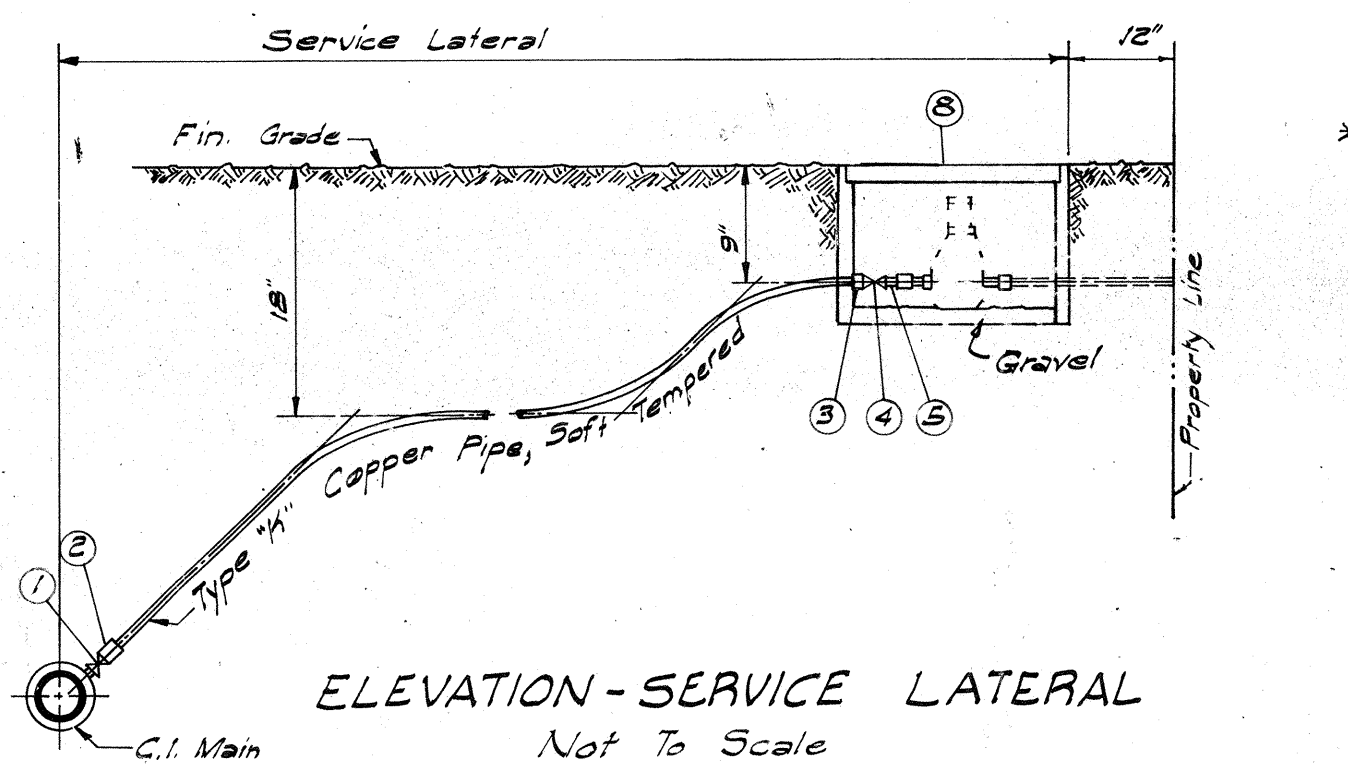
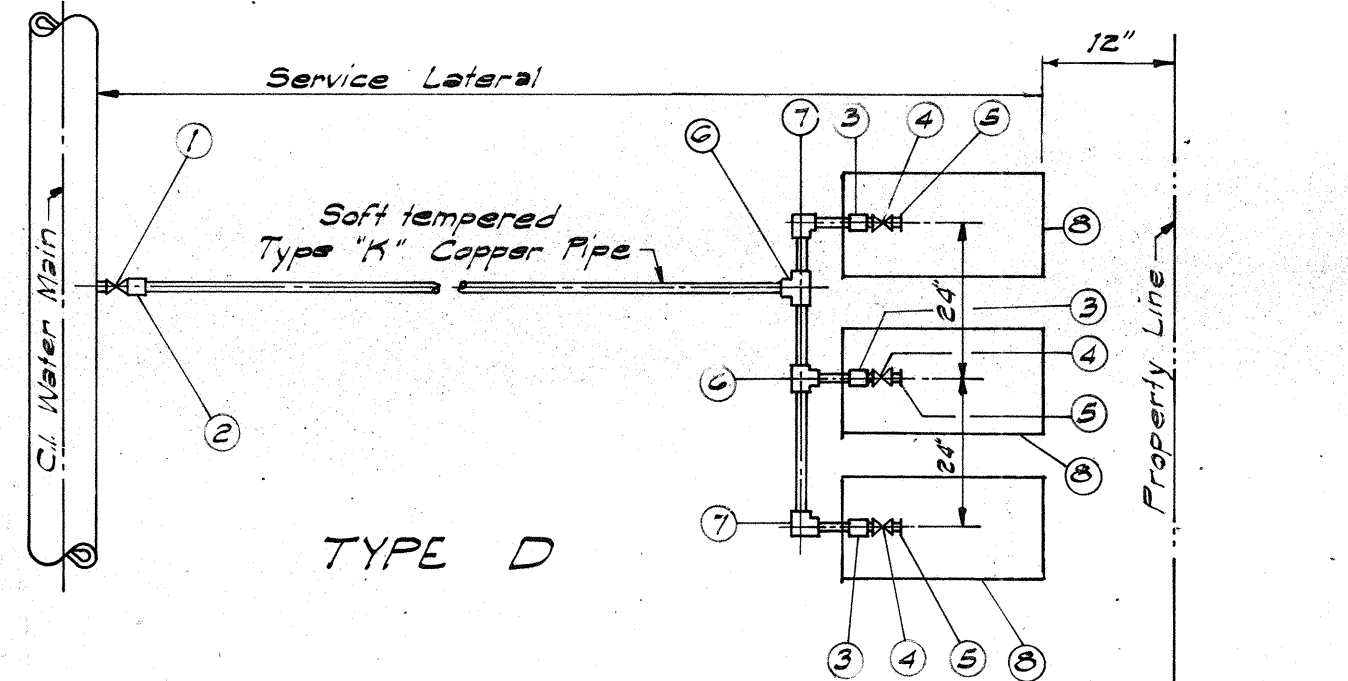
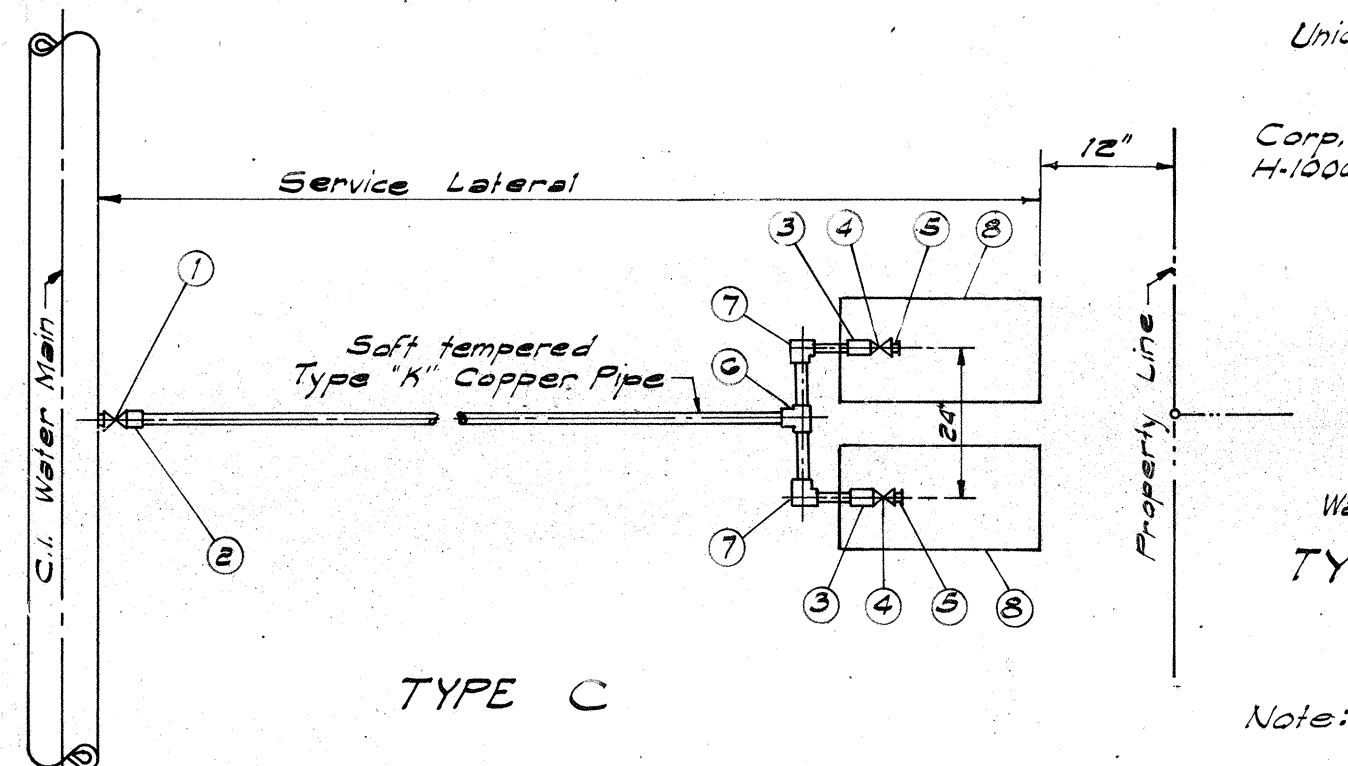
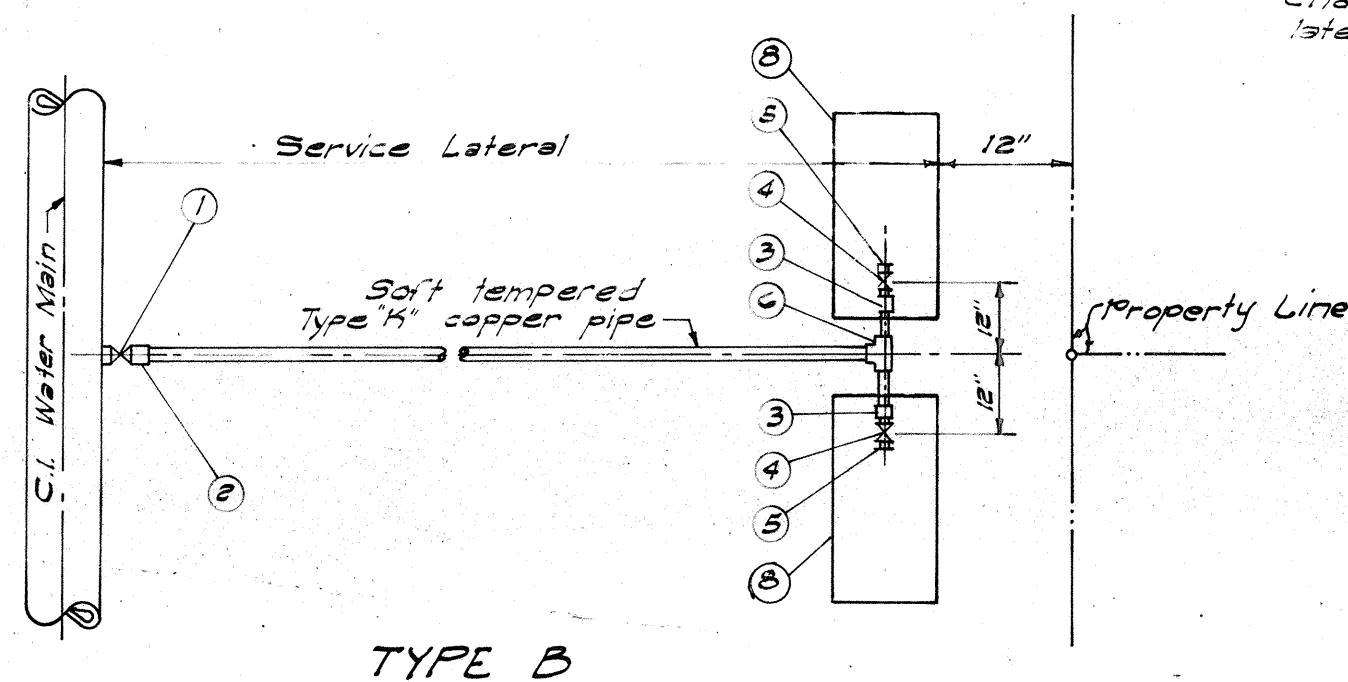
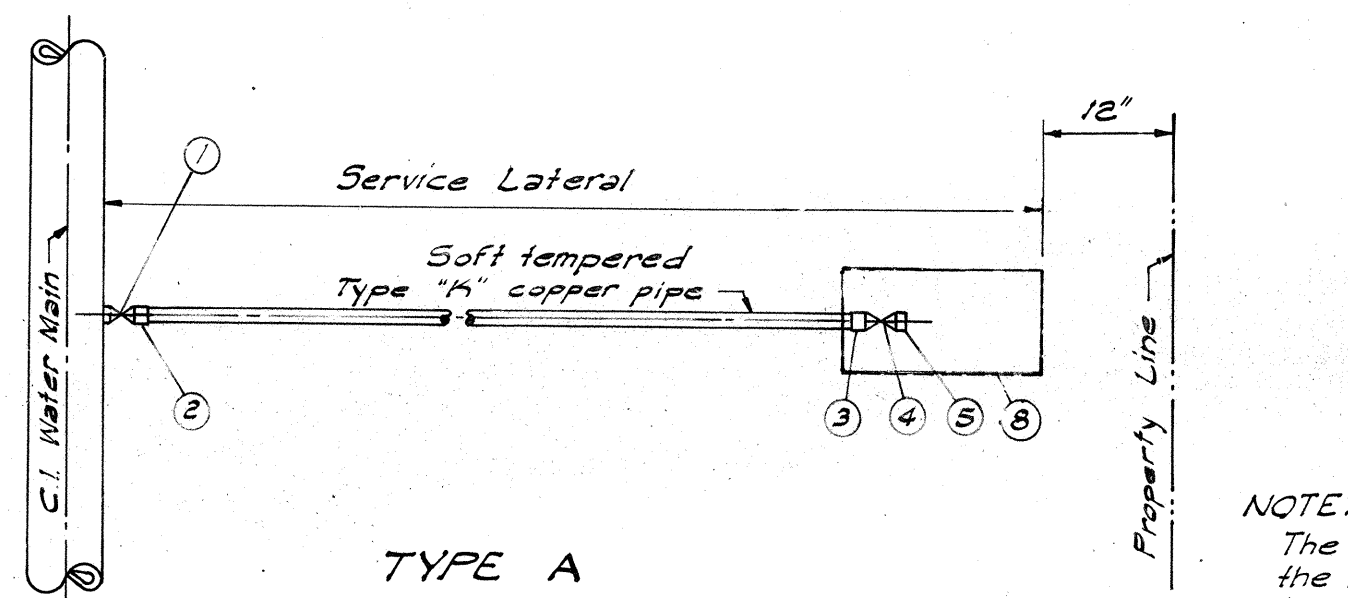
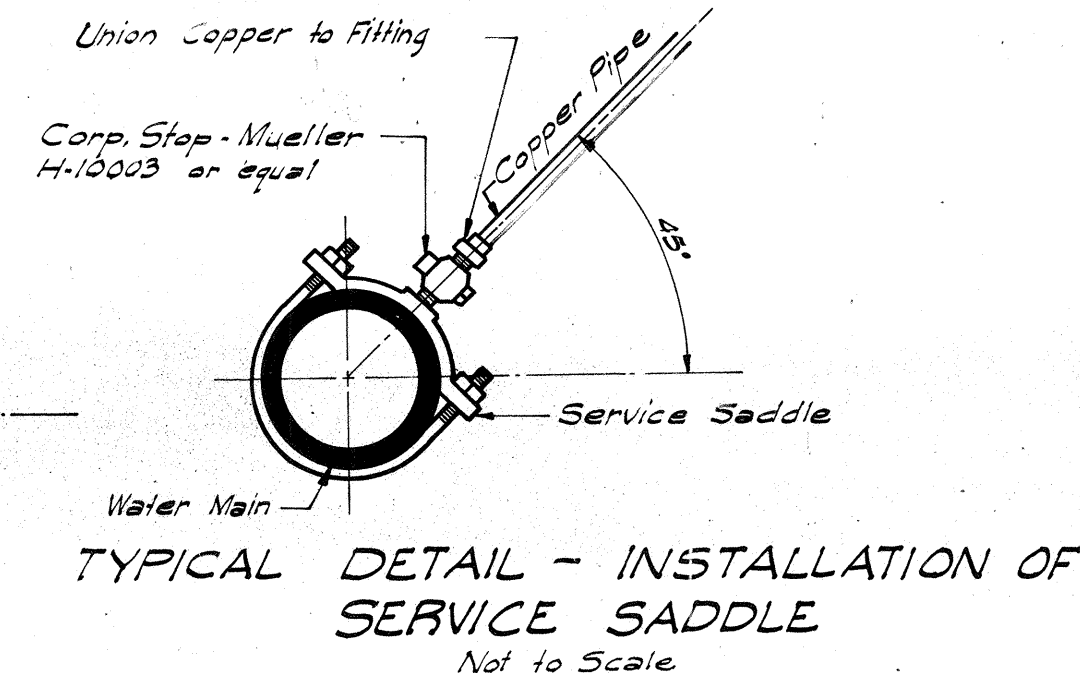




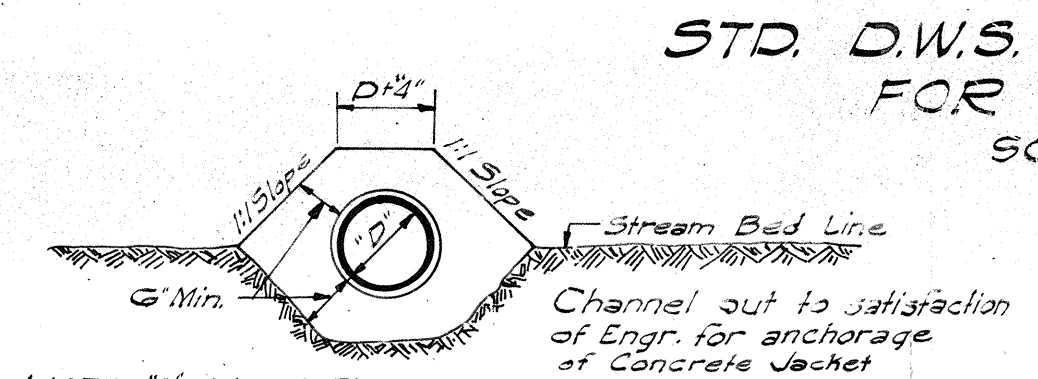
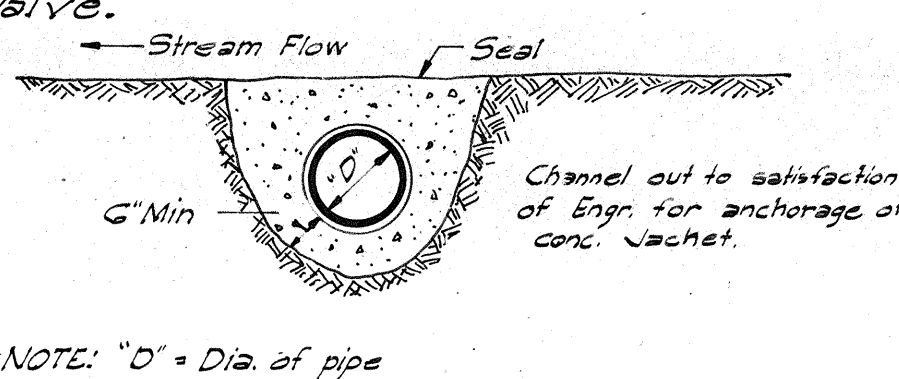
NOTE:
The Dept. of Water Supply reserves the right to relocate the Service laterals to a location other than that shown on the plans due to the unusual ground condition and to change the size & type of service lateral due to this relocation.



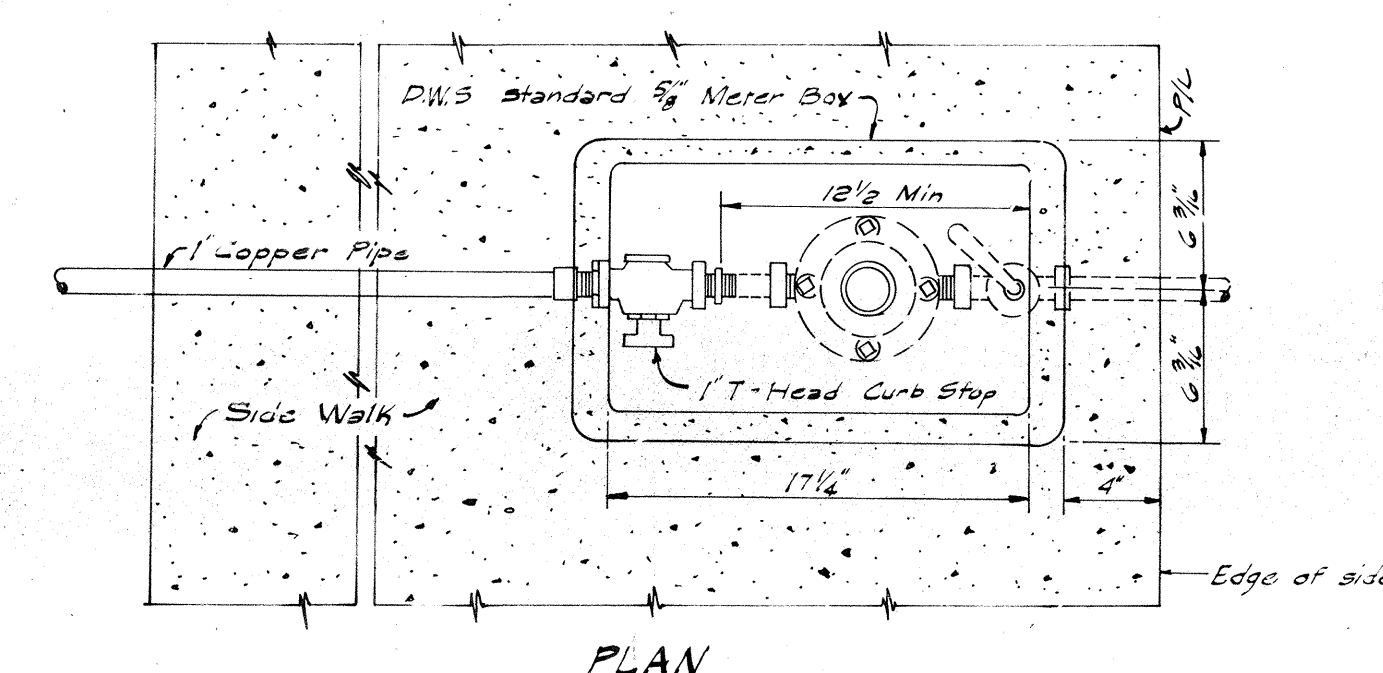
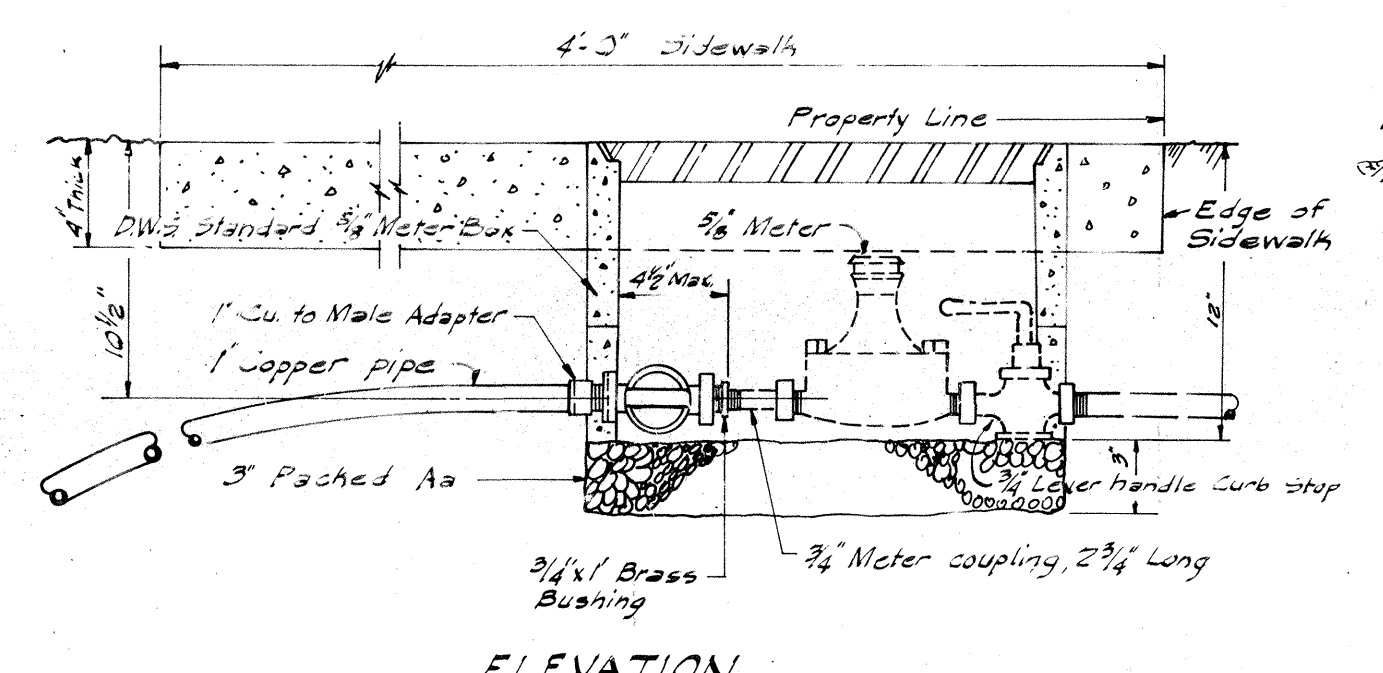
SERVICE LATERAL & SERVICE CONNECTION MATERIAL SCHEDULE													
TYPE	SIZE	SERVICE CONNECTION											
		SERVICE LATERAL						SERVICE CONNECTION					
		Corp. Stop Mueller H-10003	Union Copper to Fitting	Copper Pipe - Type 'K'	Male Adapter Copper to Fitting	Curb Stop Mueller H-10203	Brass Bushing	Red Tee Copper to Copper	90° Elbow Copper to Copper	Meter Box	Customer Valve	Stop or Gate Valve	
ITEM NO.		1	2	3	4	5	6	7	8	9	10	11	12
A	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"
B	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"
	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"
C	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"
	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"
D	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"
	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"

* NOTE: Service Connection Means complete service lateral installation including meter and customer valve.

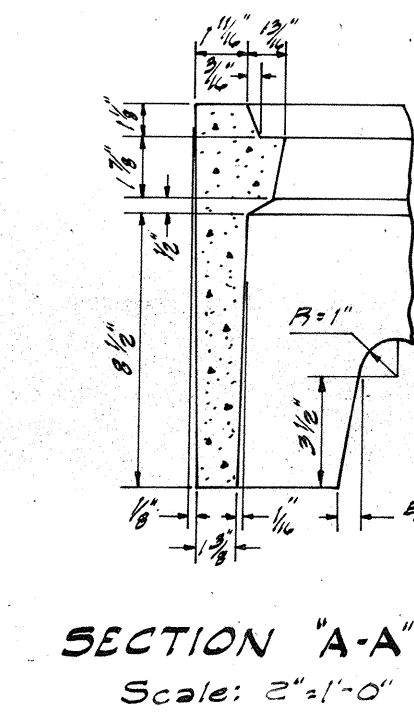
* METER SCHEDULE		
TYPE	NO. OF METERS	METER SIZE
A	1	5/8", 1", 1 1/2", 2"
B	2	5/8", 1"
C	2	5/8", 1"
D	3	5/8"



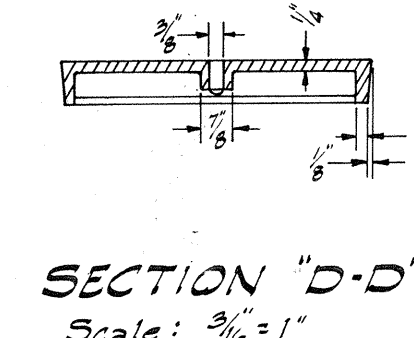
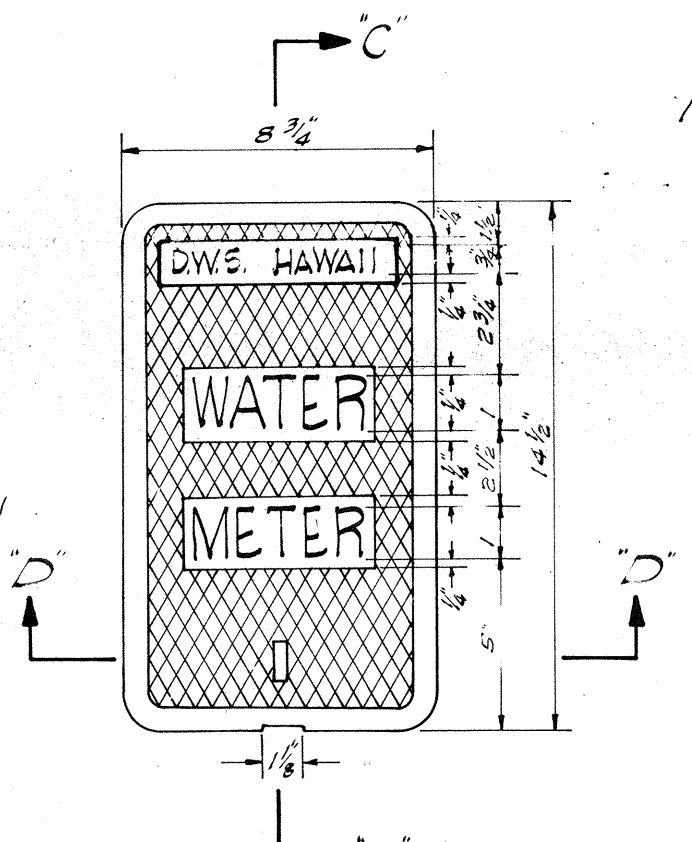
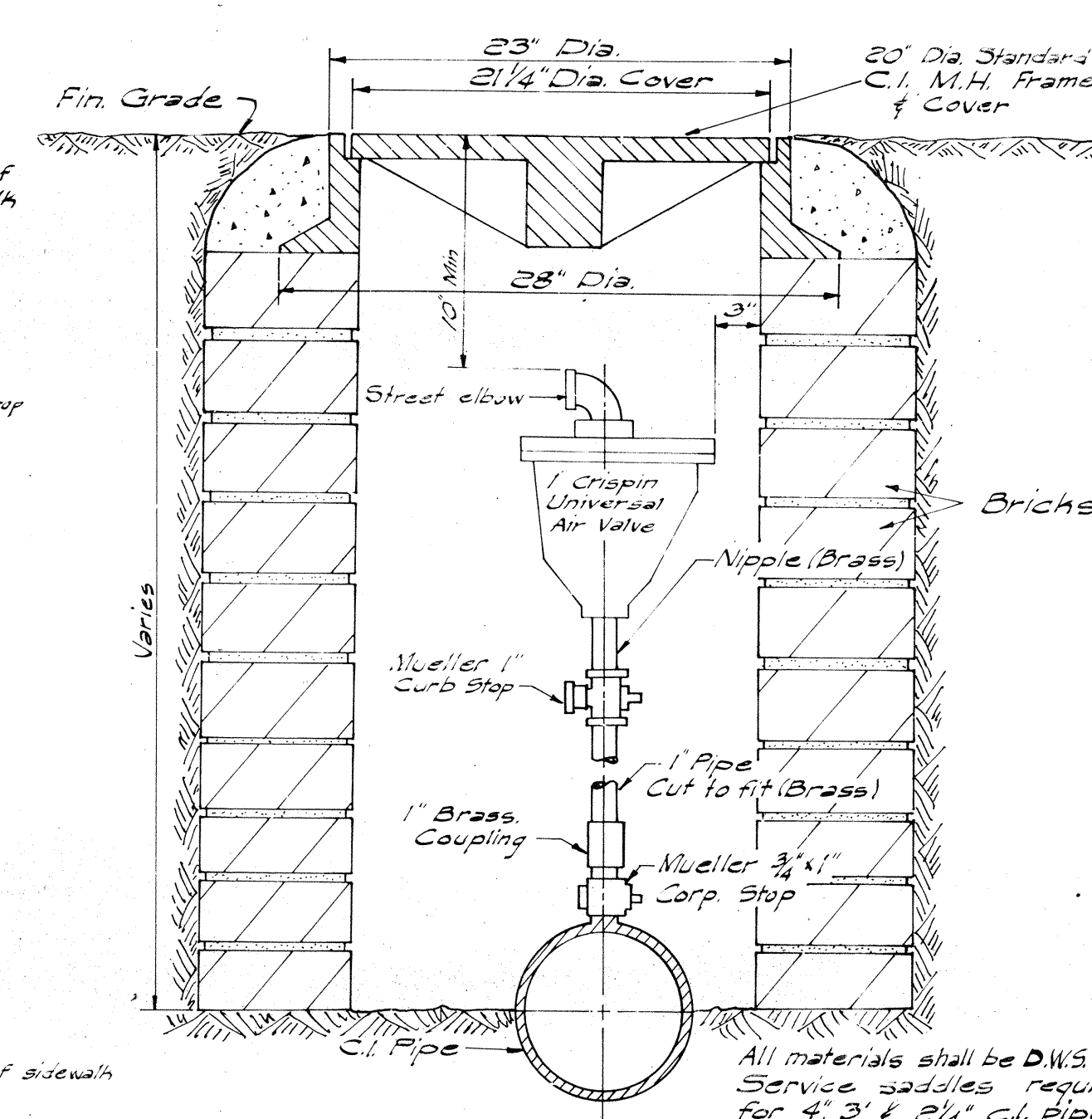
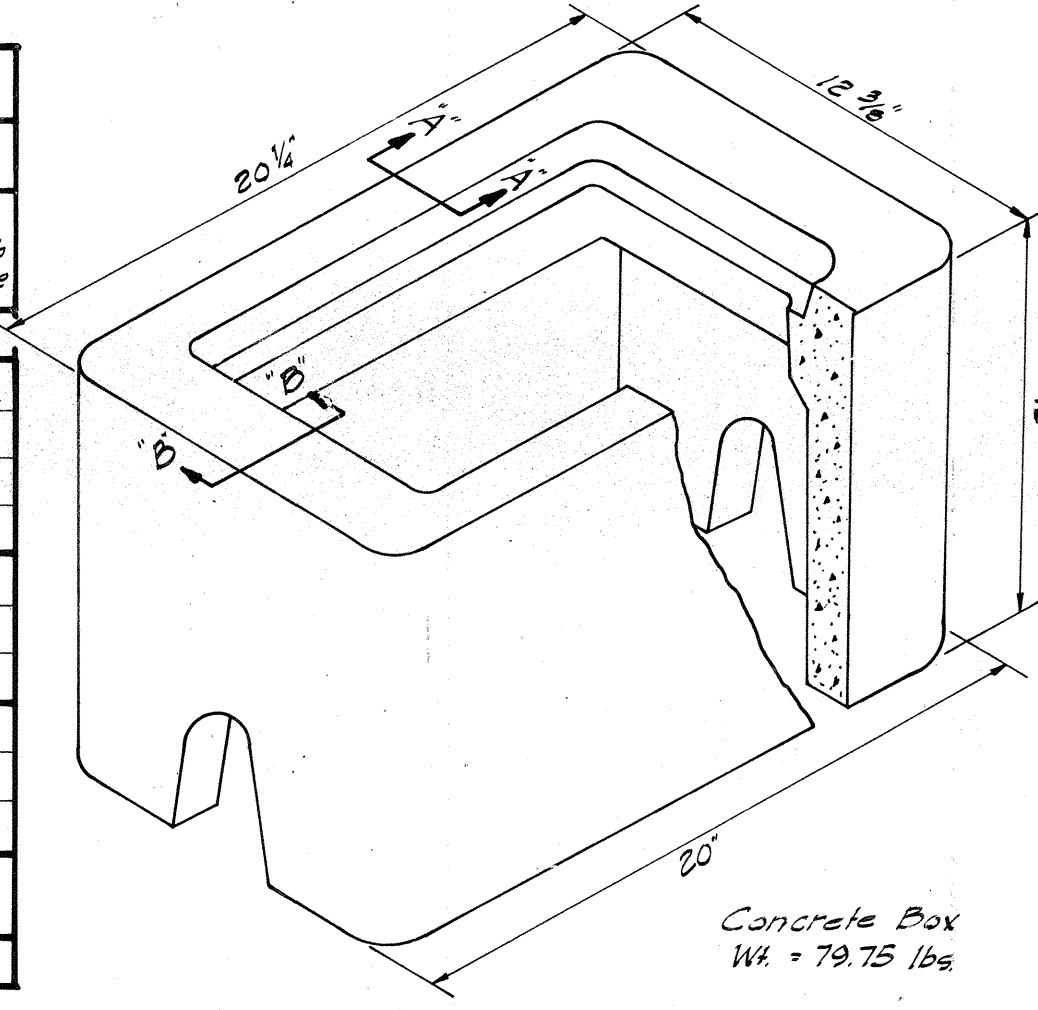
USE DETAILS WHERE APPLICABLE



5/8" METER INSTALLATION
Scale: 1/2" = 1'-0"

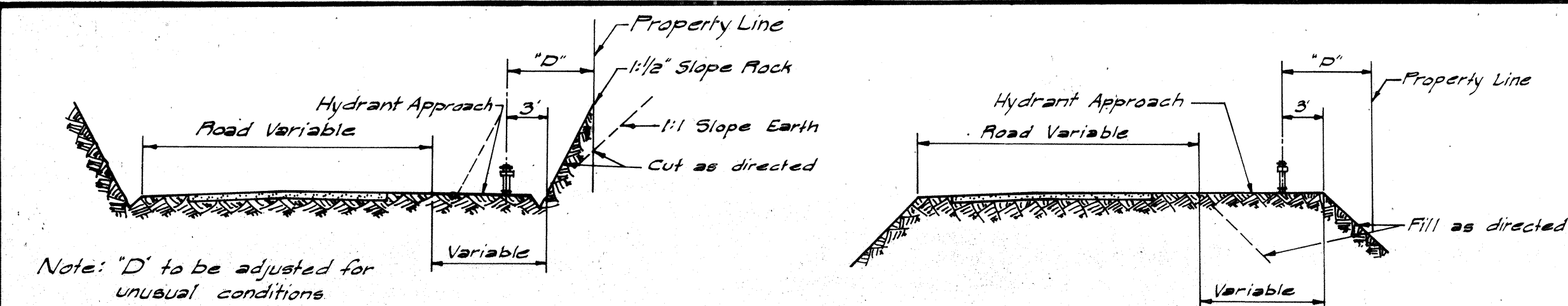


SECTION "B-B"
Scale: 2" = 1'-0"



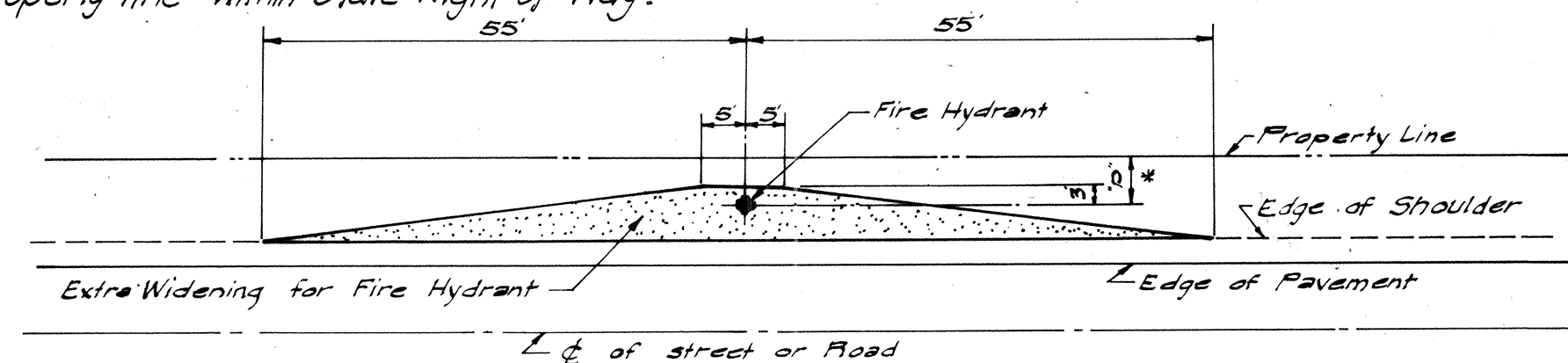
SECTION "C-C"
Scale: 3/4" = 1"

DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAII
STANDARD DETAILS
SHEET "A"
SCALE: AS SHOWN DATE: DECEMBER, 1974
APPROVED: [Signature]
REVISOR: [Signature] MANAGER, DEPT. OF WATER SUPPLY
REVISED OCT. 1975
SHEET OF SHEETS



Note: "D" to be adjusted for unusual conditions.

DISTANCE "D" = 5'-4" FOR 50' STREET, 8'-4" FOR 60' STREET & 6'-4" FOR 80' STREET FOR COUNTY R/W
 * Note: Fire Hydrant shall be installed on Property line within State Right of Way.
 Scale: 1" = 10'-0"

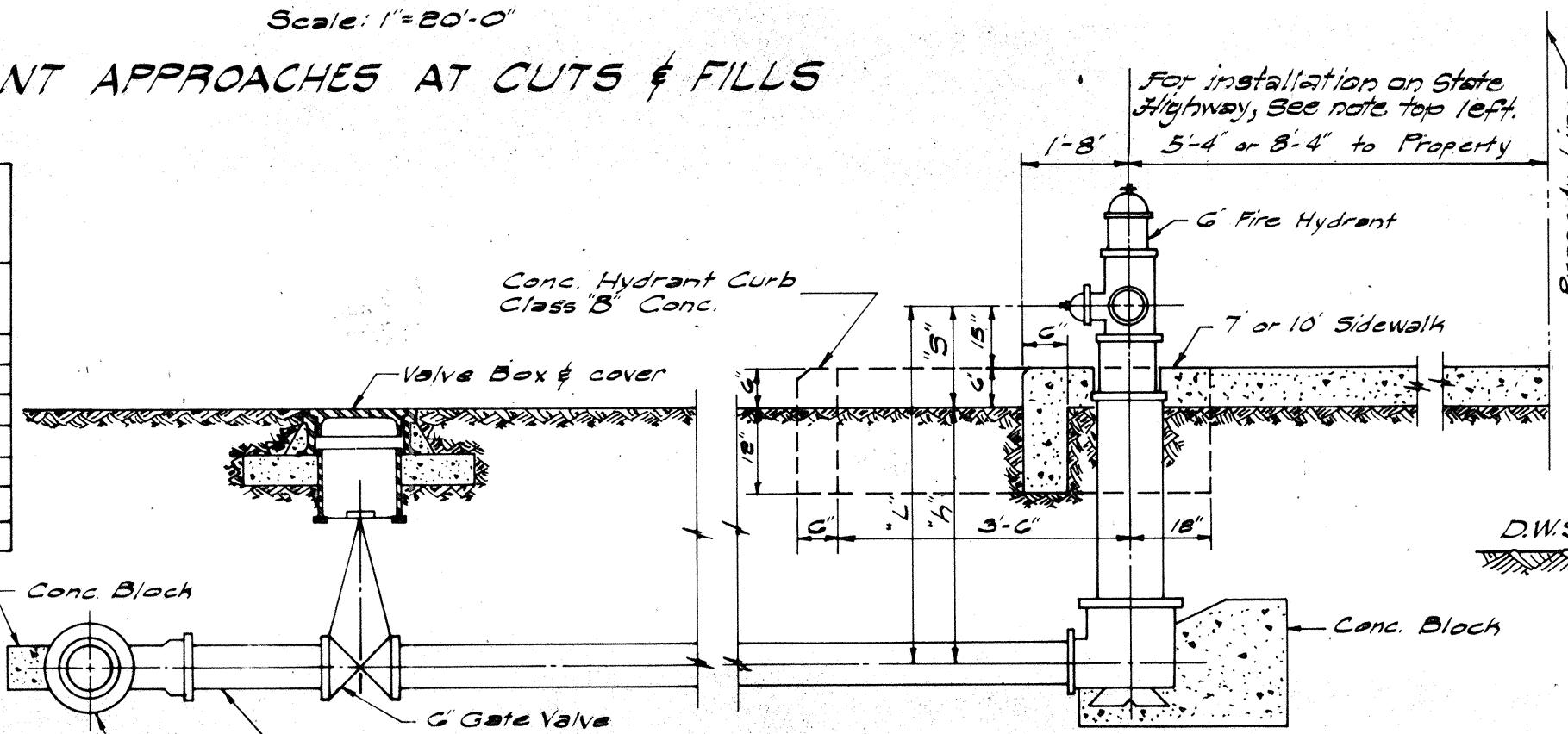


Scale: 1" = 20'-0"

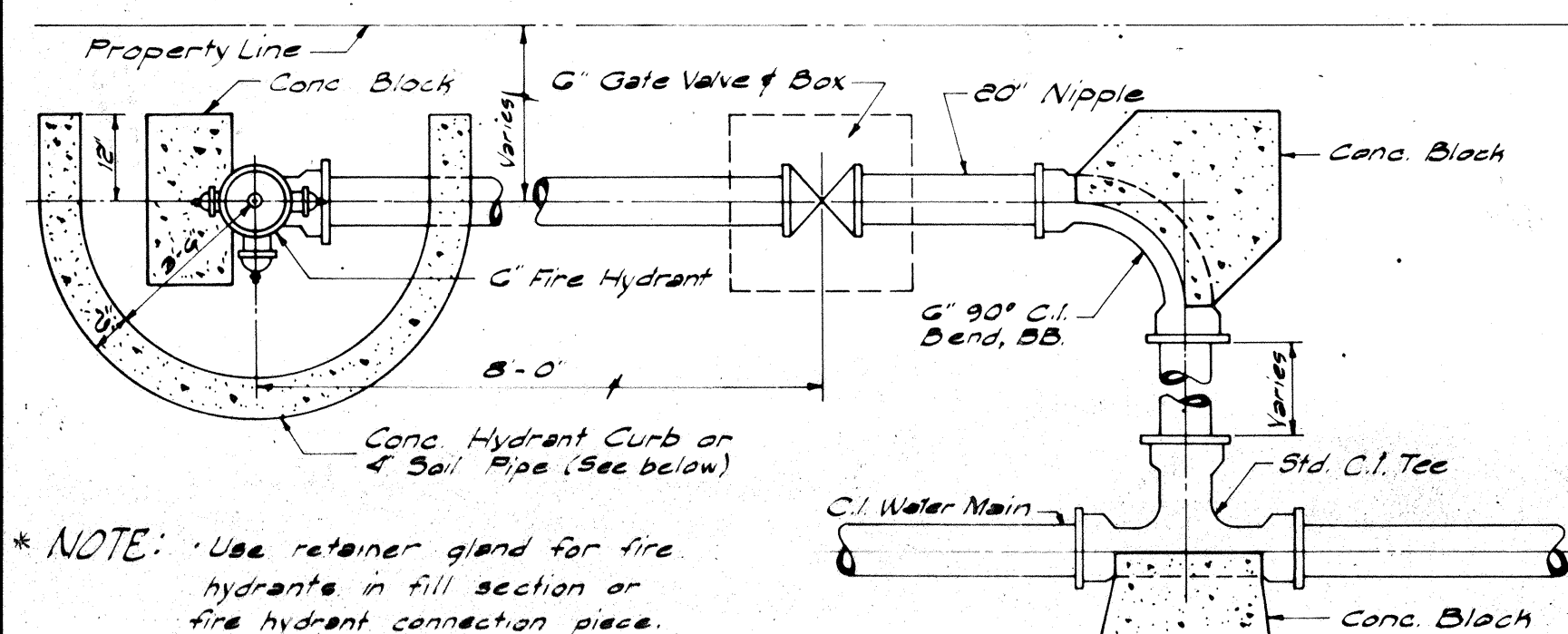
HYDRANT APPROACHES AT CUTS & FILLS

TABLE OF HYDRANT LENGTH MEASURED FROM FACE OF PIPE TO FACE OF STEAMER OUTLET

DIA OF PIPE IN INCHES	"H"	"S"	"L"
4"	20"	21"	41"
6"	24"	21"	45"
8"	28"	21"	49"
10"	32"	21"	53"
12"	36"	21"	57"
14"	40"	21"	61"
16"	44"	21"	65"

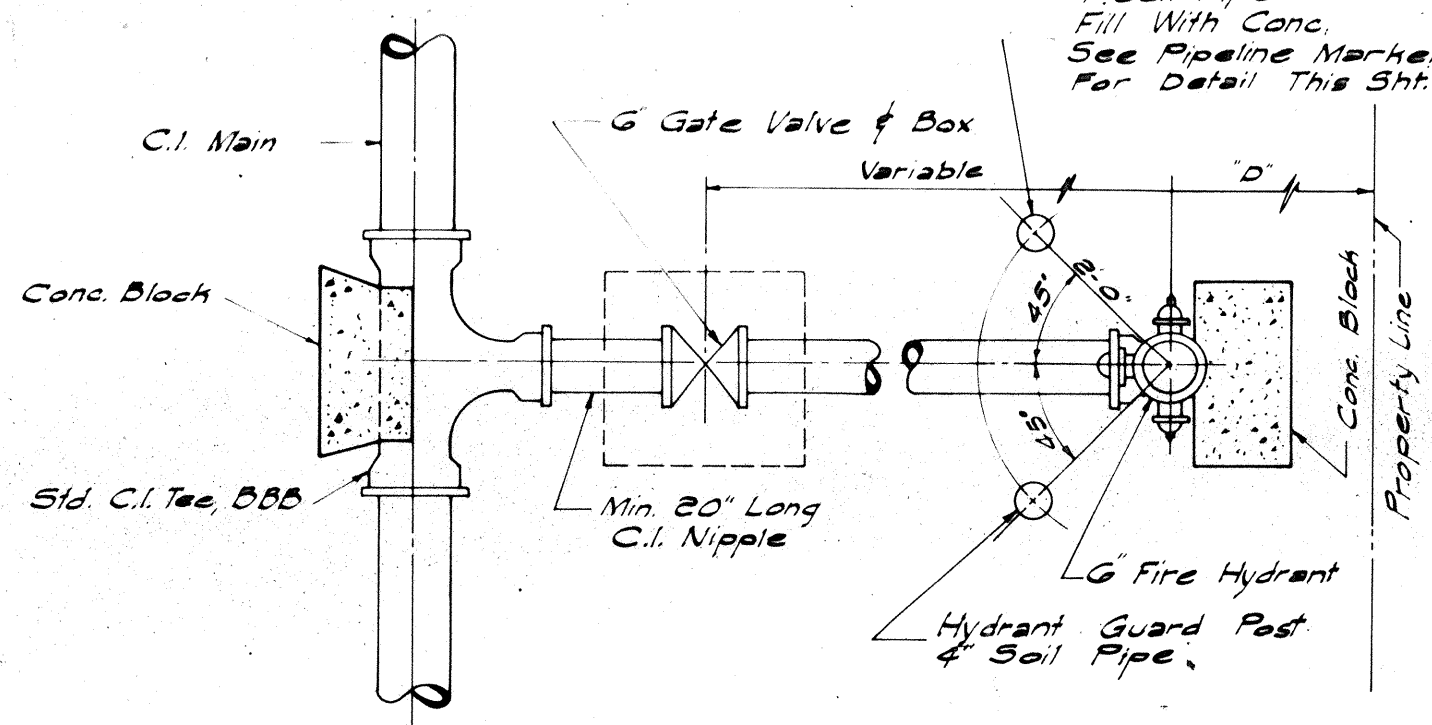


DETAILS OF FIRE HYDRANT INSTALLATION
 Scale: 1/2" = 1'-0"



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

* NOTE: Use retainer gland for fire hydrants in fill section or fire hydrant connection piece. * See Note Left.

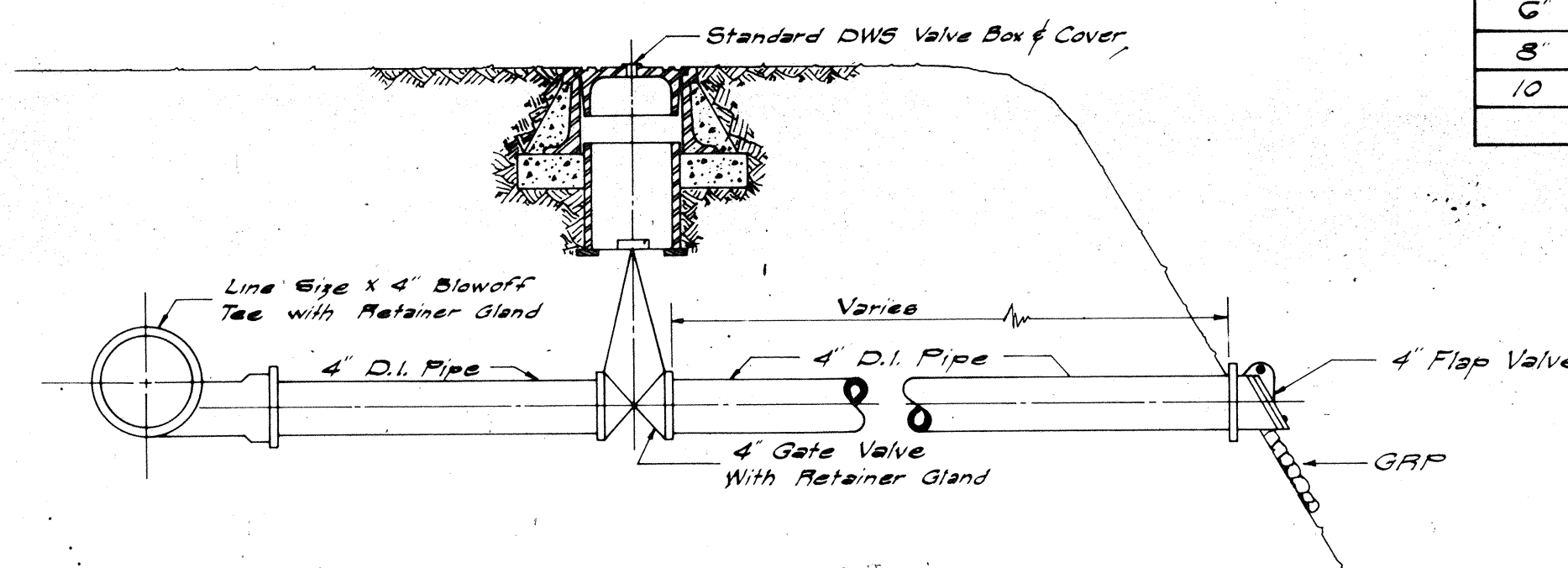


FIRE HYDRANT LAYOUT "B"
 Scale: 1/2" = 1'-0"

FIRE HYDRANT LAYOUT "A"
 1- Pipe Size X G" O.I. Tee or Tapping Sleeve
 1- G" 90° D.I. Bend
 1- G" Gate Valve or Tapping Valve, 200# Box
 1- G" Fire Hydrant
 Conc. Blocks
 * See Note Left

2" CLEANOUT AT DEAD ENDS

Not to Scale

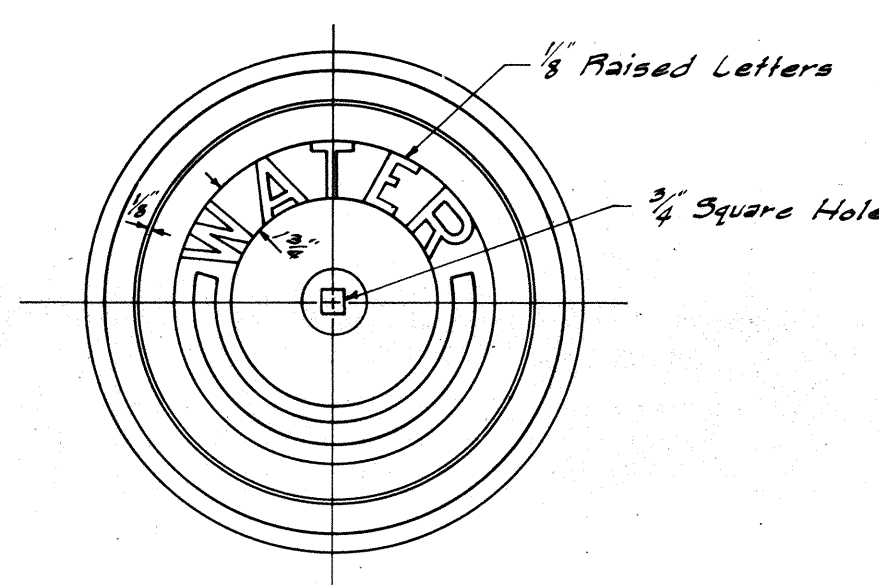


FIRE HYDRANT LAYOUT "B"
 1- Pipe Size X G" Tee or Tapping Sleeve
 1- G" Gate Valve or Tapping Valve, 200# Box
 1- G" Fire Hydrant
 Conc. Blocks
 * See Note Left

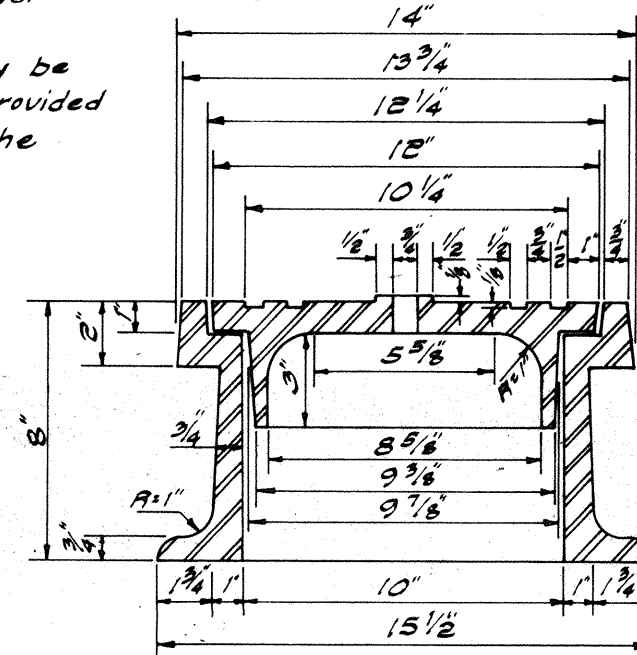
Tapping sleeves and Tapping Valve shall not be used when main line size is 8" diameter.

BLOWOFF UNIT

Not to Scale



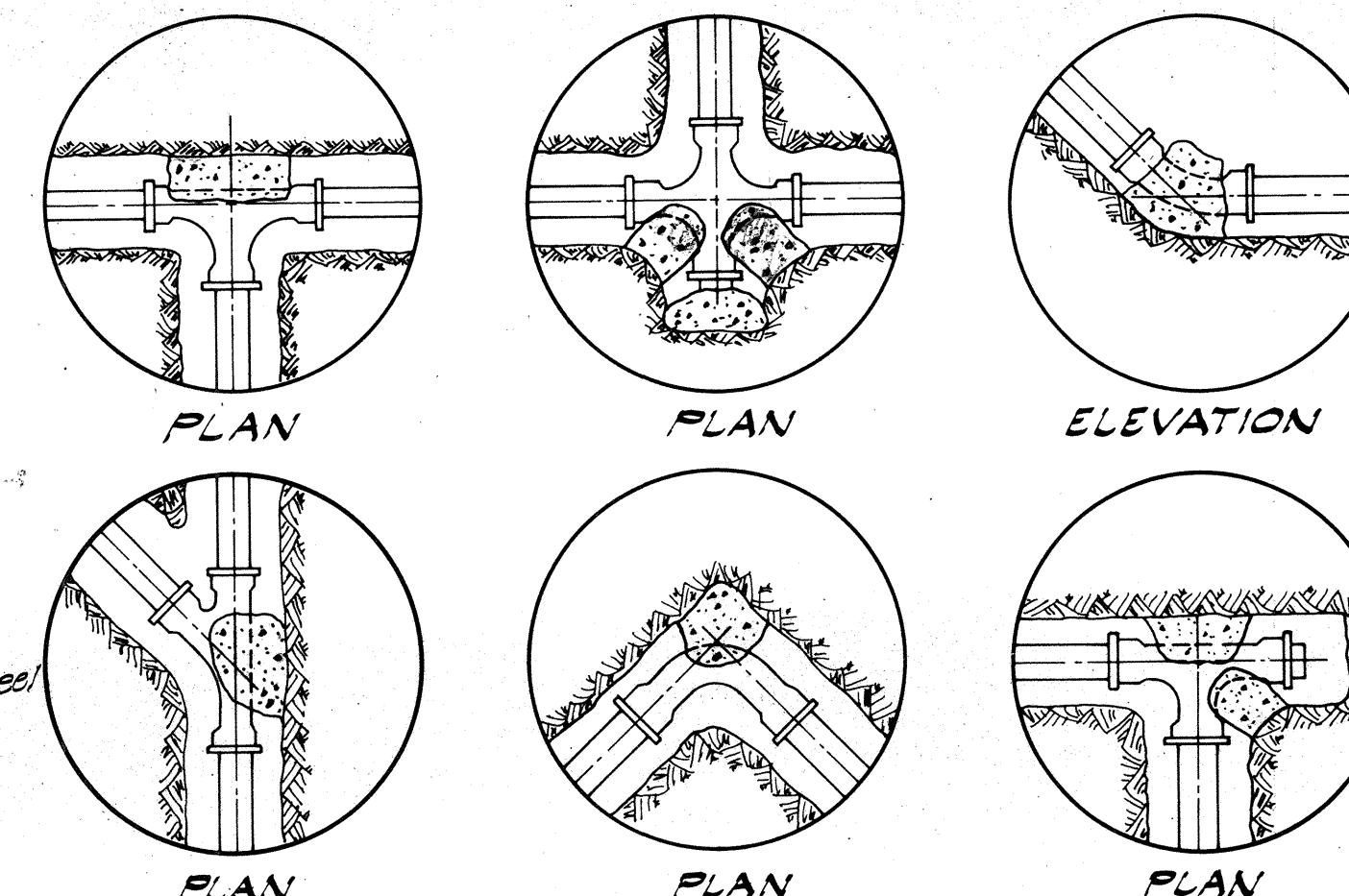
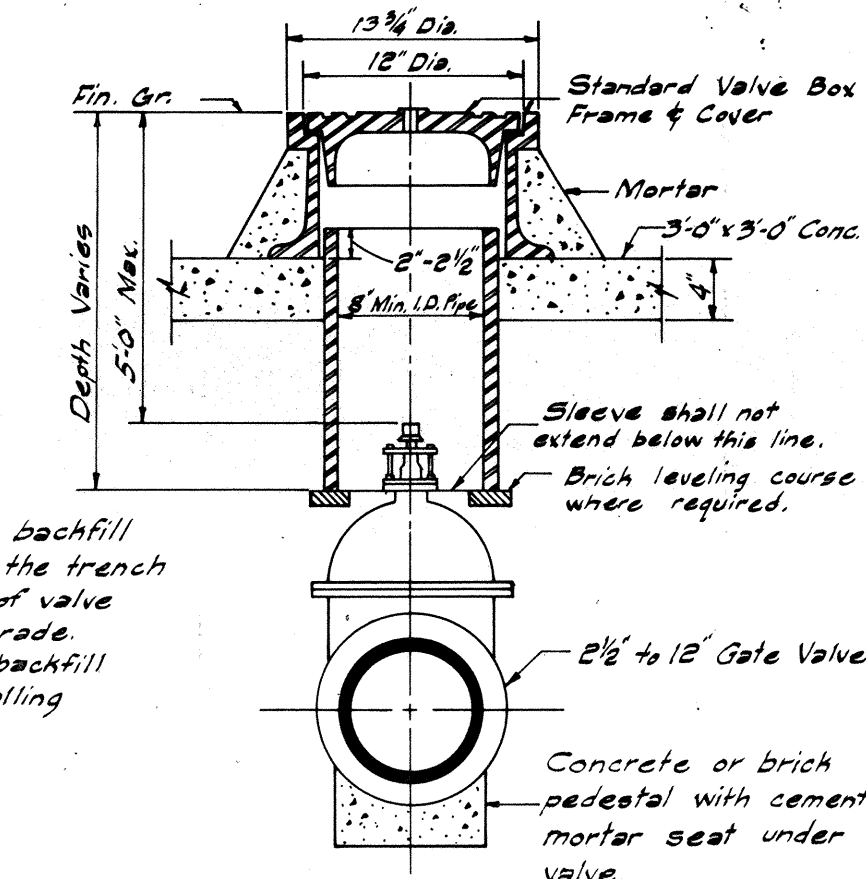
CAST IRON FRAME & COVER
 Scale: 2" = 1'-0"



NOTE: The limit of pipe cushion backfill 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 pipe cushion backfill shall be incidental to installing valve box.

CAST IRON VALVE FRAME & COVER

Not to Scale



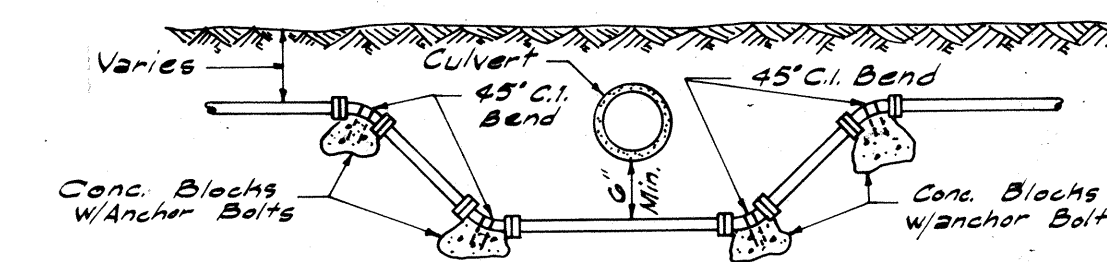
CONCRETE THRUST BLOCKS FOR WATER MAINS

Class "B" Concrete

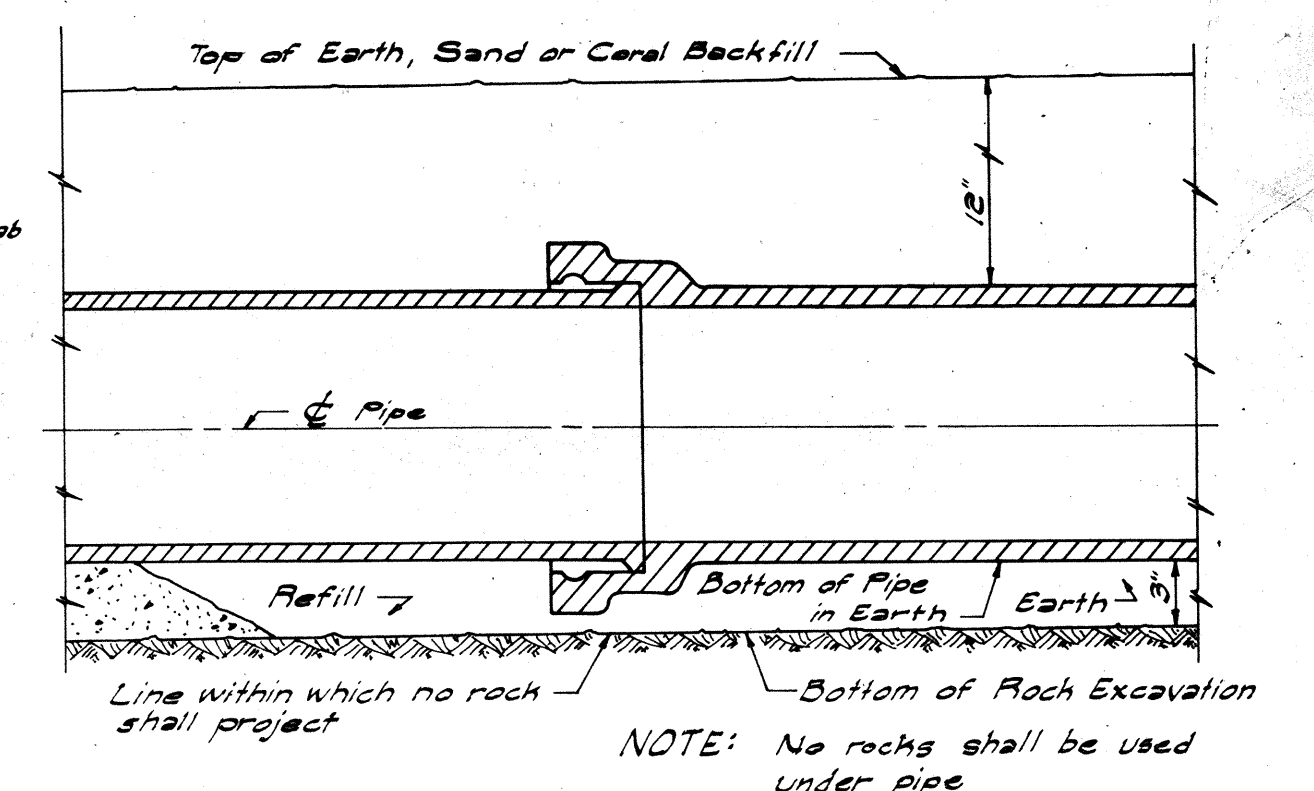
Table of areas in square feet at thrust block in vertical contact with soil of Varying bearing Values, water pressure 150 pounds per square inch

Pipe Size	Tees, Bend Ends	90° Bend	45° Bend	22 1/2° Bend
	a b c d	a b c d	a b c d	a b c d
4"	2.5 1.5 1.0 1.0	3.5 2.0 1.5 1.0	2.0 1.0 1.0 1.0	1.0 1.0 1.0 1.0
6"	5.0 2.5 2.0 1.5	7.0 3.5 2.5 2.0	4.0 2.0 1.5 1.0	2.0 1.0 1.0 1.0
8"	9.0 4.5 3.5 2.0	12.0 6.0 4.5 3.0	7.0 3.5 2.5 1.5	4.0 2.0 1.5 1.0
10"	14.0 7.0 5.5 3.5	20.0 10.0 7.5 5.0	11.0 5.5 4.0 3.0	6.0 3.0 2.0 1.5

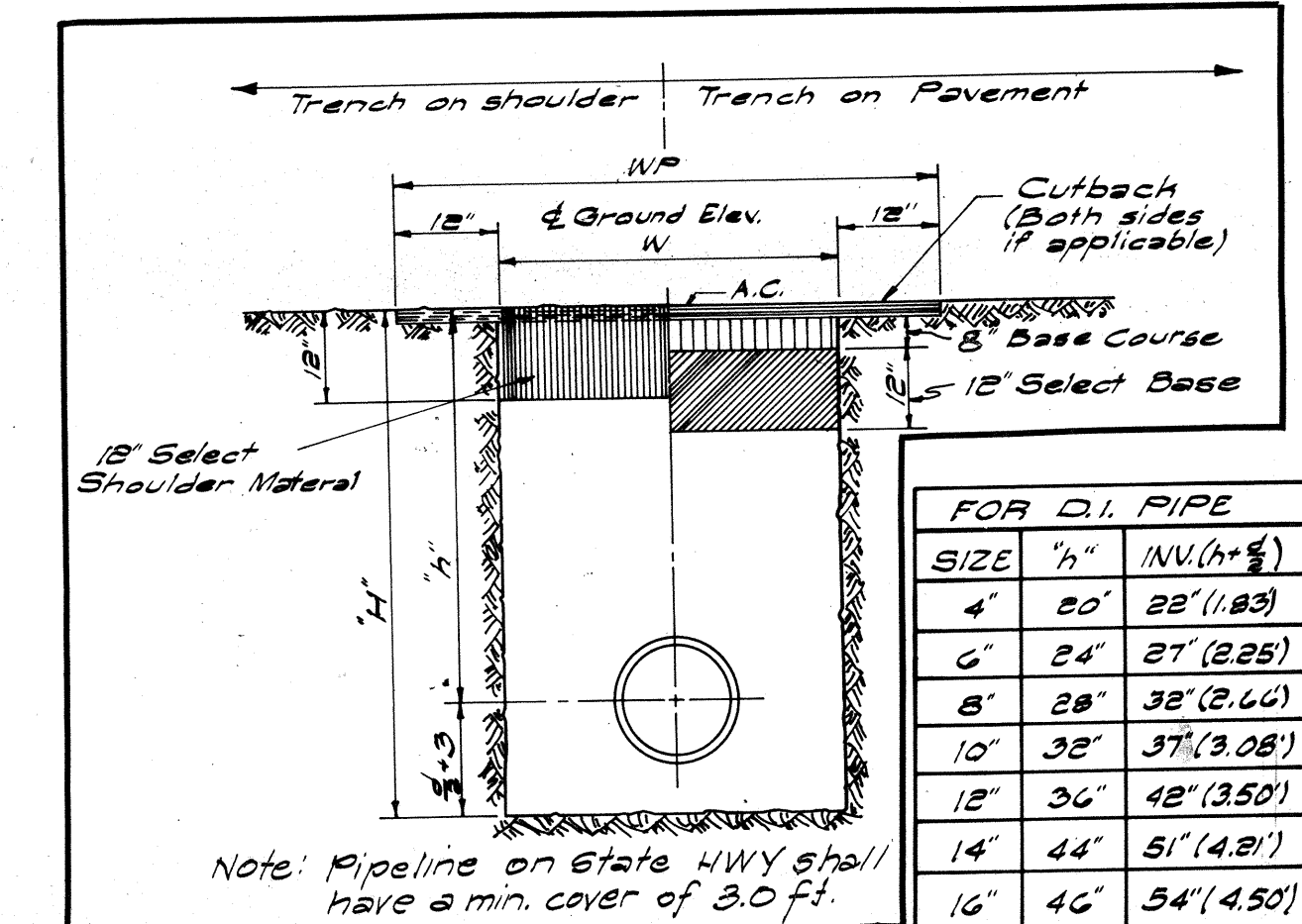
CONDITION OF SOIL
 a-Sand.....1500 Lbs. Per Sq. Ft.
 b-Sand & Gravel.....2000 " "
 c-Sand Gravel & Cemented Clay.....3000 " "
 d-Shale.....5000 " "



DET.-CULVERT UNDERPASS
 Not to Scale



TYPICAL TRENCH DETAILS
 Scale: 1/2" = 1'-0"



FOR D.I. PIPE

SIZE "H"	INCHES	INCHES
4"	20"	22" (1.83)
6"	24"	27" (2.25)
8"	28"	32" (2.66)
10"	32"	37" (3.08)
12"	36"	42" (3.50)
14"	40"	47" (3.92)
16"	44"	52" (4.33)

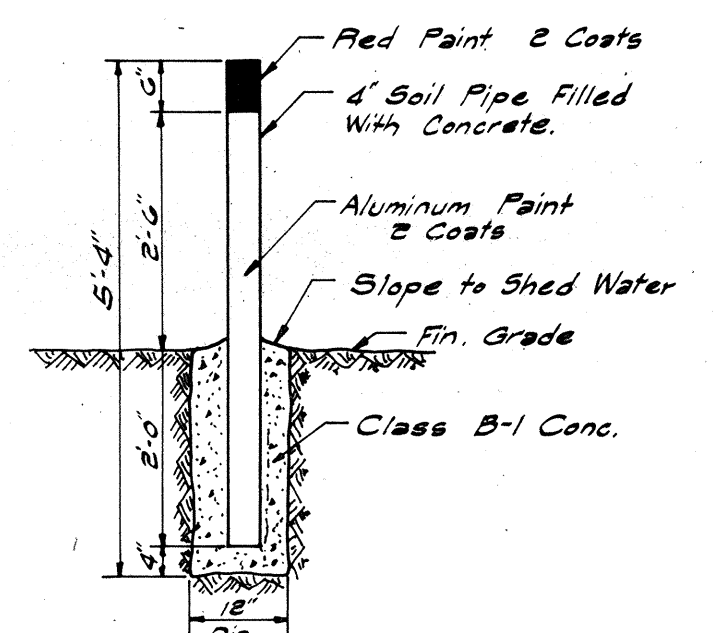
TRENCH DIMENSIONS FOR VARIOUS SIZE OF PIPE

Size of Pipe (d)	Width of Trench (W)	DEPTH (H) *
4"	24" (2.00)	25" (2.08)
6"	24" (2.00)	30" (2.51)
8"	26" (2.17)	35" (2.91)
10"	28" (2.33)	40" (3.33)
12"	30" (2.50)	45" (3.75)
14"	32" (2.67)	50" (4.17)
16"	34" (2.83)	55" (4.58)

* H = H * (1/2 + 1/3) * 1/4 based on D.I. Pipe Stds.

TYPICAL SECTION OF PIPELINE TRENCH

Not to Scale



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

DEPARTMENT OF WATER SUPPLY
 COUNTY OF HAWAII
 STANDARD DETAILS
 SHEET "B"
 SCALE: AS SHOWN DATE: DECEMBER, 1974
 APPROVED: *[Signature]*
 MANAGER, DEPT. OF WATER SUPPLY
 SHEET 13 OF 13 SHEETS

USE DETAILS WHERE APPLICABLE