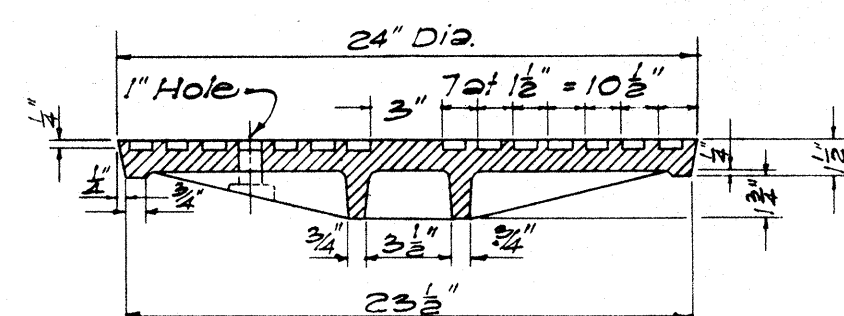
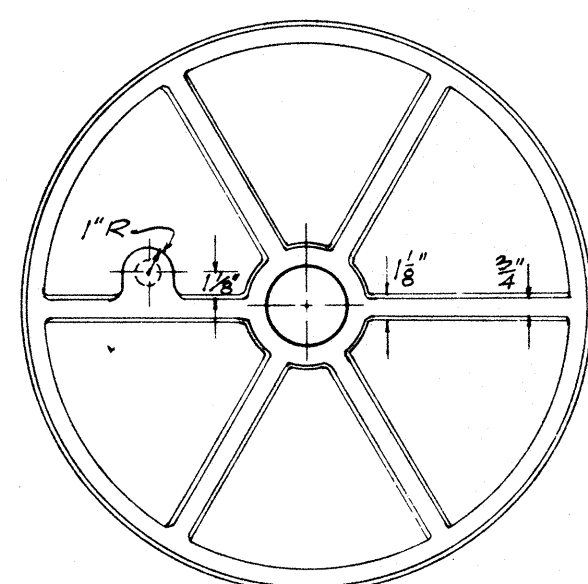




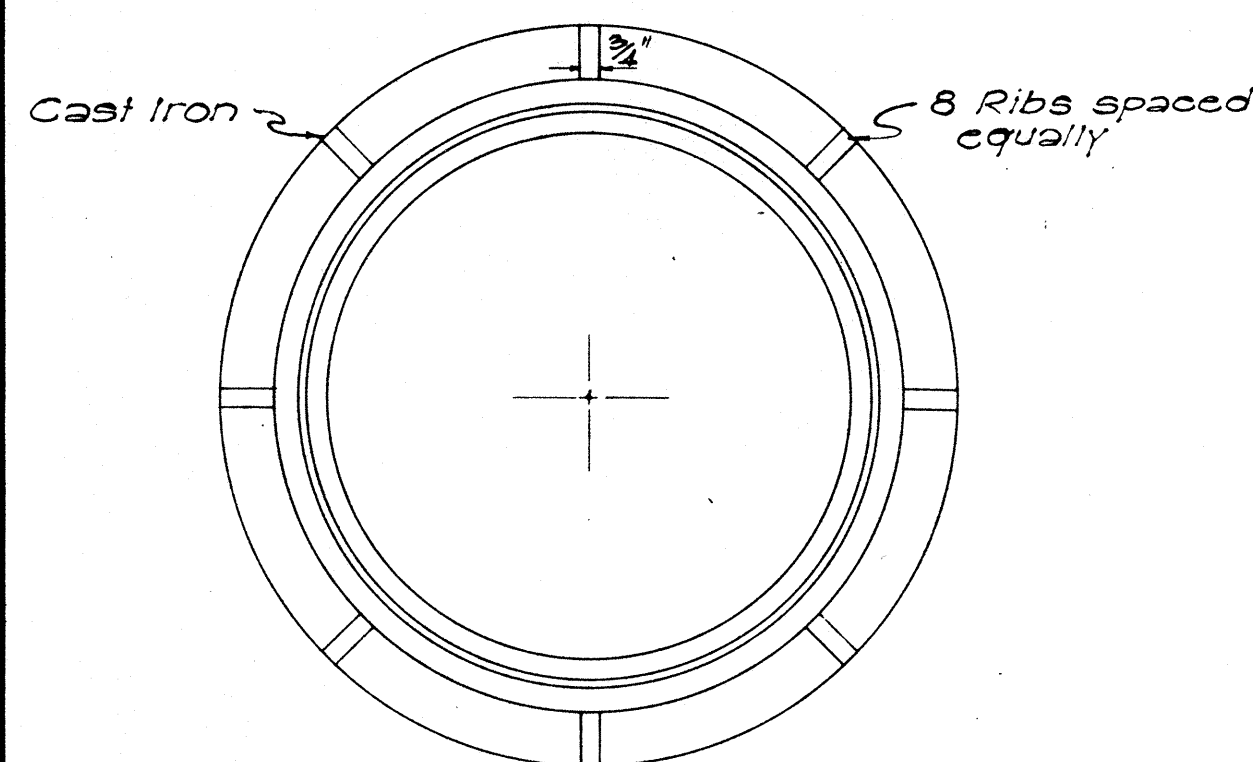
TOP VIEW OF COVER



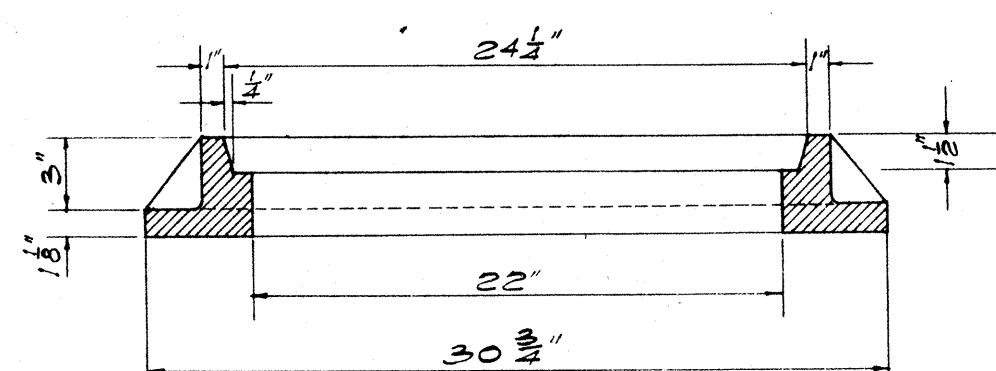
SECTION



BOTTOM VIEW OF COVER



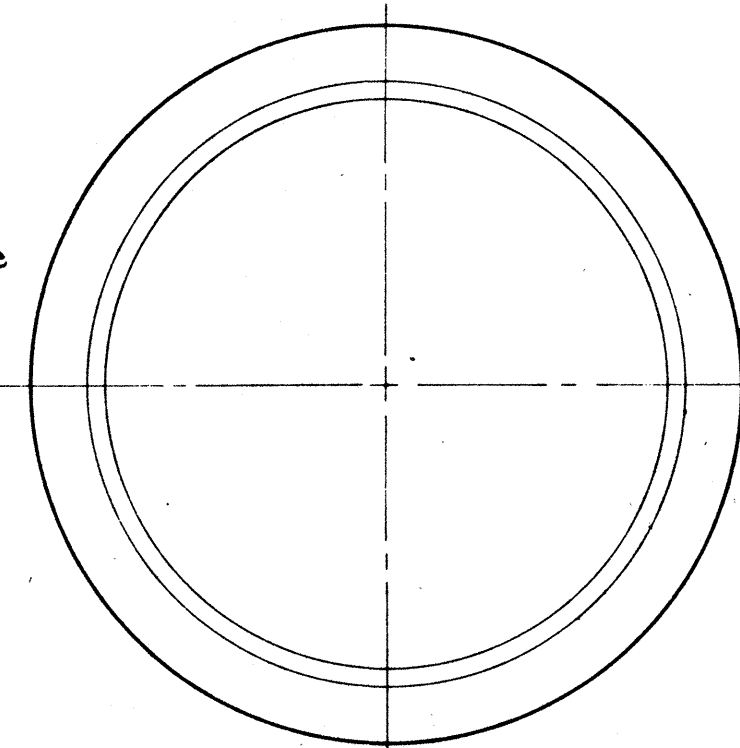
PLAN OF RIM



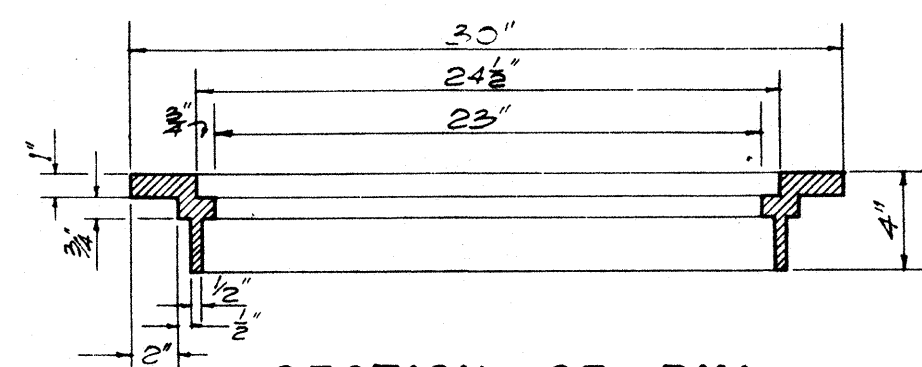
SECTION OF RIM
DETAILS OF TYPE "C"
MANHOLE CASTINGS

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

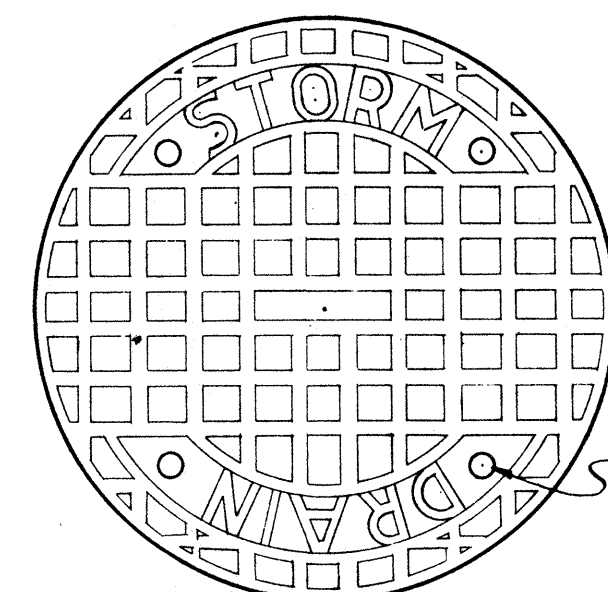
NOTE:
The Cover for Water Manhole shall be the same as for Sanitary Sewer except that the word "WATER" shall be substituted for "SANITARY SEWER". The frames for Sanitary Sewer and Water Covers shall be the same.



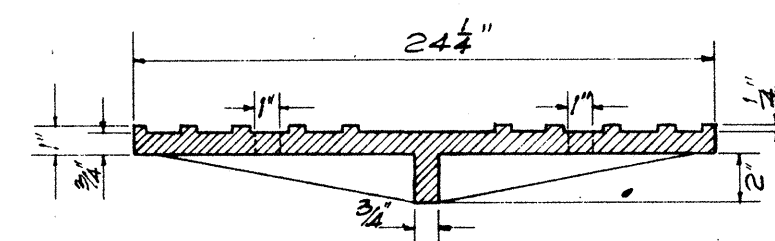
PLAN OF RIM



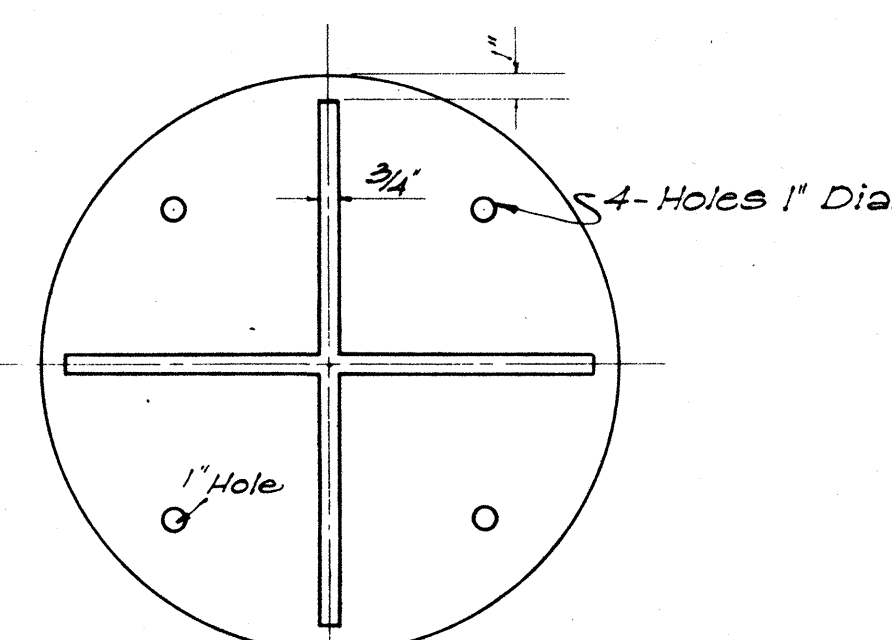
SECTION OF RIM



TOP VIEW OF COVER



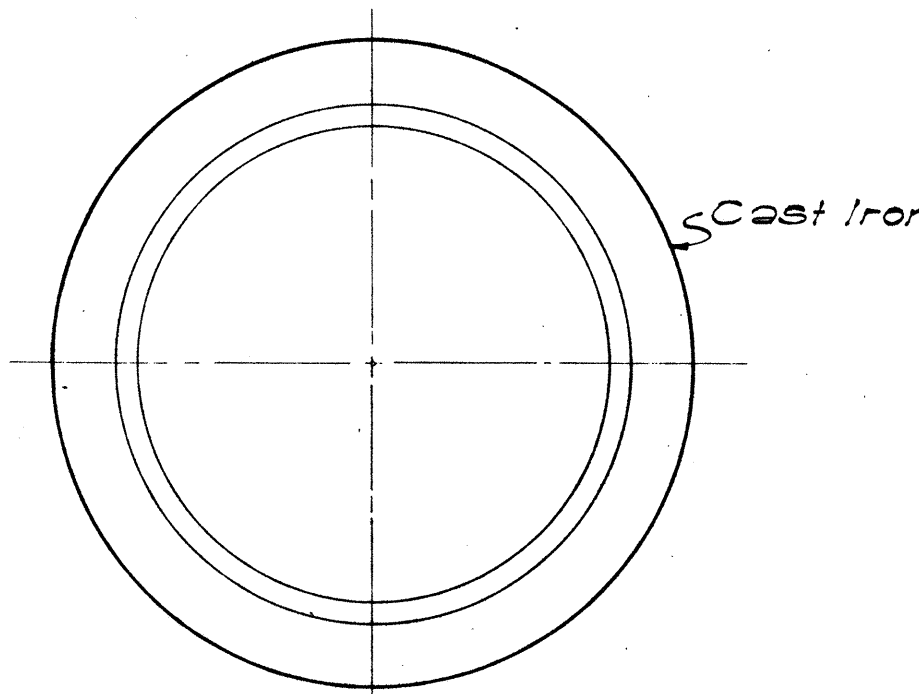
SECTION



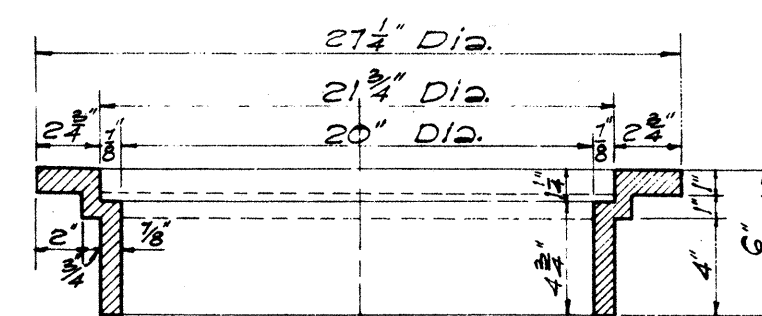
BOTTOM VIEW OF COVER

DETAILS OF TYPE "B"
CATCH BASIN CASTINGS

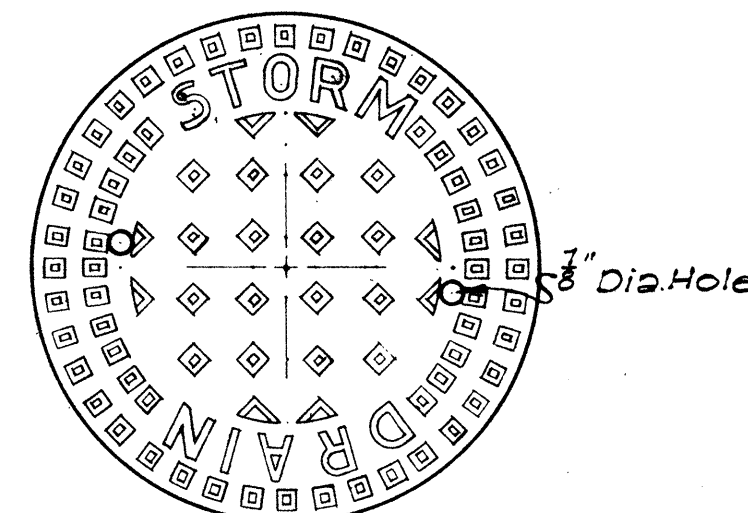
SCALE: 1-1/2" = 1'-0"



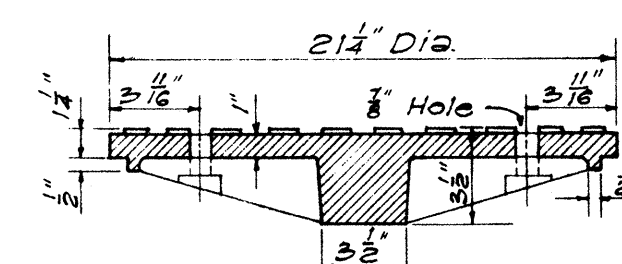
PLAN OF RIM



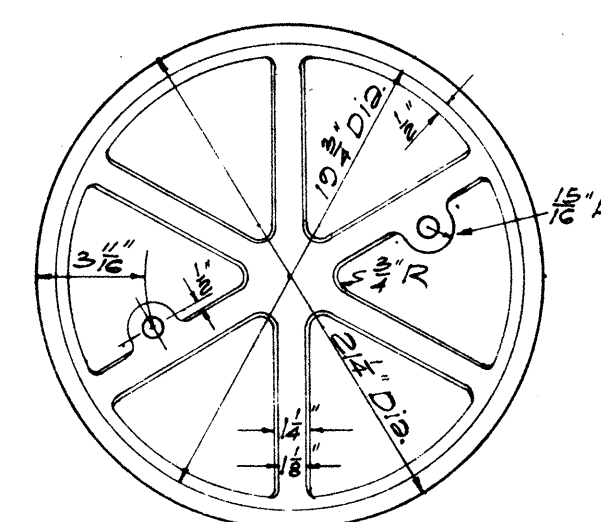
SECTION OF RIM



TOP VIEW OF COVER



SECTION

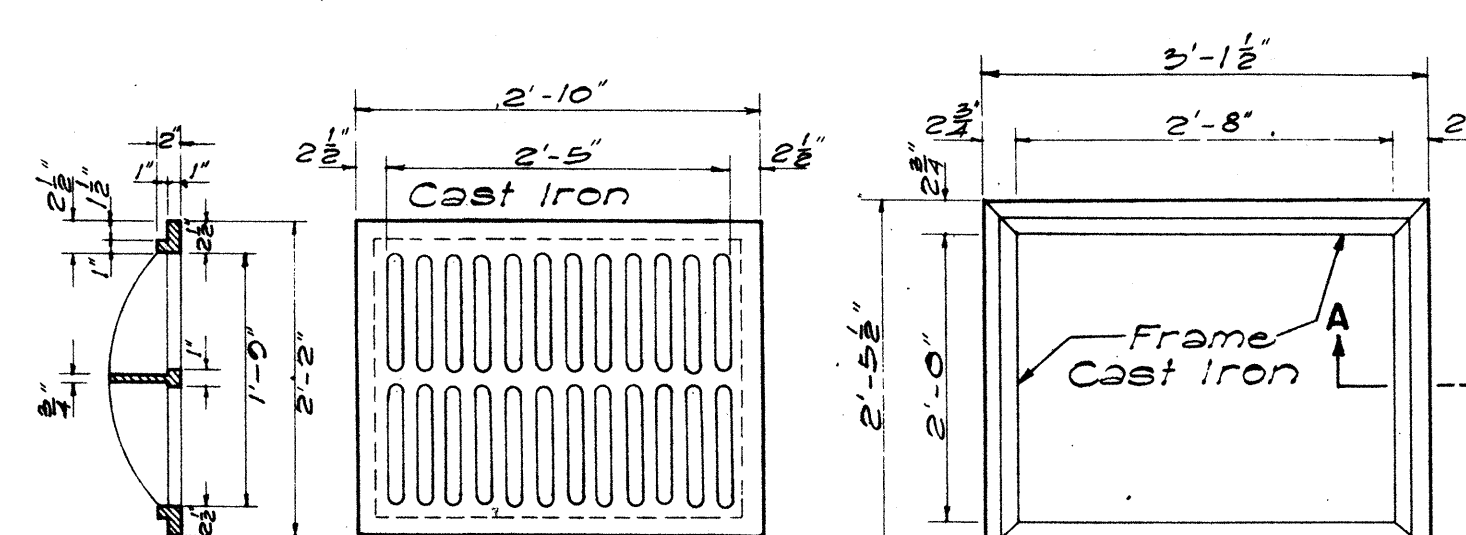


BOTTOM VIEW OF COVER

DETAILS OF TYPE "A"
MANHOLE CASTINGS

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

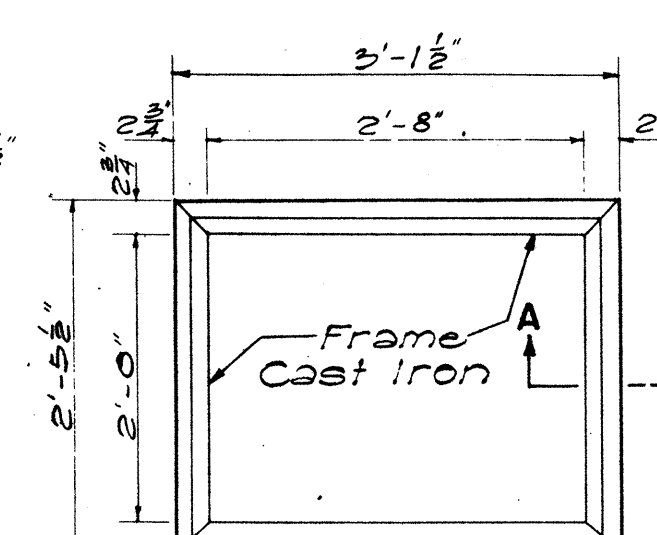
NOTE: Stock Pattern From Novelty Foundry ~ Honolulu



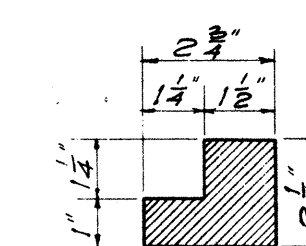
SECTION TOP VIEW

TYPE C C.I. FRAME AND GRATING

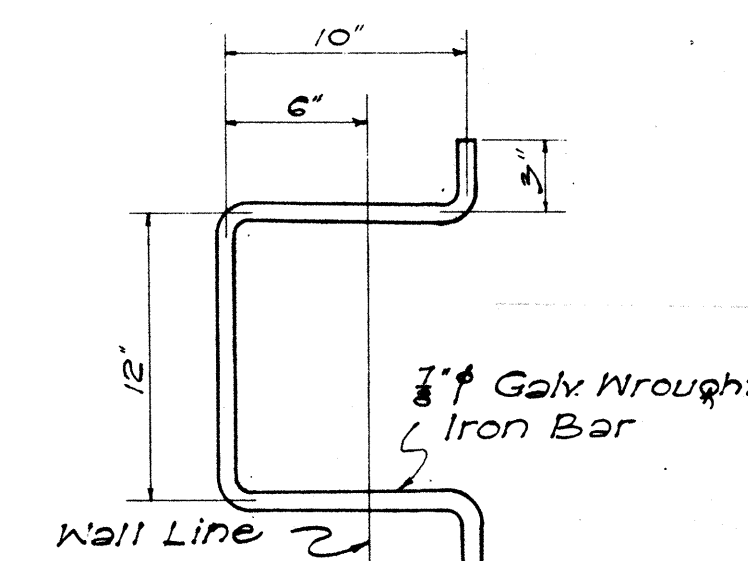
SCALE: 3/4" = 1'-0"



TOP VIEW

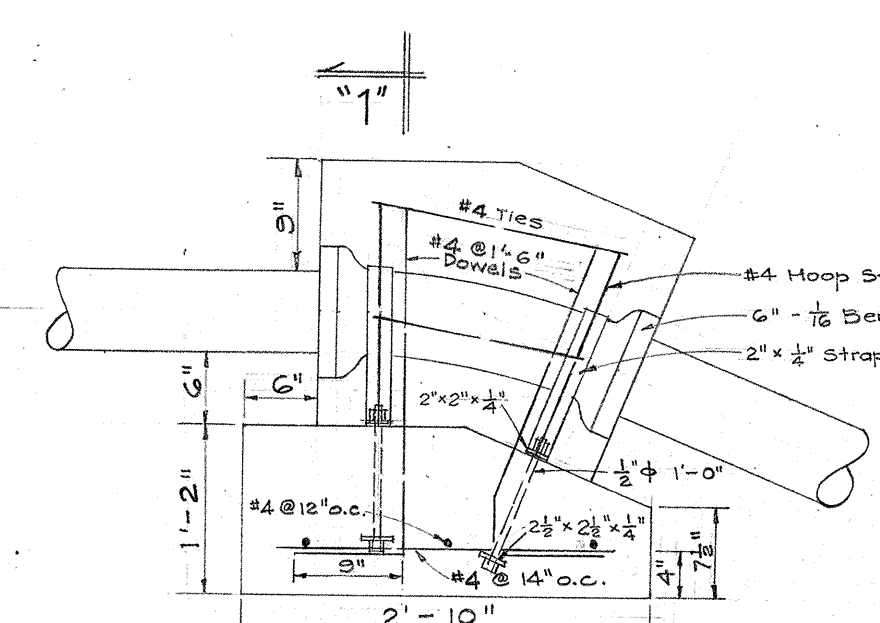


SECTION "A-A"
SCALE 3" = 1'-0"



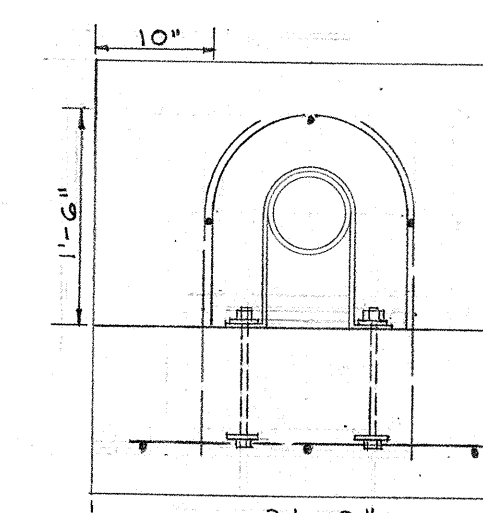
MANHOLE RUNG

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

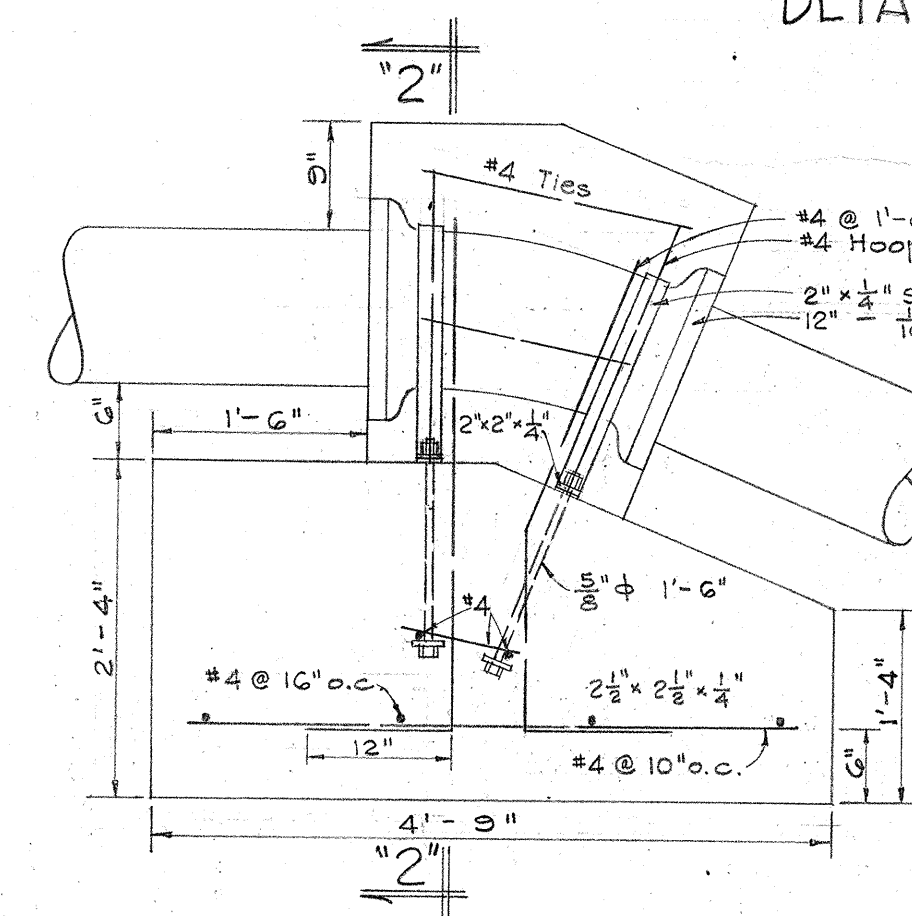


CONCRETE REACTION BLOCK
DETAIL FOR 6" - 1/16 BEND

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

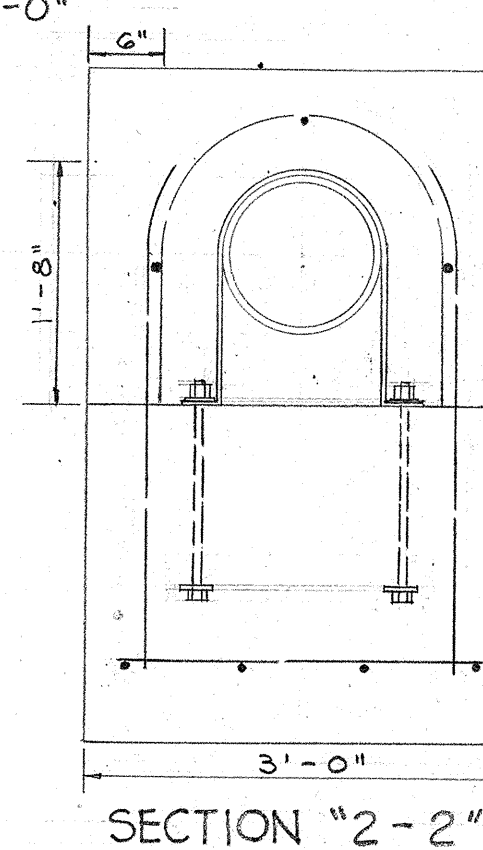


SECTION "1-1"



CONCRETE REACTION BLOCK
DETAIL FOR 12" - 1/16 BEND

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



SECTION "2-2"

NOTE: Pipe straps and miscellaneous hardware required to construct the concrete reaction blocks shall be considered as incidental to and included under Item No. 115(2) Class B-1 Concrete for Manhole Bottom Slabs, Reaction Blocks, and Concrete Jacket Including Reinforcing Steel.

APPROVED: _____
MANAGER AND CHIEF ENGINEER, B.W.S.
DATE: _____

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

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

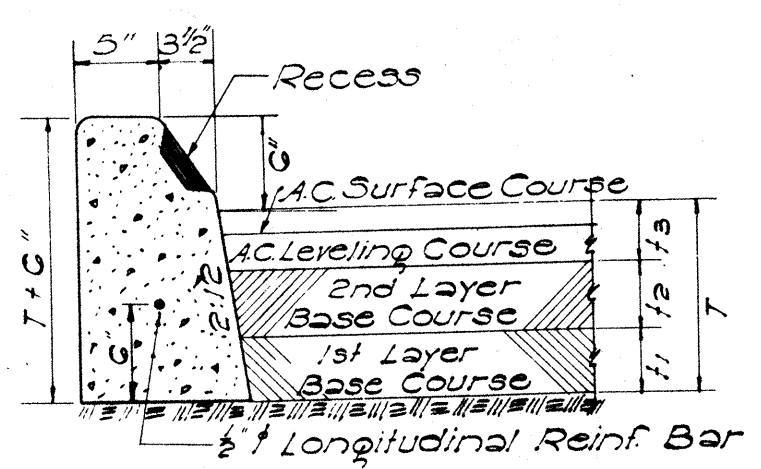
STANDARD DETAILS
CATCH BASIN AND
MANHOLE CASTINGS

SCALES AS NOTED

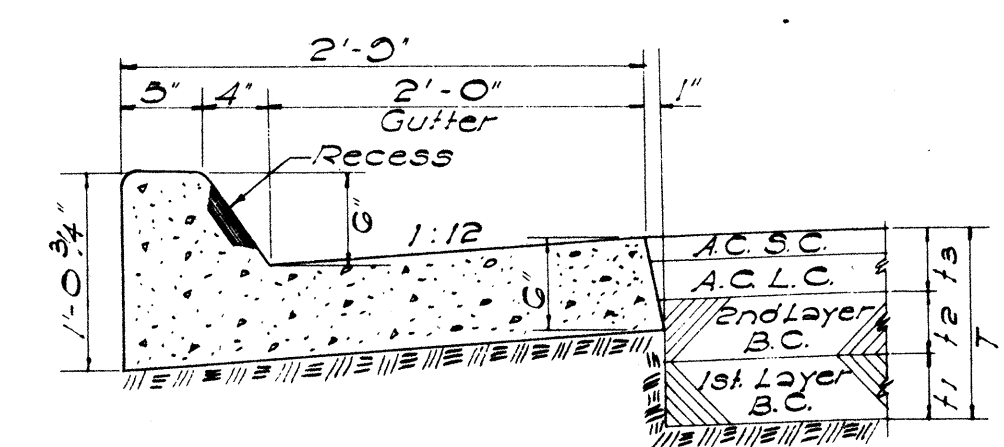
SHEET NO. 1 OF 5 SHEETS

5696.3

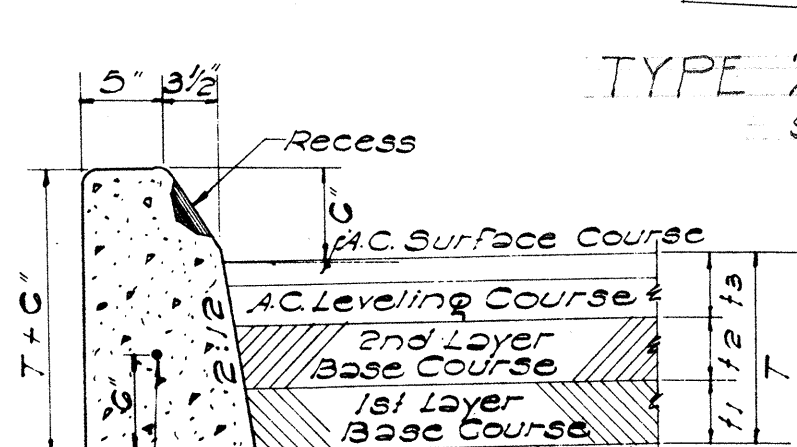
ORIGINAL PLAN
DESIGNED BY: C. Castro
DRAWN BY: C. Castro
CHECKED BY: C. Castro
DATE: _____



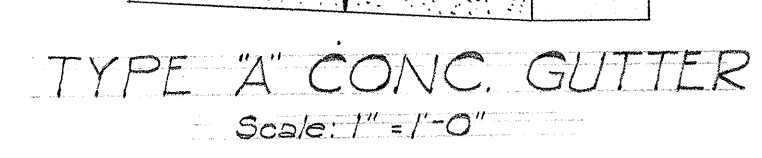
TYPE "A" & "B" CURB
SCALE: 1" = 1'-0"



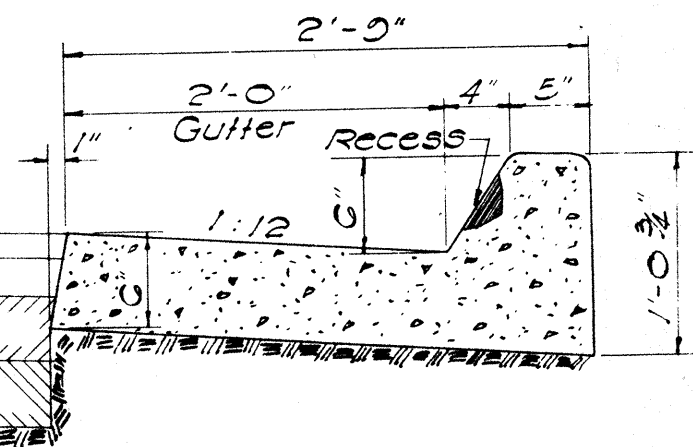
TYPE "AG" & "BG" CURB & GUTTER
SCALE: 1" = 1'-0"



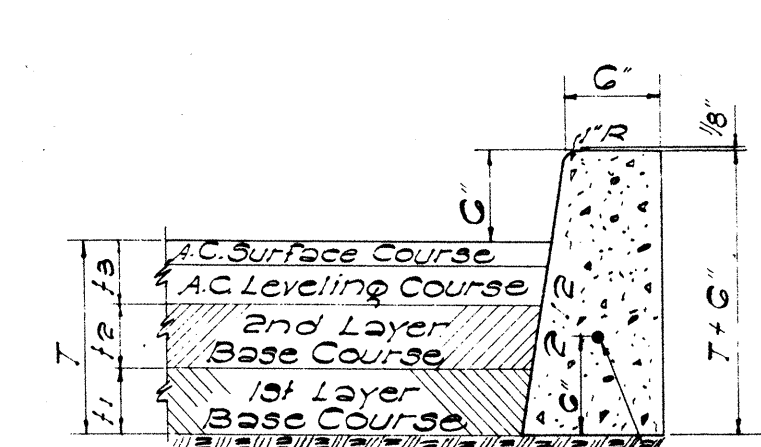
TYPE "C" CURB
SCALE: 1" = 1'-0"



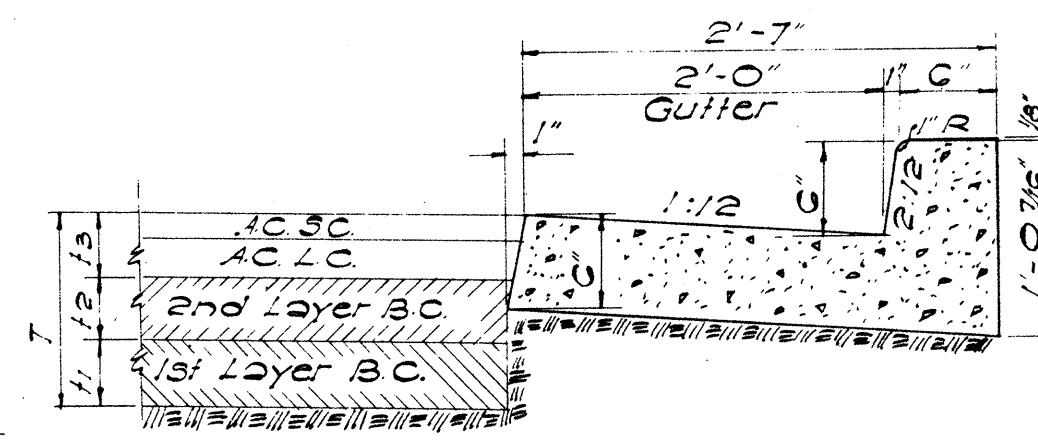
TYPE "A" CONC. GUTTER
SCALE: 1" = 1'-0"



TYPE "CG" CURB & GUTTER
SCALE: 1" = 1'-0"

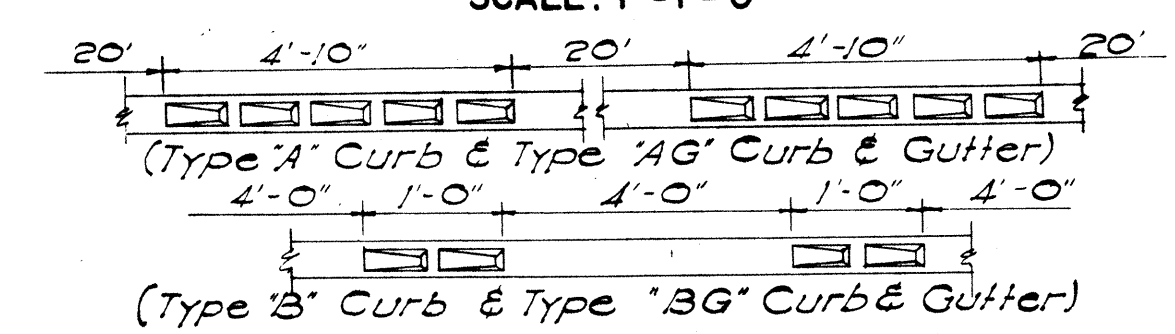


TYPE "D" CURB
SCALE: 1" = 1'-0"

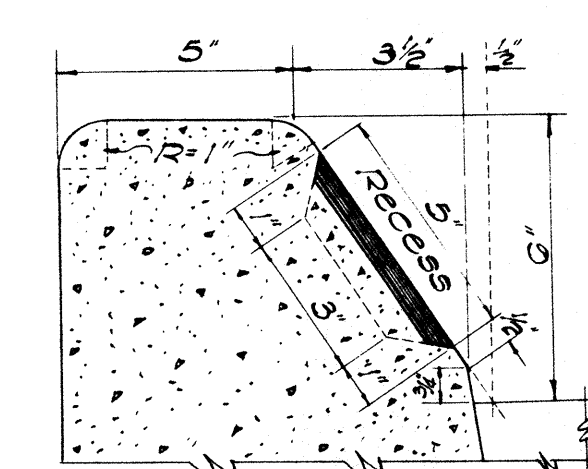


TYPE "DG" CURB & GUTTER
SCALE: 1" = 1'-0"

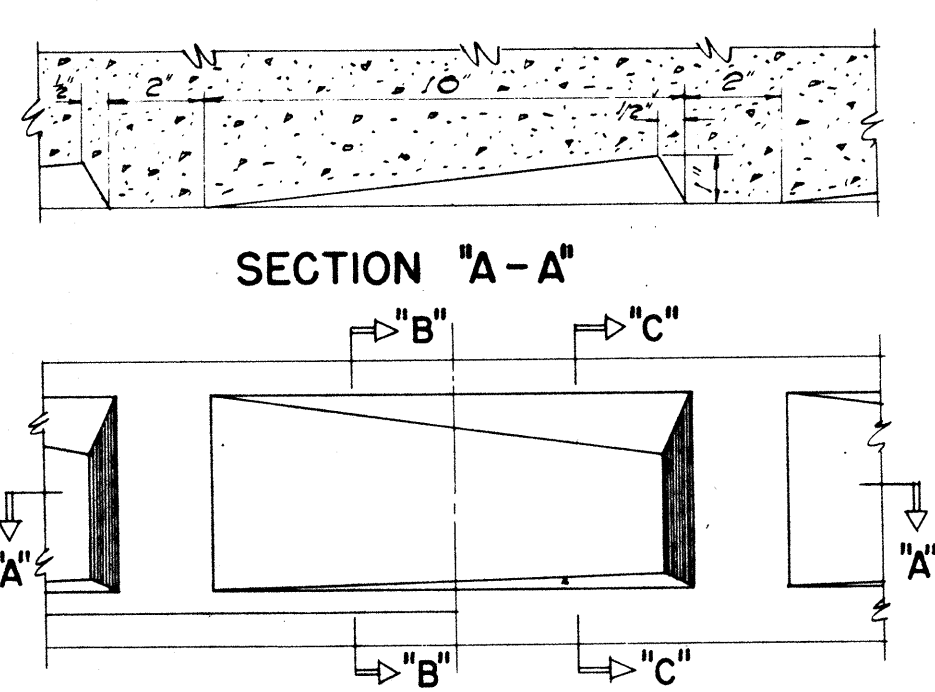
General Note Covering All Types of Curbs:
Occasionally curb rests on first layer of base course. See typical sections.



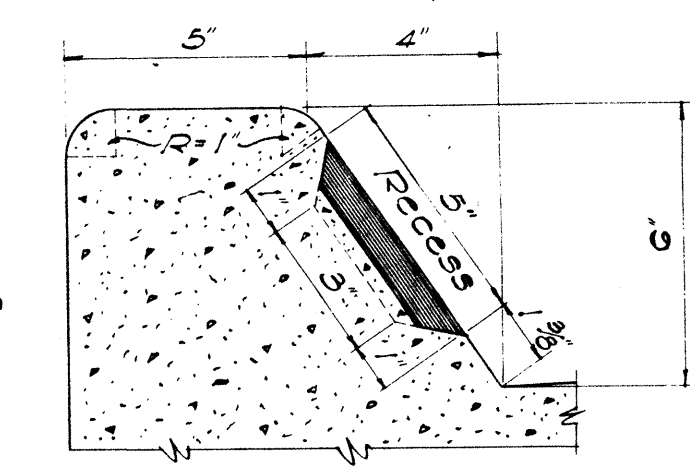
TYPE AND SPACING OF RECESSES



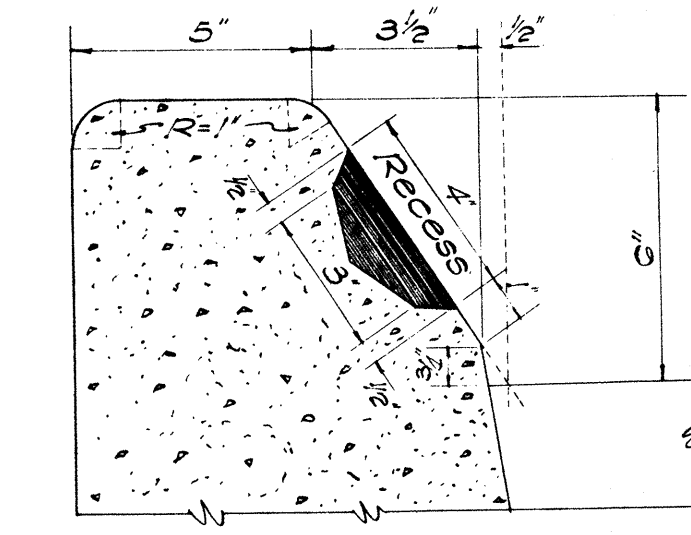
SECTION "B-B"
TYPE "A" & "B" CURB



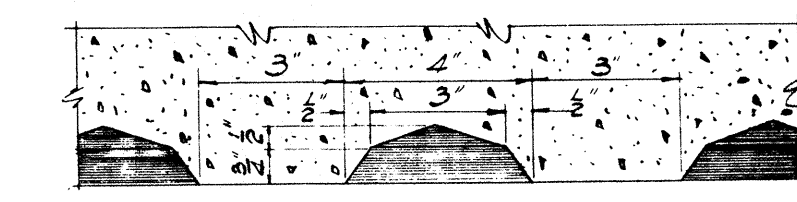
ELEVATION
SCALE: 3" = 1'-0"



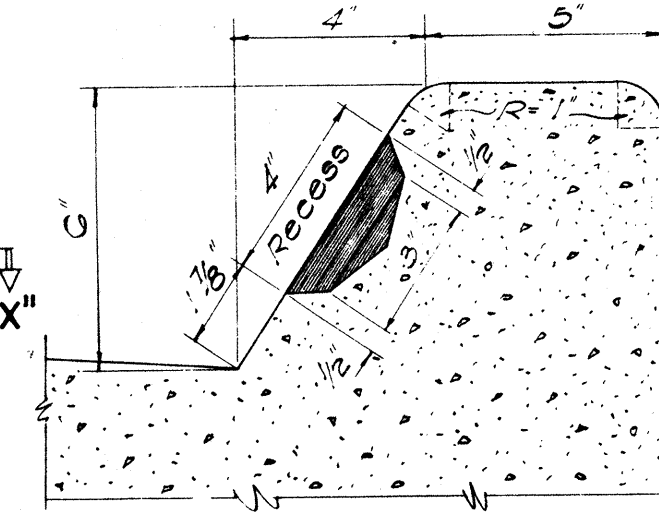
SECTION "C-C"
TYPE "AG" & "BG" CURB



SECTION "Y-Y"
TYPE "C" CURB

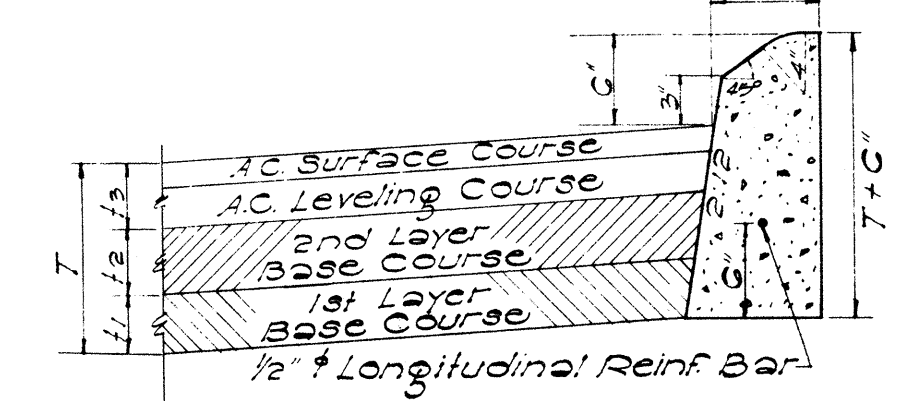


SECTION "X-X"
SCALE: 3" = 1'-0"



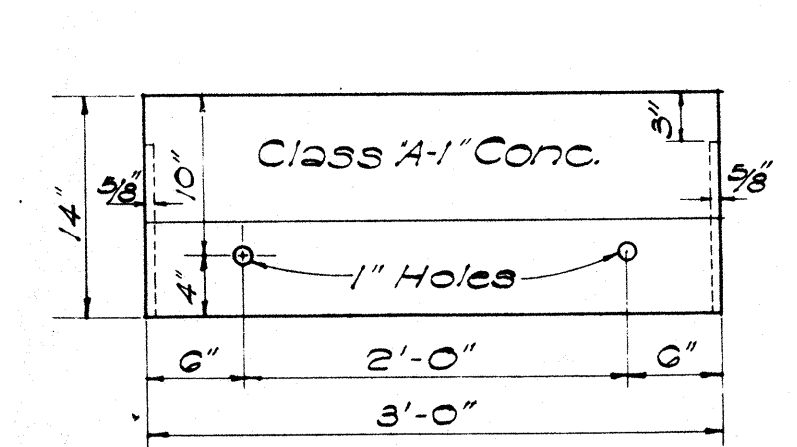
SECTION "Z-Z"
TYPE "CG" CURB

- NOTES:
- 1) Types "AG", "BG", "CG", "DG" and "EG" Concrete Curbs and Gutters are to be poured monolithically.
 - 2) Types "A", "B", and "C" Curbs and Types "AG", "BG" and "CG" Curbs and Gutters occur at Median Strips and Traffic Islands.
 - 3) Shaded area in Curbs are to be painted with an approved white lacquer. (One Coat)
 - 4) All Conc. Curbs and Gutters shown herein are to be of Class "A-1" Conc. and Cast-in-Place.



TYPE "F" CURB
SCALE: 1" = 1'-0"

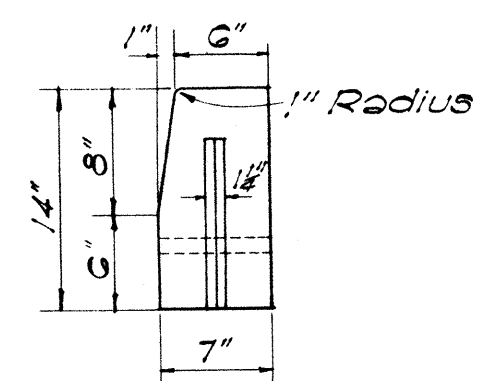
DETAILS OF CAST-IN-PLACE CONC. CURBS AND GUTTERS



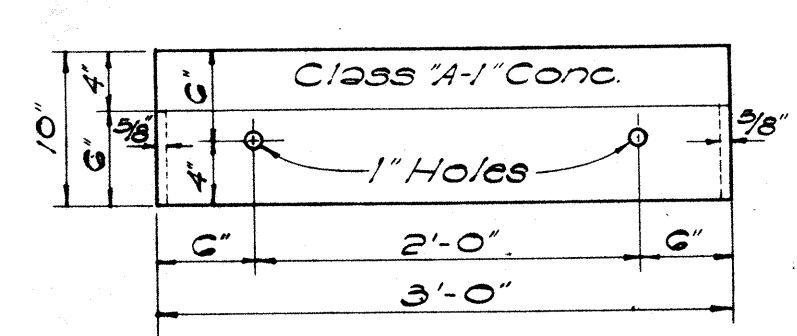
FRONT ELEV.

PRECAST CONC. CURB

SCALE: 1" = 1'-0"



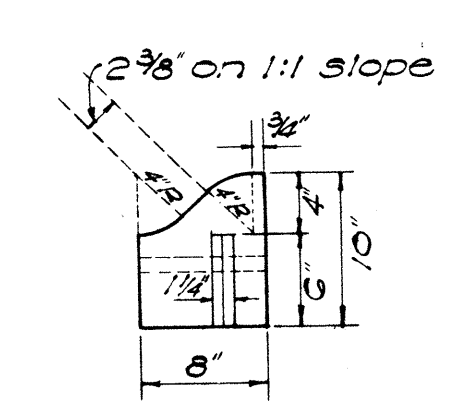
END ELEV.



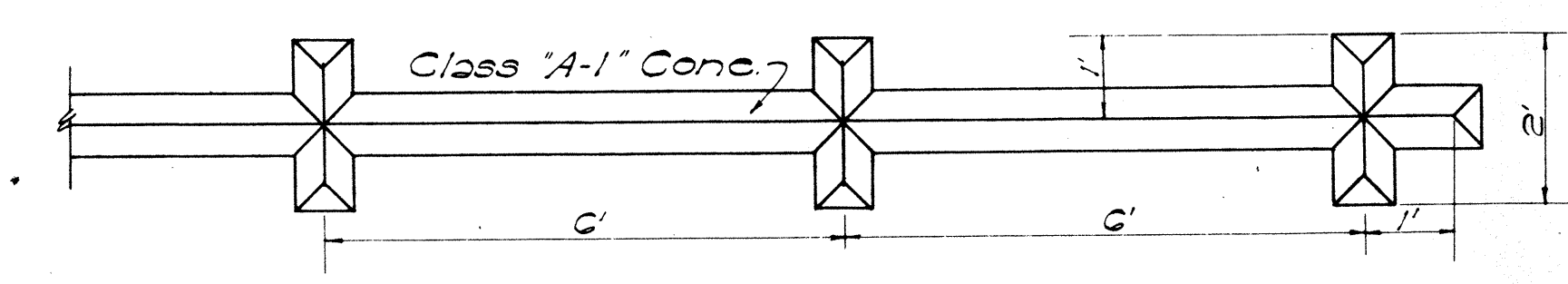
FRONT ELEV.

PRECAST CONC. ROLL CURB

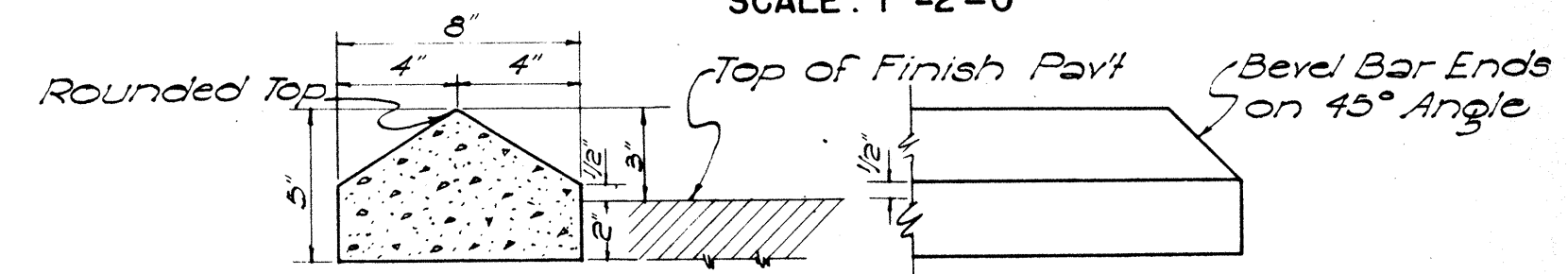
SCALE: 1" = 1'-0"



END ELEV.

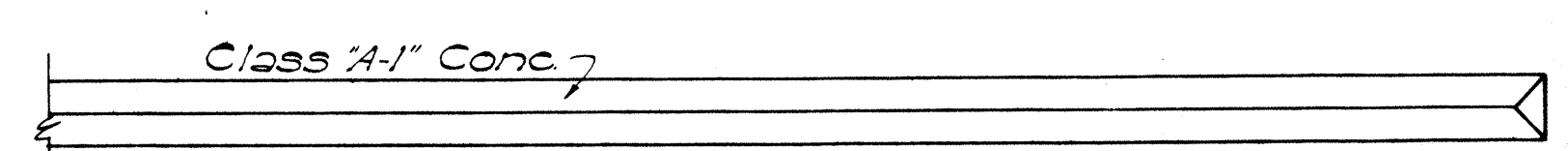


PLAN
SCALE: 1" = 2'-0"



SECTION
RAISED TRAFFIC BARS

SCALE: 1" = 6"

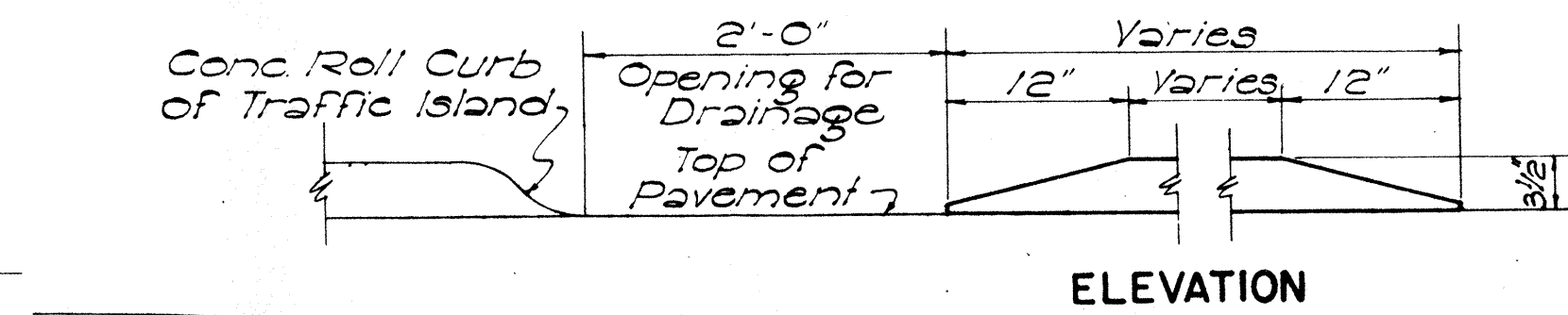


PLAN

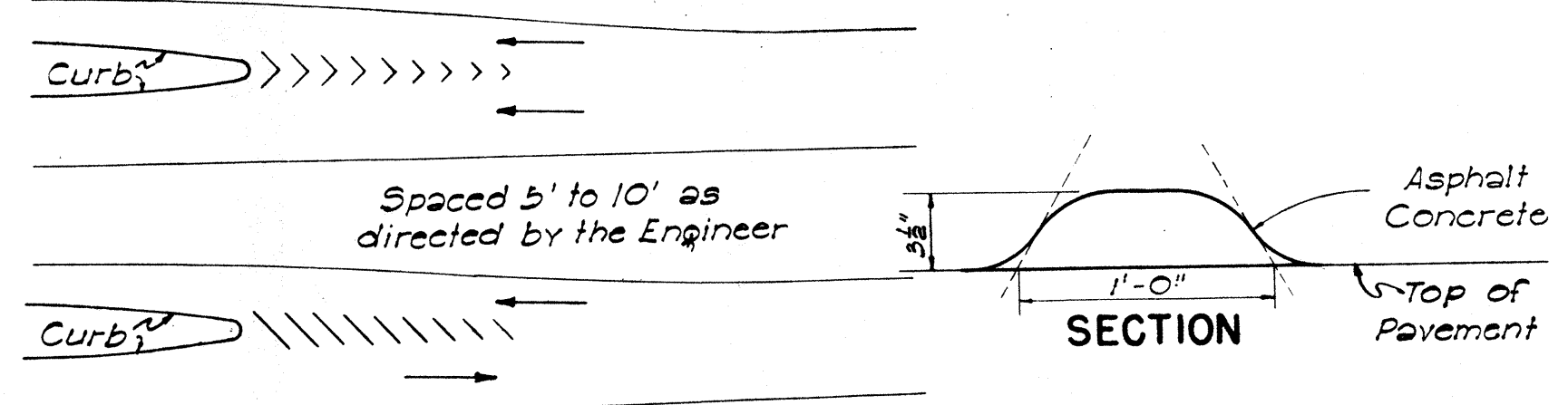
NOTE:
Section and Elevation for Jiggle Bars are same as the Traffic Bars.

RAISED JIGGLE BARS

SCALE: 1" = 2'-0"



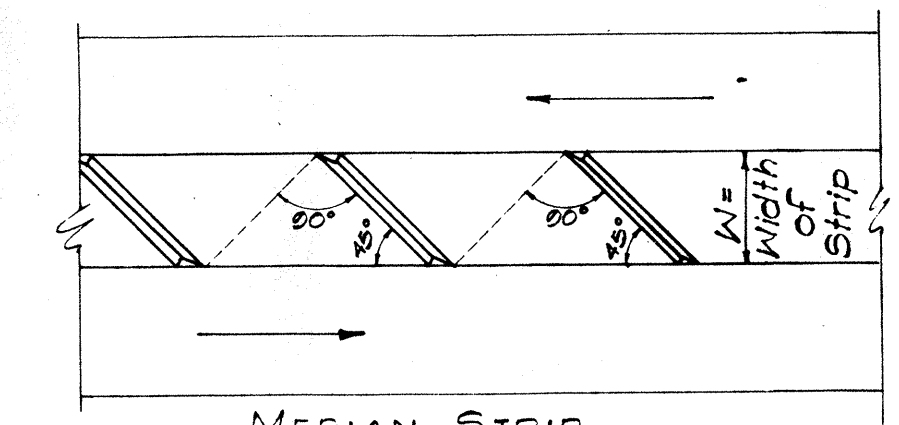
ELEVATION



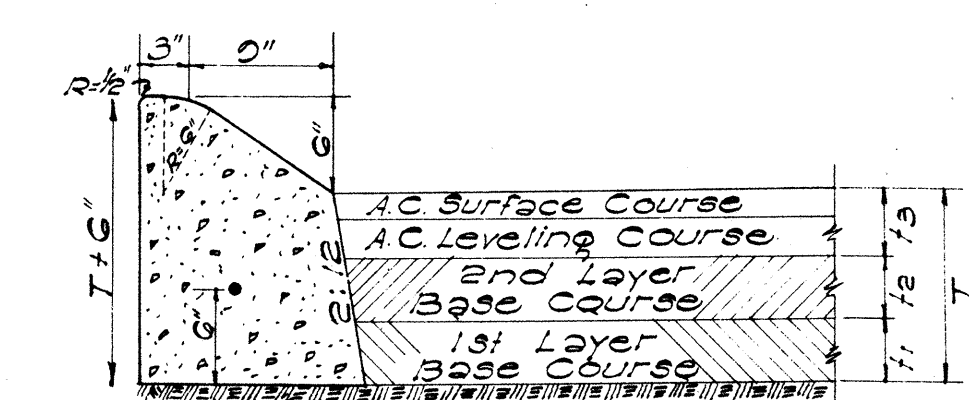
SECTION

A.C. ROLL CURB
NOT TO SCALE

AT CURBED ISLAND

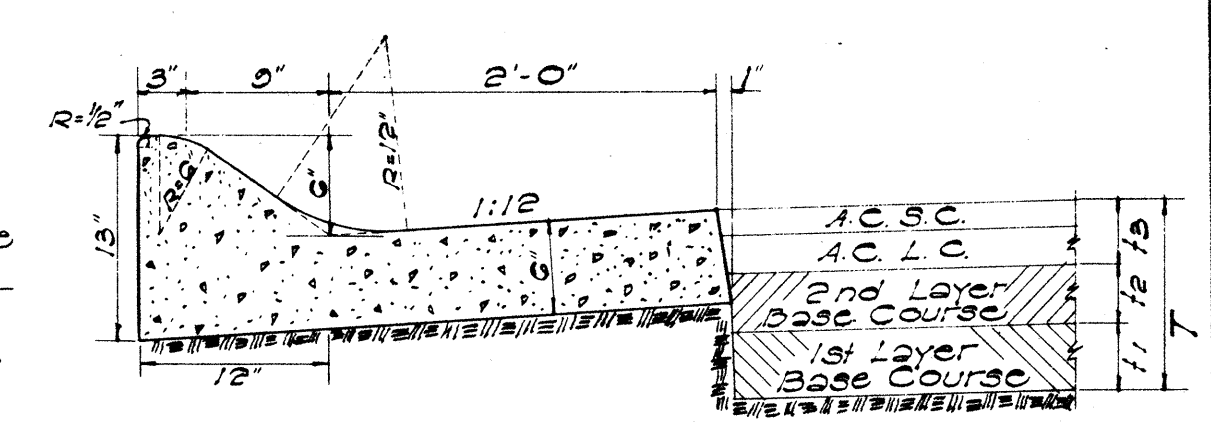


LAYOUT OF JIGGLE BARS
NOT TO SCALE



TYPE "E" CAST-IN-PLACE
CONCRETE CURB

SCALE: 1" = 1'-0"



TYPE "EG" CAST-IN-PLACE
CONC. CURB & GUTTER

SCALE: 1" = 1'-0"

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

DATE: _____
DESIGNED BY: _____
CHECKED BY: _____
QUANTITIES CHECKED BY: _____
NOTE BOOK NO. _____

APPROVED: _____
DATE: 6-22-53
TERRITORIAL HIGHWAY ENGINEER

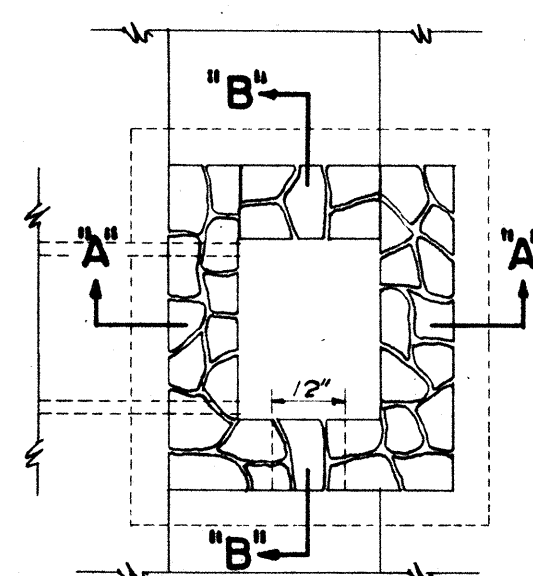
D	W	H	T=H+H
18"	24"	2'-0"	4'-0"
24"	30"	2'-0"	4'-6"
30"	36"	2'-0"	5'-0"
36"	36"	3'-0"	6'-0"

DETAIL OF OUTLET DITCH

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

D'	D	L=D+G'	Cu Yds.	Where Variables Equal
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"

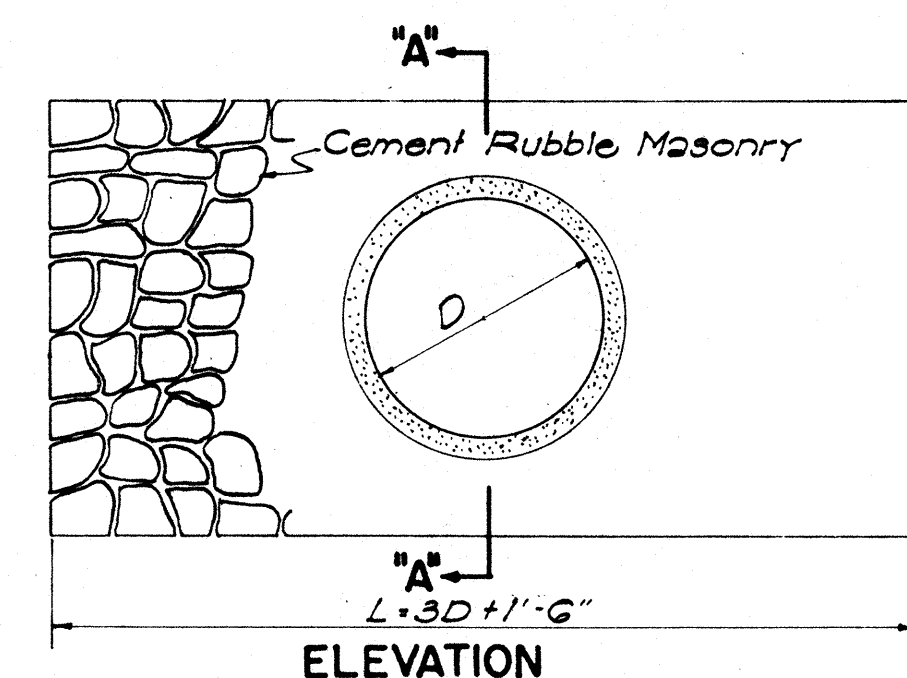
NOTE: Dimension "X" is assumed as 2'-4" in figuring the above quantities.



DETAIL OF MASONRY DROP INTAKE

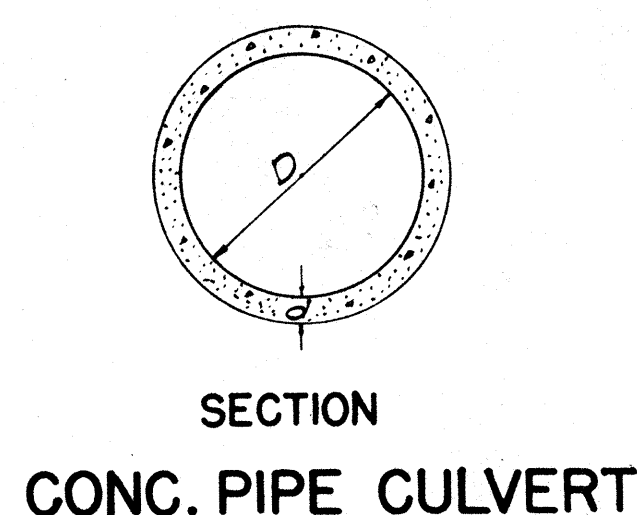
Scale: 3/8" = 1'-0"

D	H	B	L	Cost-In-Place Conc. Culvert Cu Yds.	Cost-In-Place Conc. Culvert Cu Yds.	Corrugated Pipe Culvert Cu Yds.
18"	3'-6"	1'-0"	6'-0"	0.83	0.05	0.93
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

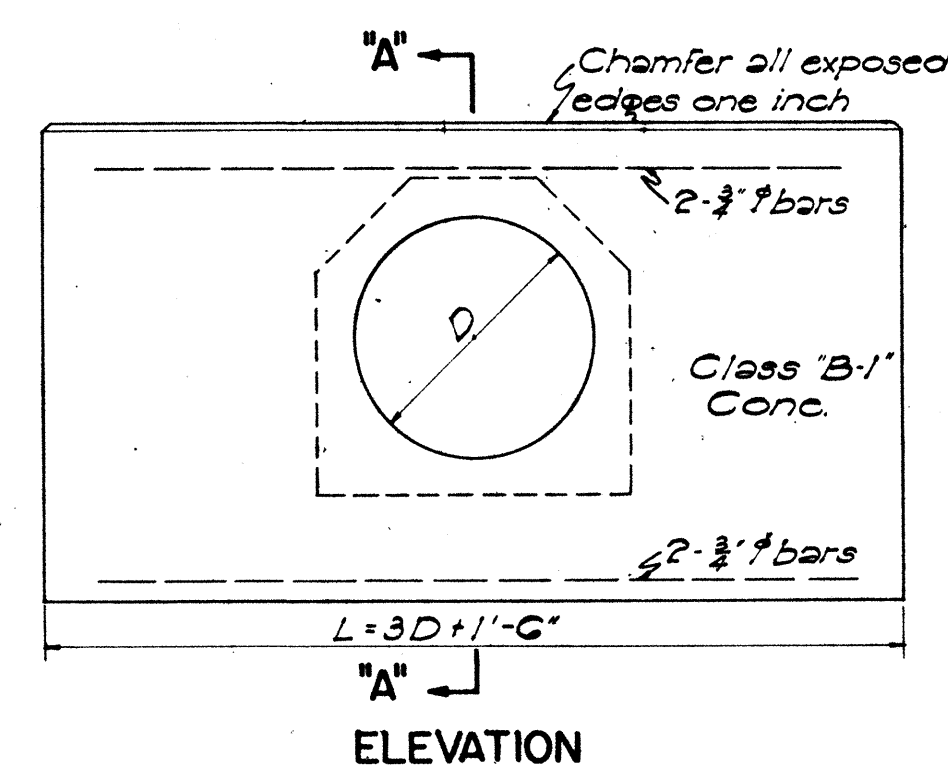
Scale: 1/2" = 1'-0"



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

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



DETAIL OF CONCRETE HEADWALL

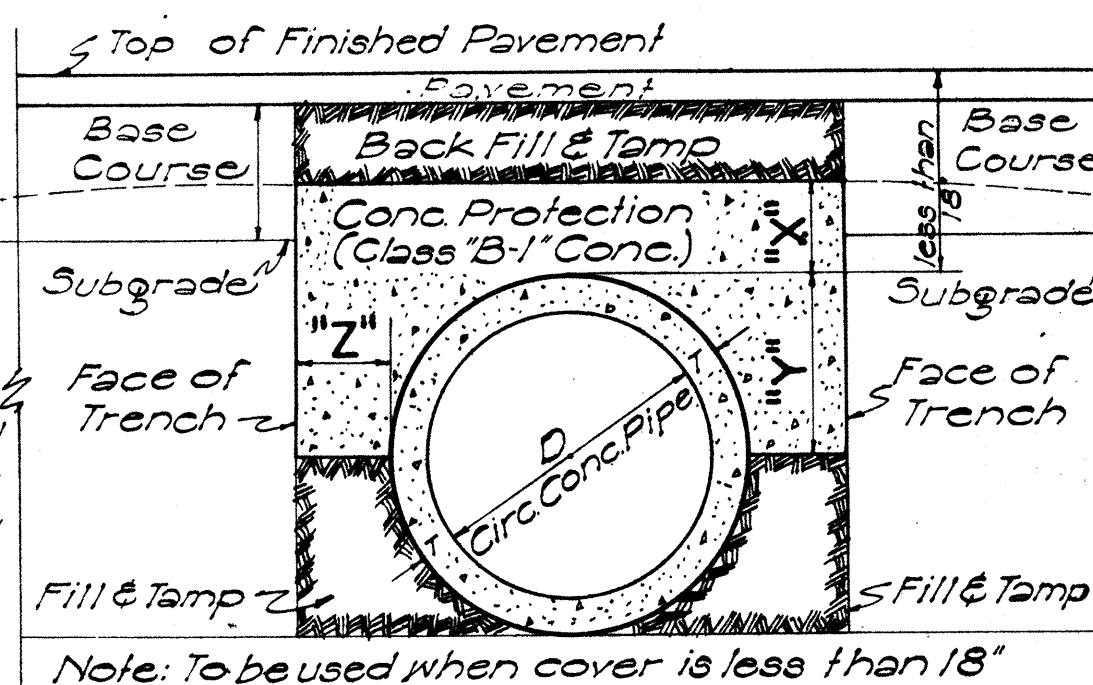
Scale: 1/2" = 1'-0"

D	B	L	H	Cost-In-Place Conc. Culvert Cu Yds.	Cost-In-Place Conc. Culvert Cu Yds.	Steel For One Headwall
18"	1'-6"	6'-0"	4'-0"	0.02	1.00	4 3/4" 5'-6" 33
24"	1'-6"	7'-6"	4'-6"	1.25	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 3/4" 11'-6" 69
48"	2'-6"	13'-6"	6'-6"		4.66	4 3/4" 13'-0" 78

CONSTR. JOINT DETAILS

METHOD OF APPLYING CONSTR. JOINT WATERPROOFING
(1) Map surface either side of joint as required with asphalt 50-100 penetration (A.S.T.M. Desig. D 5-25) applied at 200°F.
(2) Apply one layer of 55-lb composition roofing to hot asphalt. (struc. exc) to proper subgrade. This surface shall be rolled again.
(3) Map surface of composition roofing and 3" beyond all around with thick coat of asphalt as specified under (1).
The above work is incidental to concrete and will not be paid for separately.

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

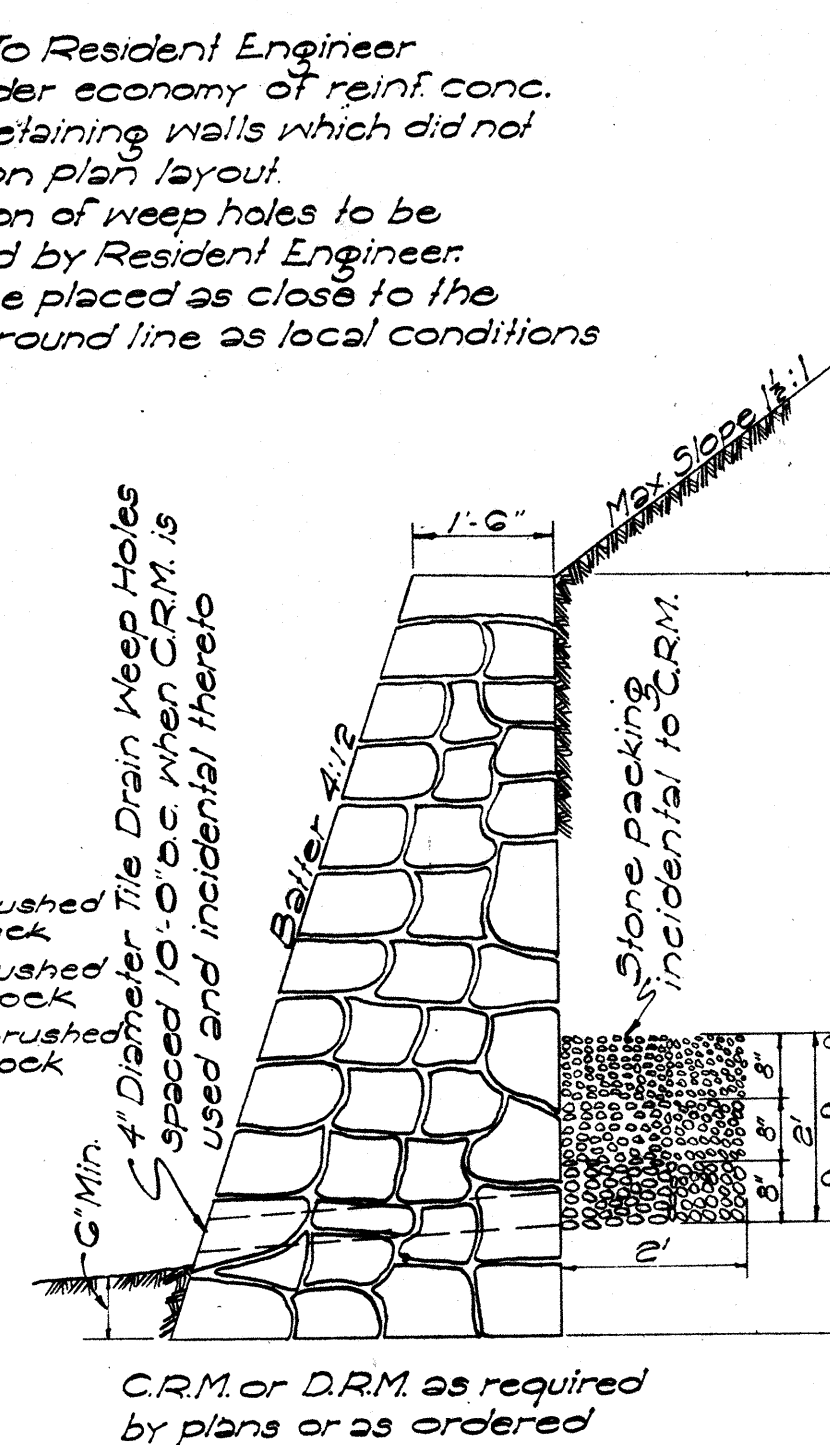


X	Y	Z
6" for 18"D		Z must be from pipe to face of trench
7" " 24"D		
8" " 30"D		
9" " 36"D		
10" " 42"D		
11" " 48"D		
12" " 54"D		

SECT. OF CULVERT WITH CONC. PROTECTION

Scale: 1" = 1'-0"

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



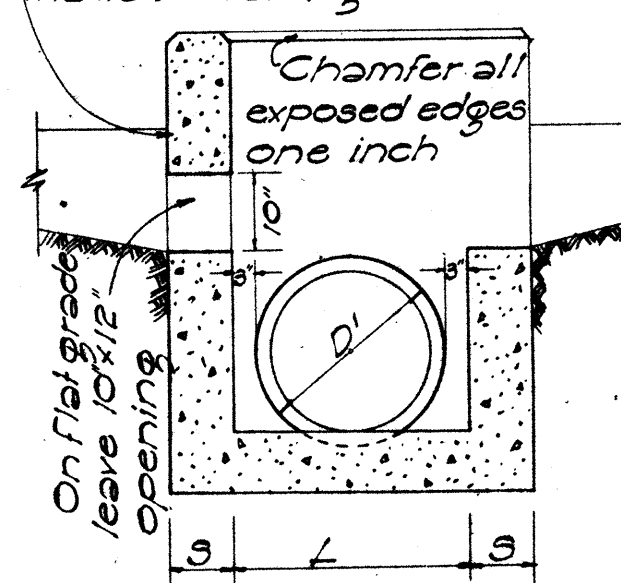
SECTION OF HIGH CEMENT RUBBLE MASONRY RETAINING WALL OR SEAWALL

SECTION OF LOW MASONRY RETAINING WALL OR SEAWALL

D'	D	L=D+G'	Cu Yds.	Where Variables Equal
23"	18"	2'-5"	1.41	4'-6"
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"

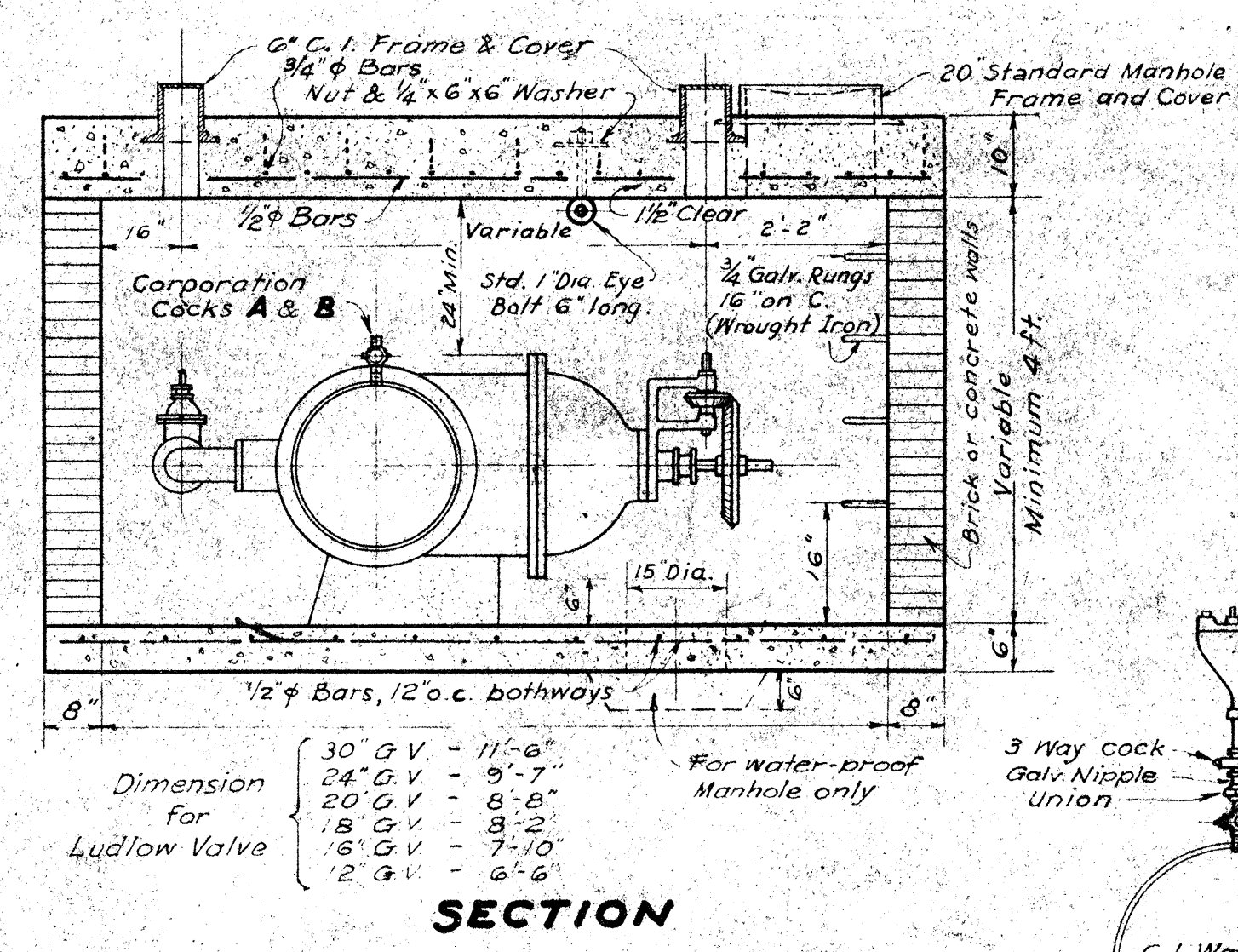
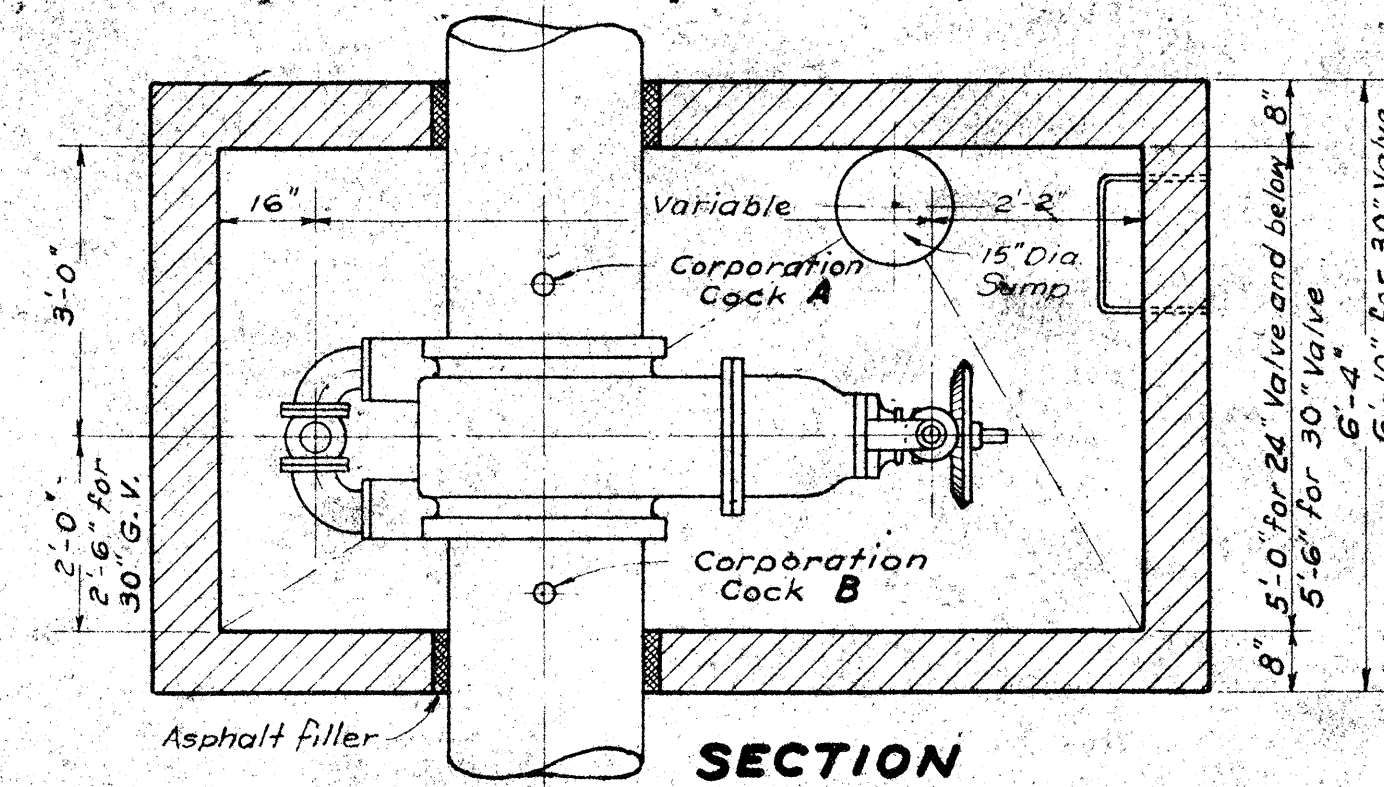
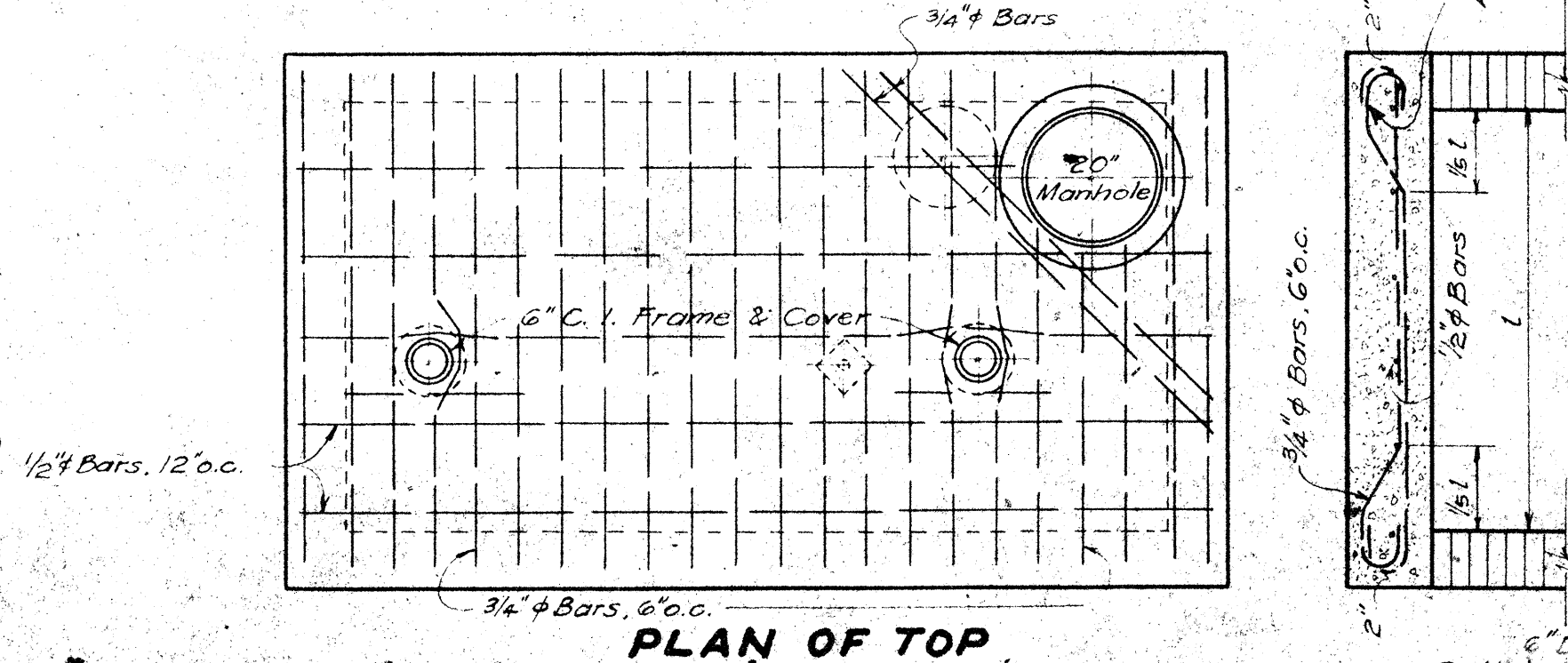
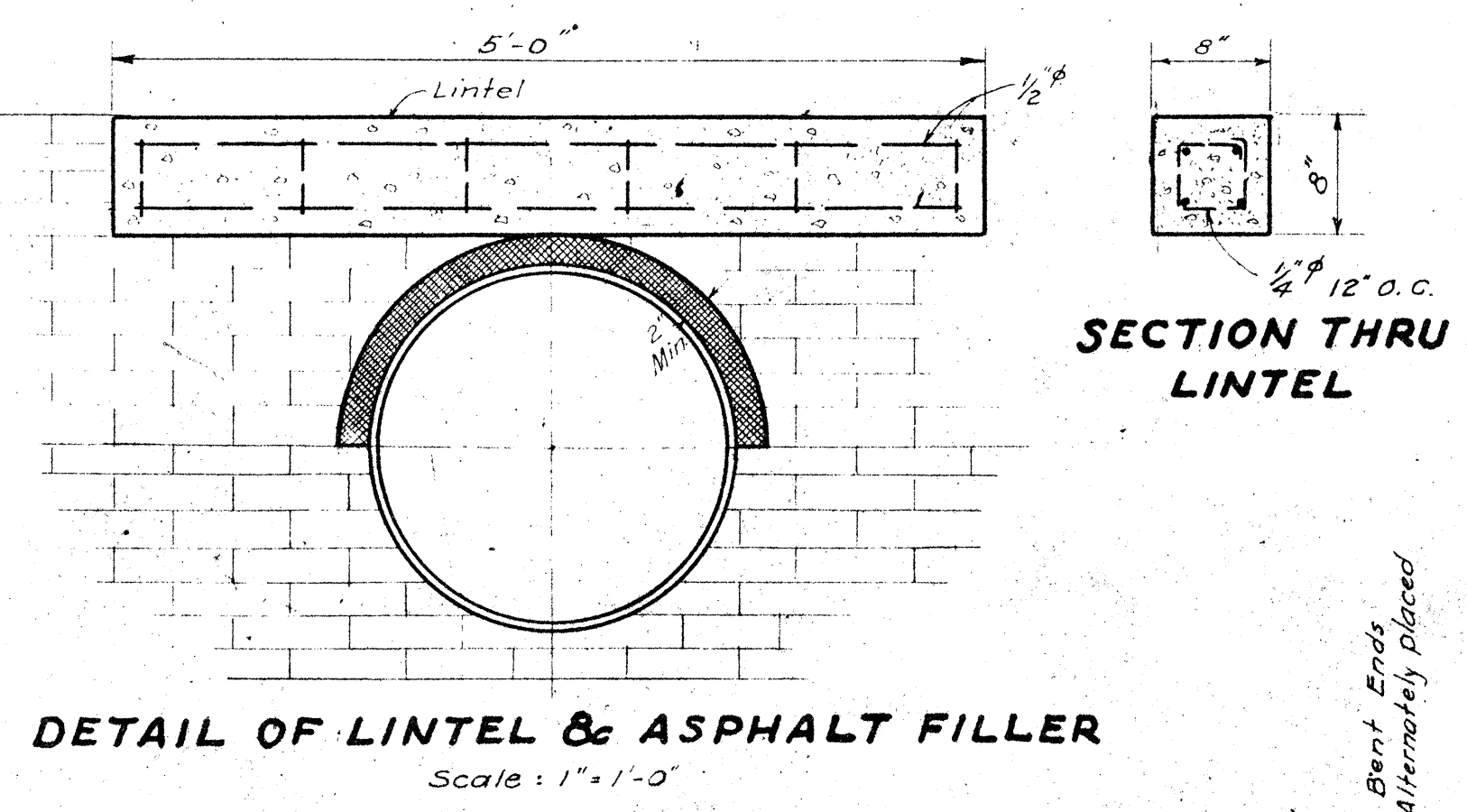
DETAIL OF CONCRETE DROP INTAKE

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

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

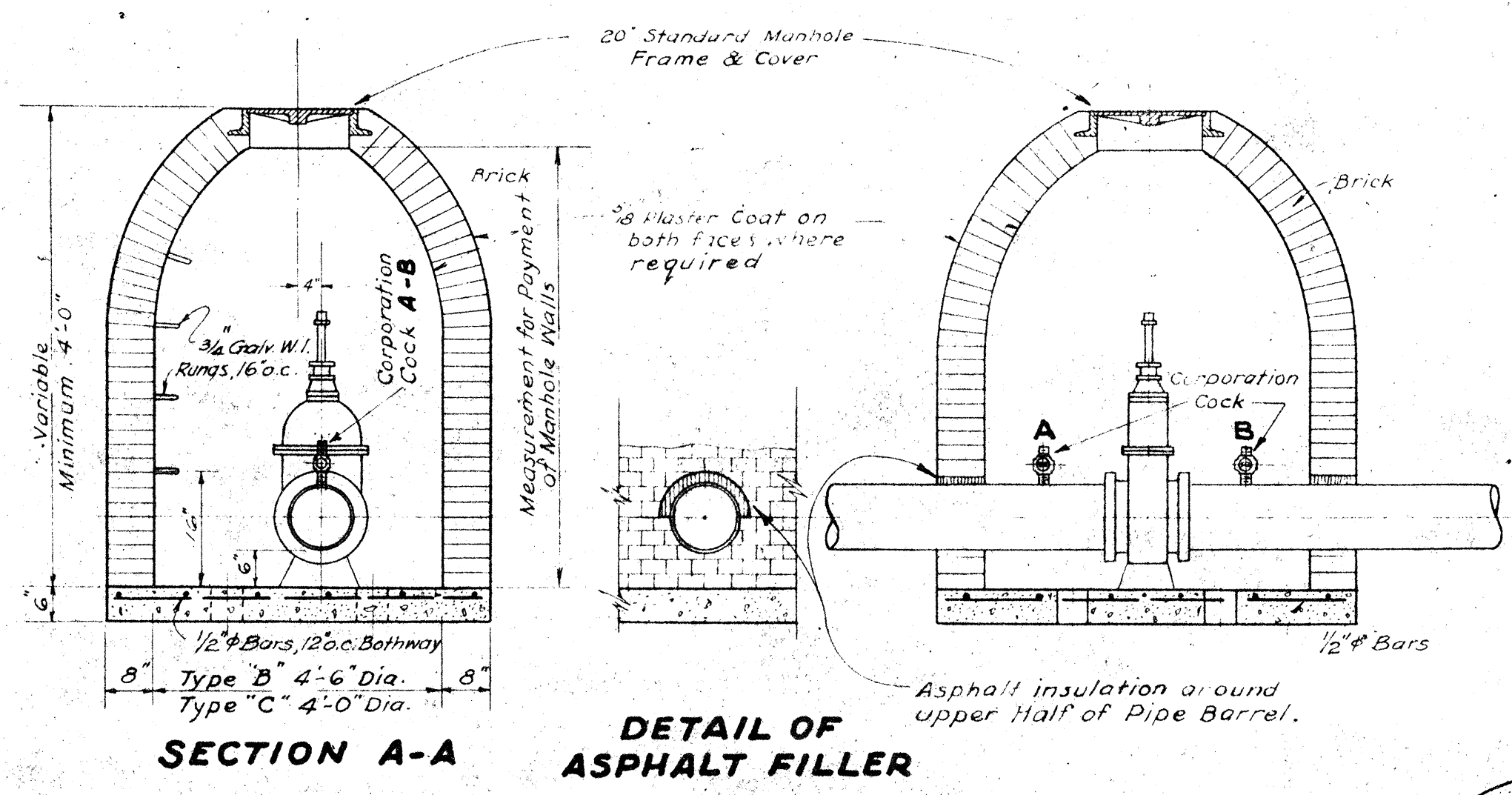
SHEET No 3 OF 5 SHEETS

5696.5



TYPE "A" MANHOLE
FOR BEVEL GEARED GATE VALVES
Scale: 1/2" = 1'-0"

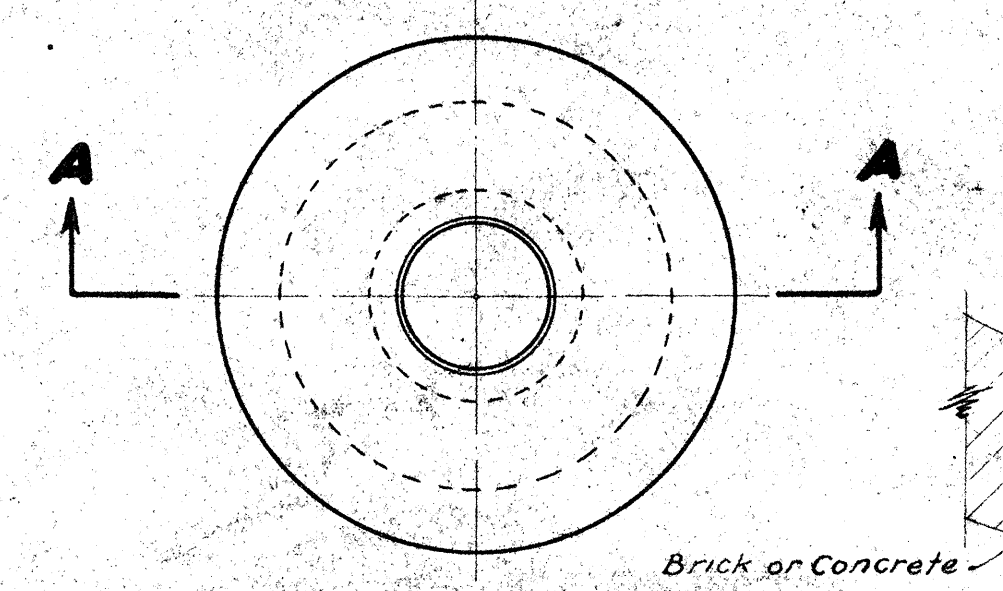
NOTE:
All valves 16" and larger without Spur or Bevel Gears to be installed in Type "A" Manholes for Spur-Geared Gate Valves.



DETAIL OF ASPHALT FILLER
TABLE "A"
REQUIRED CORPORATION COCK SIZES

DIA. OF MAIN INCHES	INLET SIZE CORR. COCK	
	A	B
6	1"	1"
8	1"	1"
12	1"	1"
16	1"	1"
20	1 1/2"	1"
24	1 1/2"	1"
36	1 1/2"	1"
42	1 1/2"	1"

STEEL DETAIL IN BOTTOM SLAB

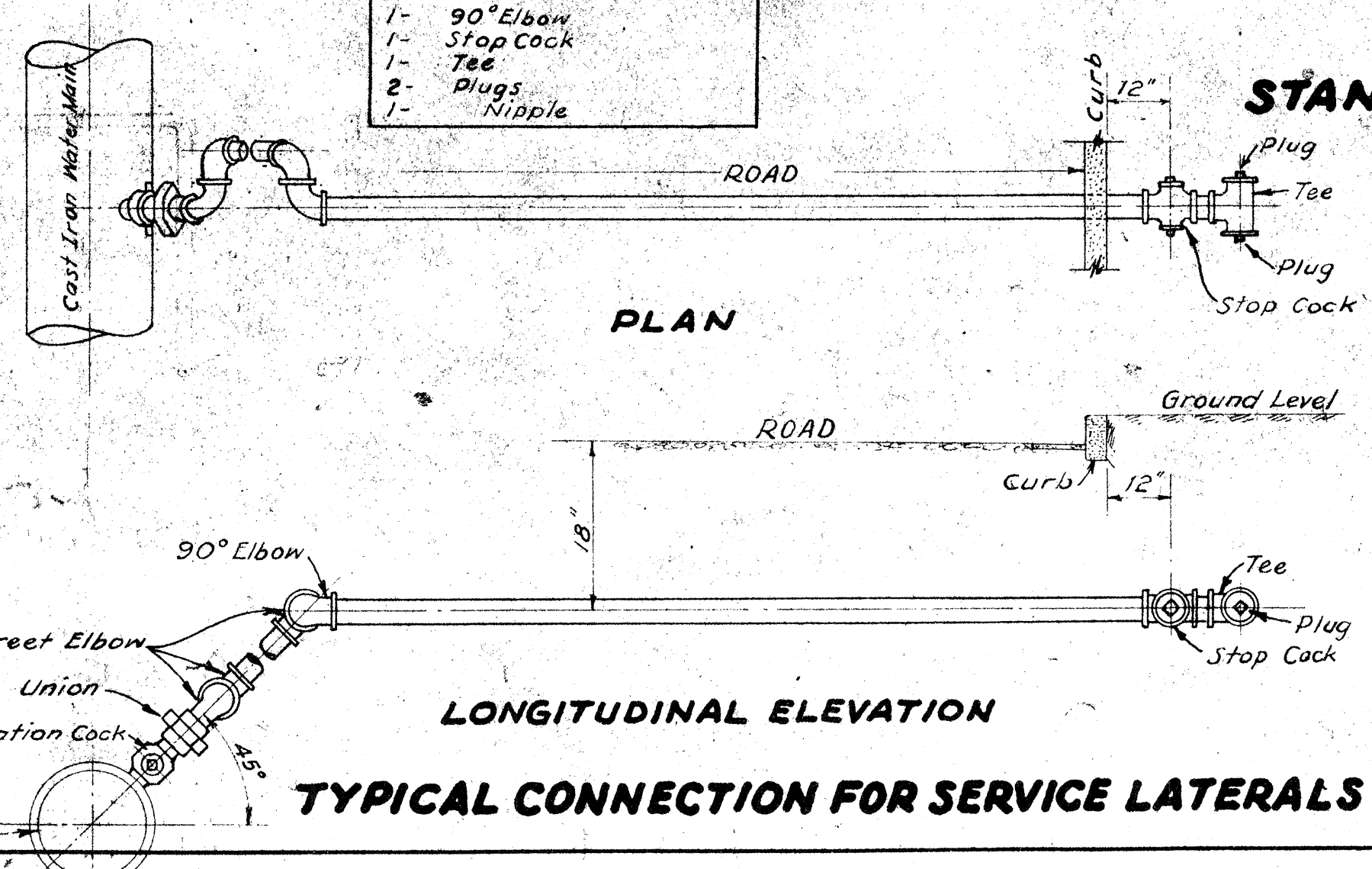
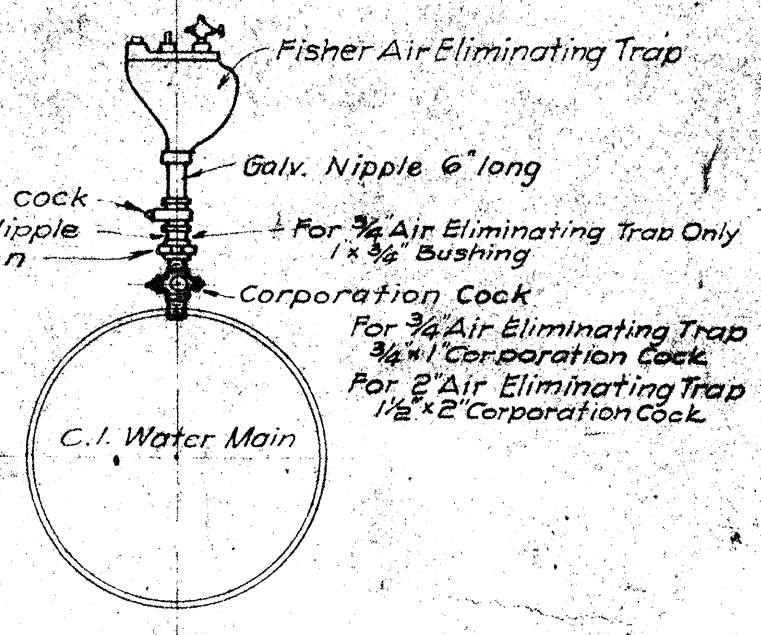


TYPES "B" AND "C" MANHOLES
TYPE "B" 4'-6" DIA. (For 12" Valve)
TYPE "C" 4'-0" DIA. (For 6" & 8" Valves)
Scale: 1/2" = 1'-0"

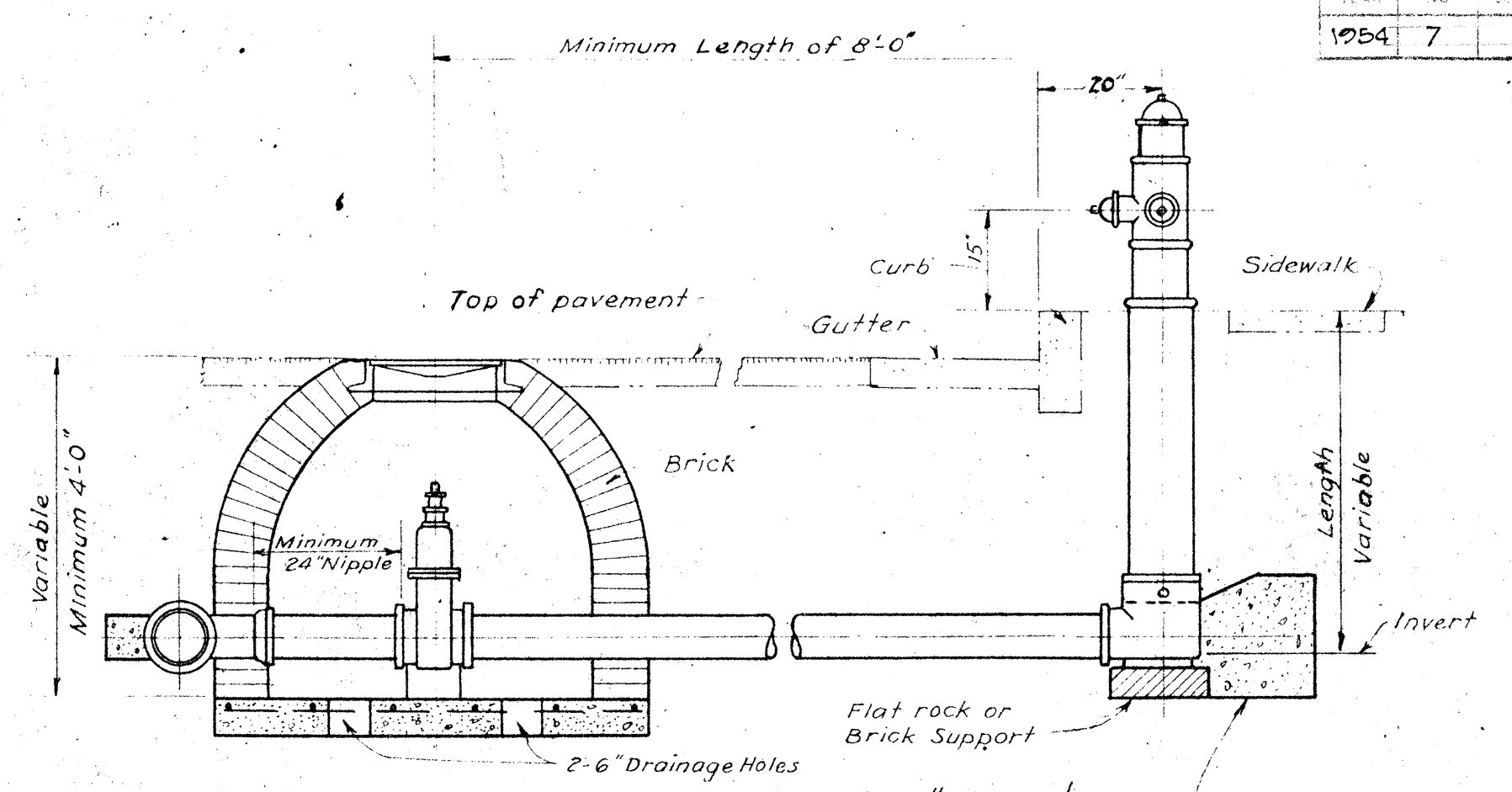
DETAIL OF RUNG
Scale: 1/2" = 1'-0"

SCHEDULE OF FITTINGS

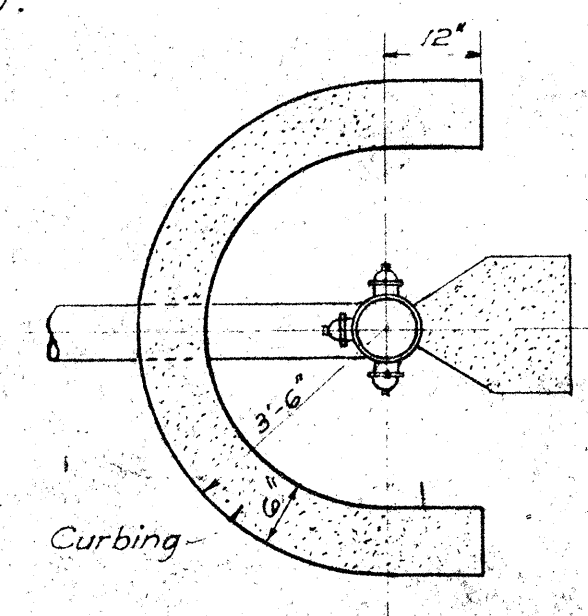
1-	Corporation Cock
1-	Union
3-	Street Elbows
1-	90° Elbow
1-	Stop Cock
1-	Tee
2-	Plugs
1-	Nipple



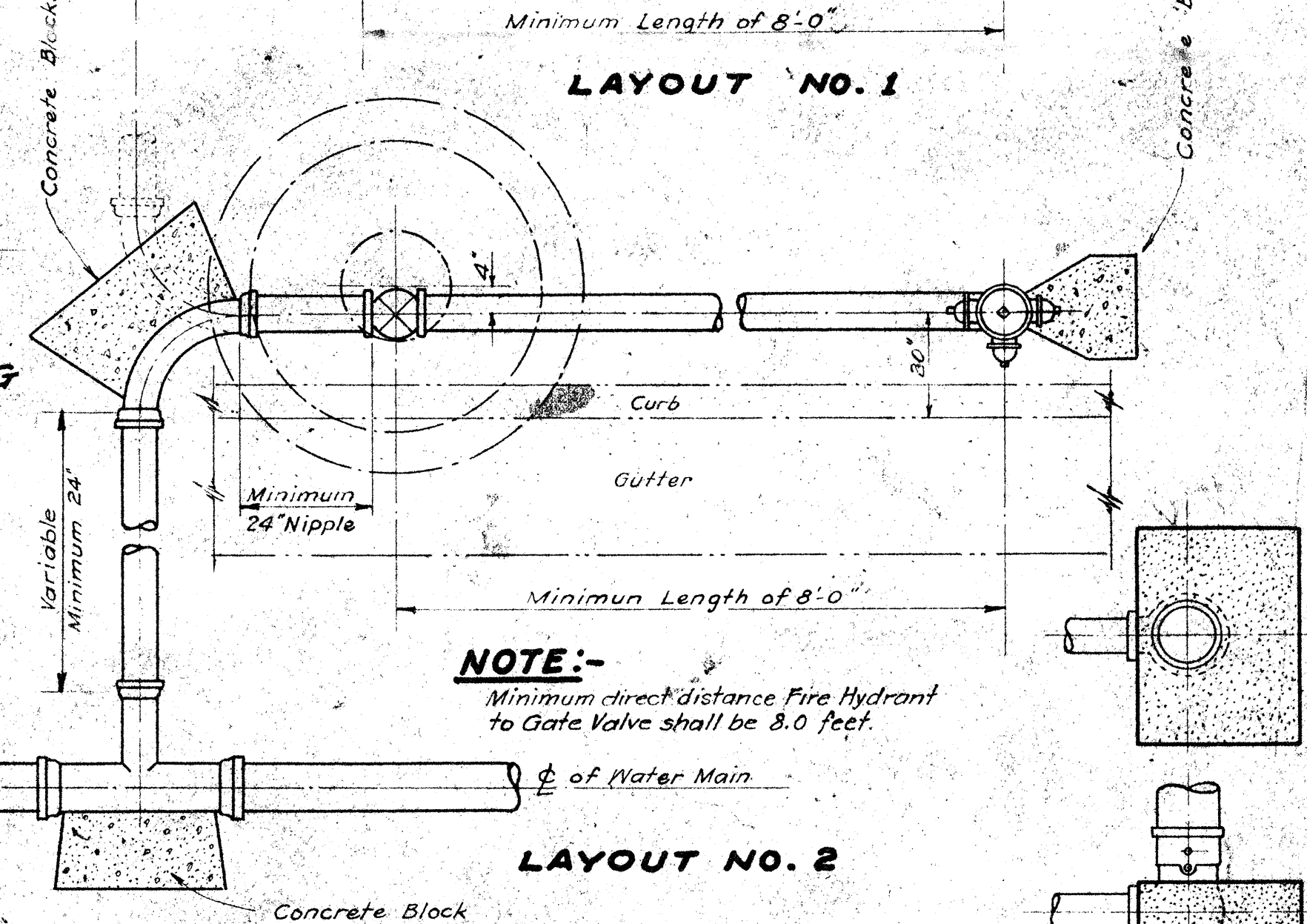
TYPICAL CONNECTION FOR SERVICE LATERALS



TYPE "C" MANHOLE



DETAIL OF CURBING AT HYDRANT WHERE REQUIRED



NOTE:-
Minimum direct distance Fire Hydrant to Gate Valve shall be 8.0 feet.

STANDARD FIRE HYDRANT LAYOUT
Scale: 1/2" = 1'-0"

CONCRETE BLOCK FOR MATHEWS HYDRANT ONLY