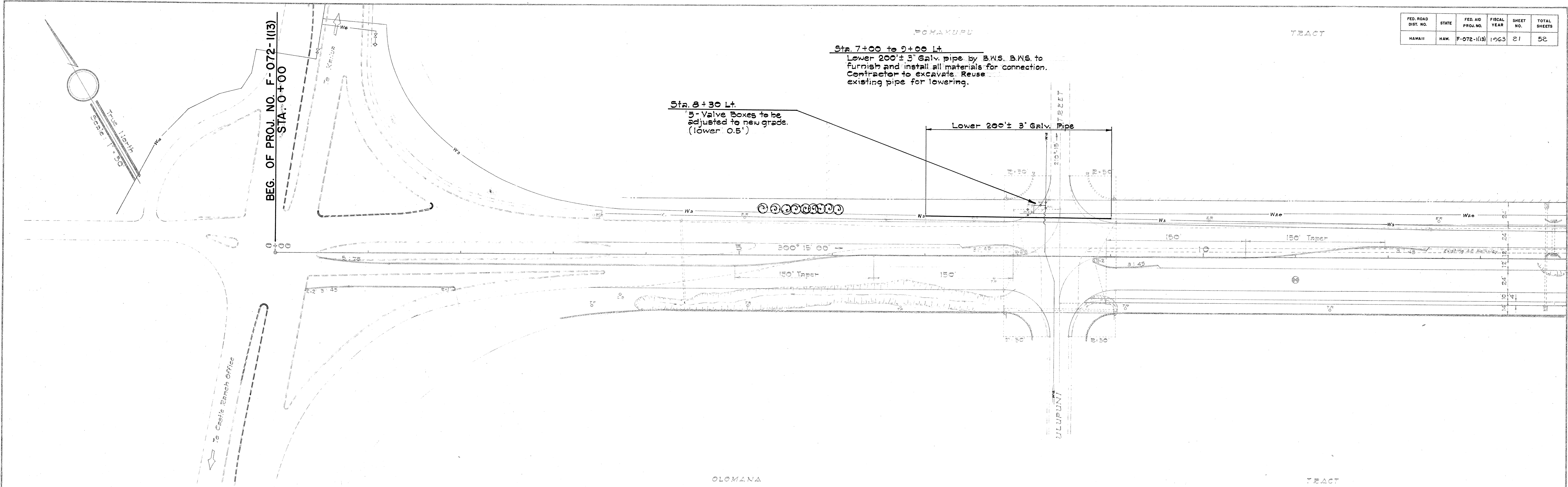


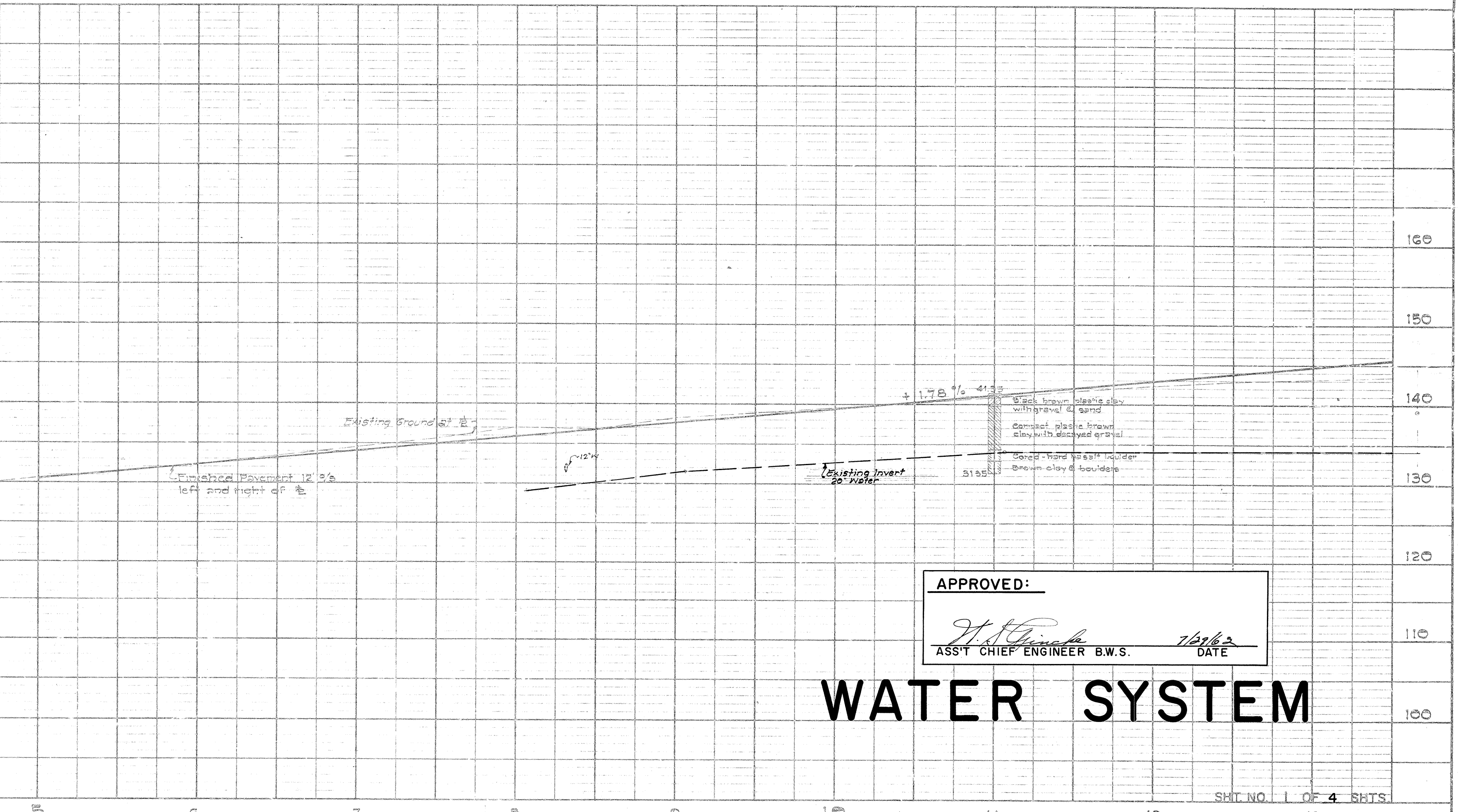
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(13)	1963	21	52

PLAN	DATE	BY
SURVEYED		
NOTE BOOK		
ALIGNMENT CHECKED		
RT. OF WAY CHECKED		
NO.		

PROFILE	DATE	BY
SURVEYED		
NOTE BOOK		
GRADES CHECKED		
STRUCTURE NOTATIONS CHECKED		
NO.		



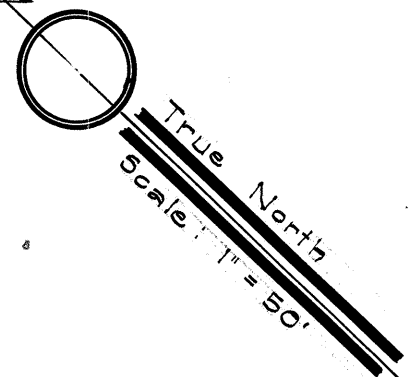
- WATER NOTES:**
1. All materials and construction shall conform to the Standard Specifications and the Special Provisions.
 2. Location of existing water main and appurtenances shown on the plans are approximate only and the Contractor shall verify the exact locations.
 3. The Contractor shall notify the Board of Water Supply in writing one week prior to commencing work on the water system.
 4. The Contractor shall notify the State Youth Correctional Facilities in writing two weeks prior to commencing work on water service, specifying the days service shall be disrupted. The water service can be disrupted only during the hours from 9:30 A.M. to 4:00 P.M.
 5. All 20" Concrete Cylinder Pipes shall be class 250 and manufactured in accordance with the requirements of Section 100, of the Special Provisions and the Manufacturers Detail Drawings, all to be approved by B.W.S.
 6. The Contractor shall submit the manufacturer's layout schedule for the installation of the 20" Concrete Cylinder Pipes and appurtenances with reference to the stationing and grade line as shown on the plans for B.W.S. reference.
 7. The Contractor shall perform all excavation work, including excavation for relocating, lowering and salvaging mains and appurtenances.
 8. Items salvaged from Youth Correctional Facilities Service System denoted by plus (+) shall be incorporated in the relocation of the system. Salvaged material denoted by a star (*) shall be stockpiled as directed by the Engineer and the work involved shall be considered incidental to the various contract items.
 9. (Reused) Denotes salvaged materials to be furnished by B.W.S. Reused materials installed by Contractor shall be loaded and hauled from Kalihi Store Yard to the job site by the Contractor.
 10. Asterisk (*) denotes work to be performed by B.W.S. and materials furnished by the Contractor.
 11. Class C-1 Concrete for plugging open ends of abandoned pipes shall be incidental to pipeline work.
 12. Temporary cleanouts shall be installed by the Contractor wherever necessary and the cost thereof shall be incidental to pipeline work.
 13. New 20" Concrete Cylinder Pipe and 2" galvanized steel pipe shall be tested to 250 psi and 150 psi respectively, unless otherwise requested by the Engineer.
 14. The Contractor shall take extra precaution when compacting roadway over existing 20" and 12" water mains where the covering of 1'± above the pipe is encountered, specifically at baseline stations 8+30, 21+00 to 22+50 and 34+00 to 36+00.
 15. All cast iron pipes and fittings shall have lead joints unless otherwise specified.
 16. The relocation and/or lowering of existing 2" galvanized main shall be deleted from this contract if conditions in the field are such that a minimum of 20" cover is maintained from finish ground to top of pipe.
 17. New 2" Galvanized Pipes shall be installed with a minimum of 20" cover over top of pipe.
 18. Existing 20" Main is of American Concrete Pipe of Hawaii manufacture. The Contractor shall be held responsible to furnish all necessary materials, including adaptors if required, to facilitate connections into existing mains. Cost of adaptors shall be incidental to Pipeline Work.



APPROVED:
H. H. G. G.
ASST. CHIEF ENGINEER B.W.S. 1/29/62
DATE

WATER SYSTEM

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(13)	1963	24	52



DATE	BY	REVISION
		1. SURVEYED
		2. PLANNED
		3. DESIGNED
		4. CHECKED
		5. APPROVED
		6. AS BUILT
		7. RT. OF WAY CHECKED
		8. NO.

DATE	BY	REVISION
		1. SURVEYED
		2. PLANNED
		3. DESIGNED
		4. CHECKED
		5. APPROVED
		6. AS BUILT
		7. RT. OF WAY CHECKED
		8. NO.

20" Pipe Line 'A' Sta. 0+00
Connect to Existing 20" Main
* 1- 20" Cl. 250 Bend 44° One end to fit Spigot end, one end to fit Butt Strap
* 1- Split Butt Strap
* 1- 20" Cl. 250 Conc. Nipple, one end to fit Butt Strap
1- Conc. Block
Temporary for testing
1- 20" Plug tapped for 2 1/2" I.P.T.

20" Pipe Line 'A' Sta. 1+45
1- 20" Cl. 250 Bend 32°
1- Conc. Block

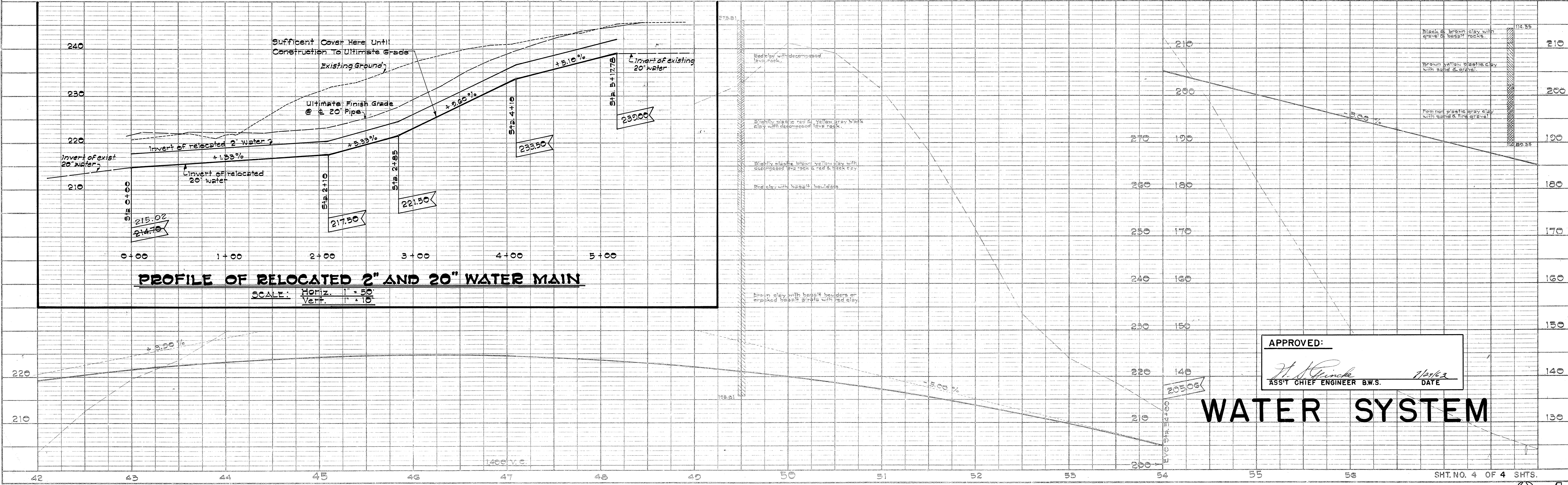
20" Pipe Line 'A' Sta. 2+13
1- 20" Cl. 250 Bend 5°
1- Conc. Block

20" Pipe Line 'A' Sta. 2+63
1- 20" Cl. 250 Bend 9°
1- Conc. Block

20" Pipe Line 'A' Sta. 4+85
1- 20" Cl. 250 Bend 45°
1- Conc. Block

20" Pipe Line 'A' Sta. 5+18
Connect to Existing 20" Main
* 1- 20" Cl. 250 Bend 45°
* 1- 20" Cl. 250 Conc. Nipple one end to fit Conc. Bend, one end to fit Butt Strap
* 1- 20" Cl. 250 Split Butt Strap
1- Conc. Block
Temporary for testing
1- 20" Cap tapped for 2 1/2" I.P.T.

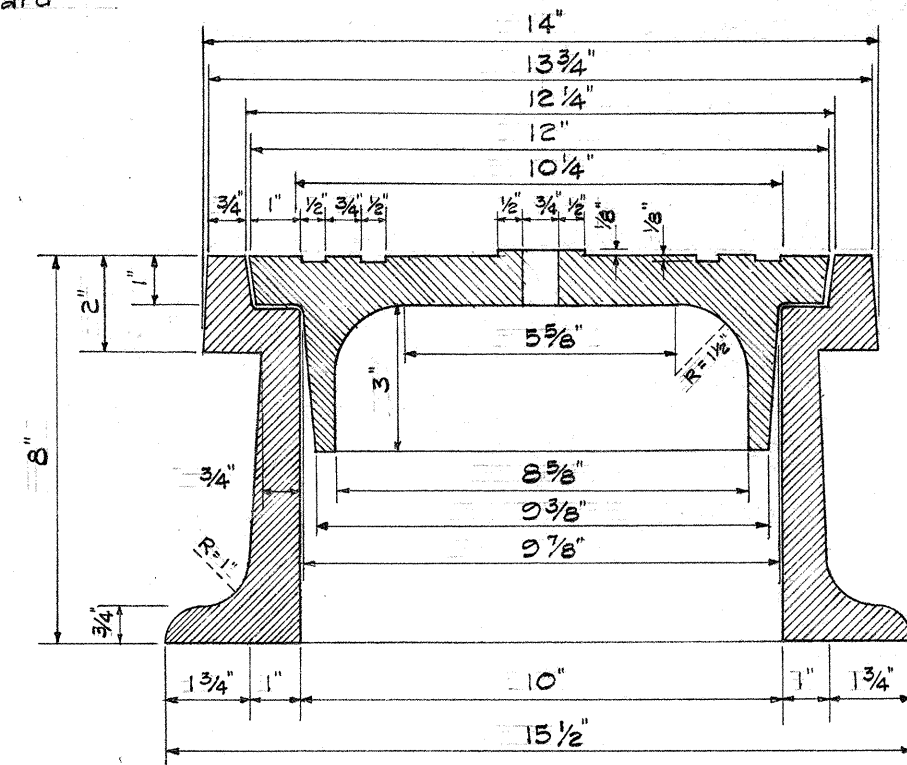
BM on concrete valve
Box 60± Kailua of Entrance to C & C Baseyard.
El. 250.40



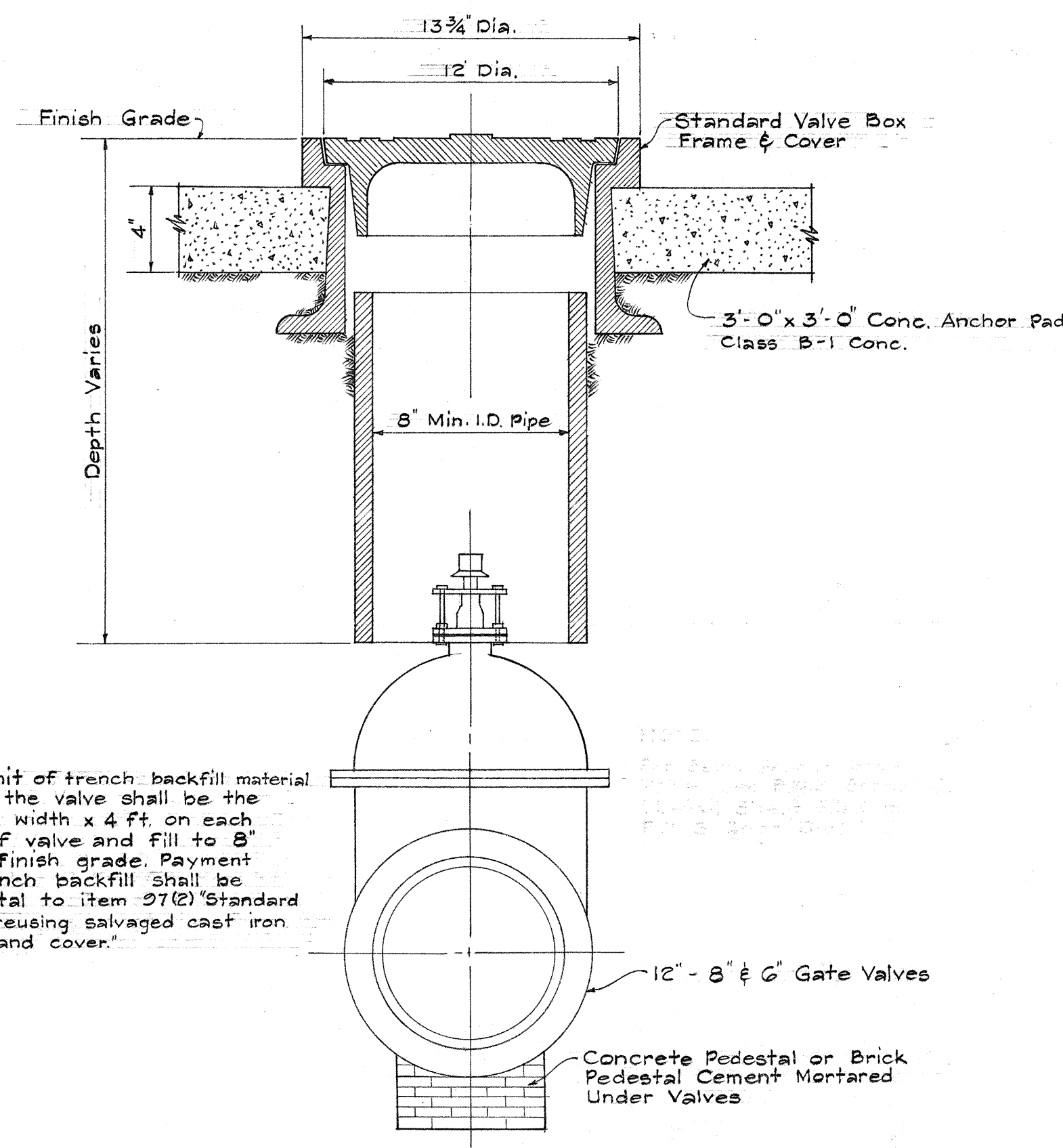
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(13)	1963	25	52

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.

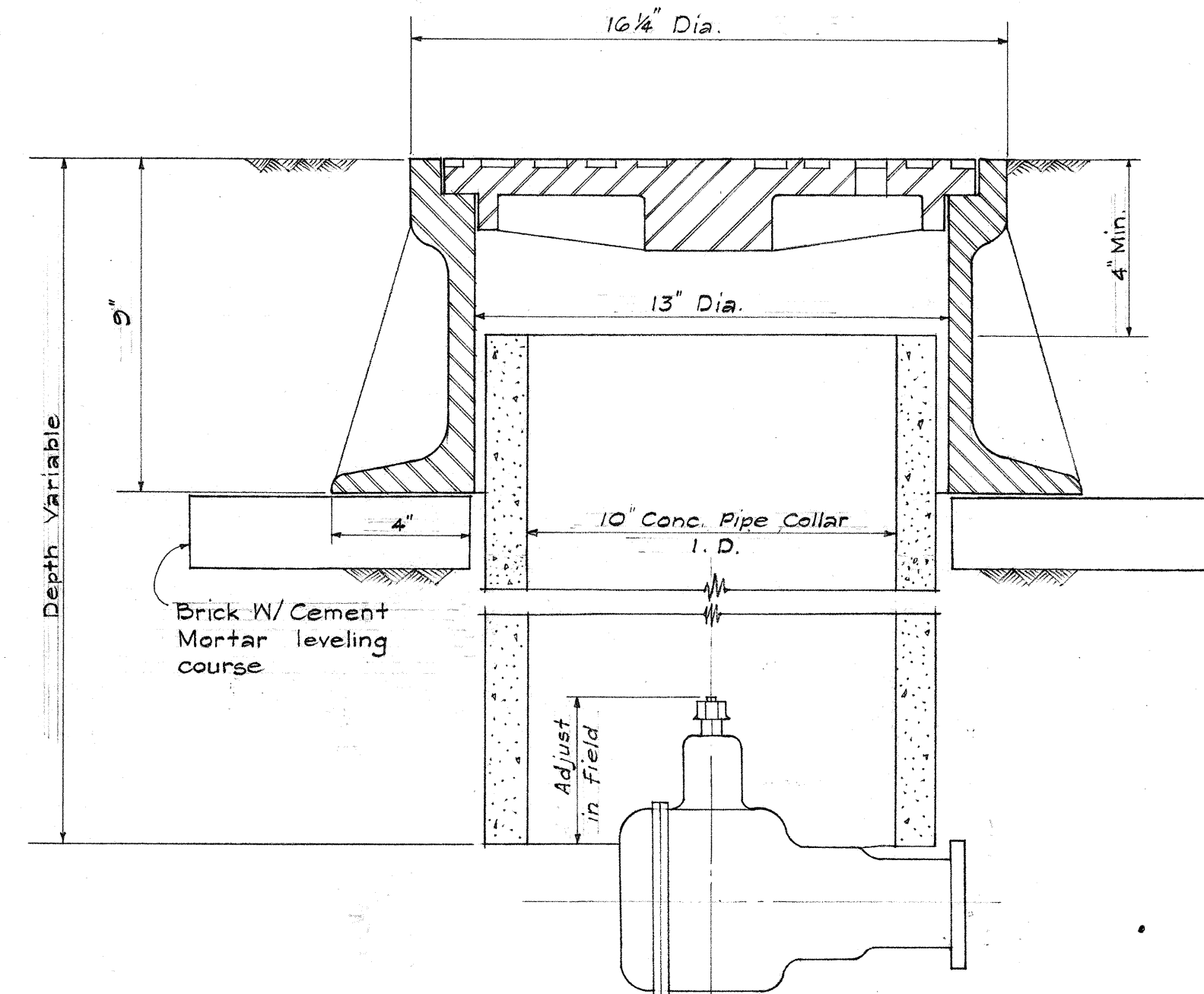


CAST IRON FRAME & COVER
Scale: 1/4" = 1"



The limit of trench backfill material around the valve shall be the trench width x 4 ft. on each side of valve and fill to 8" below finish grade. Payment for trench backfill shall be incidental to item 27(2) Standard valve reusing salvaged cast iron frame and cover.

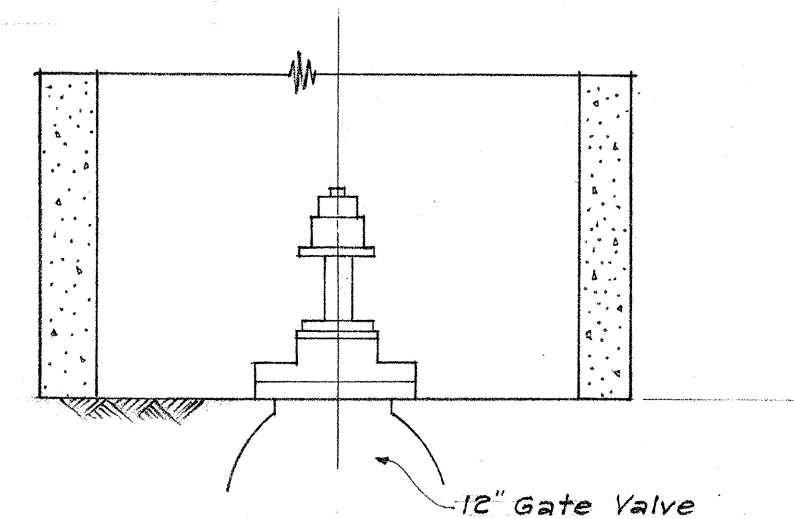
INSTALLATION OF STANDARD VALVE BOX FOR GATE VALVES
Not to Scale



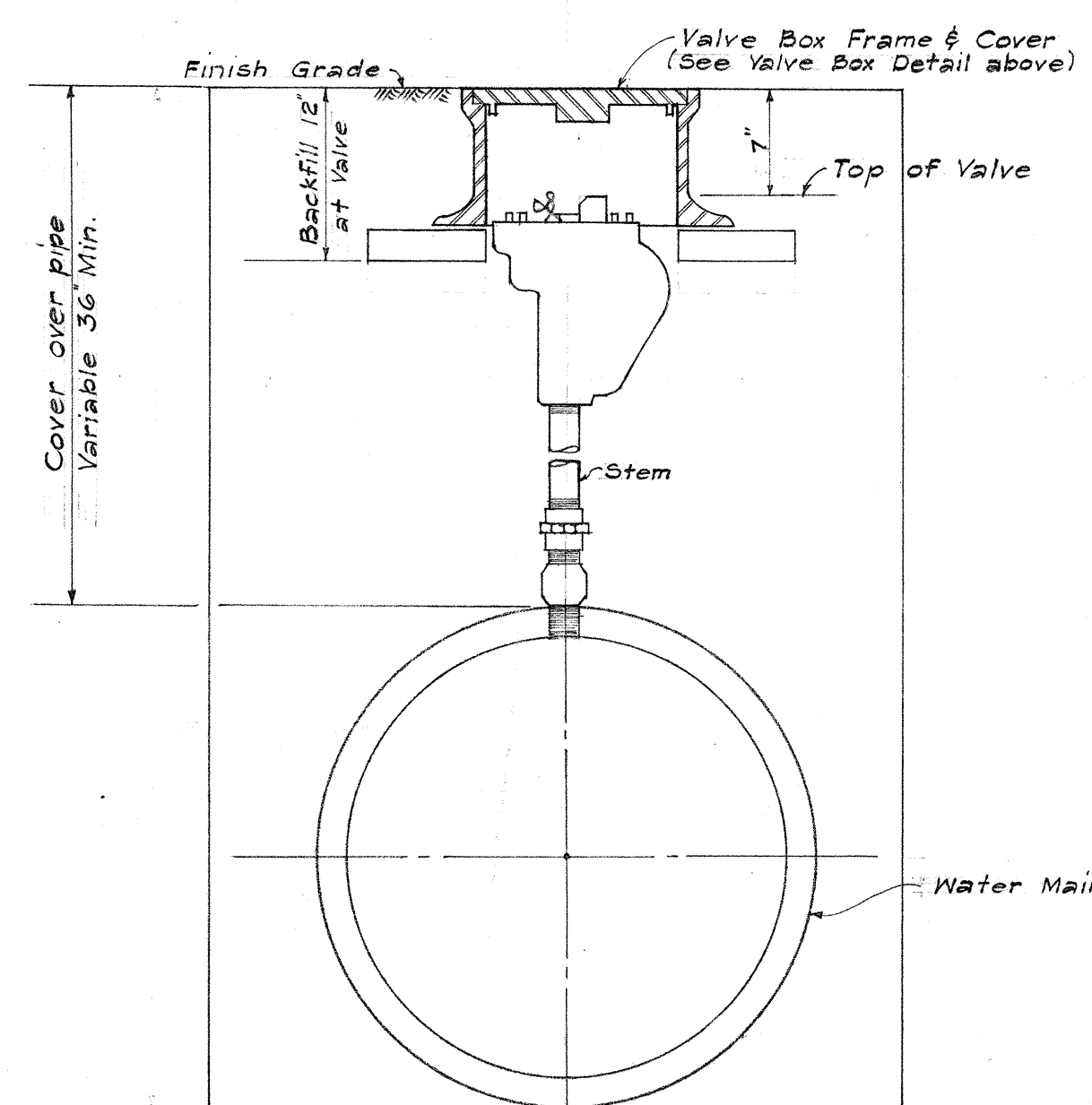
**TYPICAL DETAIL
EXISTING BEVEL GEARED GATE VALVE BOX**
Scale: 3" = 1'-0"

NOTE:

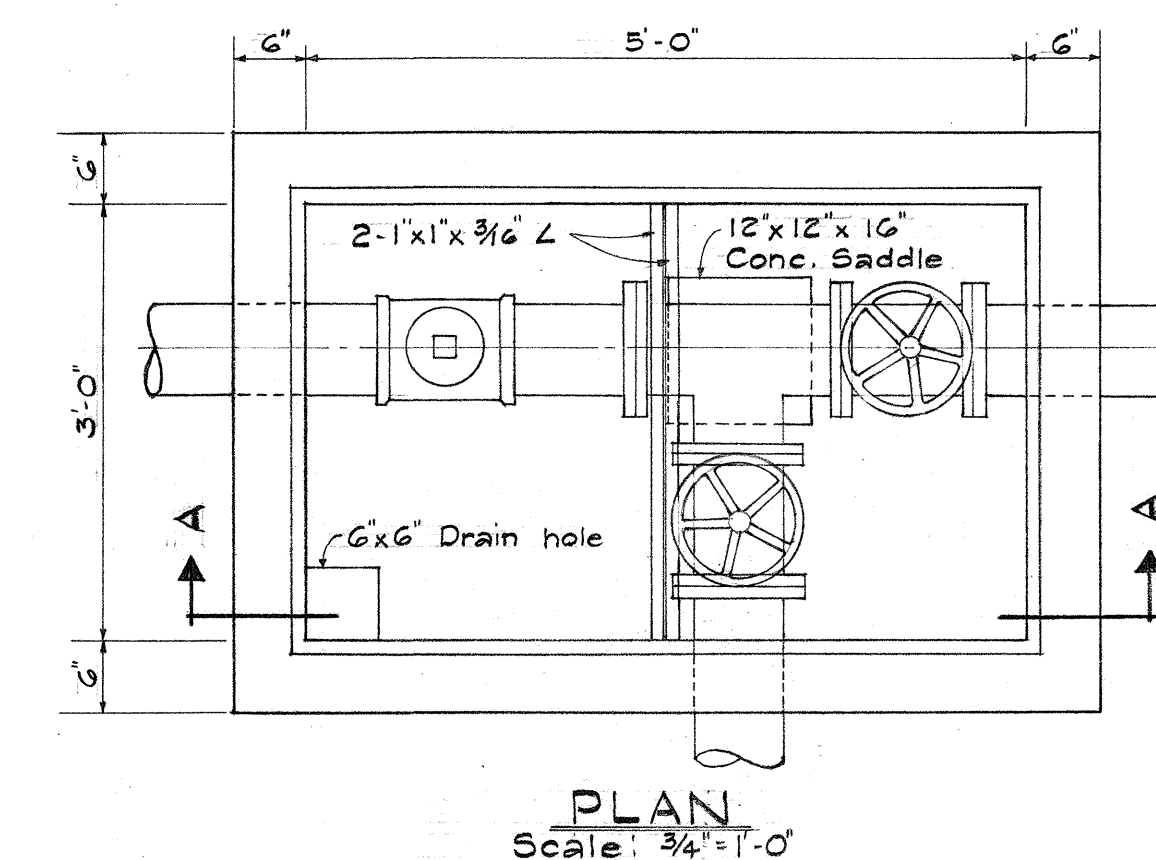
For Valve Box Frame and Cover Detail see above



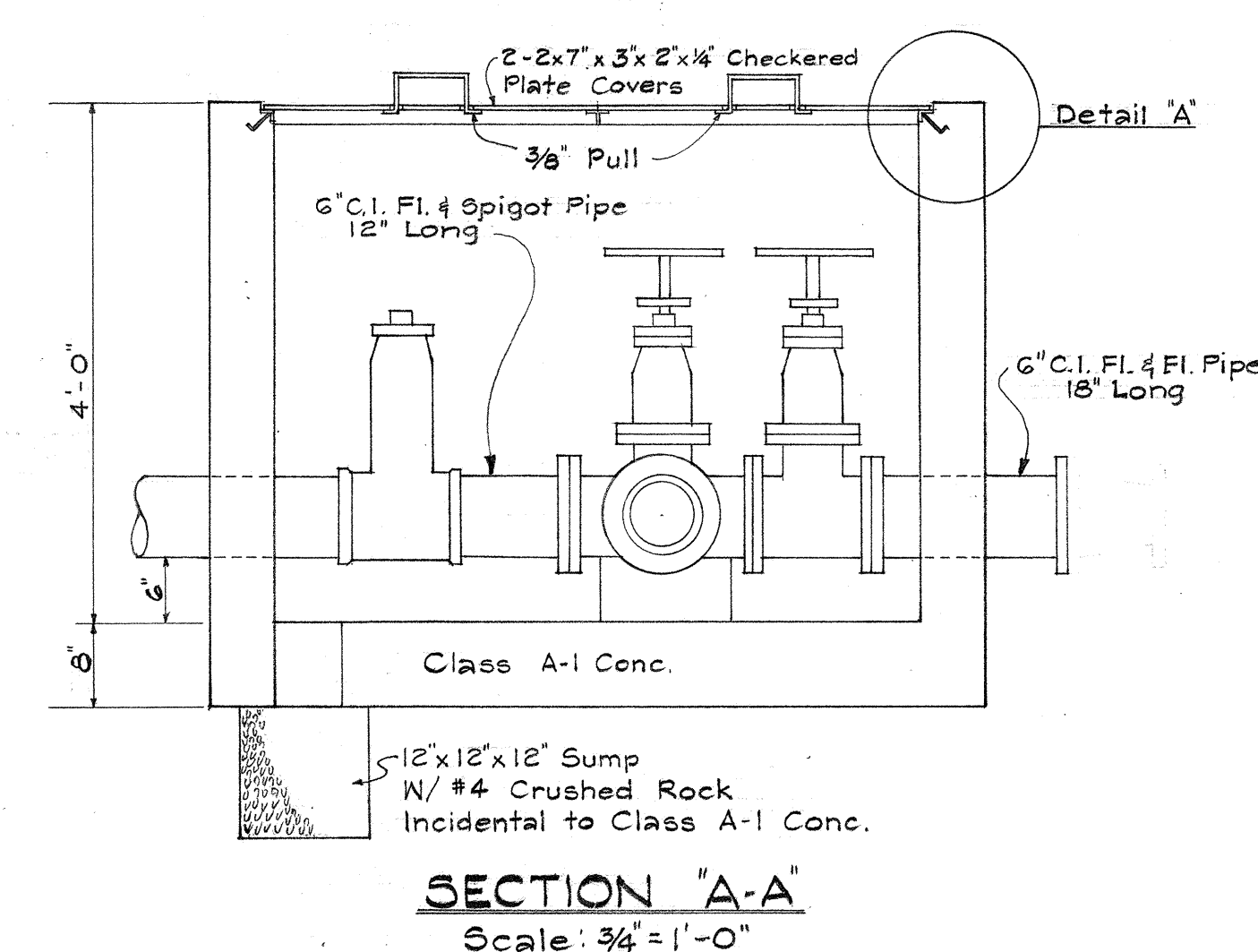
EXISTING VALVE BOXES FOR 12" GATE VALVES
Scale: 3" = 1'-0"



AIR VALVE DETAIL FOR WATER MAIN
Scale: 1" = 1'-0"

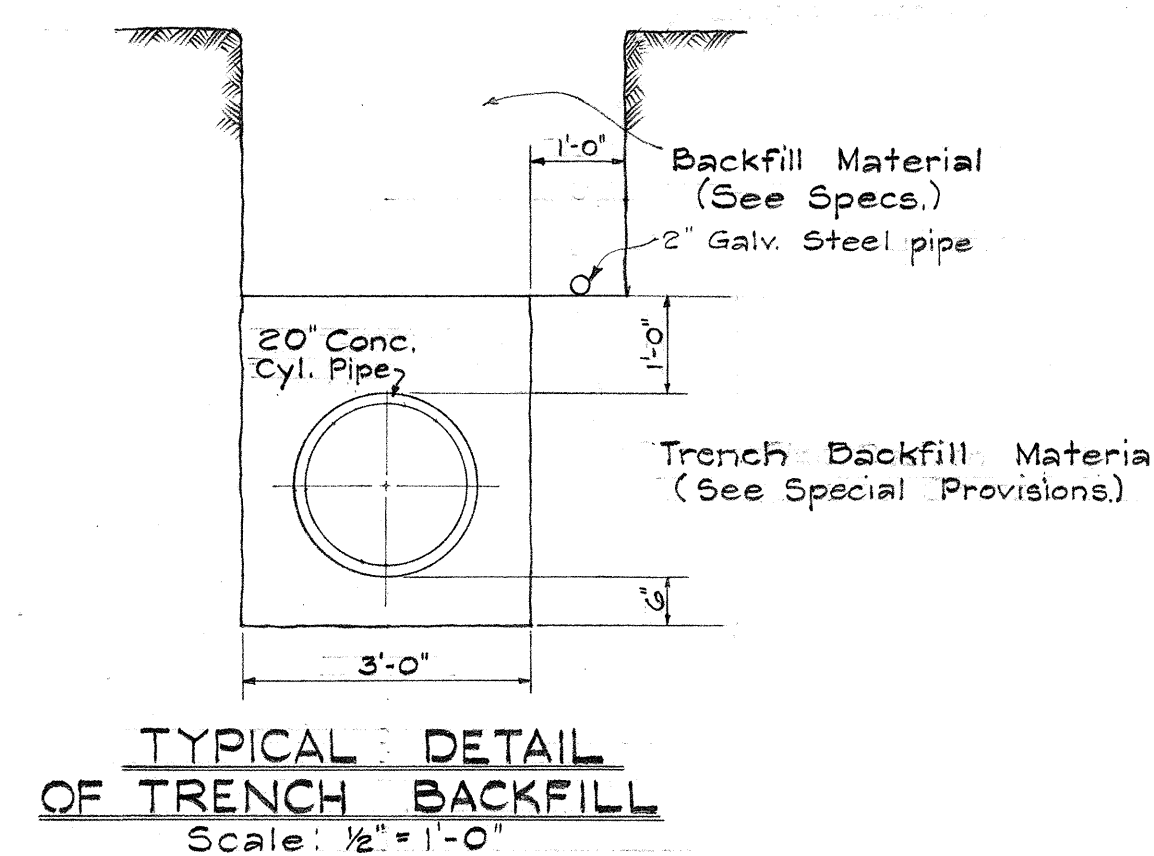


PLAN
Scale: 3/4" = 1'-0"

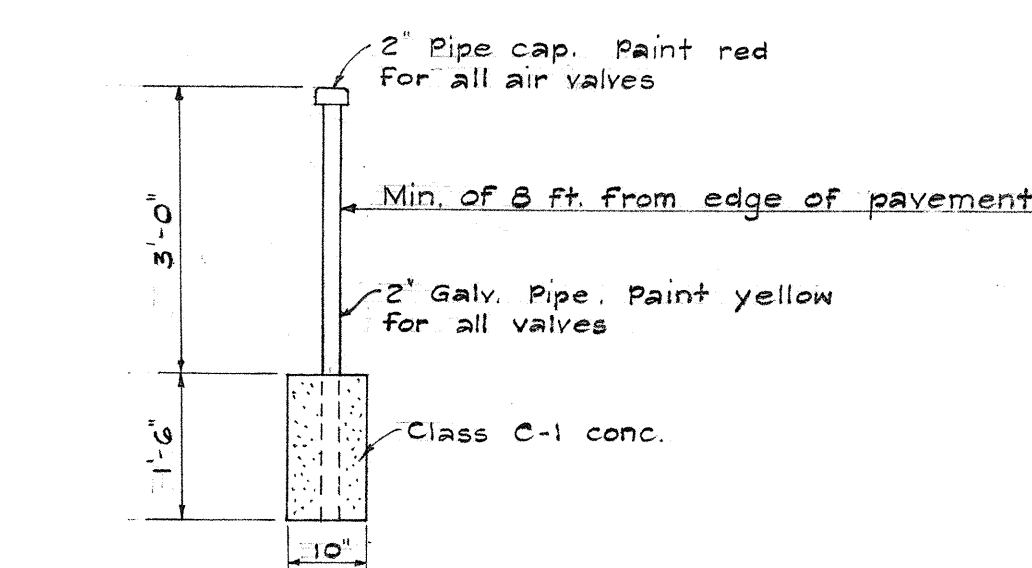


SECTION "A-A"
Scale: 3/4" = 1'-0"

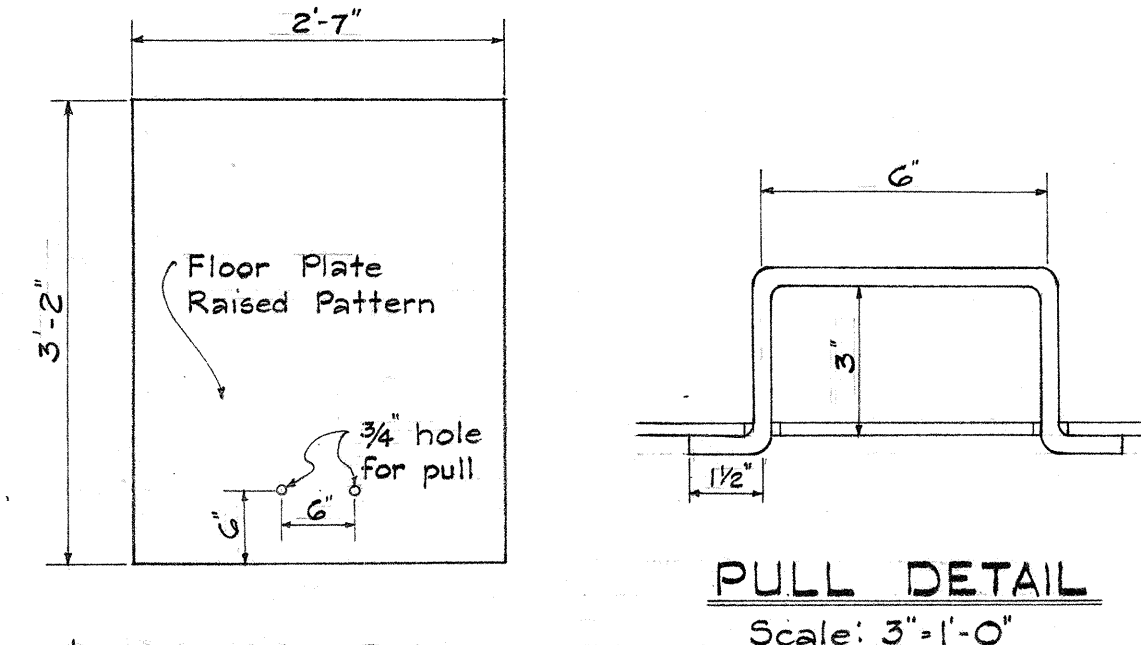
**WATER VALVE PIT
STA. 22+65 LEFT**



**TYPICAL DETAIL
OF TRENCH BACKFILL**
Scale: 1/2" = 1'-0"



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



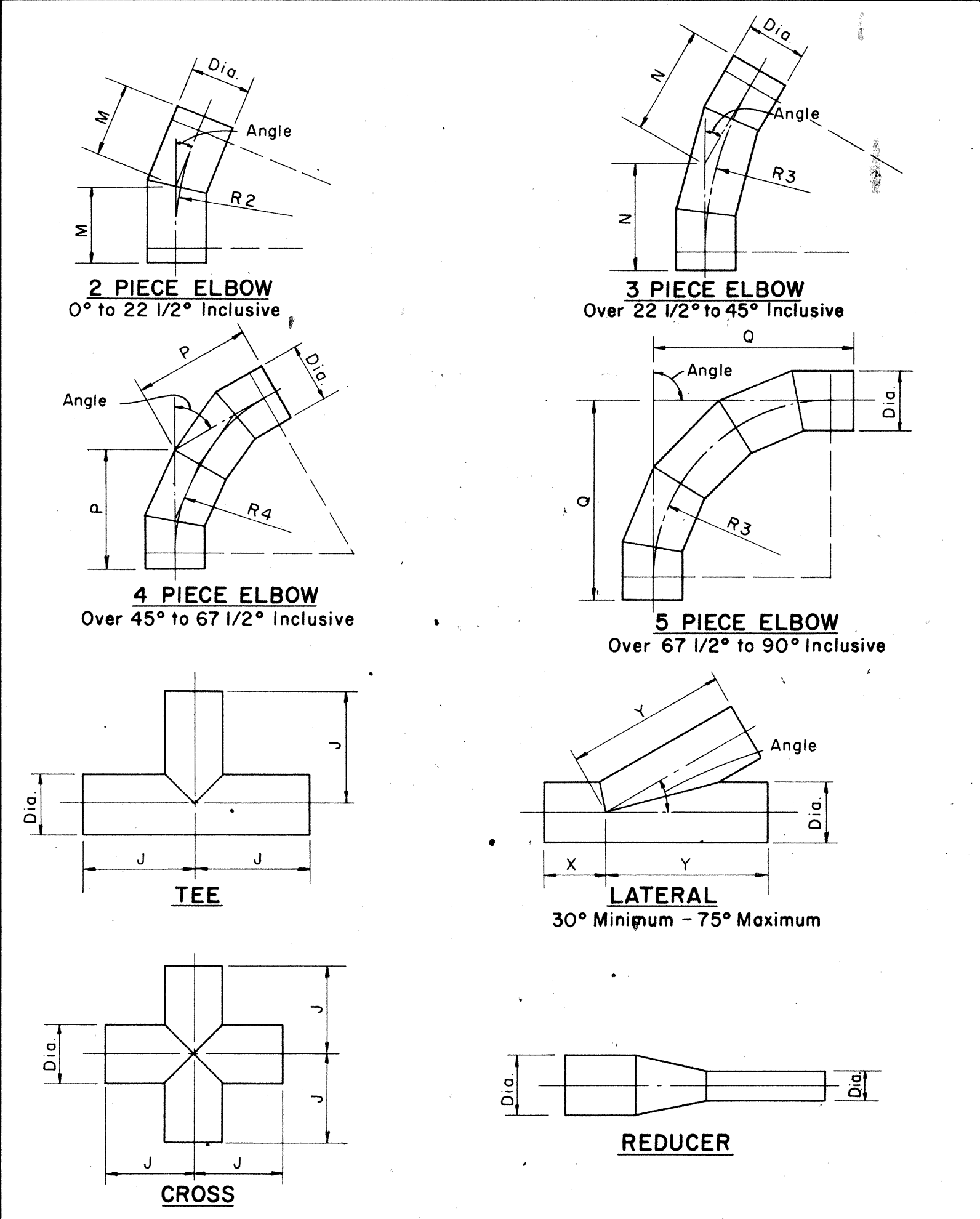
PULL DETAIL
Scale: 3/4" = 1'-0"

DETAIL "A"
Scale: 3" = 1'-0"

APPROVED: *W. H. G. G. G.* 1/2/63
ASSISTANT CHIEF ENGINEER B.W.S. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**WATER SYSTEM
DETAILS**
KALANIANA'OLE HIGHWAY
PROJECT No. F-072-1(13)
Scale As Noted
SHEET No. OF SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



STANDARD FITTING DIMENSIONS												
DIAMETER	TEE		CROSS (Both Ways)	LATERAL (30° to 75°)	ELBOWS (Center to End)							
	Run J+J	Outlet J			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
16"	34"	17"	34"	62"	52"	12"	60"	18"	44"	26"	39"	34"
18"	36"	18"	36"	66"	56"	12"	60"	19"	47"	27"	41"	36"
20"	38"	19"	38"	72"	60"	13"	65"	20"	49"	28"	42"	39"
22"	40"	20"	40"	78"	66"	13"	65"	21"	51"	30"	45"	41"
24"	42"	21"	42"	84"	72"	14"	70"	22"	54"	32"	48"	44"
30"	60"	30"	60"	96"	84"	15"	75"	25"	61"	37"	51"	51"
36"	66"	33"	66"	110"	96"	16"	80"	27"	66"	40"	60"	56"

DIMENSIONS FOR ECCENTRIC REDUCER

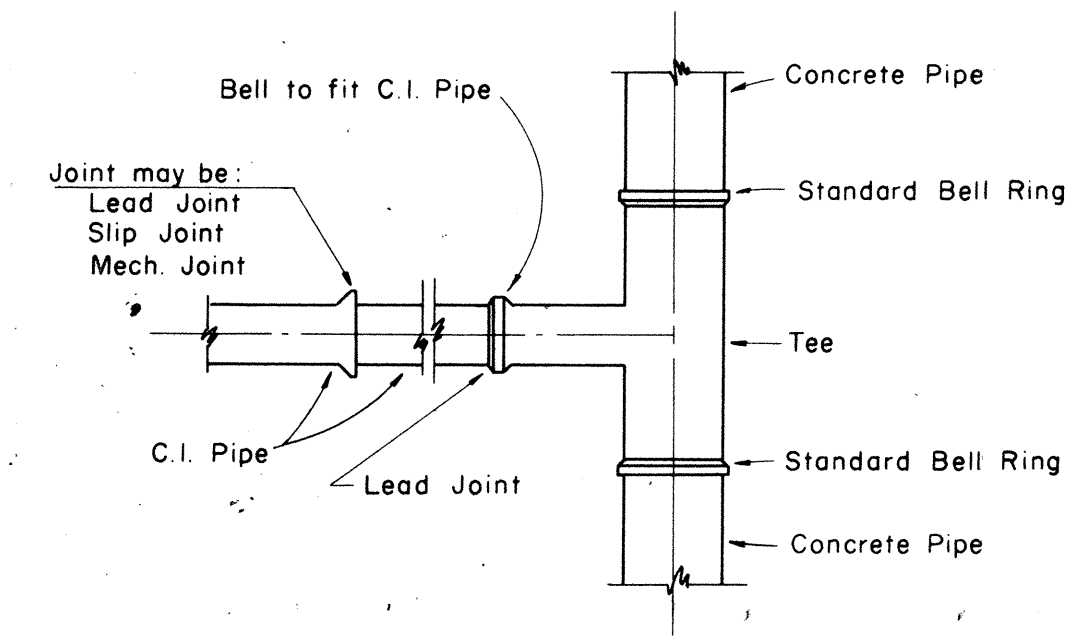
- 36" X 30" Eccentric Reducer - Length 66"
- 30" X 24" Eccentric Reducer - Length 66"
- 20" X 16" Eccentric Reducer - Length 26"

NOTE:

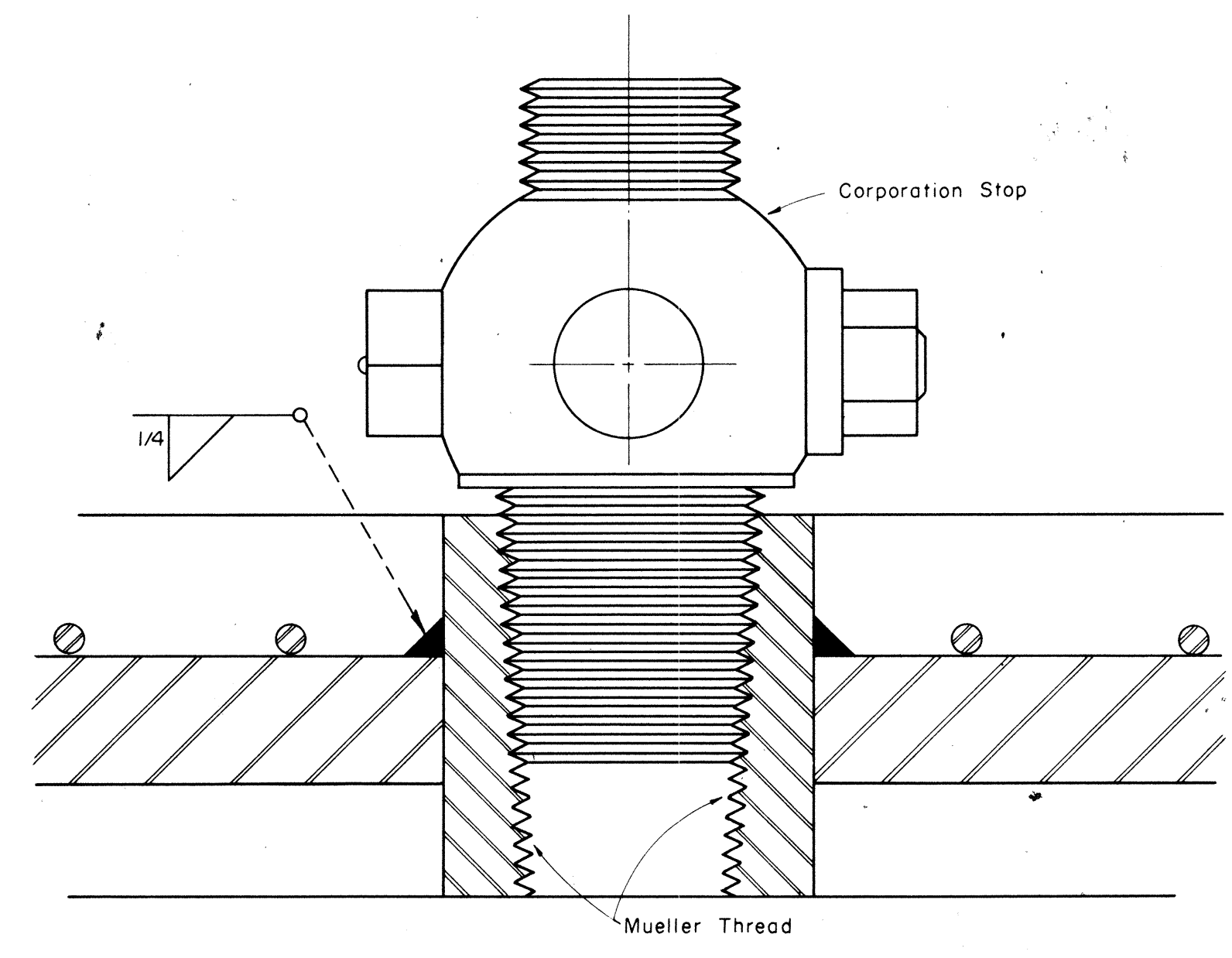
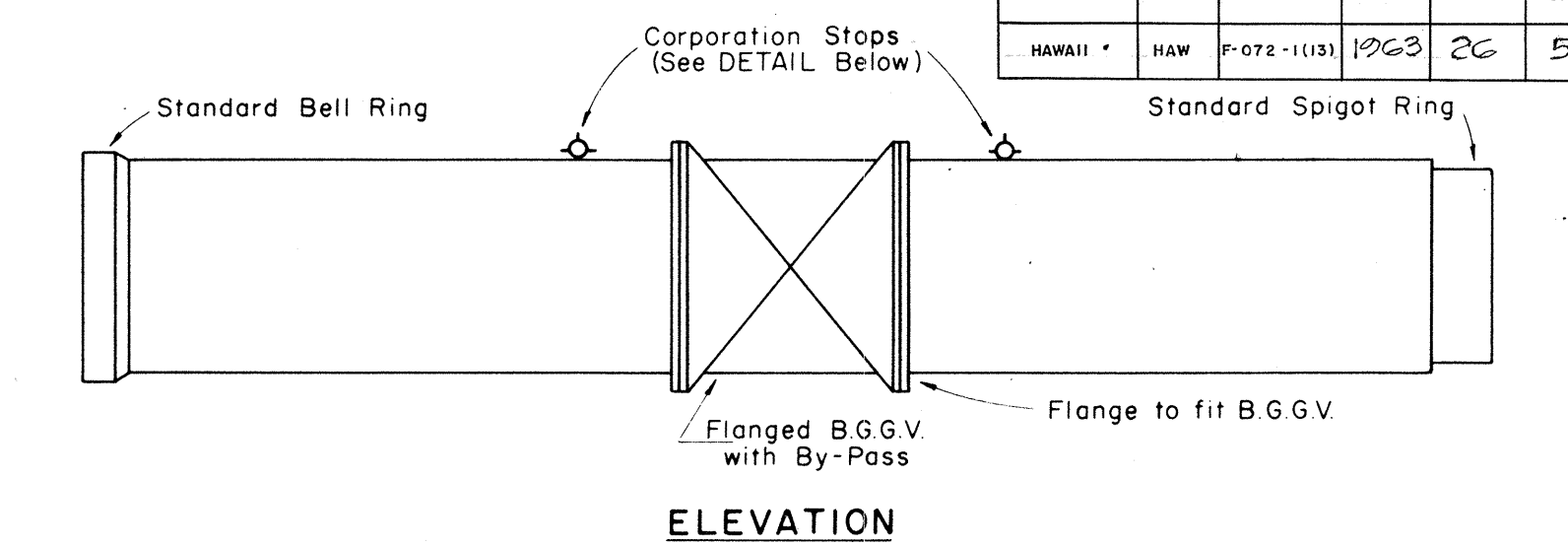
All dimensions shown are laying lengths.

All fittings and specials shall be fabricated independent from pipe sections and in accordance with the dimensions shown.

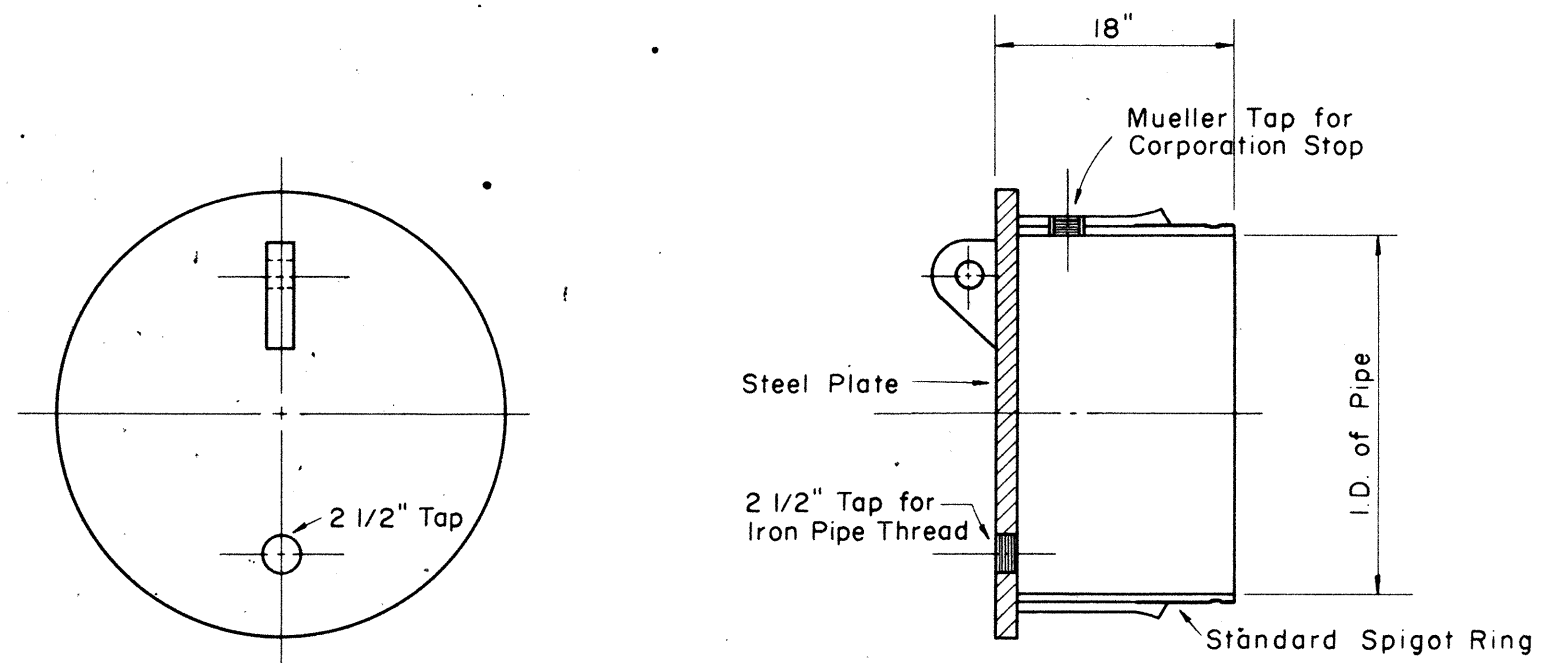
All fittings and specials shall be all bell unless otherwise noted.



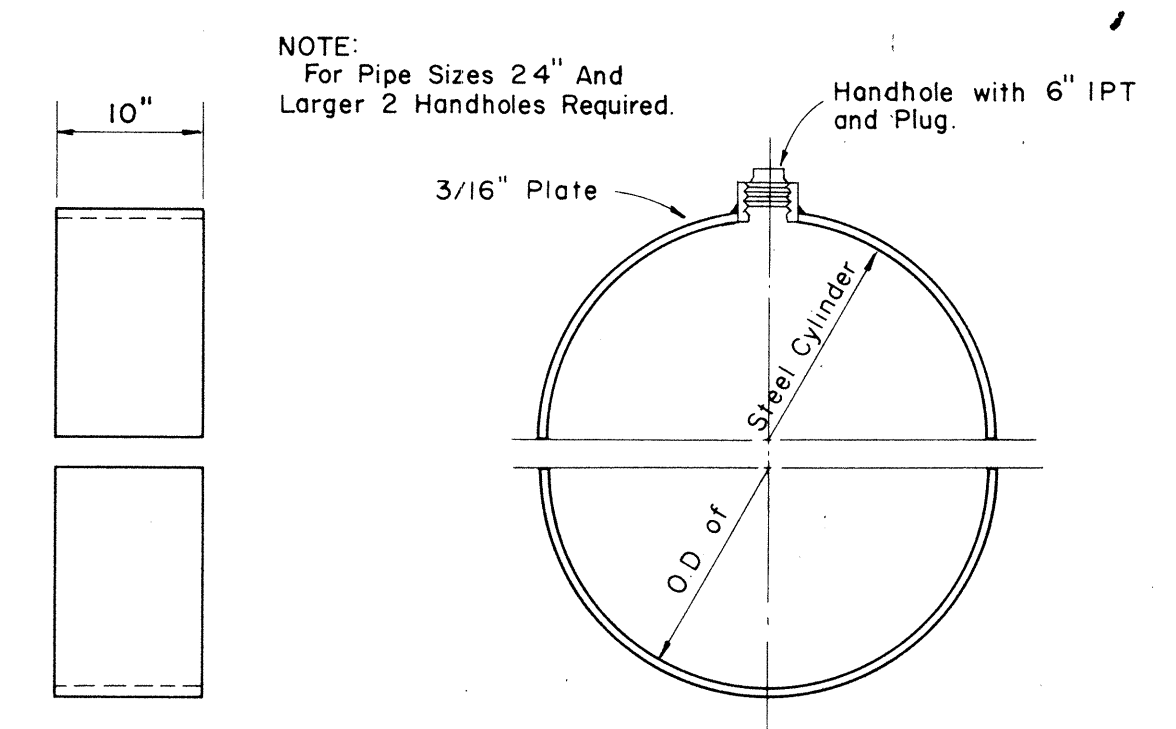
TYPICAL CAST IRON PIPE CONNECTION TO CONCRETE CYLINDER PIPE



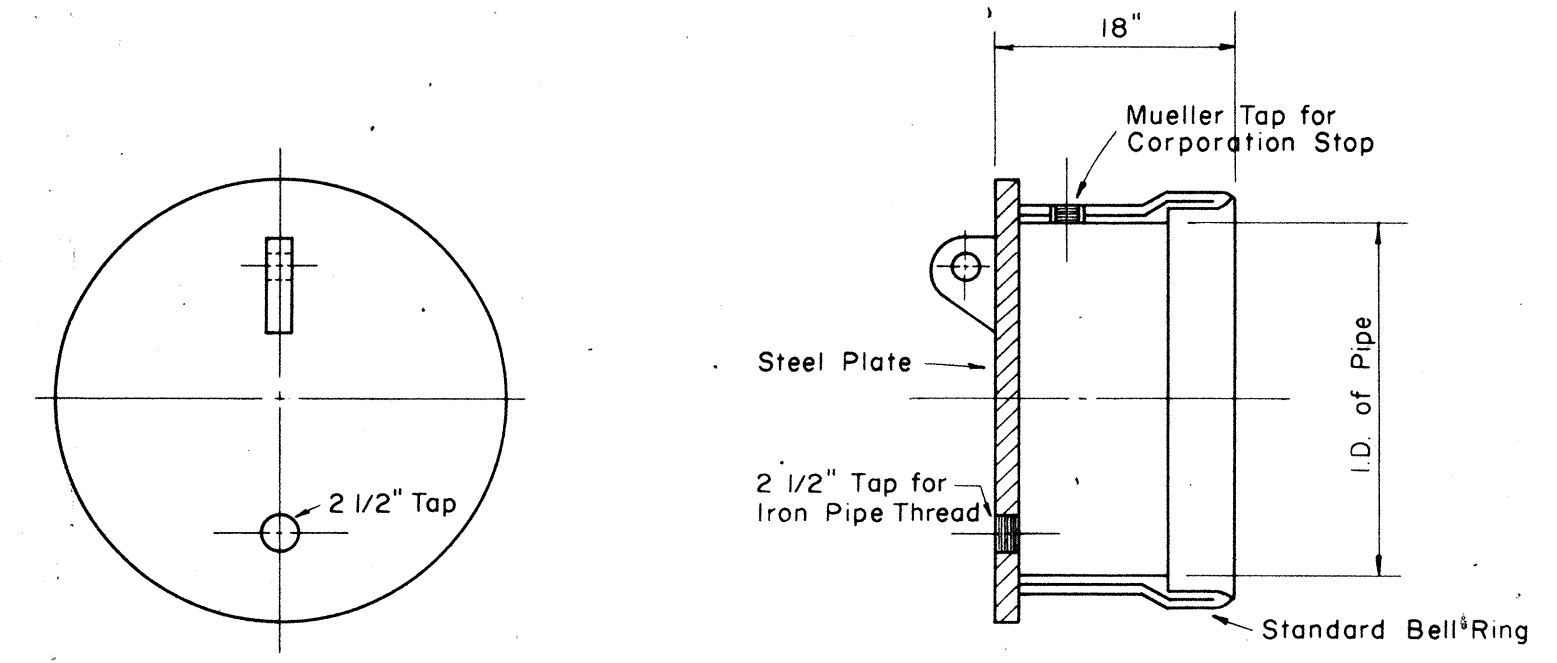
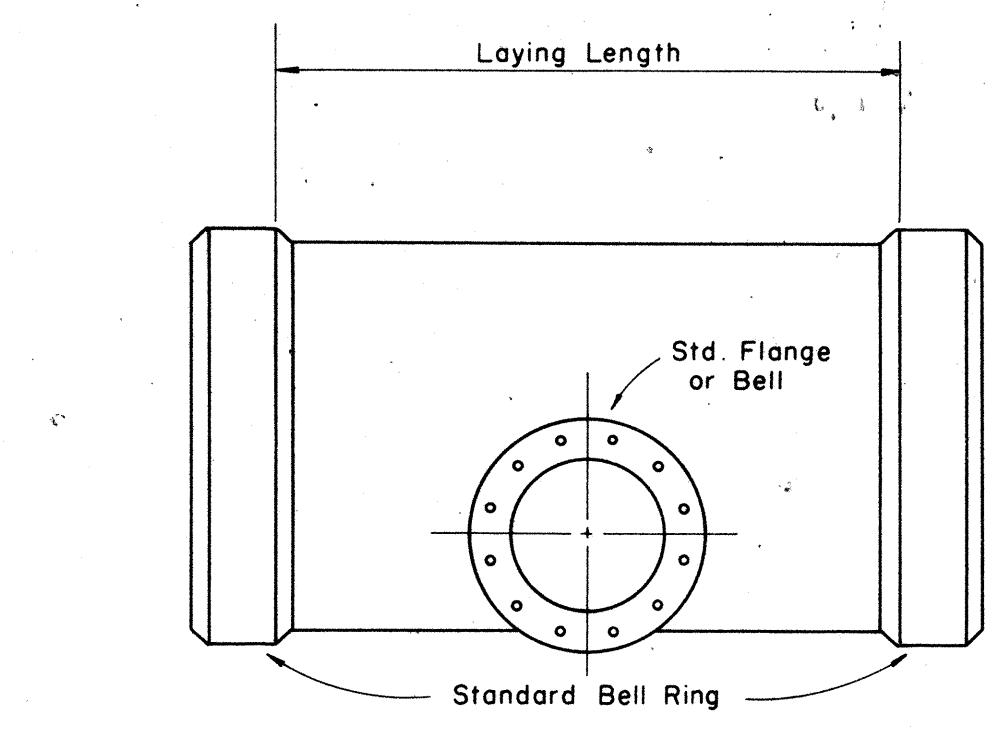
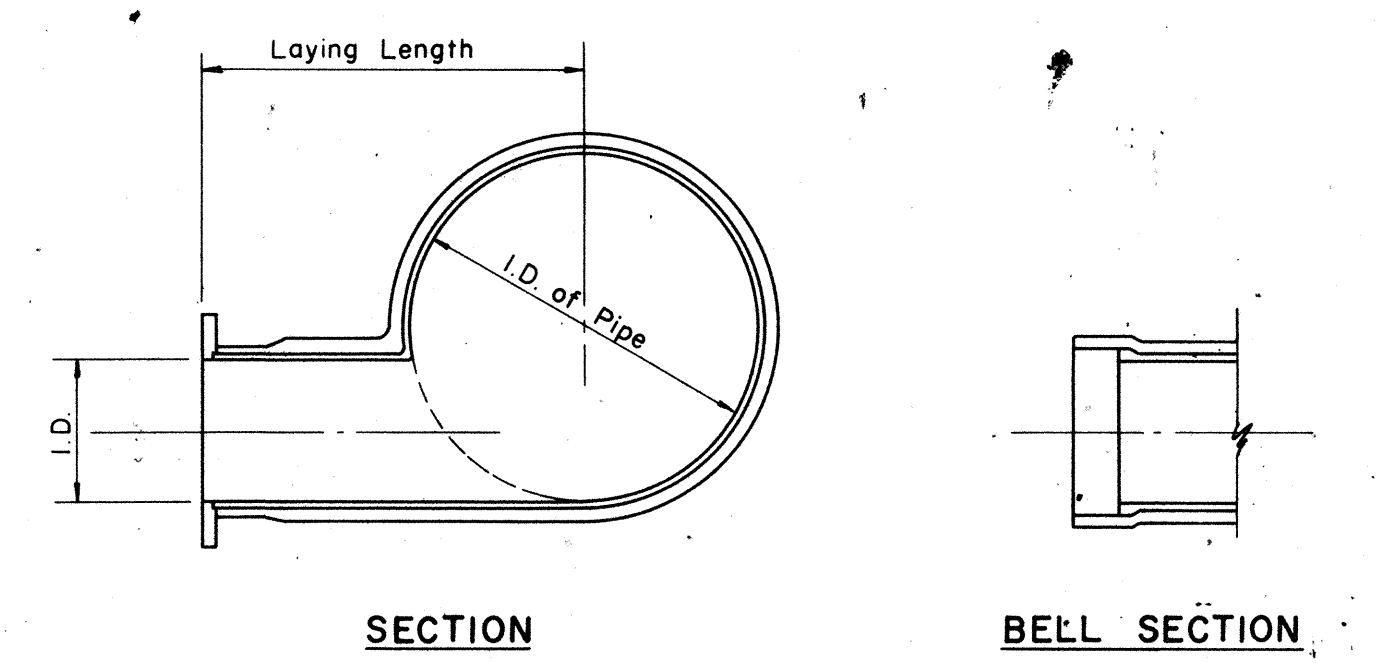
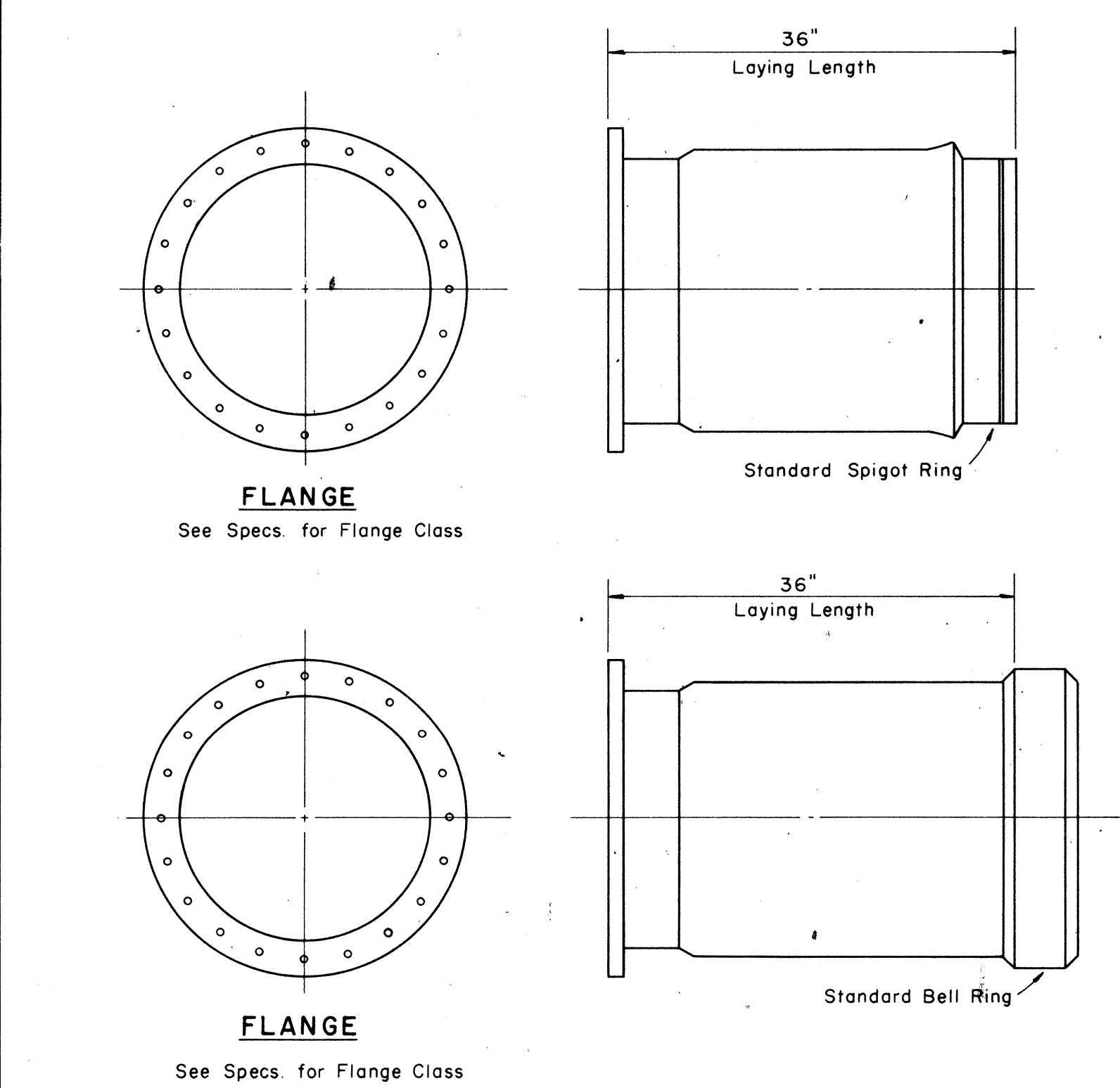
TYPICAL SECTION THRU CONCRETE PIPE AT CORPORATION STOP



DETAIL OF PLUG

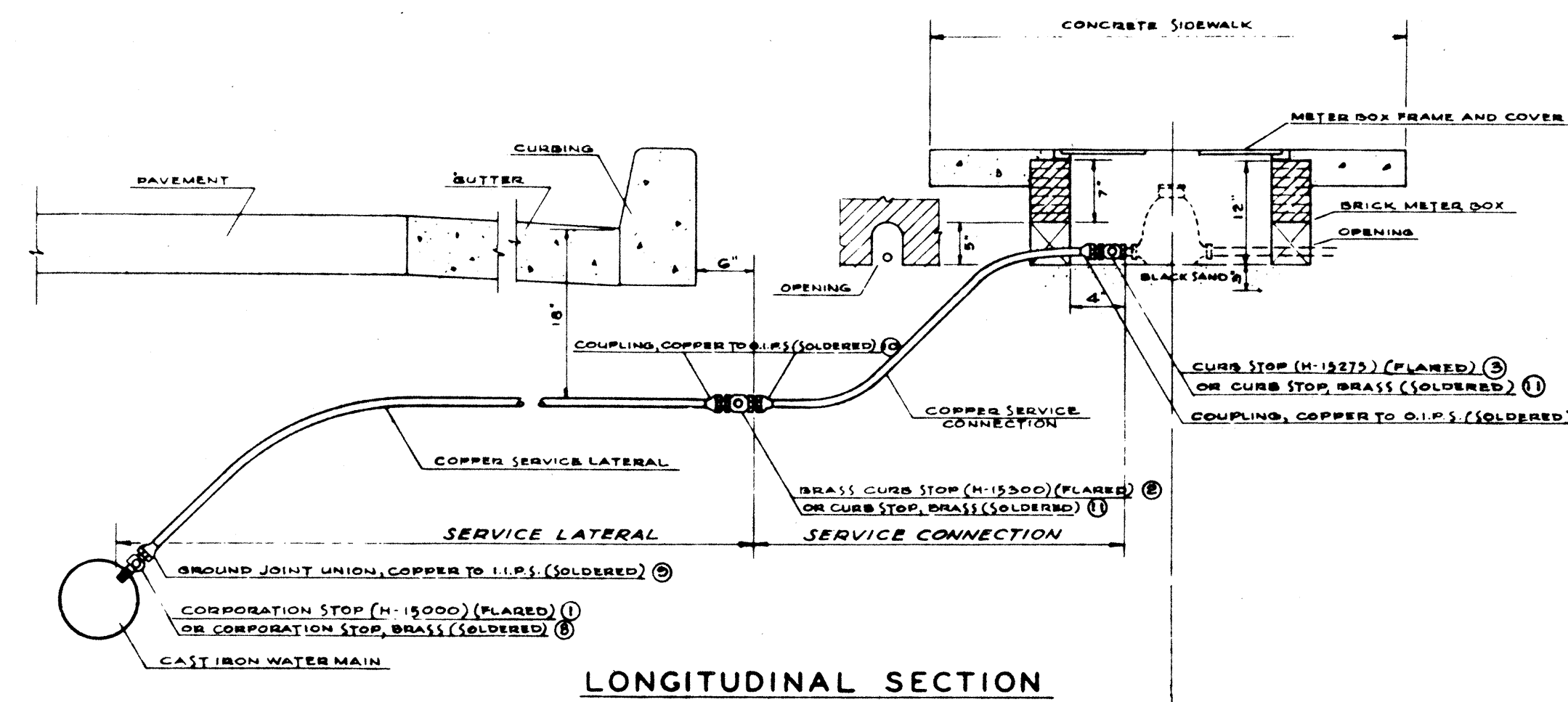


DETAIL OF SPLIT BUTT STRAP

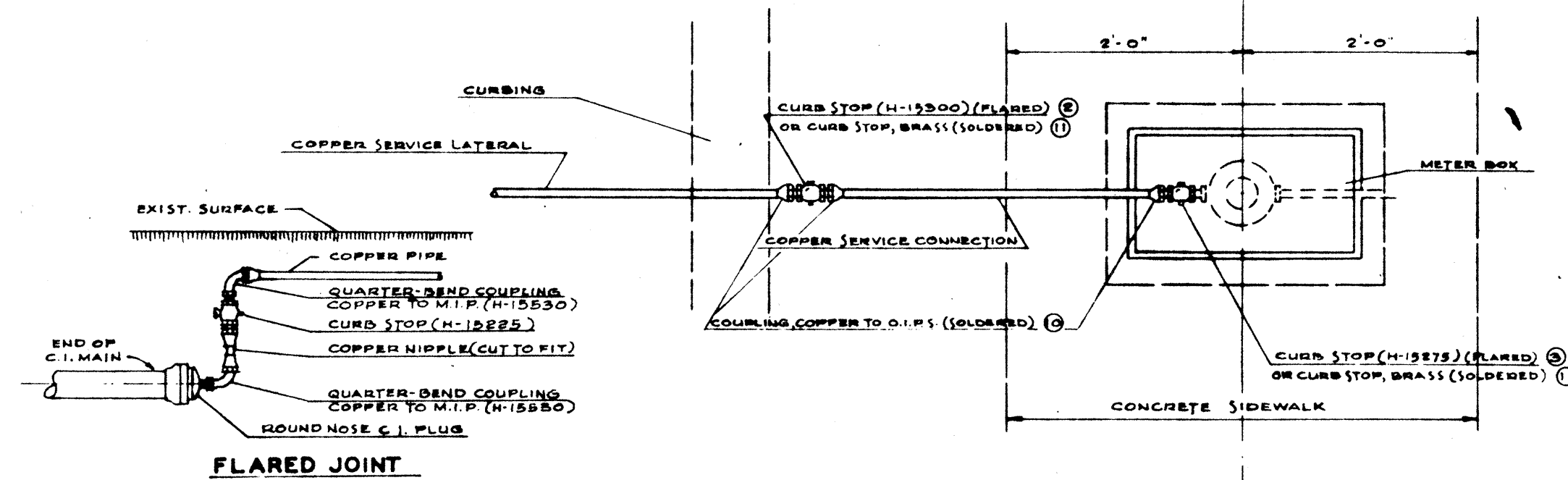


DETAIL OF CAP

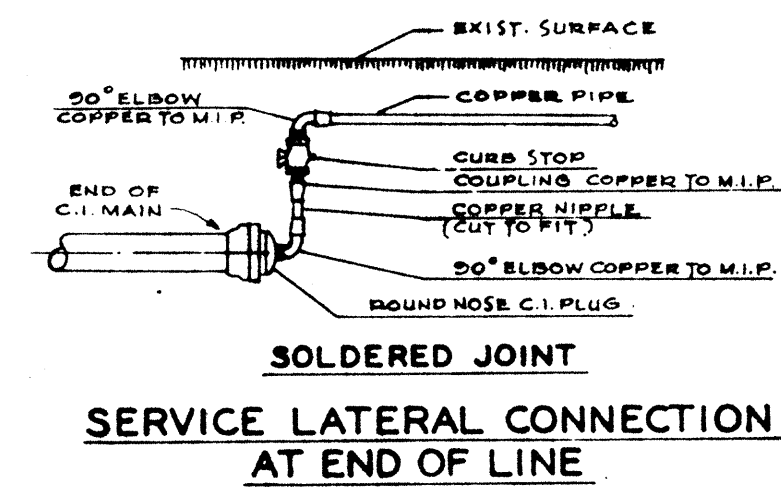
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION		SURVEYED BY:	
CONCRETE CYLINDER PIPE MISCELLANEOUS DETAILS		DRAWN BY: L.K.	
APPROVED: [Signature]		TRACED BY: L.K.	
SCALE: No Scale		ENGINEER:	
DATE: April 25, 1962		CHECKED BY:	
BOARD OF WATER SUPPLY HONOLULU, HAWAII		FILE	
SHEET 26 OF 52 SHEETS		POCKET FOLDER NO.	
FIELD BOOK NO.			



LONGITUDINAL SECTION



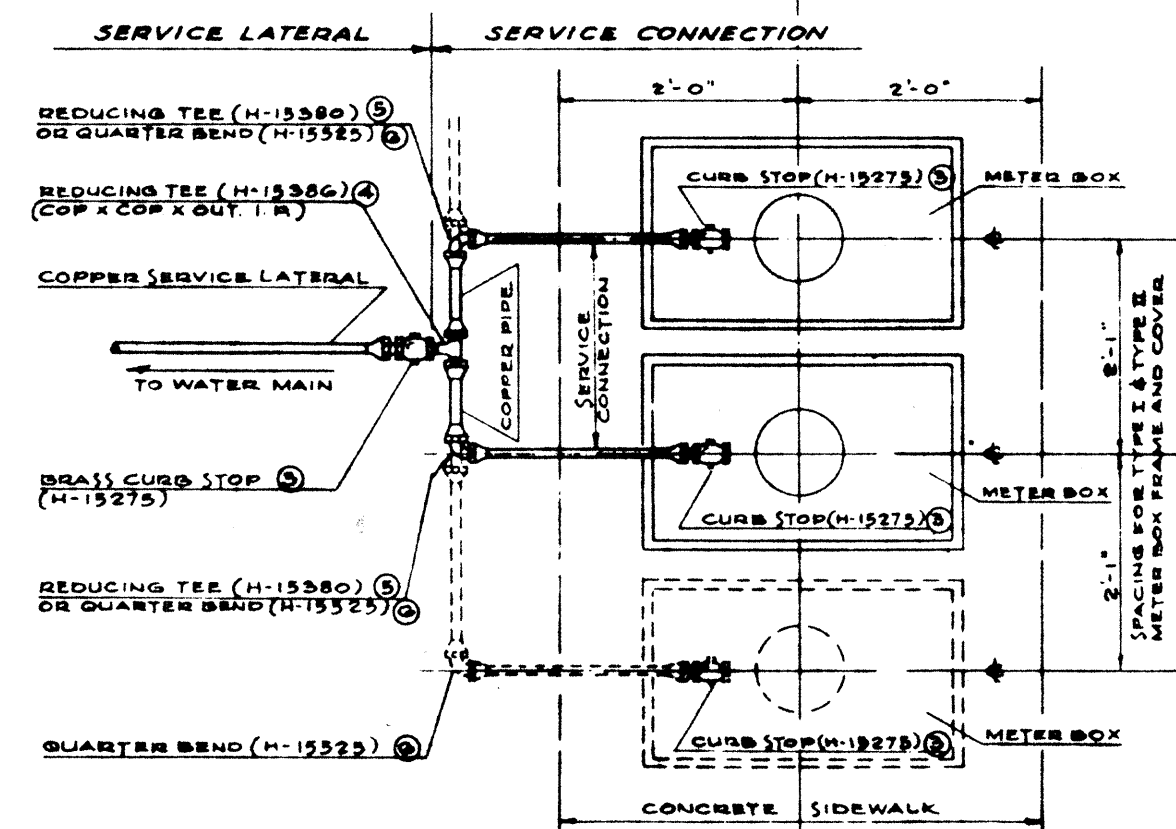
SINGLE SERVICE CONNECTION



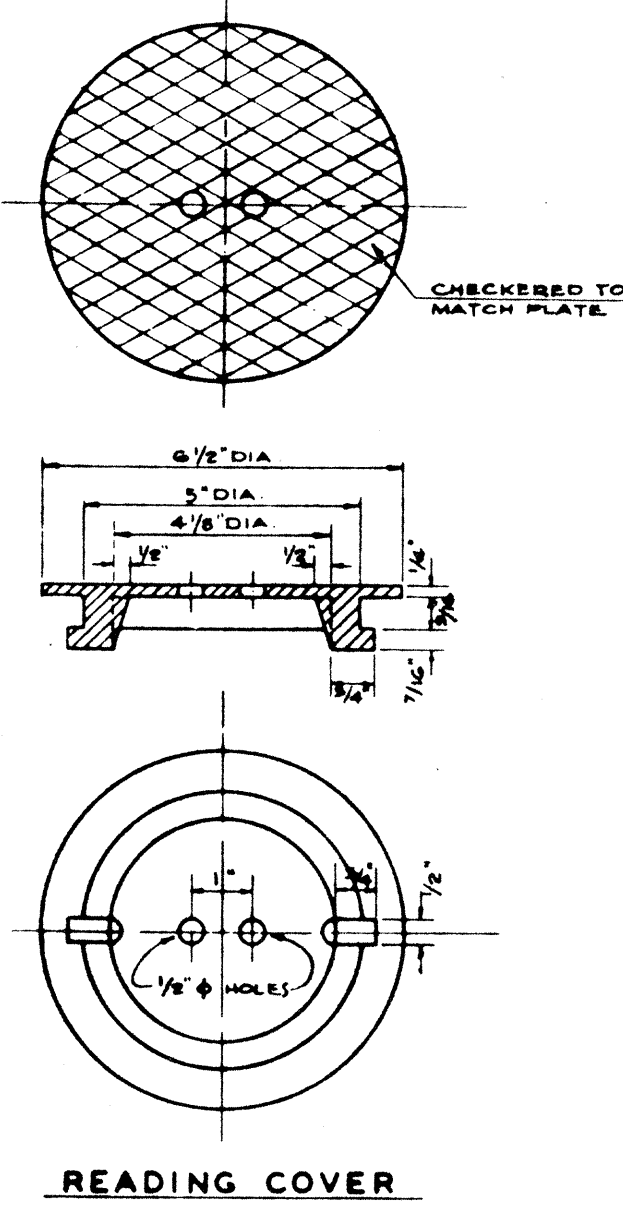
SOLDERED JOINT SERVICE LATERAL CONNECTION AT END OF LINE

ITEM NO.	DESCRIPTION	SINGLE SERVICE CONN.	MULTIPLE SERV. CONN. TWO SERVICES	MULTIPLE SERV. CONN. THREE SERVICES
1	CORPORATION STOP WITH STRAIGHT COUPLING NUT (H-15000)	1	1	1
2	BRASS CURB STOP (H-15200)	1	1	1
3	CURB STOP WITH TUBE NUT COUPLER TO INSIDE I.P. (H-15275)	1	3	4
4	REDUCING TEE WITH TUBE NUTS, COPPER TO COPPER TO OUTSIDE I.P. (H-15380)	-	1	1
5	REDUCING TEES WITH TUBE NUTS, COPPER TO COPPER TO COPPER (H-15380)	-	-	1
6	1/4 BEND UNION COUPLING WITH TUBE NUTS, COPPER TO COPPER (H-15325)	-	2	2
7	THREE PART UNION COUPLING (H-15400) OR SOLDER COUPLING	-	-	-

NOTE: REFERENCE NUMBERS SHOWN ARE FROM MUELLER CATALOG "H" FOR PURPOSES OF IDENTIFYING FITTINGS. APPROVED EQUAL MAY BE USED.



MULTIPLE SERVICE CONNECTION FLARED JOINTS



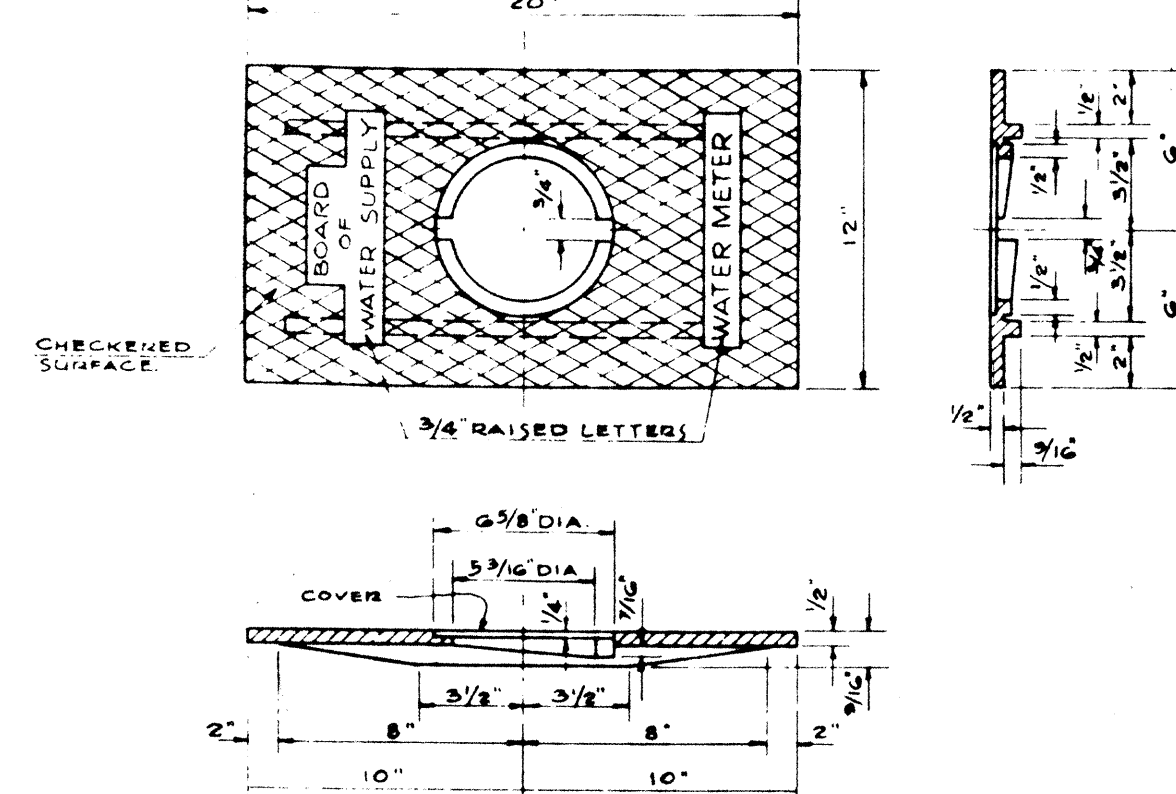
READING COVER

CAST IRON COVER FOR TYPE I & TYPE II FRAMES

SCHEDULE OF COPPER FITTINGS (SOLDERED JOINT)

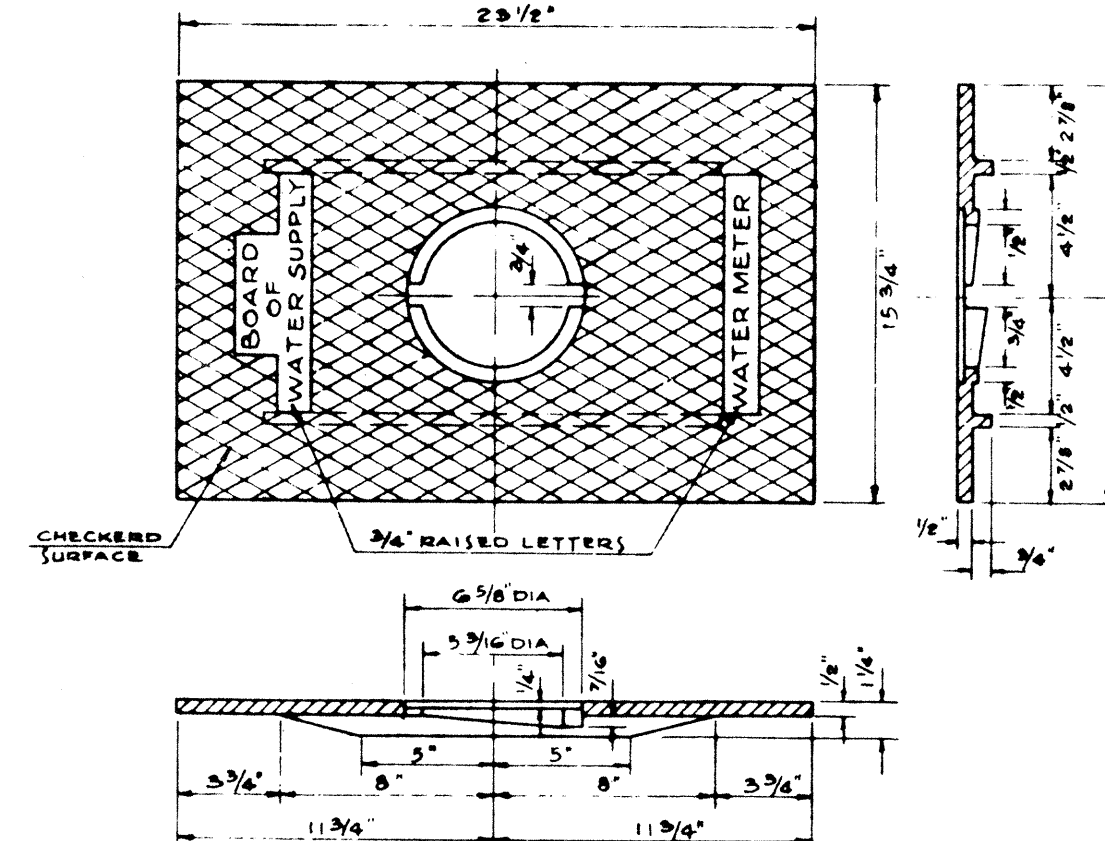
ITEM NO.	DESCRIPTION	SINGLE SERVICE CONN.	MULTIPLE SERV. CONN. TWO SERVICES	MULTIPLE SERV. CONN. THREE SERVICES
8	CORPORATION STOP, BRASS (H-10000)	1	1	1
9	GROUND JOINT UNION, COPPER TO I.P.S. (A-1527)	1	1	1
10	COUPLING, COPPER TO O.I.P.S. (A-1535 TO A-1578)	2	1	1
11	CURB STOP, BRASS (B.W.S. STANDARD)	1	1	1
12	FITTING ADAPTER, (A-1555 TO FITTING TO O.I.P.S. (A-1574)	-	1	1
13	TEE, COPPER TO COPPER TO COPPER (A-1566 TO A-2710)	-	1	1
14	BUSHINGS, FITTING TO COPPER (W-1543 TO W-1562)	-	2	2
15	90° ELBOW, COPPER TO COPPER (A-1537 TO A-2784)	-	2	2
16	COUPLING, COPPER TO O.I.P.S. (A-1535 TO A-1572)	1	2	2
17	CURB STOP, BRASS (B.W.S. STANDARD)	1	2	2
18	REDUCING TEE, COPPER TO COPPER TO COPPER (SUBSTITUTE FOR ITEM NUMBER 13 & 14), (A-1566 TO A-2710)	-	1	1
19	TEE, COPPER TO COPPER TO COPPER (A-1566 TO A-2710)	-	-	1
20	BUSHING, FITTING TO COPPER (W-1543 TO W-1562)	-	-	1
21	REDUCING TEE, COPPER TO COPPER TO COPPER (SUBSTITUTE FOR ITEM NUMBER 13 & 14), (A-1566 TO A-2710)	-	-	1

NOTE: REFERENCE NUMBERS SHOWN ARE FROM MUELLER CATALOG "H" FOR PURPOSES OF IDENTIFYING FITTINGS. APPROVED EQUAL MAY BE USED.



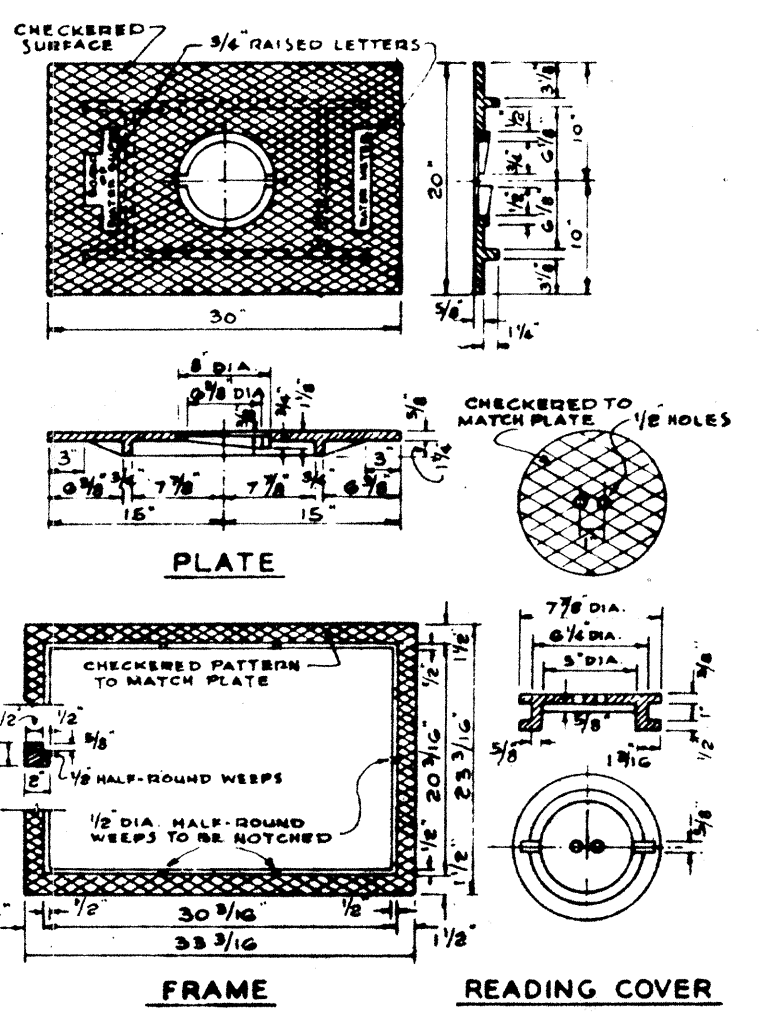
COVER PLATE

CAST IRON FRAME AND PLATE TYPE I

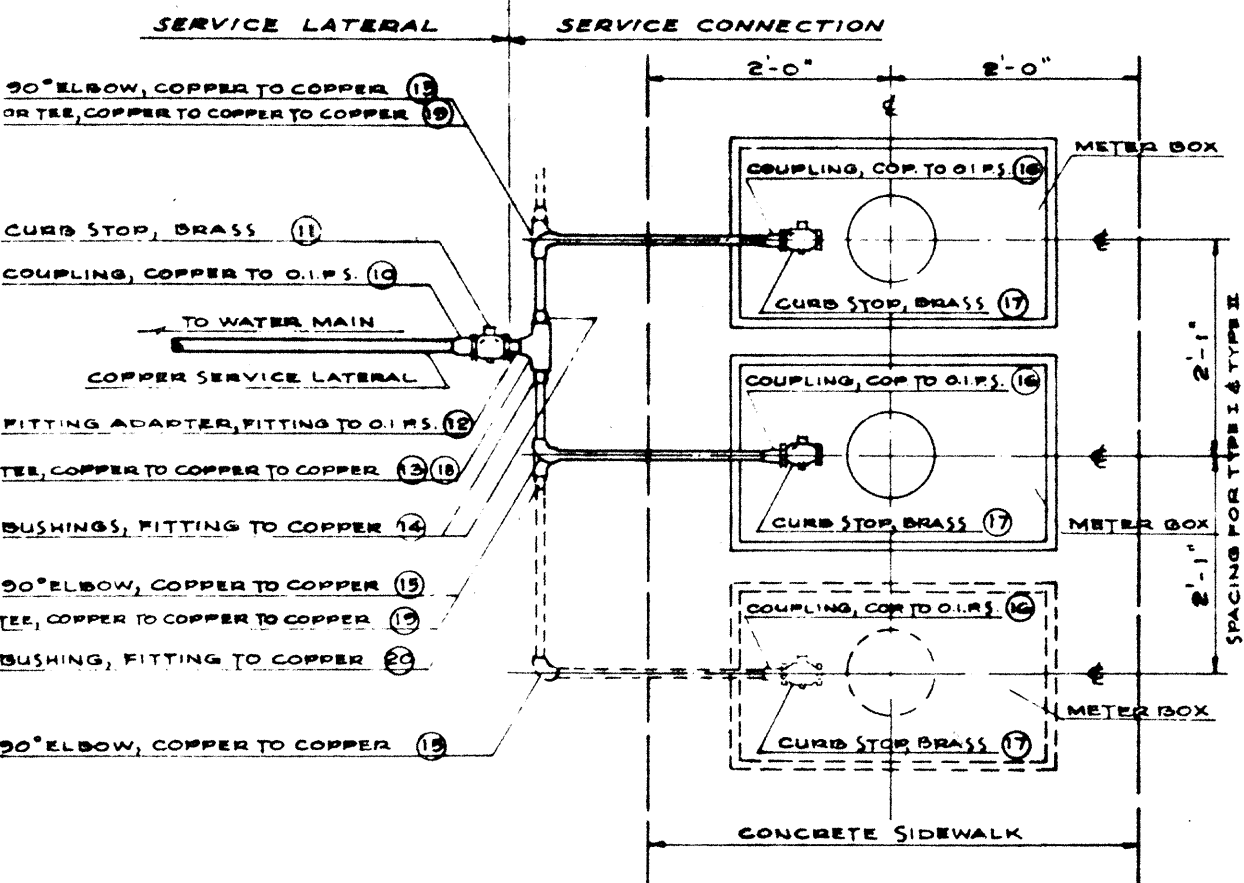


COVER PLATE

CAST IRON FRAME AND PLATE TYPE II

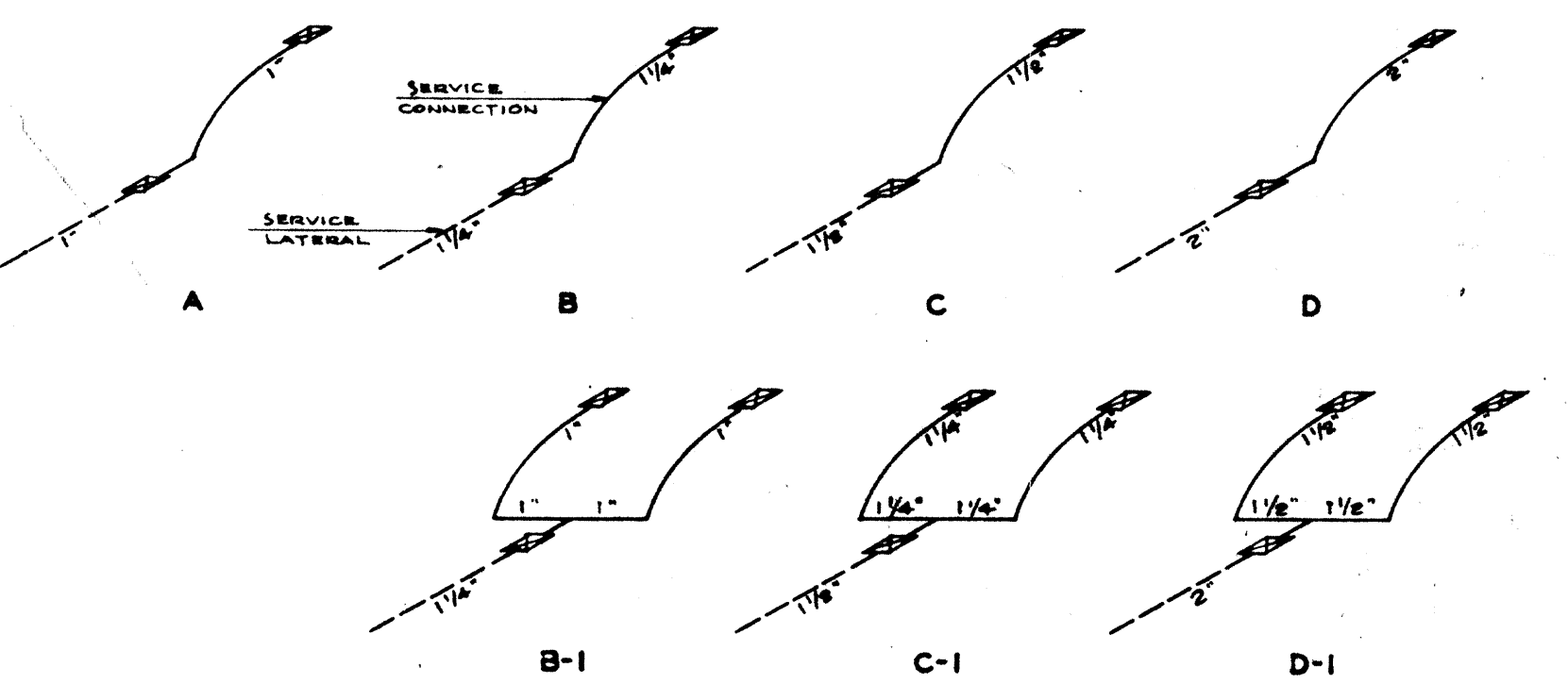


CAST IRON FRAME, PLATE & COVER TYPE III



MULTIPLE SERVICE CONNECTION SOLDERED JOINTS

NOTE: USE OF COPPER PIPE AND FITTINGS WITH "SOLDERED" JOINTS OPTIONAL UNTIL FURTHER NOTICE.



TYPICAL LAYOUT OF SERVICE LATERALS AND CONNECTIONS

STANDARD DETAILS		DRAWN BY R.O.	
COPPER SERVICE LATERALS AND CONNECTIONS		TRACED BY R.O.	
C.I. METER BOX FRAME AND COVER		CHECKED BY T.I.	
		ENGINEER T.I.	
		DRAWING NO.	
APPROVED	MANAGER AND CITY ENGINEER	FILE 2	
SCALE	DATE Jan. 27, 1953	POCKET FOLDER NO.	24 b
BOARD OF WATER SUPPLY			
HONOLULU, T. H.			
SHEET OF SHEETS			

