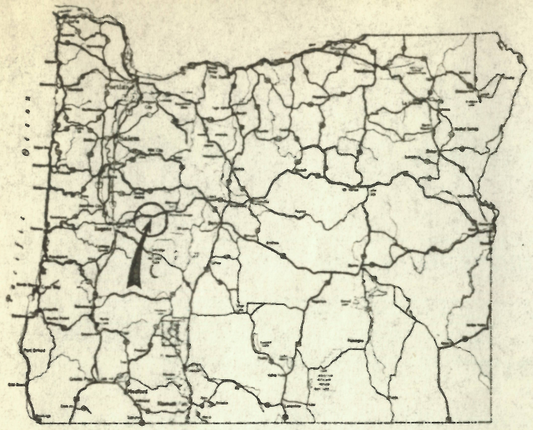


KEY MAP OF OREGON SHOWING LOCATION OF PROJECT

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE — REGION SIX

WILLAMETTE NATIONAL FOREST

BLUE RIVER RANGER DISTRICT

PLANS FOR PROPOSED

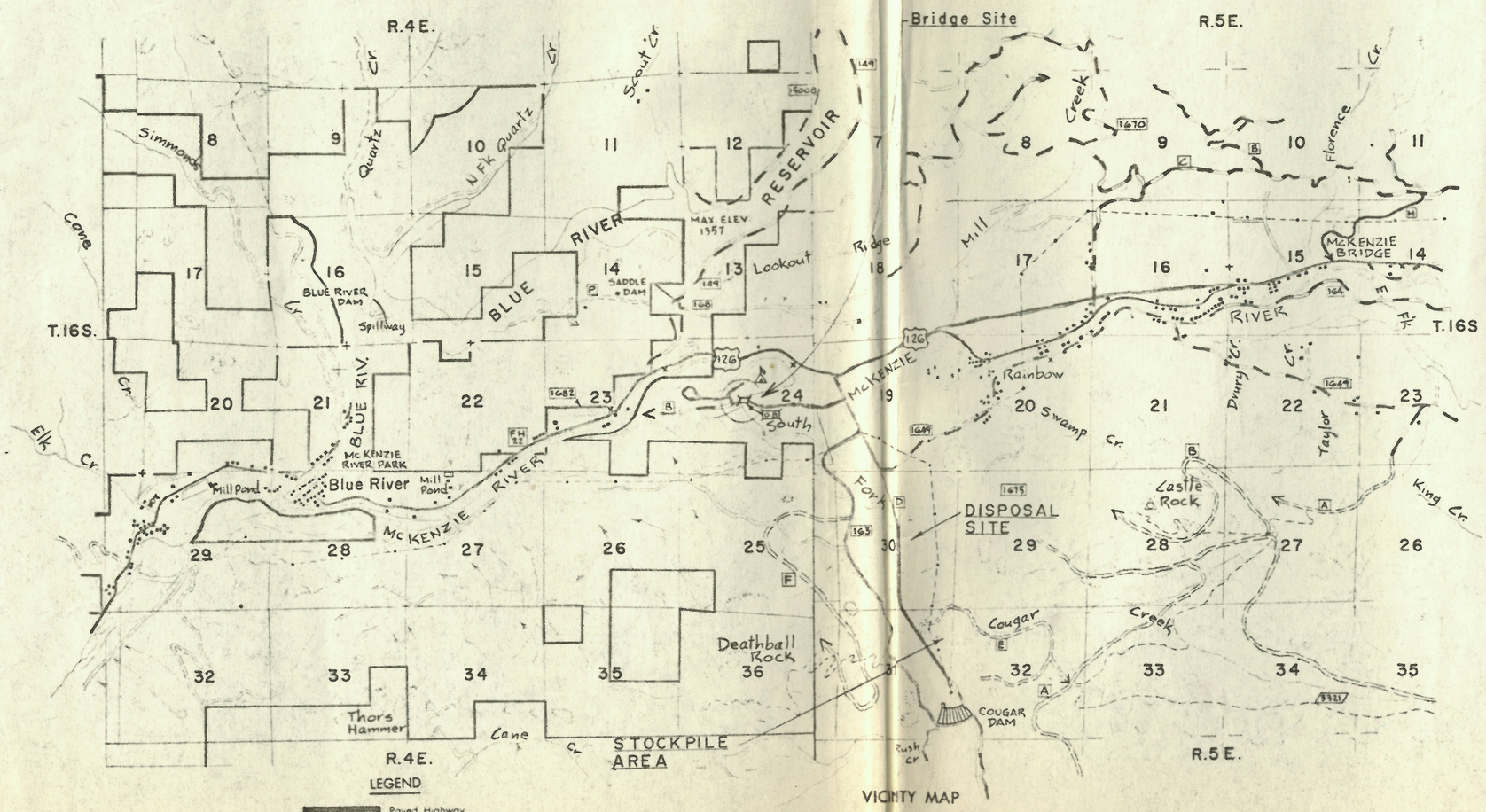
DELTA BRIDGE

PROJECT NAME

PROJECT NUMBER 163S-0.8

TYPE OF WORK BRIDGE CONST.

INDEX TO SHEETS		
SHEET NO.	DRAWING NO.	DESCRIPTION
1	R-34083	TITLE
2	"	GRADING PLAN
3	"	PLAN & ELEVATION
4	"	DECK PLAN
5	"	ABUTMENT PLAN & ELEV.
6	"	END BEAM " "
7	"	PRESTRESSED GIRDERS
8	S-231	STEEL BRIDGE RAIL



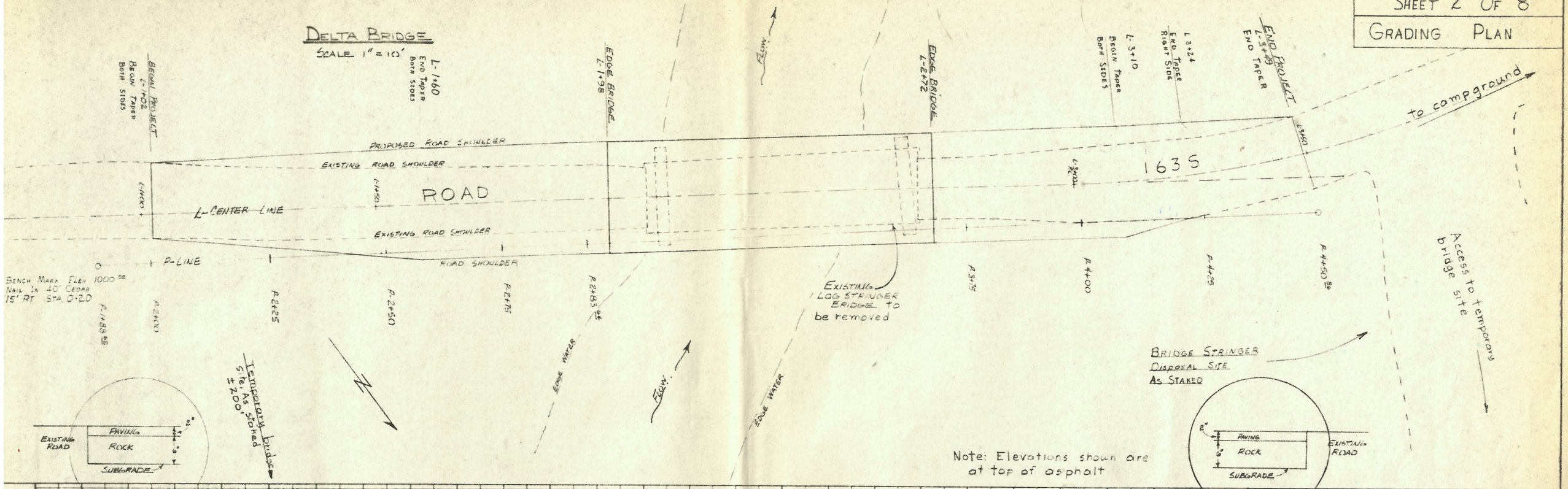
VICINITY MAP

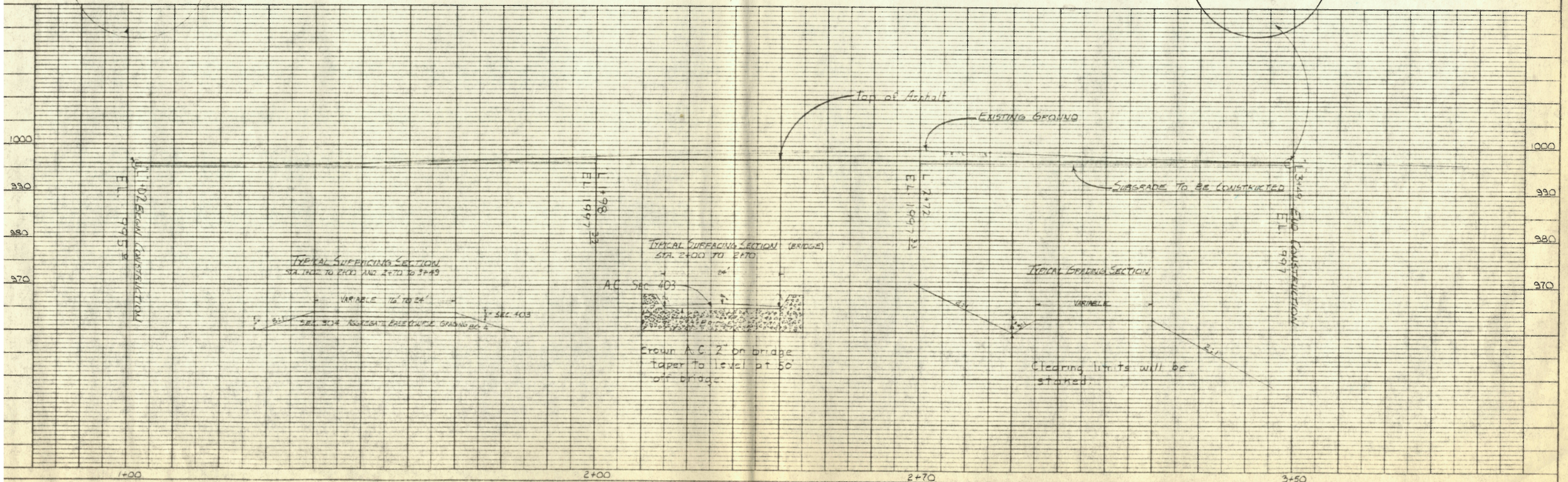
SUBMITTED BY: [signature] BRIDGE ENGINEER	May 7, 1974 DATE
RECOMMENDED BY: [signature] REGIONAL ENGINEER	5/7/74 DATE
APPROVED BY: [signature] FOREST SUPERVISOR	5/10/74 DATE

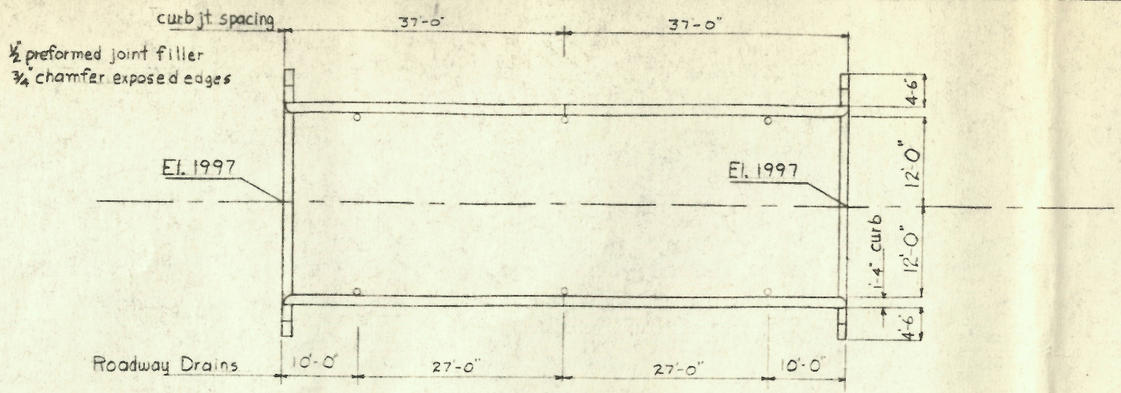
GRADING PLAN

DELTA BRIDGE

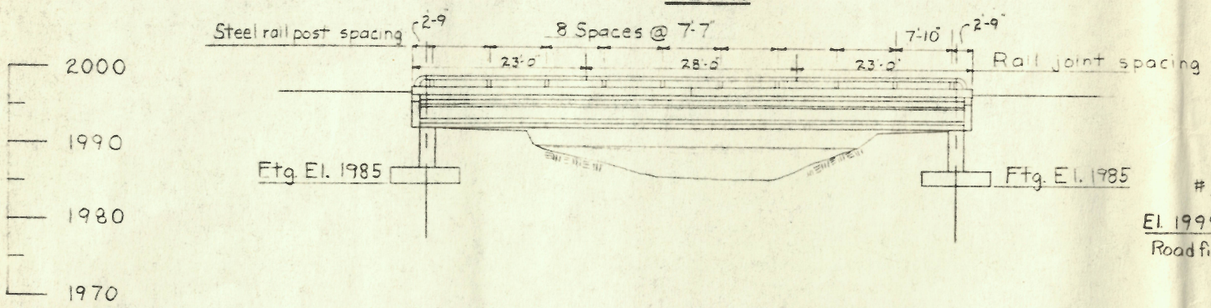
SCALE 1" = 10'



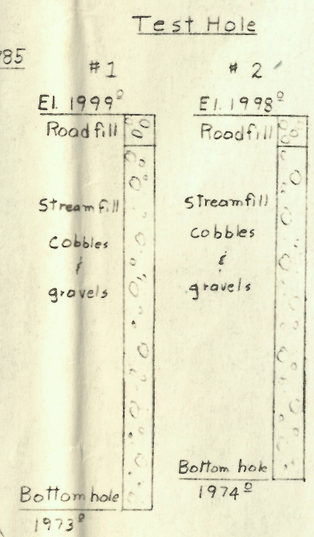


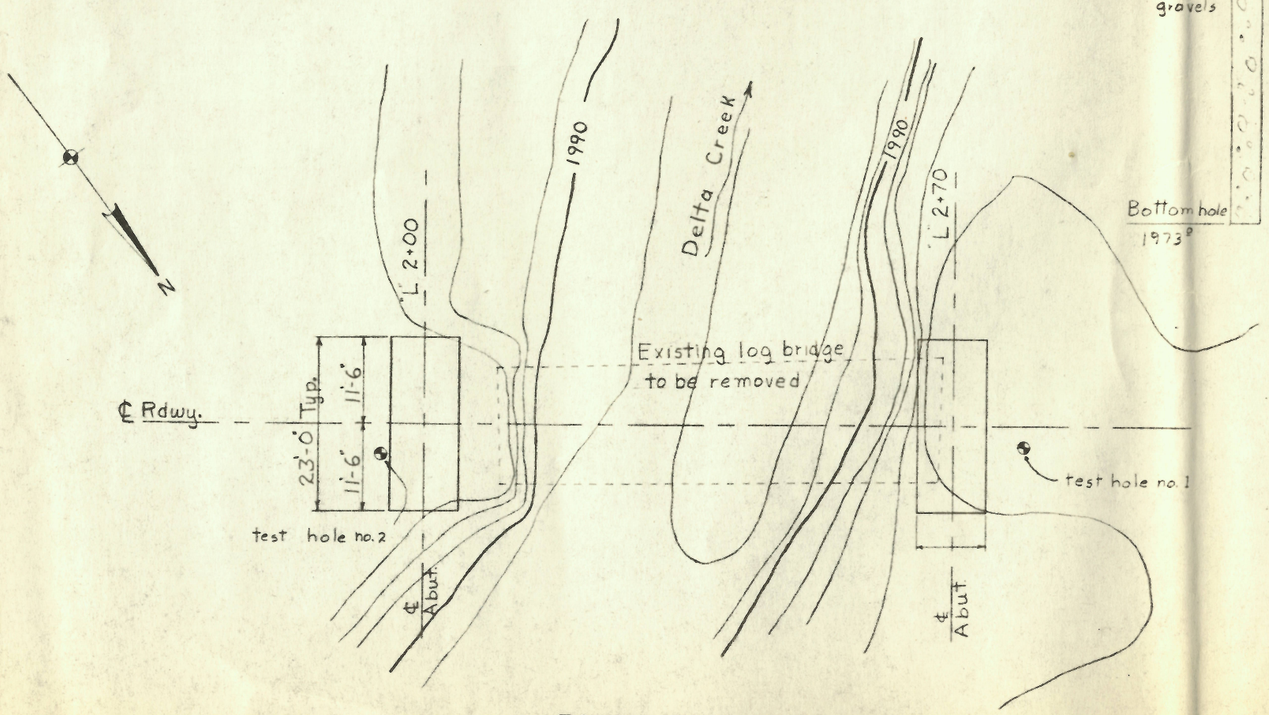


PLAN



ELEVATION





FOUNDATION PLAN

GENERAL NOTES:

SPECIFICATIONS: Construction, Forest Service Standard Specifications for Construction of Roads and Bridges 1972; Design, A.A.S.H.O. Standard Specifications for Highway Bridges, 1973

DEAD LOAD: Concrete and asphaltic concrete, 150 Lbs. per cu. ft. No allowance for future paving. Earth pressure equivalent to a fluid weighing 40 Lbs. per cu. ft.

LIVE LOAD: HS 20-44 Loading. Impact $I = \frac{50}{L+125}$ (L = Span Length). Maximum I = 30%

UNIT STRESSES: Concrete in prestressed girders shall have the following 28 day design strength: $f'_c = 6{,}000$ psi. Minimum indicated concrete stress at transfer of prestress $f'_{ci} = 5{,}000$ psi. Ultimate strength of ½"Φ seven wire prestressing strand shall be 41,300 Lbs., minimum $f'_s = 269{,}800$ psi. Allowable stress in Class "A" concrete $f_c = 1{,}200$ psi, based on an assumed 28 day design strength of 3,000 psi. Allowable stress in reinforcing steel: $f_s = 20{,}000$ psi. n = 10.

CONCRETE: Concrete in prestressed girders shall be Class "D" with 1" maximum size coarse aggregate. All other concrete shall be Class "A" with 1½" maximum size coarse aggregate. An approved air entraining admixture shall be used in all concrete. All concrete shall be vibrated. Chamfer exposed edges of all concrete ¾" unless otherwise shown. No additive containing calcium chloride shall be used in any concrete. High early strength cement may be used.

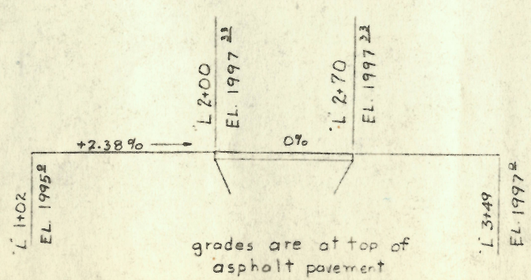
FINISHING CONCRETE: The following surfaces shall be given a "Rubbed Finish": all faces of curbs and exposed surfaces of end wings to one foot below the slope line: All other surfaces shall be given an "Ordinary Surface Finish."

REINFORCING STEEL: All bars shall conform to A.S.T.M. Spec A615, Grade 40. The minimum covering to the face of any bar shall be 2" unless otherwise shown. Bar sizes #4 thru #9 shall be spliced 24 bar diameters, larger bars shall be spliced as shown on the plans. Bar splices other than those shown on the plans will not be paid for. Substructure reinforcing shall not be fabricated until actual footing elevations have been established in the field.

PRESTRESSING STEEL: Pretensioned prestressing steel shall be 270K, ½"Φ seven wire bright prestressing strand conforming to A.S.T.M. Spec. A416. Each strand shall be pretensioned to a total load of 28,910 Lbs., f_{si} 0.7 f'_s = 188,800 psi. The estimated losses and the final effective prestress force per strand are. 7,990 Lbs and 20,920 Lbs.

PRESTRESSED CONCRETE GIRDERS: Prestressed girders shall be manufactured as detailed on the plans. All concrete, including reinforcing steel, prestressing steel, elastomeric bearing pads, lifting devices, and any other materials required for their manufacture or erection shall be included in the contract price, complete in place, per each, for "Prestressed Concrete Structural Members". Elastomeric bearing pads shall be Grade 70 pads conforming to the requirements of Section 717.13 of the specifications.

STRUCTURAL STEEL: Structural steel for bearing plates, anchor bolts, and drains shall conform to A.S.T.M. A36. Cost of furnishing, fabricating, and installing shall included in the bid item "Structural Concrete". All structural steel items shall be galvanized after fabrication.



PROFILE GRADE

Not to Scale

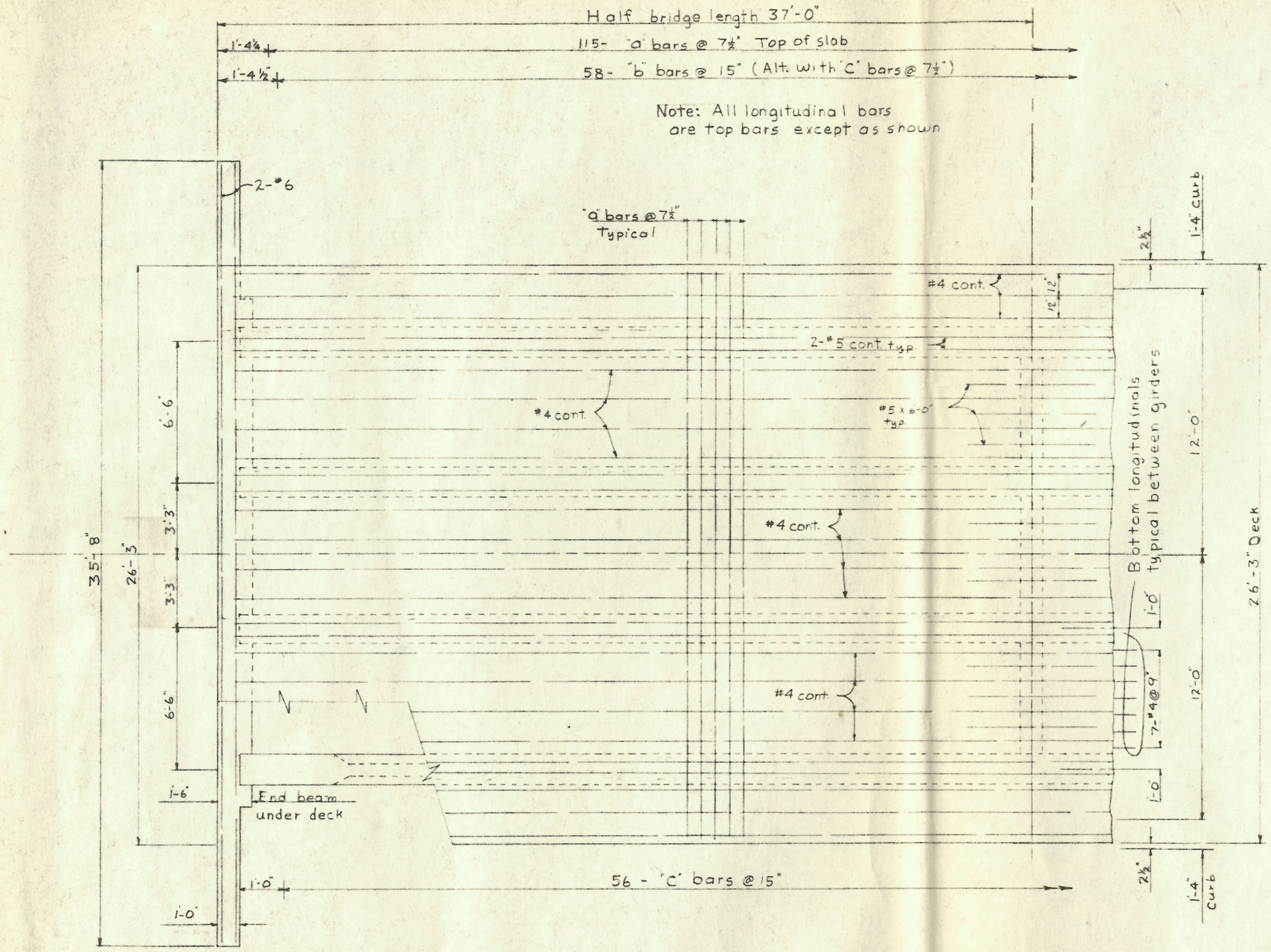
U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION SIX

WILLAMETTE NATIONAL FOREST

DELTA BRIDGE
PLAN & ELEVATION

BRIDGE NO. 163S-08 LOADING HS-20
DESIGNED B.W.E. DRAWN D.L.B. CHECKED
APPROVED [illegible] DATE 5/1/74
BRIDGE ENGINEER

SHEET 3 of 8 R-34083



HALF DECK PLAN

Scale 3/8 = 1'

Transverse Deck Bars

"a" bars #5 x 25'-11
"b" bars #4 x 25'-11
"c" bars #5 x 25'-11

QUANITIES:

No.	Item	Quanity	Unit
202(02)	Removal of existing log bridge	1	Each
203(11)	Linear Excavation	1.73	Station
206(02)	Bridge Excavation	270	C.Y.
403(01)	Hot Bituminous Concrete Pavement Grading HP-3	85	Ton
412(02)	Gravel Surface Course, Grading BG4	110	Ton
601(08)	Structural Concrete, Class "A"	All ①	Lump Sum
601A(01)	Prestressed Concrete Structural Members, AASHO Type III	4	Each
602(02)	Reinforcing Steel	All ②	Lump Sum
612(02)	Steel Bridge Rail	145	Lineal Ft.

① Estimated Concrete --- 117 cy.

② Estimated Reinforcement --- 13,140 Lbs.

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION SIX

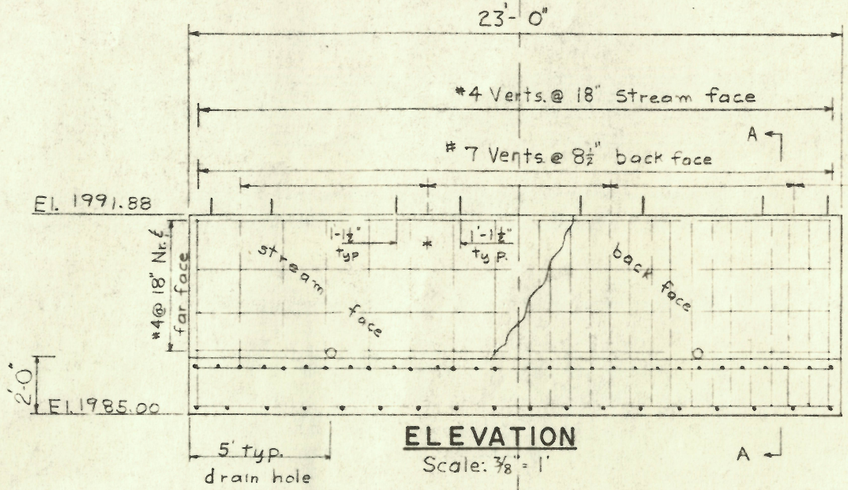
WILLAMETTE
NATIONAL FOREST

DELTA BRIDGE

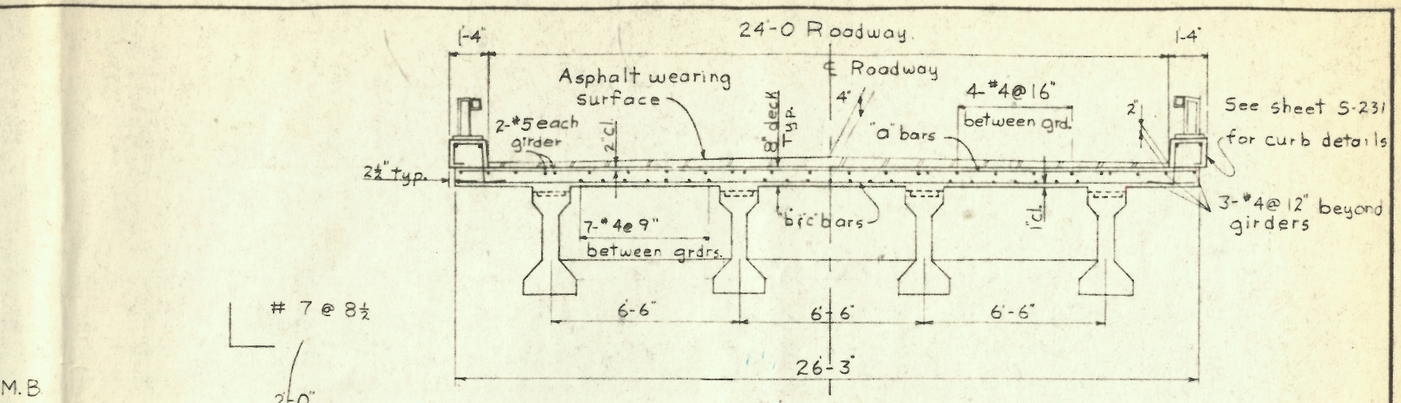
DECK PLAN

BRIDGE NO. 163 S-08 LOADING HS-20
DESIGNED [illegible] DRAWN D.W.G. CHECKED [illegible]
APPROVED [illegible] DATE 5/1/74
BRIDGE ENGINEER

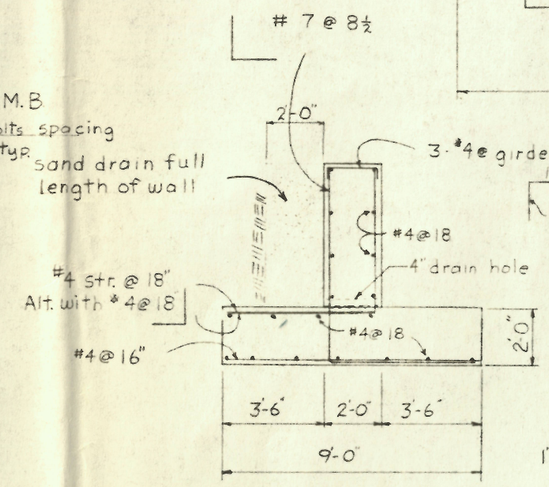
SHEET 4 of 8 R-34083



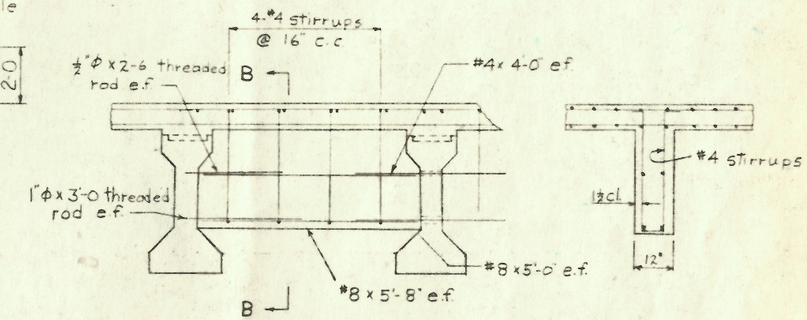
ELEVATION
Scale: ⅜" = 1'



CROSS SECTION
Scale ⅜" = 1'

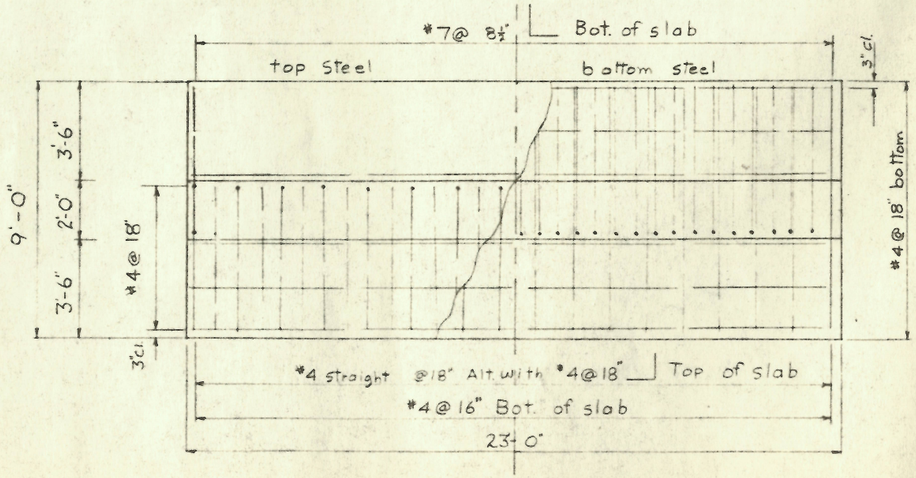


SECTION A-A

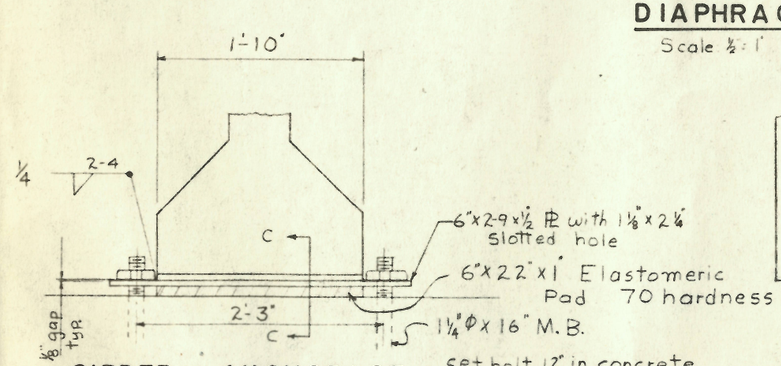


DIAPHRAGM
Scale ½" = 1'

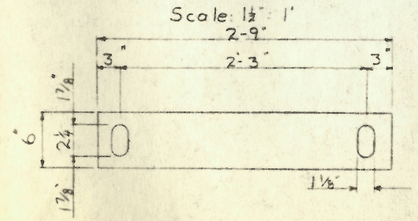
Sec. B-B



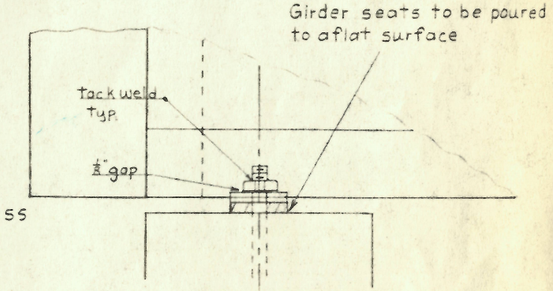
FOOTING PLAN
Scale ⅜" = 1'



GIRDER ANCHORAGE
Scale: 1½" = 1'



Note:
Field weld girder sole plate to anchor plate after girders have been set and aligned. Tack weld nuts with ⅛" gap between nut and plate.

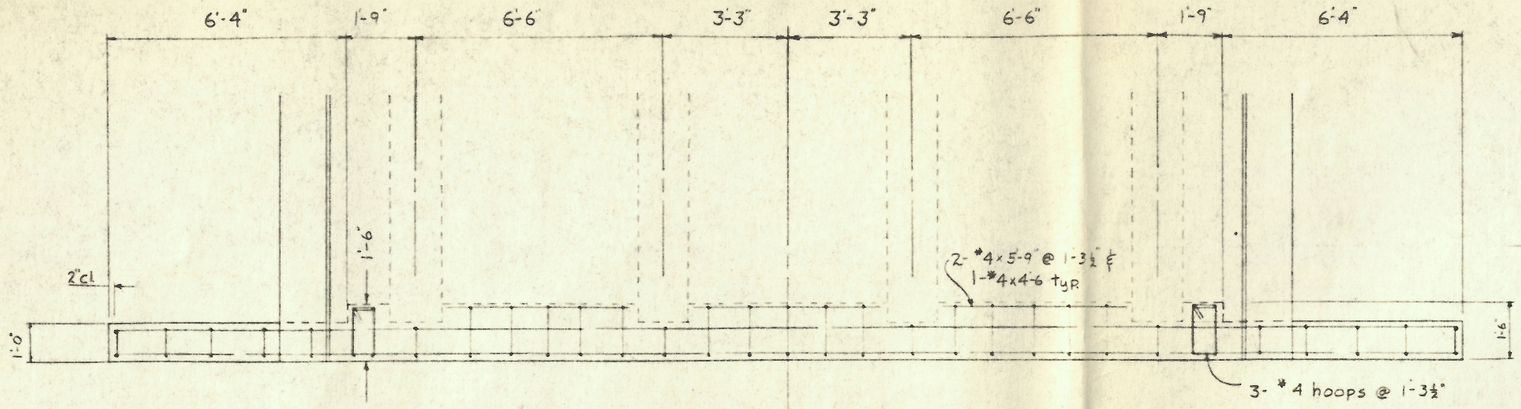


Sec. C-C

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION SIX

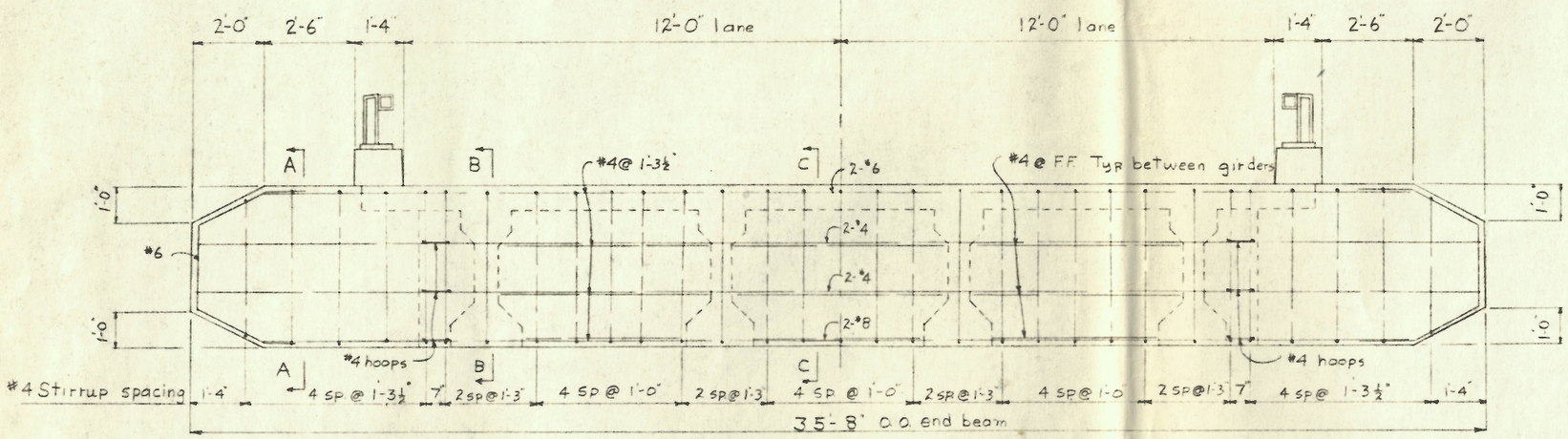
WILLAMETTE NATIONAL FOREST
DELTA BRIDGE
ABUTMENT PLAN & ELEVATION

BRIDGE NO. 163 S-0.8 LOADING HS-20
DESIGNED R.W.S. DRAWN D.L.G. CHECKED R.W.S.
APPROVED [signature] DATE 5/1/74
BRIDGE ENGINEER



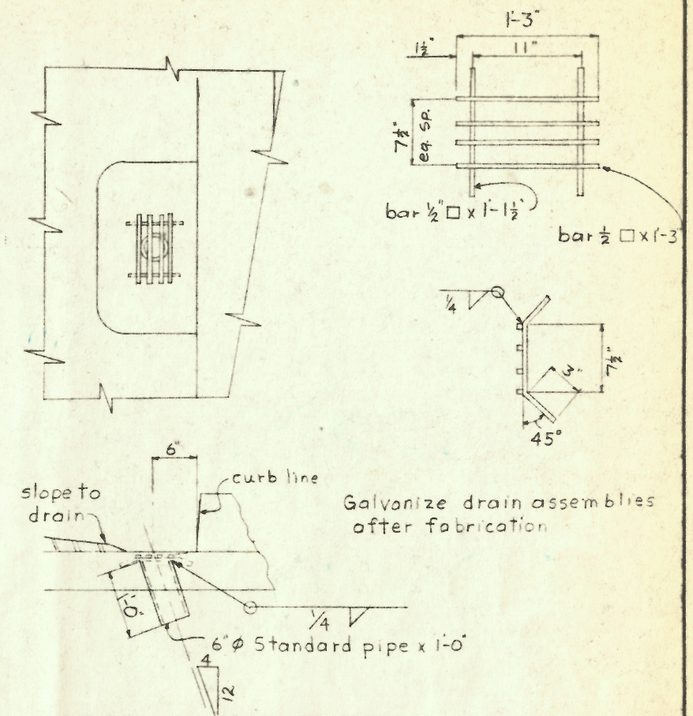
END BEAM PLAN

Scale: ½" = 1'



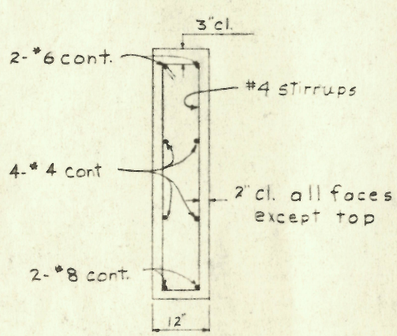
END BEAM ELEVATION

Scale: ½" = 1'



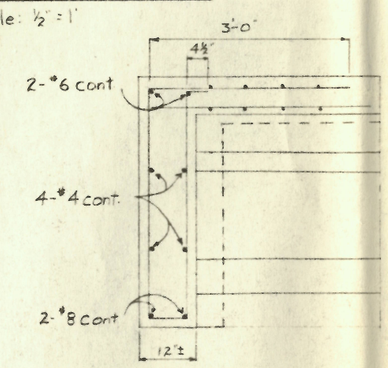
DECK DRAIN DETAILS

No Scale



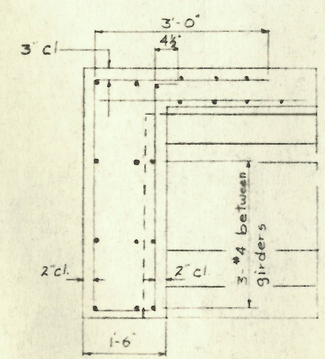
SECTION A-A

Scale: ¾" = 1'



SECTION B-B

Scale: ¾" = 1'



SECTION C-C

Scale: ¾" = 1'

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION SIX

WILLAMETTE
NATIONAL FOREST

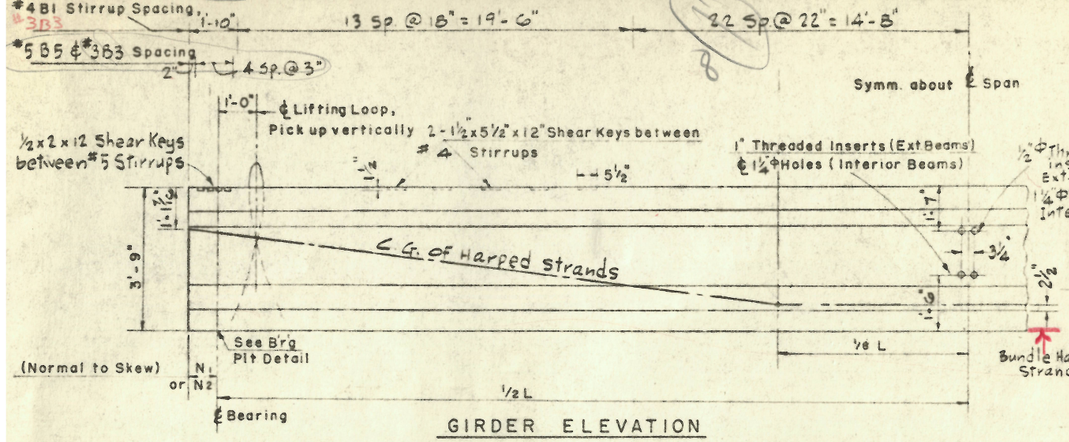
DELTA BRIDGE

END BEAM PLAN & ELEVATION

BRIDGE NO. 1635-08 LOADING HS-20
DESIGNED B.W.S. DRAWN D.L.G. CHECKED R.W.S.
APPROVED [illegible] DATE 5/7/79
BRIDGE ENGINEER

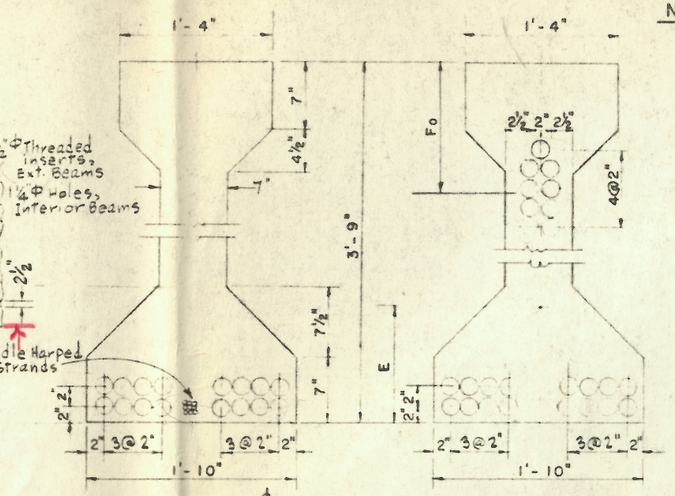
SHEET 6 of 8 R- 34083

NOTE: All Details On This Sheet Are For Pretensioned Strand Design Only

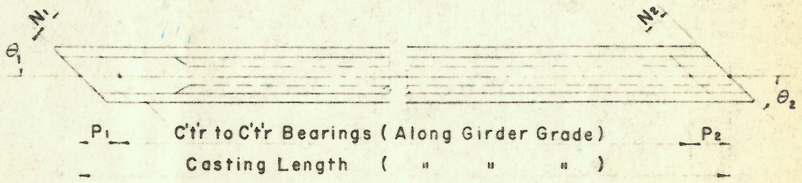


GIRDER ELEVATION

If the lifting loops extend thru the roadway slab, they shall be cut off prior to pouring of roadway slab. All lifting strands are of same material & strength as prestressing strands. Extend lifting loops to within 3" clear of the bottom of the girder.



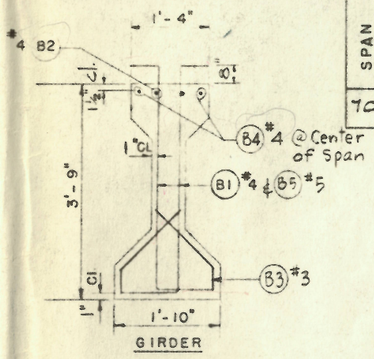
STRAND PATTERN AT ℄ SPAN. STRAND PATTERN AT BEAM END.



C'tr to C'tr Bearings (Along Girder Grade)

Casting Length (" " ")

AASHO TYPE III BEAM



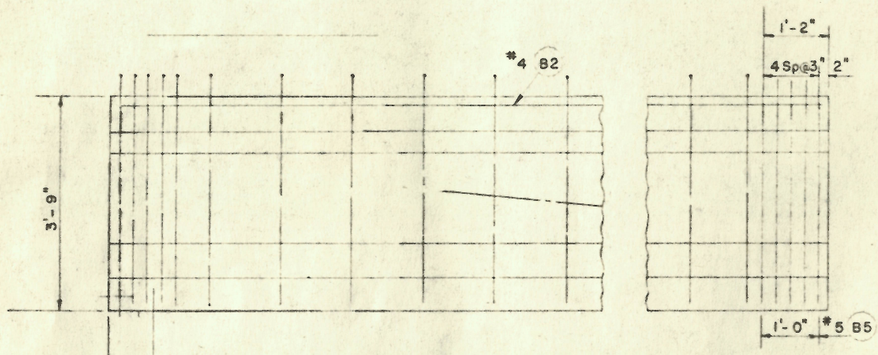
GIRDER

GIRDER SCHEDULE

All Strands shall be ½"Φ 270k

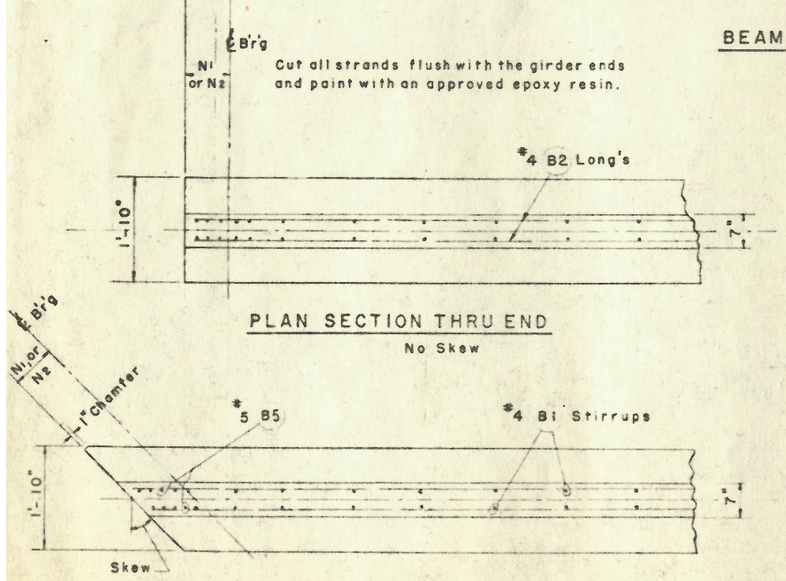
SPAN	GIRDER	θ_1	θ_2	N1	N2	P1	P2	Ctr to Ctr Bearings	Casting Length	Bundled Harped & Straight Pretensioned: Harped No. of Strands	Harped Jacking Force (Kips)	Straight No. of Strands	Straight Jacking Force (Kips)	Total Number of Strands	Location of C.G. Steel Area (In.) E	F @ ℄	F₀	Camber C (In.)
70'	4 Ea.	90°	90°	12"	12"	12"	12"	70'	72'-0"	9	28.9 per strand	16	28.9 per strand	25		7 1/16"	1-1 7/16"	1¼"

2 13/16



BEAM END DETAIL.

TYPICAL CROSS SECTIONS

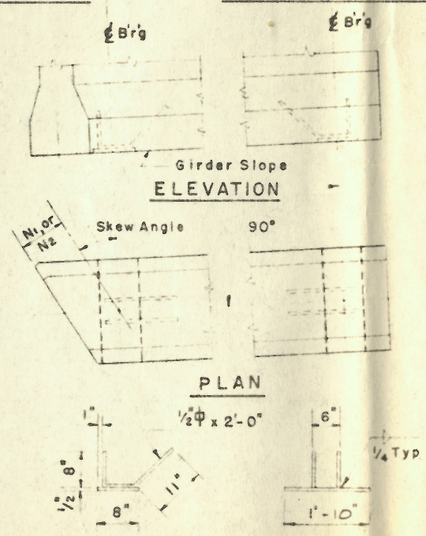


PLAN SECTION THRU END

No Skew

PLAN SECTION THRU END

Skewed Spans



ELEVATION

PLAN

BEARING PLATE DETAILS

GIRDER WEIGHTS

SECTION End Blk Girder lb/lin ft	lb/lin ft	Total Weight One Girder
N.A.	583	42,000 Lbs.

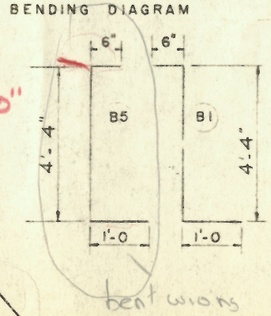
BAR LIST

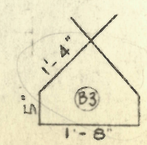
All Dimensions are Out to Out

MK	LOCATION	SIZE
B1	GIRDER - Stirrups	4
B2	" - Top Flange, Full l'gth	4 Str.
B3	END - Hoops	3
B4	- Longit	4 Str.
B5	GIRDER END - Stirrups	5

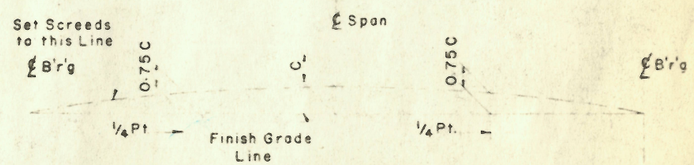
28'-0"

BENDING DIAGRAM





Payment for this Reinforcing is included in the unit price for the Girders.



SCREED CAMBER FOR GIRDER DEFLECTION

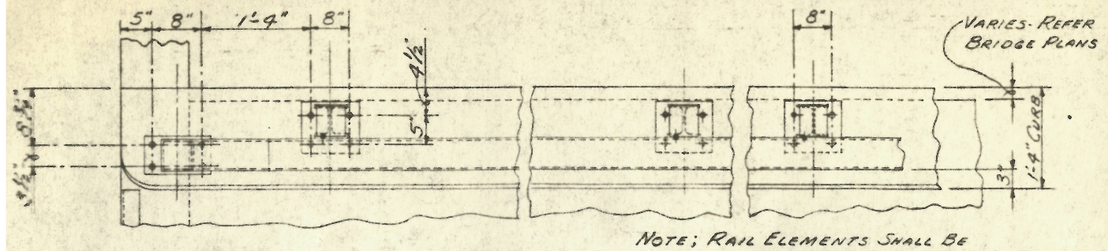
For Camber (C) See "Girder Schedule"

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION SIX

STANDARD PRESTRESSED GIRDER

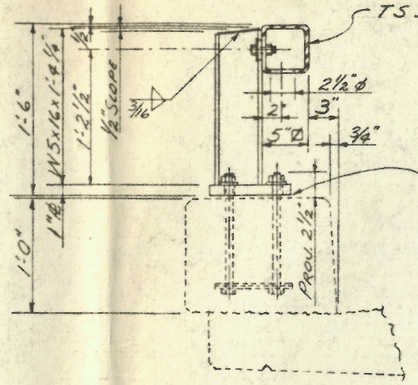
AASHO TYPE III

APPROVED Thos. B. Keady DATE 5/1/74
BRIDGE ENGINEER



NOTE; RAIL ELEMENTS SHALL BE CONTINUOS OVER AT LEAST 3 POSTS.

RAILING PLAN
SCALE: 1"=1'-0"



TS 5x5x.375 STRUCTURAL TUBING
RAILPOST HOLE; 11/16" x 1" VERTICAL SLOTTED
RAILING HOLE; 11/16" x 2" HORIZONTAL SLOTTED
FOR ⅝"ø x 2" A.S.T.M. A325 HIGH STRENGTH BOLTS, NUTS AND HARDENED WASHERS.

PROVIDE 2¼" DIA. HOLE IN RAILING FOR NUT ACCESS - AS SHOWN

2-8½"x11" (4LB./SQ.FT.) LEAD SHEETS WITH 1¼"ø HOLES TO MATCH BASE PLATE. TOP OF CURB UNDER EACH RAIL POST SHALL BE FINISHED TO A SMOOTH AND UNIFORM SURFACE TO ASSURE A PROPER ALIGNMENT OF THE POST AND A TIGHT FIT BETWEEN THE LEAD SHEETS AND CONCRETE.

RAILING CROSS SECTION
SCALE: 1½"=1'-0"

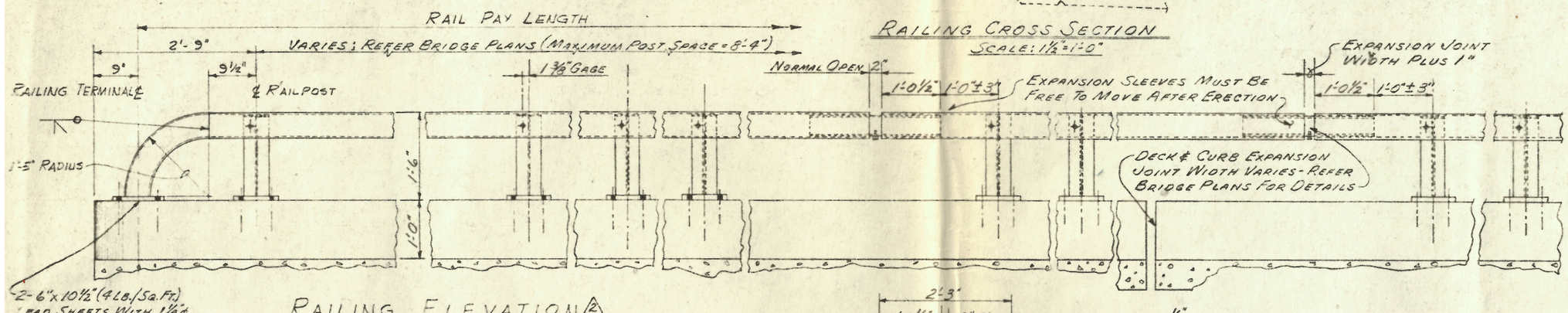
GENERAL NOTES

STRUCTURAL STEEL:
POSTS AND PLATES SHALL BE STRUCTURAL STEEL CONFORMING TO A.S.T.M. A-36. THE RAILS SHALL BE FABRICATED FROM MATERIAL CONFORMING TO A.S.T.M. A-500-68, COLD FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES, GRADE B, OR TO A.S.T.M. A501-68a, HOT-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING.

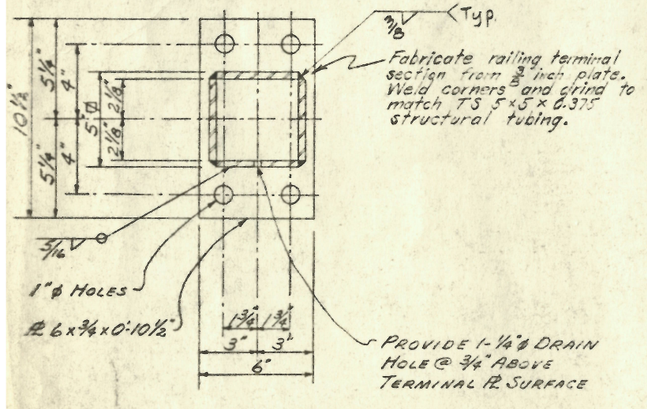
WELDING:
ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF AMERICAN WELDING SOCIETY SPECIFICATION FOR WELDED HIGHWAY AND RAILWAY BRIDGES, AWS. D2.0-69 EXCEPT AS MODIFIED BY THE SUPPLEMENTAL SPECIFICATIONS. ELECTRODES FOR MANUAL SHIELDED METAL-ARC WELDING SHALL BE AWS E 7016 OR E 7018.

GALVANIZING:
ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. DESIGNATION A 153-71. RAIL ELEMENTS, SLEEVES AND POSTS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A 123-71. SHIMS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A-93, CLASS 2.50.

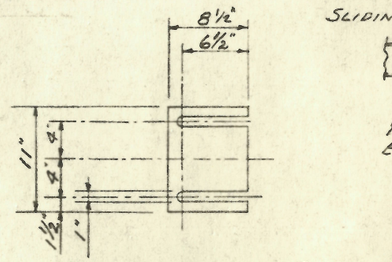
ERECTION:
RAIL POSTS SHALL BE SET PERPENDICULAR AND THE RAILS SET PARALLEL TO THE GRADE OF THE ROADWAY. TO OBTAIN PROPER ALIGNMENT, ANCHOR BOLT ASSEMBLIES MUST BE HELD IN EXACT POSITION WHILE POURING CURB.



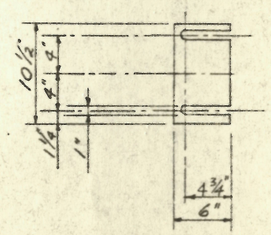
RAILING ELEVATION 2
SCALE: 1"=1'-0"



RAILING TERMINAL
SCALE: 3"=1'-0"

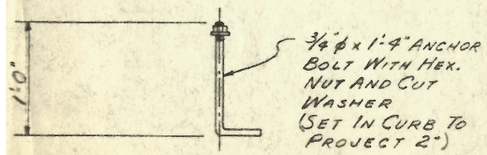


RAILPOST BASE SHIM
SCALE: 1½"=1'-0"

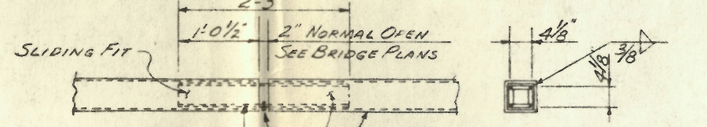


SHIM NOTE; FURNISH QUANTITY TO ADJUST RAILPOSTS TO ROADWAY GRADE FROM ⅛" STEEL SHEET. PLACE SHIMS BETWEEN LEAD SHEET AND BASE PLATE.

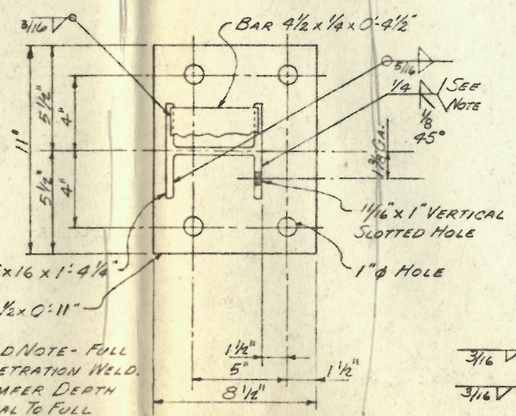
RAIL END BASE SHIM
SCALE: 1½"=1'-0"



RAILING TERMINAL ANCHOR
SCALE: 1½"=1'-0"



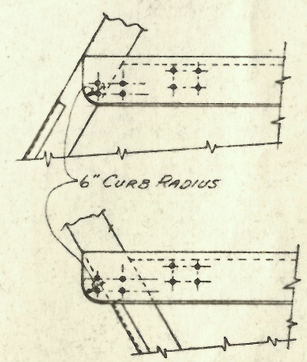
RAILING EXPANSION SLEEVE 2
SCALE: 1"=1'-0"



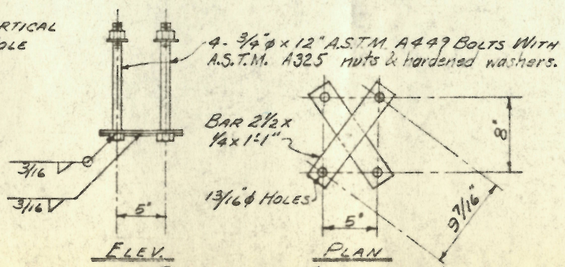
WELD NOTE - FULL PENETRATION WELD. CHAMFER DEPTH EQUAL TO FULL THICKNESS OF FLANGE

PLAN

RAILPOST ASSEMBLY
SCALE: 3"=1'-0"

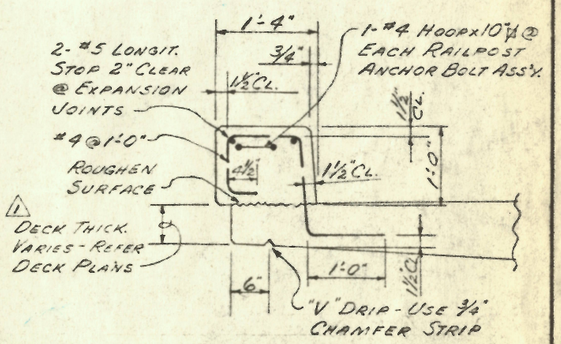


CURB PLAN AT SKEWED ENDS
SCALE: ½"=1'-0"



RAILPOST ANCHOR ASS'Y.
SCALE: 1½"=1'-0"

CURB TOP SURFACE LEVEL EXCEPT PARALLEL WITH SUPERELEVATED ROADWAY



CURB CROSS SECTION
SCALE: 1"=1'-0"

REV.	DESCRIPTION	BY	DATE
2	OMIT POSTS @ RAILING ENDS ADD RAILING EXPANSION SLEEVES		9-72
1	VARIES DIM. @ CURB JOINT & DECK THICK		4-72

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION SIX

STEEL BRIDGE RAIL-TYPE 1

DESIGNED ____ DRAWN ____ CHECKED ____
APPROVED ____ DATE March 13, 1972
BRIDGE ENGINEER

S-231