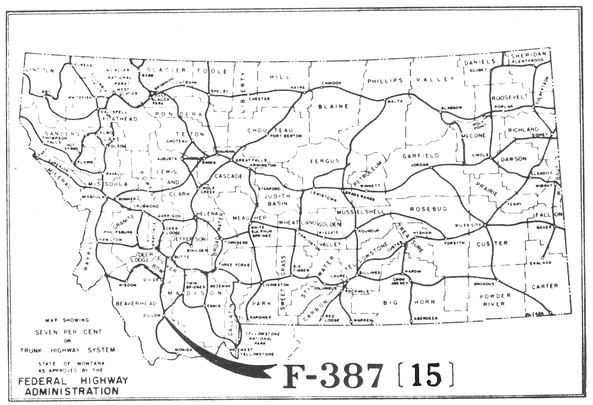
CONTRACT PLANS BUREAU
MONTANA DEPARTMENT OF TRANSPORTATION

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 Thus, some of the information contained in these documents may be out of date or not applicable with regard to the advertised project.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



MONTANA DEPARTMENT OF HIGHWAYS

PLAN AND PROFILE OF PROPOSED FEDERAL AID PROJECT NO. F-387

(12) P.E.
(13) R/W
(15) BRIDGE

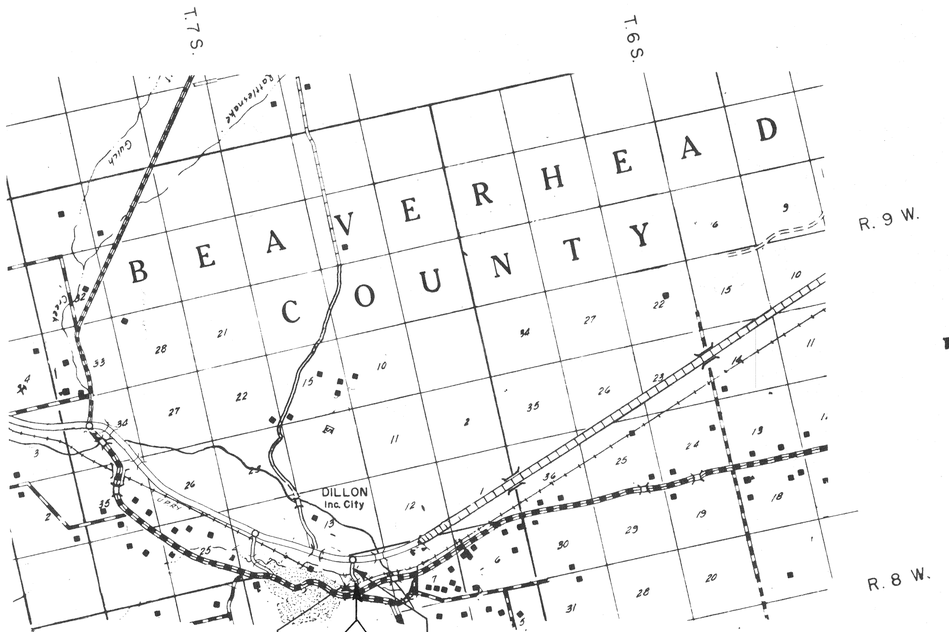
DILLON - TWIN BRIDGES [CONN. TO 1-15-1[26] 58

BEAVERHEAD COUNTY

LENGTH 0.061 MILES

SCALES

HORIZONTAL: 1 Inch = 50 Feet
VERTICAL: 1 Inch = 10 Feet
CROSS SECTIONS--HOR. & VERT.: 1 Inch = 10 Feet
REDUCED PRINTS APPROX. 1/2 ORIGINAL SCALE



P.O.C. 34+25 "D" LINE 1-15-1(27) 58 =
P.O.C. 34+25 END F-387 (14)

191.86 ON F-387(14)
BE 191.86 END F-387(15)
44'x32' PRE-STR. CONC. BR.
BE 1539.26 BEG. F-387(15)
1539.76 ON F-387(14)

P.O.T. 9+52.2 BEG. F-387 (14) =
P.O.T. 458+19.6 F-241-D

DESIGN DATA

A.D.T. 1965 = 750
A.D.T. 1991 = 2200
D.H.V. = 280
D = 55-45 %
T = 12.6 %
V = 55

LETTING DATE —
COMPLETED DATE: Oct. 17, 1974

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

MONTANA HIGHWAY COMMISSION
RECEIVED
AUG 25 1972
BUTTE, MONTANA

RELATED PROJECTS
1-15-1(27)58

ASSOCIATED PROJECT AGREEMENT NUMBERS	
R W & I.C.	
P. E.	

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

APPROVED:
_____ 19 ____

H.J. ANDERSON
DIRECTOR OF HIGHWAYS
BY _____
ADMINISTRATOR
ENGINEERING DIVISION

MONTANA PROFESSIONAL ENGINEER & LAND SURVEYOR
JACK R. BECKERT
205 ES
REGISTERED

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

_____ _____
DIVISION ENGINEER DATE

STATE OF MONTANA

DEPARTMENT OF HIGHWAYS

FINAL

BRIDGE PLANS & QUANTITIES

FEDERAL AID PROJECT NO. EHS F-387(12) P.E. F-387(15) CONST.

DILLON — TWIN BRIDGES (Connection I-15-1(49)62 UNIT 1

BEAVERHEAD COUNTY

LIST OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
1	10482	GENERAL LAYOUT
2	10483	FOOTING PLAN
3	10484	BENT NO. 1
4	10485	BENT NO. 2
5	10486	BENT NO. 3
6	10487	BENT NO. 4
7	10488	BENT NO. 5
8	10489	BENT NO. 6
9	10490	ERECTION PLAN
10	B-A (Rev. 3-31-72)	STANDARD PRESTRESSED CONCRETE BEAM TYPE-A
11	SL-1 (Rev. 3-31-72)	STANDARD SLAB, CURB, DIAPHRAGM, & END POST DETAILS
12	SBR-T5 (Rev. 3-31-72)	STANDARD STEEL BRIDGE RAIL TYPE NO. 5

FINAL ~~ESTIMATED~~ BRIDGE PLAN QUANTITES *(Does not include any contingencies)*

LOCATION	LENGTH IN FEET	REINFORCING STEEL LBS	STRUCTURAL STEEL LUMP SUM	STEEL BRIDGE RAIL TYPE NO.5 LIN. FT.	STRUCTURE EXC. TYPE I CU. YDS.	CLASS "AD" CONCRETE CU. YDS.	TREATED TIMBER PILES FURNISHING LIN. FT.	TREATED TIMBER PILES DRIVING LIN. FT.	TREATED TIMBER TEST PILES LUMP SUM	PROTECTIVE COATING SQ. YDS.	EXPANSION JOINT LUMP SUM	PRESTRESSED BEAM TYPE A EACH 55'	PRESTRESSED BEAM TYPE A EACH 75'	PREBORE HOLES LIN. FT.
BENT NO.1		~~2,701~~ 2,847			~~10~~ 7.81	~~30.6~~ 31.033	~~602~~ 532	~~238~~ 148.0						350
BENT NO.2		~~12,751~~ 12,752			~~230~~ 230.68	~~83.6~~ 77.227								
BENT NO.3		~~20,917~~ 20,981			~~270~~ 263.57	~~81.7~~ 81.865								
BENT NO.4		~~13,043~~ 13,069	1.00		~~190~~ 180.75	~~144.9~~ 144.261			1.00		1.00			
BENT NO.5		16,107			~~300~~ 318.29	~~83.2~~ 83.287								
BENT NO.6		~~2,701~~ 2,847			~~10~~ 28.99	~~30.6~~ 31.017	602	~~210~~ 140.0						378
SUPERSTRUCTURE	321.00	~~123,089~~ 123,092		632.67		~~404.9~~ 404.672				~~1,629~~ 1,722		15	14	
TOTAL	321.00	~~191,309~~ 191,685	1.00	632.67	~~1010~~ 1,029.49	~~859.5~~ 853.862	~~1,204~~ 1,134	~~448~~ 288.0	1.00	~~1,629~~ 1,722	1.00	15	14	728

TRAFFIC CONTROL ~~LUMP~~ EST. UNITS 5.0

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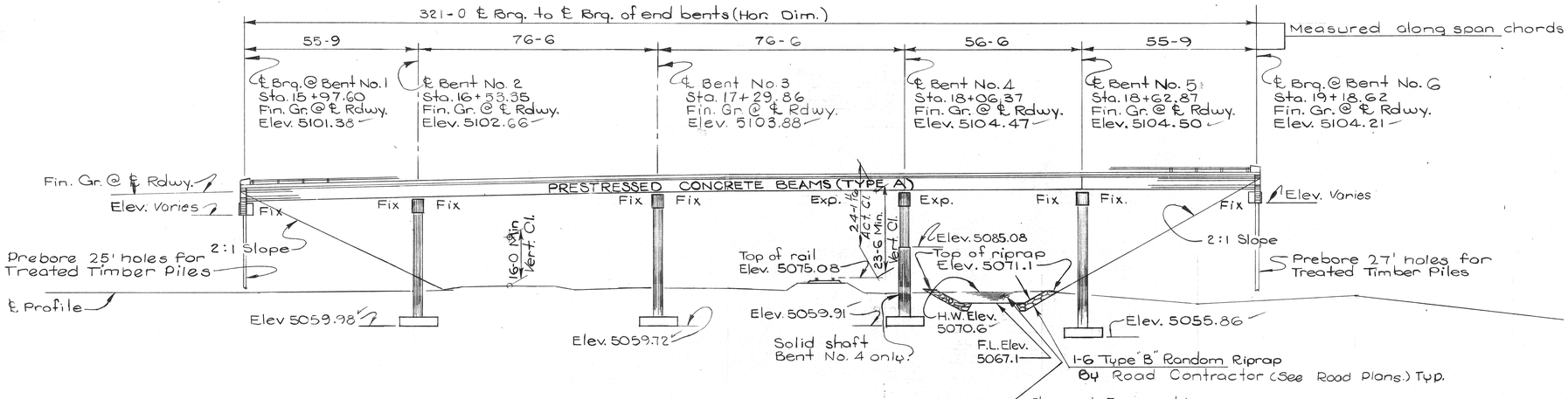
R. Tilman 7-2-74

Richard L. Dobal 8-27-75

Made By: S.A.P. (3-15-72) Checked By: N.H.R. (3-15-72)

DRAWING NO. 10482 Q

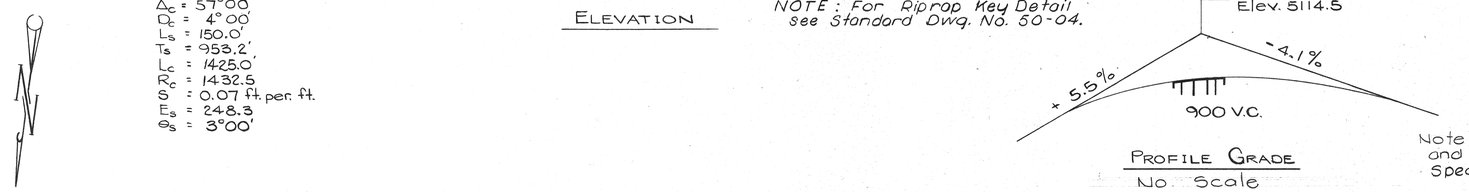
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	EHS F-387(15)	1	12



ELEVATION

CURVE DATA

Δ = 63°00'
Δ_c = 57°00'
D_c = 4°00'
L_s = 150.0'
T_s = 953.2'
L_c = 1425.0'
R_c = 1432.5
S = 0.07 ft. per ft.
E_s = 248.3
θ_s = 3°00'

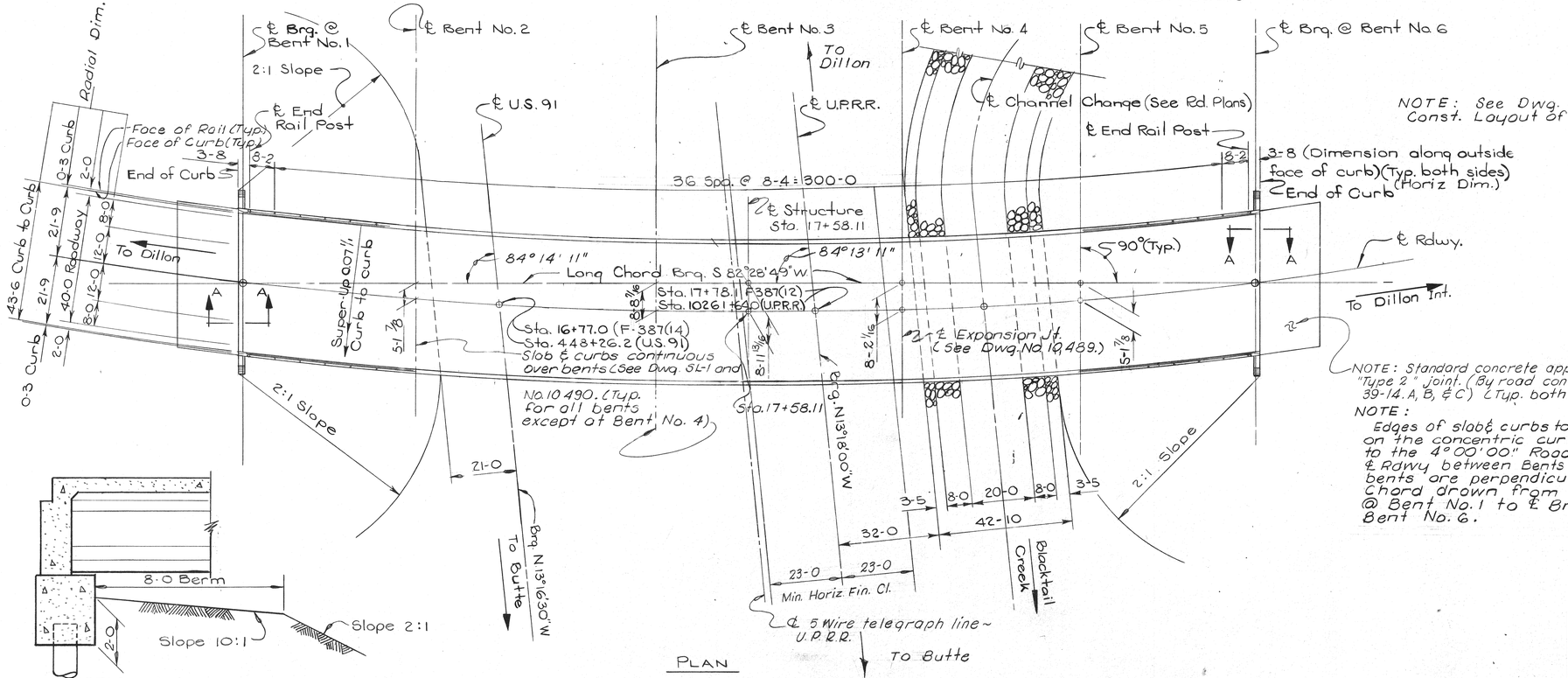


PROFILE GRADE
No Scale

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

STREAM DATA

Drainage Area: 402 Sq. Mi.
Flow: 50 yr. design = 600 c.f.s.
Velocity: 4.3 f.p.s.



PLAN

NOTE: See Dwg. No. 10,483 for Const. Layout of all bents.

NOTE: Standard concrete approach slab "Type B" with "Type 2" joint. (By road contractor.) (See Std. Dwg. No. 39-14. A, B, & C) (Typ. both ends.)

NOTE:
Edges of slab & curbs to be built on the concentric curves parallel to the 4°00'00" Roadway Curve @ ℄ Rdwy between Bents No. 1 and No. 6. All bents are perpendicular to the Long Chord drawn from ℄ Brg. @ ℄ Rdwy. @ Bent No. 1 to ℄ Brg. @ ℄ Rdwy. @ Bent No. 6.

SECTION A-A
Scale: 3/8 = 1-0

NOTES

LIVE LOAD: STANDARD HS 20-44 LOADING

FINISHED GRADE: Finished Plan Grade of bridge @ ℄ rdwy. is 0.60 ft. above profile grade shown on Road Plans due to 0.07 ft/ft super-elevation.

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 = 1,324 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.

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

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER U. S. 91,
UNION PACIFIC RAILROAD
& BLACKTAIL CREEK
AT STA. 17 + 58.11
FEDERAL AID PROJECT NO. EHS F-387(15)
BEAVERHEAD COUNTY
GENERAL LAYOUT
Scale: 1" = 20'-0" (Except as noted)

DRAWING NO. 10 482

DESIGNED		
DRAWN	8-25-69	K.H.L.
CHECKED	3-15-72	NHR.
APPROVED	5-22-72	Hes.
REVISED		
REVISED		

K&E 19 1153 3-69•

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	EHS F-387(15)	2	12

℄ Core Log No. 1543
143' Rt. Sta. 16+23
Elev. 5069.7

	Soft brown organic sandy silt.
67.4	
G.W. 64.0 Apr. 15, 69	
	2/4/9
Loose to very dense brown silty sandy coarse gravel.	36/38/50
	40/50/R
49.8	
Hard tan silty sandy clay	7/11/16
	12/20/26
39.8	
Hard reddish grey silty sandy clay.	15/19/24
	14/15/25
	11/18/23
Hard grey silty sandy clay	25.3
	17/16/23
21.2	
	16/17/25
Hard reddish brown silty sandy clay.	16/16/21
	19/23/33
3.7	
	19/24/35

℄ Core Log No. 1542
142' Rt. Sta. 16+67
Elev. 5068.2

	Soft brown organic sandy silt.
65.2	
G.W. 64.4 Apr. 11, 69	
	20/15/11
Very dense brown silty sandy fine to coarse gravel.	18/34/45
	28/50/R
50.3	
Hard tan sandy silty clay & strata lenses of silty white clay.	13/15/19
	14/19/28
36.9	
	14/28/30
Hard tan to reddish sandy silty clay	16/19/27
	15/18/25
	19/20/30
Hard rust brown silty sandy clay with hard fragments	15.7
	19/19/25
12.2	
Hard reddish silty sandy clay.	24/28/38
	19/19/27
1.7	
	13/19/25

℄ Core Log No. 1541
126' Rt. Sta. 17+41
Elev. 5070.7

	Soft brown organic sandy silt.
69.5	
G.W. 64.8 Apr. 10, 69	
	13/14/12
Loose to very dense brown silty sandy coarse gravel	20/27/39
	22/38/50
52.0	
Very stiff to hard white sandy silty clay.	18/19/30
	18/23/28
	20/18/21
	19/21/26
29.7	
27.4	
Very hard reddish silty sandy clay.	16/22/27
	13/15/22
Hard grey sandy silty clay.	20/21/27
	19/21/23
	15/18/22
4.2	
	20/23/31

℄ Core Log No. 1540
114' Rt. Sta. 18+24
Elev. 5071.5

	Soft brown organic sandy silt.
68.5	
G.W. 65.5 Apr. 9, 69	
	5/10/11
Loose to very dense brown silty sandy coarse gravel.	18/24/36
	40/50/R
51.8	
	15/15/19
Very stiff tan & grey to reddish sandy silty clay.	18/18/23
	11/13/19
	16/18/19
Very stiff yellow volcanic material	31.3
	11/16/27
30.1	
Very stiff to very hard reddish sandy silty clay	18/20/26
	20/21/25
	30/31/31
	20/22/25
5.3	
	22/30/34

℄ Core Log No. 1120
109' Rt. Sta. 18+63
Elev. 5071.4

	Loose fine grey-brown silty sand.
70.0	
G.W. 65.3 Apr. 3, 69	
	5/5/3
Loose to dense sandy gravel	9/9/8
	29/20/38
Stiff light tan & grey clay	51.5
	7/11/13
46.4	
	17/17/17
Hard light tan & grey clay.	13/15/21
	14/19/27
	11/14/20
	15/21/28
	14/24/28
15.9	
Very hard light tan & grey clay.	28/35/43
	21/41/50
4.9	
	16/27/50

LOG OF BORINGS

Scale - 1"=10'-0"

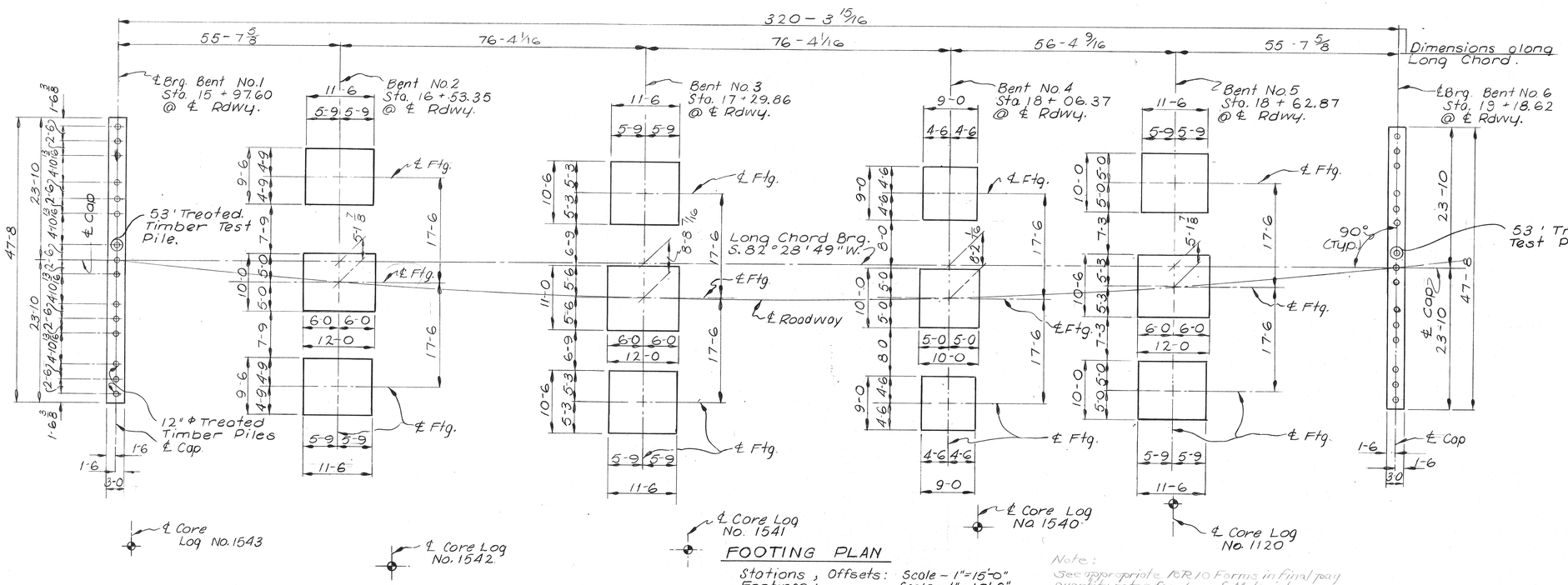
NOTES

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.



FOOTING PLAN

Stations, Offsets: Scale - 1"=15'-0"
Footings: Scale - 1"=10'-0"
Core Log offsets: Scale - 1"=30'-0"

NOTE - Dimensions shown for Bent No. 1 are also typical for Bent No. 6.

Note: See appropriate PR 10 Forms in final pay quantity notes for Log of Materials encountered during excavation.

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BUTTE, MONTANA

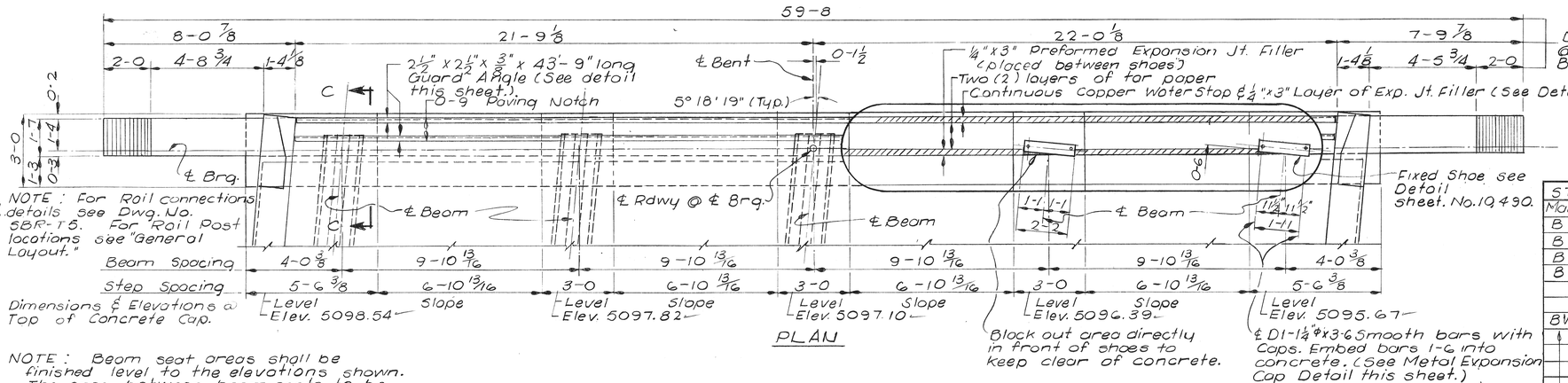
DESIGNED		
DRAWN	D.E.M.-J.H.F.	7-17-69
TRACED		
CHECKED	N.H.R.	3-15-72
REVISED		
REVISED		

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

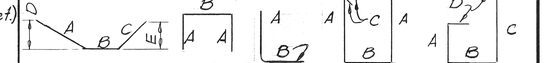
BRIDGE OVER U.S. 91, UNION PACIFIC RAILROAD & BLACKTAIL CREEK
AT STA 17+58.11
FEDERAL AID PROJECT NO. EHS. F-387(15)
BEAVERHEAD COUNTY
FOOTING PLAN
SCALE - AS NOTED
DRAWING NO. 10 483.

H.E.S.-
K&E 19 1153 3-69-

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	EHS F-387(15)	3	12

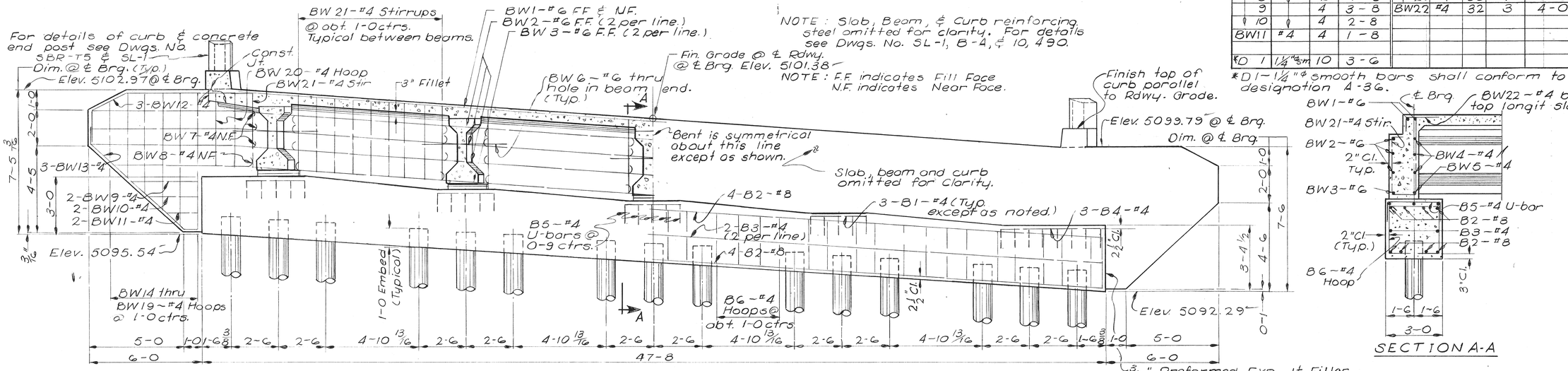


BILL OF REINFORCING STEEL

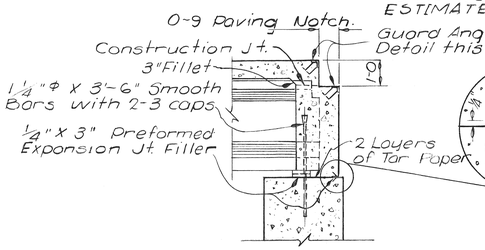


STRAIGHT BARS				BENT BARS (All dimensions out to out.)									
Mark	Size	No	Length	Mark	Size	No	Type	Length	A	B	C	D	E
B 1	#4	12	3'-0"	B 5	#4	28	2	4'-8"	1'-0	2'-8			
B 2	8	8	47-4	B 6	4	40	5	11-3	2-7	2-8	0-4½"		
B 3	4	4	24-1										
B 4	4	3	5-4										
				BW12	4	6	1	9-8	5-10	2-1	1-9	2'-7"	1'-7"
				13		6	1	8-4	1-0	6-7	0-9	0-9	0-6
BW1	6	2	45-8	14		2	5	8-7	2-8	1-3	0-4½		
2	6	6	30-6	15				11-5	4-1	1-3	0-4½		
3	6	2	29-6	16				13-5	5-1				
4	4	12	8-3	17				15-3	6-0				
5	4	4	7-11	18				17-1	6-11				
6	6	5	4-6	19		2		17-5	7-1				
7	4	6	9-0	20		4	5	10-11	3-10	1-3	0-4½		
8		2	7-8	21		38	4	8-6	2-10	3-10	1-3	0-3½	
9		4	3-8	BW22	#4	32	3	4-0	2-0	2-0			
10		4	2-8										
BW11	#4	4	1-8										
*D 1	1¼"ϕ sm	10	3-6										

*D1-1¼" ϕ smooth bars shall conform to A.S.T.M. designation A-36.

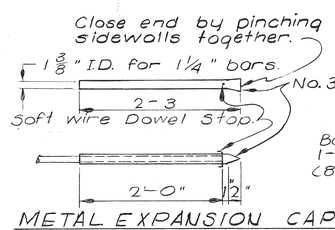


SECTION A-A



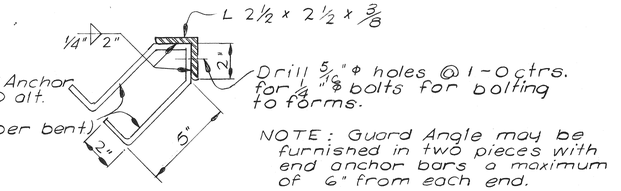
SECTION C-C

NOTE: Moximum Pile Pressure under: DL + L.L. + VE = 24.2 Tons per Pile.
ESTIMATED PILE LENGTH = 43 Ft.



METAL EXPANSION CAP
(10 Required per End Bent.)
Scale: 1" = 1'-0"

NOTE: 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.



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

NOTE: Guard Angle may be furnished in two pieces with end anchor bars a maximum of 6" from each end.

Bent No. 1 T.T. Service Piling:
14 Piling @ 38 Ft. Lengths = Total Furnished: 532.0 Lin. Ft.
R. Hellman 7-2-74

MONTANA HIGHWAY COMMISSION
RECEIVED
AUG 25 1972
BUTTE, MONTANA

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

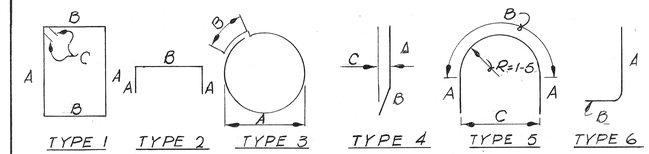
BRIDGE OVER US 91,
UNION PACIFIC RAILROAD
& BLACKTAIL CREEK
AT STA. 17+58.11
FEDERAL AID PROJECT NO. EHS F-387(15)
BEAVERHEAD COUNTY
BENT NO. 1
Scale: 3/8" = 1'-0" Except As Noted.
DRAWING NO. 10484

DESIGNED	G.L.L.	4-15-71
DRAWN	J.H.F.	1-31-72
CHECKED	N.H.R.	3-15-72
REVISED		
REVISED		
REVISED		

HES-

BILL OF REINFORCING STEEL

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	EHS F-387(15)	4	12

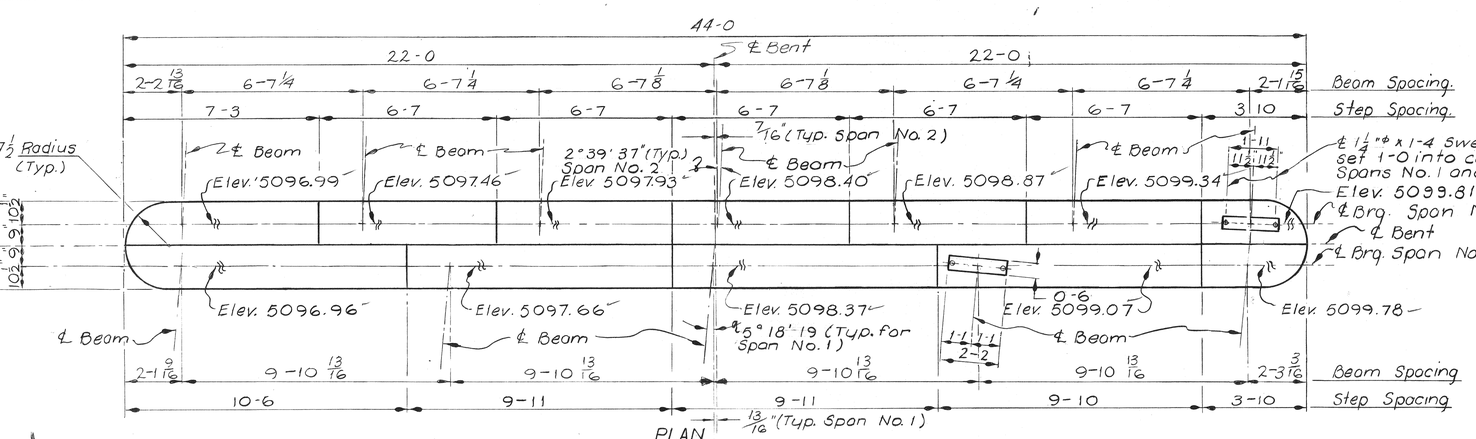


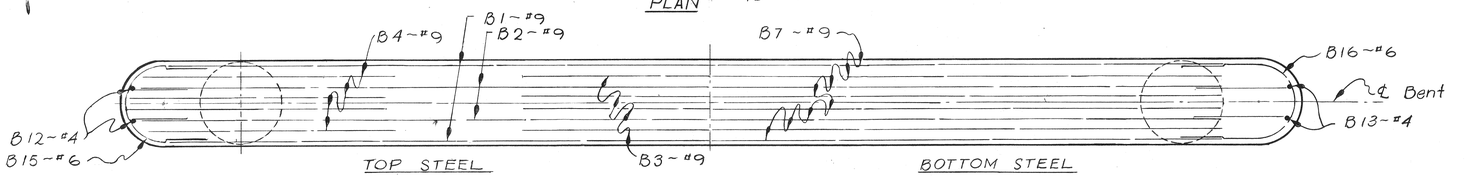
STRAIGHT BARS

Mark	Size	No.	Length
B 1	#9	2	40'-9"
2	9	2	43-7
3	9	4	14-0
4	9	8	9-1
5	4	18	6-0
6	4	8	20-10
B 7	9	8	38-0
C 1	10	12	33-6
C 2	10	12	34-8
C 3	10	12	35-11
F 1	8	20	11-6
F 2	6	29	9-6
F 3	8	38	11-0
F 4	#6	46	9'-0"

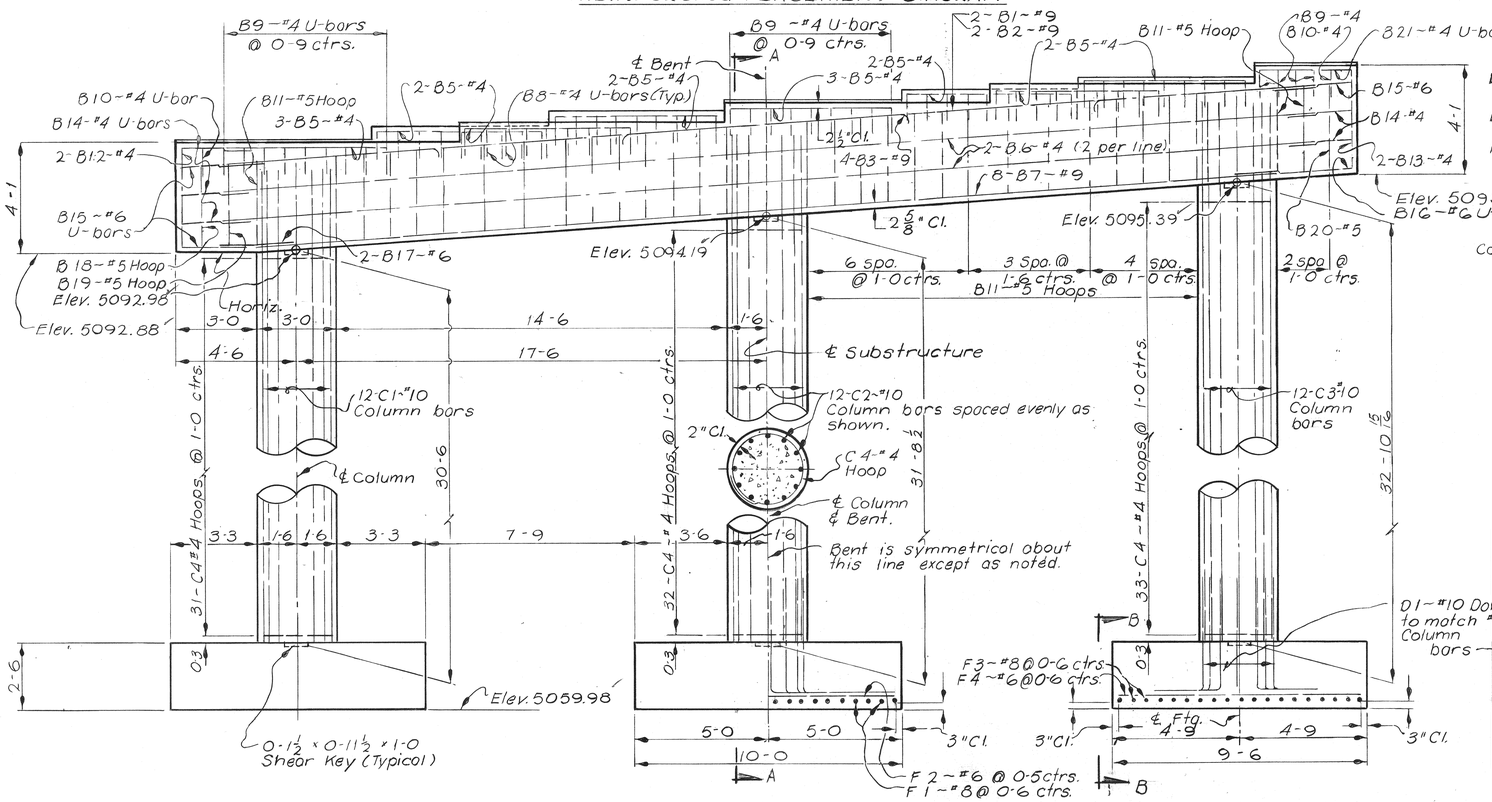
BENT BARS - All dimensions are out to out

Mark	Size	No.	Type	Length	A	B	C
B 8	#4	54	2	3'-3"	1'-0"	1'-3"	
9	4	22	2	4-11	1-0	2-11	
10	4	2	2	4-6	1-0	2-6	
11	5	31	1	13-1	3-2	2-11	0-5½"
12	4	2	2	11-3	3-9	3-9	
13	4	2	2	10-7	3-5	3-9	
14	4	5	5	6-6	1-0	4-6	2-10
15	6	3	5	7'-6	1'-6	4'-6	2'-10
16	6	1	5	10'-4	2'-11	4'-6	2'-10
17	6	2	4	3'-0	1'-6	1'-6	0'-2
18	5	1	1	12'-1	3'-1	2'-6	0'-5½
19	5	1	1	13'-1	3'-2	2'-11	0'-5½
20	5	1	1	12'-3	3'-2	2'-6	0'-5½
B 21	4	1	5	8'-6	2'-0	4'-6	2'-10
C 4	4	96	3	9'-5	2'-8	1'-0	
D 1	#10	36	6	6'-6"	4'-7	1'-11"	





REINFORCING PLACEMENT DIAGRAM



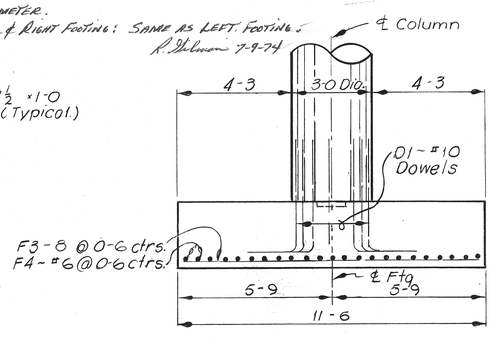
ELEVATION (Ahead on Line.)

SECTION A-A

NOTE - Maximum Footing Pressure under: D.L. + L.L. + 0.3 W. + WL + L.F. + C.F. = 3.00 Tons per Sq. Ft.

BENT No. 2 FOOTING LOGS:
LEFT FOOTING: 1.0 FT. OF SOFT SANDY SILT AND GRAVEL. 3.0 FT. OF VERY DENSE SANDY SILT. BALANCE OF FOOTING IS A VERY DENSE SANDY FINE TO COARSE GRAVEL. BASE OF FOOTING IS OF SAME MATERIAL. THERE IS 2 INCHES OF STILL WATER IN BASE OF FOOTING WITH A 4 INCH PUMP TAKING CARE OF WATER. MAXIMUM SIZE OF ROCK IS 3½ INCHES IN DIAMETER.
CENTER & RIGHT FOOTING: SAME AS LEFT FOOTING.
R. Wilson 7-9-74

MONTANA HIGHWAY COMMISSION RECEIVED AUG 25 1972 BUTTE, MONTANA



VIEW B-B

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER U.S. 91, UNION PACIFIC RAILROAD & BLACKTAIL CREEK AT STA. 17 + 58.11

FEDERAL AID PROJECT NO. EHS F-387(15)

BEAVERHEAD COUNTY

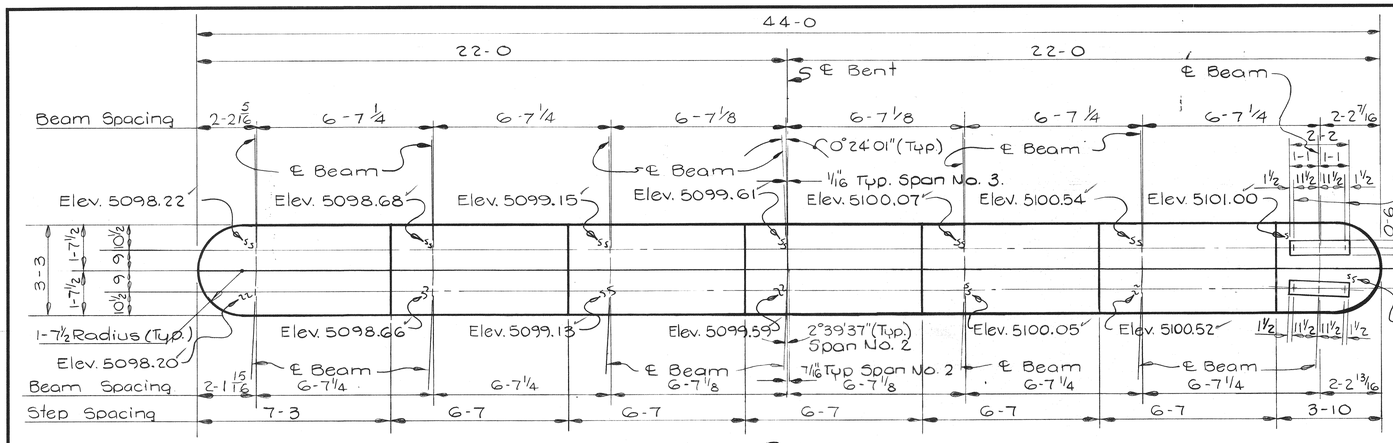
BENT NO. 2

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

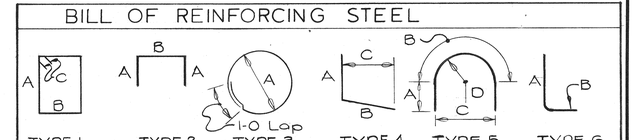
DESIGNED	G.L.L.	4-16-71
DRAWN	J.H.F.	7-2271
CHECKED	N.H.R.	3-15-72
REVISED		
REVISED		
REVISED		

DRAWING NO. 10 485

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	EHS F-387(15)	5	12



BILL OF REINFORCING STEEL

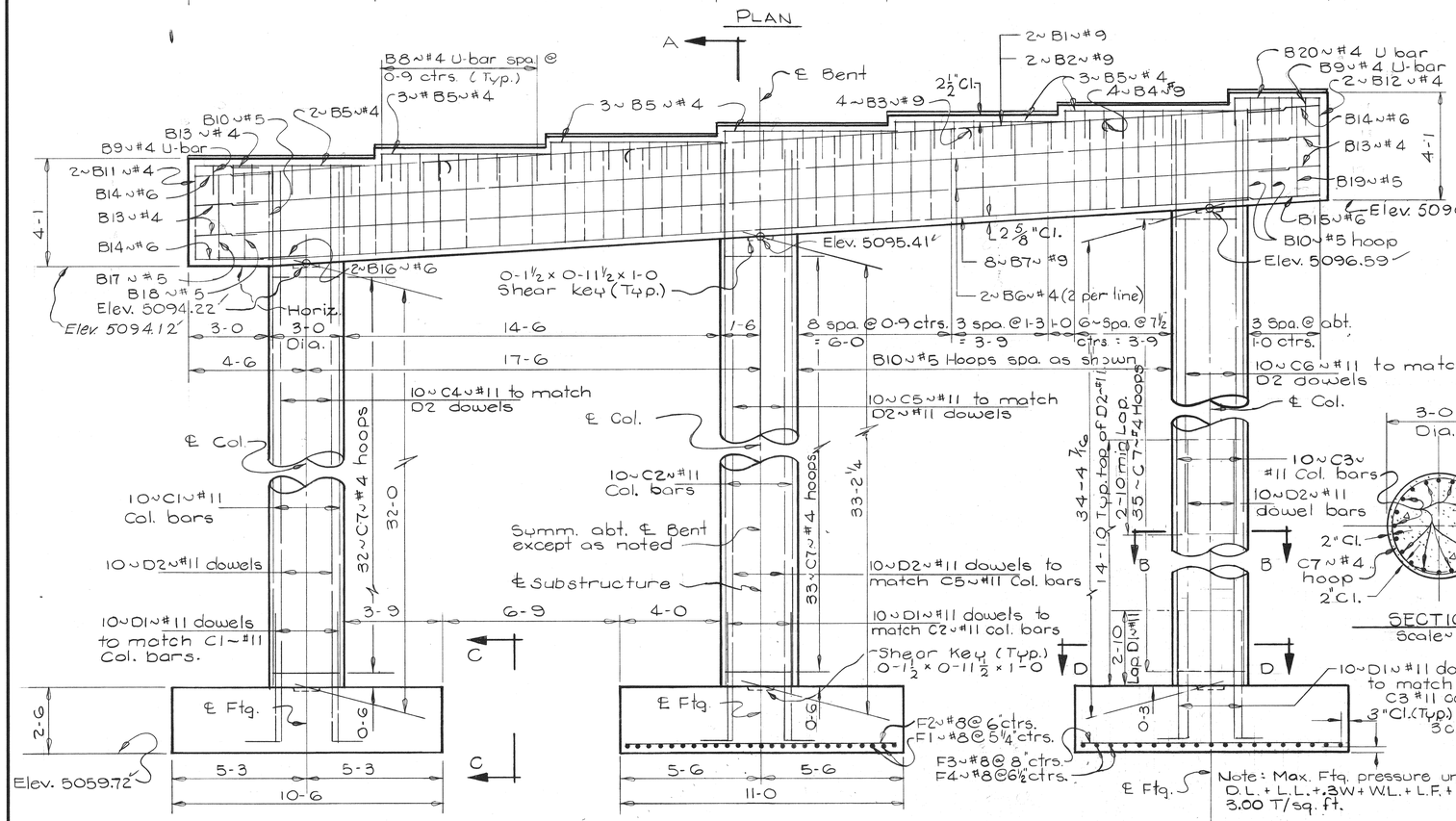


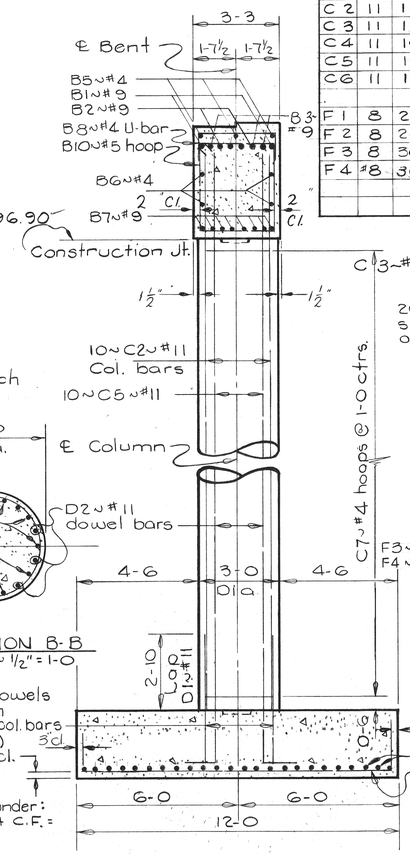
TYPE 1 TYPE 2 TYPE 3 TYPE 4 TYPE 5 TYPE 6

STRAIGHT BARS (BENT BARS (All dim. are out to out)

Mark	Size	No.	Length	Mark	Size	No	Type	Length	A	B	C	D	E
B 1	#9	2	40'-9"	B 8	#4	57	2	4'-11"	1-0"	2'-11"			
2	9	2	43-7	9	4	2	2	4-6	1-0	2-6			
3	9	4	13-0	10	5	41	1	13-1	3-2	2-11	0-5½"		
4	9	8	8-3	11	4	2	2	11-3	3-9	3-9			
5	4	17	6-0	12	4	2	2	10-7	3-5	4-0			
6	4	8	20-10	13	4	5	5	6-6	1-0	4-6	2-10	1-5	
B 7	9	8	38-0	14	6	3	5	7-6	1-6	4-6	2-10	1-5	
				15	6	1	5	10-4	2-11	4-6	2-10	1-5	
				16	6	2	4	3-0	1-6	1-6	0-2		
C 1	11	10	35-0	17	5	1	1	12-1	3-1	2-6	0-5½		
C 2	11	10	36-2	18	5	1	1	13-1	3-2	2-11	0-5½		
C 3	11	10	37-4	19	5	1	1	12-3	3-2	2-6	0-5½		
C 4	11	10	23-0	B 20	4	1	5	8-6	2-0	4-6	2-10		
C 5	11	10	24-2										
C 6	11	10	25-4										
				C 7	4	100	3	9-5	2-8				
F 1	8	25	11-6										
F 2	8	24	10-6										
F 3	8	38	10-0	D 1	11	30	6	6-9	5-1	1-8			
F 4	#8	36	11-0	D 2	#11	30	6	18-9	17-1	1-8			

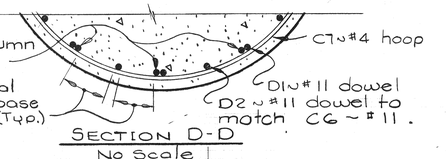
PLAN



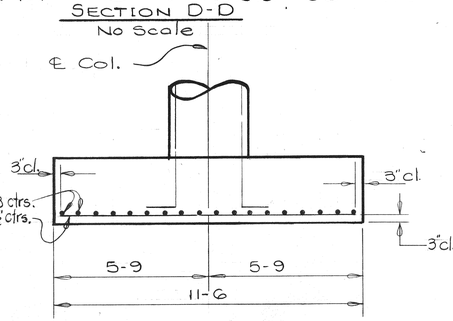


SECTION B-B
Scale ½" = 1-0

SECTION A-A

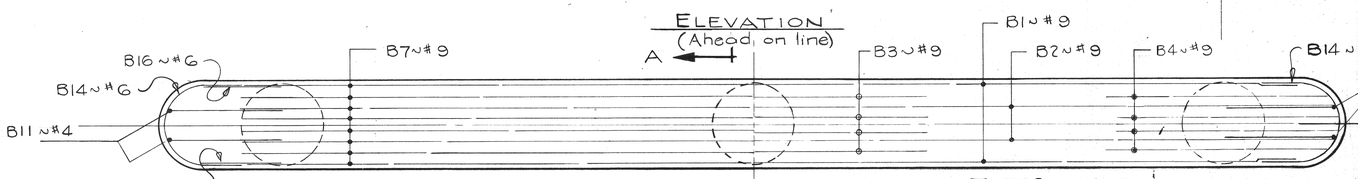


SECTION D-D
No Scale



VIEW C-C

ELEVATION
(Ahead on line)



BOT. STEEL REINFORCING PLACEMENT DIAGRAM

TOP STEEL

BENT NO. 3 FOOTING LOG:
LEFT FOOTING: 2.0 TO 4.0 FT. OF SANDY BROWN ORGANIC SILT. BALANCE OF FOOTING IS A LOOSE TO VERY DENSE BROWN SILTY SANDY COARSE GRAVEL. BASE OF FOOTING IS A VERY DENSE SANDY COARSE GRAVEL. MAXIMUM SIZE OF ROCK IS 4 INCHES IN DIAMETER. 2 INCHES OF STILL WATER IN FOOTING BEING PUMPED WITH 4 INCH PUMP. CENTER & RIGHT FOOTINGS ARE SAME AS LEFT FOOTING.
R. Dillman 7-9-74

DESIGNED	4-19-71	G.L.L.
DRAWN	7-22-71	K.H.L.
CHECKED	3-15-72	N.H.R.
REVISED		
REVISED		
REVISED		

MONTANA HIGHWAY COMMISSION
RECEIVED
AUG 25 1972
BUTTE, MONTANA

Approved for Use 10-17-72

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER U. S. 91, UNION PACIFIC RAILROAD & BLACKTAIL CREEK
AT STA. 17+58.11
FEDERAL AID PROJECT NO. EHS F-387(15)
BEAVERHEAD COUNTY
BENT NO. 3
Scale: 3/8 = 1-0 (Except as noted)
DRAWING NO. 10486

HES.

BILL OF REINFORCING STEEL

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	EHS F-387(15)	6	12

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

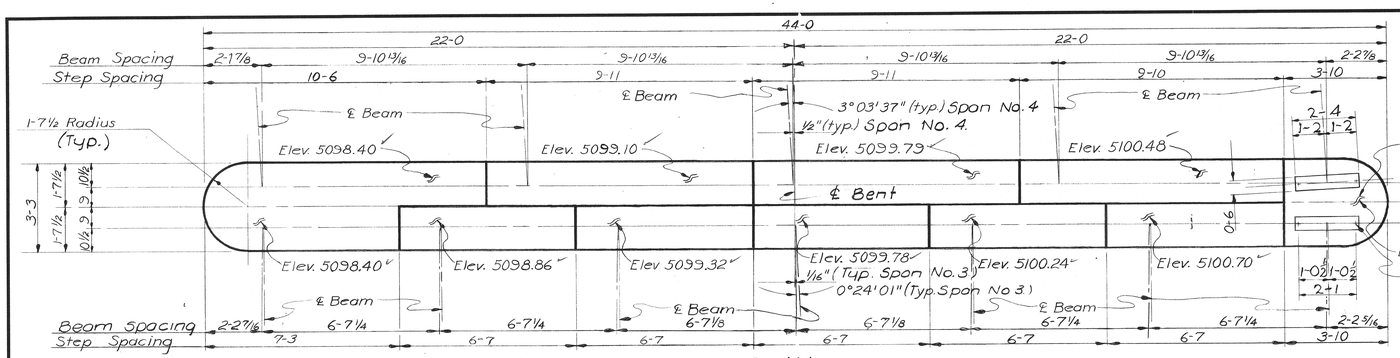
STRAIGHT BARS

Mark	Size	No.	Length
B1	#9	2	40'-9"
↓2	↓	2	43-7
3	↓	4	14-0
4	9	8	9-1
5	4	18	6-0
↓6	4	8	20-10
B7	9	8	38-0
C1	10	12	15-0
C2	10	12	16-2
C3	10	12	17-4
* D2	4	~~14~~ 28	2-8
F1	8	14	9-6
F2	4	20	9-6
F3	6	36	8-6
F4	6	36	8-6
S1	4	60	22-10
S2	4	32	35-0
S3	#10	32	23-0

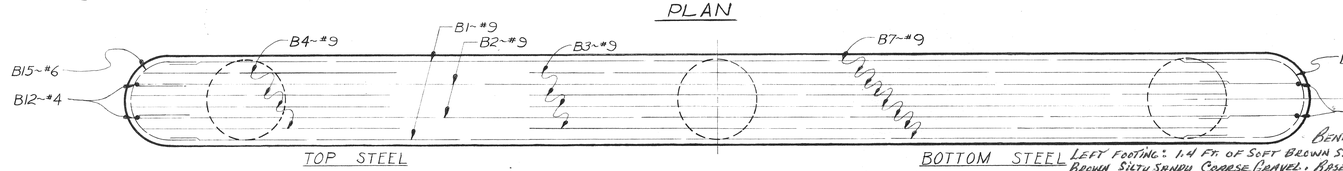
BENT BARS (All dimensions are out to out)

Mark	Size	No.	Type	Length	A	B	C	D	E
B8	#4	54	3	3'-3"	1'-0"	1'-3"			
↓9	4	22	3	4-11	1-0	2-11			
10	4	2	3	4-6	1-0	2-6			
11	5	31	6	13-1	3-2	2-11	0-5½		
12	4	2	3	11-3	3-9	3-9			
13	4	2	3	10-7	3-5	3-9			
14	4	5	4	6-6	1-0	4-6	2-10	1-5"	
15	6	3	4	7-6	1-6	4-6	2-10	1-5	
16	6	1	4	10-4	2-11	4-6	2-10	1-5	
17	6	2	2	3-0	1-6	1-6	0-2		
18	5	1	6	12-1	3-1	2-6	0-5½		
19	5	1	6	13-1	3-2	2-11	0-5½		
↓20	5	1	6	12-3	3-2	2-6	0-5½		
B21	4	1	4	8-6	2-0	4-6	2-10	1-5	
C4	4	33	5	9-5	2-8	1-0			
D1	10	32	1	6-2	4-3	1-11			
S4	4	32	4	6-2	1-0	4-2	2-8	1-4	
S5	#4	30	3	4-8	1-0	2-8			

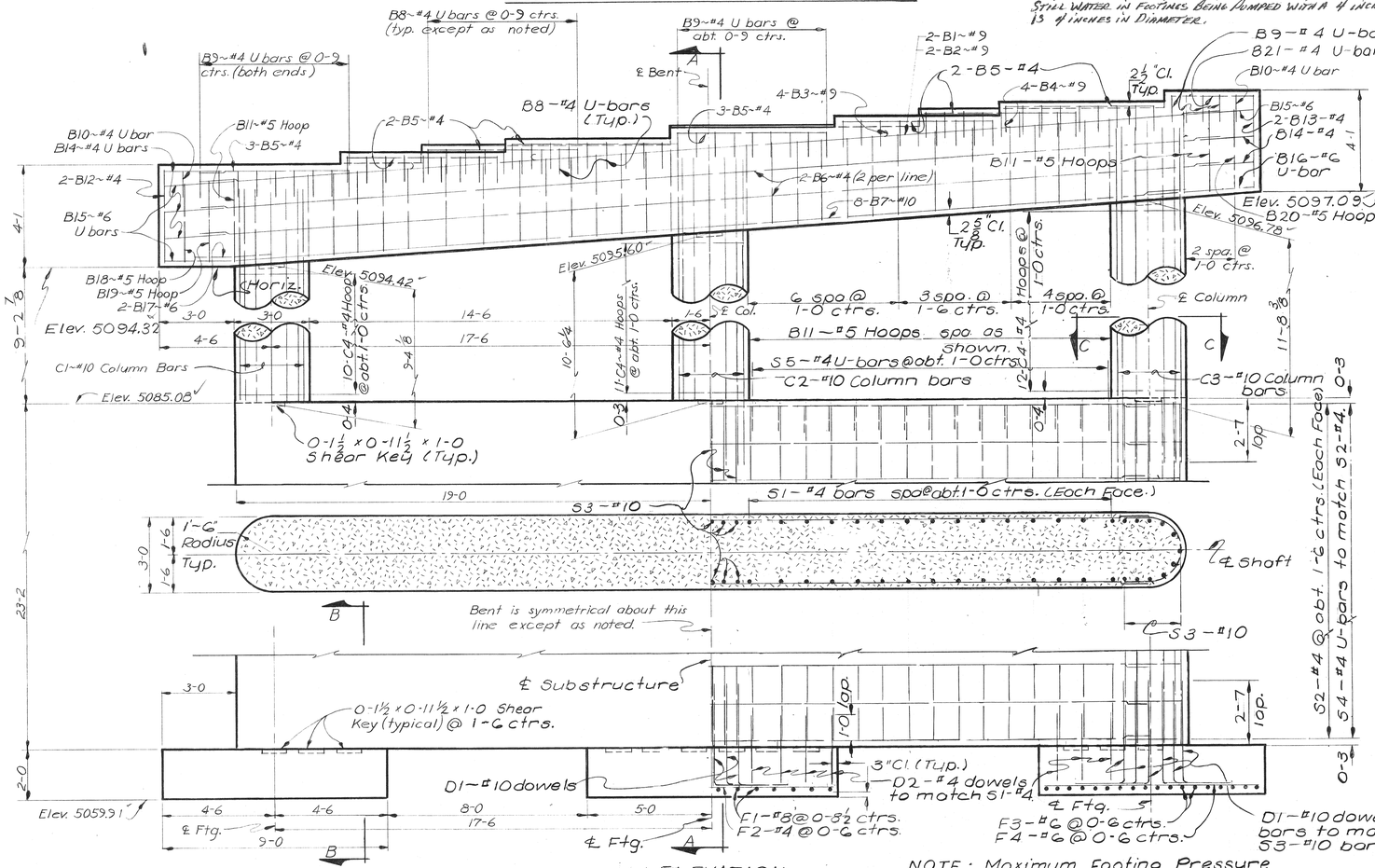
* REVISION (1-25-73) THERE SHOULD BE 28 D2 #4 BARS INSTEAD OF THE 14 LISTED. R. Hilman 7-9-74



PLAN



REINFORCING PLACING DIAGRAM



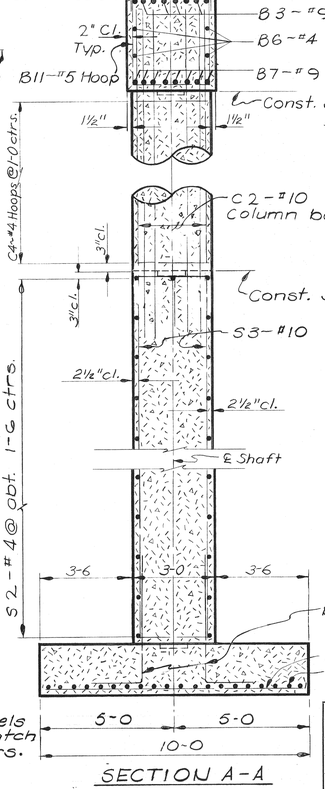
ELEVATION

(Ahead on line.)

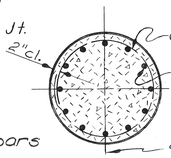
NOTE: Maximum footing Pressure under: D.L. + L.L. = 3.11 Tons/Sq.Ft.

Left footing: 1.4 Ft. of soft brown sandy silt. Balance of footing is a very dense to loose brown silty sandy coarse gravel. Base of footing is a very dense sandy coarse gravel. Center and right footings are same as left footing. There is approximately 2 inches of still water in footings being pumped with a 4 inch pump. Maximum size of rock in footings is 4 inches in diameter.

Bent No. 4 Footing Log:

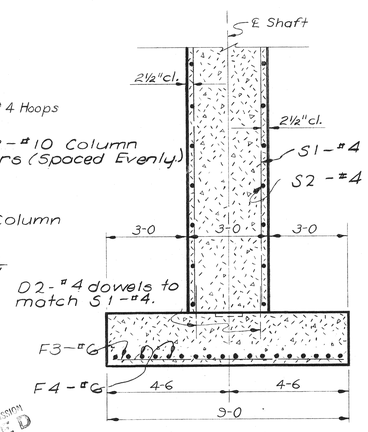


SECTION A-A



SECTION C-C

Scale = ½" = 1'-0"



SECTION B-B

MONTANA HIGHWAY COMMISSION RECEIVED AUG 25 1972 BUTTE, MONTANA

R. Hilman 10-17-74

DESIGNED	8-4-71	G.L.L.
DRAWN	8-23-71	R.Y.L.
CHECKED	3-15-72	N.H.R.
REVISED		
REVISED		
REVISED		

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER U.S. 91, UNION PACIFIC RAILROAD & BLACKTAIL CREEK AT STA. 17 + 58.11

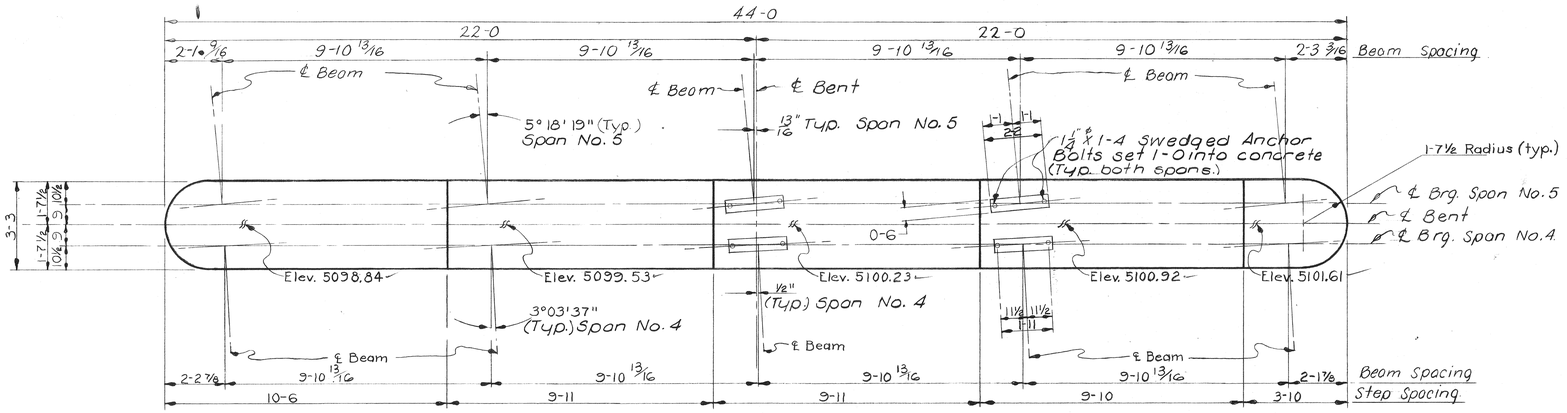
FED. AID PROJECT NO. EHS. F-387 (15)

BEAVERHEAD COUNTY

BENT NO. 4

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

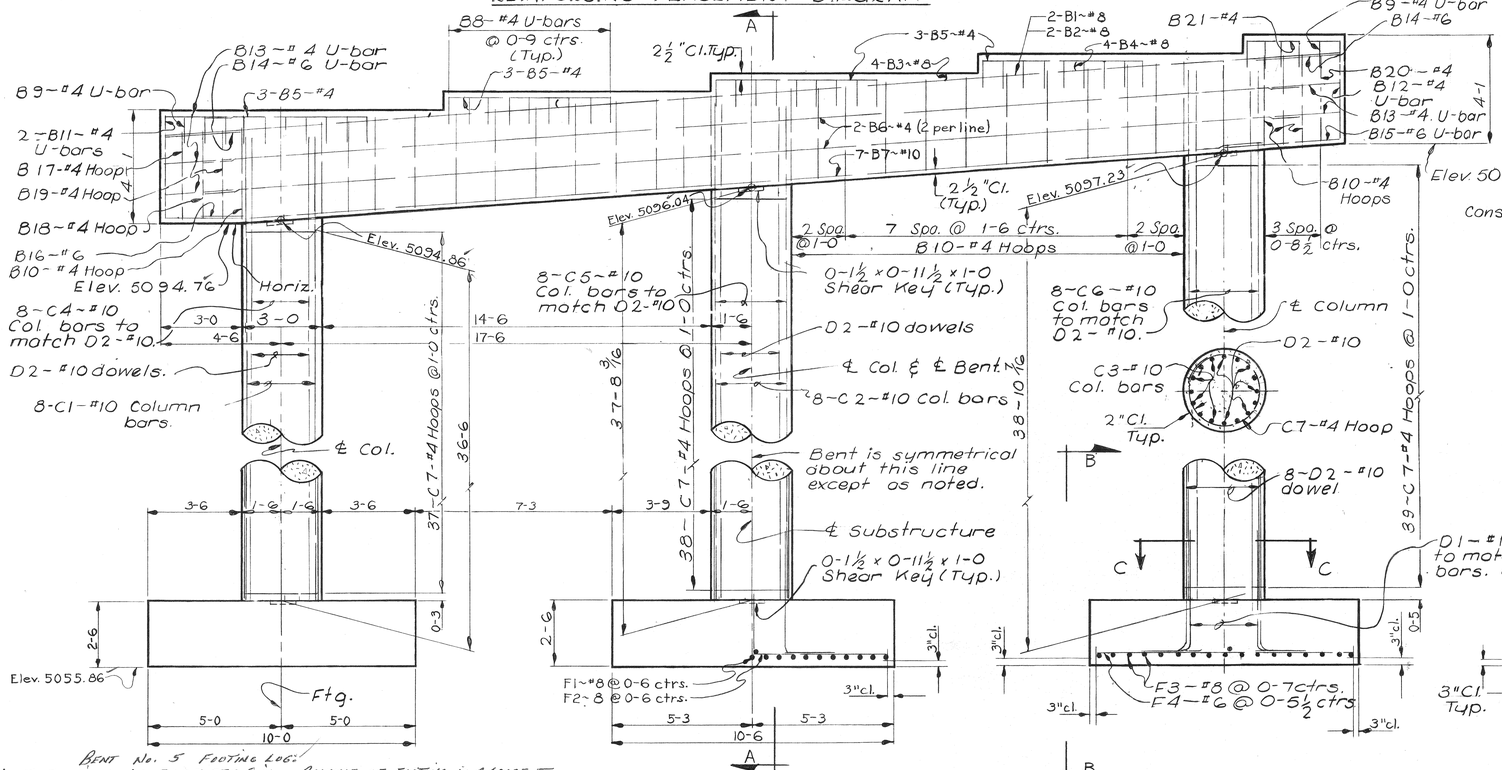
DRAWING NO. 10 487



PLAN



TOP STEEL REINFORCING PLACEMENT DIAGRAM Bottom Steel.



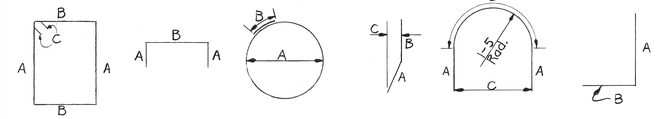
ELEVATION (Ahead on line)

BENT No. 5 FOOTING LOG:
LEFT FOOTING: 1.0 FT. OF TEA SOIL. BALANCE OF FOOTING IS A LOOSE TO DENSE SANDY GRAVEL WITH MAXIMUM SIZE OF ROCK 6 INCHES IN DIAMETER. BASE OF FOOTING IS OF SAME MATERIAL. THERE IS APPROXIMATELY 3 INCHES OF WATER IN FOOTING WITH A 4 INCH PUMP PUMPING OUT WATER. CENTER AND RIGHT FOOTINGS ARE SAME AS LEFT FOOTING.
R. Helmen 7-10-71

NOTE ÷ Maximum Footing Pressure under: D.L. + L.L. + 0.3W + WL + L.F + C.F = 3.05 Tons per Sq. Ft.

BILL OF REINFORCING STEEL

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	EHS F-387(15)	7	12



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

STRAIGHT BARS

MARK	SIZE	No.	LENGTH
B1	#8	2	40'-9"
2		2	43-7
3		4	14-6
4	8	8	9-10
5	4	12	6-0
6	4	8	20-10
B7	10	7	38-0
C1	10	8	39-6
C2	10	8	40-8
C3	10	8	41-10
C4	10	8	27-6
C5	10	8	28-8
C6	10	8	29-10
F1	8	21	11-6
F2	8	24	10-0
F3	8	34	11-0
F4	#6	50	9'-6"

BENT BARS (All dimensions are out to out)

MARK	SIZE	No.	TYPE	LENGTH	A	B	C
B8	#4	40	2	4'-11"	1'-0"	2'-11"	
9		2	2	4-6	1-0	2-6	
10		28	1	12-11	3-2	2-11	0'-4½"
11		2	2	1.1-3	3-9	3-9	
12		2	2	10-7	3-5	3-9	
13	4	5	5	6-6	1-0	4-6	2-10
14	6	3	5	7-6	1-6	4-6	2-10
15	6	1	5	10-4	2-11	4-6	2-10
16	6	1	4	3-0	1-6	1-6	0-2
17	4	1	1	11-10	3-0½	2-6	0-4½
18		1	1	12-9	3-1	2-11	0-4½
19		1	1	12-10	3-1½	2-11	0-4½
20	4	1	1	12-1	3-2	2-6	0-4½
B21	4	1	5	8-6	2-0	4-6	2-10
C7	4	114	3	9-5	2-8	1-0	
D1	10	24	6	6-6	4'-7	1-11	
D2	#10	24	6	18-7	16'-7	1-11	

MONTANA HIGHWAY COMMISSION
RECEIVED
AUG 25 1972
BUTTE, MONTANA

DESIGNED	G.L.L.	6-21-71
DRAWN	R.Y.L.	7-20-71
CHECKED	N.H.R.	3-15-72
REVISED		
REVISED		
REVISED		

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER U.S. 91, UNION PACIFIC RAILROAD & BLACKTAIL CREEK AT STA. 17+58.11

FED. AID PROJECT NO. EHS F-387(15)

BEAVERHEAD COUNTY

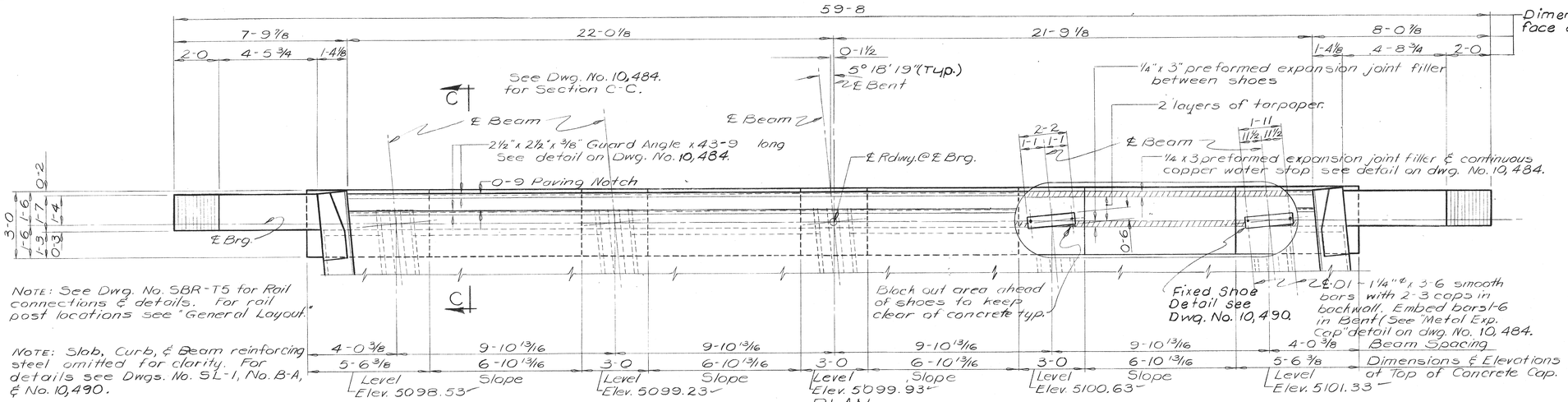
BENT NO. 5

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

DRAWING NO. 10 488

HES-

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	EHS F-387(15)	8	12



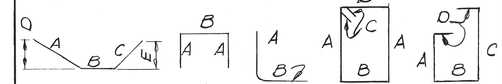
NOTE: See Dwg. No. SBR-T5 for Rail connections & details. For rail post locations see "General Layout."

NOTE: Slab, Curb, & Beam reinforcing steel omitted for clarity. For details see Dwgs. No. SL-1, No. B-A, & No. 10,490.

NOTE: Beam seat areas shall be finished level to elevations shown. Areas between beam seats to be slope uniformly as required.

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

BILL OF REINFORCING STEEL



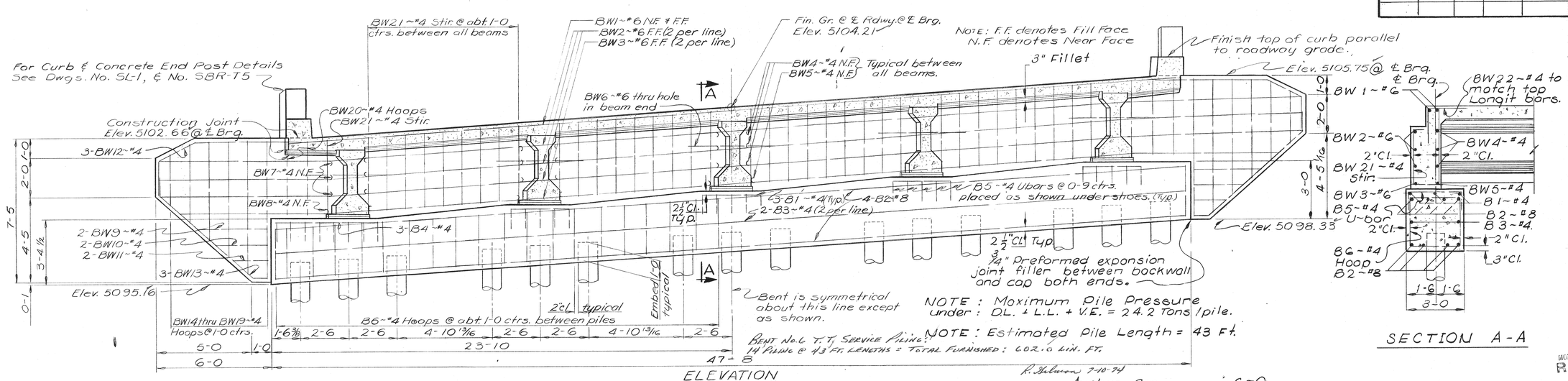
BENT BARS (All dimensions are out to out.

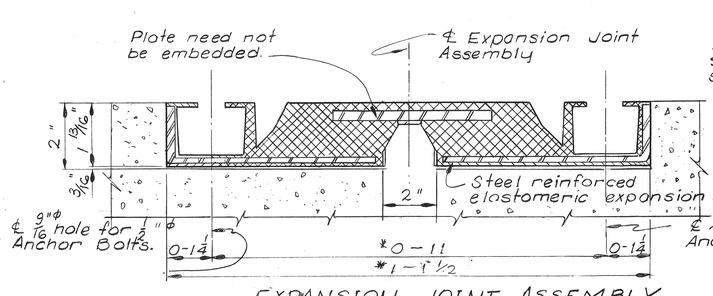
Mark	Size	No	Type	Length	A	B	C	D	E
B 5	#4	28	2	4'-8"	1'-0"	2'-8"			
B 6	4	40	5	11-3	2-7	2-8	0'-4½"		
BW12	4	6	1	9-8	5-10	2-1	1-9	2-7	1'-7"
13		6	1	8-4	1-0	6-7	0-9	0-9	0-6
14		2	5	8-7	2-8	1-3	0-4½		
15				11-5	4-1		0-4½		
16				13-5	5-1				
17				15-3	6-0				
18				17-1	6-11				
19		2		17-5	7-1				
20		4	5	10-11	3-10	1-3	0-4½		
21		38	4	8-6	2-10	3-10	1-3	0-3½	
BW22	#4	32	3	4-0	2-0	2-0			

STRAIGHT BARS

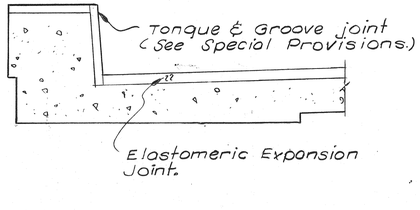
Mark	Size	No	Length
B 1	#4	12	3'-0"
B 2	8	8	47-4
B 3	4	4	24-1
B 4	4	3	5-4
BW1	6	2	45-8
2	6	6	30-6
3	6	2	29-6
4	4	12	8-3
5	4	4	7-11
6	6	5	4-6
7	4	6	9-0
8		2	7-8
9		4	3-8
10		4	2-8
BW11	#4	4	1-8
#01	1¼"ø SM	10	3-6

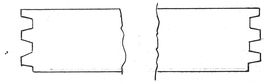
*01 - 1¼" ø Smooth bar shall conform to A.S.T.M. designation A-36.

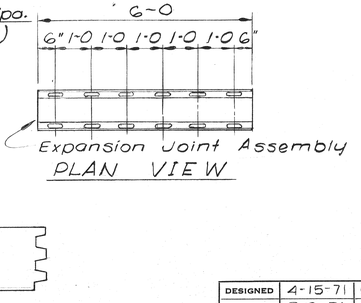




NOTE ~ The anchorage system for the expansion joint shall be as recommended by the manufacturer and shall be installed under his direct supervision.




TONGUE & GROOVE JOINT
NO Scale



DESIGNED	4-15-71	G.L.L.
DRAWN	7-19-71	G.A.P.
CHECKED	8-15-72	N.H.R.
REVISED		
REVISED		
REVISED		

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AUG 25 1972
BUTTE, MONTANA

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER U.S. 91, UNION PACIFIC RAILROAD & BLACKTAIL CREEK

AT STA. 17+58.11

FEDERAL AID PROJECT NO. EHS F-387(15)

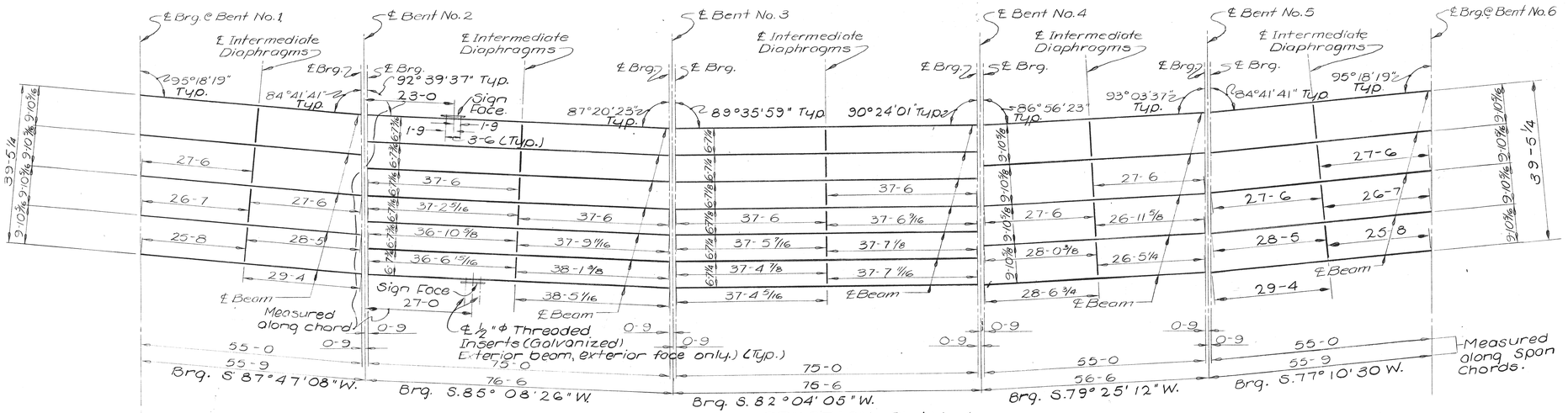
BEAVERHEAD COUNTY

BENT NO. 6

SCALE: 3/8" = 1'-0" (Except as Noted.)

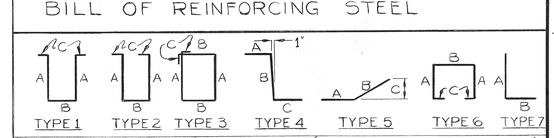
DRAWING NO. 10 489

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	EHS F-387(15)	9	12



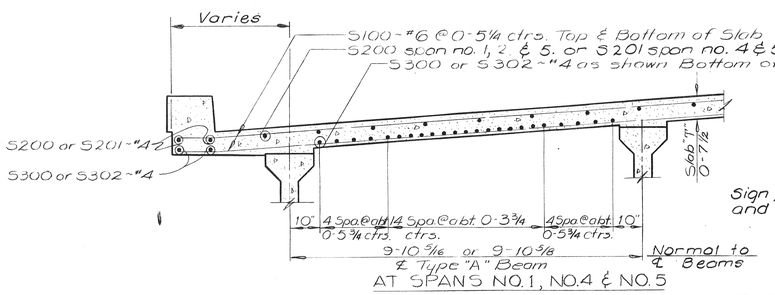
ERECTION PLAN
SCALE : 1" = 15'-0"

BILL OF REINFORCING STEEL

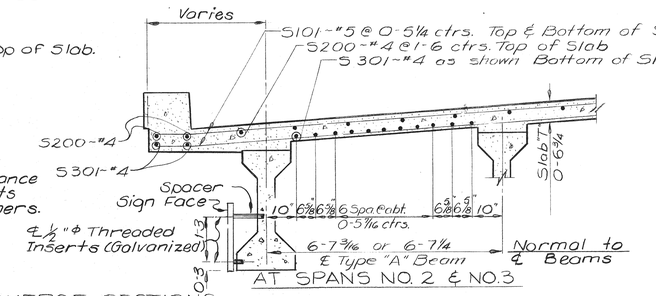


STRAIGHT BARS				BENT BARS (All dimensions are out to out)							
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO	TYPE	LENGTH	A	B	C
S 5	#5	69	15'-0"	C 1	#4	866	6	3'-4"	0'-9"	1'-0"	0'-5"
S 6	5	78	10-0	C 2	4	850	4	2-6	0-6	1-0	1-0
S100	6	764	45-8	C 3	4	156	3	3-7	0-10	0-8	0-3½
S 101	5	700	45-8	C 4	5	172	4	4-9	0-6	1-0	3-3
S 200	4	192	35-7	C 5	4	4	7	2-0	1-0	1-0	
S 201	4	96	38-2								
S 300	4	192	30-2	P 2	5	16	5	2-9	1-1½	1-7½	0-6
S 301	4	280	38-10	P 3	4	12	3	6-3	2-0	0-10	0-3½
S 302	4	288	38-2	P 4	4	4	3	6-1	2-0	0-9	0-3½
				P 5	4	4	3	5-11	2-0	0-8	0-3½
C 300	4	48	35-6	P 6	4	4	3	5-9	2-0	0-7	0-3½
C 301	4	24	38-7	P 7	4	4	3	5-7	2-0	0-6	0-3½
				P 8	4	4	3	5-5	2-0	0-5	0-3½
P 1	5	24	2-9	P 9	4	4	3	5-3	2-0	0-4	0-3½
D 8	#6	51	4-6	D 4	4	264	2	4-10	1-10	0-7	0-3½
				D 7	#4	168	1	6-4	2-7	0-7	0-3½

FOR SPANS NO.1, NO.4, NO.5				FOR SPANS NO 2 & NO 3			
STRAIGHT BARS				STRAIGHT BARS			
MARK	SIZE	NO	LENGTH	MARK	SIZE	NO	LENGTH
D 3	#6	32	8'-4"	D 3	#6	48	5'-1"
D 5	4	24	8-4	D 5	4	24	5-1
D 6	#6	24	8-4	D 6	#6	24	5-1



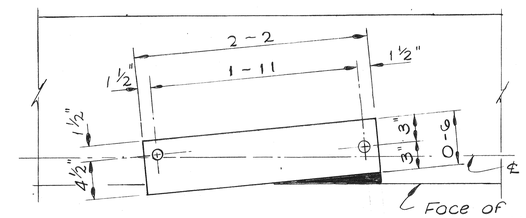
AT SPANS NO. 1, NO. 4 & NO. 5



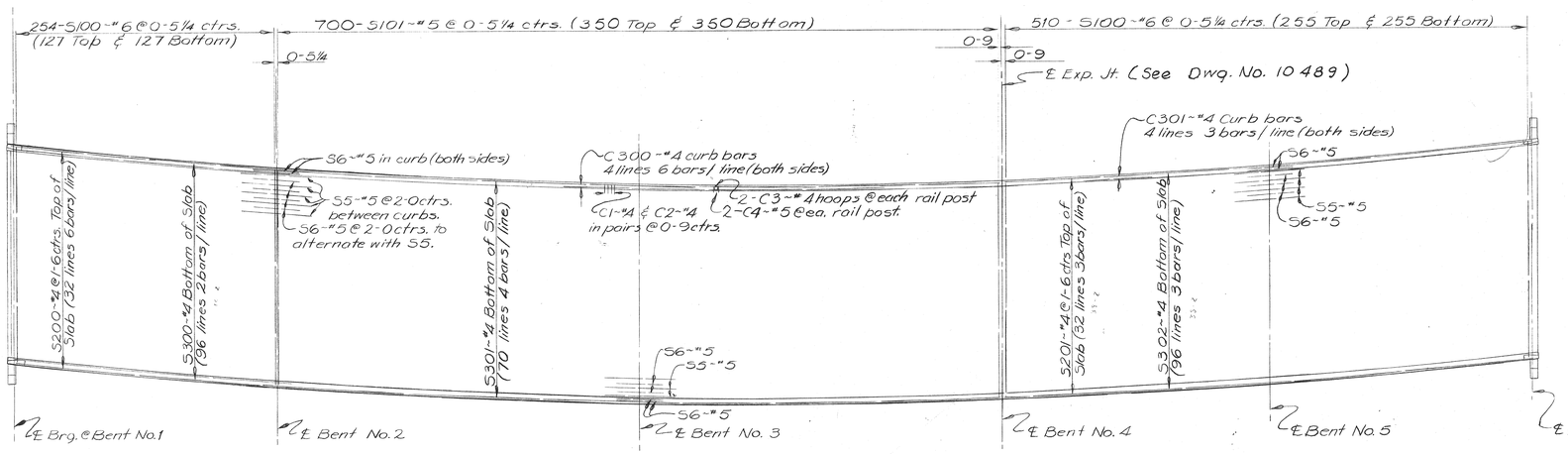
NOTE - Clearance Sign, mounting bolts and spacer by others.

AT SPANS NO. 2 & NO. 3

TYPICAL TRANSVERSE SECTIONS
SCALE: ½" = 1'-0"



FIXED SHOE DETAIL
SCALE : 1½ = 1-0
Note: Typical for Bents No.1 & No. 6 only.



REINFORCING STEEL PLACEMENT DIAGRAM
SCALE: 1" = 15'-0"

NOTE - For additional slab, curb, end diaphragm and intermediate diaphragm details see Dwg. No. 5L-1.

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 :

SPAN LENGTH		55'	75'
Beam DL. Stresses (p.s.i.)	f'b	- 467	- 866
	f't	577	1,069
Total DL. + LL. Design Stresses (p.s.i.)	f'b	-3,042	-3,599
	f't	2,451	3,203
Req'd Ultimate Moment Capacity (Ft. Kip)	M	2,987	3,309

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STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

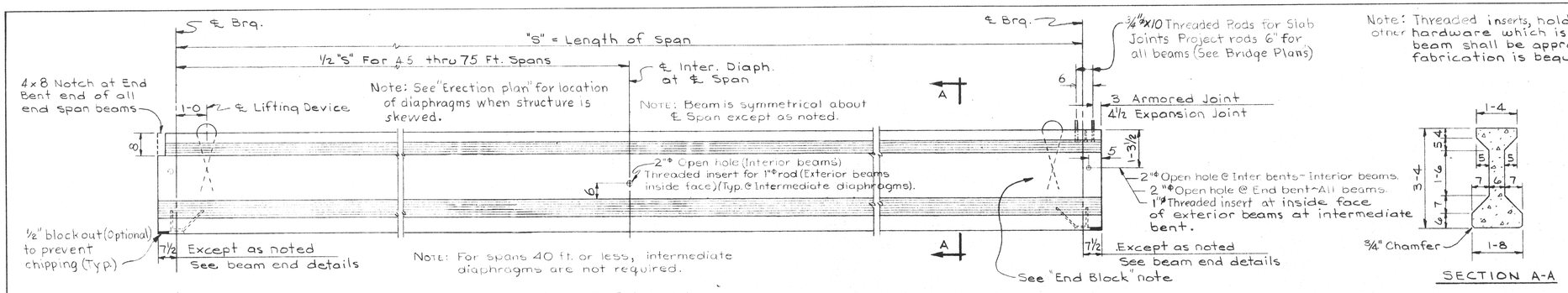
BRIDGE OVER U.S. 91, UNION PACIFIC RAILROAD & BLACKTAIL CREEK
AT STA 17+58.11
FEDERAL AID PROJECT NO. EHS F-387(15)
BEAVERHEAD COUNTY
ERECTION PLAN
SCALE : As Shown

DESIGNED	11-18-70	G.L.L.
DRAWN	3-19-70	G.A.P.
CHECKED	3-15-72	N.H.R.
REVISED		
REVISED		
REVISED		

DRAWING NO. 10490

HES-

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



Note: Threaded inserts, 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 A-A

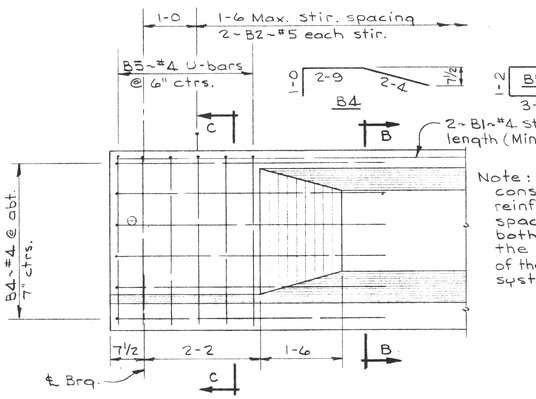
NOTES

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

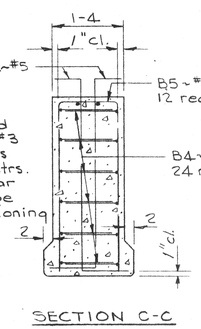
END-BLOCK: Beams with post-tensioned tendons shall have end-blocks as detailed hereon. Where all tendons are pretensioned 7 wire strand, the use of end-blocks will not be required.

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

Post-tensioned prestressing reinforcement shall conform to Section 42 of the Standard Specifications or the Supplemental Specifications. 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. 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 stresses 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, 1969 Edition, and any amendments thereto.



END-BLOCK ELEVATION
(See Note)

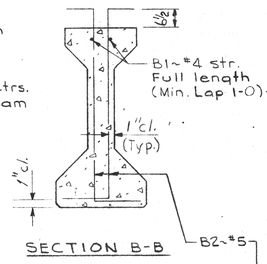


SECTION C-C

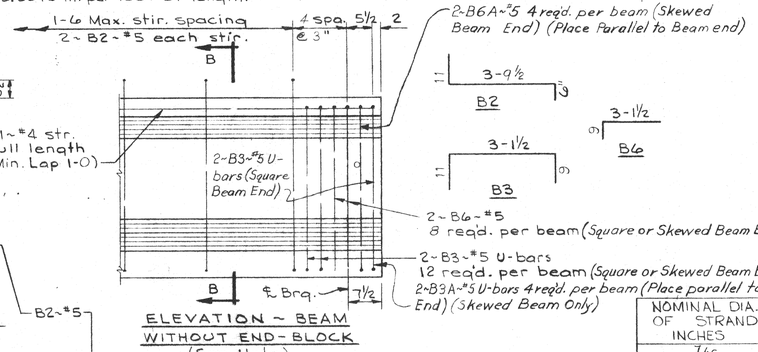
ELEVATION

Note: To allow for Elastic Shortening, Shrinkage and Creep the overall length of the beam shall be increased by 0.0075 in. per foot of length.

Note: Use a grid consisting of #3 reinforcing bars spaced at 2" ctrs. both ways near the anchorage of the post-tensioning system.



SECTION B-B



ELEVATION ~ BEAM WITHOUT END-BLOCK
(See Note)

40	Req'd. per beam	30'	Span	
46	" " "	35	"	
54	" " "	40	"	
60	" " "	45	"	
66	" " "	50	"	
74	" " "	55	"	
80	" " "	60	"	
86	" " "	65	"	
94	" " "	70	"	
100	" " "	75	"	

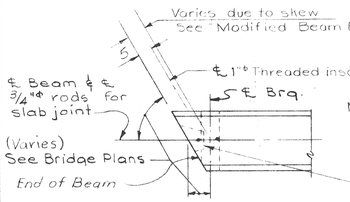
TABLE I

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	3,100	26,350
½	41,300	.153	525	4,130	35,100

FINISH OF BEAMS: Beam & beam ends, unless embedded in concrete, shall be given an ordinary finish as specified in Art. 41.04 (L)(1) of the Std. Specs. Prior to finishing, strands shall be cut back ½ min. and the depression filled with an approved epoxy. When beams are embedded in concrete, ends may be left rough and strands may be cut to project 1" max. from concrete.

PLACING STEEL: Steel clearance from side forms shall be maintained by stays, ties, hangers or approved metal chairs. Steel clearance at the bottom of beam shall be maintained with the use of continuous steel chairs with stainless steel legs.

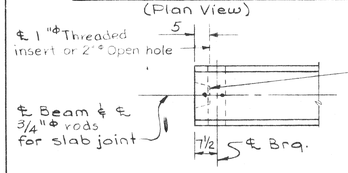
REINFORCING STEEL DETAILS
Scale: ¾"=1'-0"



BEAM END FOR SKEWED BRIDGE
(Plan View)

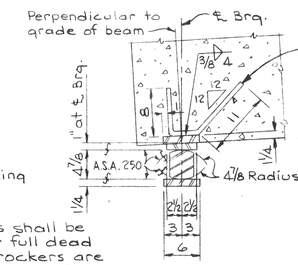
Note: Standard reinforcing steel to be modified to fit skewed beam end and to clear block outs as req'd.

If beams are post-tensioned, anchorage devices are to be embedded in beam end. Block out beam end as required & seal block outs with mortar after grouting post-tensioning conduits.

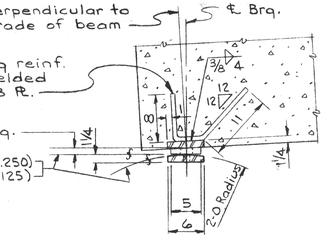


BEAM END FOR SQUARE BRIDGE
(Plan View)

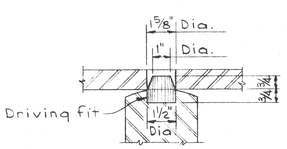
Note: Rocker shoes shall be set vertical under full dead load at 60° F. If rockers are not in correct position with final dead load on spans, spans shall be jacked and adjustments made.



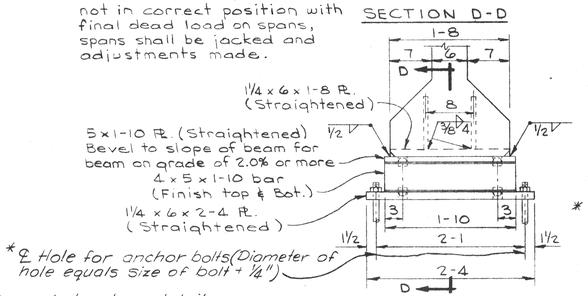
SECTION D-D



SECTION E-E

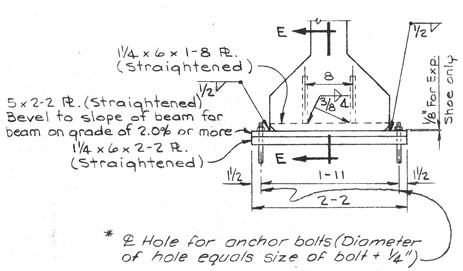


PINTLE DETAIL
Scale: 3"=1'-0"



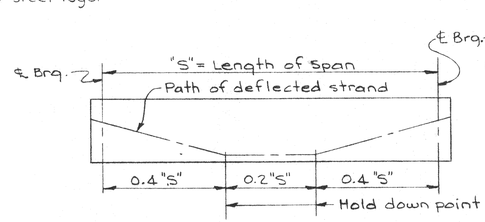
*NOTE: See substructure details for length and size of anchor bolts.

EXP. SHOE DETAILS FOR 55 - 75 FT. BEAMS
Scale: 1"=1'-0"

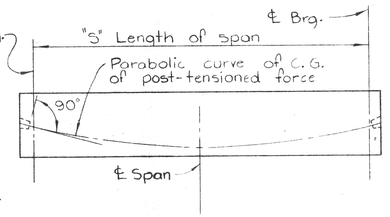


FIX. SHOE DETAILS FOR ALL BEAMS
EXP. SHOE DETAILS FOR 30-50 FT. BEAMS
Scale: 1"=1'-0"

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



TYPICAL DEFLECTED STRAND FOR PRE-TENSIONING SYSTEM
No Scale



TYPICAL TENDON LAYOUT FOR POST-TENSIONING SYSTEM
No Scale

FINISH OF TOPS: Tops of beams shall be left rough. At approximately the time of initial set all laitance shall be removed with a coarse wire brush. Grade strips or other approved methods shall be used at the top edges to establish the nominal depth of the beam.

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STATE OF MONTANA DEPARTMENT OF HIGHWAYS

STANDARD PRESTRESSED CONCRETE BEAM - TYPE A

Scale: ½"=1'-0" Except As Noted

REVISED	NHR	3-31-72	DESIGNED		
REVISED	W.H.L.	5-15-68	DRAWN	K.P.	8-27-63
REVISED	R.N.D.	10-25-66	CHECKED	R.D.K	8-28-63
REVISED	NHR	7-1-67	REVISED	K.G.R	9-15-65
REVISED	NHR	12-31-70	REVISED	W.H.L.	3-23-67

APPROVED BY _____ BRIDGE ENGINEER

DRAWING NO. B-A

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

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, no. 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".

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.

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

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

①Galvanized pipe sleeves in End Posts shall be included in the unit price bid for Std. Steel Bridge Rail.

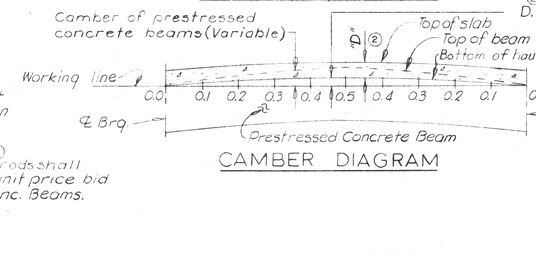
Top of curb to be parallel to rdwy. grade. See Std. rail dwg for concrete finish requirements at rail posts.

D.L. DEFLECTION FOR PRESTRESSED CONCRETE BEAMS

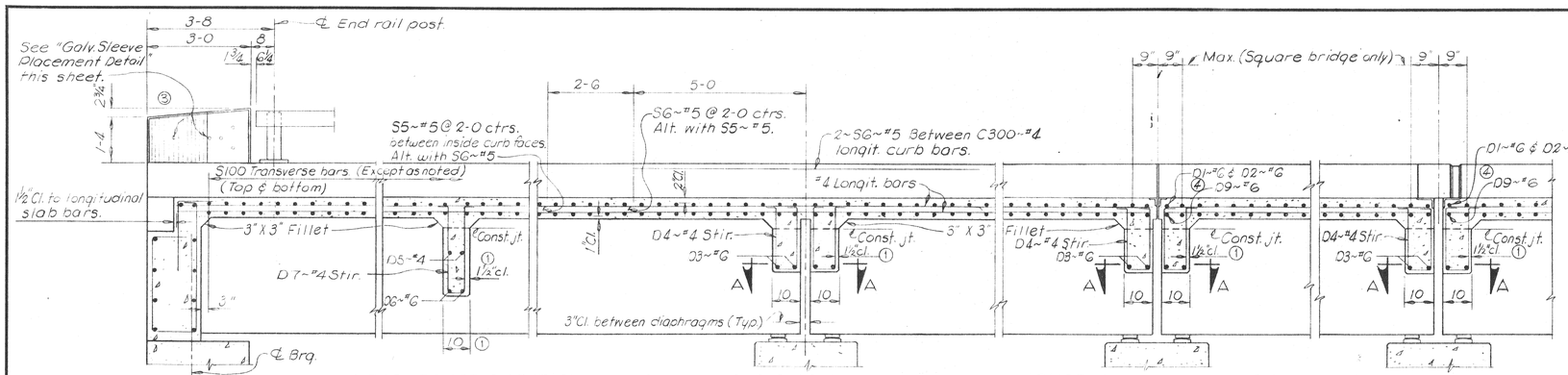
SPAN	TYPE "1" TENTH POINT 0.1	0.2	0.3	0.4	0.5
30	1/16	1/16	1/8	1/8	1/8
35	1/16	1/8	3/16	3/16	3/16
40	1/8	1/4	5/16	3/8	3/8
45	1/8	5/16	3/8	7/16	1/2
① TYPE "10"					
40	0	0	0	1/16	1/16
45	0	0	1/16	1/16	1/16
50	0	1/16	1/16	1/16	1/16
55	1/16	1/16	1/8	1/8	1/8
60	1/16	1/8	1/8	3/16	3/16
65	1/16	1/8	3/16	1/4	1/4
70	1/8	3/16	5/16	5/16	3/8
75	1/8	1/4	3/8	7/16	1/2
80	3/16	3/8	1/2	9/16	5/8
85	1/4	7/16	5/8	3/4	3/4
90	5/16	3/16	13/16	15/16	15/16
95	5/16	5/8	13/16	1	1 1/16
100	5/16	5/8	7/8	1 1/16	1 1/8
105	7/16	13/16	1 1/16	1 1/4	1 5/16
110	3/8	3/4	1	1 3/16	1 1/4
115	7/16	7/8	1 3/16	1 7/16	1 1/2
120	1/2	1	1 3/16	1 5/16	1 5/8
125	5/8	1 1/8	1 3/16	1 13/16	1 15/16
130	7/16	1 5/16	1 13/16	2 1/8	2 1/4
135	1 3/16	1 3/16	2 1/8	2 1/2	2 5/8

SPAN	TYPE "A" TENTH POINT 0.1	0.2	0.3	0.4	0.5
30	0	0	0	0	0
35	1/16	1/16	1/8	1/8	1/8
40	1/8	3/16	3/16	1/4	1/4
45	1/8	1/4	5/16	3/8	3/8
50	3/16	5/16	7/16	1/2	1/2
55	1/4	3/8	1/2	9/16	5/8
60	1/4	1/2	5/8	11/16	3/4
65	5/16	9/16	11/16	13/16	7/8
70	3/8	5/8	7/8	15/16	1
75	7/16	11/16	15/16	1 1/16	1 1/8
TYPE "4"					
30 40	0	0	1/16	1/16	1/16
45	0	1/16	1/16	1/16	1/16
50	1/16	1/16	1/8	1/8	1/8
55	1/16	1/8	1/8	3/16	3/16
60	1/16	1/8	3/16	1/4	1/4
65	1/8	3/16	5/16	5/16	3/8
70	1/8	1/4	3/8	7/16	1/2
75	3/16	3/8	1/2	9/16	5/8
80	1/4	7/16	5/8	3/4	3/4
85	5/16	9/16	3/4	7/8	7/8
90	3/8	5/8	7/8	1 1/16	1 1/8
95	3/8	11/16	15/16	1 1/8	1 3/16
100	3/8	11/16	15/16	1 1/8	1 3/16
105①	7/16	3/4	1	1 3/16	1 1/4

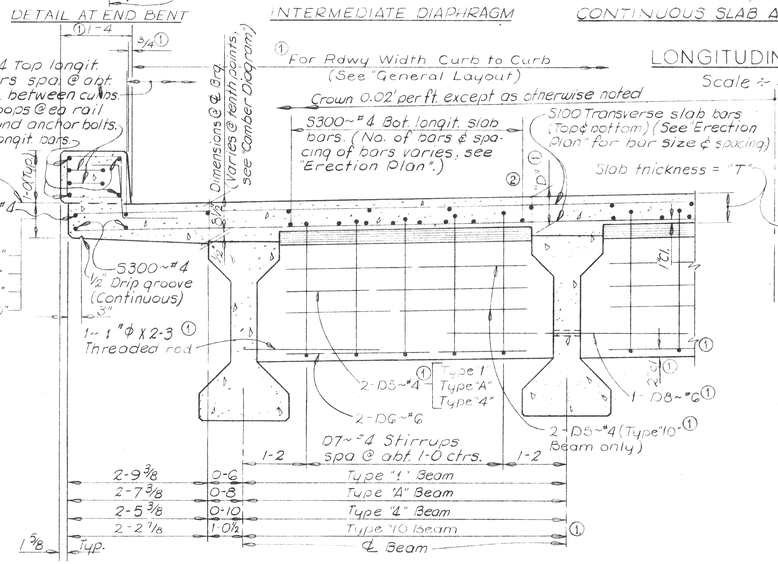
②D.L. Deflection as shown in table.



CAMBER DIAGRAM

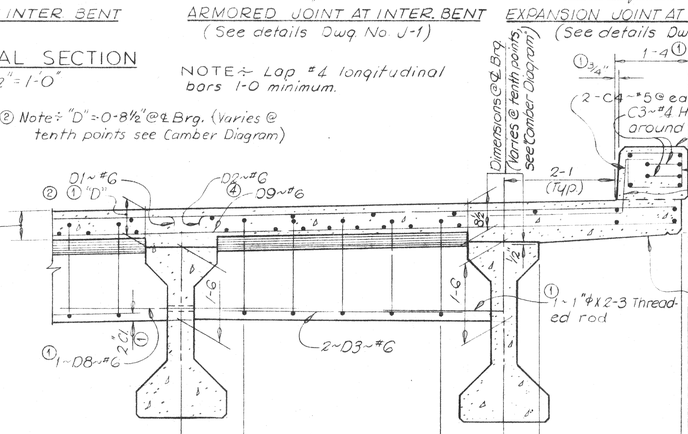


DETAIL AT END BENT



INTERMEDIATE DIAPHRAGM

CONTINUOUS SLAB AT INTER. BENT



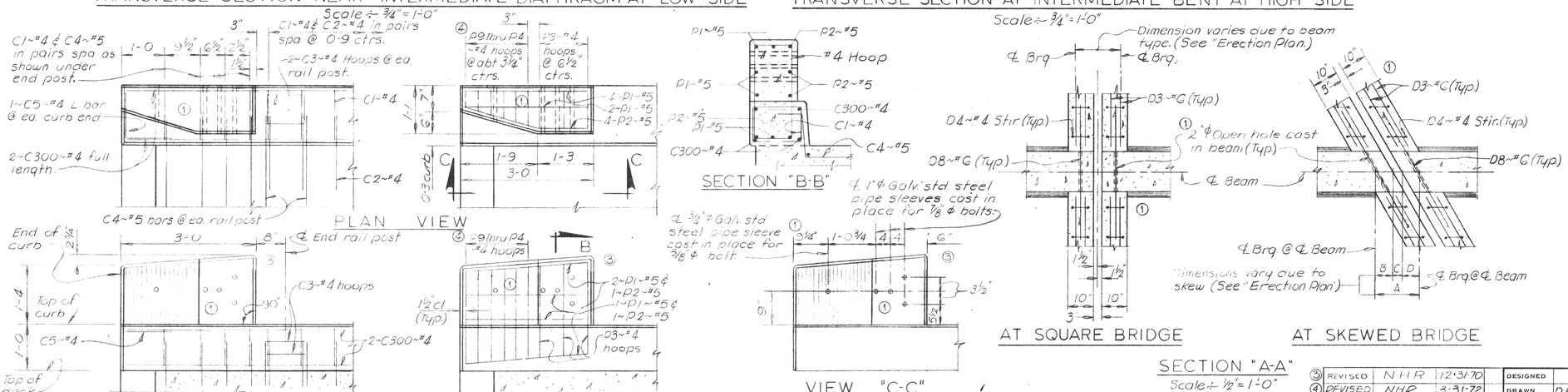
ARMORED JOINT AT INTER. BENT
(See details Dwg. No. J-1)

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

NOTE:- Threaded ① rods shall be included in the unit price bid for Prestressed Conc. Beams.

TRANSVERSE SECTION NEAR INTERMEDIATE DIAPHRAGM AT LOW SIDE

TRANSVERSE SECTION AT INTERMEDIATE BENT AT HIGH SIDE



SECTION "A-A"
Scale:- ½" = 1'-0"

CONCRETE END POST DETAILS
Scale:- ¾" = 1'-0"

③	REVISED	N.H.R.	12-31-70	DESIGNED	
④	REVISED	N.H.R.	3-31-72	DRAWN	D.E. MILOT 12-31-69
				CHECKED	N.H. ROANLIE 12-31-69
				APPROVED	C.V.C. 12-31-69
				① REVISED	F.N.D. 11-1-70
				② REVISED	N.H.R. 11-2-70

MONTANA HIGHWAY COMMISSION
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AUG 25 1972
BUTTE, MONTANA

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

STANDARD SLAB, CURB, DIAPHRAGM, & END POST DETAILS

Scale:- As Noted

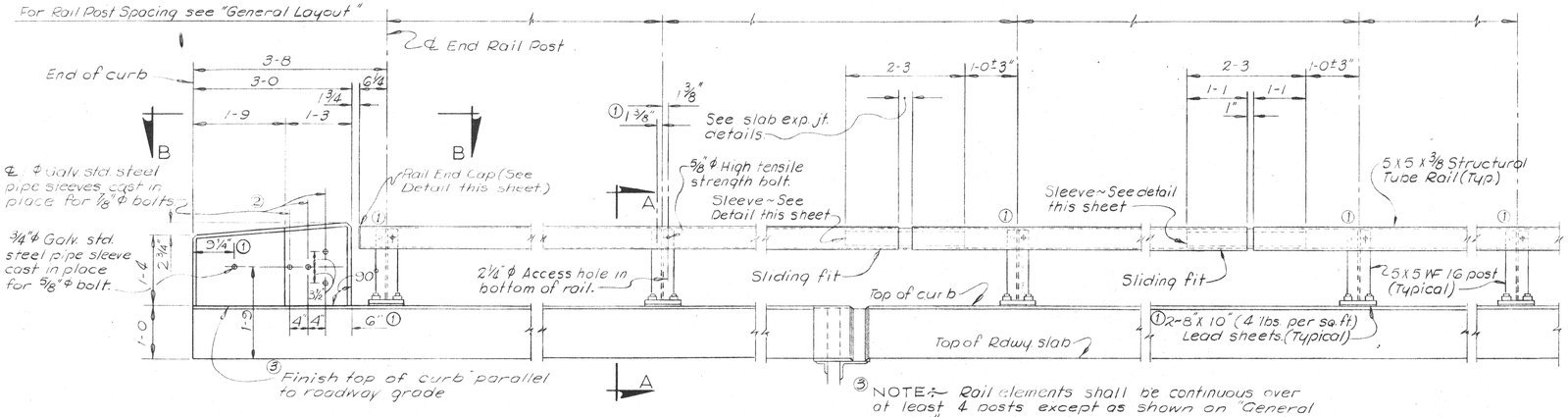
DRAWING NO. SL-1

R.O.K.

K&E 19 1153 3-69

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

For Rail Post Spacing see "General Layout"



NOTES

STRUCTURAL STEEL:~ Posts, sleeves & plates shall be structural steel conforming to ASTM A-36. The rails shall conform to ASTM A-500, cold-formed welded & 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 No. 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 the end rail posts.

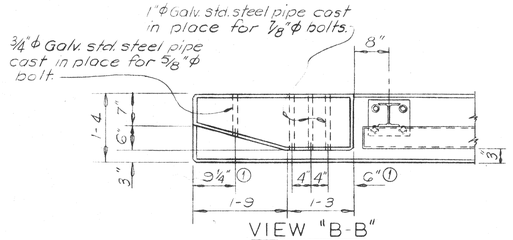
① PAINTING:~ All rail elements, posts & anchor plates shall be given three coats of paint as called for in the Standard Specifications except as noted.

ERECTION:~ Rail posts shall be set perpendicular to top of curb, and the 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 ASTM Specification A153.

① GALVANIZED PIPE SLEEVE:~ Galvanized pipe sleeves shall be included in the unit price bid for Std. Steel Bridge Rail.

END POST & TERMINAL SECTION

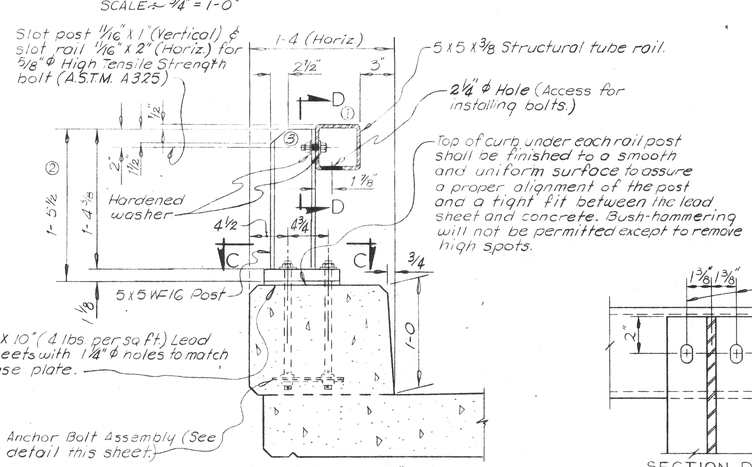


VIEW "B-B"

SCALE:~ ¾" = 1'-0"

TYPICAL RAIL POST SLEEVE EXPANSION JOINT

SCALE:~ ¾" = 1'-0"

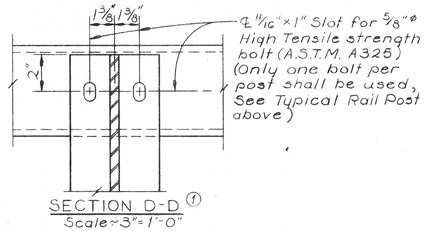


SECTION "A-A"

SCALE:~ 1½" = 1'-0"

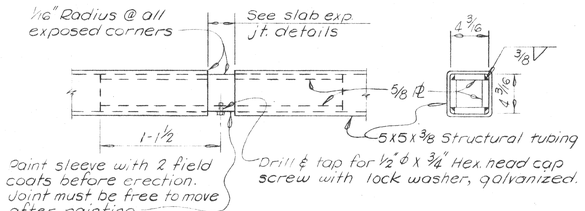
RAIL SPLICE

NOTE: Splices in structural tubing will not be permitted without prior approval by the Engineer. Splices shall be shown on shop drawings.



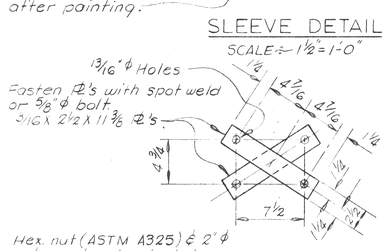
SECTION D-D ①

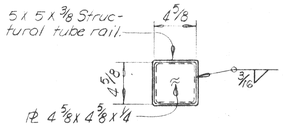
Scale:~ 3" = 1'-0"



SLEEVE DETAIL

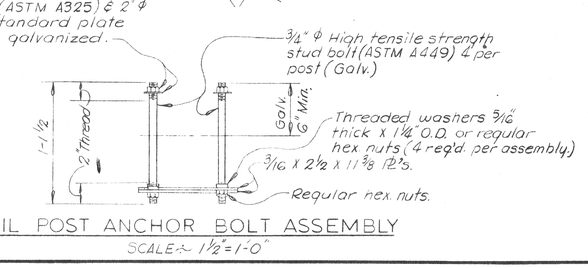
SCALE:~ 1½" = 1'-0"





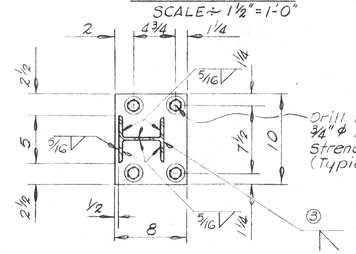
RAIL END CAP DETAIL

SCALE:~ 1½" = 1'-0"



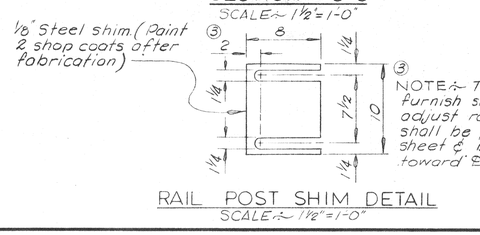
RAIL POST ANCHOR BOLT ASSEMBLY

SCALE:~ 1½" = 1'-0"



SECTION C-C

SCALE:~ 1½" = 1'-0"



RAIL POST SHIM DETAIL

SCALE:~ 1½" = 1'-0"

MONTANA HIGHWAY COMMISSION
RECEIVED
AUG 25 1972
BUTTE, MONTANA

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

STANDARD STEEL BRIDGE RAIL TYPE NO. 5

SCALE:~ AS NOTED

③ REVISED	NHR	3-31-72	DESIGNED		
REVISED			DRAWN	O.E. MILOT	12-31-69
REVISED			CHECKED	N.H.R.	12-31-69
			APPROVED	R.N.D.	12-31-69
			REVISED	R.N.D.	11-1-70 ①
			REVISED	N.H.R.	12-31-70 ②

DRAWING NO. SBR-T5

E.D.K.

K&E 19 1153 3-69•

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	IM 15-1(87)64	B1

BRIDGE BUREAU

MONTANA

DEPARTMENT OF TRANSPORTATION

BRIDGE REHABILITATION PLANS AND QUANTITIES

FEDERAL AID PROJECT NO. IR - IM 15-1(82)64 P.E.
IM 15-1(87)64 CONST.

DILLON - APEX

BEAVERHEAD COUNTY

LIST OF DRAWINGS

SHEET NO.	DRAWING NO.	DESCRIPTION
B1	16738Q	LIST OF DRAWINGS AND ESTIMATED BRIDGE PLAN QUANTITIES
B2	16738	BRIDGE WORK SUMMARY, GENERAL NOTES AND DRAIN DETAILS
B3	16739	JOINT REMOVAL AND JOINT SEALANT DETAILS
B4	16740	SHEAR BLOCK AND DECK REPAIR DEFINITION
B5	12727	GENERAL LAYOUT @ STA. 290+02.37 N.B. AND S.B.
B6	10482	GENERAL LAYOUT @ STA. 17+58.11
B7	10458	GENERAL LAYOUT @ STA. 50+12.4 (O.P.)
B8	9827	GENERAL LAYOUT @ STA. 333+00.00 N.B. AND S.B.
B9	9833	GENERAL LAYOUT @ STA. 8+95.97 (O.P.)
B10	9751	GENERAL LAYOUT @ STA. 24+41.80 (O.P.)
B11	9758	GENERAL LAYOUT @ STA. 24+43.90 (O.P.)

ESTIMATED BRIDGE PLAN QUANTITIES

MILE POST I-15	MILE POST ROUTE		MILE POST RDWY.	(ROUTE) AS BUILT STATION	GENERAL LAYOUT DWG. NO.	DESCRIPTION	BRIDGE DECK REPAIR CLASS "A" (SQ. YD.)	BRIDGE DECK REPAIR CLASS "B" (SQ. YD.)	CLASS "BD MODIFIED" CONCRETE - REPAIR (CU. YD.)	REVISE DECK DRAINS (EACH)	FURNISH * HMWM (GAL.)	BRIDGE DECK TREATMENT (SQ. YDS.)	RESEAL EXISTING JOINTS (LIN. FT.)	PAINT BRIDGE RAIL (LIN. FT.)	REINFORCING STEEL - REGULAR (LBS.)	SHEAR BLOCK (EACH)	TEMPORARY CONCRETE MEDIAN RAIL (LIN. FT.)	RESET CONCRETE MEDIAN RAIL (LIN. FT.)	INSTALL IMPACT ATTENUATOR (EACH)
63+0.494			N.B.	290+02.37	12727	PARK STREET SEPARATION	0				76	846.6							
63+0.494			S.B.				0.6				76	846.6							
63+0.954	P89	2+0.602	O.P.	17+58.11	10482	US 91, UPRR, BLACKTAIL CK	-	23.1	5.9		158	1750.5	101	633	1947				
	P89	3+0.232	O.P.	50+12.4	10458	DILLON INT.	27.4				129	1429.1		580					
64+0.088			N.B.	333+00.00	9827	BEAVERHEAD RIVER	9.6				76	842.3	97	274		2			
64+0.088			S.B.				10.0				76	842.3	97	274		2			
64+0.459	LO1315	0+0.700	O.P.	8+95.97	9833	RIVER RD. SEPARATION	1.0			4	94	1041.8		585					
66+0.432	LO1112	0+0.520	O.P.	24+41.80	9751	COUNTY RD. SEPARATION	1.8			2	91	1008.2		605					
69+0.666	LO1316	6+0.500	O.P.	24+43.90	9758	COUNTY RD. SEPARATION	0			2	93	1024.7		615					
TOTAL							50.4	23.1	5.9	8	869	9632.1	295	3566	1947	4	1,000	3,000	12

* - High Molecular Weight Methacrylate - See "Special Provisions".

PREPARED BY: L.R.T. 5-22-97 CHECKED BY: M.L.R. 10-8-97

FILENAME: 17570S.BRG DRAWING NO. 167380

c:\dgn\dillon\17570s.brg Nov. 12, 1997 15:42:40

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	IM 15-1(87)64	B2

BRIDGE BUREAU

BRIDGE WORK SUMMARY

MILE POST				AS BUILT STATION	GENERAL LAYOUT DWG. NO.	DESCRIPTION	PATCH DELAMINATED AREAS	SEAL DECK	SEISMIC RETROFIT (SHEAR BLOCKS)	PAINT BRIDGE RAIL	RESEAL JOINTS	REMOVE JOINT	** APPROACH SECTIONS	* REPAIR BENT CAP	* BACKWALL REPAIR	** REMOVE APPROACH SLAB	* EROSION CONTROL	INSTALL/ REPAIR DECK DRAINS
I-15	ROUTE		RDWY.															
63+0.494			N. B.	290+02.37	12727	PARK STREET SEPARATION	YES	YES					Δ TYPE 1					
63+0.494			S. B.				YES	YES					Δ TYPE 1					
63+0.954	P89	2+0.602	O. P.	17+58.11	10482	US 91, UPRR, BLACKTAIL CK	YES	YES		YES	BENTS 1 AND 6	BENT 4	θ TYPE 3	BENT 4				
	P89	3+0.232	O. P.	50+12.4	10458	DILLON INT.	YES	YES		YES			θ TYPE 3		BENTS 1 AND 5	BENTS 1 AND 5		
64+0.088			N. B.	333+00.00	9827	BEAVERHEAD RIVER	YES	YES	BENTS 1 AND 3	YES	BENTS 1 AND 3		θ TYPE 3					
64+0.088			S. B.				YES	YES	BENTS 1 AND 3	YES	BENTS 1 AND 3		θ TYPE 3					
64+0.459	LO1315	0+0.700	O. P.	8+95.97	9833	RIVER RD. SEPARATION	YES	YES		YES			θ TYPE 3			BENTS 1 AND 5	YES	YES
66+0.432	LO1112	0+0.520	O. P.	24+41.80	9751	COUNTY RD. SEPARATION	YES	YES		YES			θ TYPE 3		BENTS 1 AND 5			YES
69+0.666	LO1316	6+0.500	O. P.	24+43.90	9758	COUNTY RD. SEPARATION	YES	YES		YES			θ TYPE 3		BENTS 1 AND 5			YES

* *See Special Provision "Miscellaneous Work by Contractor".*

** *See Road Plans.*

Δ *See Detailed Dwg. No. 606-25 and 606-26 for approach section details*

θ *See Detailed Dwg. No. 606-25 and 606-27 for approach section details.*

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, 1995 edition, and any amendments thereto, and special provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO Specifications, 1996 edition and any amendments thereto.

MISCELLANEOUS WORK: See Special Provisions.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of ASTM Specification A 615/A 615M-96a Grade 60 (420). Payment for all costs associated with furnishing and placing new reinforcing steel is at the unit price bid for Reinforcing Steel.

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

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

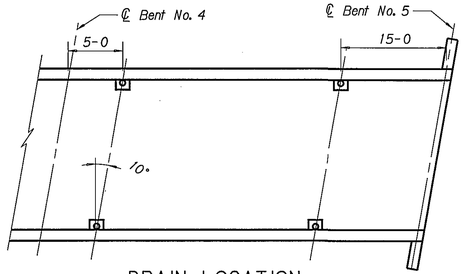
CLASS "A" AND "B" BRIDGE DECK REPAIR: Quantities shown may vary from actual field quantities. See Special Provisions.

Payment for all costs associated with removing existing joint, reinforcing steel and concrete is at the unit price bid for Class "B" Bridge Deck Repair. Payment for all costs associated with furnishing and placing new Class "BD Modified" concrete is at the unit price bid for "BD Modified" Concrete - Repair.

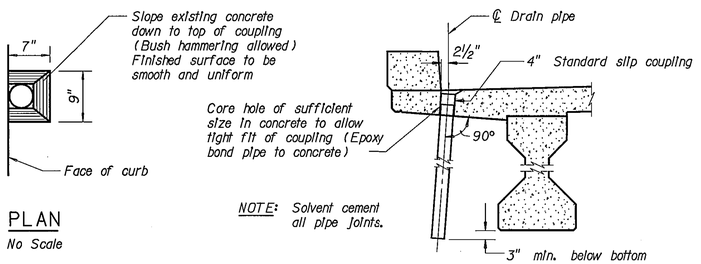
REPAIR CONCRETE : All concrete shown as Class "BD Modified" Concrete - Repair may be replaced with an approved rapid setting portland cement concrete to shorten cure time requirements for traffic control. (See the Standard Specifications and "Special Provisions").

DIMENSIONS: 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. In the event that 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.

PAINT EXISTING RAIL: Clean and paint existing bridge rail with an aluminum epoxy paint meeting the requirements of the Standard Specifications. All costs and resources necessary to complete the work are included in the unit price bid for Paint Bridge Rail.



DRAIN LOCATION
No Scale



PLAN
No Scale

NOTE: *Solvent cement all pipe joints.*

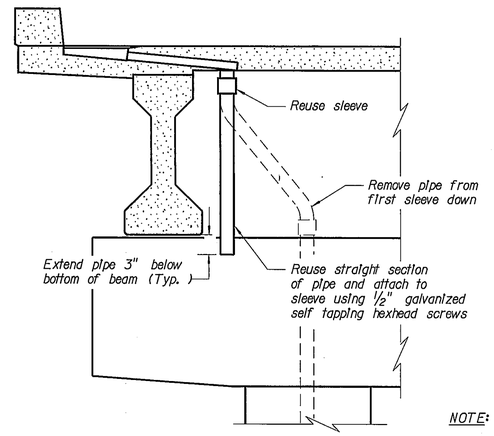
NOTE: *All costs and resources necessary to install new PVC drains included in the unit price bid for Revise Deck Drains.*

NOTE: *Use schedule 40 pipe having 4.500" O.D. x .237 minimum wall thickness meeting the requirements of article 708.05 of the Standard Specifications.*

DRAIN DETAIL
Scale - ½" = 1-0

NEW DRAIN DETAILS

LO 1315 M.P. 0+0.700 Span No. 4



DRAIN MODIFICATION DETAIL
No Scale

L O 1112 M.P. 0+0.520 (2 Locations)
L.O. 1316 M.P. 6+0.500 (2 Locations)

NOTE: *Include all costs and resources necessary to modify drains as shown in the unit price bid for Revise Deck Drains.*

MONTANA DEPARTMENT OF TRANSPORTATION

DILLON - APEX

FEDERAL AID PROJECT NO. IM 15-1(87)64

BEAVERHEAD COUNTY

BRIDGE WORK SUMMARY, GENERAL NOTES AND DRAIN DETAILS

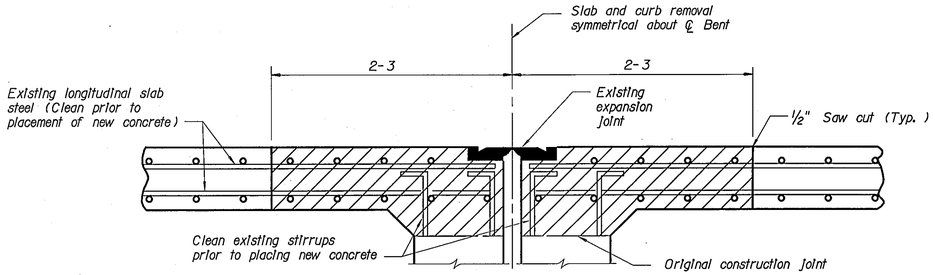
DESIGNED	5-21-97	SR/LT
DRAWN	5-21-97	L. R. T.
CHECKED	10-8-97	M. L. R.
REVISED		
REVISED		
REVISED		

FILENAME: 1757SUM.BRG DRAWING NO. 16738

c:\bgn\dillon\1757sum.brg Nov 12, 1997 15:48:55

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	IM 15-(87)64	B3

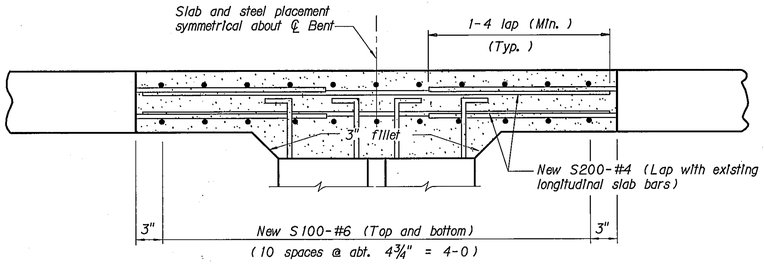
BRIDGE BUREAU



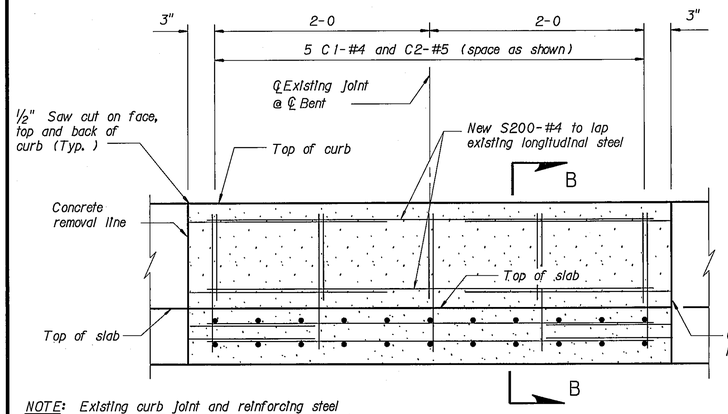
EXISTING JOINT SECTION

Remove existing concrete and joint

New Class "BD Modified" Concrete



CONTINUOUS SLAB DETAIL



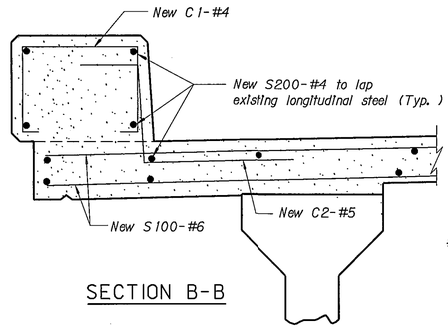
NOTE: Existing curb joint and reinforcing steel not shown. Remove curb joint and concrete to the limits shown. Clean longitudinal steel prior to placing new concrete.

CURB DETAIL

NOTE: If rail posts exist within the concrete removal limits, remove rail post and anchorage, clean and reset into new concrete.

NOTE: The unit price bid for Class "B" Bridge Deck Repair includes all costs and resources necessary to remove the concrete and joint as shown.

NOTE: The unit price bid for Class "BD Modified" Concrete - Repair includes all costs and resources necessary to furnish and place new concrete as shown.

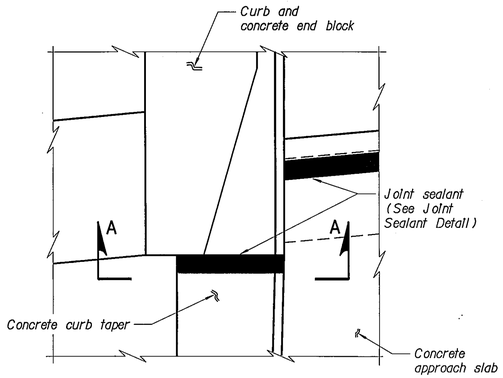


SECTION B-B

JOINT REMOVAL DETAILS

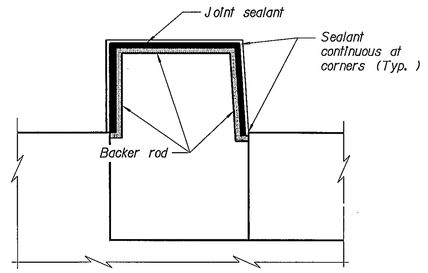
Scale ~ 1½" = 1-0

P89 M.P. 2+0.602 Bent No. 4



PLAN VIEW OF END BENT

Scale ~ 1½" = 1-0



VIEW A-A

Scale ~ 1½" = 1-0

JOINT SEALANT NOTES

Use Dow Corning 902 RCS Joint Sealant or approved equal with a closed cell expanded polyethelyne foam backer rod. Install the joint sealant in accordance with the manufacturer's recommendations. Do not use asphalt based sealant or one-part silicone sealants. The unit price bid for Reseal Existing Joints includes all costs associated with furnishing and installing backer rod and silicone sealant.

Install a backer rod that is a minimum 25 percent larger than the joint opening.

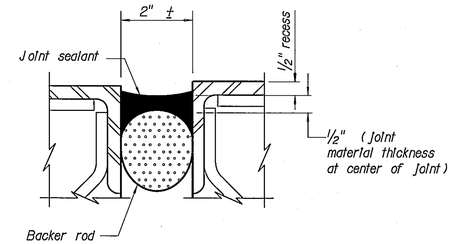
Sandblast concrete openings and prime the prepared surface with Dow Corning 1205 Prime Coat or equal prior to applying sealant.

Keep all joint surfaces clean and dry prior to and during installation.

Use the manufacturer's recommendations for proper damming techniques for sealing the vertical faces of curbs.

Sandblast vertical steel faces to a "near white" (SSPC-SP10 of the Steel Structures Painting manual) and apply a thin coating of the joint manufacturer's recommended zinc-rich primer.

NOTE: The ½" recess for joint sealant is a mandatory minimum requirement.



SECTION

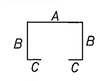
Half Scale

JOINT SEALANT DETAILS

P89 M.P. 2+0.602 Bents 1 and 6

I-15 M.P. 64+0.088 N.B and S.B Bents 1 and 3

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
	P89 M.P. 2+0.602											
*	S100	#6	22	45'-8"	C1	#4	10	1	3'-4"	1'-0"	0'-9"	0'-5"
	S200	#4	136	4'-2"	C2	#5	10	2	3'-6"	0'-6"	1'-0"	2'-0"

* NOTE: Due to the phase construction required for the joint removal work, supply the S100 transverse bars in two lengths. Lengths are dependent on temporary lane widths contained in the approved traffic control plan. Connect the two pieces with an approved threaded rebar connector (see Special Provisions). Include all costs and resources necessary to supply and place reinforcing steel and threaded rebar connectors and to thread S100 transverse bars in the unit price bid for Reinforcing Steel.

DESIGNED	5-22-97	SR/LT
DRAWN	5-22-97	L.R.T.
CHECKED	10-9-97	M.L.R.
REVISED		
REVISED		
REVISED		

MONTANA DEPARTMENT OF TRANSPORTATION

DILLON - APEX

FEDERAL AID PROJECT NO. IM 15-1(87)64

BEAVERHEAD COUNTY

JOINT REMOVAL AND JOINT SEALANT DETAILS

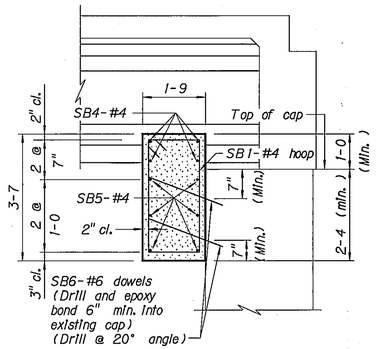
Scale ~ As noted

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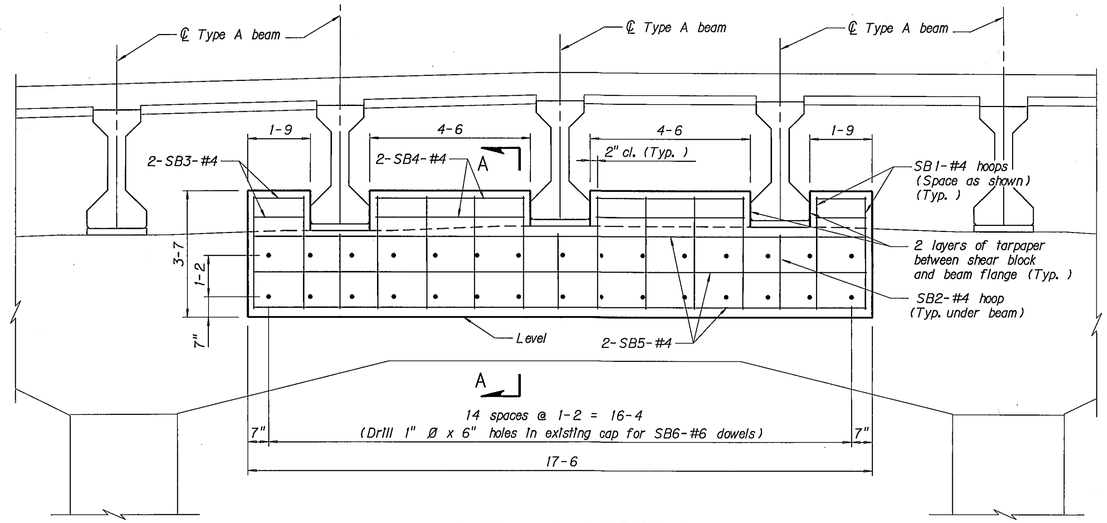
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	IM 15-1(87)64	B4

BRIDGE BUREAU



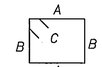
NOTE: Sand blast concrete at shear block and cap interface.

SECTION A-A



PARTIAL ELEVATION

BILL OF REINFORCING STEEL *ONE BENT ONLY*



Type 1

STRAIGHT BARS				BENT BARS (All dimensions are out to out)							
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C
SB3	#4	8	1'-5"	SB1	#4	12	1	10'-0"	1'-5"	3'-2"	0'-5"
SB4	#4	8	4'-2"	SB2	#4	3	1	7'-10"	1'-5"	2'-1"	0'-5"
SB5	#4	6	17'-2"								
SB6	#6	30	2'-3"								

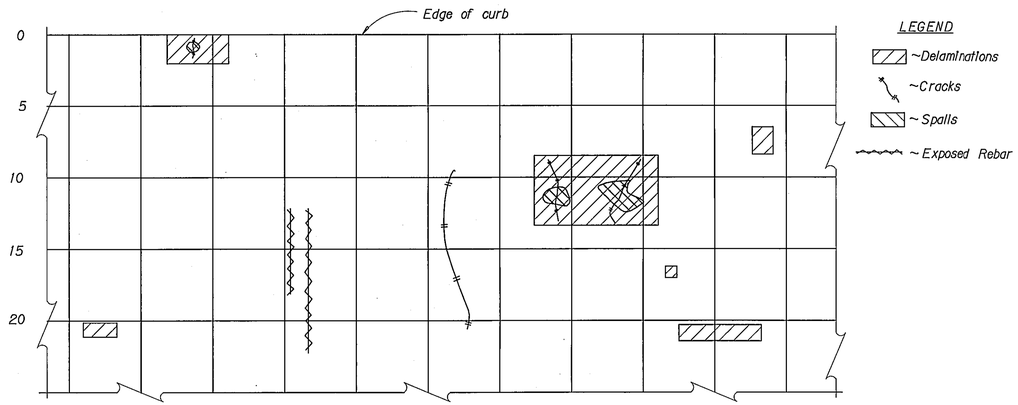
NOTE: Drill and epoxy bond SB6-#6 dowels 6" min. into existing concrete. Include all costs in the unit price bid for Shear Block.

NOTE: The unit price bid for Shear Block includes all costs and resources necessary to build the shear blocks as shown.

SHEAR BLOCK DETAILS

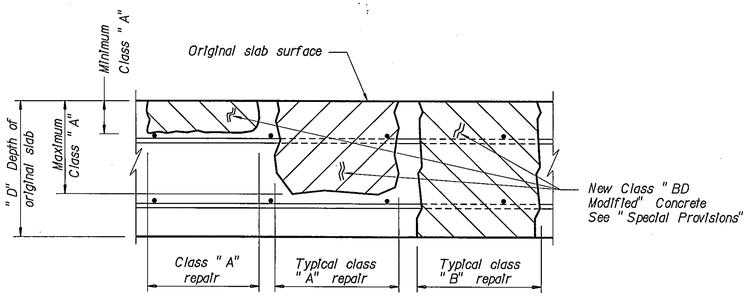
Scale ~ ½" = 1-0

I-15 M.P. 64+0.088 N.B. and S.B. Bents 1 and 3



DECK SURVEY PLAN

(Plan is shown for general information)
No Scale



BRIDGE DECK REPAIR DEFINITION

No scale

NOTE: For definition of Class "A" and Class "B" Deck Repair see Special Provisions.

NOTE: Do not scarify decks receiving seal treatment and finish repairs level with original slab surface.

NOTE: For estimated areas of Class "A" Repair see Dwg. No. 16738Q.

NOTE: Except as noted, payment for all costs and resources associated with patching existing decks is included in the unit price bid for Class "A" Bridge Deck Repair (See "Special Provisions").

NOTE: Complete bridge deck delamination plans are available upon request to the Montana Department of Transportation, Bridge Bureau for all structures except at P89 M.P. 2+0.602.

MONTANA DEPARTMENT OF TRANSPORTATION

DILLON - APEX

FEDERAL AID PROJECT NO. IM 15-1(87)64

BEAVERHEAD COUNTY

DESIGNED	5-22-97	M.J.G.
DRAWN	5-22-97	L.R.T.
CHECKED	10-9-97	M.L.R.
REVISED		
REVISED		
REVISED		

SHEAR BLOCK DETAILS AND DECK REPAIR DEFINITION

Scale ~ As noted

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