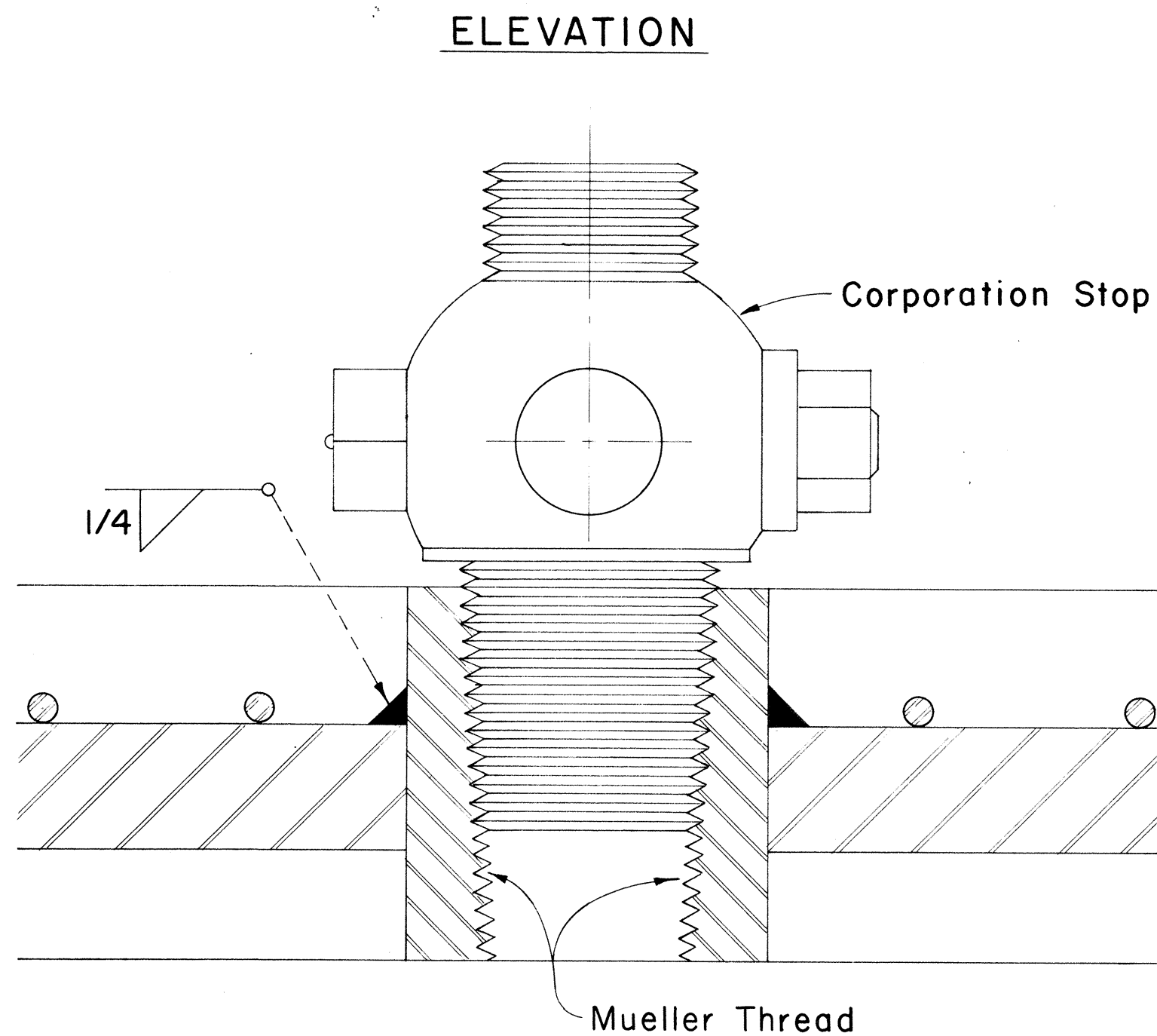
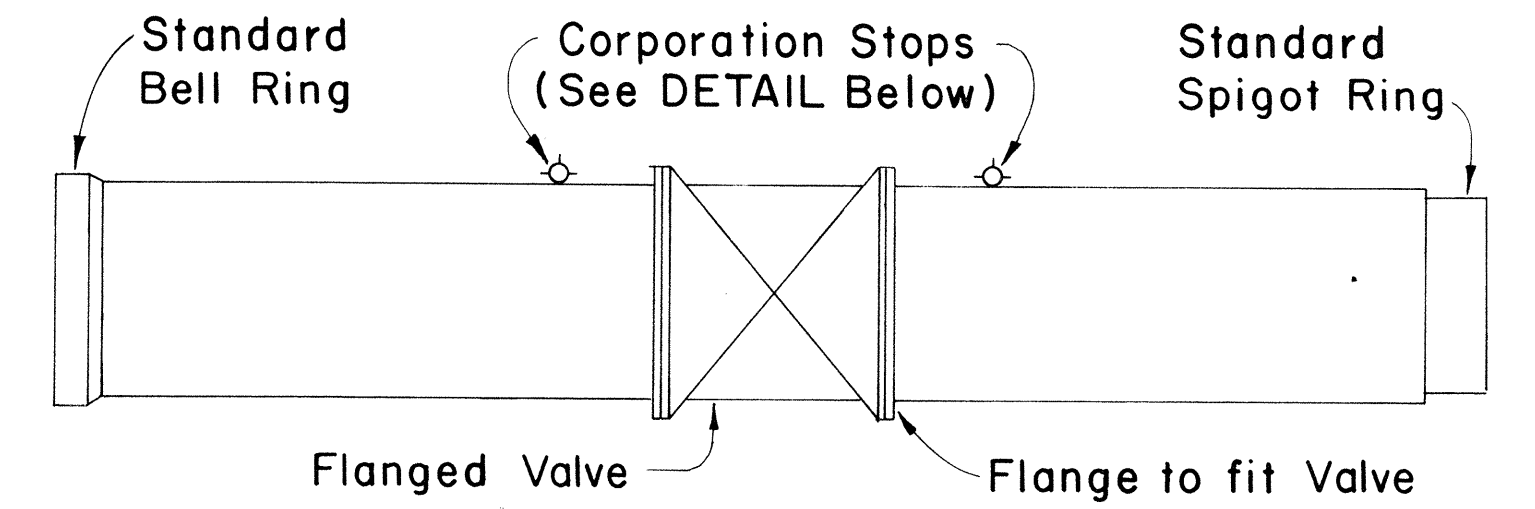
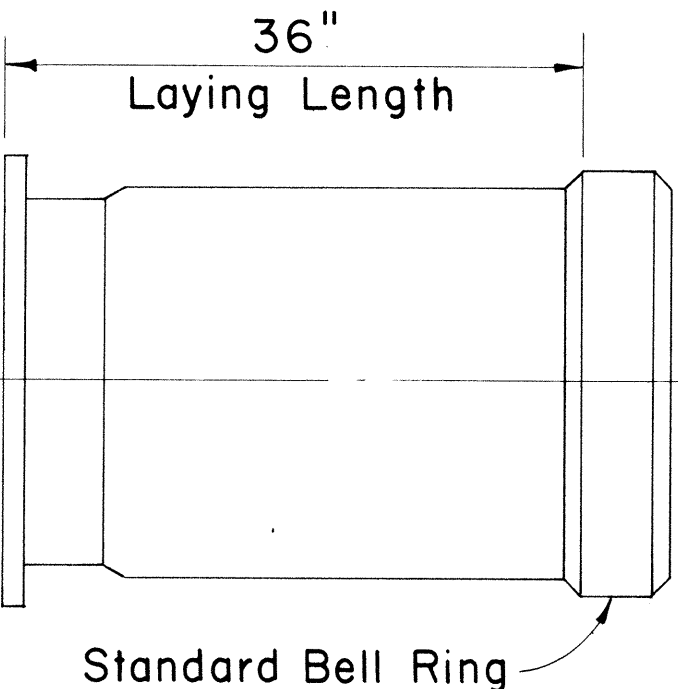
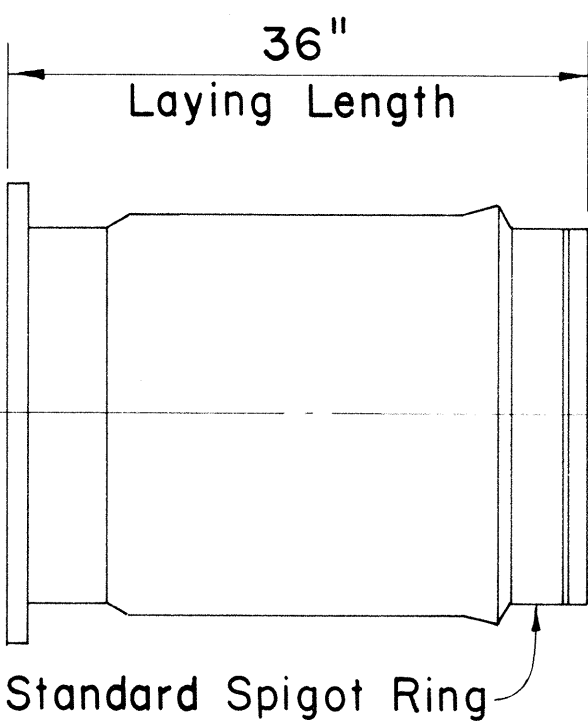
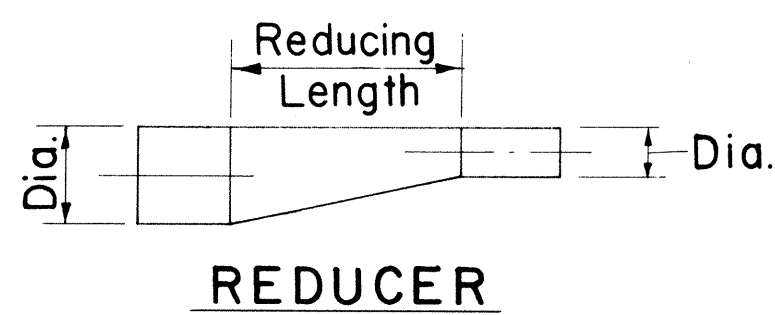
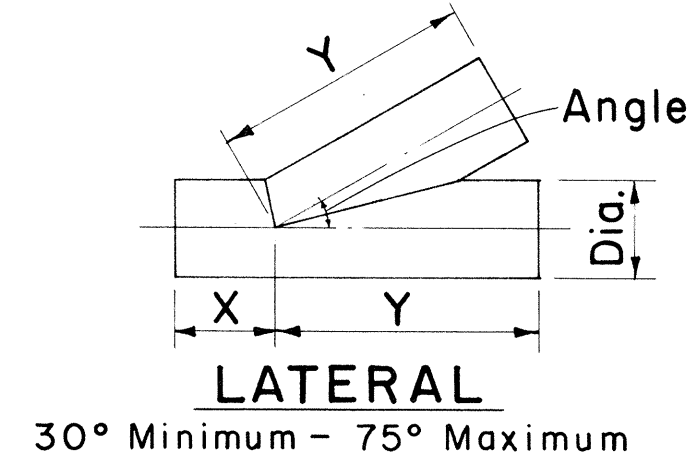
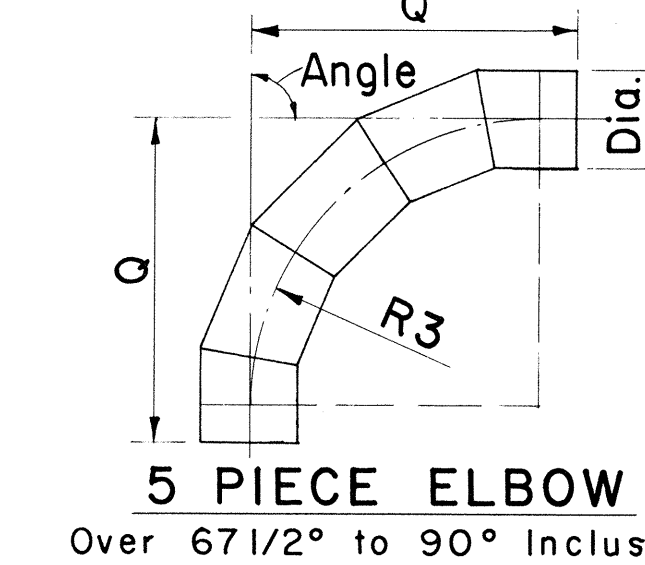
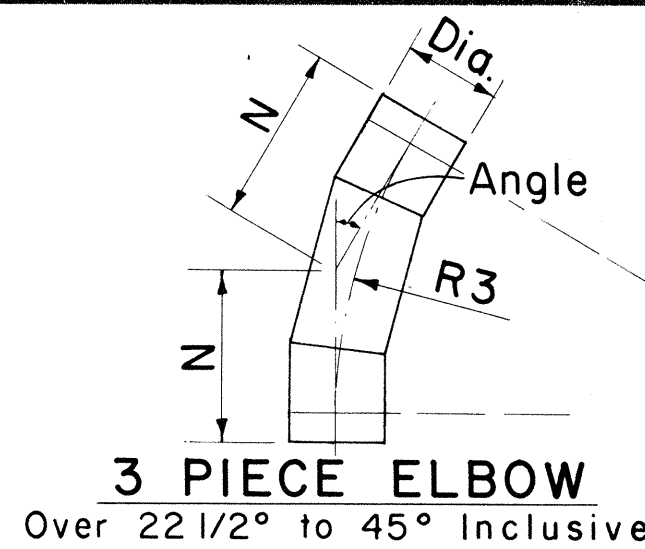
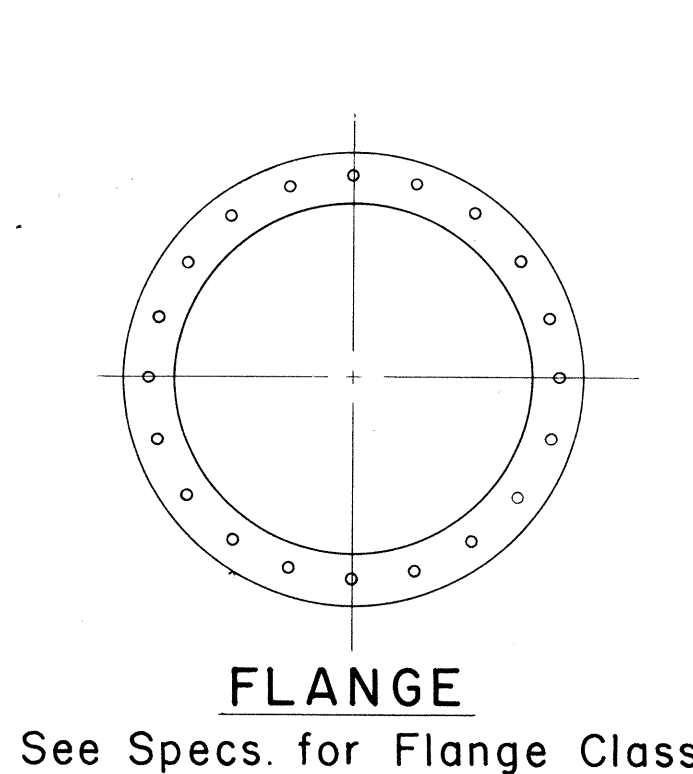
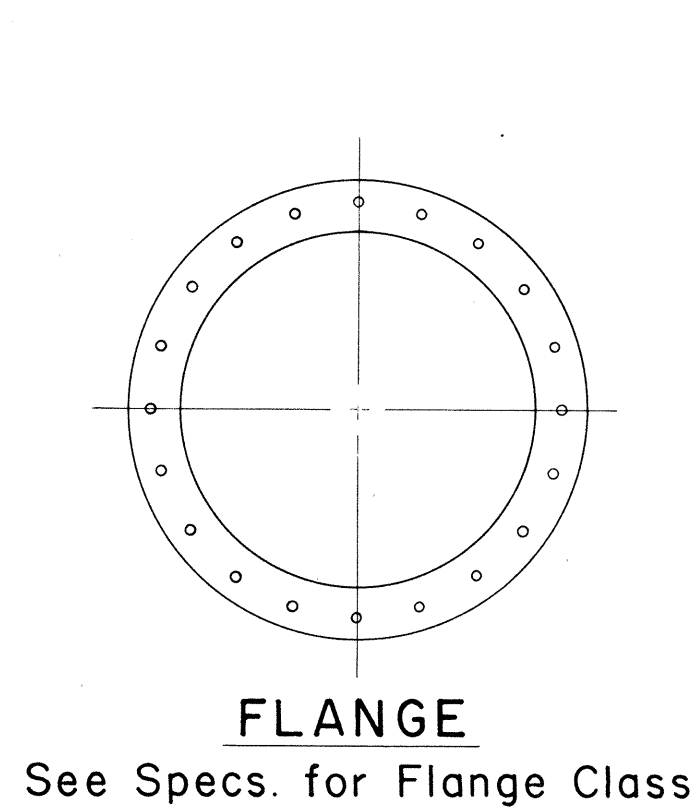
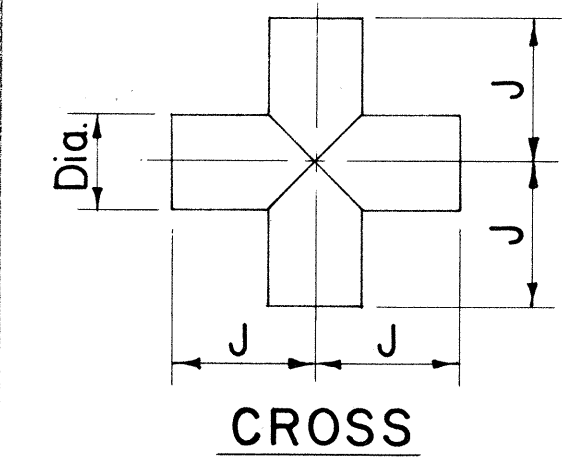
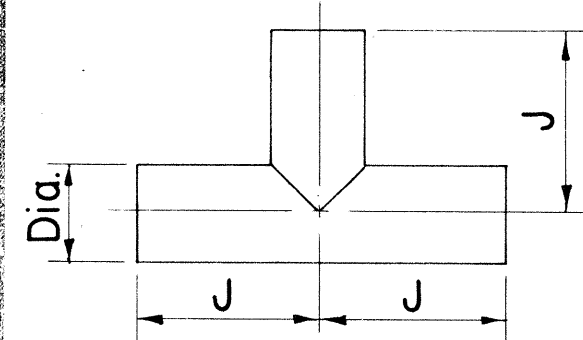
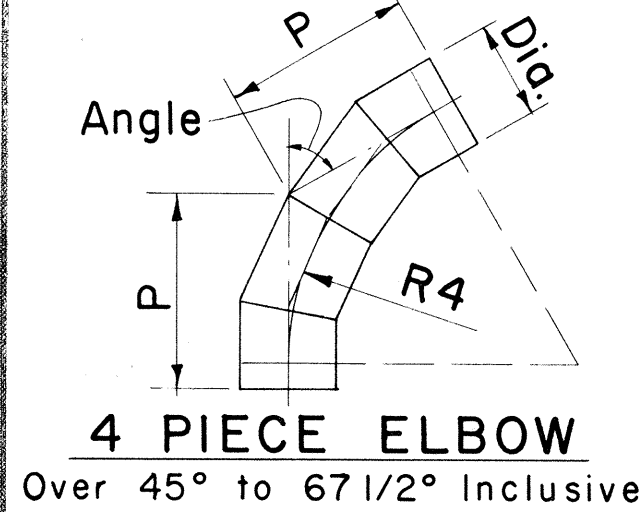
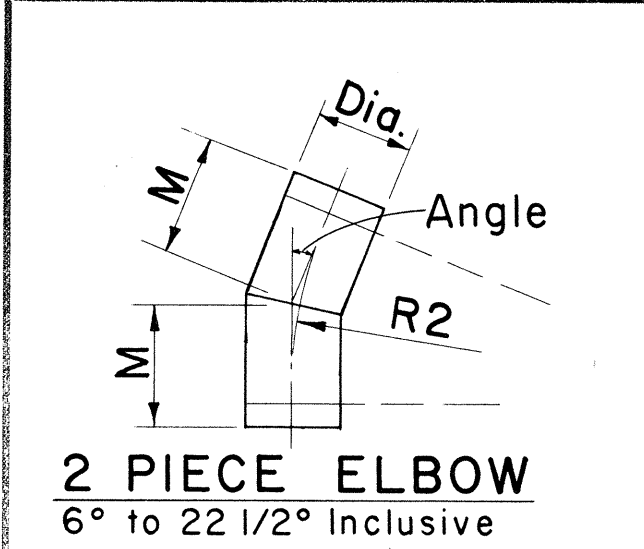
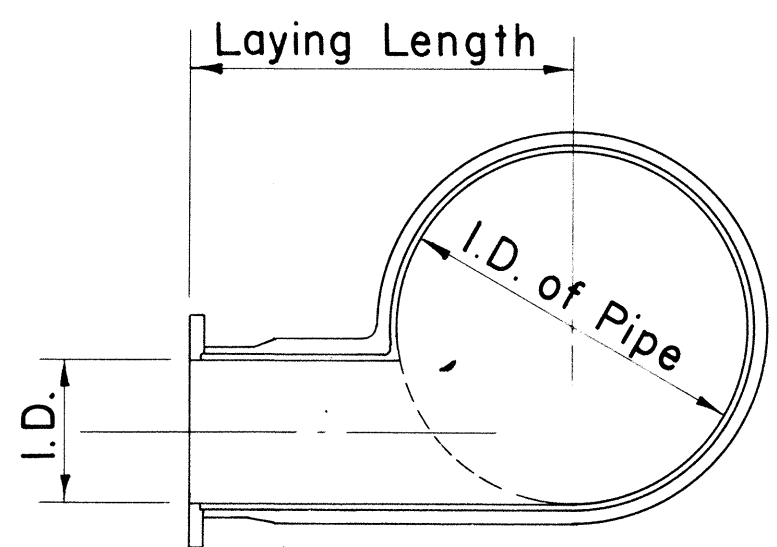


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1969	51	73

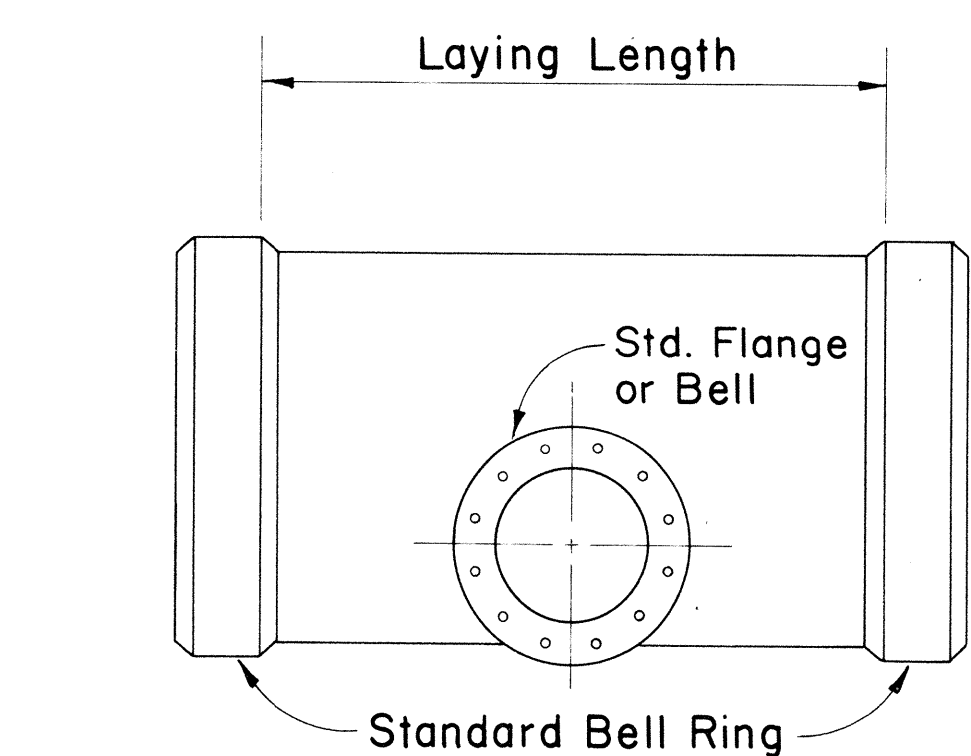
PROJECT NO. 900B-02-68 UNIT 1



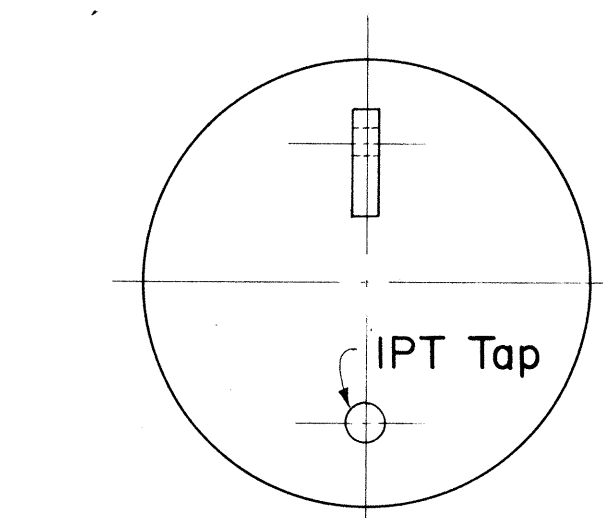
TYPICAL SECTION THRU CONCRETE PIPE AT CORPORATION STOP



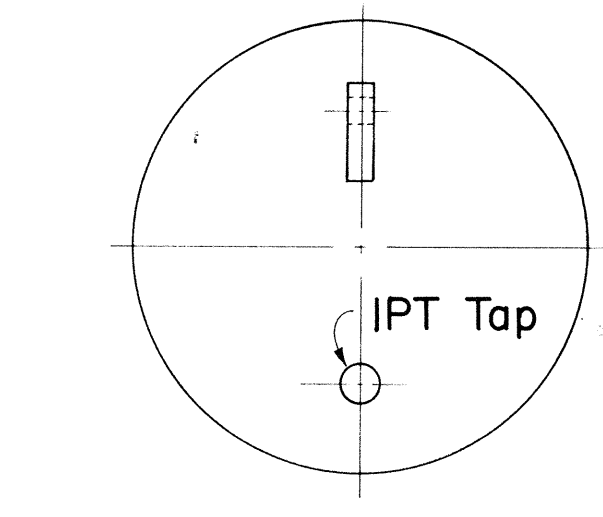
SECTION



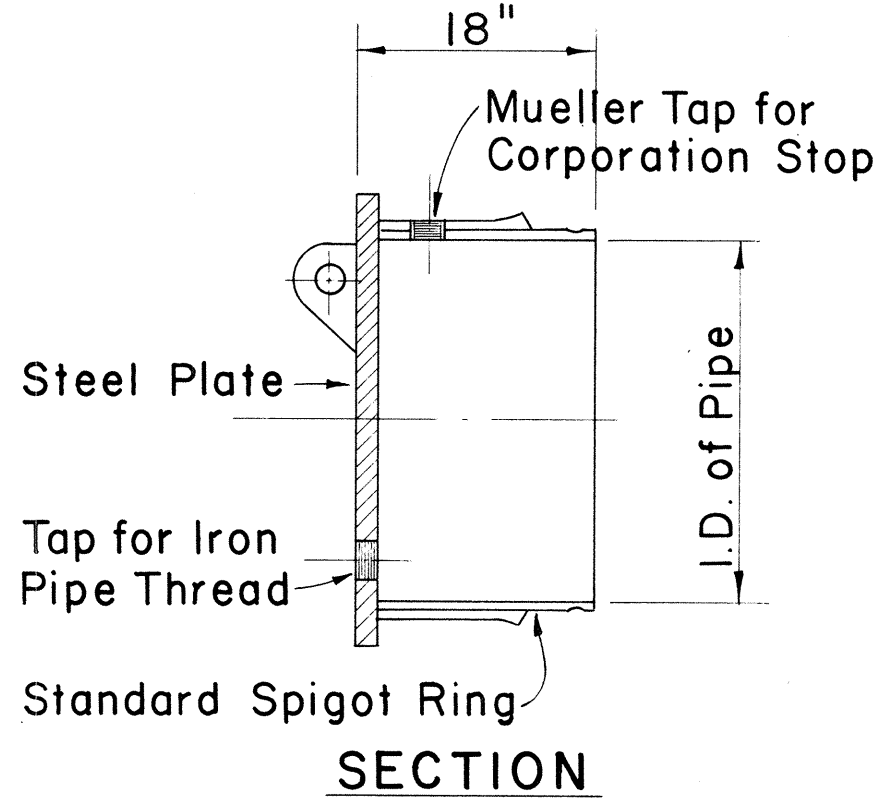
TYPICAL DETAIL OF BLOW-OFF TEE



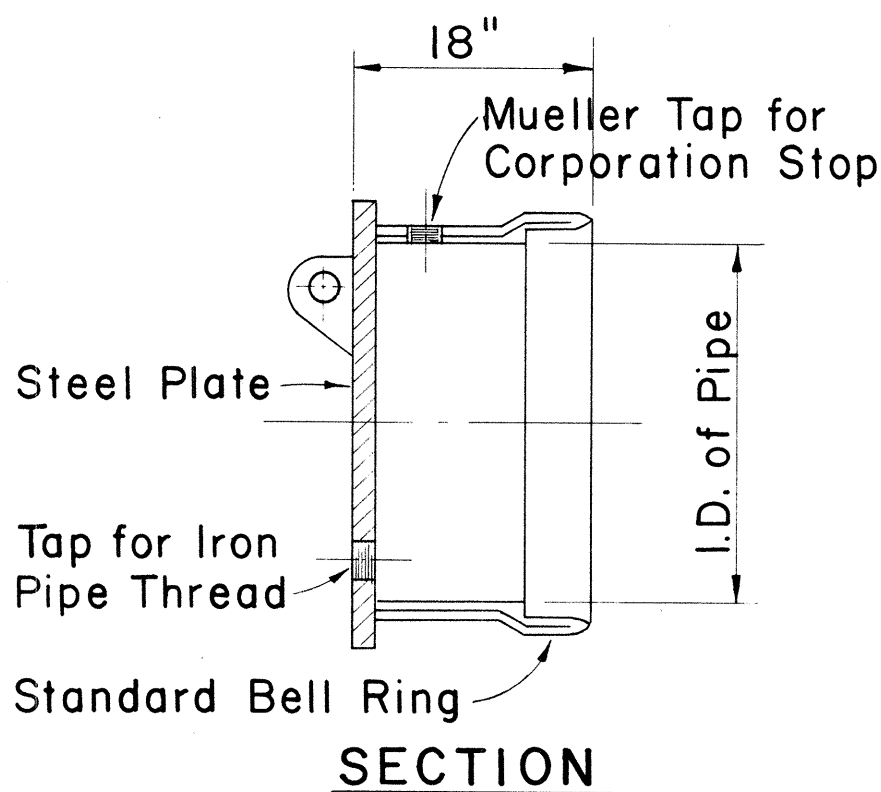
ELEV. OF STEEL PLATE



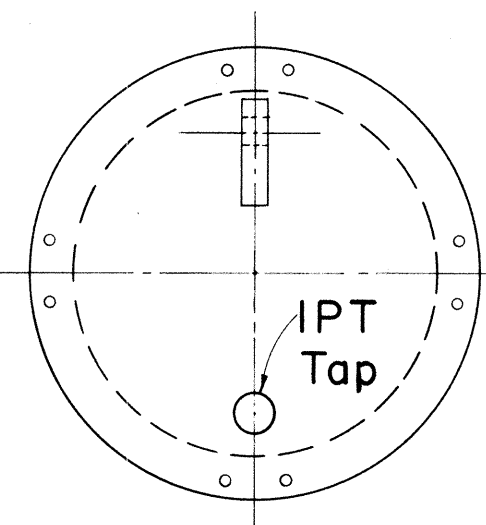
ELEV. OF STEEL PLATE



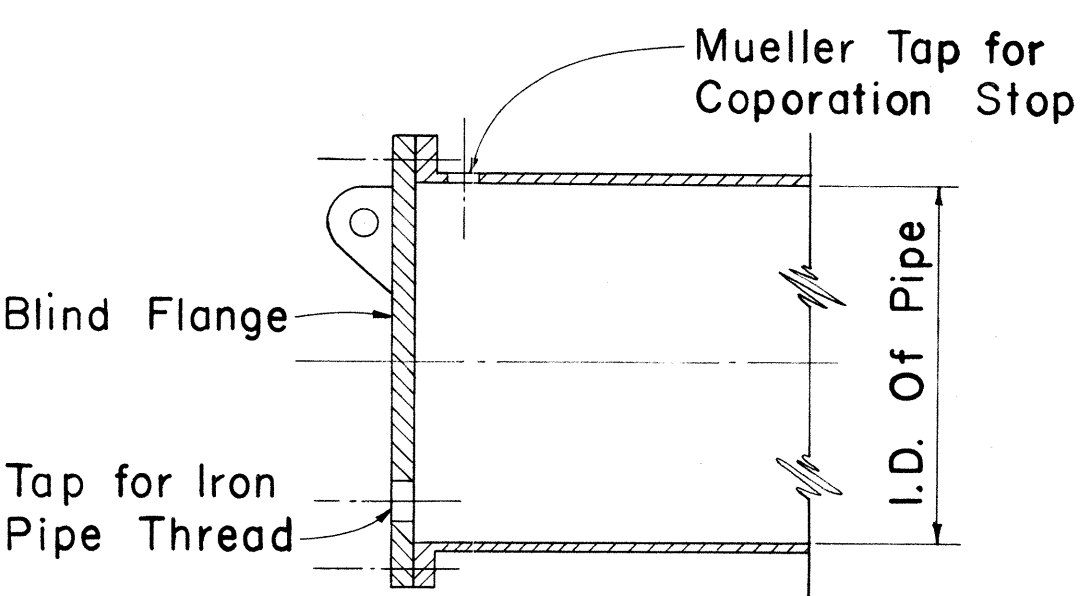
DETAIL OF PLUG



DETAIL OF CAP



ELEV. OF BLIND FLANGE



SECTION

DETAIL OF BLIND FLANGE

STANDARD FITTING DIMENSIONS													
DIAMETER	TEE		CROSS (Both Ways) J+J	LATERAL (30° to 75°)		ELBOWS (Center to End)							
	Run J+J	Outlet J		Run X+Y	Outlet Y	2 Piece (up to 22 1/2°)	3 Piece (22 1/2° to 45°)	4 Piece (45° to 67 1/2°)	5 Piece (67 1/2° to 90°)				
						M	R2	N	R3	P	R4	Q	R5
16"	34"	17"	34"	62"	52"	12"	60"	18"	44"	26"	39"	44"	40"
18"	36"	18"	36"	66"	56"	12"	60"	19"	47"	27"	41"	36"	32"
20"	38"	19"	38"	72"	60"	13"	65"	20"	49"	28"	42"	54"	50"
22"	40"	20"	40"	78"	66"	13"	65"	21"	51"	30"	45"	41"	37"
24"	42"	21"	42"	84"	72"	14"	70"	22"	54"	32"	48"	64"	60"
30"	60"	30"	60"	96"	84"	15"	75"	25"	61"	37"	51"	79"	75"
36"	66"	33"	66"	110"	96"	16"	80"	27"	66"	40"	60"	94"	90"

DIMENSIONS FOR ECCENTRIC REDUCER REDUCING SECTION

36" x 30" Eccentric Reducer - Length 66"
 30" x 24" Eccentric Reducer - Length 66"
 24" x 20" Eccentric Reducer - Length 26"
 20" x 16" Eccentric Reducer - Length 26"

NOTE :

All dimensions shown are laying lengths.
 All fittings and specials shall be fabricated independent from pipe sections and in accordance with the dimensions shown.
 All fittings and specials shall be all bell unless otherwise noted.
 All tees, wyes, crosses and reducers 16-inch in diameter and larger shall be reinforced with steel ribs or steel crotch plates welded continuously to the cylinder or by other methods to withstand the longitudinal crushing effect caused by the test pressure as called for in the plans.

APPROVED :

J. Kawakami 5/2/69
 CHIEF, ENGINEERING DIVISION
 BOARD OF WATER SUPPLY
 SHEET NO. 1 OF 2 SHEETS

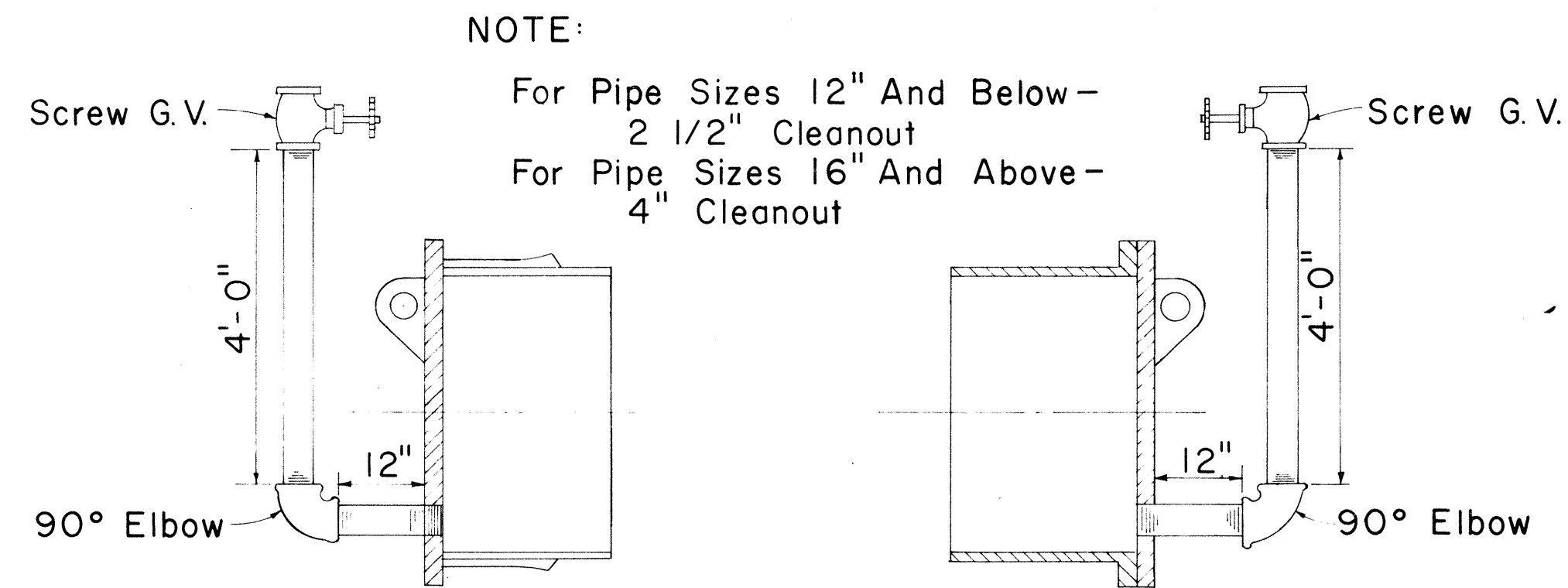
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 BOARD OF WATER SUPPLY
 CITY & COUNTY OF HONOLULU

CONCRETE CYLINDER PIPE
 MISCELLANEOUS DETAILS

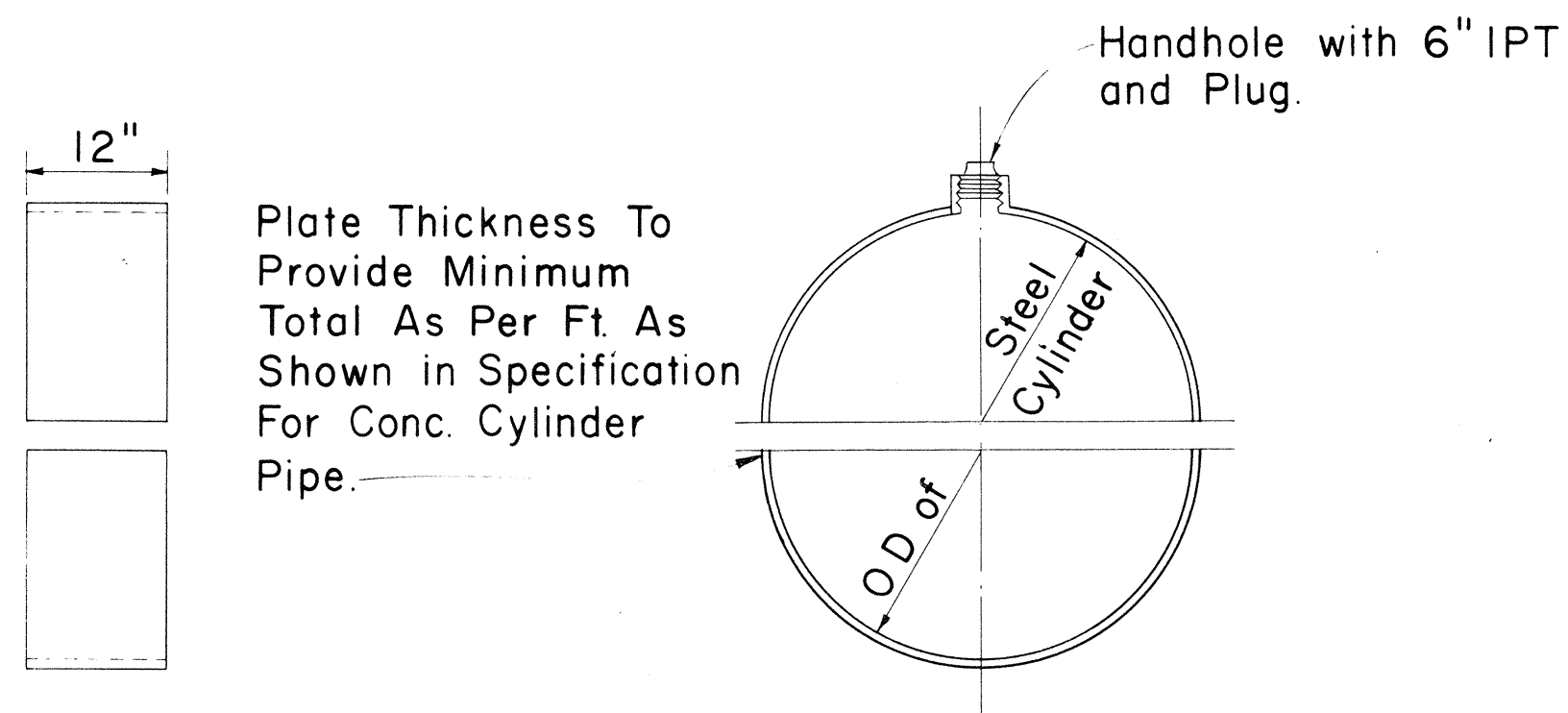
Scale: No Scale Date:
 SHEET No. 1 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1969	52	73

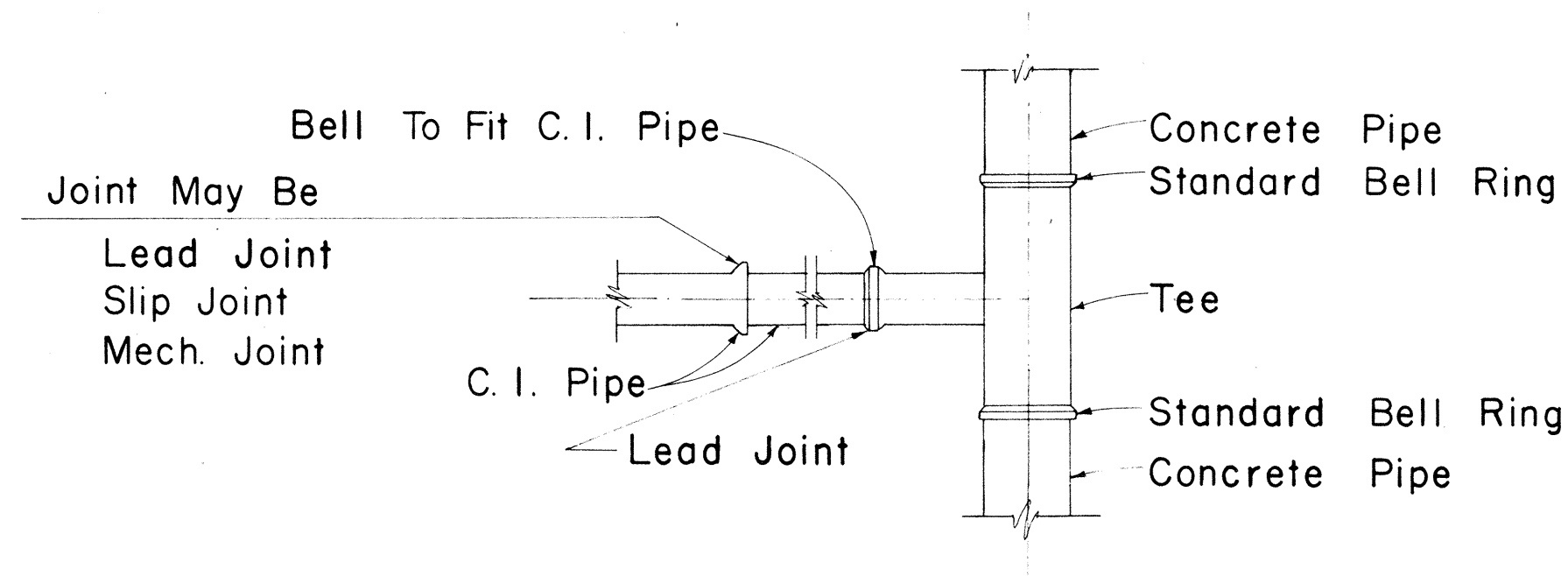
PROJECT NO. 900B-02-68 UNIT 1



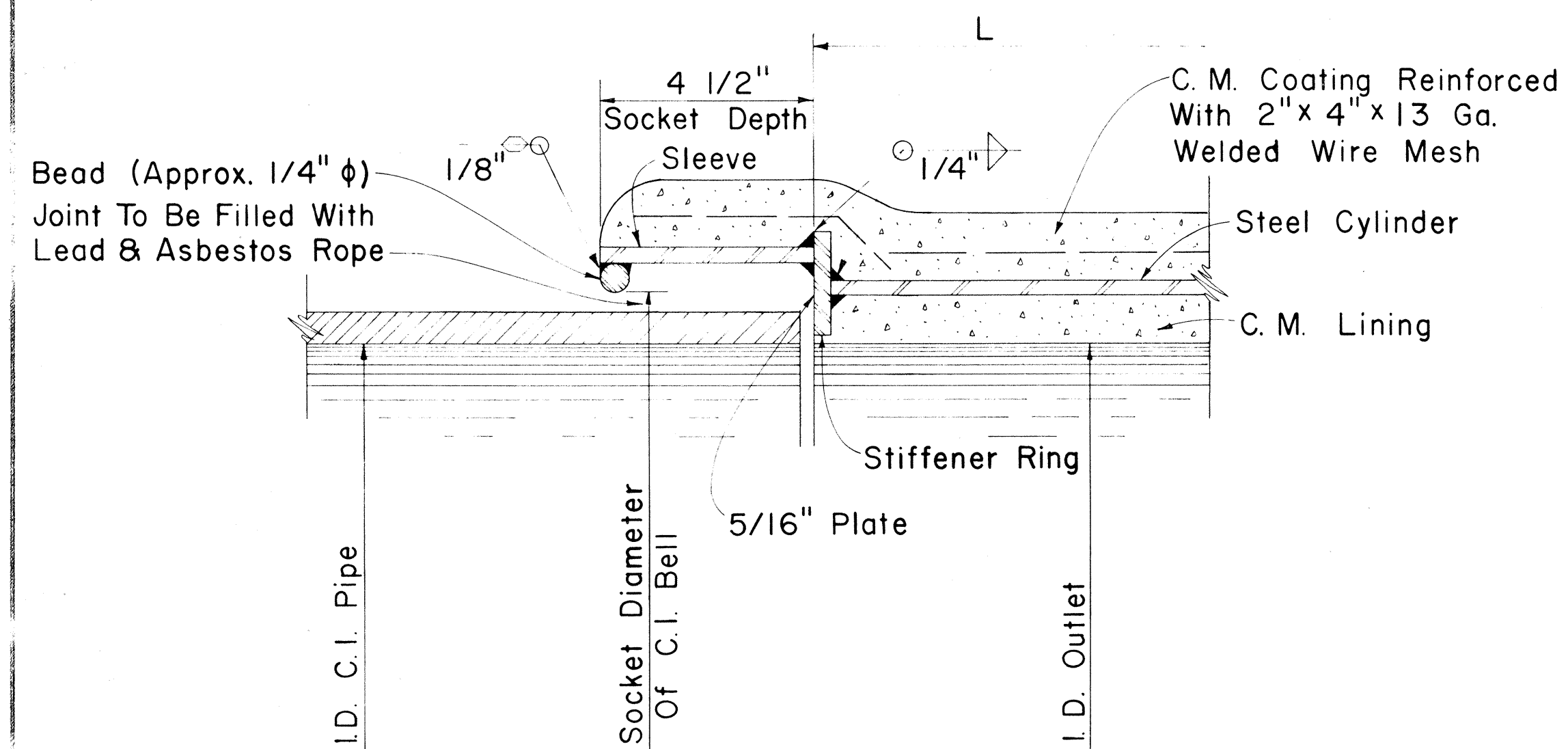
TYPICAL SECTION OF TEMPORARY CLEANOUT



DETAIL OF SPLIT BUTT STRAP



TYPICAL CAST IRON PIPE CONNECTION
TO CONCRETE CYLINDER PIPE



DETAIL OF C.I. ADAPTER

APPROVED:

S. Kawakami 2/1/69
CHIEF, ENGINEERING DIVISION
BOARD OF WATER SUPPLY

SHEET NO. 2 OF 2 SHEETS

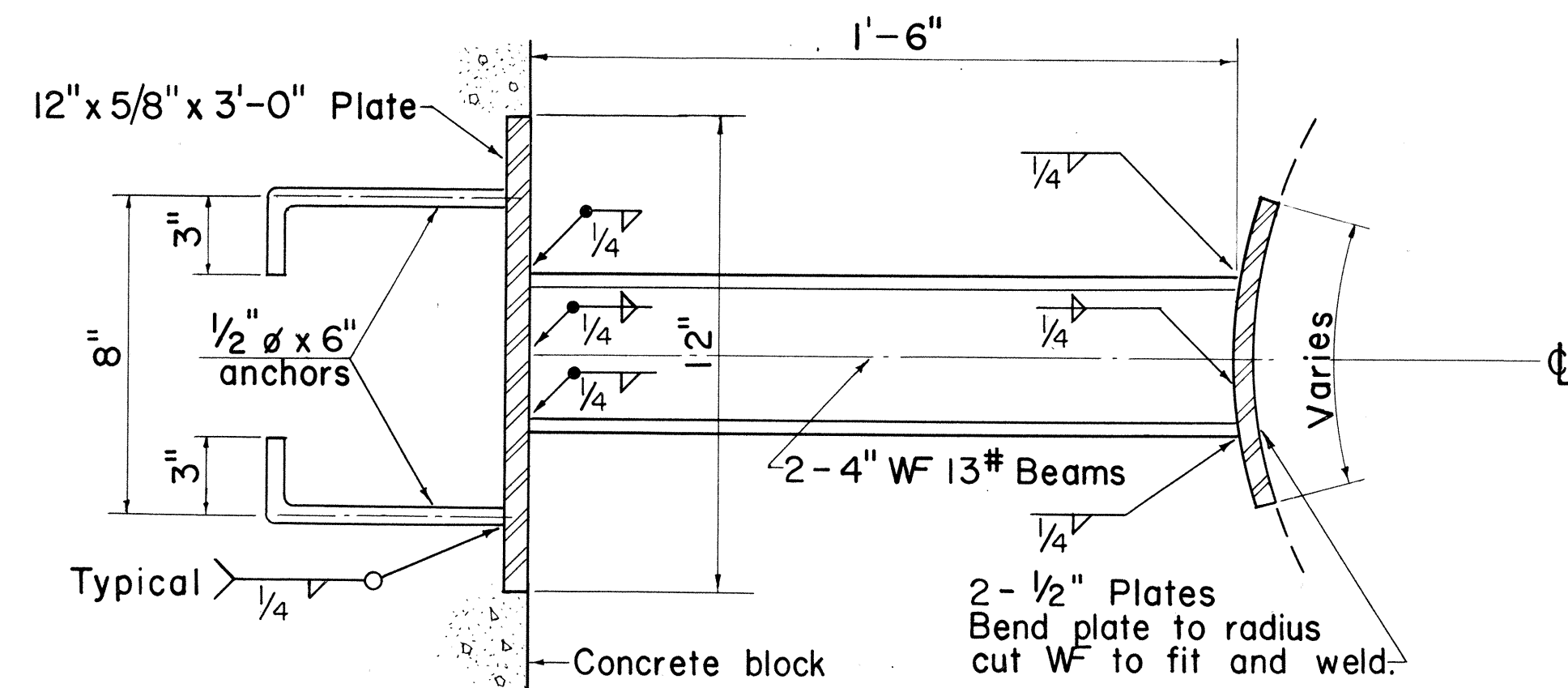
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU
CONCRETE CYLINDER PIPE
MISCELLANEOUS DETAILS

Scale: No Scale Date:

SHEET No. 2 OF 7 SHEETS

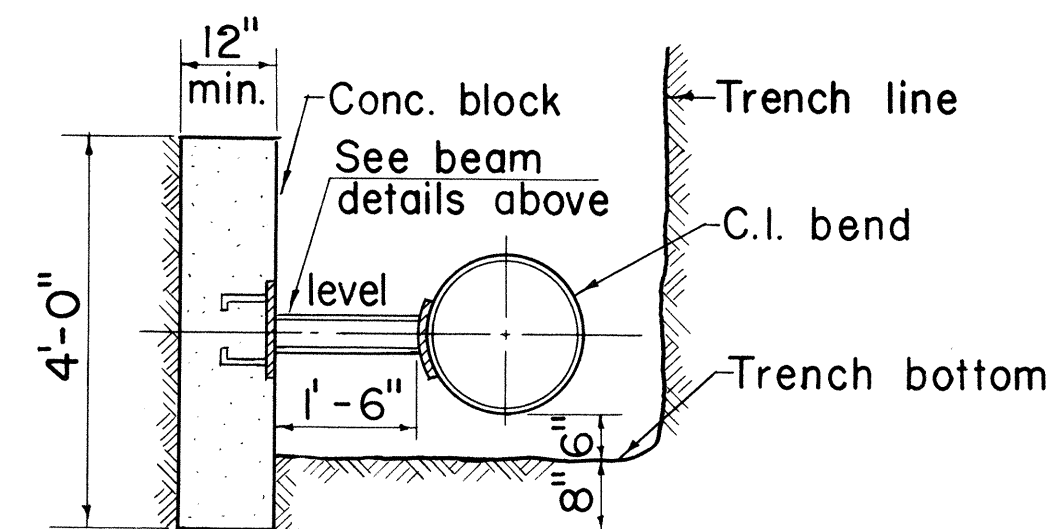
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1969	53	73

PROJECT NO. 900B-02-68 UNIT 1



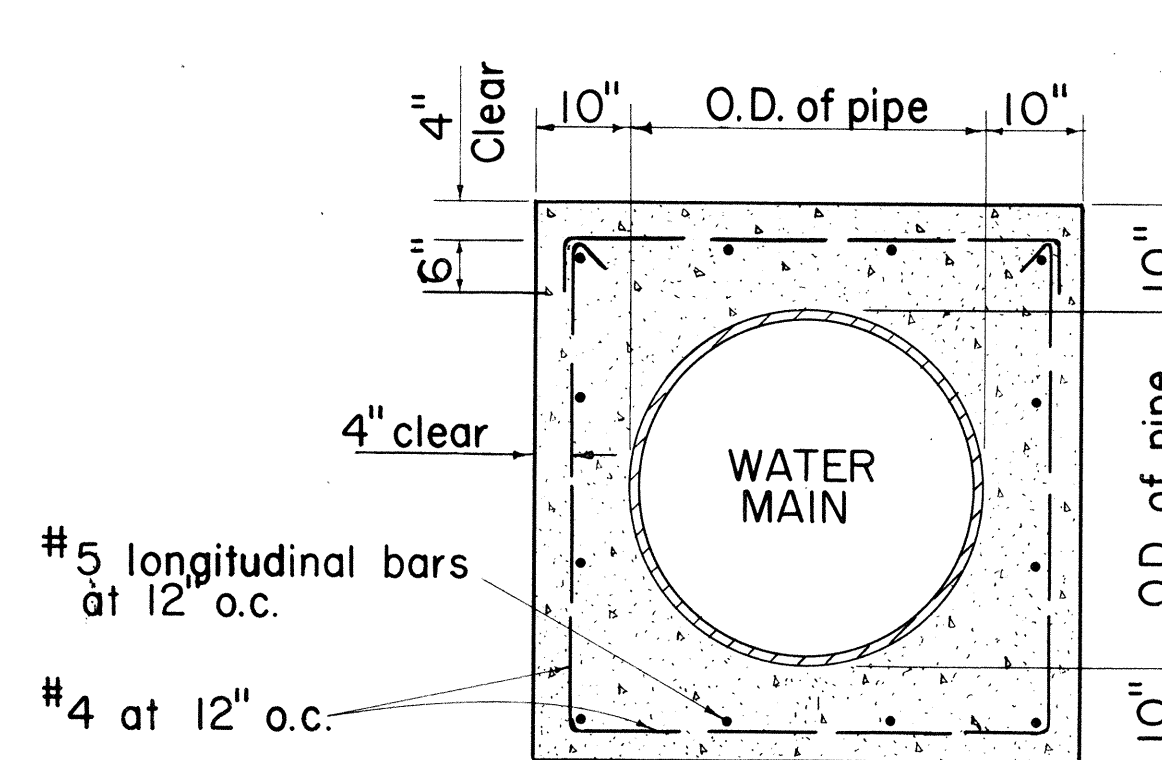
BEAM DETAIL

Scale: 3" = 1'-0"

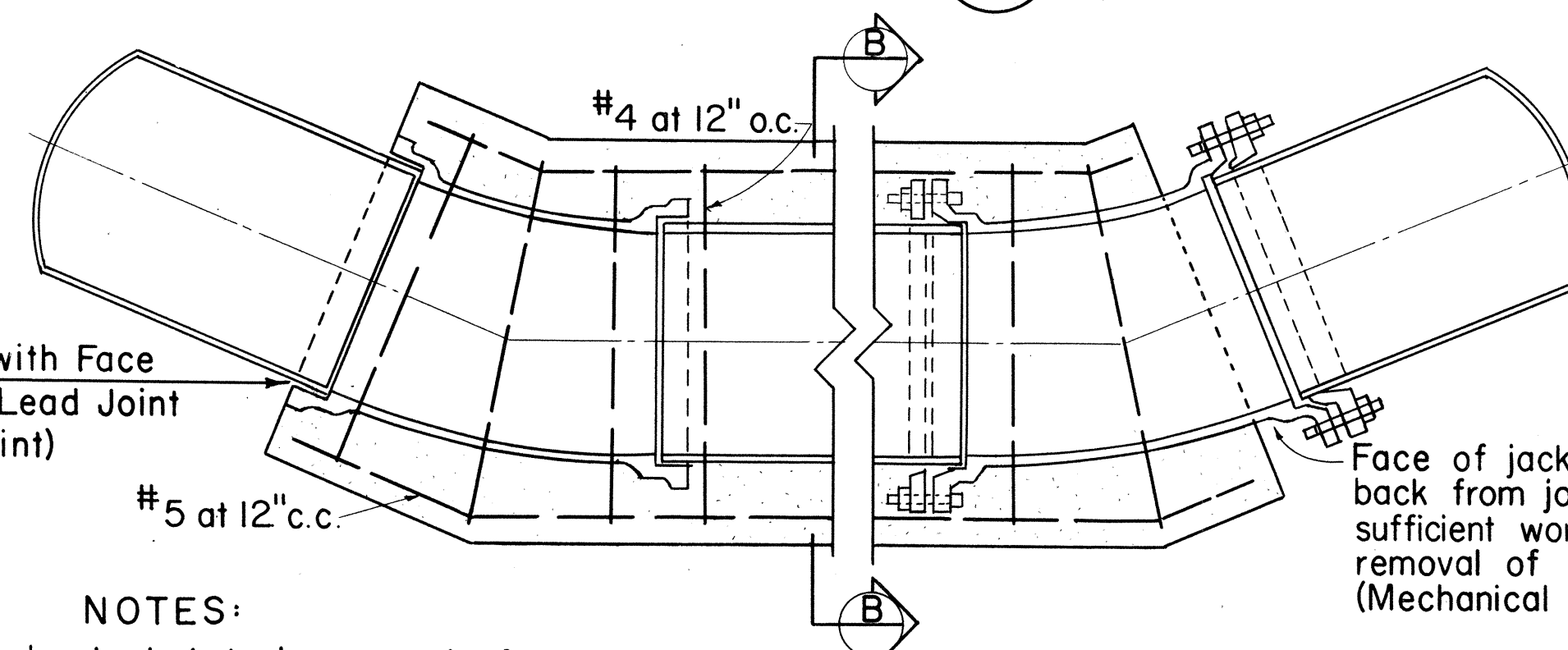


SECTION C

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



SECTION B



NOTES:

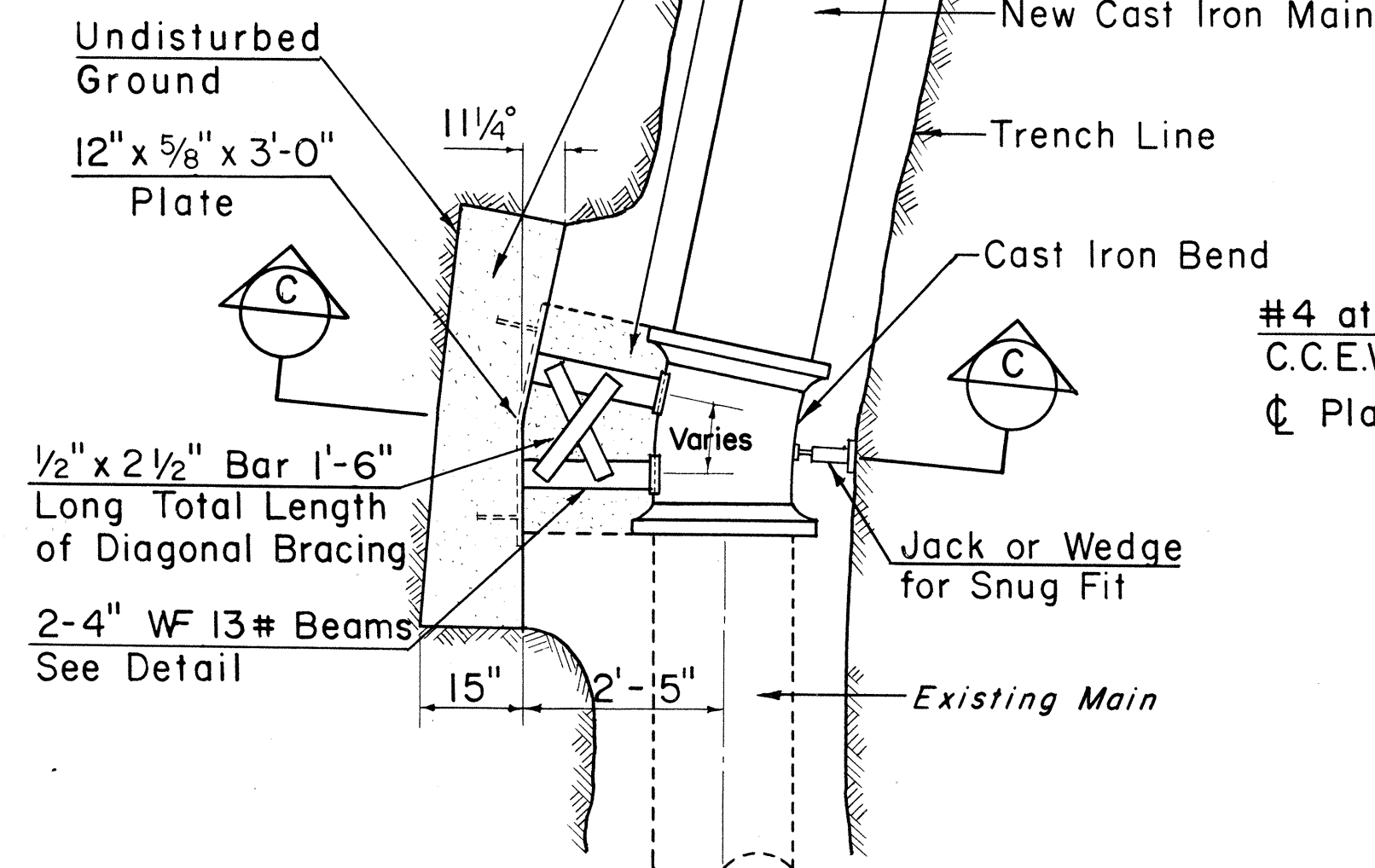
- Jacket to be poured after completion of test unless otherwise approved by the Engineer.
- 2 1/2" depth of lead for lead joint pipe required at all embedded joints.
- Wherever construction joints are required, 6" rubber or neoprene waterstops shall be installed. Waterstops shall be of the type specified and manufactured by the Servicized Products Corporation, Gate Rubber Company or approved equal.

REINFORCED CONCRETE JACKET

Scale: Not to Scale

Place Class "B-1" Concrete 2500 p.s.i. after connection is completed.

Concrete Block, See Detail (Approx. Conc. Yardage = 0.93 c.y.)



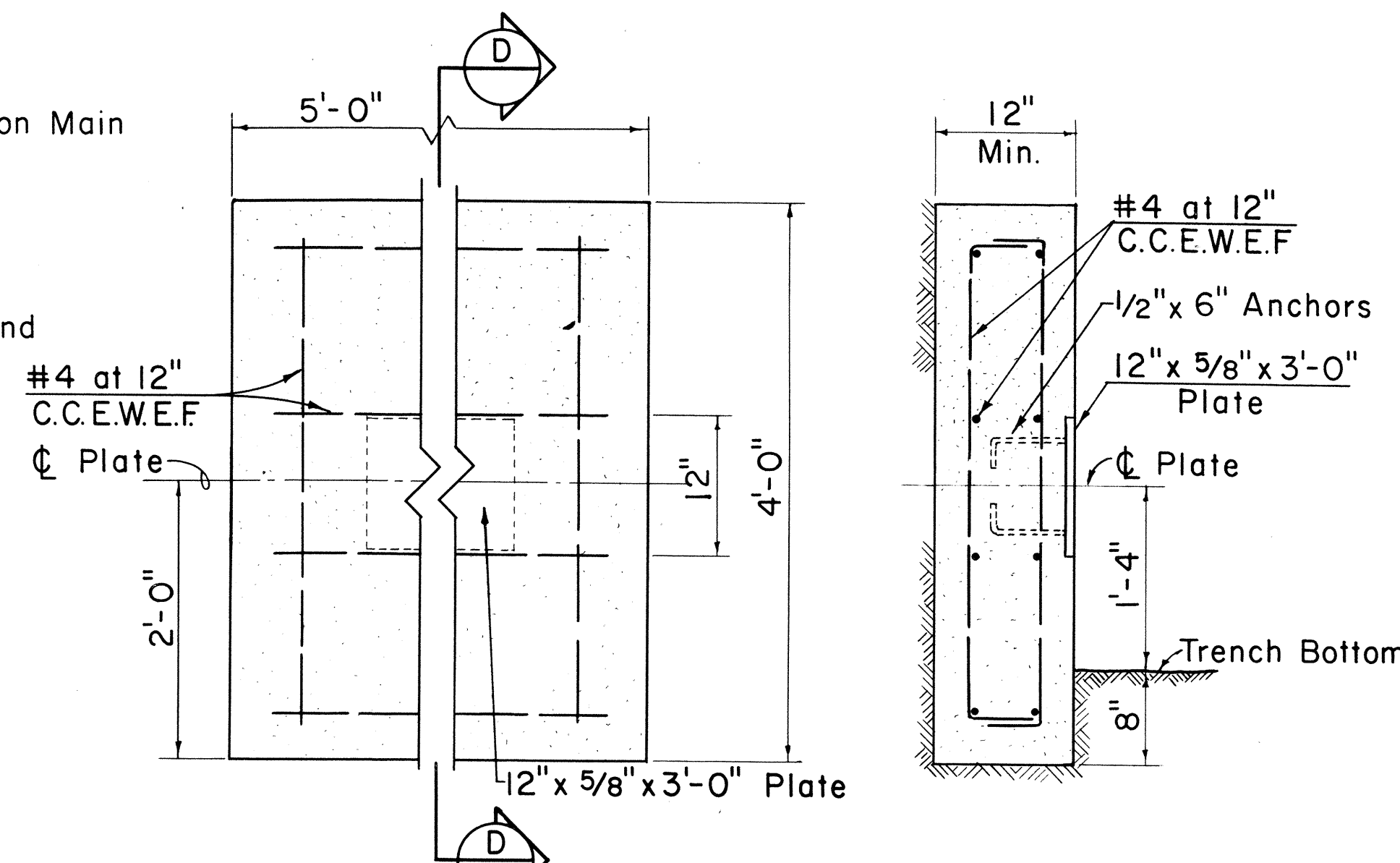
PLAN

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

NOTE:

Concrete Block with structural strut shall be used for Concrete Cylinder or C.I. bends at connections or for tee connections. Detail drawings of actual conc. blocks to be used, will be furnished during construction by B.W.S. and or State.

TYPICAL DETAIL OF CONCRETE BLOCK WITH STRUCTURAL STRUT

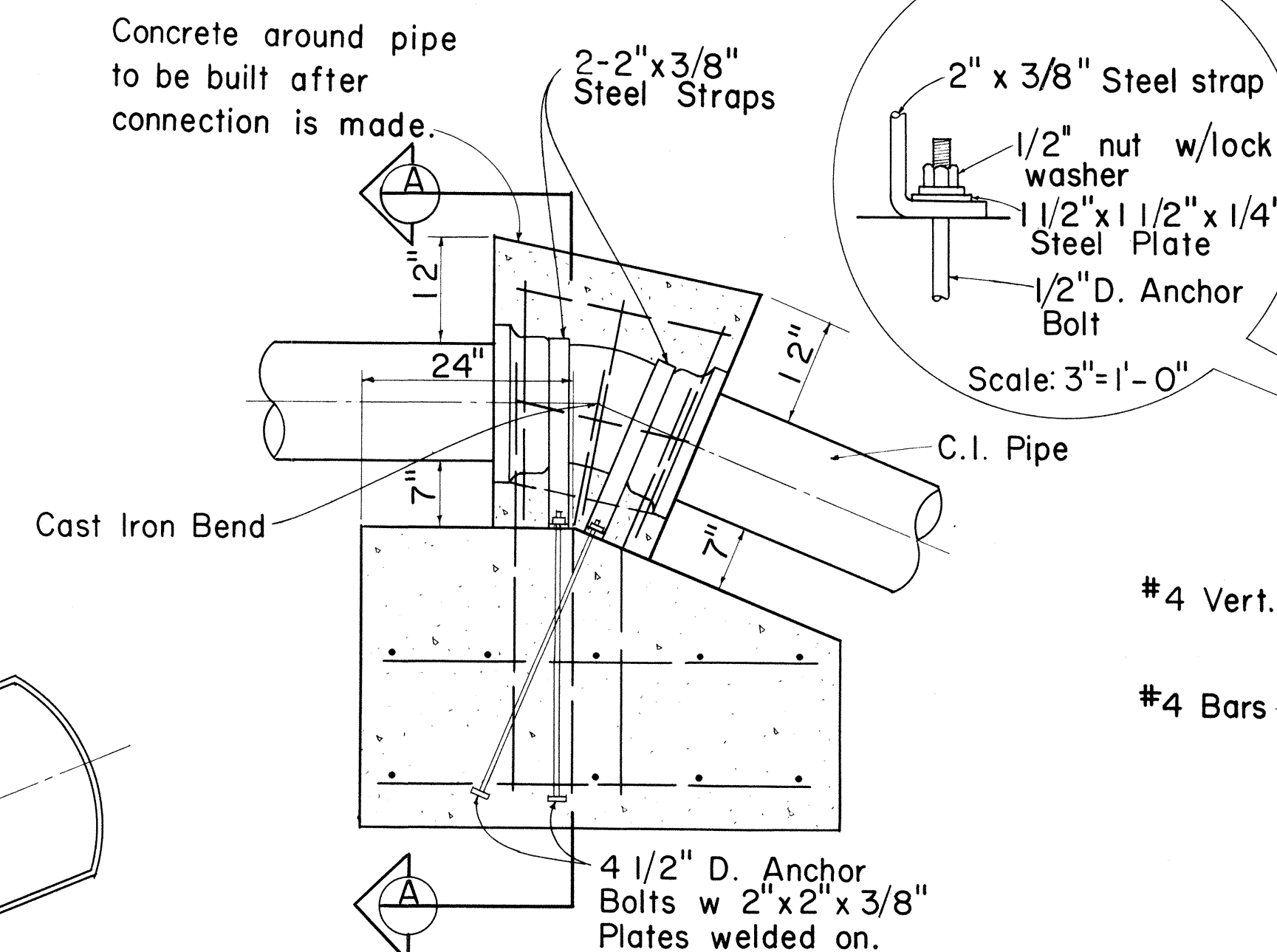


ELEVATION

SECTION D

DETAILS OF CONCRETE BLOCK

Scale: 1" = 1'-0"



ELEVATION

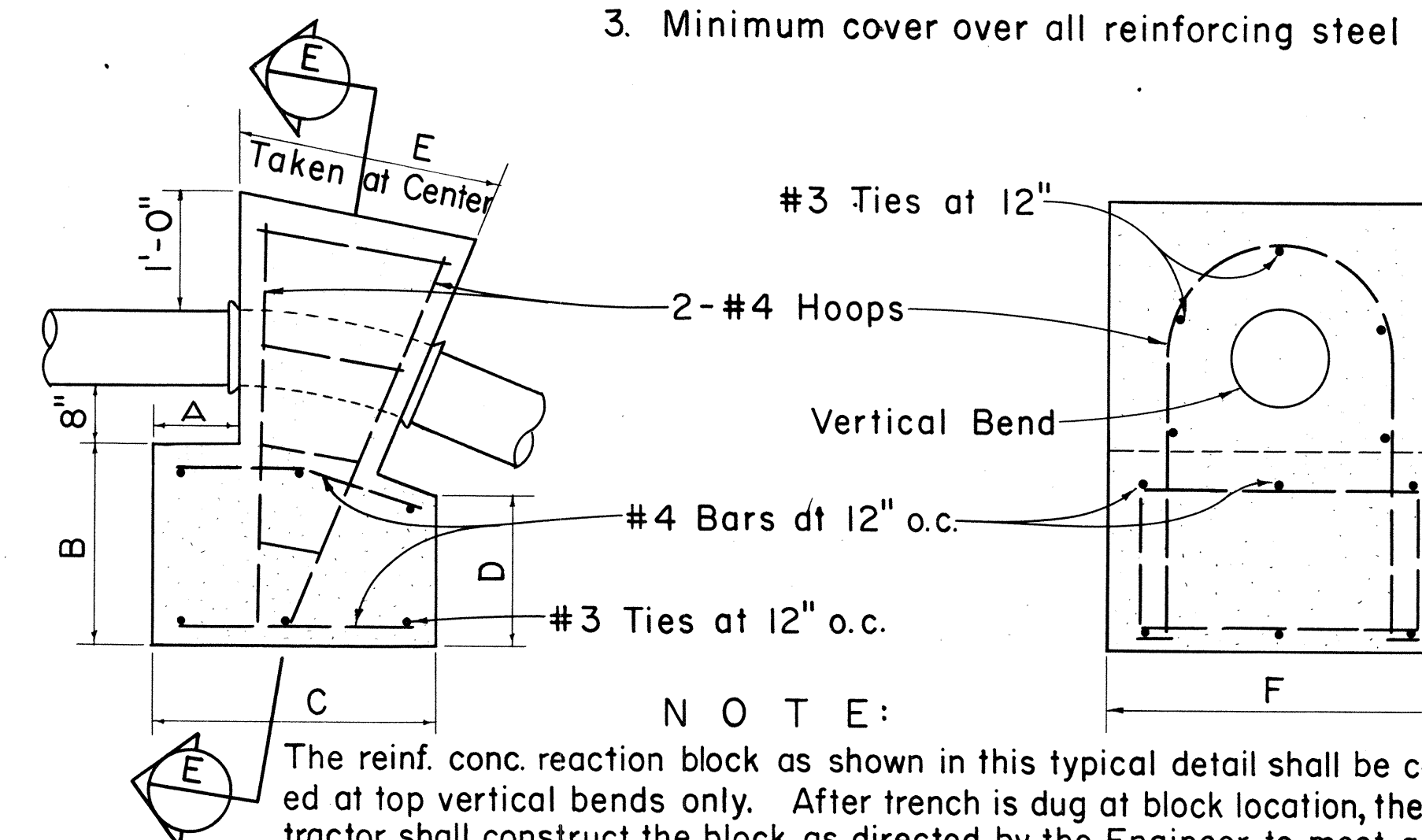
SECTION A

TYPICAL DETAIL OF CONCRETE REACTION BLOCK WITH STRAPS

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

GENERAL NOTES:

- Detail drawings of actual precast blocks and other reaction blocks (not precast) to be used, shall be furnished during construction by B.W.S. and or State.
- Steel straps, anchor bolts, nuts, washers, etc., furnished and installed by the Contractor will not be paid for directly, but shall be considered incidental to the various contract items for the water system.
- Minimum cover over all reinforcing steel shall be 3 inches.



ELEVATION

SECTION E

TYPICAL DETAIL OF REINFORCED CONCRETE REACTION BLOCK FOR TOP VERTICAL BENDS

Scale: Not to Scale

1/16 VERTICAL BENDS, A.W.W.A. 250 p.s.i.							
PIPE SIZE	DIMENSIONS						CU. YDS.
	A	B	C	D	E	F	
8	1'-0"	2'-0"	3'-0"	1'-6"	1'-6"	4'-0"	1 1/4
6	0'-9"	1'-9"	2'-6"	1'-4"	1'-6"	3'-0"	3/4

APPROVED:

A. Kowalewski 5/1/69
CHIEF, ENGINEERING DIVISION
BOARD OF WATER SUPPLY

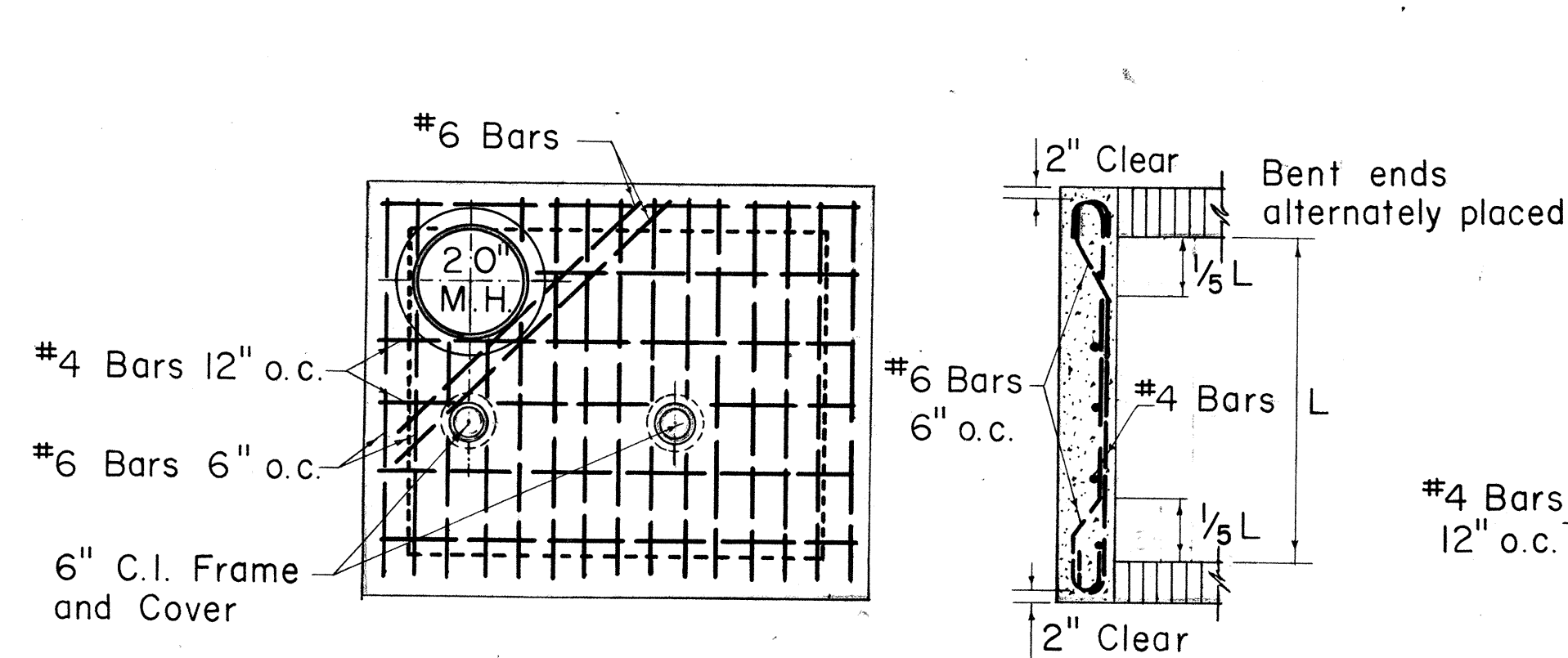
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU
STANDARD DETAILS

Scale: As Shown

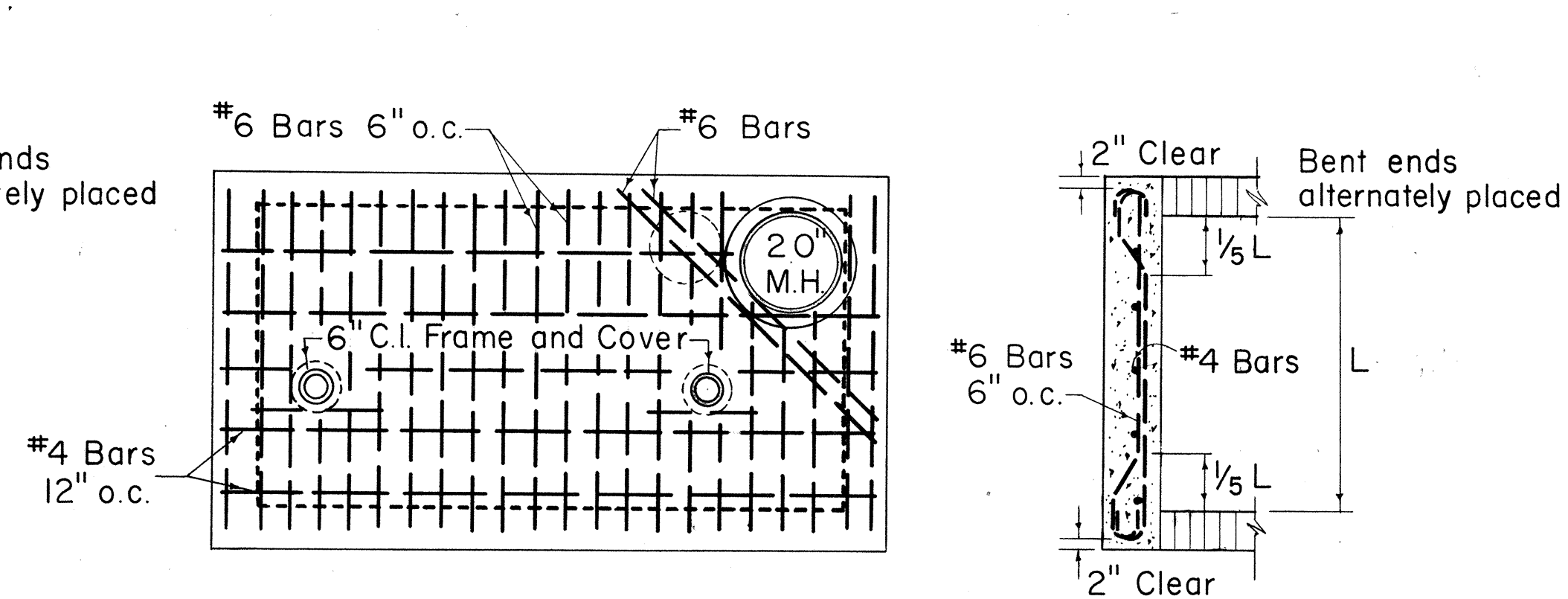
SHEET No. 3 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII		1969	54	73

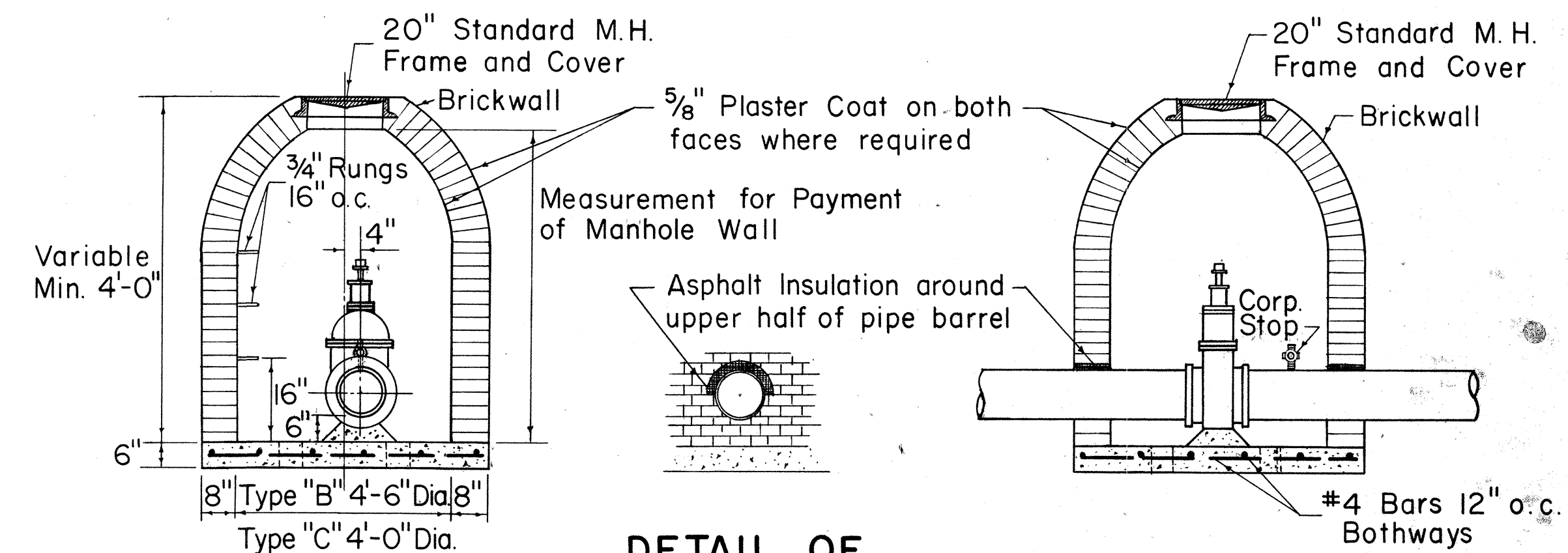
PROJECT NO. 900B-02-08 UNIT 1



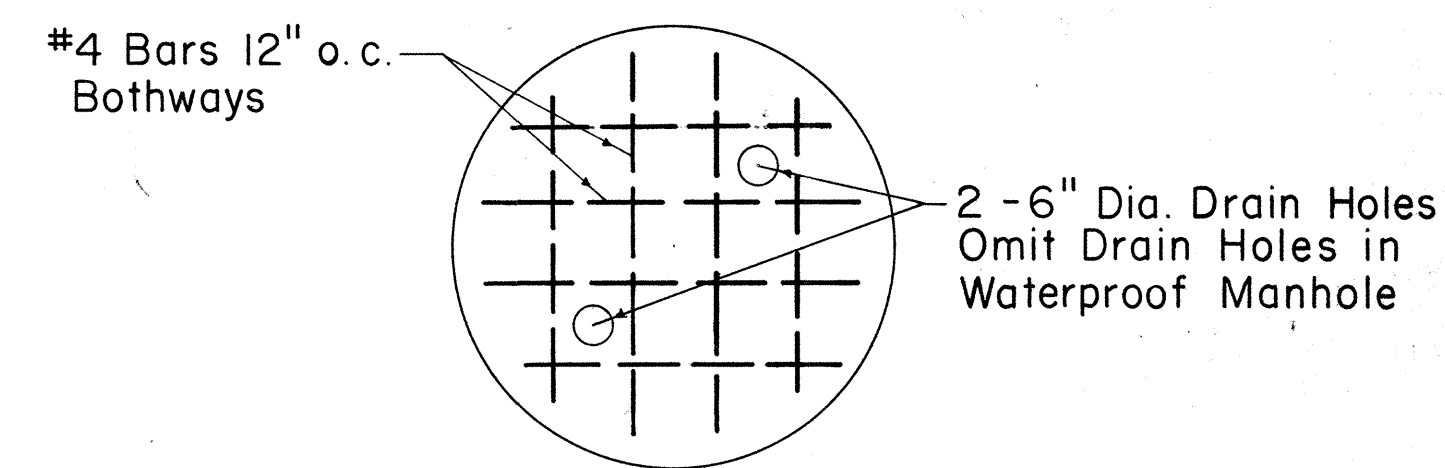
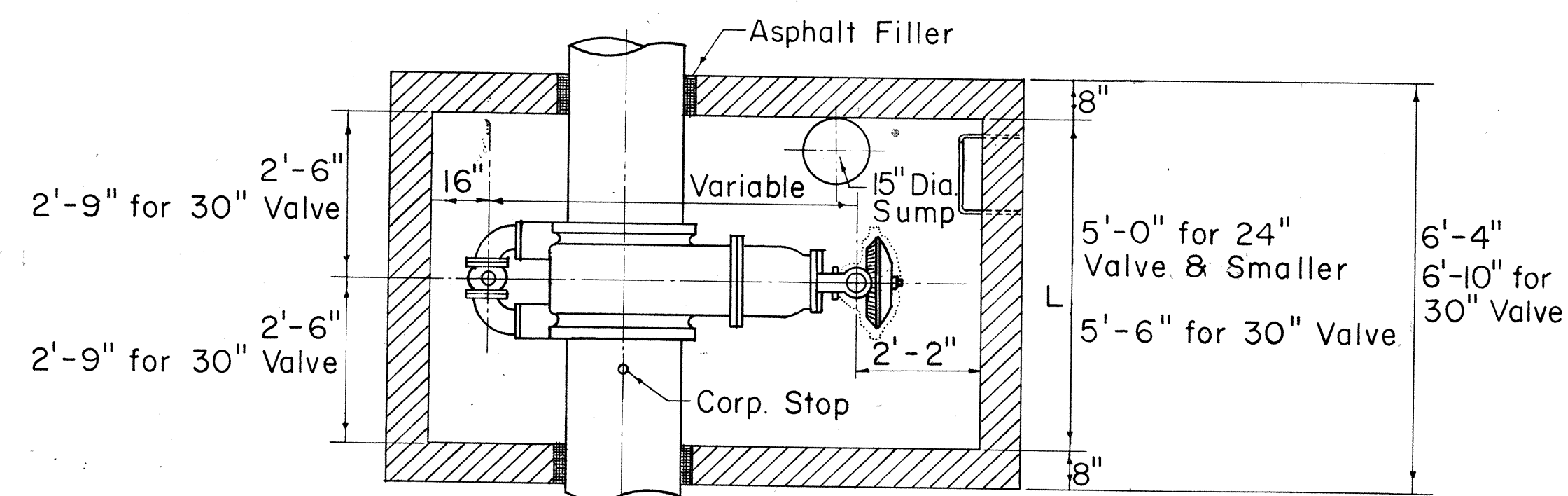
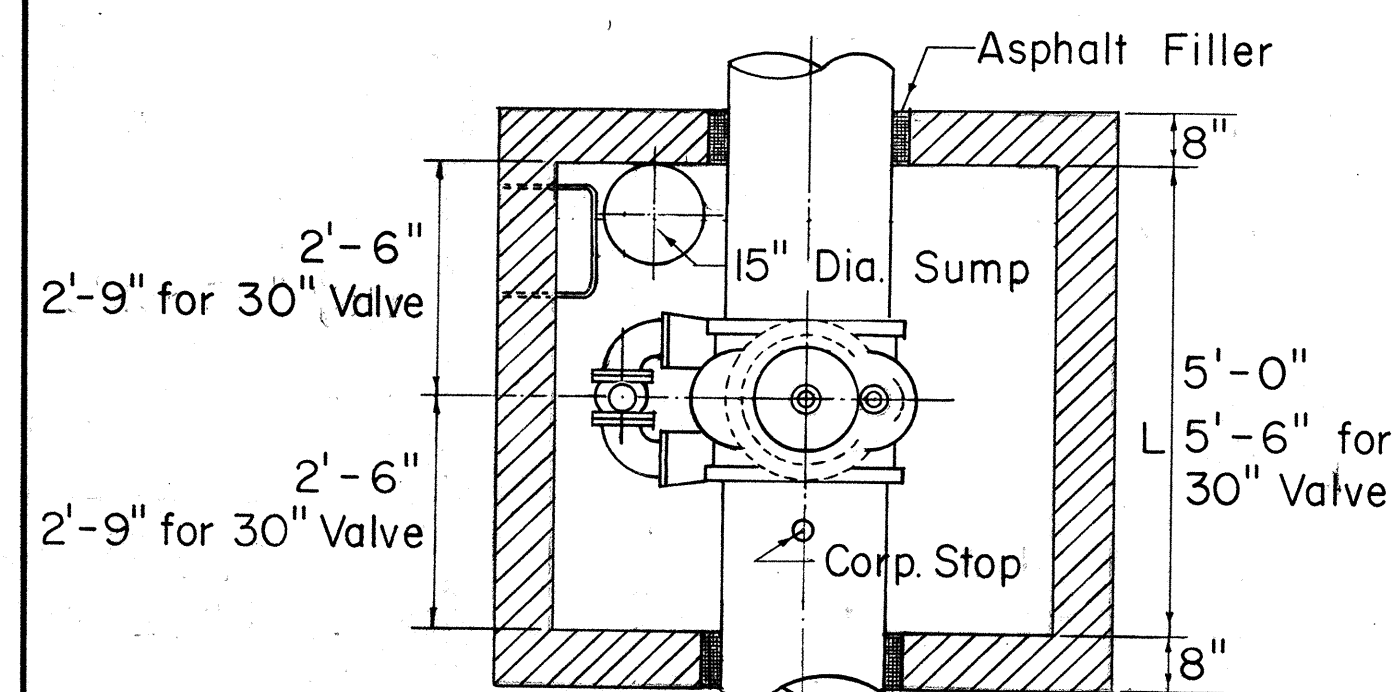
PLAN OF TOP SLAB



PLAN OF TOP SLAB



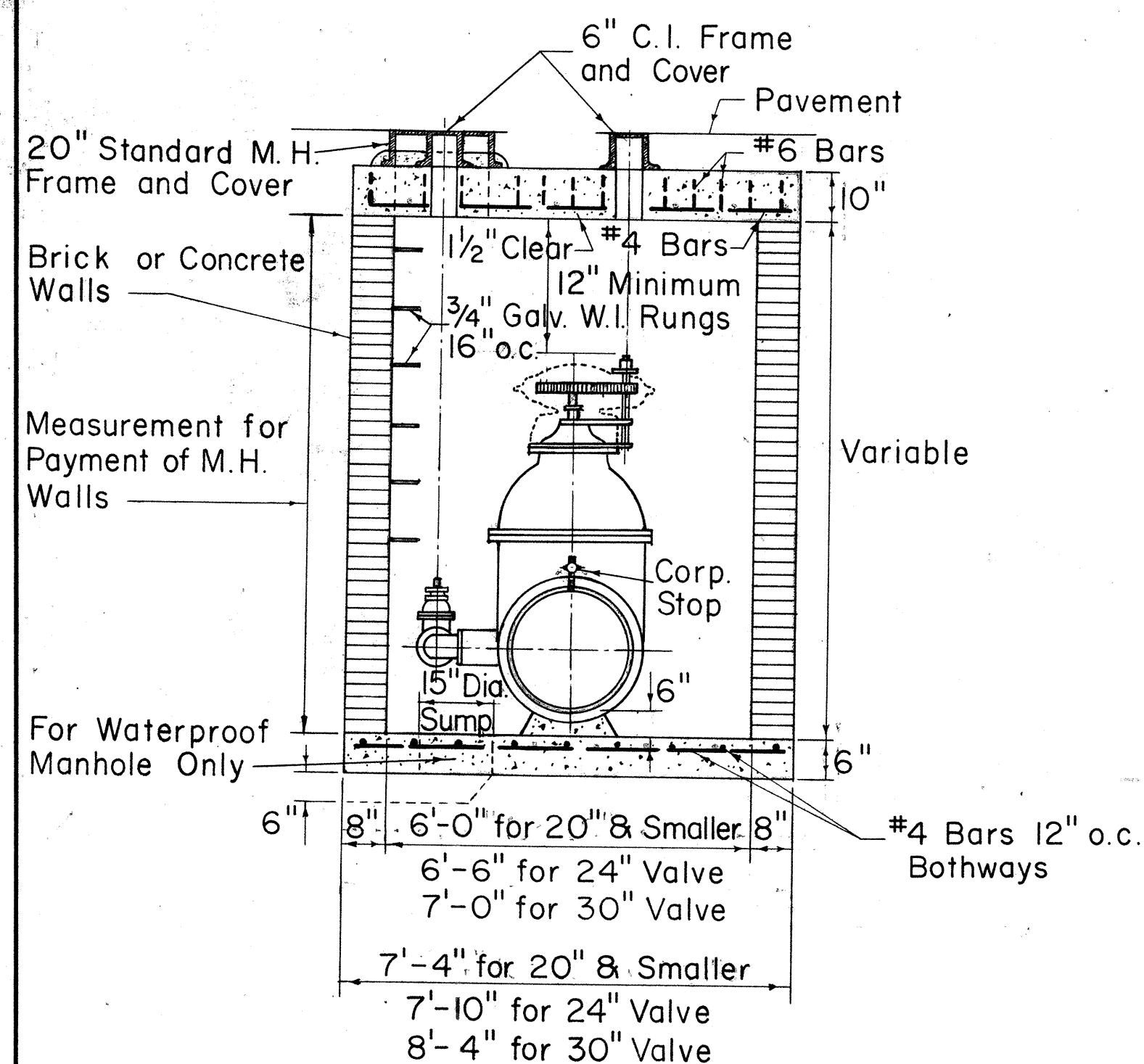
DETAIL OF ASPHALT FILLER



STEEL DETAIL IN BOTTOM SLAB

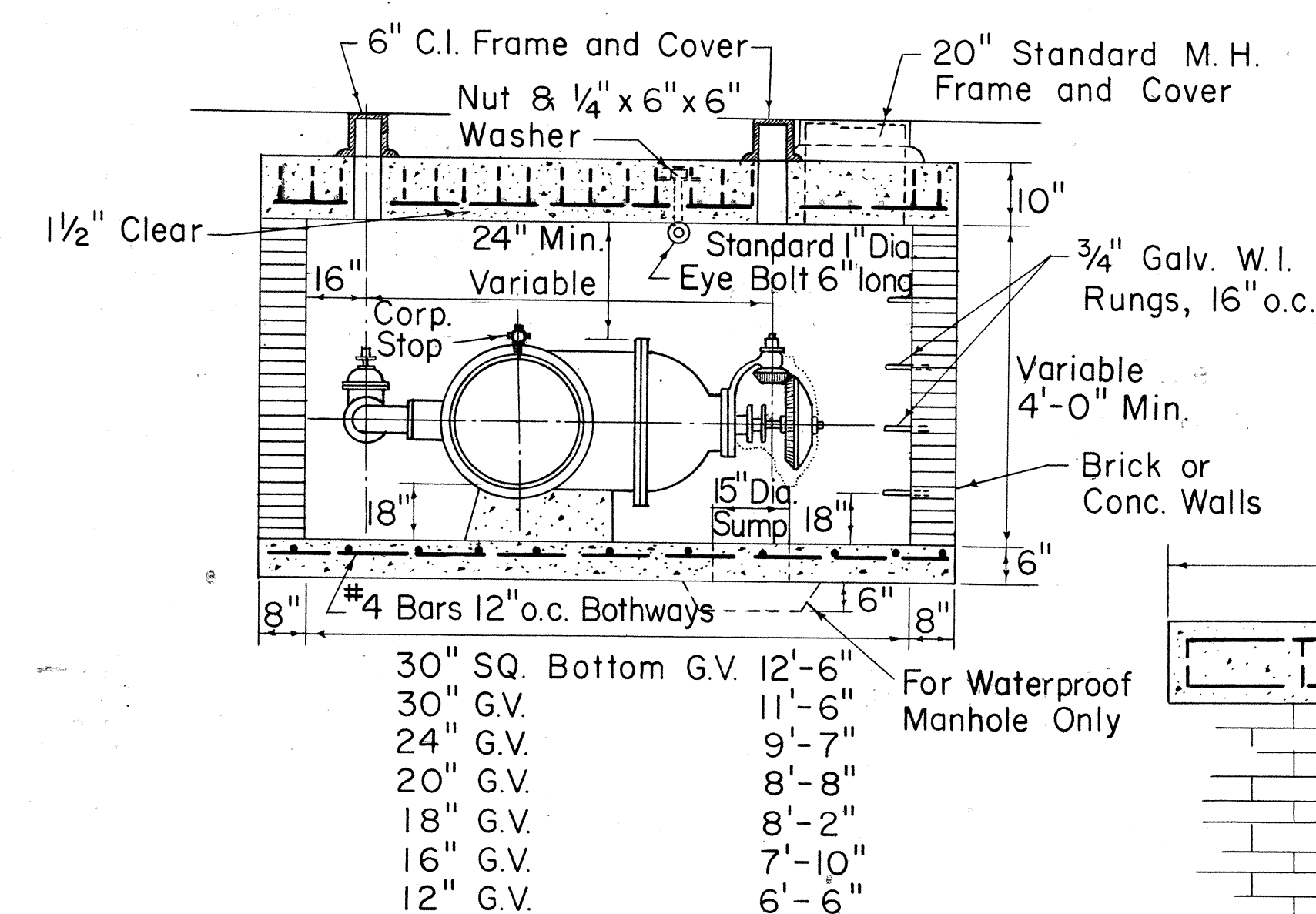
TABLE "A"
REQUIRED CORPORATION STOP SIZES
AT GATE VALVE

DIA. OF MAIN INCHES	SIZE OF CORP STOP
4	1" x 1 1/4"
6	1" x 1 1/4"
8	1" x 1 1/4"
12	1" x 1 1/4"
16	1" x 1 1/4"
20	1" x 1 1/4"
24	1 1/2" x 2"
36	1 1/2" x 2"
42	1 1/2" x 2"



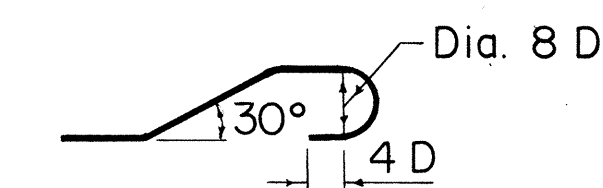
SECTION

TYPE "A" MANHOLE
FOR SPUR GEARED GATE VALVES



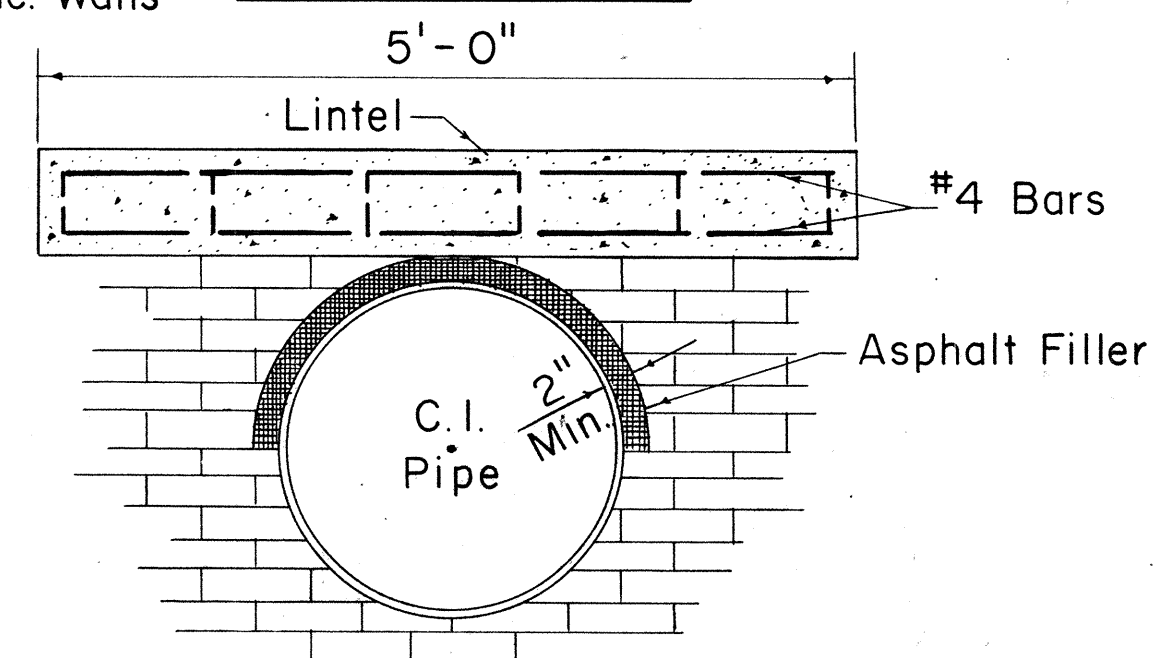
SECTION

TYPE "A" MANHOLE
FOR BEVEL GEARED GATE VALVES

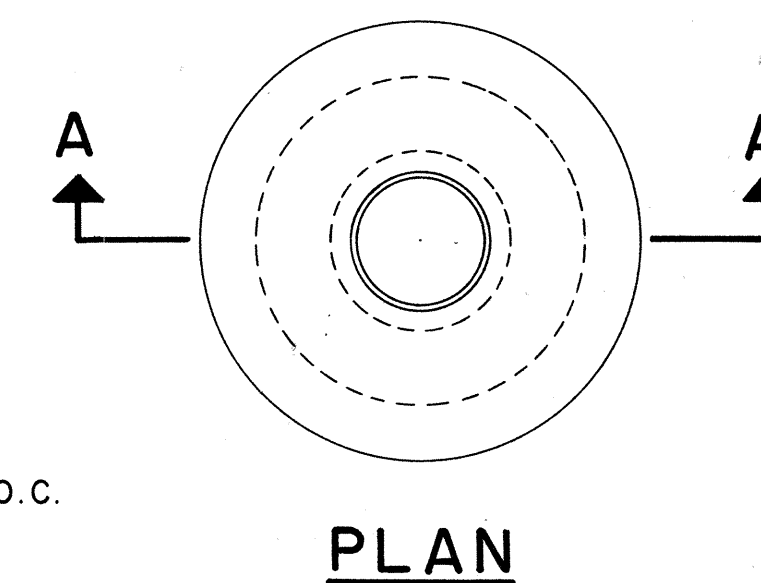


BAR BENDING
DETAIL

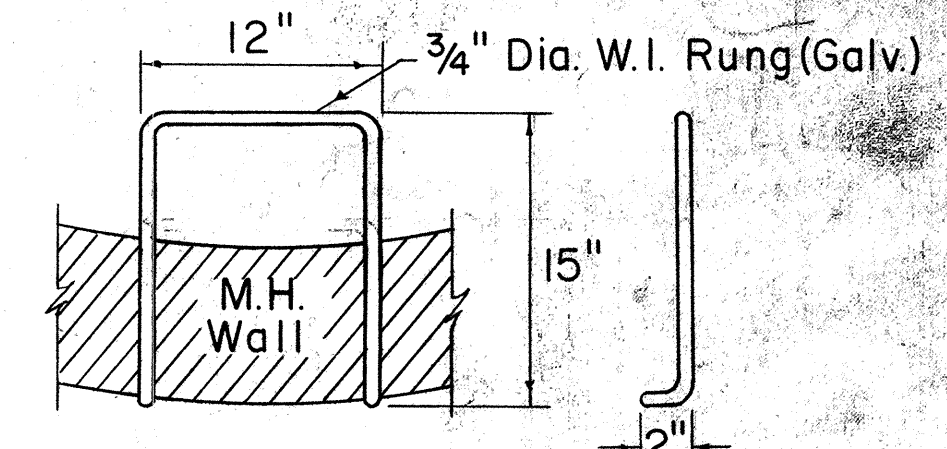
SECTION
THRU LINTEL



DETAIL OF LINTEL
AND ASPHALT FILLER



TYPE "B" AND "C" MANHOLES
TYPE "B" 4'-6" DIA. (FOR 12" G.V.)
TYPE "C" 4'-0" DIA. (FOR 6" & 8" G.V.)



DETAIL OF RUNG

APPROVED:

[Signature]
CHIEF, ENGINEERING DIVISION
BOARD OF WATER SUPPLY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU

Not to Scale Date

SHEET NO. 4 OF 7 SHEETS

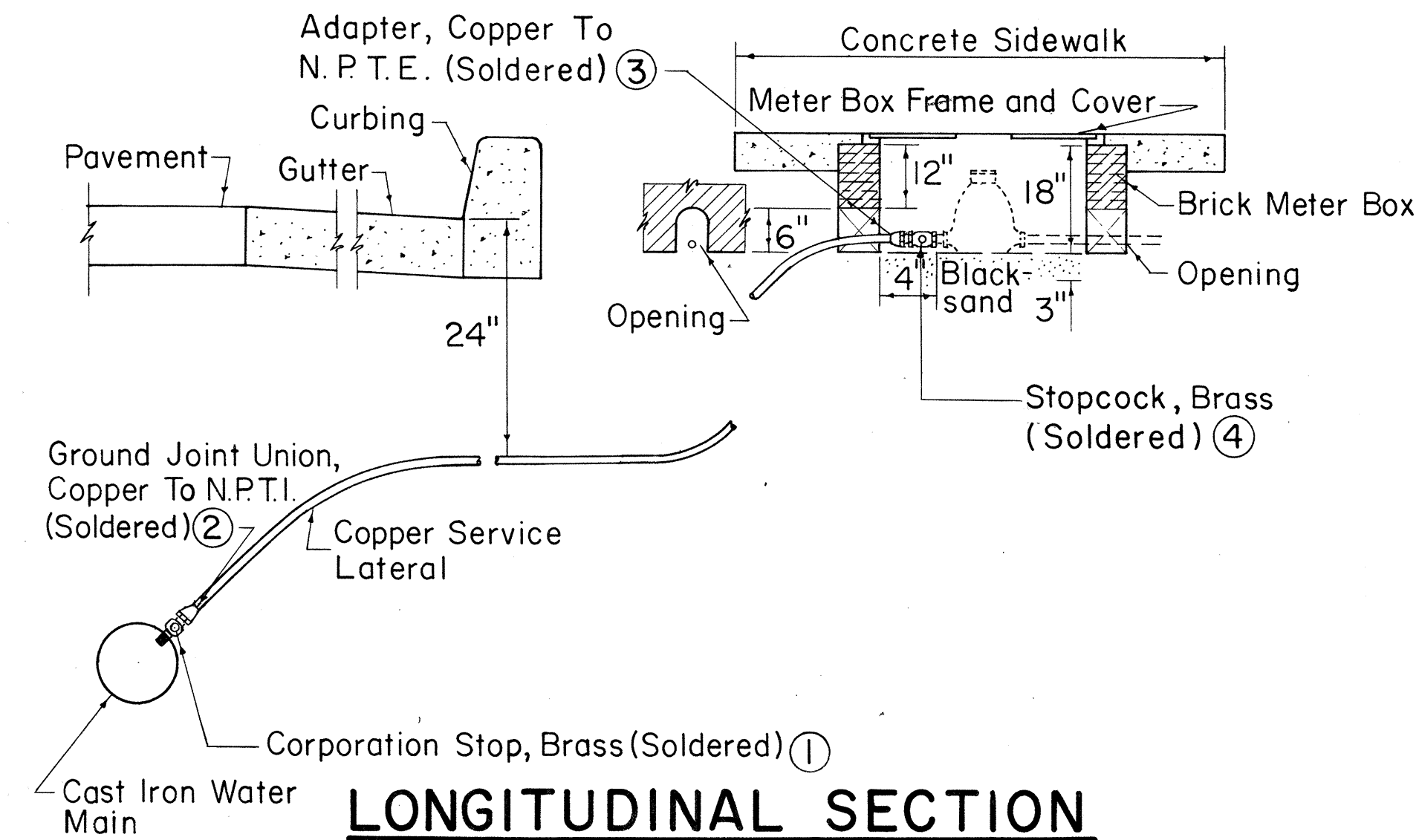
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII		1969	55	73

PROJECT NO. 9008-02-05 UNIT 1

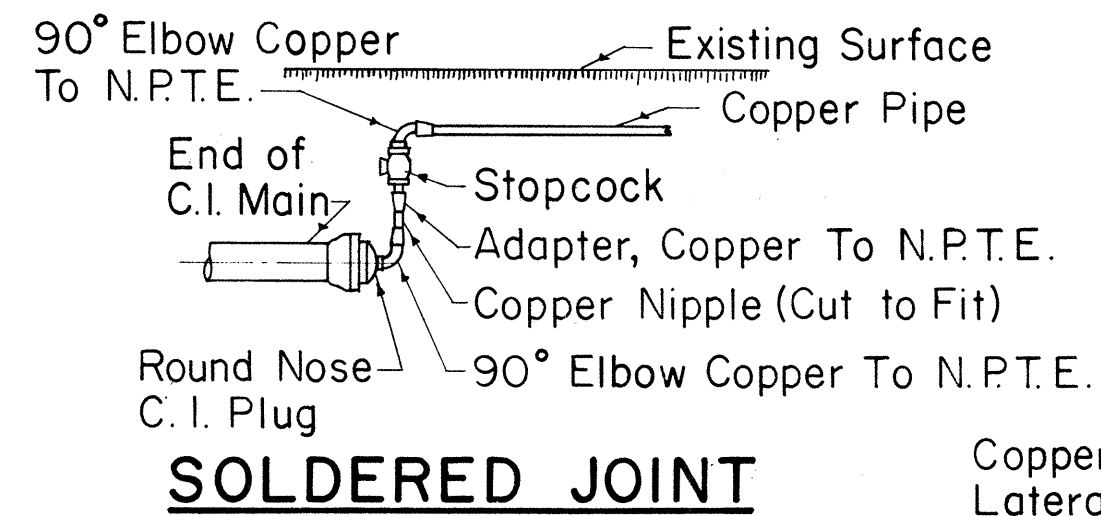
SCHEDULE OF COPPER FITTINGS (SOLDERED JOINT)

ITEM NO.	DESCRIPTION	SINGLE SERVICE CONN.	MULTIPLE SERV.CONN	
			TWO SERVICES	THREE SERVICES
1	Corporation Stop Brass (H-10003)	1	1	1
2	Ground Joint Union (Style Copper To N.P.T.E. No. C-109)	1	1	1
3	Adapter, Copper To N.P.T.E. (Style No. C-101)	2	1	1
4	Stopcock Brass (BWS Standard)	1	1	1
5	Fitting Adapter, (Style Fitting To N.P.T.E. No. C-104)	—	1	1
6	Tee, Copper To Copper To Copper (Style No. T-300)	—	1	1
7	Bushings, Fitting To Copper (Style No. C-103)	—	2	2
8	90° Elbow, Copper To Copper (Style No. C-200)	—	2	2
9	Adapter, Copper To N.P.T.E. (Style No. C-101)	1	2	3
10	Stopcock Brass (BWS Standard)	1	2	3
11	Reducing Tee, Copper To Copper To Copper (Substitute For Items Number 6 and 7). (Style No. T-300)	—	1	1
12	Tee, Copper To Copper To Copper (Style No. T-300)	—	—	1
13	Bushing, Fitting To Copper (Style No. C-103)	—	—	1
14	Reducing Tee, Copper To Copper To Copper (Substitute For Items Number 12 and 13) (Style No. T-300)	—	—	1

NOTE:
Reference Numbers shown thus (H-10003) are from Mueller Co. Catalog "H" and (Style No. T-300) are from Mueller Brass Co. "Streamline" Catalog S-354. Approved Equal may be used.

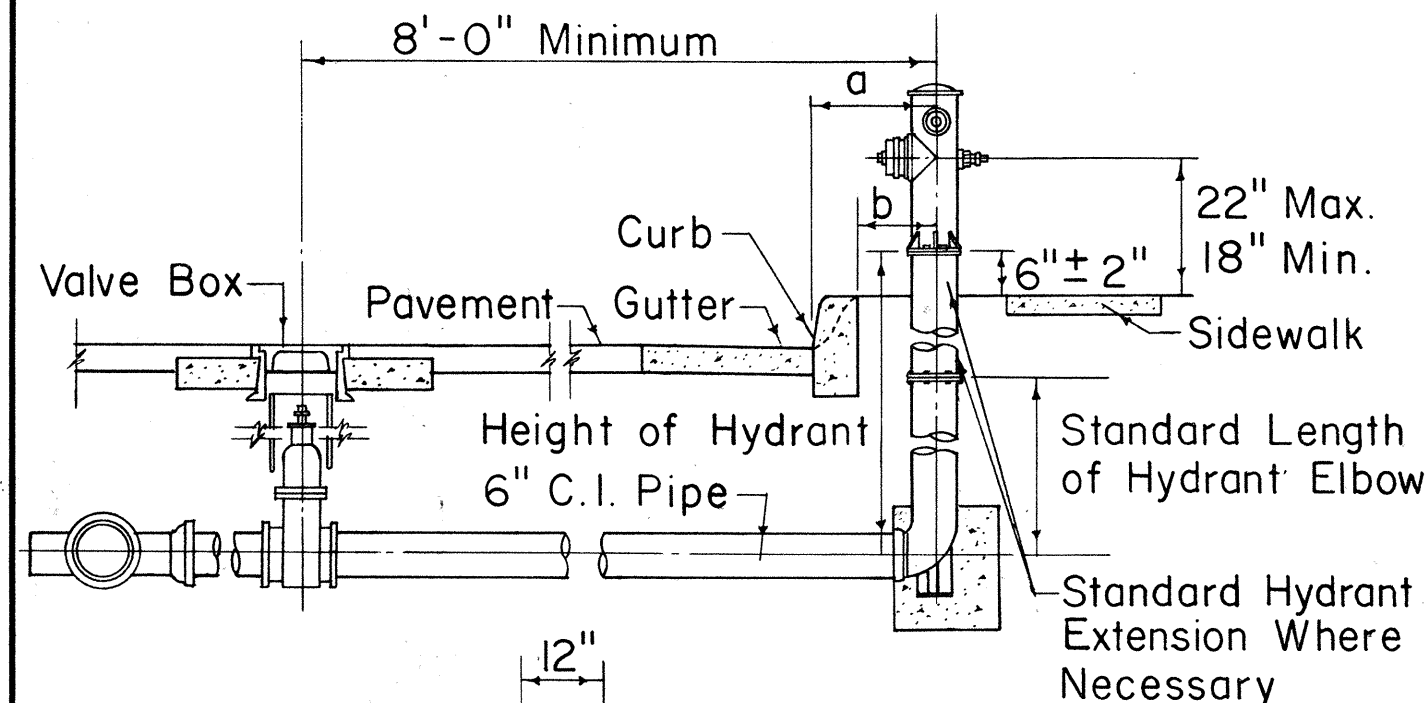


LONGITUDINAL SECTION



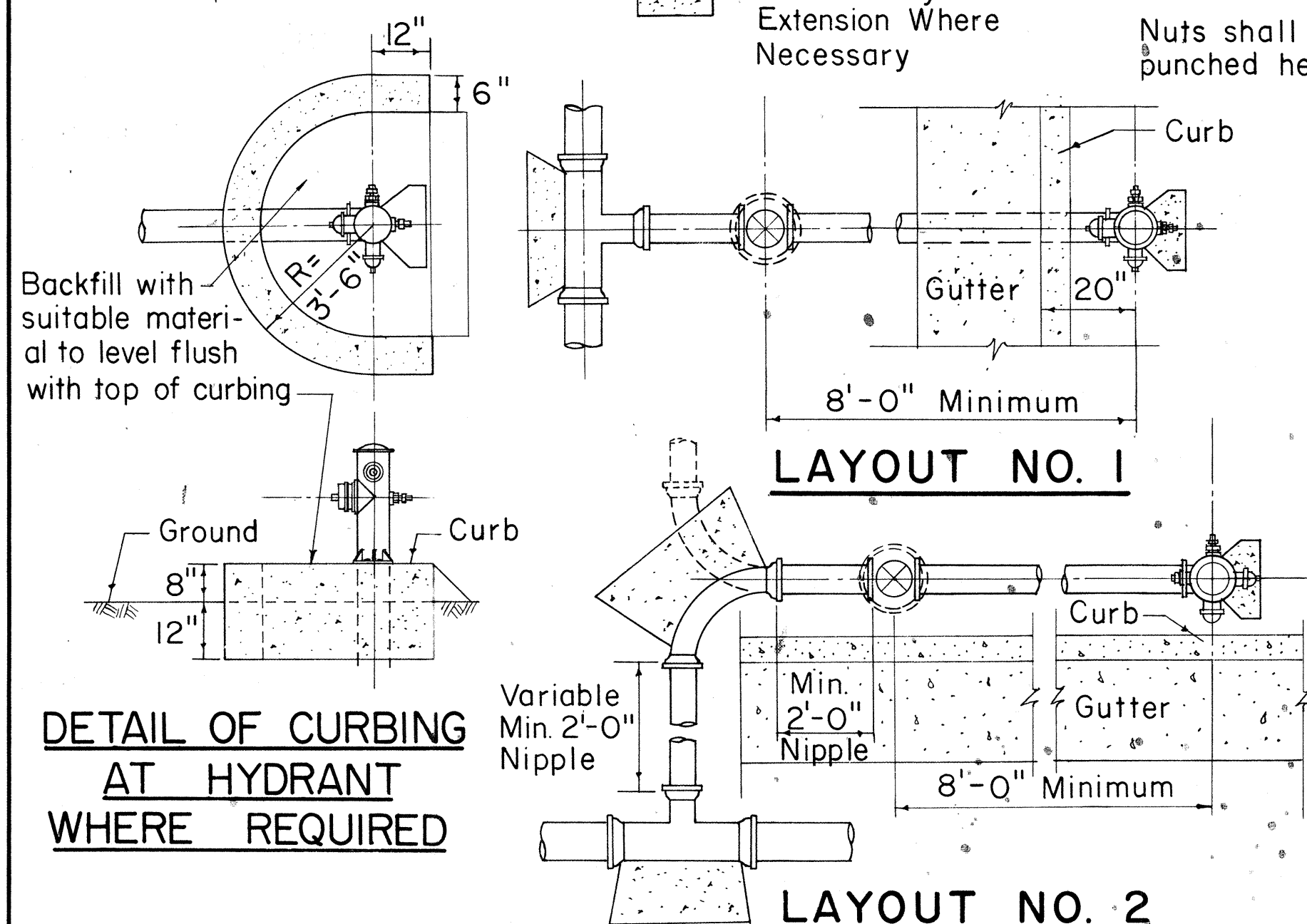
SOLDERED JOINT

SERVICE LATERAL CONNECTION AT END OF LINE



a	20" Min. (Standard Curb)
b	20" Min. (Roll Curb)

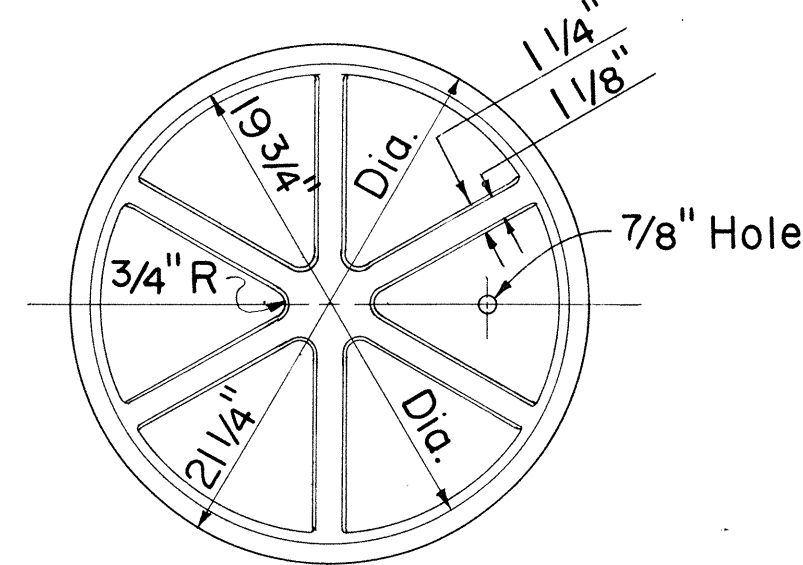
NOTE:
Gaskets for flanged joints shall be 1/8 inch duck-inserted rubber packing Garlock No. 19. Bolts shall be 5/8" diameter x 2 3/4" long steel machine bolts with cut threads, American Standard heavy hexagon heads, galvanized. Nuts shall be American Standard heavy cold punched hexagon nuts, galvanized.



DETAIL OF CURBING
AT HYDRANT
WHERE REQUIRED

STANDARD FIRE HYDRANT LAYOUT

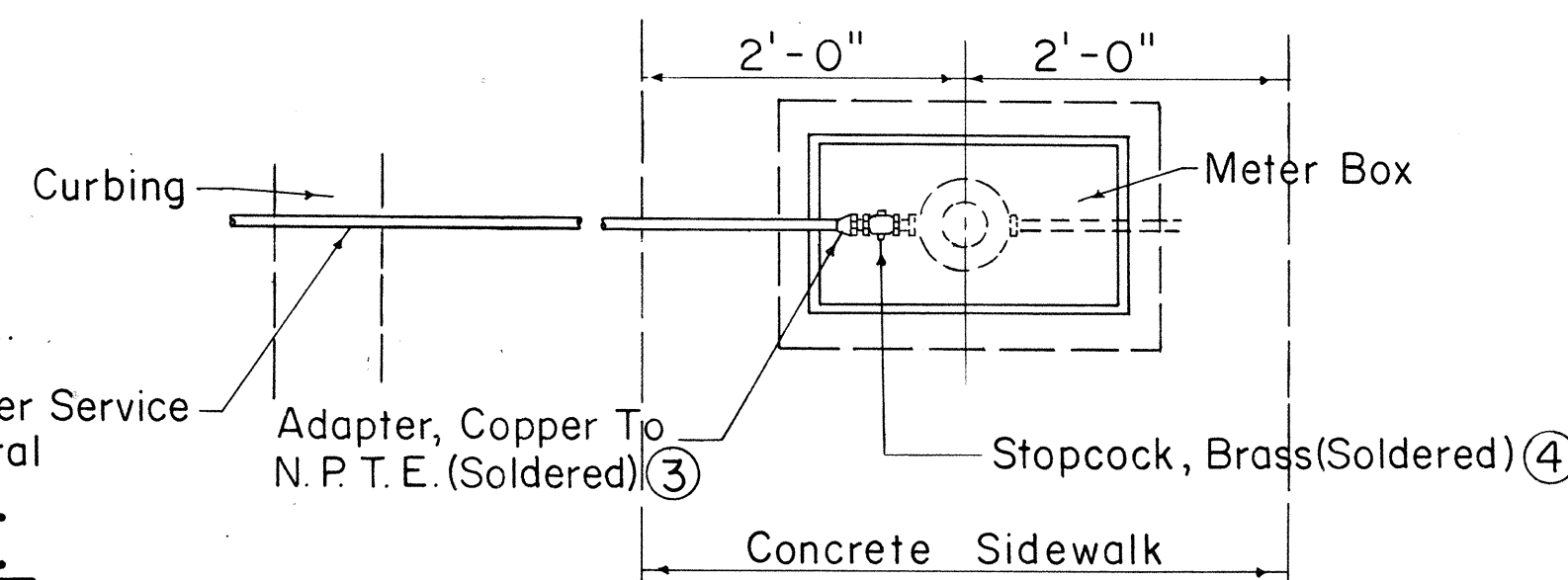
NOTE:
All castings shall be made accurately to the dimensions shown. Seat and cover shall be machined or ground where necessary to secure flat and true surfaces. The cover shall not rattle in any position.



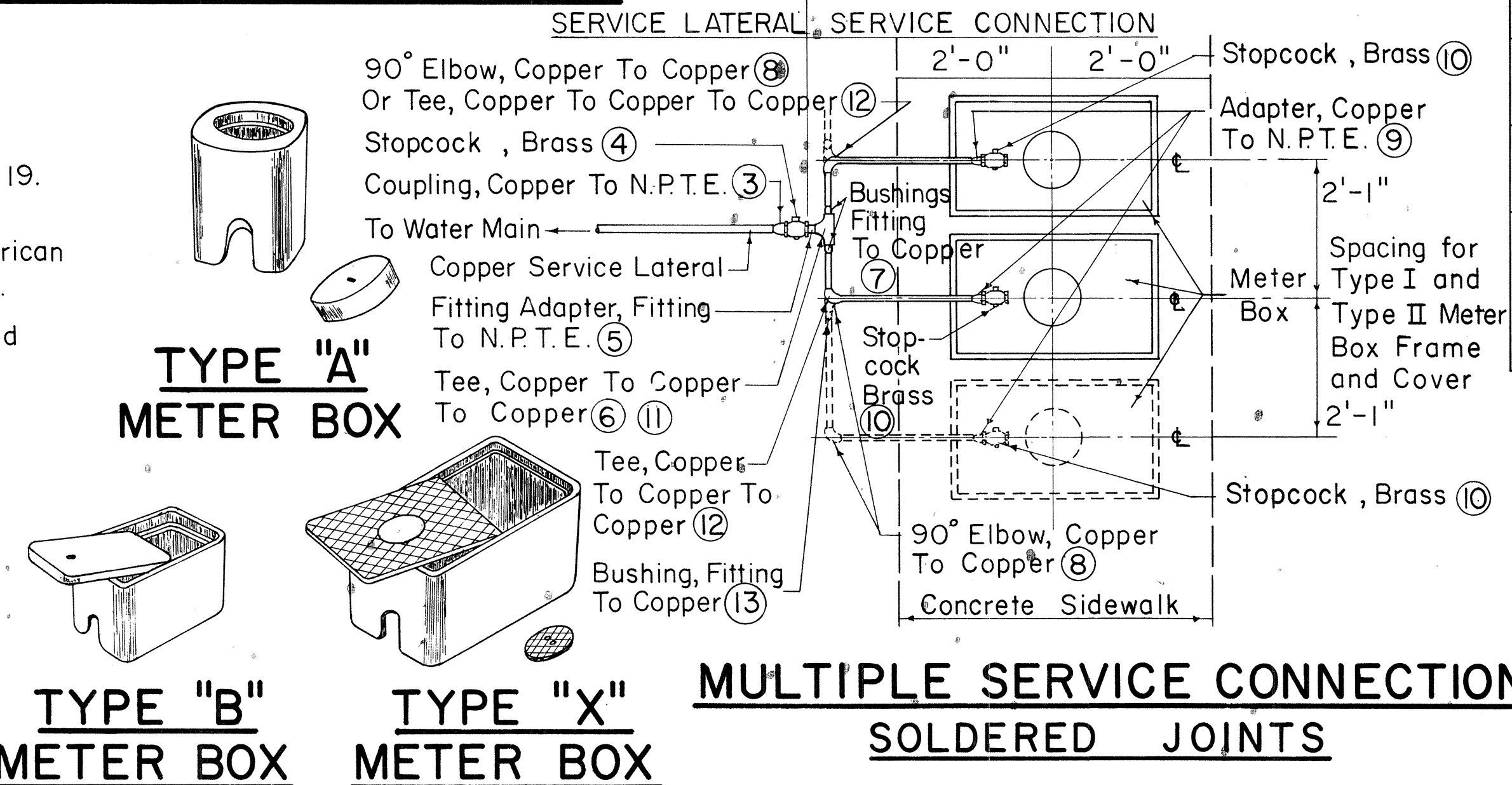
BOTTOM VIEW OF COVER

MANHOLE FRAME & COVER CAST IRON, 20" SIZE

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



SINGLE SERVICE CONNECTION



TYPE "A"
METER BOX

TYPE "B"
METER BOX

TYPE "X"
METER BOX

MULTIPLE SERVICE CONNECTION SOLDERED JOINTS

METER BOX DATA					
TYPE METER BOX	METER SIZES	OVERALL DIMENSIONS AT BOTTOM	OVERALL DIMENSIONS AT TOP	COMPLETE WEIGHT	OVERALL DIMENSIONS OF LID
A	5/8" or 3/4" Without Valve	7 1/4" x 7 1/4"	10" x 10"	45 lbs.	7 3/8" Dia.
B	5/8" or 3/4"	9 1/2" x 16"	12 1/4" x 18 3/8"	82 lbs.	8 3/4" x 14 1/2"
X		14 1/2" x 23 1/2"	16" x 25"	143 lbs.	13 1/8" x 22 1/8"

Standard Hydrant Extensions are available in the following Lengths:
6 to 30 inches long in increments of 6 inches

APPROVED:

[Signature] 5/4/69
CHIEF, ENGINEERING DIVISION DATE
BOARD OF WATER SUPPLY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU

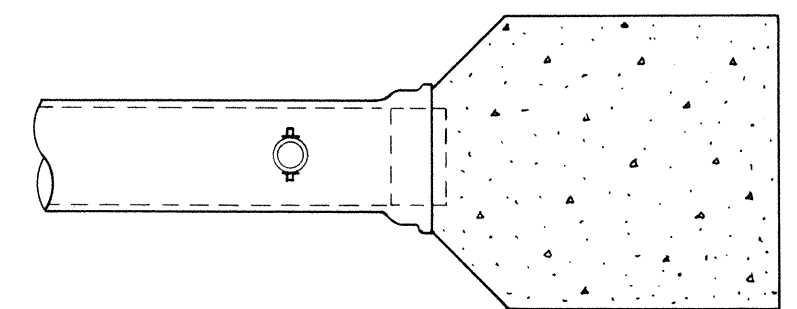
Not to Scale Date

SHEET NO. 5 OF 7 SHEETS

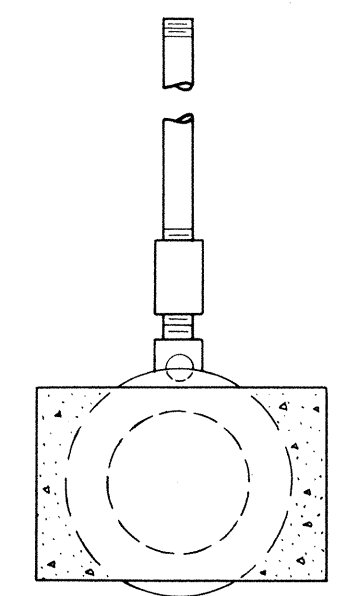
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII		1969	56	73

PROJECT NO. 900B-02-68 UNIT 1

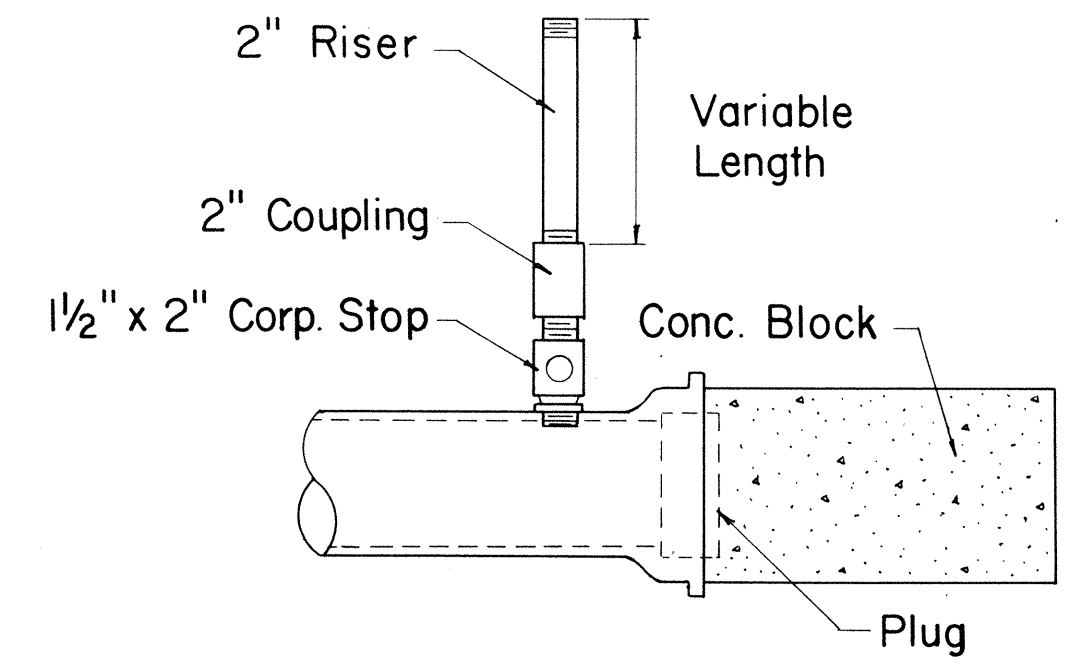
NOTE:
Contractor to furnish 1/2" brass plug (Tapered thread) to replace corporation stop upon completion of chlorination.



TOP VIEW

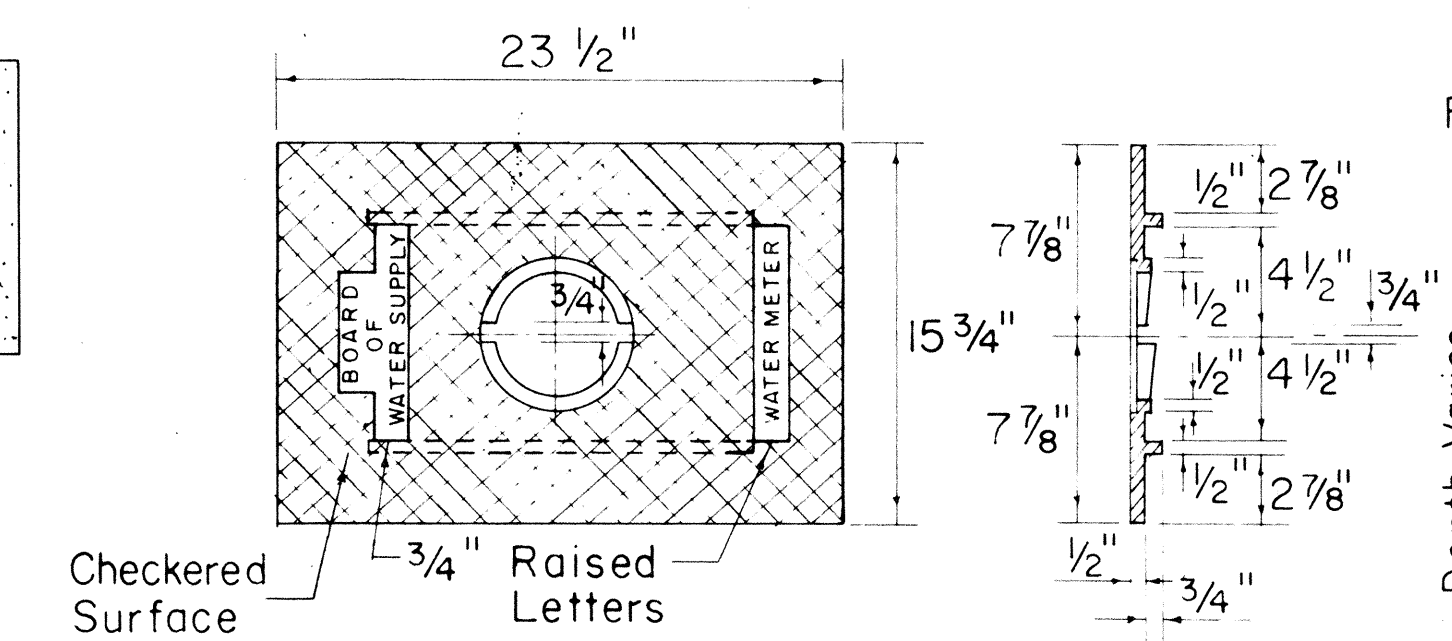


END VIEW

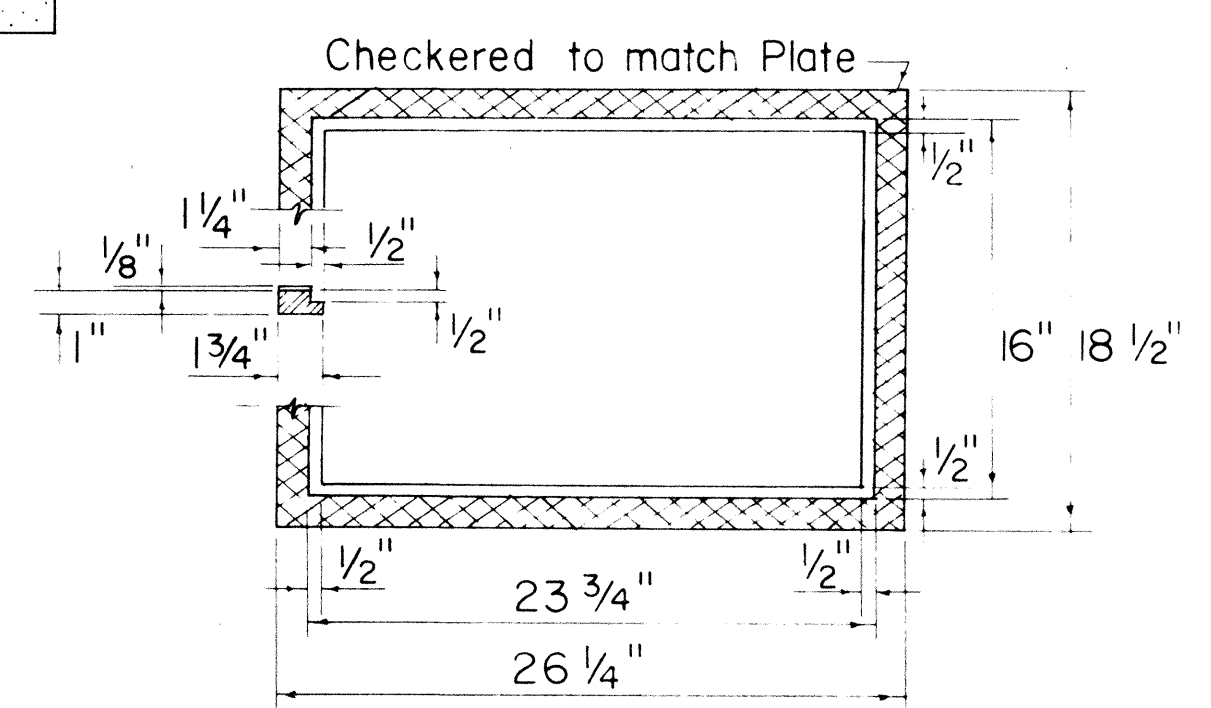


SIDE VIEW

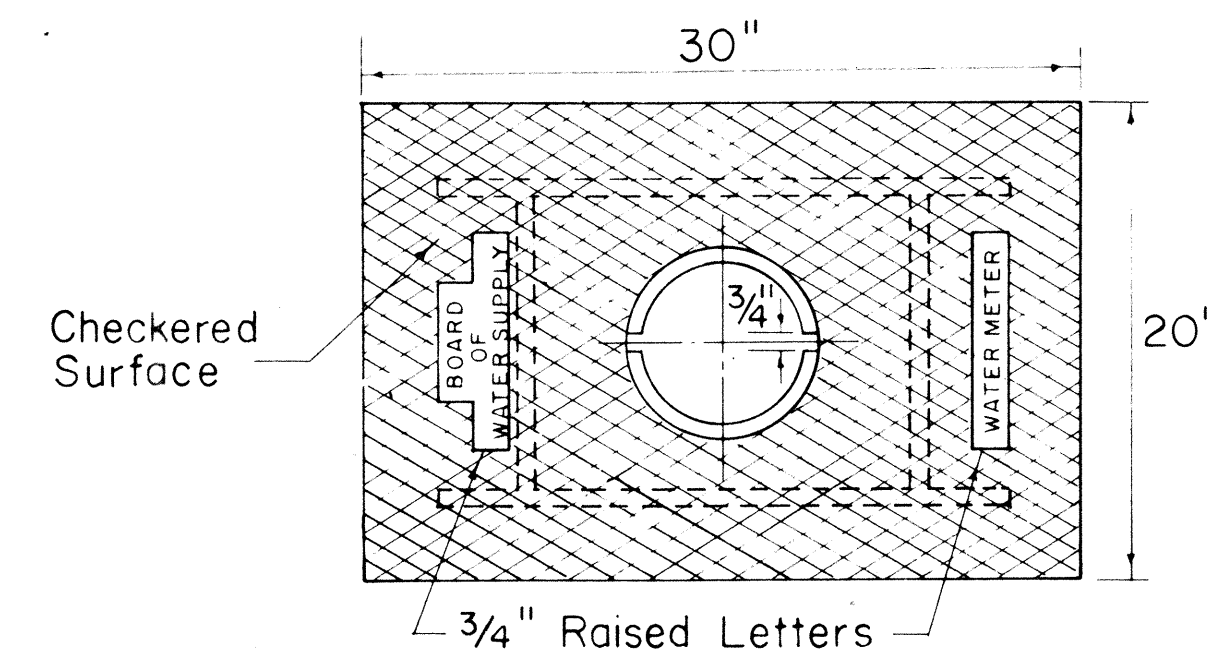
DETAIL OF
TEMPORARY 2" CLEANOUT
Not to Scale



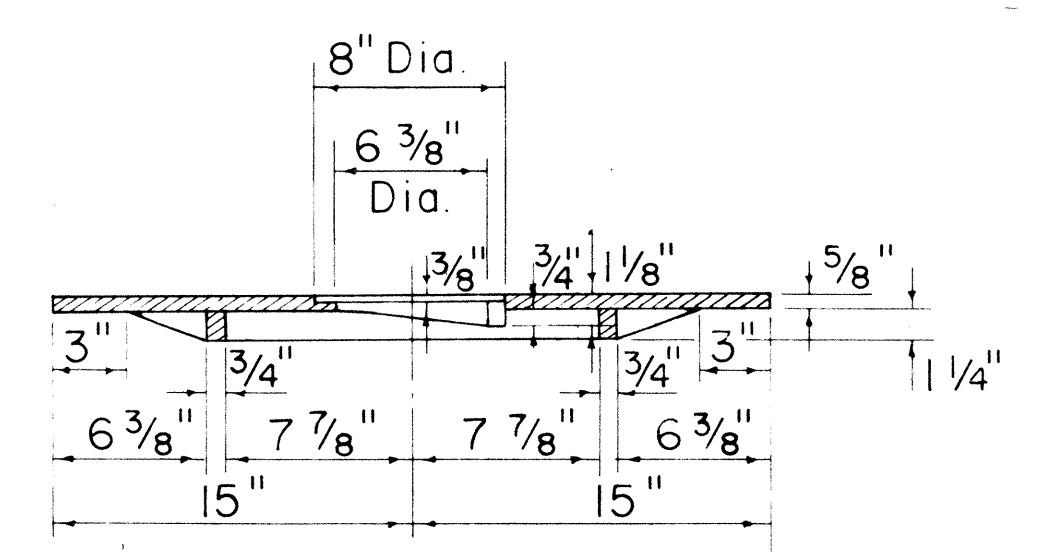
COVER PLATE



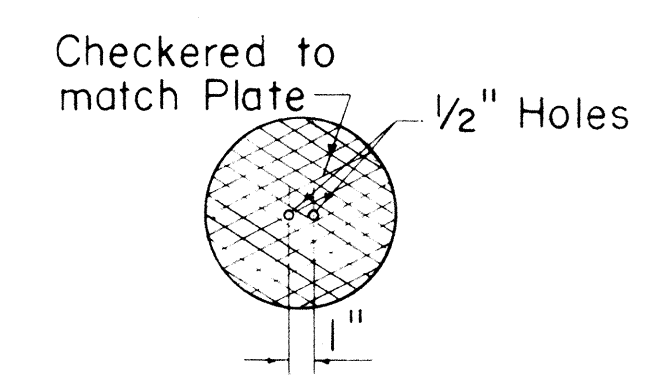
FRAME
CAST IRON FRAME AND PLATE
TYPE II
Scale: 1 1/2" = 1'-0"



COVER PLATE

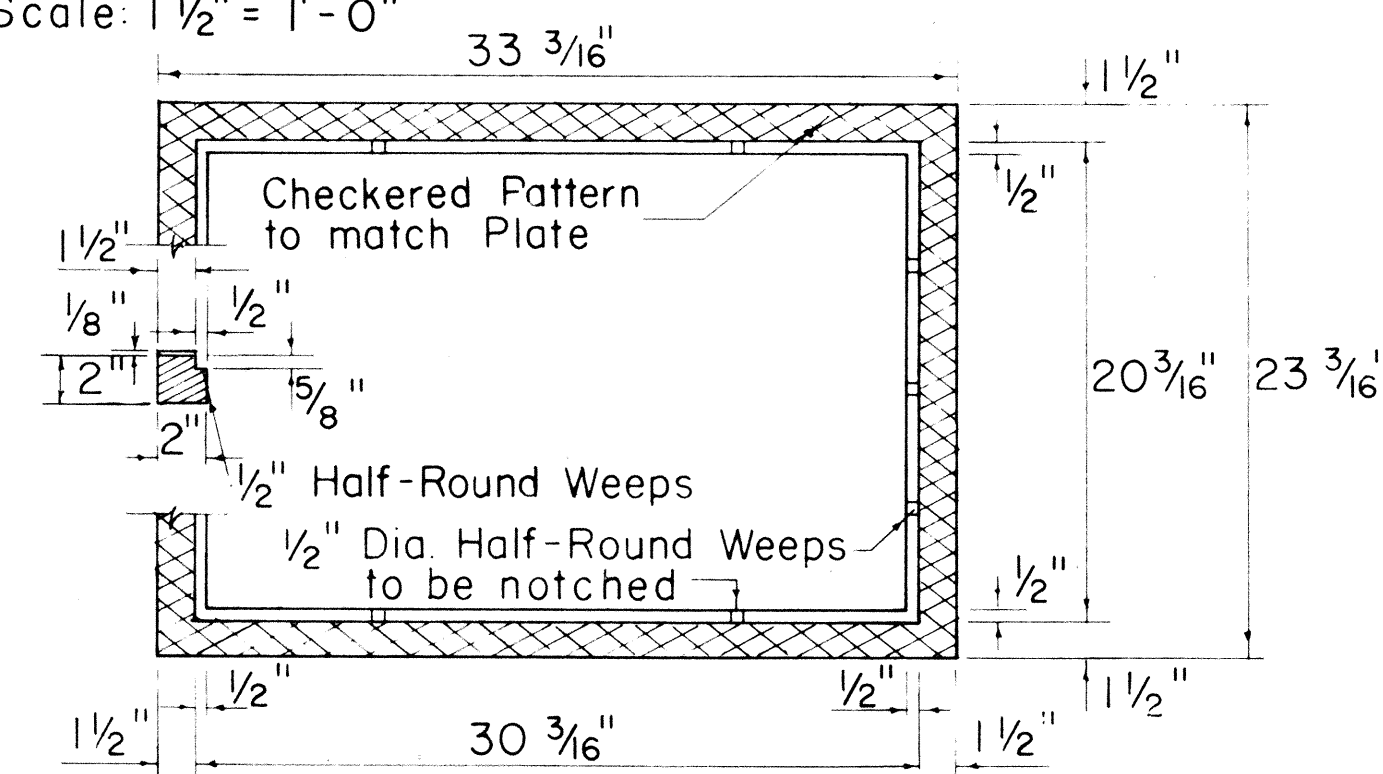


CAST IRON FRAME, PLATE AND COVER
TYPE III
Scale: 1 1/2" = 1'-0"



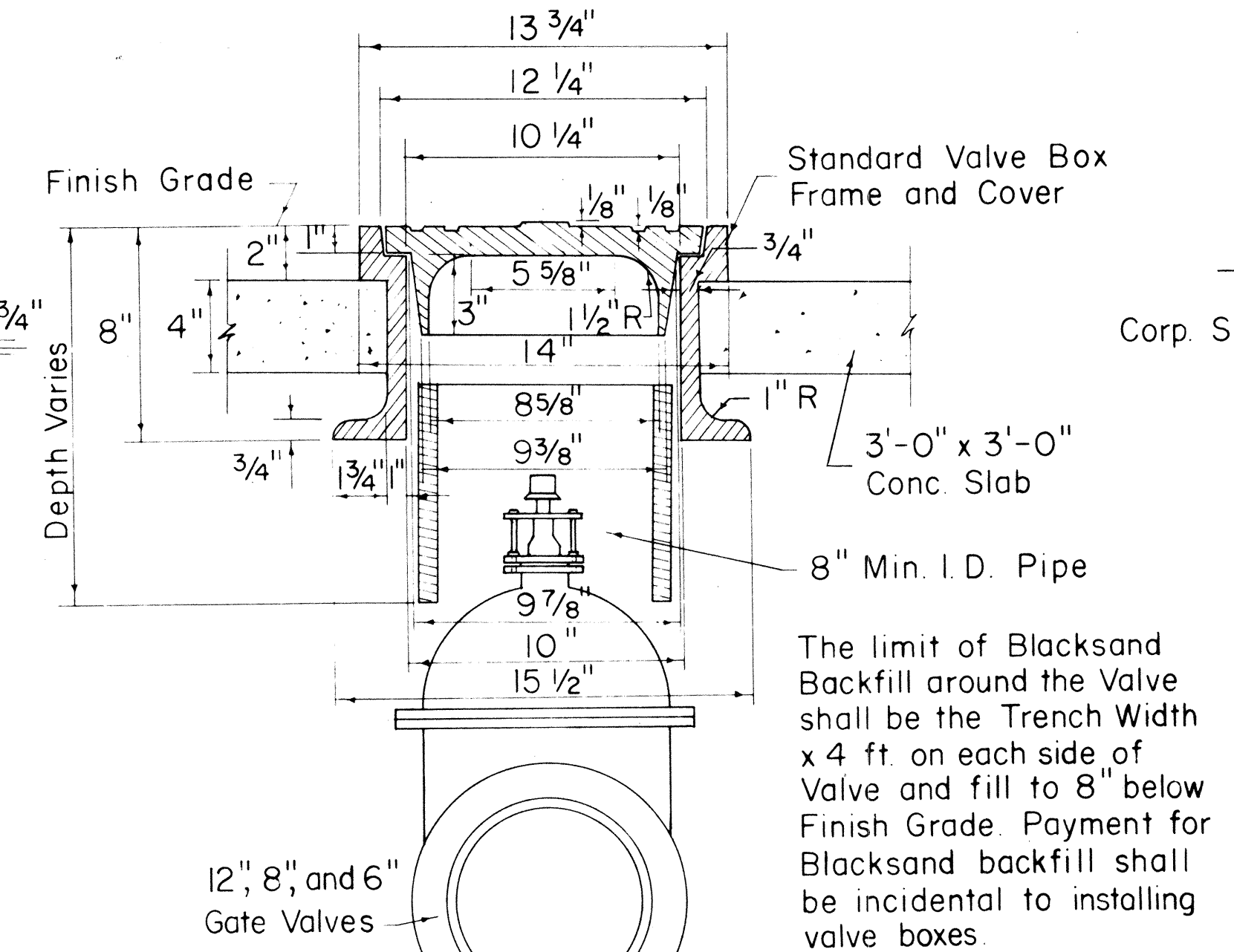
READING COVER

FRAME

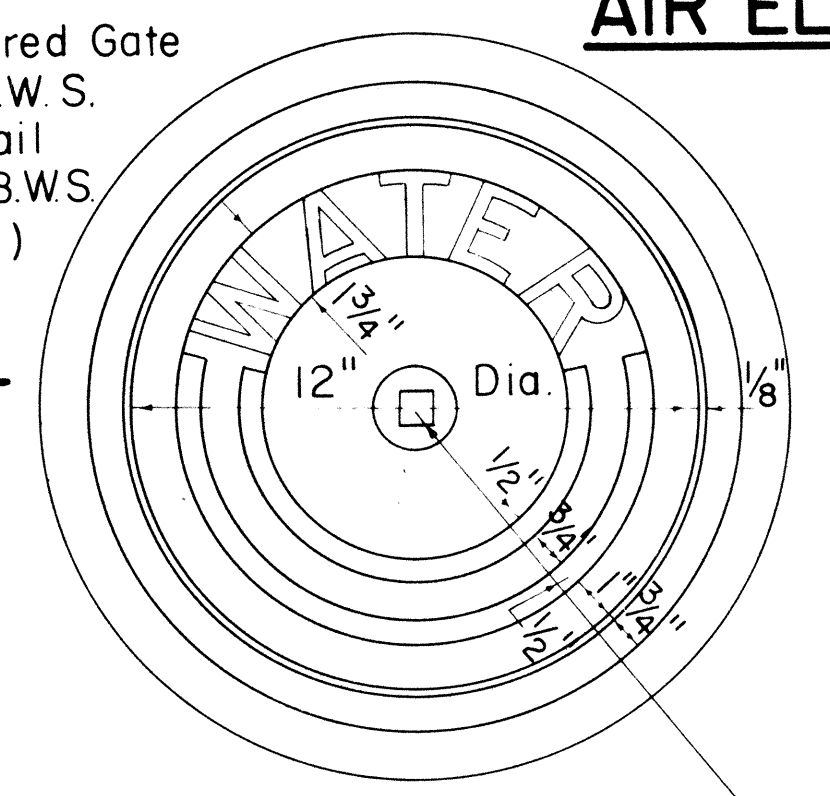


READING COVER

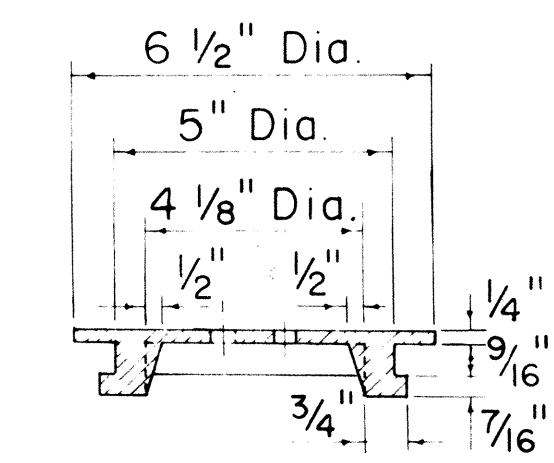
CHECKERED PATTERN
CAST IRON COVER FOR
TYPE II FRAME
Not to Scale



INSTALLATION OF VALVE
BOX FOR GATE VALVES
Not to Scale

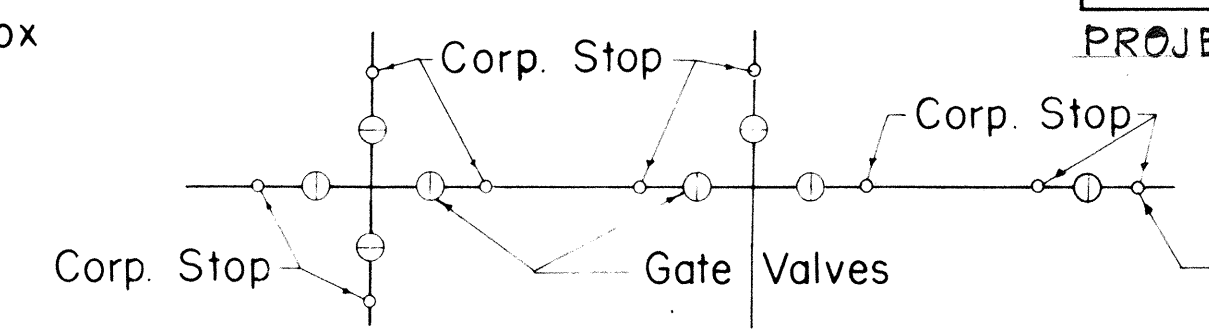


CAST IRON FRAME AND COVER
Scale: 3" = 1'-0"

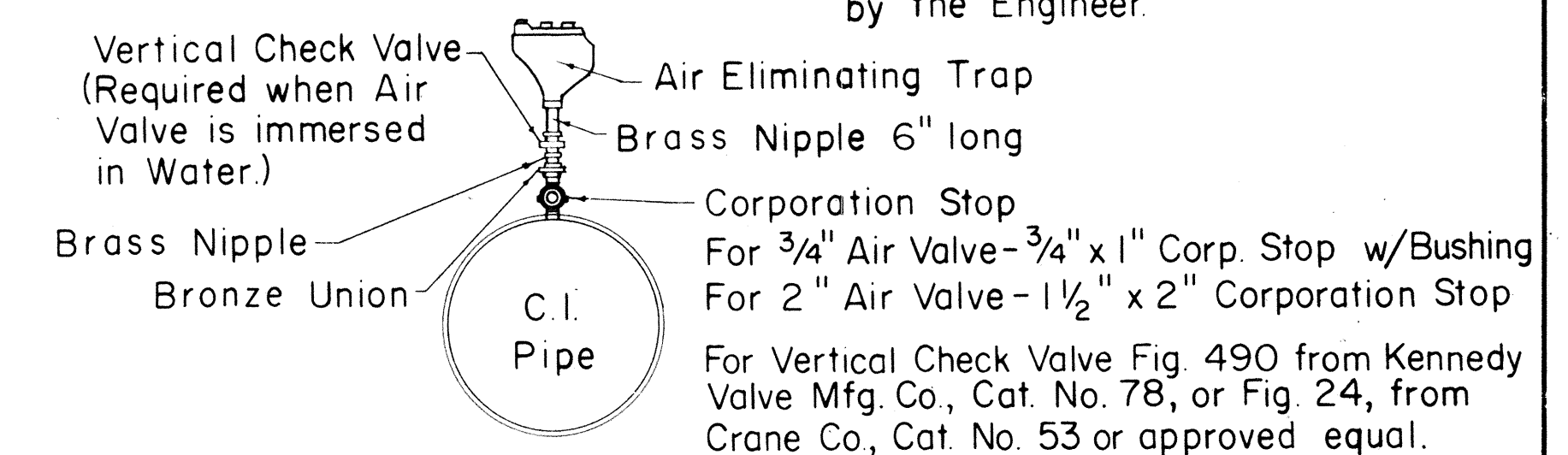


READING COVER

CHECKERED PATTERN



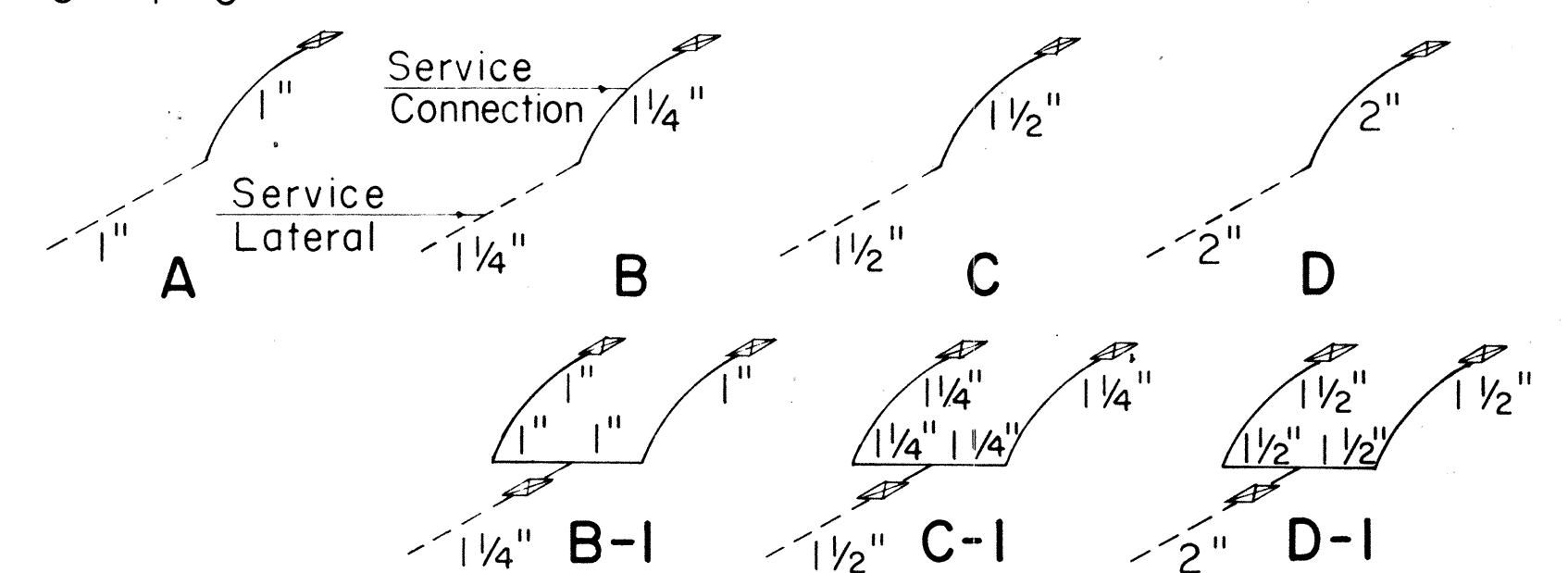
CORP. STOP LAYOUT
Not to Scale



DETAIL OF CONNECTION FOR
AIR ELIMINATING TRAP
Not to Scale

Offset word "WATER" 1 3/4" high, 1/8" deep

NOTE:
All castings shall be made accurately to the dimensions shown. Seat and Cover shall be ground where necessary to secure flat and true surfaces. The Cover shall not rattle in any position.
Minor changes in dimensions may be made to suit foundry conditions provided such changes are approved by the Board of Water Supply.



TYPICAL LAYOUT OF SERVICE
LATERALS AND CONNECTIONS
Not to Scale

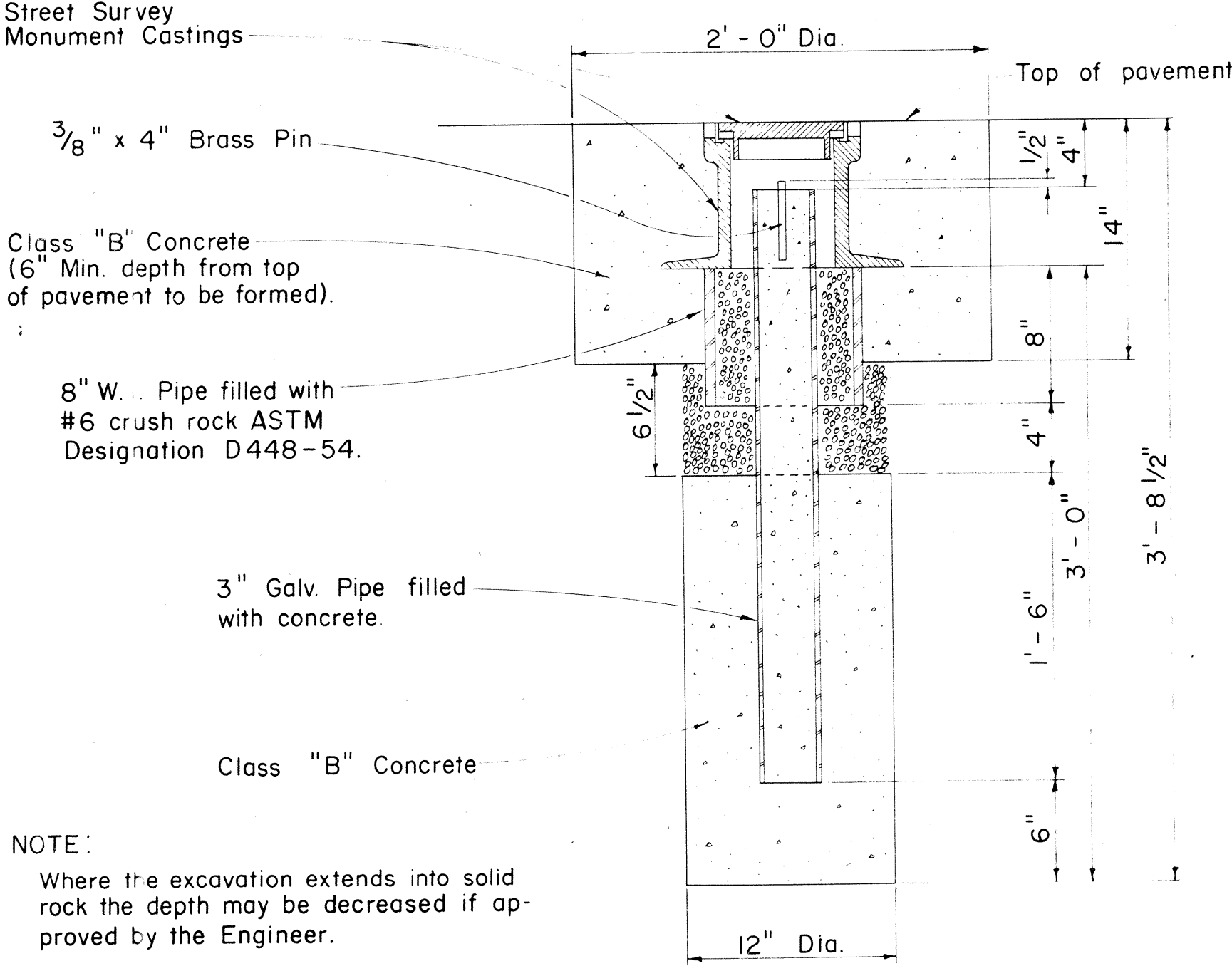
APPROVED:
[Signature]
CHIEF, ENGINEERING DIVISION
BOARD OF WATER SUPPLY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU
Scale: As Noted
Date

SHEET NO. 6 OF 7 SHEETS

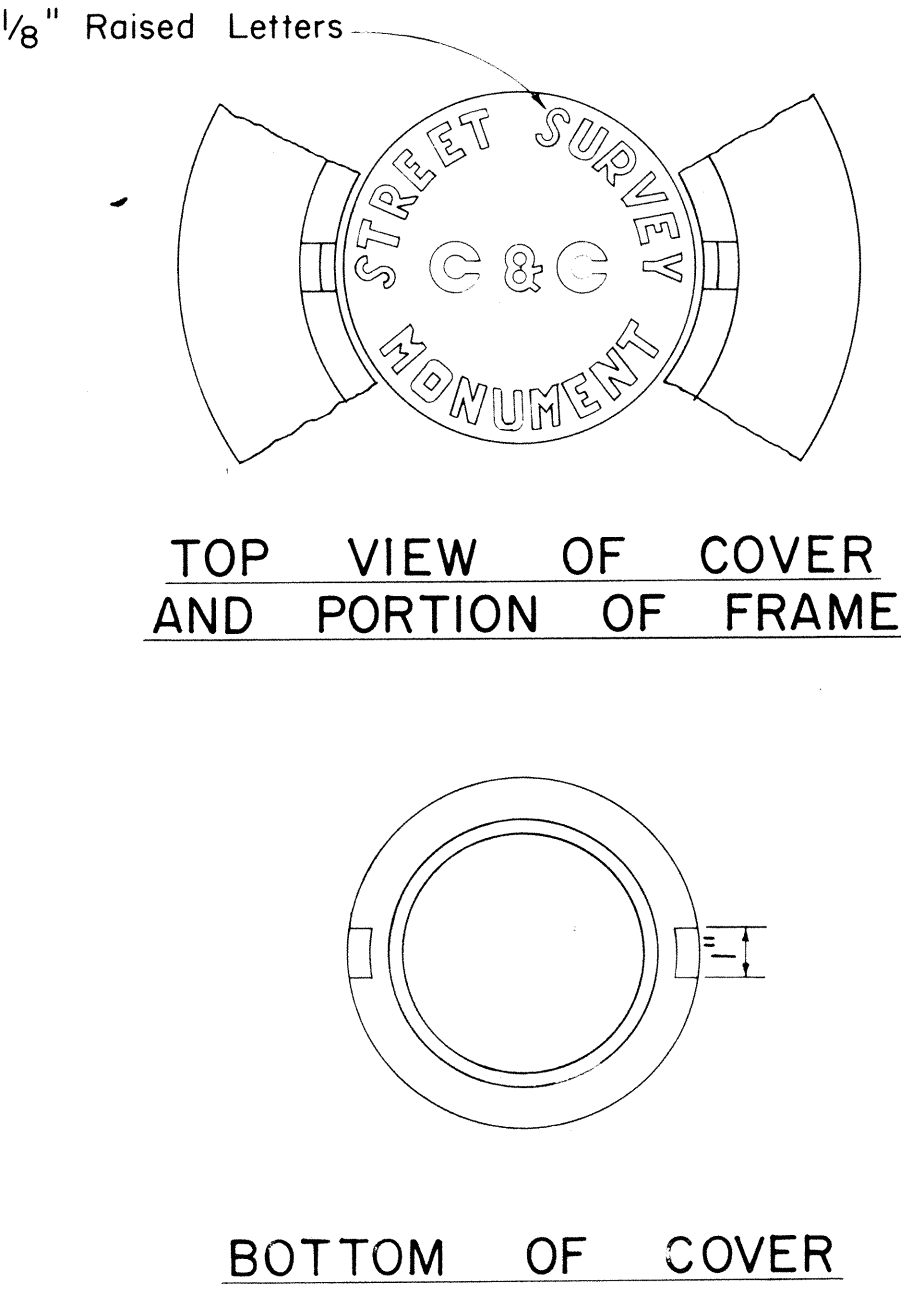
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW		1969	57	73

PROJECT NO. 900B-02-68 UNIT 1



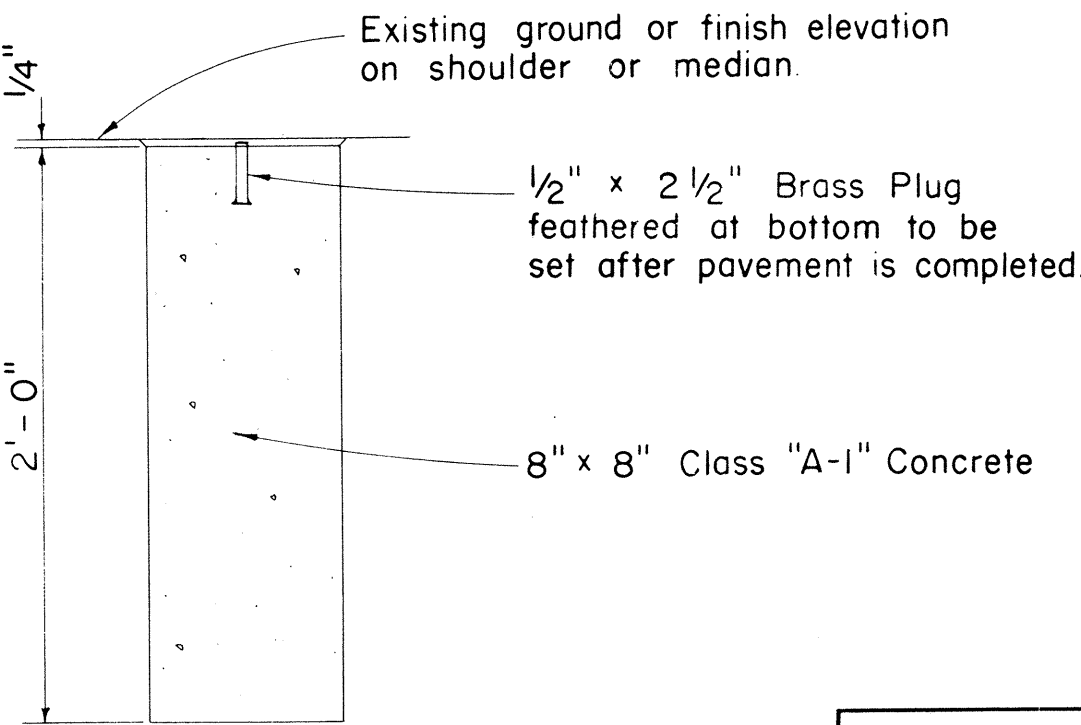
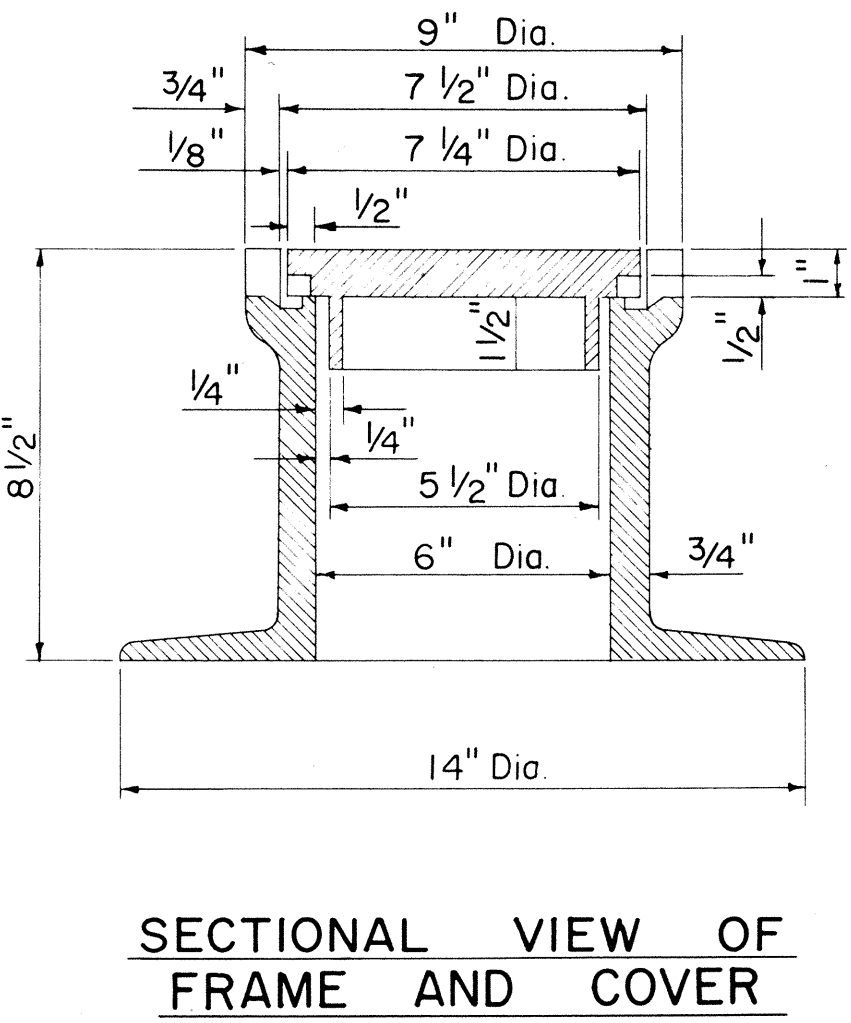
STREET SURVEY MONUMENT

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



STREET SURVEY MONUMENT CASTINGS

Scale: 3" = 1' - 0"



DETAIL FOR AND REFERENCE SURVEY MONUMENT

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS