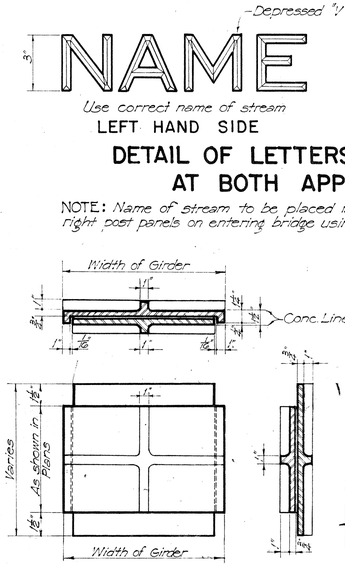
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Hawaii	Haw.	F-12(20)	1951	17	20



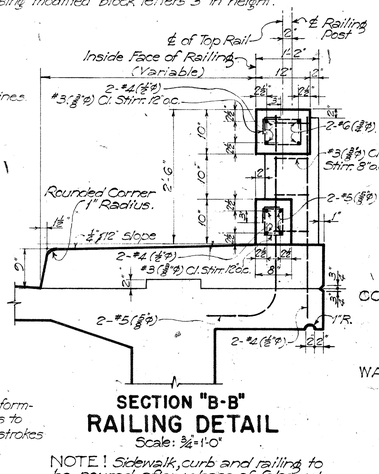
DETAIL OF LETTERS AND FIGURES AT BOTH APPROACHES

NOTE: Name of stream to be placed in left end post panels and date in right post panels on entering bridge using modified block letters 3" in height.

EXPANSION PLATES

Scale: 1½" = 1'-0"

NOTE! Plates to be made of Bronze conforming to A.S.T.M., B22, Class C. Contact areas to have medium planed finish with finishing strokes parallel to longitudinal direction of bridge.

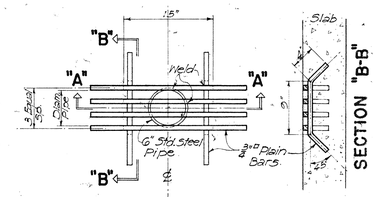


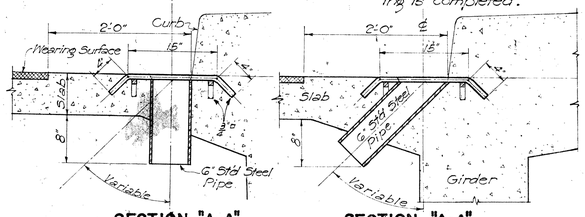
SECTION "B-B"
RAILING DETAIL

Scale: ¾" = 1'-0"

NOTE! Sidewalk, curb and railing to be poured after release of falsework. Forms for railing and endpost to be made of plywood.
SURFACE FINISH: The surface of the concrete railings shall be given a Class 2 Rubbed Finish as specified under Subarticle 51.3 (D) (2) of Section 51 Concrete of the Standard Specifications.

NOTE! Metal drains shall be considered incidental to Class A-1 Concrete in both concrete and steel bridges and will not be paid for separately.
Assemblage of railing and pipe shall be hot-dip galvanized after all welding is completed.





SECTION "A-A"
SECTION "A-A"
DRAINAGE DETAIL

Scale: 1" = 1'-0"

GENERAL NOTES

CONCRETE: Class of concrete to be used in different parts of the structure are as noted on the plans.

REINFORCING STEEL: All reinforcing steel shall be Billet Steel Bars A.S.T.M. A 15 intermediate grade, or Rail Steel Bars A.S.T.M. A 16. Steel shall be made by the open-hearth process. Deformations shall conform to A.S.T.M.-A 305.

Splicing of reinforcing other than in main deck slab, girder and frame bars shall be done as shown in above sketch except where shown otherwise. Splices are to be staggered. Splices in main girder and frame bars are permitted only in bars exceeding 60'-0" in length at points to be indicated by the Engineer. These splices to be electrically arc welded according to detail and specifications. No allowance will be made in the quantities for extra weight of steel required for splices not shown on the plans.

Minimum spacing between parallel bars shall be 2½ times the diameter of round or 3 times the side dimension of square bars, but in no case shall the clear distance between the bars be less than 1½ times the maximum size of the coarse aggregate.

Minimum covering, measured from the surface of the concrete to the face of any reinforcing bar, shall be not less than 2 inches except in slabs where the minimum covering shall be 1 inch. In the footings of abutments and retaining walls and in piers the minimum covering shall be 3 inches. In work exposed to the action of sea water the minimum covering shall be 4 inches except in precast concrete piles where a minimum of 3" may be used.

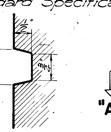
All dimensions relating to reinforcing are to centers of bars unless otherwise noted.

CONSTRUCTION JOINTS: All construction joints to have surface roughened and 1:2 cement grout applied immediately before the second pour. Construction joints to be located at places indicated in the plans.

WATERPROOFING:
(1). Mop surface either side of joint as required with asphalt 50-100 penetration (A.S.T.M. Desig. D 5-25) applied at 200°F.
(2). Apply one layer of 55# Composition Roofing to hot asphalt.
(3) Mop surface of composition roofing and 3" beyond all around with thick coat of asphalt as specified under (1).

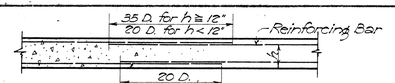
The above work is incidental to concrete and will not be paid for separately.

DAMP PROOFING: Apply damp proofing as specified in Section 66 of the Standard Specifications.

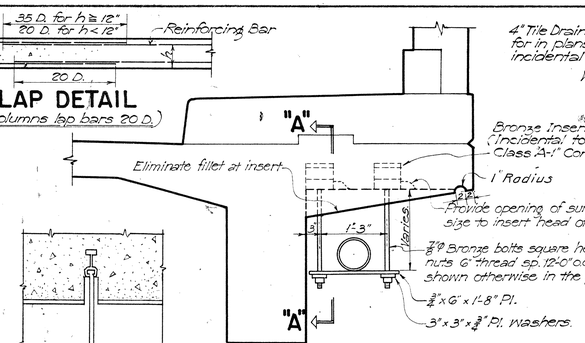


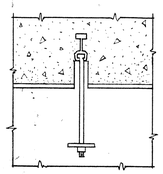
DETAIL OF END POST GROOVE

Scale: 3" = 1'-0"



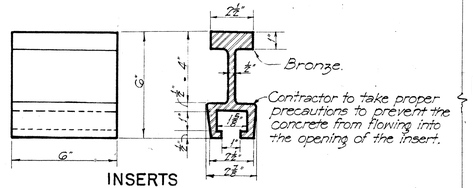
LAP DETAIL
(In columns lap bars 20 D.)





SECTION "A-A"

Scale: ¾" = 1'-0"

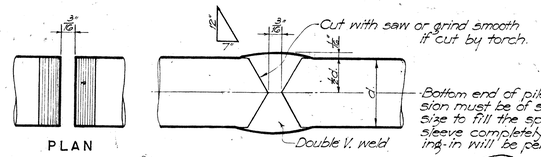


INSERTS

Scale: ¾" = 1'-0"

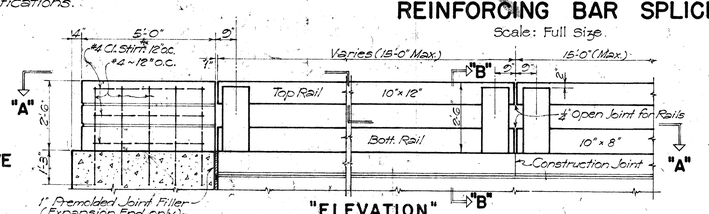
DETAIL OF PIPE HANGERS AND INSERTS

NOTE! Insert, bolts, plates, nuts & washers to be Bronze conforming to A.S.T.M. Designation B 22 and shall be Class "D" grade.



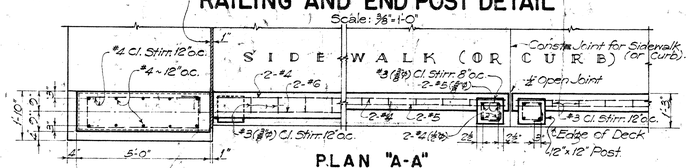
REINFORCING BAR SPLICE

Scale: Full Size

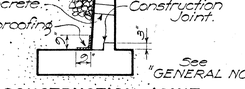


"ELEVATION"
RAILING AND END POST DETAIL

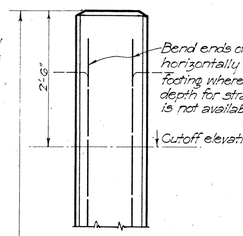
Scale: ⅜" = 1'-0"



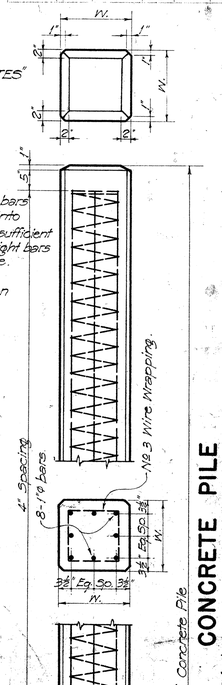
PLAN "A-A"



CONSTRUCTION JOINT, WATERPROOFING AND WEEPHOLES.

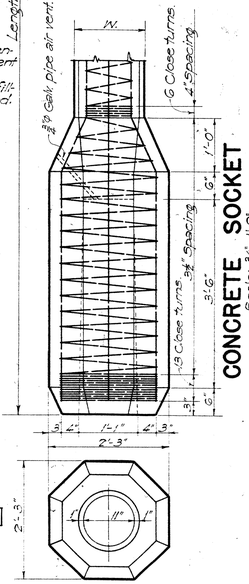


PILE CUTOFF



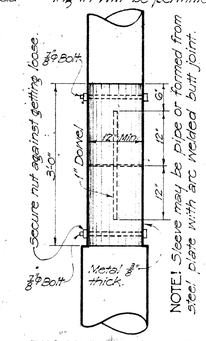
DETAIL OF CONCRETE PILE

W = Size of pile.



CONCRETE SOCKET

Scale: ¾" = 1'-0"



NOTE! Sleeve may be pipe or formed from steel plate with arc welded butt joint.

TIMBER PILE SPLICE

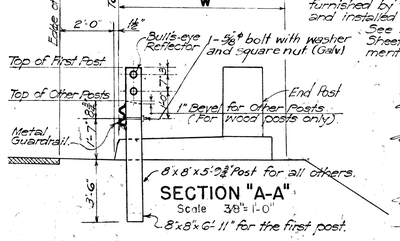
Scale: ¾" = 1'-0"

GUARDRAIL OFFSET

X	Y: W=3'	W=4'	W=5'	W=6'	W=7'	W=8'
12.5	0.19	0.16	0.14	0.12	0.09	0.08
25.0	0.75	0.64	0.55	0.49	0.36	0.32
37.5	1.69	1.44	1.25	1.10	0.78	0.72
50.0	3.00	2.56	2.22	1.96	1.38	1.28
62.5		4.00	3.47	3.06	2.16	2.00
75.0			5.00	4.41	3.11	2.88
87.5				6.00	4.23	3.92
100.0					5.53	5.12
112.5					7.00	6.48
125.0						8.00

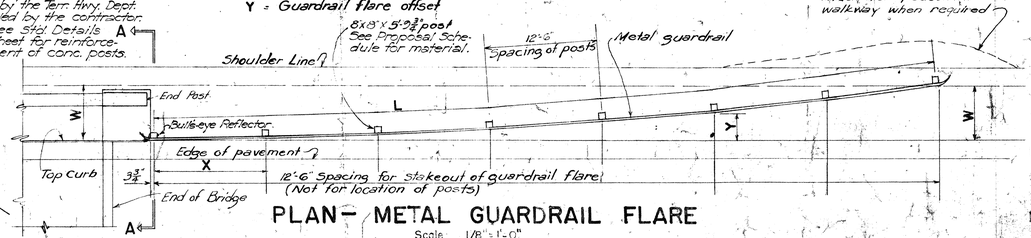
W = Guardrail flare
X = Distance from post at bridge to offset points.
Y = Guardrail flare offset

NOTE! Bull's-eye reflectors to be furnished by the Terr. Hwy. Dept. and installed by the contractor. See Std. Details Sheet for reinforcement of conc. posts.



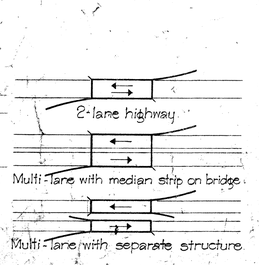
SECTION "A-A"

Scale 3/8" = 1'-0"

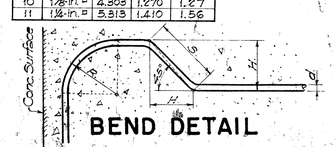


PLAN - METAL GUARDRAIL FLARE

Scale 1/8" = 1'-0"



REINF. BAR DESIGNATION				
BAR NO.	FORMER DESIG.	LBS. / FT.	DIAM. IN.	AREA SQ. IN.
2	¼ - in. ø	0.167	0.250	0.05
3	⅜ - in. ø	0.376	0.375	0.11
4	½ - in. ø	0.668	0.500	0.20
5	⅝ - in. ø	1.043	0.625	0.31
6	¾ - in. ø	1.502	0.750	0.44
7	⅞ - in. ø	2.044	0.875	0.60
8	1 - in. ø	2.670	1.000	0.79
9	1 - in. □	3.400	1.128	1.00
10	1⅛ - in. □	4.303	1.270	1.27
11	1¼ - in. □	5.313	1.410	1.56



BEND DETAIL

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

STANDARD BRIDGE DETAILS

Scales as Noted

APPROVED BY: _____
TERRITORIAL HIGHWAY ENGINEER

SHEET № OF SHEETS

5564.17

ORIGINAL PLAN	
SURVEY PLOTTED BY	DATE
DESIGNED BY N. R. Barnes	"
DETAILED BY	" Mar. 1952
TRACED BY R. Kawamura	"
QUANTITIES BY	"
NOTE BOOK	QUANTITIES CHECKED BY "
No.	CHECKED BY "

K & E CO. INC. NY. NY.