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 Thus, some of the information contained in these documents may be out of date or not applicable with regard to the advertised project.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
STATE HIGHWAY COMMISSION

BRIDGE PLANS & QUANTITIES

FEDERAL AID PROJECT NO. AWARD COPY S-136 (3) P.E. S-36 (5) CONSTRUCTION

WYOMING LINE – BELFRY

CARBON COUNTY

LIST OF DRAWINGS

SHEET NO.	DWG NO.	TITLE
1	9720	GENERAL LAYOUT
2	9721	FOOTING PLAN
3	9722	BENT NO. 1 BEAM & BACKWALL DETAILS
4	9723	PIER NO. 2
5	9724	PIER NO. 3
6	9725	BENT NO. 4 BEAM & BACKWALL DETAILS
7	9726	BENTS NO. 1 & NO. 4 COL. & FTG. DETAILS
8	9727	ERECTION PLAN
9	SBR-T5 (Rev. 7-28-69)	STANDARD STEEL BRIDGE RAIL – TYPE NO. 5
10	SL-1 (Rev. 3-4-69)	STANDARD SLAB, CURB & DIAPHRAGM DETAILS
11	D-1 (Rev. 10-28-68)	STANDARD BRIDGE DRAIN DETAILS
12	J-1 (Rev. 7-1-69)	STANDARD SLAB & CURB JOINTS
13	B-4 (Rev. 7-1-69)	STANDARD PRESTRESSED CONCRETE BEAMS - TYPE IV

ESTIMATED BRIDGE PLAN QUANTITIES (Does not include any contingencies)

LOCATION	LENGTH IN FEET	REINFORCING STEEL LBS.	STRUCTURAL STEEL LUMP SUM	CLASS "AD" CONCRETE CU. YDS.	STEEL BRIDGE RAIL TYPE 5 LIN. FT.	STRUCTURE EXCAVATION TYPE II CU. YDS.	PRESTRESSED BEAMS TYPE IV EACH 85'	PROTECTIVE COATING SQ. YDS.	SHORING & CRIBS LUMP SUM	BRIDGE DRAINS EACH	20' APPROACH SLAB LUMP SUM
BENT NO. 1		~~6872~~ 7589	1 LUMP SUM	~~71.4~~ 71.83		~~210~~ 219.0			1 LUMP SUM		0.5
PIER NO. 2		~~4783~~ 4783		~~143.5~~ 144.32		~~230~~ 223.4					
PIER NO. 3		~~4674~~ 4825		~~141.2~~ 140.89		~~200~~ 214.6					
BENT NO. 4		~~6619~~ 7165		~~65.9~~ 66.17		150 201.7					
SUPERSTRUCTURE	259.0	~~94762~~ 94790		~~284.2~~ 284.26	5095		15	~~1222~~ 1404 *		8	0.5
TOTAL	259.0	~~117103~~ 119152	1 LUMP SUM	~~707~~ 707.47	5095	~~790~~ 858.7	15	~~1222~~ 1404	1 LUMP SUM	8	1.0 LUMP SUM

*INCLUDES APPROACH SLAB QUANT.

Made By: D.W.M. 8-12-69 Checked By: J.C.H. 8-29-69

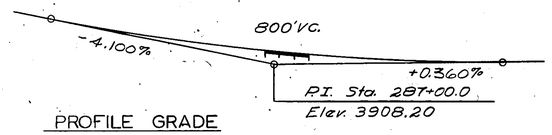
O.K.

K&E 19 1153 3-69

DRAWING NO. 9720 Q

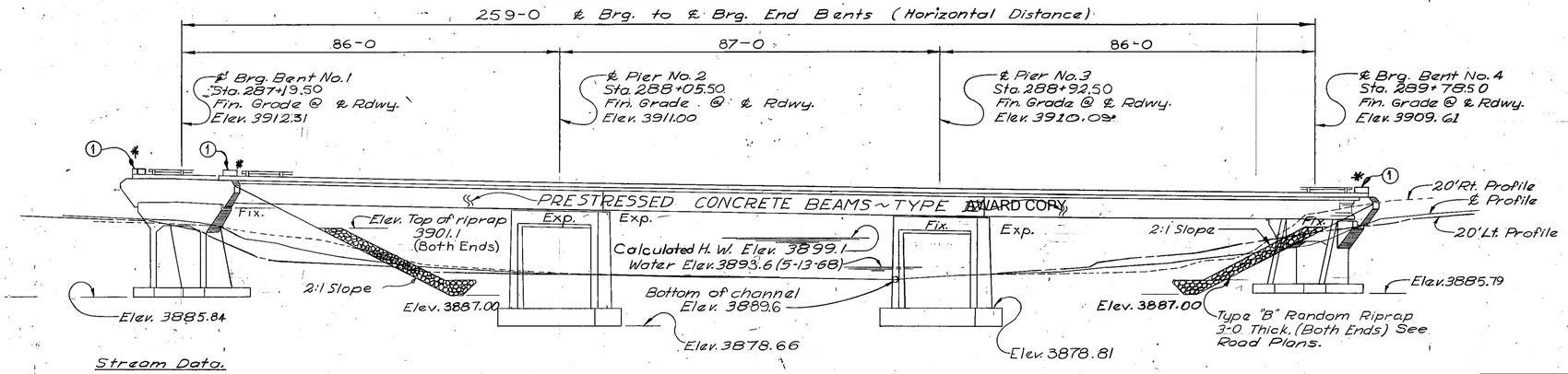
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	F 72-1-(2)0	B2	

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



PROFILE GRADE

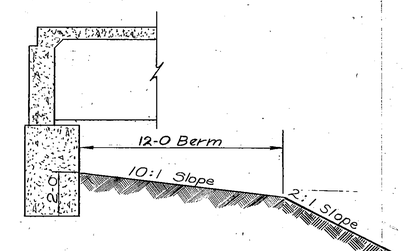
259-0 ℄ Brg. to ℄ Brg. End Bents (Horizontal Distance)



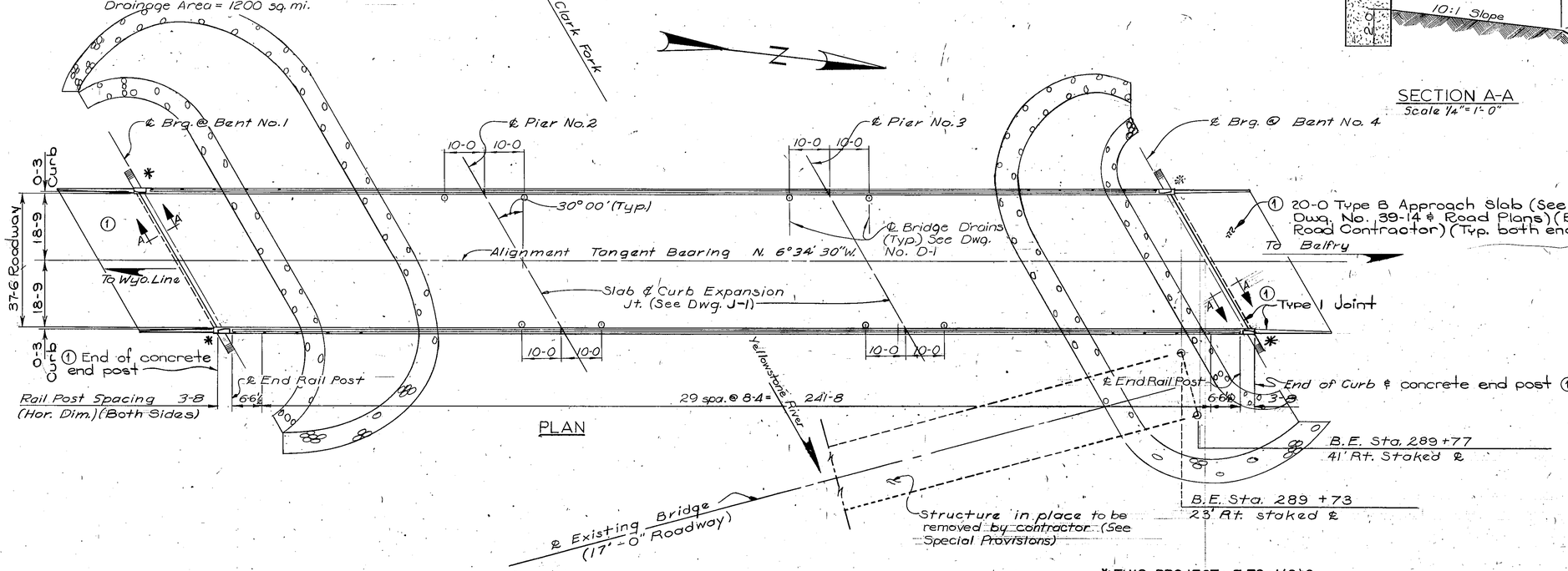
ELEVATION

Stream Data.

Ice: Moderate
Drift: Light
Scour: None
Subsoil: See Log of Borings Dwg. No. 9721
Design Flood Frequency: 50 year
Design Velocity - 10.0 F.t./sec.
Design Flow (Q) : 11,000 C.F.S.
Drainage Area = 1200 sq. mi.



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



PLAN

*THIS PROJECT: F 72-1(2)0

Approach slab joint replaced and bridge rail painted. See details on dwg. no. 14346.

NOTES:

LIVE LOAD: Standard H520-44 loading.
FINISHED GRADE: Finished plan grade of bridge @ ℄ Roadway is same as profile grade shown on road plans sheet.

SPECIFICATIONS: MONTANA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1966 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 = 6738 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 MONTANA HIGHWAY DEPARTMENT 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 OTHER ITEMS.

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 "SUPPLEMENTAL STANDARD SPECIFICATIONS".

EXCAVATION: At Piers No.2 & No.3 all excavation below elevation 3889 shall be restricted to the area inside the cofferdams. All boulders & large rocks removed when excavating for piers shall be placed back around the pier from whence they came, in such a manner as to provide the best protection against scour. The cost of this backfill shall be included in the unit price bid for structure excavation.

DESIGNED	4-24-69	R.E.W.
DRAWN	11-25-68	Y.K.D.
CHECKED	8-28-69	U.C.H.
APPROVED	9-5-69	A.W.W.
1 REVISED	2-18-70	N.H.R.
* REVISED	8-16-88	W.A.B.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

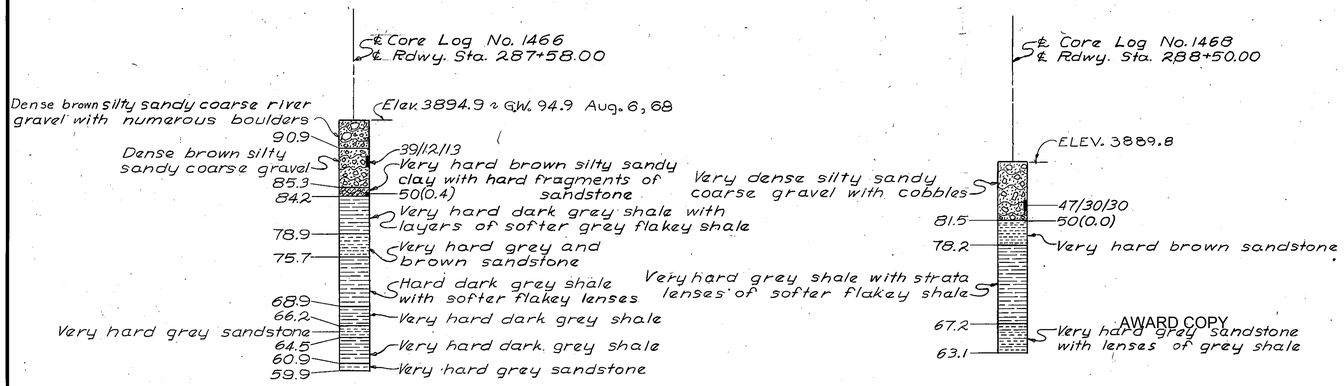
BRIDGE OVER CLARK FORK YELLOWSTONE RIVER
AT STA. 288+49.00
FEDERAL AID PROJECT NO. S 136(5)
CARBON COUNTY
GENERAL LAYOUT
Scale: 1" = 15'-0"

DRAWING NO. 9720

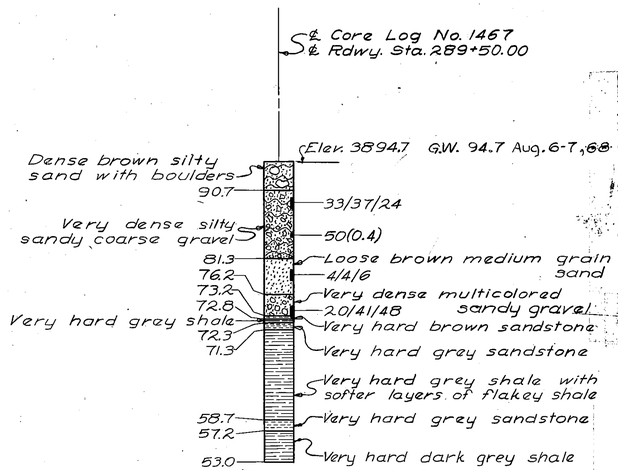
R.G.K.

KOE KEUFFEL & ESSER CO.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	S 136 (5)	2	13



AWARD COPY



NOTES

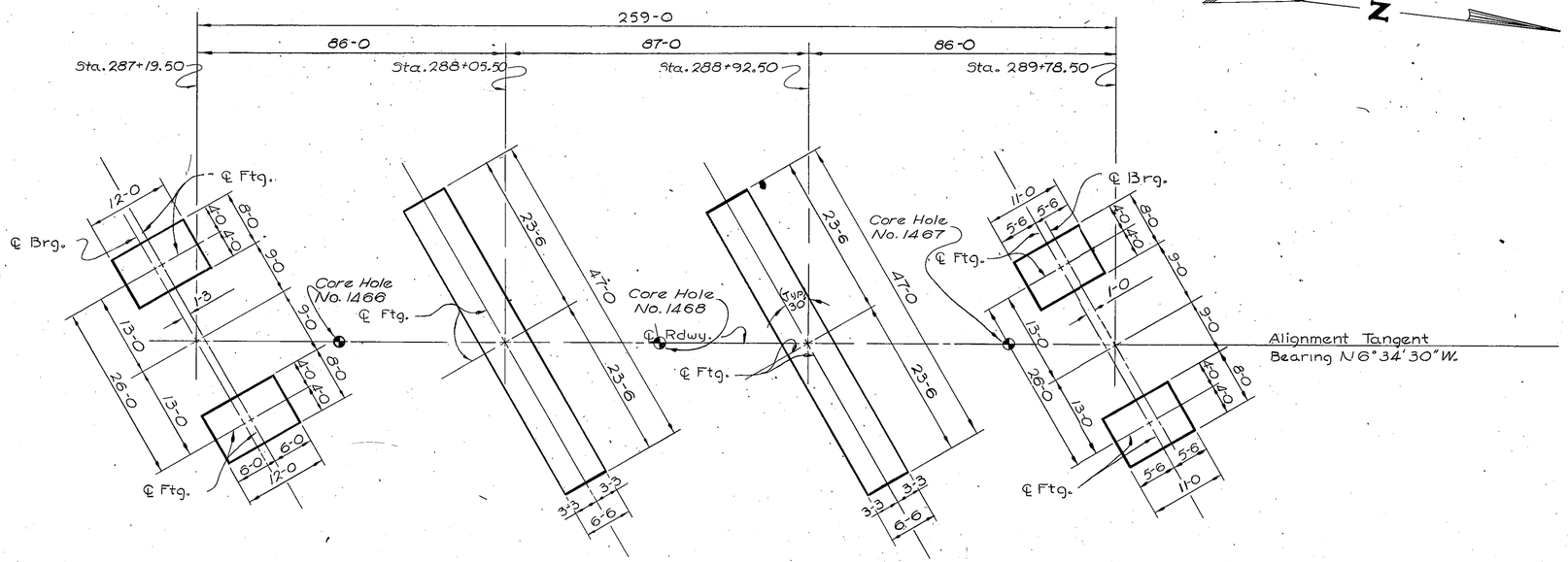
SOILS AND FOUNDATION MATERIALS: BORINGS WERE TAKEN BY THE MONTANA STATE HIGHWAY DEPARTMENT AT THE POINTS SHOWN ON THE GENERAL LAYOUT OR FOOTING PLAN.

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 HIGHWAY DEPARTMENT 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.

LOG OF BORINGS

Scale ≈ 1" = 10'-0"



FOOTING PLAN

Scale : 1" = 20'-0" (Stations)
1" = 10'-0" (Footings)

DESIGNED		
DRAWN	10-21-68	W.E.D.
TRACED		
CHECKED	8-28-69	J.C.H.
REVISED		
REVISED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER CLARK FORK
YELLOWSTONE RIVER
AT STA. 288+49.00
FEDERAL AID PROJECT NO. S 136(5)
CARBON COUNTY
FOOTING PLAN

Scale ≈ As Noted

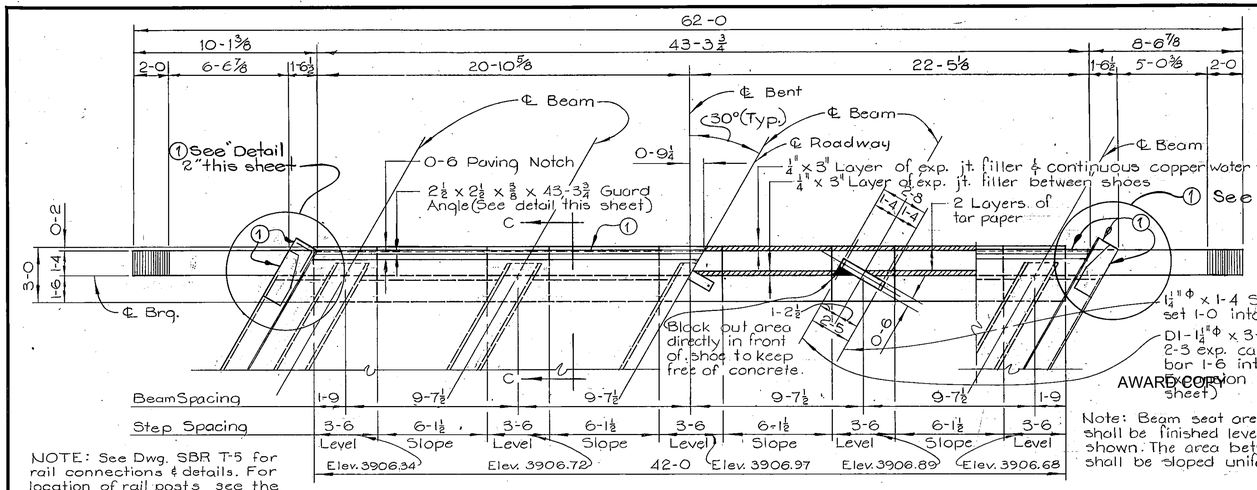
DRAWING NO. 9721

R.P.K.

KUEFFEL & ESSER CO.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	S 136(5)	3	13

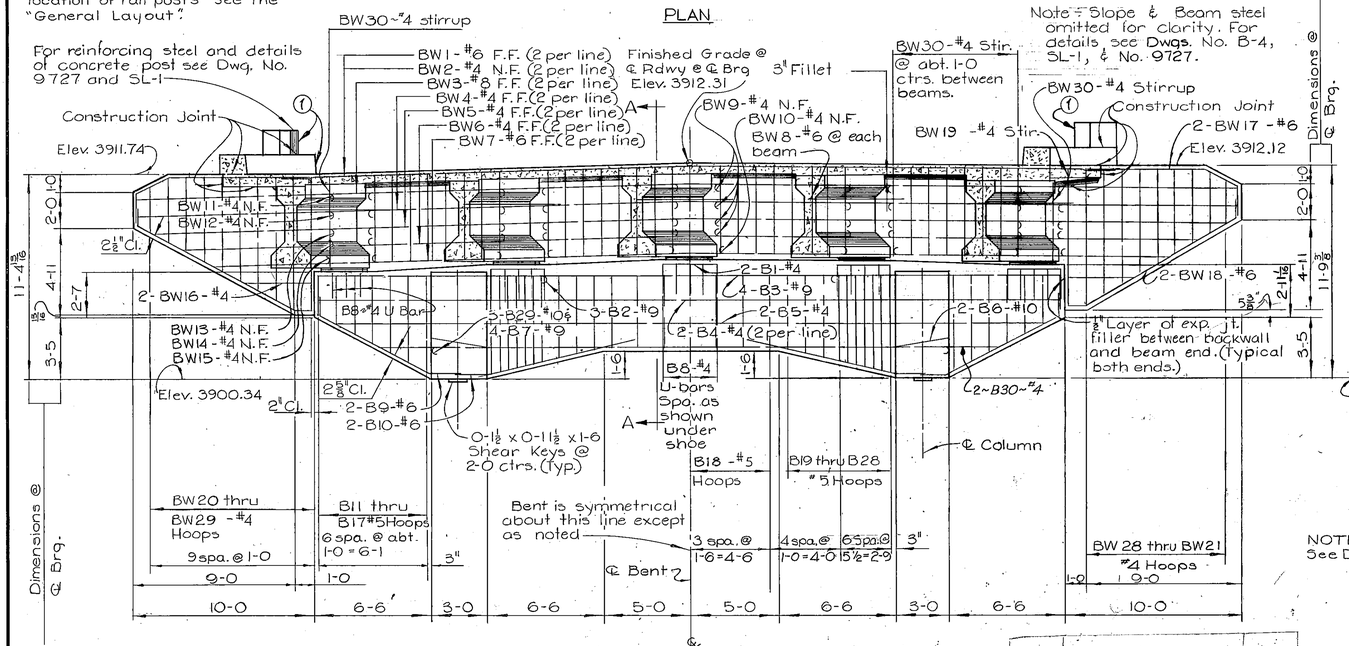
Note: Cost of furnishing and placing expansion joint filler, tar paper, copper water stop, and metal exp. caps to be included in the unit price bid for class "AD" Concrete.

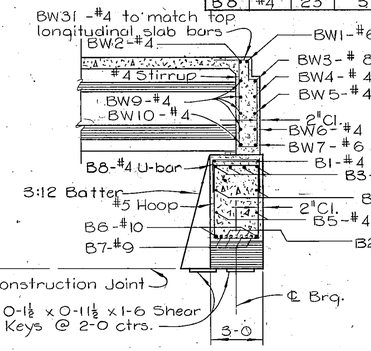


NOTE: See Dwg. SBR T-5 for rail connections & details. For location of rail posts see the "General Layout".

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

PLAN

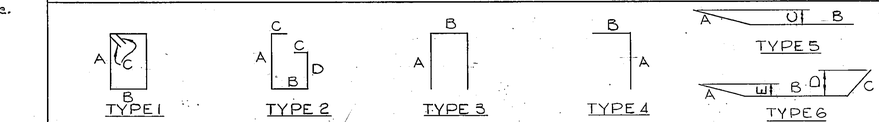




SECTION A-A

NOTE: For column & Ftg. Details See Dwg. No. 9726

BILL OF REINFORCING STEEL



STRAIGHT BARS

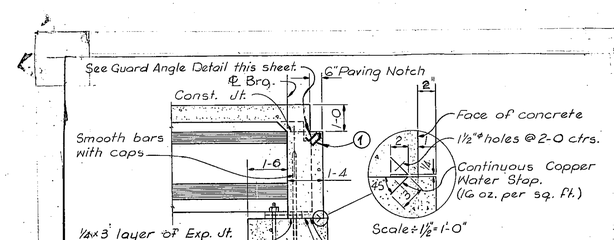
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
B1	#4	8	3'-6"	BW9	#4	16	7'-4"
2	9	6	12-10	10		4	6-9
3	9	4	41-8	11		2	10-7
4	4	4	21-4	12		2	10-7
5	4	2	40-0	13		2	10-0
7	9	4	29-0	14		2	8-7
B29	10	3	29-0	15		2	6-5
BW1	6	2	23-6	BW16	#4	4	3-7
2	4	2	22-9	D1	1 1/4" Sm.	5	5-6
3	8	2	31-10				
4	4	2	31-4	B30	4	4	4-10
5	4	2	30-4				
6	4	2	28-5				
7	6	2	28-1				
BW8	#6	5	5-4				

BENT BARS (All dimensions are out to out)

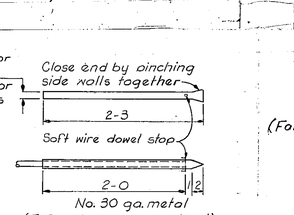
MARK	SIZE	NO.	TYPE	LENGTH	A	B	C	D	E
B6	#10	2	6	29-6	3-5	23 0	5-3	0-3	0-3
B8	#4	23	3	5-8	1-6	2-8			

BENT BARS (All dimensions are out to out)

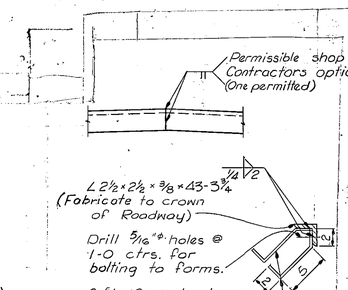
MARK	SIZE	NO.	TYPE	LENGTH	A	B	C	D	E
B9	#6	4	6	9'-9"	1'-8"	7'-1"	1'-0"	0'-11"	0'-9"
10	6	4	5	9-10	1-8	8-2	0-4 1/2		
11	#5	2	1	10-9	2-4	2-8	0-4 1/2		
12				11-9	2-10				
13				12-9	3-4				
14				13-9	3-10				
15				14-9	4-4				
16				15-9	4-10				
17		2		16-11	5-5				
18		7		14-5	4-2				
19		2		14-8	4-3 1/2				
20				15-1	4-6				
21				15-5	4-8				
22				15-10	4-10 1/2				
23				16-0	4-11 1/2				
24				16-2	5-0 1/2				
25				16-5	5-2				
26				16-7	5-3				
27				16-9	5-4				
B 28	5	2	1	16-11	5-5	2-8	0-4 1/2		
BW17	#6	4	6	11-6	1-9	2-0	7-9	3-10	1-7
18	6	4	6	11-9	1-0	10-0	0-9	0-4 1/2	0-10
19	4	1	2	15-9	7-7	1-0	0-3 1/2	6-7	
20	4	2	1	7-7	2-5	1-0	0-4 1/2		
21				9-9	3-6				
22				11-1	4-2				
23				12-2	4-8 1/2				
24				13-3	5-3				
25				14-5	5-10				
26				15-5	6-4				
27				16-7	6-11				
28		2		17-9	7-6				
29		1	1	17-11	7-7	1-0	0-4 1/2		
30	4	34	2	10-6	4-11 1/2	1-0	0-3 1/2	3-11 1/2	3-0 1/2
BW31	#4	26	4	3-0	2-0	1-0			



SECTION C-C
Scale ÷ 3/8" = 1'-0"



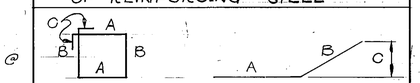
METAL EXPANSION CAP
Scale ÷ 1" = 1'-0"



GUARD ANGLE DETAIL
Scale ÷ 1 1/2" = 1'-0"

① Note: For bents No. 1 & No. 4

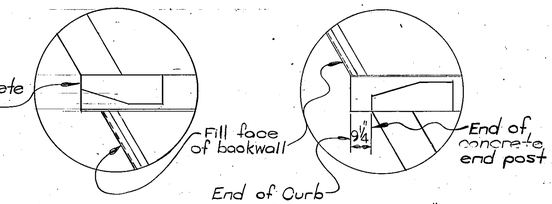
① CONCRETE END POST BILL OF REINFORCING STEEL



ALL DIMENSIONS ARE OUT TO OUT

Mark	Size	No.	Type	Length	A	B	C
* P 1	# 5	24	Str.	2-9"			
2	5	16	2	2-9	1-1 1/2	1-7 1/2"	0'-6"
3	4	12	1	6-5	0-10	2-0	0-4 1/2
4		4		6-3	0-9		
5				6-1	0-8		
6				5-11	0-7		
7				5-9	0-6		
8				5-7	0-5		
P 9	4	4	1	5-5	0-4	2-0	0-4 1/2

* Use P1 & P5 from existing bill of re-steel



① "DETAIL 1" ① "DETAIL 2"
Scale ~ 3/8" = 1'-0"

① Note: For revised concrete end post details see Dwg. No. SL-1, approved 12-31-69
Note: Unused anchor plates and 3/4" Φ bolts as originally specified shall be become the property of the state.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

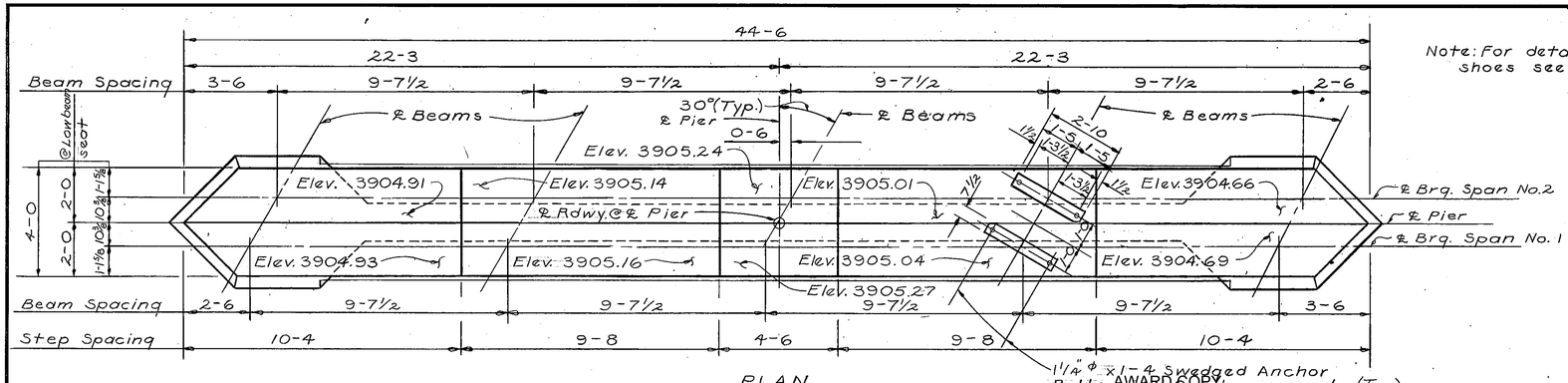
BRIDGE OVER CLARK FORK YELLOW STONE RIVER
AT STA. 288+49.00
FEDERAL AID PROJECT NO. S 136 (5)
CARBON COUNTY
BENT NO. 1
BEAM & BACKWALL DETAILS
Scale: 1/4" = 1'-0" (Except as noted)

DESIGNED	R.E.W.	4-4-69
DRAWN	D.C.B.	5-16-69
TRACED		
CHECKED	D.C.H.	8-28-69
① REVISED	NHR	2-18-70
REVISED		

DRAWING NO. 9722

R.D.K.
KAE 19 1153 3-69

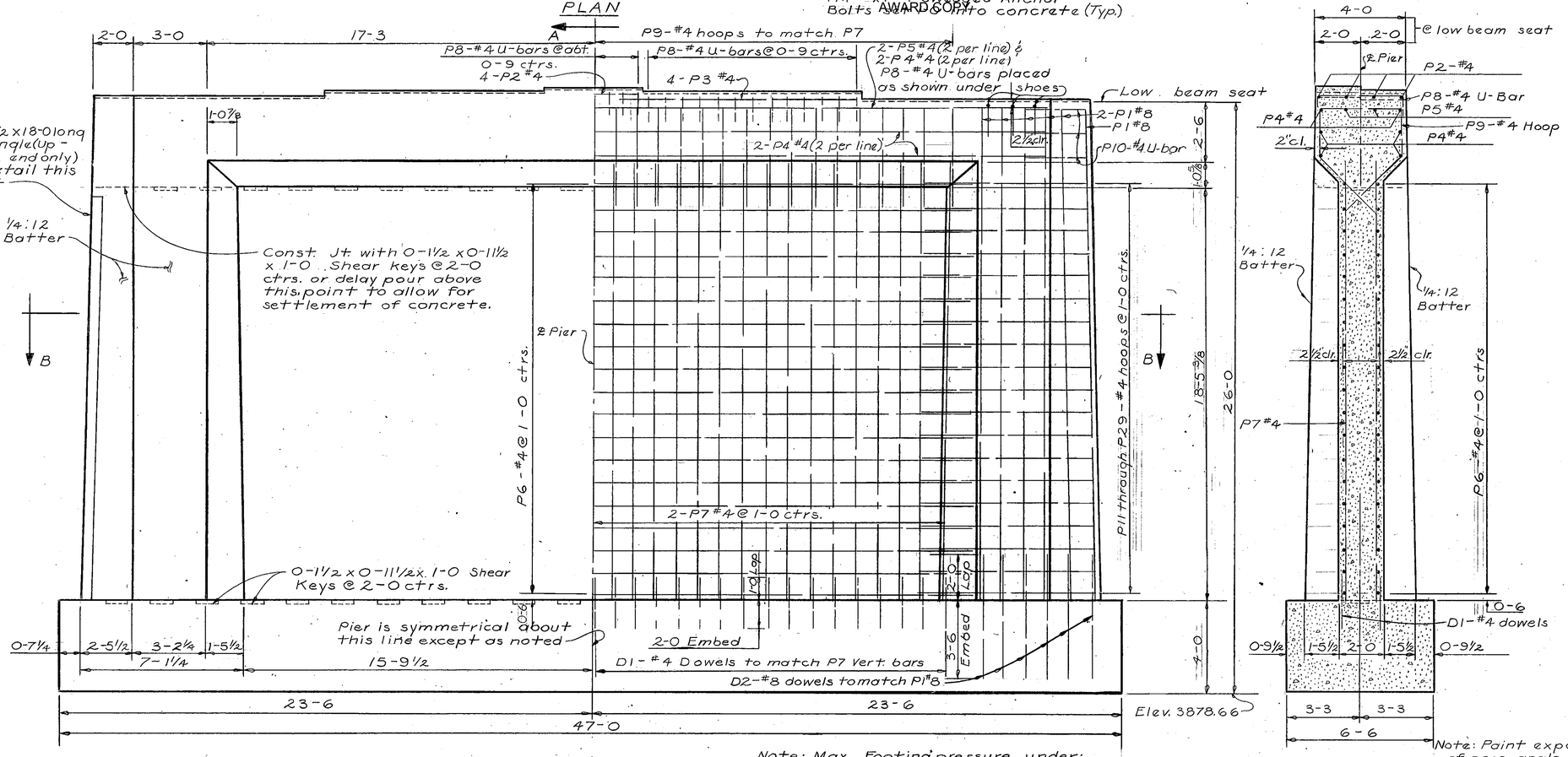
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	S 136(5)	4	13



Note: For details of modified shoes see Dwg. No. 9727

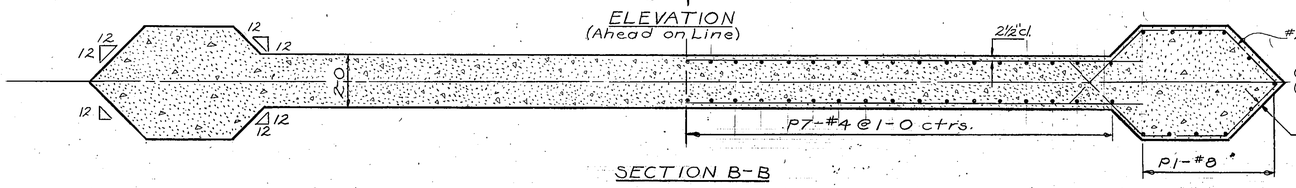
AWARD COPY

PLAN

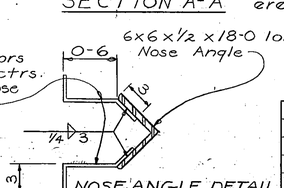


Note: Max. Footing pressure under: D.L. + L.L. + V.E. + B. + S.F. = 2.66 Tons / ft²

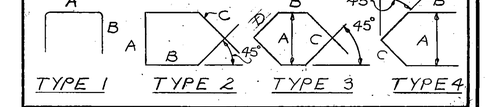
Note: Paint exposed surfaces of nose angle with two (2) field coats before erection.



SECTION B-B



BILL OF REINFORCING STEEL



BENT BARS (All dimensions are out to out)

Mark	Size	No.	Type	Length	A	B	C	D	E
P8	4	39	1	6-8	3-8	1-6			
9	4	33	2	14-8	3-8	2-2½	3-3½		
10	4	6	4	7-1	3-7	1-0	2-6½		
11	"	2	3	21-1	4-5	3-0½	4-4	3-2	
12	"	"	"	20-11	4-4½	3-0½	4-3½	3-1½	
13	"	"	"	20-9	4-4	3-0½	4-3	3-1	
14	"	"	"	20-7	4-3½	3-0	4-2½	3-1	
15	"	"	"	20-5	4-3	3-0	4-2	3-0½	
16	"	"	"	20-3	4-2½	3-0	4-1½	3-0	
17	"	"	"	20-1	4-2	3-0	4-1	2-11½	
18	"	"	"	19-11	4-1½	2-11½	4-0½	2-11½	
19	"	"	"	19-9	4-1	2-11½	4-0	2-11	
20	"	"	"	19-7	4-0½	2-11½	3-11½	2-10½	
21	"	"	"	19-5	4-0	2-11½	3-11	2-10	
22	"	"	"	19-3	3-11½	2-11	3-10½	2-10	
23	"	"	"	19-1	3-11	2-11	3-10	2-9½	
24	"	"	"	18-11	3-10½	2-11	3-9½	2-9	
25	"	"	"	18-9	3-10	2-11	3-9	2-8½	
26	"	"	"	18-7	3-9½	2-10½	3-8½	2-8½	
27	"	"	"	18-5	3-9	2-10½	3-8	2-8	
28	"	"	"	18-3	3-8½	2-10½	3-7½	2-7½	
P29	4	2	3	18-1	3-8	2-10½	3-7	2-7	

STRAIGHT BARS				STRAIGHT BARS			
Mark	Size	No.	Length	Mark	Size	No.	Length
D1	4	66	3-0	P7	4	66	19-6
D2	8	22	5-6				
P1	8	22	21-9				
P2	4	4	4-2				
P3	4	8	10-6				
P4	4	12	20-9				
P5	4	4	21-11				
P6	4	38	34-6				

NOTES

FOOTINGS: The footing for Piers No. 2 & No. 3 shall be keyed into undisturbed material for a minimum depth of 2'-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 as part of the cost of the concrete within neat lines. The quantity of concrete for piers to be paid for shall be the amount only within the neat lines shown on the details. If changes in the details are ordered by the engineer the quantities will be revised according to the revised details.

DESIGNED	4-1-69	R.E.W.
DRAWN	4-16-69	D.W.M.
TRACED		
CHECKED	8-28-69	J.C.H.
REVISED		
REVISED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER CLARK FORK
YELLOWSTONE RIVER
AT STA. 288 +49.00
FEDERAL AID PROJECT NO S 136 (5)
CARBON COUNTY
PIER NO. 2

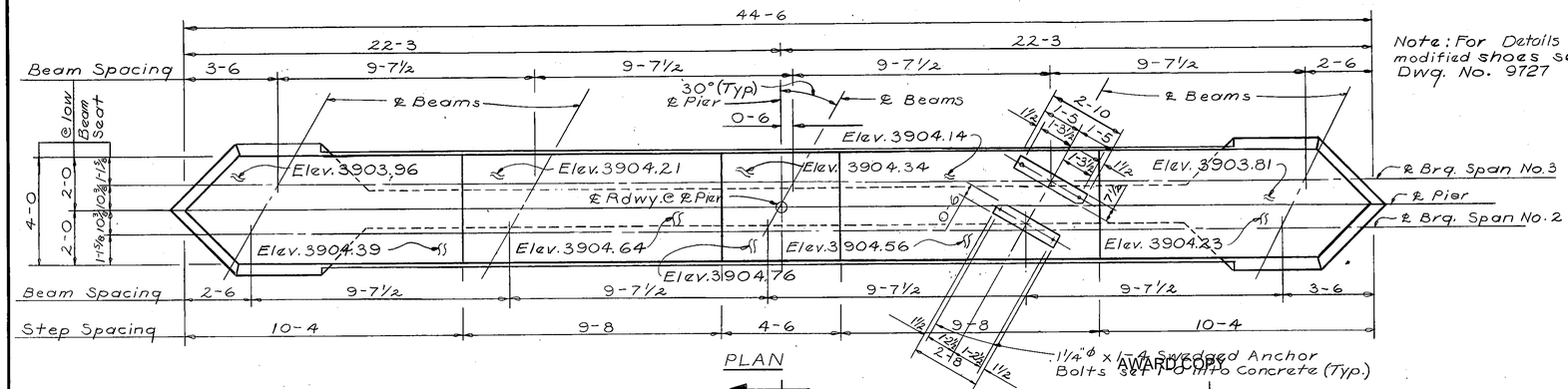
Scale: 3/8" = 1'-0" Except as noted

DRAWING NO. 9723

R.D.K.

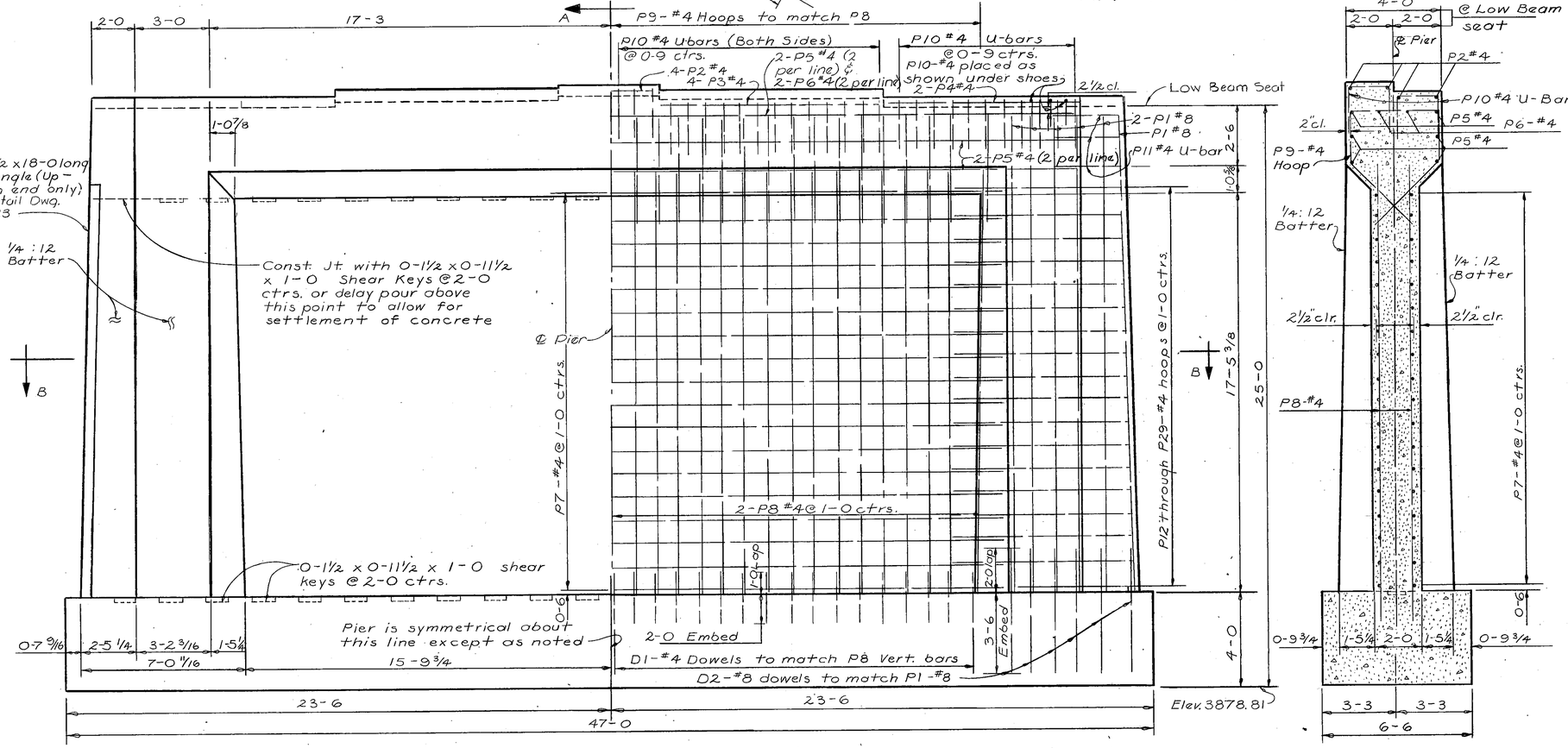
KUEFFEL & ESSER CO.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	S136(5)	5	13

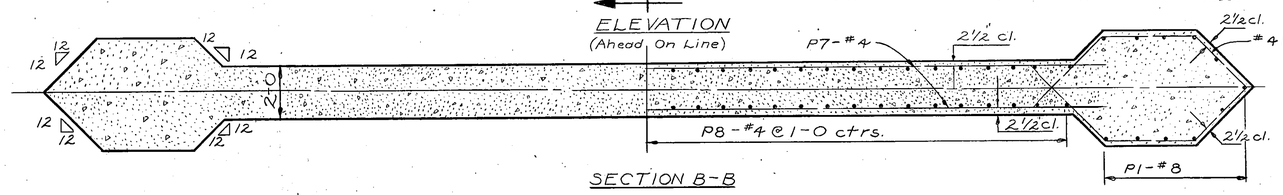


Note: For Details of modified shoes see Dwg. No. 9727

PLAN



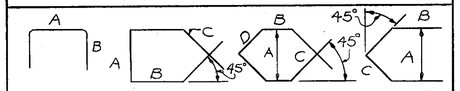
Note: Max. Footing pressure under: D.L. + L.L. + V.E. + B. + S.F. + L.F. + .3W + WL = $\left(\frac{3.60}{1.25}\right)$ = 2.88 TONS/Ft.²



SECTION B-B

SECTION A-A

BILL OF REINFORCING STEEL



TYPE 1 TYPE 2 TYPE 3 TYPE 4

BENT BARS (All dimensions are out to out)

Mark	Size	No.	Type	Length	A	B	C	D	E
P 9	4	33	2	14-8	3-8	2-2½	3-3½		
P10	4	98	1	5-8	1-8	2-0			
P11	4	6	4	7-1	3-7	1-0	2-6½		
P12	4	2	3	20-11	4-4½	3-0½	4-3½	8-11½	
P13	4	2	3	20-9	4-4	3-0½	4-3	3-1	
P14	4	2	3	20-7	4-3½	3-0	4-2½	3-1	
P15	4	2	3	20-5	4-3	3-0	4-2	3-0½	
P16	4	2	3	20-3	4-2½	3-0	4-1½	3-0	
P17	4	2	3	20-1	4-2	3-0	4-1	2-11½	
P18	4	2	3	19-11	4-1½	2-11½	4-0½	2-11½	
P19	4	2	3	19-9	4-1	2-11½	4-0	2-11	
P20	4	2	3	19-7	4-0½	2-11½	3-11½	2-10½	
P21	4	2	3	19-5	4-0	2-11½	3-11	2-10½	
P22	4	2	3	19-3	3-11½	2-11	3-10½	2-10	
P23	4	2	3	19-1	3-11	2-11	3-10	2-9½	
P24	4	2	3	18-11	3-10½	2-11	3-9½	2-9	
P25	4	2	3	18-9	3-10	2-11	3-9	2-8½	
P26	4	2	3	18-7	3-9½	2-10½	3-8½	2-8½	
P27	4	2	3	18-5	3-9	2-10½	3-8	2-8	
P28	4	2	3	18-3	3-8½	2-10½	3-7½	2-7½	
P29	4	2	3	18-1	3-8	2-10½	3-7	2-7	

STRAIGHT BARS			
Mark	Size	No.	Length
P 1	8	22	20-9
P 2	4	4	4-2
P 3	4	8	10-6
P 4	4	4	8-3
D 1	4	66	3-0
D 2	8	22	5-6

STRAIGHT BARS			
Mark	Size	No.	Length
P 5	4	12	20-9
P 6	4	4	21-11
P 7	4	36	34-6
P 8	4	66	18-6

DESIGNED	4-10-69	R.E.W.
DRAWN	5-15-69	D.W.M.
TRACED		
CHECKED	8-28-69	J.C.H.
REVISED		
REVISED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER CLARK FORK YELLOWSTONE RIVER

AT STA. 288+49.00

FEDERAL AID PROJECT NO. S 136 (5)

CARBON COUNTY

PIER NO. 3

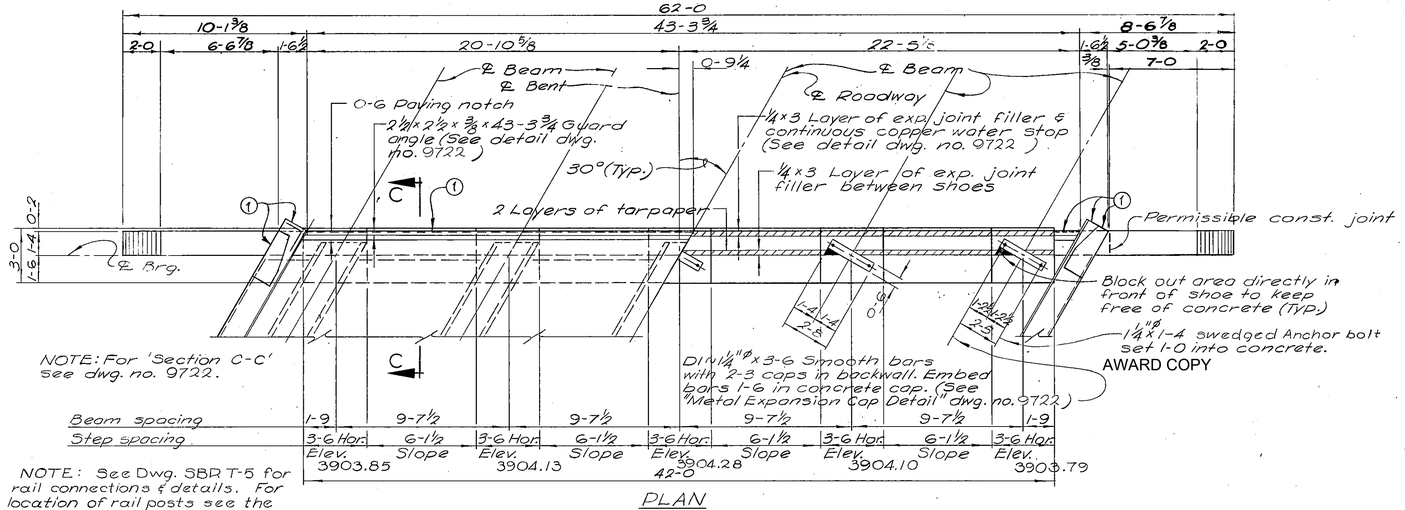
Scale ⅜" = 1'-0"

DRAWING NO. 9724

R.D.I.C.

K&E 19 1133 3-69

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	S136(5)	6	18



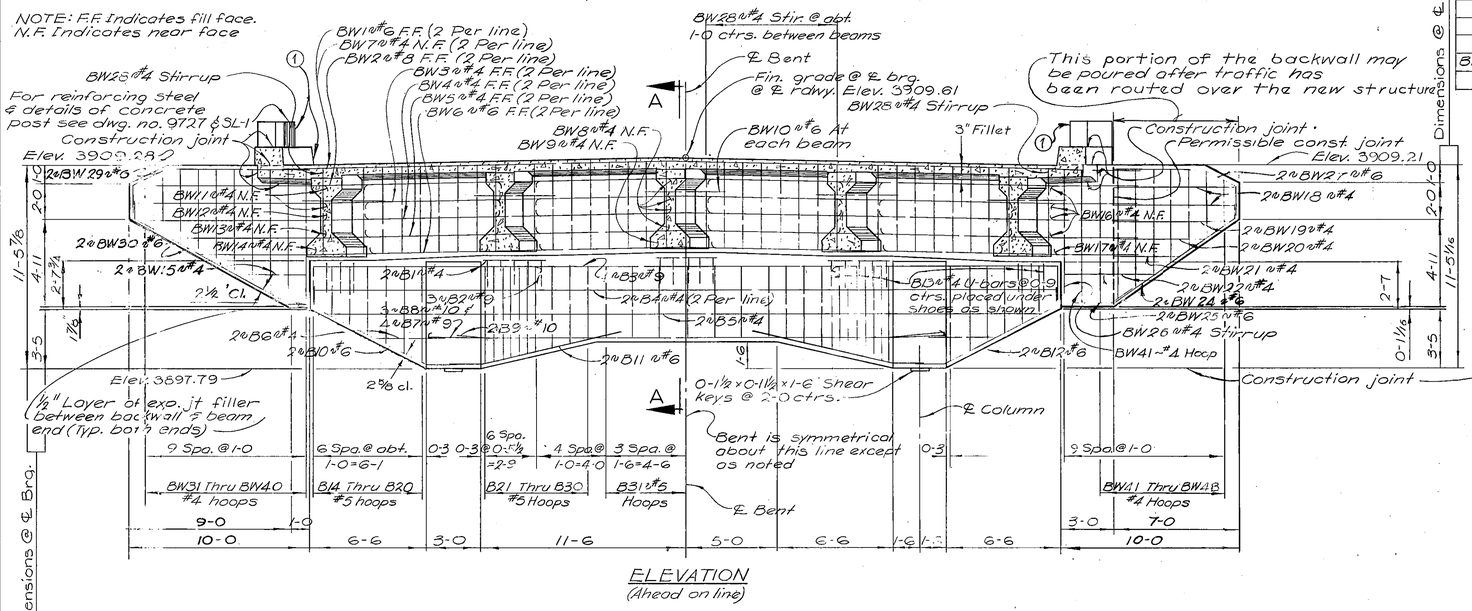
NOTE: For 'Section C-C' see dwg. no. 9722.

NOTE: See Dwg. SBR T-5 for rail connections & details. For location of rail posts see the "General Layout."

PLAN

NOTE: Slab & beam reinforcing steel omitted for clarity. For details see dwgs. no. B-4, SL-1 & no. 9727.

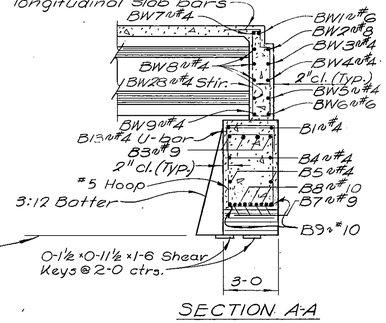
NOTE: Beam seat areas shall be finished level to the elevations shown. The area between beam seats to be sloped uniformly as required.



ELEVATION
(Ahead on line)

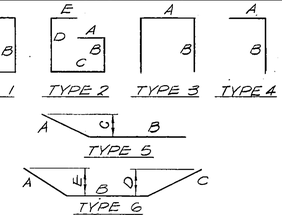
NOTE: For column & footing details see dwg. no. 9726.

NOTE: The cost of furnishing and placing expansion joint filler, tar paper, copper water stop & metal expansion caps to be included in the unit price bid for class "AD" concrete.



SECTION A-A

BILL OF REINFORCING STEEL



STRAIGHT BARS

Mark	Size	No.	Length	Mark	Size	No.	Length
B1	#4	6	3'-6"	BW10	#6	5	5'-4"
2	9	6	12-10	11	4	2	10-7
3	9	1	41-8	12		1	10-0
4	4	4	21-4	13		1	8-7
5	4	2	40-0	14		1	6-5
6	4	4	4-10	15		2	3-7
7	9	4	29-0	16		4	5-1
B8	10	3	29-0	17		1	4-9
				18		4	6-10
BW1	6	2	24-9	19		2	6-4
2	8	2	29-2	20		2	4-11
3	4	2	28-8	21		2	3-6
4	4	2	28-2	BW22	4	2	4-7
5	4	2	27-3				
6	6	2	26-10				
7	4	2	24-6	D1	1¼" Sm	5	3-6
8	4	16	7-4				
BW9	4	4	6-9				

BENT BARS (All dimensions out to out)

Mark	Size	No.	Type	Length	A	B	C	D	E
B9	#10	2	6	29'-6"	3'-3"	23'-0"	3'-3"	0'-3"	0'-3"
10	6	2	6	9-9	1-0	7-1	1-8	0-9	0-11
11	6	4	5	9-10	1-8	8-2	0-4½		
12	6	2	6	9-9	1-8	7-1	1-0	0-11	0-9
13	4	21	3	5-8	2-8	1-6			
14	5	2	1	10-9		2-4	0-4½		
15				11-9		2-10			
16				12-9		3-4			
17				13-9		3-10			
18				14-9		4-1			
19				15-9		4-10			
20				16-11		5-5			
21				16-11		5-5			
22				16-9		5-4			
23				16-7		5-3			
24				16-5		5-2			
25				16-2		5-0½			
26				16-0		4-11½			
27				15-10		4-10½			
28				15-5		4-8			
29				15-1		4-6			
30		2		14-8		4-3½			
B31	5	7	1	14-5	2-8	4-2	0-4½		
BW24	6	2	5	9-5	1-0	8-5	0-11		
25	6	2	5	4-4	1-6	2-10	0-10½		
26	4	1	2	15-9	0-3½	6-7	1-0	7-7	0-3½
27	6	2	6	8-9	1-9	2-0	5-0	2-4	1-7
28	4	34	2	10-6	0-3½	3-11½	1-0	4-11½	0-3½
29	6	2	6	11-6	1-9	2-0	7-9	3-10	1-7
30	6	2	6	11-9	1-0	10-0	0-9	0-4½	0-10
31	4	1	1	7-7		2-5	0-4½		
32				9-9		3-6			
33				11-1		4-2			
34				12-2		4-8½			
35				13-5		5-3			
36				14-5		5-10			
37				15-5		6-4			
38		1		16-7		6-11			
39		1		17-9		7-6			
40		1		17-11		7-7			
41		2		17-11		7-7			
42		1		17-7		7-5			
43				16-3		6-9			
44				14-9		6-0			
45				13-5		5-4			
46				11-11		4-7			
47				10-3		3-9			
48		1	1	7-9		2-6	0-4½		
BW49	4	26	4	3-0	1-0	2-0			

DESIGNED	4-24-69	REW
DRAWN	5-21-69	GLK
TRACED		
CHECKED	8-28-69	J.C.H.
(1) REVISED	2-18-70	N.H.B.
REVISED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER CLARK FORK
YELLOWSTONE RIVER
AT STA. 288+49.00
FEDERAL AID PROJECT NO. S 136(5)
CARBON COUNTY

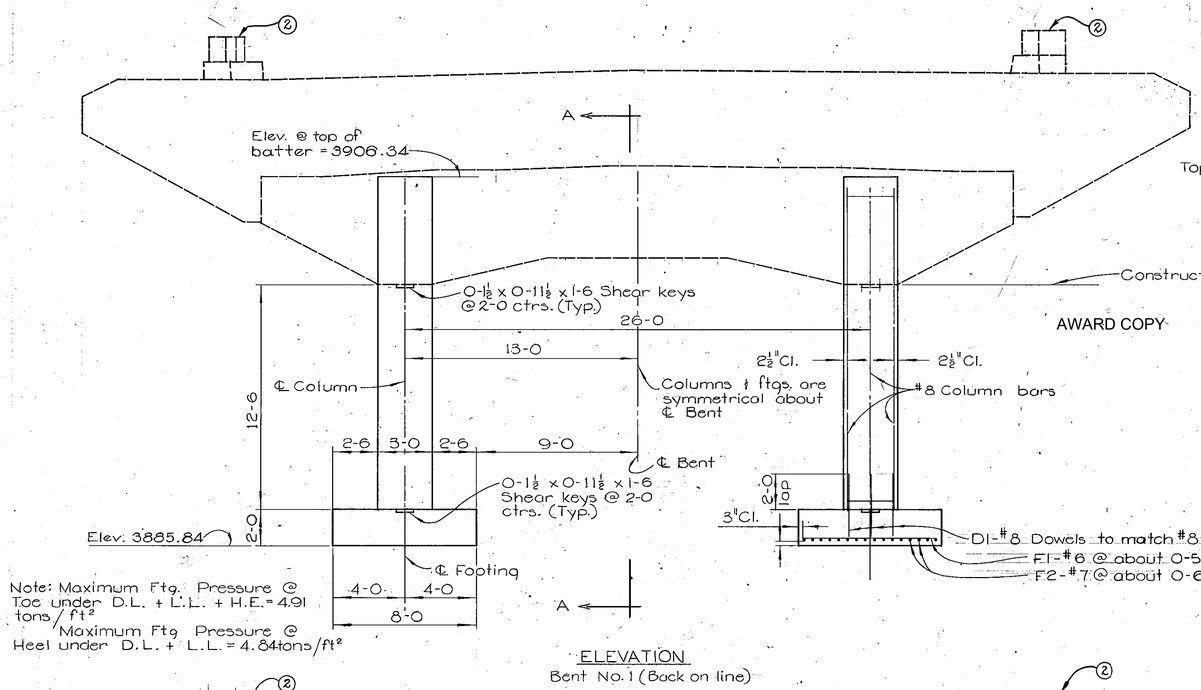
BENT NO. 4
BEAM & BACKWALL DETAILS
Scale: ¼" = 1'-0"

DRAWING NO. 9725

R.O.K.

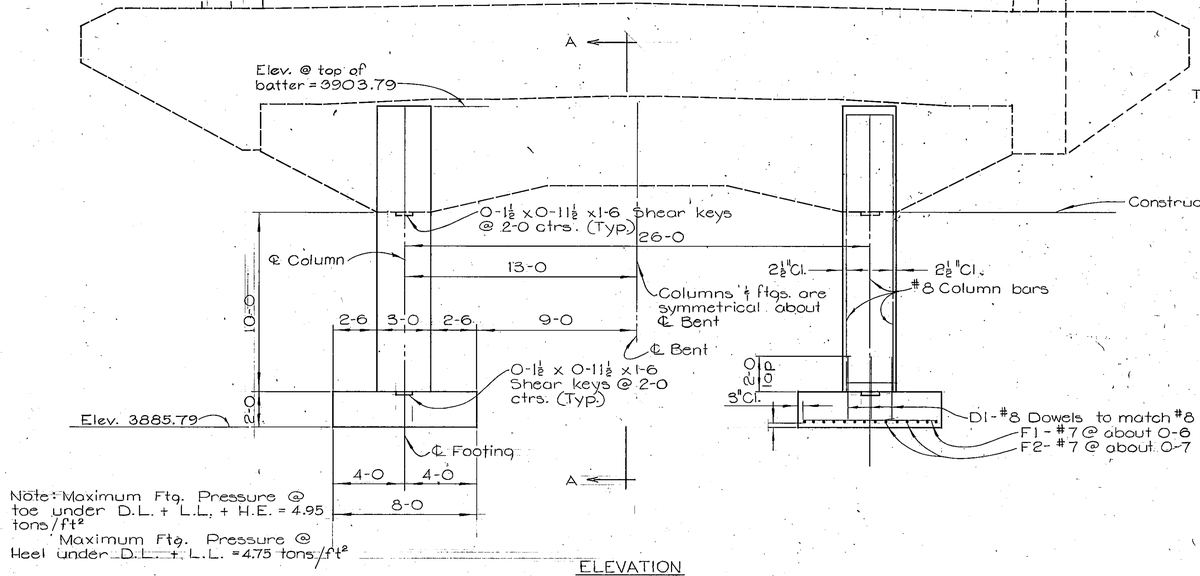
K&E 19 1153 3-69

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	S136(5)	7	13



ELEVATION
Bent No. 1 (Back on line)

SECTION A-A



ELEVATION
Bent No. 4 (Ahead on line)

SECTION A-A

BILL OF REINFORCING STEEL (For one Bent only)



TYPE 1



TYPE 2

STRAIGHT BARS

	MARK	SIZE	NO.	LENGTH
①	C1	#8	14	18'-0"
①	2		4	14-9
①	3		4	10-11
①	4		4	7-4
①	5		6	18-10
①	C6	8	4	3-8
	F1	6	52	7-6
	F2	7	32	11-6

BENT BARS (All dimensions are out to out)

(FOR BENT NO. 1 ONLY)

	MARK	SIZE	NO.	LENGTH	A	B
	C7	#3	2	1	20'-2"	7'-1"	2'-8
	8				19-8	6-10	
	9				19-2	6-7	
	10				18-8	6-4	
	11				18-2	6-1	
	12				17-8	5-10	
	13				17-2	5-7	
	14				16-8	5-4	
	15				16-2	5-1	
	16				15-8	4-10	
	17				15-2	4-7	
	18				14-8	4-4	
	19				14-2	4-1	
	20				13-8	3-10	
	21				13-2	3-7	
	22				12-8	3-4	
	23				12-2	3-1	
	C24	3	2	1	11-8	2-10	2-8
	D1	8	36	2	4-10	3-7	1-3

(FOR BENT NO. 4 ONLY)

	MARK	SIZE	NO.	LENGTH	A	B
①	C1	8	14	15-6	19-0	6-6	2-8
①	2		4	12-0	18-6	6-3	
①	3		4	8-0	18-0	6-0	
①	4		6	16-0	17-6	5-9	
①	C5	8	4	4-0	17-0	5-6	
	F1	7	44	7-6	16-6	5-3	
	F2	#7	28	10-6	16-0	5-0	
					15-6	4-9	
					15-0	4-6	
					14-6	4-3	
					14-0	4-0	
					13-6	3-9	
					13-0	3-6	
					12-6	3-3	
					12-0	3-0	
	C21	3	2	1	11-6	2-9	2-8
	D1	#8	32	2	4-10	3-7	1-3

① Note: Reinforcing Steel quanitities shall be revised on the Progress Estimate in accordance with this change.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

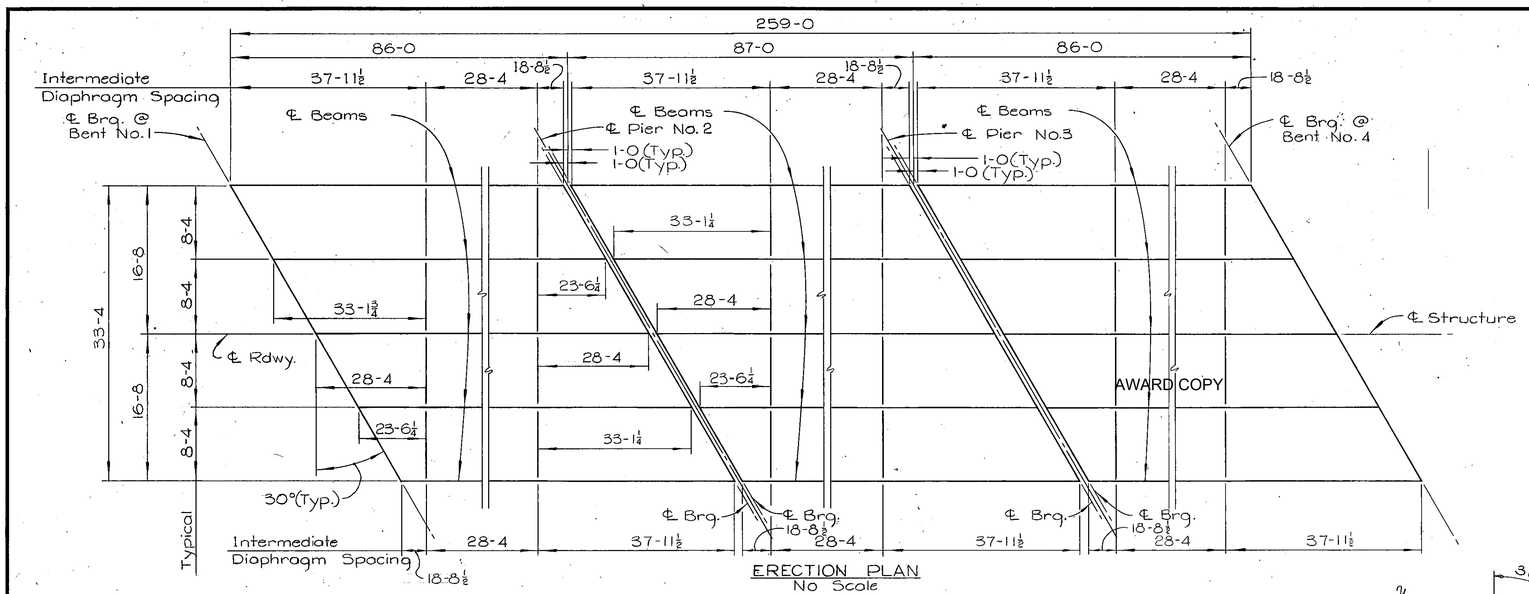
BRIDGE OVER CLARK FORK
YELLOWSTONE RIVER
AT STA. 288 + 49.00
FEDERAL AID PROJECT NO. S 136(5)
CARBON COUNTY
BENTS NO. 1 & NO. 4
COL. & FTG. DETAILS
Scale 1" = 1'-0"

DESIGNED	R.E.W.	4-4-69
DRAWN	D.C.B.	7-2-69
TRACED		
CHECKED	J.C.H.	8-28-69
① REVISED	N.H.R.	12-22-69
② REVISED	N.H.R.	2-18-70

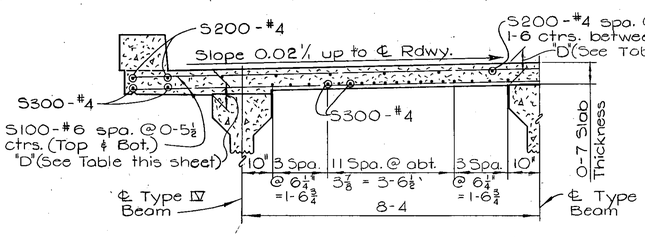
DRAWING NO. 9726

R.O.K.
KAE 19 1133.3-69

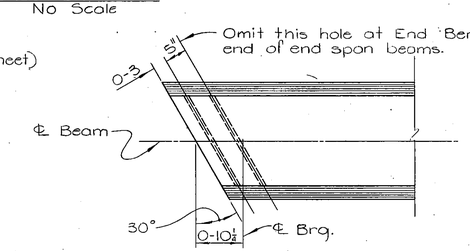
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	S 136(5)	8	13



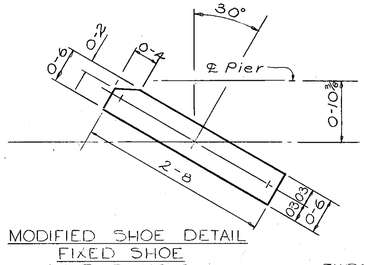
ERECTION PLAN
No Scale



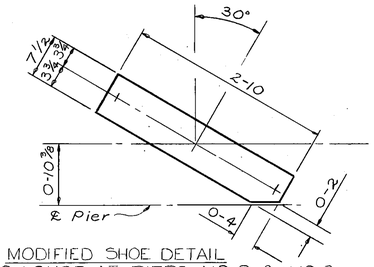
DETAIL A
Scale : ½" = 1'-0"



MODIFIED BEAM END
Scale : ½" = 1'-0"

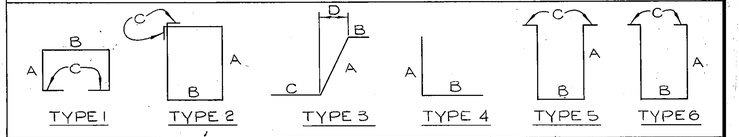


MODIFIED SHOE DETAIL
FIXED SHOE
AT PIER NO. 3
Scale ÷ 1" = 1'-0"



MODIFIED SHOE DETAIL
EXPANSION SHOE AT PIERS NO. 2 & NO. 3
Scale ÷ 1" = 1'-0"

BILL OF REINFORCING STEEL



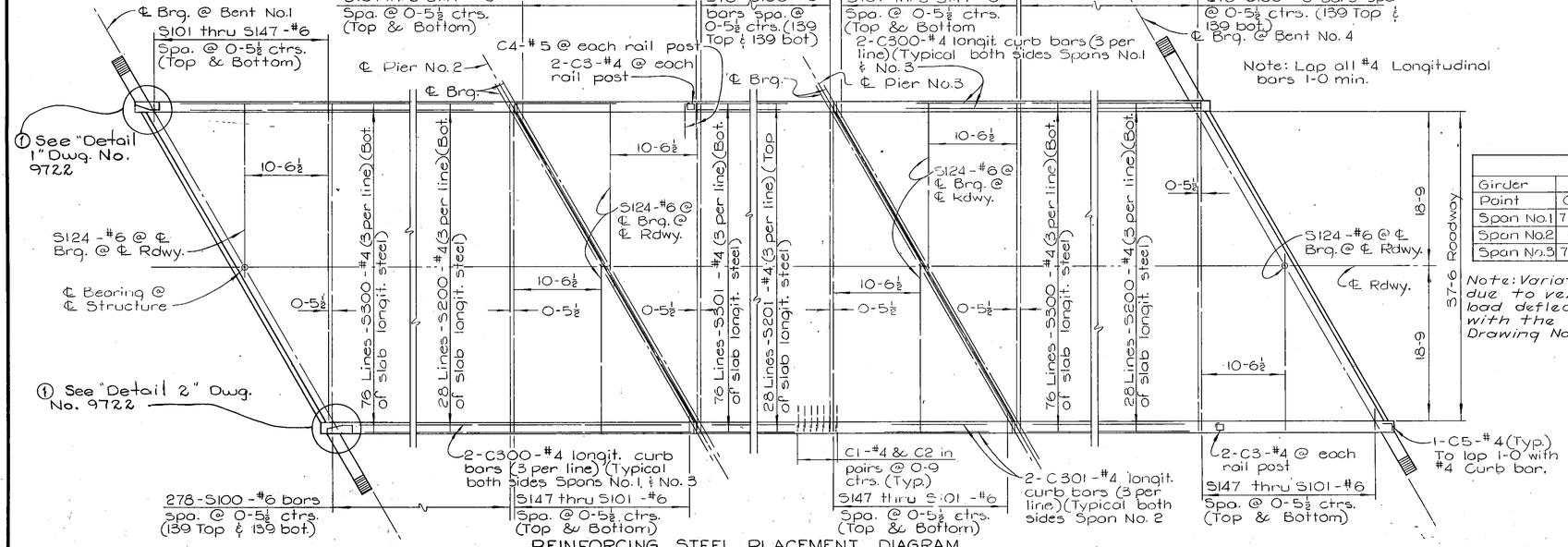
BENT BARS (All dimensions are out to out)								
MARK	SIZE	NO.	TYPE	LENGTH	A	B	C	D
C1	#4	706	1	3'-4"	0'-9"	1'-0	0'-5"	
C2	4	686	3	2-6	1-0	0-6	1-0	0'-1"
C3	4	128	2	3-9	0-10	0-8	0-4½	
C4	5	148	3	4-9	1-0	0-6	3-3	0-1
C5	4	4	4	2-0	1-0	1-0		
P2	4	36	2	6-2	2-1	0-7½	0-4½	
D4	4	128	6	4-10	1-9	0-9	0-3⅝	
D7	#4	168	5	9-3	4-1	0-6	0-5½	

STRAIGHT BARS			
MARK	SIZE	NO.	LENGTH
S100	#6	834	39'-7"
101		12	2-11
102			3-8
103			4-6
104			5-3
105			6-1
106			6-10
107			7-8
108			8-6
109			9-3
110			10-1
111			10-10
112			11-8
113			12-5
114			13-3
115			14-0
116			14-10
117			15-7
118			16-5
119			17-2
120			18-0
121			18-9
122			19-7
123			20-4
124			21-2
125			21-11
126			22-9
127			23-7
128			24-4
129			25-2
130			25-11
131			26-9
S132	#6	12	27-6

STRAIGHT BARS			
MARK	SIZE	NO.	LENGTH
S133	6	12	28'-4"
134			29-1
135			29-11
136			30-8
137			31-6
138			32-3
139			33-1
140			33-10
141			34-8
142			35-5
143			36-3
144			37-0
145			37-10
146			38-7
S147	6	12	39-5
S200	4	168	29-6
S201	4	84	29-6
S300	4	456	29-6
S301	4	228	29-6
C300	4	48	29-11
C301	4	24	29-6
D1	6	8	9-3
D2	6	8	12-10
D3	6	32	7-7
D5	4	48	6-4
D6	6	48	6-4
D8	6	60	5-4
D9	4	8	23-5
P1	5	40	2-9

PRESTRESSED CONCRETE BEAMS: Prestressed concrete beams shall be fabricated in accordance with Dwg. No. B-4 and as modified hereon. 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		85-0
Beam D.L. stresses (p.s.i.)	Fb	845
	Ft	-1000
Total D.L. + L.L. design stresses (p.s.i.)	Fb	2755
	Ft	-2678
Required ultimate moment capacity (ft. kip)	M	5390



REINFORCING STEEL PLACEMENT DIAGRAM
Scale : ⅛" = 1'-0"

TABLE OF "D" DEPTHS																							
Girder	Interior											Exterior											
Point	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0
Span No.1	7⅝"	7⅝"	7¼"	7⅛"	7⅛"	7"	7⅛"	7⅛"	7¼"	7⅜"	7⅝"	9⅛"	8⅞"	8⅝"	8⅜"	8⅛"	8"	8⅛"	8⅜"	8⅝"	8⅞"	9⅛"
Span No.2	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Span No.3	7⅝"	7⅝"	7¼"	7⅛"	7⅛"	7"	7⅛"	7⅛"	7¼"	7⅜"	7⅝"	9⅛"	8⅞"	8⅝"	8⅜"	8⅛"	8"	8⅛"	8⅜"	8⅝"	8⅞"	9⅛"

Note: Variations in "D" depths shown in the table are due to vertical curve only, Camber for dead load deflection shall be made in accordance with the camber diagram shown on Drawing No. SL-1.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER CLARK FORK
YELLOWSTONE RIVER
AT STA. 288+49.00
FEDERAL AID PROJECT NO. S 136(5)
CARBON COUNTY
ERECTION PLAN

Scale as noted

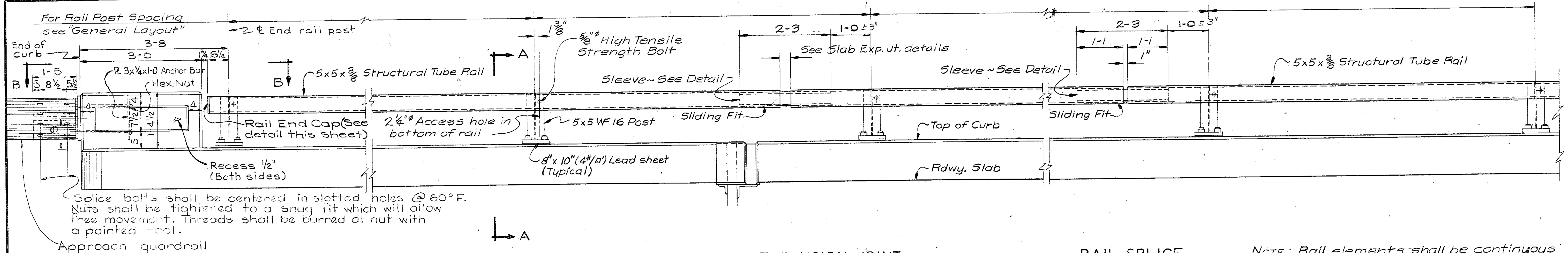
DESIGNED		
DRAWN	D.C.B.	5-26-69
TRACED		
CHECKED	J.C.H.	8-28-69
① REVISED	N.H.R.	2-19-70
REVISED		

DRAWING NO. 9727

R.D.K.

K&E KEUFFEL & ESSER CO.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.			



END POST AND TERMINAL SECTION

TYPICAL RAIL POST

SLEEVE EXPANSION JOINT

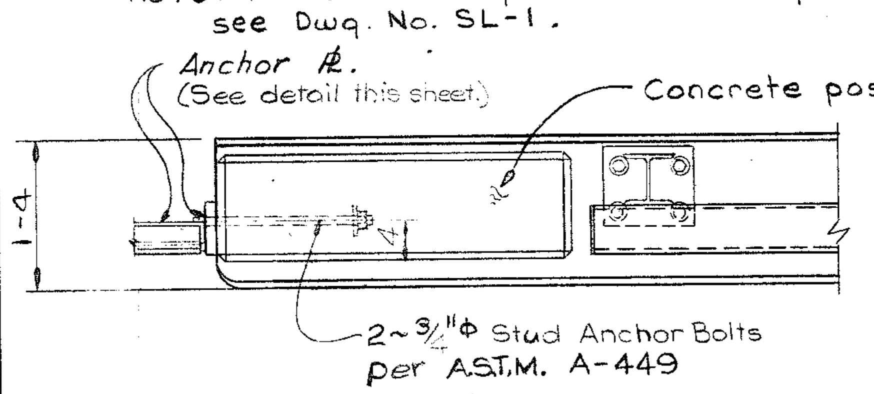
Scale ~ ¾"=1'-0"

RAIL SPLICE

NOTE: Rail elements shall be continuous over at least four posts except as otherwise approved by the Engineer.

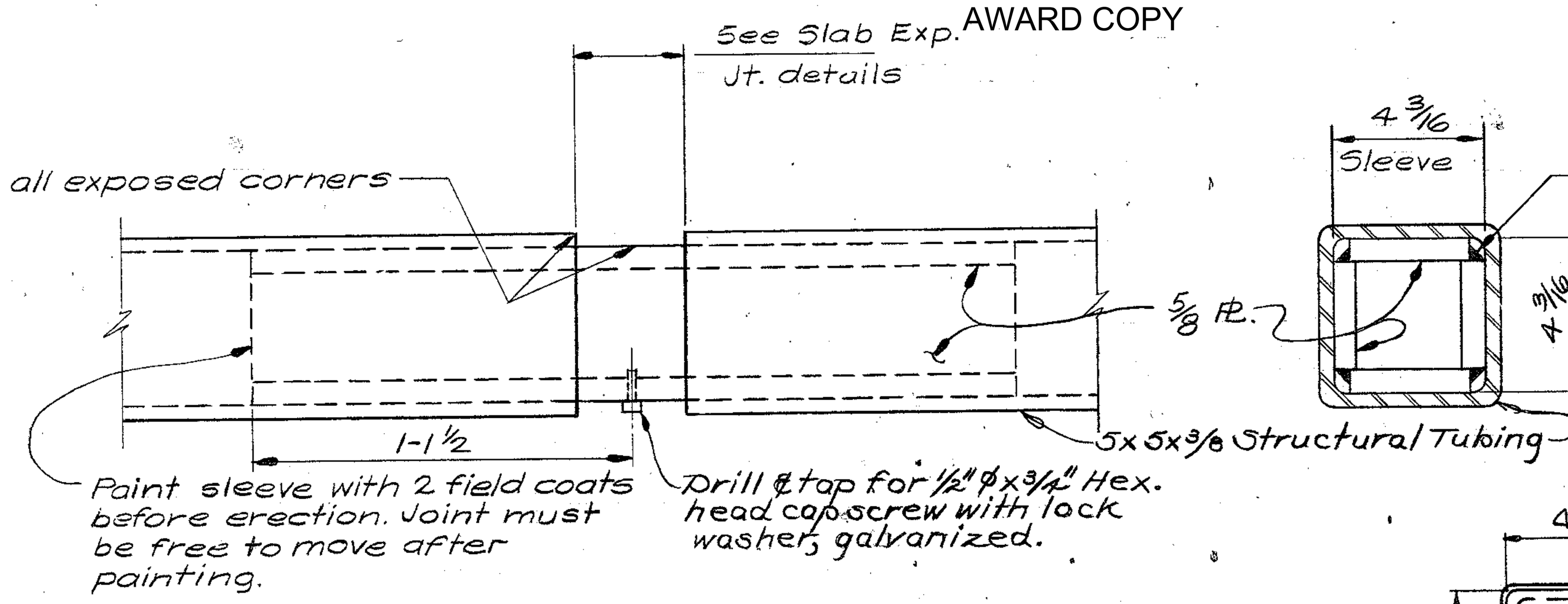
AWARD COPY

Note: For concrete post reinforcing see Dwg. No. SL-1.



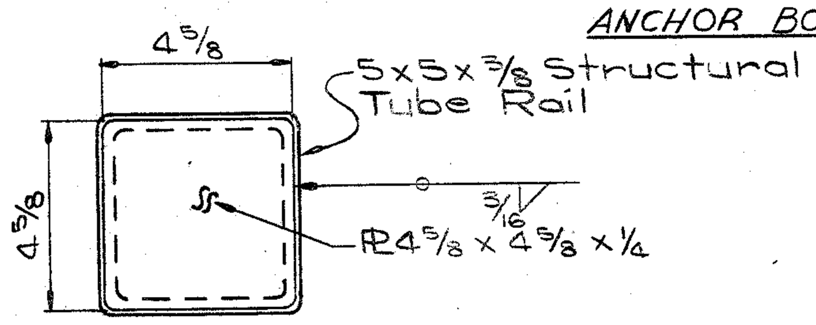
VIEW B-B

Scale ~ ¾"=1'-0"



SLEEVE DETAIL

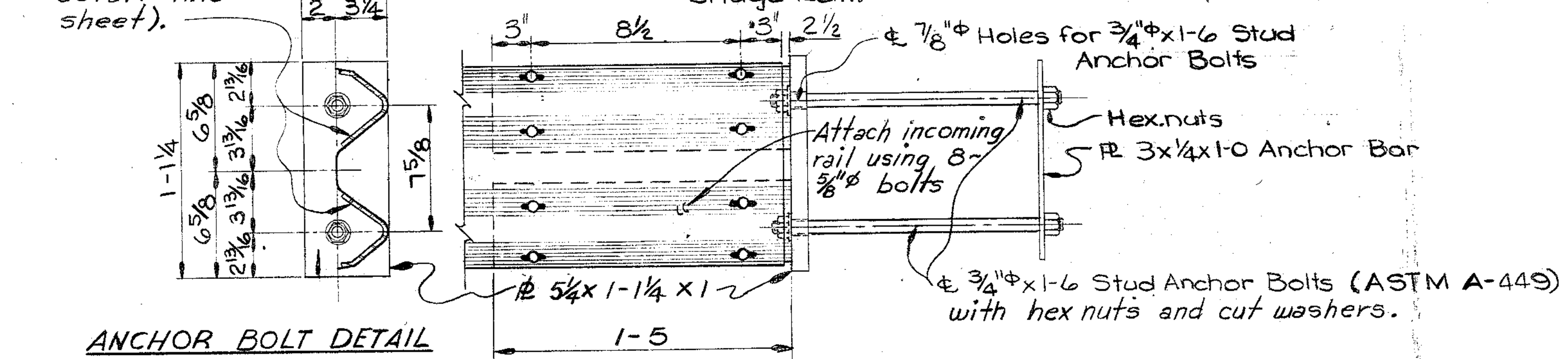
Scale ~ 3"=1'-0"



RAIL END CAP DETAIL

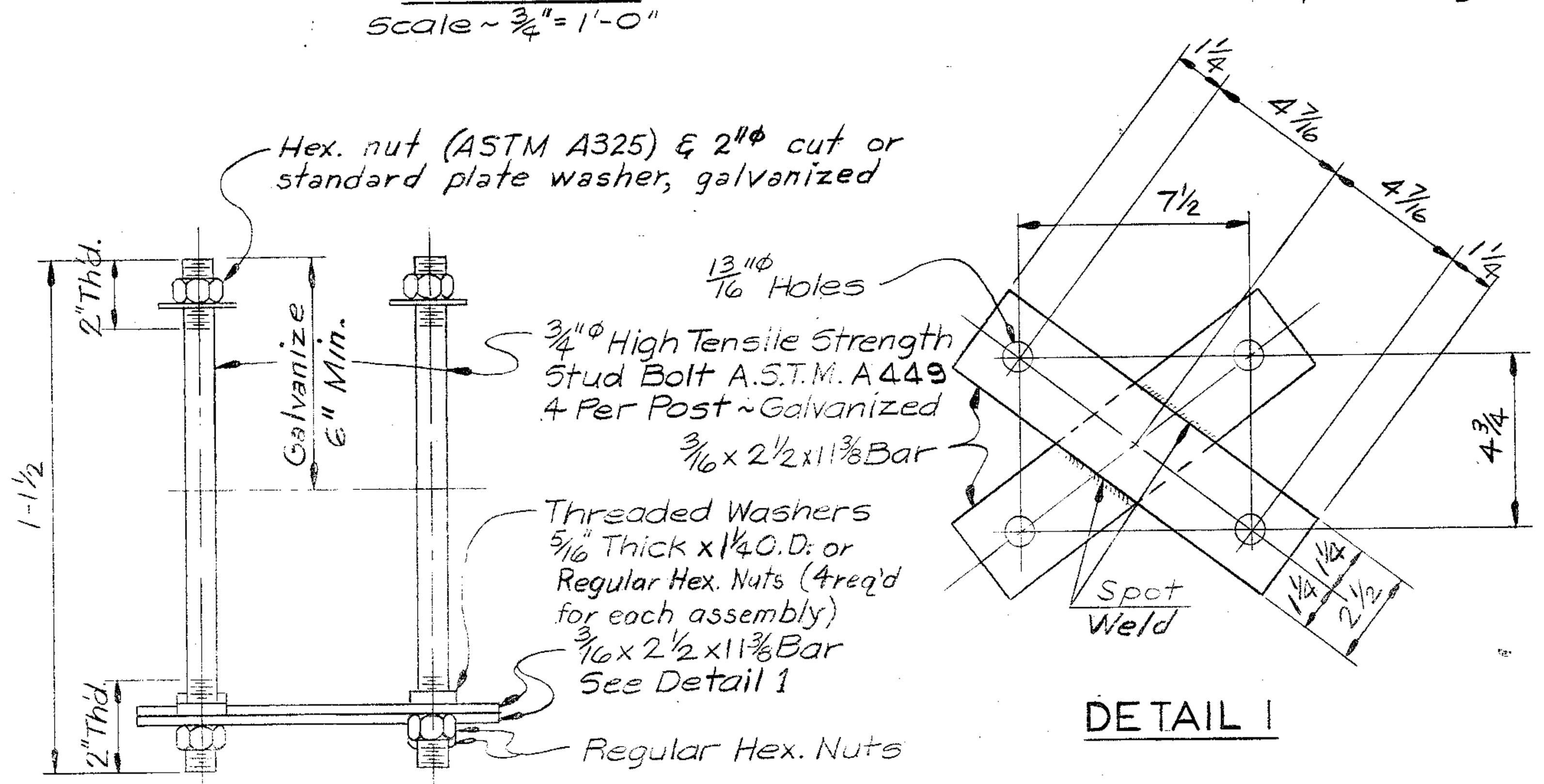
Scale ~ 3"=1'-0"

Note ~ The cost of furnishing Anchor ℄. and all materials pertaining thereto shall be included in the unit price bid for Steel Bridge Rail.



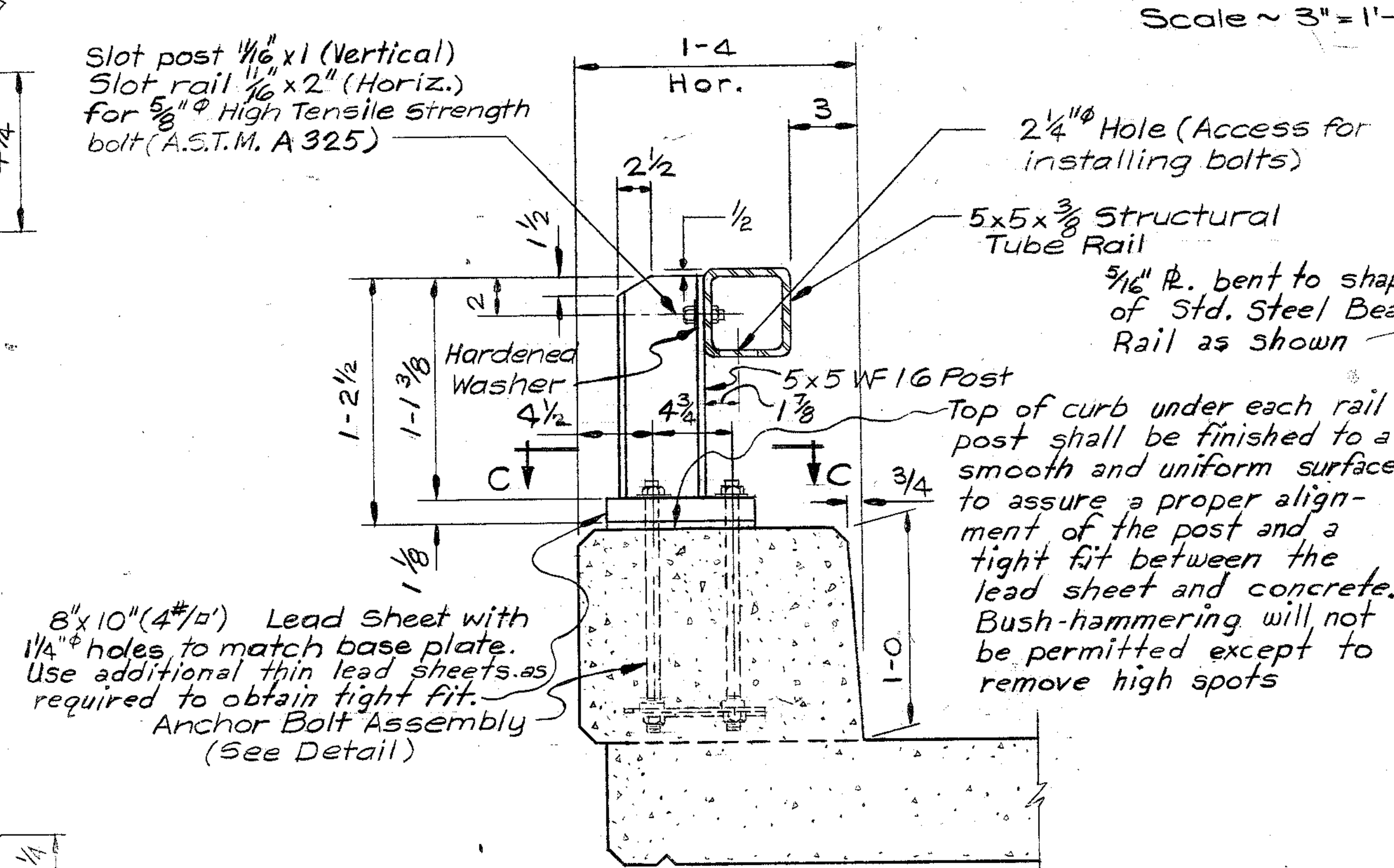
ANCHOR PLATE DETAIL

Scale ~ 1½"=1'-0"



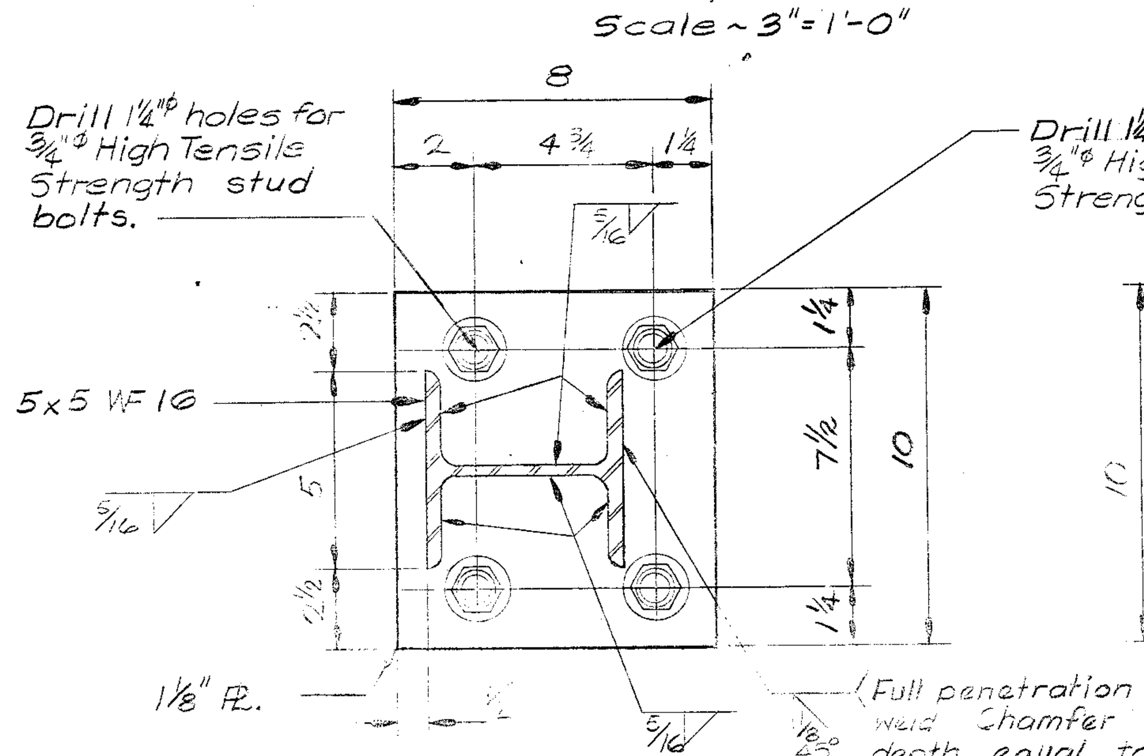
ANCHOR BOLT ASSEMBLY (RAIL POST)

Scale ~ 3"=1'-0"



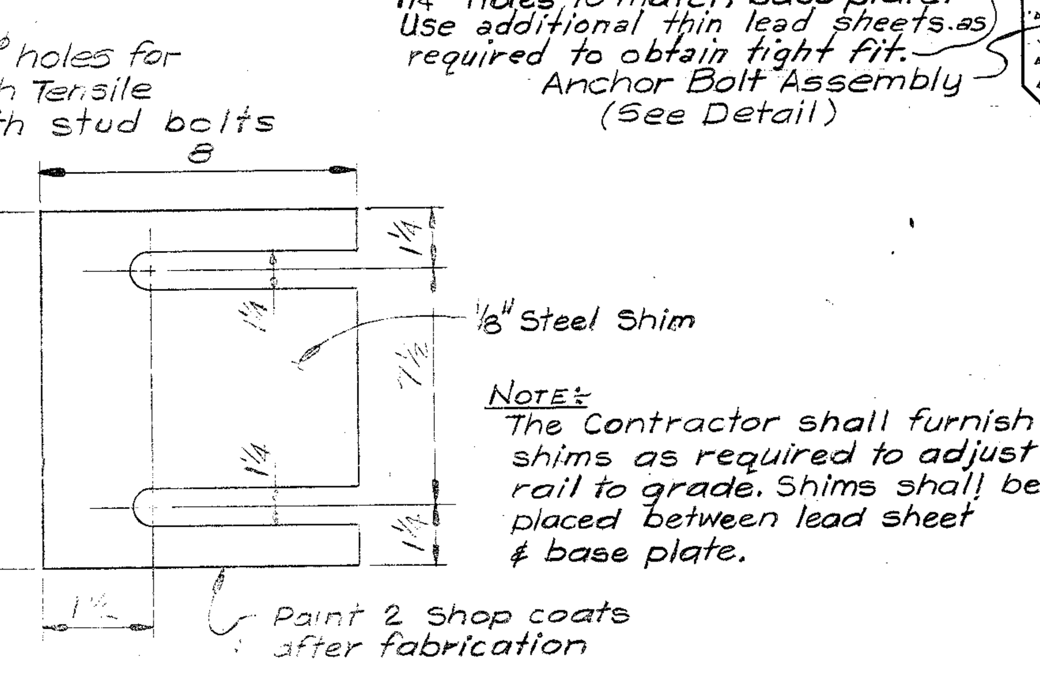
SECTION A-A

Scale ~ 1½"=1'-0"



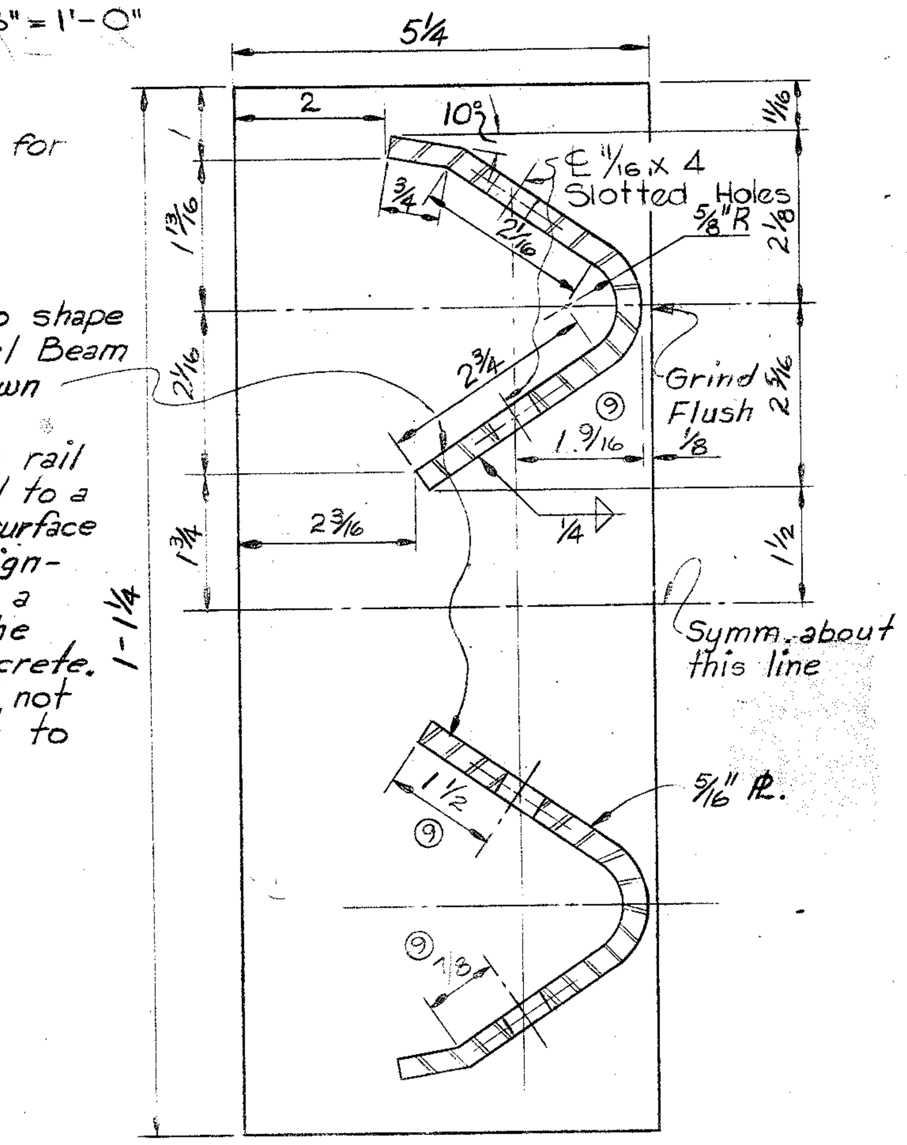
SECTION C-C

Scale ~ 3"=1'-0"



SHIM DETAIL (RAIL POST)

Scale ~ 3"=1'-0"



ANCHOR PLATE DETAILS

Scale: 6"=1'-0"

NOTES

STRUCTURAL STEEL: Posts, sleeves & plates shall be structural steel conforming to ASTM A-36. The rails shall conform to ASTM A500, Cold-Formed welded and seamless Carbon Steel Structural Tubing in Rounds and Shapes, Grade B, or ASTM A501, Hot-Formed welded and seamless Carbon Steel Structural Tubing.

PAYMENT: Steel Bridge Rail ~ Type 5 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 of Steel Bridge rail for payment shall be computed as the distance between centerlines of end rail post.

PAINTING: All rail elements, posts, & anchor plates shall be given three coats of paint as called for in the Standard Specifications except that surfaces to be in contact after erection shall receive one shop coat.

ERECTION: Rail posts shall be set perpendicular to top of curb, rails shall be set parallel to grade of roadway. To obtain proper alignment, anchor bolt assemblies must be held in exact position while pouring curb. To obtain proper grade, use vertical slots in rail post for adjustment.

GALVANIZING: Galvanizing for Bolts, Nuts & Washers shall be in accordance with A.S.T.M. Specication A-153.

REVISIONS	
Rev. No.	Description
⑨	ANCHOR PLATE DETAILS: ℄ 11/16 x 4 SLOTTED HOLES ~ 7/8, 1½, 1 9/16 WAS 1⅛, 1⅜, 1 21/32

⑨	REVISED	W.R.B.	7-28-69	REVISED	C.W.R.	5-5-67	DESIGNED		
	REVISED			REVISED	K.G. Rapp	10-26-67	DRAWN	R.D.K.	7-9-64
	REVISED			REVISED	K.G. Rapp	11-14-67	TRACED	F.L.S.	7-24-64
	REVISED			REVISED	N H R	6-25-68	CHECKED	R.D.K.	8-25-64
	REVISED			REVISED	N.H.R.	10-28-68	REVISED	K.G.R.	9-15-65
	REVISED			REVISED	R.N.D.	1-22-69	REVISED	K.G. RAPP	10-20-66

STATE OF MONTANA
STATE HIGHWAY COMMISSION

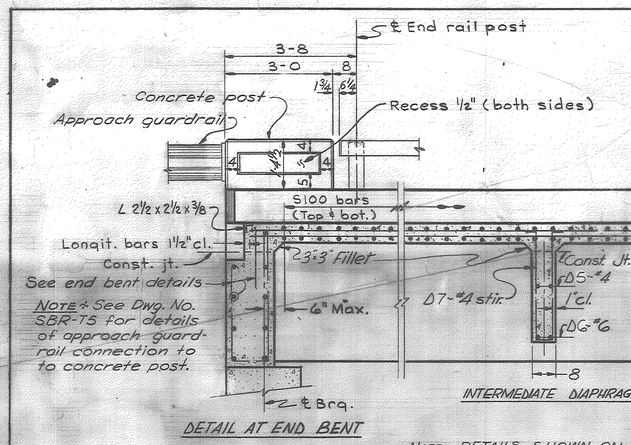
STANDARD STEEL BRIDGE RAIL
TYPE NO. 5

Scale ~ As Noted

APPROVED BY Albert W. [signature] BRIDGE ENGINEER

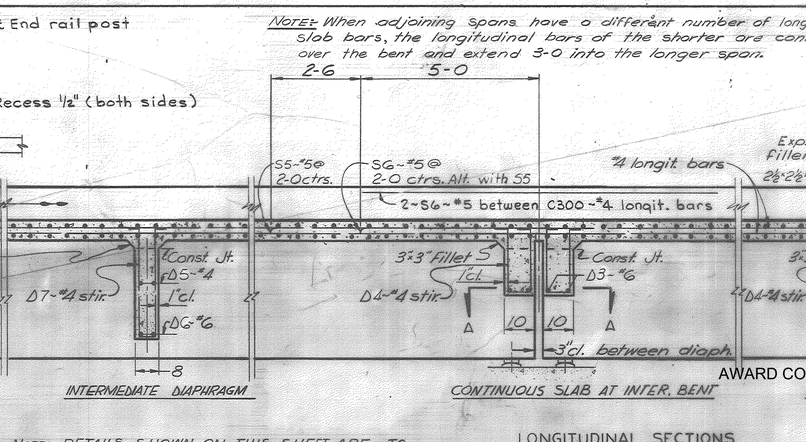
DRAWING NO. SBR-T5

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.				



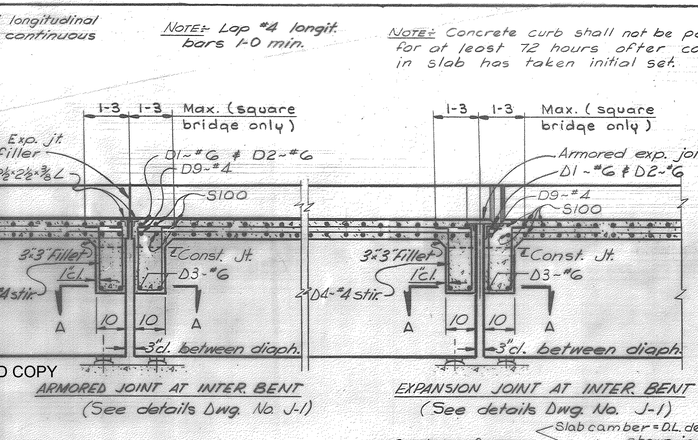
DETAIL AT END BENT

NOTE: When adjoining spans have a different number of longitudinal slab bars, the longitudinal bars of the shorter are continuous over the bent and extend 3-0 into the longer span.



INTERMEDIATE DIAPHRAGM

CONTINUOUS SLAB AT INTER. BENT



ARMORED JOINT AT INTER. BENT
(See details Dwg. No. J-1)

EXPANSION JOINT AT INTER. BENT
(See details Dwg. No. J-1)

NOTE: Lap #4 longit bars 1-0 min.

NOTE: Concrete curb shall not be poured for at least 72 hours after concrete in slab has taken initial set.

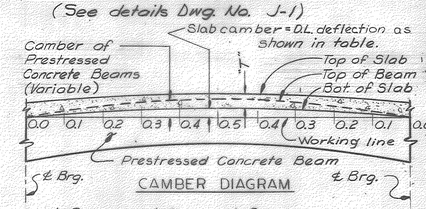
D.L. DEFLECTION FOR PRESTRESSED CONCRETE BEAMS (TYPE A)

SPAN	TENTH POINT					
	0.0	0.1	0.2	0.3	0.4	0.5
30	0	0	0	0	0	0
35	0	1/16	1/16	1/8	1/8	1/8
40	0	1/8	3/16	3/16	1/4	1/4
45	0	1/8	1/4	5/16	3/8	3/8
50	0	3/16	5/16	7/16	1/2	1/2
55	0	1/4	3/8	1/2	9/16	5/8
60	0	1/8	1/2	5/8	11/16	3/4
65	0	5/16	5/16	7/16	13/16	7/8
70	0	3/8	3/8	1/2	15/16	1"
75	0	7/16	7/16	9/16	1 1/16	1 1/8
TYPE IV BEAMS						
40	0	0	0	1/16	1/16	1/16
45	0	0	1/16	1/16	1/16	1/16
50	0	1/16	1/16	1/8	1/8	1/8
55	0	1/16	1/8	1/8	3/16	3/16
60	0	1/16	1/8	3/16	1/4	1/4
65	0	1/8	3/16	3/16	5/16	3/8
70	0	1/8	1/4	3/8	7/16	1/2
75	0	3/16	3/8	1/2	9/16	5/8
80	0	1/4	7/16	5/8	3/4	3/4
85	0	5/16	9/16	3/4	7/8	7/8
90	0	3/8	5/8	7/8	1 1/16	1 1/8
95	0	3/8	11/16	13/16	1 1/8	1 3/16
100	0	3/8	11/16	13/16	1 1/8	1 3/16

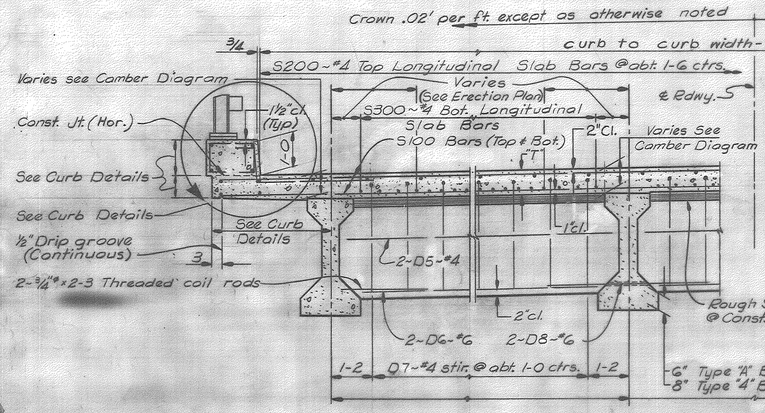
NOTE: DETAILS SHOWN ON THIS SHEET ARE TO BE USED ONLY AS THEY APPLY TO THE SUBJECT PROJECT.
Beam spacing, slab thickness, size and spacing of S100 bars, number and placement of S200 and S300-#4 bars, deck joint arrangement, bridge rail, bill of reinforcing steel and curb width are shown on the General Layout or Erection Plan.

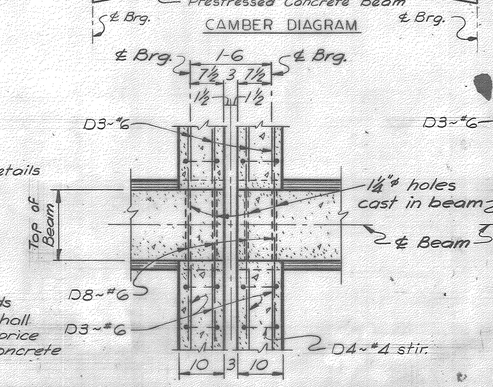
LONGITUDINAL SECTIONS
Near ℄ Rdwy.

NOTE: If bridge is skewed the transverse slab reinforcing steel shall be placed as shown on the "Erection Plan."

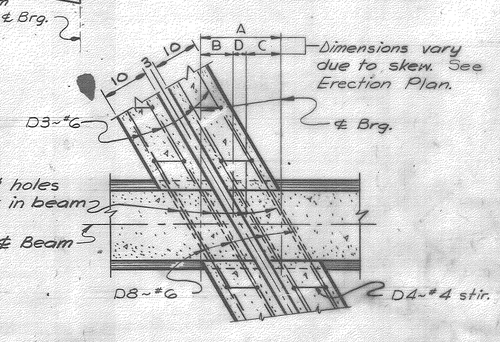


CAMBER DIAGRAM

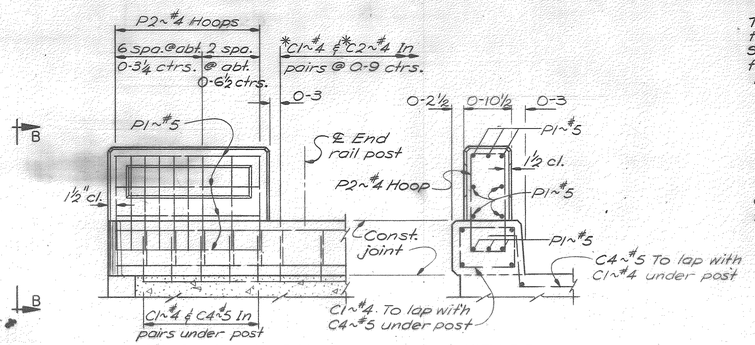


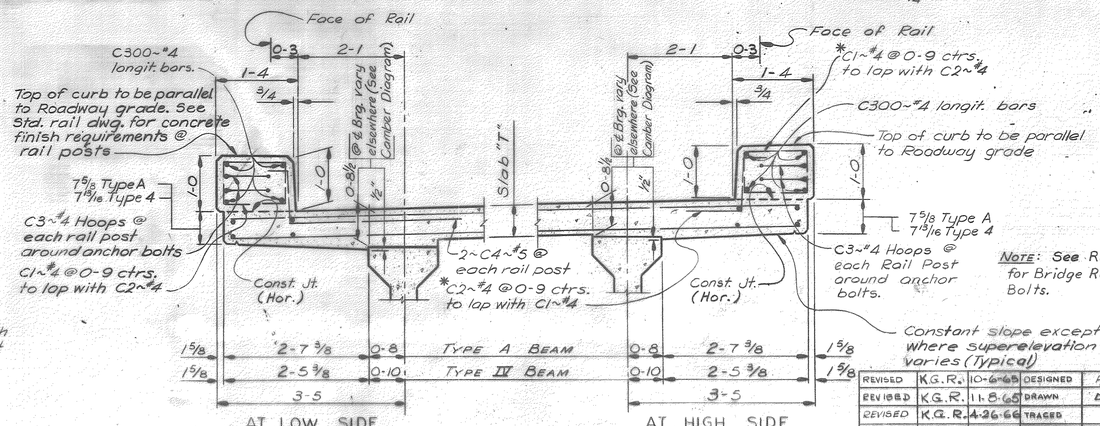


SECTION A-A SQUARE BRIDGE
Scale: ¾" = 1'-0"



SECTION A-A SKEWED BRIDGE
Scale: ¾" = 1'-0"





NOTE: See Rail Details for Bridge Rail Anchor Bolts.

0-3 CURB DETAILS
Scale = ¾" = 1'-0"

SECTION A-A SQUARE BRIDGE
Scale: ¾" = 1'-0"

STATE OF MONTANA
STATE HIGHWAY COMMISSION

STANDARD SLAB, CURB & DIAPHRAGM DETAILS

Scale: ½" = 1'-0" except as otherwise noted

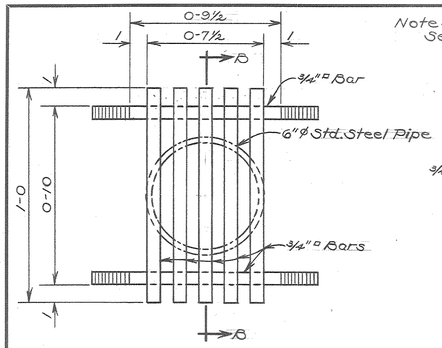
APPROVED BY _____ BRIDGE ENGINEER

REVISED	K.G.R.	10-6-65	DESIGNED	R. D. K	7-15-63
REVISED	K.G.R.	11-8-65	DRAWN	A. M. B.	8-15-63
REVISED	K.G.R.	4-26-66	TRACED		
REVISED	W.H.L.	10-20-66	CHECKED	E.D.F.	8-28-63
REVISED	K.G.R.	5-11-67	REVISED	E.D.K	8-18-64
REVISED	K.G.R.	11-14-67	REVISED	E.D.K	6-11-65
REVISED	R.N.D.	3-4-69			

DRAWING NO. SL-1

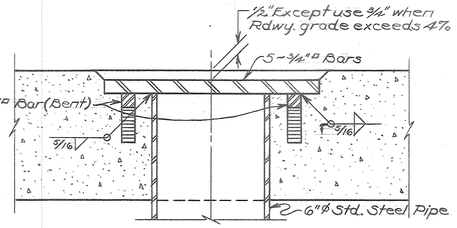
J.R.D.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.			



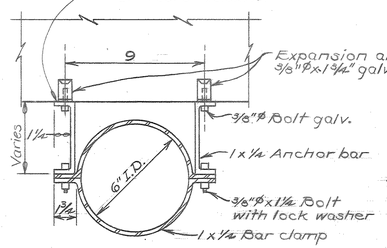
VIEW A - A
Scale ÷ 3" = 1'-0"

Note ÷ For location of floor drains See "General Layout"

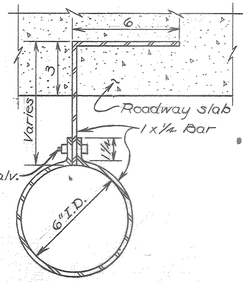


SECTION B - B
Scale ÷ 3" = 1'-0"

Note ÷ Vary bend detail as necessary to match curvature of round columns.



CLAMP DETAIL A
Scale ÷ 3" = 1'-0"

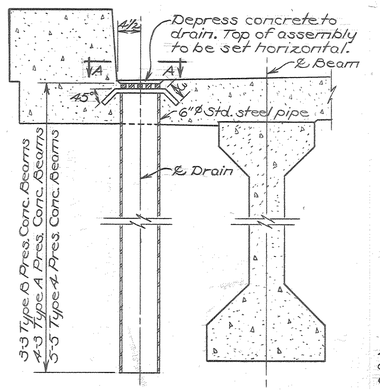


HANGER DETAIL
Scale ÷ 3" = 1'-0"

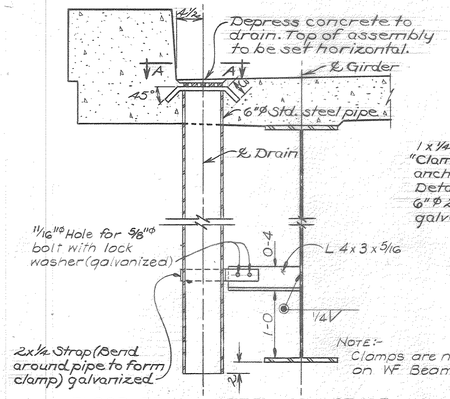
AWARD COPY

NOTES

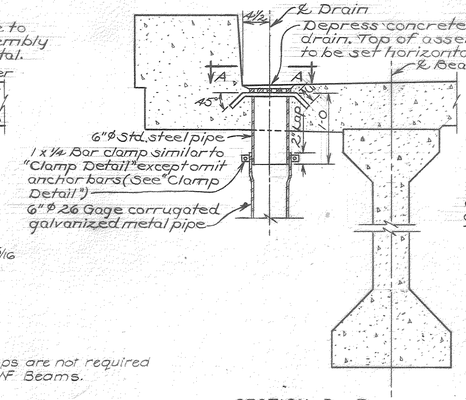
GALVANIZING : Galvanizing for bolts, nuts & washers shall be in accordance with A.S.T.M. Spec. A-153. Galvanizing for 26 gage pipe shall be in accordance with A.S.T.M. Spec. A-93. Galvanizing for 6"ø pipe and parts of steel grating shall be in accordance with A.S.T.M. Spec. A-123. Any surface on which galvanized coating has been removed or damaged shall be painted with a zinc rich paint approved by the Engineer.
PAYMENT : The lumpsum bid for "Drainage System shall be full payment for drainage system complete in place, including 6"ø standard steel pipe floor drains, 6"ø corrugated galvanized metal pipe, bars, welding, galvanizing, clamps, concrete splash pad and all incidentals pertaining thereto. The unit price bid for "Floor Drains" shall be full payment for drains complete in place, including all pipe, bars, galvanizing and welding and all incidentals pertaining thereto.
PIPE & FITTING : Floor drain pipe shall be 6"ø Standard steel pipe. All other drain pipe including fittings shall be 6"ø 26 gage corrugated galvanized metal drain pipe. Corrugations shall be parallel to longitudinal axis of pipe. (Helical corrugations or corrugations @ right angles to longitudinal axis will not be permitted.)



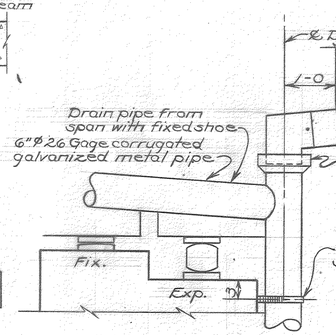
FLOOR DRAIN - CONCRETE STRUCTURE
Scale ÷ 1" = 1'-0"



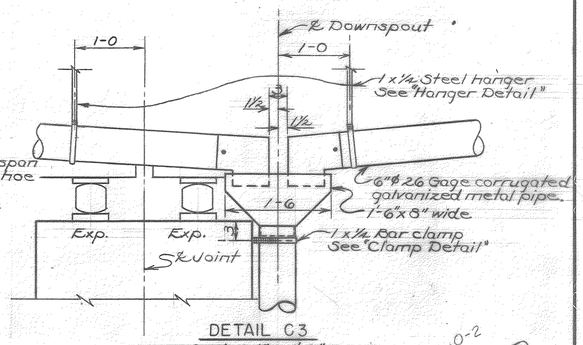
FLOOR DRAIN - STEEL STRUCTURE
Scale ÷ 1" = 1'-0"



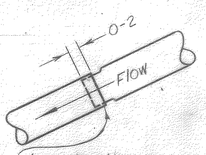
SECTION D - D
Scale ÷ 1" = 1'-0"



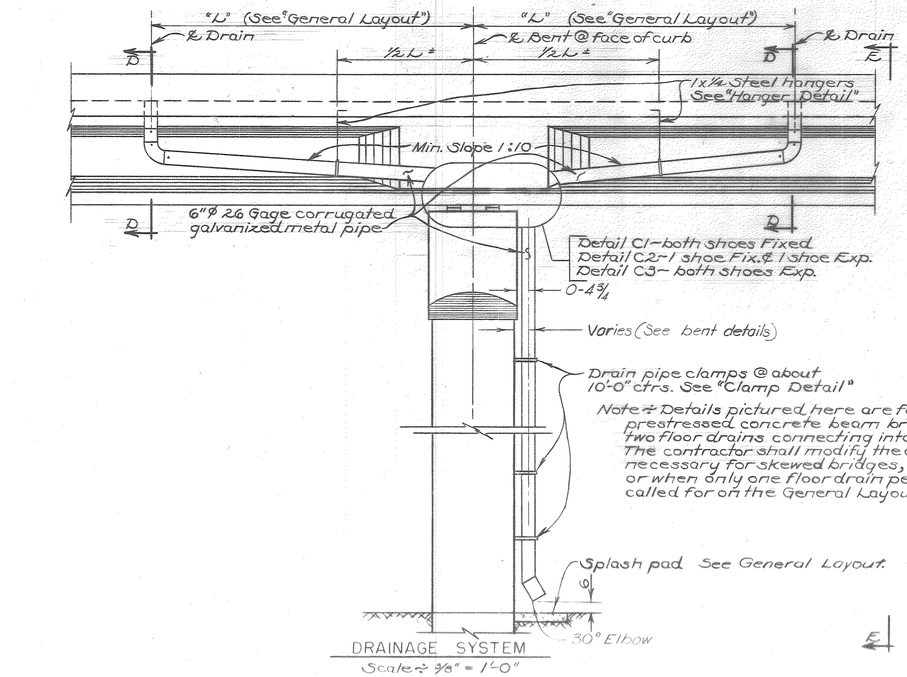
DETAIL C2
Scale ÷ 1" = 1'-0"



DETAIL C3
Scale ÷ 1" = 1'-0"

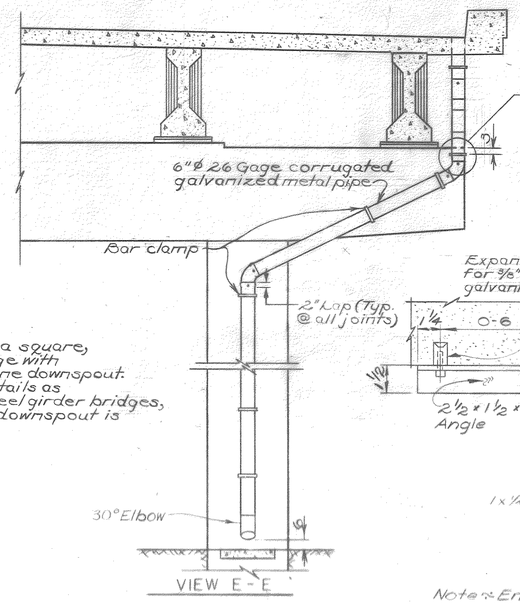


TYPICAL JOINT DETAIL
Scale ÷ 1" = 1'-0"

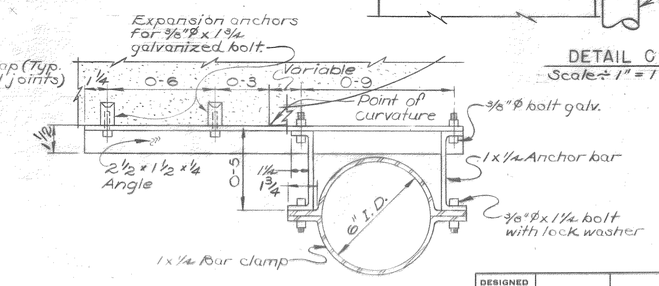


DRAINAGE SYSTEM
Scale ÷ ⅜" = 1'-0"

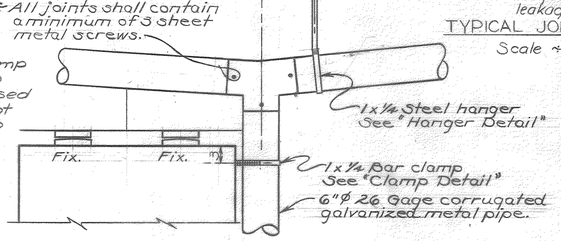
Note ÷ Details pictured here are for a square, prestressed concrete beam bridge with two floor drains connecting into one downspout. The contractor shall modify the details as necessary for skewed bridges, steel girder bridges, or when only one floor drain per downspout is called for on the General Layout.



VIEW E - E



CLAMP DETAIL B
Scale ÷ 3" = 1'-0"
Note ÷ Entire assembly to be galvinized after fabrication.



DETAIL C1
Scale ÷ 1" = 1'-0"

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STATE HIGHWAY COMMISSION

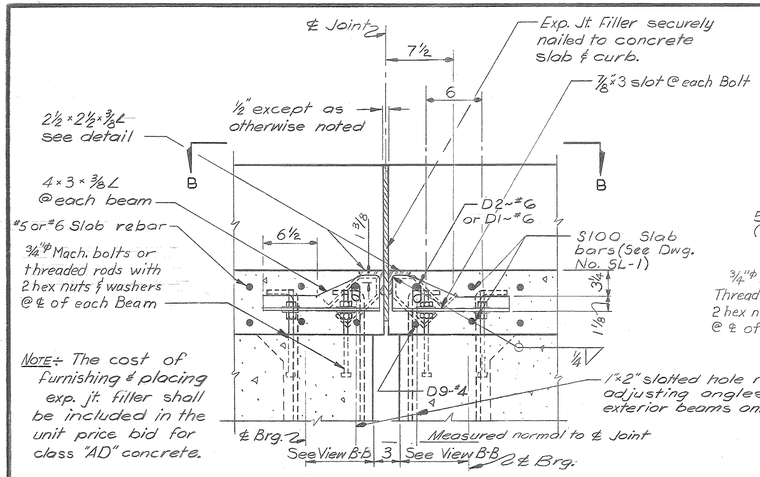
STANDARD BRIDGE DRAIN DETAILS

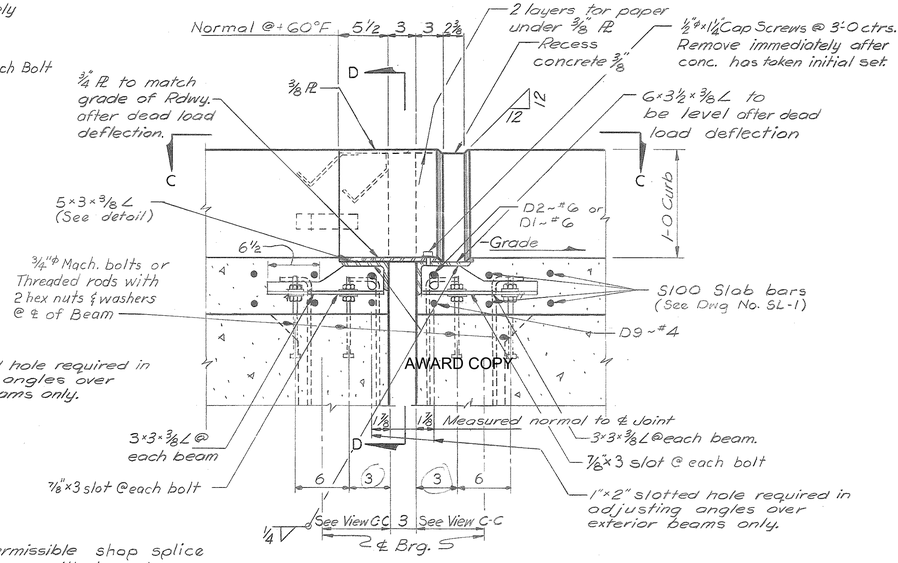
DESIGNED						
DRAWN	G.C.S.	12-4-64				
TRACED						
CHECKED	K.G.R.	12-8-64	REVISED	R.N.D.	10-28-66	
REVISED	K.G.R.	11-7-65	REVISED	J.D.S.	4-18-67	
REVISED			REVISED	W.H.L.	7-26-67	

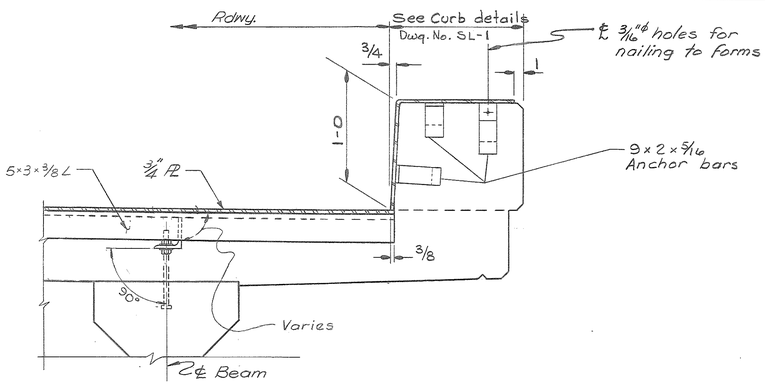
APPROVED BY _____ BRIDGE ENGINEER

DRAWING NO. D-1

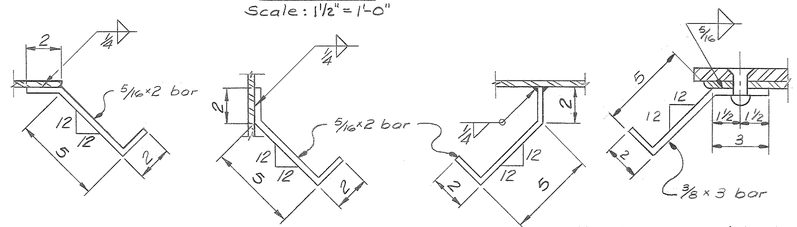
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.				





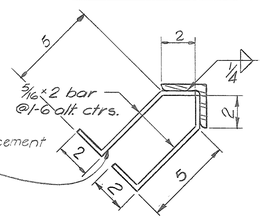


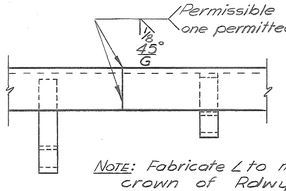
SECTION D-D
Scale: 1½" = 1'-0"



Note: Fabricate joint to match crown of roadway. Joint shall be shop assembled to assure sliding fit & full bearing for entire length of joint. Ship assembled or match mark & ship dis-assembled.

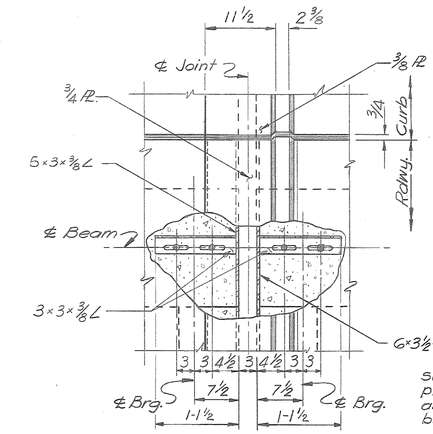
ARMORED SLAB JOINT





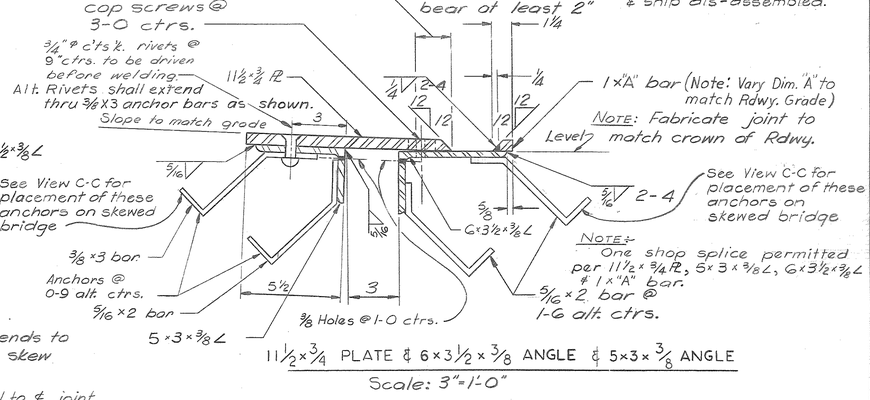
NOTE: Fabricate ∠ to match crown of Rdwy.

2½ × 2½ × 3/8 ANGLE
Scale: 3" = 1'-0"



VIEW C-C — SQUARE BRIDGE
Scale: 1" = 1'-0"

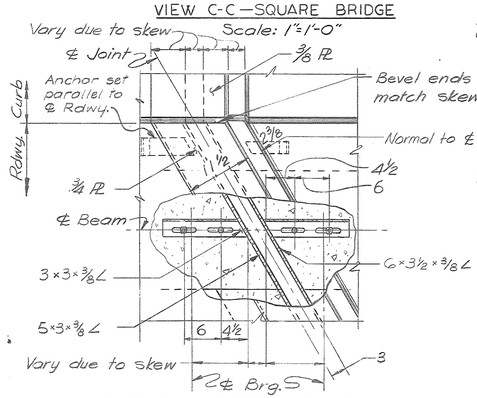
TYPICAL ANCHOR DETAILS
Scale: 3" = 1'-0"



11½ × ¾ PL ℄ 6 × 3½ × ⅜ ANGLE ℄ 5 × 3 × ⅜ ANGLE
Scale: 3" = 1'-0"

VIEW B-B — SQUARE BRIDGE

VIEW B-B — SKEWED BRIDGE



VIEW C-C — SKEWED BRIDGE
Scale: 1" = 1'-0"

NOTES

STRUCTURAL STEEL: Machine bolts, nuts & washers shall conform to A.S.T.M. Specification A307. All other structural steel shall conform to A.S.T.M. Specification A-36.

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STATE HIGHWAY COMMISSION

STANDARD SLAB & CURB JOINTS

REVISED	W.H.L.	10-20-66	DESIGNED		
REVISED	K.S. Rapp	7-26-67	DRAWN	D.M.B.	8-23-63
REVISED	N.H.R.	7-1-69	TRACED		
			CHECKED	E.O.K.	8-28-63
			REVISED	R.D.K.	7-20-64
			REVISED	K.G.R.	9-15-65

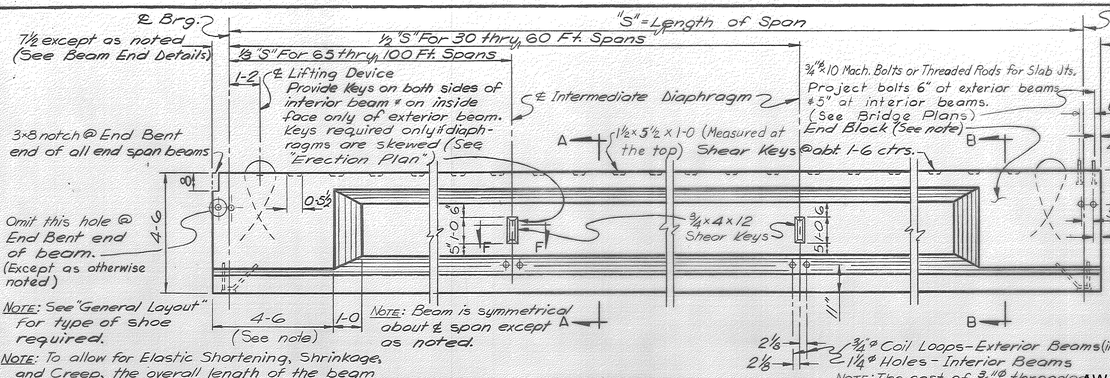
Scale: 1½" = 1'-0" except as otherwise noted

APPROVED BY — BRIDGE ENGINEER

DRAWING NO. J-1

J.R.B.

FED. ROAD DIV. NO.	STATE	FED AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.				

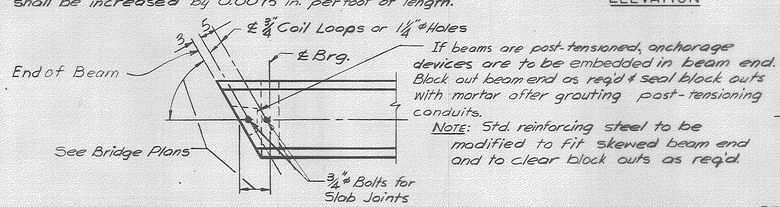


ELEVATION

SECTION A-A

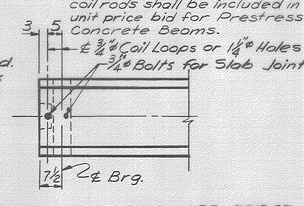
SECTION B-B

AWARD COPY



BEAM END FOR SKEWED BRIDGE
(PLAN VIEW)

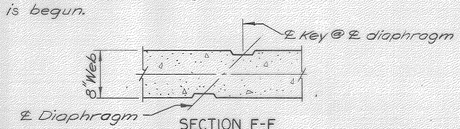
NOTE: Std. reinforcing steel to be modified to fit skewed beam end and to clear block outs as req'd.



BEAM END FOR SQUARE BRIDGE
(PLAN VIEW)

NOTE: The cost of ¾" ϕ threaded coil rods shall be included in the unit price bid for Prestressed Concrete Beams.

NOTE: Coil loops, hold down devices, lifting devices & any other hardware which is to be incorporated in the beam shall be approved by the Engineer before fabrication is begun.



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

NOTES

CONCRETE: All concrete shall have a min. compressive strength of 5000 p.s.i. at the age of 28 days & a min. compressive strength at the transfer of prestress of 4000 p.s.i. except as otherwise noted on the fabrication drawings.

END BLOCK: Beams with post-tensioned tendons shall have end blocks as detailed hereon. Where all tendons are pre-tensioned 7 wire strand, the use of end blocks will not be required.

PRESTRESSING REINFORCEMENT: All beams shall be prestressed so they can safely withstand the effect of dead loads and live loads as shown on the "General Layout" or "Erection Plan"

Prestressing reinforcement shall be high-tensile-strength wire or high-tensile-strength seven wire strand. Either of the above mentioned types of prestressing reinforcement may be used; however, design, calculations substantiating the type of prestressing system selected shall be submitted to and approved by the engineer before fabrication is begun.

Design calculations shall show stress in the beam under each loading condition that is anticipated in the manufacture, handling and service life of the beam. All design shall be in accordance with A.A.S.H.O. Standard Specifications for Highway Bridges, 1965 Edition, and any amendments thereto.

Pretensioned prestressing steel shall be 7/16" ϕ or ½" ϕ seven wire bright prestressing strand conforming to the requirements of A.S.T.M. Specification A 416 with the exceptions shown in Table I below.

TABLE I

NOMINAL DIA. OF STRAND INCHES	BREAKING STRENGTH OF STRAND MIN. LBS.	NOMINAL STEEL AREA OF STRAND SQ. INCHES	NOMINAL WT. OF STRAND LB. PER 1000'	YIELD STRENGTH REQUIREMENTS	
				INITIAL LOAD LB.	MIN. LOAD @ 1% EXTENSION LB.
7/16	31,000	.117	400	31,000	26,350
½	41,300	.153	525	41,130	35,100

END BLOCK ELEVATION
(See Note)

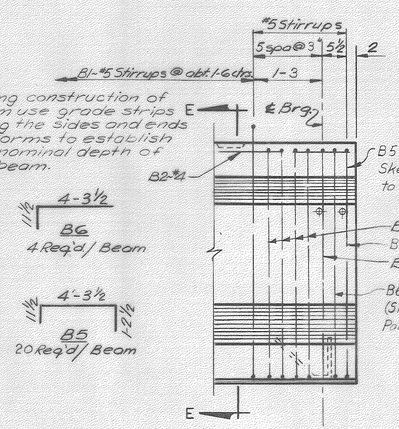
END BLOCK-SECTION

CENTER-SECTION E-E

NOTE: If a post-tensioning system is used a grid consisting of #3 reinforcing bars spaced @ 2" ctrs. both ways shall be placed near the anchorage of the post-tensioning system.

92 Req'd per beam 70' span
100 " " " 75 "
106 " " " 80 "
112 " " " 85 "
120 " " " 90 "
126 " " " 95 "
132 " " " 100 "

REINFORCING STEEL DETAILS
Scale: ¾"=1'-0"

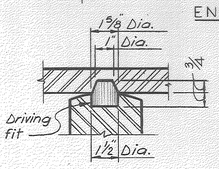


ELEVATION — BEAM WITHOUT END BLOCK
(See Note)

TYPICAL TENDON LAYOUT FOR POST-TENSIONING SYSTEM
(No Scale)

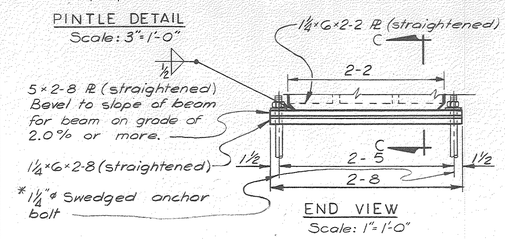
After de-tensioning, the pretensioned strands shall be cut back ½" min. and the depression filled with an approved epoxy. Beam ends shall be given an ordinary finish as specified in Art. 41.04 (K)(1) of the Standard Specifications.

TYPICAL DEFLECTED STRAND FOR PRE-TENSIONING SYSTEM
(No Scale)

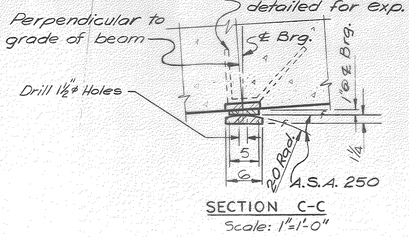


PINTLE DETAIL
Scale: 3"=1'-0"

NOTE: Rocker shoes shall be set vertical under full dead load @ 60° F. If rockers are not in correct position with final dead load on spans, spans shall be jacked and adjustments made.

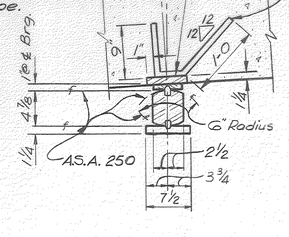


END VIEW
Scale: 1"=1'-0"

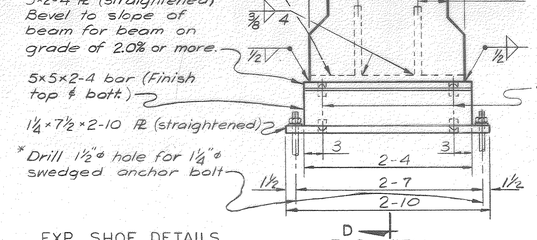


SECTION C-C
Scale: 1"=1'-0"

*Note: See Substructure details for length of anchor bolts.



SECTION D-D



EXP. SHOE DETAILS
Scale: 1"=1'-0"

D
END VIEW

Note: See "General Layout" for type of shoe required

FIXED SHOE DETAILS

REVISED	NHK	7-1-69	REVISED	R.N.D	10-25-68
REVISED			REVISED	W.H.L.	5-15-68

DESIGNED	D.N.	12-1-61
DRAWN	D.M.B.	7-23-63
TRACED		
CHECKED	R.D.K.	8-28-63
REVISED	K.G.R.	9-15-65
REVISED	W.H.L.	3-23-67

STATE OF MONTANA
STATE HIGHWAY COMMISSION

STANDARD PRESTRESSED CONCRETE BEAMS

TYPE IV

APPROVED BY _____ BRIDGE ENGINEER

DRAWING NO. B-4

J.R.B.