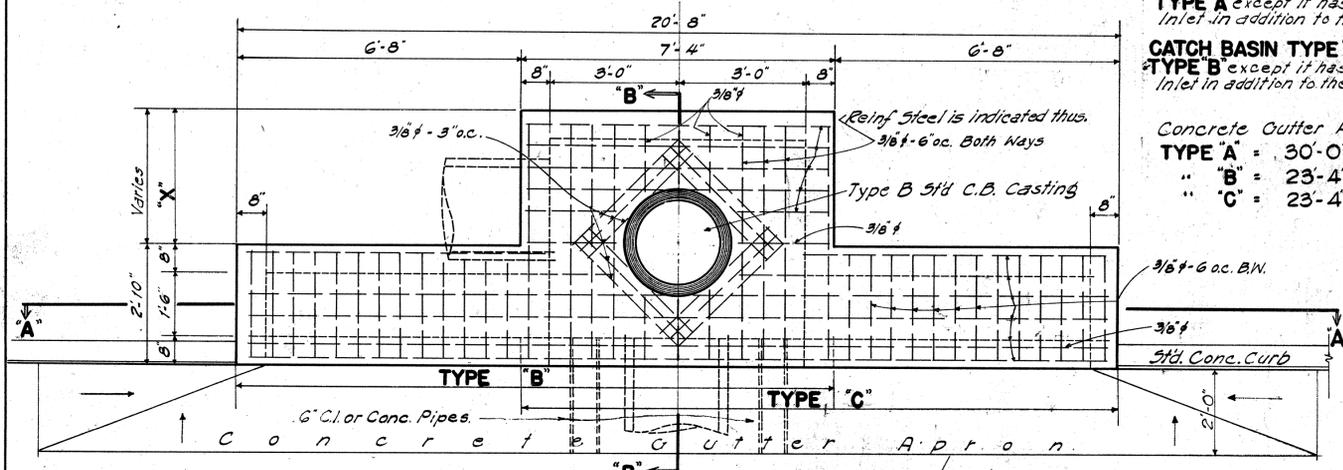


QUANTITIES WITH BOTH DIMENSIONS "X" = 3'-0":

**TYPE 'A'**  
 Class 'A-1' Conc. = 7.5 C.Y.  
 Reinf. Steel = 125 LBS  
 Str. Exc. = 24.7 C.Y.

**TYPE 'B' or 'C'**  
 Class 'A-1' Conc. = 6.0 C.Y.  
 Reinf. Steel = 95 LBS  
 Str. Exc. = 21.5 C.Y.

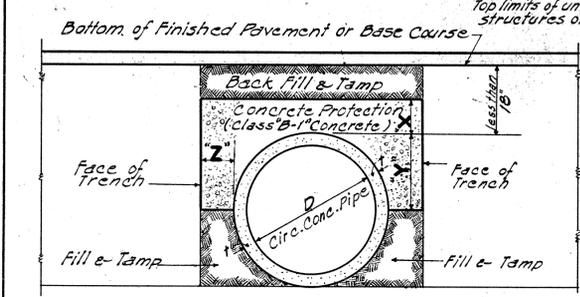
(No hole deducted for Culvert)



**STANDARD CONCRETE CATCHBASIN TYPE 'A'**  
 Scale: 1/2" = 1'-0"

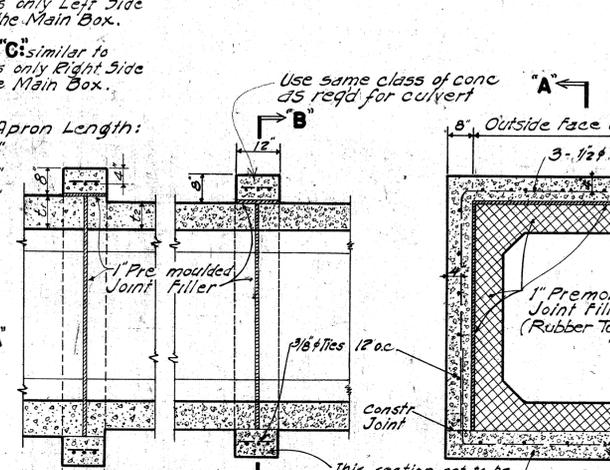
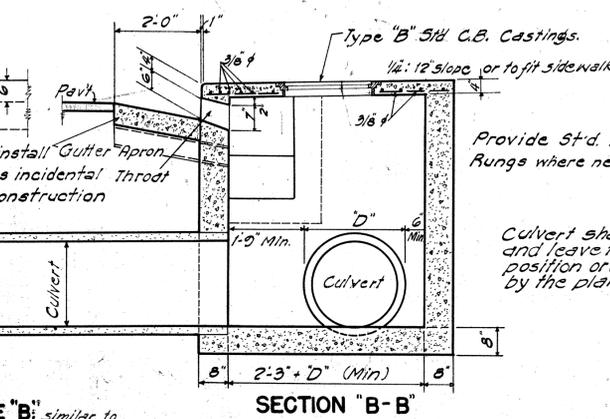
Excavate recess in roadway excavation slope for inlet to dimensions and form designated by Engineer. This is "Unclassified Excavation."

Note: This type of structure shall also be used for the drop intakes of siphons connected with irrigation ditches or flumes with appropriate changes to dimensions. In this case all joints must be made water tight.



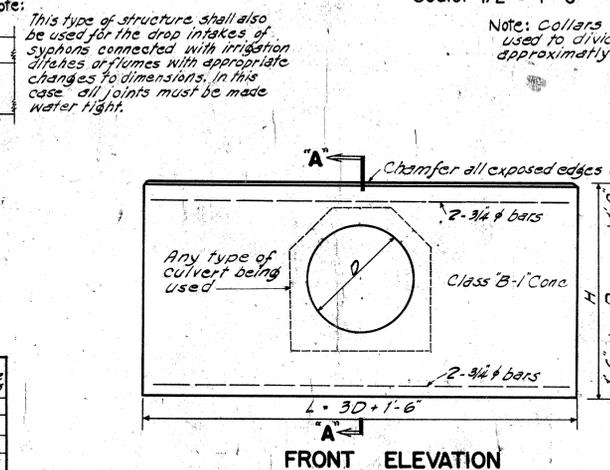
**TYP. SECT. OF CULVERT WITH CONG. PROTECTION**  
 (To be used when cover is less than 18")

DATA: CONCRETE PROTECTION OVER CULVERTS		
X	Y	Z
6" for 18" D	D/2 + T	Z must be from pipe to face of trench
7" 24" D		
8" 30" D		
9" 36" D		
10" 42" D		
11" 48" D		
12" 54" D	Minimum X	Maximum pay quantity will be Z = 12"



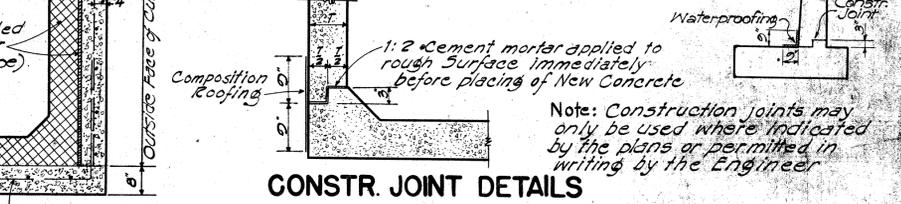
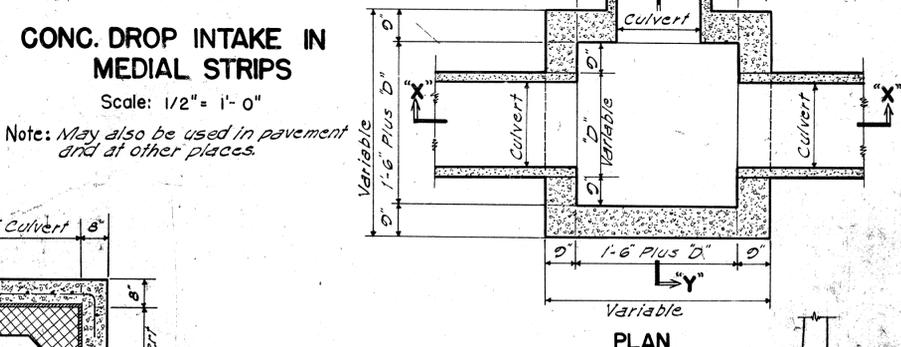
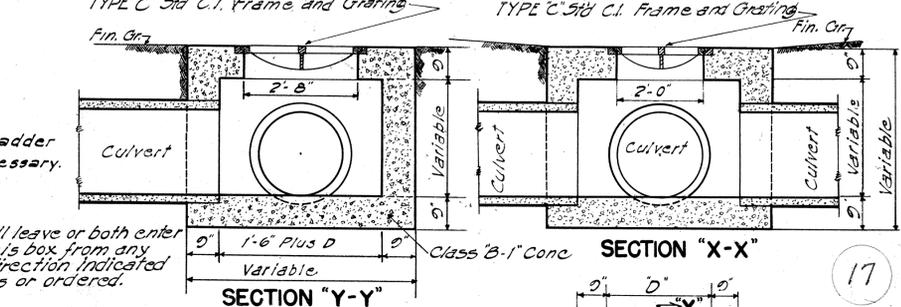
**CONC. COLLAR FOR CONG. BOX CULVERT**  
 Scale: 1/2" = 1'-0"

Note: Collars of this type shall be used to divide culverts into approximately 30ft lengths.



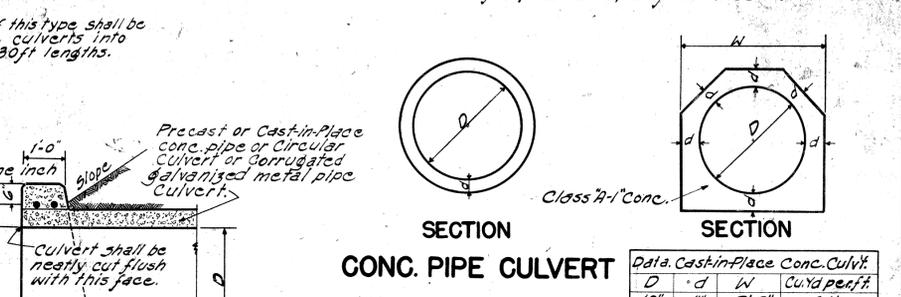
**STANDARD CONCRETE HEADWALL**  
 Scale: 1/2" = 1'-0"

Cast-in-Place Cu. Yds.	Data: Standard Concrete Headwall				Steel One Headwall				
	D	B	L	H	Conc. one H.W.	No. of Bars	Size	Length	Wt Lbs
0.02	18"	1'-6"	6'-0"	4'-0"	100 Cu. Yds.	4	3/4"	5'-6"	35
1.25	24"	2'-0"	7'-6"	4'-6"	130	4	7'-0"	42	
1.99	30"	2'-6"	9'-0"	5'-0"	217	4	8'-6"	51	
2.73	36"	3'-0"	10'-6"	5'-6"	274	4	10'-0"	60	



**METHOD OF APPLYING CONSTR. JOINT WATERPROOFING:**

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



**CONC. PIPE CULVERT**

Data: Cast-in-Place Conc. Culvert				
D	d	W	Length	Wt Lbs
18"	4"	2'-2"	0.11	
24"	4 1/2"	2'-0"	0.14	
30"	5"	3'-4"	0.10	
36"	5 1/2"	3'-11"	0.26	

Note: Thickness of reinforcing and concrete used are to conform with the approved design as provided by the Specifications.

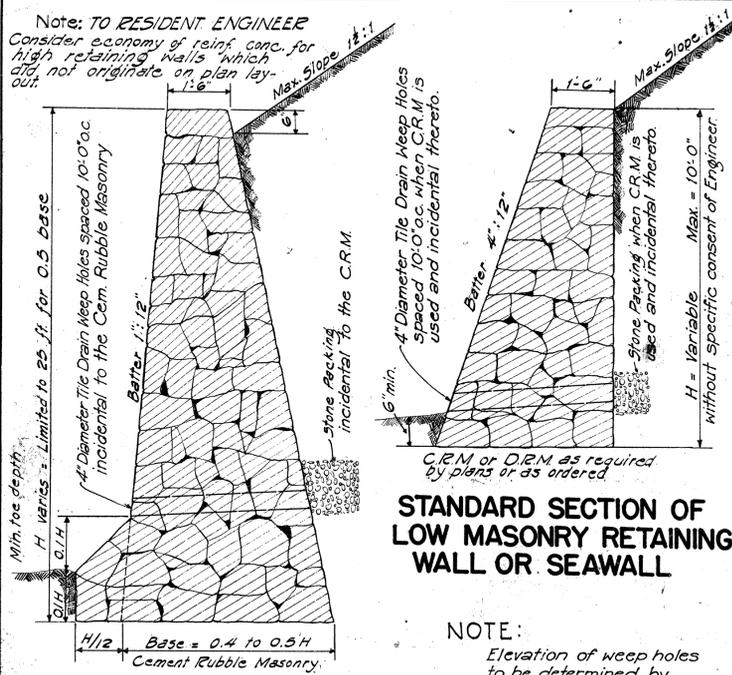
**CAST-IN-PLACE CONG. CULVERT**

TERRITORIAL HIGHWAY DEPARTMENT  
 TERRITORY OF HAWAII

**STANDARD DETAILS**

SCALES AS NOTED Apr. 15, 1948

APPROVED: *[Signature]*  
 Territorial Highway Engineer



**STANDARD SECTION OF LOW MASONRY RETAINING WALL OR SEAWALL**

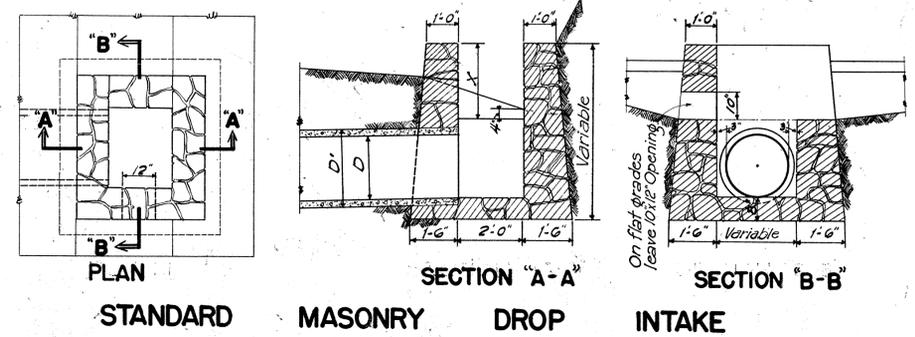


**STANDARD SECTION OF HIGH CEMENT RUBBLE MASONRY RETAINING WALL OR SEAWALL**

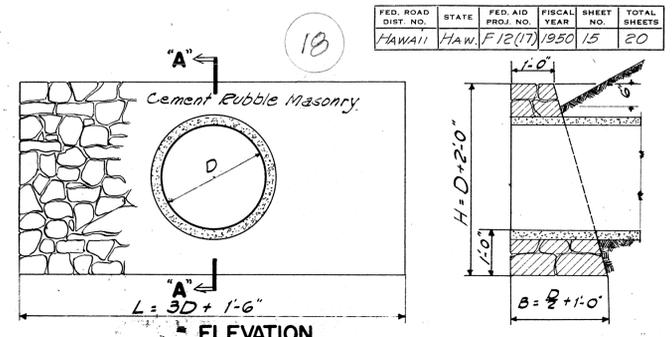
Data Standard Masonry Drop Intake

D'	D	L = D + 6"	Cu. Yds.	Where Variable Equals
22"	18"	2'-0"	2.41	4'-6"
20"	24"	2'-6"	2.89	5'-0"
35"	30"	3'-0"	3.38	5'-6"
42"	36"	3'-6"	3.92	6'-0"

NOTE: Dimension "X" is assumed as 2'-4" in figuring the above quantities.



**STANDARD MASONRY DROP INTAKE**

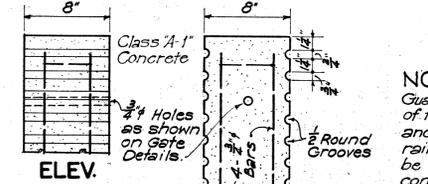


Cast-in-Place Precast Data-Standard Rubble Masonry H.W.

Cu. Yds.	D	H	B	L	Ck. one H.W.
0.95	18"	3'-6"	1'-0"	6'-0"	0.95
1.23	24"	4'-0"	2'-0"	7'-6"	1.41
1.83	30"	4'-6"	2'-3"	9'-0"	2.00
2.40	36"	5'-0"	2'-6"	10'-6"	2.72

NOTE: Volume for one head wall is for corrugated pipe culvert

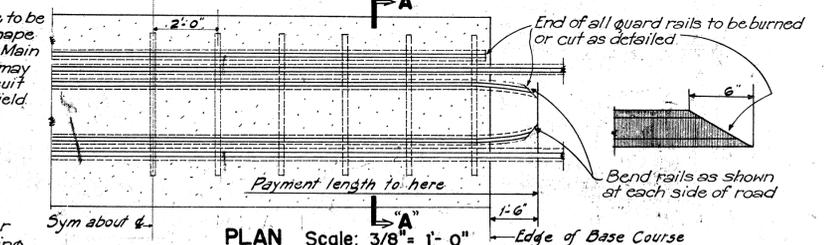
**STANDARD MASONRY HEADWALL**



**CONC. GATE POST**

NOTE: Guard rails are to be of the same shape and weight as Main rails. Details may be varied to suit conditions in field.

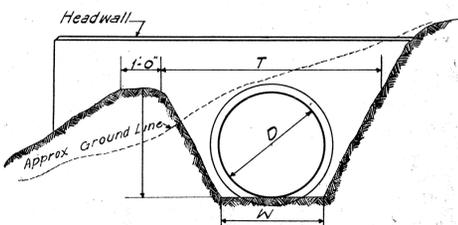
NOTE: Contractor may either cast holes for fastening fence wire or cast post with 3/4" round grooves on 2 sides.



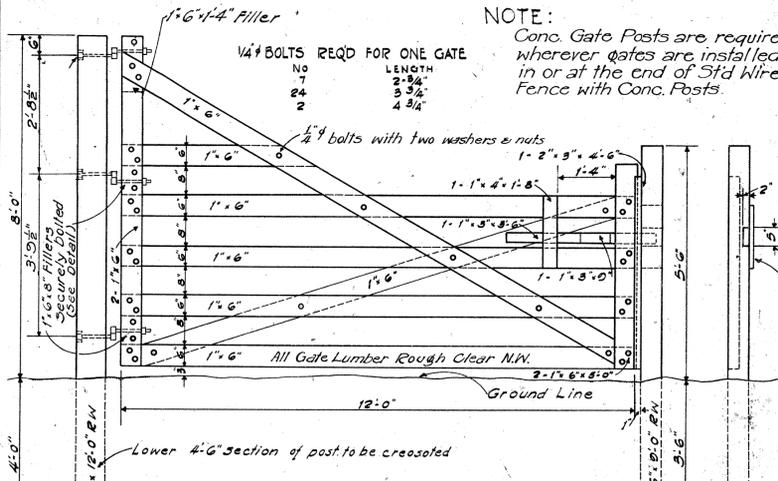
**INDUSTRIAL TRACK CROSSING**

Data-Standard Outlet Ditch

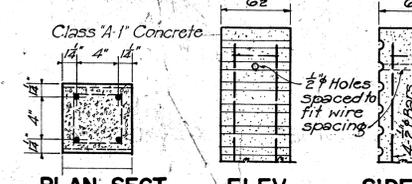
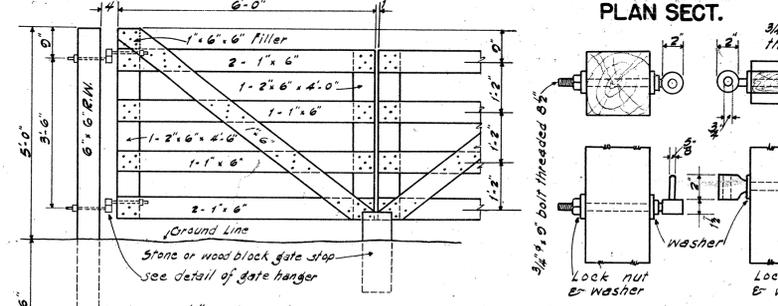
D	W	H	T:W+H
18"	24"	2'-0"	4'-0"
24"	24"	2'-0"	4'-0"
30"	30"	2'-0"	5'-0"
36"	36"	3'-0"	6'-0"



**DETAIL OF STANDARD OUTLET DITCH**



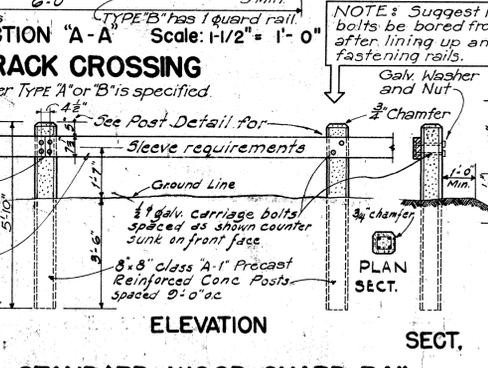
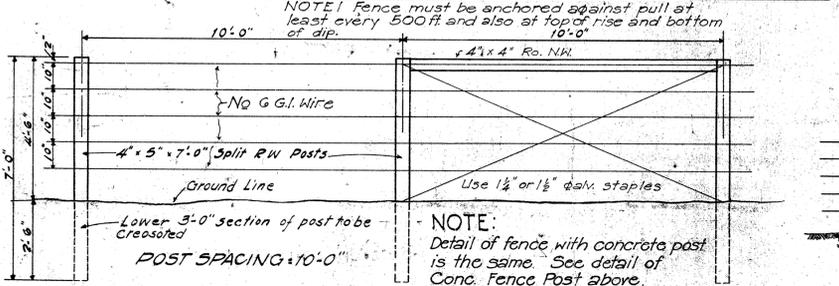
**DOUBLE HUNG GATE**  
 Scale: 1/2" = 1'-0"



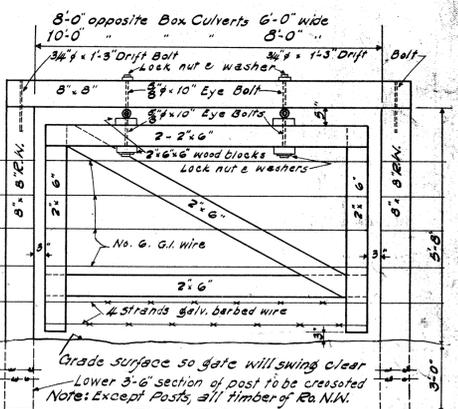
**CONC. FENCE POST**

NOTE: Detail of fence with concrete post is the same. See detail of Conc. Fence Post above.

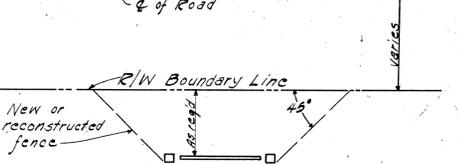
**STANDARD GUIDE POSTS: 8" x 8" Rein. Conc. Guide Posts are the same as those used for Std. Wood Guard Rail spaced 18:0:0 unless otherwise specified.**



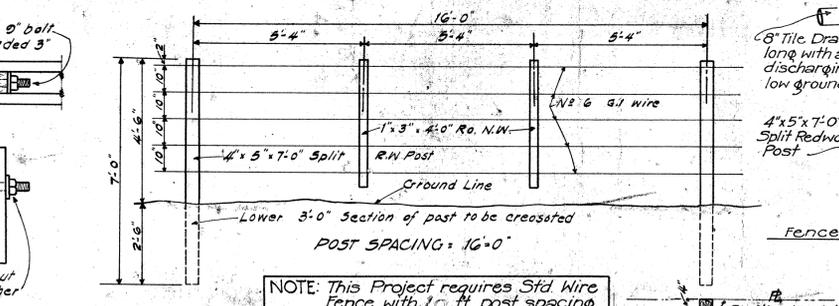
**DETAIL OF CONC. POST**



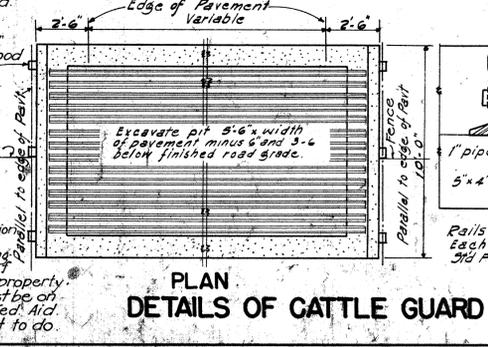
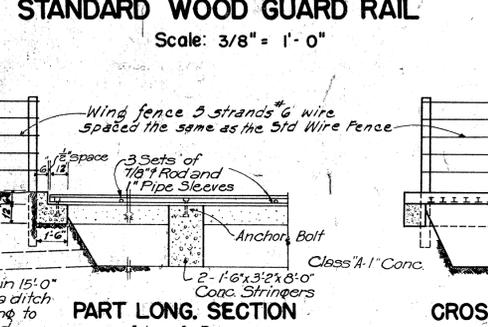
**LAYOUT SHOWING HURDLE PLACED BELOW CULVERT IN A POSITION WHICH WILL BE CATTLE TIGHT**



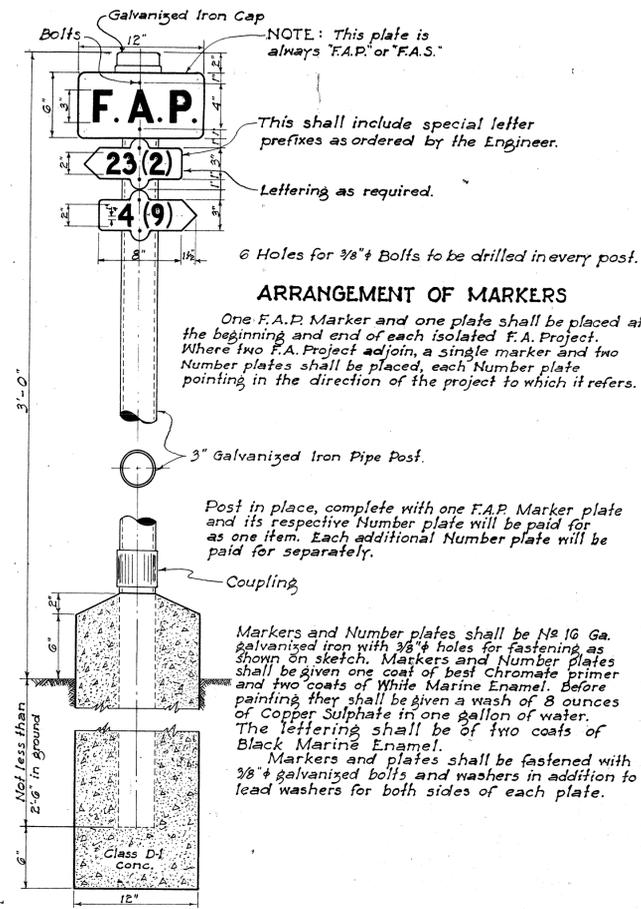
**DETAILS OF HURDLE**



**DETAILS OF STANDARD WIRE FENCE WITH WOODEN POSTS**



TERRITORIAL HIGHWAY DEPARTMENT  
 TERRITORY OF HAWAII  
**STANDARD DETAILS**  
 SCALES AS NOTED  
 Apr. 15, 1948  
 APPROVED: [Signature]  
 Territorial Highway Engineer  
 SHEET No. 1 OF 4 SHEETS



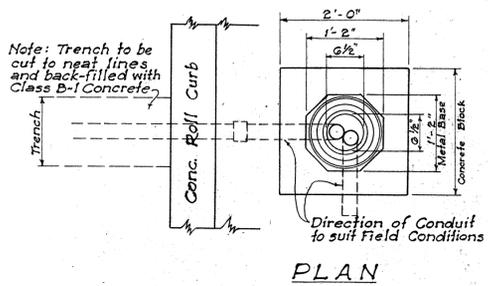
**ARRANGEMENT OF MARKERS**

One F.A.P. Marker and one plate shall be placed at the beginning and end of each isolated F.A. Project. Where two F.A. Projects adjoin, a single marker and two Number plates shall be placed, each Number plate pointing in the direction of the project to which it refers.

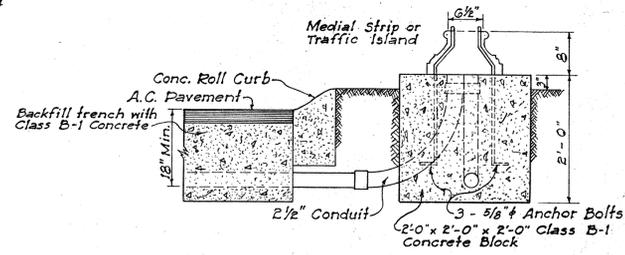
Post in place, complete with one F.A.P. Marker plate and its respective Number plate will be paid for as one item. Each additional Number plate will be paid for separately.

Markers and Number plates shall be No. 10 Ga. galvanized iron with 3/8" holes for fastening as shown on sketch. Markers and Number plates shall be given one coat of best Chromate primer and two coats of White Marine Enamel. Before painting they shall be given a wash of 8 ounces of Copper Sulphate in one gallon of water. The lettering shall be of two coats of Black Marine Enamel. Markers and plates shall be fastened with 3/8" galvanized bolts and washers in addition to lead washers for both sides of each plate.

**FEDERAL AID MARKER**  
Scale: 1/2" = 1'-0"



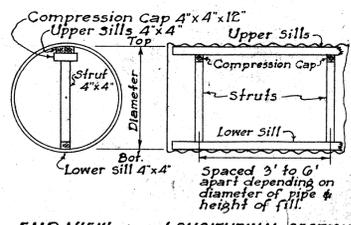
**PLAN**



**SECTION**

NOTE: Unless otherwise specified, all concrete for base for Traffic Standards, Pull Boxes, Concrete Jackets for Transite Ducts shall be Class B-1 Concrete.

**DETAIL OF BASE FOR TRAFFIC STANDARD AND DISPATCHER PEDESTAL**

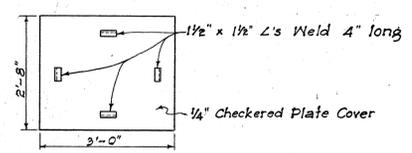


**END VIEW LONGITUDINAL SECTION**

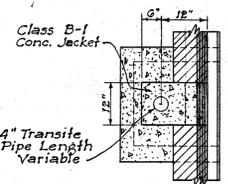
Diameter of Pipe in inches	Length of Struts in inches	Spacing of Struts in ft. for Various Heights				
		FILL 1' to 5'	FILL 5' to 10'	FILL 10' to 20'	FILL 20' to 30'	FILL Over 30'
48	38 3/4	-	-	-	6	4
54	44 3/4	6	6	6	6	4
60	51	6	6	6	6	4
66	57 1/4	6	6	6	6	4
72	63 3/8	6	6	6	5	3.5
78	69 1/8	6	6	6	4.5	3.5
84	75 1/4	6	6	6	4	3

NOTE: Length of struts are based on 4"x4" timbers which is the minimum size recommended. If larger sills or compression caps are used, length of struts should be changed accordingly.

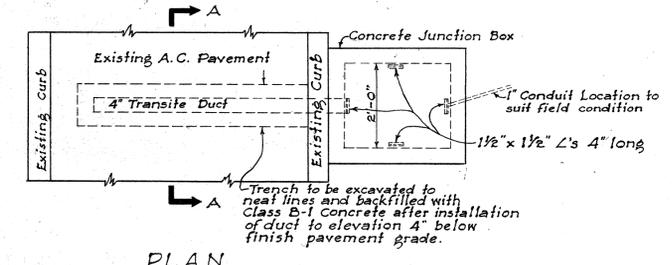
**STRUTTING DIAGRAM & TABLE FOR CORRUGATED METAL PIPE CULVERT**



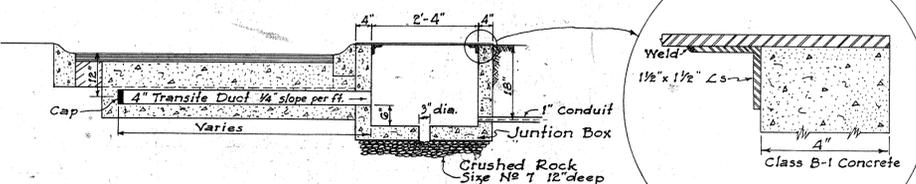
**PLAN OF COVER PLATE**



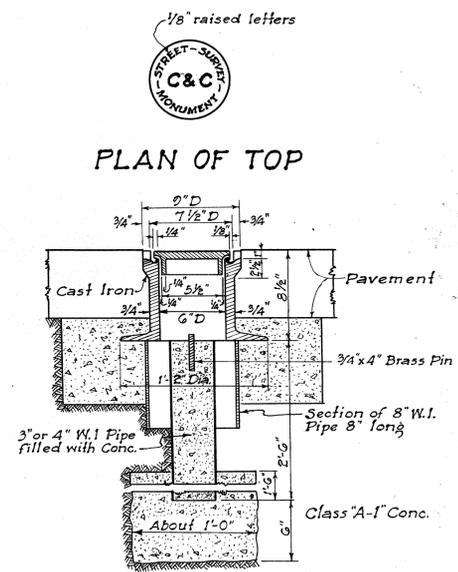
**SECTION A-A**



**PLAN**

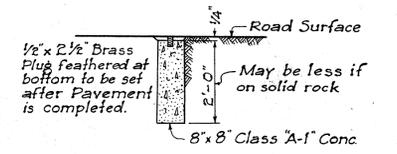


**TYPICAL ROAD SECTION SHOWING TRAFFIC DETECTOR JUNCTION BOX AND DUCT**

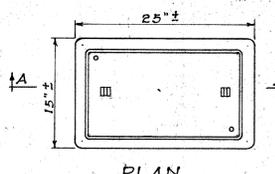


**PLAN OF TOP**

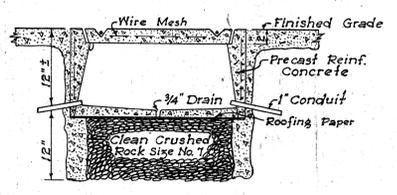
**STANDARD C&C STREET SURVEY MONUMENT**



**CENTER LINE MONUMENT**  
Scale: 1/2" = 1'-0"

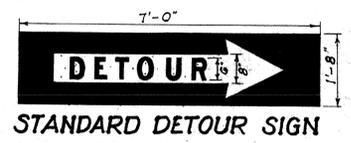


**PLAN**

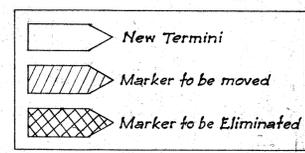
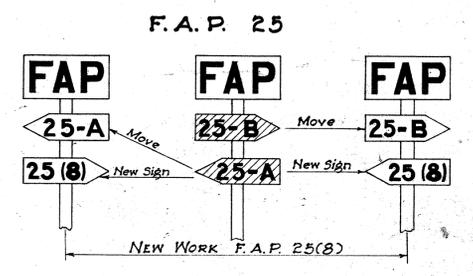
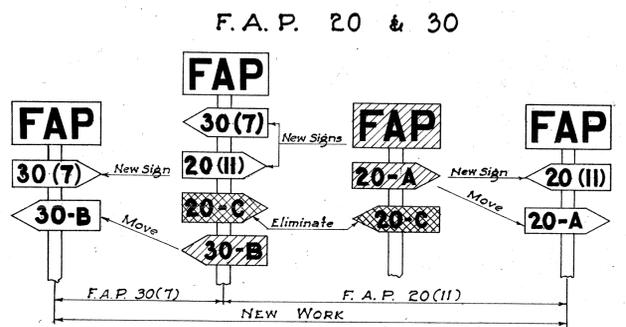


**SECTION A-A**

**DETAIL OF PULL BOX**  
Scale: 1" = 1'-0"



**STANDARD DETOUR SIGN**



NOTE: Federal Aid Markers should be placed at the termini of suffix designated sections. Intermediate letter designated markers of adjacent sections located within the limits of new improvements should be moved to the termini of the new work.

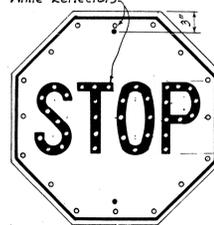
The same procedure would be followed on each successive improvement until all markers for letter designated sections are eventually eliminated.

**METHOD OF MARKING F.A. PROJECTS AT OVERLAPS (USING NUMBER SUFFIX ON NEW WORK)**

TERRITORIAL HIGHWAY DEPARTMENT  
 TERRITORY OF HAWAII  
**STANDARD DETAILS**  
 SCALES AS NOTED  
 APPROVED: *Neil Salt*  
 Territorial Highway Engineer  
 May 31, 1949

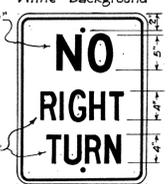
SURVEY PLOTTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 ORIGINAL PLAN DRAWN BY: \_\_\_\_\_  
 TRACED BY: \_\_\_\_\_  
 QUANTITIES CHECKED BY: \_\_\_\_\_  
 NOTE BOOK CHECKED BY: \_\_\_\_\_  
 No. \_\_\_\_\_

Black Letters on "Highway Yellow" Background White Reflectors.



R-1  
30" x 30"

Black Letters on White Background



R-6  
18" x 24"

1/16" bolt hole



R-8  
18" x 24"



R-10  
12" x 18"



R-11  
20" x 24"



R-12  
20" x 24"



R-13  
24" x 30"



R-14  
18" x 24"



R-15  
24" x 24"



R-16-R  
\*R-16-L  
36" x 12"



R-18  
12" x 18"



R-26  
12" x 18"

Black letters, White Arrow on Black Background, White Border and White Reflectors

Red Letters & Border on White Background

Red Letters & Border on White Background



R-29  
24" x 30"



R-41-S  
24" x 24"



R-42-S  
12" x 18"



R-43-S  
12" x 18"



R-44-S  
12" x 18"



R-102-A  
24" x 30"



R-102-B  
24" x 30"



R-102-C  
24" x 30"



R-104  
24" x 30"



R-105-A  
24" x 30"



R-105-B  
24" x 30"



R-105-C  
24" x 30"



R-105-D  
24" x 30"



R-105-E  
24" x 30"



R-105-F  
24" x 30"



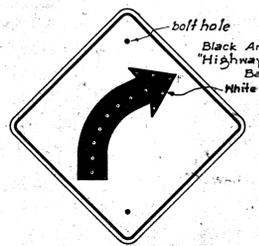
R-106  
24" x 30"



R-107-A  
24" x 30"



R-107  
14" x 9"



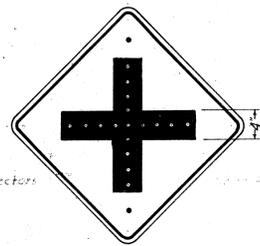
W-2-R  
\*W-2-L  
24" x 24"



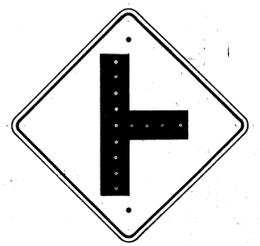
W-4-R  
\*W-4-L  
24" x 24"



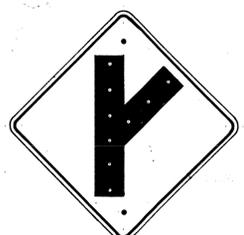
W-5-R  
\*W-5-L  
24" x 24"



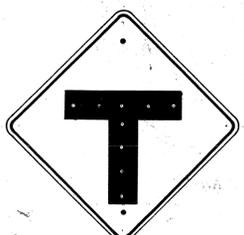
W-6  
24" x 24"



W-7  
24" x 24"



W-8-R  
\*W-8-L  
24" x 24"



W-9  
24" x 24"



W-10  
24" x 24"



W-13  
24" x 24"



W-14  
24" x 24"



W-14-A  
24" x 24"



W-19  
30" x 30"



W-20  
30" x 30"



W-21  
30" x 30"

NOTE: All Warning Signs shall have two (2) 1/16" bolt holes drilled at 24" center unless otherwise noted.

All letters and figures shall be of size and design shown and shall conform with "Standard Alphabets for Highway Signs" as set forth by the Public Roads Administration, Federal Works Agency. Series "C" letters and Series "D" numerals shall be used except where noted.

Note: All Regulatory (R) signs shall have black letters on a white background except where noted. All Warning (W) signs shall have black letters or figures on a "Highway Yellow" background. \*Signs shall be similar but opposite in direction.

DATE: \_\_\_\_\_  
 SURVEY PLOTTED BY: \_\_\_\_\_  
 ORIGINAL PLAN DRAWN BY: T. TOKIURA  
 QUANTITIES BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 NOTE BOOK No. \_\_\_\_\_



W-22  
24" x 24"



W-24  
30" x 30"



W-25  
24" x 24"



W-29  
24" x 24"



W-38  
24" x 24"



W-39  
24" x 24"

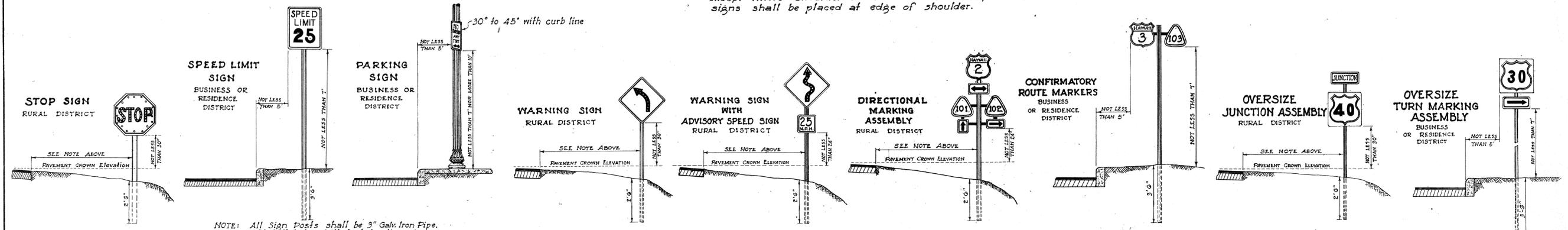
See Specifications for Materials & Finish.

TERRITORIAL HIGHWAY DEPARTMENT  
 TERRITORY OF HAWAII  
**REGULATORY & WARNING SIGNS**  
 Scale: 1" = 1'  
 APPROVED: \_\_\_\_\_ May 31, 1949  
 TERRITORIAL HIGHWAY ENGINEER

SHEET No. OF SHEETS

5455.17

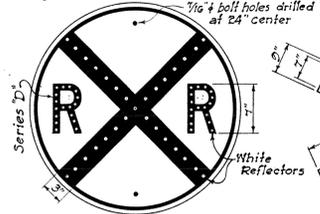
NOTE: All signs shall be placed 10' from edge of pavement except where shoulder width is less than 10', in which case signs shall be placed at edge of shoulder.



HEIGHT AND LATERAL LOCATION OF SIGNS - TYPICAL INSTALLATIONS  
Scale: 1" = 3'-0"

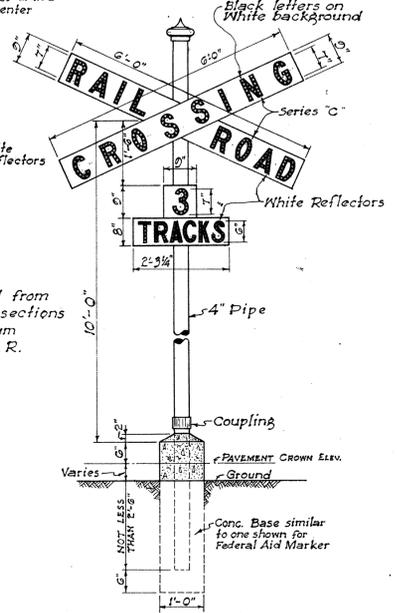
NOTE: All sign posts shall be 3" Galv. Iron Pipe. Two (2) 1/2" bolt holes drilled at location shown. Two (2) 3/8" bolts with leather washers against face and back of metal sign.

Black letter and crossbar on "Highway Yellow" background



W-32  
30" Diameter  
Scale: 1" = 1'-0"

NOTE: This sign shall be placed from 300 to 500 feet from R. R. intersections in rural areas and a minimum distance of 100 feet from R. R. intersections in Residence or Business districts.



W-33  
Scale: 1/2" = 1'

Black letters and figures on "Highway Yellow" background



W-35-A 13" x 13" Series 'D'  
W-35-B 13" x 13" Series 'C'  
Scale: 1" = 1'-0"

SURVEY PLOTTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 TRACED BY: \_\_\_\_\_  
 QUANTITIES CHECKED BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 ORIGINAL PLAN No. \_\_\_\_\_  
 NOTE BOOK No. \_\_\_\_\_

TERRITORIAL HIGHWAY DEPARTMENT  
 TERRITORY OF HAWAII  
**REGULATORY & WARNING SIGNS**  
 SCALE AS NOTED May 31, 1949  
 APPROVED: *Hubbell*  
 Territorial Highway Engineer