

(Type A' Curb & Type 14' Curb & Gutter)

(Type B' Curb & Type 23' Curb & Gutter)

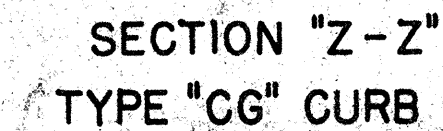
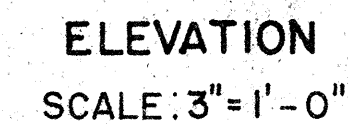
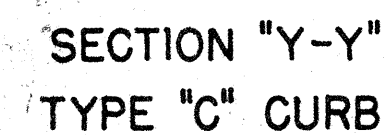
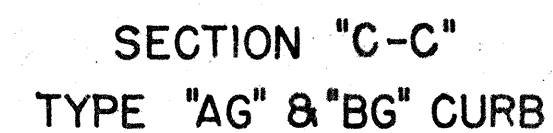
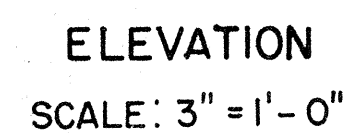
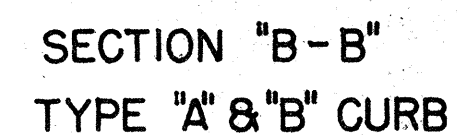


Figure 1: Typical cross-section of a road pavement structure. The diagram shows a vertical cross-section of a road with a total thickness of 7'4". The layers from top to bottom are: AC Surface Course (2"), AC Leaveling Course (2"), Binder Layer (2"), Base Course (4"), 1st Layer (2"), Base Course (4"), and Base Course (4"). The total thickness of the base and binder layers is 12". The diagram also shows a 3' wide shoulder on the left and a 3' wide shoulder on the right. The total width of the road is 12'.

TYPE "E" CAST-IN-PLACE
CONCRETE CURB
SCALE: 1" = 1'-0"



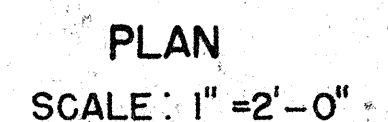
PRECAST CONC. CURB

SCALE: 1" = 1'-0"



PRECAST CONC. ROLL CURB

SCALE: 1" = 1' - 0"



RAISED TRAFFIC BARS

SCALE : 1" = 6"



NOTE:
Section and Elevation
for Jiggle Bars are same
as the Traffic Bars.

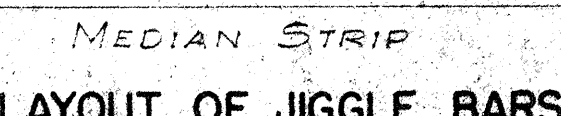
RAISED JIGGLE BARS

SCALE : 1" = 2' - 0"



A.C. TRAFFIC ROLL

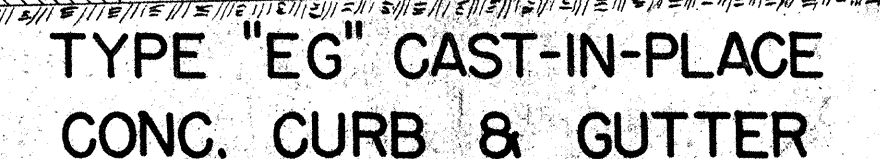
NOT TO SCALE



NOT TO SCALE

APPROVED: _____ DATE AUG. 26, 1954


 STATE HIGHWAY ENGINEER



SCALE : 1" = 1' - 0"

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
STANDARD DETAILS
CONCRETE CURBS,
CONCRETE CURBS & GUTTERS
SCALES AS NOTED

SHEET No OF SHEETS

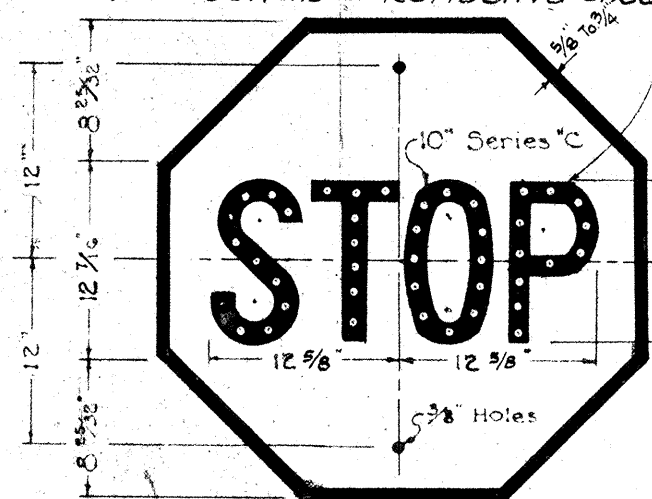
2/17/57
4/6/58
4/28/59

White Letters and Border on Red Background (Background may be of red reflective sheeting). Letters to be ReflectORIZED With Buttons or Reflective Sheeting.

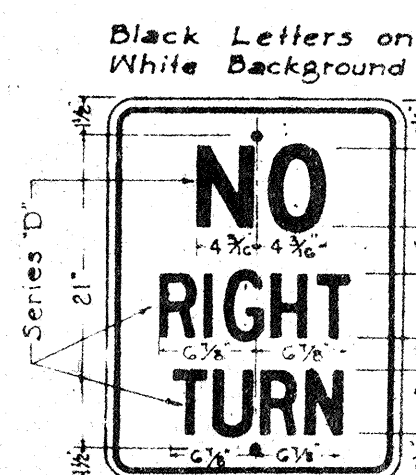
Note: All Regulatory and Warning Signs Shall Have $\frac{3}{8}$ " Bolt Holes.

NOTE: Signs noted with an (R) designation indicate reflectorization with either buttons or reflective sheeting.

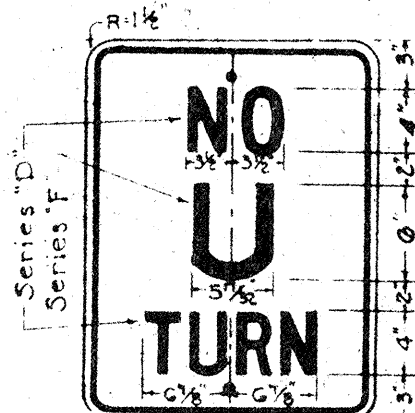
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	15-50100	1960	66B	75
		15-50100	1960	101B	118
		15-50100	1960	104B	115



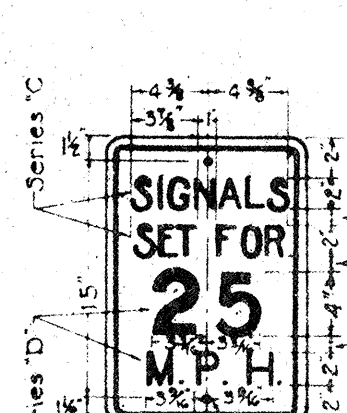
R-1
30" x 30"



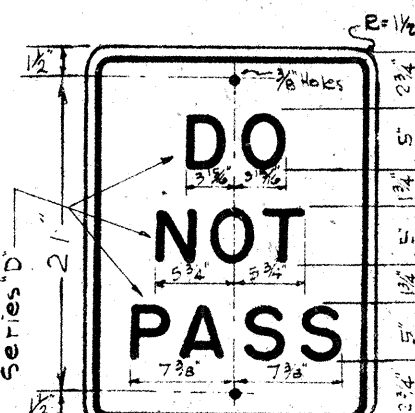
R-6
18" x 24"



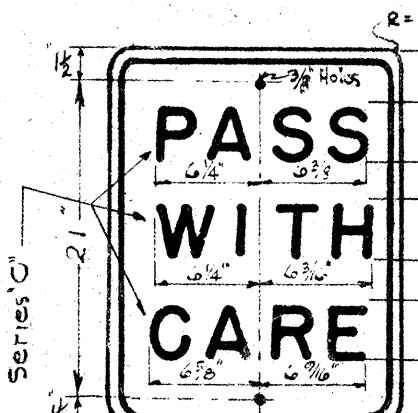
R-8
18" x 24"



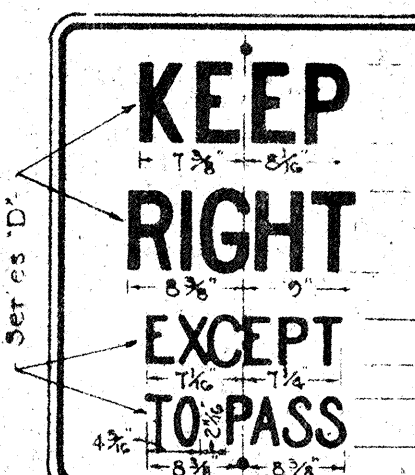
R-10
12" x 18"



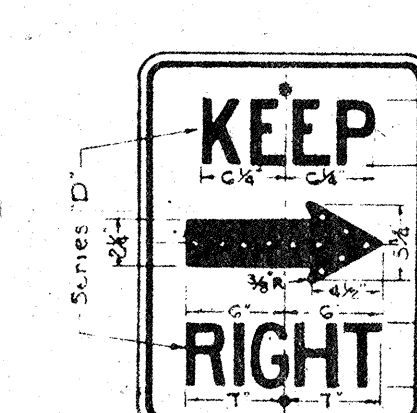
R-11
18" x 24"



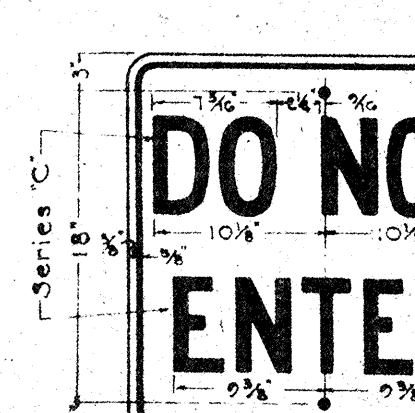
R-12
18" x 24"



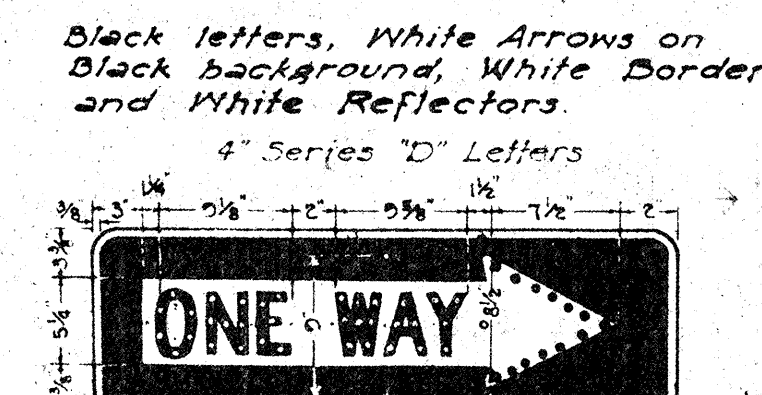
R-13
24" x 30"



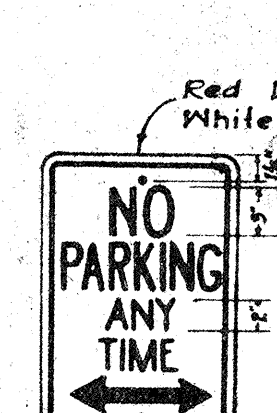
R-14 (R)
18" x 24"



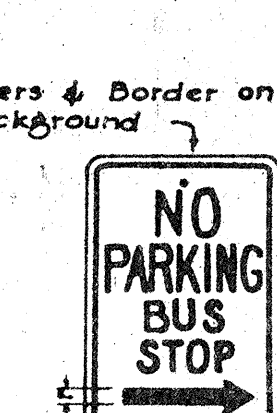
R-15
24" x 24"



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



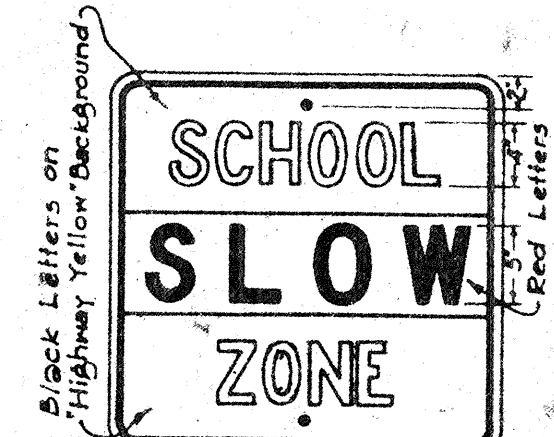
R-18
12" x 18"



R-26
12" x 18"



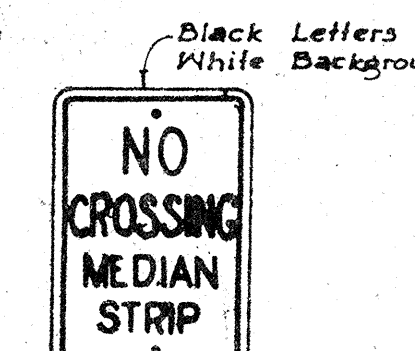
R-29
24" x 30"



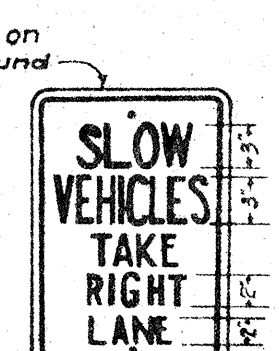
R-41-S
24" x 24"



R-42-S
12" x 18"



R-43-S
12" x 18"



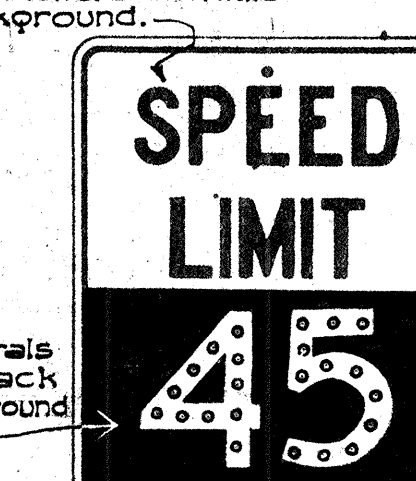
R-44-S
12" x 18"



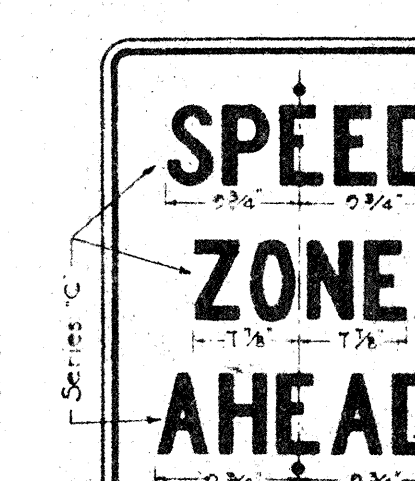
R-102-A
24" x 30"



R-102-B
24" x 30"



R-102-C (R)
24" x 30"



R-104
24" x 30"



R-105-A (R)
24" x 30"



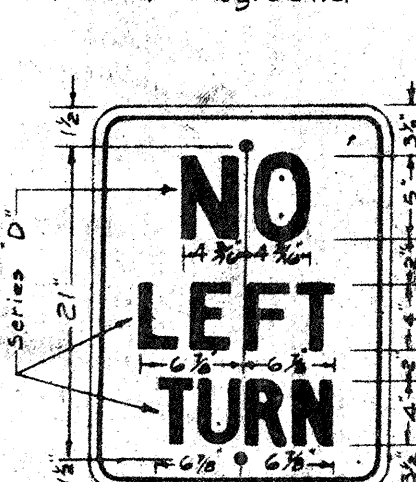
R-105-B
24" x 30"



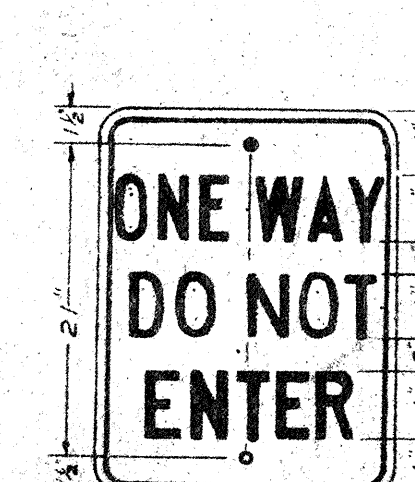
R-105-C
24" x 30"



R-104-A
24" x 30"



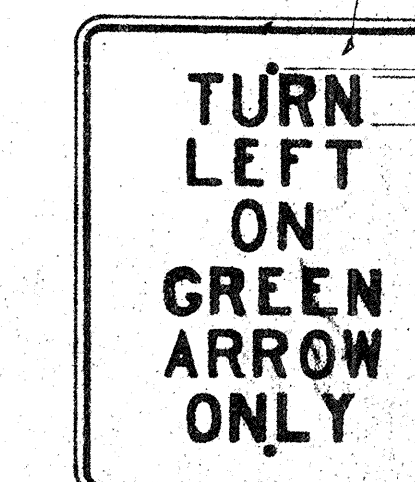
R-7
18" x 24"



R-66
18" x 24"



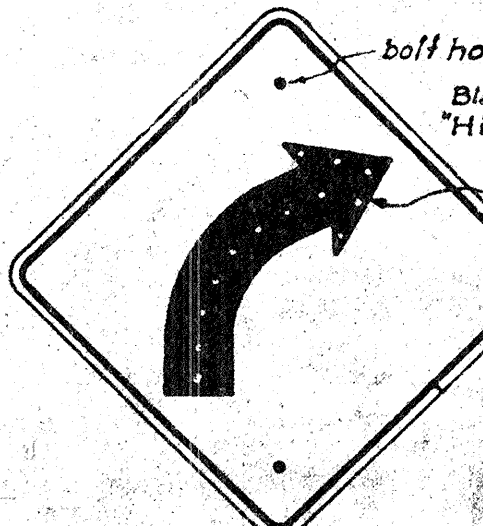
R-106
24" x 30"



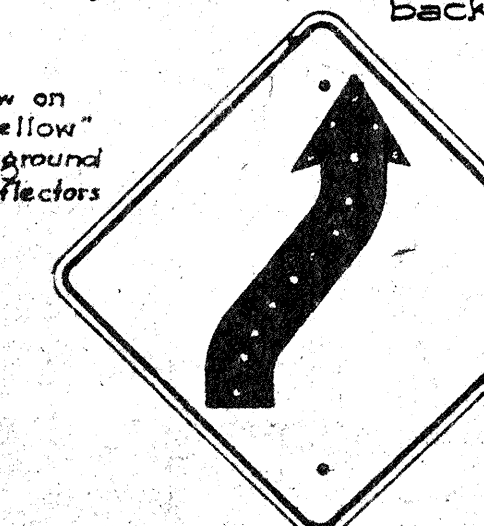
R-107-A
24" x 30"



R-14-A
24" x 24"



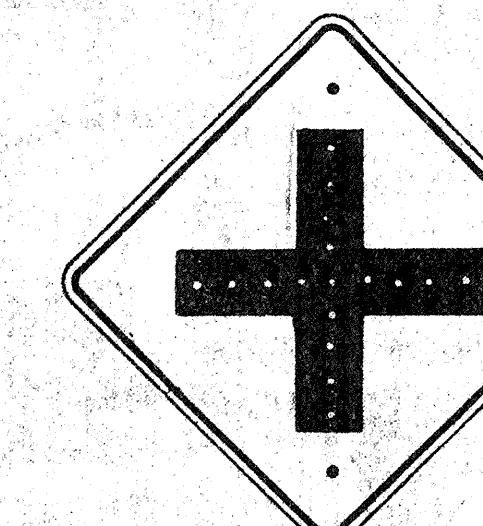
W-2-R
W-2-L
24" x 24"



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



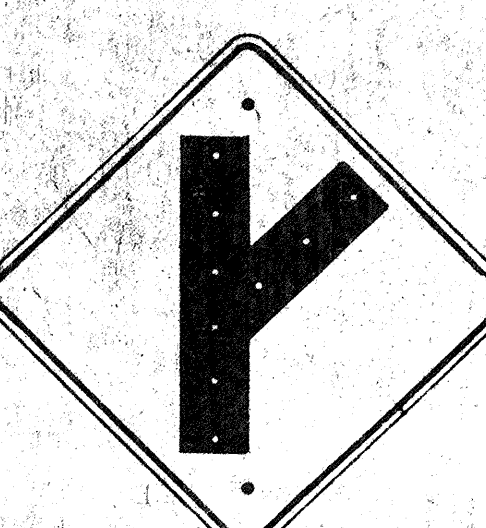
W-5-R
W-5-L
24" x 24"



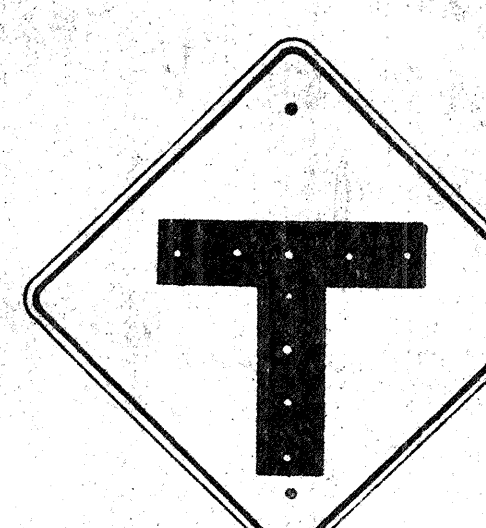
W-6
24" x 24"



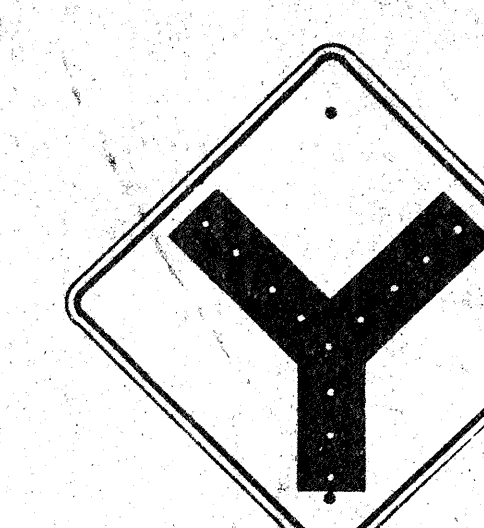
W-7
24" x 24"



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



W-9
24" x 24"



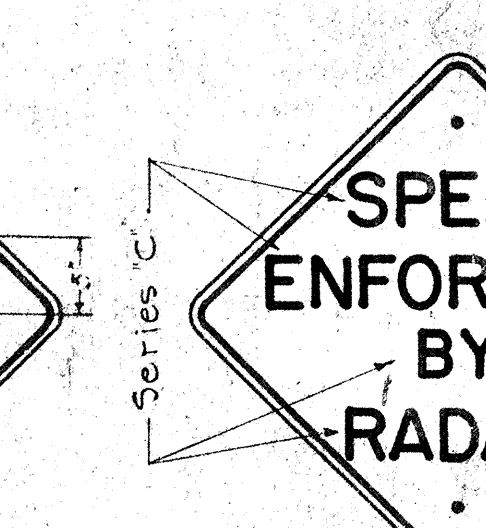
W-10
24" x 24"



W-13
24" x 24"



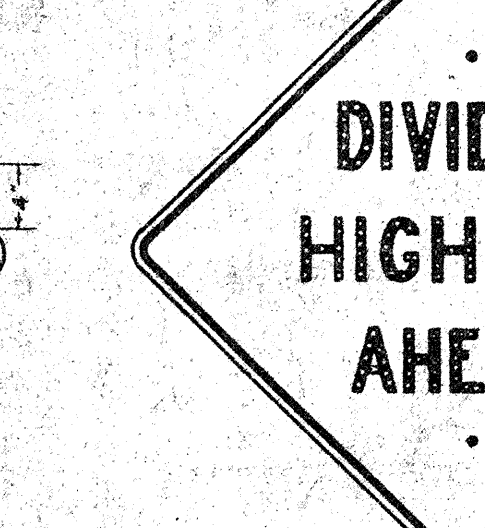
W-14
24" x 24"



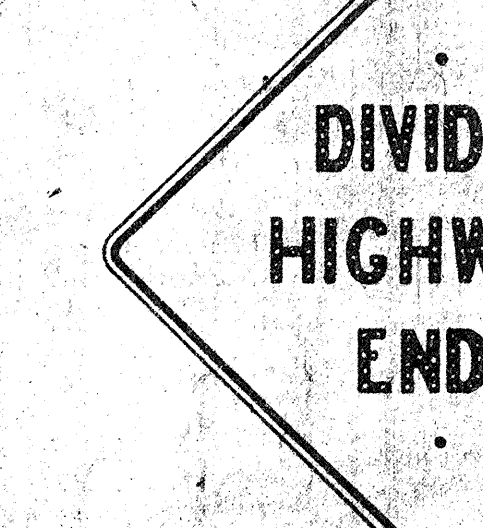
W-40
24" x 24"



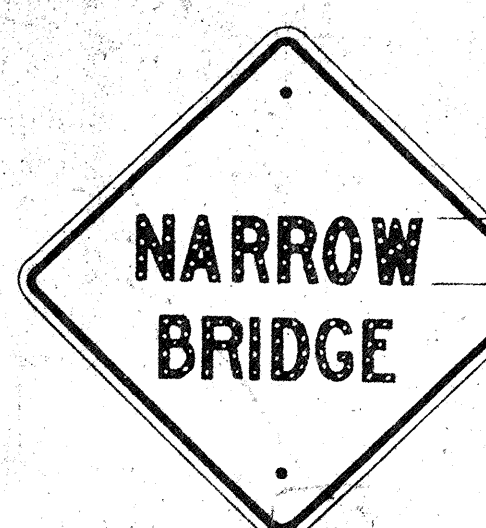
W-19
30" x 30"



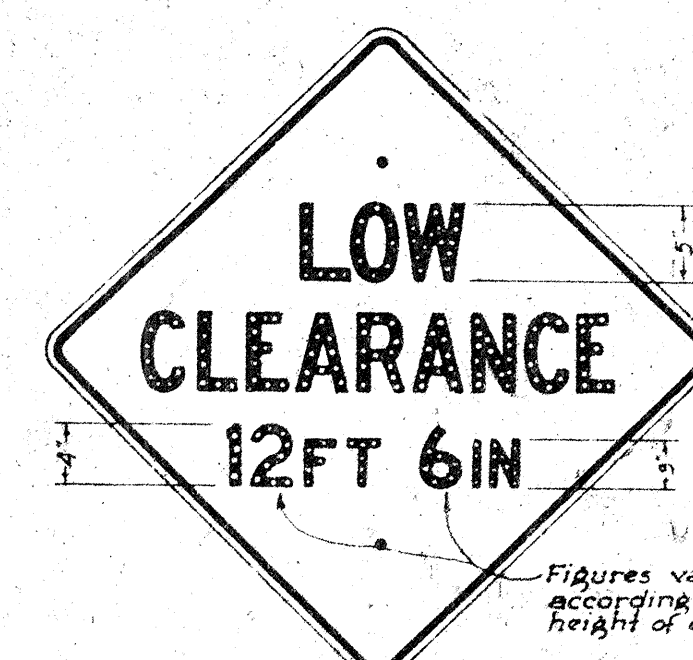
W-20
30" x 30"



W-21
30" x 30"



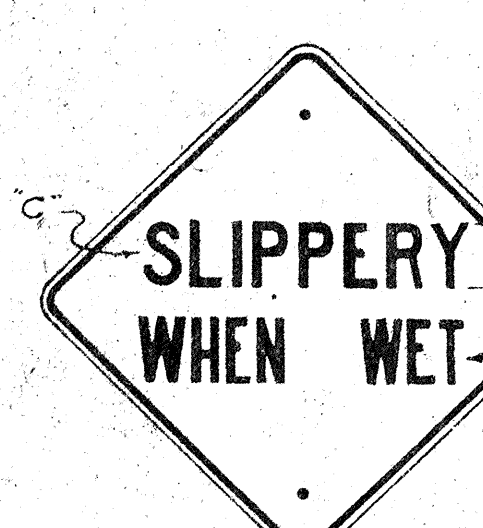
W-22
24" x 24"



W-24
30" x 30"



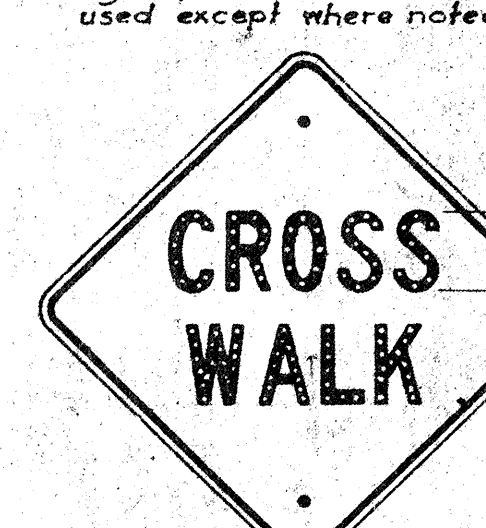
W-25
24" x 24"



W-29
24" x 24"



W-59
24" x 24"



W-39
24" x 24"



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

NOTE: R-104, A, B, C signs with (R) designation shall have white numerals reflectorized with buttons or reflective sheeting on a black background.

NOTE: R-102, A, B, C signs with (R) designation: Lower half with white numerals, reflectorized with buttons or reflective sheeting, on black background.

NOTE: R-105, A, B, C signs with (R) designation shall have white numerals, reflectorized with buttons or reflective sheeting on a black background.

Background may be made of Yellow Reflective sheeting.

Unless otherwise Specified, all signs shall conform with requirements of "Manual on Uniform Traffic Control Devices for Streets and Highways."

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 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.

HAWAII STATE HIGHWAY DEPARTMENT STATE OF HAWAII	
REGULATORY & WARNING SIGNS	
Scale: 1" = 1'	DATE: AUG. 29, 1959.
APPROVED: _____ STATE HIGHWAY ENGINEER	
SHEET No. OF SHEETS	

2/17/50
4/6/59
4/28/59
7/30/59

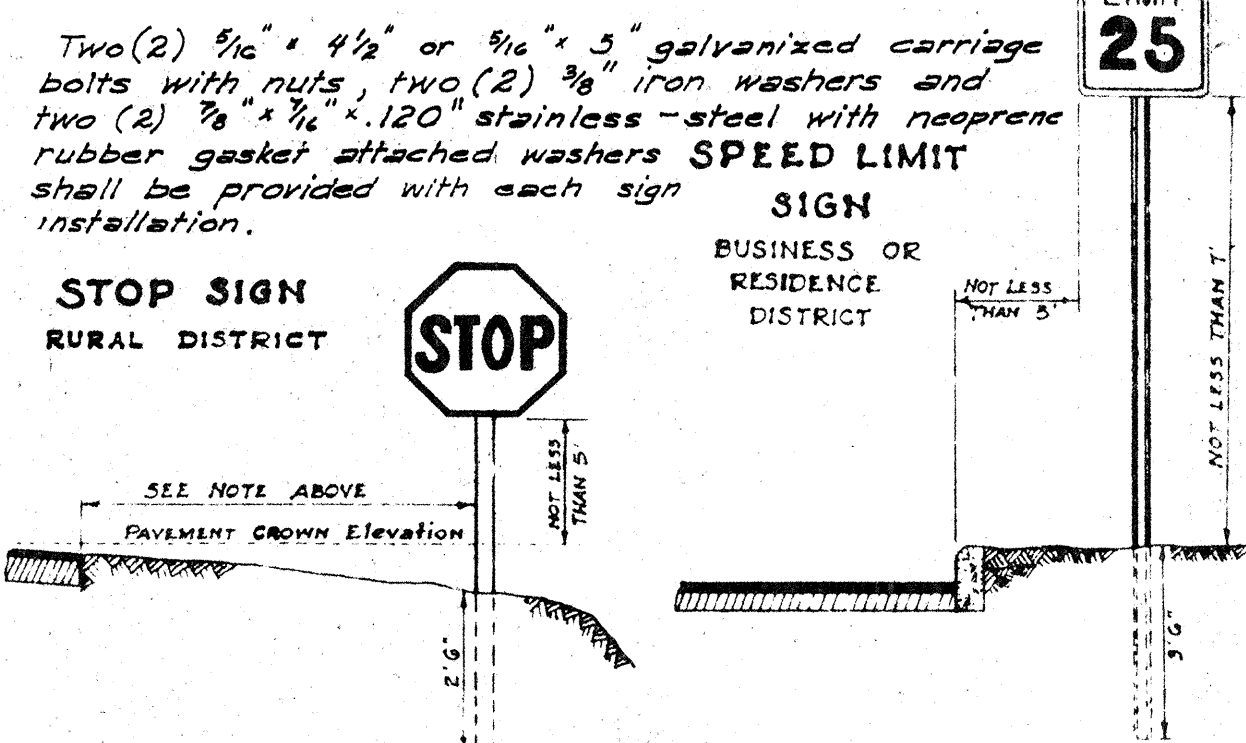
Note: Sign Post size has been revised 5/15/50

Note: Yield Sign has been revised 11/1/57

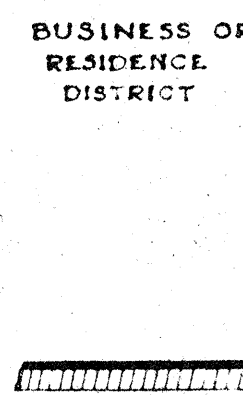
Note: Stop Sign has been revised 12/10/58

6/22/54

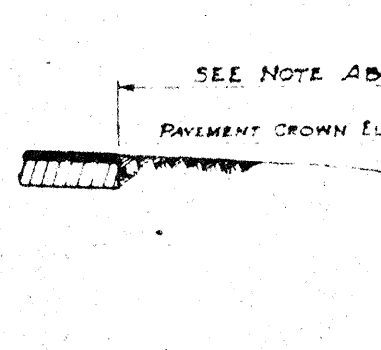
NOTE:
Sign Posts shall be 3 galv std pipe for signs larger than 24" in any dimension and 2 galv std pipe for signs not over 24" in any dimension.
Two (2) 3/8" bolt holes drilled at location shown.



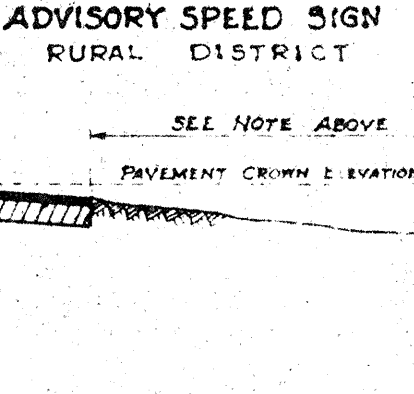
PARKING SIGN
BUSINESS OR RESIDENCE DISTRICT



WARNING SIGN
RURAL DISTRICT

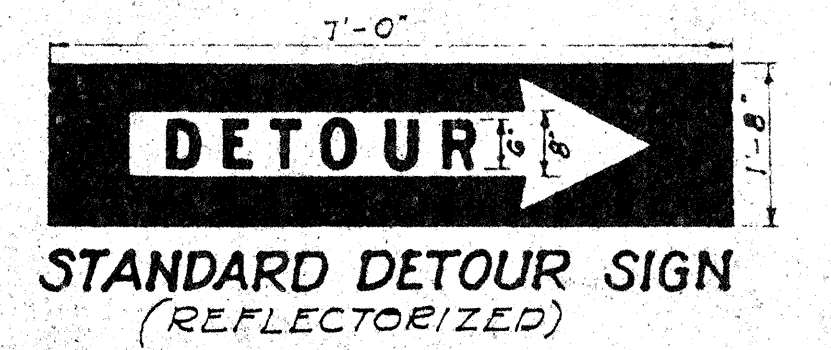
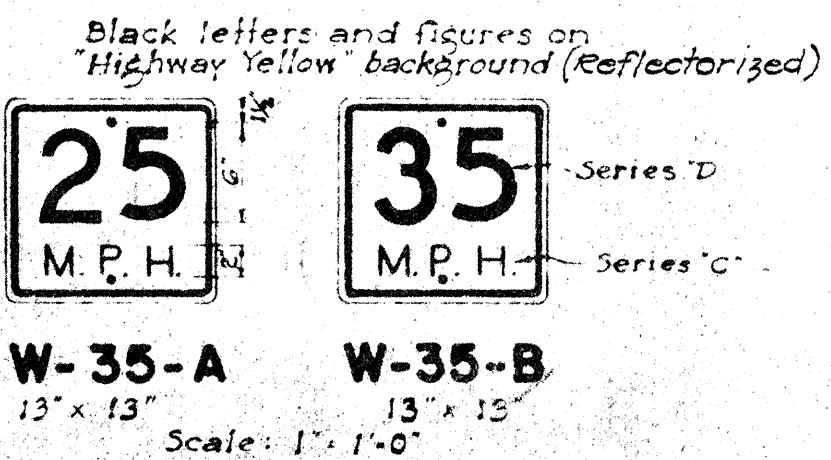
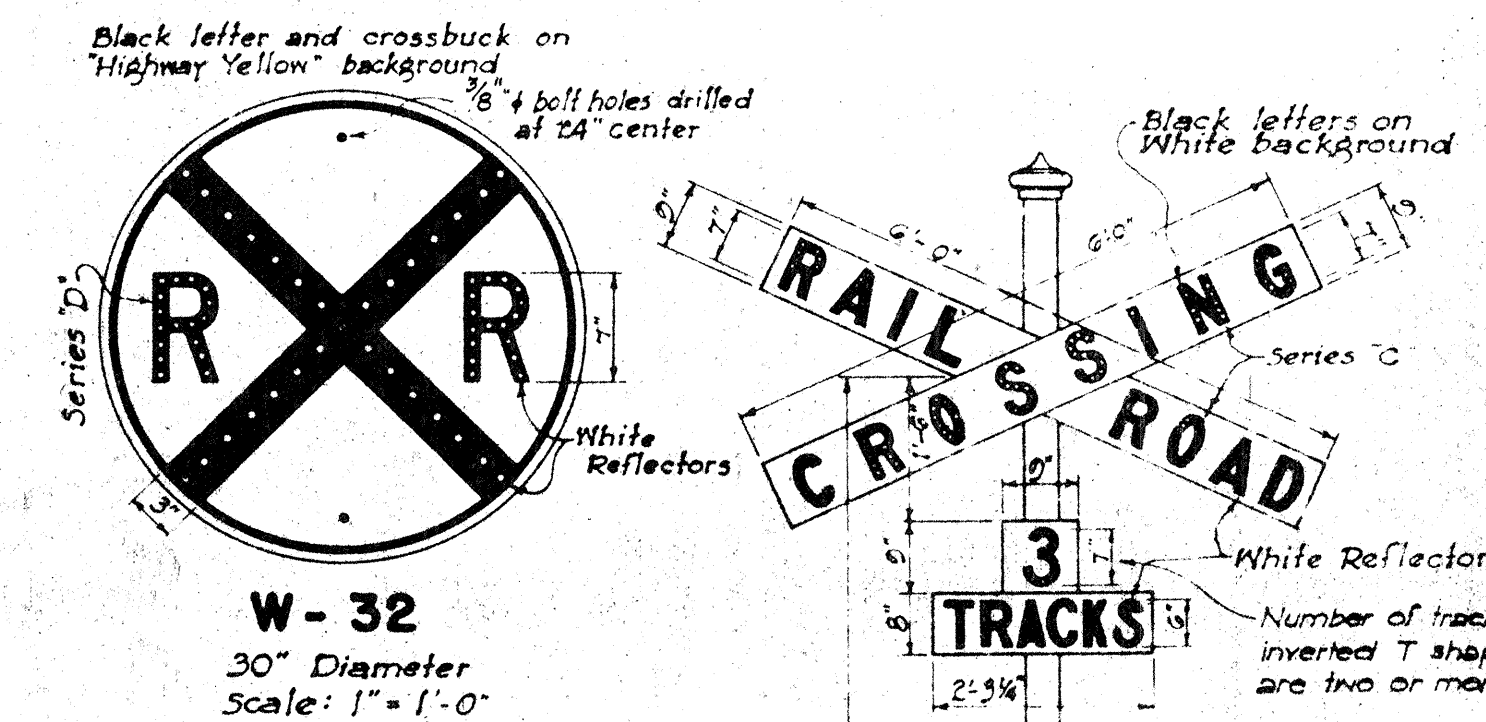


WARNING SIGN WITH ADVISORY SPEED SIGN
RURAL DISTRICT

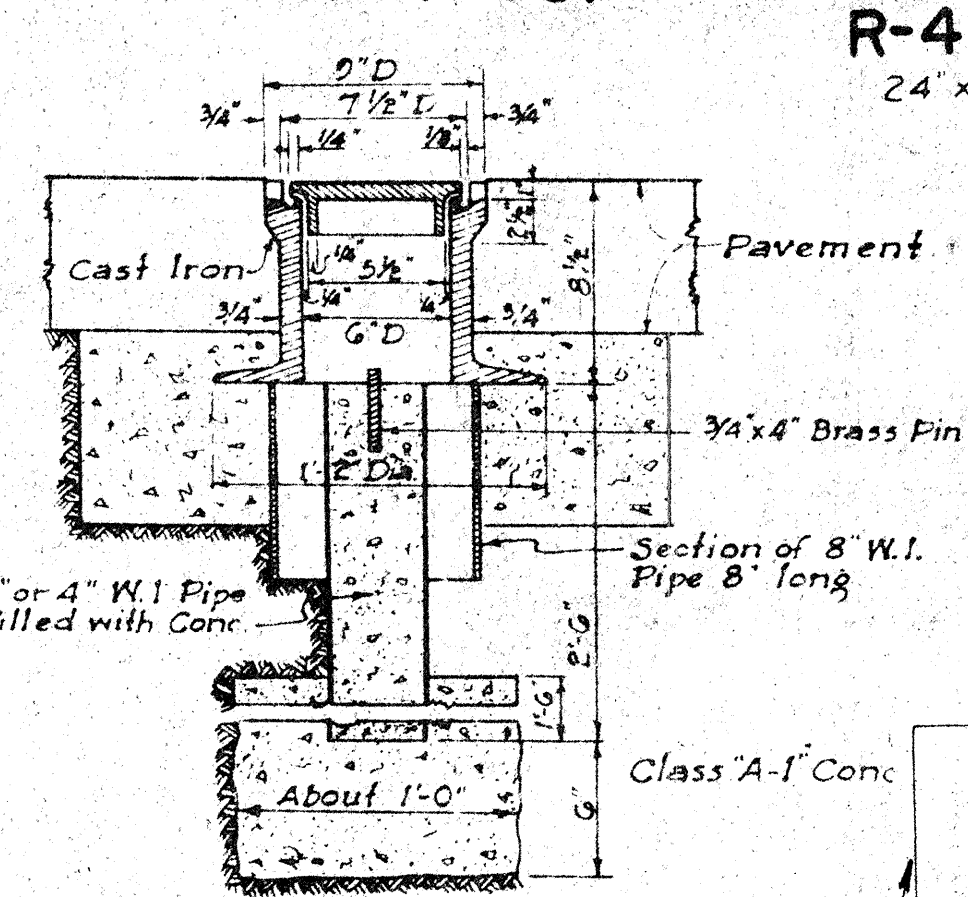


NOTE: All signs shall be placed 10' from edge of pavement except where shoulder width is less than 10', in which case signs shall be placed at edge of shoulder.

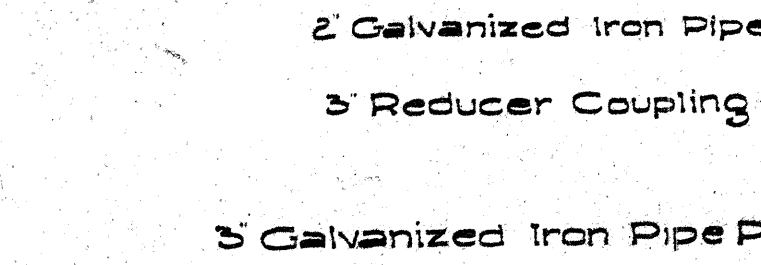
HEIGHT AND LATERAL LOCATION OF SIGNS - TYPICAL INSTALLATIONS
Scale: 1" = 3'-0"



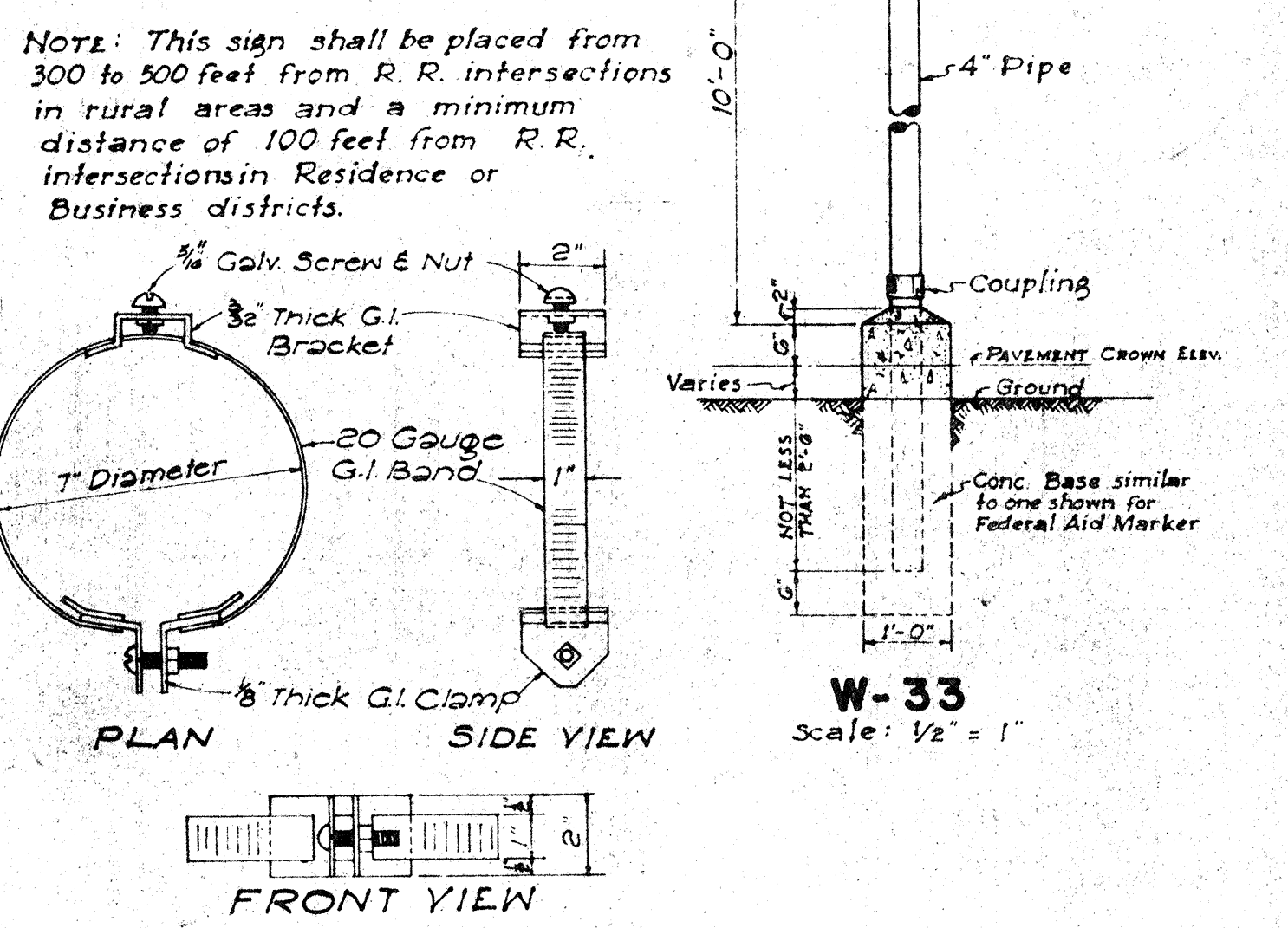
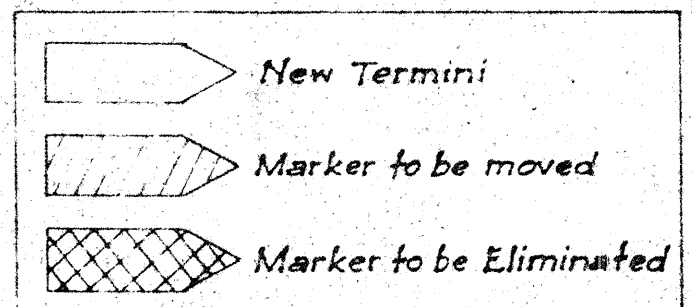
PLAN OF TOP



STANDARD C&C STREET SURVEY MONUMENT

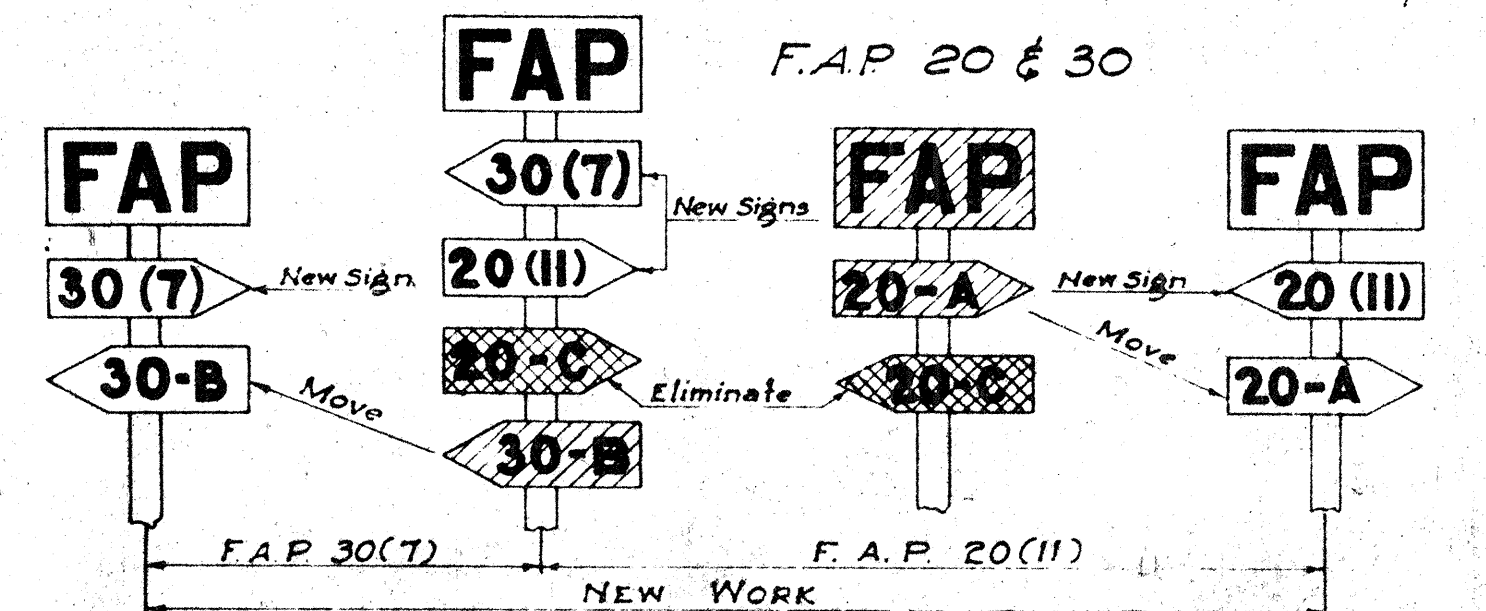


Note: The fitting at right, to be installed on sign posts as shown on plans.



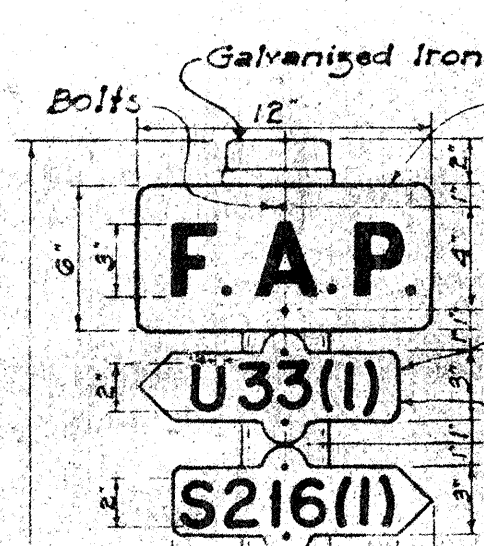
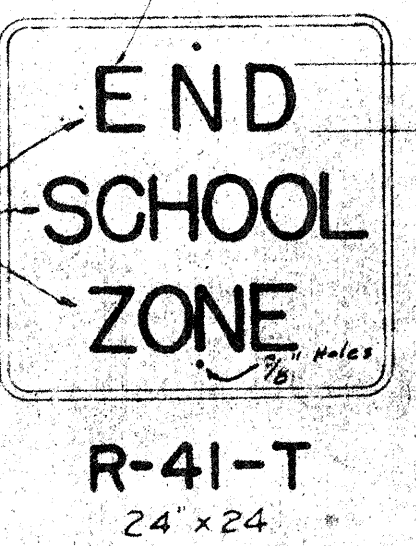
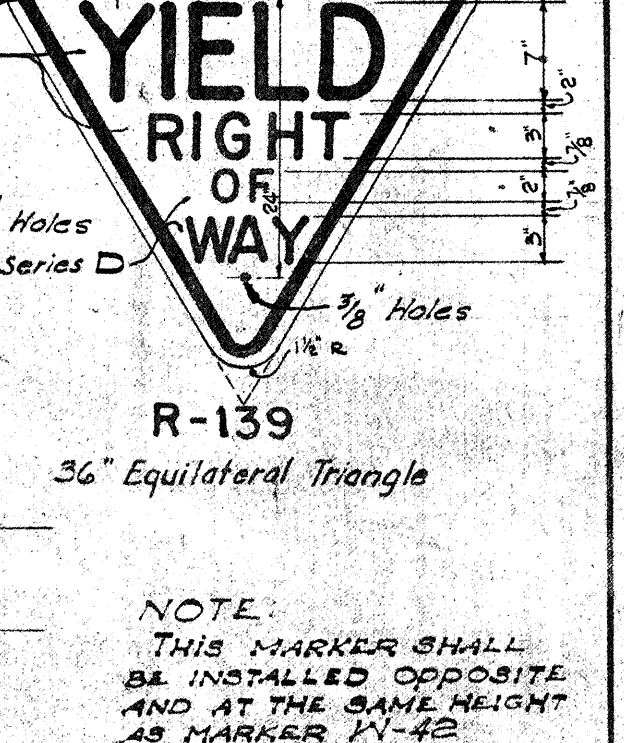
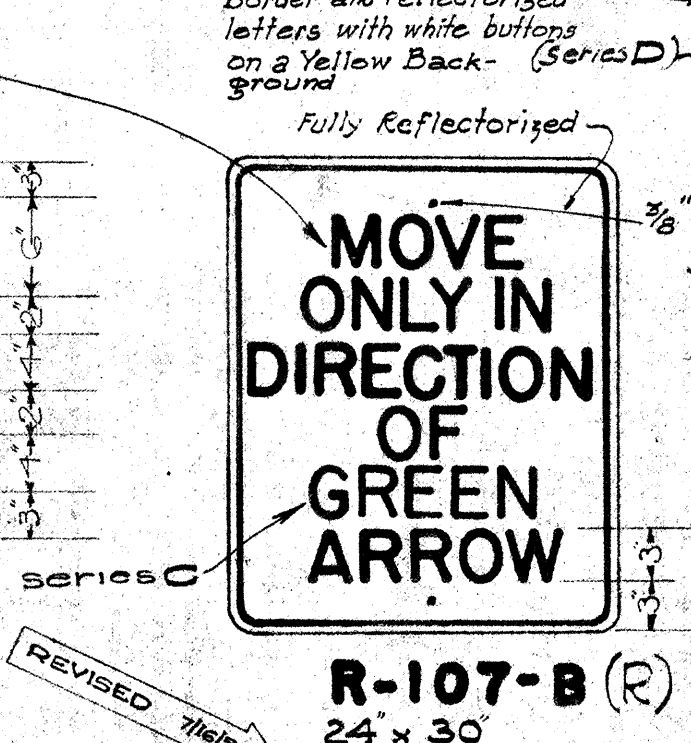
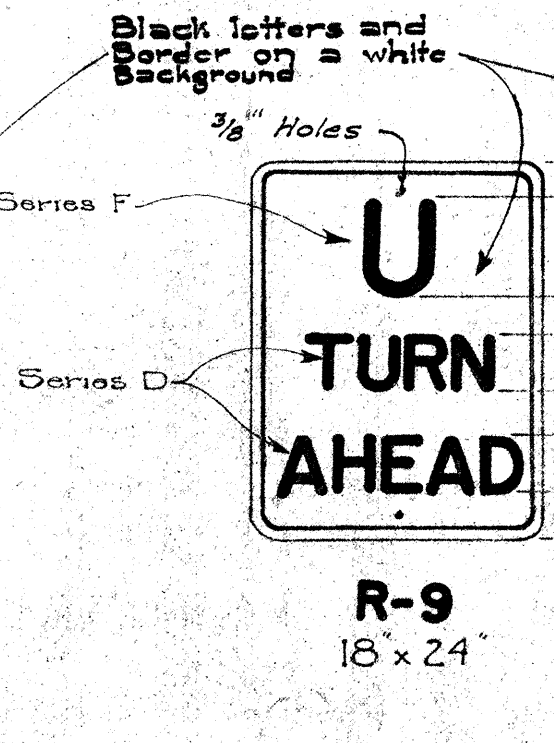
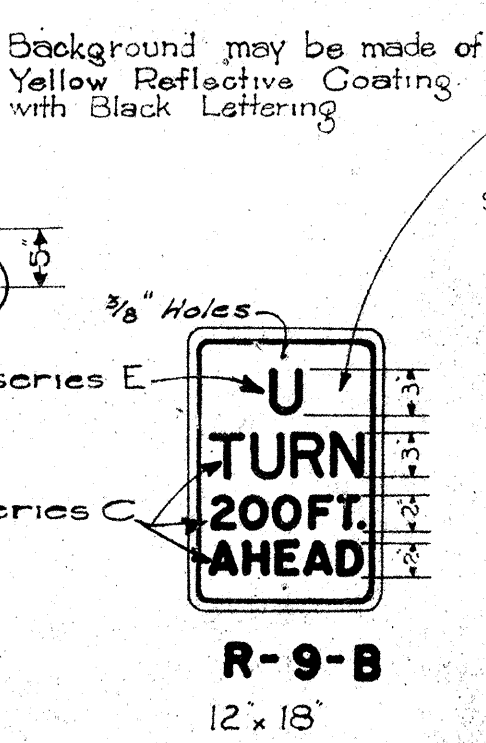
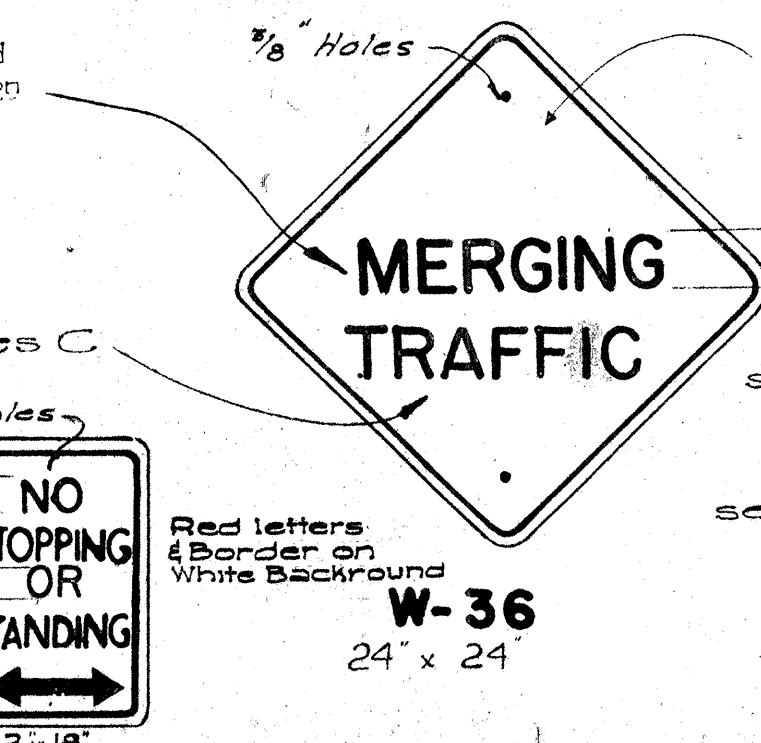
ADJUSTABLE BAND BRACKET FOR SUPPORTING TRAFFIC SIGNS ON MONOTUBE LIGHTING STANDARDS
Scale: 3/4" = 1'-0"

This product to be as shown in Catalogue No 48 of Calophote Corp or equal.



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.

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



ARRANGEMENT OF MARKERS

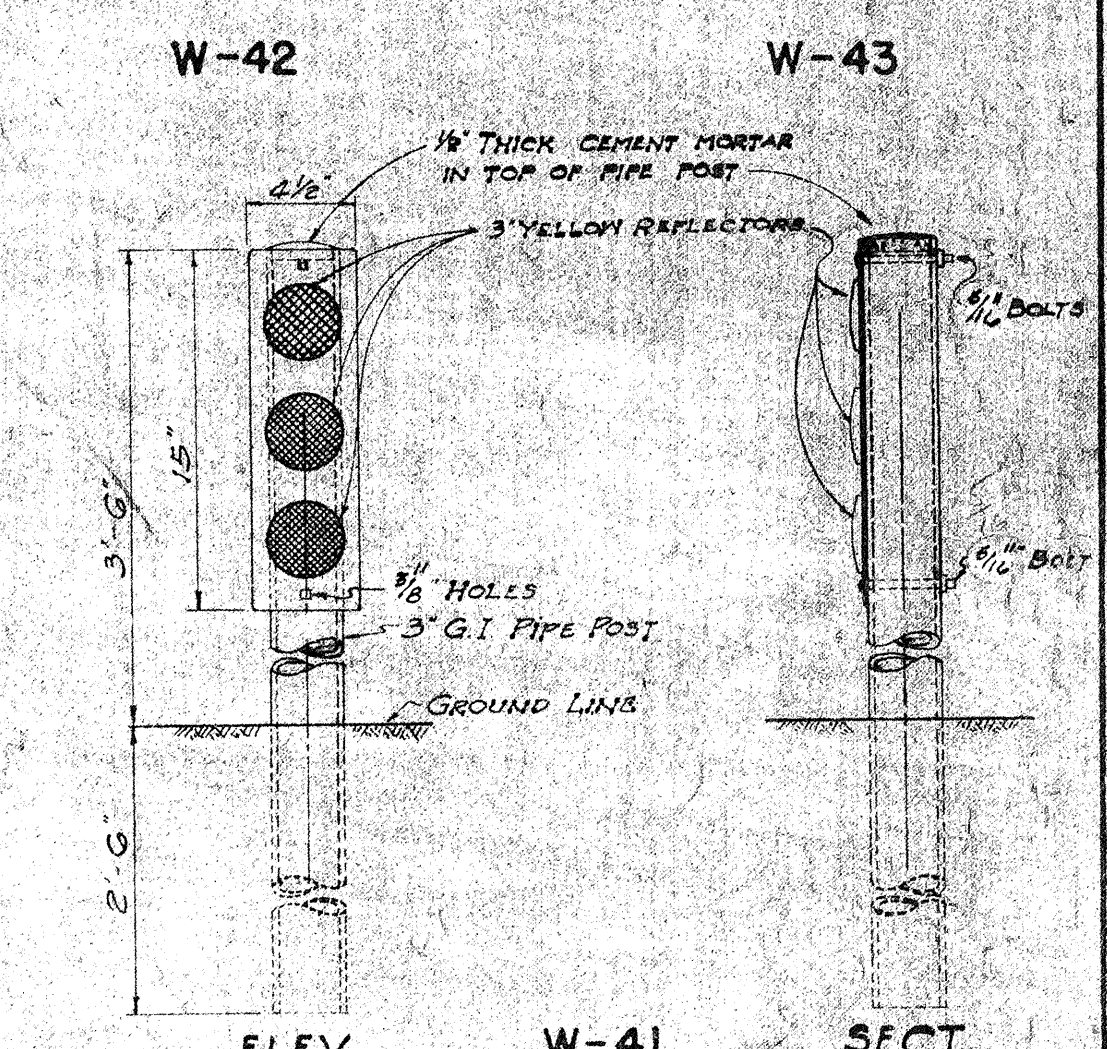
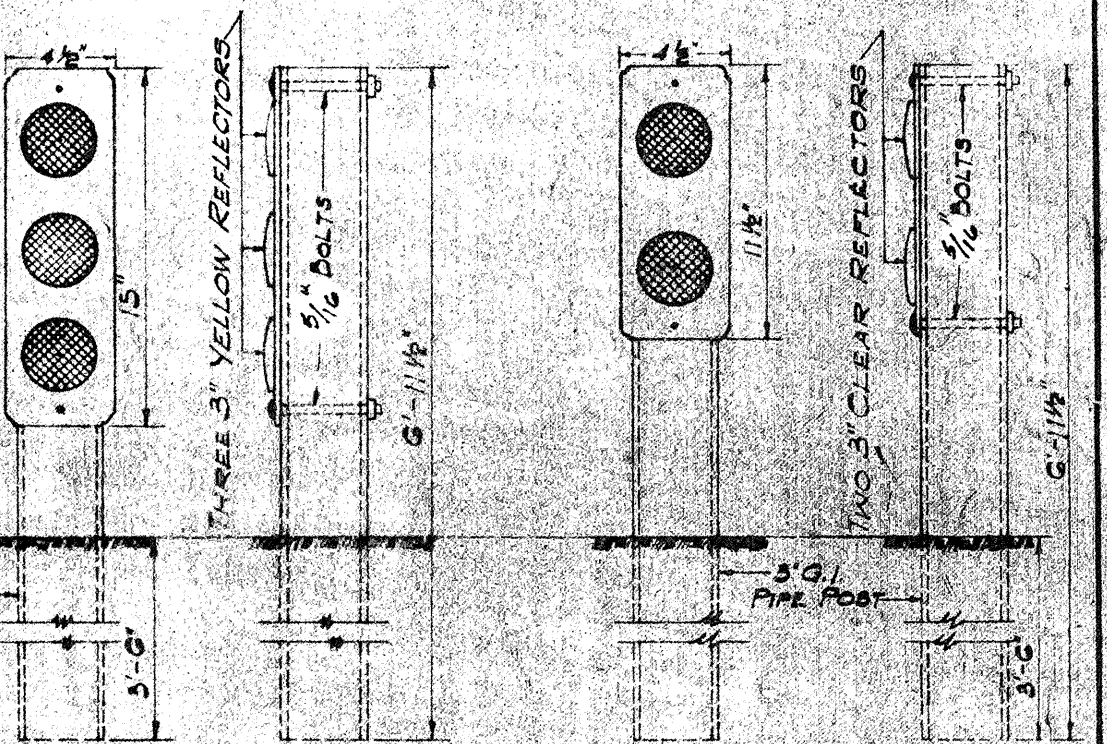
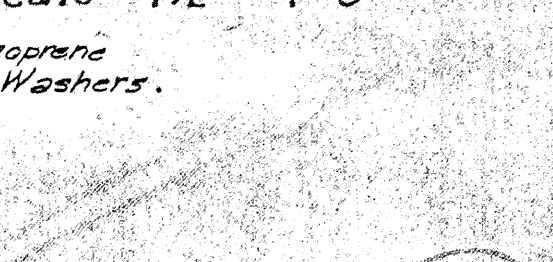
One F.A.P. Marker and one plate shall be placed at the beginning and end of each isolated F.A. Project. Where two F.A. Projects adjoin, a single marker and two Number plates shall be placed, each Number plate pointing in the direction of the project to which it refers.

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 1/4" galvanized bolts and washers in addition to stainless steel washers with neoprene rubber gaskets attached on front face of each plate.

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.

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



DETAIL OF SIGNS
SCALE: 1 1/2" = 1'-0"

Note: W-44 3-3 yellow reflectors mounted on plate
W-45 2-3 clear reflectors mounted on plate

JUNE 12, 1957 MAY 13, 1958
JULY 16, 1956

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

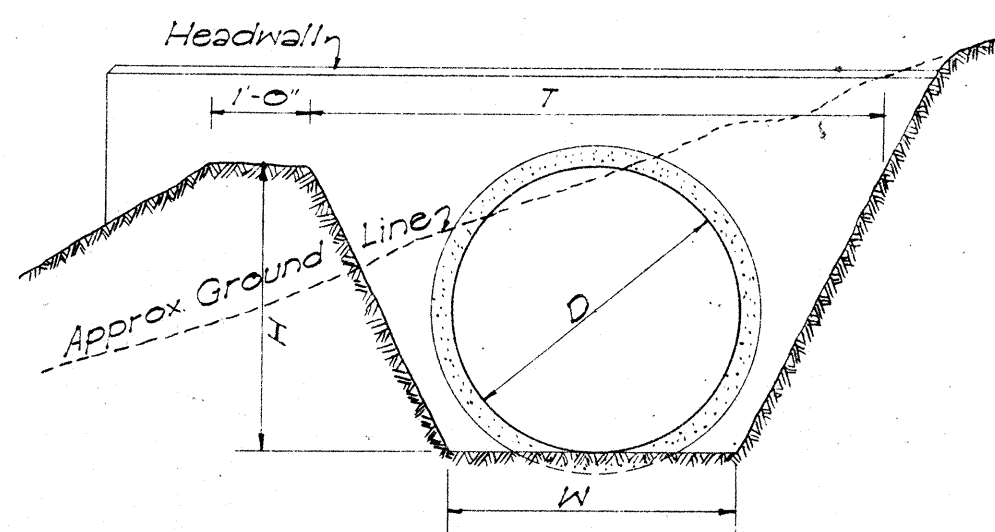
STANDARD DETAILS
F.A. MARKERS, MONUMENTS
SIGNS & LOCATION OF SIGNS
SCALES AS NOTED

SHEET OF SHEETS

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

DETAIL OF OUTLET DITCH

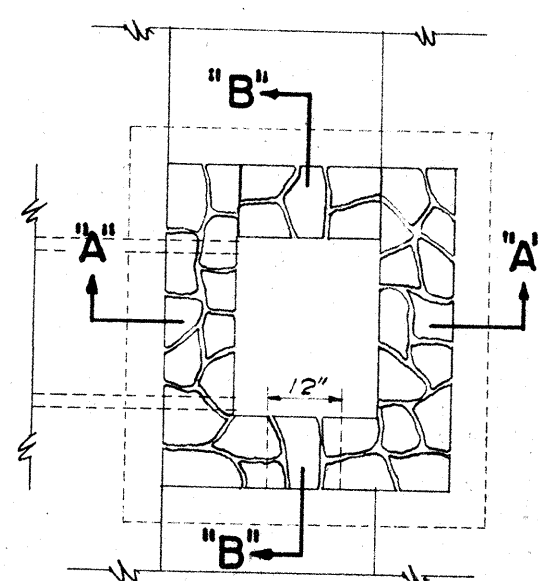
Scale: 1/2" = 1'-0"



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:

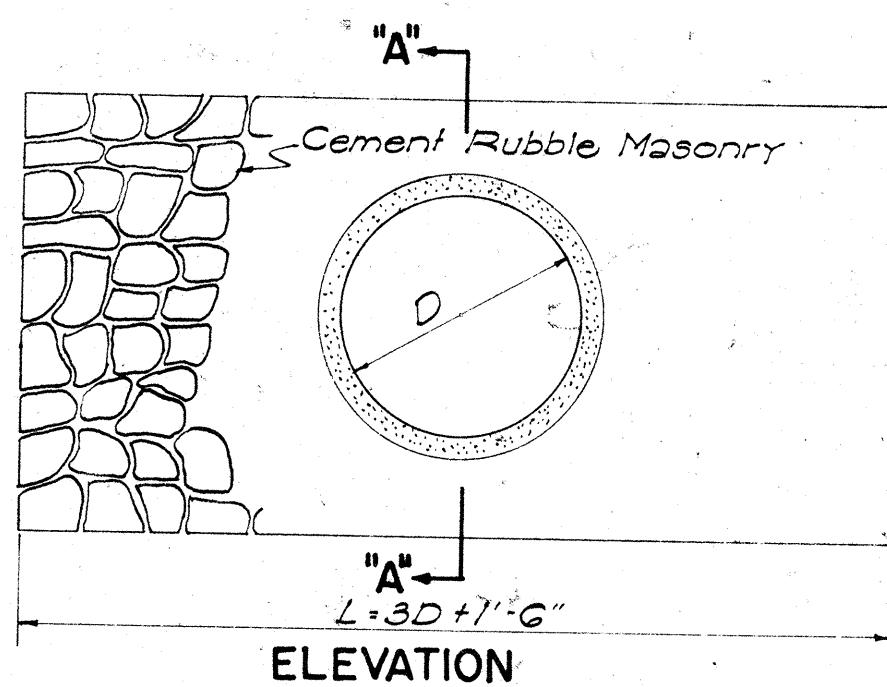
Dimension "X" is assumed as 2'-4" in figuring the above quantities.



DETAIL OF MASONRY DROP INTAKE

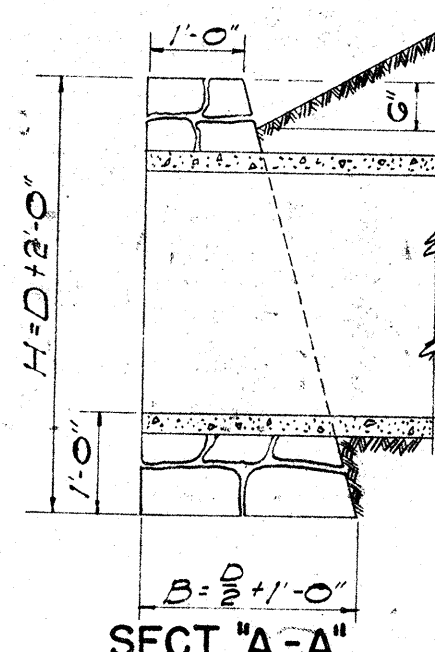
Scale: 3/8" = 1'-0"

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"



CONC. PIPE CULVERT

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

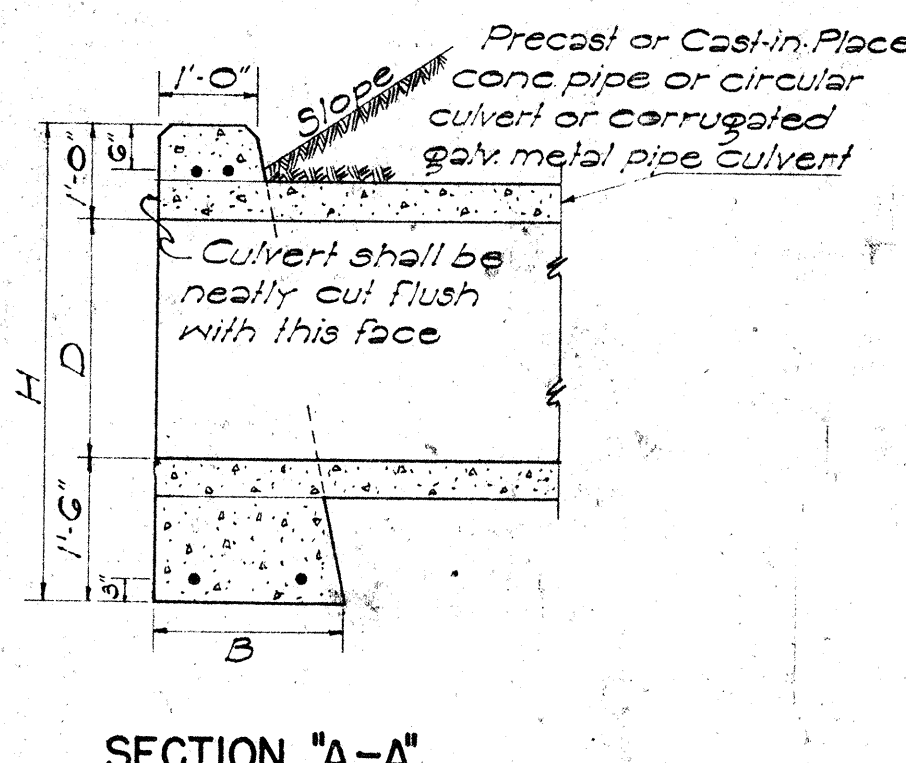
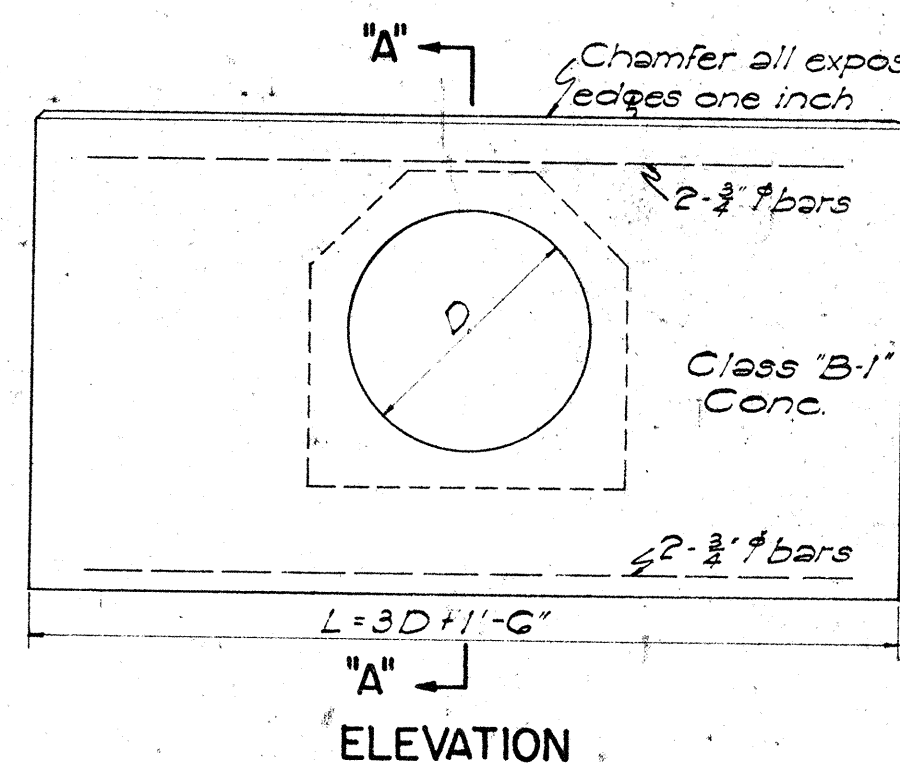
DATA - CAST-IN-PLACE CONC. CULVERT			
D	d	W	Cu Yd per Ft.
18"	4"	2'-2"	0.11
24"	4 1/2"	2'-5"	0.14
30"	5"	3'-4"	0.19
36"	5 1/2"	3'-11"	0.26

CAST-IN-PLACE CONC. CULVERT

DATA FOR CONC. HEADWALL				Cast-in-Place Conc. Culvert	Conc. Pipe Culvert	Steel for One Headwall
D	B	L	H	Cu Yd.	Cu Yd.	No. of Bars Size Length Lbs.
18"	1'-6"	6'-0"	4'-0"	0.02	1.00	4 #4 5'-6" 33
24"	1'-6"	7'-6"	4'-0"	1.28	1.38	4 #4 7'-0" 42
30"	2'-0"	9'-0"	5'-0"	1.95	2.17	4 #4 8'-6" 51
36"	2'-0"	10'-6"	5'-0"	2.45	2.74	4 #4 10'-0" 60
42"	2'-6"	12'-0"	6'-0"	3.87	4.66	4 #4 11'-6" 69
48"	2'-6"	13'-6"	6'-0"	4.66		4 #4 13'-0" 78

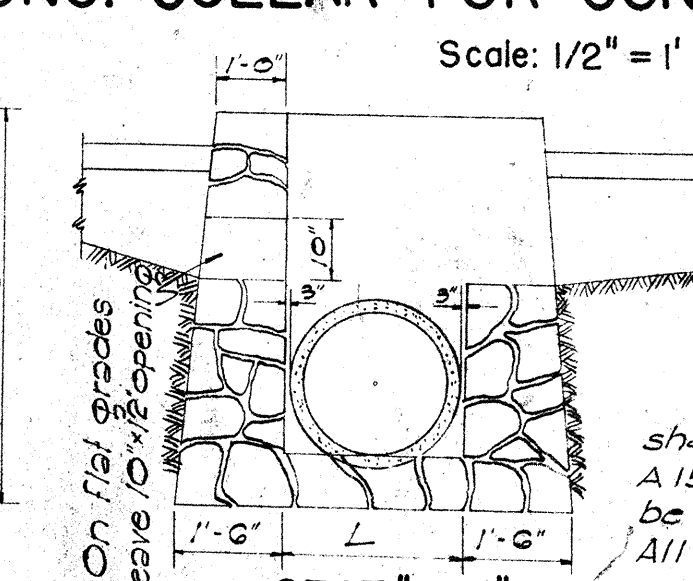
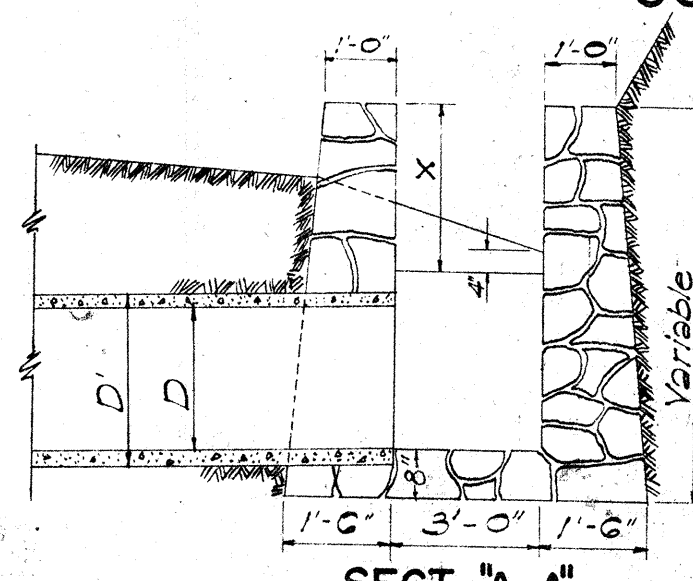
DETAIL OF CONCRETE HEADWALL

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



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

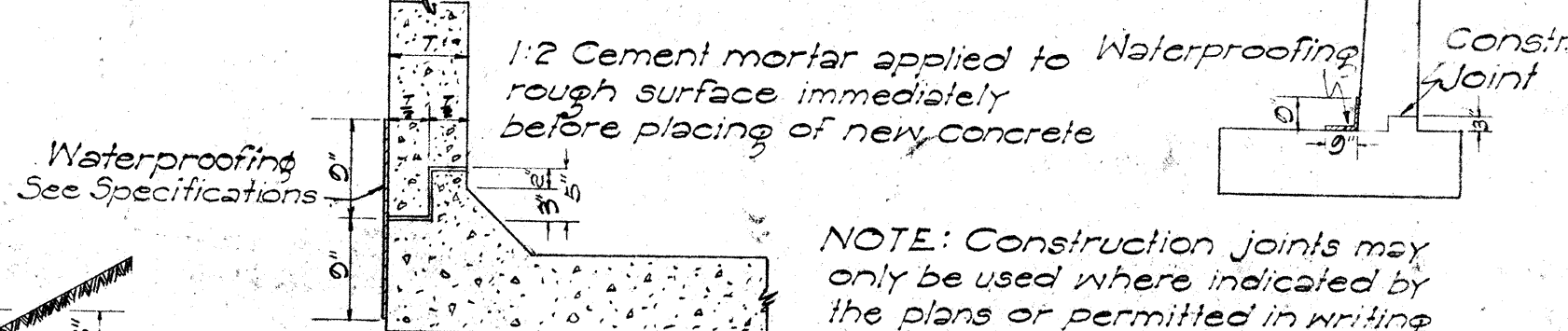
Scale: 1/2" = 1'-0"



REINFORCING BARS

All reinforcing bars for concrete shall be Billet Steel bars, ASTM A15, intermediate grade. Steel shall be made by the open-hearth process. All bars shall be deformed type conforming to ASTM A-305.

CONSTR. JOINT DETAILS

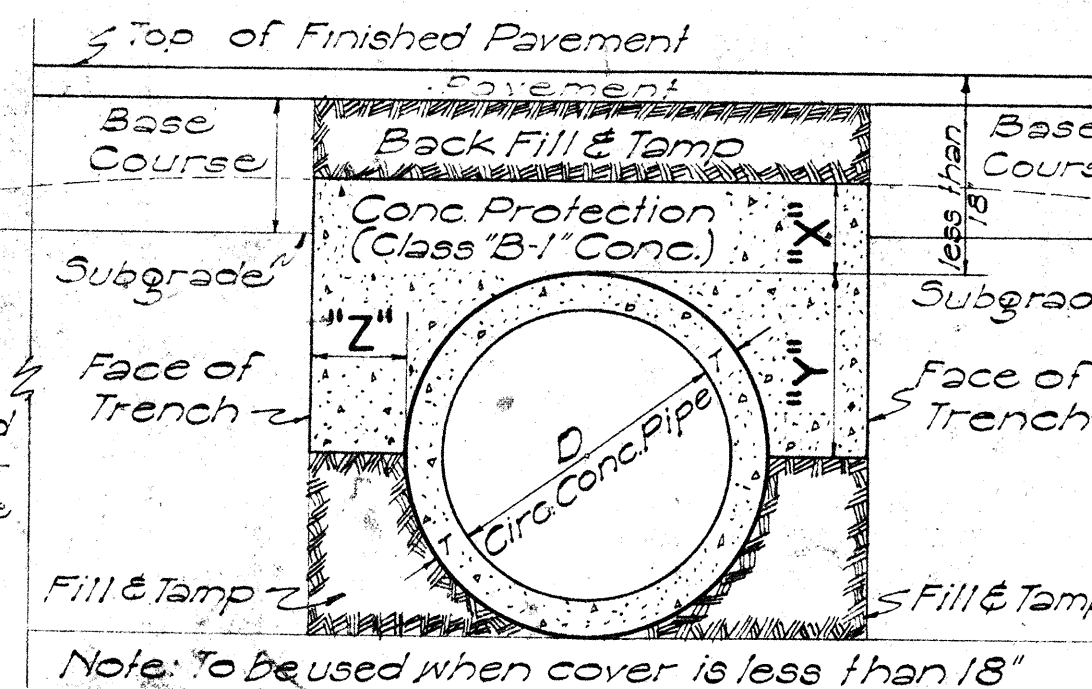


NOTE: Construction joints may only be used where indicated by the plans or permitted in writing by the Engineer.

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		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"

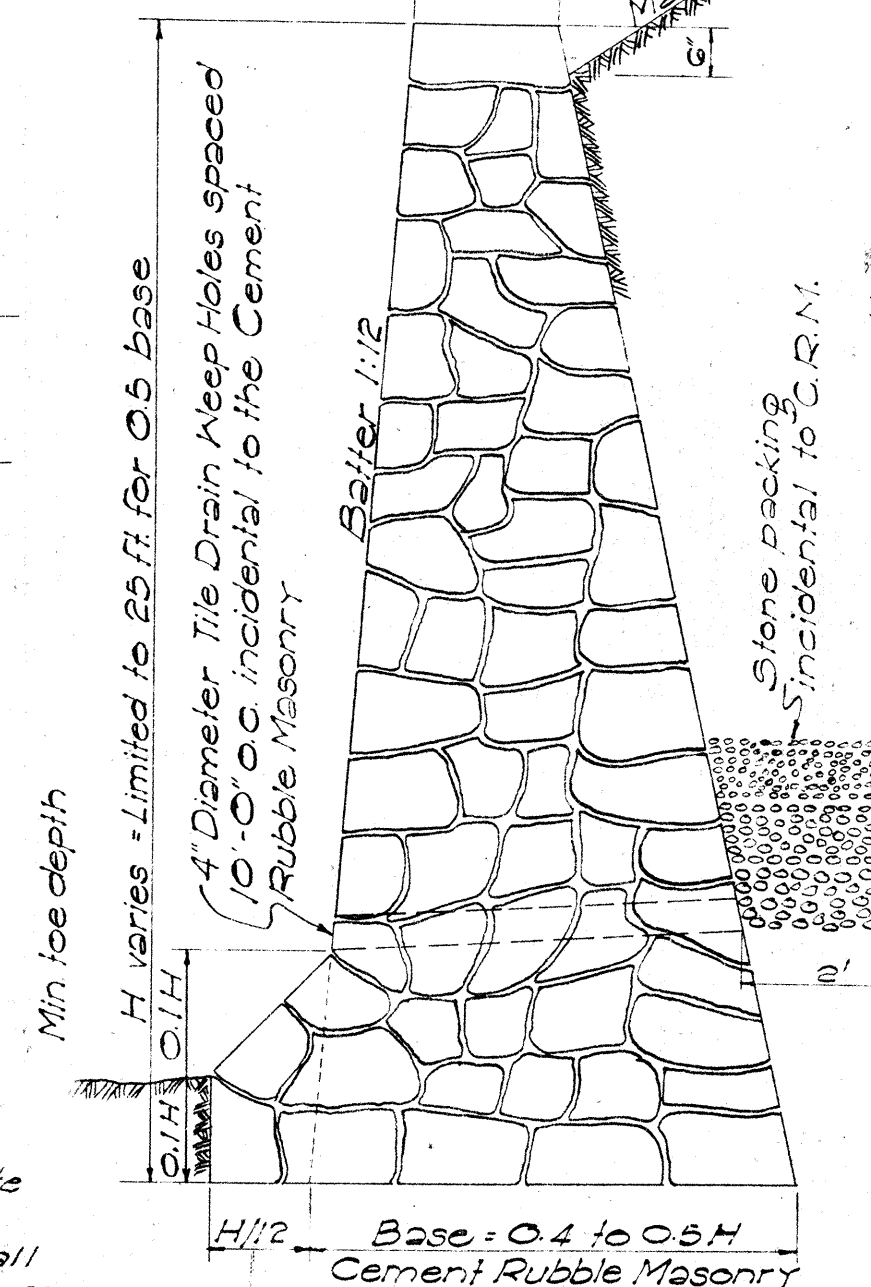


Note:

When subgrade is below top of jacket, it shall be fully compacted to this line and then re-excavated (struck) to proper subgrade. This surface shall be rolled again.

Note: To be used when cover is less than 18"

Note: To Resident Engineer
1) Consider economy of reinf. conc. for high retaining walls which did not originate on plan layout.
2) Elevation of weep holes to be determined by Resident Engineer. Holes to be placed as close to the existing ground line as local conditions permit.



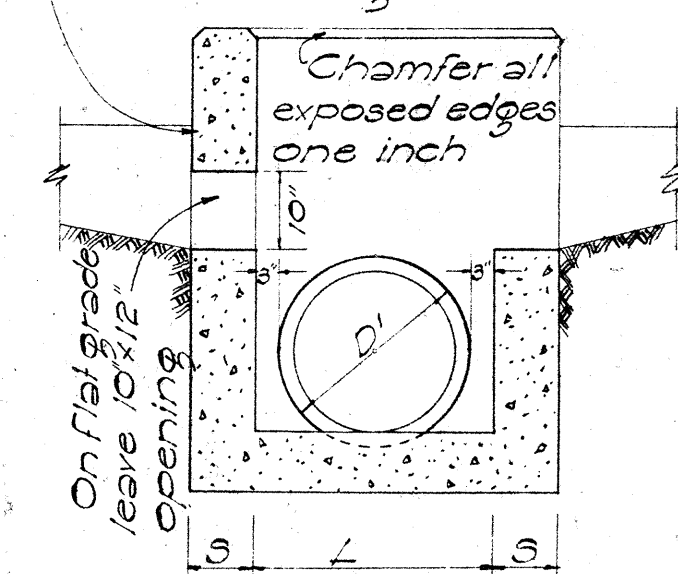
SECTION OF HIGH CEMENT RUBBLE MASONRY RETAINING WALL OR SEAWALL

SECTION OF LOW MASONRY RETAINING WALL OR SEAWALL

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

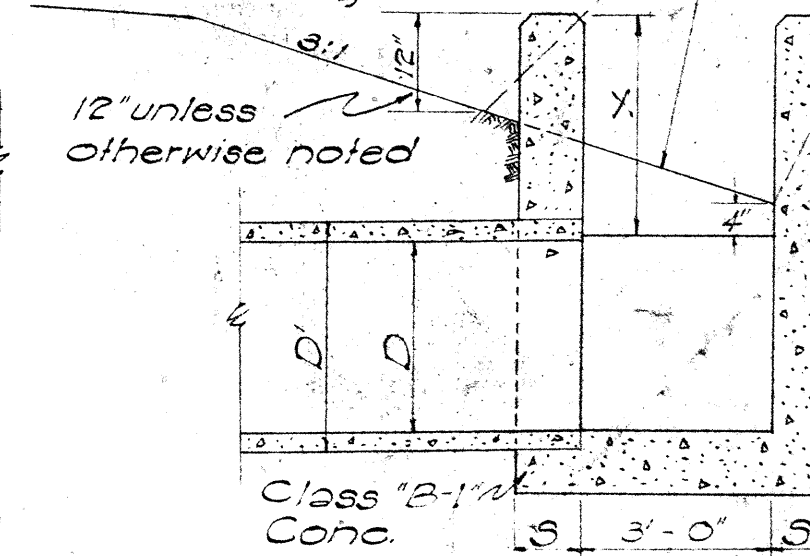


SECTION "B-B"

Where drainage comes from both sides lower this wall to same elevation as shown for opposite wall.

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

Top limits of structure excavation other than at bridges.



SECTION "A-A"

DETAIL OF CONCRETE DROP INTAKE

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

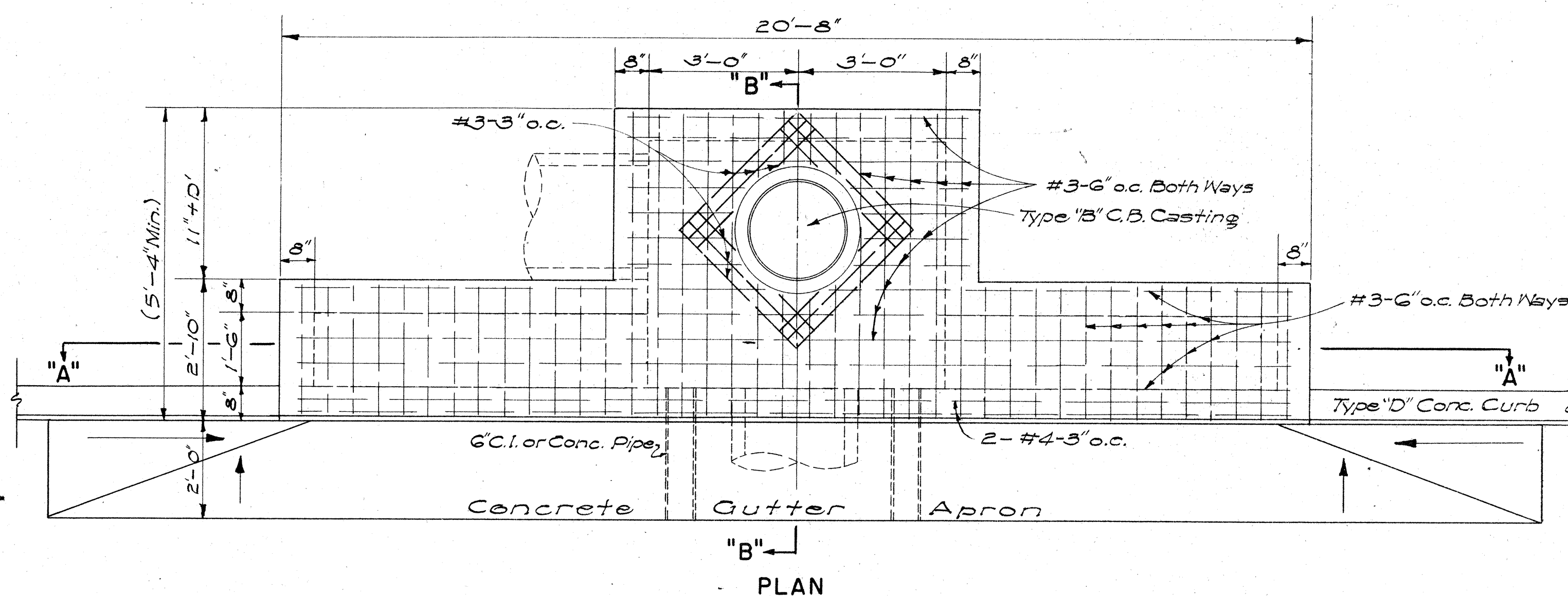
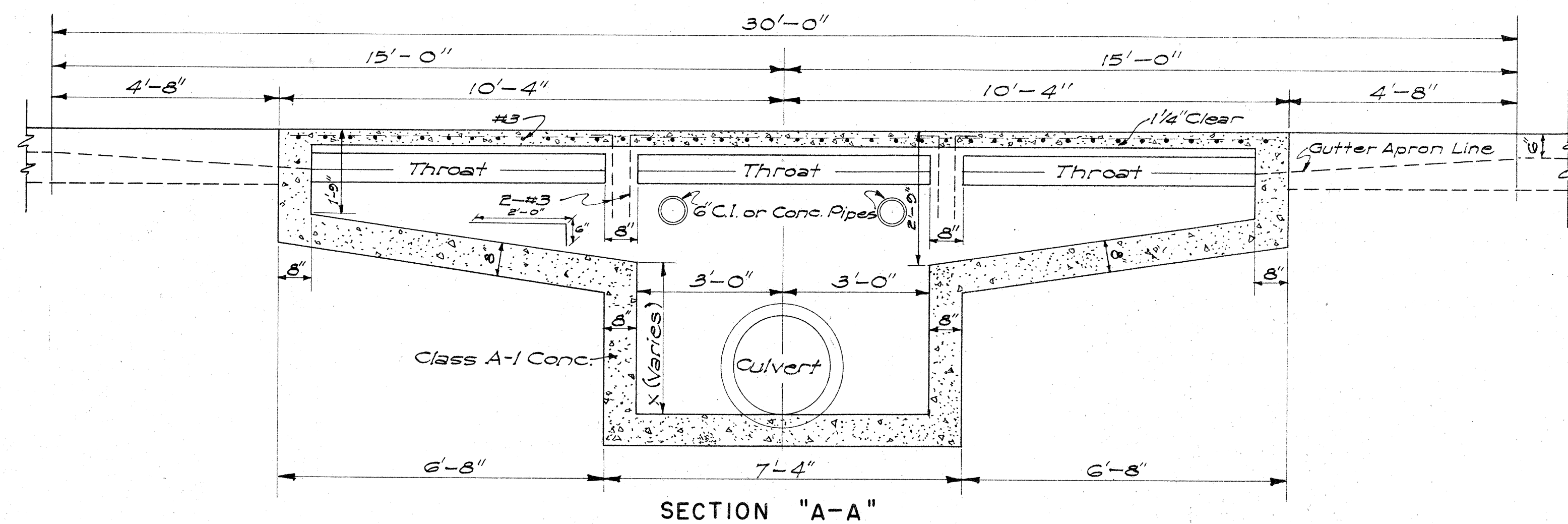
HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

STANDARD DETAILS
DROP INTAKES, RETAINING WALLS,
HEADWALLS, CONSTRUCTION JOINTS
SCALES AS NOTED

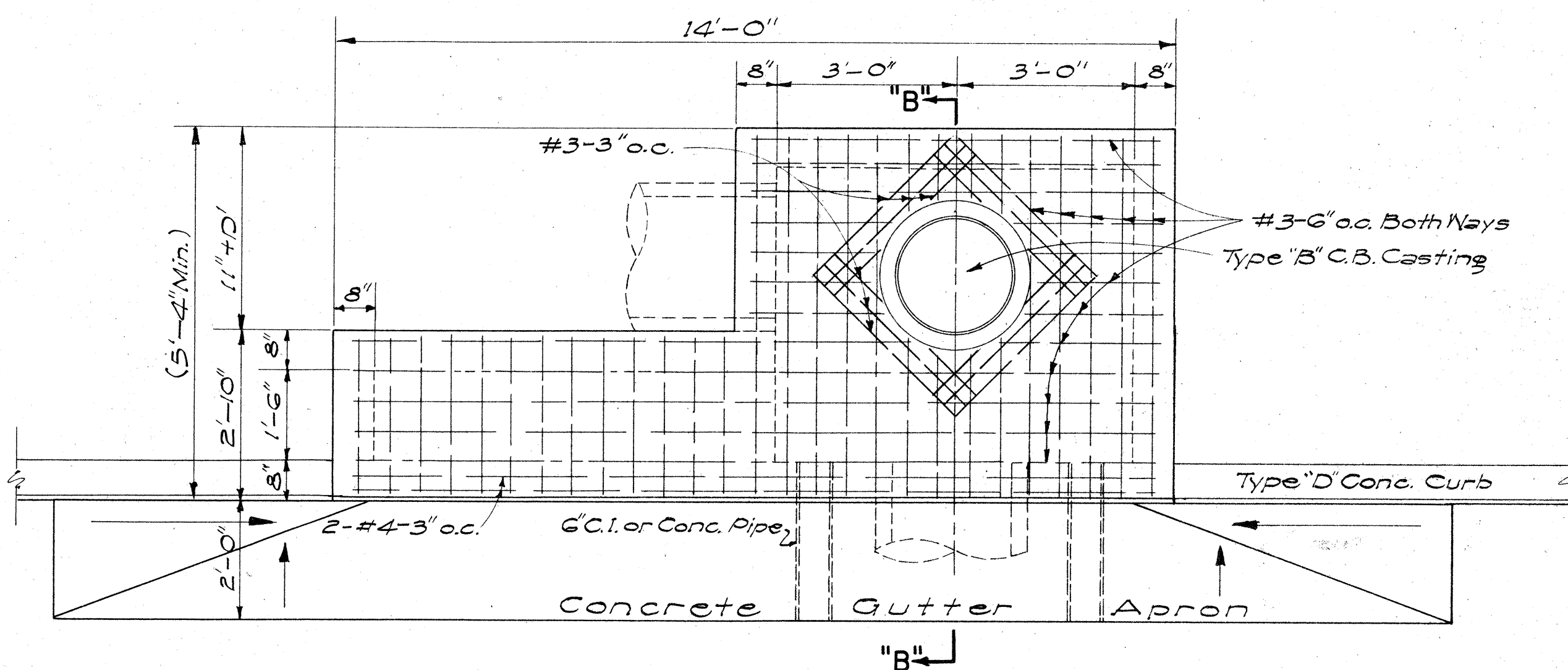
APPROVED: DATE: Aug. 25, 1959
STATE HIGHWAY ENGINEER

SHEET NO. OF SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY..... DESIGNED BY <u>C. M.</u> DRAWN BY <u>J. Y.</u> TRACED BY..... QUANTITIES BY..... CHECKED BY.....	DATE..... " " " " " "
NOTE BOOK		
No.		

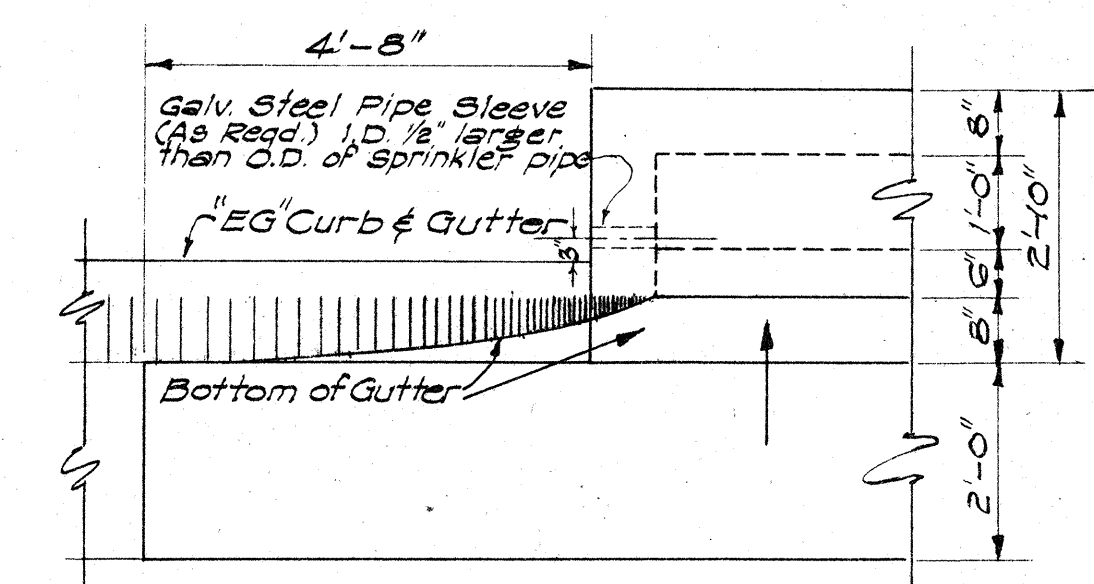
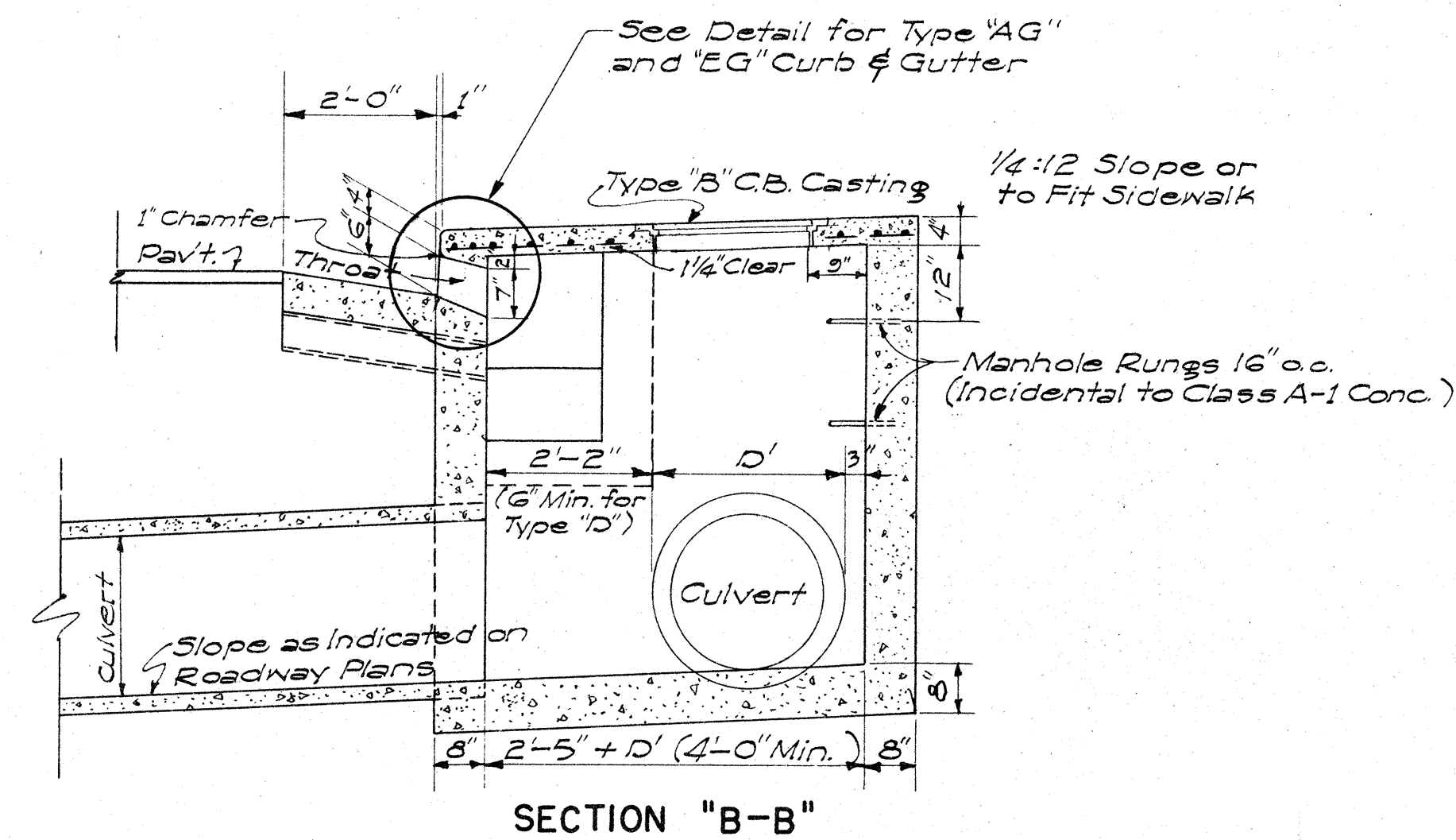


DETAIL OF TYPE "A" CATCH BASIN
SCALE: 1/2" = 1' - 0"

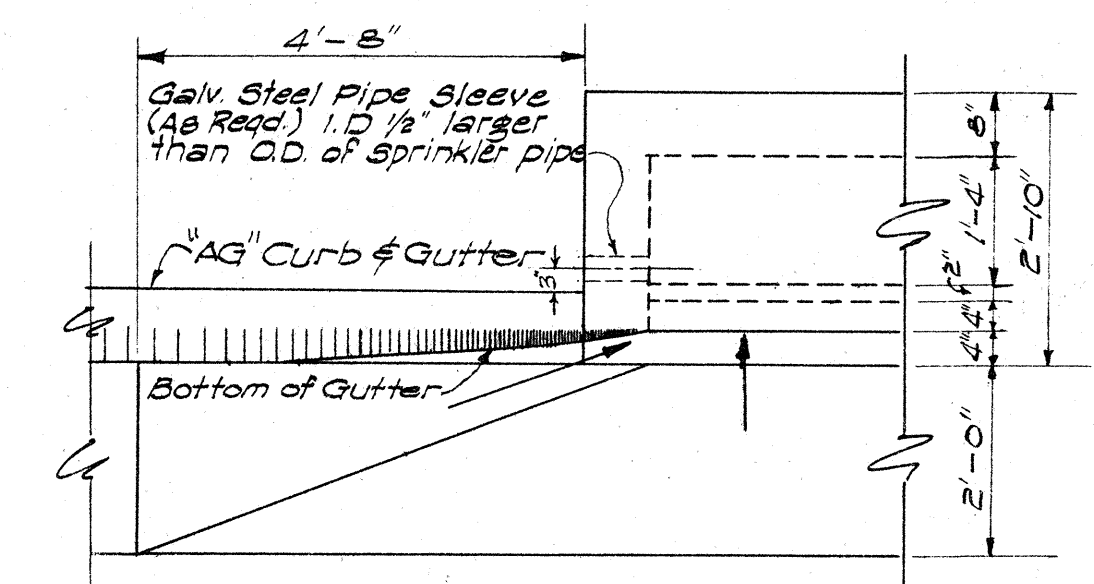


DETAIL OF TYPE "B" CATCH BASIN
SCALE: 1/2" = 1'-0"

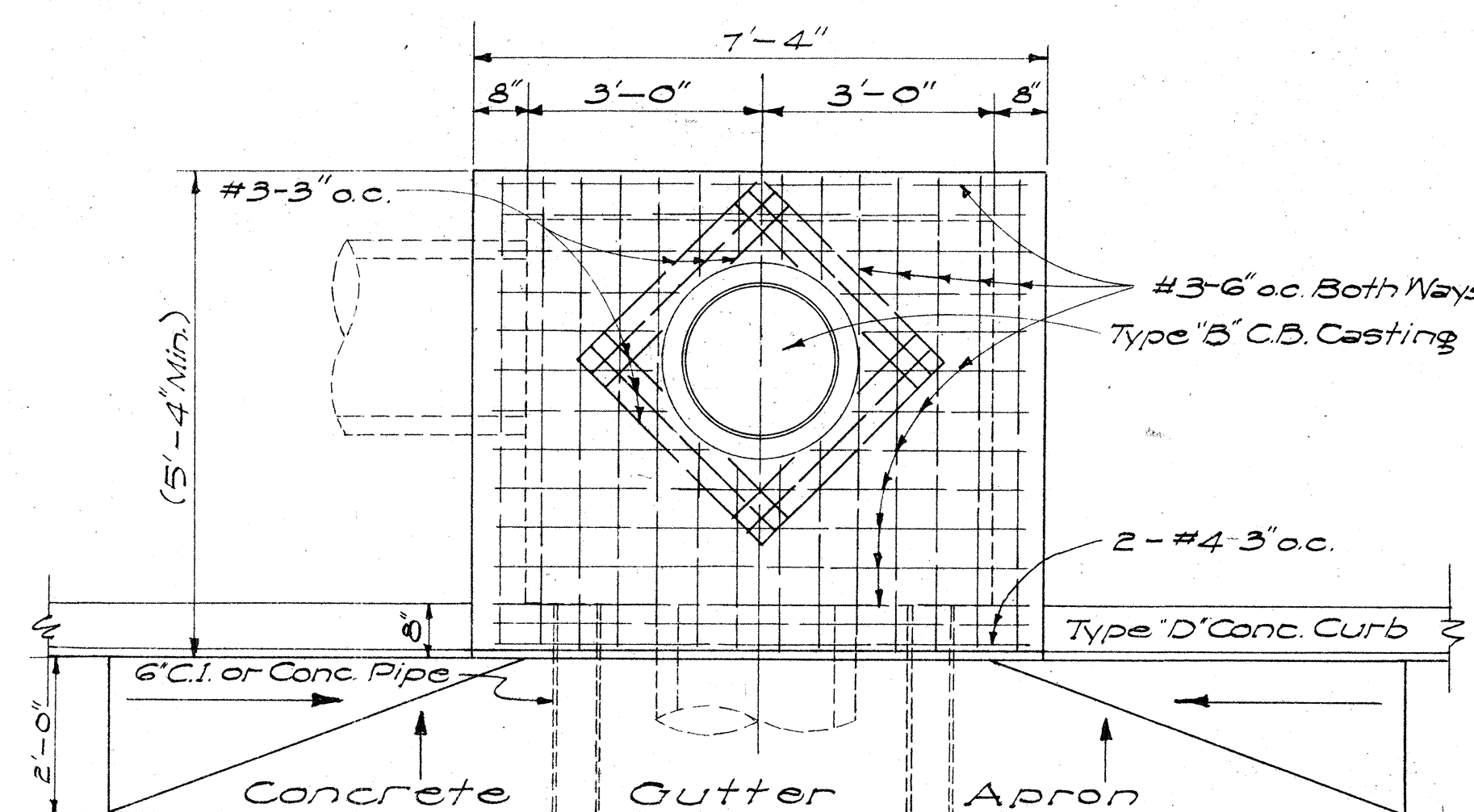
NOTE: TYPE "C" C.B. SIMILAR BUT OPPOSITE HAND



DETAIL OF CATCH BASIN WITH TYPE "EG" CURB & GUTTER

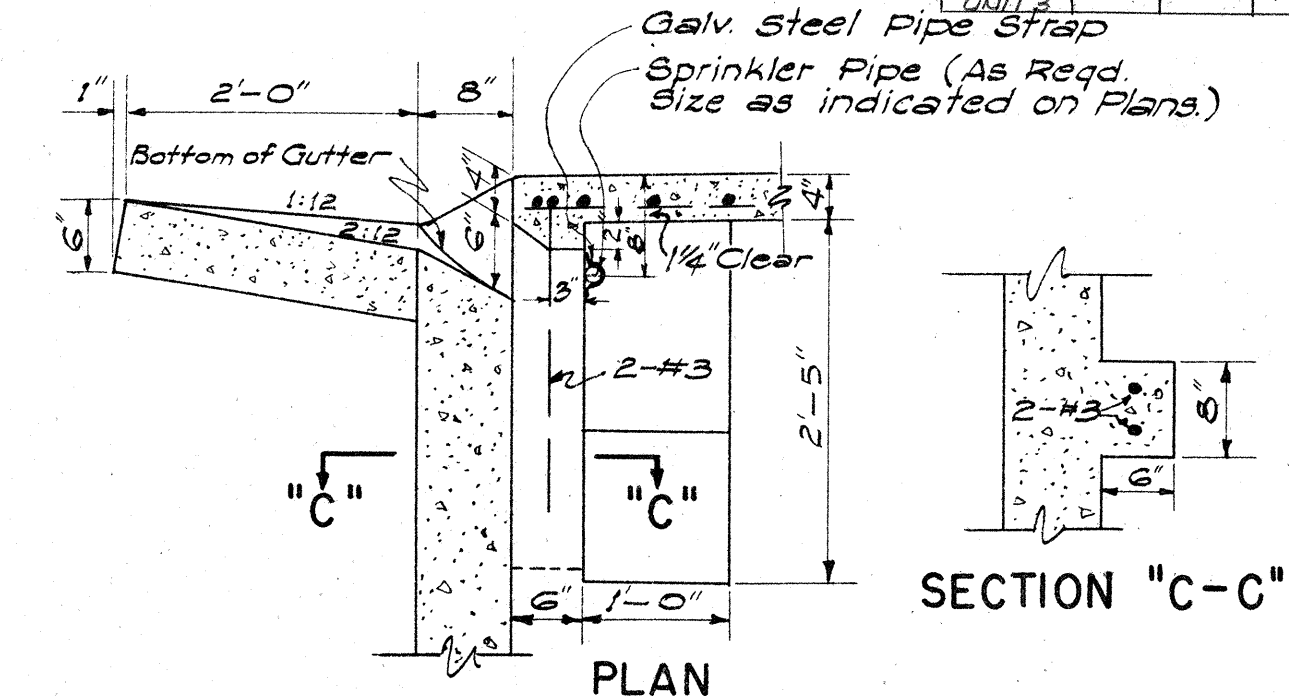


DETAIL OF CATCH BASIN
WITH TYPE "AG" CURB & GUTTER
SCALE: 1/2" = 1'-0"

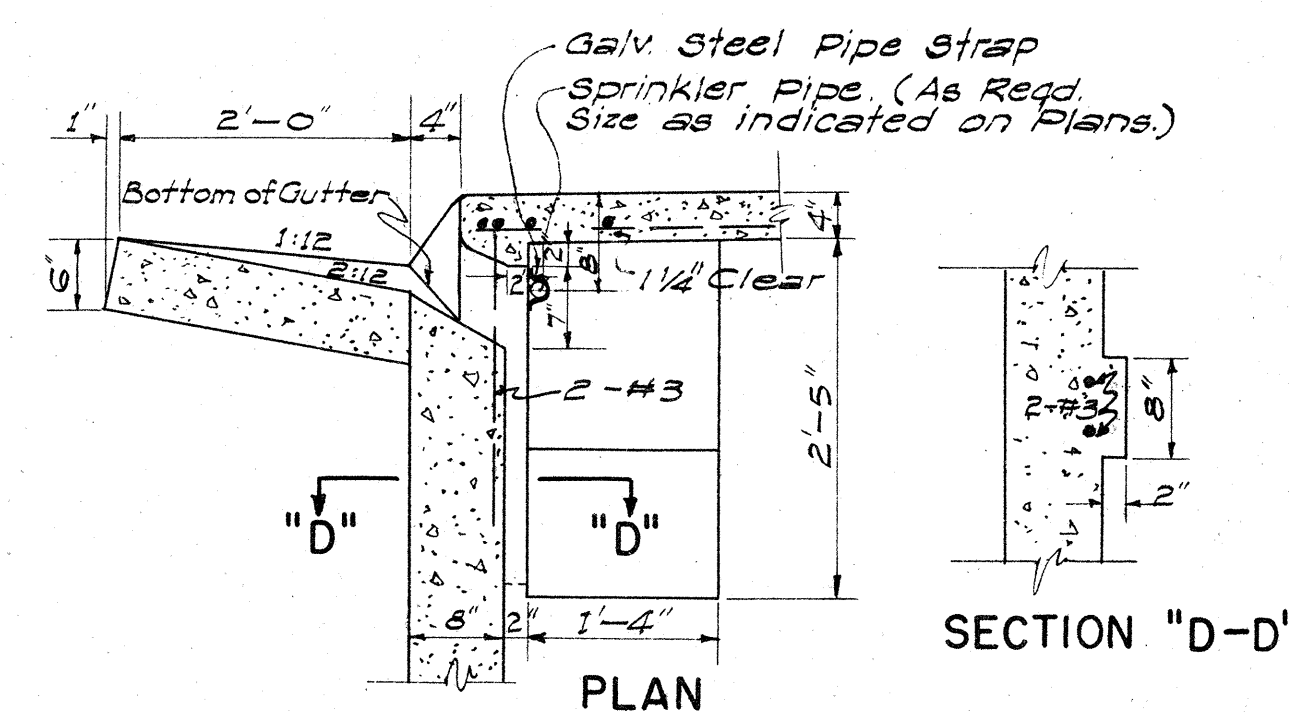


DETAIL OF TYPE "D" CATCH BASIN
SCALE: 1/2" = 1'-0"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	115-0-0238 UNITS	1950	66E	70

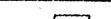
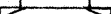


THROAT DETAIL FOR
TYPE "EG" CURB & GUTTER
SCALE: 3/4" = 1' - 0"



THROAT DETAIL FOR
TYPE "AG" CURB & GUTTER
SCALE: 3/4" = 1' - 0"

ESTIMATED QUANTITIES

Type	Class A-I Conc.	Struct. Exc.	Reinf. Steel	Gutter Length
"A" 	7.5 c.y.	24.7 c.y.	145 lb.	30'-0"
"B" 	6.0 c.y.	21.5 c.y.	108 lb.	23'-4"
"C" 	6.0 c.y.	21.5 c.y.	108 lb.	23'-4"
"D" 	4.9 c.y.	16.5 c.y.	77 lb.	16'-8"

NOTES:

1. Quantities based on X=3'-0" and D=30"
2. Quantities do not include concrete for Gutter Apron.
3. The Contractor shall install 2'-6" Cast Iron or Concrete Pipes as incidental to Class A-1 Concrete for Construction Drainage.
4. Culvert shall leave C.B. from any position and any direction indicated by plans or ordered by the Engineer. Culvert may both enter and leave C.B. so that C.B. will also act as Manhole.
5. The Contractor shall install Galvanized Steel Pipe sleeves and Straps as incidental to Sprinkler System.

APPROVED: _____ DATE Aug 26, 1970

 STATE HIGHWAY ENGINEER

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
STANDARD DETAILS
CONCRETE CATCH BASINS

SCALES AS NOTED.

SHEET N^o OF SHEETS

SHEET No. 143 OF SHEETS

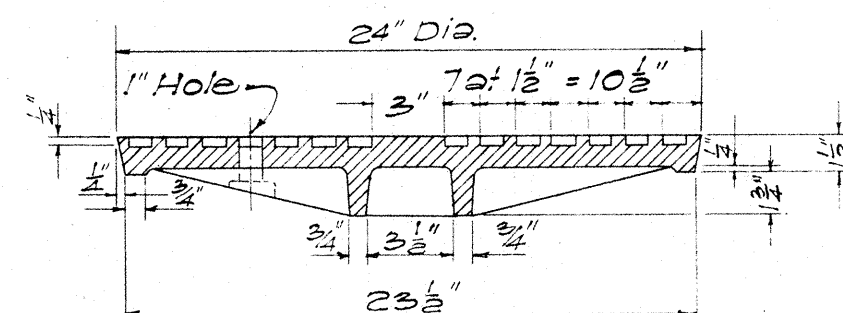
2/17/50
8/14/50

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	US-5-0708	1960	66F	70
		BU-012-10	1960	101F	118
		BU-005-10	1960	94F	115

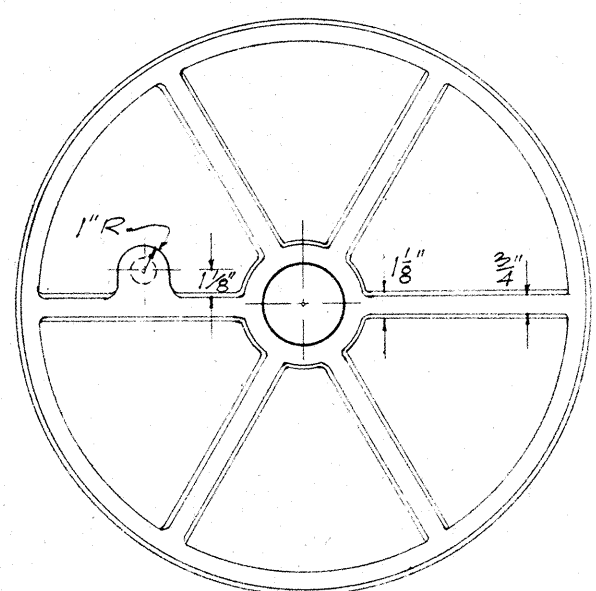
NOTE: Stock Pattern From Novelty Foundry ~ Honolulu



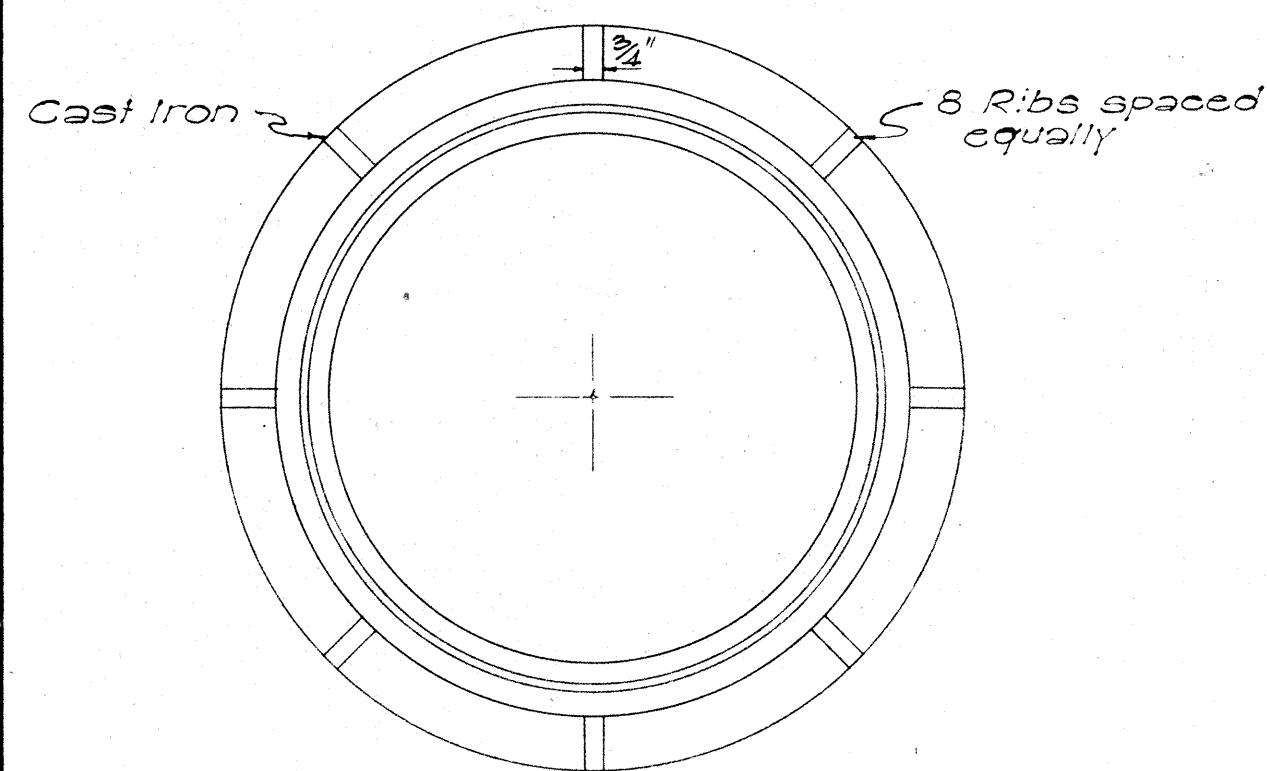
TOP VIEW OF COVER



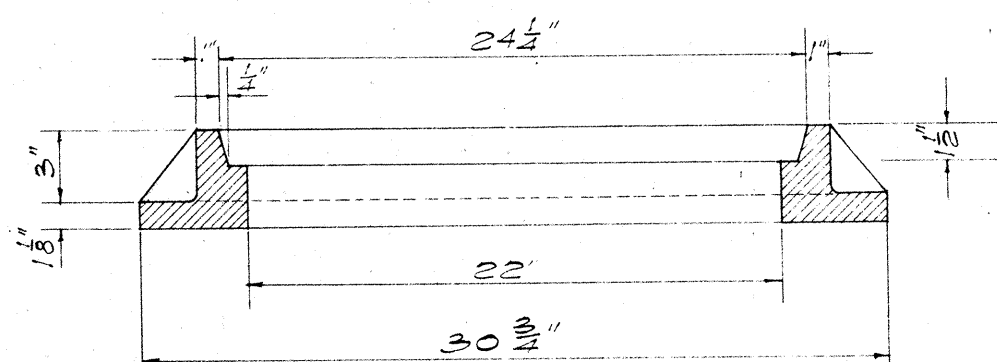
SECTION



BOTTOM VIEW OF COVER

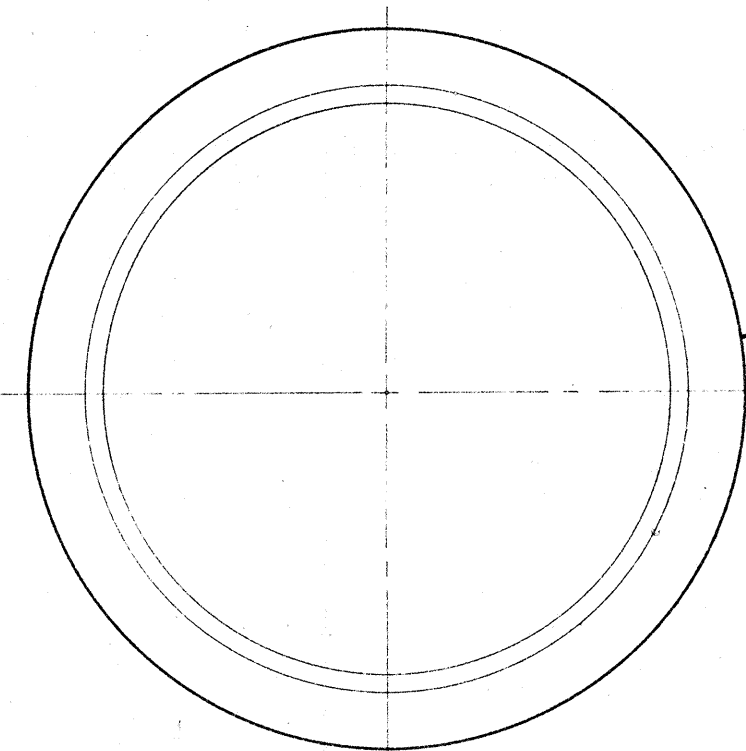


PLAN OF RIM

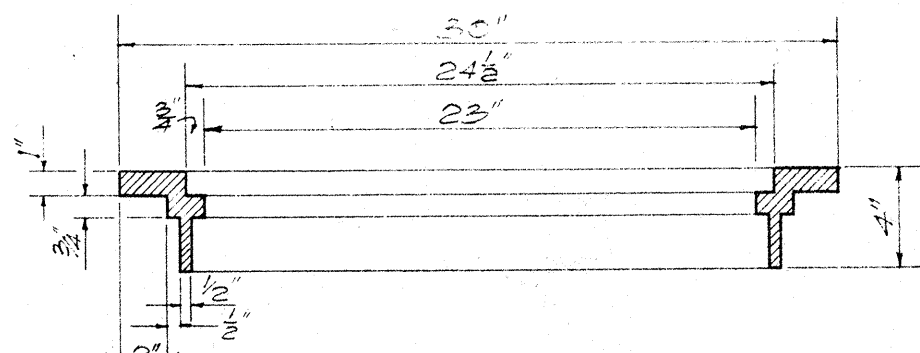


SECTION OF RIM
DETAILS OF TYPE "C"
MANHOLE CASTINGS

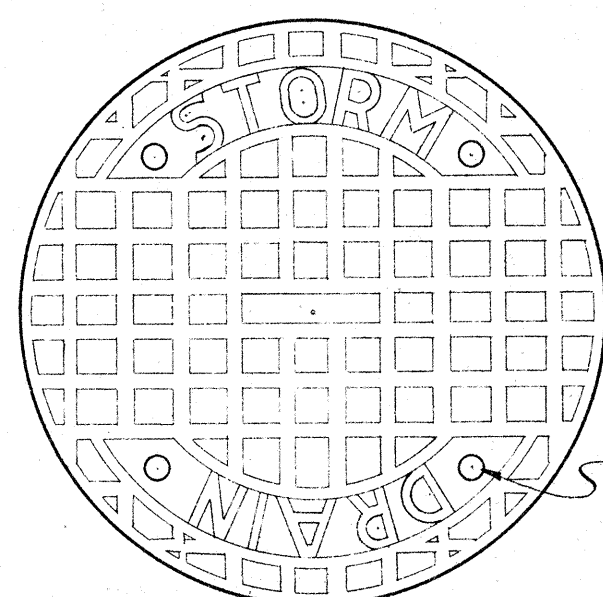
SCALE: 1-1/2" = 1'-0"



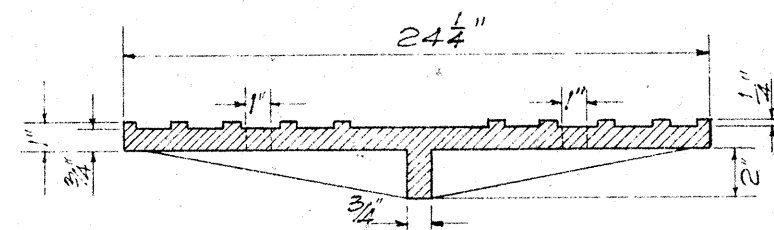
PLAN OF RIM



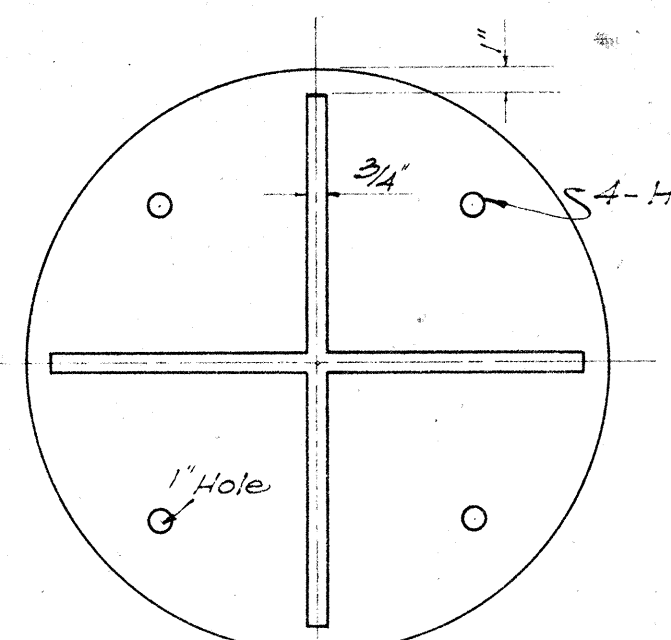
SECTION OF RIM



TOP VIEW OF COVER



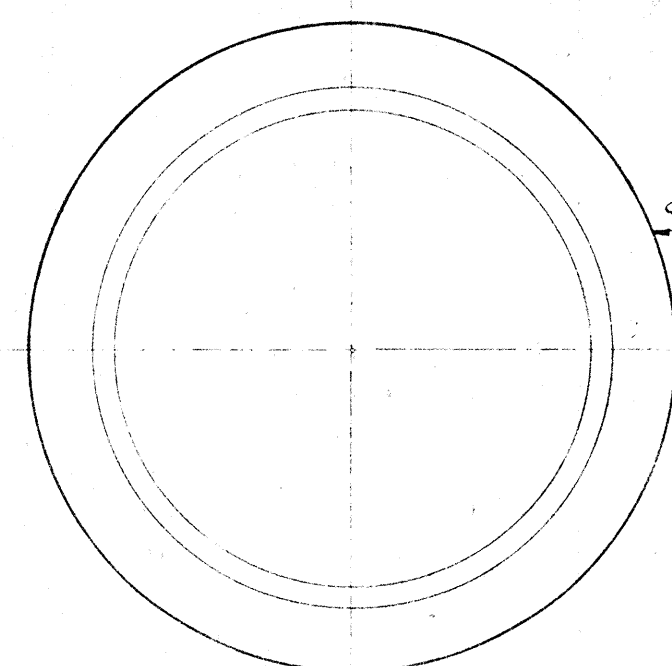
SECTION



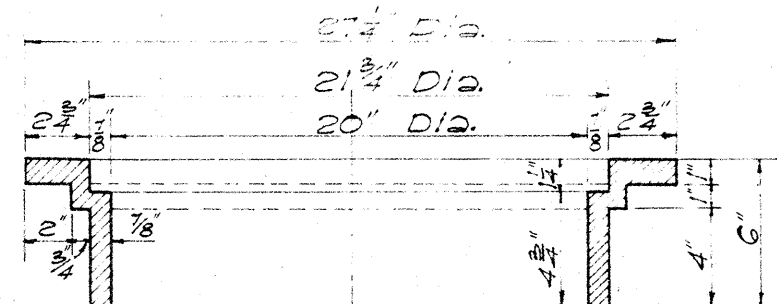
BOTTOM VIEW OF COVER

DETAILS OF TYPE "B"
CATCH BASIN CASTINGS

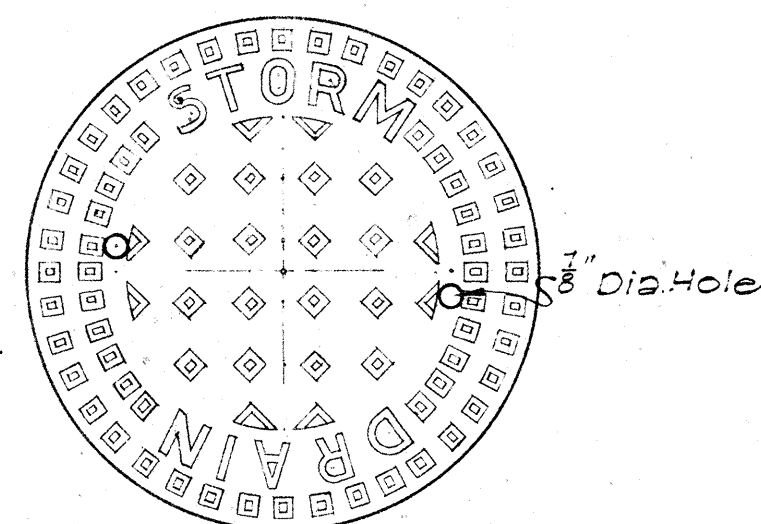
SCALE: 1-1/2" = 1'-0"



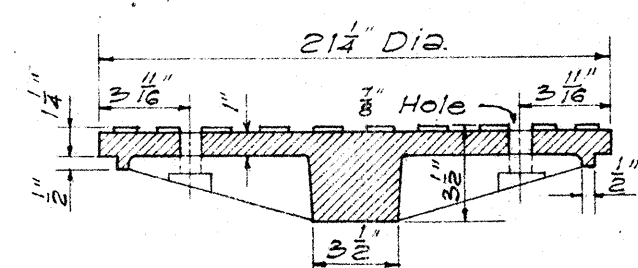
PLAN OF RIM



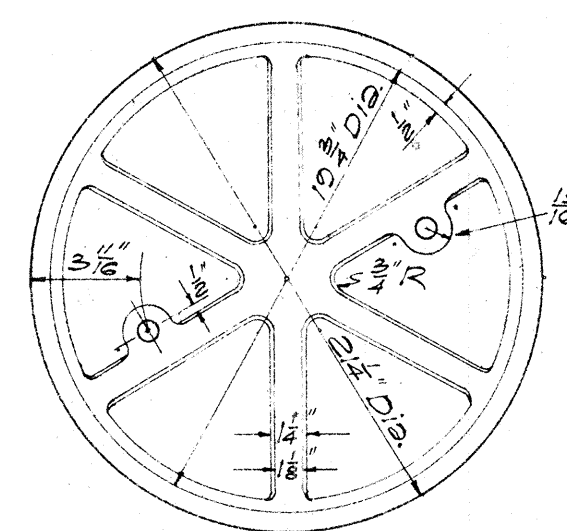
SECTION OF RIM



TOP VIEW OF COVER



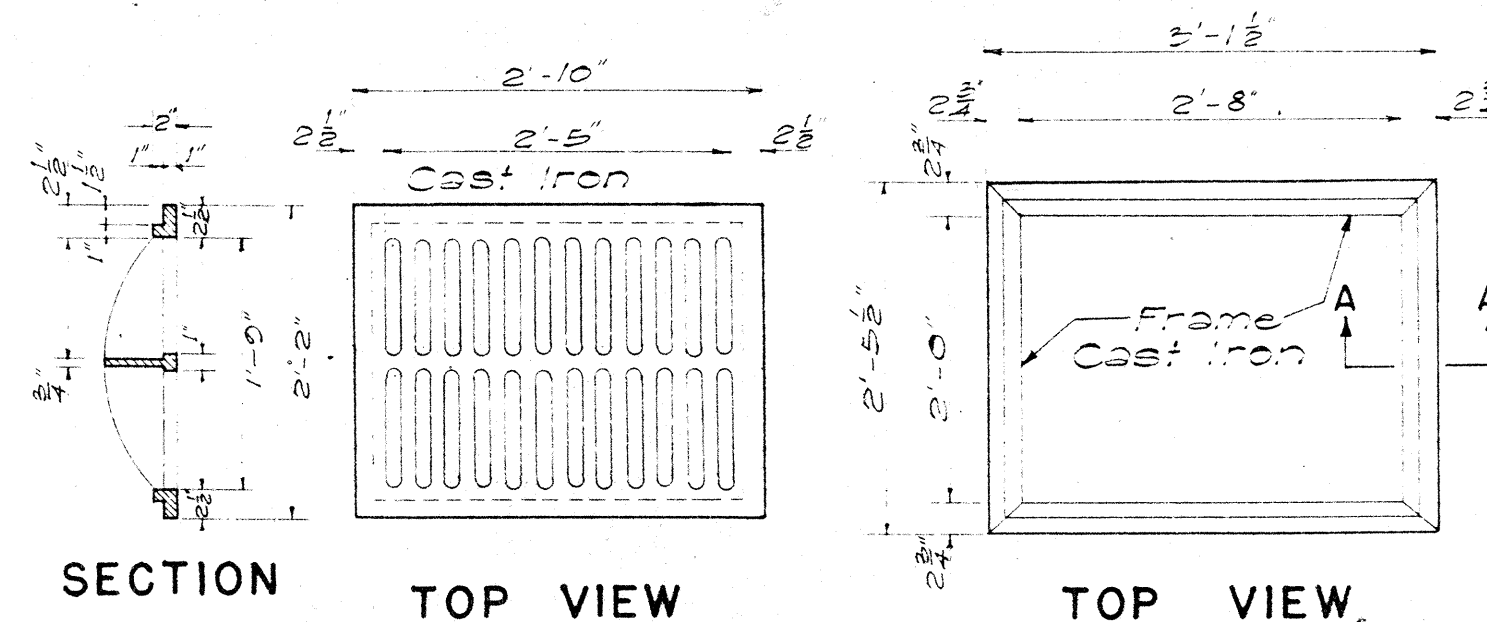
SECTION



BOTTOM VIEW OF COVER

DETAILS OF TYPE "A"
MANHOLE CASTINGS

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



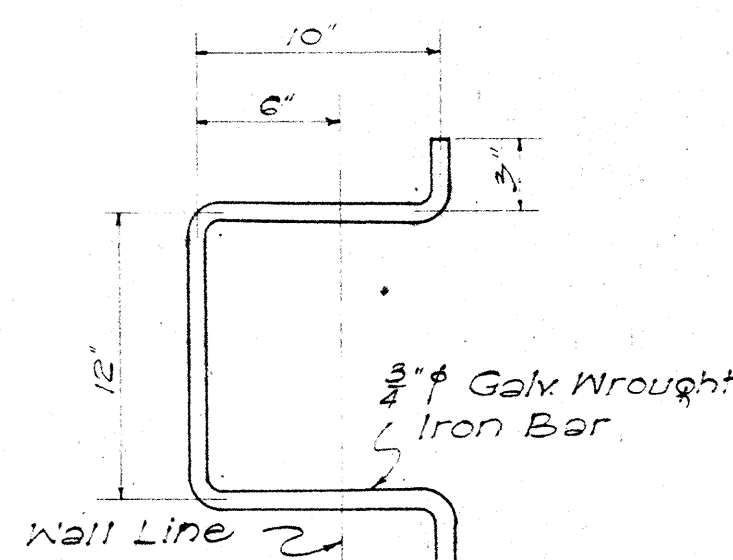
SECTION

TOP VIEW

TOP VIEW

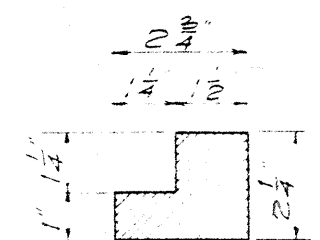
TYPE C C.I. FRAME AND GRATING

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

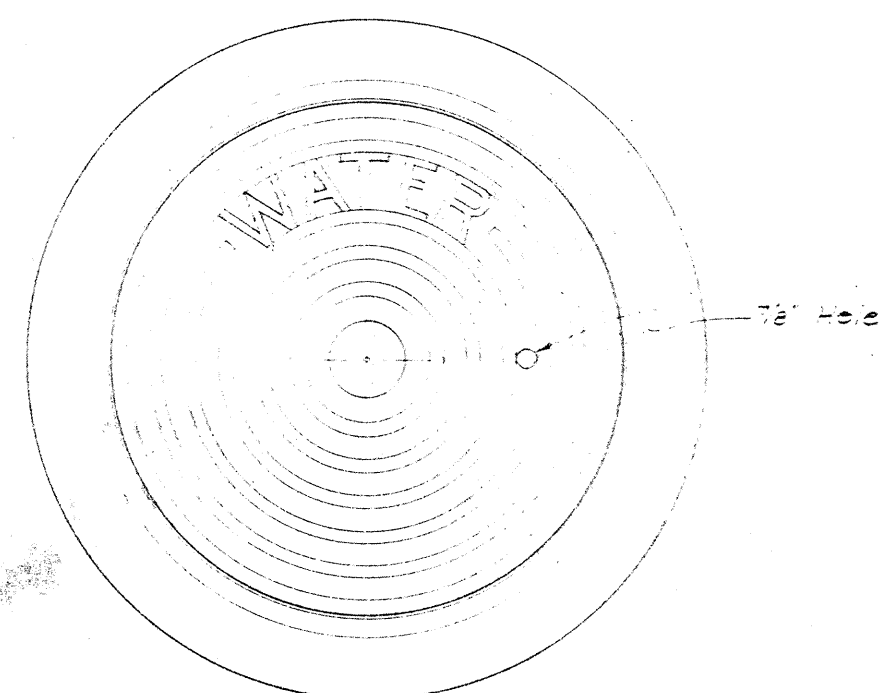


MANHOLE RUNG

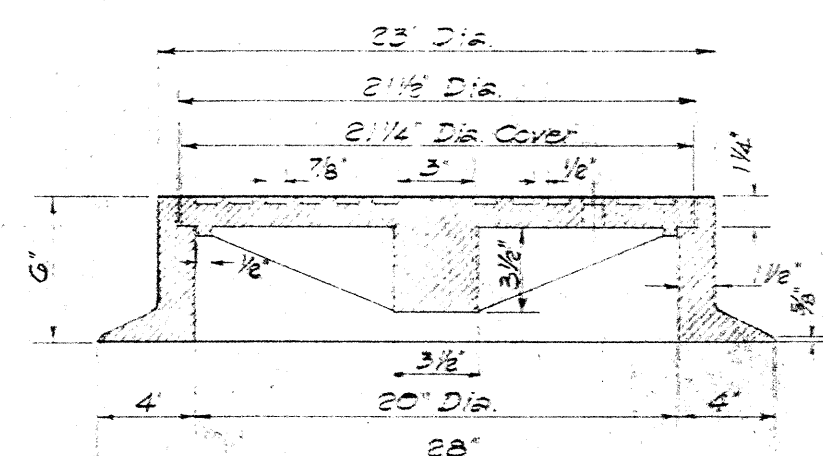
SCALE: 1-1/2" = 1'-0"



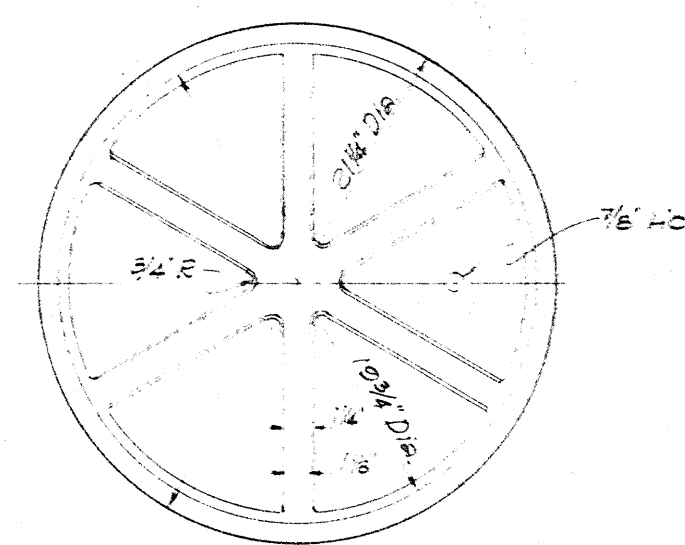
SECTION "A-A"
SCALE 3" = 1'-0"



PLAN OF FRAME AND COVER



SECTION OF FRAME AND COVER



BOTTOM VIEW OF COVER

DETAILS OF 20" CAST IRON
FRAME AND COVER FOR
WATER MANHOLE

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

APPROVED: _____ DATE: AUG. 26, 1950
STATE HIGHWAY ENGINEER

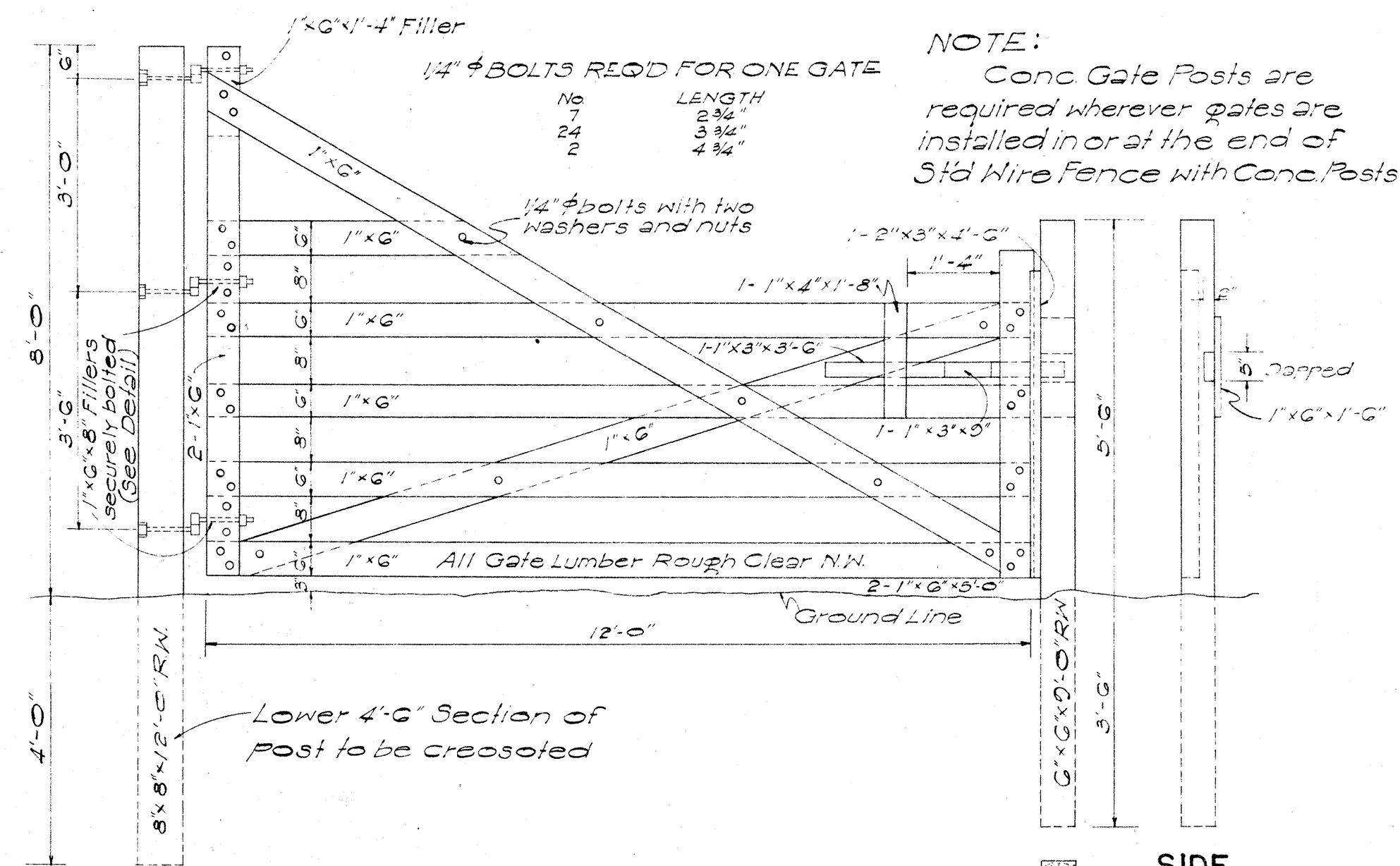
HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
STANDARD DETAILS
CATCH BASIN AND
MANHOLE CASTINGS
SCALES AS NOTED

SHEET NO. OF SHEETS

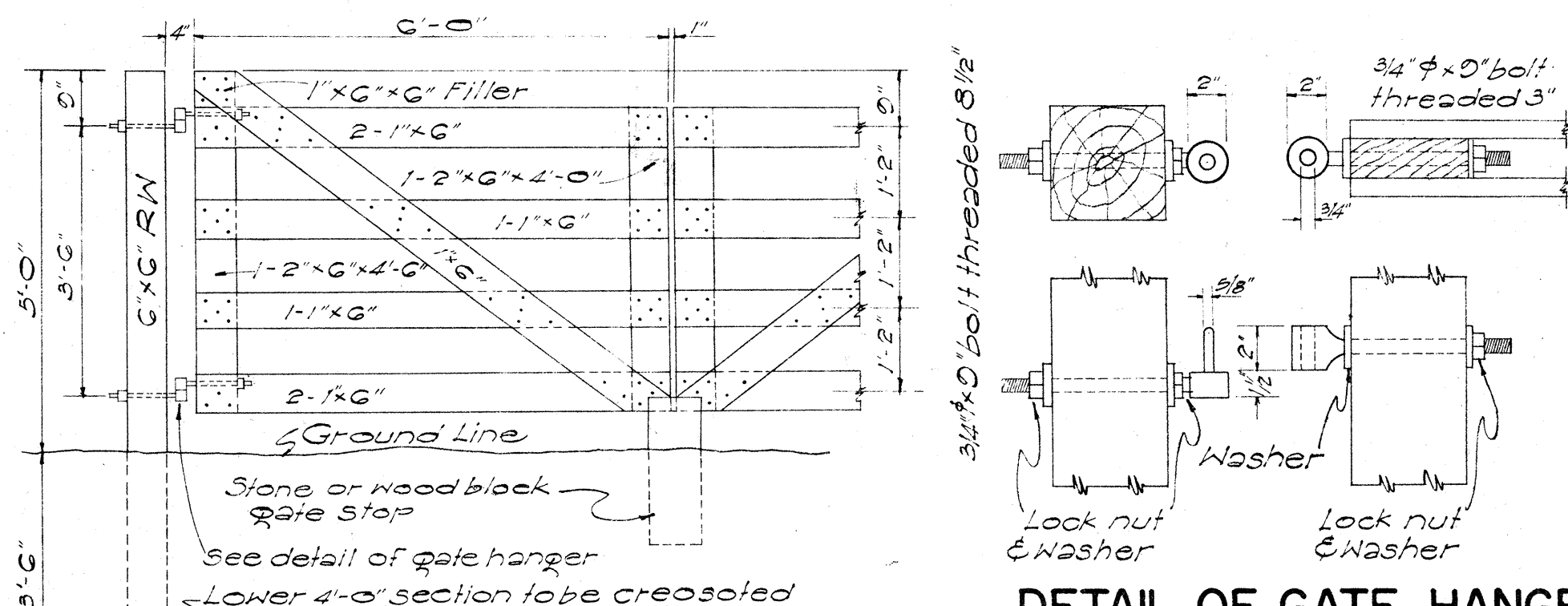
8526.66F 8174.101F 8161.94F 143F

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DESIGNED BY	DESIGNED BY	DESIGNED BY
NOTED BY	NOTED BY	NOTED BY
CHECKED BY	CHECKED BY	CHECKED BY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	0550208	1950	666	75	HAWAII	HAW	0550208	1950	1016	118
		UNIT 4						UNIT 3		943	115



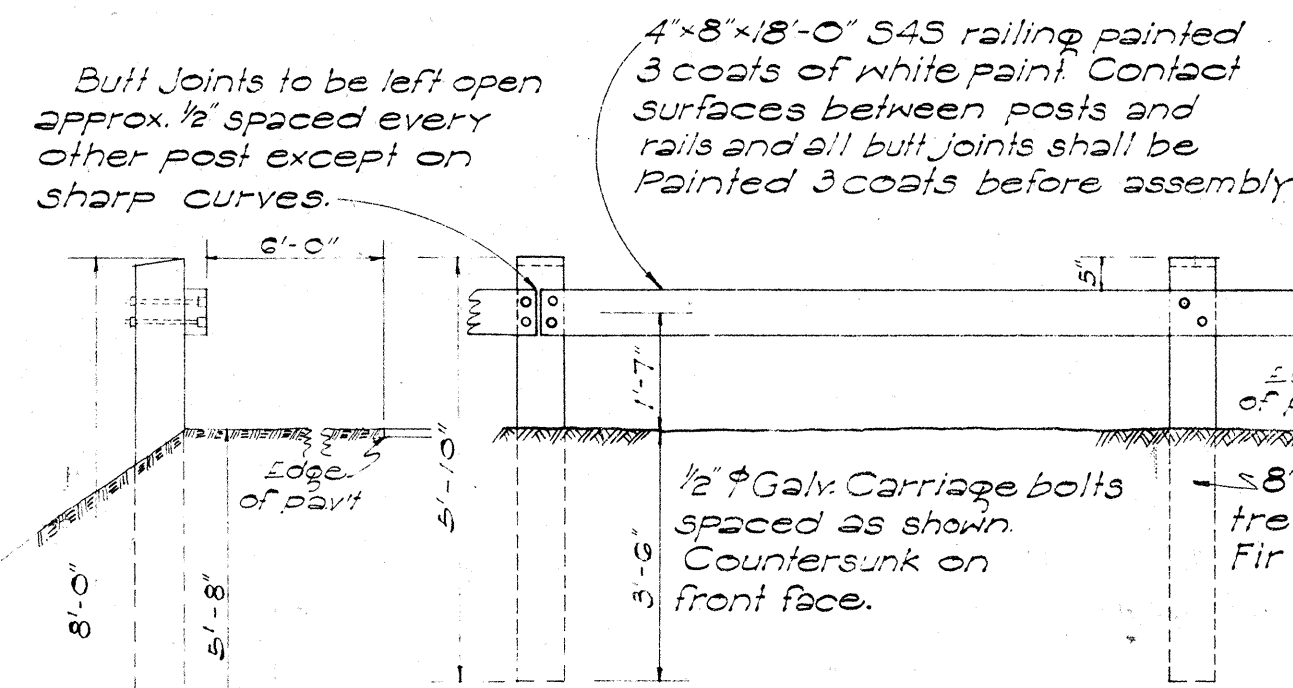
DETAIL OF CATTLE GATE
Scale: 1/2" = 1' - 0"



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

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

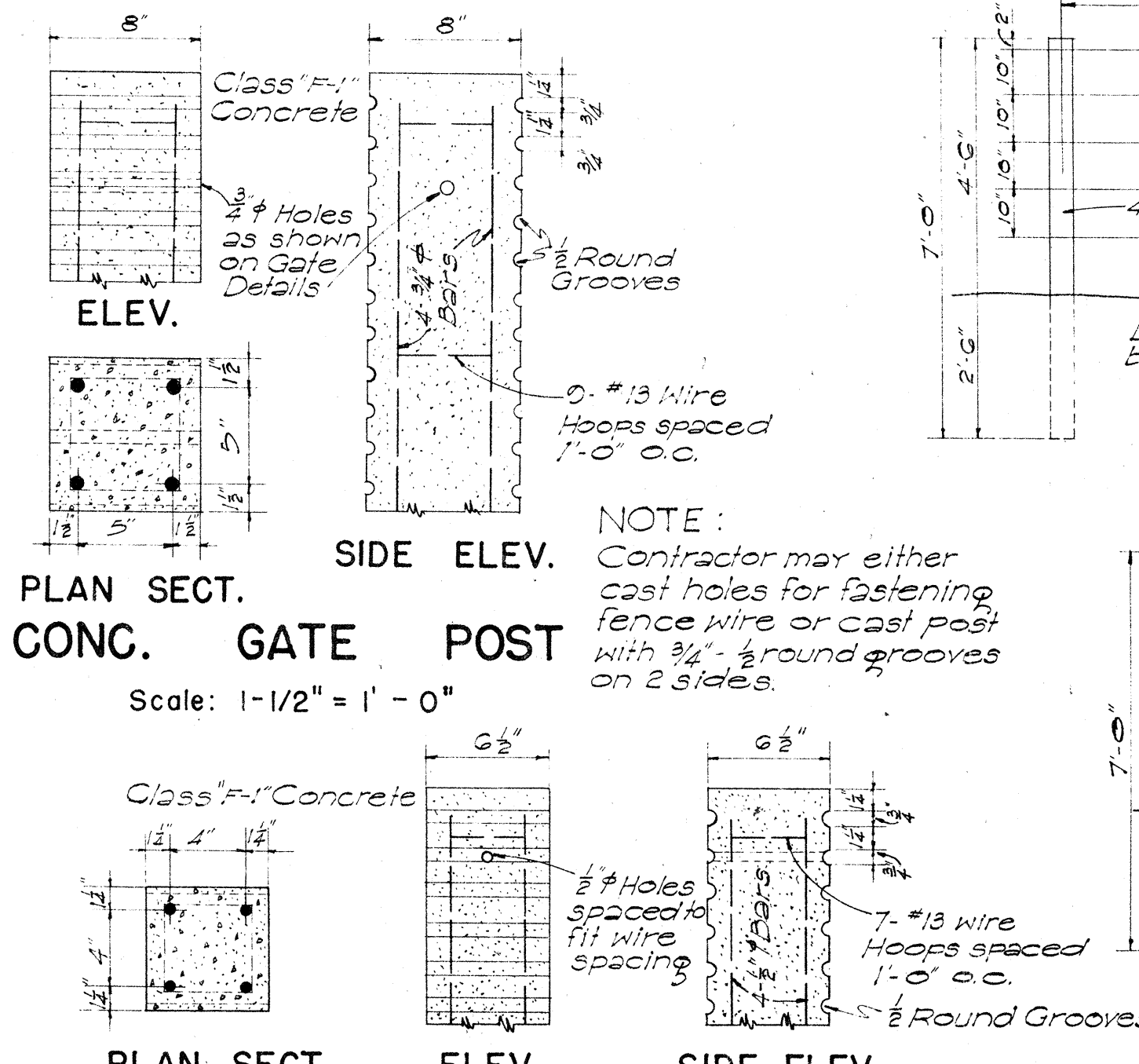
Note: Use 3/4" x 11" bolts for Cattle Gate



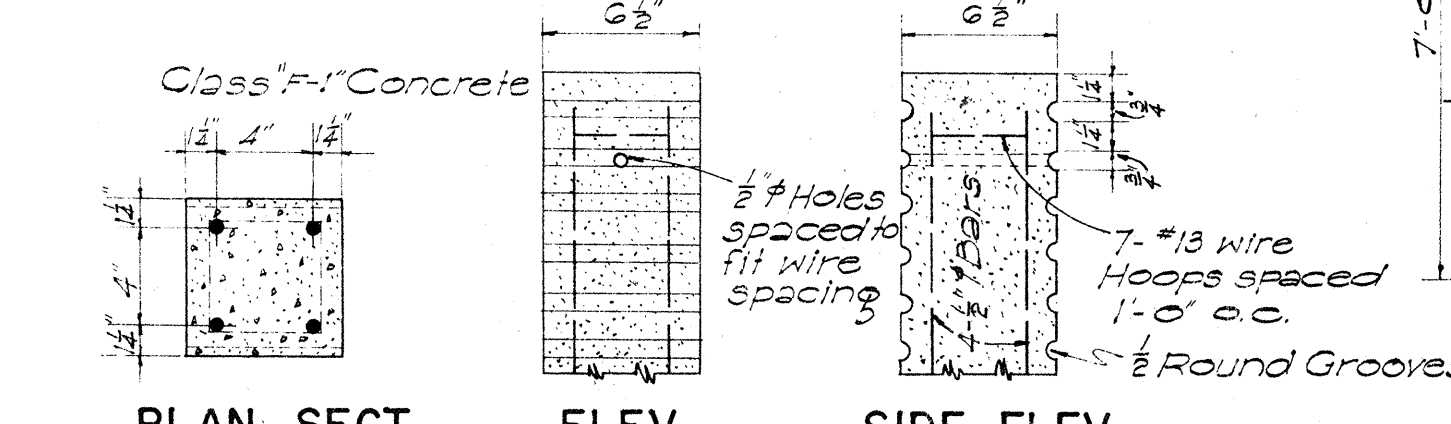
WOOD GUARD RAIL WITH WOOD POSTS
Scale: 3/8" = 1' - 0"

NOTE: For Conc Post see detail at right

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

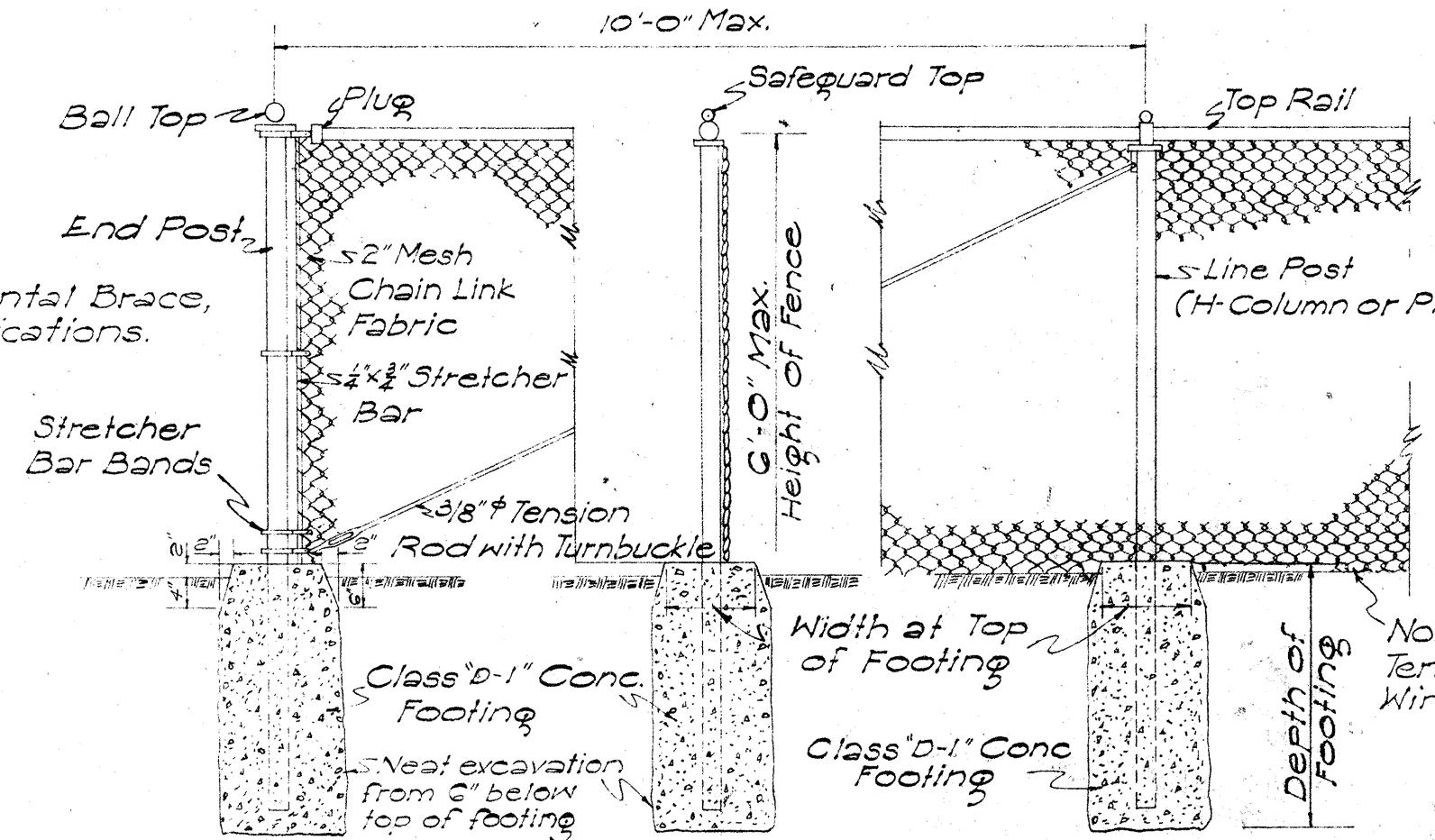


CONC. GATE POST
Scale: 1-1/2" = 1' - 0"

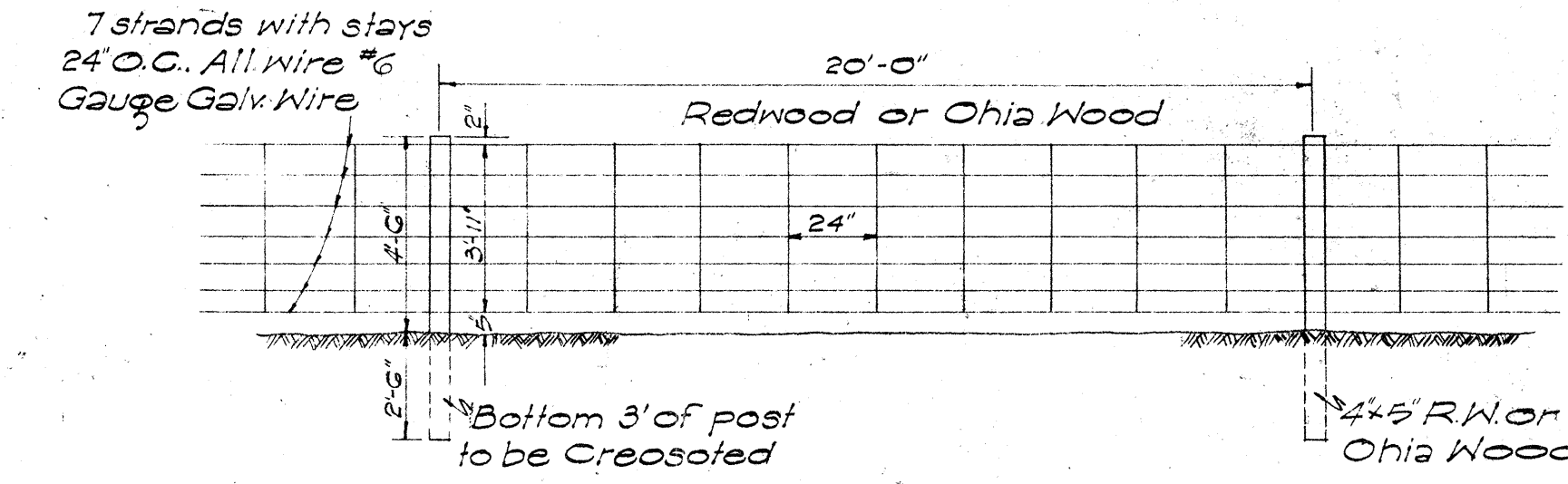


DETAILS OF STANDARD WIRE FENCE WITH WOOD POSTS
Scale: 3/8" = 1' - 0"

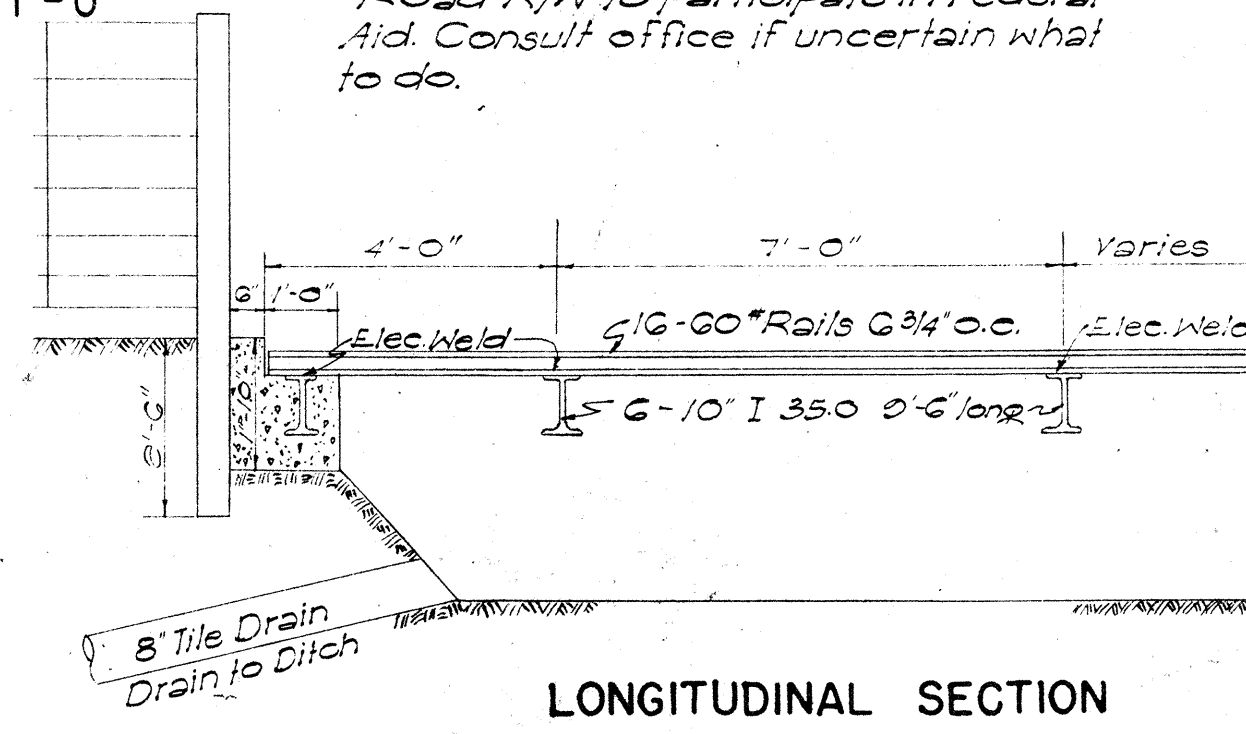
NOTE: This Project requires Std Wire Fence with 8' post spacing (If spacing is not indicated above use 10')



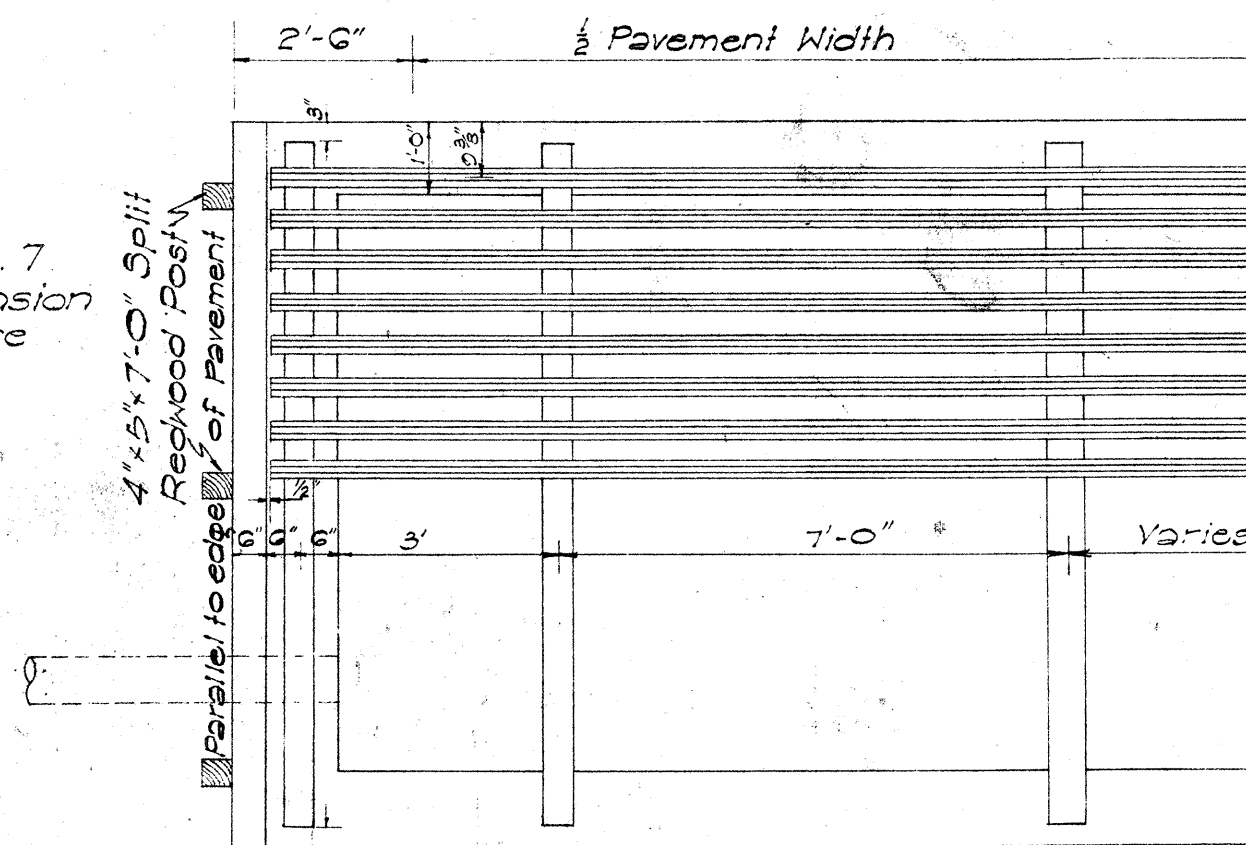
DETAIL OF CHAIN LINK FENCE
Scale: 1/2" = 1' - 0"



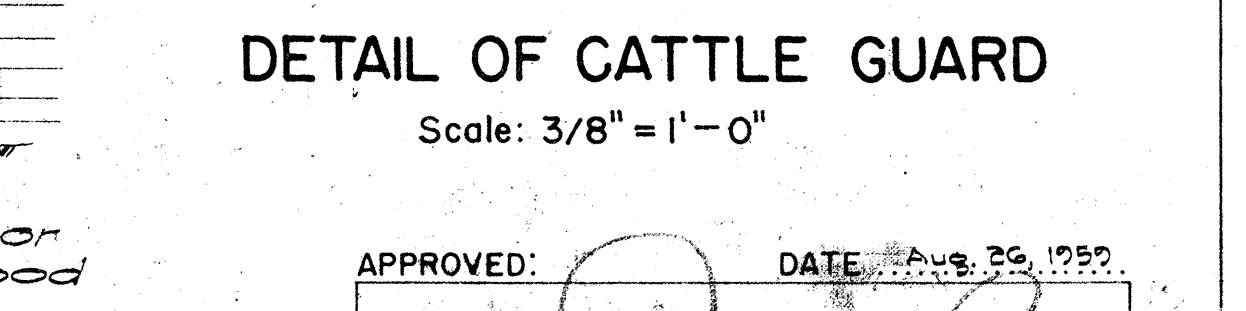
DETAIL OF WOVEN WIRE FENCE
Scale: 1/4" = 1' - 0"



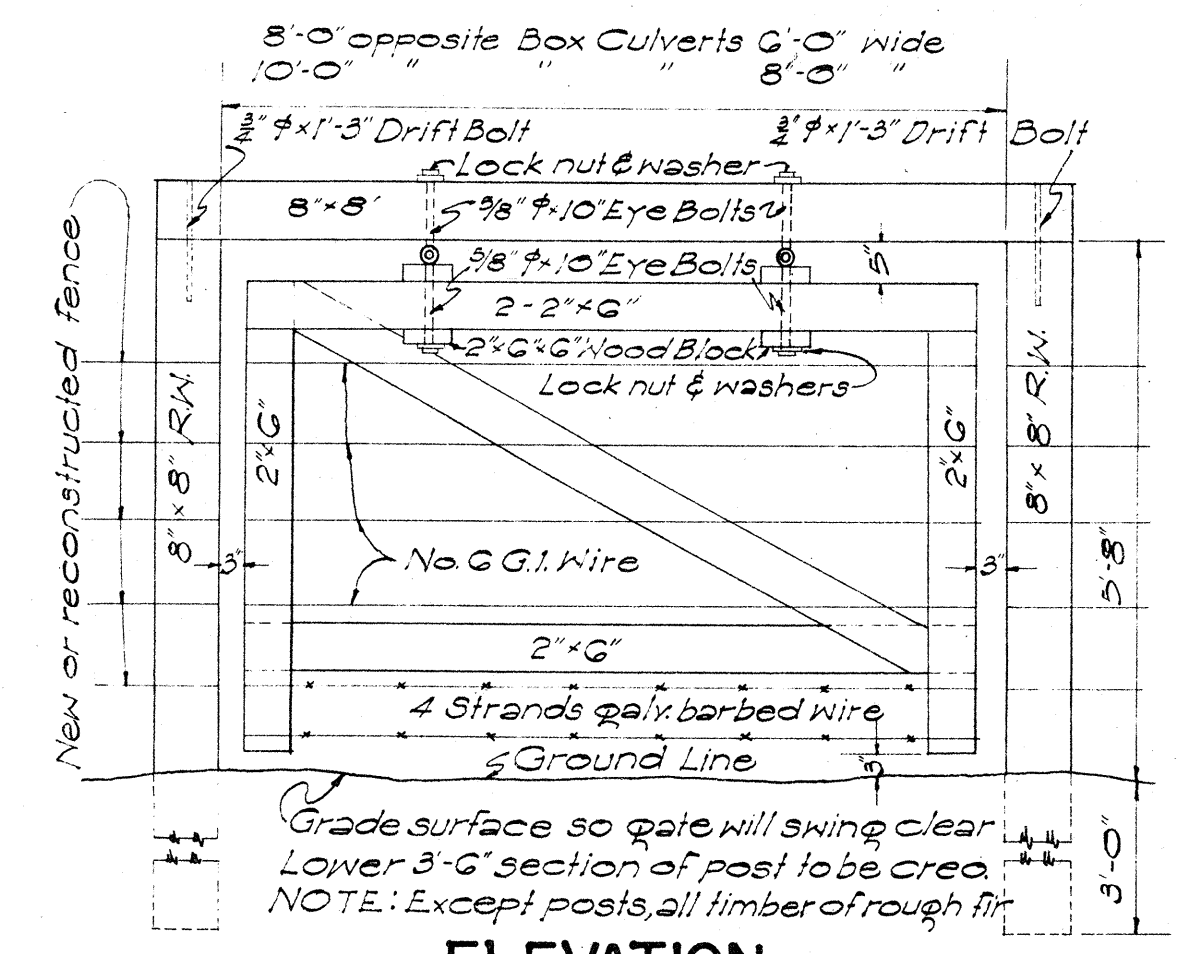
LONGITUDINAL SECTION



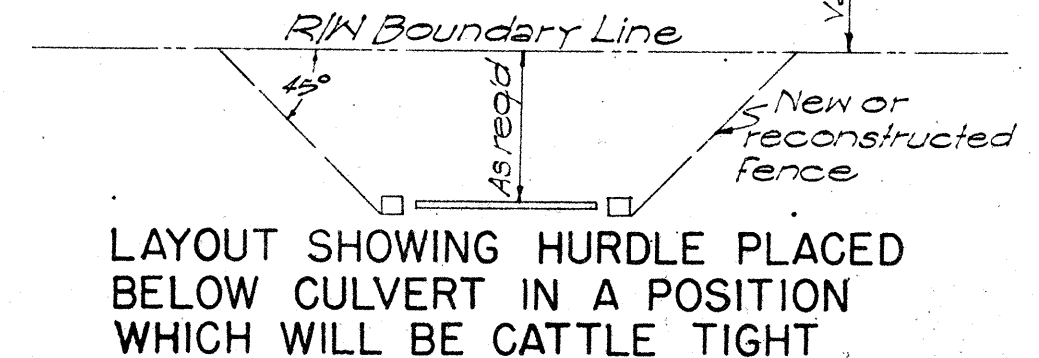
HALF SECTION



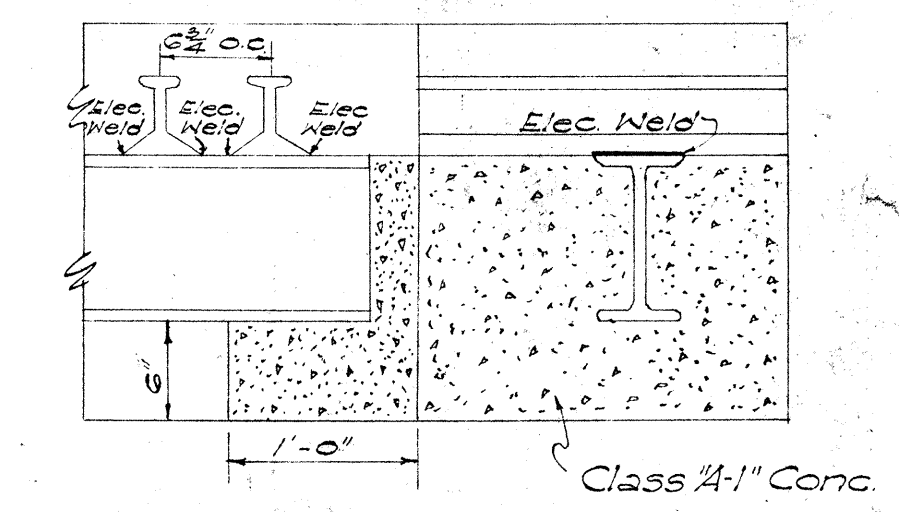
DETAIL OF CATTLE GUARD
Scale: 3/8" = 1' - 0"



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



DETAILS OF HURDLE



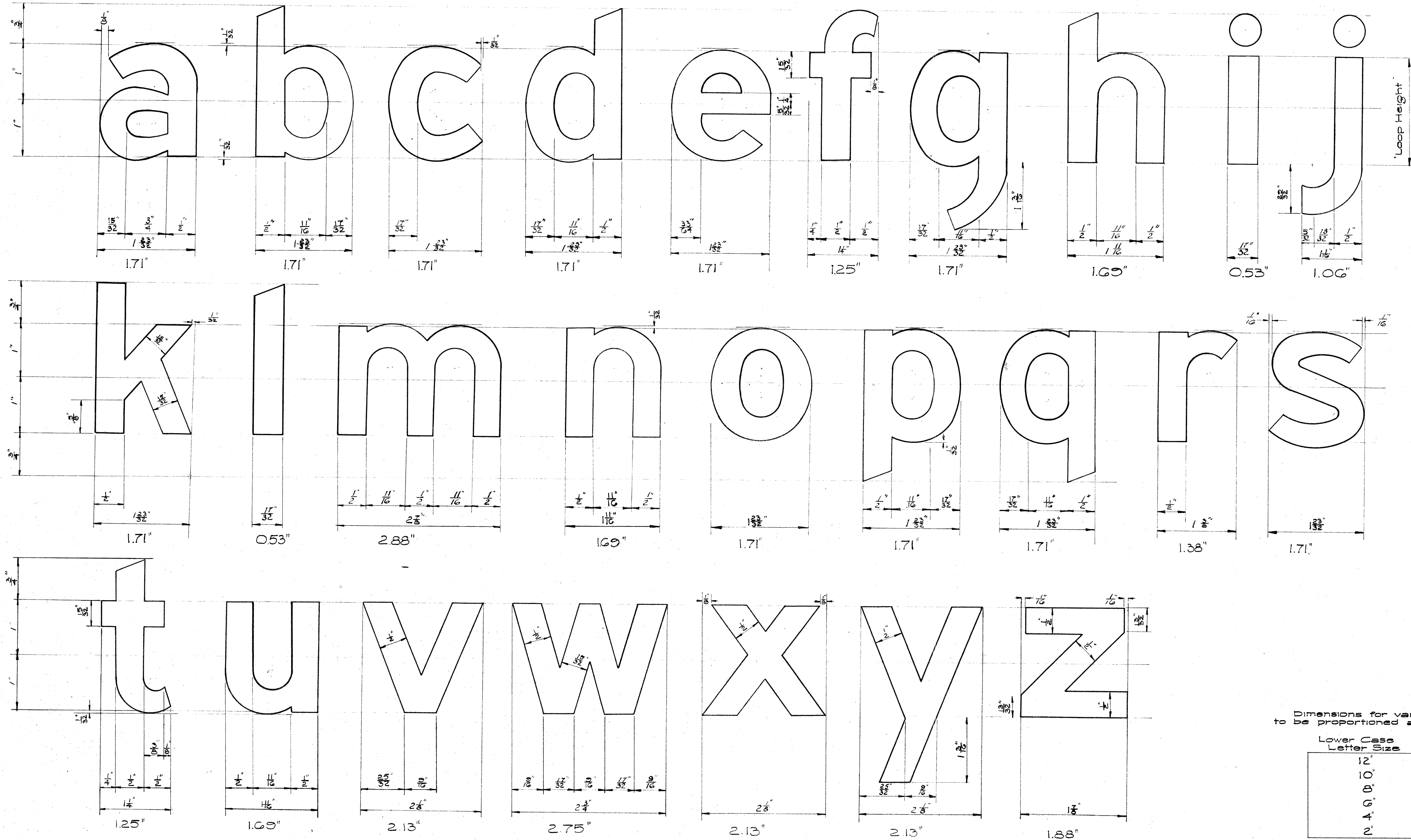
SECTION

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

SHEET NO. OF SHEETS

2/17/59
4/6/59
4/28/59

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	25-5-00000	1960	66H	79
		BU-078-100	1960	101H	118
		BU-008-100	1960	54H	115

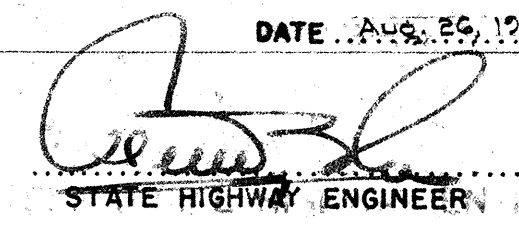


Dimensions for various size letters are to be proportioned as follows:

Lower Case Letter Size	Multiply By Factor
12"	6
10"	5
8"	4
6"	3
4"	2
2"	1

NOTES: Spacing of letters on this drawing is not to scale and not intended to be followed. For spacing, use dimensions given in table I widths of letters and digits for Expressway Signs; Territorial Highway Department Standard Letters of shorter words on signs are to have larger spacing for better proportioning of copy as shown on typical signs. Capital letters shall conform to Series E of standard alphabets for Highway Signs of The Public Roads Administration 1952.
1. Capital letters used with lower case letters shall be 1.5 times height of lower case letters.

ORIGINAL PLAN	DESIGNED BY	DATE
NOTE BOOK	DRAWN BY	
	CHECKED BY	

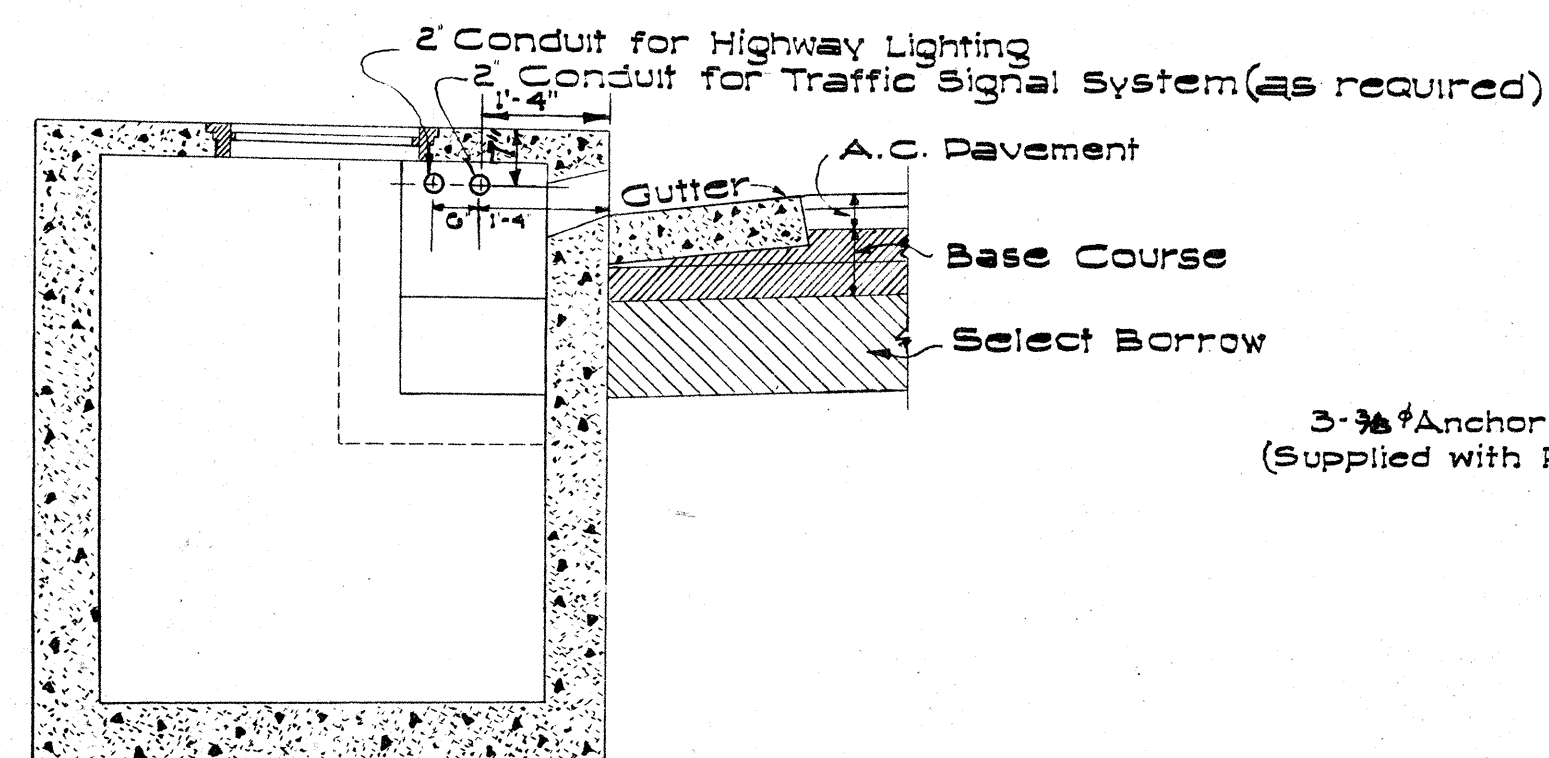
APPROVED  DATE AUG. 25, 1959
STATE HIGHWAY ENGINEER

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
STANDARD DETAILS
LOWER CASE LETTERS
SCALE AS NOTED

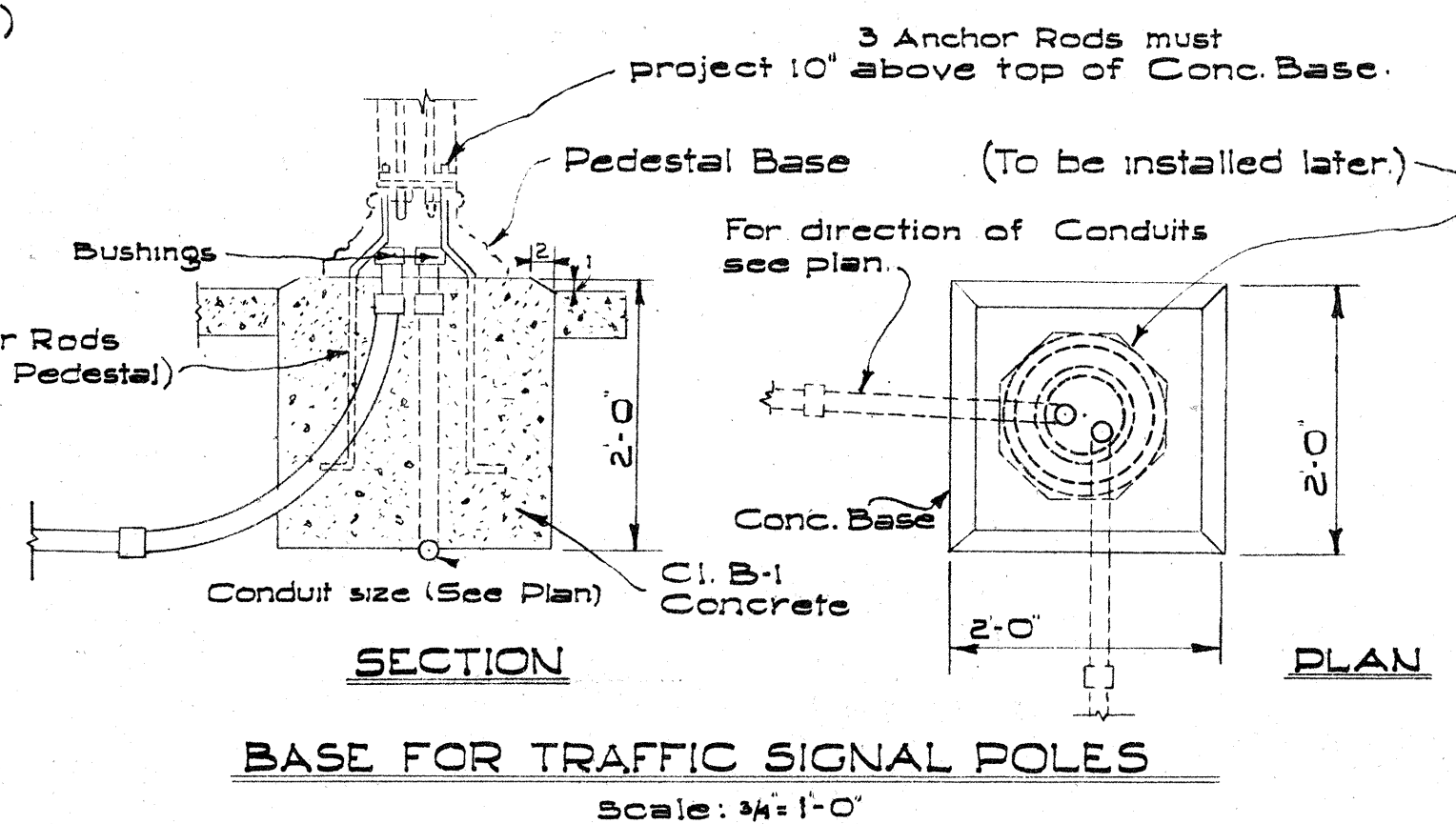
SHEET NO. 66 OF 79 SHEETS

\$ 526.66H \$ 174.101H \$ 161.94H 1434

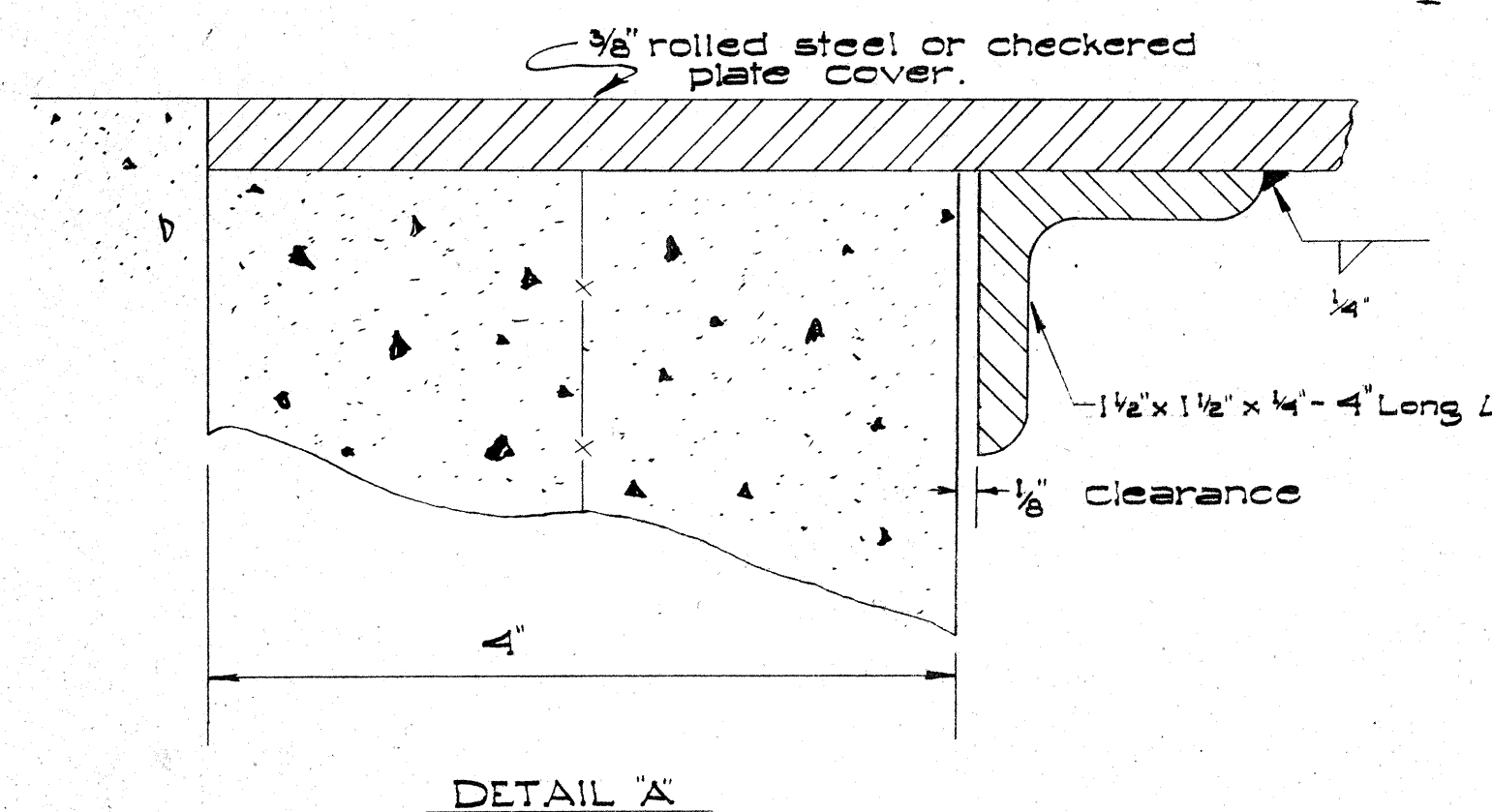
NOTE: Galv. 2" Conduits shall be supported by Band Hangers bolted to the top slab of Catch Basins. Hangers shall be of the wrought steel Adjustable band type. Pipe Hangers and bolts shall be incidental to item No. 4G(1). Class A-1 Concrete other than in Bridges.



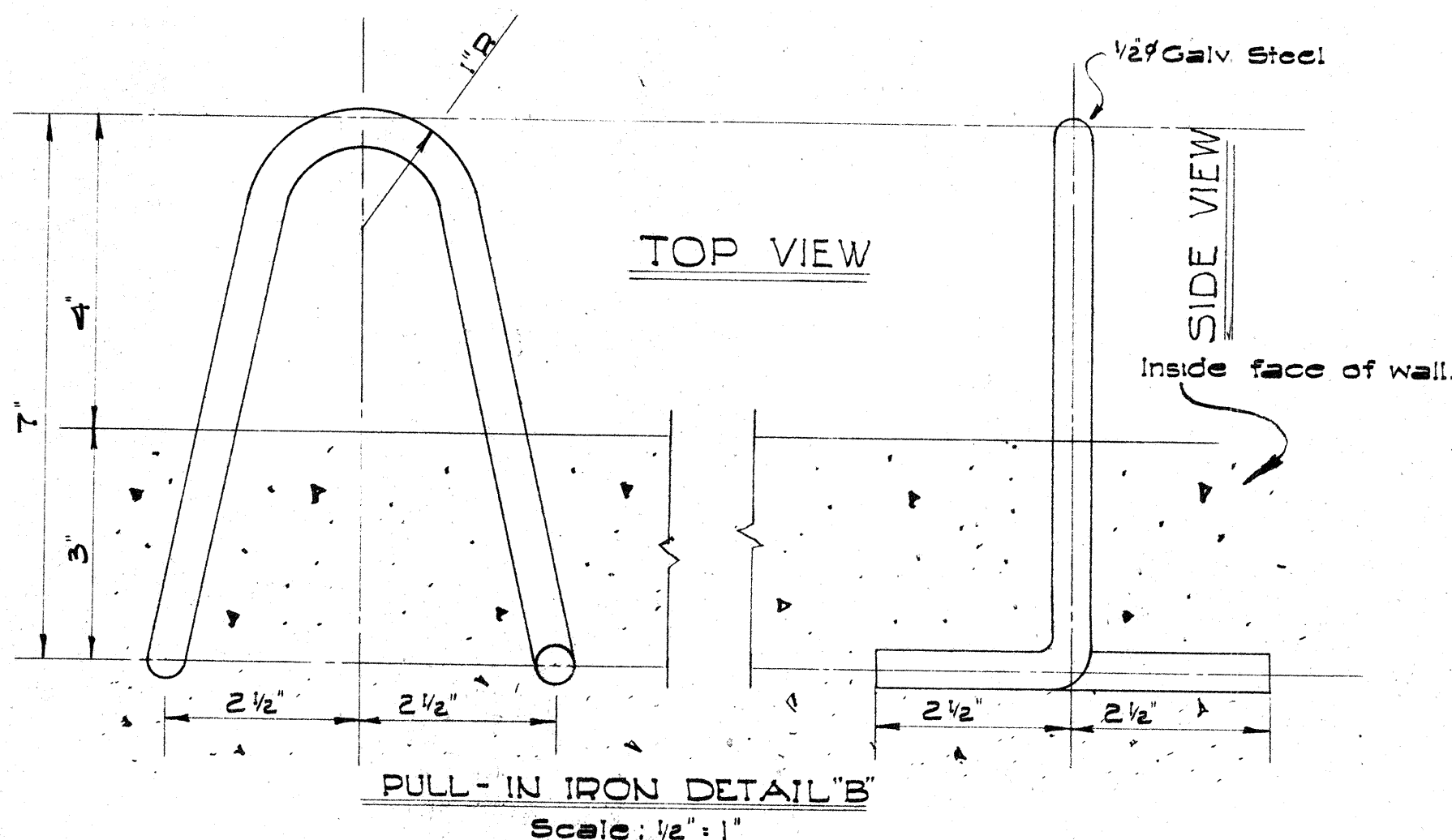
TYPICAL SECTION SHOWING CONDUITS PASSING THROUGH CATCH BASINS
Scale: 1/2" = 1'-0"



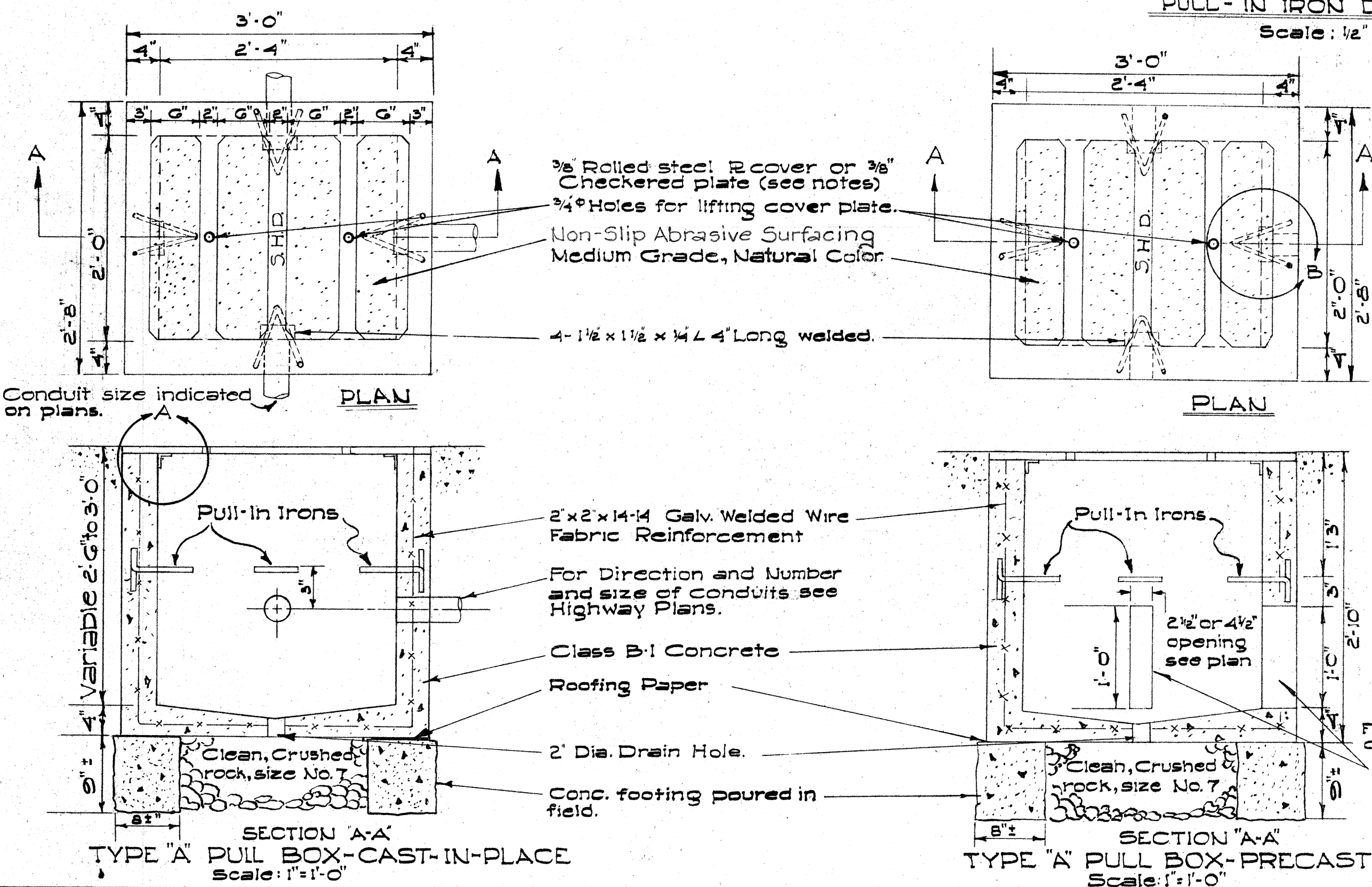
BASE FOR TRAFFIC SIGNAL POLES
Scale: 3/4" = 1'-0"



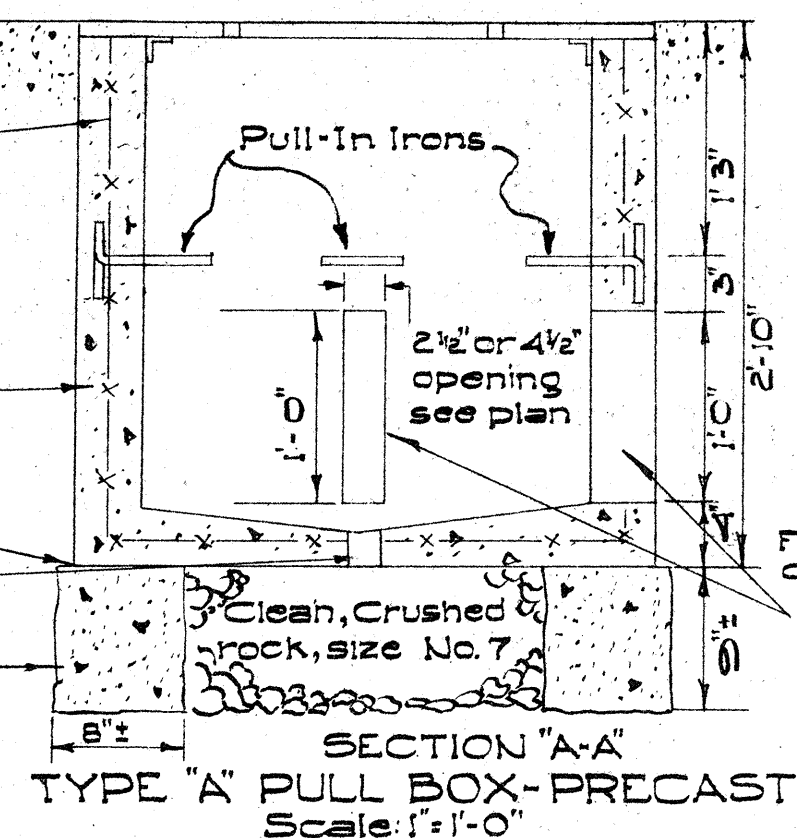
DETAIL "A"



PULL-IN IRON DETAIL "B"
Scale: 1/2" = 1'-0"



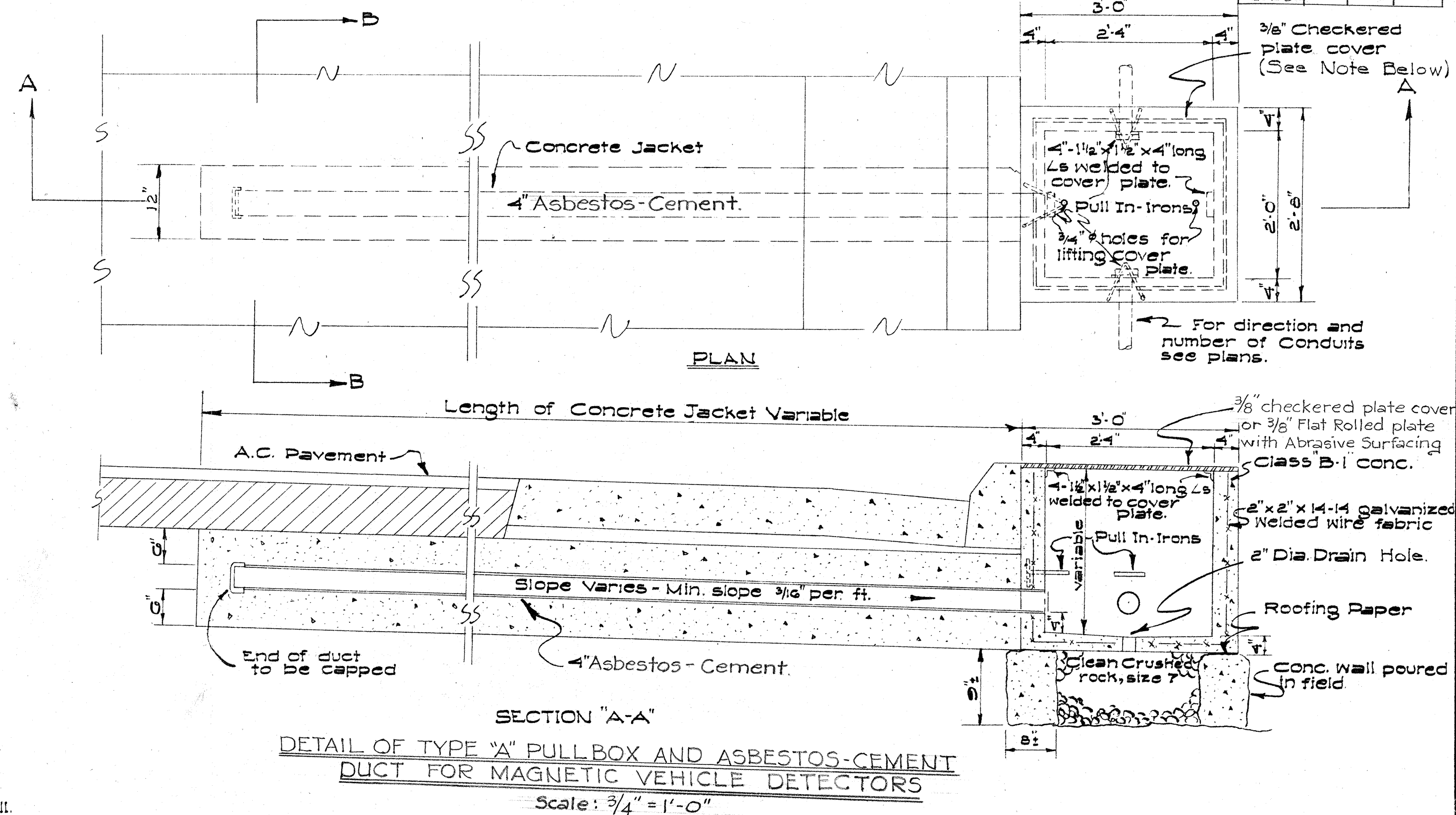
TYPE "A" PULL BOX-CAST-IN-PLACE
Scale: 1" = 1'-0"



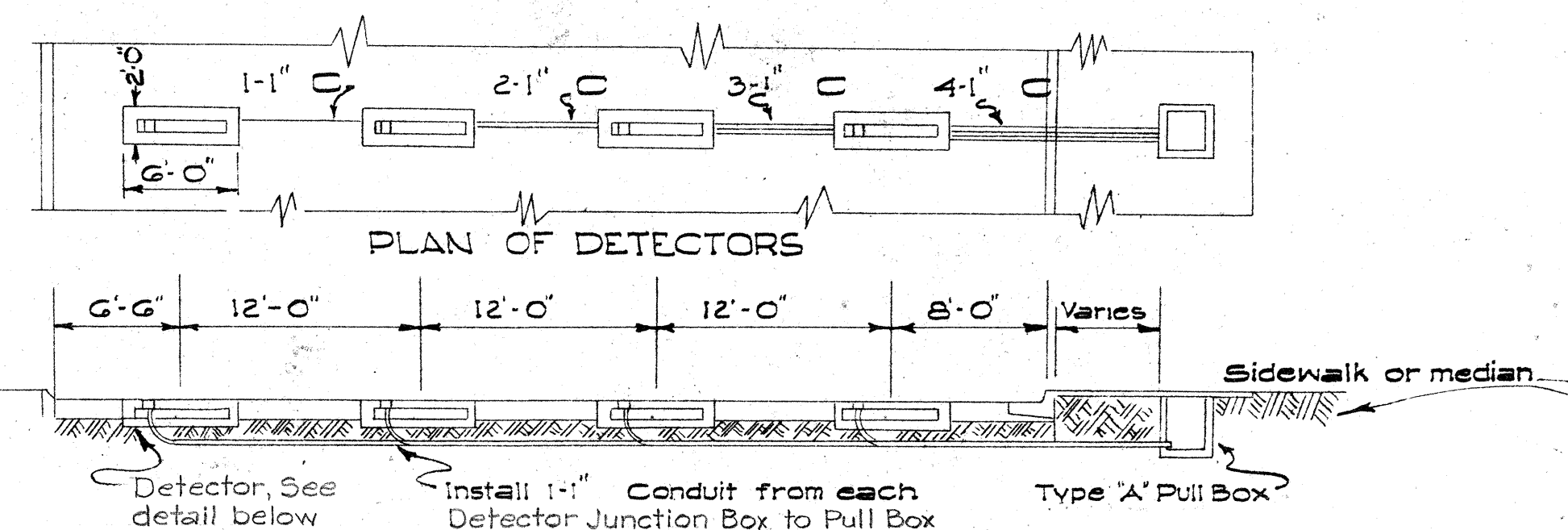
TYPE "A" PULL BOX-PRECAST
Scale: 1" = 1'-0"

Note:
1. 3/8" Rolled Steel Plate Cover with Non-Slip Abrasive Surfacing Medium Grade, Natural Color shall be used on all Pull Boxes located on sidewalk areas where pedestrians are walking.
2. 3/8" Checkered Plate Cover shall be used on all Pull Boxes located in median areas and other locations where there are no pedestrians walking.
3. Pull Irons shall be placed opposite each conduit slot.
4. Covers on all Pull Boxes located in sidewalk areas shall be set flush with the concrete sidewalk.
5. Each Pull Box shall have a pair of pull irons opposite each other for lifting purposes.

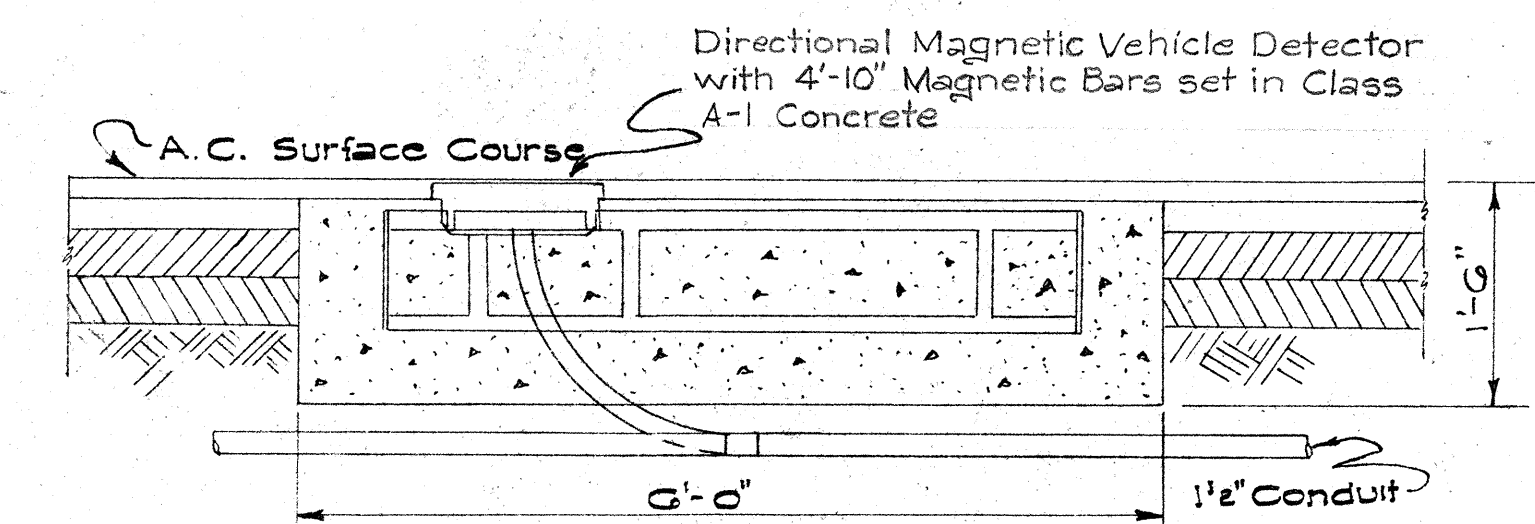
For direction and number and size of slots for conduits (see plan)
Grout Conduit Slot with 1:3 Cement Mortar after Conduit is placed.



DETAIL OF TYPE "A" PULL BOX AND ASBESTOS-CEMENT DUCT FOR MAGNETIC VEHICLE DETECTORS
Scale: 3/4" = 1'-0"



TYPICAL LAYOUT OF DIRECTIONAL MAGNETIC DETECTORS IN CONCRETE JACKET
Scale: 1/8" = 1'-0"



DETAIL OF DIRECTIONAL MAGNETIC VEHICLE DETECTOR IN CONCRETE JACKET
Scale: 3/4" = 1'-0"

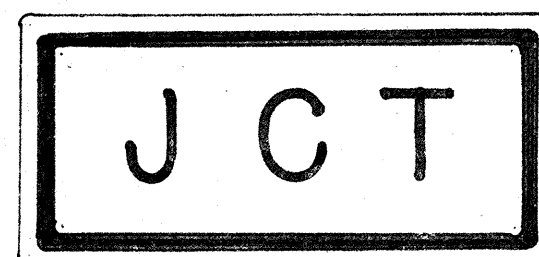
Note: Class A-1 Concrete shall be used for Concrete Block.

APPROVED DATE Aug. 26, 1959
STATE HIGHWAY ENGINEER

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
STANDARD DETAILS
TRAFFIC SIGNAL SYSTEM
BASE, PULLBOX,
MAGNETIC DETECTORS

SHEET NO. OF SHEETS

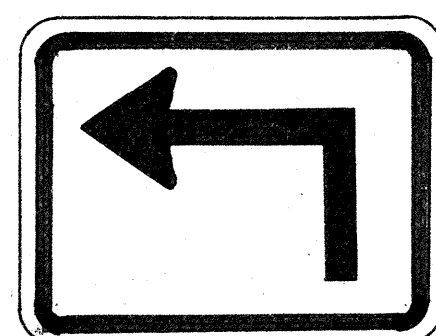
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	155-0750	1950	66J	75
		155-0750	1950	101J	118
		155-0750	1950	101J	118



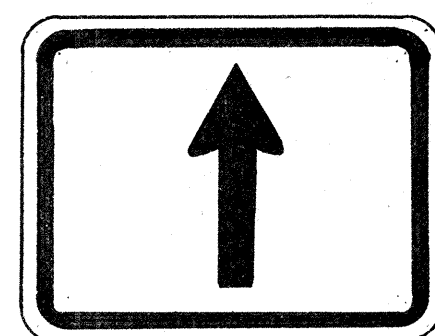
M-3
16 1/2 x 8"



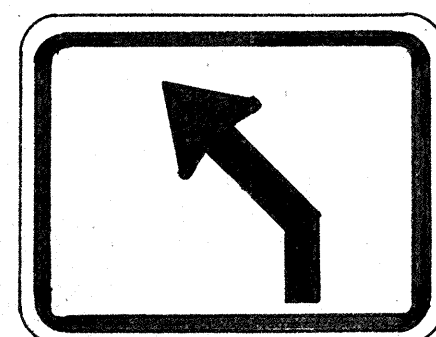
M-21-N
16 1/2 x 8"



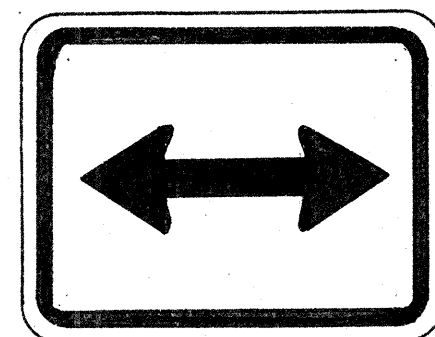
M-7-L
* M-7-R (↗)
13 x 10



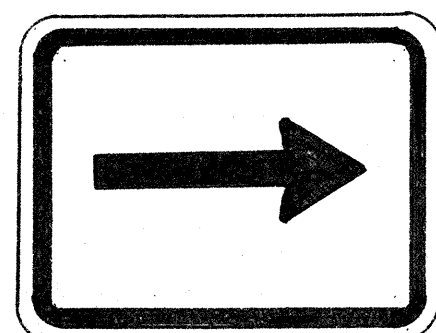
M-11
13 x 10"



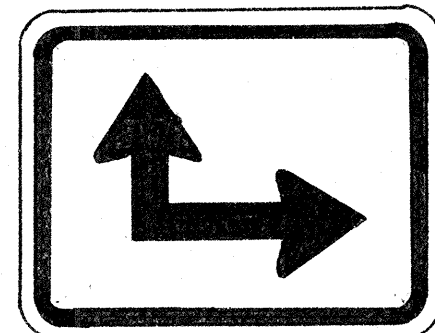
M-8-L
* M-8-R (↗)
13 x 10



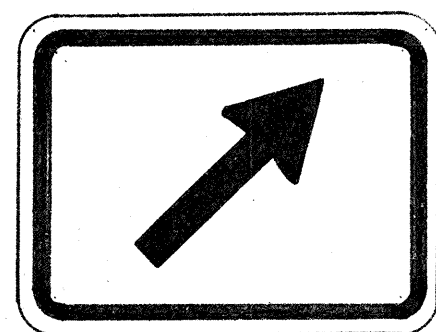
M-12
13 x 10"



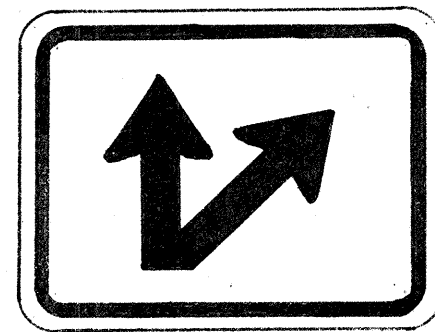
M-9
13 x 10"



* M-13-R
* M-13-L (↖)
13 x 10



* M-10-R
* M-10-L (↖)
13 x 10



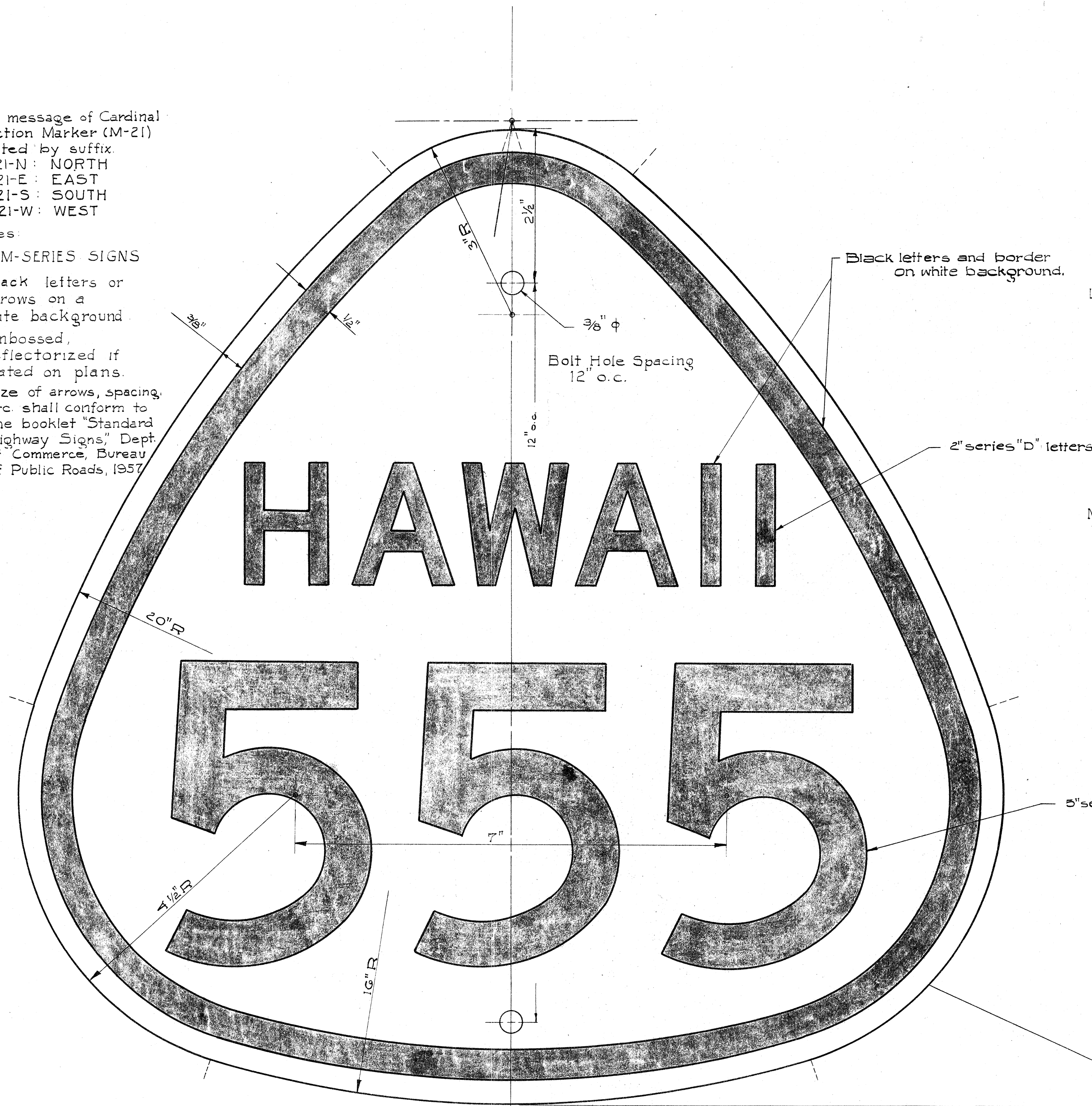
* M-14-R
* M-14-L (↖)
13 x 10

Note:
Sign message of Cardinal
Direction Marker (M-21)
denoted by suffix.
M-21-N: NORTH
M-21-E: EAST
M-21-S: SOUTH
M-21-W: WEST

Notes:

M-SERIES SIGNS

1. Black letters or arrows on a white background.
2. Embossed, reflectorized if stated on plans.
3. Size of arrows, spacing, etc. shall conform to the booklet "Standard Highway Signs," Dept. of Commerce, Bureau of Public Roads, 1957.



Black letters and border
on white background.

Location:

Use the M-2 sign at important rural and urban intersections and intermediate locations as specified in sections 93-111, Manual of Uniform Traffic Control Devices, to guide traffic over State numbered highways.

2" series "D" letters

Note:

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 "D" letters and series "E" numerals shall be used.

Embossed
Black on White
16 x 16"
2" series "D" letters
5" series "E" numerals
Reflectorized if
stated on plans.

5" series "E" letters

STATE ROUTE MARKER
M-2
Scale: Full Size

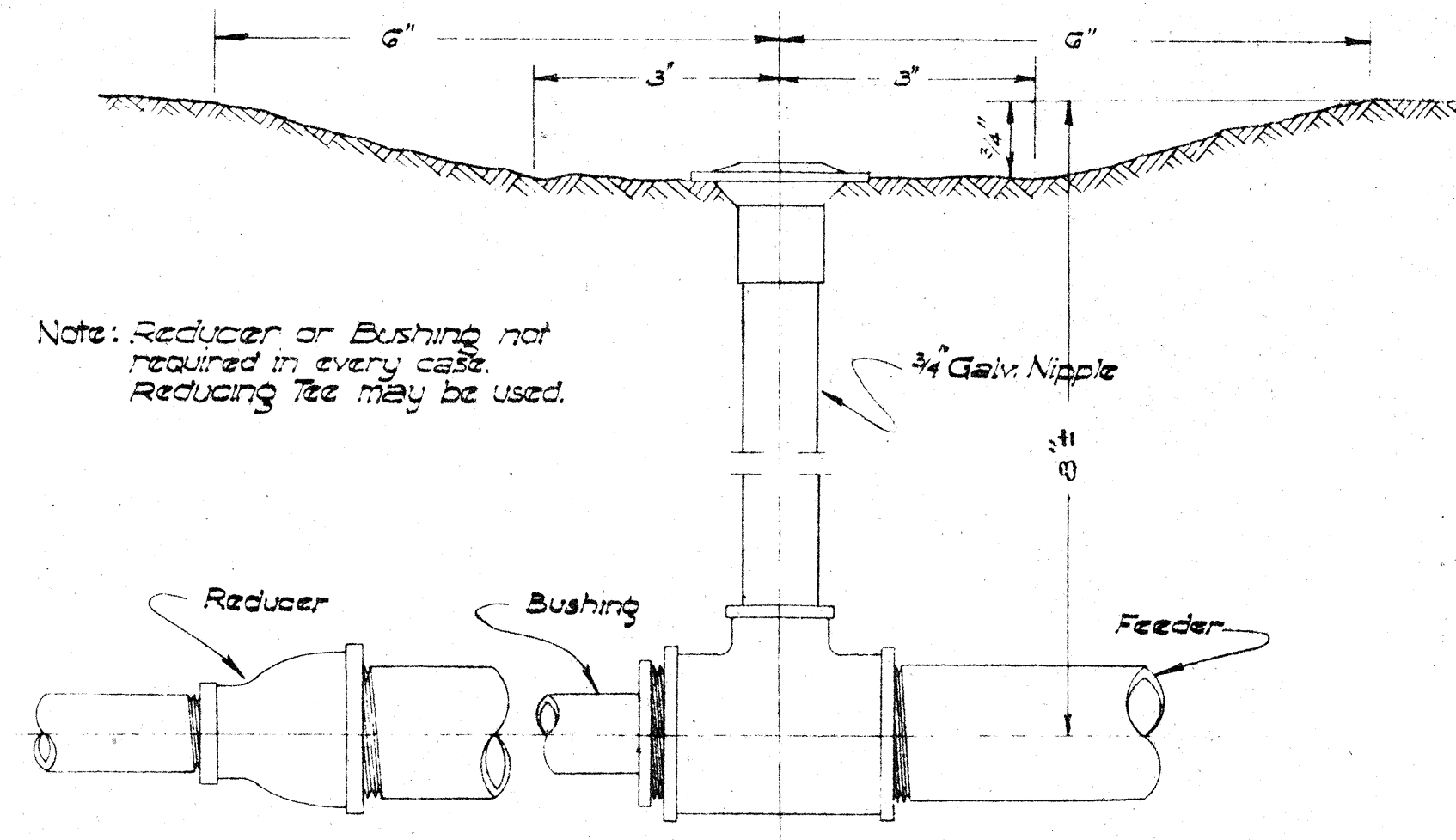
* Signs shall be similar
but opposite in direction.

NOT TO SCALE

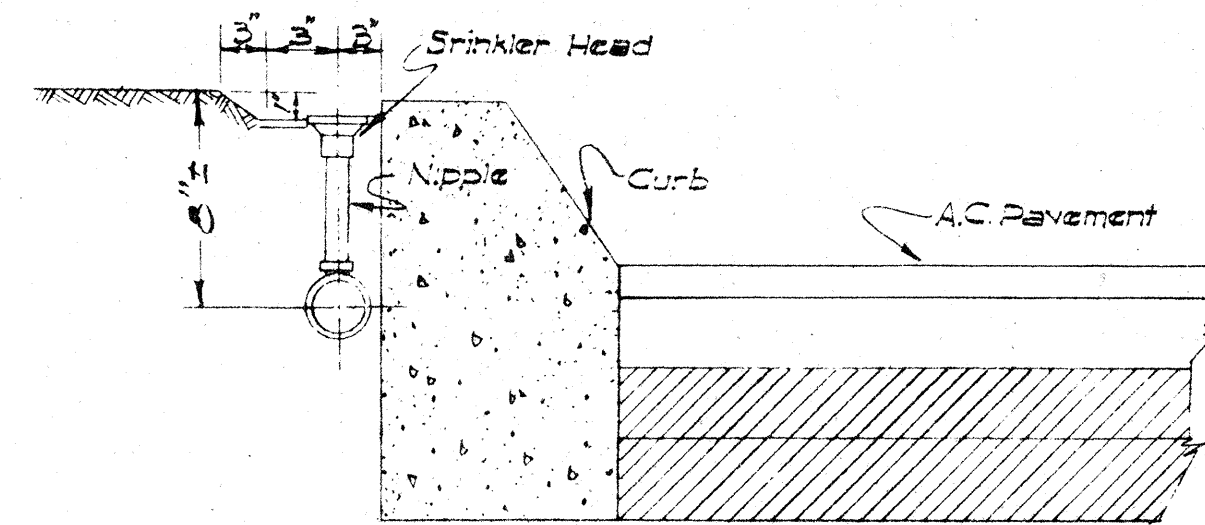
APPROVED: DATE: AUG. 26, 1950
STATE HIGHWAY ENGINEER

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
STANDARD DETAILS
STATE
ROUTE NUMBER
AND DIRECTIONAL
MARKER SIGNS
SCALE: AS NOTED
SHEET NO. OF SHEETS

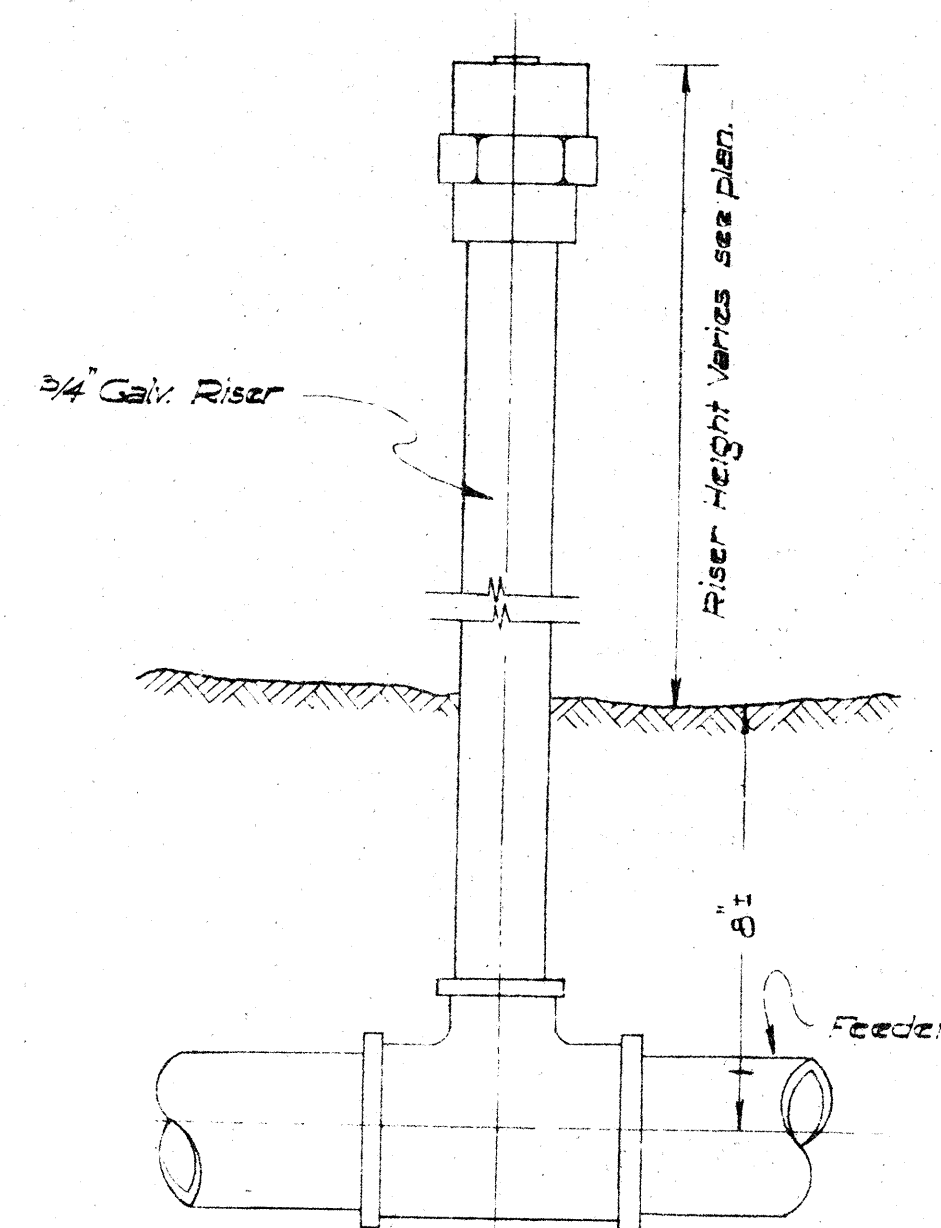
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	055-00000-0001	1960	66 K	70
		BU-0001-0001	1960	101 K	118
		BU-0001-0001	1960	104 K	115



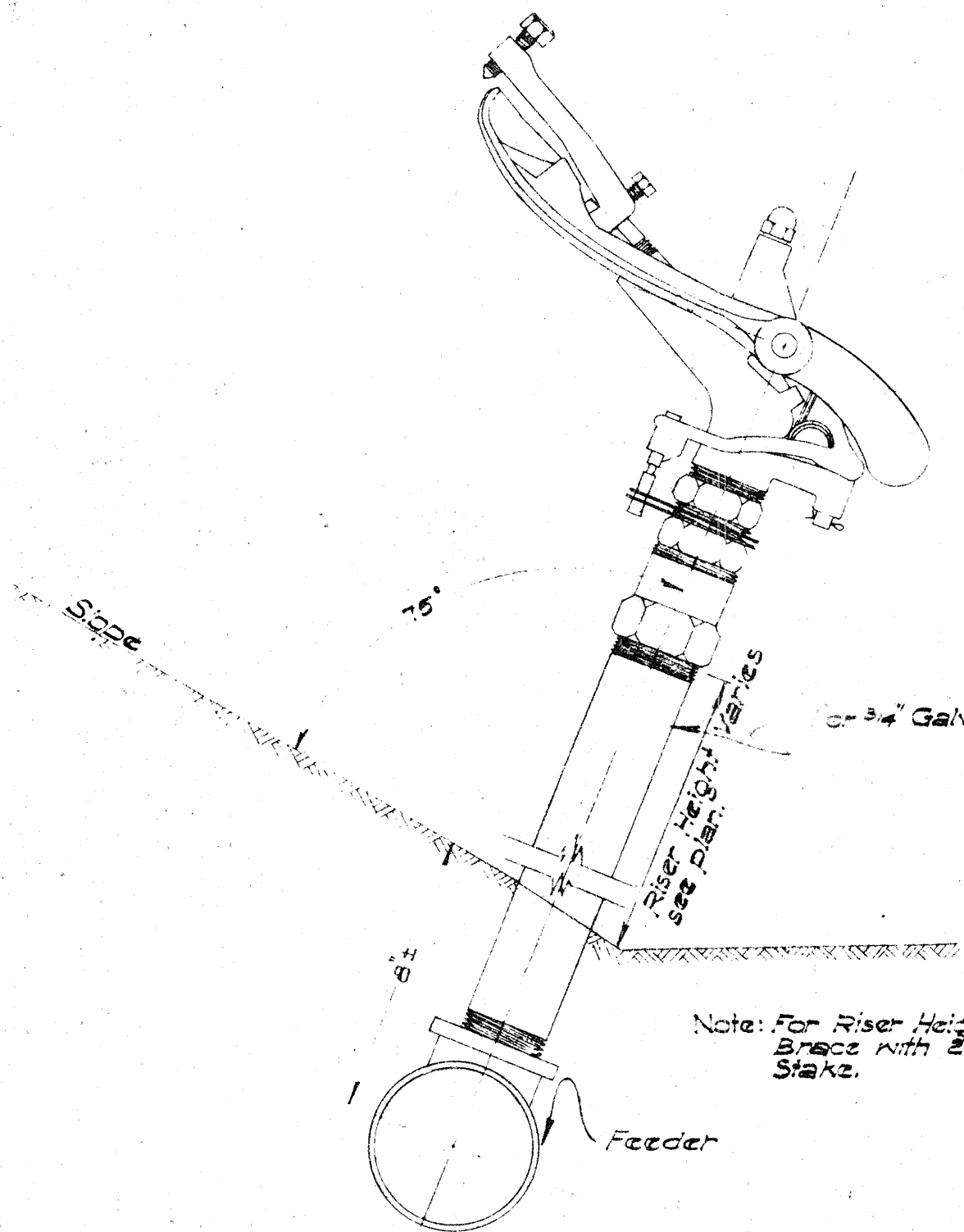
CONNECTION OF SPRINKLER HEAD TO FEEDER PIPE
Not to Scale



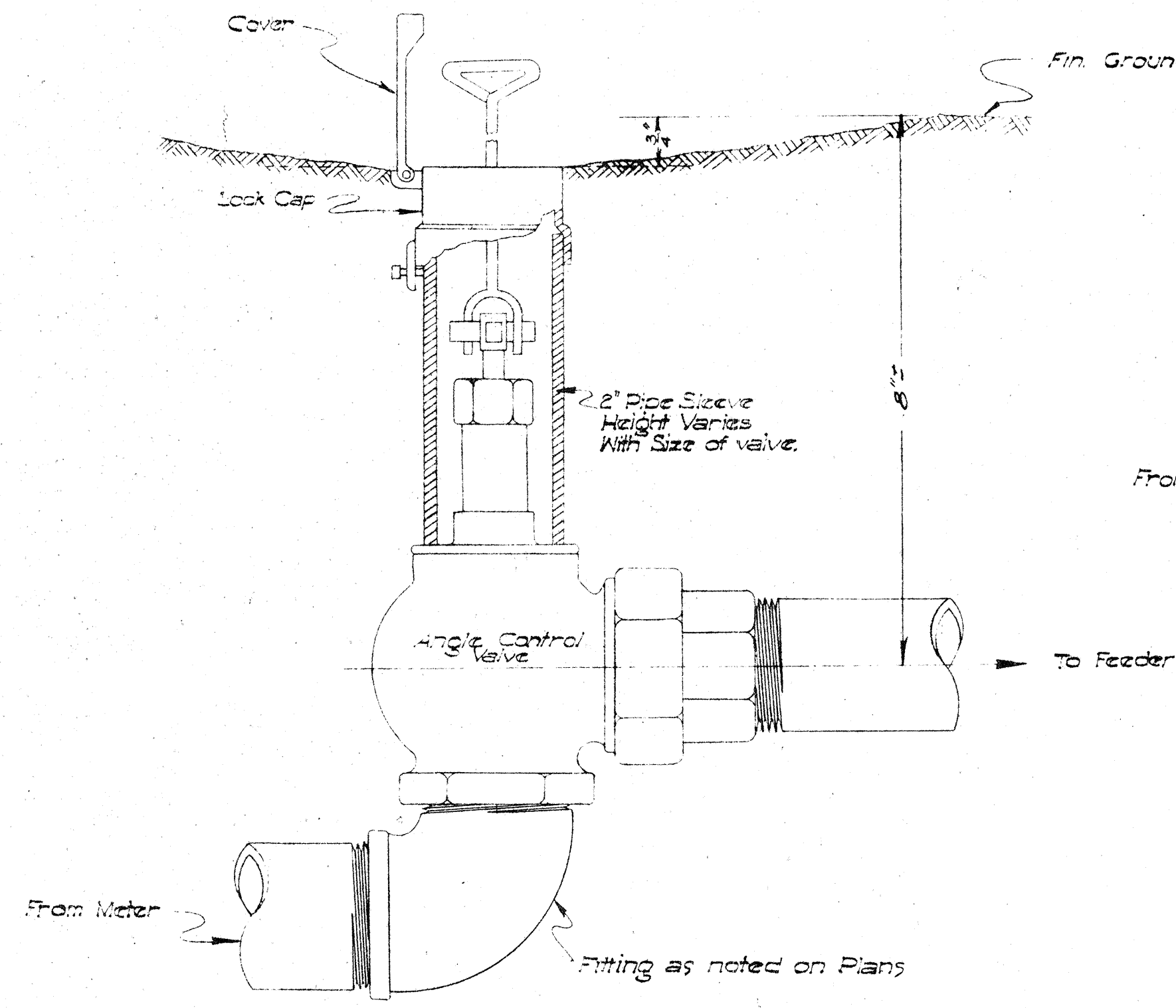
TYPICAL DETAIL OF SPRINKLER AT CONC. CURB
Not to Scale



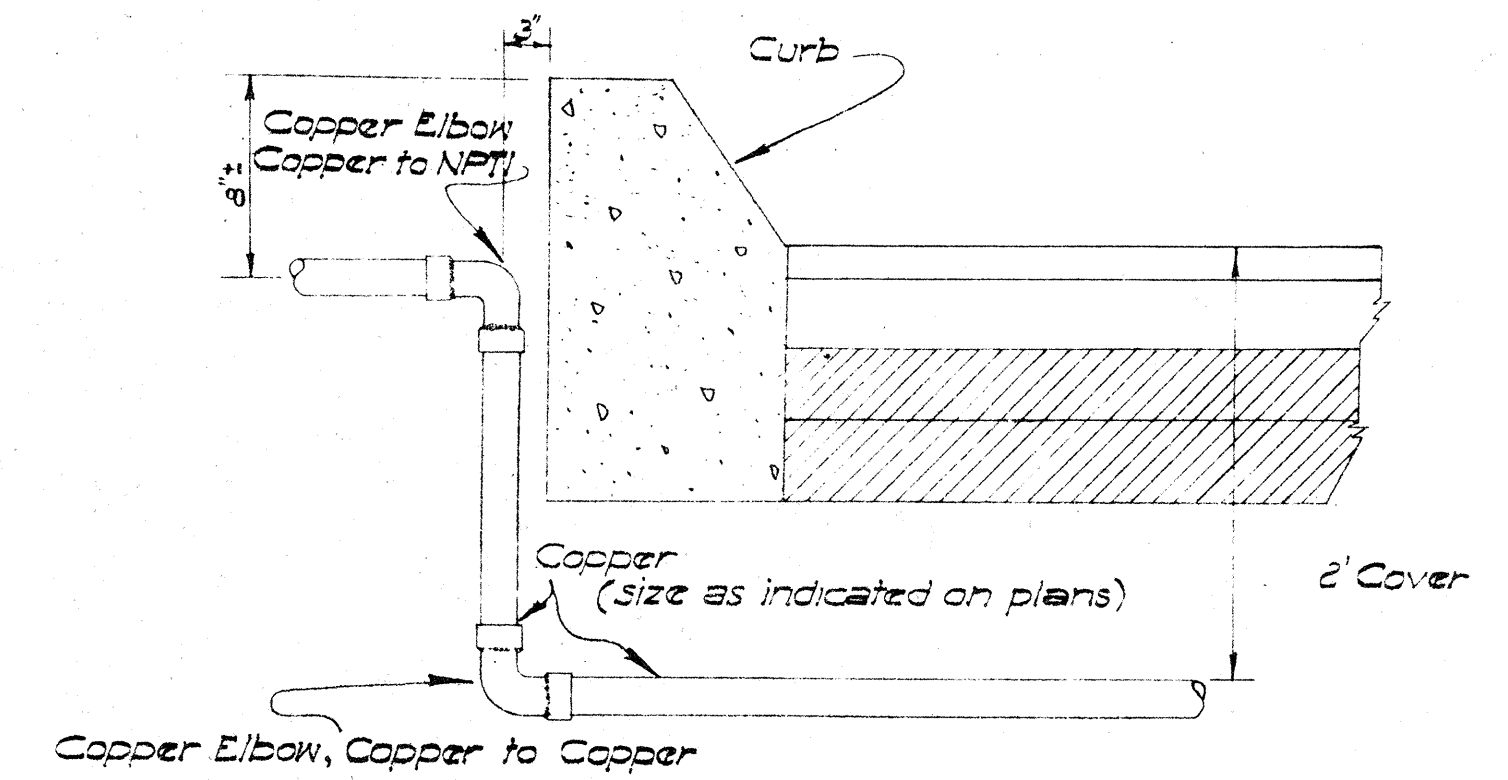
DETAIL OF SHRUBBERY HEAD
Not to Scale



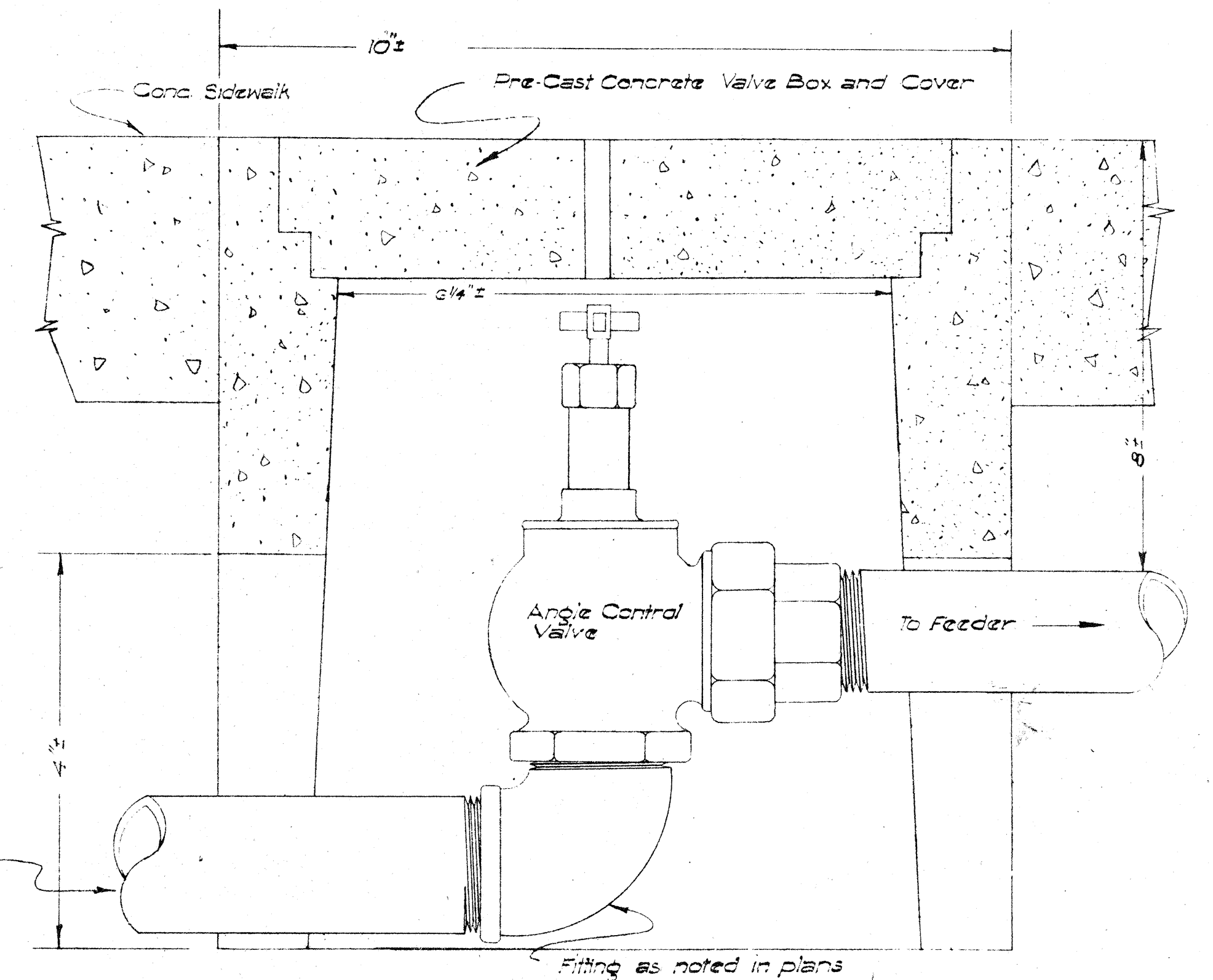
INSTALLATION OF JET SPRINKLER ON SLOPE
Not to Scale



ANGLE CONTROL VALVE HOUSING & CAP
Not to Scale



TYPICAL DETAIL OF ROADWAY CROSSING
Not to Scale



ANGLE CONTROL VALVE IN SIDEWALK AREA
Not to Scale

GENERAL NOTES

1. All copper pipes shall be connected with solder type fittings of bronze castings or wrought copper. Solder type fittings and copper pipes shall be "Streamline" or approved equal.
2. Pipes not noted "Copper" are to be Galvanized Iron. Screw pipes, and fittings not noted "Copper" are to be Galvanized Malleable Iron Fittings.
3. After complete installation of the sprinkler system, each sprinkler head shall be adjusted to the satisfaction of the Engineer.

APPROVED DATE Aug. 20, 1959

STATE HIGHWAY ENGINEER

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

STANDARD DETAILS
SPRINKLER SYSTEM

Not to Scale

SHEET NO. OF SHEETS

\$ 526.66K \$ 174.101K \$ 161.94K 193-K