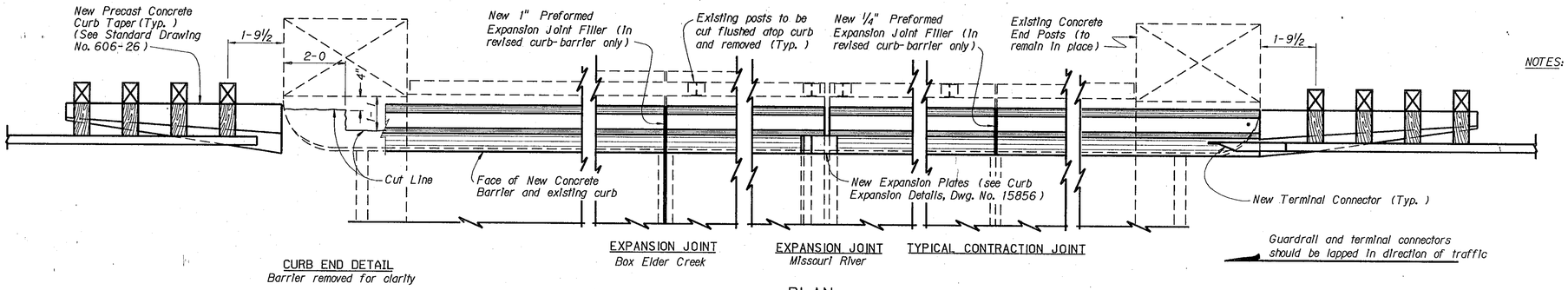
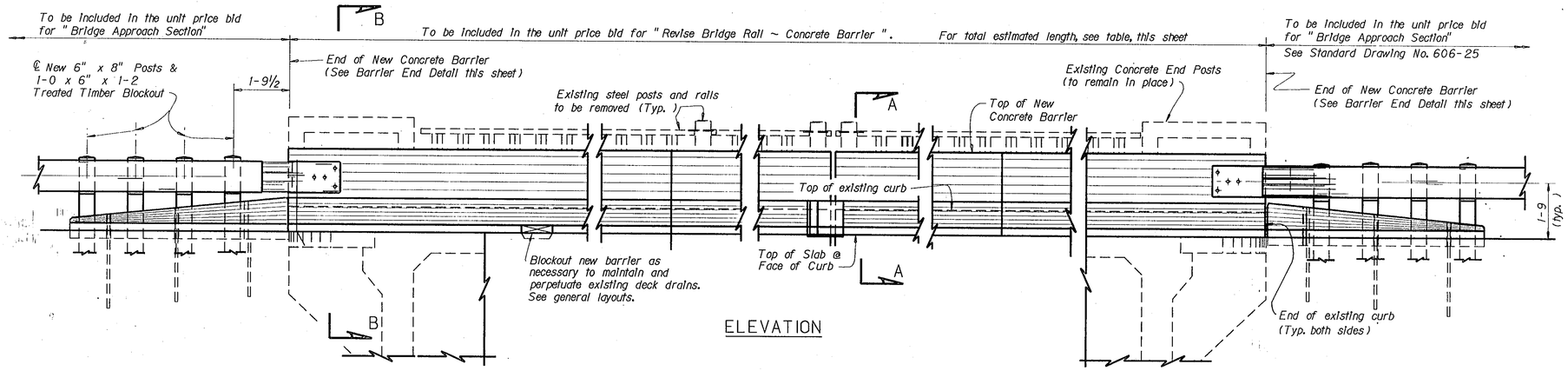
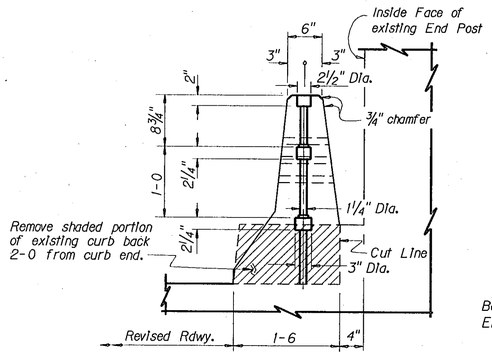
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8	MONT.	NH 0002(120)	B 1



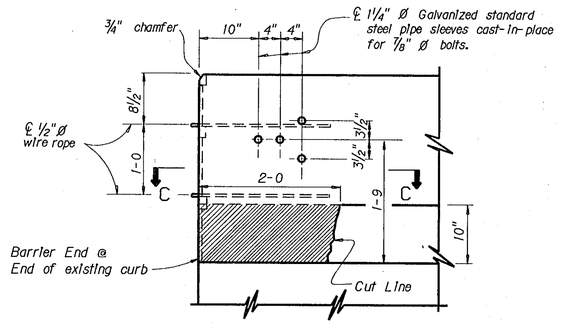
PLAN



ELEVATION



END VIEW

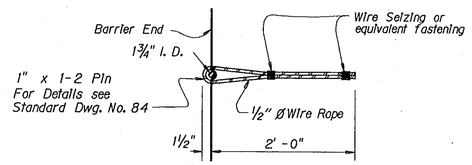


SIDE VIEW

BARRIER END DETAILS

Scale ~ 1" = 1'-0"

NOTE:
Wire rope shall be zinc-coated steel wire (7) strand "utilities grade" with minimum breaking strength of 25,000 Lbs. and shall conform to A.S.T.M. A-475.



SECTION C-C

Scale ~ 1" = 1'-0"

NOTES: For location of existing guard rail, required concrete curb tapers, compression seals, and new concrete barriers, see Dwg. No. 3606 and/or 3305. Details shown on this drawing shall apply to both sides the entire length of the structures.

Contractor shall verify all dimensions in the field before ordering any materials and fabrication is begun.

All new Reinforcing steel used shall be of the deformed type and shall meet the requirements of A.S.T.M. Specifications A-615, Grade 60 (A.A.S.H.T.O. M-31).

Concrete (or any other materials) removed during construction shall be disposed of to the satifaction of the Engineer.

Concrete used in the barriers shall be Class "BD Modified". The cost of furnishing and placing concrete barriers, including preparation of surfaces, reinforcing steel, galvanized pipe sleeves, and wire rope and the cost of revising concrete curbs shall be included in the Unit Price Bid for "Revise Bridge Rail~Concrete Barrier." "Revise Bridge Rail~Concrete Barrier" shall be paid for by the lineal foot which shall be full compensation for furnishing all materials, equipment, and labor necessary to complete the item. The number of lineal feet for payment is the distance between the ends of the new cast-in-place concrete barriers as shown on this sheet.

For details of Standard Precast Concrete Taper, Terminal Connector and Bridge Approach Section-Type 1, see Standard Drawings No. 606-25, No. 606-26, and No. 606-94.

All new hardware to be galvanized.

EXISTING RAILS:

MISSOURI RIVER BRIDGE: The existing rails, rail posts, and hardware shall remain the property of the State. The contractor shall deliver and stockpile the rail, railposts, and hardware at the Mobridge Maintenance Yard.

BOX ELDER CREEK BRIDGE: The existing rail posts shall become the property of property of the contractor and shall be disposed of to the satisfaction of the engineer. The existing rails and hardware shall remain the property of the state, and shall be stockpiles at a site designated by the engineer for pickup by state forces.

SUMMARY TABLE

FEATURE CROSSED	STATION	ROUTE NO.	MILEPOST	GENERAL LAYOUT DWG. NO.	LENGTH OF BARRIER (One side only) (Lin. Ft.)	TOTAL LENGTH (LIN. FT.)	CURB TAPERS (REQUIRED)
MISSOURI RIVER	1205+16	P00061	088+0.067	3606	704-6	1409-0	4
BOX ELDER CR.	1720+40	P00057	145+0.314	3305	191-0	382-0	4

MONTANA DEPARTMENT OF TRANSPORTATION

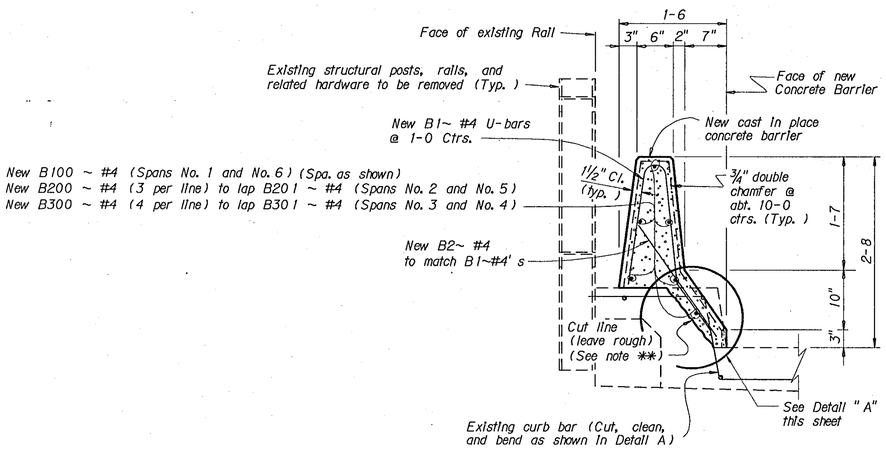
BOX ELDER CREEK AND
MISSOURI RIVER BRIDGES
FEDERAL AID PROJECT NO. NH 0002(120)
FERGUS-PHILLIPS AND PETROLEUM COUNTIES
RAIL REVISION

Scale: ½" = 1'-0" (Except as noted)

DESIGNED	10-28-93	D.W.C.
DRAWN	10-29-93	D.W.C.
CHECKED	6-22-94	J.S.O.
REVISED		
REVISED		
REVISED		

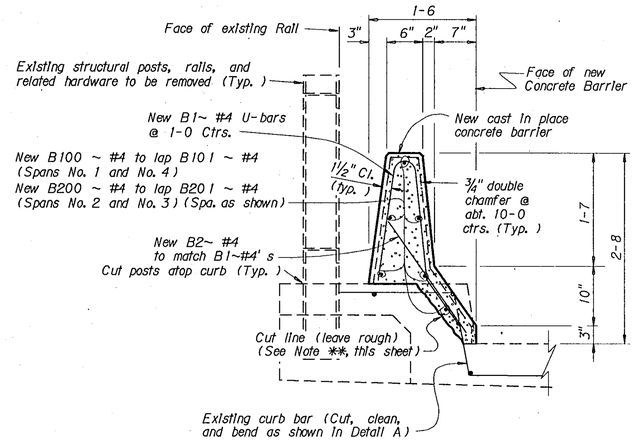
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FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	NH 0002(120)	B2



SECTION A-A

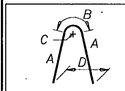
Missouri River Bridge



SECTION A-A

Box Elder Creek

BILL OF REINFORCING STEEL



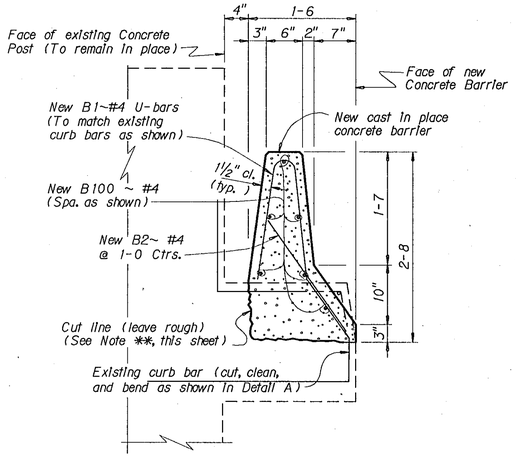
Type 1

MISSOURI RIVER BRIDGE

STRAIGHT BARS				BENT BARS (All dimensions are out to out.)								
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D
Spans No. 1 and No. 6												
B100	#4	24	26'-9"	B1	#4	120	1	3'-5"	1'-6"	0'-5"	0'-1¾"	0'-8"
B2	4	120	1-9									
Spans No. 2 and No. 5												
B200	4	72	40-0	B1	#4	584	1	3-5	1-6	0-5	0-1¾	0-8
B201	4	24	28-6									
B2	4	584	1-9									
Spans No. 3 and No. 4												
B300	4	96	40-0	B1	#4	724	1	3-5	1-6	0-5	0-1¾	0-8
B301	4	24	25-0									
B2	4	724	1-9									

BOX ELDER CREEK BRIDGE

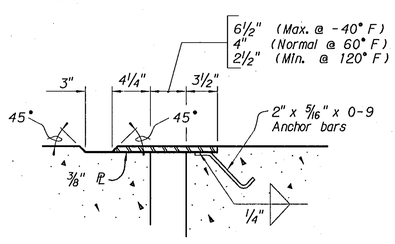
STRAIGHT BARS				BENT BARS (All dimensions are out to out.)								
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D
Spans No. 1 and No. 4												
B100	#4	24	40-0	B1	#4	200	1	3-5	1-6	0-5	0-1¾	0-8
B101	4	24	10-0									
B2	4	200	1-9									
Spans No. 2 and No. 3												
B200	4	24	40-0	B1	#4	188	1	3-5	1-6	0-5	0-1¾	0-8
B201	4	24	7-4									
B2	4	188	1-9									



SECTION B-B

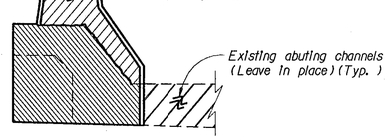
NOTE: Finish top of Barrier parallel to Finished Grade of Rdwy.

** *NOTE:* Thoroughly coat exposed concrete surface with an approved epoxy bonding agent (ASTM C881) immediately prior to placing concrete.



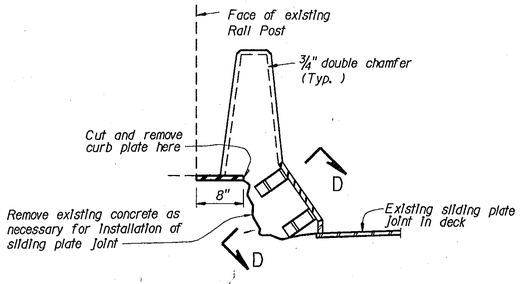
SECTION D-D

Scale: 1½" = 1'-0"



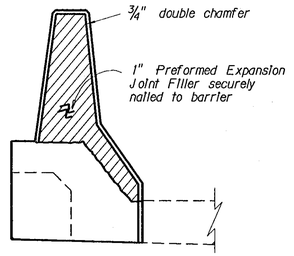
CURB CONTRACTION JOINT DETAIL

Typical @ Bent No. 3 (Box Elder Creek)
Typical @ Bents No. 3, No. 4, and No. 5 (Missouri River)



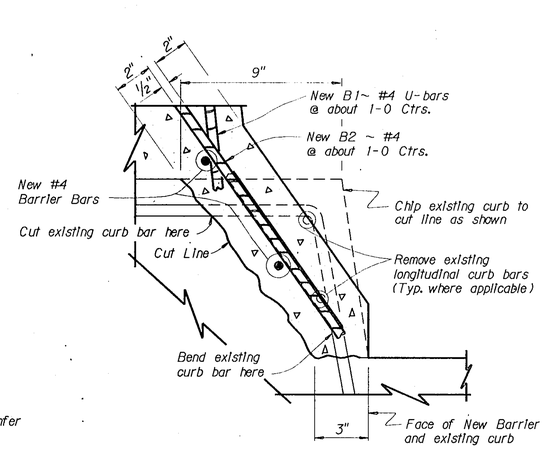
CURB EXPANSION JOINT DETAIL

Typical @ Bents No. 2 and No. 6 (Missouri River)



CURB EXPANSION JOINT DETAIL

Typical @ Bents No. 2 and No. 4 (Box Elder C.



DETAIL A

Scale ~ 3" = 1'-0"

MONTANA DEPARTMENT OF TRANSPORTATION

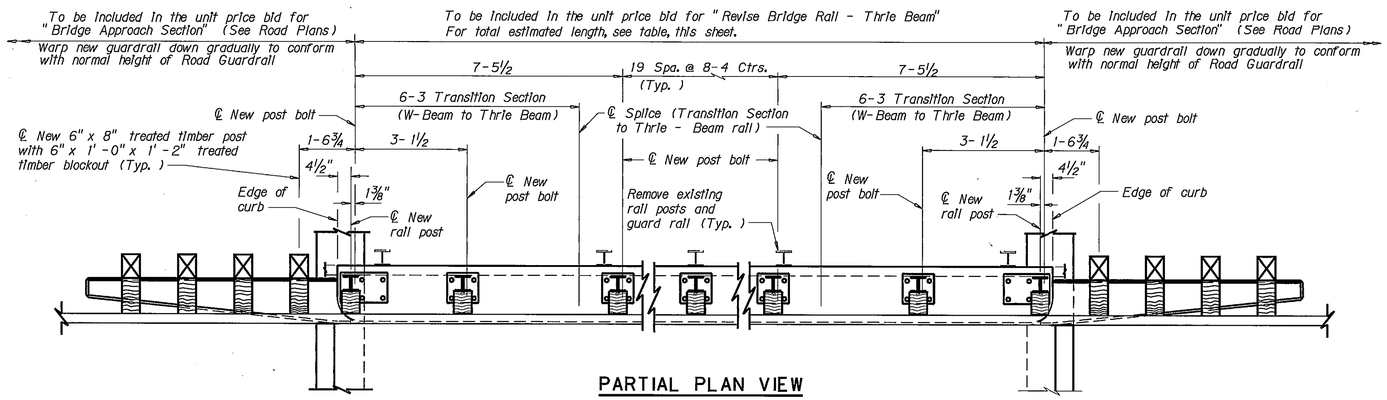
BOX ELDER CREEK AND
MISSOURI RIVER BRIDGES
FEDERAL AID PROJECT NO. NH 0002(120)
FERGUS-PHILLIPS AND PETROLEUM COUNTIES
RAIL REVISION

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

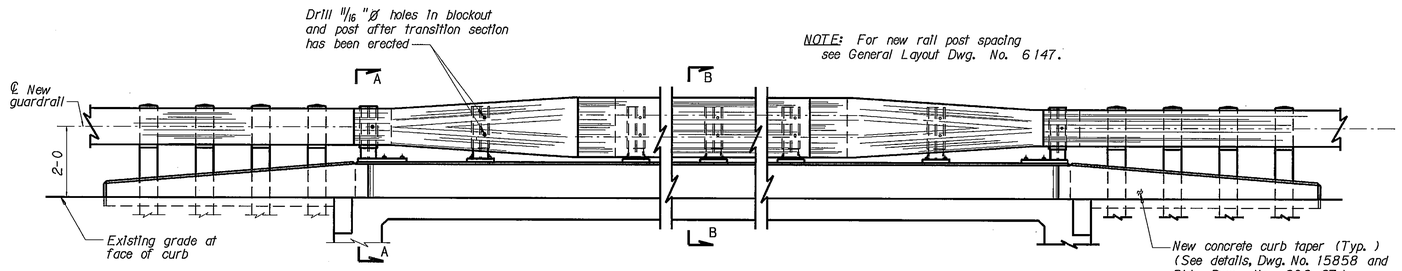
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DRAWN	10-29-93	D. W. C.
CHECKED	6-22-94	J. S. O.
REVISED		
REVISED		
REVISED		

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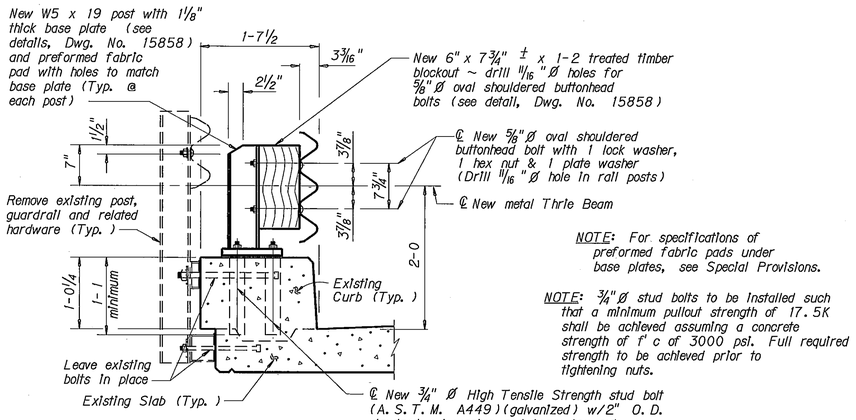
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	NH 0002(120)	B3



PARTIAL PLAN VIEW



PARTIAL ELEVATION VIEW

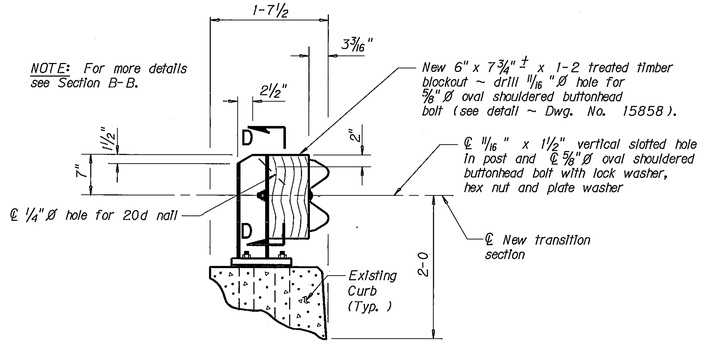


NOTE: For specifications of preformed fabric pads under base plates, see Special Provisions.

NOTE: ¾"Ø stud bolts to be installed such that a minimum pullout strength of 17.5K shall be achieved assuming a concrete strength of f'c of 3000 psi. Full required strength to be achieved prior to tightening nuts.

SECTION B-B

Scale: 1" = 1'-0"



SECTION A-A

Scale: 1" = 1'-0"

SUMMARY TABLE

FEATURE CROSSING	STATION	ROUTE NO.	MILEPOST	GENERAL LAYOUT DWG. NO.	*Length of Rail (One side only) (Linear Feet)	TOTAL LENGTH (LINEAR FEET)	CURB TAPERS (REQUIRED)
Armells Creek	1126+00	P00061	086+0.481	6147	173-3	346-6	4

NOTES:

Details shown on this drawing shall apply to both sides for the entire length of the structure.

The contractor shall determine actual bolt lengths.

The contractor shall verify all dimensions in the field before ordering any materials.

Lap all rail splices in the direction of traffic flow.

For location of required approach rail to bridge rail connections, curb tapers and guardrail revisions see General Layout Dwg. No. 6147.

Place a reflectorized washer approximately every 25'-0". See Std. Dwg. No. 606-05.

Plug predrilled holes in rail with standard splice bolts. See Std. Dwg. No. 606-05.

For Plate Washer Detail see Std. Dwg. No. 606-84.

All new hardware except for the posts and base plates shall be galvanized. The posts and base plates may be either painted or galvanized in accordance with the Standard Specifications. If the contractor chooses to paint the posts and base plates, no red lead paint or basic lead silico-chromate primer or paint shall be used.

Rail sections which are cut shall be cut square. Flame cutting will not be permitted. New cut ends or holes shall be coated with an approved galvanizing paint.

Bridge rail to be continuous with bridge approach rail.

The existing guard rail, rail posts and related hardware shall become the property of the State. The contractor shall deliver and stockpile the guard rail, rail posts and related hardware at the Mobridge Maintenence Yard.

The 6'-3" transition section from standard metal guardrail to Thrie beam shall be A.A.S.H.T.O. designation Type I, Class A.

All Thrie beam sections shall be A.A.S.H.T.O. designation Type I, Class B.

The cost of furnishing and placing new metal thrie beam, transition sections, base plates, posts, preformed fabric pads, treated timber blockouts, washers, nuts, bolts and reflectorized washers shall be included in the unit price bid for "Revise Bridge Rail - Thrie Beam". Also included in the subject bid item shall be the cost of removing and stockpiling the existing guard rail, rail posts and related hardware. "Revise Bridge Rail - Thrie Beam" shall be paid for by the linear foot which shall be full compensation for furnishing all material, equipment and labor necessary to complete the item. The total estimated number of linear feet for payment is 346-6.

The cost of drilling and grouting into existing curbs shall also be included in the unit price bid for "Revise Bridge Rail - Thrie Beam". The contractor shall furnish shims as necessary to adjust rail to grade. Shims shall be placed between new preformed fabric pad and base plate. The cost of furnishing anchor bolts, shims and all costs associated with this item shall be included in the unit price bid for "Revise Bridge Rail - Thrie Beam".

All new wood blockouts shall be treated timber and shall be placed with the wood grain perpendicular to the bolt centerline.

The concrete used in curb tapers shall be Class "DD."

All costs associated with the furnishing of materials, equipment, and labor necessary to install the curb tapers, including any required asphalt material removal, shall be included in the unit price bid for "Bridge Approach Section".

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER ARMELLS CREEK

AT STA. 1126+00.00

FEDERAL AID PROJECT NO. NH 0002(120)

FERGUS COUNTY

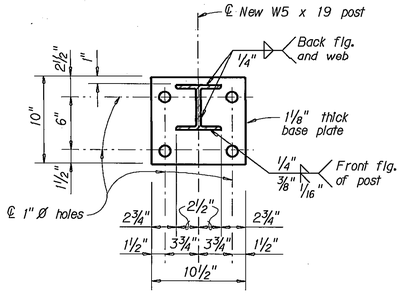
RAIL REVISIONS

Scale: ½" = 1'-0" except as noted

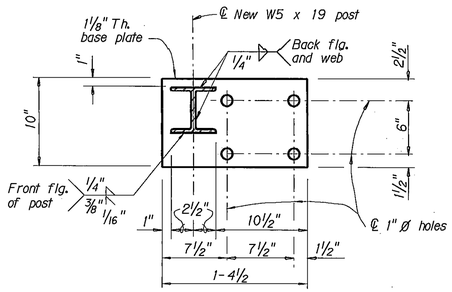
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DRAWN	10-25-93	D.W.C.
CHECKED	6-24-94	J.S.O.
REVISED		
REVISED		
REVISED		

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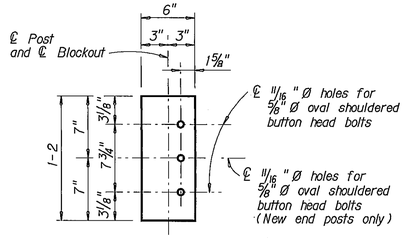
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8	MONT.	NH 0002(120)	B4



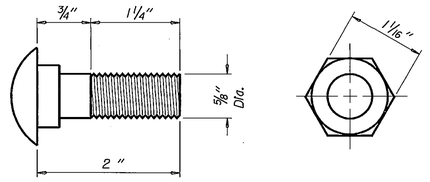
BASE PLATE DETAIL



END RAIL POST BASE PLATE DETAIL



TYPICAL BLOCKOUT ELEVATION

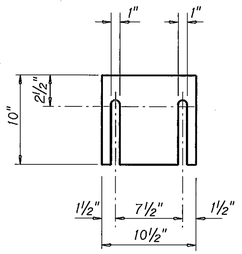


EXPANSION SPLICE BOLT AND NUT DETAIL

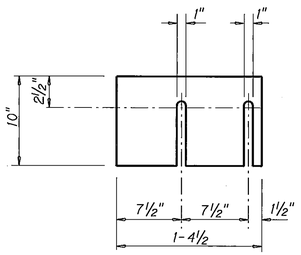
Full Scale

NOTE: This bolt is to be used only at Expansion Joints.

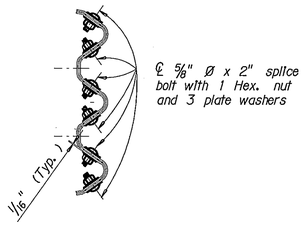
NOTE: The contractor shall furnish shims as required to adjust rail to grade. Shims shall be placed between preformed fabric pads and base plates with slots toward ℄ Rdwy. (2 ~ preformed fabric pads with 1" x 1½" slotted holes to match base plates)



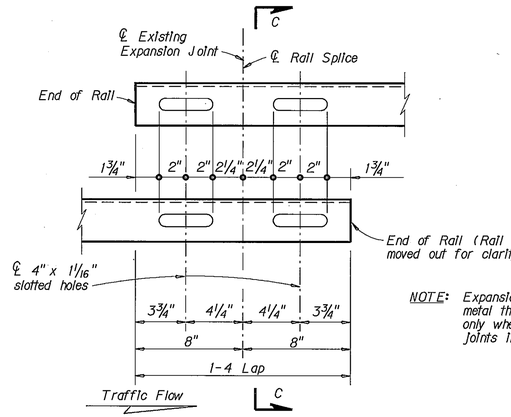
RAIL POST SHIM DETAIL



END RAIL POST SHIM DETAIL



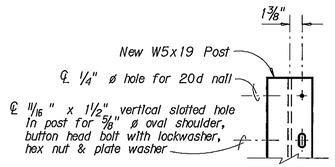
SECTION C-C



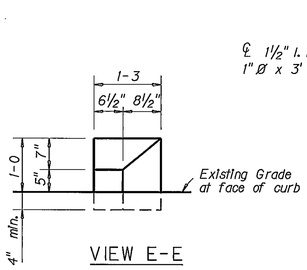
EXPANSION SPLICE DETAIL

No Scale

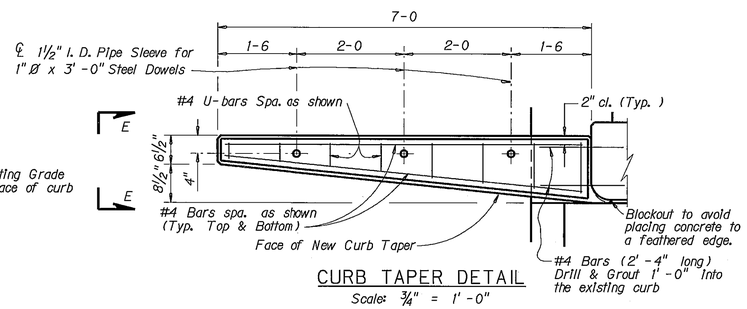
NOTE: Expansion joints in the new metal thrie beam are necessary only where there expansion joints in the existing rail.



SECTION D-D



VIEW E-E



CURB TAPER DETAIL

Scale: ¾" = 1'-0"

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE OVER ARMELLS CREEK

AT STA. 1126+00.00

FEDERAL AID PROJECT NO. NH 0002(120)

FERGUS COUNTY

RAIL REVISIONS

Scale: 1½" = 1'-0" except as noted

DESIGNED	10-8-93	D.W.C.
DRAWN	10-25-93	D.W.C.
CHECKED	6-24-94	J.S.O.
REVISED		
REVISED		
REVISED		

FILENAME: [60,312353RR.BRG DRAWING NO. 15858