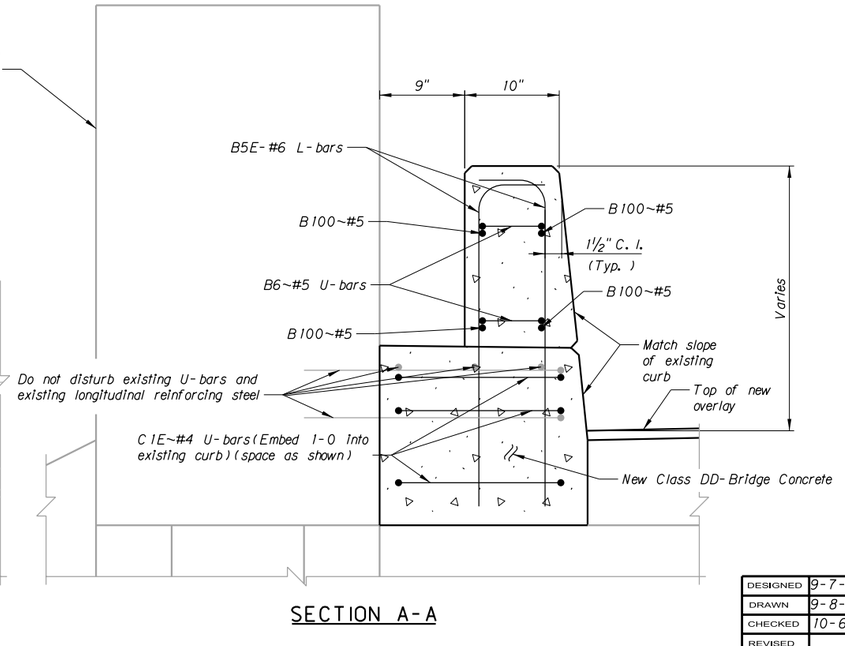
STATE	PROJECT NUMBER	SHEET NO.
Division MONTANA	IM-NHTSA 15-2(80)120	B3



ELEVATION



PLAN



SECTION A-A

DESIGNED	9-7-11	M.S.K.
DRAWN	9-8-11	D.G.G.
CHECKED	10-6-11	D.M.P.
REVISED		
REVISED		
REVISED		

MDT Montana Department of Transportation

NISSLER INTERCHANGE
AT I00015120+06971 &
AT I00015120+06972

FEDERAL AID PROJECT NO.
IM-NHTSA 15-2(80)120

SILVER BOW COUNTY

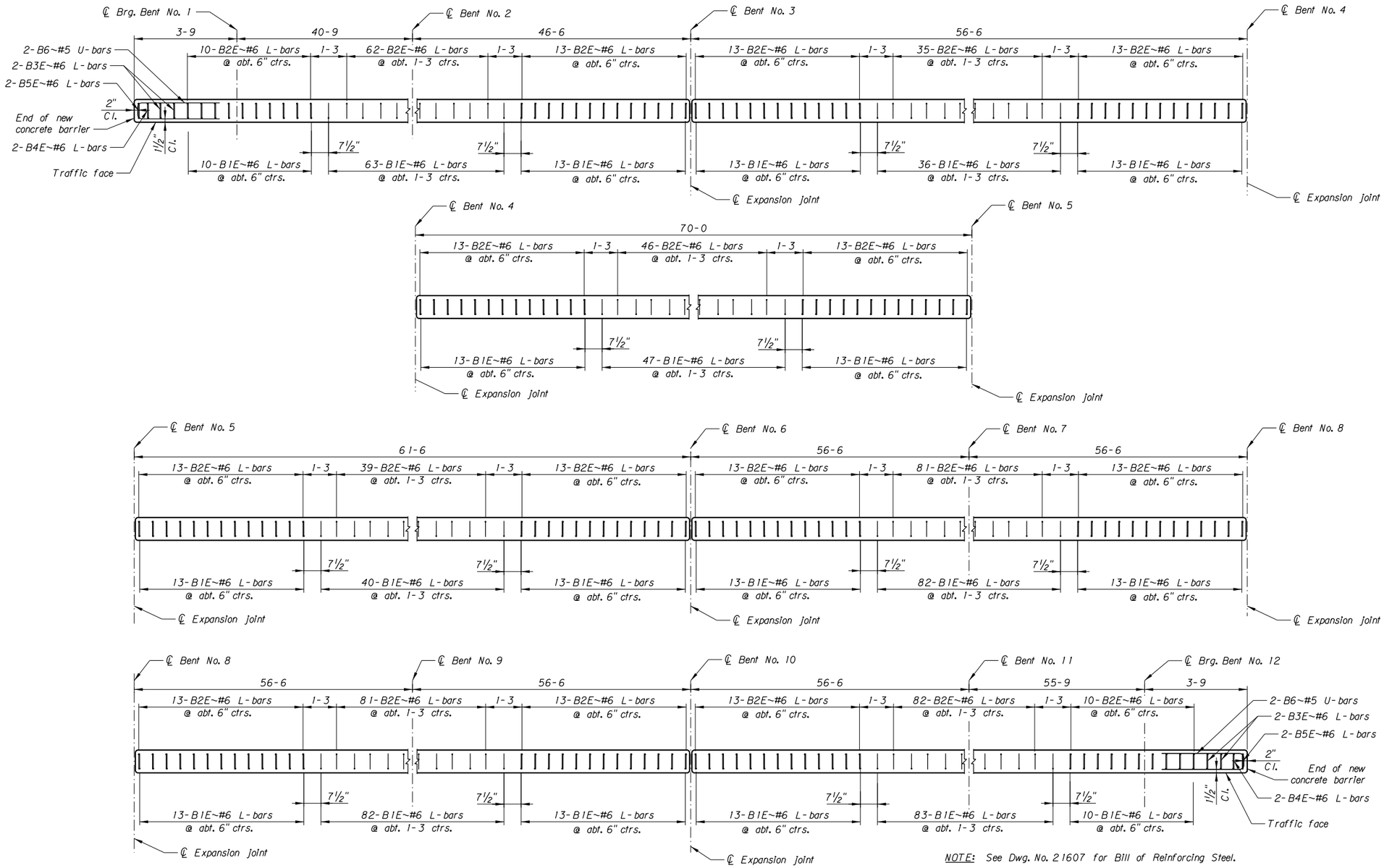
BARRIER RAIL REVISIONS

Scale ~ 1½" = 1'-0"

c:\dgn\4571brrrv001ab.dgn UPN NUMBER 4571
CPS-U4820 11/4/2015 7:44:57 AM DRAWING NO. 21604

AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY
AS-BUILTS
11/04/2015
Highways & Engineering

STATE Division	PROJECT NUMBER	SHEET NO.
MONTANA	IM-NHTSA 15-2(80)120	B4



BARRIER REINFORCING STEEL PLACEMENT DIAGRAM

(Northbound Structure)
No Scale

NOTE: See Dwg. No. 21607 for Bill of Reinforcing Steel.

NOTE: Barrier reinforcing steel similar both sides of structure.

DESIGNED	9-7-11	M. S. K.
DRAWN	9-8-11	D. G. G.
CHECKED	10-6-11	D. M. P.
REVISED		
REVISED		
REVISED		

MDT Montana Department of Transportation

NISSLER INTERCHANGE
AT 100015120+06971 &
AT 100015120+06972

FEDERAL AID PROJECT NO.
IM-NHTSA 15-2(80)120

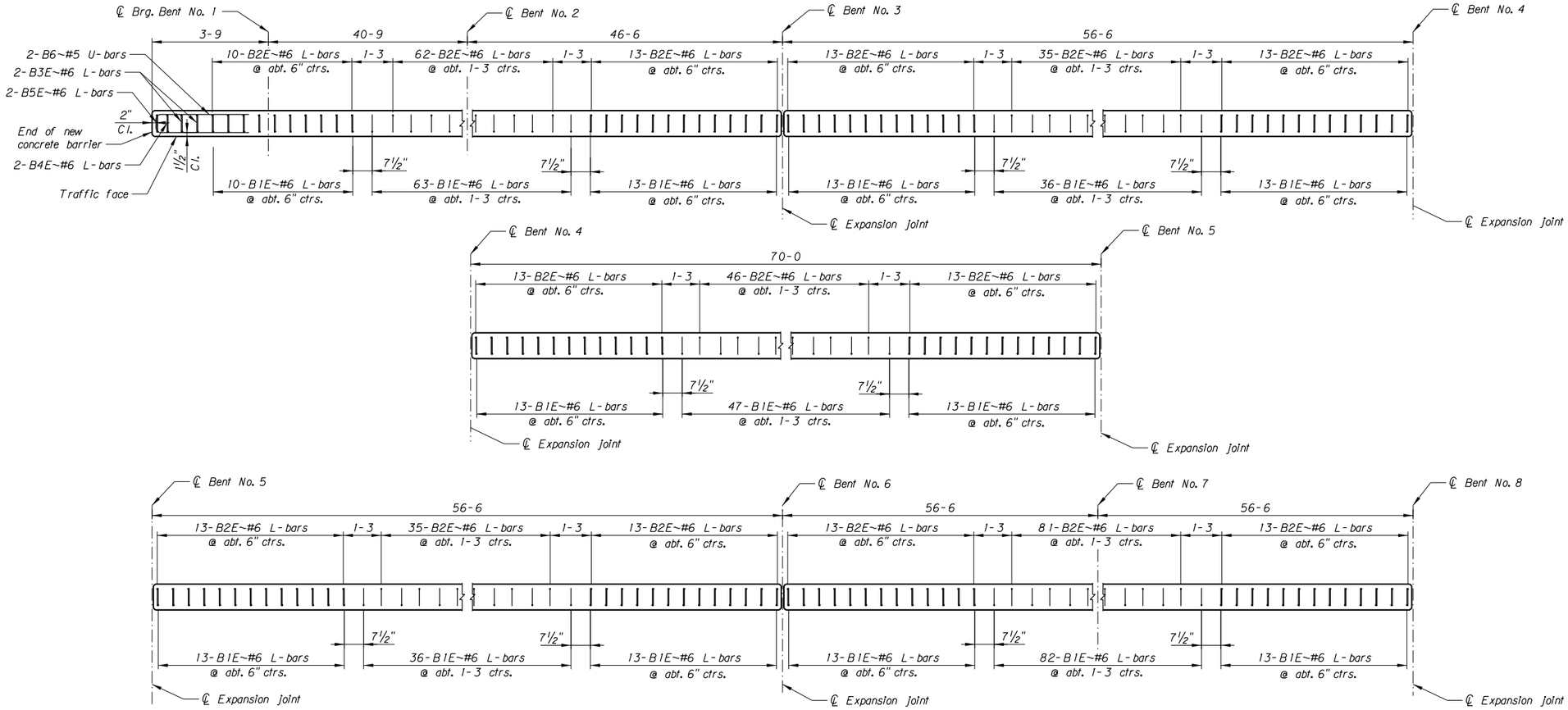
SILVER BOW COUNTY

NORTHBOUND
BARRIER REINFORCING STEEL
PLACEMENT DIAGRAM
No Scale

c:\dgn\4571brrrv003ab.dgn — UPN NUMBER 4571
CPS - U4820 11/4/2015 7:45:05 AM — DRAWING NO. 21605

AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY
11/04/2015
AS-BUILTS

STATE	PROJECT NUMBER	SHEET NO.
Highways & Engineering Division MONTANA	IM-NHTSA 15-2(80)120	B5



BARRIER REINFORCING STEEL PLACEMENT DIAGRAM

(Southbound Structure)
No Scale

NOTE: See Dwg. No. 21607 for Bill of Reinforcing Steel.

NOTE: Barrier reinforcing steel similar both sides of structure.

DESIGNED	9-7-11	M. S. K.
DRAWN	9-8-11	D. G. G.
CHECKED	10-6-11	D. M. P.
REVISED		
REVISED		
REVISED		

Montana Department of Transportation

NISSLER INTERCHANGE
AT I00015120+06971 &
AT I00015120+06972

FEDERAL AID PROJECT NO.
IM-NHTSA 15-2(80)120

SILVER BOW COUNTY

SOUTHBOUND
BARRIER REINFORCING STEEL
PLACEMENT DIAGRAM
No Scale

c:\dgn\4571brrrv004ab.dgn — UPN NUMBER 4571
CPS - U4820 11/4/2015 7:45:11 AM — DRAWING NO. 21606

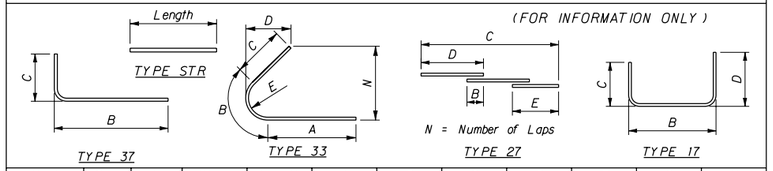
AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY
AS-BUILTS
11/04/2015
Highways & Engineering

STATE	PROJECT NUMBER	SHEET NO.
Division MONTANA	IM-NHTSA 15-2(80)120	B6

NORTHBOUND BRIDGE

BILL OF REINFORCING STEEL

(FOR ONE BARRIER ONLY)
(ALL DIMENSIONS ARE OUT TO OUT)

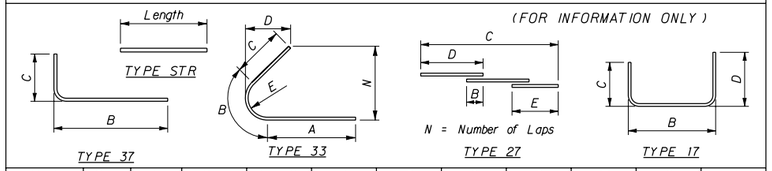


Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
B100	#5	4	27	93-8		3-0	90-8	60-0	33-8		1
B101	#5	2	27	92-8		3-0	89-8	60-0	32-8		1
B102	#5	6	STR	56-1							
B103	#5	6	27	72-7		3-0	69-7	34-10	37-10		1
B104	#5	6	27	64-1		3-0	61-1	30-7	33-6		1
B105	#5	6	27	115-7		3-0	112-7	60-0	55-7		1
B106	#5	6	27	115-6		3-0	112-6	60-0	55-6		1
B107	#5	4	27	118-7		3-0	115-7	60-0	58-7		1
B108	#5	2	27	117-7		3-0	114-7	60-0	57-7		1
B1E	#6	609	37	3-3½		2-8½	0-7				
B2E	#6	602	37	2-9½		2-2½	0-7				
B3E	#6	8	37	3-9		3-2	0-7				
B4E	#6	4	37	3-8		3-1	0-7				
B5E	#6	4	37	3-6		2-11	0-7				
B6	#5	4	17	6-7		0-7	3-0	3-0			
B7	#4	2	33	5-0	2-3½	0-5	2-3½	2-4½	0-1		0-9
C1E	#4	6	17	6-11		1-7	2-8	2-8			

SOUTHBOUND BRIDGE

BILL OF REINFORCING STEEL

(FOR ONE BARRIER ONLY)
(ALL DIMENSIONS ARE OUT TO OUT)



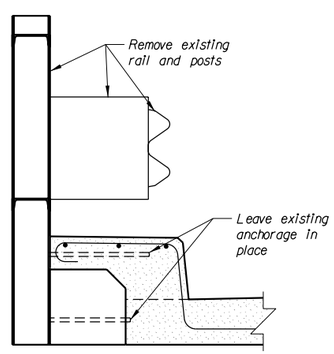
Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
B100	#5	4	27	93-8		3-0	90-8	60-0	33-8		1
B101	#5	2	27	92-8		3-0	89-8	60-0	32-8		1
B102	#5	6	STR	56-1							
B103	#5	6	27	72-7		3-0	69-7	34-10	37-10		1
B104	#5	6	27	56-1			56-1				
B105	#5	6	27	115-7		3-0	112-7	60-0	55-7		1
B106	#5	6	27	105-6		3-0	102-6	60-0	45-6		1
B107	#5	4	27	118-7		3-0	115-7	60-0	58-7		1
B108	#5	2	27	117-7		3-0	114-7	60-0	57-7		1
B1E	#6	596	37	3-3½		2-8½	0-7				
B2E	#6	589	37	2-9½		2-2½	0-7				
B3E	#6	8	37	3-9		3-2	0-7				
B4E	#6	4	37	3-8		3-1	0-7				
B5E	#6	4	37	3-6		2-11	0-7				
B6	#5	4	17	6-7		0-7	3-0	3-0			
B7	#4	2	33	5-0	2-3½	0-5	2-3½	2-4½	0-1		0-9
C1E	#4	6	17	6-11		1-7	2-8	2-8			

NOTE: Lap #5 bars 3-0 minimum.

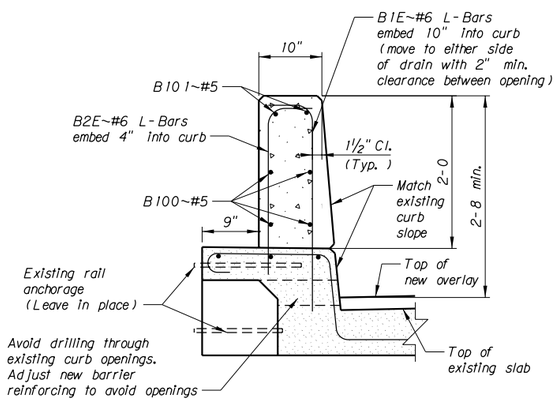
NOTE: The suffix E denotes epoxy coated reinforcing.

NOTES:
B100, B101 located between Bent 1 and Bent 3.
B102 located beetween Bent 3 and Bent 4.
B103 located between Bent 4 and Bent 5.
B104 located beetween Bent 5 and Bent 6.
B105 located between Bent 6 and Bent 8.
B106 located between bent 8 and Bent 10.
B107, B108 located between Bent 10 and Bent 12.

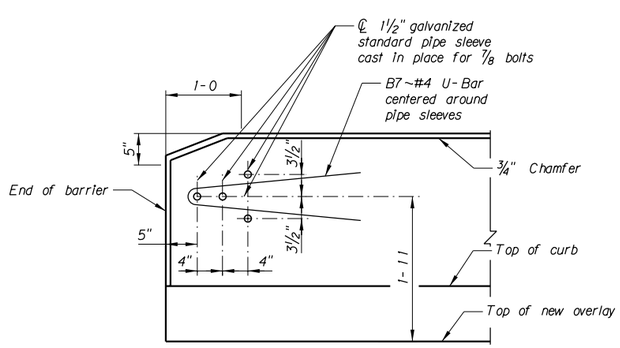
NOTES:
B100, B101 located between Bent 1 and Bent 3.
B102 located beetween Bent 3 and Bent 4.
B103 located between Bent 4 and Bent 5.
B104 located beetween Bent 5 and Bent 6.
B105 located between Bent 6 and Bent 8.
B106 located between Bent 8 and Bent 10.
B107, B108 located between Bent 10 and Bent 12.



EXISTING SECTION B-B
(Section cut through existing curb near ℄ Span 1 or 2)
(Section cut location not shown in plans)



NEW SECTION B-B



BARRIER END DETAIL

DESIGNED	9-7-11	M. S. K.
DRAWN	9-8-11	D. G. G.
CHECKED	10-6-11	D. M. P.
REVISED		
REVISED		
REVISED		

MDT Montana Department of Transportation

NISSLER INTERCHANGE
AT 100015120+06971 &
AT 100015120+06972

FEDERAL AID PROJECT NO.
IM-NHTSA 15-2(80)120

SILVER BOW COUNTY

BILL OF REINFORCING STEEL & BARRIER DETAILS

Scale ~ 1" = 1'-0" Except As Noted

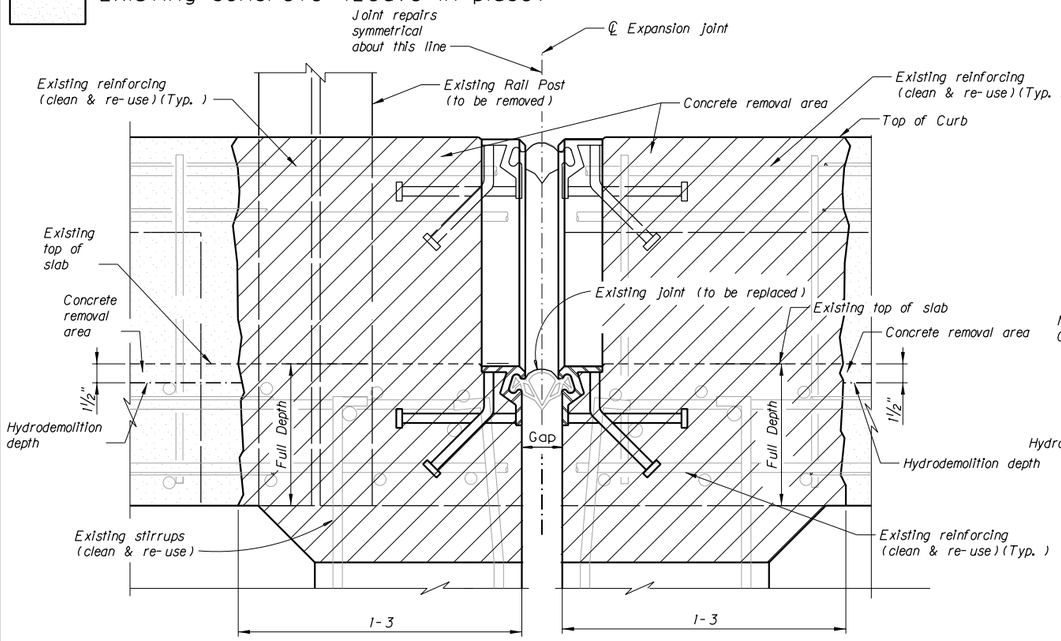
c:\dgn\4571brrrv002ab.dgn UPN NUMBER 4571
CPS - U4820 11/4/2015 7:45:26 AM DRAWING NO. 21607

AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY
11/04/2015
AS-BUILTS

STATE	PROJECT NUMBER	SHEET NO.
Highways & Engineering Division MONTANA	IM-NHTSA 15-2(80)120	B7

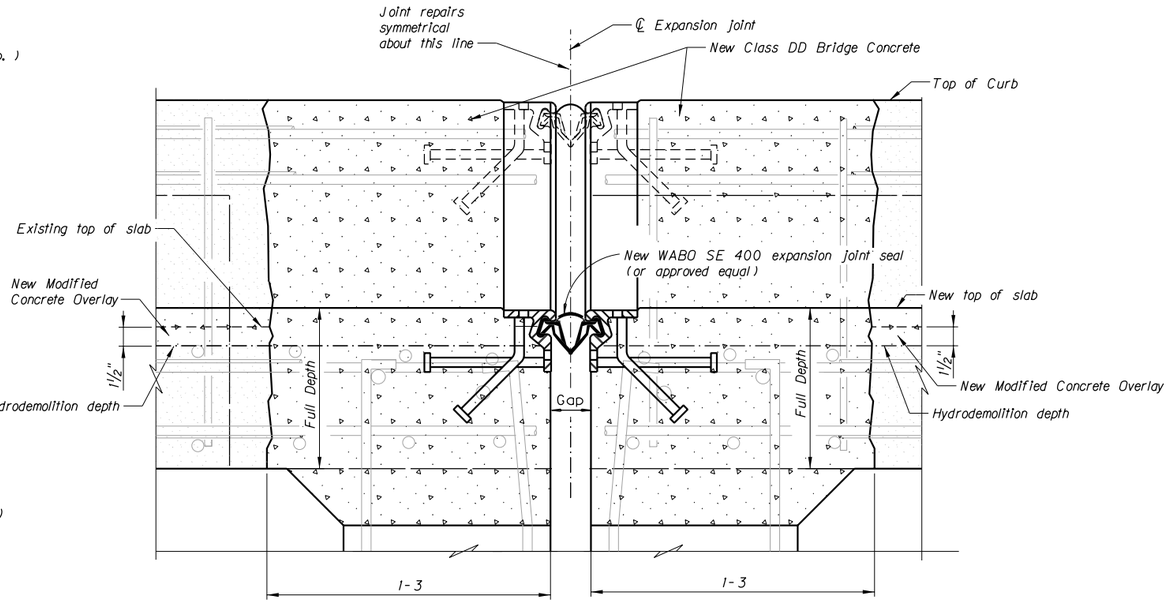
Remove existing concrete and joint

Existing concrete (Leave in place)



New modified concrete overlay and joint

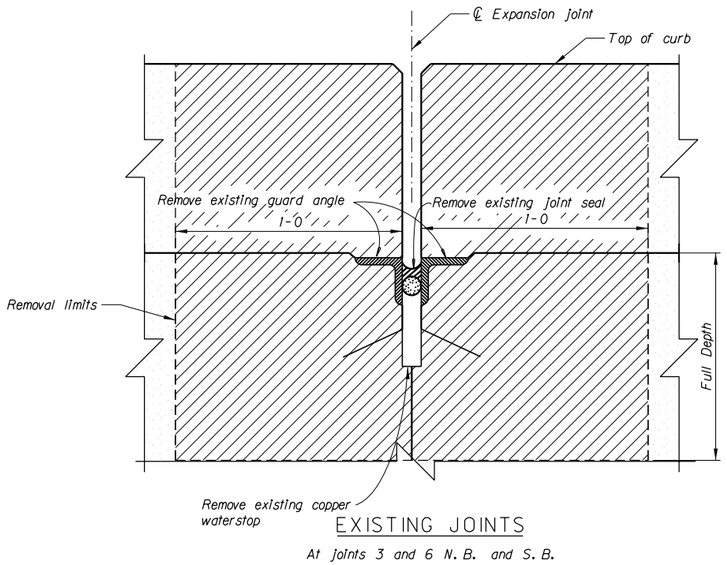
Existing concrete (Leave in place)



NOTE: The cost of removal of concrete and expansion joints at bents 8 and 10 are included in the cost of Class B Deck repair.

EXISTING EXPANSION JOINT

(At Bents 8 & 10 N.B. & S.B)

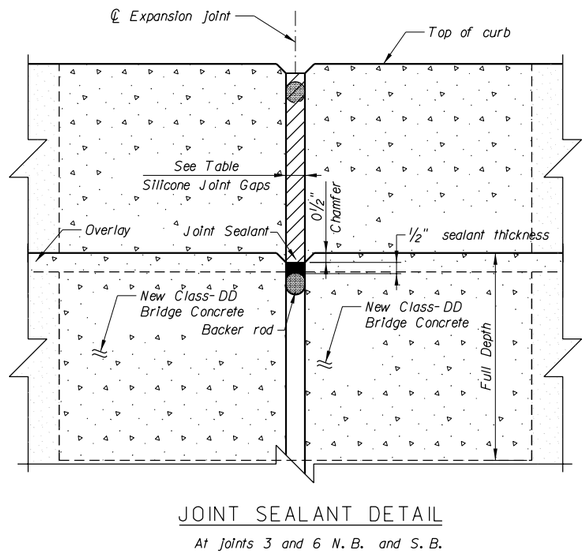


EXISTING JOINTS

At joints 3 and 6 N.B. and S.B.

NEW EXPANSION JOINT

(At Bents 8 & 10 N.B. & S.B)



JOINT SEALANT DETAIL

At joints 3 and 6 N.B. and S.B.

NOTE: Joint openings vary in width. Determine joint opening sizes before ordering materials.

NEOPRENE STRIP SEAL JOINT GAPS (in.)					
N.B.	S.B.	113° F	60° F (assumed placement temp)	-40° F	T change for ⅛" movement (deg-F)
BENT 8	BENT 8	1¼	1¾	2¾	15.4
BENT 10	BENT 10	1¼	1¾	2⅝	16.1

SILICONE JOINT GAPS (in.)					
N.B.	S.B.	113° F	60° F (assumed placement temp)	-40° F	T change for ⅛" movement (deg-F)
BENT 3	BENT 3	1⅛	1½	2⅛	26.0
BENT 6	BENT 6	1¼	1½	2	30.7

Montana Department of Transportation

NISSLER INTERCHANGE
AT I00015120+06971 &
AT I00015120+06972

FEDERAL AID PROJECT NO.
IM-NHTSA 15-2(80)120

SILVER BOW COUNTY

JOINT REPLACEMENT AT BENTS
3, 6, 8 AND 10 N.B & S.B.

Scale ~ 3" = 1'-0"

DESIGNED	9-7-11	M.S.K.
DRAWN	9-8-11	P.H.Jr.
CHECKED	9-30-11	D.M.P.
REVISED		
REVISED		
REVISED		

c:\dgn\4571brejd001ab.dgn UPN NUMBER 4571

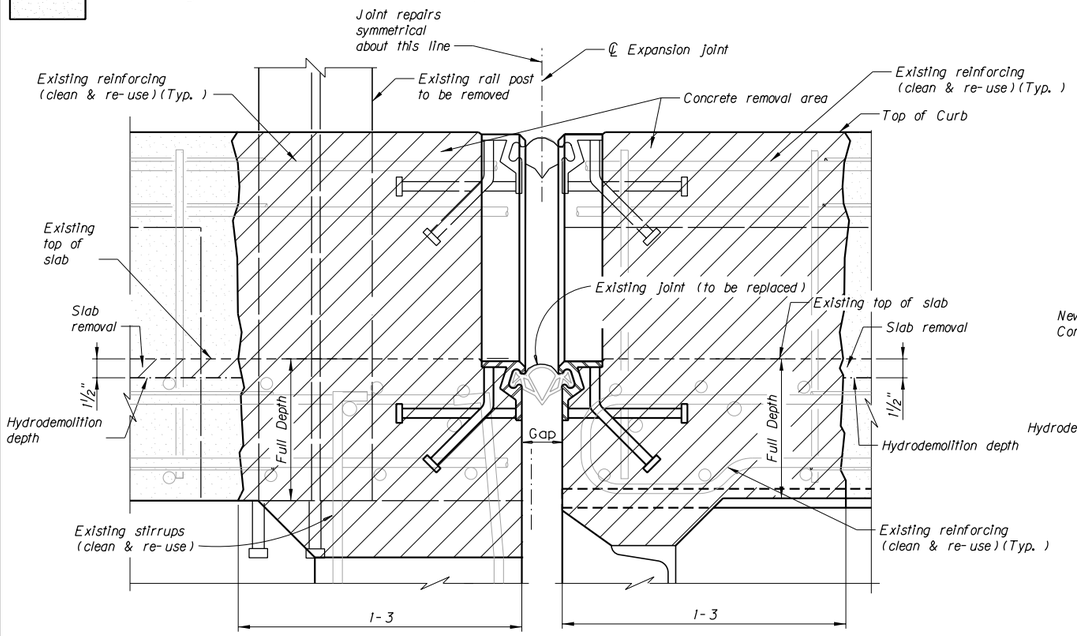
CPS-U4820 11/4/2015 7:45:33 AM DRAWING NO. 21608

AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY
11/04/2015
AS-BUILTS

STATE	PROJECT NUMBER	SHEET NO.
Highways & Engineering Division MONTANA	IM-NHTSA 15-2(80)120	B8

Remove existing concrete and joint

Existing concrete (Leave in place)



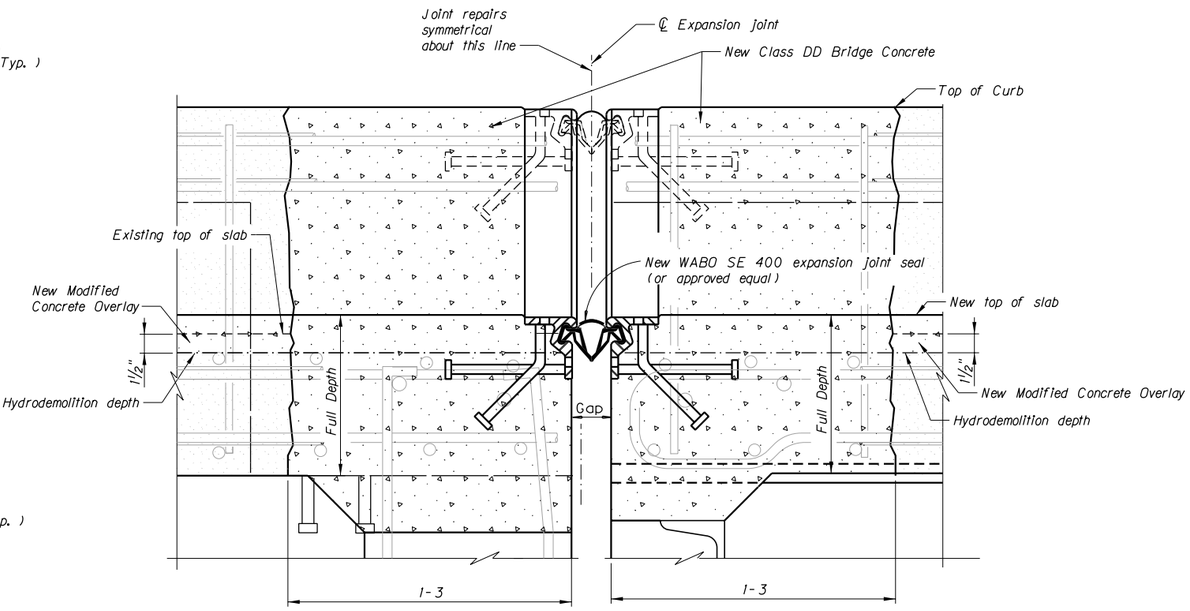
EXISTING EXPANSION JOINT

(At Bent 4 S.B)
(See Dwg. No. 21610 for Bent 4 N.B. existing conditions)

NOTE: The cost of removal of concrete and expansion joints at bent 4 are included in the cost of Class B Deck repair.

New modified concrete overlay and joint

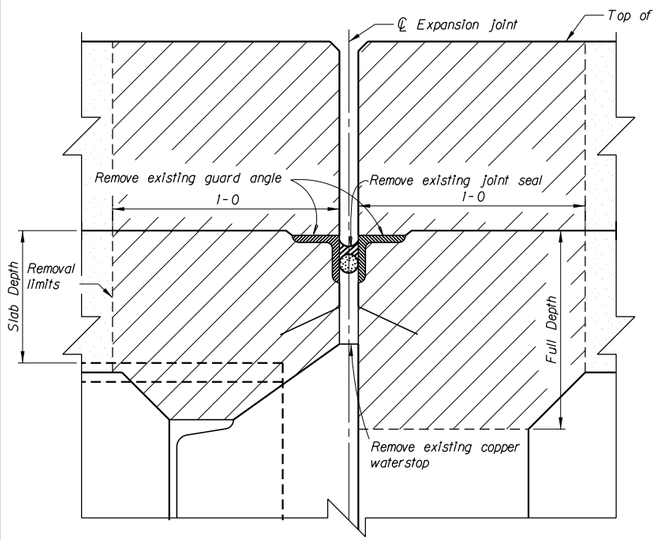
Existing concrete (Leave in place)



NEW EXPANSION JOINT

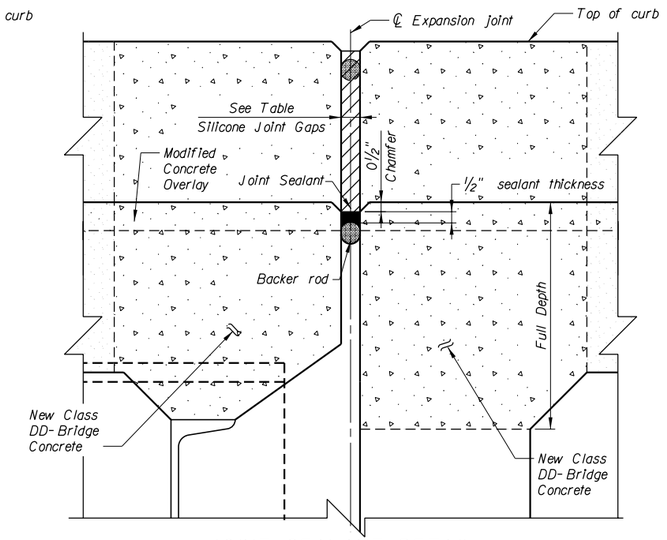
(At Bent 4 N.B. & S.B)

NEOPRENE STRIP SEAL JOINT GAPS (in.)					
N.B.	S.B.	113° F	60° F (assumed placement temp)	-40° F	T change for 1/8" movement (deg-F)
BENT 4	BENT 4	1 1/8	1 3/4	2 7/8	13.1



EXISTING JOINTS

At joint 5 N.B. and S.B.



JOINT SEALANT DETAIL

At joint 5 N.B. and S.B.

NOTE: Joint openings vary in width. Determine joint opening sizes before ordering materials.

SILICONE JOINT GAPS (in.)					
N.B.	S.B.	113° F	60° F (assumed placement temp)	-40° F	T change for 1/8" movement (deg-F)
BENT 5		1 1/4	1 1/2	2	28.2
	BENT 5	1 1/4	1 1/2	2	30.7

Montana Department of Transportation

NISSLER INTERCHANGE
AT I00015120+06971 &
AT I00015120+06972

FEDERAL AID PROJECT NO.
IM-NHTSA 15-2(80)120

SILVER BOW COUNTY

JOINT REPLACEMENT AT BENTS
4 & 5 N.B. & S.B.

Scale ~ 3" = 1'-0"

DESIGNED	9-7-11	M.S.K.
DRAWN	9-8-11	P.H.Jr.
CHECKED	10-6-11	D.M.P.
REVISED		
REVISED		
REVISED		

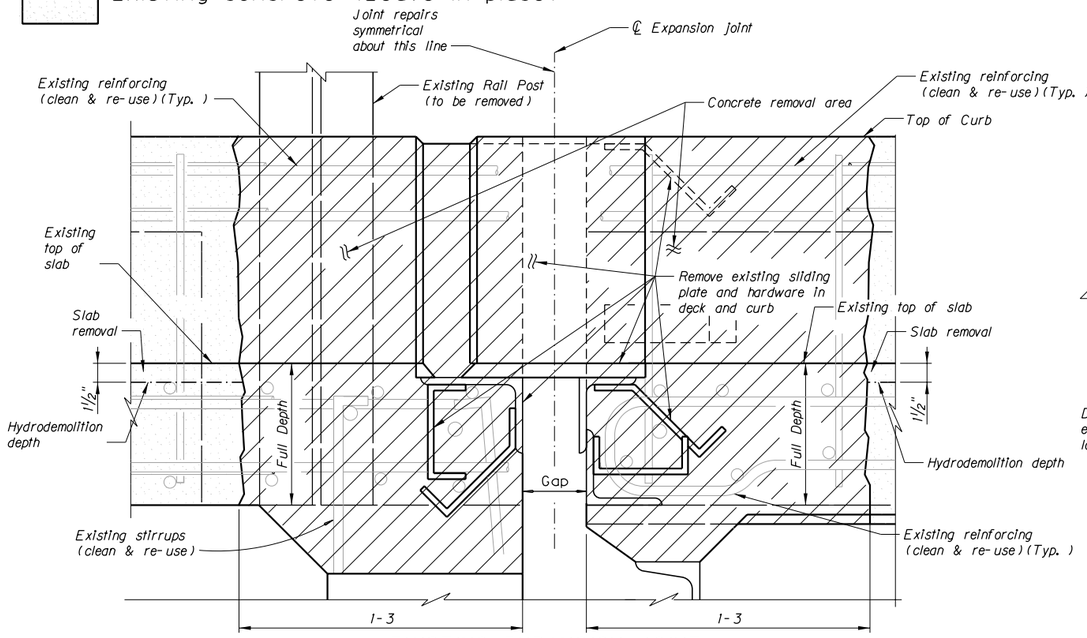
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AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY 11/04/2015 Highways & Engineering
AS-BUILTS

STATE	PROJECT NUMBER	SHEET NO.
Division MONTANA	IM-NHTSA 15-2(80)120	B9

Remove existing concrete and joint

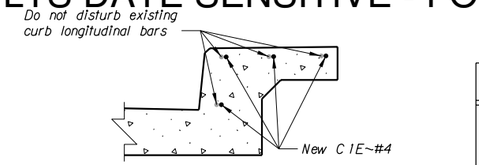
Existing concrete (Leave in place)



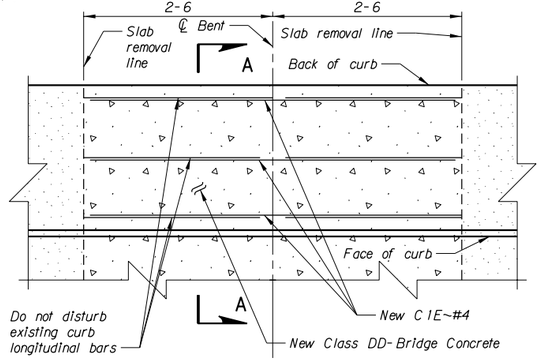
EXISTING EXPANSION JOINT

Scale ~ 3" = 1-0
(At Bents 4 N. B.)

NOTE: See Dwg. No. 21609 for new expansion joint.



SECTION A-A



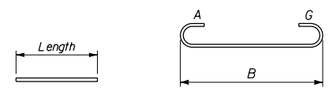
PLAN VIEW NEW CONTINUOUS CURB

Scale ~ 1" = 1'-0"
(Bents No. 2, 7, 9 & 11)

BILL OF REINFORCING STEEL

(FOR ONE BENT ONLY)
(ALL DIMENSIONS ARE OUT TO OUT)

(FOR INFORMATION ONLY)
(PER BENT - FOUR BENT PER PHASE)



TYPE STR TYPE 1

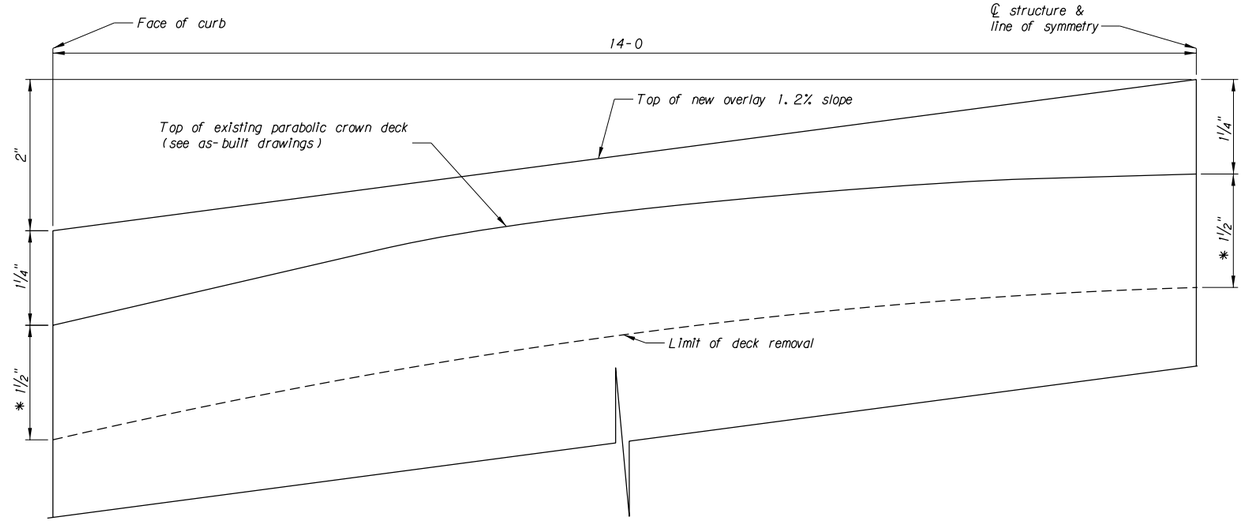
Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S1E	#5	8	STR	29-4							
S2E	#5	8	1	30-6	29-4	0-5					
S3E	#4	47	STR	4-10							
C1E	#4	8	STR	4-10							

NOTES

Place a ½" deep saw cut along removal line through curb and slab.

Include all costs associated with removing existing concrete and placing new concrete and reinforcing steel in the unit price bid for Class B Repair.

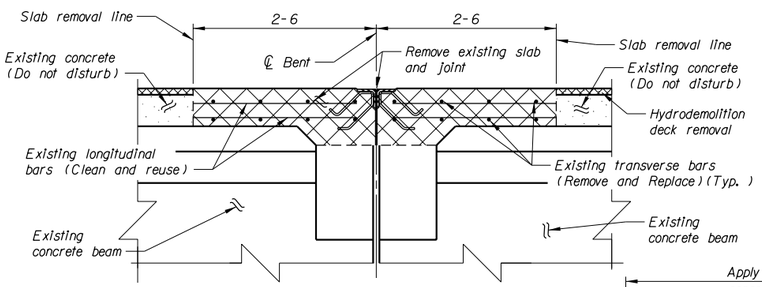
Replace removed area of curb to match existing adjacent curb.



* NOTE: Nominal removal depth.

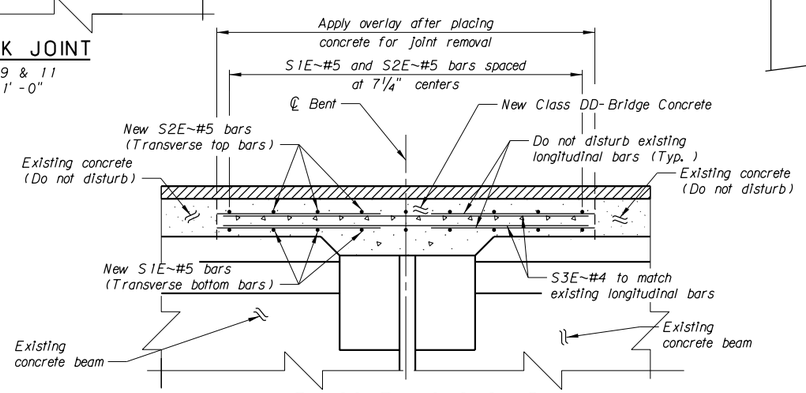
HALF CROSS SECTION OF DECK

NOT TO SCALE



EXISTING DECK JOINT

Bents No. 2, 7, 9 & 11
Scale ~ 1" = 1'-0"



NEW CONTINUOUS SLAB

Bents No. 2, 7, 9 & 11
Scale ~ 1" = 1'-0"

DESIGNED	9-7-11	M. S. K.
DRAWN	9-8-11	P. H. Jr.
CHECKED	10-6-11	D. M. P.
REVISED		
REVISED		
REVISED		

MDT Montana Department of Transportation

NISSLER INTERCHANGE
AT I00015120+06971 &
AT I00015120+06972
FEDERAL AID PROJECT NO.
IM-NHTSA 15-2(80)120
SILVER BOW COUNTY
EXPANSION JOINT BENT 4 N.B.
DECK JOINT REMOVAL DETAILS
HALF CROSS SECTION OF DECK
Scale ~ As Shown

c:\dgn\4571brejd002ab.dgn UPN NUMBER 4571
CPS-U4820 11/4/2015 7:45:48 AM DRAWING NO. 21610

AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY
11/04/2015
Highways & Engineering Division

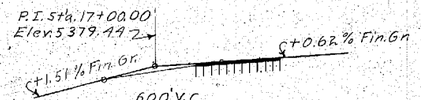
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	IM-NHTSA 15-2(80)120	B10

AS-BUILTS

NOTE: No reflector signals will be required on this bridge. No Bridge Markers will be required on this bridge.

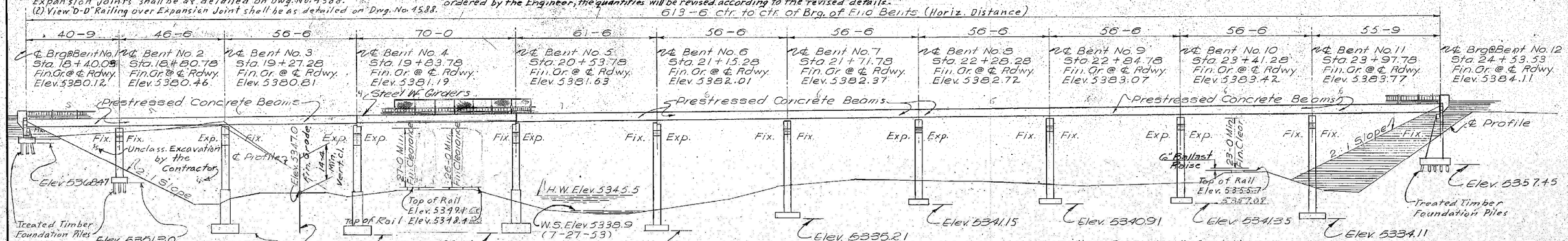
NOTE: The Steel Bridge Rail shall be fabricated and erected in accordance with the details as shown on Dwg. No. SBR-T3 with the following modifications: (1) Curb Expansion Joints shall be as detailed on Dwg. No. 4588. (2) View 'D-D' Railing over Expansion Joint shall be as detailed on Dwg. No. 4588.

NOTE: The footings of Bents No. 3 thru No. 11 shall be keyed into undisturbed material for a minimum depth of 10'. The area excavated for keying footings into the material shall be completely filled with concrete. The quantity of concrete deposited outside of neat lines, because of this requirement, depends upon the contractor's procedure; therefore it will vary and its cost shall be considered a part of the cost of the concrete inside of neat lines. The quantity of concrete for Bents to be paid for shall be the amount only within neat lines shown on the details. If changes in the details of the Bents are ordered by the Engineer, the quantities will be revised according to the revised details.



NOTE: No work will be done on Bents No. 2 & No. 3 until after the unclassified excavation has been made by the contractor. The structure excavation for Bents No. 2 & No. 3 shall be computed using the ground elevations that will exist after unclassified excavation for Frontage Roadway has been made.

613'-6" ctr. to ctr. of Brg. of End Bents (Horiz. Distance)



ELEVATION

△ This Contract: IM 15-2(88)116
Bridge approach sections revised. See Dwg. No. M251-19292

NOTE: For removal of existing structure and maintaining traffic see Special Provisions.

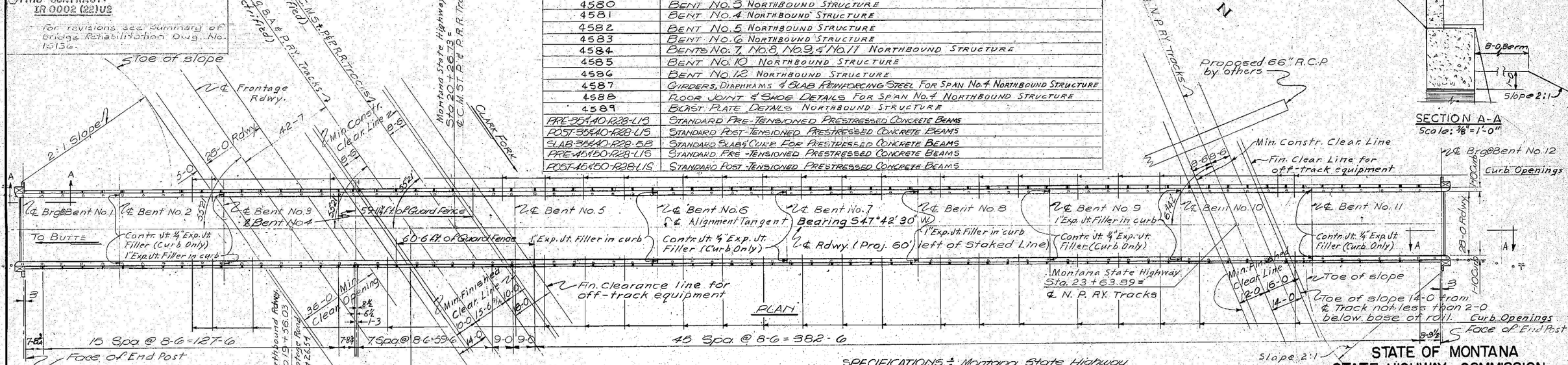
*FOR REQUIRED STATIONS, SEE ROAD PLANS. GUARDRAIL TO BE INSTALLED THE FULL LENGTH OF THE BRIDGE, AND CONTINUOUS WITH THE BRIDGE APPROACH GUARDRAIL SECTION, LT. & RT. (SHEET NO. B2)- Dwg. No. 11582

THIS CONTRACT: IR 0002 (22)US

For revisions see Summary of Bridge Rehabilitation Dwg. No. 15136.

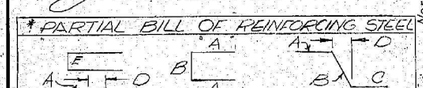
△6 THIS CONTRACT IM 15-2(77)120 — For revisions to rail, joints & overlay see Dwg. No. **** thru ***** 9-23-11 P. H. Jr.

REFERENCES	
DWG. NO.	DESCRIPTION
4577	Footing Plan Northbound & Southbound Structures
4578	Bent No. 1 Northbound Structure
4579	Bent No. 2 Northbound Structure
4580	Bent No. 3 Northbound Structure
4581	Bent No. 4 Northbound Structure
4582	Bent No. 5 Northbound Structure
4583	Bent No. 6 Northbound Structure
4584	Bents No. 7, No. 8, No. 9 & No. 11 Northbound Structure
4585	Bent No. 10 Northbound Structure
4586	Bent No. 12 Northbound Structure
4587	Girders, Diaphrams & Slab Reinforcing Steel For Span No. 4 Northbound Structure
4588	Floor Joint & Shoe Details For Span No. 4 Northbound Structure
4589	Blast Plate Details Northbound Structure
PRE-35'40-R28-L15	Standard Pre-Tensioned Prestressed Concrete Beams
POST-35'40-R28-L15	Standard Post-Tensioned Prestressed Concrete Beams
SLAB-35'40-R28-5B	Standard Slab & Curb For Prestressed Concrete Beams
PRE-45'50-R28-L15	Standard Pre-Tensioned Prestressed Concrete Beams
POST-45'50-R28-L15	Standard Post-Tensioned Prestressed Concrete Beams



SECTION A-A
Scale: ⅜" = 1'-0"

* PARTIAL BILL OF REINFORCING STEEL



TYPE 2 TYPE 3 TYPE 5

All dimensions are out to out

MARK	NO.	SIZE	TYPE	LENGTH	A	B	C	D	E
C1	7200	#4	5	3'-11"	1'-6"	1'-2"	1'-3"	0'-1½	
C3	7200	4	Str.	1'-2					
C4	7200	6	2	9'-2	1'-6	1'-2	1'-6	0'-1½	0'-10"
C5	7200	#4	3	5'-4	2'-3	0'-10			

* This Bill of Reinforcing Steel shall be used in conjunction with the Bills of Reinforcing Steel shown on Dwgs. No. SLAB-35'40-R28-5B, No. SLAB-45'50-R28-5B, No. SLAB-55-R28-6B & No. SLAB-60 R28-7B.

REFERENCES (Continued)	
DWG. NO.	DESCRIPTION
SLAB-45'50-R28-5B	Standard Slab & Curb For Prestressed Concrete Beams
PRE-55-R28-L15	Standard Pre-Tensioned Prestressed Concrete Beams
POST-55-R28-L15	Standard Post-Tensioned Prestressed Concrete Beams
SLAB-55-R28-6B	Standard Slab & Curb For Prestressed Concrete Beams
PRE-60-R28-L15	Standard Pre-Tensioned Prestressed Concrete Beams
POST-60-R28-L15	Standard Post-Tensioned Prestressed Concrete Beams
SLAB-60-R28-7B	Standard Slab & Curb For Prestressed Concrete Beams
SBR-T3 (Rev. 1-27-59)	Standard Steel Bridge Rail-Type No. 3

SPECIFICATIONS: Montana State Highway Commission Standard Specifications for Road and Bridge Construction, 1959 Edition, and any amendments thereto, and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.O. Specifications, 1957 Edition.

LIVE LOAD: Standard H20-S16 Special Loading. Alternate loading for bridges and floor systems with spans under 40 feet consists of two axles, four feet apart with each axle weighing 24,000 lbs.

FINISHED GRADE: Finished plan grade of bridge is same as Profile Grade shown on Road Plans.

OTHER NOTES: For other notes see Dwg. No. 4577.

△ REVISED	P. H. Jr.	9-23-11
REVISED	T. S. B.	3-16-05
REVISED	L. P. W.	12-16-91
REVISED	N. H. H.	6-6-73
DESIGNED	J. D. S.	3-6-58
DRAWN	H. K. L.	7-31-58
TRACED		
CHECKED	H. E. S.	11-3-58
REVISED	I. W. H.	4-10-59
REVISED	H. E. S.	7-8-59

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY, C.M. ST. P. & P. R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-ING15-2(8)118
SILVER BOW COUNTY
GENERAL LAYOUT
NORTHBOUND STRUCTURE
Scale: 1" = 20'-0" Except As Noted

APPROVED BY... [signature] BRIDGE ENGINEER

DRAWING NO. 4576

AS-BUILTS DATE SENSITIVE - FOR INFORMATION ONLY
11/04/2015
Highways & Engineering Division

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	IM-NHTSA 15-2(80)120	B11

AS-BUILTS

Note: No reflector signals will be required on this bridge. No Bridge Markers will be required on this bridge.

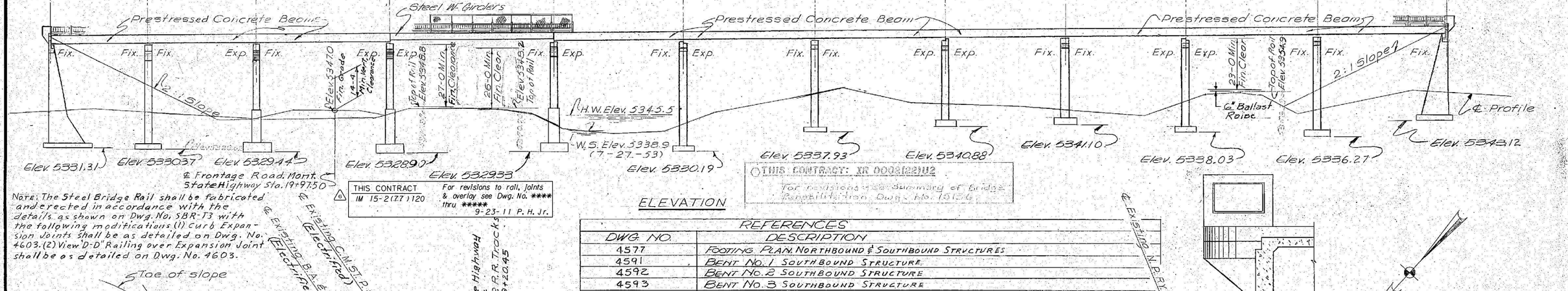
Note: All footings shall be keyed into undisturbed material for a minimum depth of 1-0. The area excavated for keying footings into the material shall be completely filled with concrete. The quantity of concrete deposited outside of neat lines, because of this requirement, depends upon the contractor's procedure; therefore, it will vary and its cost shall be considered a part of the cost of the concrete inside neat lines. The quantity of concrete for Bents to be paid for shall be the amount only within neat lines shown on the details. If changes in the details of the Bents are ordered by the engineer, the quantities will be revised according to the revised details.

P.I. Sta. 17+00.00
Elev. 5379.44
+1.51% Fin. Gr.
-0.62% Fin. Gr.
600' V.C.
598-6 ctr. to ctr. of Brg. of End Bents (Horiz. Dist.)

Note: For removal of existing structure and maintaining traffic see Special Provisions.

T FOR REQUIRED STATIONS, SEE ROAD ... GUARDRAIL TO BE INSTALLED THE FULL LENGTH OF THE BRIDGE, AND CONTINUOUS WITH THE BRIDGE APPROACH GUARDRAIL SECTION, LT. & RT. (SHEET NO. B12) - Dwg. No. 11582

40-9	46-6	56-6	70-0	56-6	56-6	56-6	51-6	51-6	56-6	55-9
℄ Brg @ Bent No. 1 Sta. 18+81.50 Fin. Gr. @ ℄ Rdwy. Elev. 5380.46	℄ Bent No. 2 Sta. 19+22.25 Fin. Gr. @ ℄ Rdwy. Elev. 5380.77	℄ Bent No. 3 Sta. 19+69.75 Fin. Gr. @ ℄ Rdwy. Elev. 5381.10	℄ Bent No. 4 Sta. 20+25.25 Fin. Gr. @ ℄ Rdwy. Elev. 5381.46	℄ Bent No. 5 Sta. 20+95.25 Fin. Gr. @ ℄ Rdwy. Elev. 5381.89	℄ Bent No. 6 Sta. 21+51.75 Fin. Gr. @ ℄ Rdwy. Elev. 5382.24	℄ Bent No. 7 Sta. 22+08.25 Fin. Gr. @ ℄ Rdwy. Elev. 5382.59	℄ Bent No. 8 Sta. 22+64.75 Fin. Gr. @ ℄ Rdwy. Elev. 5382.94	℄ Bent No. 9 Sta. 23+16.25 Fin. Gr. @ ℄ Rdwy. Elev. 5383.26	℄ Bent No. 10 Sta. 23+67.75 Fin. Gr. @ ℄ Rdwy. Elev. 5383.58	℄ Bent No. 11 Sta. 24+24.25 Fin. Gr. @ ℄ Rdwy. Elev. 5383.93	℄ Brg @ Bent No. 12 Sta. 24+80.00 Fin. Gr. @ ℄ Rdwy. Elev. 5384.27



THIS CONTRACT: IM 15-2(77)120

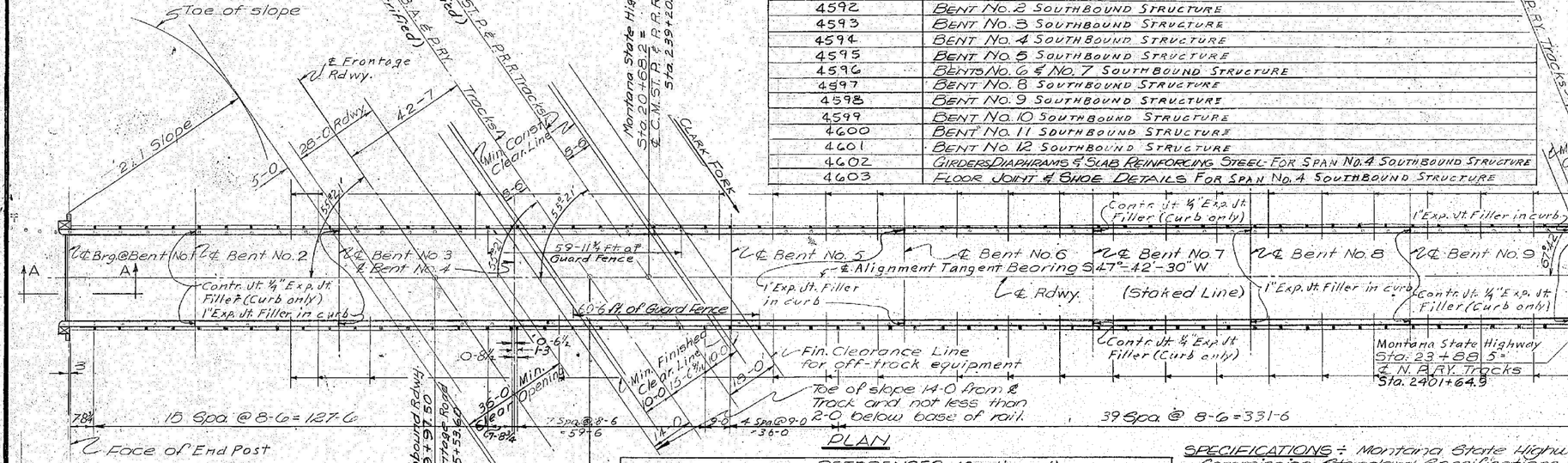
For revisions see Dwg. No. ***** & overlay see Dwg. No. ***** thru ***** 9-23-11 P. H. Jr.

THIS CONTRACT: NH 0003(82)142

For revisions see Summary of Bridge Rehabilitation Dwg. No. 15126

ELEVATION

Note: The Steel Bridge Rail shall be fabricated and erected in accordance with the details as shown on Dwg. No. SBR-T3 with the following modifications (1) Curb Expansion Joints shall be as detailed on Dwg. No. 4603. (2) View "D-D" Railing over Expansion Joint shall be as detailed on Dwg. No. 4603.



PLAN

REFERENCES	
DWG. NO.	DESCRIPTION
4577	FOOTING PLAN, NORTHBOUND & SOUTHBOUND STRUCTURES
4591	BENT NO. 1 SOUTHBOUND STRUCTURE
4592	BENT NO. 2 SOUTHBOUND STRUCTURE
4593	BENT NO. 3 SOUTHBOUND STRUCTURE
4594	BENT NO. 4 SOUTHBOUND STRUCTURE
4595	BENT NO. 5 SOUTHBOUND STRUCTURE
4596	BENTS NO. 6 & NO. 7 SOUTHBOUND STRUCTURE
4597	BENT NO. 8 SOUTHBOUND STRUCTURE
4598	BENT NO. 9 SOUTHBOUND STRUCTURE
4599	BENT NO. 10 SOUTHBOUND STRUCTURE
4600	BENT NO. 11 SOUTHBOUND STRUCTURE
4601	BENT NO. 12 SOUTHBOUND STRUCTURE
4602	GIRDERS DIAPHRAMS & SLAB REINFORCING STEEL FOR SPAN NO. 4 SOUTHBOUND STRUCTURE
4603	FLOOR JOINT & SHOE DETAILS FOR SPAN NO. 4 SOUTHBOUND STRUCTURE

REFERENCES (Continued)	
DWG. NO.	DESCRIPTION
4604	BLAST PLATE DETAILS SOUTHBOUND STRUCTURE
PRE-35&40-R28-L15	STANDARD PRE-TENSIONED PRESTRESSED CONCRETE BEAMS
POST-35&40-R28-L15	STANDARD POST-TENSIONED PRESTRESSED CONCRETE BEAMS
SLAB-35&40-R28-5B	STANDARD SLAB & CURB FOR PRESTRESSED CONCRETE BEAMS
PRE-45&50-R28-L15	STANDARD PRE-TENSIONED PRESTRESSED CONCRETE BEAMS
POST-45&50-R28-L15	STANDARD POST-TENSIONED PRESTRESSED CONCRETE BEAMS
SLAB-45&50-R28-5B	STANDARD SLAB & CURB FOR PRESTRESSED CONCRETE BEAMS
PRE-55-R28-L16	STANDARD PRE-TENSIONED PRESTRESSED CONCRETE BEAMS
POST-55-R28-L16	STANDARD POST-TENSIONED PRESTRESSED CONCRETE BEAMS
SLAB-55-R28-6B	STANDARD SLAB & CURB FOR PRESTRESSED CONCRETE BEAMS
SBR-T3 (Rev. 1-27-59)	STANDARD STEEL BRIDGE RAIL - TYPE NO. 3

* PARTIAL BILL OF REINFORCING STEEL



TYPE 2 TYPE 3 TYPE 5

All dimensions are out to out

MARK	No.	Size	Type	Length	A	B	C	D	E
C1	[illegible]	#4	5	3'-11"	1'-6"	1'-2"	1'-3"	0'-1⅛"	
C3	[illegible]	4	Str.	1'-2					
C4	[illegible]	6	2	9'-2	1'-6	1'-2	1'-6	0'-1½	0'-10"
C5	[illegible]	#4	3	5'-4	2'-3	0'-10			

* This Bill of Reinforcing Steel shall be used in conjunction with the Bills of Reinforcing Steel shown on Dwgs. No. SLAB-35&40-R28-5B, No. SLAB 45&50-R28-5B, & No. SLAB-55-R28-6B.

SPECIFICATIONS ÷ Montana State Highway Commission Standard Specifications for Road and Bridge Construction, 1969 Edition, and any amendments thereto, and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.O. Specifications, 1957 Edition.

LIVE LOAD ÷ Standard H20-S16 Special loading. All loading for bridges and floor systems with spans under 40 feet consists of two axles, four feet apart with each axle weighing 24,000 lbs.

FINISHED GRADE ÷ Finished plan grade of bridge is same as Profile Grade shown on Road Plans.

OTHER NOTES ÷ For other notes see Dwgs. No. 4576 & No. 4577.

** Note: Expansion Joints replaced @ Bent No. 4 See Dwg. No. 12692

REVISED	P. H. Jr.	9-23-11
REVISED	L.R.T.	12-16-91
REVISED	N.H.R.	6-6-75
DESIGNED	J.D.S.	3-6-58
DRAWN	H.K.L.	7-30-58
TRACED		
CHECKED	H.E.S.	11-20-58
REVISED	I.W.H.	4-6-59
REVISED	H.E.S.	7-9-59

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER B.A. & P. RY., C.M. ST. P. & P.R.R., N.P. RY. AND CLARK FORK
FEDERAL AID PROJECT NO. I-NG15-2(80)118
SILVER BOW COUNTY
GENERAL LAYOUT
SOUTHBOUND STRUCTURE
Scale: 1" = 20'-0" Except As Noted

APPROVED BY _____ BRIDGE ENGINEER

DRAWING NO. 4590

J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B1

MONTANA

DEPARTMENT OF TRANSPORTATION

BRIDGE REHABILITATION PLANS & QUANTITIES

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2 P.E. AND CONST.

DISTRICT 2 BRIDGE REHABILITATION

DEER LODGE, SILVER BOW, JEFFERSON, GALLATIN AND PARK COUNTIES

SUMMARY OF BRIDGE REHABILITATION *(REFER TO PARENTHESIS FOR DETAIL AT SPECIFIC LOCATION)*

	ROUTE	MILE POST	ROADWAY	GENERAL LAYOUT DRAWING NO.	SLIDING PLATE JOINT: REPLACE EXISTING JOINT AT BENT NO.	SLIDING PLATE JOINT: REMOVE EXISTING JOINT AT BENT NO.	REPLACE EXISTING NEOPRENE EXP. JT. OR EXP. JT. FILLER AT BENT NO.	REMOVE COMP. SEAL, RUBBER JOINT OR ARMORED JOINT AT BENT NO.	RESEAL EXISTING SLAB JOINTS AT BENT NO.	≠≠ REPAIR GUARD ANGLES AT BENT NO.	REVISE BRIDGE RAIL	NEW BRIDGE APPROACH RAIL ○ END POST MODIFICATION REQUIRED	PATCH DECK	OVERLAY DECK
* Section 1	I 90	195+0.713	E.B.	11094			1,4(A)							YES(A)
			W.B.	11094			1,4(A)							YES(A)
	I 90	210+0.803	E.B.	6276			3(B)			6(L)		○ YES(P)		
			W.B.	6276			3(B)			1(L)		○ YES(P)		
	I 90	216+0.672	E.B.	7838				2,3(H)		*1,4(L)*	YES(Q)	○ YES(Q)		
			W.B.	7838				2,3(H)		*1*, 4(L)	YES(Q)	○ YES(Q)		
	I 90	243+0.322	E.B.	7074			2,5(C)		3,TG,6(K)					
			W.B.	7073	2(C)				3,TG,6(K)					
** Section 2	I 90	292+0.425	E.B.	6846						*1,5(M)		○ YES(P)		
			W.B.	6845						*1,5(M)		○ YES(P)		
	I 90	293+0.213	E.B.	6887						*1,4(M)		○ YES(P)		
			W.B.	6887						*1,4(M)		○ YES(P)		
	I 90	314+0.083	E.B.	5106			3(D)		2,6(K(a)),TG(K)			○ YES(P)		
			W.B.	5105					2,6(K(a)),TG(K)			○ YES(P)		
	I 90	316+0.767	E.B.	5119			*3(E) ~~4-3~~*	2(I)				○ YES(P)		
			W.B.	5119				2(I)				○ YES(P)		
	I 90	321+0.895	E.B.	11419					2,3(K)			○ YES(O)		
			W.B.	11419					2,3(K)			○ YES(O)		
	I 90	330+0.991	E.B.	4959		3(J)		2(J)				○ YES(P)		
			W.B.	4959		3(J)		2(J)				○ YES(P)		
** Section 1	I 15	120+0.697	N.B.	4576			8,10(E)		3,5,6(K)			YES	YES(N)	
			S.B.	4590			4(D) 8,10(E)		3,5,6(K)			YES	YES(N)	
	I 15	124+0.690	N.B.	5336			2(E)			* 6(M)		○ YES(P)		
	I 15	124+0.826	S.B.	5346			2(E)					○ YES(P)		
	I 15	124+0.870	N.B.	5356			2(E),6(D)					○ YES(P)	YES(N)	
	I 15	125+0.084	S.B.	5374			2(E),6(D)			*1,9(M)		○ YES(P)	YES(N)	
	I 15	125+0.883	N.B.	5960			4(G),6(F) 7(D)		NEAR 5(K)			○ YES(P)		
			S.B.	5959			4(G),6(F) 7(D)		NEAR 5(K)			○ YES(P)		
	I 15	126+0.316	N.B.	4999			2(D)					YES		
			S.B.	4999			2(D)					YES		
	I 15	129+0.807		5922							YES(R)	YES(R)		

* *Add new compression seal and guard angle on approach slabs.*

≠ *Portions of this joint are currently damaged or missing. The Contractor shall replace damaged and missing portions of the joint with similar joints removed from elsewhere on this project. Installation shall be similar to existing attachments and shall be approved by the Engineer. All costs associated with this item shall be included with other items.*

≠≠ *Guard angles not included in other repairs.*

** *See Special Provision "Limitation of Operation".*

NOTE: *"TG" denotes Transverse Girder.*

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15158	B23	DETAIL O AND P
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	B27 THRU B49	EXISTING GENERAL LAYOUTS

DESIGNED		
DRAWN	5-13-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

DRAWING NO. 15136

[60, 5] 137 NUTWO1. BRG

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B2

ESTIMATED BRIDGE PLAN QUANTITIES (BASE BID)

LOCATION				REVISE BRIDGE RAIL - THRIE BEAM (LIN. FT.)	CLASS "A" BRIDGE DECK REPAIR (SQUARE YARDS)	CLASS "B" BRIDGE DECK REPAIR (SQUARE YARDS)	RESEAL EXISTING JOINTS (LIN. FT.)	JOINT SEAL - POLYMER FOAM (LIN. FT.)	REINFORCING STEEL REGULAR (LBS.)	BRIDGE DECK TREATMENT (SQ. YARDS) SILANE	BRIDGE DECK OVERLAY (SQ. YARDS)	IMPACT ATTENUATORS (EACH)	TEMPORARY CONC. MEDIAN RAIL (LIN. FT.)
ROUTE	MILE POST	ROADWAY											
I 90	195+0.713	E.B.			*42.671*	~~19.3~~ *19.311*			1,391		~~1,781.6~~ *1782.0*		
		W.B.			*117.775*	~~19.3~~ *19.311*			1,391		~~1,783.3~~ *1782.0*		
I 90	210+0.803	E.B.				~~24.3~~ *24.312*			634	~~896.6~~ *992.2*			
		W.B.				~~24.3~~ *24.312*			634	~~896.6~~ *992.2*			
I 90	216+0.672	E.B.		~~318.4~~ *320.0*	40.0				1,603	~~654.4~~ *693.0*			
		W.B.		~~318.4~~ *320.0*	46.0				1,905	~~760.5~~ *730.1*			
I 90	243+0.322	E.B.				~~28.1~~ *31.796*	143.3		2,124	~~982.9~~ *983.1*			
		W.B.				~~14.1~~ *15.898*	143.3		1,062	~~982.9~~ *983.1*			
I 90	292+0.425	E.B.							261	~~851.8~~ *803.6*			
		W.B.							261	~~851.8~~ *803.6*			
I 90	293+0.213	E.B.							231	~~472.5~~ *405.3*			
		W.B.							231	~~472.5~~ *405.3*			
I 90	314+0.083	E.B.				~~14.1~~ *14.639*	67.4	67.4	1,081	~~1,053.6~~ *0.0*			
		W.B.					67.4	67.4		~~1,022.5~~ *0.0*			
I 90	316+0.767	E.B.			~~17.5~~ *18.250*	*17.236*			~~680~~ *1270*	~~473.6~~ *0.0*			
		W.B.			~~17.1~~ *18.250*				665	~~473.6~~ *298.7*			
I 90	321+0.895	E.B.					92.4			~~618.7~~ *557.3*			
		W.B.					92.4			~~826.2~~ *747.3*			
I 90	330+0.991	E.B.			~~41.0~~ *43.000*				1,333	~~482.0~~ *0.0*			
		W.B.			~~41.0~~ *43.000*				1,333	~~482.0~~ *0.0*			
I 15	120+0.697	N.B.			~~11.4~~ *17.892*	~~20.1~~ *23.311*	100.0		1,900	~~1,912.6~~ *0.0*			
		S.B.			~~42.0~~ *47.107*	42.3	100.0		3,038	~~1,865.9~~ *0.0*			
I 15	124+0.690	N.B.				~~14.1~~ *15.361*			484	~~940.4~~ *980.0*			
I 15	124+0.826	S.B.				~~14.1~~ *16.000*			374	~~1,002.9~~ *1381.4*			
I 15	124+0.870	N.B.			~~41.7~~ *49.444*	~~28.1~~ *28.200*			2,081	~~1,378.7~~ *930.2*			
I 15	125+0.084	S.B.			~~8.3~~ *80.111*	~~28.1~~ *28.200*			2,268	~~1,523.4~~ *1398.2*			
I 15	125+0.883	N.B.				~~42.2~~ *42.222*	33.7		3,412	~~1,411.4~~ *1468.4*			
		S.B.				~~42.2~~ *42.222*	33.7		3,412	~~1,473.6~~ *1363.5*			
I 15	126+0.316	N.B.				~~14.1~~ *16.074*			1,080	~~526.3~~ *450.6*			
		S.B.				~~14.1~~ *16.074*			1,080	~~526.3~~ *497.6*			
I 15	129+0.807			~~533.4~~ *0.0*						~~831.2~~ *642.9*			
TOTAL				1,~~170.2~~ *640.0*	~~306.0~~ *563.500*	~~410.9~~ *441.780*	873.6	134.8	~~35,949.0~~ *36539.0*	26,~~647.4~~ *18507.6*	~~3,564.9~~ *3564.0*	6	4,000

(ALT.A-1)		(ALT.A-2)	
EXP. JT. (LIN. FT.)	STRUCTURAL STEEL (LUMP SUM)	NEOPRENE JT. SEAL (LIN. FT.)	STRUCTURAL STEEL (LUMP SUM)
105.2	.0948	105.2	.1022
105.2	.0944	105.2	.1016
49.0	.0437	49.0	.0466
49.0	.0437	49.0	.0466
	.0992		
	~~.0427~~ .0854		
67.4		67.4	.0396
33.7		33.7	.0198
	.1377		.0490
	.1377		.0490
	.1221		.0435
	.1221		.0435
33.7		33.7	.0198
36.0			
66.7		66.7	.0396
100.0		100.0	.0594
36.6	.0570	36.6	.0422
38.0		38.0	.0230
67.4		67.4	.0396
67.4	.1041	67.4	.0766
101.0		101.0	.0594
101.0		101.0	.0594
33.7		33.7	.0198
33.7		33.7	.0198
~~1,088.7~~	~~1.0~~	1,088.7	1.0
1124.70	*1.1419*		

NOTES

"BD MODIFIED" CONCRETE : Article 551.06(c)(1) of the Standard Specifications for Road & Bridge construction shall not apply to guardrail and joint work. Concrete not meeting the strength required of "BD Modified" concrete (3500 p.s.i. @ 28 days) shall be subject to rejection. For requirements of "BD Modified" concrete see "Standard Specifications".

All concrete ~~shown as Class~~ "BD Modified" may be replaced with an approved High Strength Polymeric ~~Concrete to shorten cure time~~ requirements for Traffic Control. (See Standard Specifications and "Special Provisions".)

All necessary precautions shall be taken to assure that concrete is well compacted under the guard angles and joint extrusions. The guard angles and extrusions shall be accurately and firmly held in place while concrete is placed. The method of holding the joint assemblies shall be strong enough to withstand contact with concrete vibrators.

TRAFFIC CONTROL AND SEQUENCE OF OPERATION : See "Special Provisions".

REINFORCING STEEL: All new reinforcing steel shall be of the deformed type and shall meet the requirements of ASTM Specification A615, Grade 60 (AASHTO M-31). The cost of cleaning all exposed reinforcing steel as well as the furnishing and the placing of new reinforcing steel shall be included in the unit price bid for Reinforcing Steel.

SPECIFICATIONS : Montana Department of Highways and the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1987 edition, and any amendments thereto, and special provisions shall govern unless otherwise noted. Design prepared in accordance with A. A. S. H. T. O. specifications, 1989 edition and any amendments thereto.

STRUCTURAL STEEL : All structural steel shall be measured and paid for on the lump sum basis as set forth in the Standard Specifications and shall conform to ASTM A36.
Estimated Weight = 7,582 pounds (Alt. A-1)
21,309 pounds (Alt. A-2)

DIMENSIONS : The contractor shall verify all necessary dimensions of the existing structures in the field before ordering material. Shop plans shall be approved by the State of Montana, Department of Transportation before fabrication is begun. In the event that the dimensions and details of the existing structure are not as shown on the plans the contractor shall vary the construction as necessary to best suit existing conditions and the nature of the intended work.

OVERLAY TREATMENT : See "Special Provisions".

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

DEER LODGE, SILVER BOW, JEFFERSON, GALLATIN AND PARK COUNTIES

ESTIMATED BRIDGE PLAN QUANTITIES AND NOTES

DRAWING NO. 15137

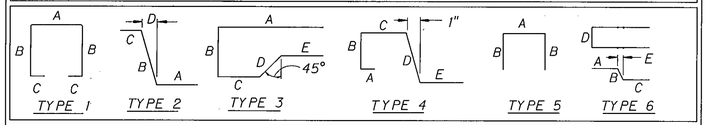
DESIGNED		
DRAWN	5-13-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

[60,5] 137 IU22.BRG

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B3

16-DEC-1991 15:11 BRAUN MONTANA CADD E:\STRUCTDGN\53.10.STRUCTS_DTL\ 1

BILL OF REINFORCING STEEL



STRAIGHT BARS				BENT BARS (All dimensions are out to out.)									
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D	E
M. P. 195+0.713 (Both Structures)													
BW1	#5	24	25'-2"	C1	#4	16	1	3'-4"	1'-0"	0'-9"	0'-5"		
				C2	4	16	2	2-6	1-0	1-0	0-6	0'-1"	
C3	4	16	1-6										
C4	4	16	1-0	S1	4	174	3	4-0	1-9	0-5½	0-5	0-3	1-1½
D1	6	40	26-7										
M. P. 210+0.803 (Both Structures)													
C5	4	40	1-9	C6	4	24	4	5-4	0-8	0-9	1-3½	1-4	1-3½
S2	4	324	1-9										
D2	6	8	46-8										
S300	4	4	22-5										
S301	6	4	22-8										
M. P. 216+0.672 (Eastbound Structure only)													
S100	5	14	39-4										
S200	5	24	4-3										
S201	5	80	3-0										
S110	5	16	7-8										
C200	5	16	4-3										
D100	6	8	39-4										
M. P. 216+0.672 (Westbound Structure only)													
S101	5	28	23-8										
S110	5	16	7-8										
S200	5	20	4-3										
S201	5	80	3-0										
C200	5	16	4-3										
S302	4	2	22-2										
S303	6	2	22-6										
D101	6	16	24-1										
M. P. 243+0.322 (Both Structures)													
C5	4	60	1-9	C7	4	36	4	5-8	0-8	0-9	1-7½	1-4	1-3½
S2	4	195	1-9	S1	4	78	3	4-0	1-9	0-5½	0-5	0-3	1-1½
S3	5	54	30-6										
D3	6	18	30-6										
M. P. 292+0.425 (Both Structures)													
S304	4	8	21-8										
S305	6	8	21-10										
AS1	4	8	26-9										

STRAIGHT BARS				BENT BARS (All dimensions are out to out.)									
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D	E
M. P. 293+0.213 (Both Structures)													
S306	#4	8	19-2										
S307	6	8	19-4										
AS2	4	8	23-9										
M. P. 314+0.083 (Eastbound Structure only)													
C5	4	16	1-9	C8	4	8	2	4-3	1-3½	1-4	1-7½	0-1	
C9	4	8	1-4	C10	4	4	5	5-6	0-10	2-4			
				C11	6	4	6	9-9	1-7½	1-4	1-6	0-10	0-1
S2	4	38	1-9										
S5	5	19	29-4	S1	4	26	3	4-0	1-9	0-5½	0-5	0-3	1-1½
D4	6	6	29-4										
M. P. 316+0.767 (Eastbound Structure only)													
S102	5	7	34-9										
S110	5	8	7-8										
S200	5	8	4-3										
S201	5	32	3-0										
C200	5	4	4-3										
D104	6	4	34-9										
M. P. 316+0.767 (Westbound Structure only)													
S103	5	7	33-8										
S110	5	8	7-8										
S200	5	8	4-3										
S201	5	32	3-0										
C200	5	4	4-3										
D105	6	4	33-8										
M. P. 330+0.991 (Both Structures)													
S104	5	56	20-9										
S110	5	32	7-8										
S200	5	32	4-3										
S201	5	120	3-0										
C200	5	40	4-3										
D102	6	16	20-11										
M. P. 120+0.697 (Southbound Structure Only)													
C5	4	48	1-9	C10	4	8	5	5-6	0-10	2-4			
C14	4	16	1-2	C12	4	28	2	4-0	1-3½	1-2½	1-6	0-1½	
				C13	6	8	6	9-3	1-6	1-2½	1-6	0-10	0-1½
S2	4	225	1-9										
S5	5	59	29-4	S1	4	26	3	4-0	1-9	0-5½	0-5	0-3	1-1½
D4	6	14	29-4										
M. P. 120+0.697 (Northbound Structure Only)													
C5	4	16	1-9	C10	4	2	5	5-6	0-10	2-4			
				C12	4	20	2	4-0	1-3½	1-2½	1-6	0-1½	
C14	4	8	1-2	C13	#6	2	6	9'-3"	1'-6"	1'-2½"	1'-6"	0'-10"	0'-1½"
S2	4	180	1-9										
S5	5	40	29-4										
D4	6	8	29-4										

STRAIGHT BARS				BENT BARS (All dimensions are out to out.)									
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D	E
M. P. 124+0.690													
C5	#4	16	1'-9"	C8	#4	11	2	4'-3"	1'-3½"	1'-4"	1'-7½"	0'-1"	
C9	4	2	1-4	C10	4	1	5	5-6	0-10	2-4			
				C11	6	1	6	9-9	1-7½	1-4	1-6	0-10	0'-1"
D5	6	4	32-0										
S2	4	100	1-9										
S308	4	2	16-0										
S309	6	2	16-2										
AS3	4	2	26-3										
M. P. 124+0.826													
C5	4	16	1-9	C8	4	12	2	4-3	1-3½	1-4	1-7½	0-1	
S2	4	100	1-9										
D5	6	4	34-0										
M. P. 124+0.870													
C5	4	32	1-9	C8	4	18	2	4-3	1-3½	1-4	1-7½	0-1	
C9	4	12	1-4	C10	4	6	5	5-6	0-10	2-4			
				C11	6	6	6	9-9	1-7½	1-4	1-6	0-10	0-1
S2	4	144	1-9										
S5	5	39	29-4	S1	4	26	3	4-0	1-9	0-5½	0-5	0-3	1-1½
D4	6	10	29-4										
M. P. 125+0.084													
C5	4	32	1-9	C8	4	18	2	4-3	1-3½	1-4	1-7½	0-1	
C9	4	12	1-4	C10	4	6	5	5-6	0-10	2-4			
				C11	6	6	6	9-9	1-7½	1-4	1-6	0-10	0-1
D4	6	10	29-4										
				S1	4	26	3	4-0	1-9	0-5½	0-5	0-3	1-1½
S2	4	141	1-9										
S5	5	39	29-4										
S310	4	4	14-8										
S311	6	4	14-9										
AS4	4	4	23-9										
M. P. 125+0.883 (Both Structures)													
C5	4	96	1-9	C8	4	48	2	4-3	1-3½	1-4	1-7½	0-1	
C9	4	48	1-4	C10	4	24	5	5-6	0-10	2-4			
				C11	6	24	6	9-9	1-7½	1-4	1-6	0-10	0-1
S2	4	80	1-9										
S5	5	110	29-4	S1	4	260	3	4-0	1-9	0-5½	0-5	0-3	1-1½
D4	6	44	29-4										
M. P. 126+0.316 (Both Structures)													
C5	4	32	1-9	C8	4	16	2	4-3	1-3½	1-4	1-7½	0-1	
C9	4	16	1-4	C10	4	8	5	5-6	0-10	2-4			
S2	4	76	1-9	C11	6	8	6	9-6	1-6	1-4	1-6	0-10	0-1
S5	5	38	29-4										
				S1	4	52	3	4-0	1-9	0-5½	0-5	0-3	1-1½
D4	#6	12	29'-4"										

MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

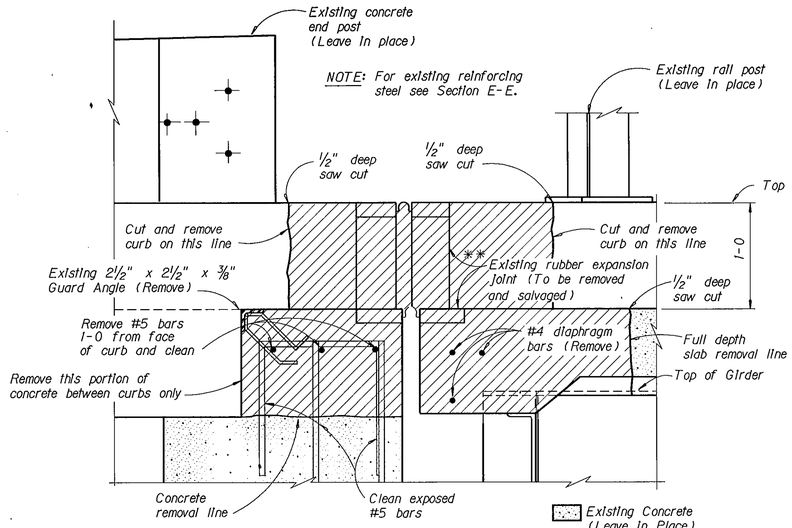
DEER LODGE, SILVER BOW, JEFFERSON GALLATIN AND PARK COUNTIES

BILL OF REINFORCING STEEL

DESIGNED		
DRAWN	5-13-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

DRAWING NO. 15138

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B4

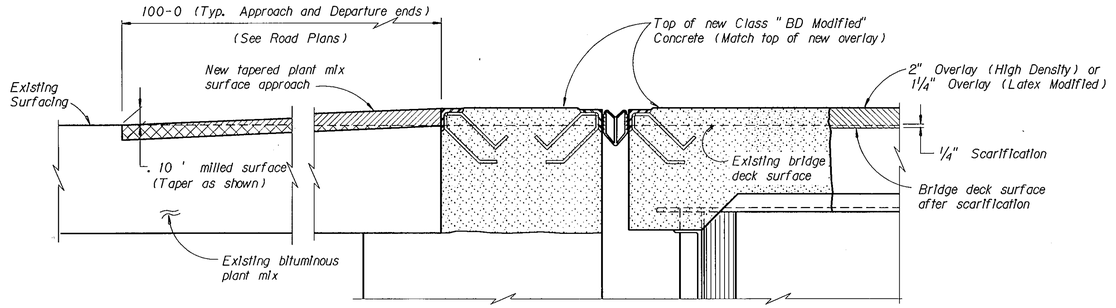


SECTION D-D

NOTE: Remove all full length reinforcing steel. Clean all exposed vertical reinforcing steel in the backwall and all exposed transverse slab bars. Cut existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. Interior bays of slab.)

NOTE: Longitudinal slab steel on the outside of the exterior girders shall not be cut but shall be cleaned prior to placing new concrete.

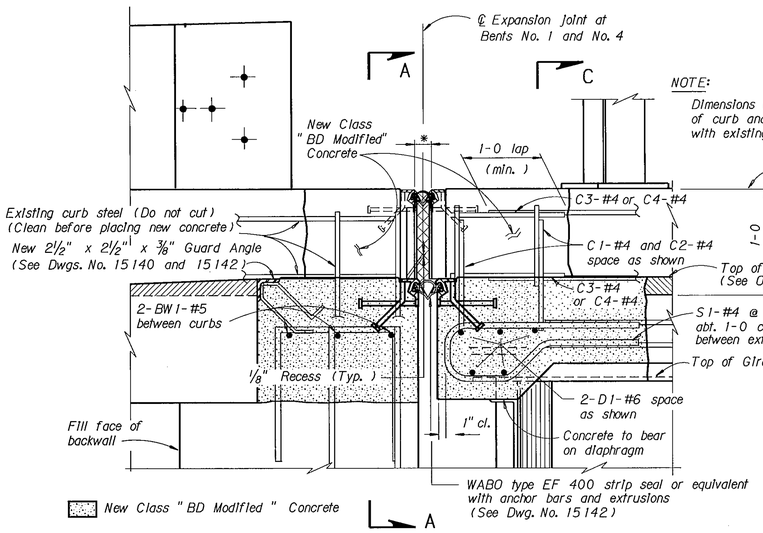
** NOTE: Exact method of anchoring existing joint system is not known. Remove all necessary hardware and assesories as needed to remove concrete as shown on this sheet.



PLANT MIX SURFACING AND APPROACH TREATMENT

Scale ~ 1 1/2" = 1-0

NOTE: The Contractor may remove and replace sections of P. M. S. which are called out as scarify and overlay in this detail. Payment for Plant Mix Surfacing is included in the Surfacing Summary. (See Road Plans)



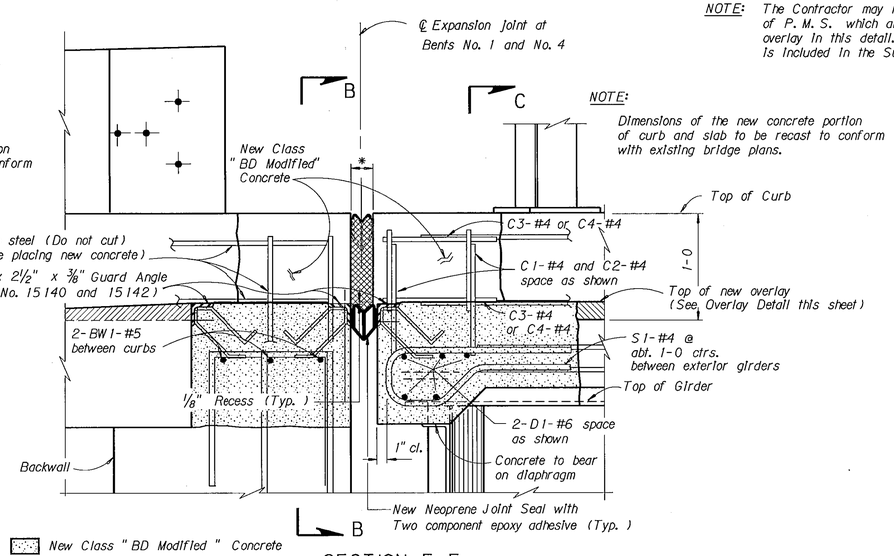
SECTION E-E

NEW EXPANSION JOINT DETAIL

(ALTERNATE A-1)

NOTE: The cost of furnishing and installing new expansion joint including metal extrusion, strip seal and anchor bars to be included in the unit price bid for Expansion Joint.

NOTE: For requirements of Expansion Joint see "Special Provisions".



SECTION F-F

NEW NEOPRENE JOINT SEAL DETAIL

(ALTERNATE A-2)

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seal. Neoprene joint seals shall be recessed 1/8" below guard angles.

NOTE: Cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

* NOTE: Dimension depends on manufacturer' s recommendations. (1" min. @ 105° F).

NOTE: Temperature range: -45° F to 105° F with mean temperature of 30° F.

NOTE: The joint used must be capable of providing for a total minimum allowable movement for both structures as follows: 1 1/2" - Bent No. 1
3 1/8" - Bent No. 4

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing with new Class "BD Modified" Concrete to be included in the unit price bid for Class "B" Deck Repair.

NOTE: The cost of furnishing and placing new reinforcing steel shall be included in the unit price bid for Reinforcing Steel.

NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of ther new joint opening prior to placing new concrete. (Except as noted.)

NOTE: The cost of removing and replacing guard angle, anchor bars and concrete in the backwall shall be included in the unit price bid for Structural Steel.

NOTE: For Sections A-A, B-B and C-C see Dwg. No. 15140.

NOTE: For additional details see Dwg. No. 15140.

NOTE: For Bill of Reinforcing Steel see Dwg. No. 15138.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

DEER LODGE COUNTY

EXPANSION JOINT REPAIR DETAILS BENTS NO. 1 AND NO. 4 AND OVERLAY AT M. P. 195+0.713 DETAIL "A"

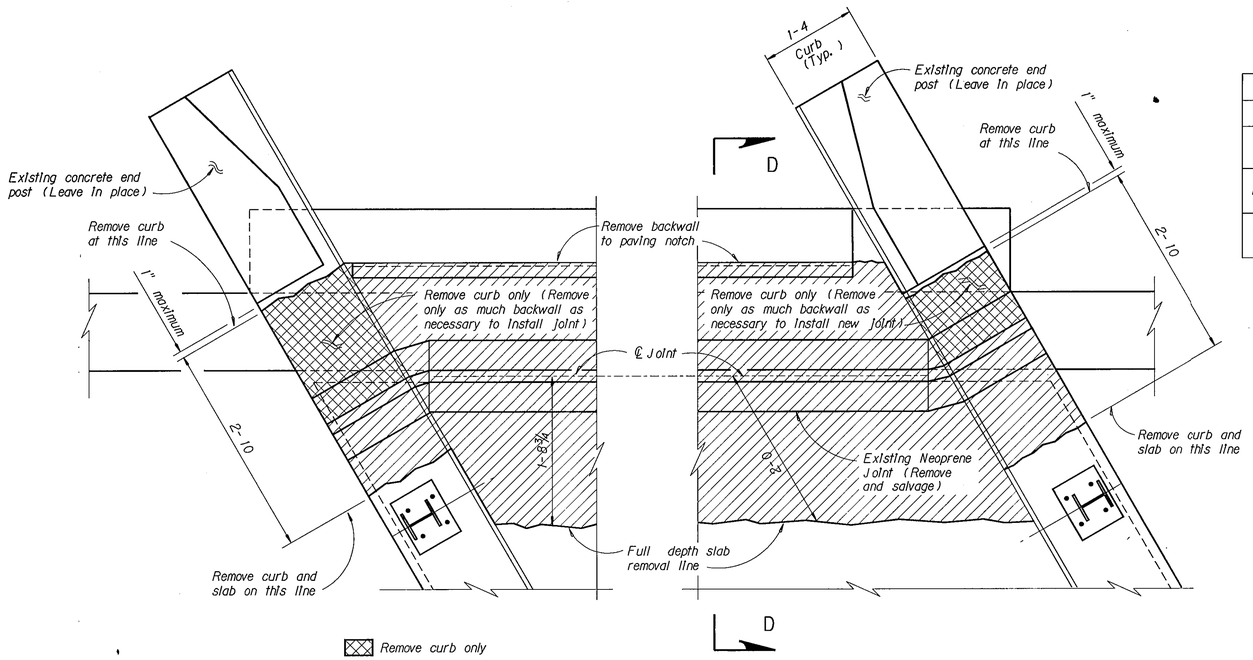
Scale ~ 1 1/2" = 1-0

DRAWING NO. 15139

DESIGNED	5-15-91	L. R. T.
DRAWN	5-15-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

MONTANA CADD 10-DEC-1991 11:51 BRUCE 2ZCAD1\5000\51\15140A_B80.1

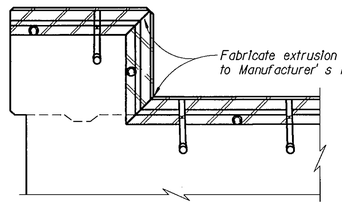
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B5



PLAN VIEW OF EXISTING JOINT

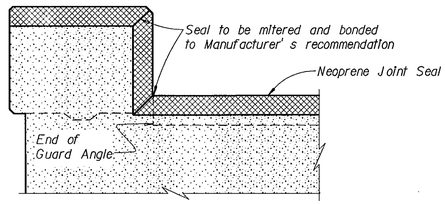
Scale ~ 1" = 1-0

TABLE OF GUARD ANGLE LENGTHS							
		@ PAVING NOTCH			@ JOINT		
		Length	Qty.	Anchor Bars per Angle	Length	Qty.	Anchor Bars per Angle
E. B.	Bent No. 1	48-3	1	48	48-10	2	49
	Bent No. 4	47-3	1	47	47-11	2	48
W. B.	Bent No. 1	47-8	1	48	48-3	2	48
	Bent No. 4	47-3	1	47	47-11	2	48



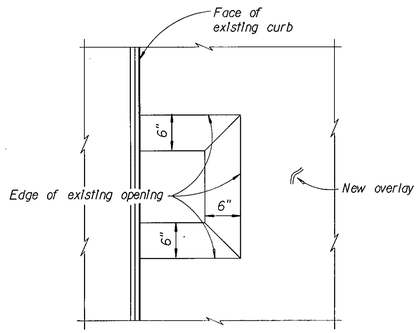
SECTION A-A

Scale ~ 1½" = 1-0

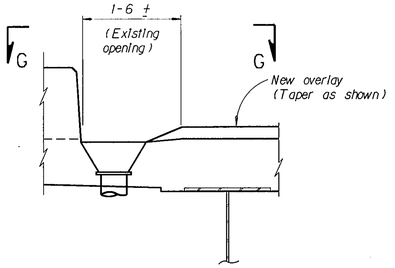


SECTION B-B

Scale ~ 1½" = 1-0

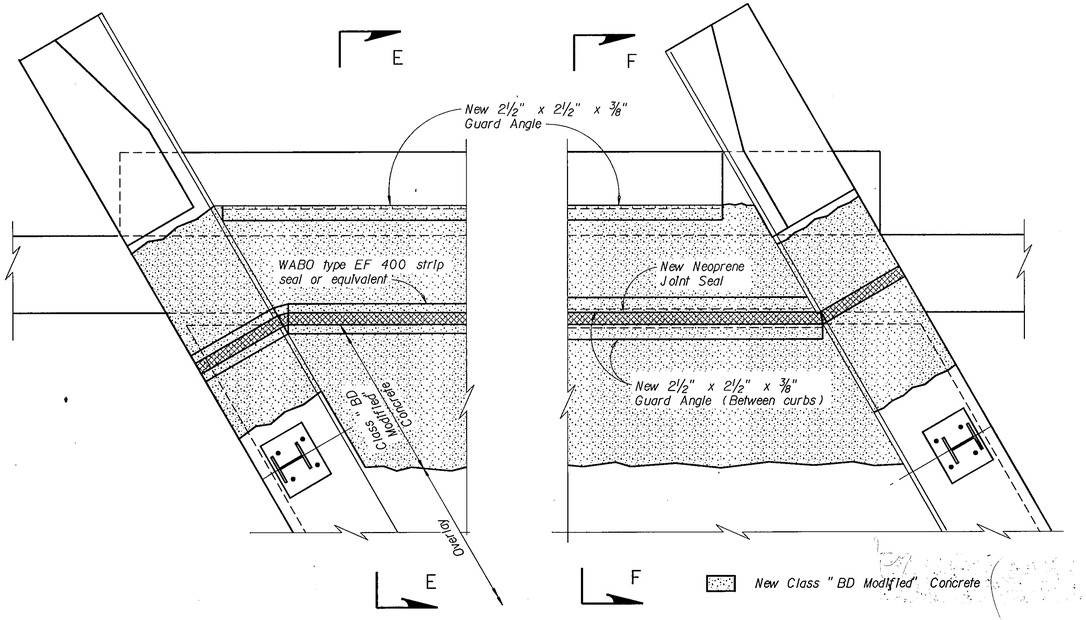


VIEW G-G



OVERLAY AT EXISTING DRAIN LOCATIONS

Scale ~ 1" = 1-0



PLAN VIEW OF NEW JOINT

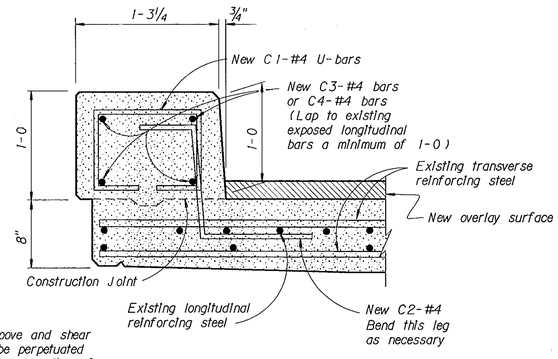
(ALTERNATE A-1)

Scale ~ 1" = 1-0

PLAN VIEW OF NEW JOINT

(ALTERNATE A-2)

Scale ~ 1" = 1-0



NOTE: Drip groove and shear key to be perpetuated through new section of slab.

SECTION C-C

Scale ~ 1½" = 1-0

NOTE: For Sections D-D, E-E and F-F See Dwg. No. 15139.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

DEER LODGE COUNTY

EXPANSION JOINT REPAIR DETAILS BENTS NO. 1 AND NO. 4 AND OVERLAY AT M.P. 195+0.713

DETAIL "A"

Scale as Noted

DRAWING NO. 15140

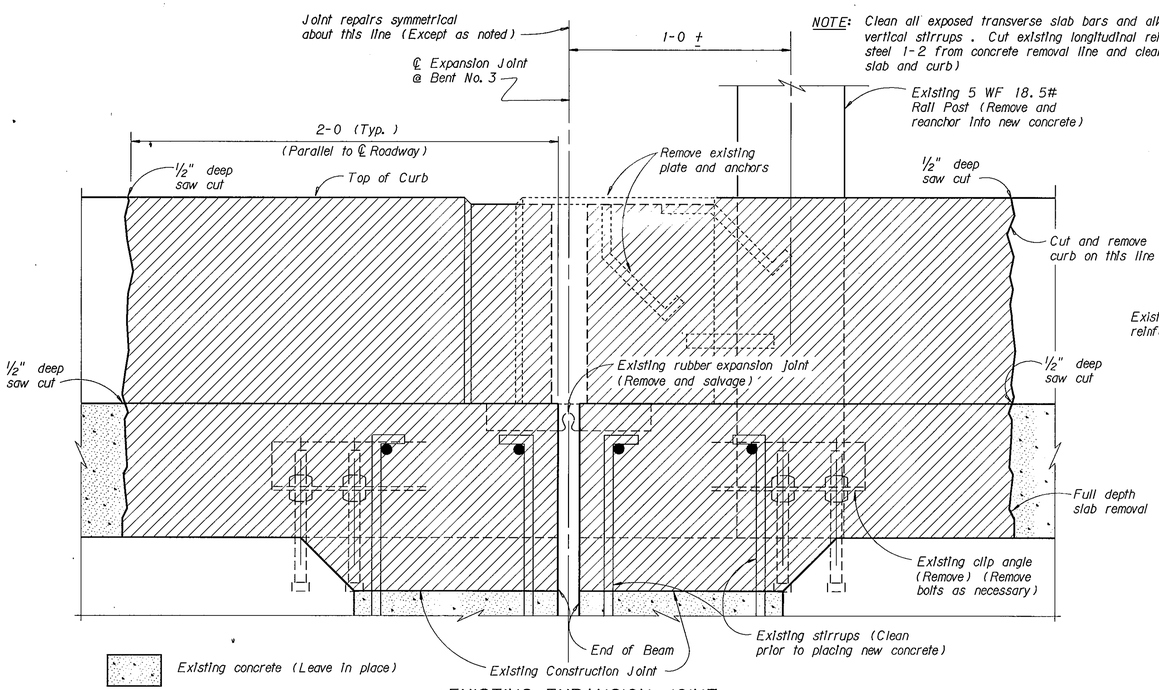
DESIGNED	5-15-91	L.R.T.
DRAWN	5-15-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

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18-DEC-1991 09:11:42
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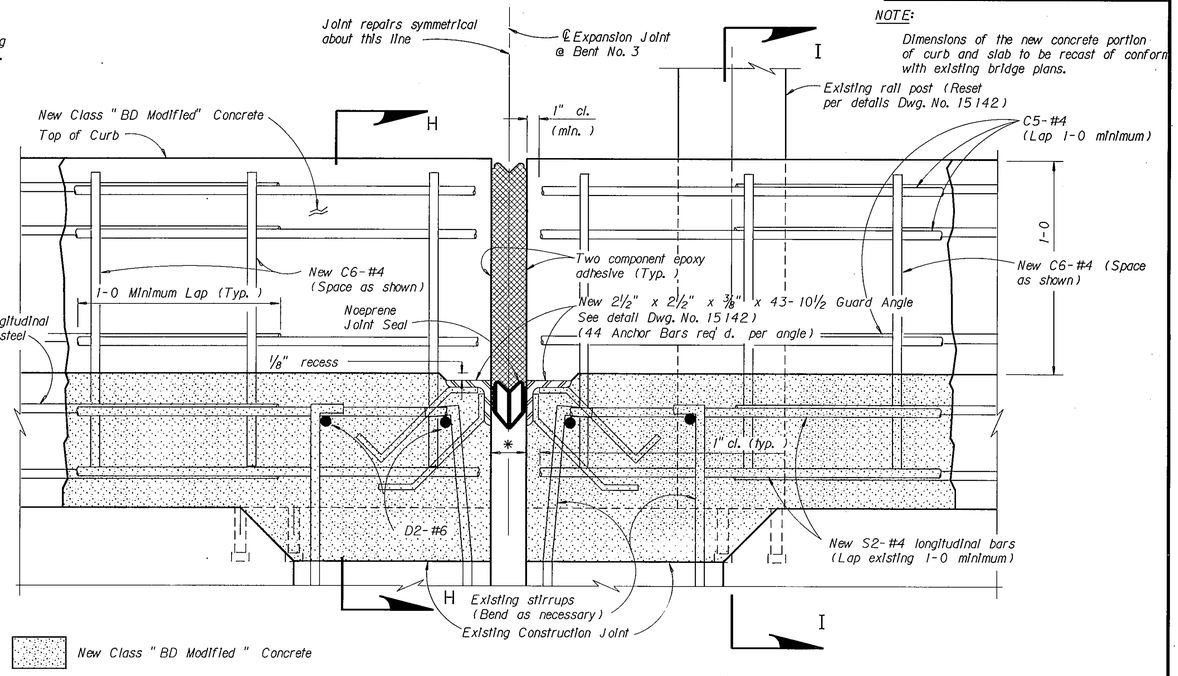
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B6

NOTE: These structures are skewed 30° with curb joints perpendicular to curb.

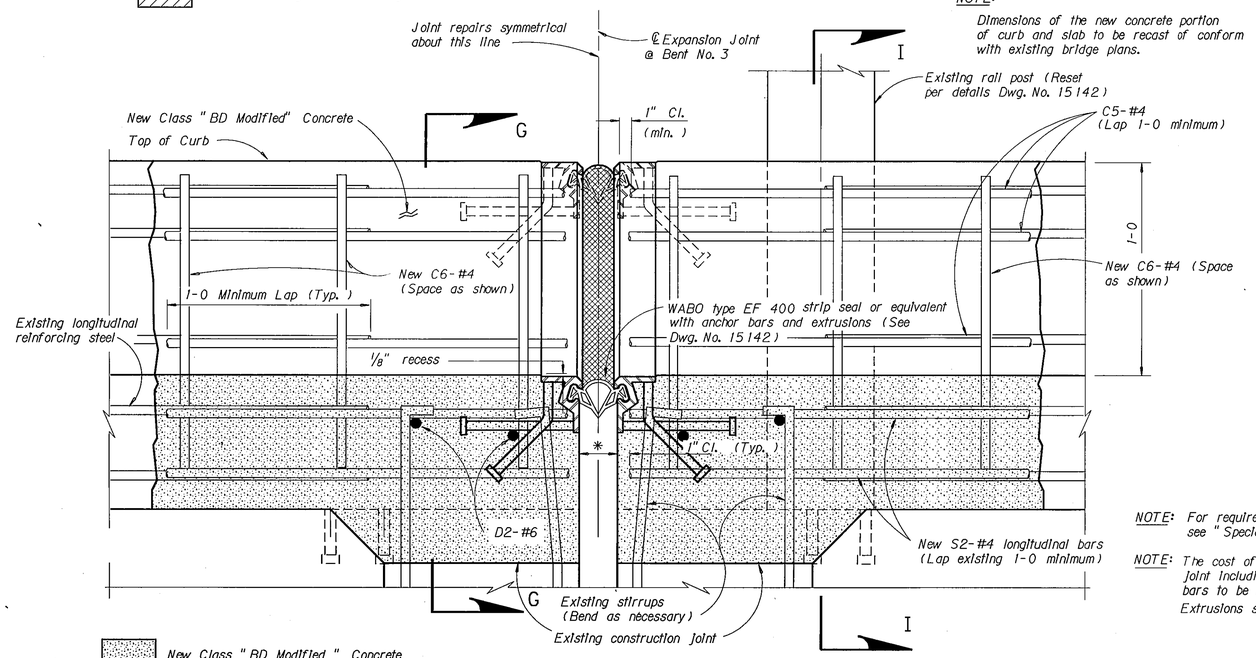
NOTE: Clean all exposed transverse slab bars and all vertical stirrups . Cut existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. slab and curb)



EXISTING EXPANSION JOINT



NOTE: Dimensions of the new concrete portion of curb and slab to be recast of conform with existing bridge plans.



NEW EXPANSION JOINT DETAIL
(ALTERNATE A-1)

NEW NEOPRENE JOINT SEAL DETAIL
(ALTERNATE A-2)

NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of new joint opening prior to placing new concrete.

NOTE: For Bill of Reinforcing Steel see Dwg. No. 15138.

*NOTE: Dimension depends on manufacturer's recommendations (1" minimum @ 105°.)

NOTE: Temperature range: -45° F to 105° F with mean temperature of 30° F.

NOTE: The joint used must be capable of providing for a total minimum allowable movement of 1⅛".

NOTE: For Sections G-G, H-H and I-I see Dwg. No. 15142.

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing new Class "BD Modified" Concrete to be included in the unit price bid for Class "B" Bridge Deck Repair.

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seals.

NOTE: The cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

NOTE: For requirements of Expansion Joint see "Special Provisions".

NOTE: The cost of furnishing and installing new expansion joint including metal extrusions, strip seal and anchor bars to be included in the unit price bid for Expansion Joint. Extrusions shall be set ⅛" below adjacent surfaces.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION
FEDERAL AID PROJECT NO. IR0002(22) UNIT 2
SILVER BOW COUNTY

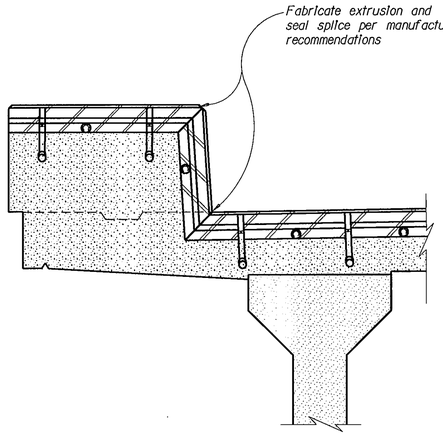
EXPANSION JOINT REPAIR DETAILS
AT MILEPOST 210+0.803
BENT NO.3 E.B. AND W.B. ROADWAYS
DETAIL "B"

DESIGNED	5-22-91	L. R. T.
DRAWN	5-22-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

Scale ~ 3" = 1-0 DRAWING NO. 15141

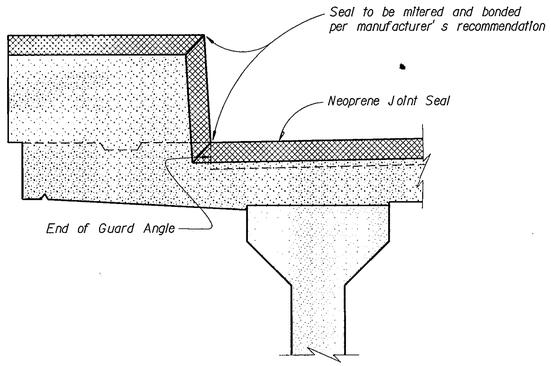
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FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B7



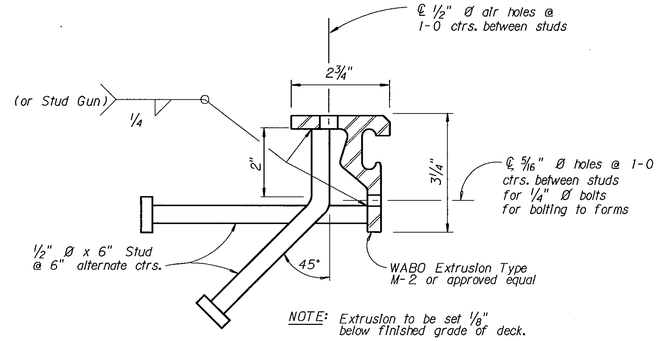
SECTION G-G

No Scale



SECTION H-H

No Scale



NOTE: Extrusion to be set ⅛" below finished grade of deck.

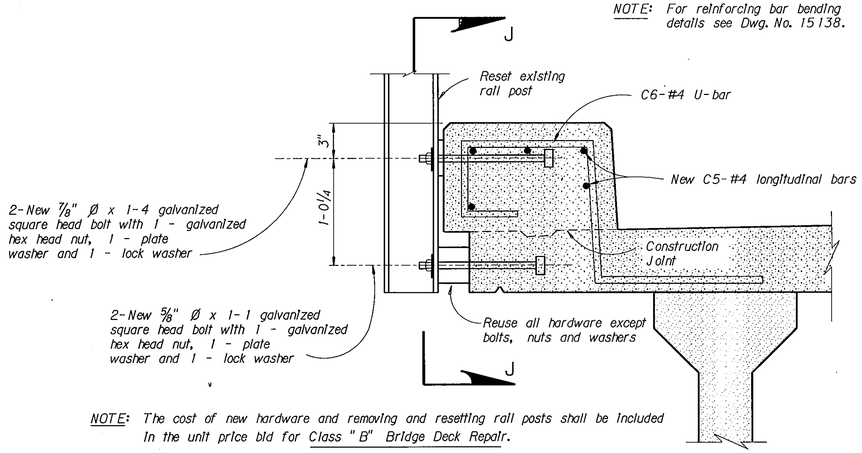
STEEL EXTRUSION AND ANCHORAGE SYSTEM

(Half Scale)

NOTE: Slab reinforcing steel removed for clarity.

NOTE: Full design concrete strength shall be achieved prior to attaching rail post to bolts.

NOTE: For reinforcing bar bending details see Dwg. No. 15138.

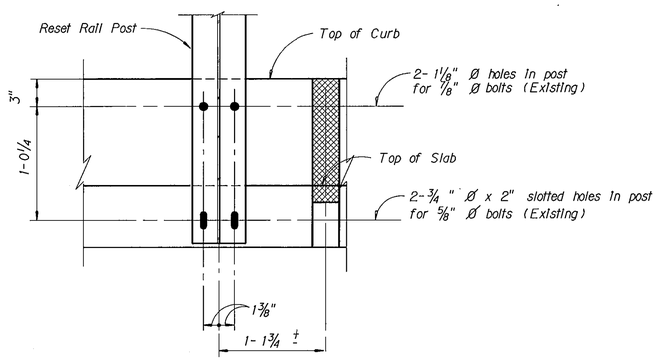


NOTE: The cost of new hardware and removing and resetting rail posts shall be included in the unit price bid for Class "B" Bridge Deck Repair.

SECTION I-I

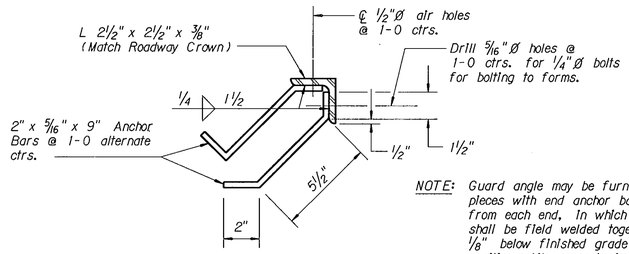
Scale ~ 1½" = 1-0

(2 locations only)



SECTION J-J

Scale ~ 1½" = 1-0



GUARD ANGLE DETAIL

Scale ~3" = 1'-0"

NOTE: Guard angle may be furnished in two pieces with end anchor bars 6" maximum from each end. In which case the angles shall be field welded together. Recess angle ⅛" below finished grade and hold in accurate position while concrete is being placed.

NOTE: Guard angle and anchor bars shall be painted in accordance with Standard Specifications.

NOTE: See specific details for guard angle lengths and number of anchor bars.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS AT MILEPOST 210+0.803 BENT NO.3 E.B. AND W.B. ROADWAYS DETAIL "B"

Scale ~ As Noted

DRAWING NO. 15142

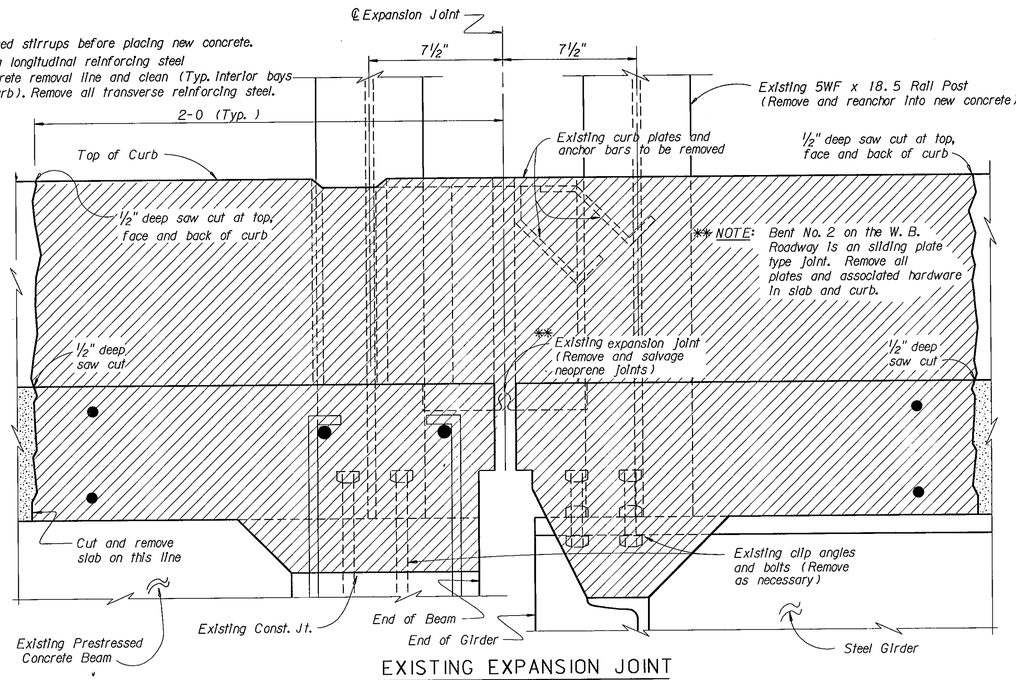
DESIGNED	5-22-91	L.R.T.
DRAWN	5-22-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

18-DEC-1991 11:55 BRUM MONTANA CADD 22:[1060035]13T-UTM05_BRG_1

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B8

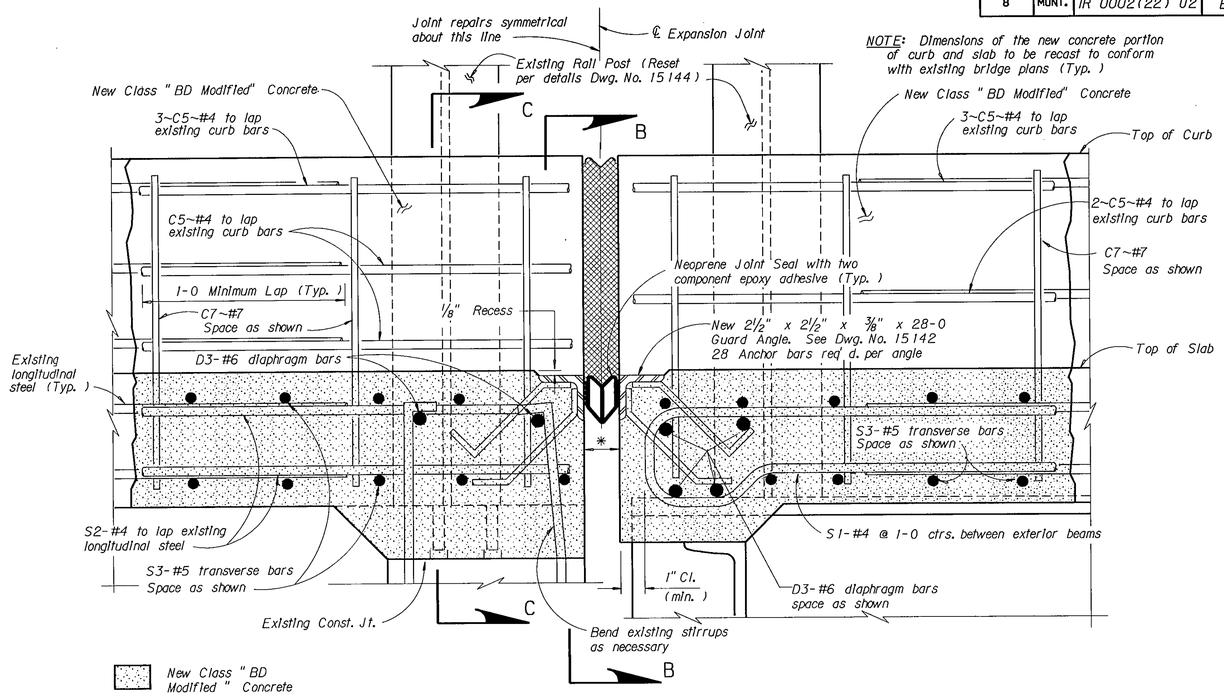
WRIGHT-MAN CADD 16-DEC-1991 11:57 BMAN T:\0000051\TIF\0TH05_B05.1

NOTE:
Clean all exposed stirrups before placing new concrete.
Cut all existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. interior bays of slab and curb). Remove all transverse reinforcing steel.

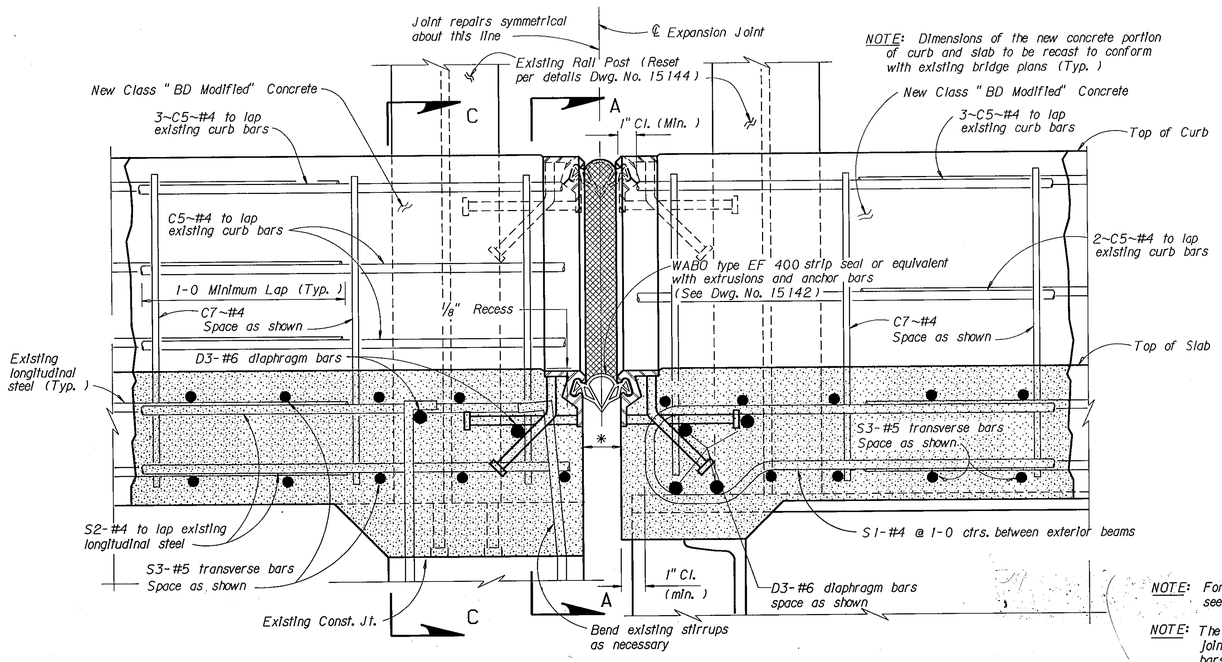


EXISTING EXPANSION JOINT

(Bents No. 2 and No. 5 E. B. Roadway)
(Bent No. 2 shown, Bent No. 5 similar)
**(Bent No. 2 W. B. Roadway)



NEW EXPANSION JOINT (ALTERNATE A-2)



NEW EXPANSION JOINT (ALTERNATE A-1)

NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of new joint opening prior to placing new concrete.

*NOTE: Dimension depends on manufacturer's recommendations (1" minimum @ 105°).

NOTE: Temperature range: -45° F to 105° F with mean temperature of 30° F.

NOTE: The joint used must be capable of providing for a total minimum allowable movement of 1¾" - Bent No. 2 and 1½" - Bent No. 5.

NOTE: For Sections A-A, B-B and C-C see Dwg. No. 15144.

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing new Class " BD Modified" Concrete to be included in the unit price bid for Class " B" Bridge Deck Repair.

NOTE: For Bill of Reinforcing Steel see Dwg. No. 15138.

NOTE: For requirements of Expansion Joint see " Special Provisions. ".

NOTE: The cost of furnishing and installing new expansion joint including metal extrusions, strip seal and anchor bars to be included in the unit price bid for Expansion Joint. Extrusions shall be set ⅛" below adjacent concrete surfaces.

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seals.

NOTE: The cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION
FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2
JEFFERSON COUNTY

EXPANSION JOINT REPAIR DETAILS
AT M.P. 243+0.322
BENTS NO. 2 AND NO. 5 (E.B. ROADWAY)
BENT NO.2 (W.B. ROADWAY)
DETAIL "C"

Scale ~ 3" = 1-0

DRAWING NO. 15143

DESIGNED	5-24-91	L. R. T.
DRAWN	5-24-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

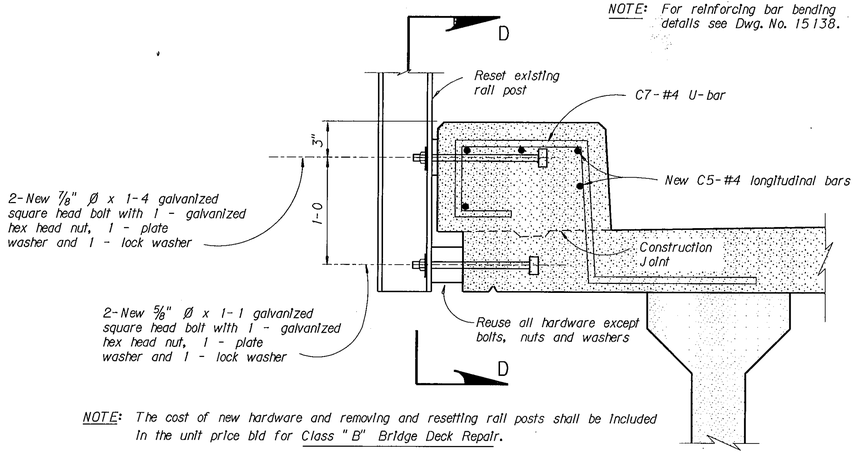
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B9

MONTANA CADD 18-DEC-1991 15:55 BRAM I:\BRAM\DWGS\15144.MSM(MODEL_SPACE)

NOTE: Slab reinforcing steel removed for clarity.

NOTE: Full design concrete strength shall be achieved prior to attaching rail post to bolts.

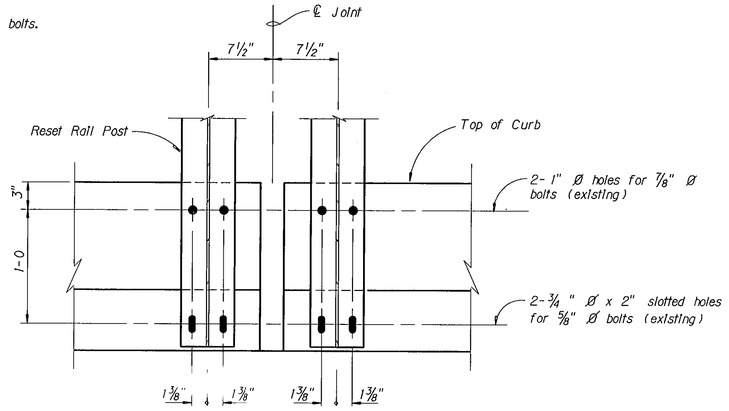
NOTE: For reinforcing bar bending details see Dwg. No. 15138.



NOTE: The cost of new hardware and removing and resetting rail posts shall be included in the unit price bid for Class "B" Bridge Deck Repair.

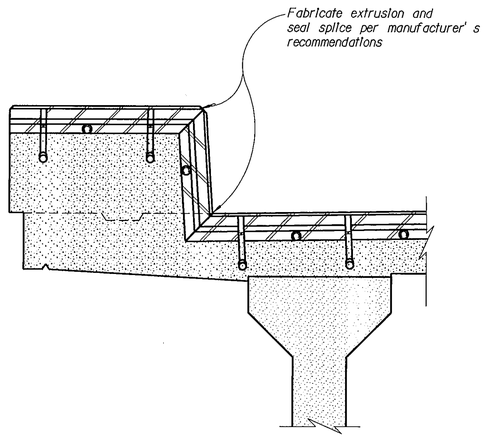
SECTION C-C

Scale ~ 1½" = 1-0
(2 locations only)



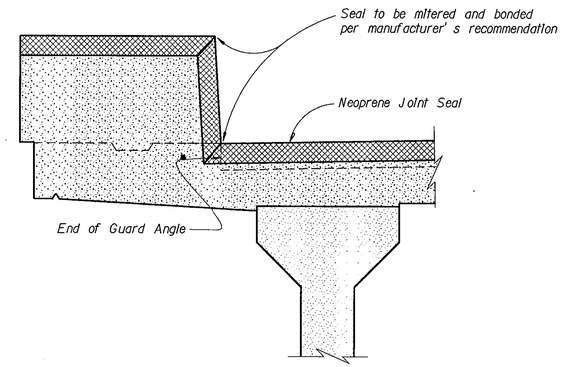
SECTION D-D

Scale ~ 1½" = 1-0



SECTION A-A

No Scale



SECTION B-B

No Scale

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION
FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

JEFFERSON COUNTY

EXPANSION JOINT REPAIR DETAILS
AT M.P. 243+0.322
BENTS NO. 2 AND NO. 5 (E.B. ROADWAY)
BENT NO.2 (W.B. ROADWAY)
DETAIL "C"

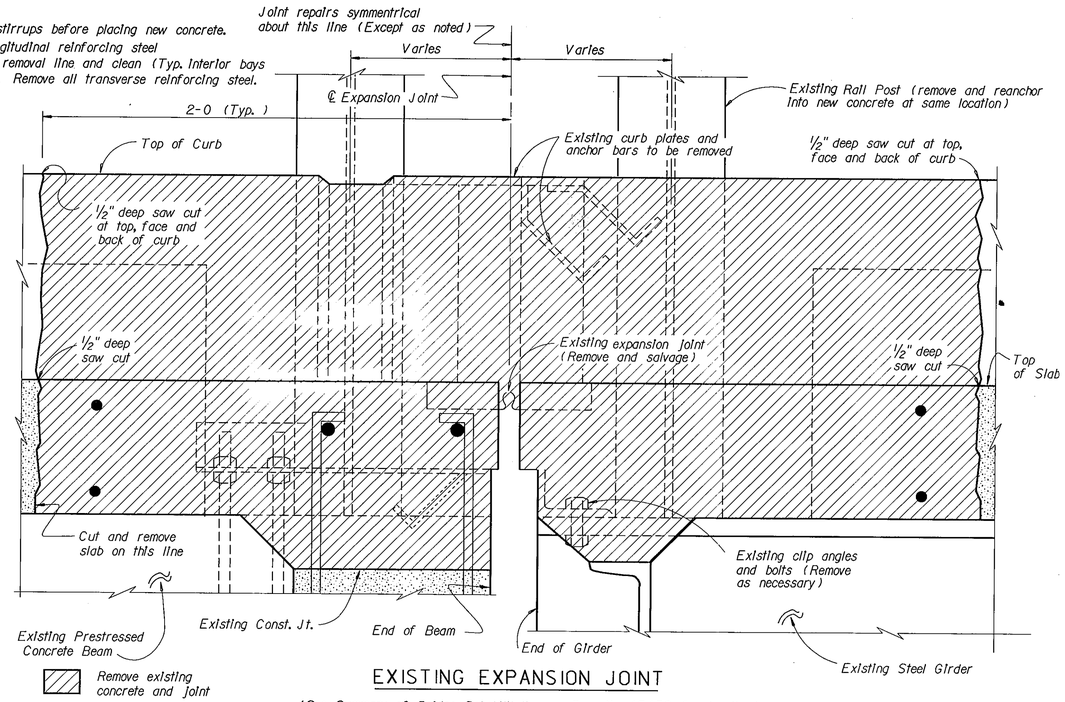
DESIGNED	5-24-91	L. R. T.
DRAWN	5-24-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

Scale ~ As Noted

DRAWING NO. 15144

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B10

NOTE:
Clean all exposed stirrups before placing new concrete.
Cut all existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. Interior bays of slab and curb). Remove all transverse reinforcing steel.

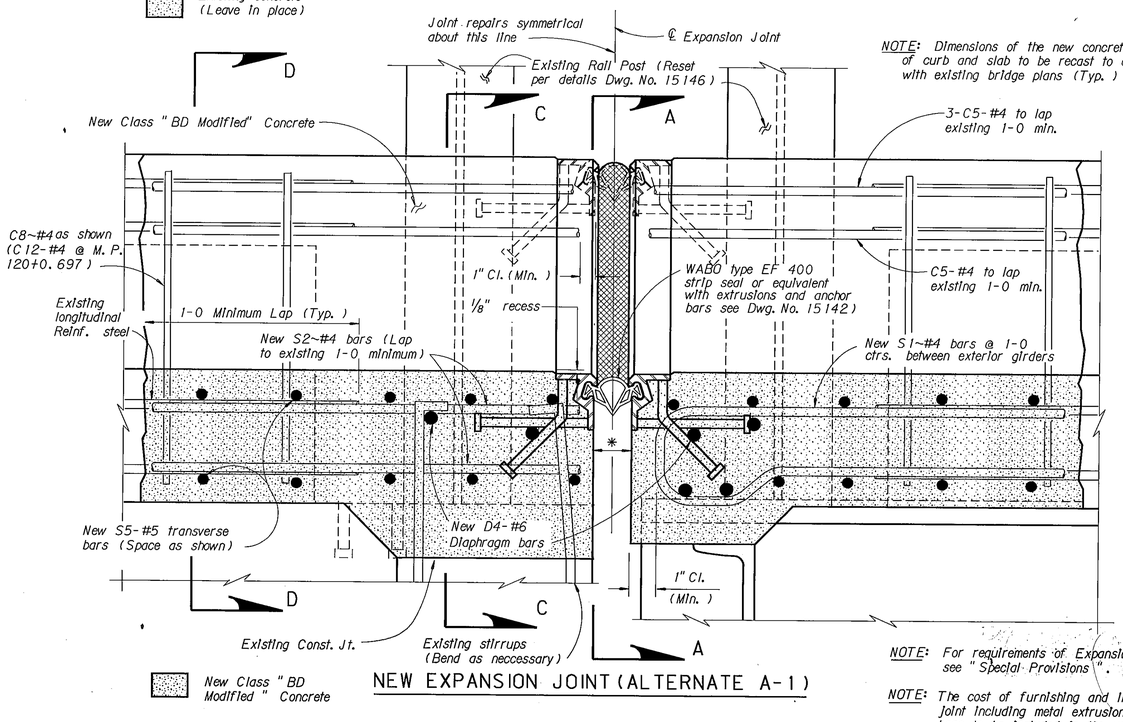


Remove existing concrete and joint

Existing concrete (Leave in place)

EXISTING EXPANSION JOINT

(See Summary of Bridge Rehabilitation on Dwg. No. 15136 for location)



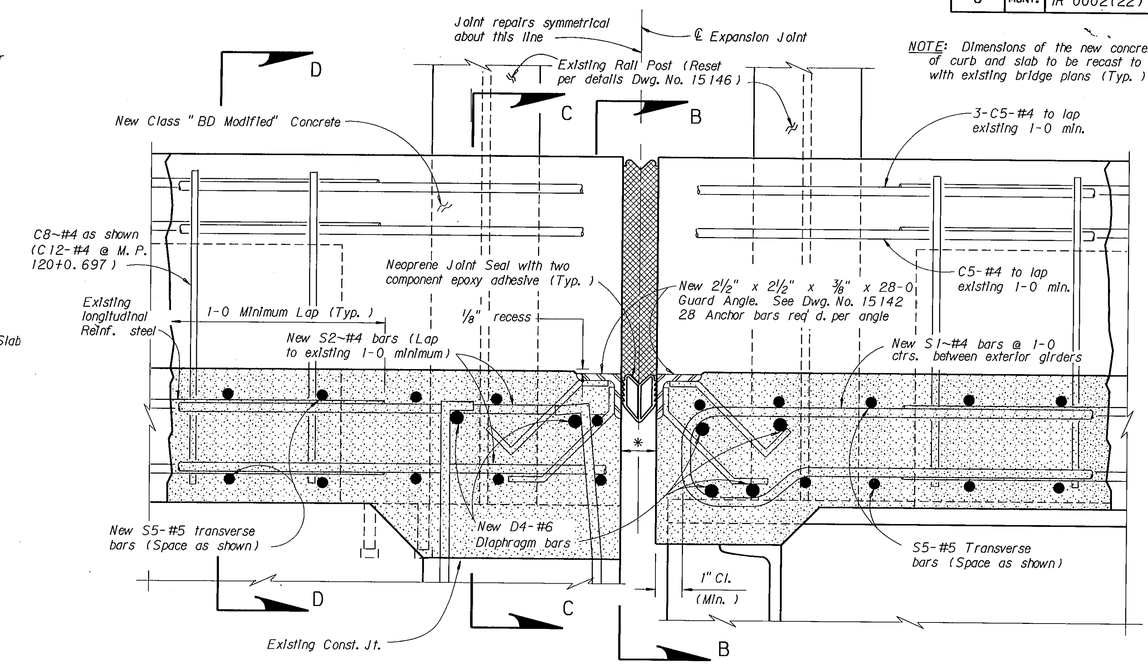
New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-1)

NOTE: Dimensions of the new concrete portion of curb and slab to be recast to conform with existing bridge plans (Typ.)

NOTE: For requirements of Expansion Joint see "Special Provisions".

NOTE: The cost of furnishing and installing new expansion joint including metal extrusions, strip seal and anchor bars to be included in the unit price bid for Expansion Joint. Extrusions to be set ⅛" below adjacent concrete surfaces.



New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-2)

NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of new joint opening prior to placing new concrete.

NOTE: For Bill of Reinforcing Steel see Dwg. No. 15138.

*NOTE: Dimension depends on manufacturer's recommendations (1" minimum @ 100°). (1¾" min. opening at M.P. 125+0.0883 S.B. Roadway at Bent No. 7)

NOTE: For joint information see table this sheet.

NOTE: For Sections A-A, B-B, C-C and D-D see Dwg. No. 15146.

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing new Class "BD Modified" Concrete to be included in the unit price bid for Class "B" Bridge Deck Repair.

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seals.

NOTE: The cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

TABLE OF JOINT INFORMATION

LOCATION	High Temp.	Low Temp.	Mean Temp.	Minimum allowable joint movement
I 90 M.P. 314+0.083 E.B. Rdwy. Bent No. 3	100° F	-40° F	30° F	1¼"
I 15 M.P. 120+0.697 S.B. Rdwy. Bent No. 4	100° F	-55° F	23° F	1½"
I 15 M.P. 124+0.870 N.B. Rdwy. Bent No. 6	100° F	-55° F	23° F	1¾"
I 15 M.P. 125+0.084 S.B. Rdwy. Bent No. 6	100° F	-55° F	23° F	1⅞"
I 15 M.P. 125+0.883 N.B. Rdwy. Bent No. 7	100° F	-55° F	23° F	1¼"
I 15 M.P. 125+0.883 S.B. Rdwy. Bent No. 7	100° F	-55° F	23° F	1⅞"
I 15 M.P. 126+0.316 N.B. Rdwy. Bent No. 2	100° F	-55° F	23° F	1⁷⁄₁₆"
I 15 M.P. 126+0.316 S.B. Rdwy. Bent No. 2	100° F	-55° F	23° F	1⁷⁄₁₆"

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

GALLATIN AND SILVER BOW COUNTIES

EXPANSION JOINT REPAIR DETAILS

DETAIL "D"

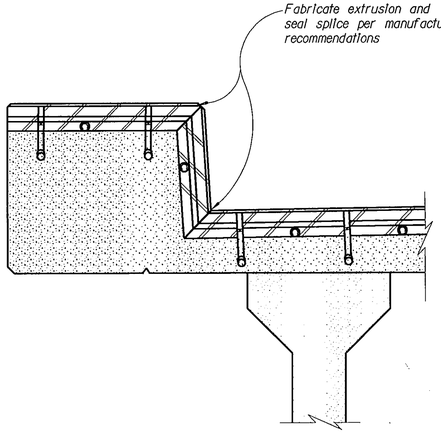
Scale ~ 3" = 1-0

DRAWING NO. 15145

DESIGNED	5-28-91	L. R. T.
DRAWN	5-28-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

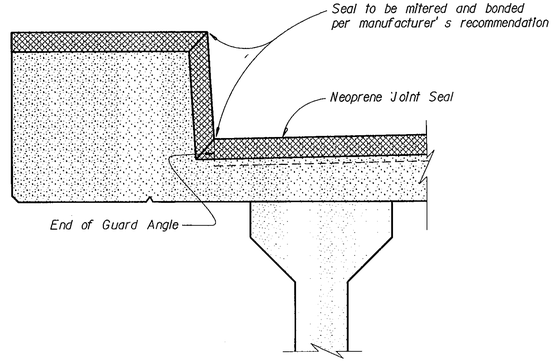
MONTANA CADD 18-DEC-1991 11:58 BRAUN ...\B10_B0D.1

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B11



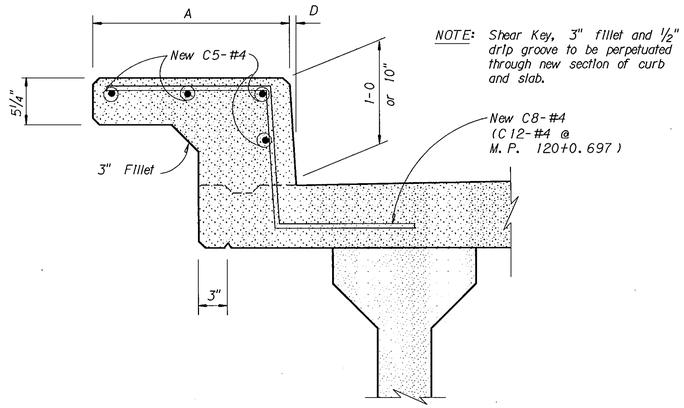
SECTION A-A

No Scale



SECTION B-B

No Scale



NOTE: Shear Key, 3" fillet and ½" drip groove to be perpetuated through new section of curb and slab.

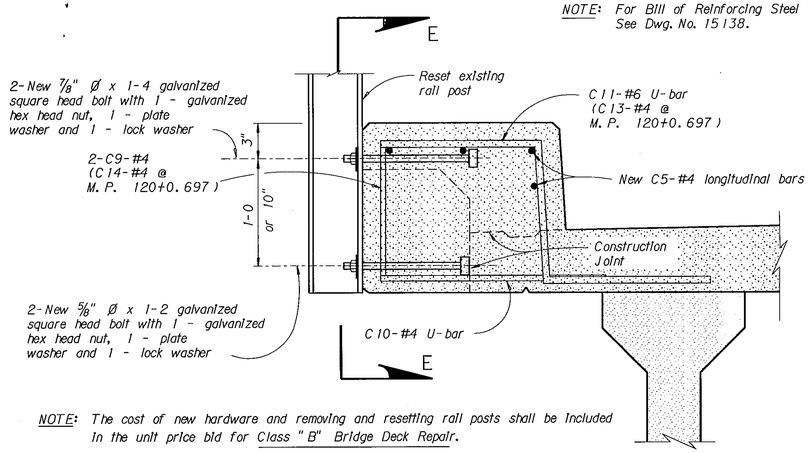
SECTION D-D

Scale ~ 1½" = 1-0

NOTE: Slab reinforcing steel removed for clarity.

NOTE: Full design concrete strength shall be achieved prior to attaching rail post to bolts.

NOTE: For Bill of Reinforcing Steel See Dwg. No. 15138.

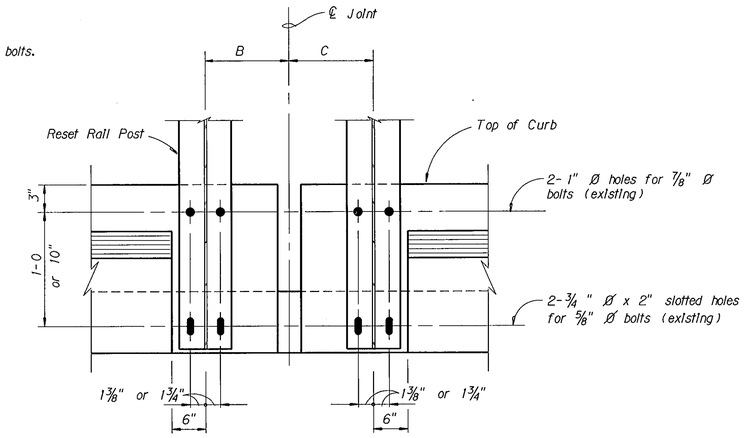


NOTE: The cost of new hardware and removing and resetting rail posts shall be included in the unit price bid for Class "B" Bridge Deck Repair.

NOTE: Reuse all hardware except bolts, nuts and wahsers.

SECTION C-C

Scale ~ 1½" = 1-0



SECTION E-E

Scale ~ 1½" = 1-0

TABLE OF DIMENSIONS				
Location	A	B	C	D
I 90 M. P. 314+0.083	1-10¾"	9½"	9½"	¾"
I 15 M. P. 120+0.697	1-9	6½"	8½"	1"
I 15 M. P. 124+0.870	1-10¾"	10"	9"	¾"
I 15 M. P. 125+0.084	1-10¾"	10"	9"	¾"
I 15 M. P. 125+0.883	1-10¾"	10"	9"	¾"
I 15 M. P. 126+0.316	1-10	7"	8"	¾"

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

GALLATIN AND SILVER BOW COUNTIES

EXPANSION JOINT REPAIR DETAILS

DETAIL "D"

Scale ~ As Noted

DRAWING NO. 15146

DESIGNED	5-28-91	L. R. T.
DRAWN	5-28-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

18-DEC-1991 10:00 BMAN
JOINT.MA CADD
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FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B12

MONTANA CADD 19-DEC-1991 14:34 BRAUN Z:\P2\0020003\STR\MISC\BRS_2...

Existing Rail Post (remove and reanchor into new concrete at same location)
(One location at M.P. 124+0.690)
(Two locations at M.P. 124+0.870)
(Two locations at M.P. 125+0.084)
(Six locations at M.P. 120+0.697)

Joint repairs symmetrical about this line (Except as noted)

≠ Varies

≠ 2-0 (Typ.) (Parallel to ℄ Rdwy.)

℄ Expansion Joint

NOTE:
Clean all exposed stirrups before placing new concrete.
Cut all existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. interior bays of slab and curb). Clean all transverse reinforcing steel on skewed structures.

Top of Curb

Existing curb plates and anchor bars to be removed

½" deep saw cut at top, face and back of curb

NOTE:
Structure @ M.P. 124+0.690 is skewed 25°.
Structure @ M.P. 124+0.826 is skewed 30°42'.
Curb joints are perpendicular to curb.

½" deep saw cut at top, face and back of curb

½" deep saw cut

Cut and remove slab on this line

Cut and remove slab on this line

Existing clip angles (Remove) (Remove bolts as necessary)

Existing Prestressed Concrete Beam

Existing Const. Jt.

End of Beam

NOTE: Existing joint may vary from detail shown.

Remove existing concrete and joint

Existing concrete (Leave in place)

EXISTING EXPANSION JOINT

Joint repairs symmetrical about this line

℄ Expansion Joint

Existing Rail Post (Reset per details Dwg. No. 15148)

NOTE: Dimensions of the new concrete portion of curb and slab to be recast to conform with existing bridge plans (Typ.)

New Class "BD Modified" Concrete

C8-#4 (C12-#4 @ M.P. 120+0.697) (Location varies - See Section E-E on Dwg. No. 15148)

Existing longitudinal Reinf. steel

1-0 Minimum Lap (Typ.)

⅛" recess

WABO type EF 400 strip seal or equivalent with extrusions and anchor bars see Dwg. No. 15142

3-C5-#4 to lap existing 1-0 min.

Top of Curb

C5-#4 to lap existing 1-0 min.

C8-#4 as shown (C12-#4 @ M.P. 120+0.697)

New S5-#5 Transverse bars (Space as shown) (At M.P. 124+0.870, 125+0.084 and 120+0.697 only)

S2-#4 to lap existing 1-0 min.

Existing stirrups (Bend as necessary)

New D4-#6 or D5-#6 Diaphragm bars

Existing Const. Jt.

D C A

New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-1)

Joint repairs symmetrical about this line

℄ Expansion Joint

Existing Rail Post (Reset per details Dwg. No. 15148)

NOTE: Dimensions of the new concrete portion of curb and slab to be recast to conform with existing bridge plans (Typ.)

New Class "BD Modified" Concrete

C8-#4 (C12-#4 @ M.P. 120+0.697) (Location varies - See View E-E on Dwg. No. 15148)

Existing longitudinal Reinf. steel

1-0 Minimum Lap (Typ.)

Neoprene Joint Seal with two component epoxy adhesive (Typ.)

New 2½" x 2½" x ⅜" Guard Angle. See Dwg. No. 15142 and note this sheet.

⅛" recess

3-C5-#4 to lap existing 1-0 min.

Top of Curb

C5-#4 to lap existing 1-0 min.

C8-#4 as shown (C12-#4 @ M.P. 120+0.697)

S2-#4 to lap existing 1-0 min.

New S5-#5 Transverse bars (Space as shown) (At M.P. 124+0.870, 125+0.084 and 120+0.697 only)

Existing stirrups (Bend as necessary)

New D4-#6 or D5-#6 Diaphragm bars

Existing Const. Jt.

D C B

New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-2)

NOTE: The cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of new joint opening prior to placing new concrete.

*NOTE: Dimension depends on manufacturer's recommendations (1" min. @ 100°).

NOTE: Temperature range: -55° F to 100° F with mean temperature of 23° F.

NOTE: The joint used must be capable of providing for a minimum allowable movement of 1 1/16" except at M.P. 120+0.697 @ Bents No. 8 and No. 10 which shall be 1¼"

NOTE: For Sections A-A, B-B, C-C and D-D see Dwg. No. 15148.

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing new Class "BD Modified" Concrete to be included in the unit price bid for Class "B" Bridge Deck Repair.

NOTE: Guard Angle Lengths are as follows:

- M.P. 120+0.697 ~ 28-0 with 28 anchor bars per angle.
- M.P. 124+0.690 ~ 30-10¾ with 31 anchor bars per angle
- M.P. 124+0.826 ~ 32-4 with 33 anchor bars per angle
- M.P. 124+0.870 ~ 28-1 with 28 anchor bars per angle
- M.P. 125+0.084 ~ 28-1¼ with 28 anchor bars per angle

NOTE: For requirements of Expansion Joint see "Special Provisions".

NOTE: The cost of furnishing and installing new expansion joint including metal extrusions, strip seal and anchor bars to be included in the unit price bid for Expansion Joint.

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seals.

≠ NOTE: Longitudinal curb bars shall be cut as to insure a 1-0 minimum lap to the new C5 bars.

JOINT REPAIR LOCATIONS

M.P. 120+0.697 - N.B. Rdwy. Bents No. 8 and No. 10
M.P. 120+0.697 - S.B. Rdwy. Bents No. 8 and No. 10
M.P. 124+0.690 Bent No. 2
M.P. 124+0.826 Bent No. 2
M.P. 124+0.870 Bent No. 2
M.P. 125+0.084 Bent No. 2

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS

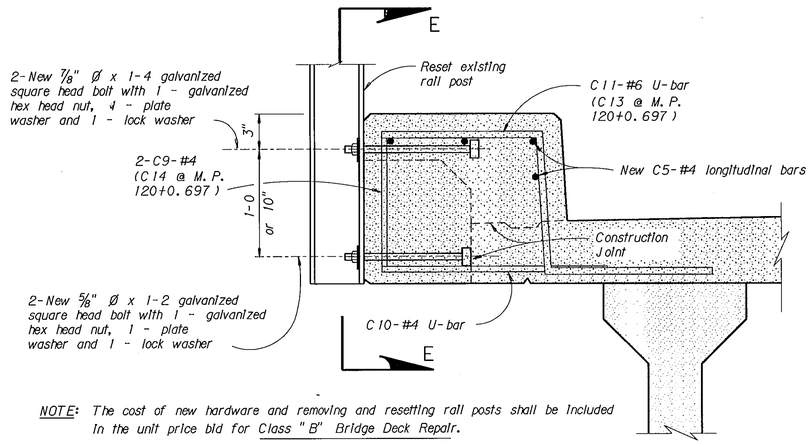
DETAIL "E"

Scale ~ 3" = 1-0

DRAWING NO. 15147

DESIGNED	5-29-91	L.R.T.
DRAWN	5-29-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
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FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B13

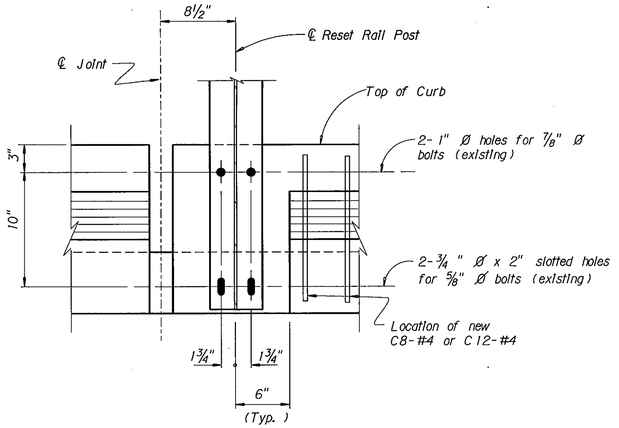


NOTE: The cost of new hardware and removing and resetting rail posts shall be included in the unit price bid for Class "B" Bridge Deck Repair.

NOTE: Reuse all hardware except bolts, nuts and wahsers.

SECTION C-C

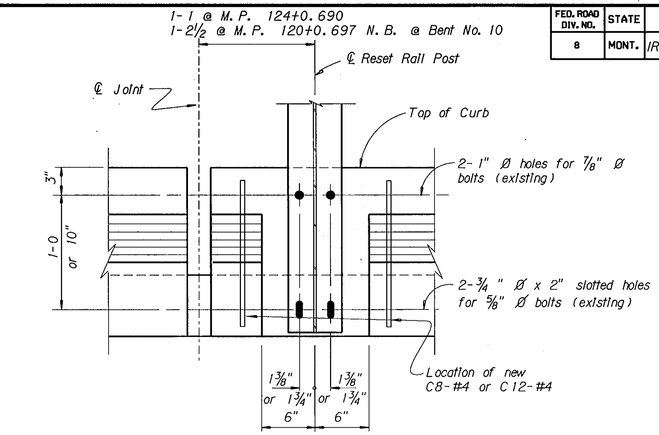
Scale ~ 1½" = 1-0



SECTION E-E

Scale ~ 1½" = 1-0

(M.P. 120+0.697 S.B. @ Bent No. 10)



SECTION E-E

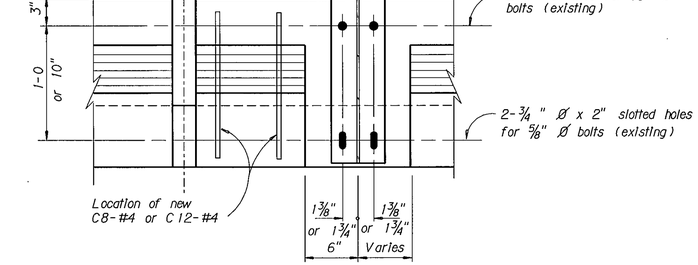
Scale ~ 1½" = 1-0

(M.P. 124+0.690 N.B. @ Bent No. 2 and M.P. 120+0.697 N.B. @ Bent No. 10)

NOTE: Slab reinforcing steel removed for clarity.

NOTE: Full design concrete strength shall be achieved prior to attaching rail post to bolts.

NOTE: For Bill of Reinforcing Steel See Dwg. No. 15138.

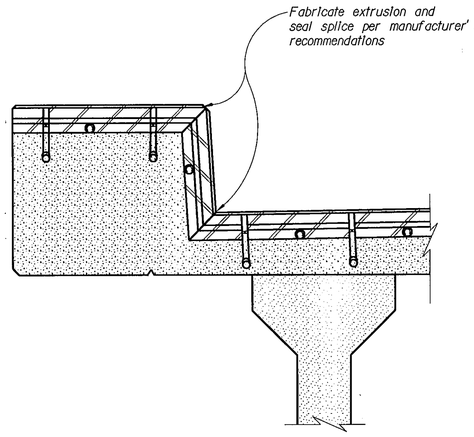


SECTION E-E

Scale ~ 1½" = 1-0

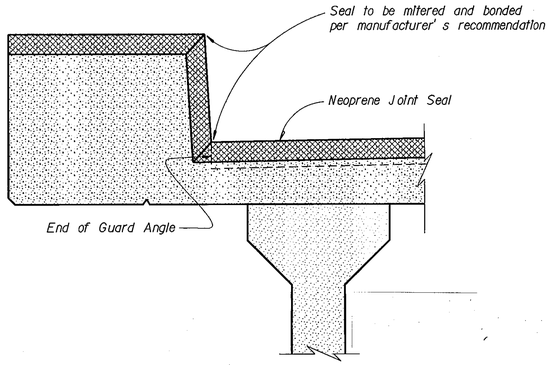
(M.P. 125+0.084, M.P. 124+0.870)

(M.P. 120+0.697 S.B. @ Bent No. 8)



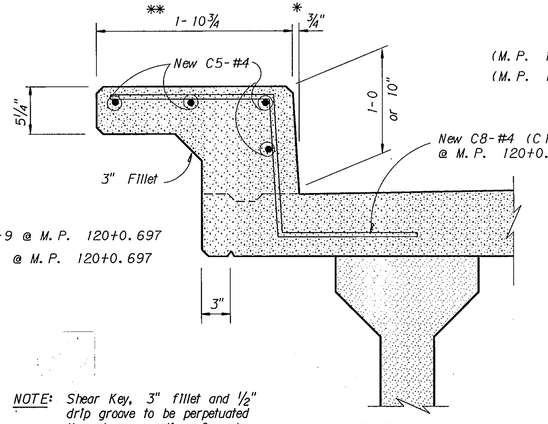
SECTION A-A

No Scale



SECTION B-B

No Scale



NOTE: Shear Key, 3" fillet and ½" drip groove to be perpetuated through new section of curb and slab.

SECTION D-D

Scale ~ 1½" = 1-0

DESIGNED	5-29-91	L.R.T.
DRAWN	5-29-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS

DETAIL "E"

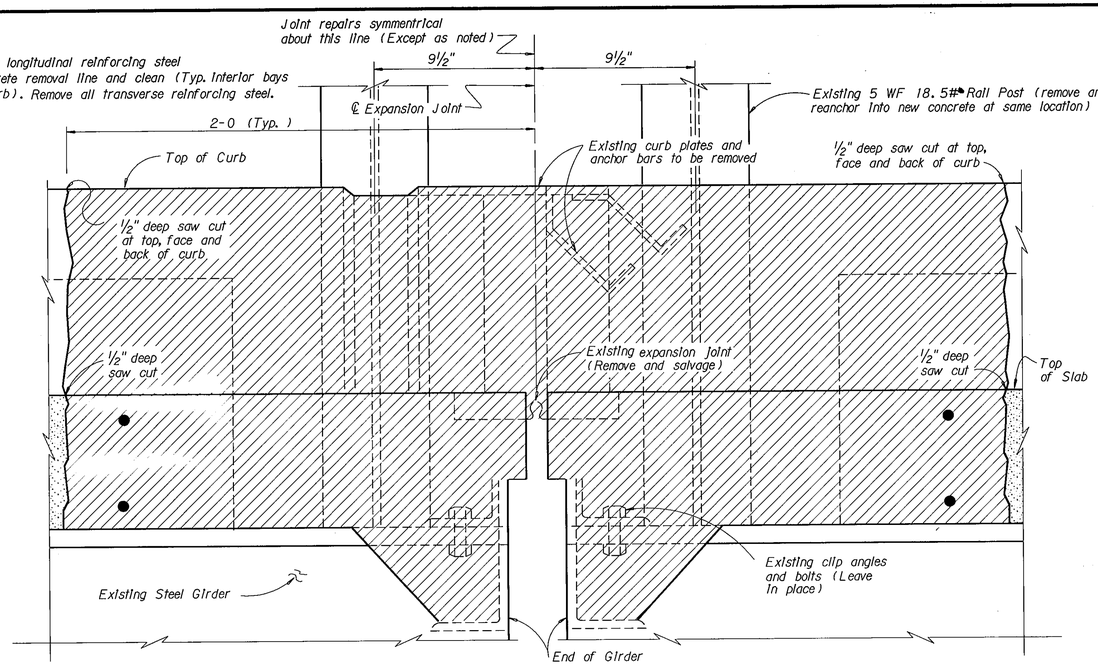
Scale as Noted

DRAWING NO. 15148

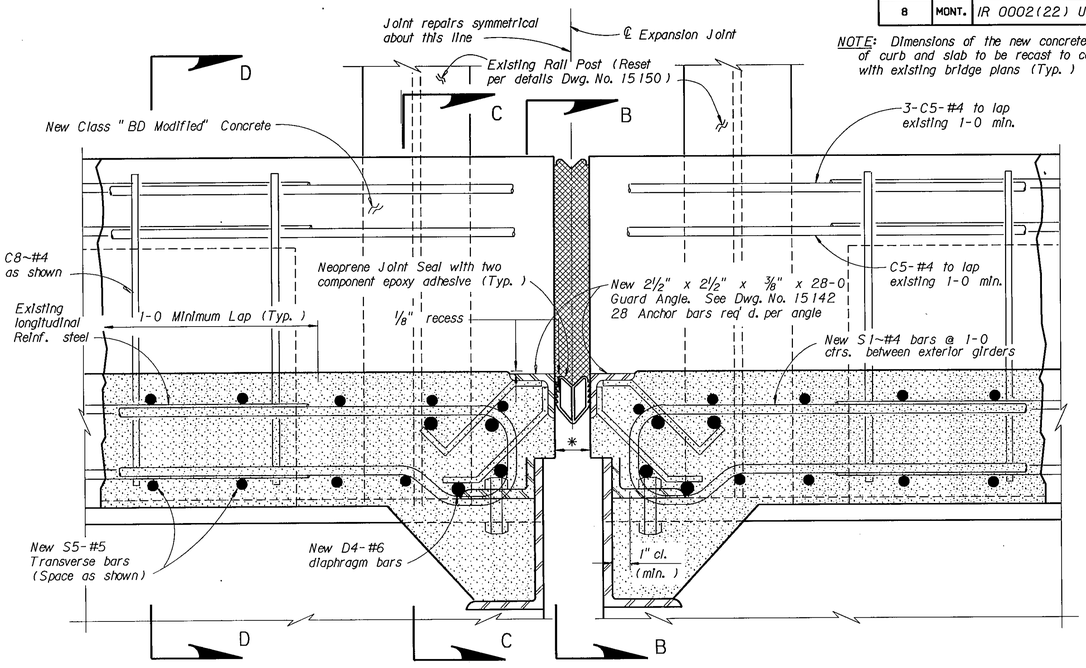
MONTANA CAD 19-DEC-1991 08:36 SMITH

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B14

NOTE:
Cut all existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. interior bays of slab and curb). Remove all transverse reinforcing steel.



EXISTING EXPANSION JOINT



New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-2)

NOTE: Dimensions of the new concrete portion of curb and slab to be recast to conform with existing bridge plans (Typ.)

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seals.

*NOTE: Dimension depends on manufacturer's recommendations. 1" minimum @ 100°.

NOTE: Temperature range -55 F to 100 F with mean temperature of 23 .

Joint used must be capable of providing for a total minimum allowable movement of $1\frac{7}{16}$".

NOTE: For Sections A-A, B-B, C-C and D-D see Dwg. No. 15150.

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing new Class "BD Modified" Concrete to be included in the unit price bid for Class "B" Bridge Deck Repair.

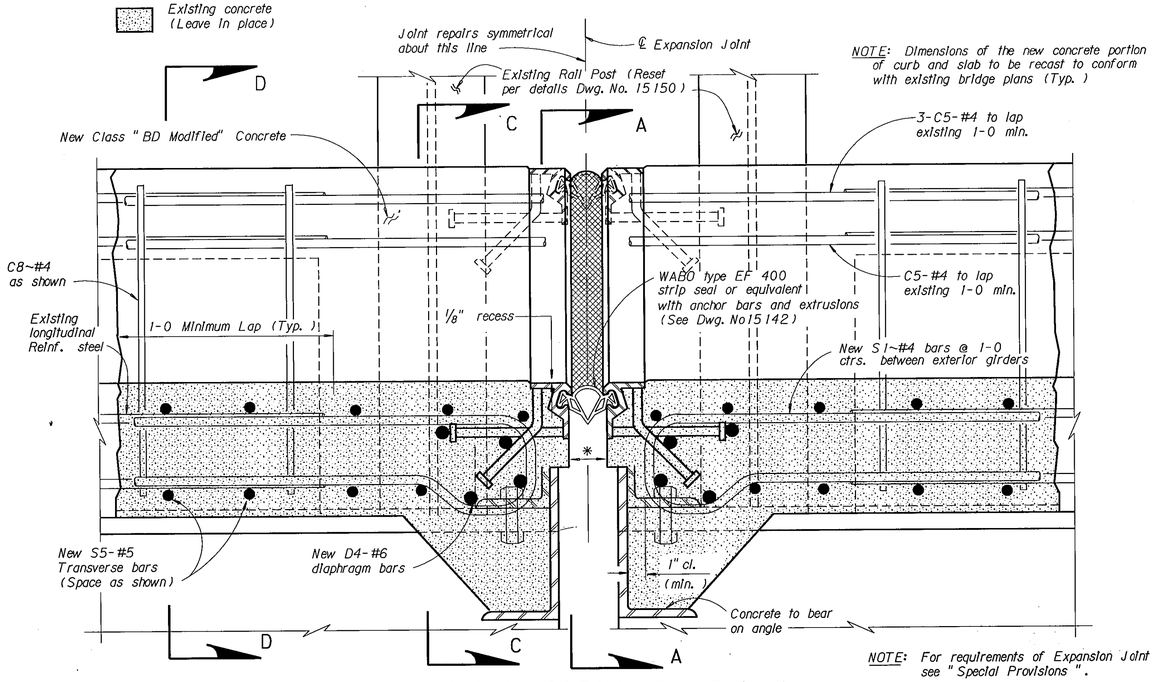
NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of new joint opening prior to placing new concrete.

NOTE: For Bill of Reinforcing Steel see Dwg. No. 15138.

NOTE: The cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

Remove existing concrete and joint

Existing concrete (Leave in place)



New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-1)

NOTE: For requirements of Expansion Joint see "Special Provisions".

NOTE: The cost of furnishing and installing new expansion joint including metal extrusions, strip seal and anchor bars to be included in the unit price bid for Expansion Joint.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS

M.P.125+0.833 N.B. AND S.B.

SUSPENSION SPAN NEAR BENT NO.6

DETAIL "F"

Scale ~ 3" = 1-0

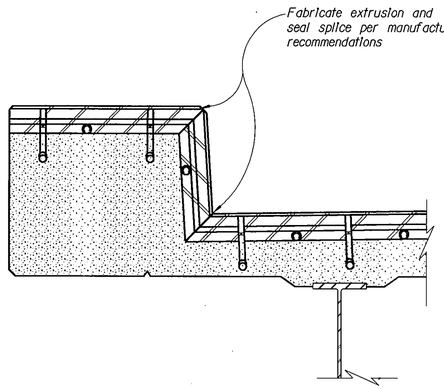
DRAWING NO. 15149

DESIGNED	6-3-91	L. R. T.
DRAWN	6-3-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

[60 51137 U1211 BRG (2 SHTS)]

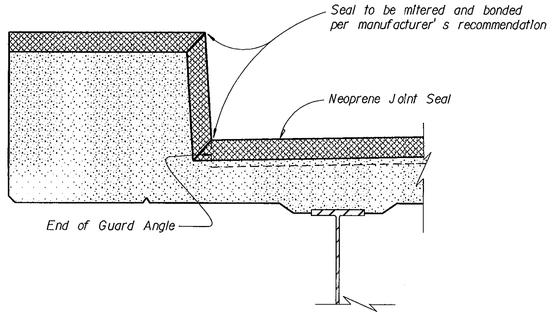
19-DEC-1991 14:40 BRIAN
MONT.MVA CADD
\\ZEUS\DISK01\ACAD\15149\15149_1.DWG

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B15



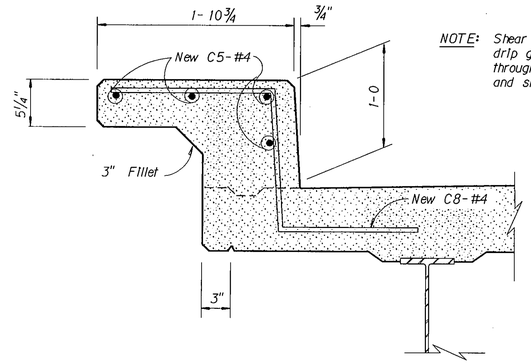
SECTION A-A

No Scale



SECTION B-B

No Scale



NOTE: Shear Key, 3" fillet and ½" drip groove to be perpetuated through new section of curb and slab.

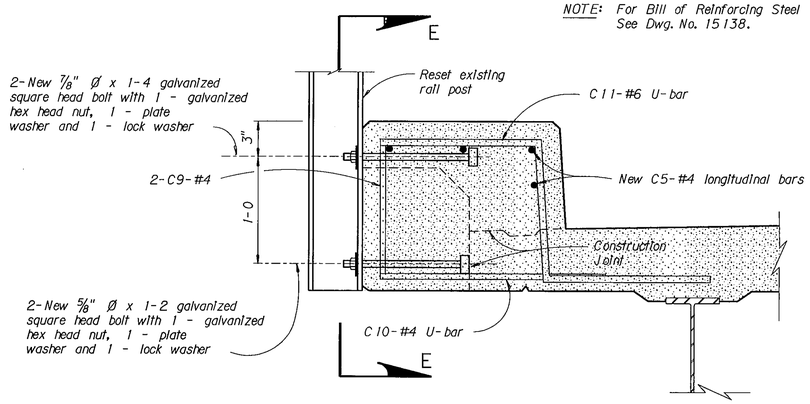
SECTION D-D

Scale ~ 1½" = 1-0

NOTE: Slab reinforcing steel removed for clarity.

NOTE: Full design concrete strength shall be achieved prior to attaching rail post to bolts.

NOTE: For Bill of Reinforcing Steel See Dwg. No. 15138.

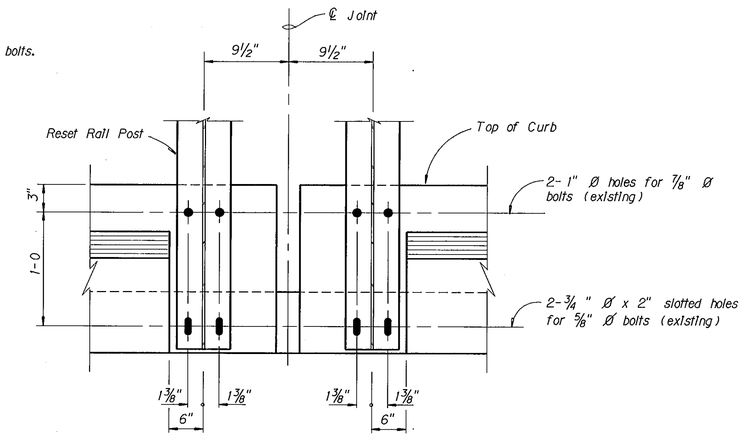


NOTE: The cost of new hardware and removing and resetting rail posts shall be included in the unit price bid for Class "B" Bridge Deck Repair.

NOTE: Reuse all hardware except bolts, nuts and washers.

SECTION C-C

Scale ~ 1½" = 1-0



SECTION E-E

Scale ~ 1½" = 1-0

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS

M.P.125+0.833 N.B. AND S.B.

SUSPENSION SPAN NEAR BENT NO.6

DETAIL "F"

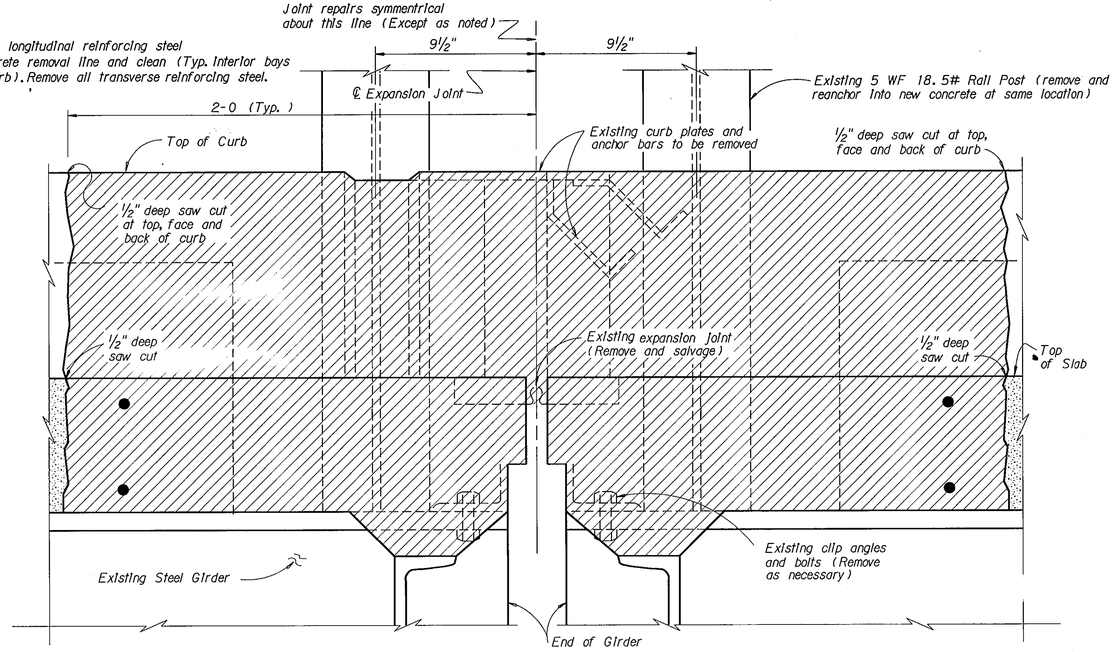
Scale ~ 1½" = 1-0 DRAWING NO. 15150

DESIGNED	6-3-91	L. R. T.
DRAWN	6-3-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

19-DEC-1991 08:43 $USER1 $DRW1
MDOT/HQ CADD
\PTS\DGN0053.137 1821.1 DRW=1

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B16

NOTE:
Cut all existing longitudinal reinforcing steel 1-2 from concrete removal line and clean (Typ. Interior bays of slab and curb). Remove all transverse reinforcing steel.

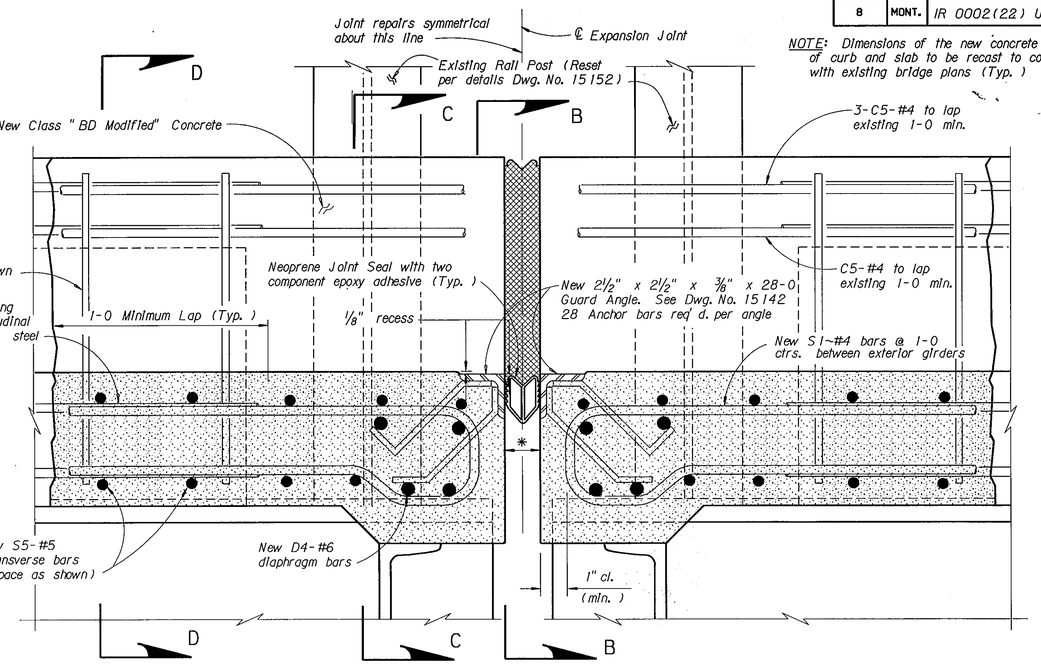


EXISTING EXPANSION JOINT

(M. P. 125+0.883 N.B. and S.B. ~ Bent No. 4)

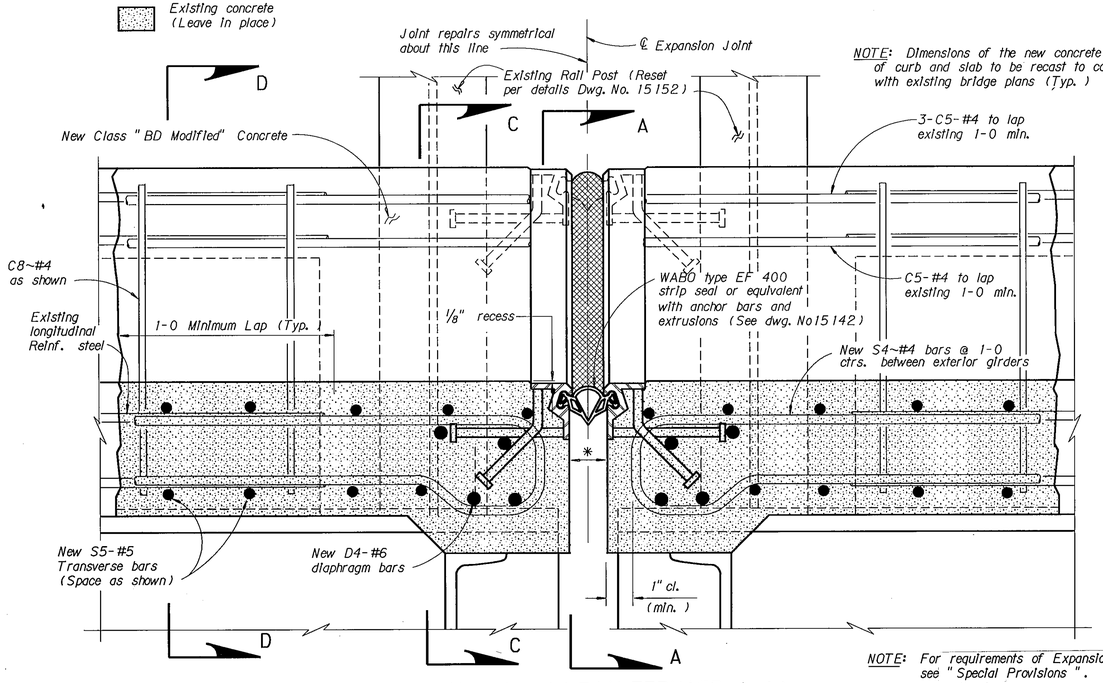
Remove existing concrete and joint

Existing concrete (Leave in place)



New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-2)



New Class "BD Modified" Concrete

NEW EXPANSION JOINT (ALTERNATE A-1)

NOTE: For requirements of Expansion Joint see "Special Provisions".

NOTE: The cost of furnishing and installing new expansion joint including metal extrusions, strip seal and anchor bars to be included in the unit price bid for Expansion Joint.

NEOPRENE JOINT SEALS shall be manufacturered by Jeene Technology Corporation of Lauderhill, Florida. The seal used must be capable of providing the minimum movement specified at each detail. All costs associated with furnishing the tool, labor and materials to install the joints shall be included in the unit price bid per foot for Neoprene Joint Seals.

*NOTE: Dimension depends on manufacturer's recommendations (1" minimum @ 100°). (1¾" minimum opening @ 100° at Bent No. 4 S.B. Roadway.)

NOTE: Temperature range -55° F to 100° F with mean temperature of 23° F. Joint used must be capable of providing for a total minimum allowable movement of 1 13/16.

NOTE: For Sections A-A, B-B, C-C and D-D see Dwg. No. 15152.

NOTE: The cost of removing all existing joints, reinforcing steel and concrete and replacing new Class "BD Modified" Concrete to be included in the unit price bid for Class "B" Bridge Deck Repair.

NOTE: All longitudinal reinforcing steel shall be extended to within 1" cl. of new joint opening prior to placing new concrete.

NOTE: For Bill of Reinforcing Steel see Dwg. No. 15138.

NOTE: The cost of furnishing and placing guard angle and anchor bars shall be included in the unit price bid for Structural Steel.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS

M.P. 125+0.883 N.B. & S.B.

BENT NO. 4

DETAIL "G"

DESIGNED	6-3-91	L. R. T.
DRAWN	6-3-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

Scale ~ 1½" = 1-0

DRAWING NO. 15151

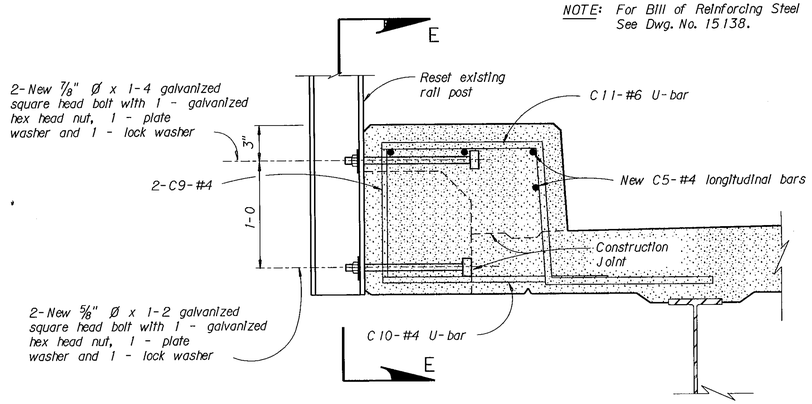
[60 51137 111210 BBG (2 SHTS)]

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B17

NOTE: Slab reinforcing steel removed for clarity.

NOTE: Full design concrete strength shall be achieved prior to attaching rail post to bolts.

NOTE: For Bill of Reinforcing Steel See Dwg. No. 15138.

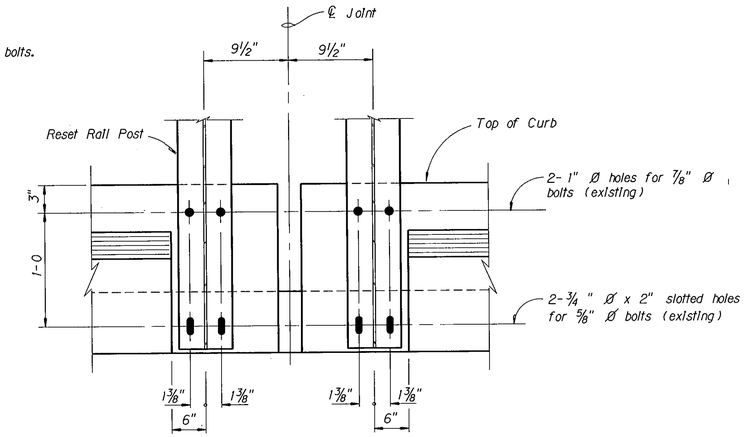


NOTE: The cost of new hardware and removing and resetting rail posts shall be included in the unit price bid for Class "B" Bridge Deck Repair.

NOTE: Reuse all hardware except bolts, nuts and washers.

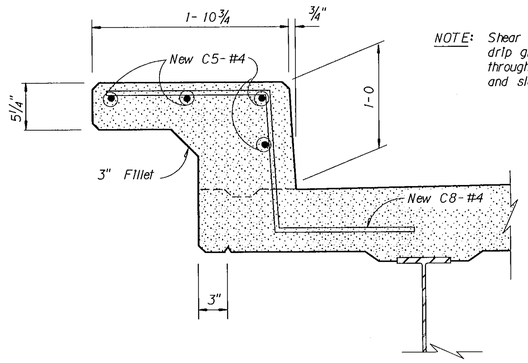
SECTION C-C

Scale ~ 1½" = 1-0



SECTION E-E

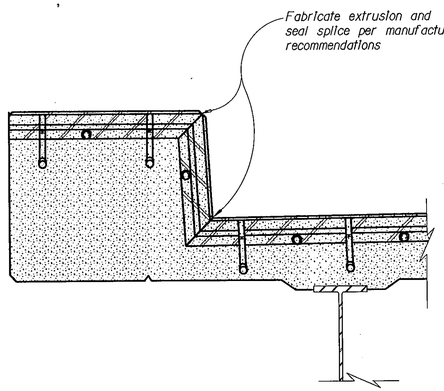
Scale ~ 1½" = 1-0



NOTE: Shear Key, 3" fillet and ½" drip groove to be perpetuated through new section of curb and slab.

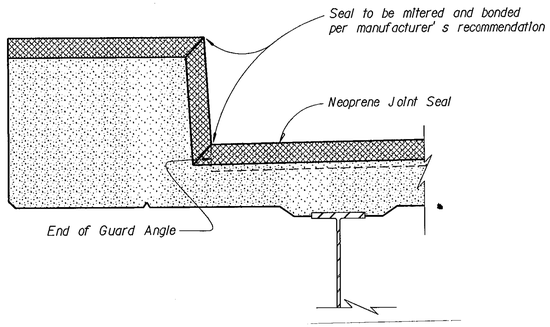
SECTION D-D

Scale ~ 1½" = 1-0



SECTION A-A

No Scale



SECTION B-B

No Scale

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

EXPANSION JOINT REPAIR DETAILS

M.P. 125+0.883 N.B. & S.B.

BENT NO. 4

DETAIL "G"

Scale ~ 3" = 1-0 DRAWING NO. 15152

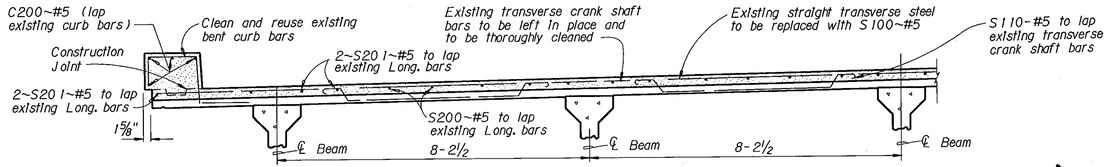
DESIGNED	6-3-91	L. R. T.
DRAWN	6-3-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

[60, 5] 137 IU2 10. BRG (2 SHTS)

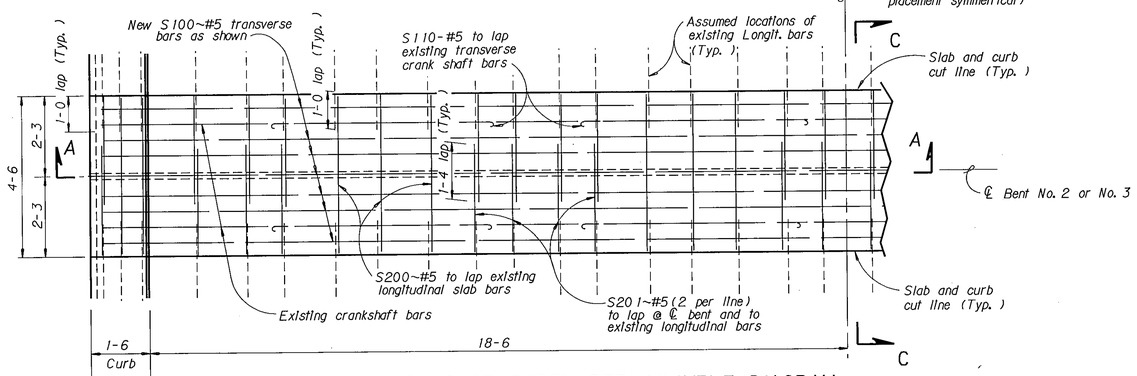
MONTANA CADD 19-DEC-1991 08:48 BRAM [60000513] 137 IU2 10. BRG; 1

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B18

NOTE: Remove concrete and joint system in curb and slab as shown below. Replace with Class "BD Modified" Concerete and make continuous over bents.



SECTION A-A



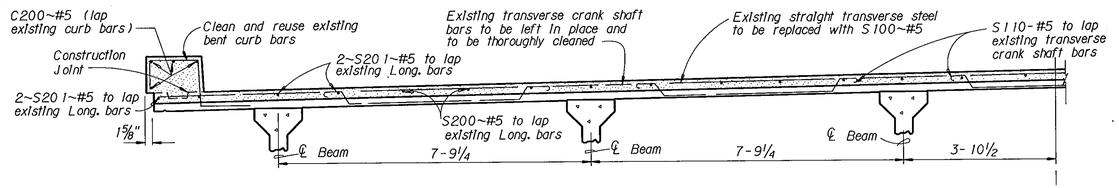
TYPICAL SLAB STEEL REPLACEMENT DIAGRAM

(Bents No. 2 and No. 3 - Eastbound Roadway)
No Scale

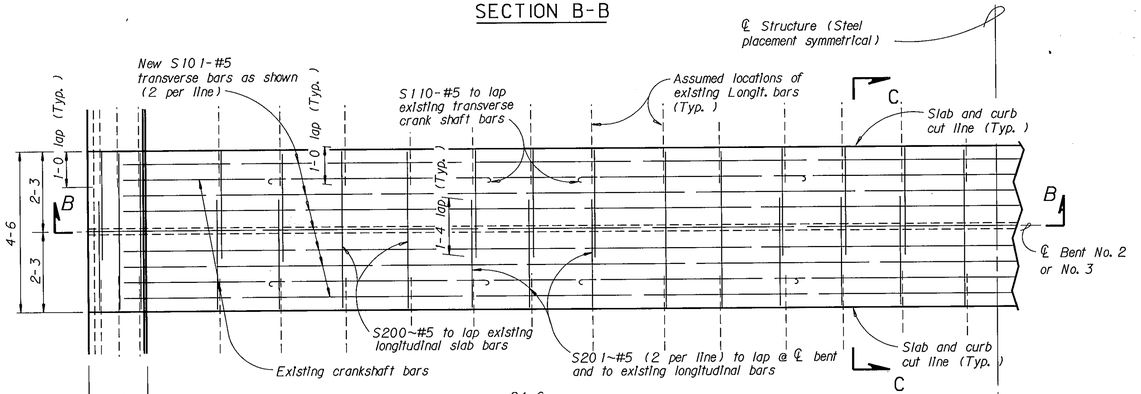
NOTE: Contractor shall take precaution to avoid cutting the existing transverse steel when removing concrete at joints.

NOTE: Remove concrete and joint system in curb and slab as shown below. Replace with Class "BD Modified" Concerete and make continuous over bents.

NOTE: Contractor shall take precaution to avoid cutting the existing transverse steel when removing concrete at joints.



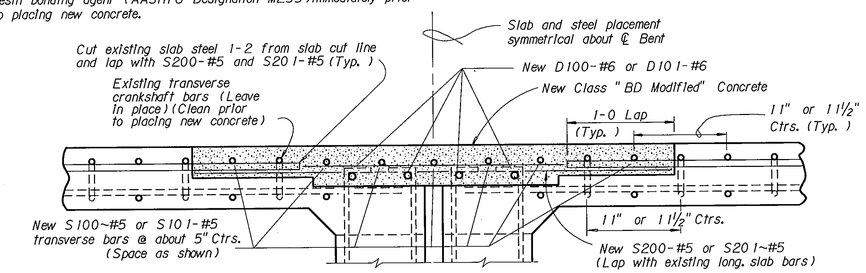
SECTION B-B



TYPICAL SLAB STEEL REPLACEMENT DIAGRAM

(Bents No. 2 and No. 3 - Westbound Roadway)
No Scale

NOTE: At all locations where new concrete contacts the existing concrete, the existing concrete shall be thoroughly coated with an approved epoxy resin bonding agent (AASHTO Designation M235) immediately prior to placing new concrete.



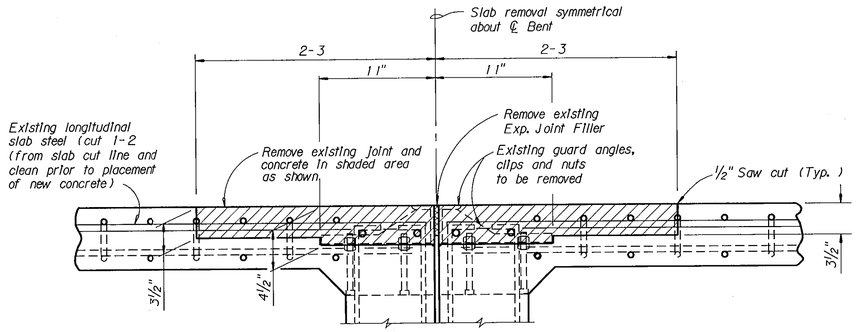
SECTION C-C

CONTINUOUS SLAB DETAILS

Scale ~ 1½" = 1'-0"

NOTE: All cost associated with the existing joint and concrete removal and placement of new concrete to be included in the unit price bid for Class "A" Bridge Deck Repair

NOTE: The cost of new reinforcing steel and the cost of cleaning existing reinforcing steel shall be included in the unit price bid for Reinforcing Steel. For Bill of Reinforcing Steel see Dwg. No. 15138.



SECTION C-C

EXISTING ARMORED SLAB JOINT

Scale ~ 1½" = 1'-0"

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

ARMORED SLAB JOINT REMOVAL DETAILS
M.P.216+0.672 E.B. AND W.B.
BENTS NO. 2 AND NO. 3
DETAIL "H"

DESIGNED	6-5-91	L. R. T.
DRAWN	6-5-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

Scale as Shown

DRAWING NO. 15153

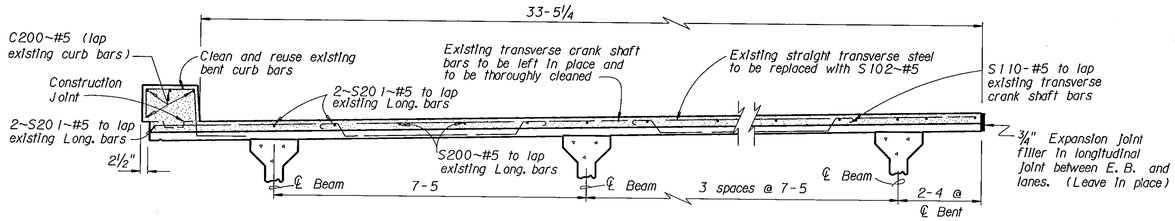
[60, 5] 137 1u212. brg (3 Dwgs.)

MONT AVA CADD 1991 10-25-91 BRAD 1 SHEET 16 OF 16 SHEETS 15153 0124

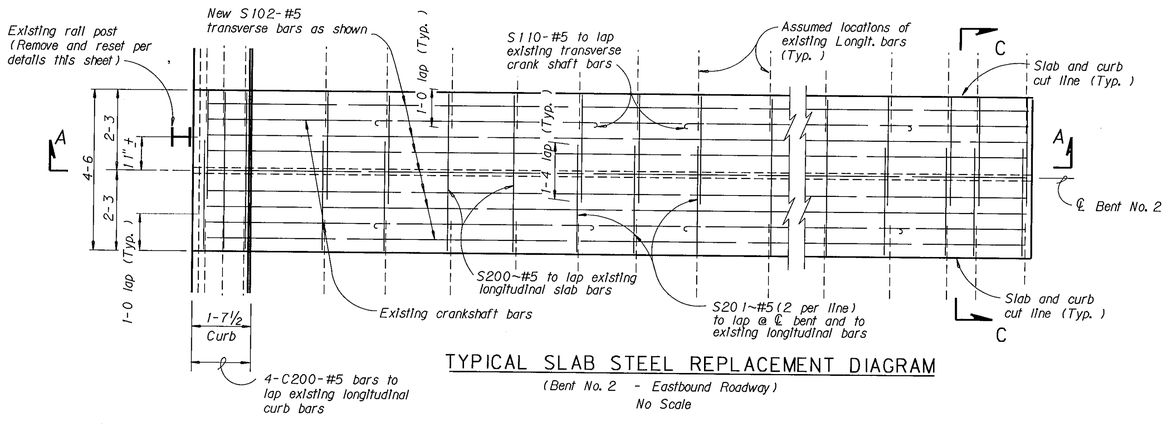
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B19

NOTE: Remove concrete and joint system in curb and slab as shown below. Replace with Class "BD Modified" Concrete and make continuous over bents.

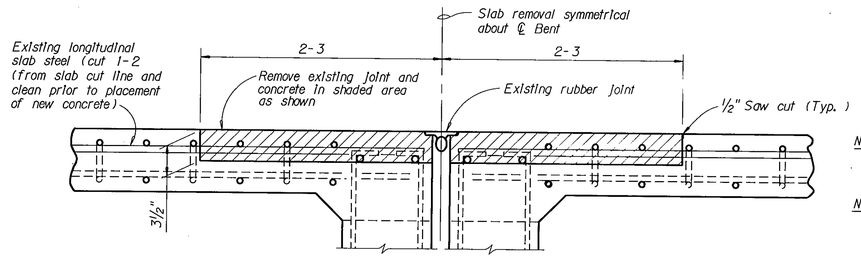
NOTE: Contractor shall take precaution to avoid cutting the existing transverse steel when removing concrete at joints.



SECTION A-A
(Back on Line)



TYPICAL SLAB STEEL REPLACEMENT DIAGRAM
(Bent No. 2 - Eastbound Roadway)
No Scale

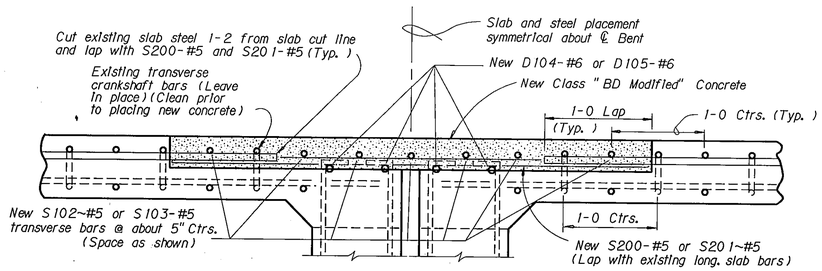


SECTION C-C
EXISTING RUBBER SLAB JOINT
Scale ~ 1½" = 1'-0"

NOTE: All cost associated with the existing joint and concrete removal and placement of new concrete to be included in the unit price bid for Class "A" Bridge Deck Repair

NOTE: The cost of new reinforcing steel and the cost of cleaning existing reinforcing steel shall be included in the unit price bid for Reinforcing Steel. For Bill of Reinforcing Steel see Dwg. No. 15138.

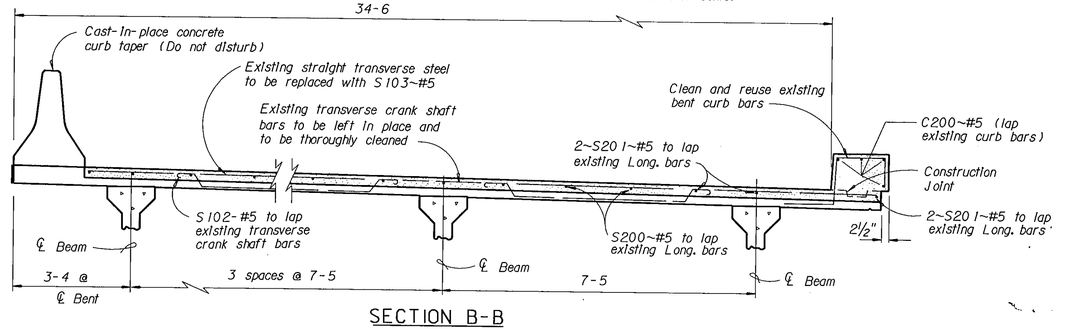
NOTE: At all locations where new concrete contacts the existing concrete, the existing concrete shall be thoroughly coated with an approved epoxy resin bonding agent (AASHTO Designation M235) immediately prior to placing new concrete.



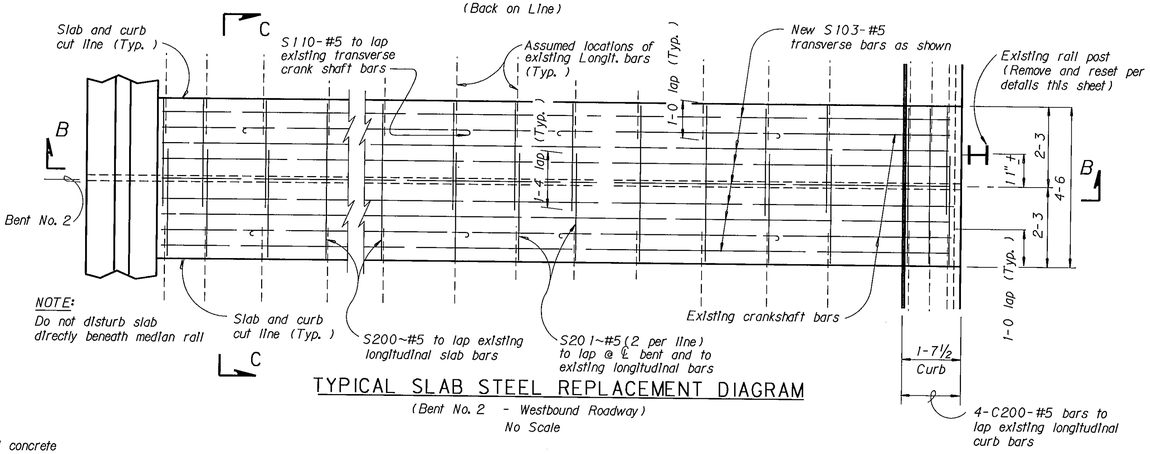
SECTION C-C
CONTINUOUS SLAB DETAILS
Scale ~ 1½" = 1'-0"

NOTE: Contractor shall take precaution to avoid cutting the existing transverse steel when removing concrete at joints.

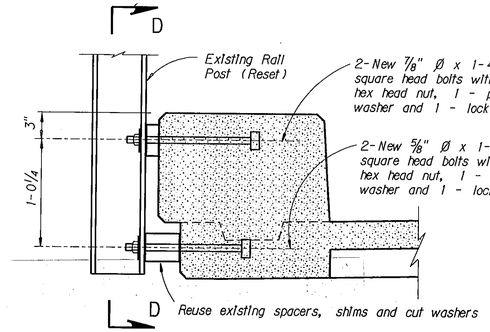
NOTE: Remove concrete and joint system in curb and slab as shown below. Replace with Class "BD Modified" Concrete and make continuous over bents.



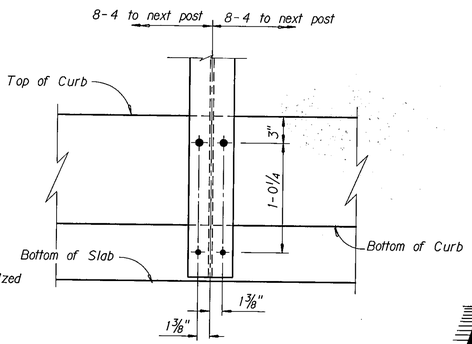
SECTION B-B
(Back on Line)



TYPICAL SLAB STEEL REPLACEMENT DIAGRAM
(Bent No. 2 - Westbound Roadway)
No Scale



RAIL POST REATTACHMENT DETAIL
Scale ~ 1½" = 1-0



SECTION D-D
Scale ~ 1½" = 1-0

NOTE: Remove curb and slab entirely 8" on each side of post. Replace with Class "BD Modified" Concrete. Clean existing slab and curb steel encountered before placing new concrete.

DESIGNED	6-6-91	L.R.T.
DRAWN	6-6-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

GALLATIN COUNTY

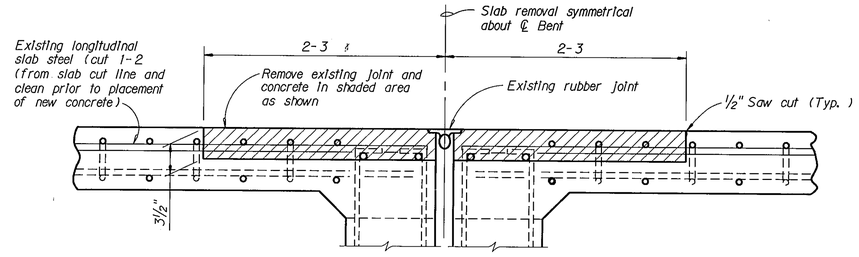
RUBBER SLAB & CURB JOINT DETAILS
M.P. 316+0.767 E.B. AND W.B.
BENT NO. 2
DETAIL "I"

Scale as shown

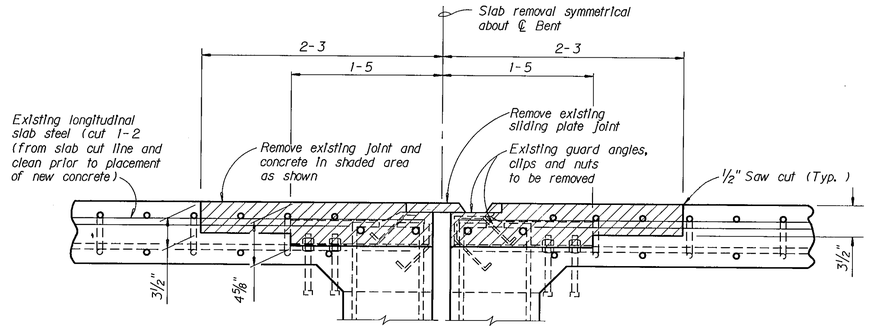
DRAWING NO. 15154

MONTANA DEPT. OF HIGHWAYS 1991 09:00 ZYZ-DGOOOO3.13F MAP.B86.1

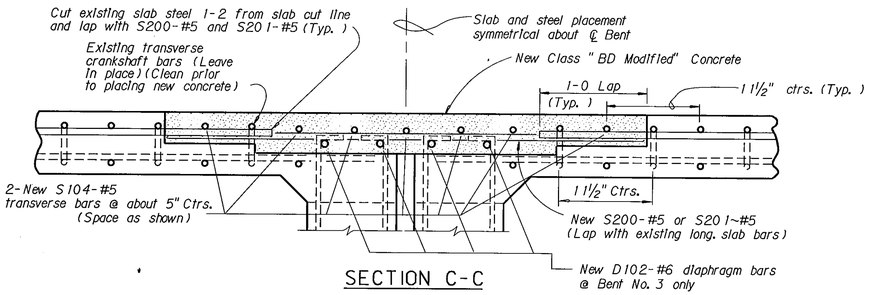
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B20



SECTION C-C
EXISTING RUBBER SLAB JOINT
(Bent No. 2)
Scale ~ 1½" = 1'-0"



SECTION C-C
EXISTING ARMORED SLAB JOINT
(Bent No. 3)
Scale ~ 1½" = 1'-0"



SECTION C-C
CONTINUOUS SLAB DETAILS
(Bents No. 2 and No. 3)
Scale ~ 1½" = 1'-0"

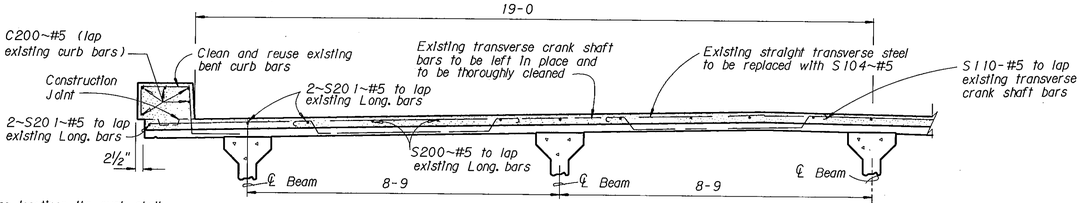
NOTE: All cost associated with the existing joint and concrete removal and placement of new concrete to be included in the unit price bid for Class "A" Bridge Deck Repair

NOTE: The cost of new reinforcing steel and the cost of cleaning existing reinforcing steel shall be included in the unit price bid for Reinforcing Steel. For Bill of Reinforcing Steel see Dwg. No. 15138 .

NOTE: At all locations where new concrete contacts the existing concrete, the existing concrete shall be thoroughly coated with an approved epoxy resin bonding agent (AASHTO Designation M235) immediately prior to placing new concrete.

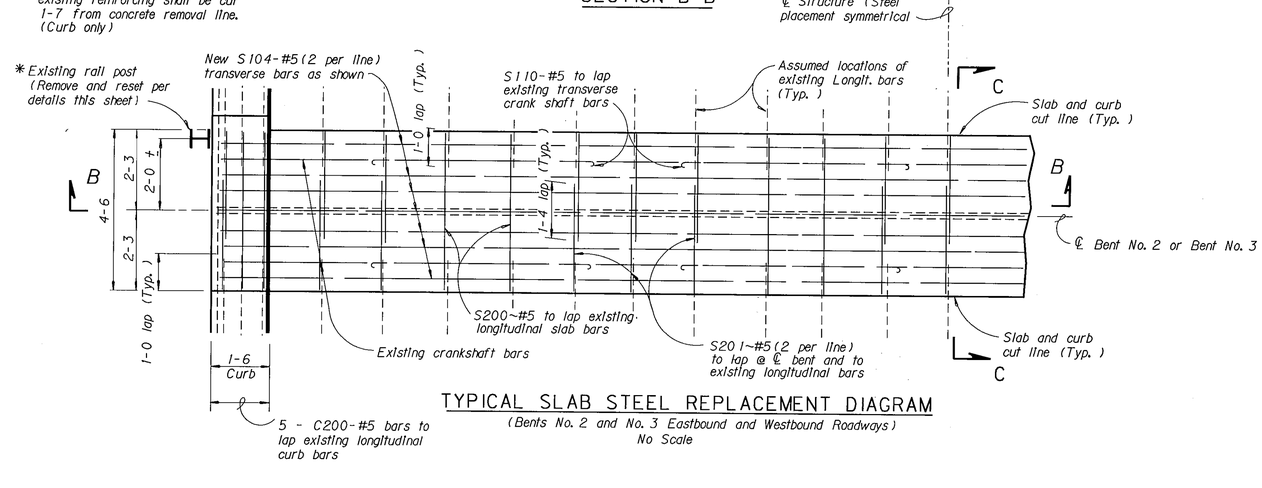
NOTE: Remove concrete and joint system in curb and slab as shown below. Replace with Class "BD Modified" Concrete and make continuous over bents.

NOTE: Contractor shall take precaution to avoid cutting the existing transverse steel when removing concrete at joints.

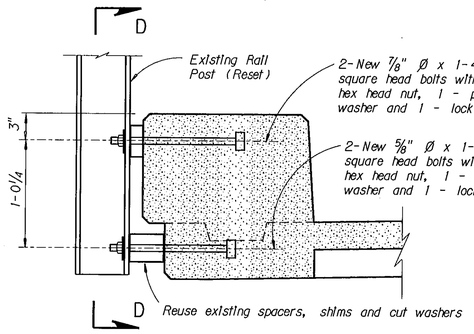


SECTION B-B

* In these locations the curb shall be cut 8" from ℄ rail post. The existing reinforcing shall be cut 1-7 from concrete removal line. (Curb only)

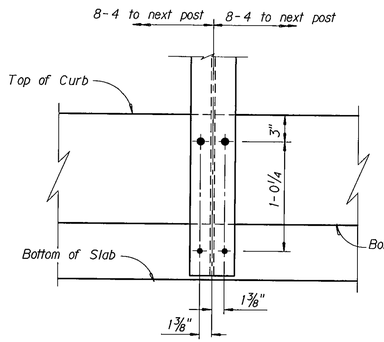


TYPICAL SLAB STEEL REPLACEMENT DIAGRAM
(Bents No. 2 and No. 3 Eastbound and Westbound Roadways)
No Scale



RAIL POST REATTACHMENT DETAIL
Scale ~ 1½" = 1-0

NOTE: Remove curb and slab entirely 8" on each side of post. Replace with Class "BD Modified" Concrete. Clean existing slab and curb steel encountered before placing new concrete.



SECTION D-D
Scale ~ 1½" = 1-0

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

PARK COUNTY

EXPANSION JOINT REMOVAL DETAILS
M.P. 330+0.991 E.B. AND W.B.
BENTS NO. 2 AND NO. 3
DETAIL "J"

DESIGNED	6-6-91	L.R.T.
DRAWN	6-6-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

Scale as shown

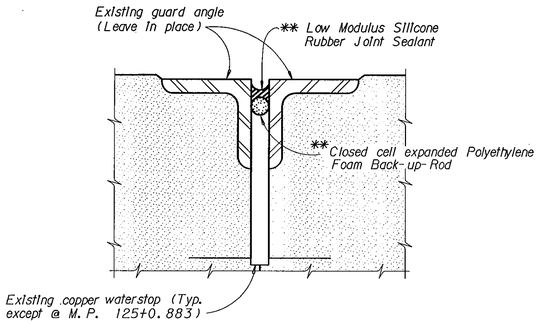
DRAWING NO. 15155

[60 51137 U1212 PDC 13 SHTS]

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MONTANA CADD
M:\TECH\DESIGN\15138.DGN; 1

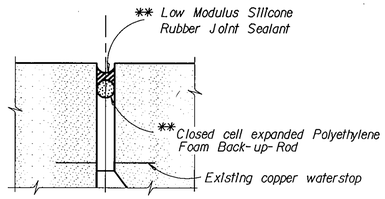
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B21

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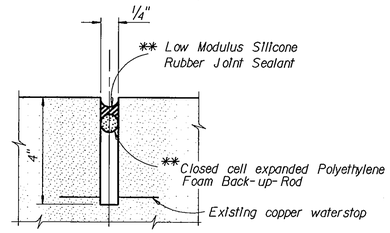
@ ARMORED JOINT

(M.P. 243+0.322 E.B. and W.B. @ Bent No. 6)
(M.P. 321+0.895 E.B. and W.B. @ Bents No. 2 and No. 3)
(M.P. 120+0.697 N.B. and S.B. @ Bents No. 3, No. 5 and No. 6)
(M.P. 125+0.883 N.B. and S.B. near Bent No. 5)



@ TRANSVERSE GIRDER

(M.P. 243+0.322 E.B. and W.B. @ Bent No. 4)
(M.P. 314+0.083 E.B. and W.B. @ Bent No. 4)



@ CONTRACTION JOINT

(M.P. 243+0.322 E.B. and W.B. @ Bent No. 3)

** NOTE: Joint sealant shall be Dow Corning 888 Silicone or approved equal and installed in accordance with the manufacturer's recommendation. Asphalt based sealant will not be acceptable. All cost associated with furnishing and installing backup rod and silicone sealant shall be included in the unit price bid for Reseal Existing Joints. The angles to be included in the lump sum bid for Structural Steel.

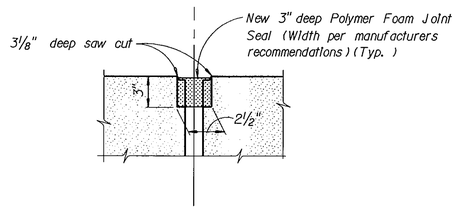
JOINT SEALANT DETAILS
DETAIL K

No Scale

NOTE: Curb faces and top surfaces shall be sealed similar to details shown on this sheet. All costs to be included in the unit price bid for Reseal Existing Joints.

NOTE: Joint openings vary in width. Contractor shall determine joint opening sizes before ordering materials.

NOTE: Clean existing opening throughly and sand blast existing armor angles prior to placement of new back up rod and joint sealant or polymer foam.



NOTE: For requirements of the joint seal, see "Special Provisions". Set all Polymer Foam Joint Seals 1/8" below nearest concrete surface. All costs associated with furnishing and installation of the seals shall be included in the unit price bid per linear foot for Joint Seal-Polymer Foam. The length of Joint Seals to be paid for is the actual length placed. Estimated lengths are shown in the Estimated Bridge Plan Quantities Dwg. No. 15137.

DETAIL K(a)
@ RUBBER SLAB AND CURB JOINTS

(M.P. 314+0.083 E.B. and W.B. @ Bents No. 2 and No. 6)

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

JEFFERSON, GALLATIN, PARK AND SILVER BOW COUNTIES

JOINT REPAIR DETAILS
DETAIL "K" & "K(a)"

DESIGNED	7-18-91	L.R.T.
DRAWN	7-18-91	L.R.T.
CHECKED	9-3-91	M.L.R.
REVISED		
REVISED		
REVISED		

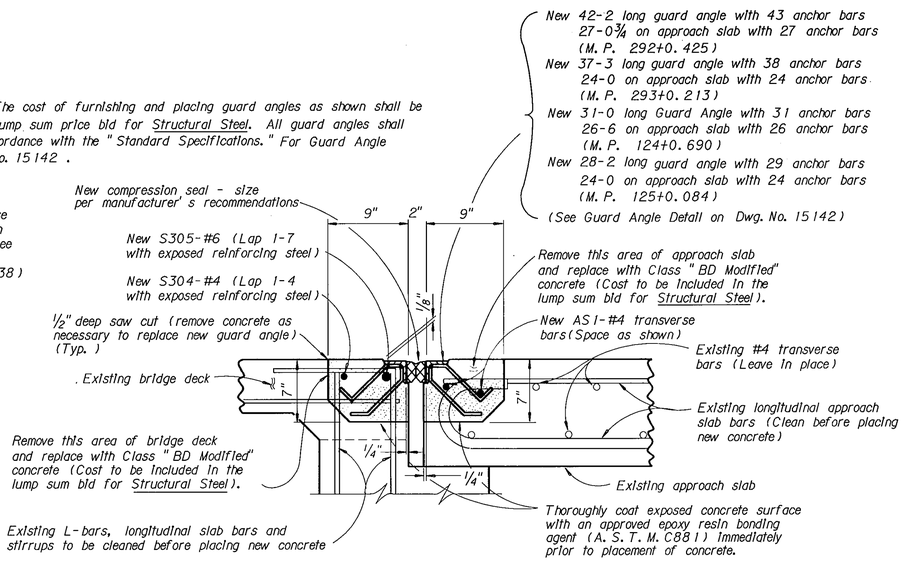
Scale ~ As Noted

DRAWING NO. 15156

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B22

GUARD ANGLES: The cost of furnishing and placing guard angles as shown shall be included in the lump sum price bid for Structural Steel. All guard angles shall be painted in accordance with the "Standard Specifications." For Guard Angle detail see Dwg. No. 15142 .

NOTE: Bar callouts increase in number with each successive joint. See Bill of Reinforcing Steel Dwg. No. 15138)

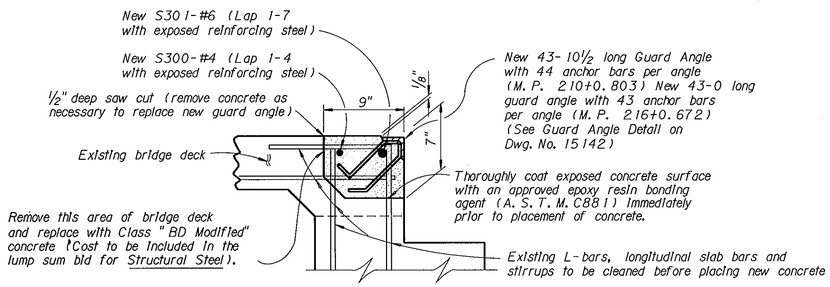


NOTE: Remove all existing guard angles, anchors and transverse reinforcing steel. All concrete shall be removed to dimensions shown or to sound concrete as determined by the Engineer. Clean existing reinforcement prior to placing new guard angle and concrete. Cut existing transverse reinforcing steel 1-7 from face of curb or paving notch and clean. Clean existing transverse bars on skewed structures only. New transverse bars shall be included in the lump sum bid for Reinforcing Steel.

DETAIL M

Scale ~ 1½" = 1-0

M. P. 292+0.425 E. B. and W. B. - Bents No. 1 and No. 5
M. P. 293+0.213 E. B. and W. B. - Bents No. 1 and No. 4
M. P. 124+0.690 - Bent No. 6
M. P. 125+0.084 - Bents No. 1 and No. 9



NOTE: Remove all existing guard angles, anchors and transverse reinforcing steel. All concrete shall be removed to dimensions shown or to sound concrete as determined by the Engineer. Clean existing reinforcement prior to placing new guard angle and concrete. Cut existing transverse reinforcing steel 1-7 from face of curb or paving notch and clean. New transverse bars shall be included in the lump sum bid for Reinforcing Steel.

DETAIL L

Scale ~ 1½" = 1-0

M. P. 210+0.803 E. B. - Bent No. 6
M. P. 210+0.803 W. B. - Bent No. 1
M. P. 216+0.672 W. B. - Bent No. 4

NOTE: For structure @ M. P. 216+0.672 replace S301 with S303 and replace S300 with S302.

NOTE: Lap #4 bars 1-4 minimum.
Lap #6 bars 1-7 minimum.

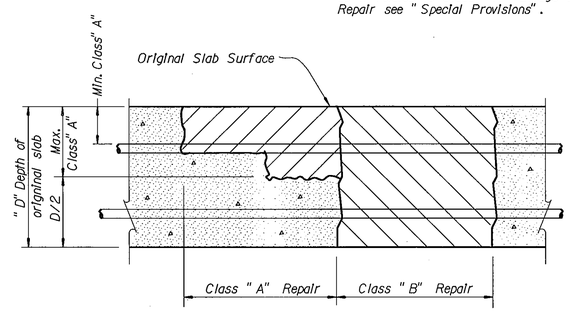
COMPRESSION SEALS: See Standard Specifications Section 711.20. The amount to be paid for is the actual length placed Estimated lengths are the same as the length of guard angle specified on the approach slab side of each joint. No movement is specified at these locations.

NOTE: For structure @ M. P. 125+0.084 replace S305 with S311, replace S304 with S310 and replace AS1 with AS4.

NOTE: For structure @ M. P. 124+0.690 replace S305 with S309, replace S304 with S308 and replace AS1 with AS3.

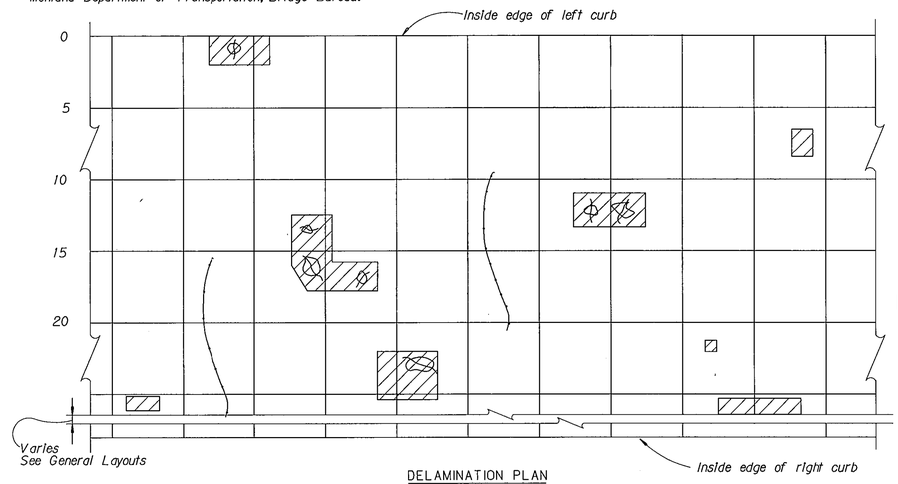
NOTE: For structure @ M. P. 293+0.213 replace S305 with S307, replace S304 with S306 and replace AS1 with AS2.

NOTE: For description of Bridge Deck Overlay as it relates to Class "A" Bridge Deck Repair see "Special Provisions".



BRIDGE FLOOR REPAIR DEFINITION

NOTE: The complete bridge deck delamination plan shall be made available to the Contractor upon request to the Montana Department of Transportation, Bridge Bureau.



DELAMINATION PLAN
(Section is shown for general information)

NOTE: Bridge deck patching shall be done on the following structures with estimated delaminated areas shown :

M. P. 120+0.697 N. B. - 11.4 Sq. Yds.
M. P. 120+0.697 S. B. - 42 Sq. Yds.
M. P. 124+0.870 N. B. - 41.7 Sq. Yds.
M. P. 125+0.084 S. B. - 8.3 Sq. Yds.

All costs associated with patching existing decks shall be included in the unit price bid for Class "A" Bridge Deck Repair.

DETAIL N

No Scale

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW AND GALLATIN COUNTIES

DESIGNED	7-18-91	L. R. T.
DRAWN	7-18-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

GUARD ANGLE REPAIR AND DECK PATCHING DETAILS
DETAILS "L", "M" AND "N"

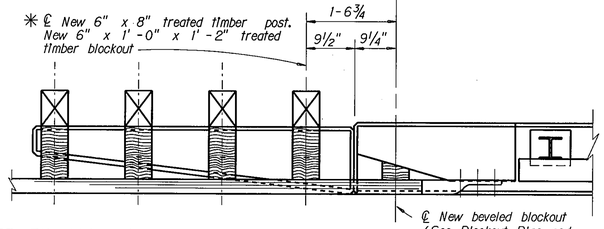
Scale ~ As Noted DRAWING NO. 15157

560 51 137 W1213 RBG

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B23

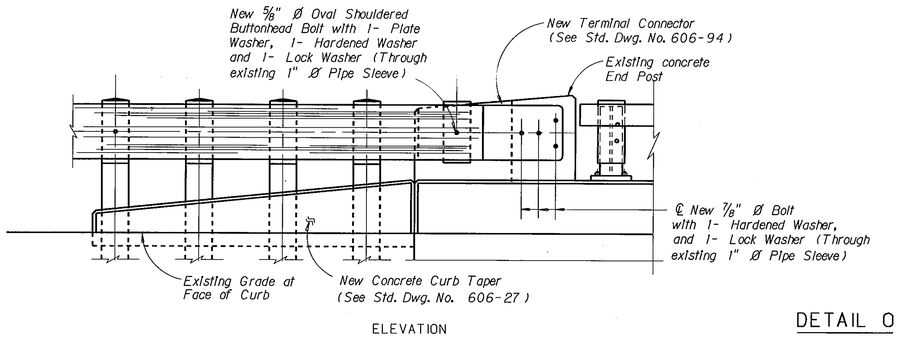
19-DEC-1991 09:28 BRUCE
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To be included in the unit price bid for "Bridge Approach Section" (See Road Plans and Standard Dwg. No. 606-25)

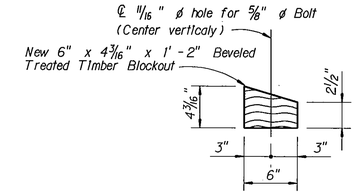


NOTE: This detail applies to approach ends only.

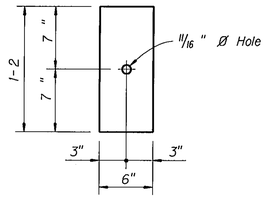
PLAN



ELEVATION



BLOCKOUT PLAN
Scale ~ 1½" = 1-0



BLOCKOUT ELEVATION
Scale ~ 1½" = 1-0

Bridge Approach Rail Attachment N. B. and S. B. Roadways M. P. 120+0.697 and 126+0.316

These structures requires no bridge modification to attach the Bridge Approach Section. The connection of the approach rail shall be at the first blockout on the approach ends. See Std. Dwg. No. 606-25 - Bridge Approach Section Type-3. Blockout size shall be similar to those shown in Detail P this sheet.

NOTES

The contractor shall determine actual bolt lengths.

The contractor shall verify all dimensions in the field before ordering any materials.

Lap all rail splices in the direction of traffic flow.

For location of required approach rail to bridge rail connections, curb tapers and guardrail revisions see General Layouts referred to in the Summary of Bridge Rehabilitation Dwg. No. 15136.

For Plate Washer Detail see Std. Dwg. No. 606-84.

All new hardware except posts and base plates shall be galvanized. The posts and base plates may either be painted or galvanized in accordance with Standard Specifications.

All new wood blockouts shall be treated timber and shall be placed with the wood grain perpendicular to the bolt centerline.

Bridge rail to be continuous with bridge approach rail.

All posts and plates shall conform to ASTM A36.

The cost of all materials, tools, equipment, labor and incidentals necessary to complete this work shall be included in the unit price bid for Bridge Approach Section.

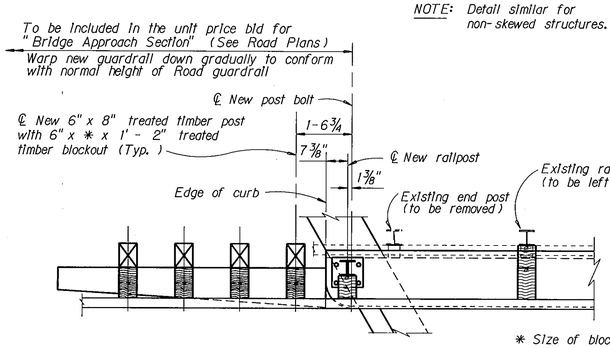
DETAIL O

Scale ~ ¾" = 1-0

(M. P. 195+0.713 E. B. and W. B. on approach ends only)
(M. P. 321+0.895 E. B. and W. B. on approach ends only)

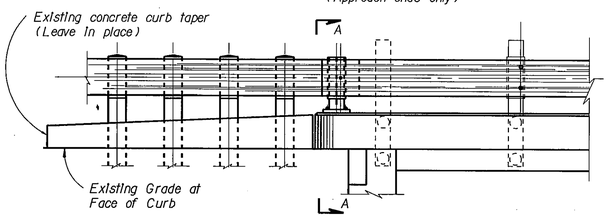
NOTE: Detail similar for non-skewed structures.

To be included in the unit price bid for "Bridge Approach Section" (See Road Plans)
Warp new guardrail down gradually to conform with normal height of Road guardrail

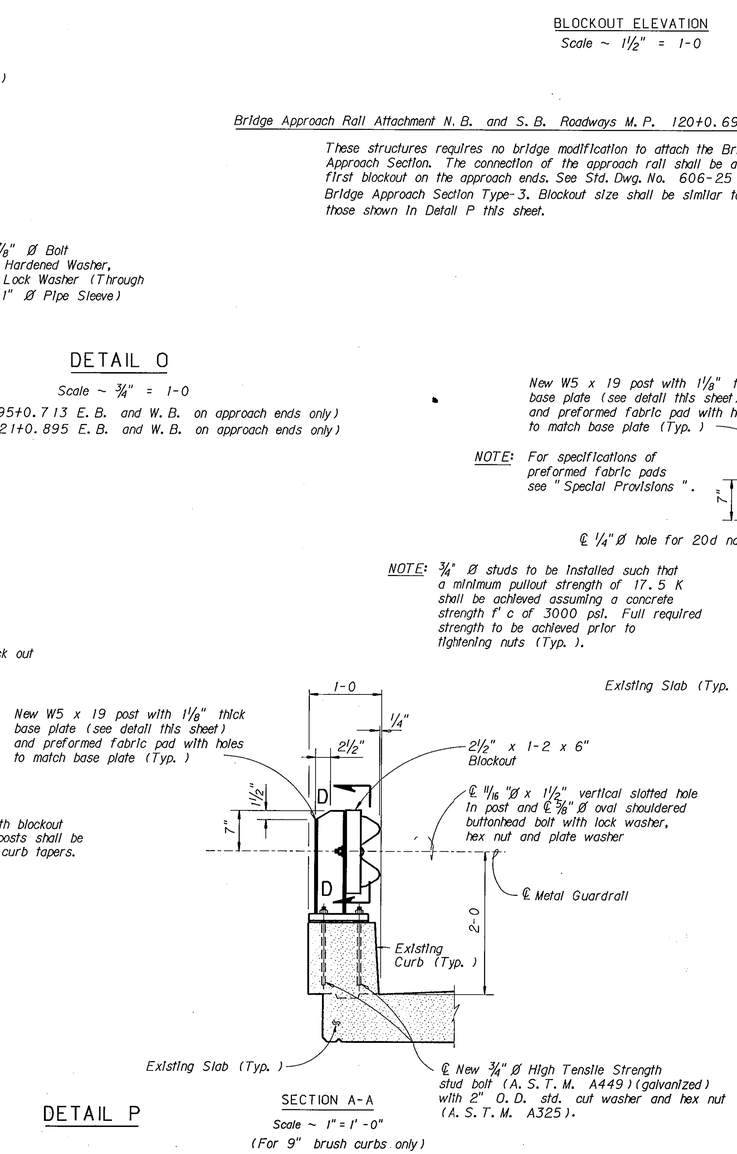


PLAN
(Approach ends only)

✳ Size of blockout varies with blockout detail. New treated timber posts shall be positioned against existing curb tapers.



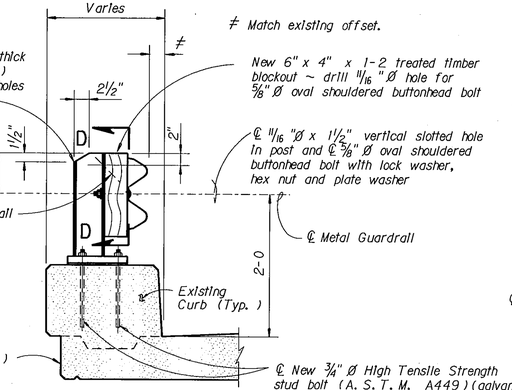
ELEVATION
(Approach ends only)
Scale ~ ½" = 1-0



SECTION A-A
Scale ~ 1" = 1'-0"
(For 9" brush curbs only)

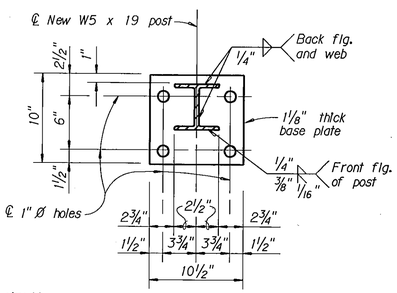
DETAIL P

(For location see "Summary of Bridge Rehabilitation Dwg. No. 15136)

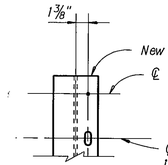


NOTE: ¾" Ø studs to be installed such that a minimum pullout strength of 17.5 K shall be achieved assuming a concrete strength f' c of 3000 psi. Full required strength to be achieved prior to tightening nuts (Typ.).

SECTION A-A
Scale ~ 1" = 1'-0"
(For 1-6 and 1-10 wide curbs only)



BASE PLATE DETAIL
Scale ~ 1½" = 1'-0"



SECTION D-D
Scale ~ 1½" = 1'-0"

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

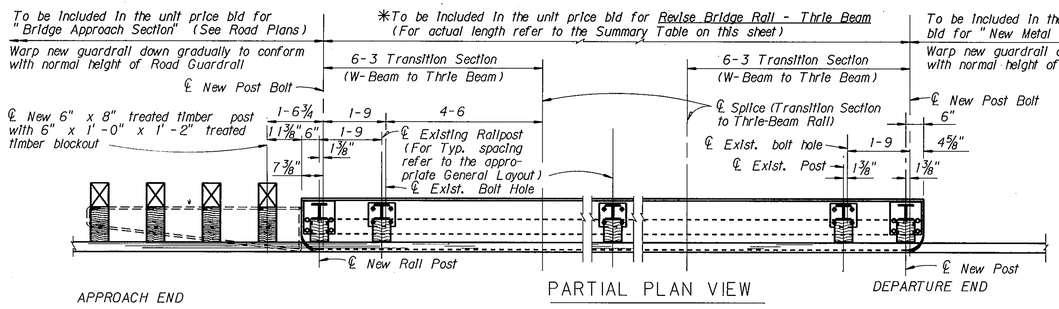
RAIL REVISION DETAILS
DETAILS "O" AND "P"

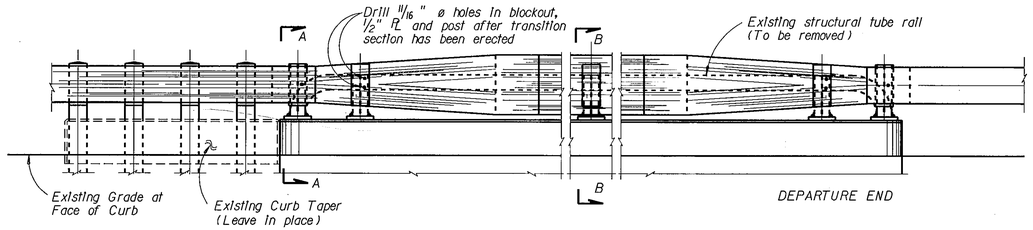
DESIGNED	7-25-91	L. R. T.
DRAWN	7-25-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

Scale ~ As Noted

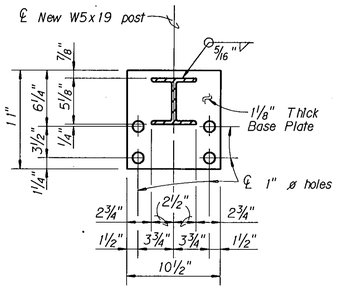
DRAWING NO. 15158

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B24



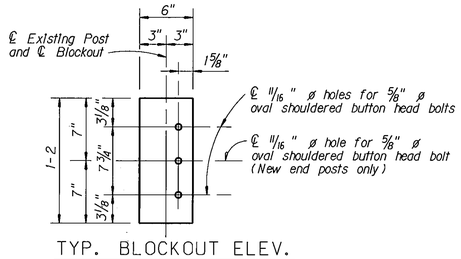


PARTIAL ELEVATION VIEW



NOTE: Reuse existing bolts, nuts and washers.

NEW BASE PLATE DETAIL
Scale: 1½" = 1'-0"



TYP. BLOCKOUT ELEV.
Scale: 1½" = 1'-0"

NOTES:

Details shown on this drawing shall apply to both sides for the entire length of each structure.

The contractor shall determine actual bolt lengths.

The contractor shall verify all dimensions in the field before ordering any materials.

Lap all rail splices in the direction of traffic flow.

For location of required approach rail to bridge rail connections and guardrail revisions see General Layouts referred to in the Summary Table on this sheet.

Place a reflectorized washer approximately every 25'-0". See Standard Dwg. No. 606-05.

Plug predrilled holes in rail with standard splice bolts. See Standard Dwg. No. 606-05.

For Plate Washer Detail see Standard Dwg. No. 606-84.

All new hardware except for the ½" plates, posts & base plates shall be galvanized. The ½" plates, posts & base plates may be either painted in accordance with the Standard Specifications or galvanized.

Rail sections which are cut shall be cut square. Flame cutting will not be permitted. New cut ends or holes shall be coated with an approved galvanizing paint.

Bridge rail to be continuous with bridge approach rail.

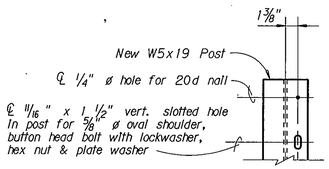
The existing structural tube rail shall become the property of the State. The contractor shall stockpile the structural tube rail at a site designated by the Engineer for pickup by State forces.

The 6'-3" transition section from standard metal guardrail to Thrie beam shall be A. A. S. H. T. O. designation Type I, Class A.

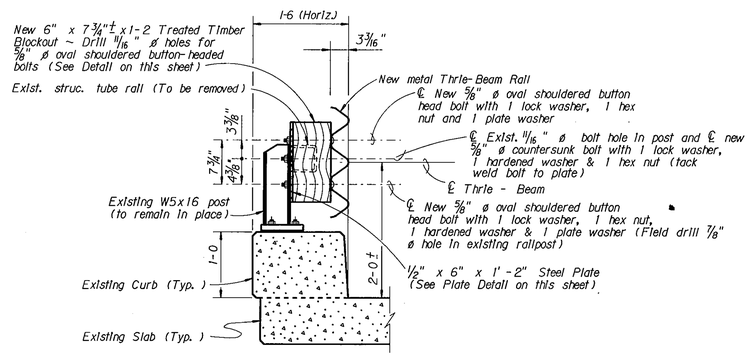
All Thrie beam sections shall be A. A. S. H. T. O. designation Type I, Class B.

The cost of furnishing & placing new metal thrie beam, transition sections, base plates, posts, preformed fabric pads, T. T. blockouts, plates, washers, nuts, bolts & reflectorized washers shall be included in the unit price bid for "Revise Bridge Rail - Thrie Beam". Also included in the subject bid item shall be the cost of removing and stockpiling the existing structural tube rail. "Revise Bridge Rail - Thrie Beam" shall be paid for by the lineal foot which shall be full compensation for furnishing all materials, equipment and labor necessary to complete the item. The number of lineal feet for payment is shown in the Summary Table on this sheet.

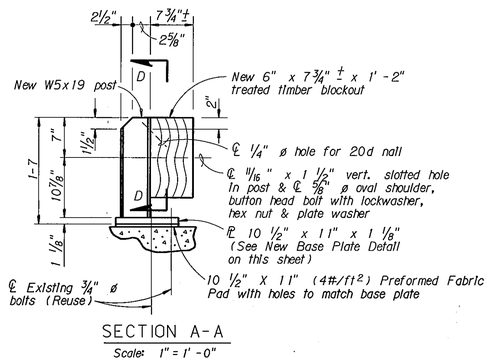
All new wood blockouts shall be treated timber and shall be placed with the wood grain perpendicular to the bolt centerline.



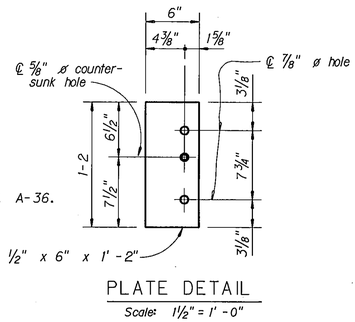
SECTION D-D
Scale: 1½" = 1'-0"



SECTION B-B
Scale: 1" = 1'-0"



SECTION A-A
Scale: 1" = 1'-0"



NOTE: Plates to be A. S. T. M. A-36.

PLATE DETAIL
Scale: 1½" = 1'-0"

SUMMARY TABLE

MILE POST	GENERAL LAYOUT DWG. NO.	*Length of Rail (One side only)	TOTAL LENGTH		CURB TAPERS	
			Eastbound	Westbound	E. B.	W. B.
216+0.672	7838	159-2	318-4	318-4	0	0

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

RAIL REVISION DETAILS
M.P. 216+0.672
E.B. AND W.B. ROADWAYS
DETAIL "Q"

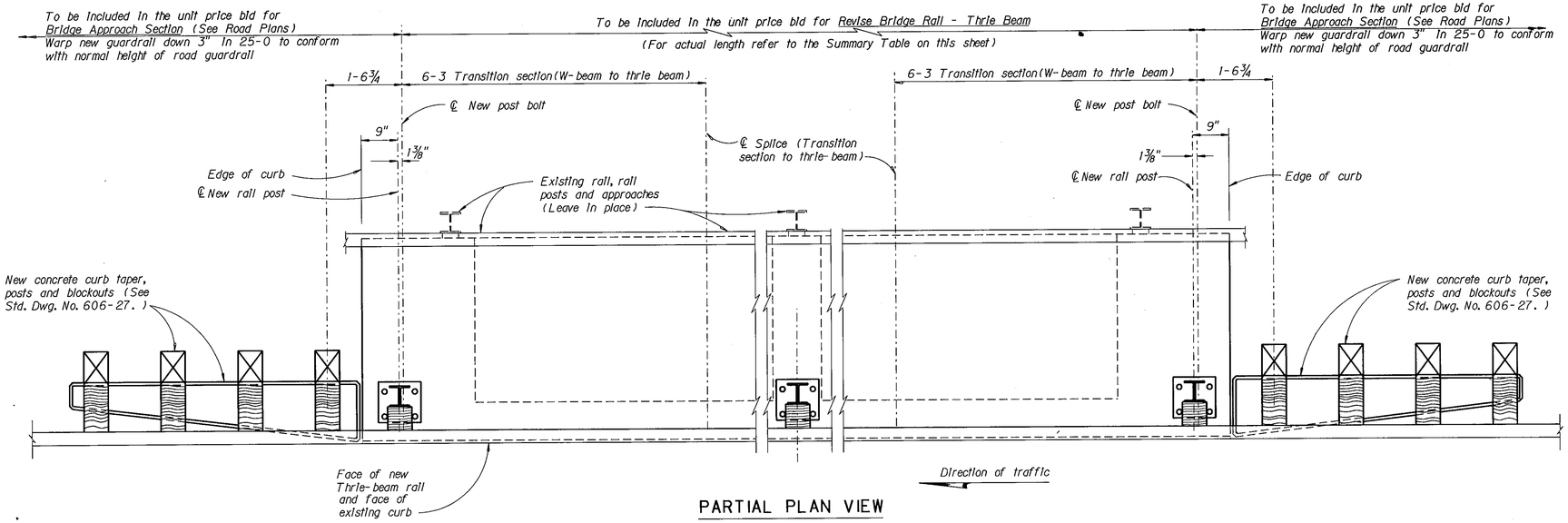
Scale: ~~1/2"~~ = 1'-0" Except as noted

DESIGNED	7-25-91	L. R. T.
DRAWN	7-25-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

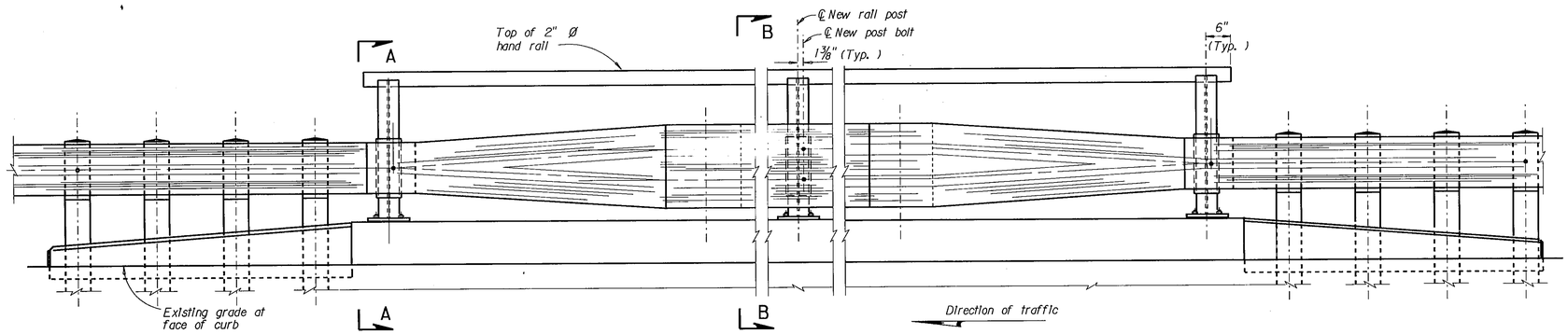
DRAWING NO. 15159

MONTANA CADD
19-DEC-1991 09:23 BRWH
I:\2D\0503\1ST IR\215_B86.2

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B25



PARTIAL PLAN VIEW



PARTIAL ELEVATION VIEW

SUMMARY TABLE			
Mile Post	General Layout Drawing Number	Length of Rail (One side only)	Total Length
129+0.807	5922	266-8	533-4

NOTES

Details shown on this drawing shall apply to both sides for the entire length of the structure unless otherwise noted.

The contractor shall determine actual bolt lengths.

The contractor shall verify all dimensions in the field before ordering any materials.

Lap all rail splices in the direction of traffic flow.

For location of required approach rail to bridge rail connections, curb tapers, and guardrail revisions see General Layout referred to in the Summary Table on this sheet.

Place a reflectorized washer approximately every 25' -0". See Std. Dwg. No. 606-05.

Plug predrilled holes in rail with std. splice bolts. See Std. Dwg. No. 606-05.

For Plate Washer Detail see Std. Dwg. No. 606-84.

All new hardware shall be galvanized.

Rail sections which are cut shall be cut square. Flame cutting will not be permitted. New cut ends or holes shall be coated with an approved galvanizing paint.

Bridge rail to be continuous with bridge approach rail.

The 6' -3" transition section from standard metal guardrail to Thrie beam shall be A. A. S. H. T. O. designation Type I, Class A.

All Thrie beam sections shall be A. A. S. H. T. O. designation Type I, Class B.

The cost of furnishing and placing new metal thrie beam, transition sections, base plates, posts, preformed fabric pads, treated timber blockouts, plates, washers, nuts, bolts and reflectorized washers shall be included in the unit price bid for Revise Bridge Rail-Thrie Beam. Revise Bridge Rail - Thrie Beam shall be paid for by the linear foot which shall be full compensation for furnishing all materials, equipment and labor necessary to complete the item. The total estimated number of linear feet for payment is shown in the Summary Table on this sheet.

All costs associated with the furnishing of materials, equipment, and labor necessary to install Bridge Approach Section - Type 3, including any required asphalt material removal, shall be included in the unit price bid for Bridge Approach Section.

For Section A-A, Section B-B, Base Plate Detail, and rail expansion details see Dwg. No. 15161.

New rail post spacing shall match existing post spacing as shown on the General Layout except as shown on this sheet.

The existing pedestrian rail and related hardware shall become the property of the State. The contractor shall stockpile the pedestrian rail, rail posts and related hardware at a site designated by the Engineer for pickup by State forces. All costs associated with salvaging and stockpiling the existing pedestrian rail shall be included in the unit price bid for Revise Bridge Rail - Thrie Beam.

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION
FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

RAIL REVISION AT M.P. 129+0.807

DETAIL "R"

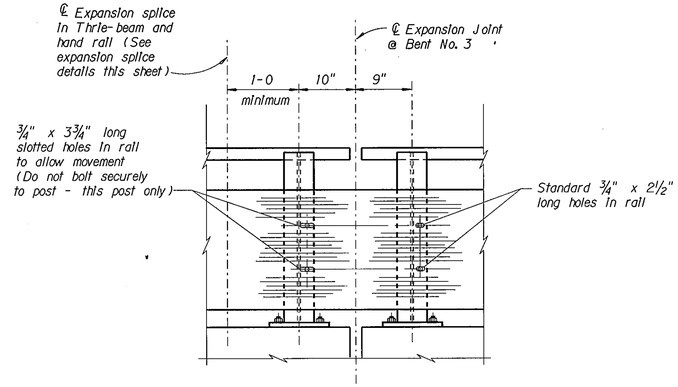
DESIGNED	7-30-91	L. R. T.
DRAWN	7-30-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

Scale ~ ¾" = 1' - 0" Except as noted

DRAWING NO. 15160

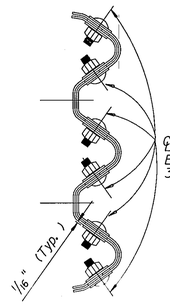
MONTANA CADD
19-DEC-1991 09:30
BRIAN W
Z:\PLOTS\06000253\ST\U02\T7_B86.1

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	IR 0002(22) U2	B26



RAIL ATTACHMENT DETAIL AT BENT NO. 3

Scale ~ 1" = 1-0

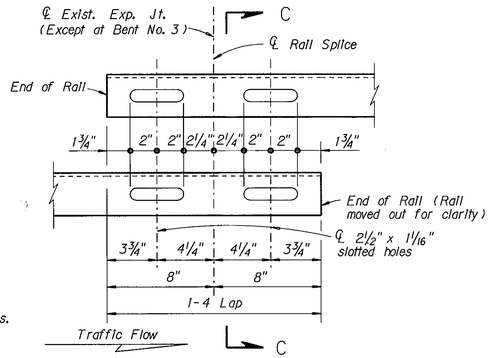


NOTE: Expansion joints in the new metal Thrie Beam are necessary only where there are expansion joints in the existing rail.

℄ 5/8" ø x 2" Splice Bolt with 1 Hex Nut and 3 Plate Washers

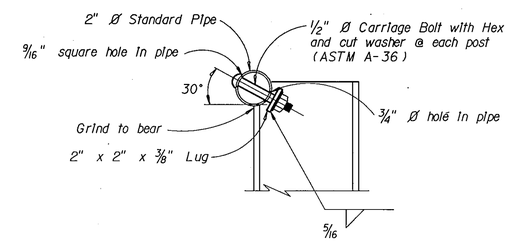
SECTION C-C

No Scale



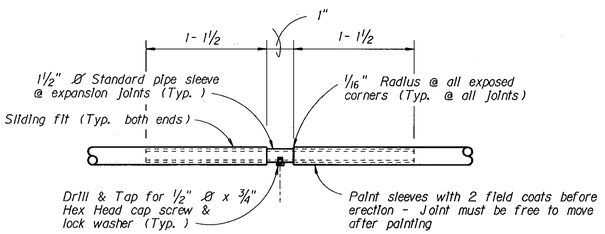
EXPANSION SPLICE DETAIL

No Scale



HAND RAIL ATTACHMENT DETAIL

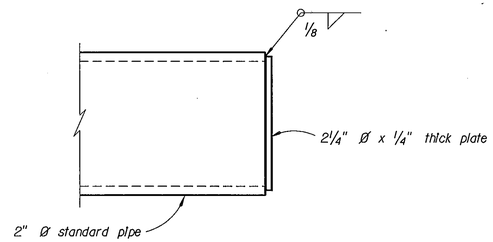
Scale ~ 3" = 1-0



HAND RAIL SPLICE DETAIL

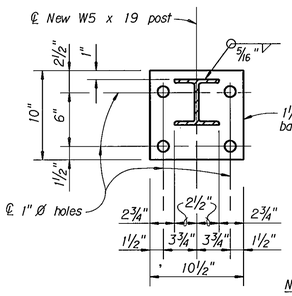
Scale ~ 1 1/2" = 1'-0"

NOTE: Locate hand rail splice at same location as Thrie-beam rail slices.



HAND RAIL END PLUG DETAIL

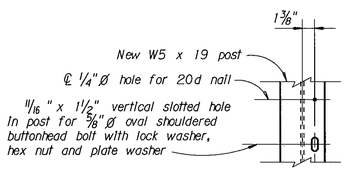
No Scale



Note: Plate to be ASTM A-36

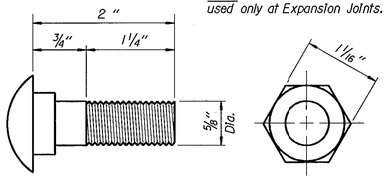
NEW BASE PLATE DETAIL

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



SECTION D-D

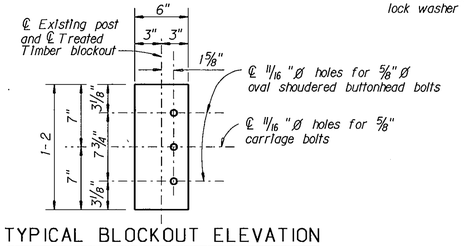
Scale ~ 1" = 1'-0"



NOTE: This bolt is to be used only at Expansion Joints.

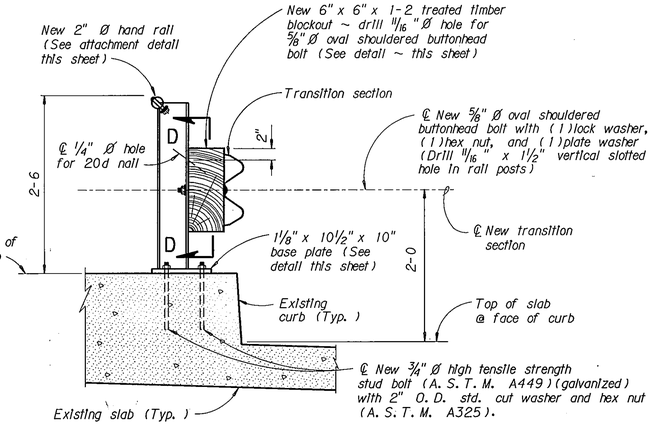
SPLICE BOLT & NUT DETAIL

Full Scale



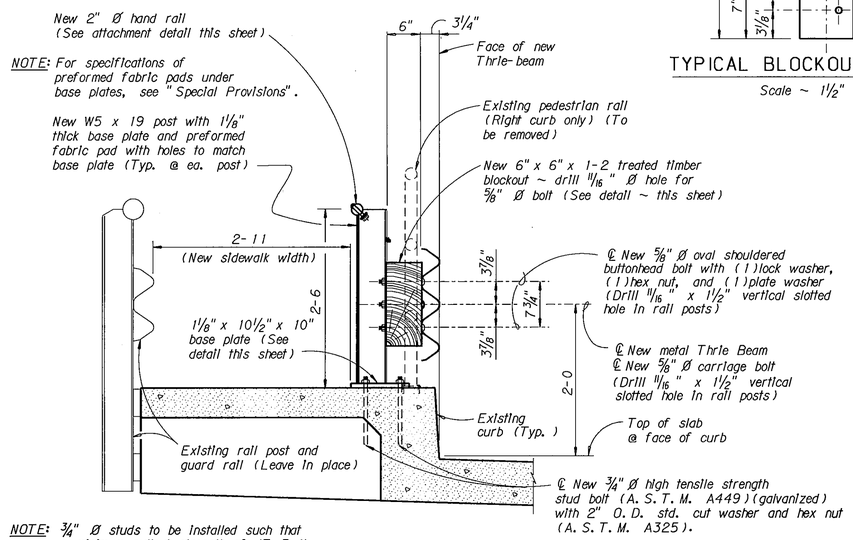
TYPICAL BLOCKOUT ELEVATION

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



SECTION A-A

Scale ~ 1" = 1'-0"



NOTE: 3/4" ø studs to be installed such that a minimum pullout strength of 17.5 K shall be achieved assuming a concrete strength f' c of 3000 psi. Full required strength to be achieved prior to tightening nuts.

SECTION B-B

Scale ~ 1" = 1'-0"

MONTANA DEPARTMENT OF TRANSPORTATION

DISTRICT 2 BRIDGE REHABILITATION

FEDERAL AID PROJECT NO. IR 0002(22) UNIT 2

SILVER BOW COUNTY

RAIL REVISION AT M.P. 129+0.807

DETAIL "R"

Scale ~ As Noted

DRAWING NO. 15161

DESIGNED	8-1-91	L. R. T.
DRAWN	8-1-91	L. R. T.
CHECKED	9-3-91	M. L. R.
REVISED		
REVISED		
REVISED		

19-DEC-1991 09:30 BRUCE MONTANA DEPT OF HIGHWAYS I:\BRIDGE\15161\DGN\15161.DGN