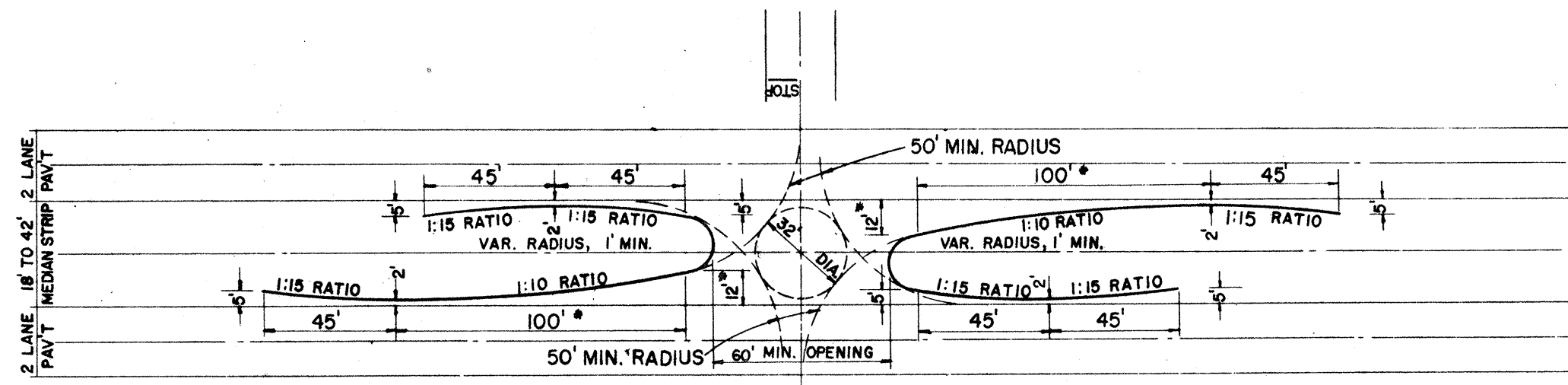
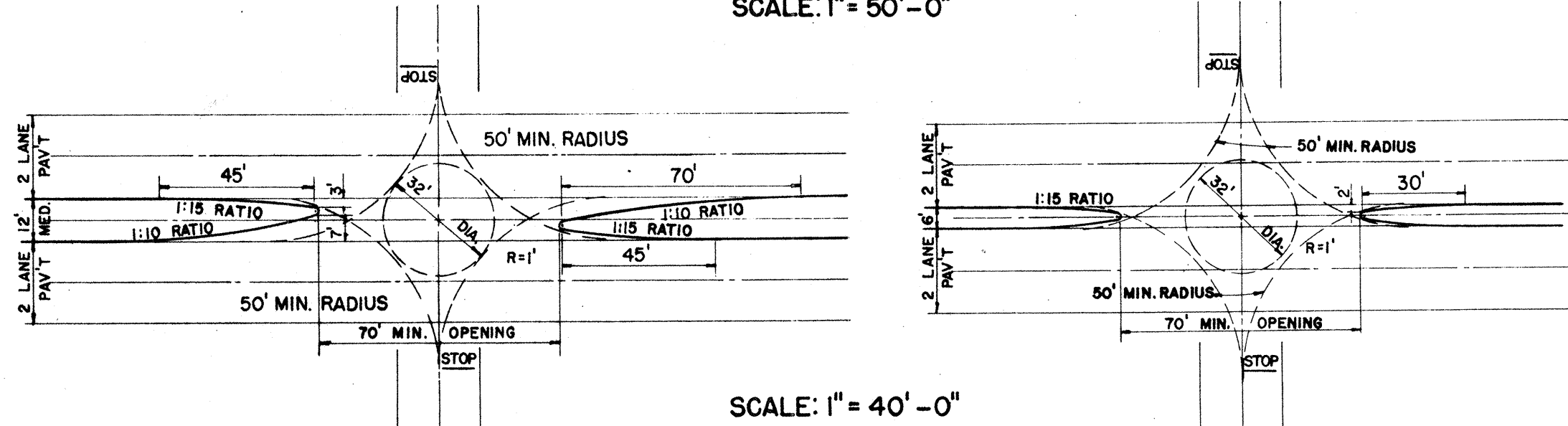




NOTE:
WITH AN 18' MEDIAN STRIP, THE OFFSET MUST BE REDUCED TO 11', WHICH IN TURN REDUCES THE 1:10 FLARE TO 90'.

SCALE: 1" = 50'-0"



SCALE: 1" = 40'-0"

DETAILS OF MEDIAN STRIP OPENINGS

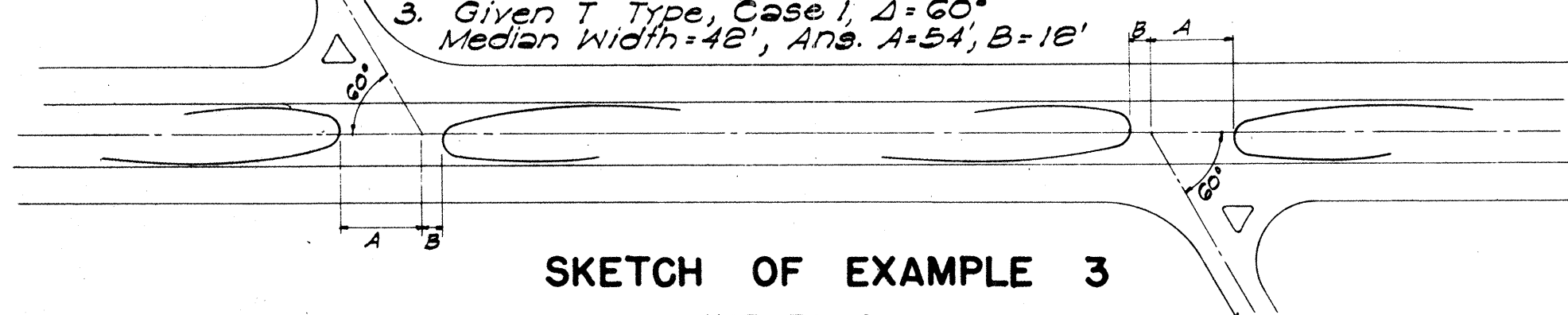
ANGLE OF INTERSECTION	WIDTH OF MEDIAN STRIP											
	42'			30'			24'			18'		
	Case 1	Case 2	Case 3	Case 1	Case 2	Case 3	Case 1	Case 2	Case 3	Case 1	Case 2	Case 3
60°	54	12	58	14	58	14	62	14	64	14	66	14
65°	48	14	52	16	52	16	56	16	60	16	62	16
70°	42	16	46	18	46	18	50	18	54	18	56	18
75°	36	18	40	20	40	20	44	20	48	20	50	20
80°	30	20	34	22	34	22	38	22	42	22	44	22
85°	24	22	28	24	28	24	32	24	36	24	38	24
90°	18	24	22	28	22	28	26	28	26	28	26	28
95°	12	26	20	30	20	30	20	30	20	30	20	30
100°	6	28	14	32	14	32	14	32	14	32	14	32
105°	0	30	8	34	8	34	8	34	8	34	8	34
110°	0	32	0	36	0	36	0	36	0	36	0	36
115°	0	34	0	38	0	38	0	38	0	38	0	38
120°	0	36	0	40	0	40	0	40	0	40	0	40

CASE	WIDTH OF MEDIAN STRIP					
	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
CASE 1						
CASE 2						

NOTES:
1) A & B = Distance in feet from Island Nose to Centerline of Intersection.
2) In a Crossing Intersection A & B are both equal to the larger distance.
3) In a T Intersection A & B must be measured as shown below. The larger distance is always on the same side with the acute angle.
4) The minimum radius of 50 ft. should always be scribed on a large scale drawing so that no misinterpretation of the tabulated values is made.

EXAMPLES:

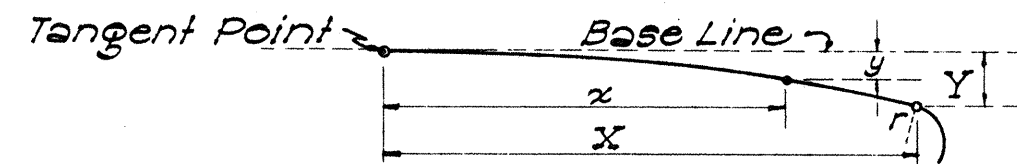
- Given Crossing Type, Case 1, $\Delta = 60^\circ$, Median Width = 42', Ans. $A = B = 54'$
- Given T Type, Case 1, $\Delta = 60^\circ$, Median Width = 42', Ans. $A = 54'$, $B = 18'$



SKETCH OF EXAMPLE 3

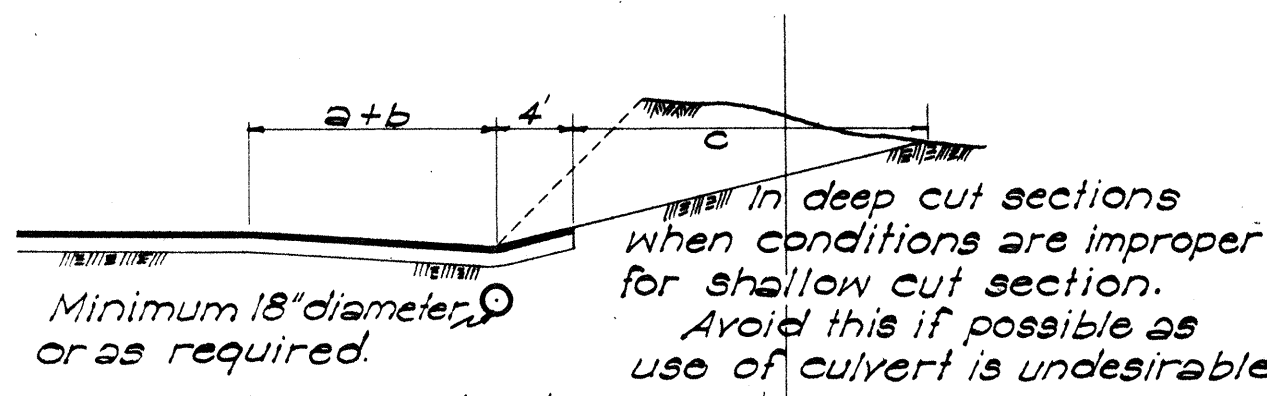
NOT TO SCALE

These Curves are based upon the following formula:
 $y = \frac{Vx^2}{2L}$
where: y = any offset, x = its tangent dist.
 X = maximum tangent distance
 Y = maximum offset

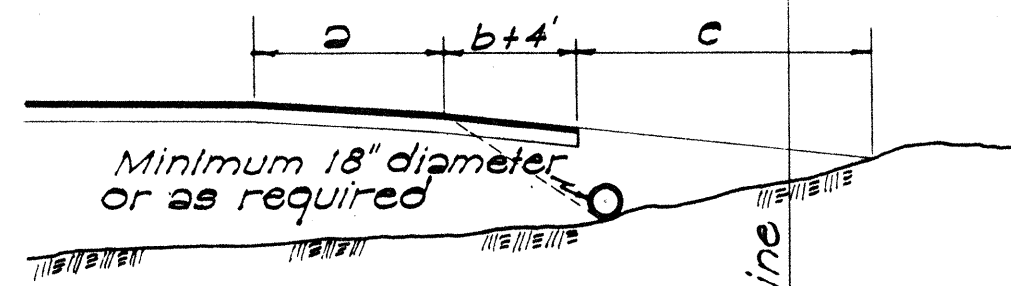


RATIO CURVE DATA		Offset in Feet (Y)					
Dist. (X)	Ratio	1:15	1:10	1:8	1:6	1:5	1:4
10	0.22	0.15	0.20	0.14	0.11	0.10	0.10
20	0.80	0.50	0.80	0.57	0.44	0.40	0.40
30	2.00	1.33	1.80	1.20	1.00	0.90	0.90
40	3.27	2.20	2.80	1.78	1.60	1.50	1.50
50	5.00	3.33	4.20	2.78	2.50	2.40	2.40
60	7.11	4.67	5.78	3.89	3.60	3.50	3.50
70	9.52	6.22	7.78	5.11	4.80	4.70	4.70
80	12.00	8.00	10.00	6.40	6.00	5.90	5.90
90	14.55	9.90	12.25	7.78	7.20	7.10	7.10
100	17.14	11.78	14.44	9.17	8.40	8.30	8.30

NOTE: Any ratio curve in this tabulation is designated by the maximum offset and its tangent distance.

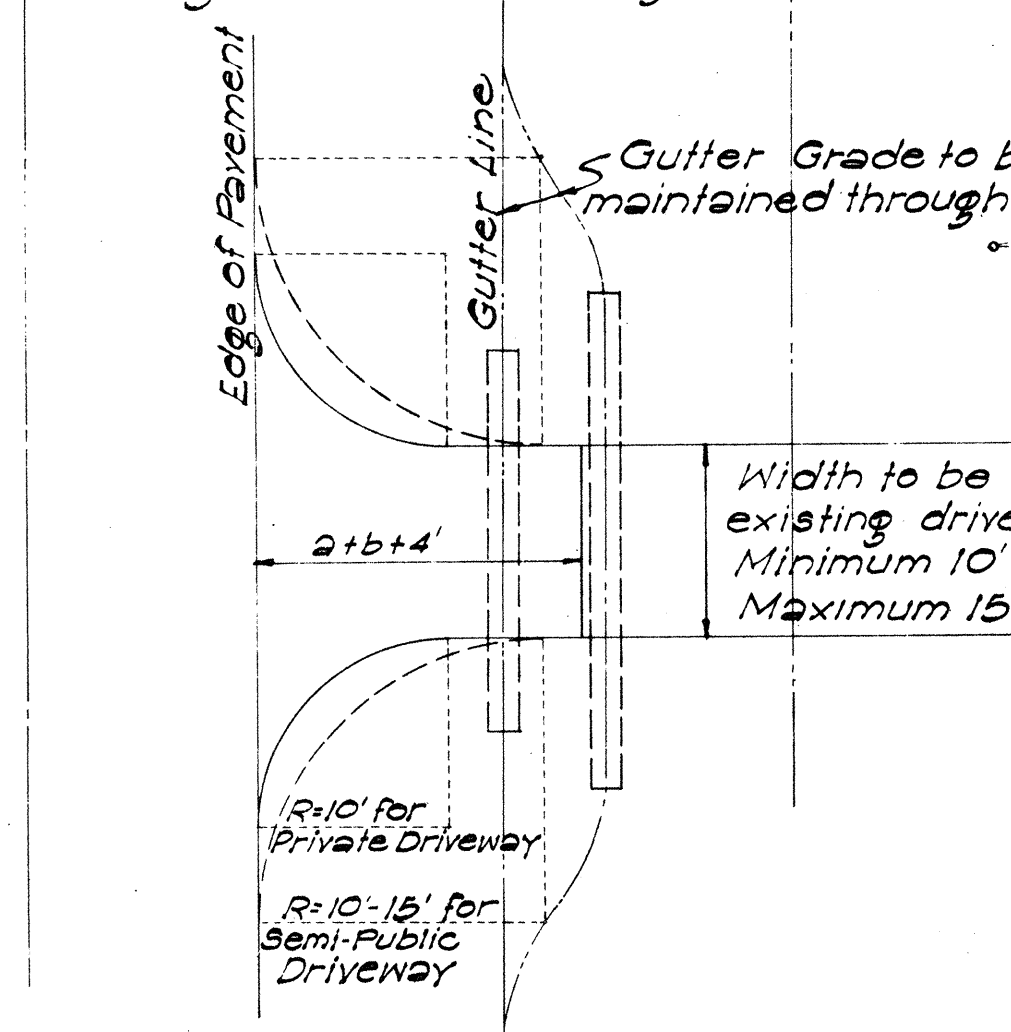


CUT SECTIONS



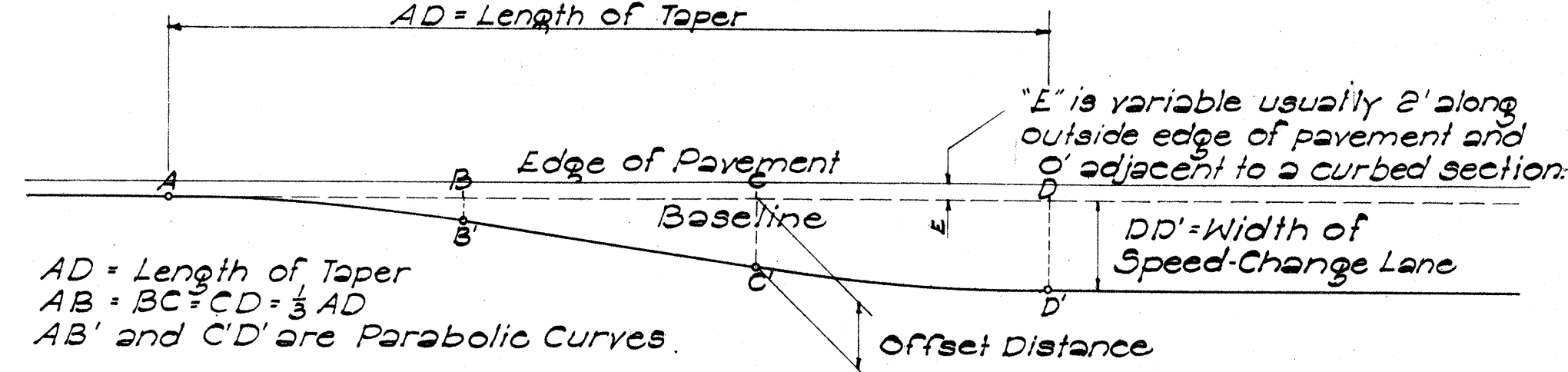
FILL SECTION

a = Shoulder width
b = Gutter width
c = Distance determined by Engineer for suitable grade.



PRIVATE AND SEMI-PUBLIC DRIVEWAYS

SCALE: 1" = 10'-0"



TAPER FOR SPEED-CHANGE LANES

SCALE: 1" = 20'-0"

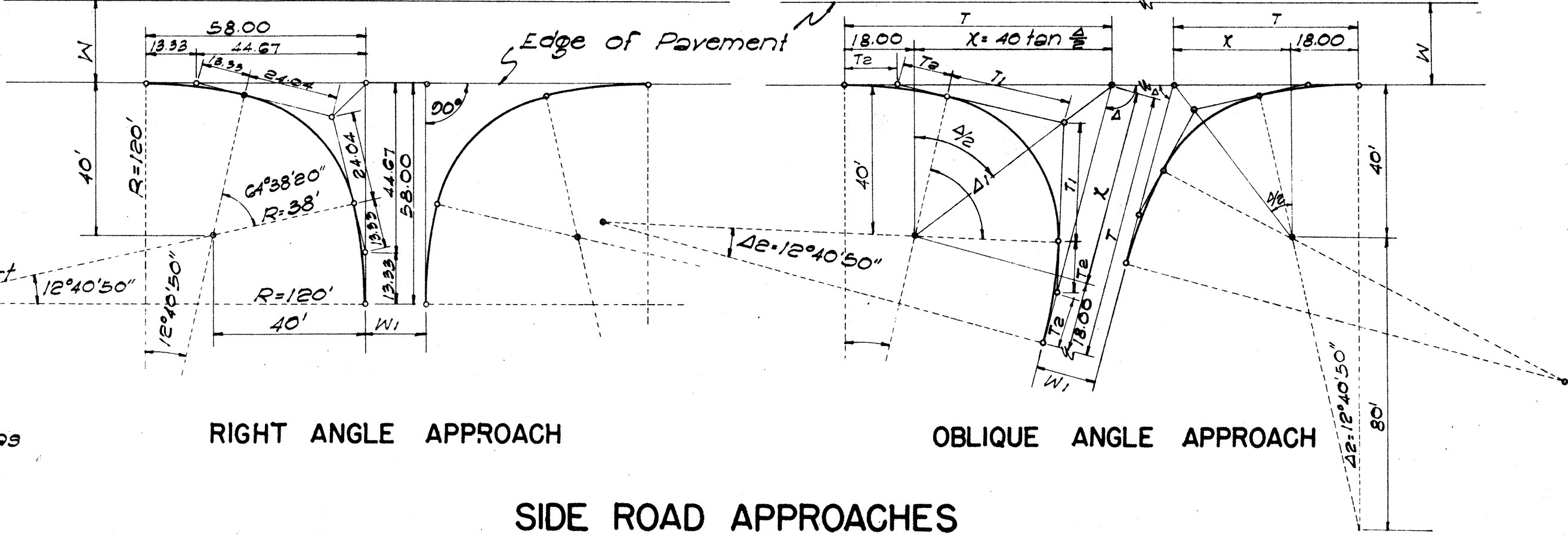
MINIMUM LENGTHS OF SPEED-CHANGE LANES & TAPER		RAMP DESIGN SPEED (MPH)			
		20	30	40	50
		50	130	250	500
		TOTAL LENGTH OF DECELERATION LANE INCLUDING TAPER (Feet)			
HIGHWAY DESIGN SPEED (MPH)	AVE. SPEED OF TRAVEL (0.75 V) (MPH)	LENGTH OF TAPER (FEET)	20	30	40
30	21	90	90	90	90
40	28	120	140	120	120
50	35	150	225	150	150
60	42	180	295	235	180
70	49	210	370	315	240
		TOTAL LENGTH OF ACCELERATION LANE INCLUDING TAPER (Feet)			
HIGHWAY DESIGN SPEED (MPH)	AVE. SPEED OF TRAVEL (0.75 V) (MPH)	LENGTH OF TAPER (FEET)	20	30	40
30	21	150	150	150	150
40	28	180	180	180	180
50	35	240	410	240	240
60	42	270	750	510	270
70	49	300	1180	650	300

FOLLOWING TABLE GIVES OFFSETS FROM BASELINE PARALLEL TO EDGE OF PAVEMENT AT INTERVALS MEASURED FROM POINT "A". ADD "E" FOR MEASUREMENT FROM EDGE OF PAV'T

OFFSET FROM BASELINE (Ft.)	LENGTH OF TAPER (Feet) = AD											
	20	120	150	180	210	240	270	300	330	360	390	420
DD/10 DD/11 DD/12	0	0	0	0	0	0	0	0	0	0	0	0
0.16	0.17	0.19	0.21	0.23	0.25	0.27	0.29	0.31	0.33	0.35	0.37	0.39
0.62	0.69	0.75	0.81	0.87	0.93	0.99	1.05	1.11	1.17	1.23	1.29	1.35
1.41	1.55	1.69	1.83	1.97	2.11	2.25	2.39	2.53	2.67	2.81	2.95	3.09
3.25	3.75	4.25	4.75	5.25	5.75	6.25	6.75	7.25	7.75	8.25	8.75	9.25
10.00	11.50	13.00	14.50	16.00	17.50	19.00	20.50	22.00	23.50	25.00	26.50	28.00
29.0	33.5	38.0	42.5	47.0	51.5	56.0	60.5	65.0	69.5	74.0	78.5	83.0
87.0	103.0	119.0	135.0	151.0	167.0	183.0	199.0	215.0	231.0	247.0	263.0	279.0
284	334	384	434	484	534	584	634	684	734	784	834	884
1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200

* Where edge of pavement is a curve, neither Baseline nor Taper between B' and C' will be a tangent. Use proportional offset from B' to C'.

$\Delta_1 = \Delta - 2\Delta_2$
Distance $a = 80 \tan 12^\circ 40' 50'' = 18.00'$ (Constant)
Distance $T = 18.00' + 40 \tan \frac{\Delta}{2}$
 Δ_2 is a constant angle



SIDE ROAD APPROACHES

THREE CENTERED COMPOUND CURVE

SCALE: 1" = 30'-0"

TYPE "D" CURB

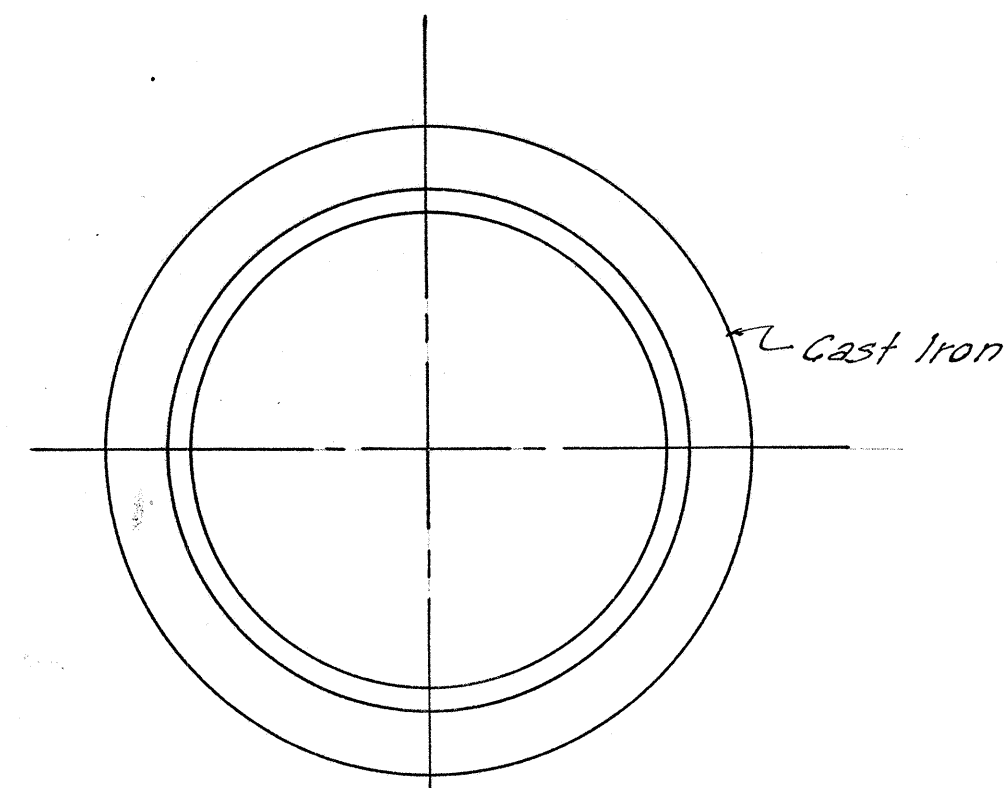
Scale: 1" = 1'-0"

APPROVED:
TERRITORIAL HIGHWAY ENGINEER

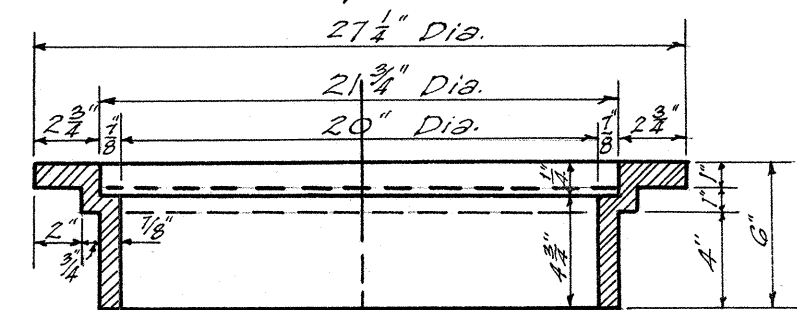
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
STANDARD DETAILS
DRIVEWAYS, SPEED-CHANGE LANES,
MEDIAN STRIPS & APPROACHES
SCALES AS NOTED

SHEET NO. OF SHEETS

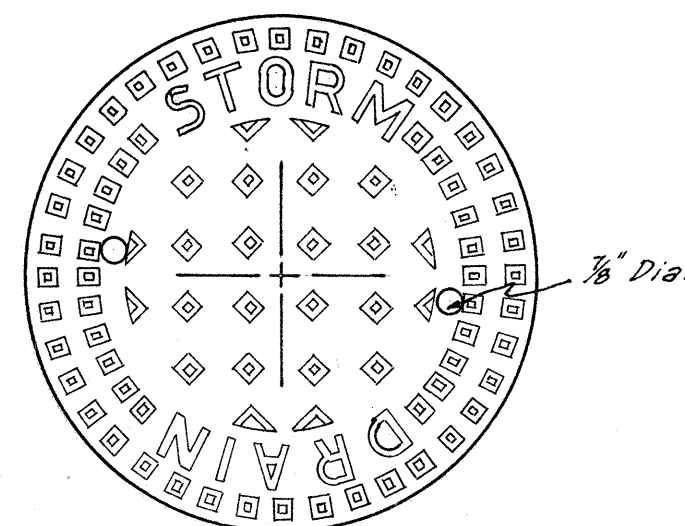
5668.12



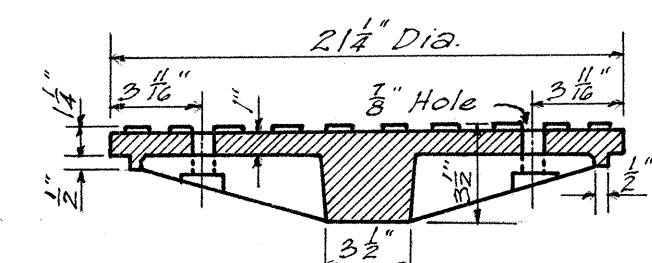
Plan of Rim



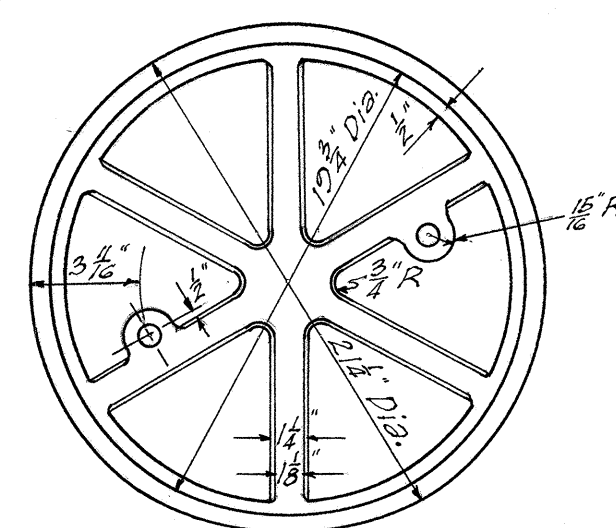
Section of Rim



Top View of Cover



Section

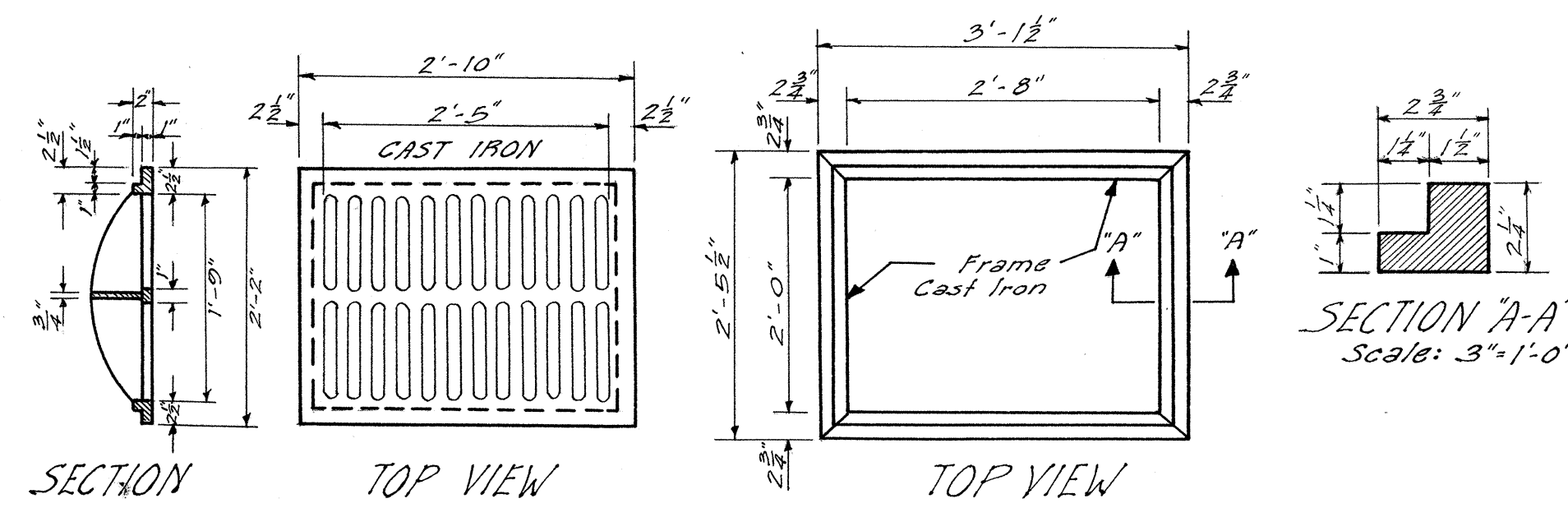


Bottom View of Cover

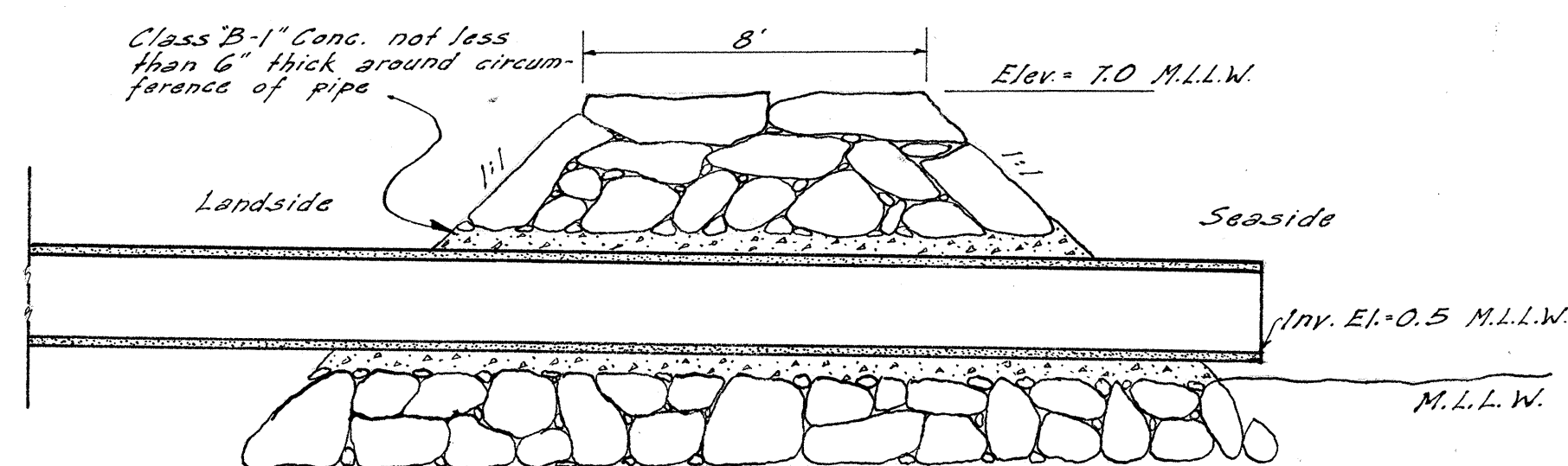
TYPE "A" C.I. FRAME AND COVER

Scale: 1 1/2" = 1'-0"

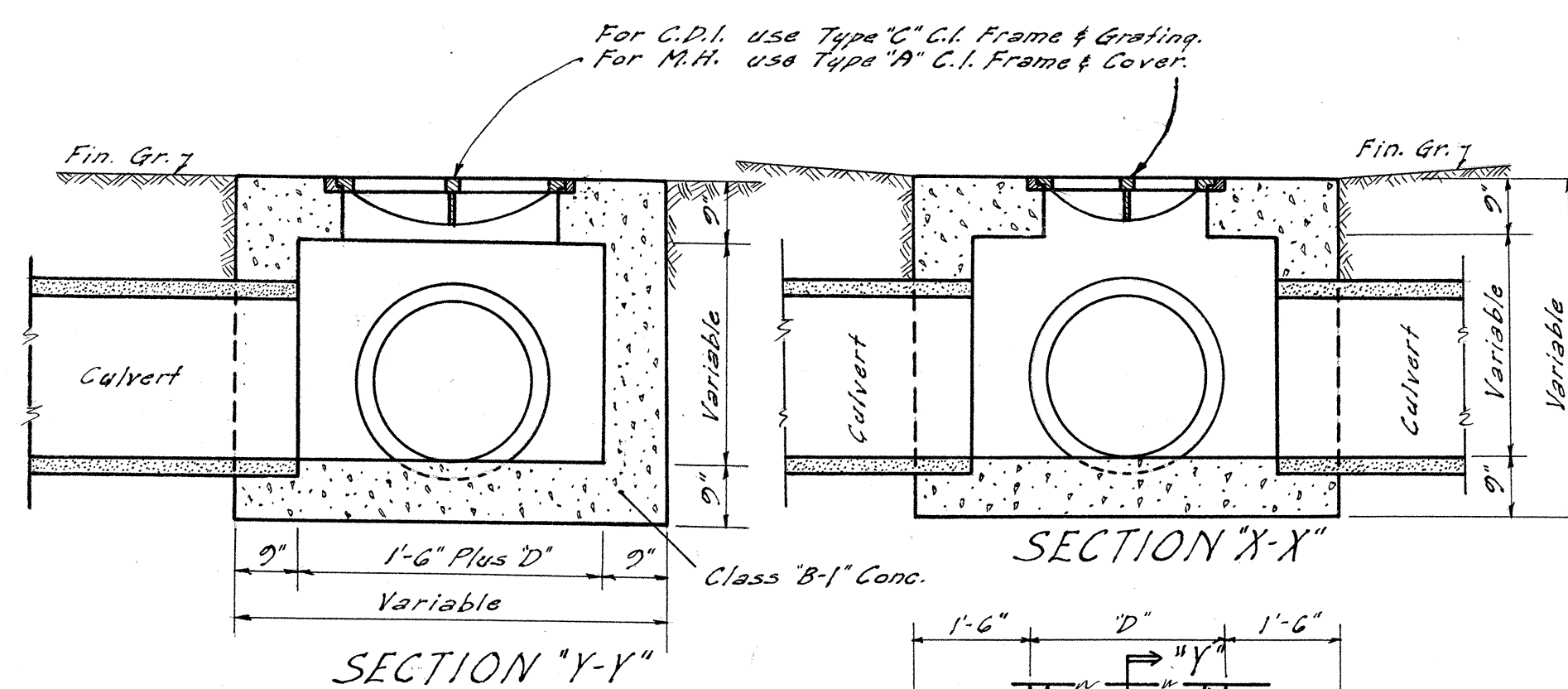
Note: Stock Pattern From Novelty Foundry - Honolulu

**TYPE "C" C.I. FRAME AND GRATING**

Scale: 3/4" = 1'-0"

**SECTION of 24" CULVERT THRU SEAWALL**

Scale: 1" = 4'-0"



Culvert shall leave on both sides & leave this box from any position or direction indicated by the plans or ordered.

CONC. DROP INTAKE & MANHOLE

Scale: 1/2" = 1'-0"

C.D.I. w/ Type "C" Std. C.I. Frame & Grating. Inv. El. 21.87 (see details - this sheet)

C.D.I. w/ Type "C" Std. C.I. Frame & Grating. Inv. El. 21.87 (see details - this sheet)

End Project S254(1) Sta. 112+52.87

M.H. w/ Type "A" Std. C.I. Frame & Cover. Inv. El. 23 (see details - this sheet)

Fill Area with Trench Excess

Outlet Inv. El. = 0.5

M.H. w/ Type "A" Std. C.I. Frame & Cover. Inv. El. 23 (see details - this sheet)

NOTE: Under roadbed where cover over culvert to finished grade is less than 18 inches provide concrete jacket as called for in standard details.

Structural Excavation W. O. No. 8-----420-----C. Y.
Class "B-1" Concrete W. O. No. 8-----15.40-----C. Y.
24" E. S.C.C. Pipe with Concrete Collars W. O. No. 8-----264-----Lin. Ft.
24" S.S.C.C. Pipe with Concrete Collars E. W. O. No. 2-----408-----Lin. Ft.
Type "A" Cast Iron Frame and Cover E. W. O. No. 2-----2-----
Type "C" Cast Iron Frame and Grating E. W. O. No. 2-----2-----
Removing and Reconstructing Section of Seawall at Culvert E. W. O. No. 2-----125.57-----

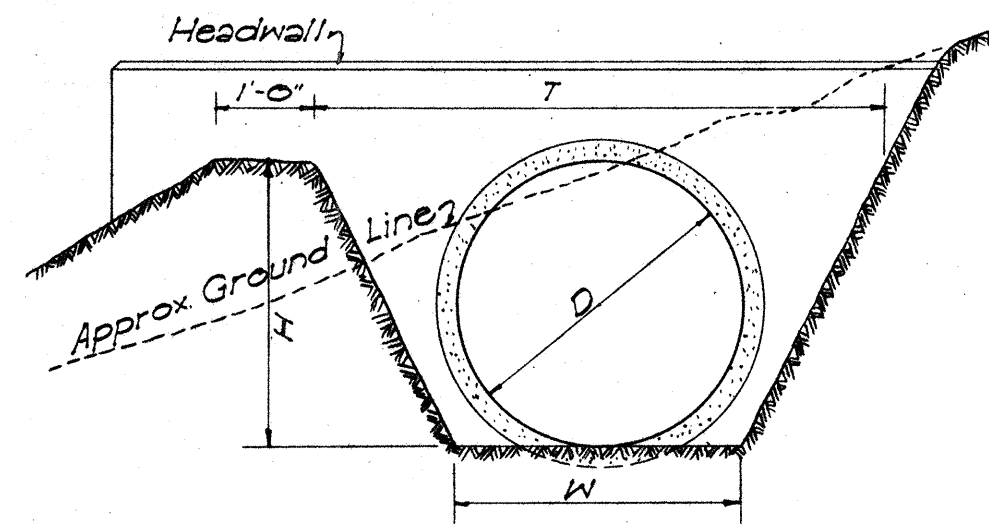
NOTE: All Elevations Referred to Mean Low Low Water.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

PROPOSED
24" CULVERT
Proj. S254(1) Wilcox Road
Scale: As shown Date: Dec. 1954

SHEET NO. OF SHEETS

DATA FOR OUTLET DITCH				
D	W	H	T=H+H	
18"	24"	2'-0"	4'-0"	
24"	30"	2'-0"	4'-6"	
30"	30"	2'-6"	5'-0"	
36"	36"	3'-0"	6'-0"	



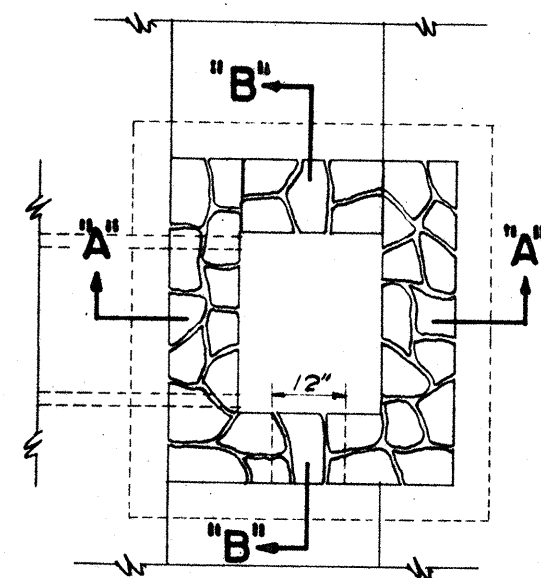
DETAIL OF OUTLET DITCH

Scale: 1/2" = 1'-0"

DATA FOR MASONRY DROP INTAKE					Where Variables Equal
D'	D	L=D+G	Cu Yds.		
23"	18"	2'-5"	3.02	4'-6"	
30"	24"	3'-0"	3.61	5'-0"	
37"	30"	3'-7"	4.21	5'-6"	
44"	36"	4'-2"	4.85	6'-0"	

NOTE:

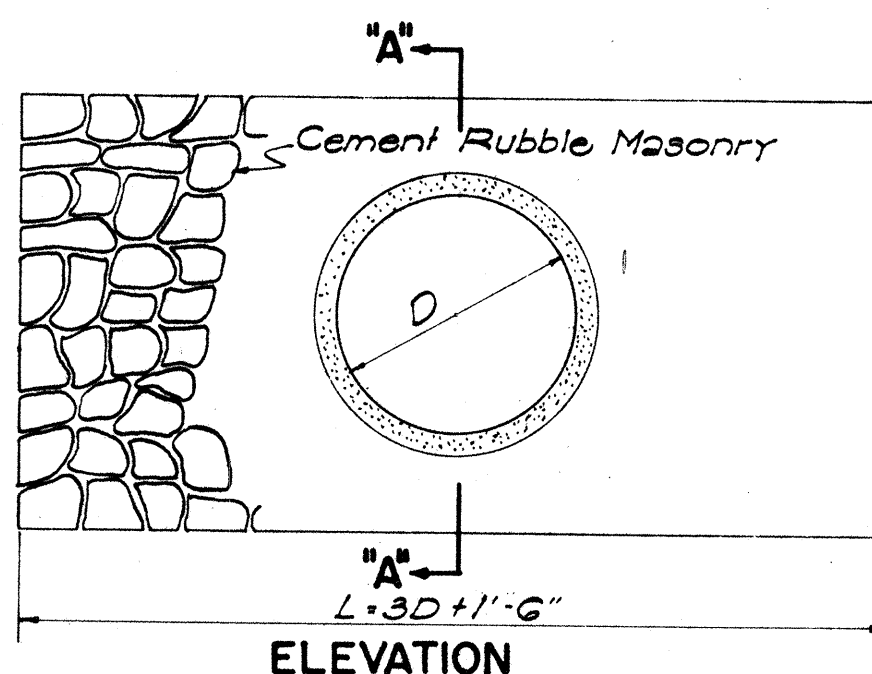
Dimension "X" is assumed as 2'-4" in figuring the above quantities.



DETAIL OF MASONRY DROP INTAKE

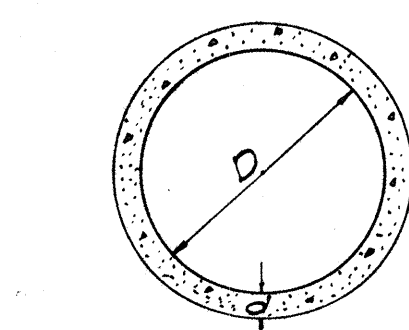
Scale: 3/8" = 1'-0"

DATA-MASONRY HEADWALL					Cast-in-Place Conc. Culvert	Conc. Pipe Culvert	Corrugated Pipe Culvert
D	H	B	L		Cu Yds.	Cu Yds.	Cu Yds.
18"	3'-6"	1'-0"	6'-0"		0.85	0.05	0.03
24"	4'-0"	2'-0"	7'-6"		1.28	1.45	1.41
30"	4'-6"	2'-3"	9'-0"		1.83	2.06	2.00
36"	5'-0"	2'-6"	10'-6"		2.40	2.84	2.72



DETAIL OF MASONRY HEADWALL

Scale: 1/2" = 1'-0"

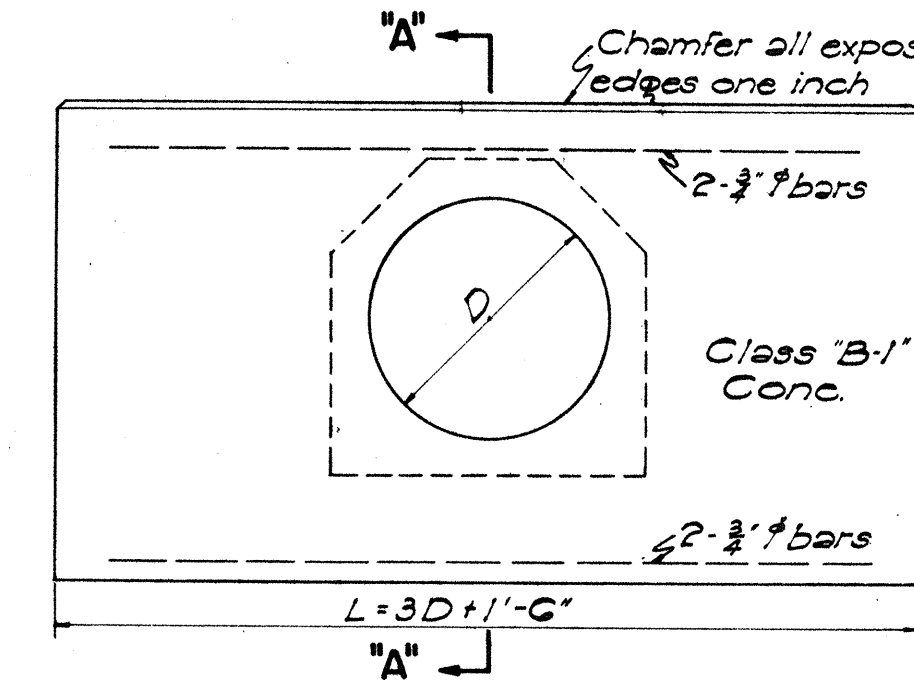


SECTION CONC. PIPE CULVERT

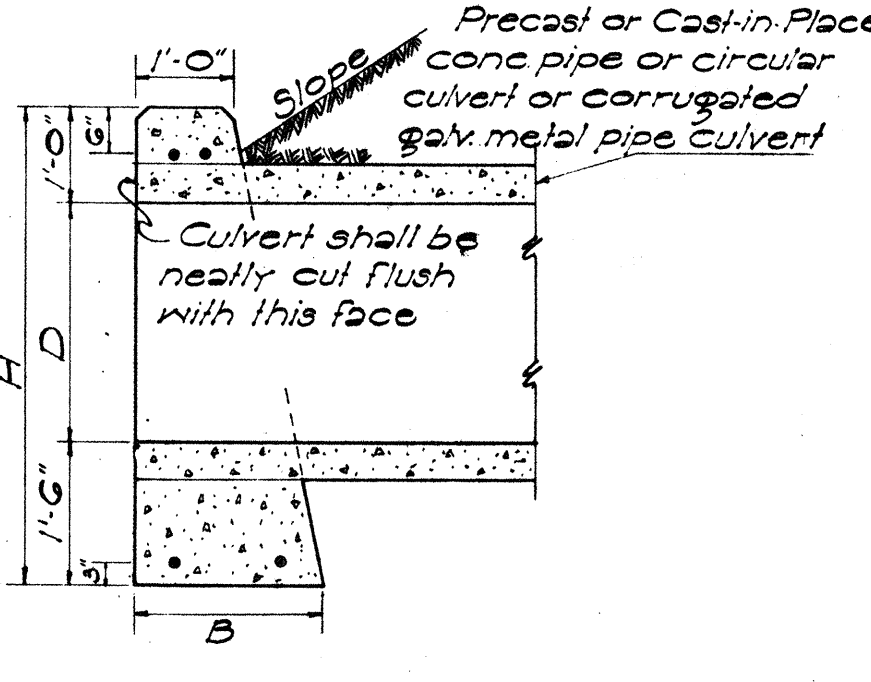
NOTE: Thickness 'd', reinforcing, and concrete used, are to conform with the approved design as provided by the Specifications.

DATA- CAST-IN-PLACE CONC. CULVERT				
D	d	W	Cu Yds. per ft.	
18"	4"	2'-2"	0.11	
24"	4 1/2"	2'-0"	0.14	
30"	5"	3'-4"	0.19	
36"	5 1/2"	3'-11"	0.26	

CAST-IN-PLACE CONC. CULVERT



ELEVATION

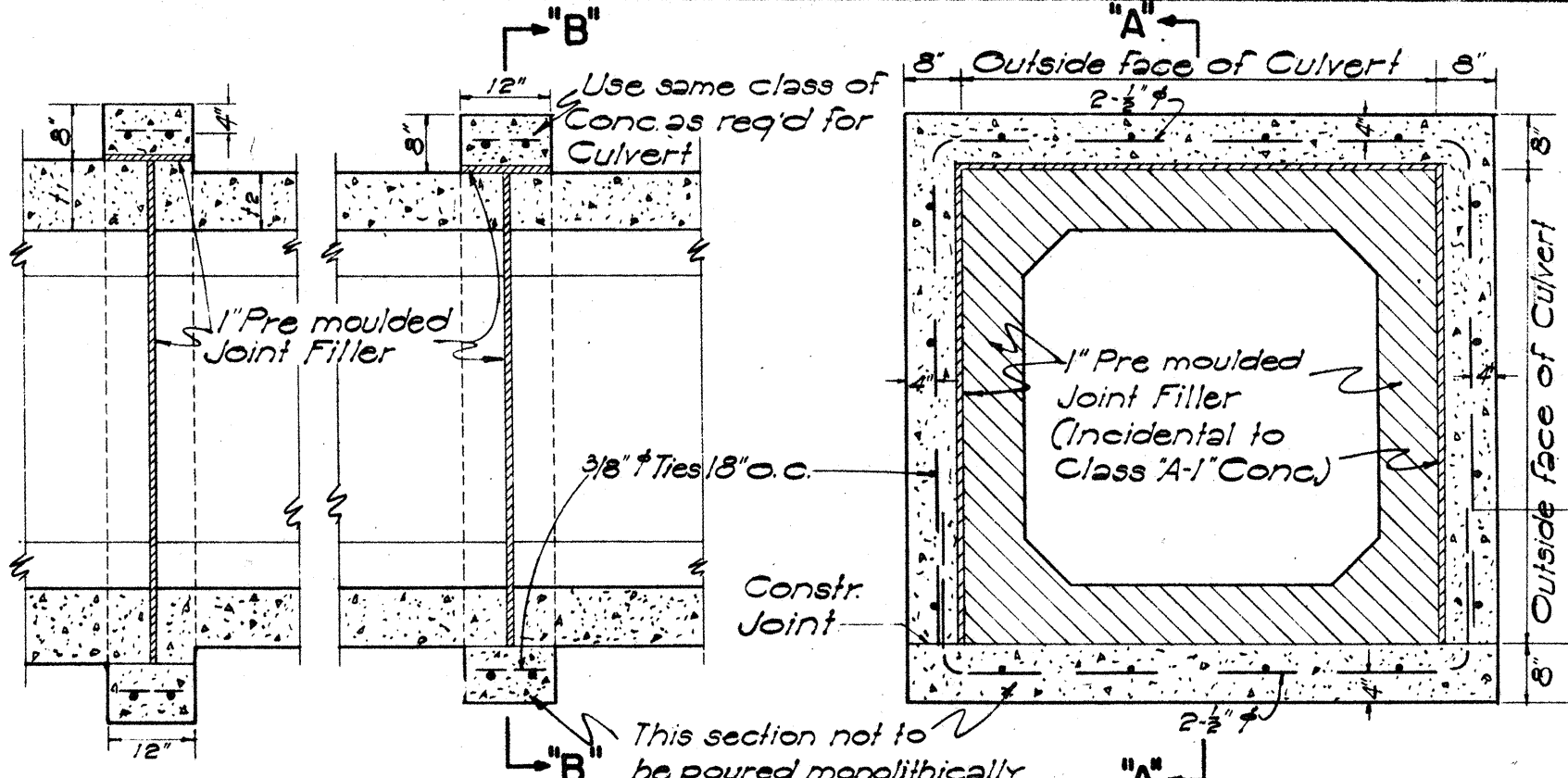


SECTION "A-A"

DATA FOR CONC. HEADWALL					Cast-in-Place Conc. Culvert	Conc. Pipe Culvert	Steel For One Headwall
D	B	L	H		Cu Yds.	Cu Yds.	No. of Bars Size Length Lbs.
18"	1'-6"	6'-0"	4'-0"		0.02	1.00	4 3/4" 5'-6" 33
24"	1'-6"	7'-6"	4'-6"		1.28	1.88	4 3/4" 7'-0" 42
30"	2'-0"	9'-0"	5'-0"		1.05	2.17	4 3/4" 8'-6" 51
36"	2'-0"	10'-6"	5'-6"		2.45	2.74	4 3/4" 10'-0" 60
42"	2'-6"	12'-0"	6'-0"		3.87	4.66	4 3/4" 11'-6" 69
48"	2'-6"	13'-6"	6'-6"		4.66		4 3/4" 13'-0" 78

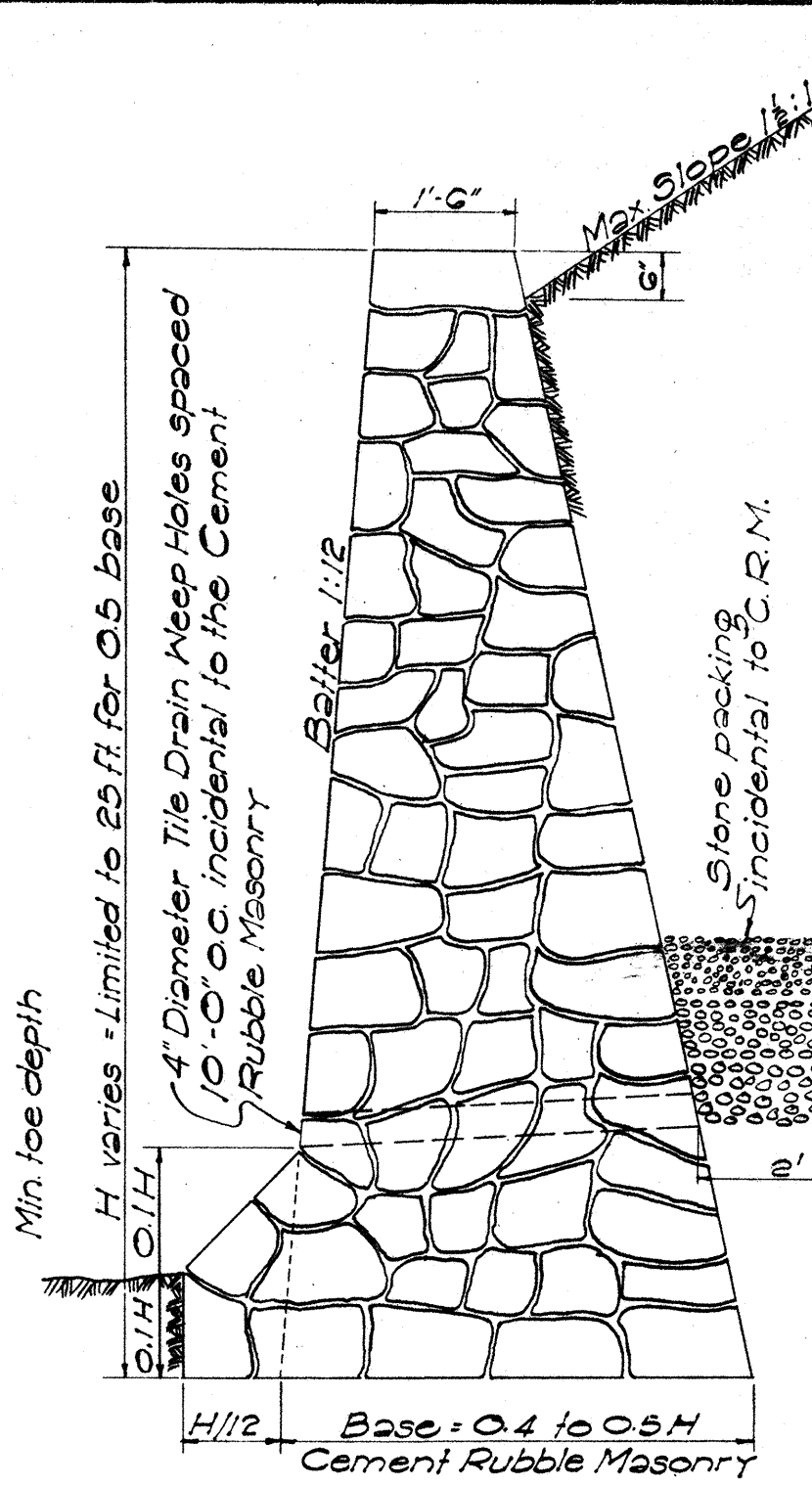
DETAIL OF CONCRETE HEADWALL

Scale: 1/2" = 1'-0"

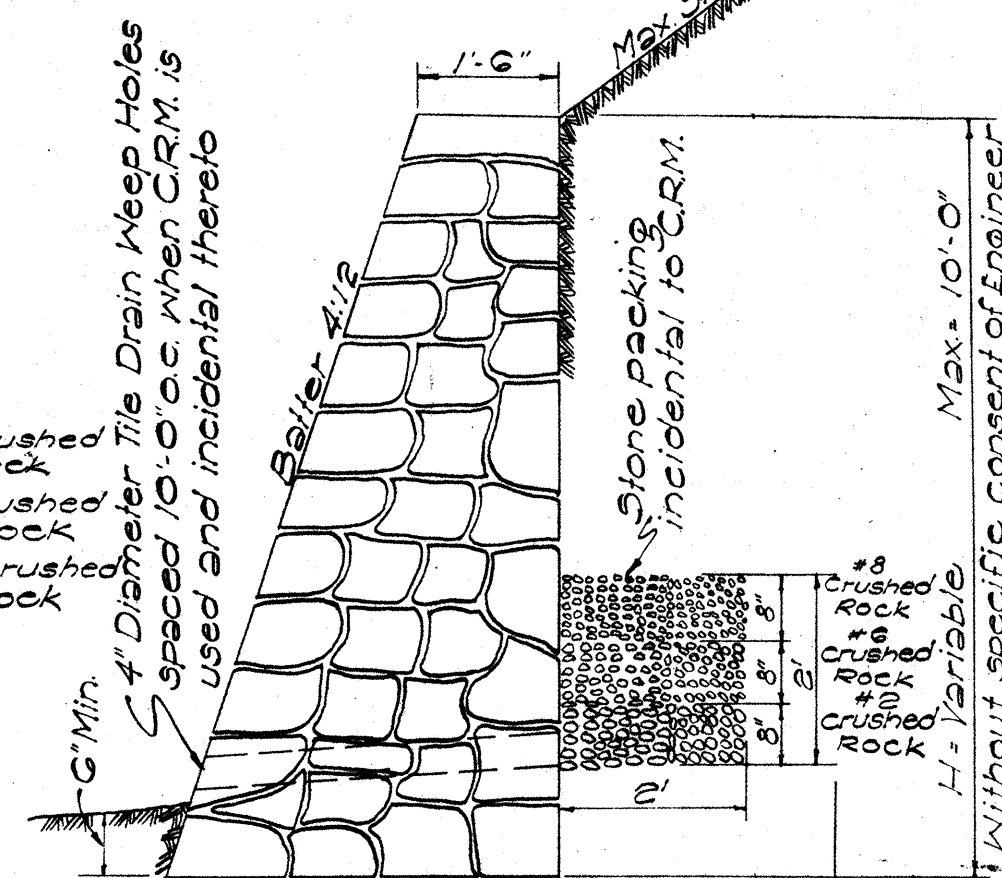


SECTION "A-A" CONC. COLLAR FOR CONC. BOX CULVERT

Scale: 1/2" = 1'-0"



SECTION OF HIGH CEMENT RUBBLE MASONRY RETAINING WALL OR SEAWALL

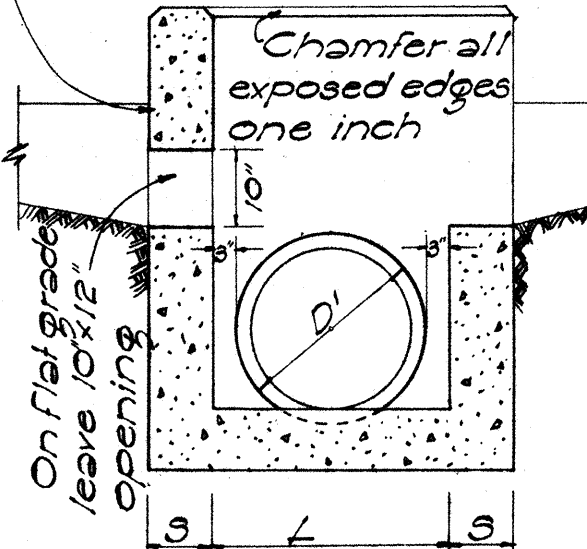


SECTION OF LOW MASONRY RETAINING WALL OR SEAWALL

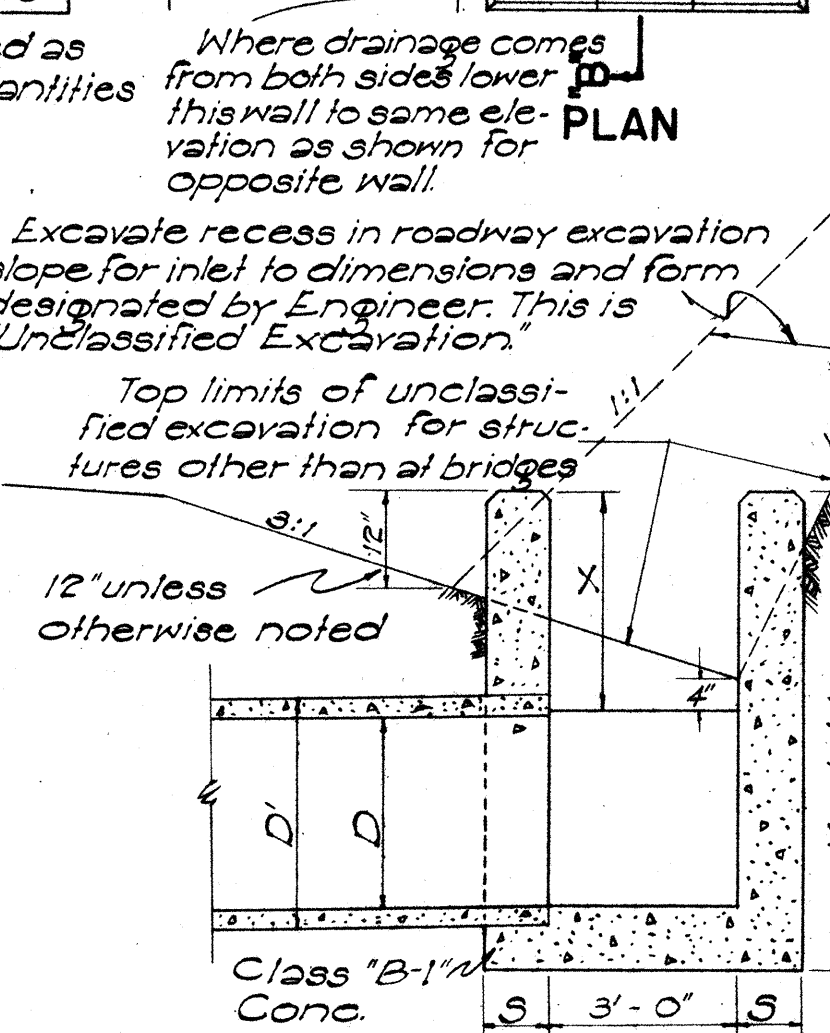
DATA- CONC. DROP INTAKE					Where Variables Equal
D'	D	L=D+G	S	Cu Yds.	
23"	18"	2'-5"	8"	1.41	4'-6"
30"	24"	3'-0"	8"	1.72	5'-0"
37"	30"	3'-7"	8"	2.32	5'-6"
44"	36"	4'-2"	8"	2.73	6'-0"
51"	42"	4'-9"	10"	3.54	6'-6"
58"	48"	5'-4"	10"	4.01	7'-0"

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

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.



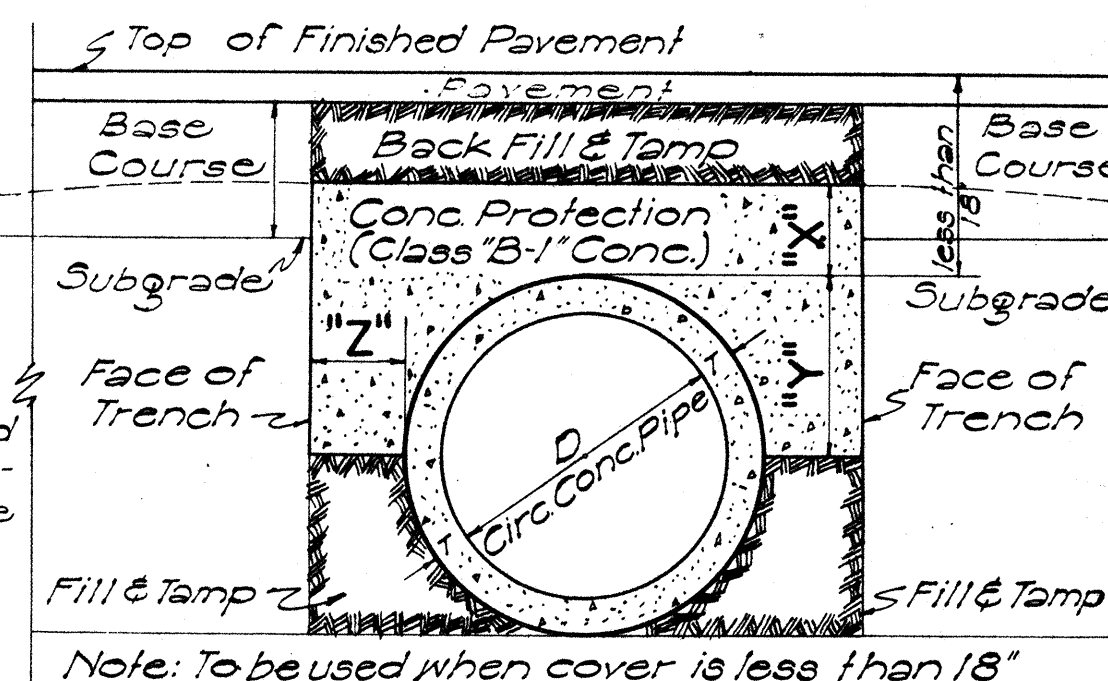
SECTION "B-B"



SECTION "A-A"

DETAIL OF CONCRETE DROP INTAKE

Scale: 1/2" = 1'-0"



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

SECT. OF CULVERT WITH CONC. PROTECTION

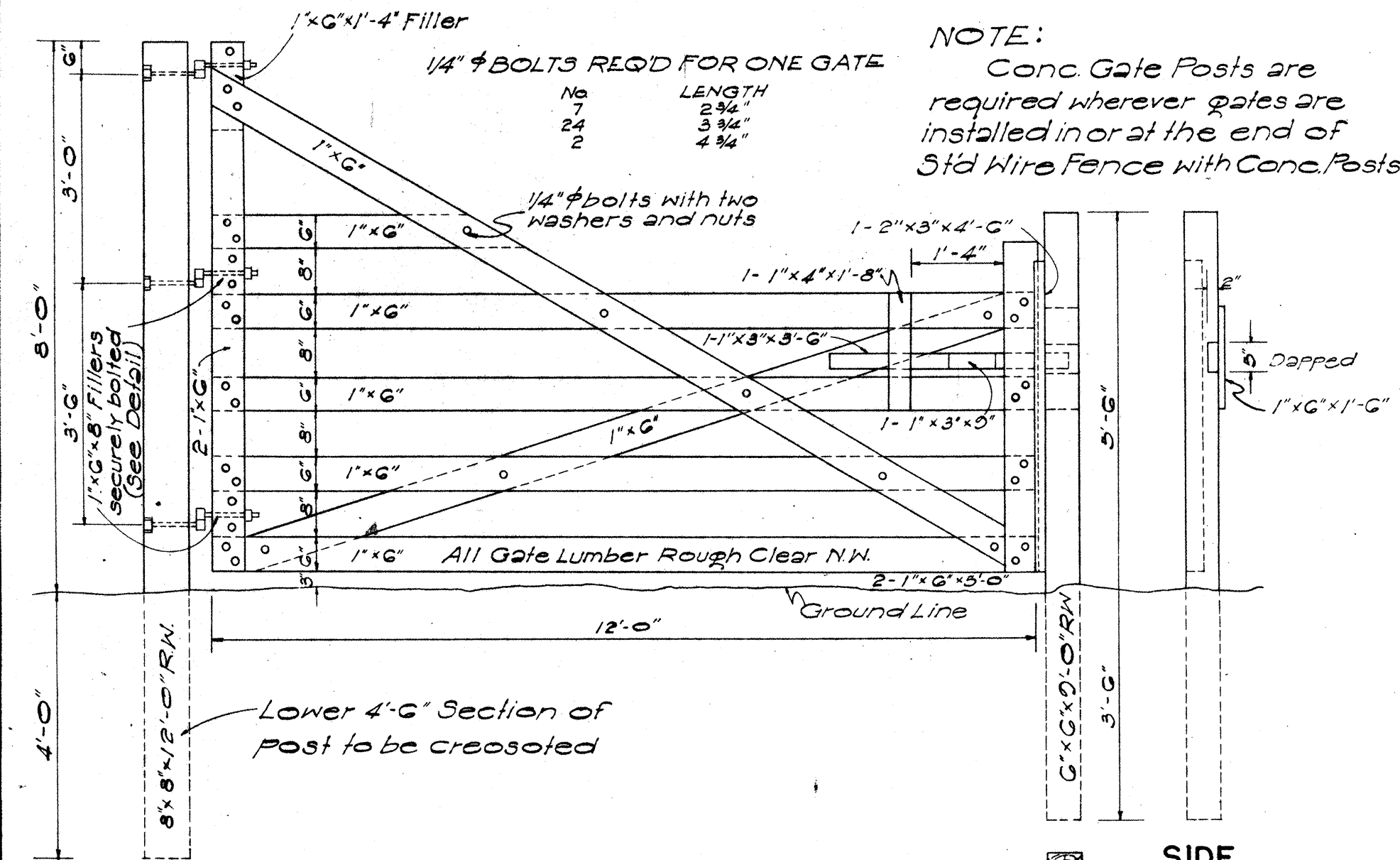
Scale: 1" = 1'-0"

APPROVED: *[Signature]* DATE: 6-23-53
TERRITORIAL HIGHWAY ENGINEER

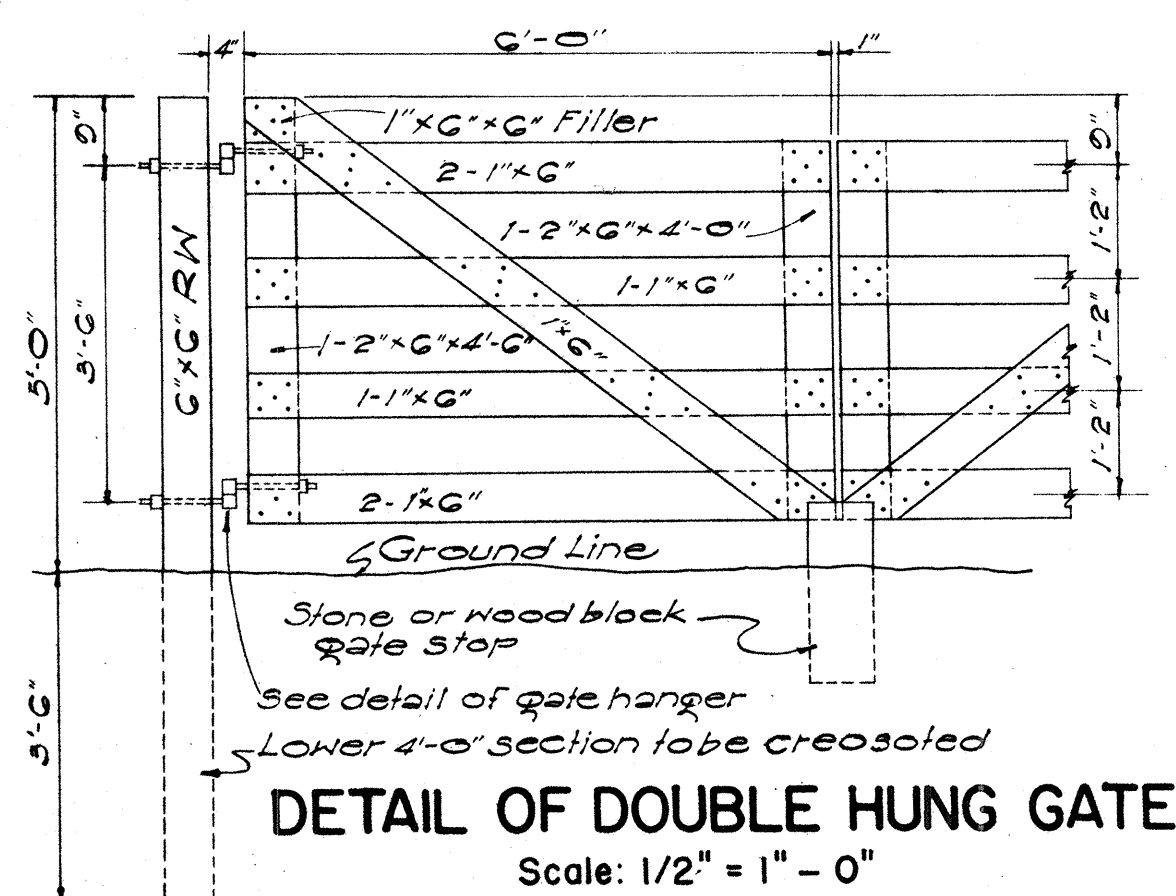
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
STANDARD DETAILS
DROP INTAKES, RETAINING WALLS,
HEADWALLS, CONSTRUCTION JOINTS
SCALES AS NOTED

SHEET No. 13 OF 24 SHEETS

5668.13

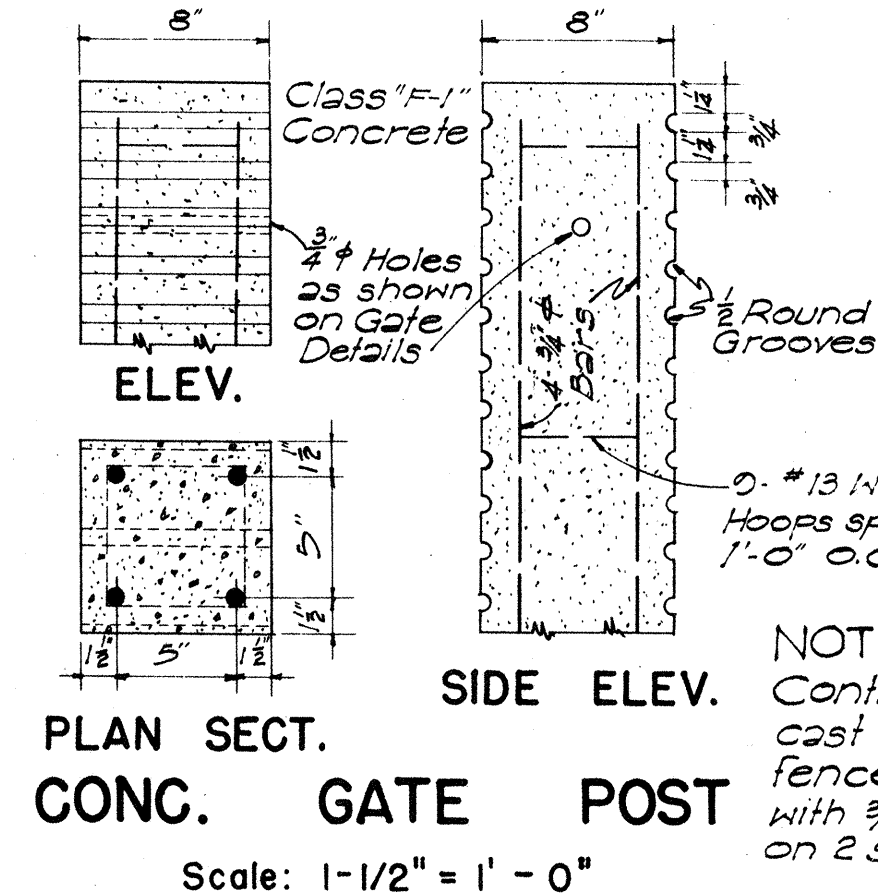


DETAIL OF CATTLE GATE
Scale: 1/2" = 1'-0"

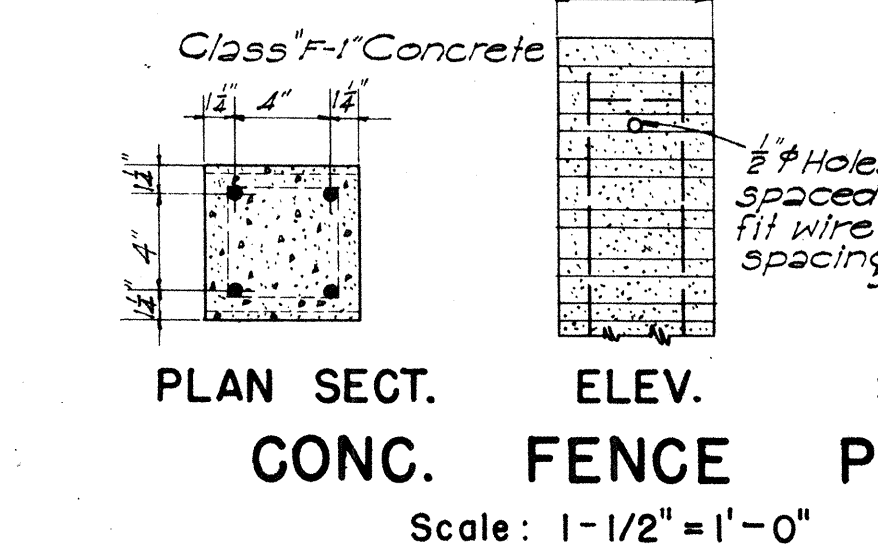


DETAIL OF DOUBLE HUNG GATE
Scale: 1/2" = 1'-0"

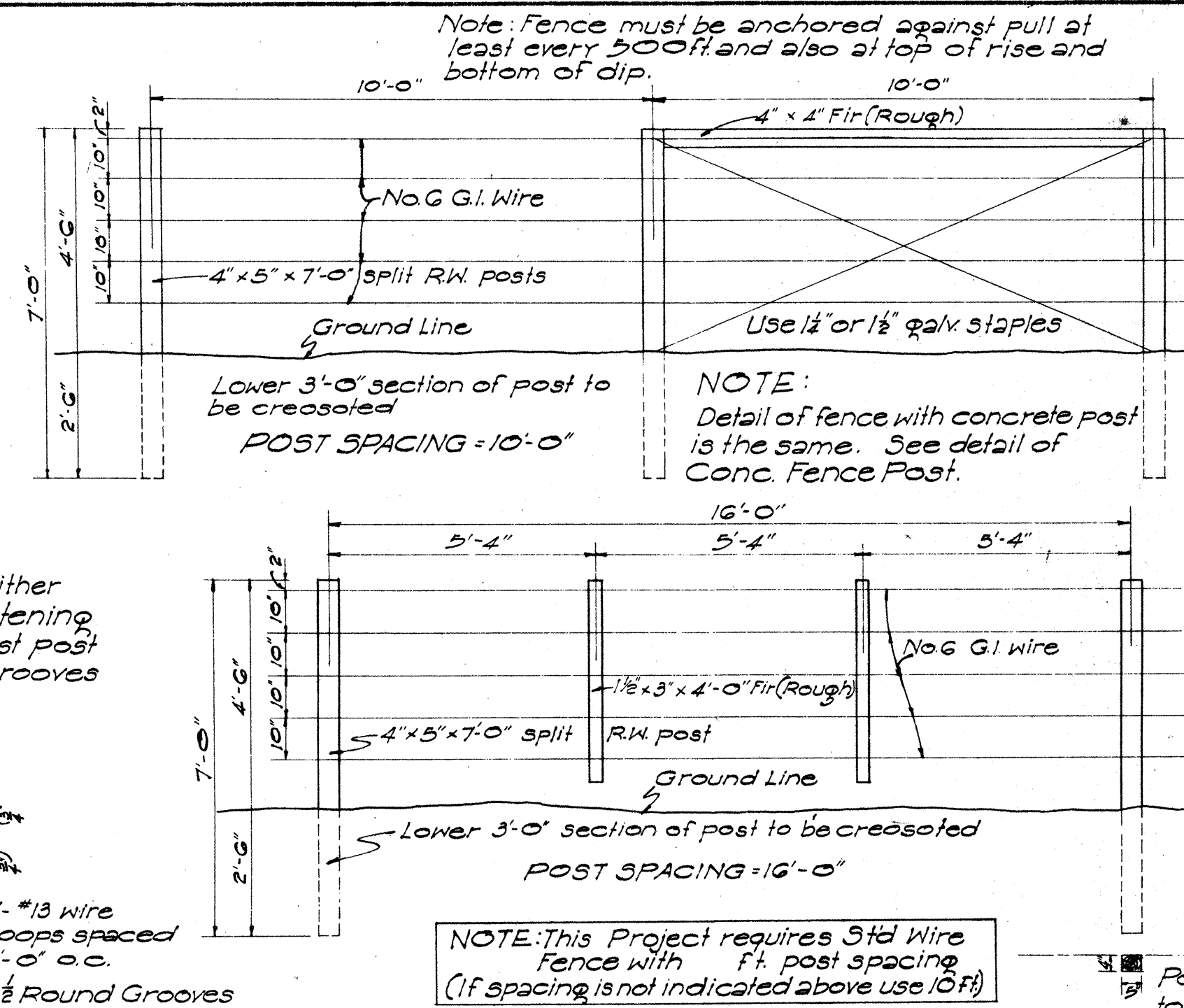
NOTE:
Conc. Gate Posts are required wherever gates are installed in or at the end of Std Wire Fence with Conc. Posts.



CONC. GATE POST
Scale: 1-1/2" = 1'-0"

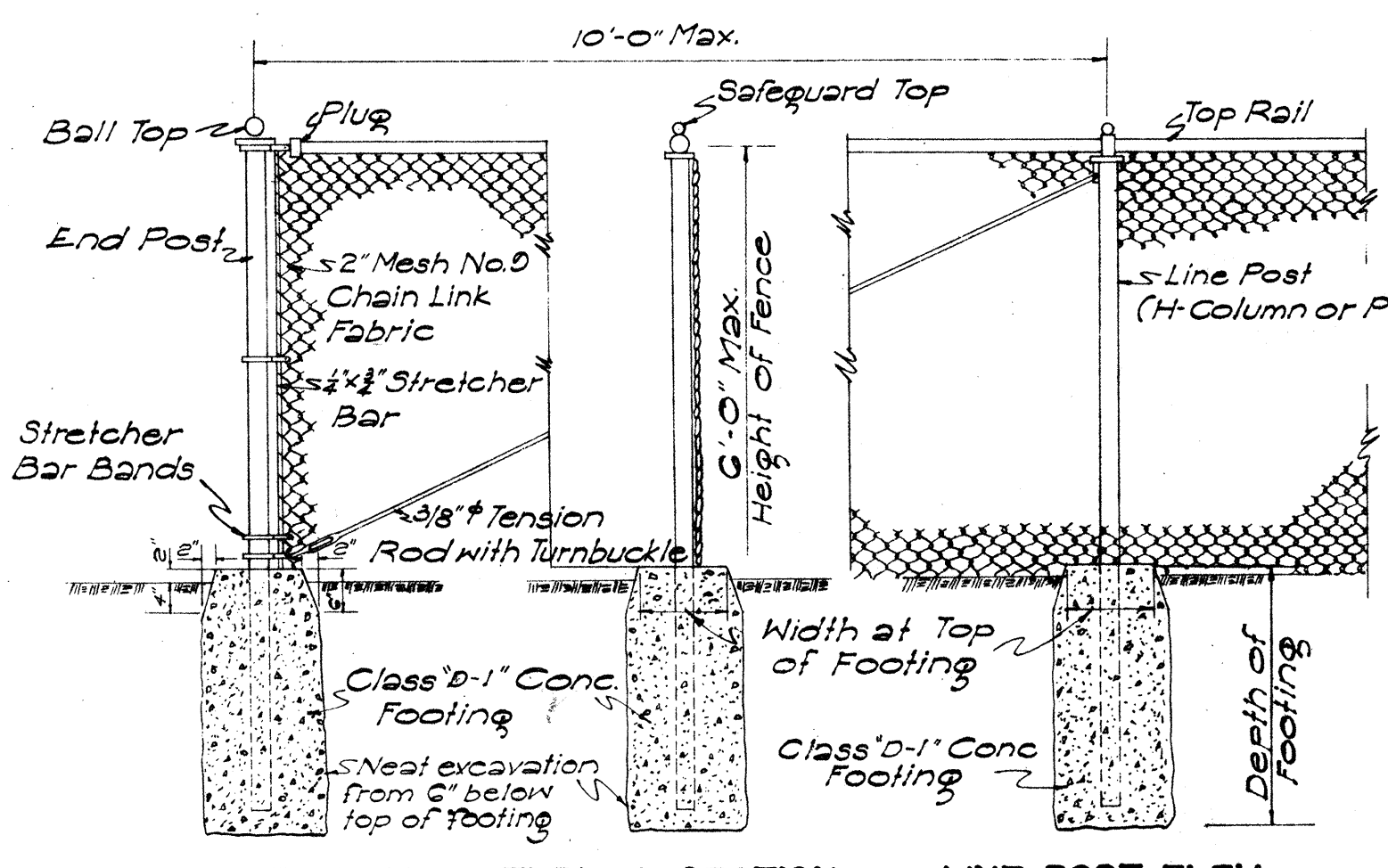


CONC. FENCE POST
Scale: 1-1/2" = 1'-0"

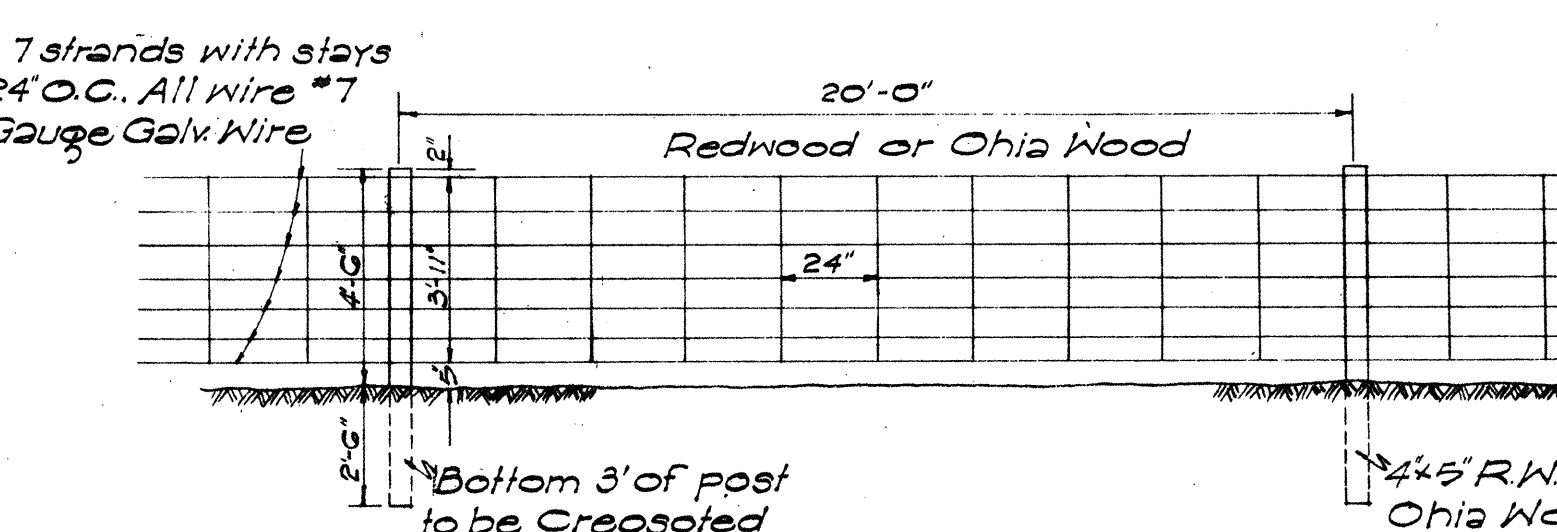


DETAILS OF STANDARD WIRE FENCE WITH WOOD POSTS
Scale: 3/8" = 1'-0"

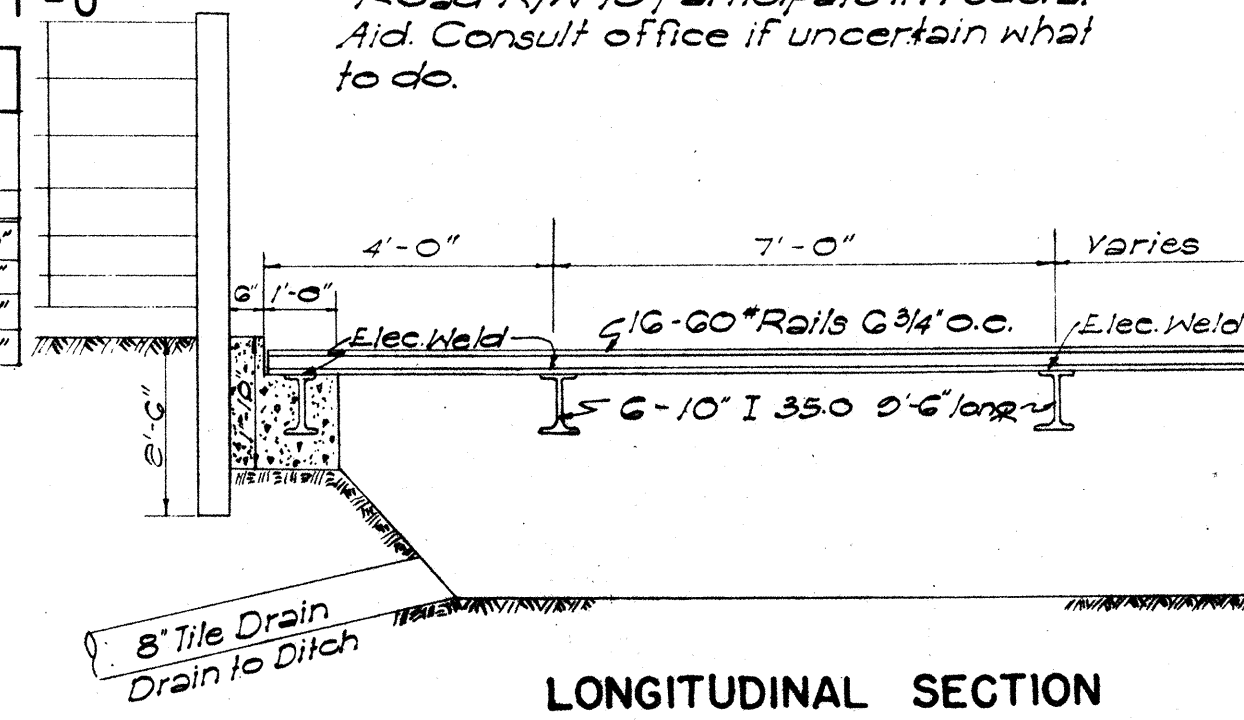
SCHEDULE FOR CHAIN LINK FENCE						
Height of Fence	Line Post	End Post	Top Rail	Depth of Footing	Top of Footing	Length of Posts
3'	1.875' x 1 1/2" O.D.	2' O.D.	1 1/2" O.D.	30" x 24"	8" sq.	5'-6" 5'-0"
4'	1.875' x 1 1/2" O.D.	2' O.D.	1 1/2" O.D.	30" x 24"	10" sq.	6'-6" 6'-0"
5'	1.875' x 1 1/2" O.D.	2' O.D.	1 1/2" O.D.	36" x 36"	12" sq.	8'-0" 8'-0"
6'	2.25' x 2" O.D.	3' O.D.	1 1/2" O.D.	36" x 36"	12" sq.	9'-0" 9'-0"



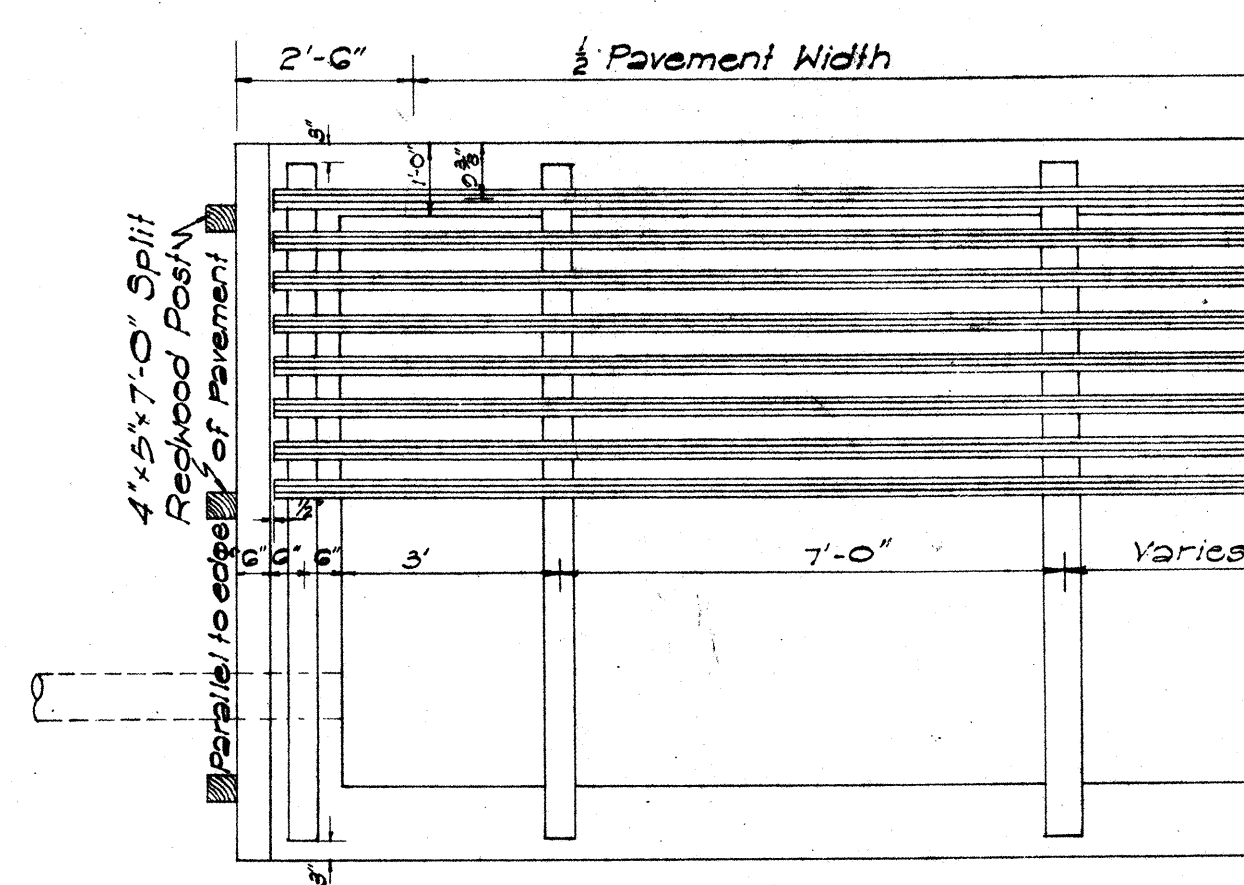
DETAIL OF CHAIN LINK FENCE
Scale: 1/2" = 1'-0"



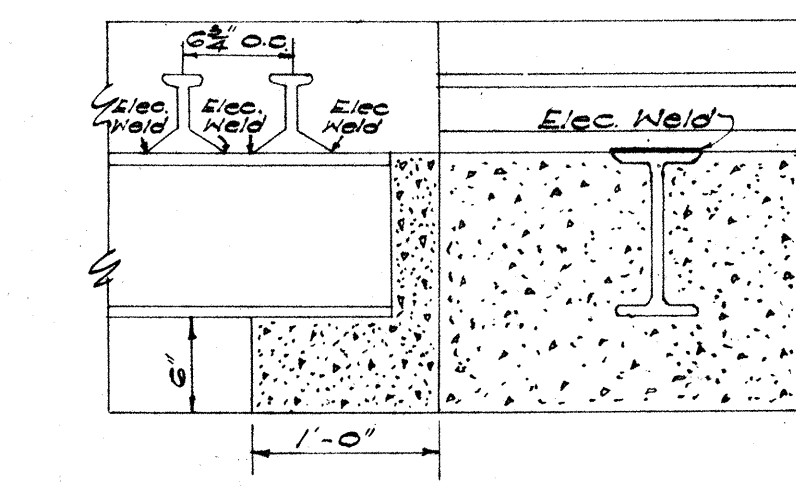
DETAIL OF WOVEN WIRE FENCE
Scale: 1/4" = 1'-0"



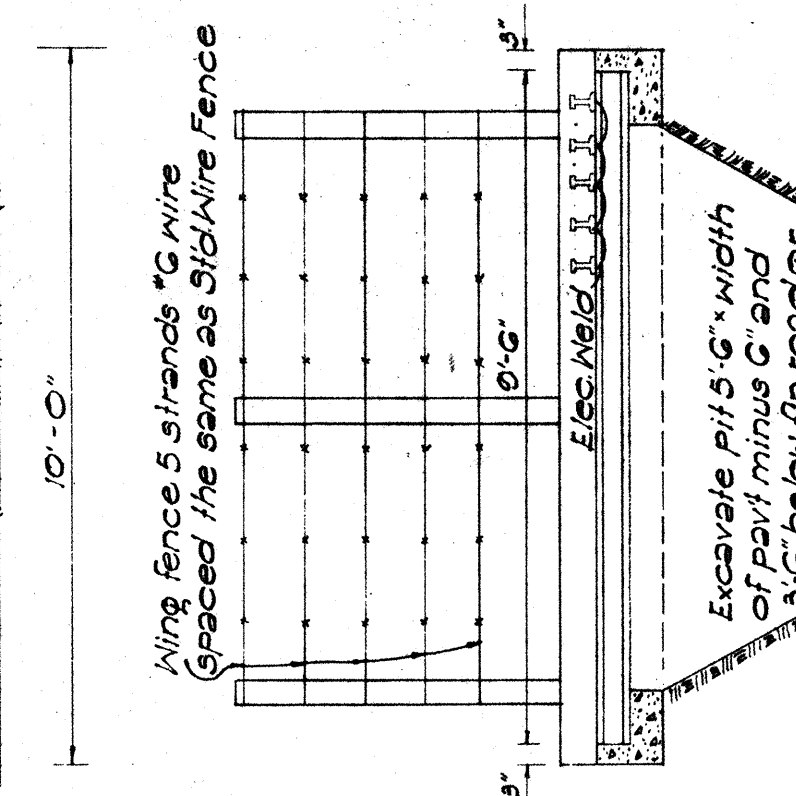
LONGITUDINAL SECTION



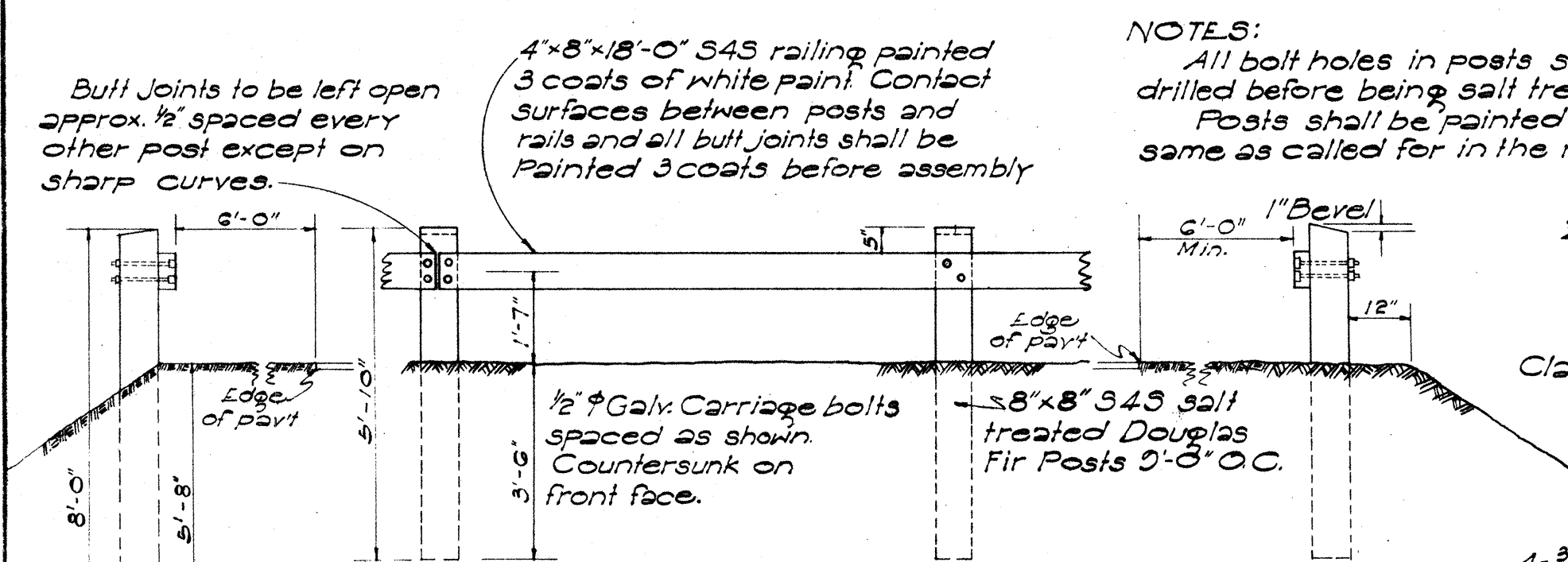
HALF SECTION



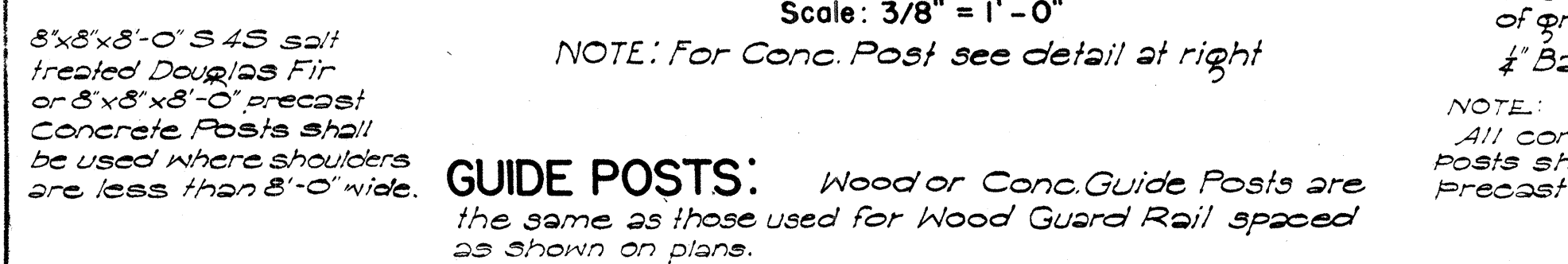
DETAILS OF HURDLE



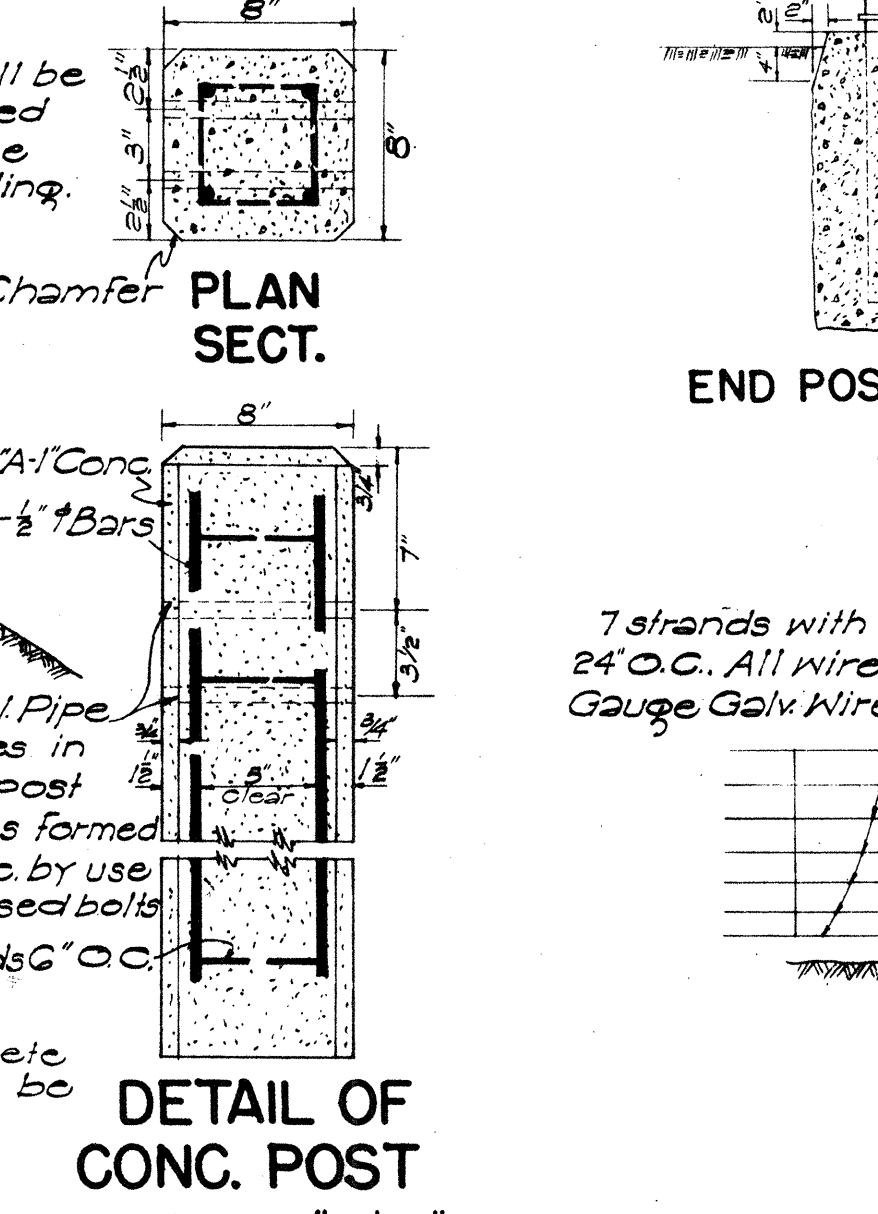
SECTION



WOOD GUARD RAIL WITH WOOD POSTS
Scale: 3/8" = 1'-0"



GUIDE POSTS: Wood or Conc. Guide Posts are the same as those used for Wood Guard Rail spaced as shown on plans.

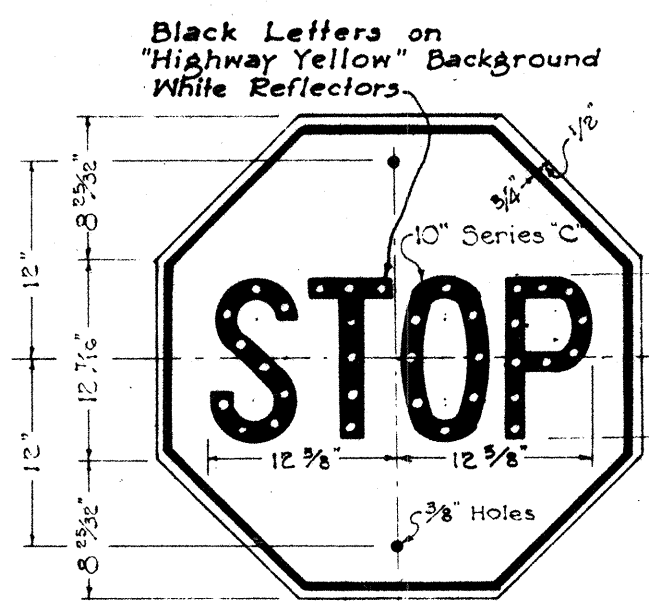


DETAIL OF CONC. POST
Scale: 1-1/2" = 1'-0"

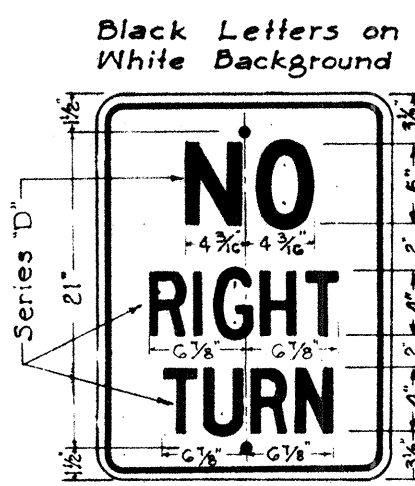
DETAIL OF CATTLE GUARD
Scale: 3/8" = 1'-0"

APPROVED: _____ DATE: 6-23-53
TERRITORIAL HIGHWAY ENGINEER

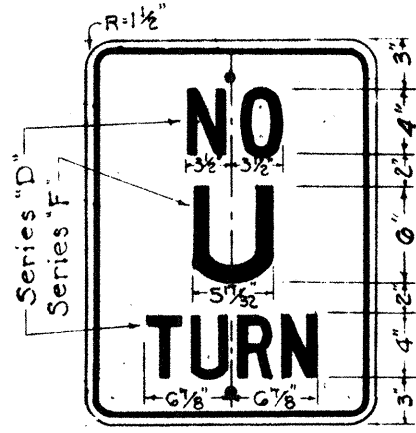
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
STANDARD DETAILS
FENCES, GATES, GUARD RAILS,
GUIDE POSTS, CATTLE GUARD
SCALES AS NOTED



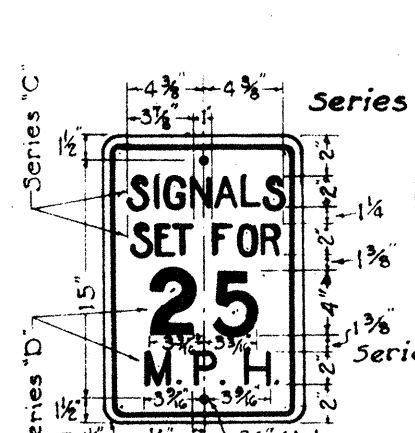
R-1
30" x 30"



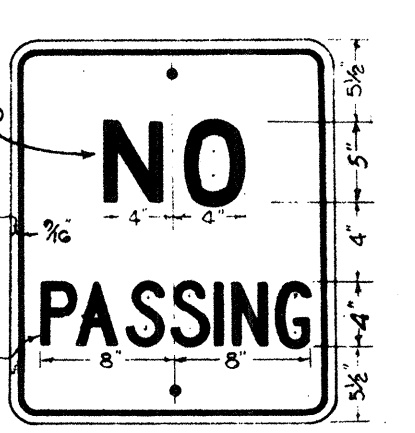
R-6
18" x 24"



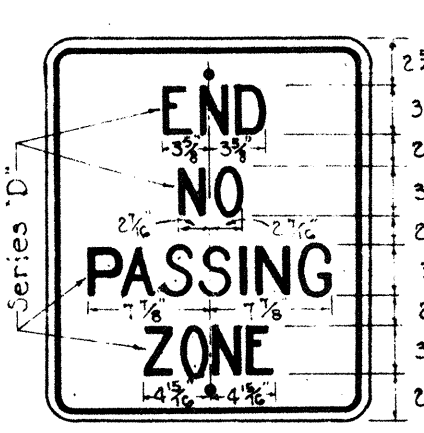
R-8
18" x 24"



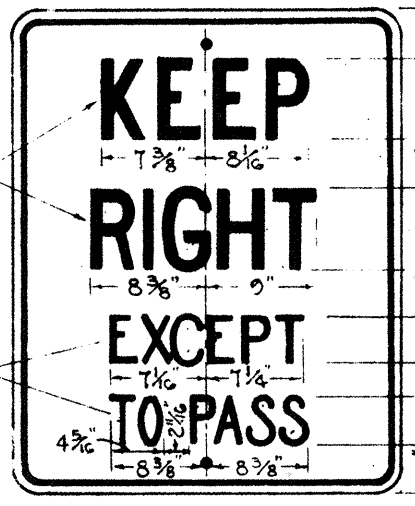
R-10
12" x 18"



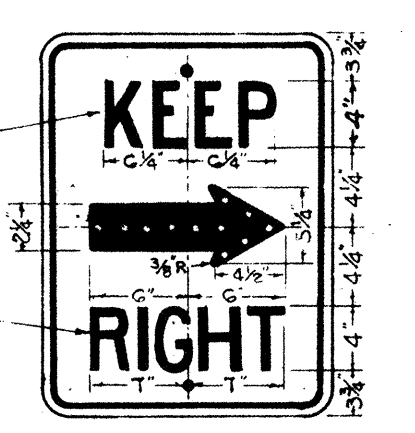
R-11
20" x 24"



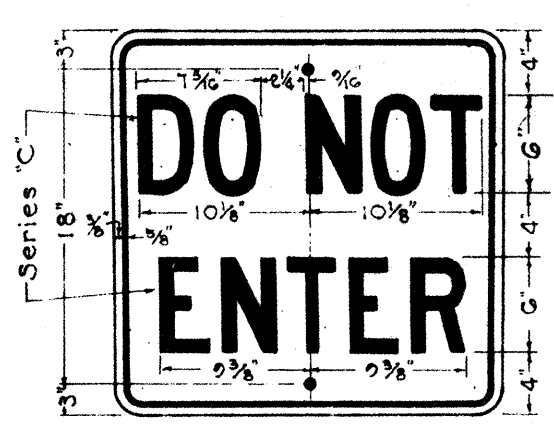
R-12
20" x 24"



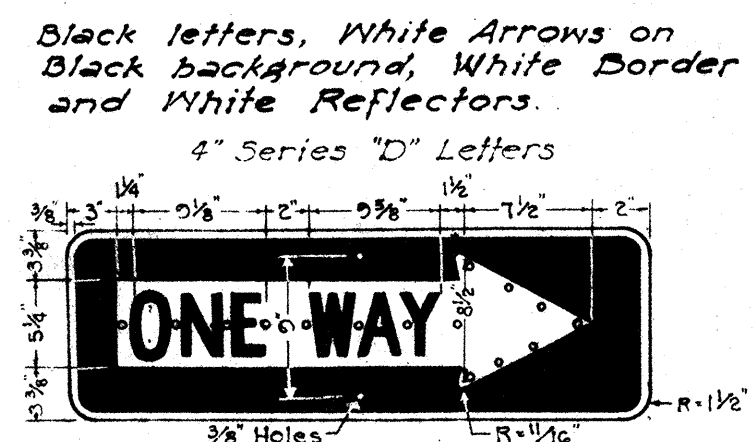
R-13
24" x 30"



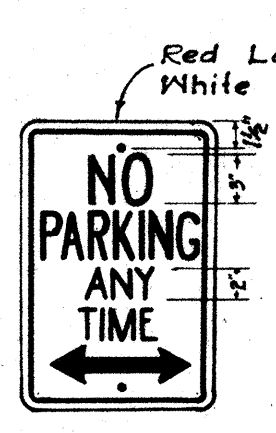
R-14
18" x 24"



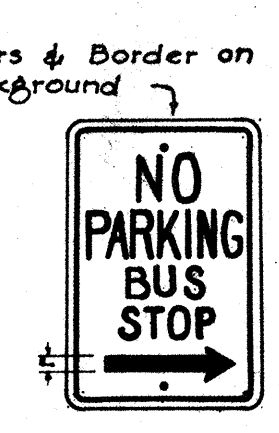
R-15
24" x 24"



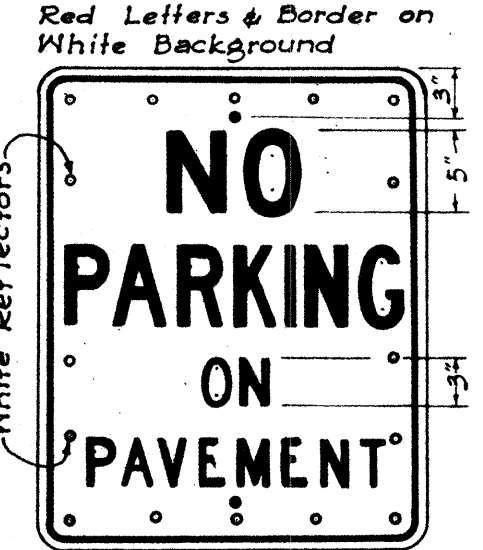
R-16-R
R-16-L
36" x 12"



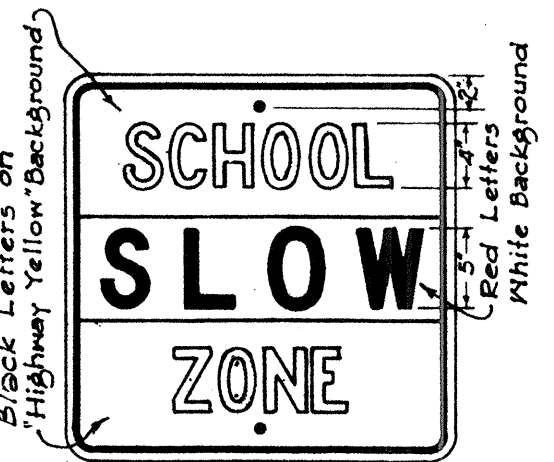
R-18
12" x 18"



R-26
12" x 18"



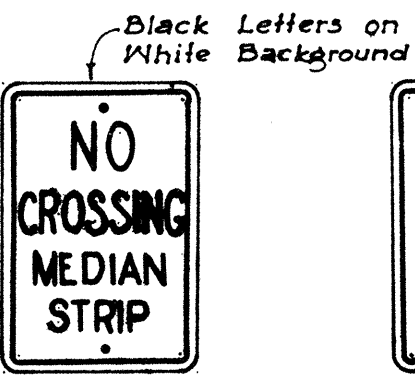
R-29
24" x 30"



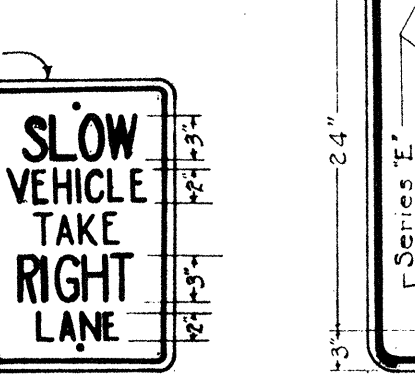
R-41-S
24" x 24"



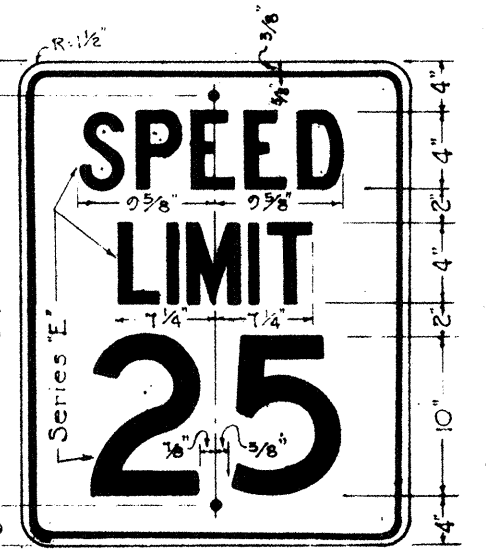
R-42-S
12" x 18"



R-43-S
12" x 18"



R-44-S
12" x 18"



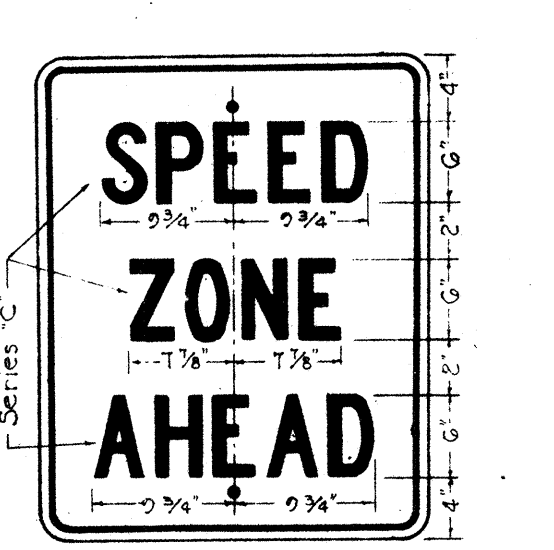
R-102-A
24" x 30"



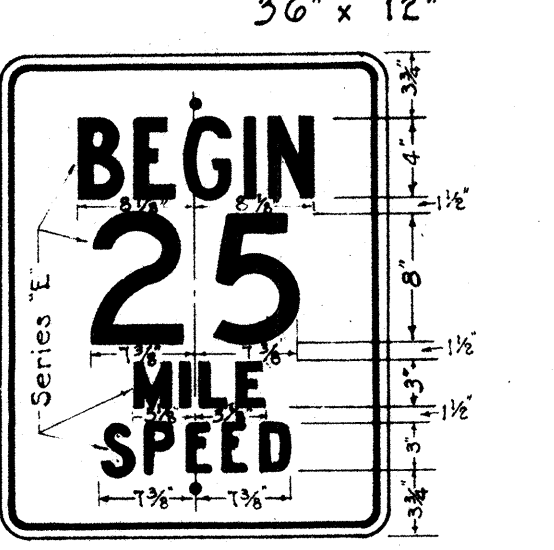
R-102-B
24" x 30"



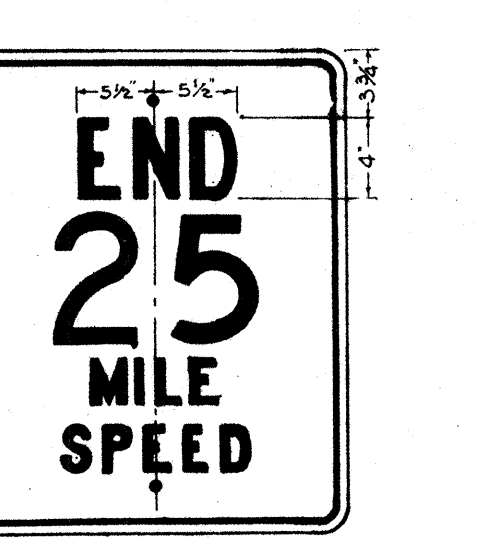
R-102-C
24" x 30"



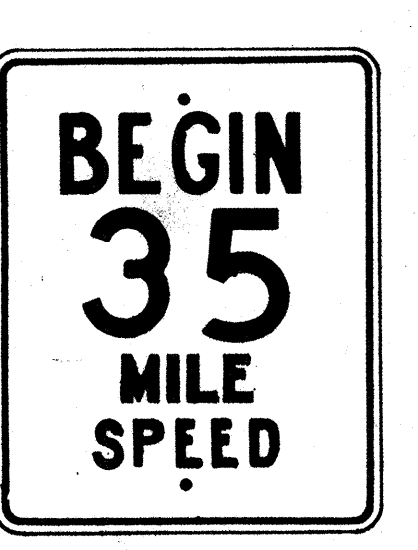
R-104
24" x 30"



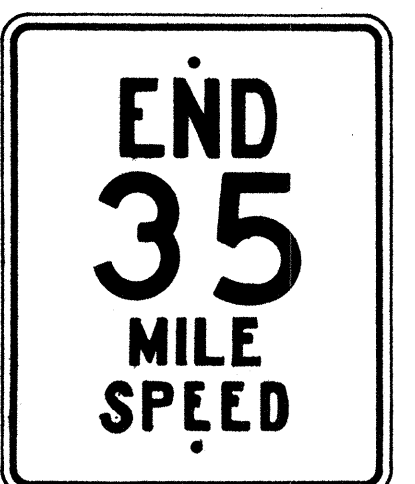
R-105-A
24" x 30"



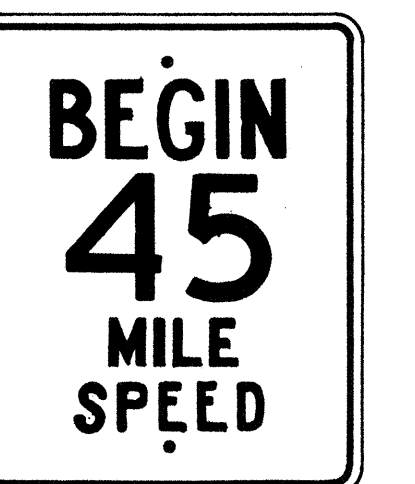
R-105-B
24" x 30"



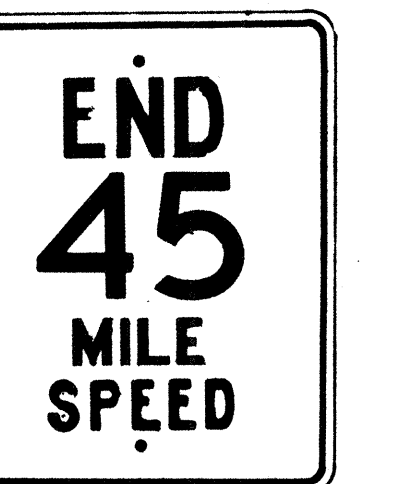
R-105-C
24" x 30"



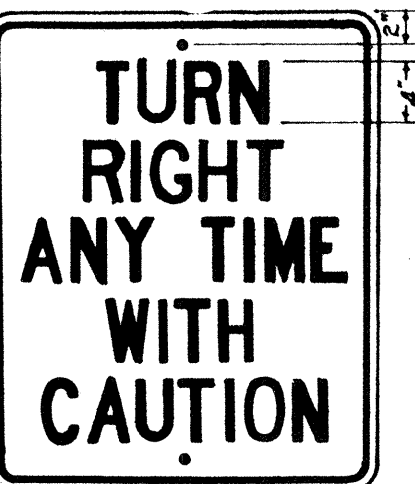
R-105-D
24" x 30"



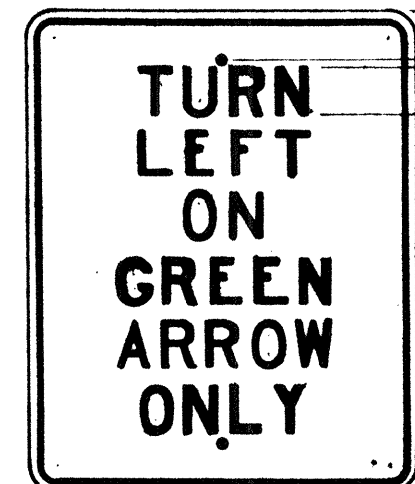
R-105-E
24" x 30"



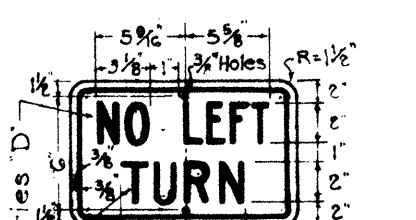
R-105-F
24" x 30"



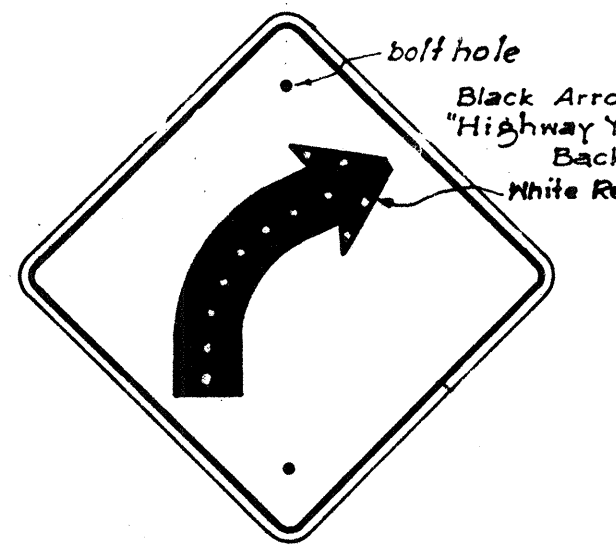
R-106
24" x 30"



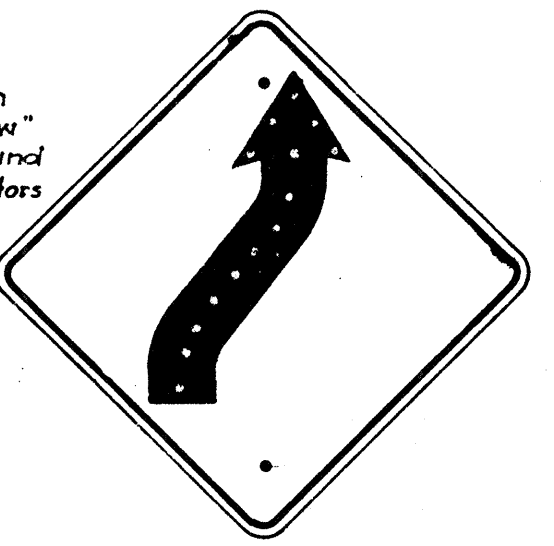
R-107-A
24" x 30"



R-107
14" x 9"



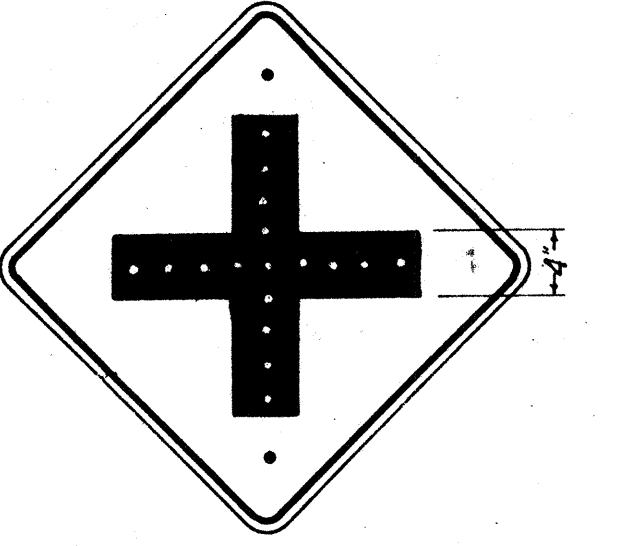
W-2-R
*W-2-L
24" x 24"



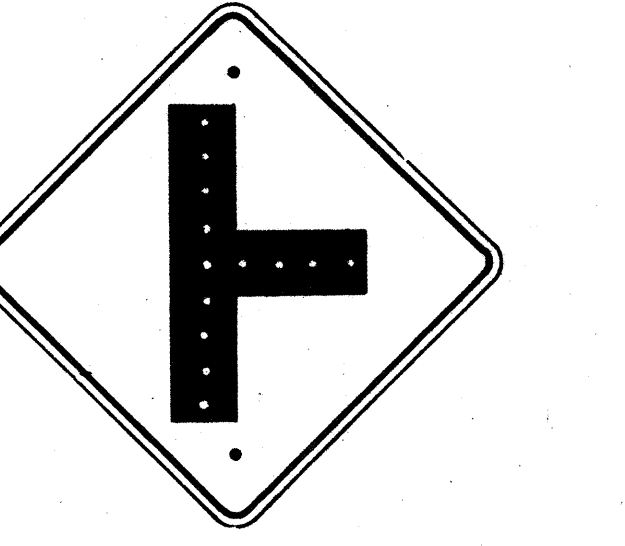
W-4-R
*W-4-L
24" x 24"



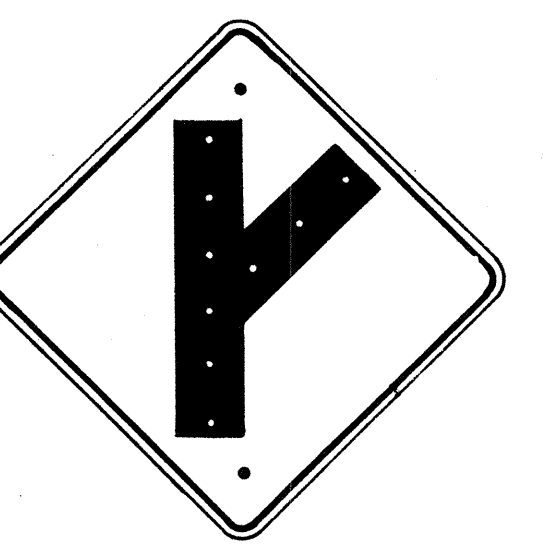
W-5-R
*W-5-L
24" x 24"



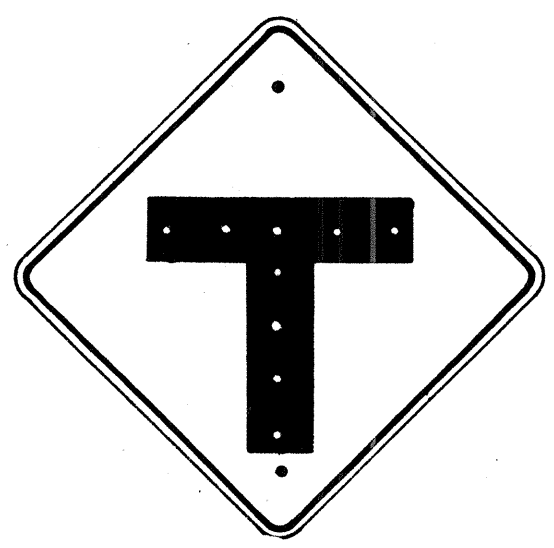
W-6
24" x 24"



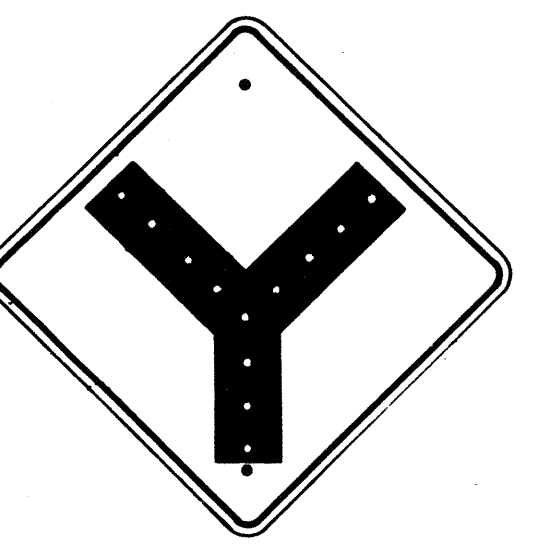
W-7
24" x 24"



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"



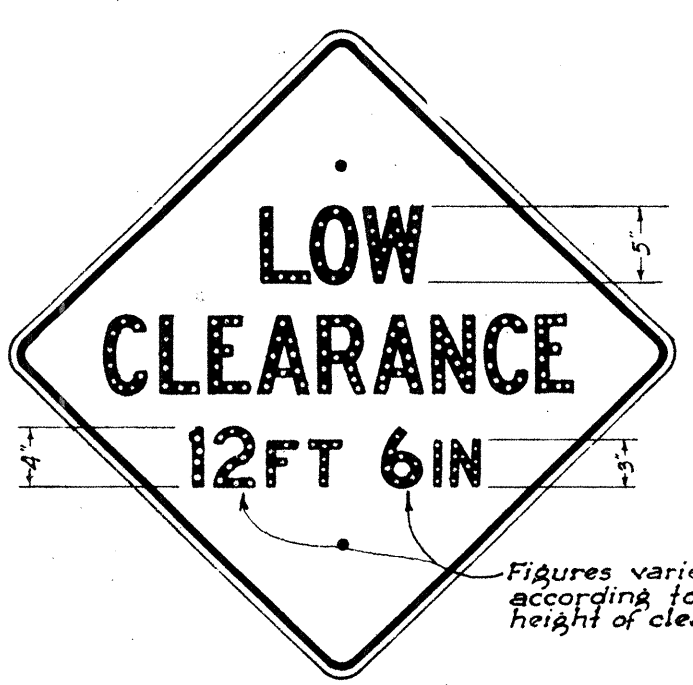
W-20
30" x 30"



W-21
30" x 30"



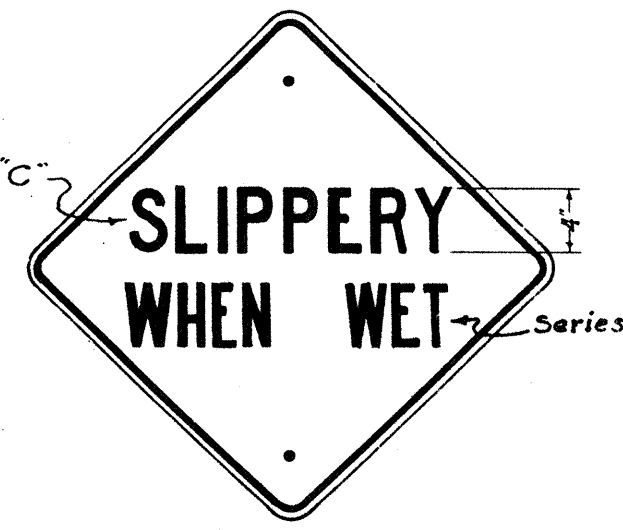
W-22
24" x 24"



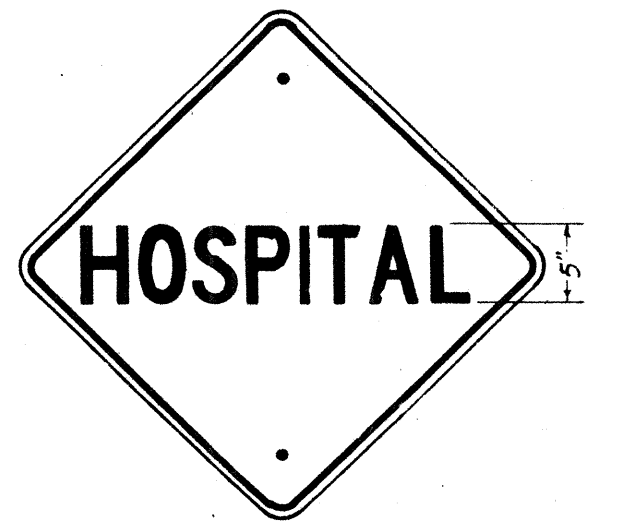
W-24
30" x 30"



W-25
24" x 24"



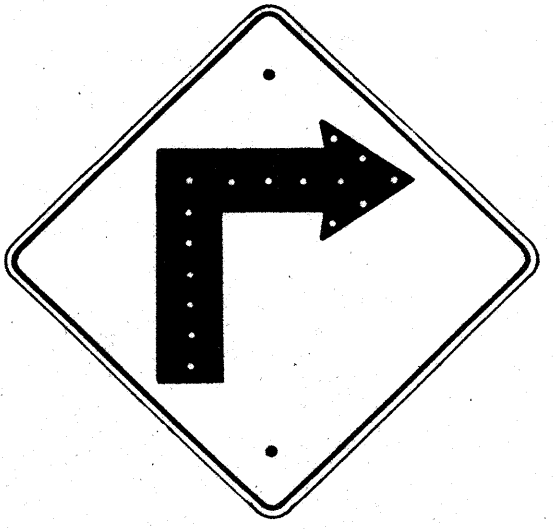
W-29
24" x 24"



W-38
24" x 24"



W-39
24" x 24"



W-1-R
*W-1-L
24" x 24"

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. See Specifications for Materials and Finish.

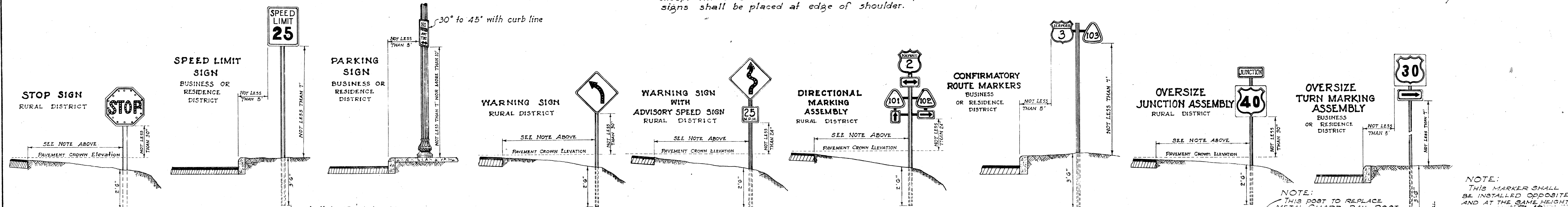
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
REGULATORY & WARNING SIGNS
Scale: 1" = 1'
APPROVED: *B. E. Nutter*
TERRITORIAL HIGHWAY ENGINEER
JUNE 23, 1953

SHEET NO. OF SHEETS

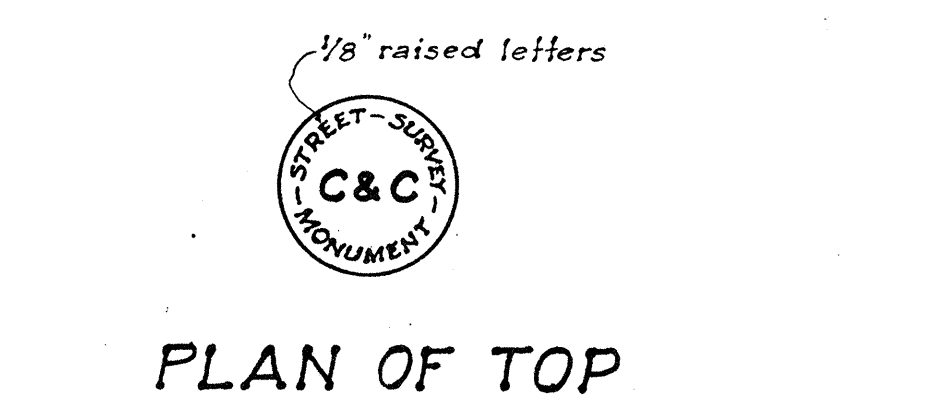
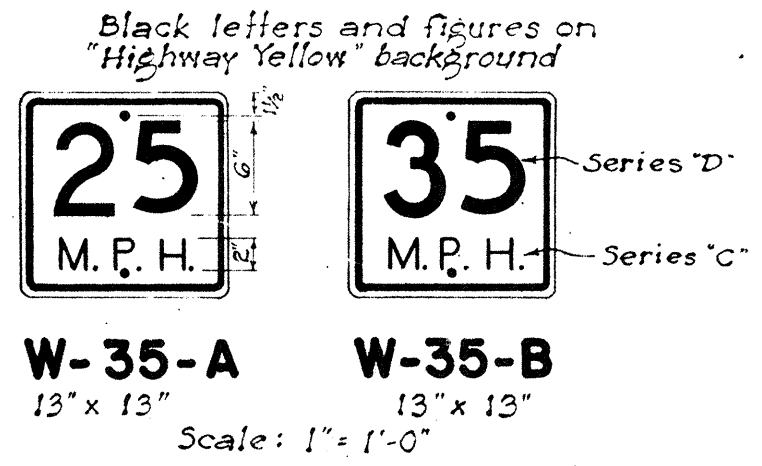
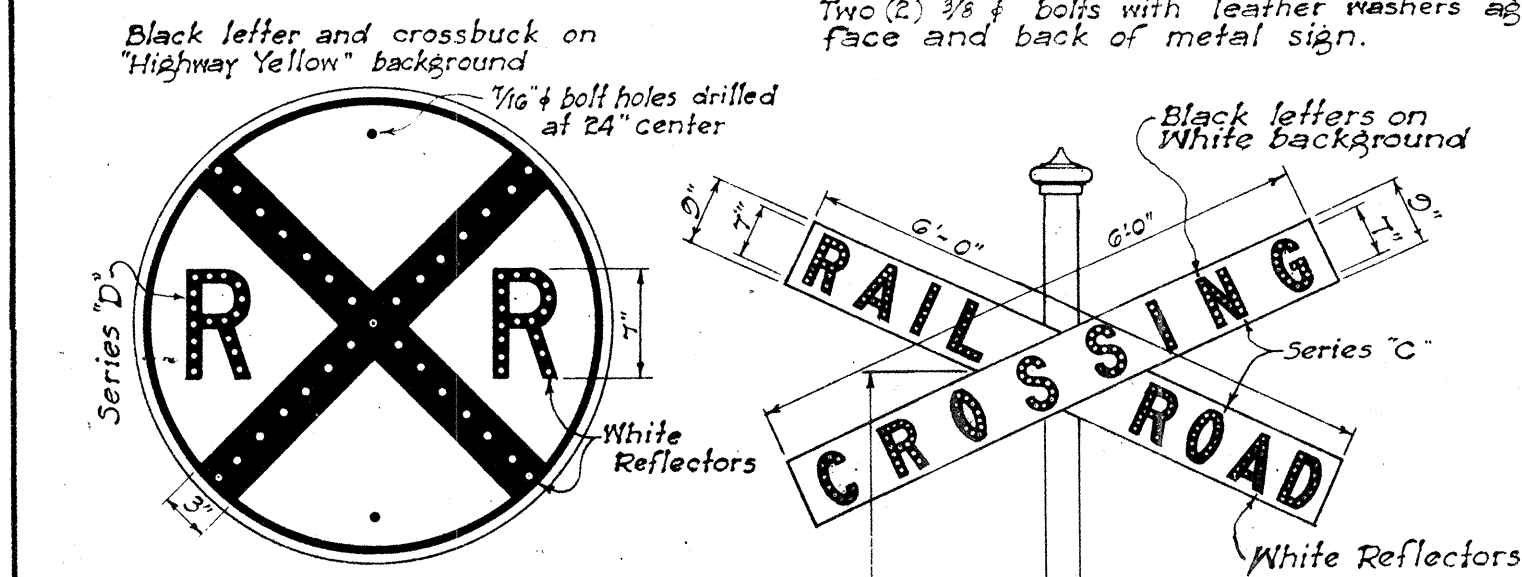
5668.15

DATE: _____
SURVEY PROVIDED BY: _____
ORIGINAL PLAN: _____
DRAWN BY: T. Tokunaga
NOTED BY: _____
CHECKED BY: _____

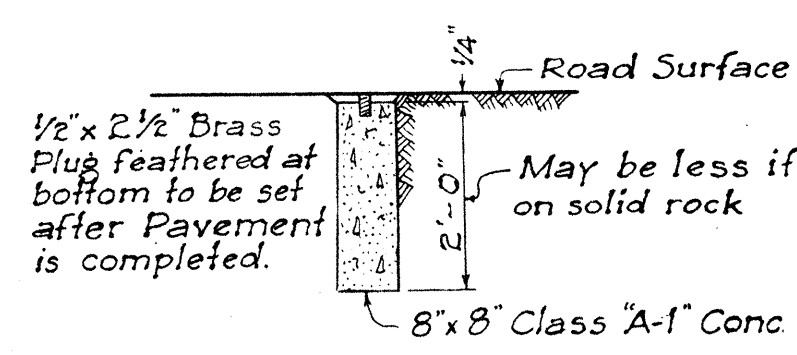
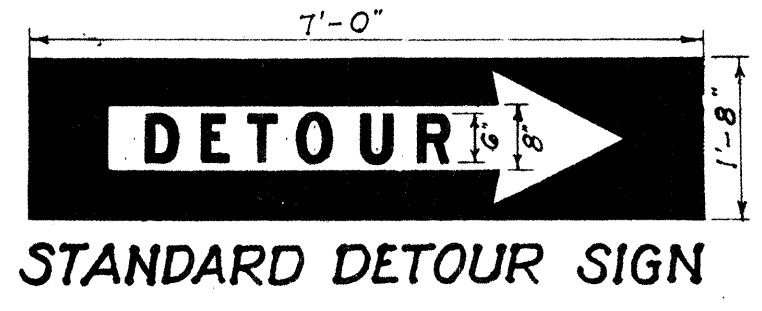
NOTE: All signs shall be placed 10' from edge of pavement except where shoulder width is less than 10', in which case signs shall be placed at edge of shoulder.



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

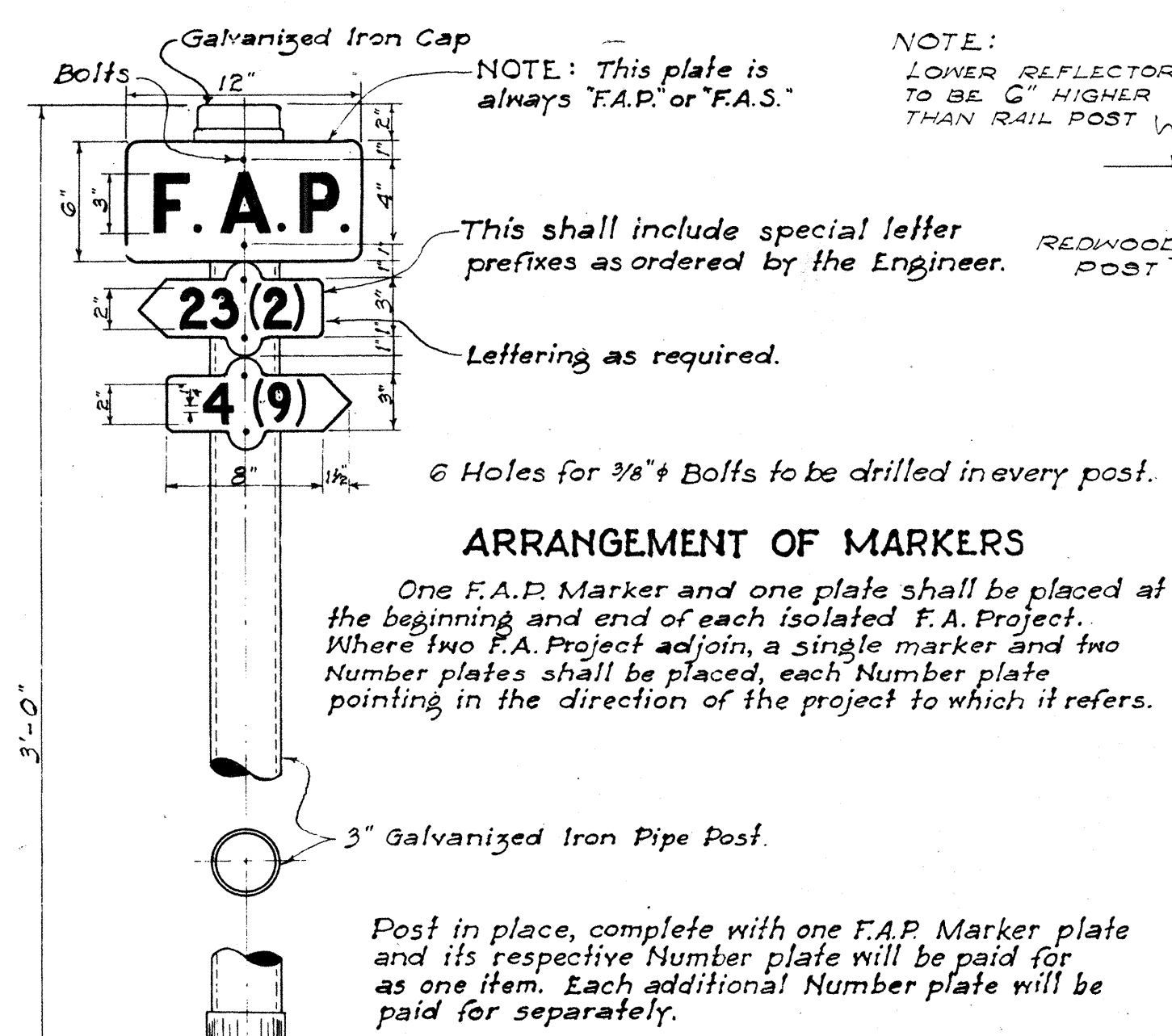


PLAN OF TOP

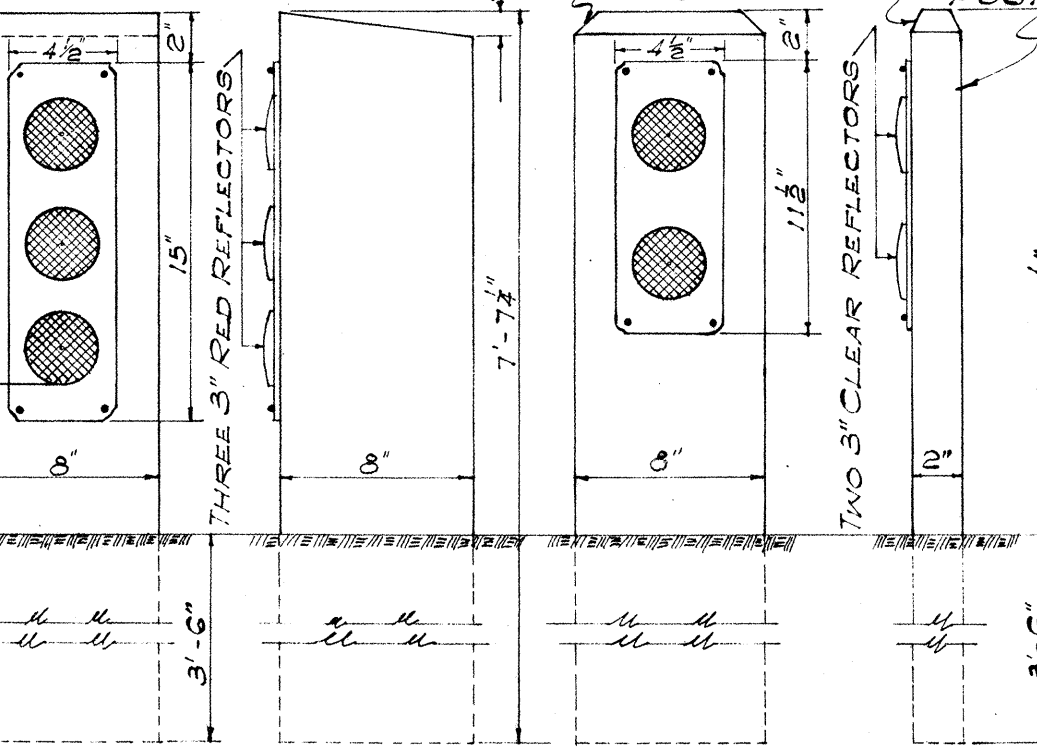


CENTER LINE MONUMENT
Scale: 1/2" = 1'-0"

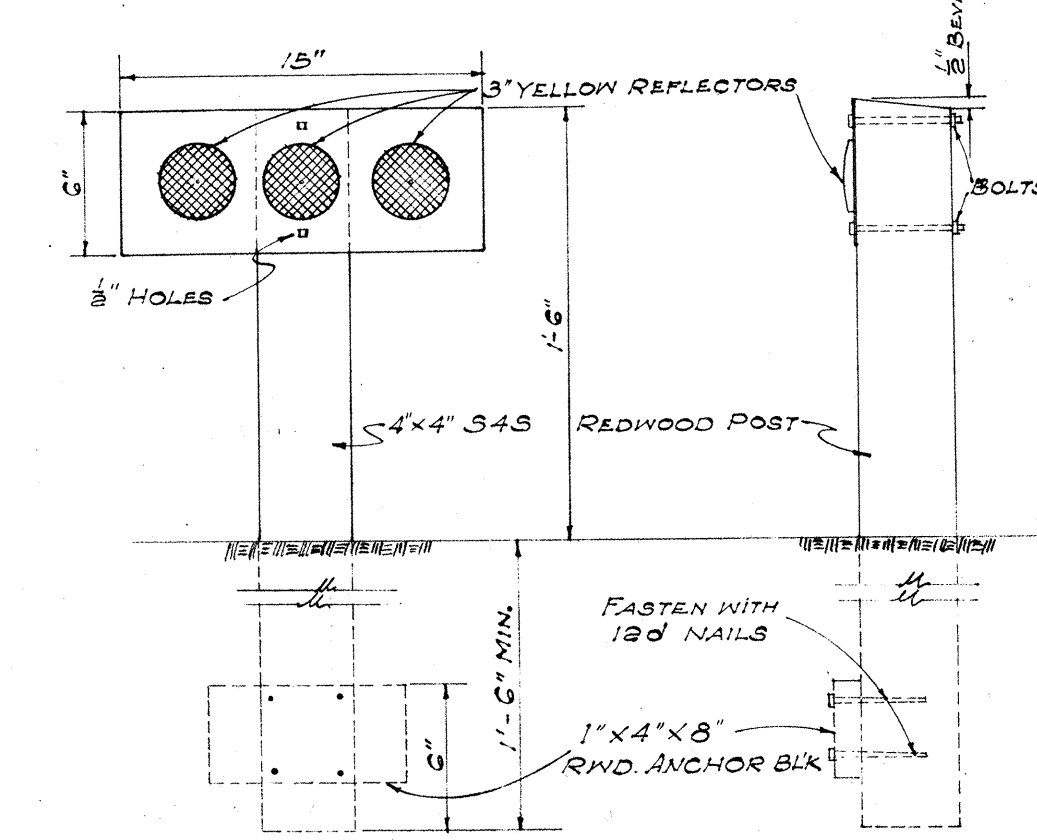
STANDARD C & C STREET SURVEY MONUMENT



ARRANGEMENT OF MARKERS



W-42 W-43

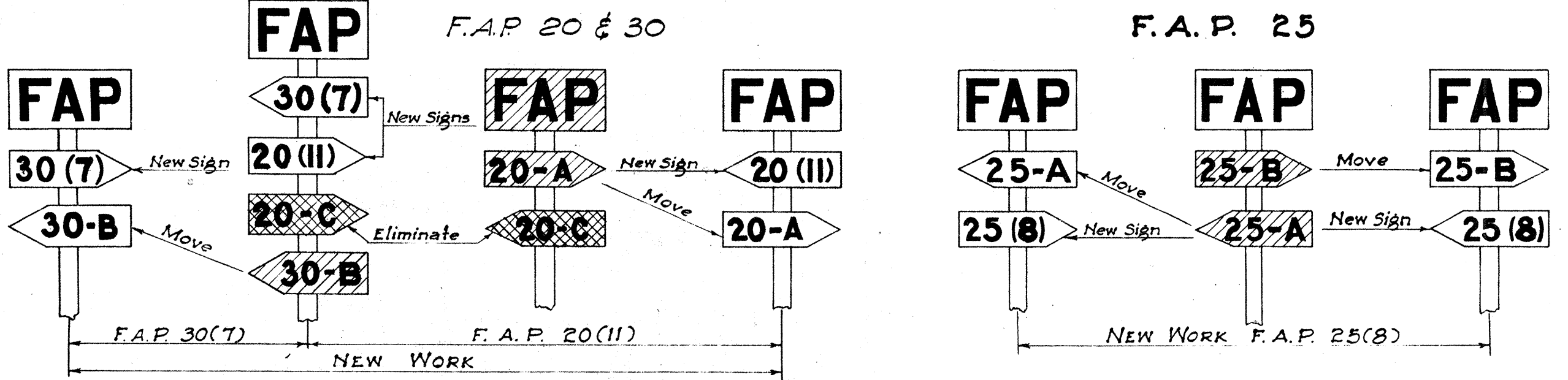


W-41

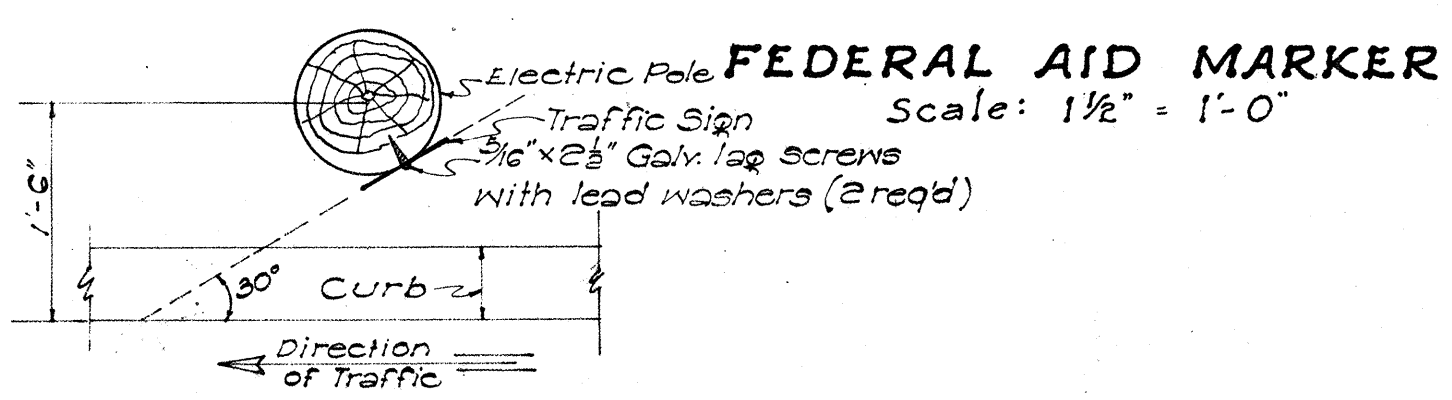
DETAIL OF SIGNS

SCALE: 1 1/2" = 1'-0"

ADJUSTABLE BAND BRACKET FOR SUPPORTING TRAFFIC SIGNS ON MONOTUBE LIGHTING STANDARDS
Scale: 3/4" = 1'-0"
This product to be as shown in Catalogue No. 48 of Calphote Corp. or equal.



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



DETAIL SHOWING ANGLE OF TRAFFIC SIGNS AND CURB LINE
Scale: 1" = 1'-0"

Above detail applies to "R-18" and "R-18A" only.

APPROVED: DATE: 6-23-55
Territorial Highway Engineer

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
STANDARD DETAILS
F.A. MARKERS, MONUMENTS
SIGNS & LOCATION OF SIGNS
SCALES AS NOTED