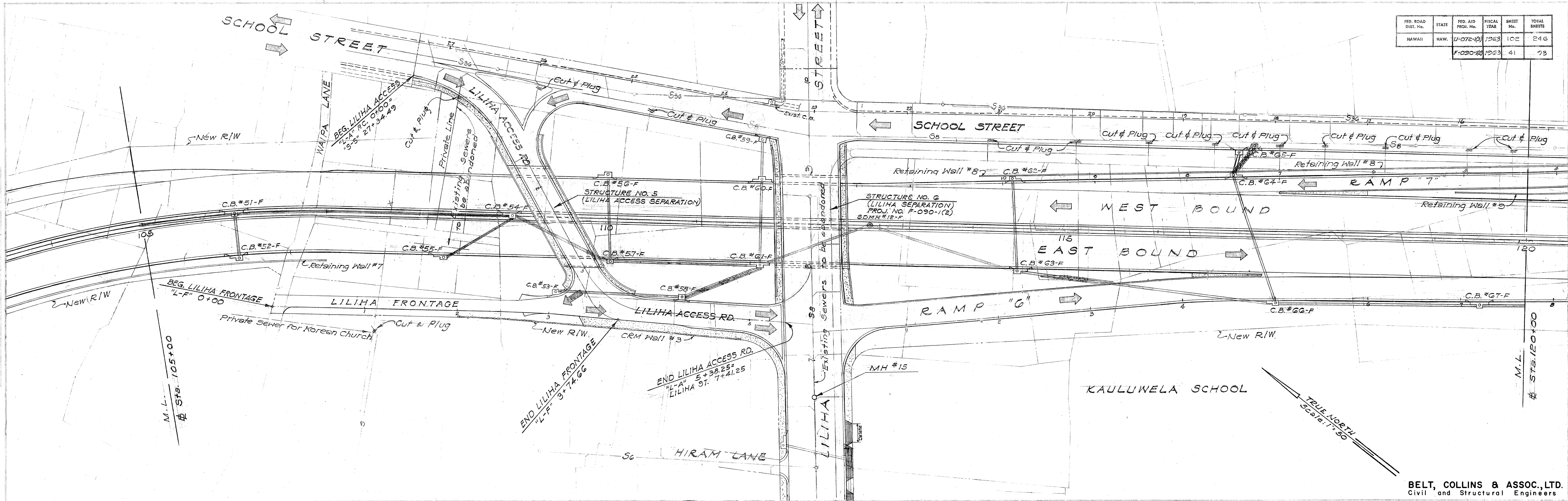


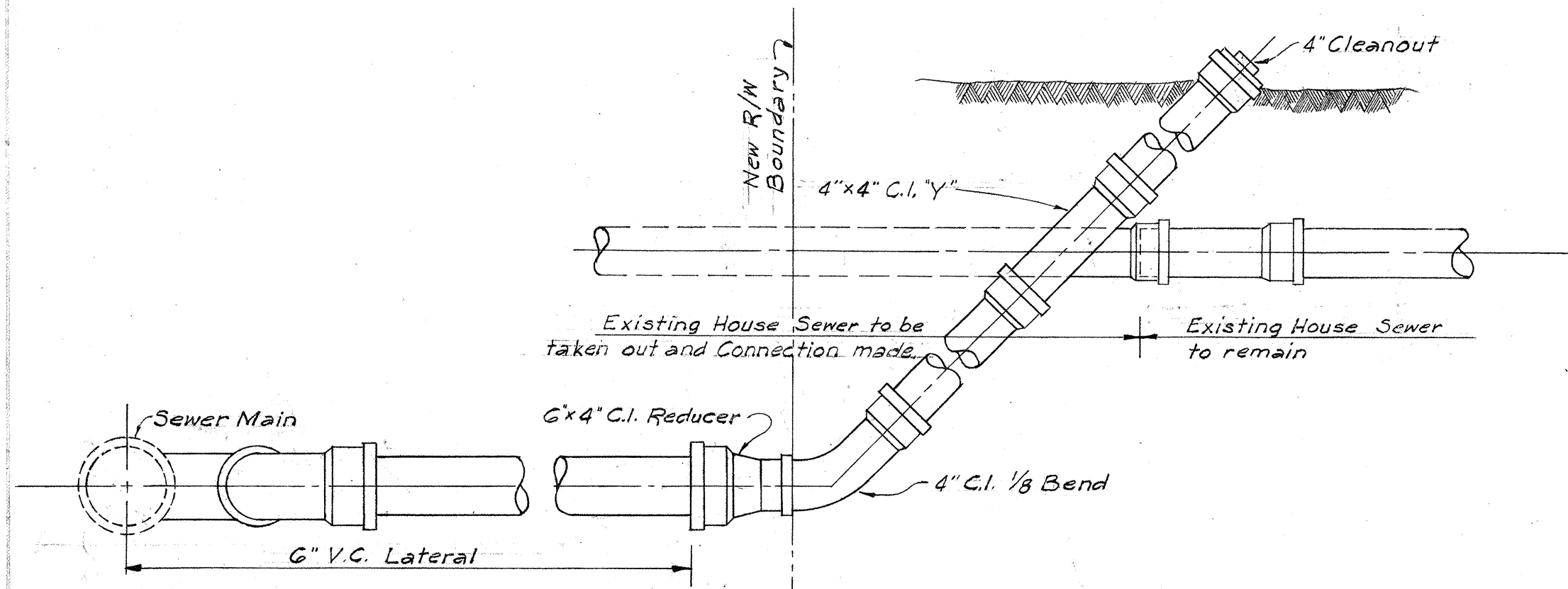
PLAN
 1. ALL SEWERS TO BE 4" DIA. UNLESS OTHERWISE NOTED.
 2. ALL SEWERS TO BE 12' DEEP UNLESS OTHERWISE NOTED.
 3. ALL SEWERS TO BE 12' DEEP UNLESS OTHERWISE NOTED.

PROFILE
 1. ALL SEWERS TO BE 4" DIA. UNLESS OTHERWISE NOTED.
 2. ALL SEWERS TO BE 12' DEEP UNLESS OTHERWISE NOTED.
 3. ALL SEWERS TO BE 12' DEEP UNLESS OTHERWISE NOTED.

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	U-072-103	1963	102	246
		F-090-110	1963	41	73



BELT, COLLINS & ASSOC., LTD.
 Civil and Structural Engineers



TYPICAL HOUSE SEWER CONNECTION DETAIL
 Scale: 3/4" = 1'-0"

APPROVED:
James Rose 3/28/63
 SEWER SYSTEM DIRECTOR
 DIVISION OF SEWERS

SEWER

SHEET No. 4 OF 9 SHEETS

17 0 9 0 1 0 2 0 0 . 4 1

U 0 7 2 1 0 3 0 0 . 1 0 2

124

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	F-090-1(2)	1963	42	93

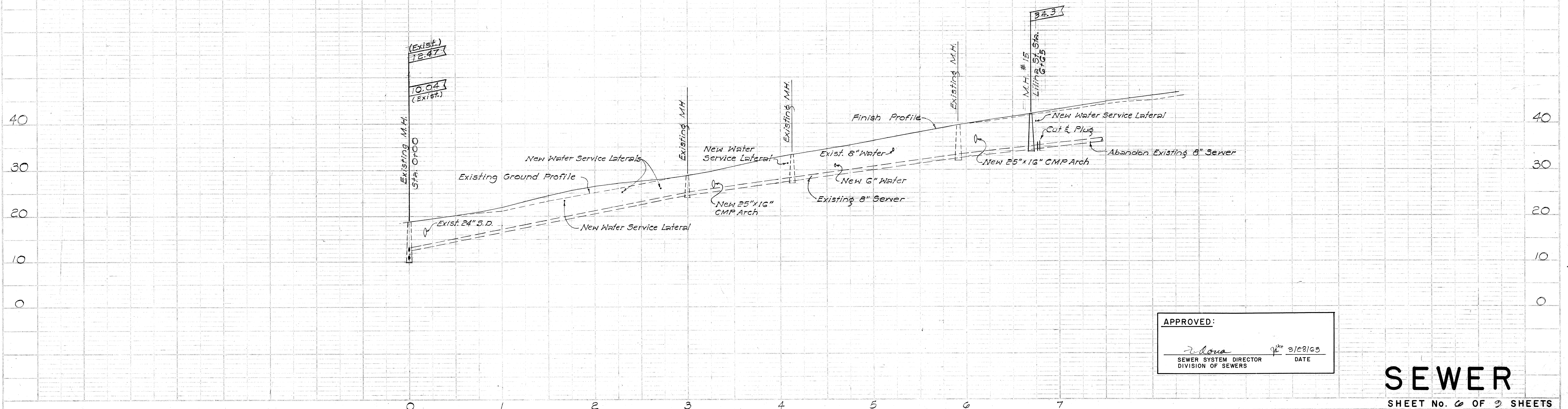
BEG. LILIHA STREET
PROJ. NO. F-090-1(2)
"L-S" STA. 0 + 48.09

END LILIHA STREET
PROJ. NO. F-090-1(2)
"L-S" STA. 23 + 06.14
SCHOOL STA. 23 + 06.14

NOTES:

1. All Existing Laterals on Liliha Street are to be extended to new R/W Boundary and reconnected to house Sewers.
2. For General Notes for Sewer System See Sheet No. 121.

BELT, COLLINS & ASSOC., LTD.
Civil and Structural Engineers



APPROVED:
[Signature]
SEWER SYSTEM DIRECTOR
DIVISION OF SEWERS
DATE 3/10/63

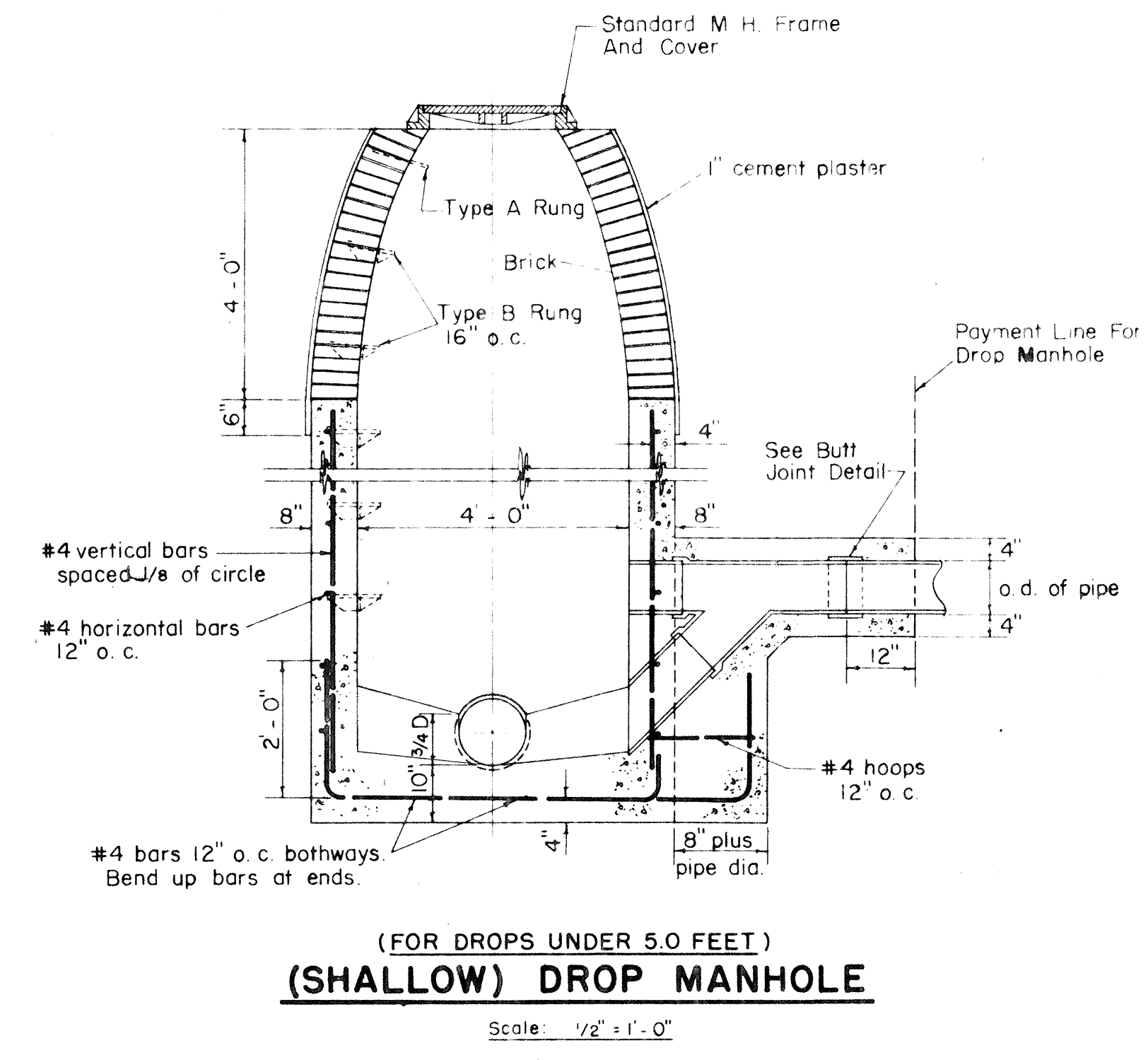
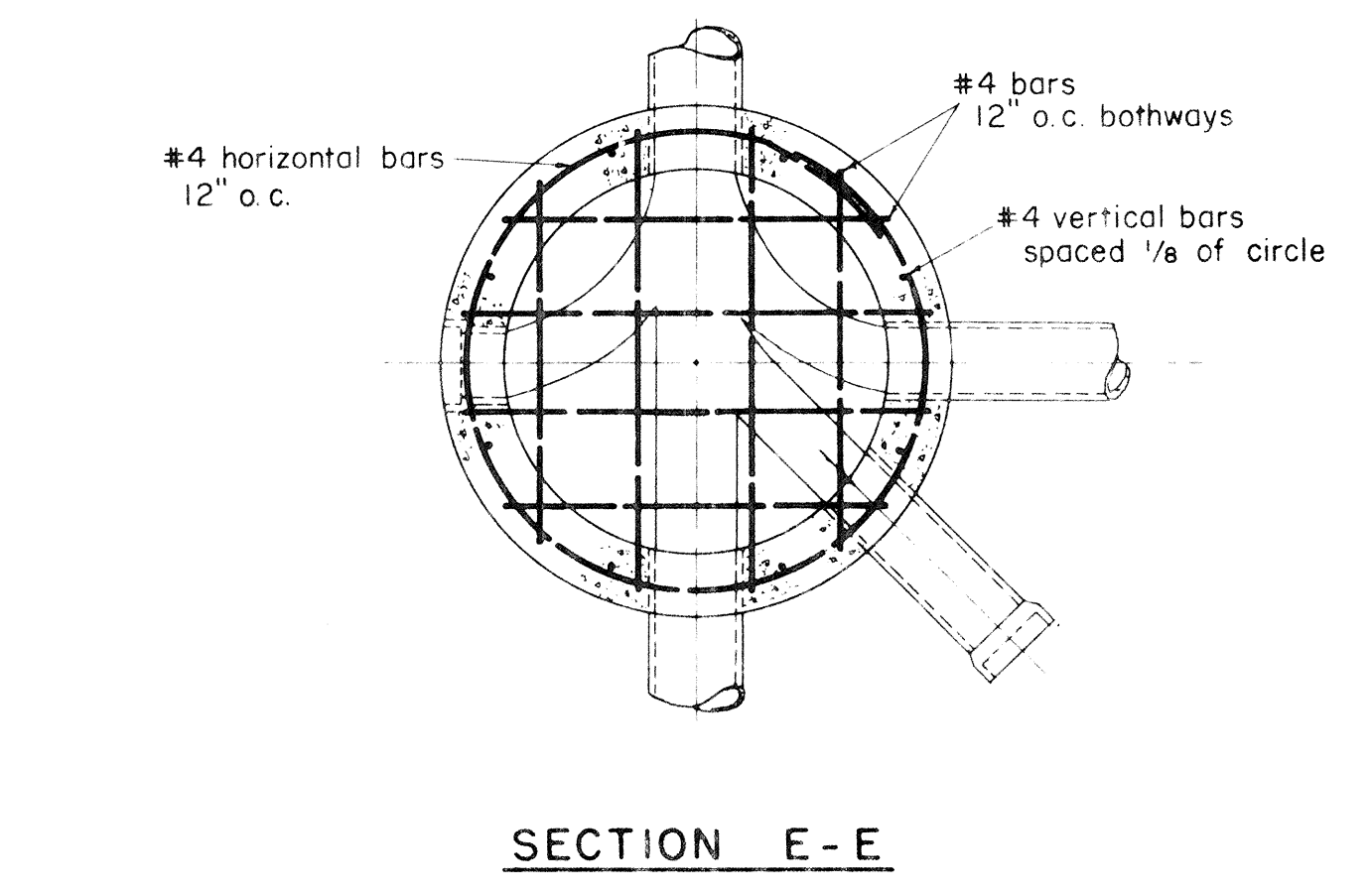
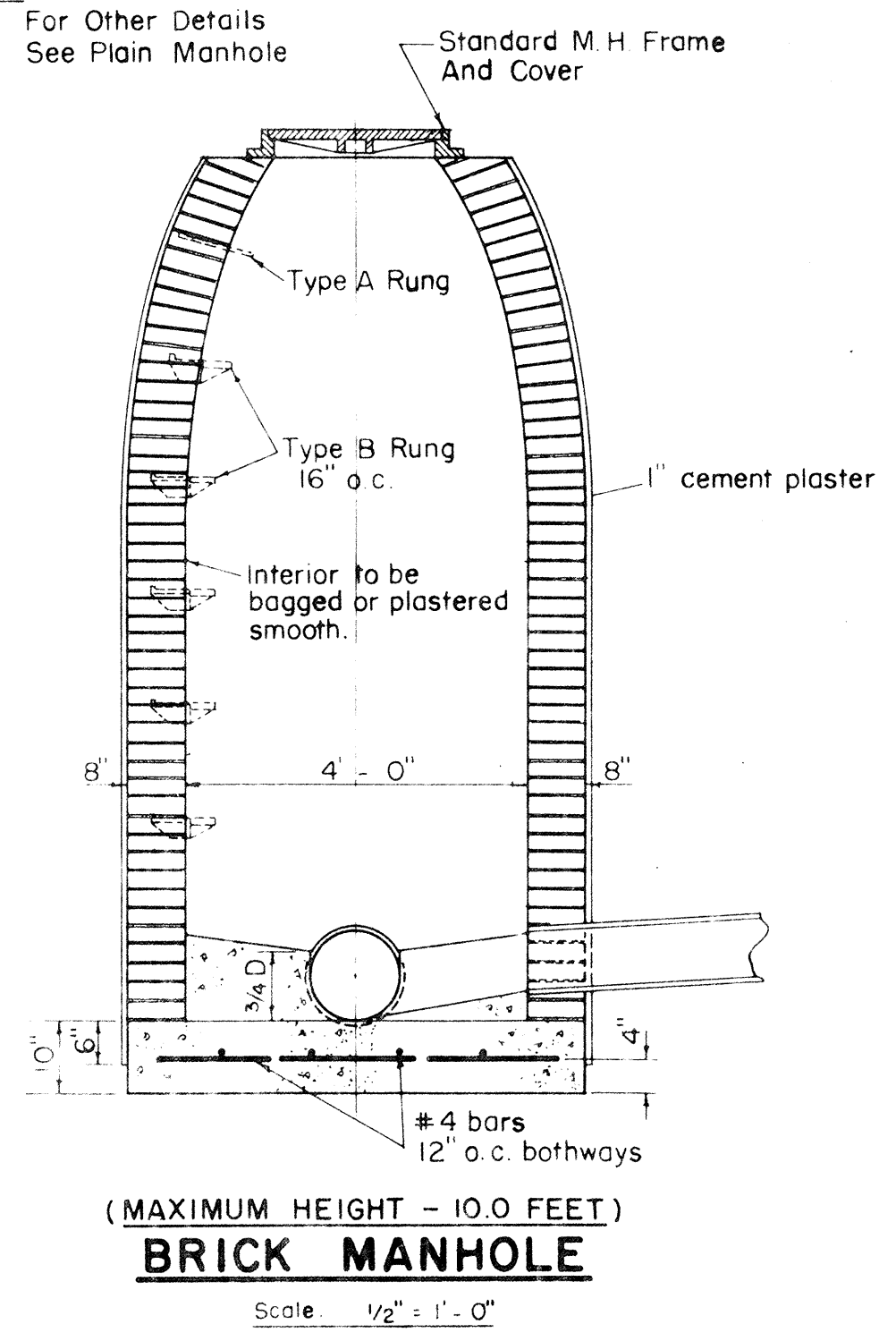
SEWER

SHEET No. 42 OF 93 SHEETS

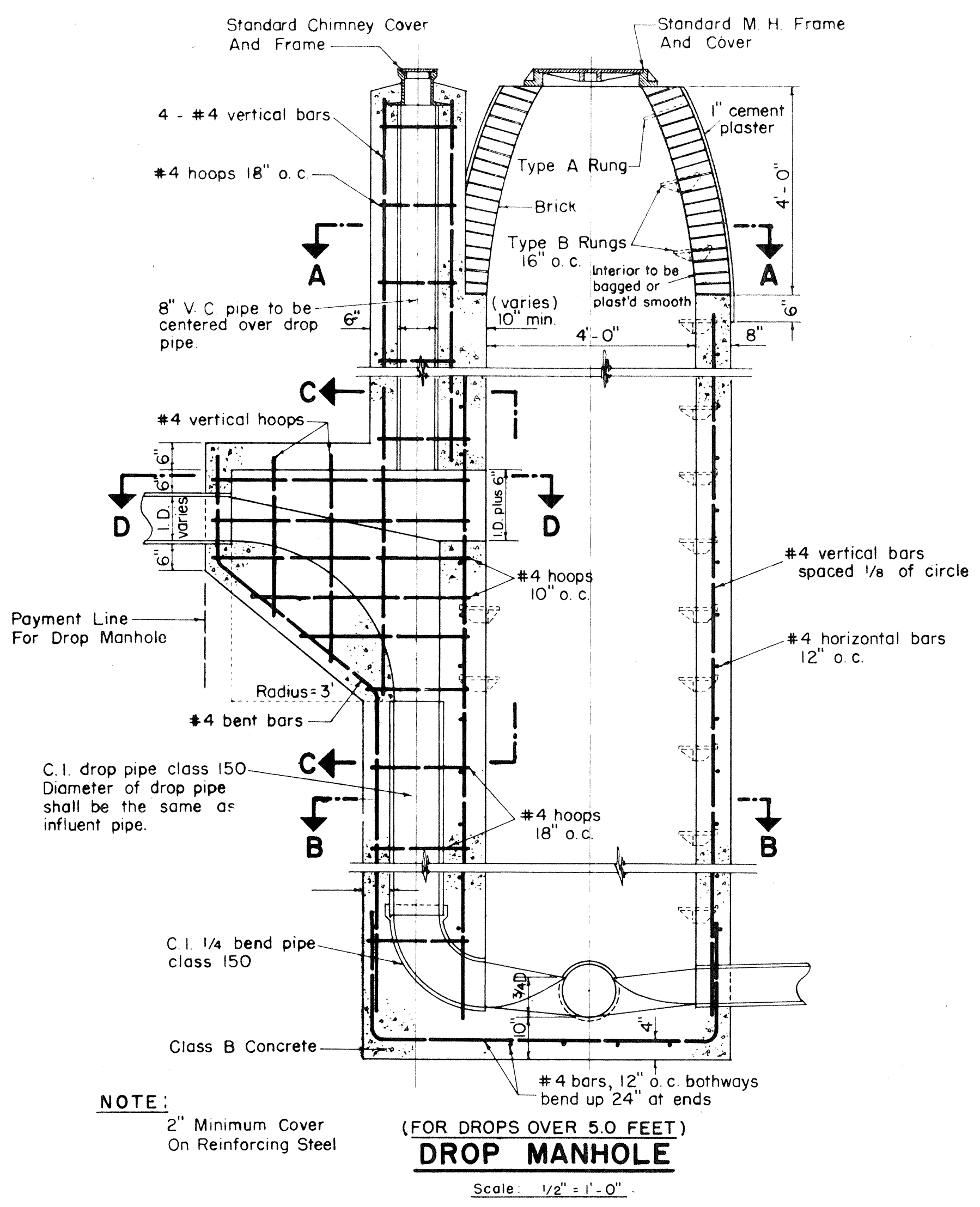
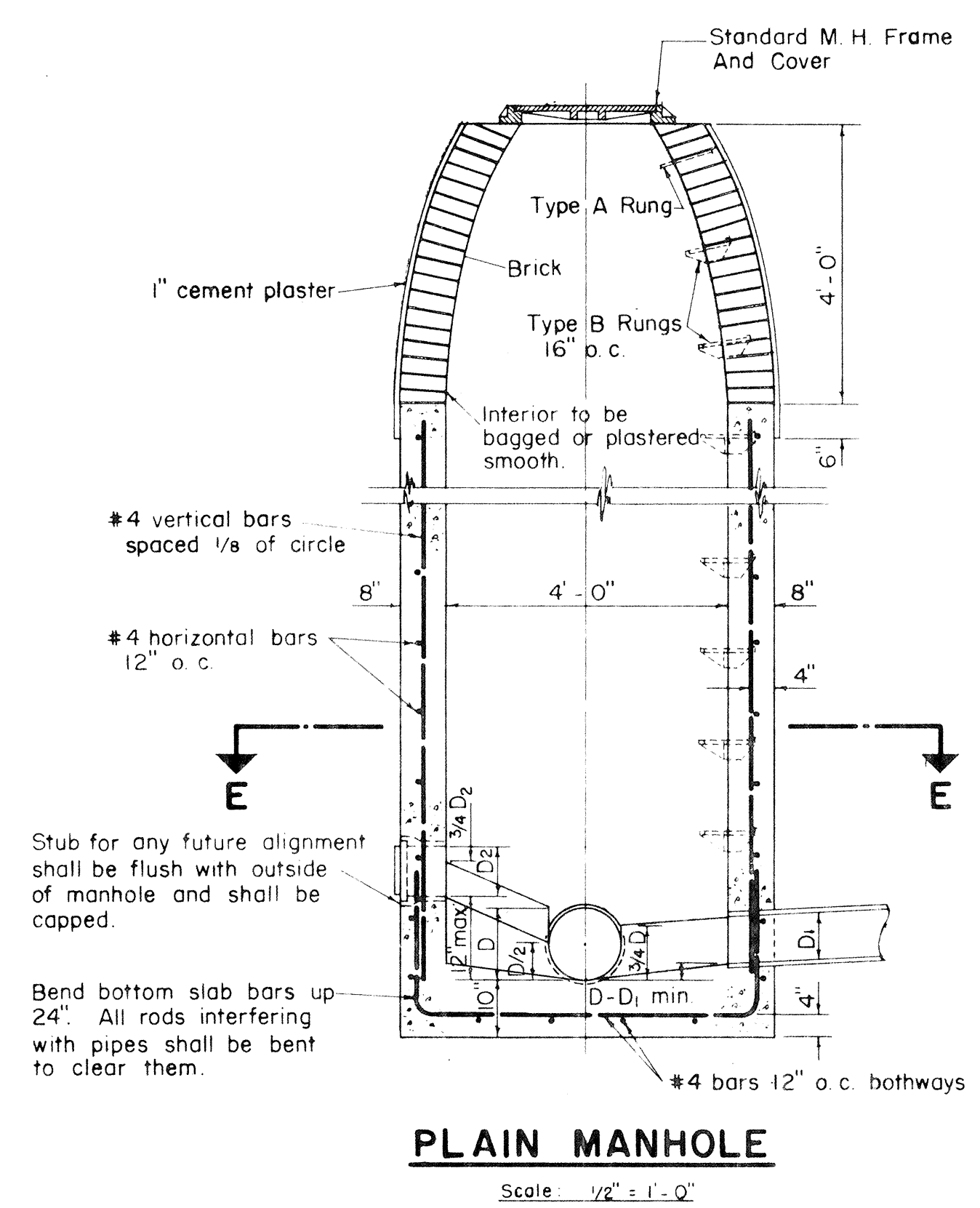
17 09 01 02 00 . 42

FED. ROAD DIST. NO.	STATE	SEC. DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-072-1(B)	1963	104	246
		U-098-1(4)	1963	45	88
		F-070-1(2)	1963	43	75

NOTE:
For Other Details
See Plain Manhole



- NOTE:
- Manhole rungs shall not be aligned above any flow line.
 - No rungs shall be installed in manholes less than 3' high.
 - When not otherwise noted, manhole stubs shall be sloped as follows:
- | Pipe Size | Rise Per Foot |
|-----------|---------------|
| 6" | 1/8" |
| 8" | 3/32" |
| 10" | 1/16" |
| 12" | 1/16" |
- All reinforcing rods interfering with pipes shall be bent to clear them.
 - Bar laps to be 40 diameters in length.
 - Data for special manholes not shown shall be similar to that for plain manholes.
 - Size of drop pipe in all Drop Manholes shall be same as influent line.
 - Manhole wall to be of reinforced concrete to height 1' above normal ground water table.



NOTE:
2" Minimum Cover
On Reinforcing Steel

(FOR DROPS OVER 5.0 FEET)
DROP MANHOLE
Scale: 1/2" = 1'-0"

SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION			
DEPARTMENT OF PUBLIC WORKS CITY AND COUNTY OF HONOLULU DIVISION OF SEWERS			
REVISED STANDARD DETAILS (SUPERSEDES STANDARD DATED 11-1-54)			
ENGINEER <i>A. T. Tamm</i>	DATE October 4, 1957	CHECKED BY <i>H. K. K.</i>	TRACER BY <i>H. K. K.</i>
DRAFTSMAN <i>H. K. K.</i>	SCALE 1/2" = 1'-0"	APPROVED <i>H. K. K.</i>	APPROVED <i>H. K. K.</i>
CHIEF ENGINEER		DIVISION ENGINEER	
W. B.	PROFILE	C. B.	
CR. SEC.	F. B.	S. B.	
W. H. BY:	F. W. BY:	S. BY:	



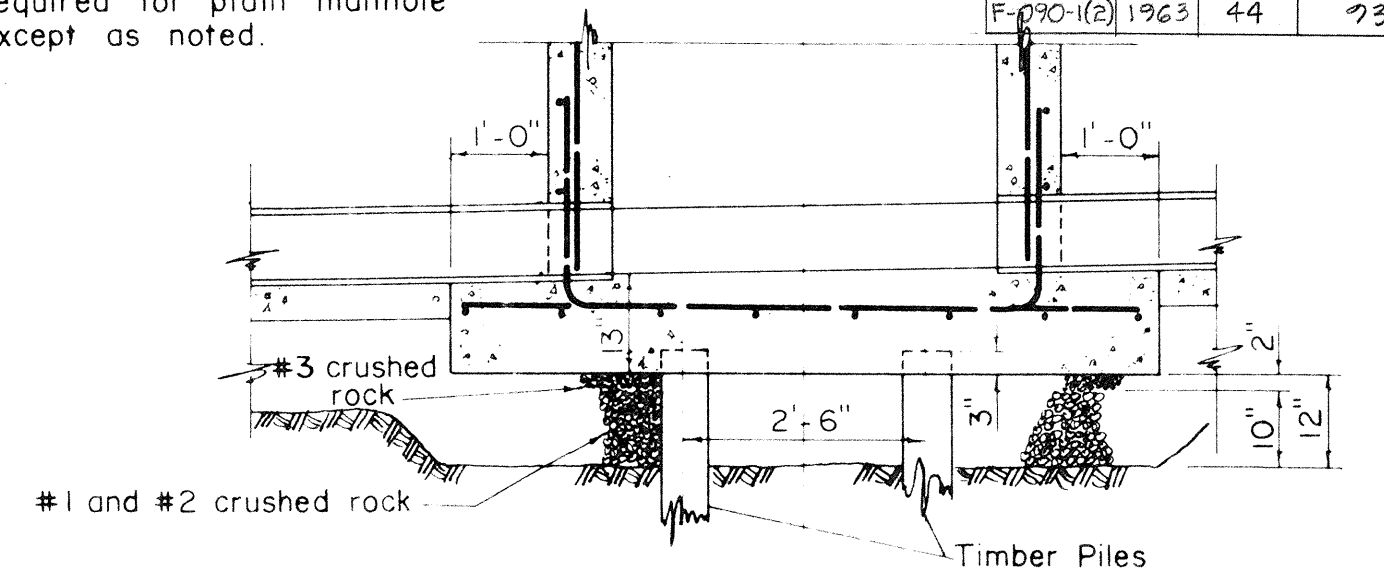
Scale: 1 1/2" = 1' - 0"



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



Scale $\frac{1}{2}" = 1' - 0"$



SECTION F - F



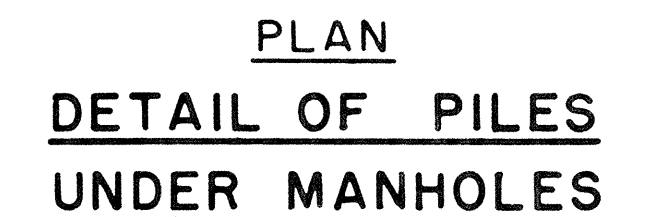
DROP MANHOLE
CHIMNEY CASTINGS

Scale: $1\frac{1}{2}" = 1' - 0"$



TYPE A MANHOLE RUNGS
WROUGHT IRON

Scale: $1\frac{1}{2}" = 1' - 0"$



Scale: $1/2'' = 1' = 0''$



BOTTOM VIEW OF COVER

Scale $1\frac{1}{2}" = 1' - 0"$



Scale: $1\frac{1}{2}" = 1' - 0"$



DETAILS OF STANDARD MANHOLE CASTINGS

Scale: $1\frac{1}{2}" = 1" - 0"$



TYPE B MANHOLE RUNGS
(CAST IRON)

Scale: 3" = 1' - 0"



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

NOTE:

1. When backfilling around Precast Manhole, material shall be deposited in such a manner that the difference in elevation on one side of the manhole shall not exceed the elevation on the other side by more than 5 feet.
2. Pipe Sections may be made in heights other than 16 inches if desired.
3. Size of drop pipe shall be same as influent pipe.

PED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SMERT No.	TOTAL SMERTS
HAWAII	HAW.	U-072-1(3)	1963	105	246
		U-098-1(4)	1963	46	88
		F-090-1(2)	1963	44	73

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS

REVISED

STANDARD DETAILS

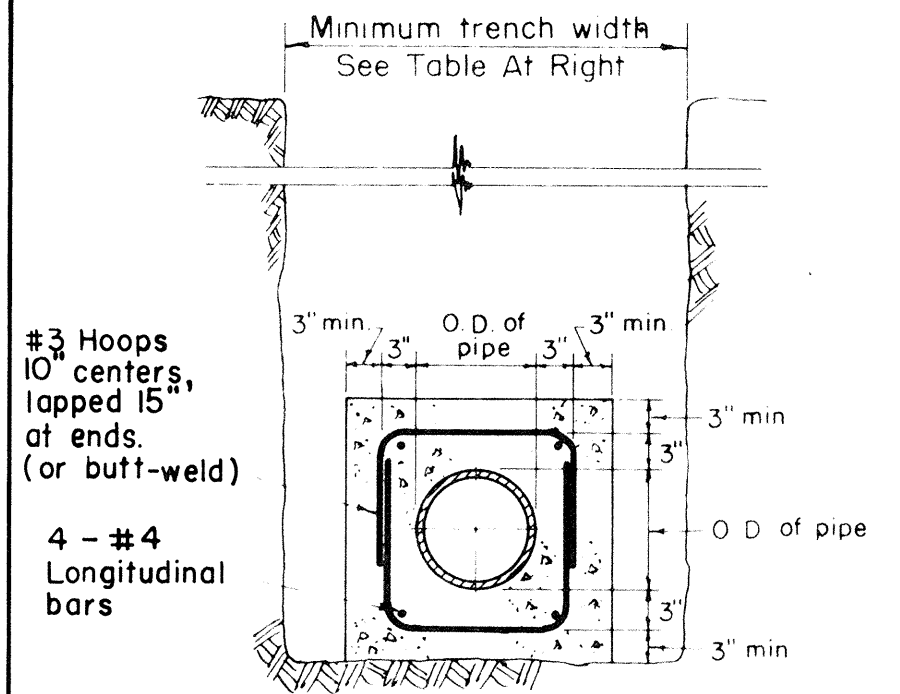
(SUPERSEDES STANDARD DATED II-1-54)

ENGINEER *A. King* DATE *October 4, 1957*
DRAFTSMAN *J. M. B.* CHECKED BY *E. E. Ewing*
SCALE *AS SHOWN* TRACER *tm*
APPROVED: *[Signature]* APPROVED: *[Signature]*
CHIEF ENGINEER DIVISION ENGINEER

W. S. _____	PROFILE _____	C. S. _____
CR. SEC. _____	P. S. _____	C. S. _____
W. M. BY: _____	P. W. BY: _____	S. BY: _____

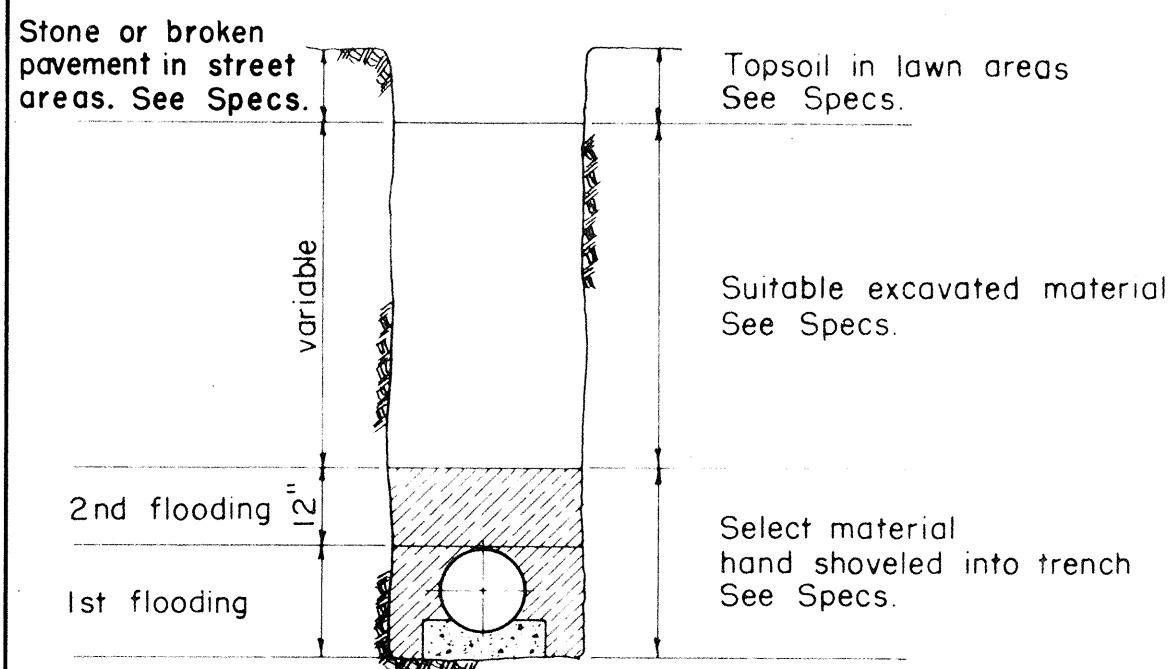
SHEET NO. 8 OF 9 SHEETS

REG. ROAD DIST. NO.	STATE	REG. NO.	YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	U-072-1(3)	1962	106	246
		U-098-1(4)	1963	47	88
		P-090-1(2)	1963	45	73



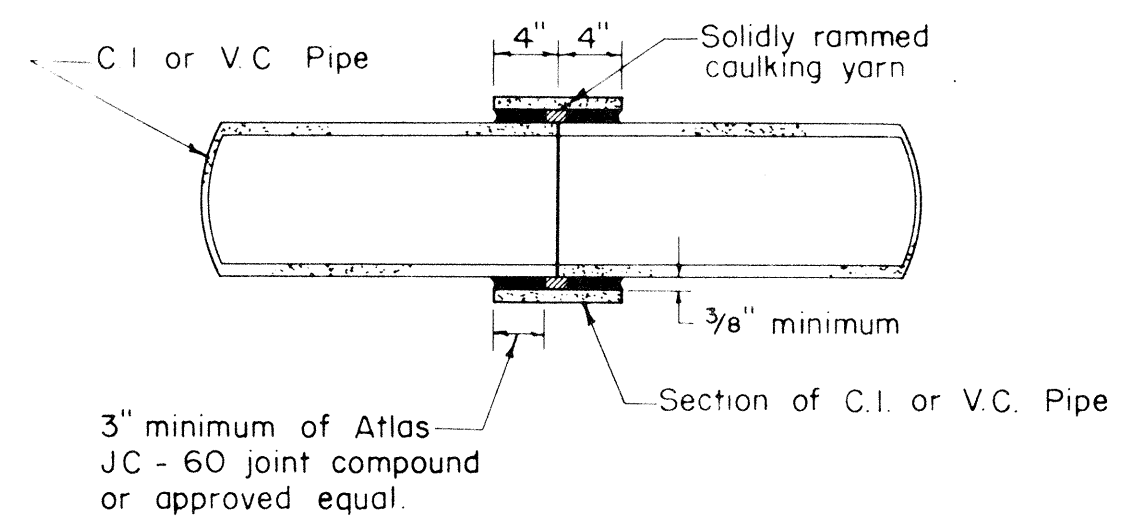
DETAIL OF CONCRETE JACKET

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



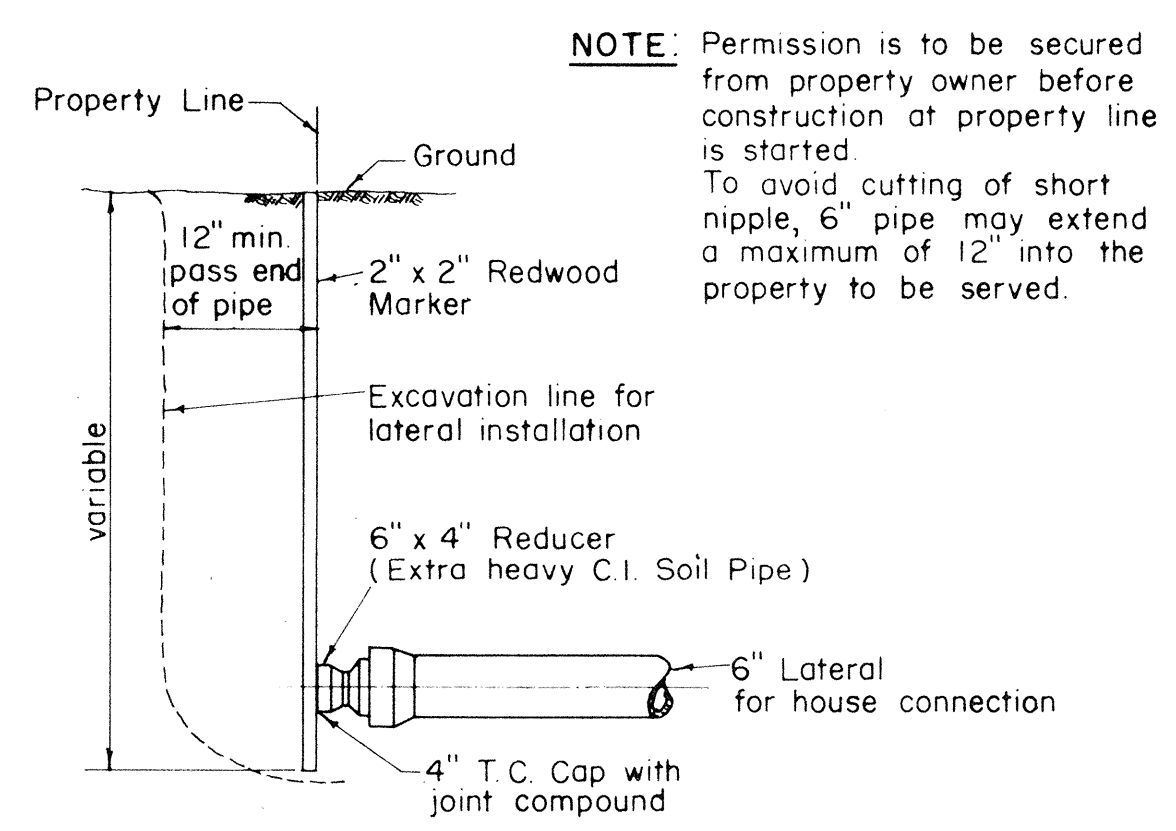
METHOD OF BACKFILL

Not To Scale



BUTT JOINT DETAIL

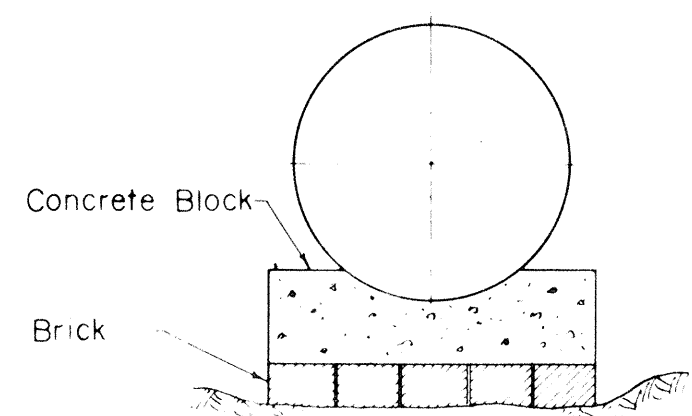
Scale: 1" = 1'-0"



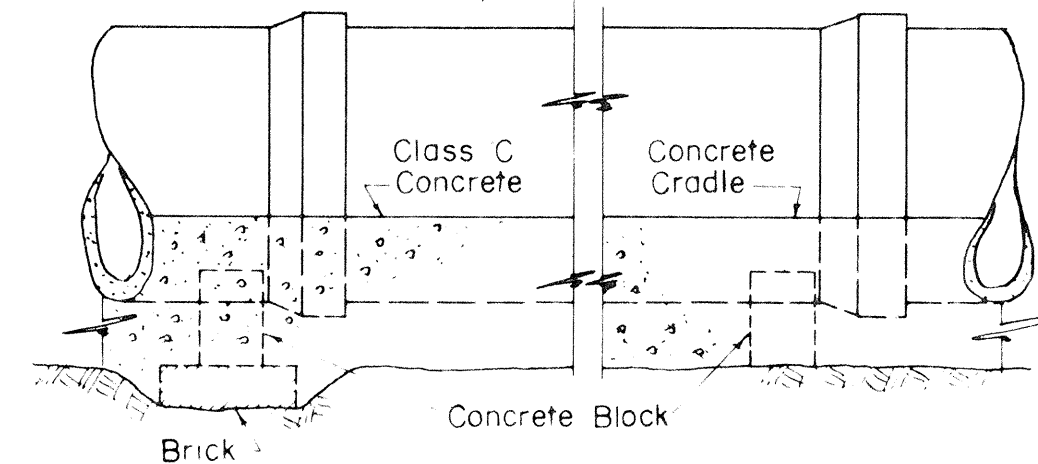
DETAIL AT PROPERTYLINE

CONSTRUCTION OF LATERALS

Not To Scale



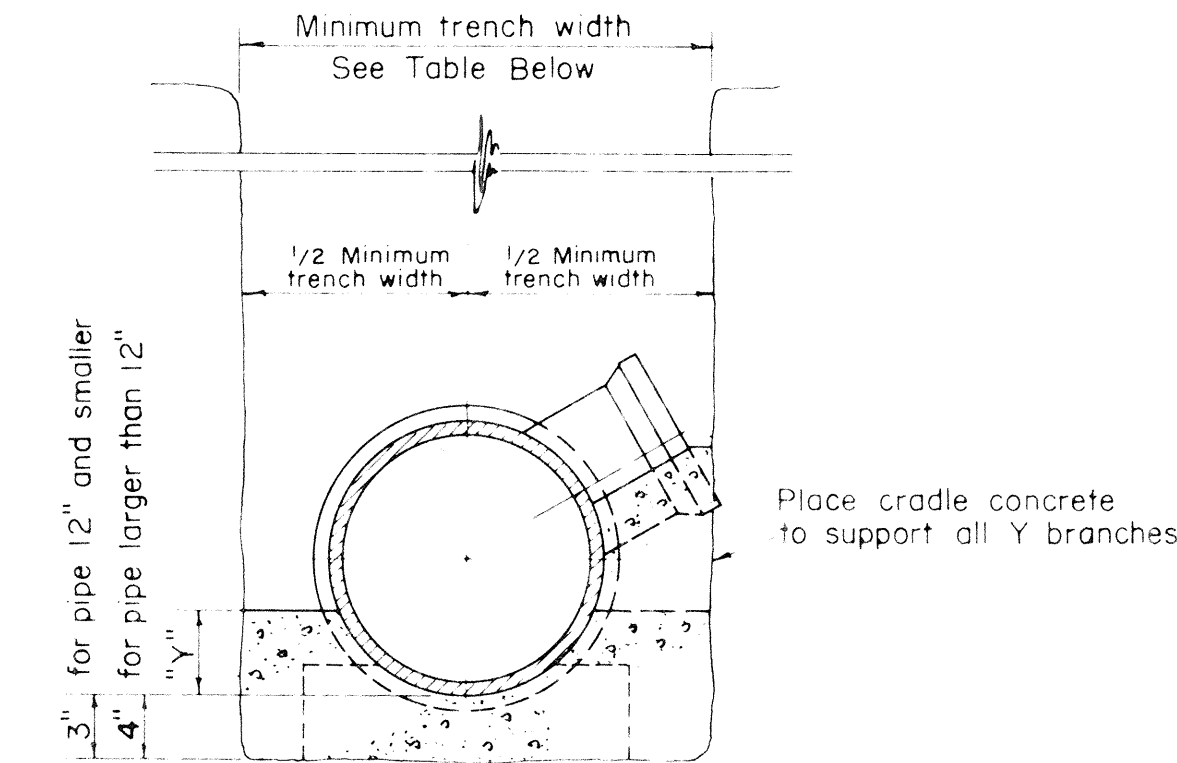
METHOD OF USING BRICKS UNDER CONCRETE BLOCKS



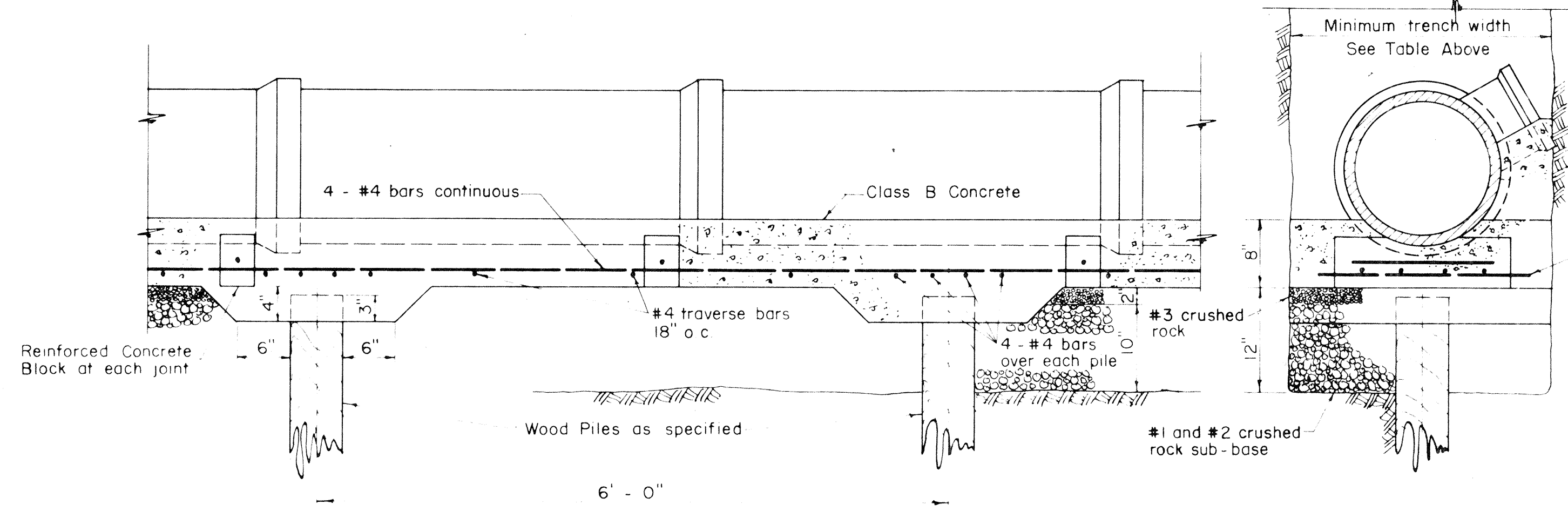
ELEVATION SHOWING METHOD OF LAYING PIPE

Not To Scale

Contractor shall set Concrete Blocks on undisturbed ground. Where ground is too low, the contractor shall not heap up dirt under the Concrete Block but use Concrete Bricks to take up the deficiency, scraping away beneath Concrete Block to give sufficient room for Brick.



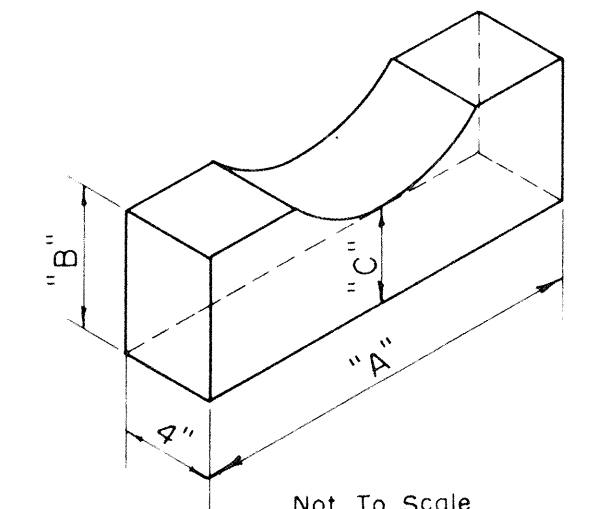
TRENCH WIDTHS		DIMENSIONS OF CONC. CRADLE		
Pipe Size	Min. Width	Pipe Size	"Y"	Width
6"	24"	6"	3"	24"
8"	24"	8"	3"	24"
10"	24"	10"	3"	24"
12"	30"	12"	3"	30"
15"	30"	15"	4"	30"
18"	36"	18"	5"	36"
21"	36"	21"	5"	36"
24"	45"	24"	6"	45"
27"	45"	27"	7"	45"
30"	50"	30"	7"	50"



DETAIL OF REINFORCED CONCRETE CRADLE ON WOOD PILES (FOR 6, 8, 10, & 12 IN. V.C. PIPE)

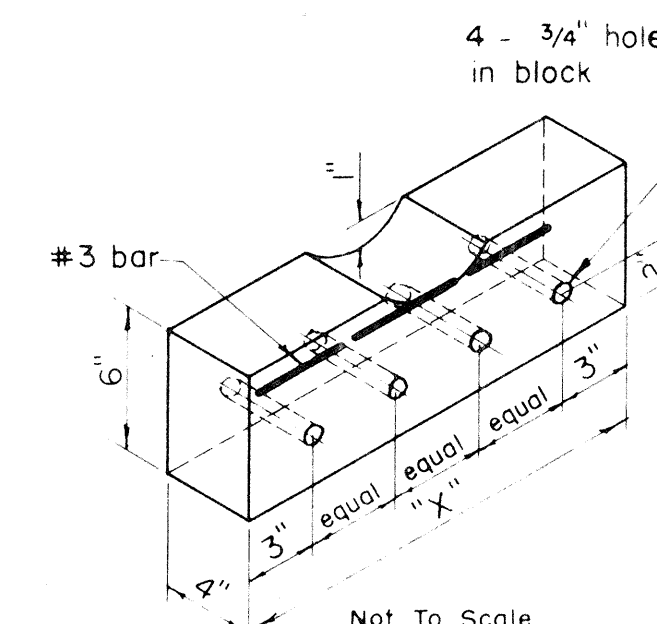
DETAIL OF REINFORCED CONCRETE CRADLE WITHOUT PILES SIMILAR EXCEPT FOR WOOD PILES AND PILE CAPS

Scale: 1" = 1'-0"



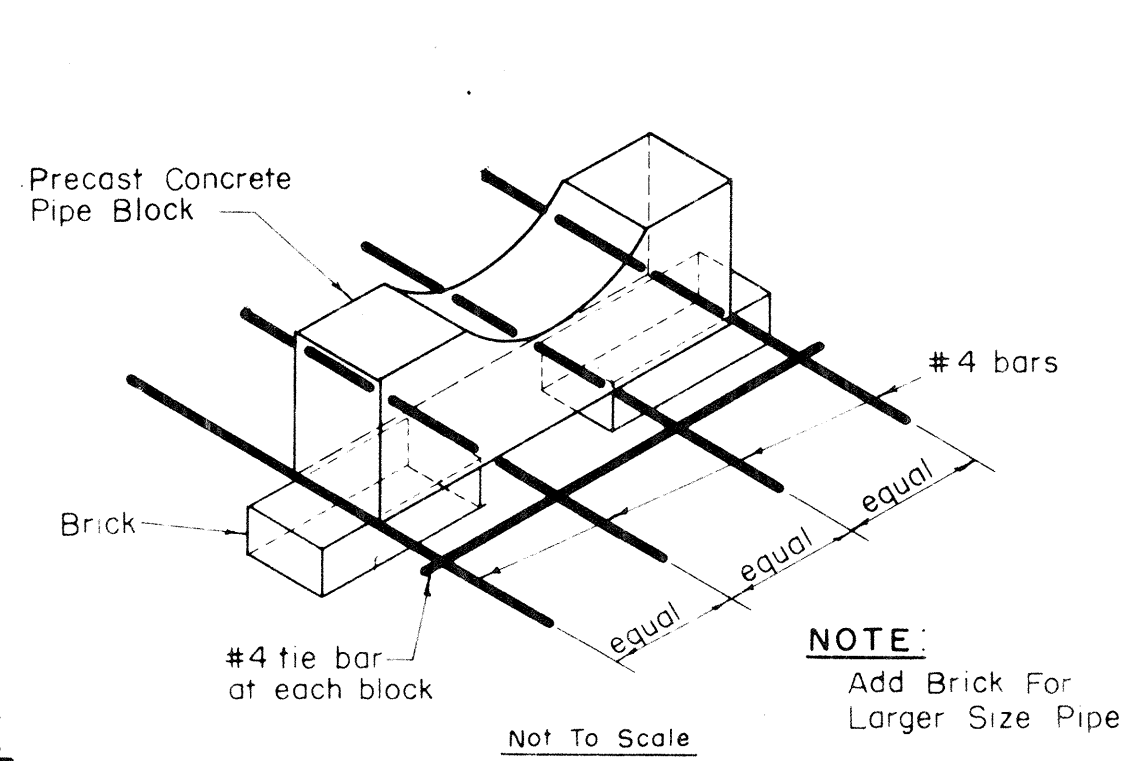
DETAIL OF PRECAST CONCRETE PIPE BLOCK

CONCRETE BLOCK DIMENSIONS			
Pipe Size	"A"	"B"	"C"
6"	1'-2"	6"	3"
8"	1'-5"	6"	3"
10"	1'-7"	6"	3"
12"	1'-7"	6"	3"
15"	1'-8"	6"	4"
18"	1'-9"	6"	4"
21"	1'-10"	6"	4"
24"	1'-11"	6"	4"
27"	2'-0"	6"	4"
30"	2'-3"	6"	4"



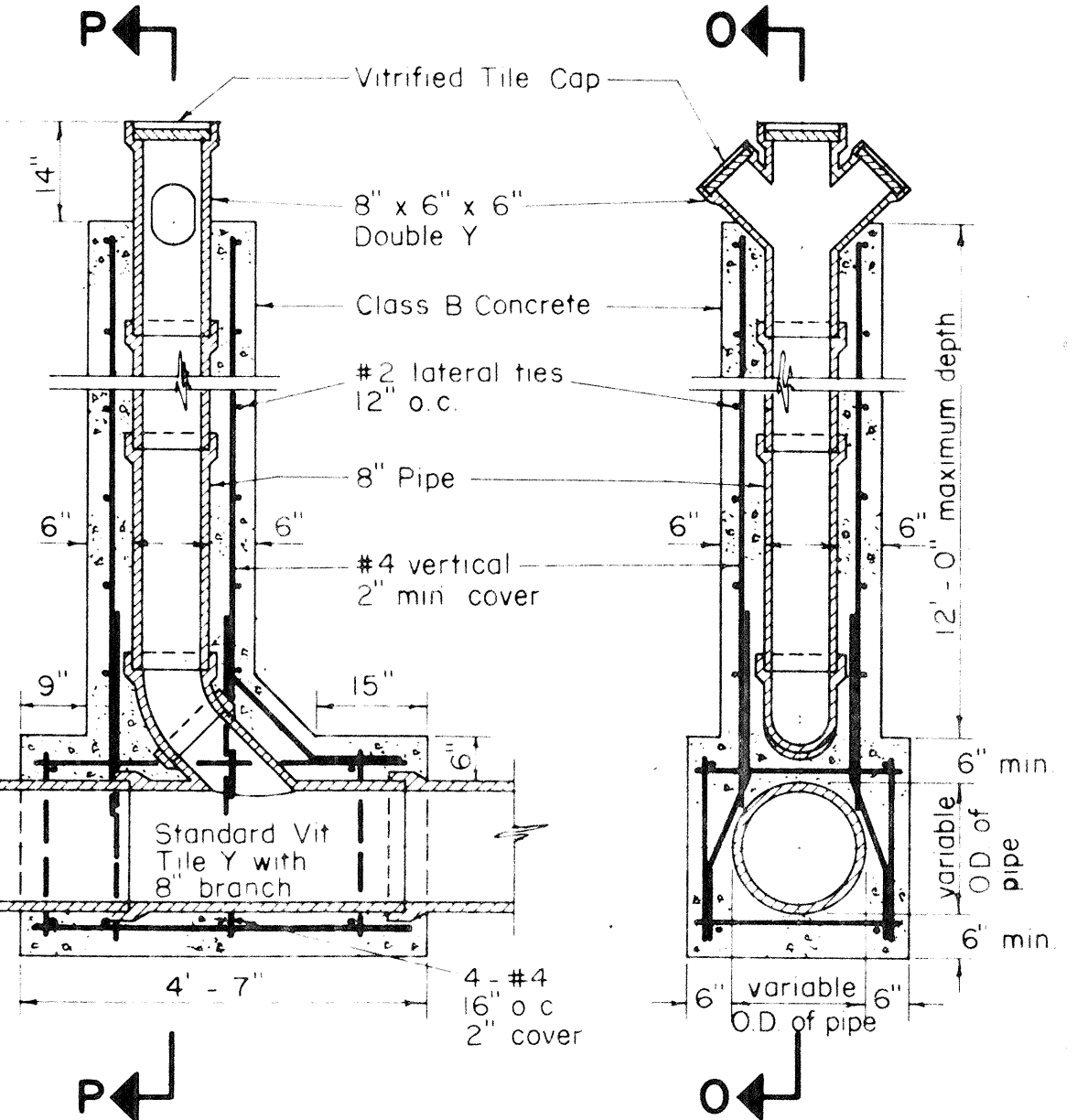
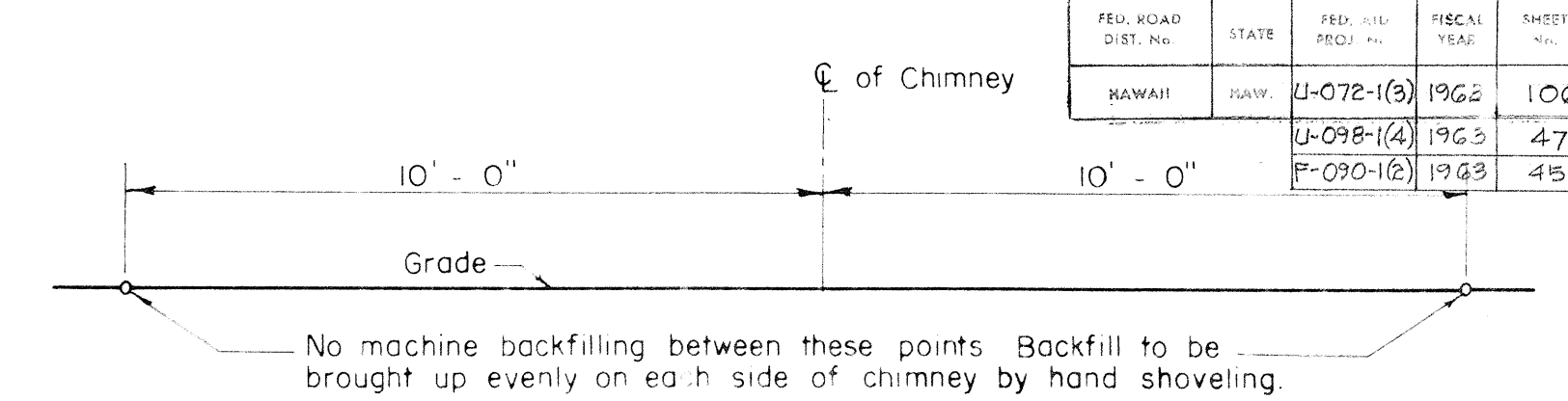
DETAIL OF CONC. PIPE BLOCK FOR REINF. CRADLE

DIM. OF REINF. CONCRETE BLOCK	
Pipe Size	"X"
6"	1'-6"
8"	1'-6"
10"	1'-8"
12"	1'-8"
15"	1'-10"
18"	1'-10"
21"	1'-10"
24"	2'-0"
27"	2'-0"
30"	2'-0"



ALTERNATE DETAIL OF CONC. PIPE BLOCK FOR REINF. CRADLE

NOTE: Add Brick For Larger Size Pipe



DETAILS OF CHIMNEY

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

NOTE: All Reinforcing Rods #4 Except Lateral Ties. Laps - 40 Diameters

Payment quantities for trench excavation, crushed rock fill, crushed rock cradle, and crushed rock sub-base shall be computed using minimum trench widths as shown in the table of "Trench Widths". No payment shall be made for excess quantities resulting from trench widths greater than the minimum shown.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION			
DEPARTMENT OF PUBLIC WORKS CITY AND COUNTY OF HONOLULU DIVISION OF SEWERS			
REVISED STANDARD DETAILS (SUPERSEDES STANDARD DATED 11-1-54)			
ENGINEER: <i>[Signature]</i>	DATE: October 4, 1957	CHECKED BY: <i>[Signature]</i>	TRACER: <i>[Signature]</i>
APPROVED: <i>[Signature]</i>	APPROVED: <i>[Signature]</i>	CHIEF ENGINEER: <i>[Signature]</i>	DIVISION ENGINEER: <i>[Signature]</i>
W. S. CR. SEC.	P. S. F. W. BY:	C. S. S. BY:	S. BY: