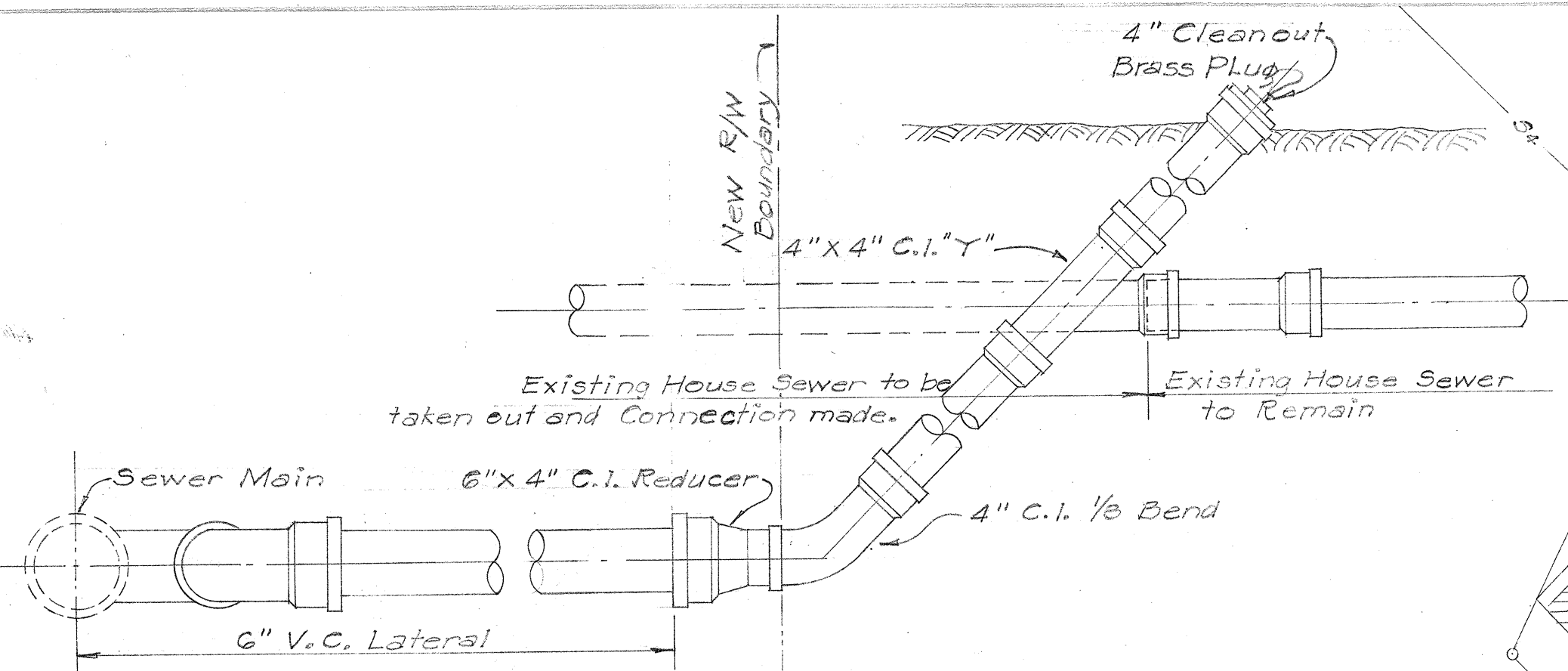


FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	US-5-07203	1960	38	79
		BU-078-18	1960	60	118
		BU-365-110	1960	58	115

NOTE:
All Sewers shown on this sheet
are owned by the U.S. Army

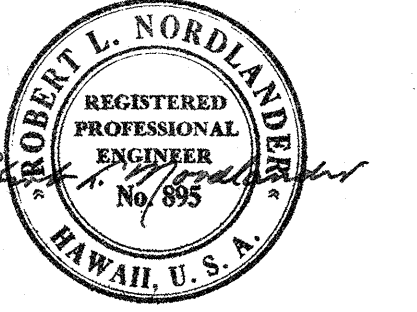
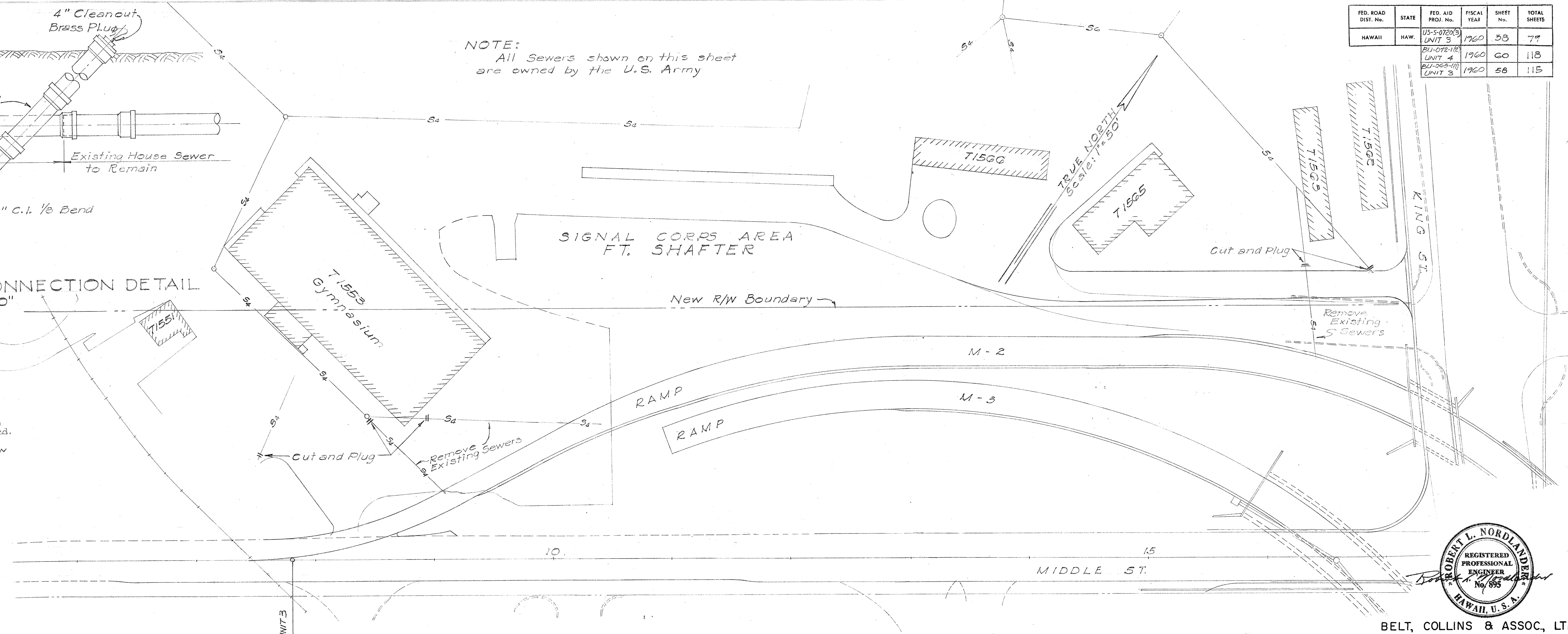


TYPICAL HOUSE SEWER CONNECTION DETAIL
SCALE: 3/4" = 1'-0"

GENERAL NOTES

- Existing Manhole frames and covers which are not at required elevations shall be adjusted to finish grades.
- All existing sewer laterals which are to be abandoned shall be cut and plugged with concrete.
- The Contractor shall verify the exact location as required. If other existing laterals are exposed during construction, the same shall be cut and plugged or extended and reconnected as required.
- All existing laterals extended shall be reconnected as shown on Typical House Sewer Connection Detail if services are required.
- All services connected to existing sewer mains which are to be abandoned or removed shall be reconnected to new sewer Mains if services are required.
- Concrete Blocks and cradles shall be laid for all sewer mains and laterals.
- Locations of laterals and Ys on new sewer mains shall be as designated by the Engineer.
- Salvaged 21 inch diameter manhole covers may be used only for manholes at end of line and only if the depth of manholes are 5 feet or less. 24 inch diameter covers are standard so all salvaged 24 inch covers are to be used before 21 inch covers are used.

REFERENCE DRAWING
STANDARD SEWER DETAIL
EXISTING UTILITIES



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

PLAN	DATE	BY	DATE	BY
DESIGNED				
CHECKED				
NOTED				
NO.				

PROFILE	DATE	BY	DATE	BY
DESIGNED				
CHECKED				
NOTED				
NO.				

APPROVED:
SEWER SYSTEM SUPT. DATE

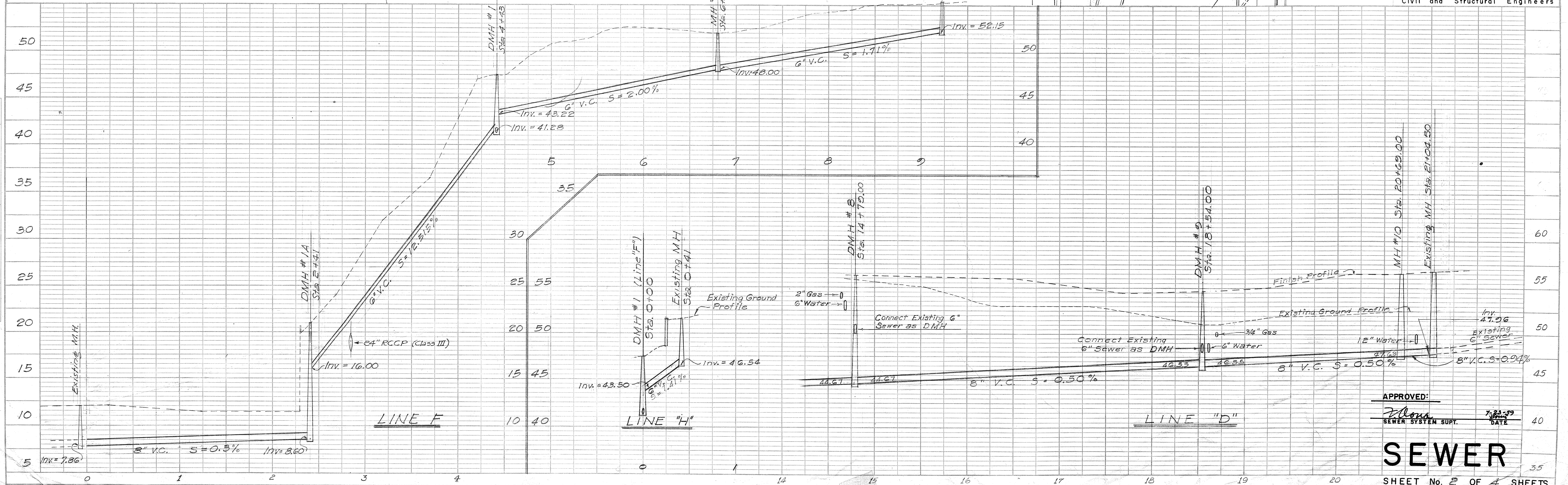
SEWER

SHEET No. 1 OF 4 SHEETS

\$526.38 \$174.60 \$161.58

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

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	GRADES CHECKED		
	B, M'S NOTED		
	STRUCTURE NOTATIONS CHKD		

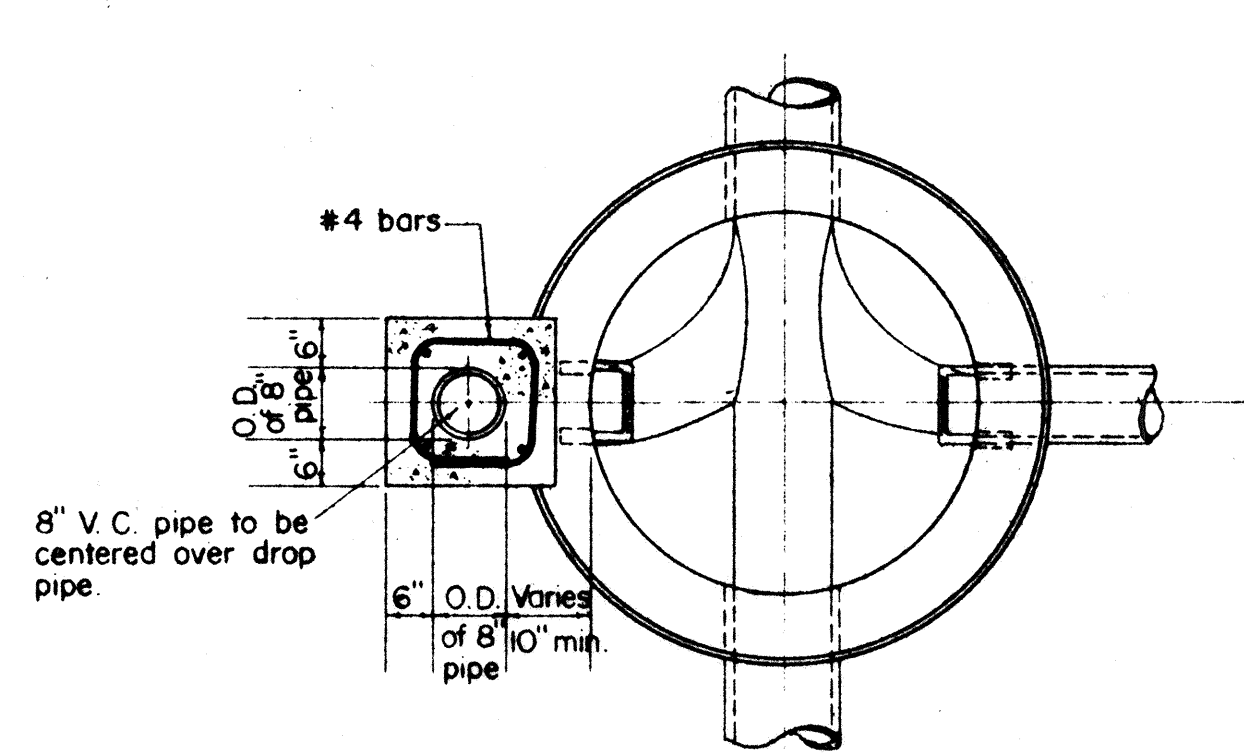


SHEET No. 2 OF 4 SHEETS

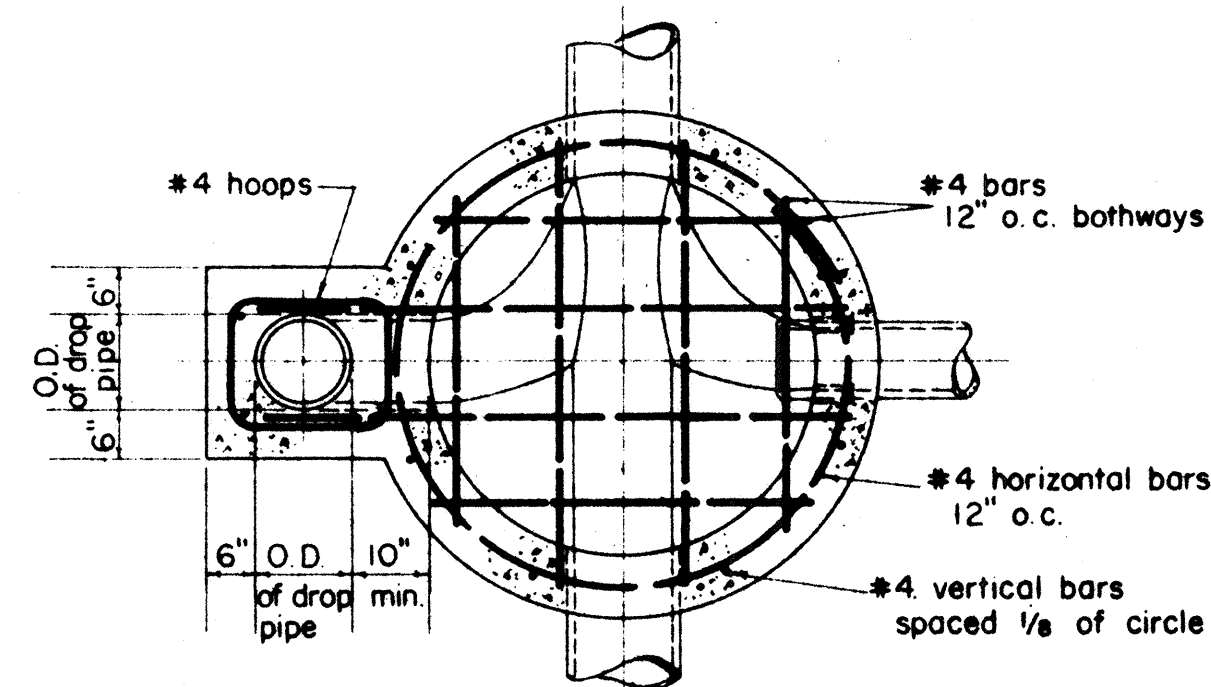
§ 174.61

93

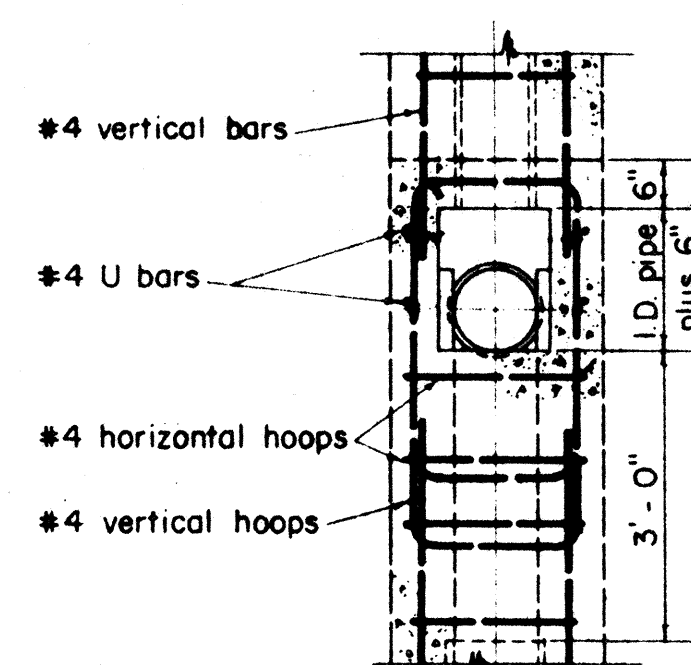
PROJ. NO.	STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
US-S-0720(3)	HA	1960	41	77
BU-072-1(2)		1960	65	118
BU-065-1(1)		1960	60	115



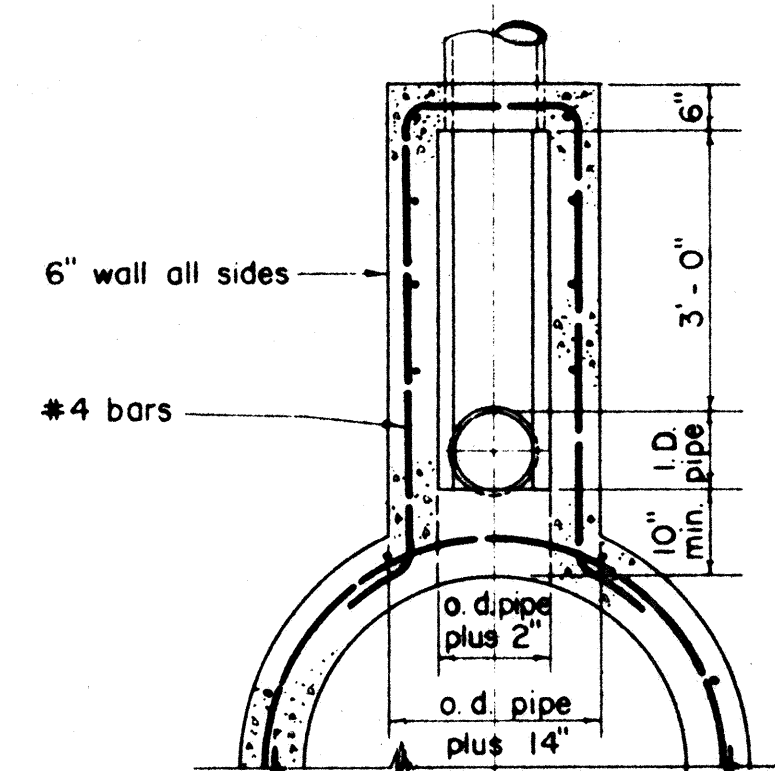
SECTION A-A



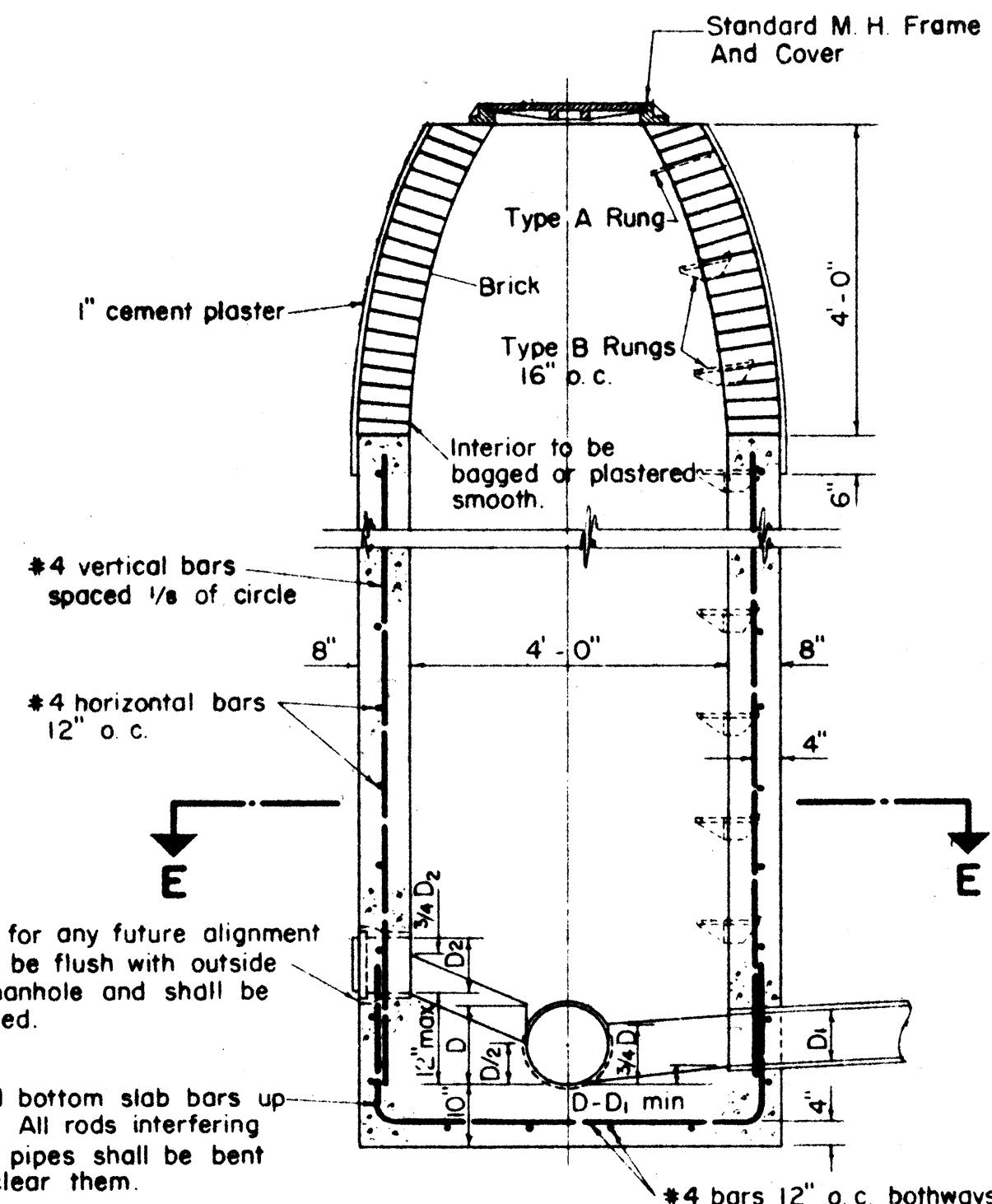
SECTION B-B



SECTION C-C

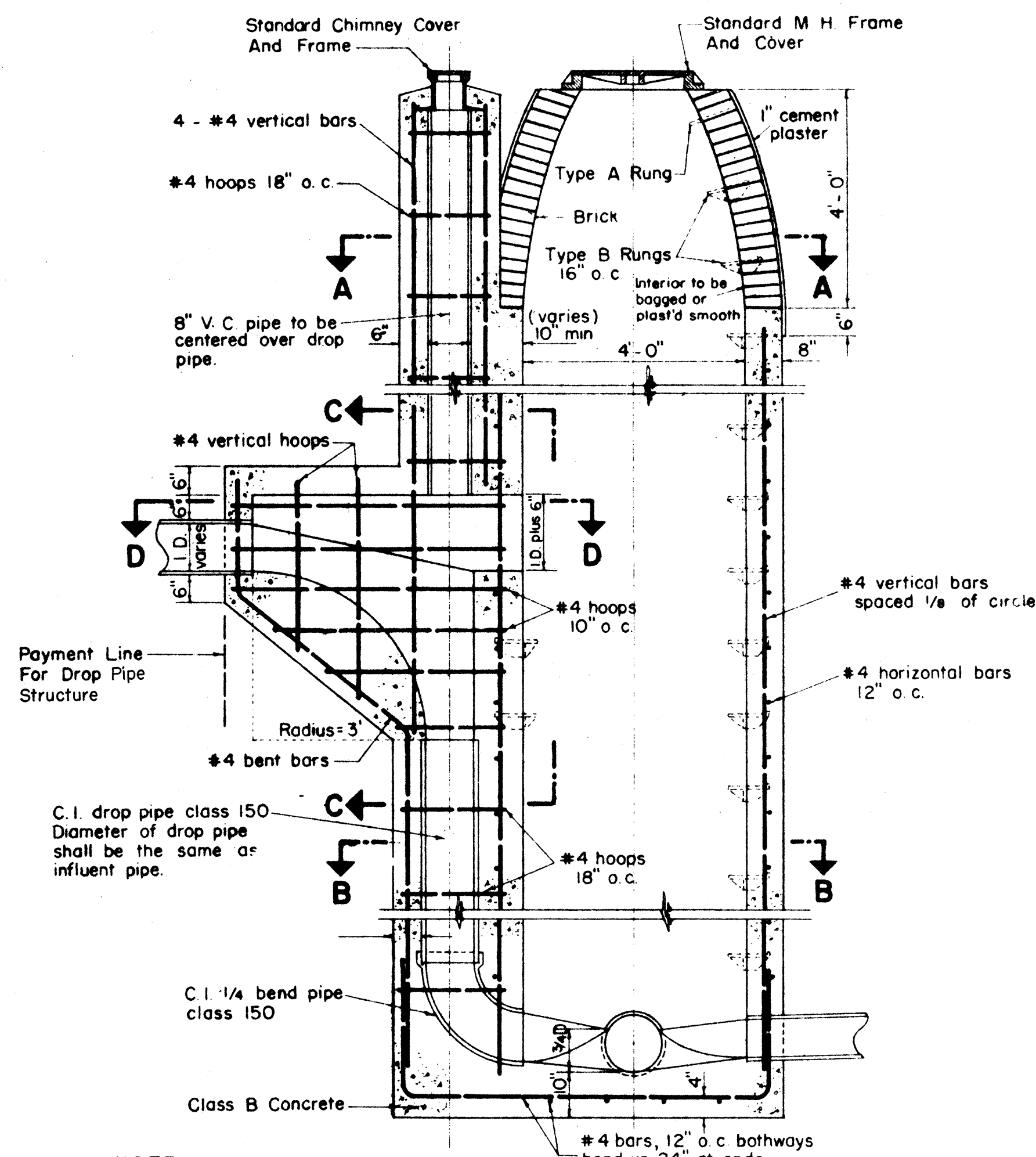


SECTION D-D



PLAIN MANHOLE

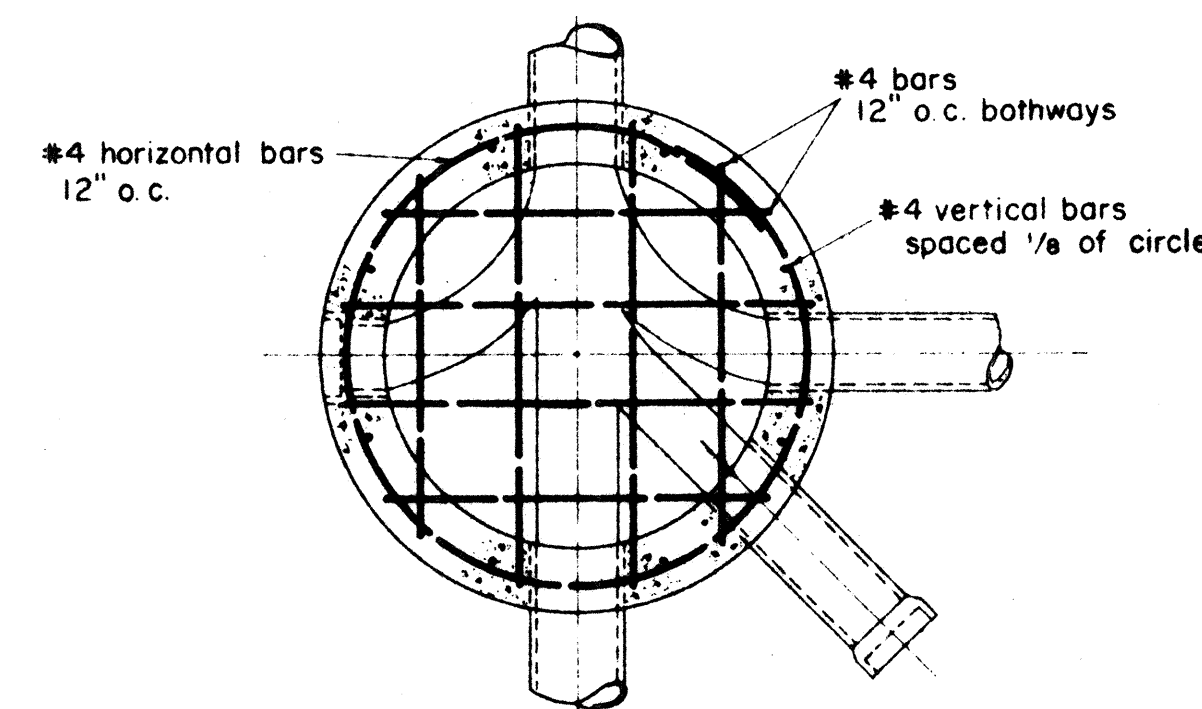
Scale: 1/2" = 1'-0"



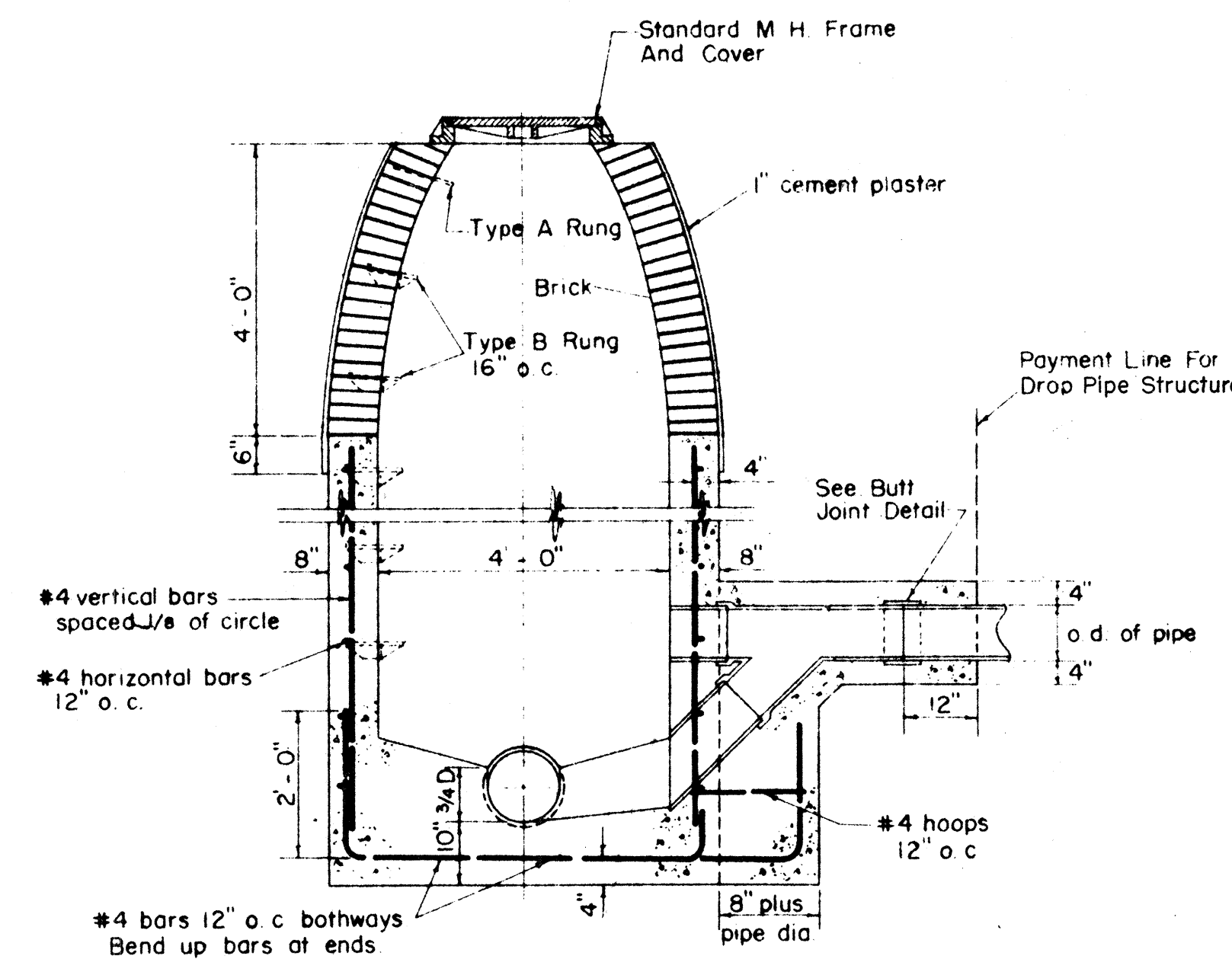
DROP MANHOLE

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

NOTE:
2" Minimum Cover
On Reinforcing Steel



SECTION E-E



(SHALLOW) DROP MANHOLE

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

NOTE:

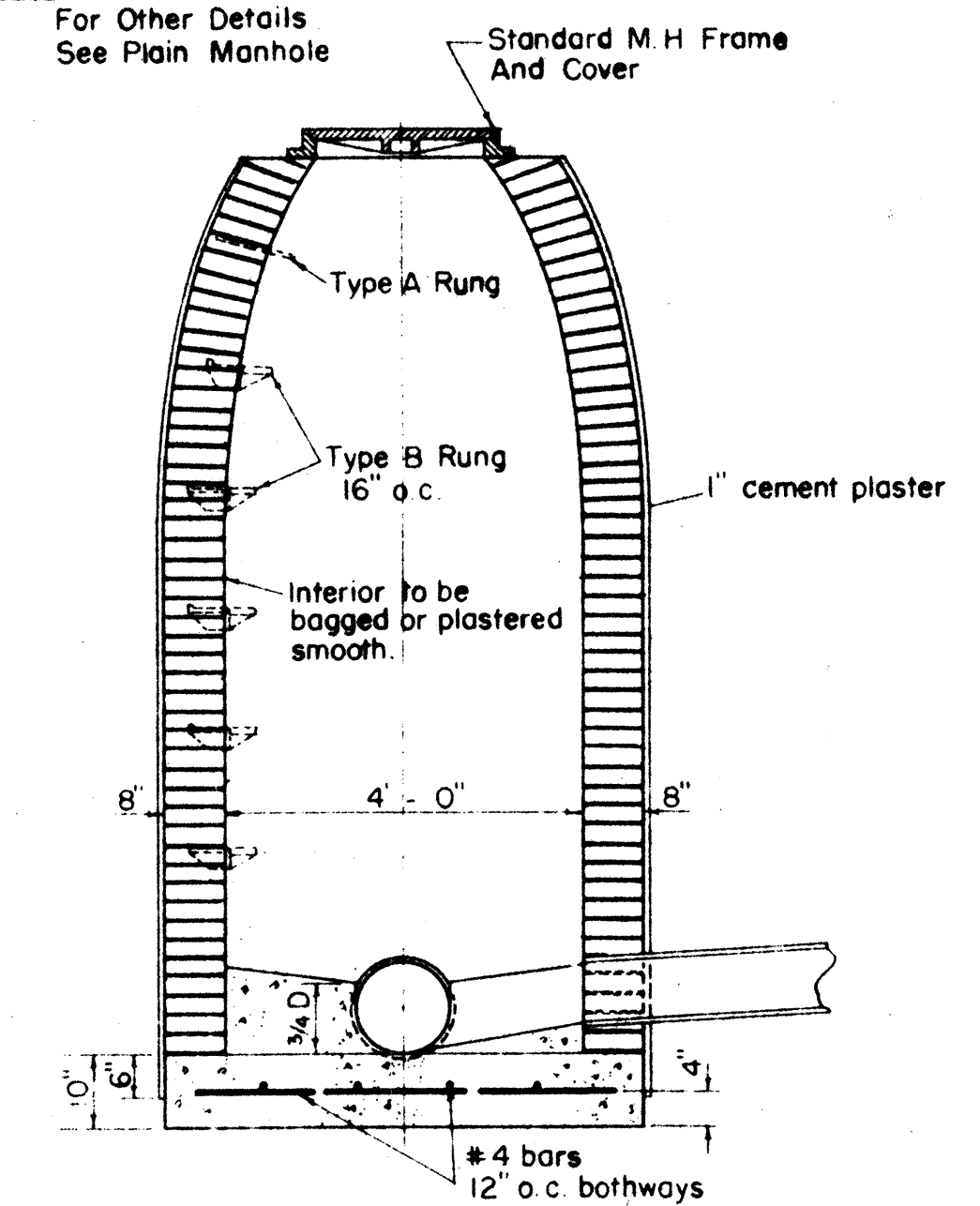
- Manhole rungs shall not be aligned above any flow line.
- No rungs shall be installed in manholes less than 3' high.
- When not otherwise noted, manhole stubs shall be sloped as follows

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:

For Other Details
See Plain Manhole



BRICK MANHOLE

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

Payment for excavation for manholes shall be made under unit price for structural excavation and shall be measured to one foot outside of walls from original ground elevation to authorized bottom elevation.

Payment for manhole walls (brick, precast concrete or cast-in-place concrete) shall include brick, precast concrete pipe sections, mortar, concrete, reinforcing steel, cast-iron steps, galvanized wrought iron rungs, and plastering.

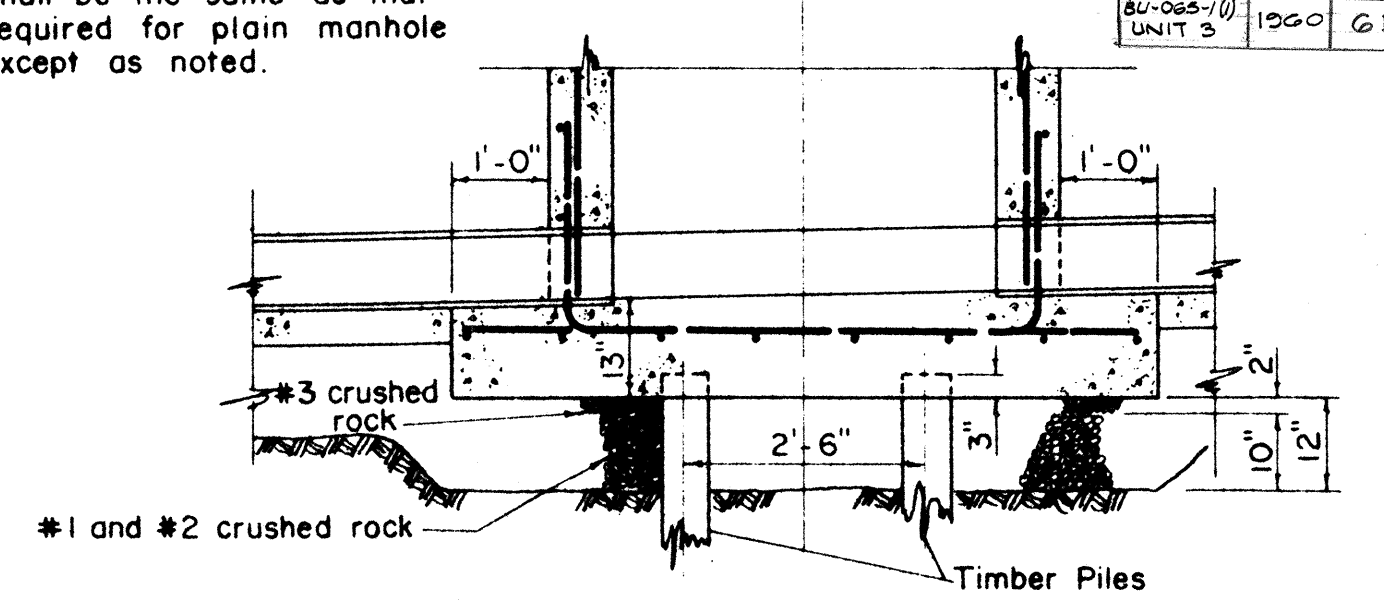
Payment for manhole bases shall include concrete, reinforcing steel, and the construction of inverts.

HAWAII STATE HIGHWAY DEPARTMENT			
MOANALUA ROAD		US-S-0720(3)	UNIT 3
LUNALILO FREEWAY		BU-072-1(2)	UNIT 4
MIDDLE STREET		BU-065-1(1)	UNIT 3
DEPARTMENT OF PUBLIC WORKS CITY AND COUNTY OF HONOLULU DIVISION OF SEWERS			
REVISED STANDARD DETAILS (SUPERSEDES STANDARD DATED 11-1-54)			
ENGINEER	DATE	CHECKED BY	TRACER
DRAFTSMAN	SCALE	APPROVED	CHIEF ENGINEER
W. B. SEC.	W. M. BY.	W. B. SEC.	W. M. BY.

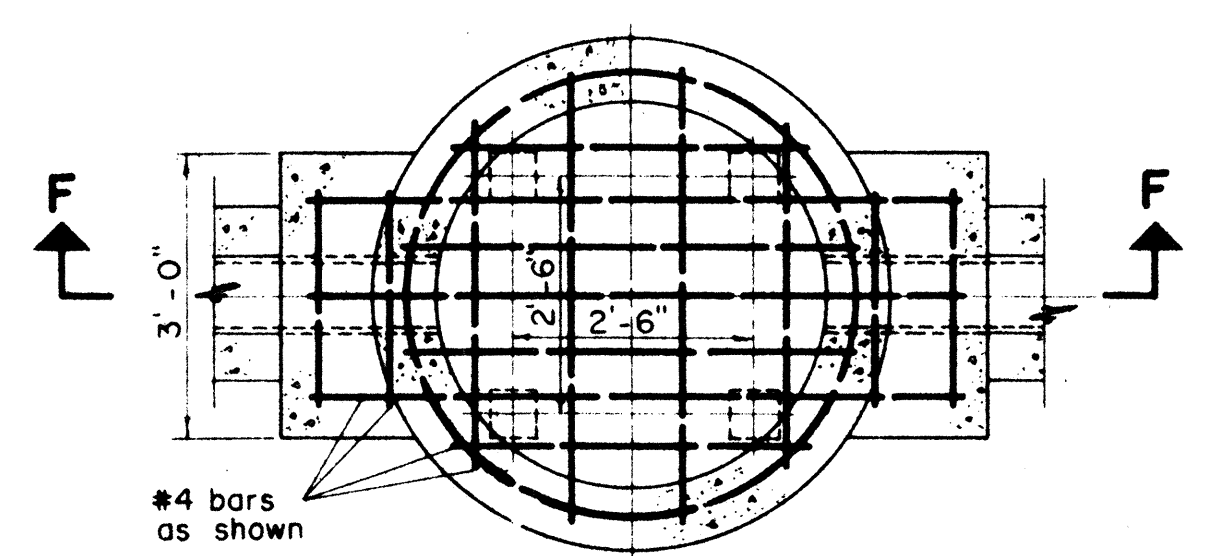
SHEET NO. 2 OF 3 SHEETS

PROJ. ROAD DIST. No.	STATE	PROJ. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	US-0720(3) UNIT 3	1960	48	79
		BU-072-1(2) UNIT 4	1960	66	118
		BU-065-1(1) UNIT 3	1960	61	115

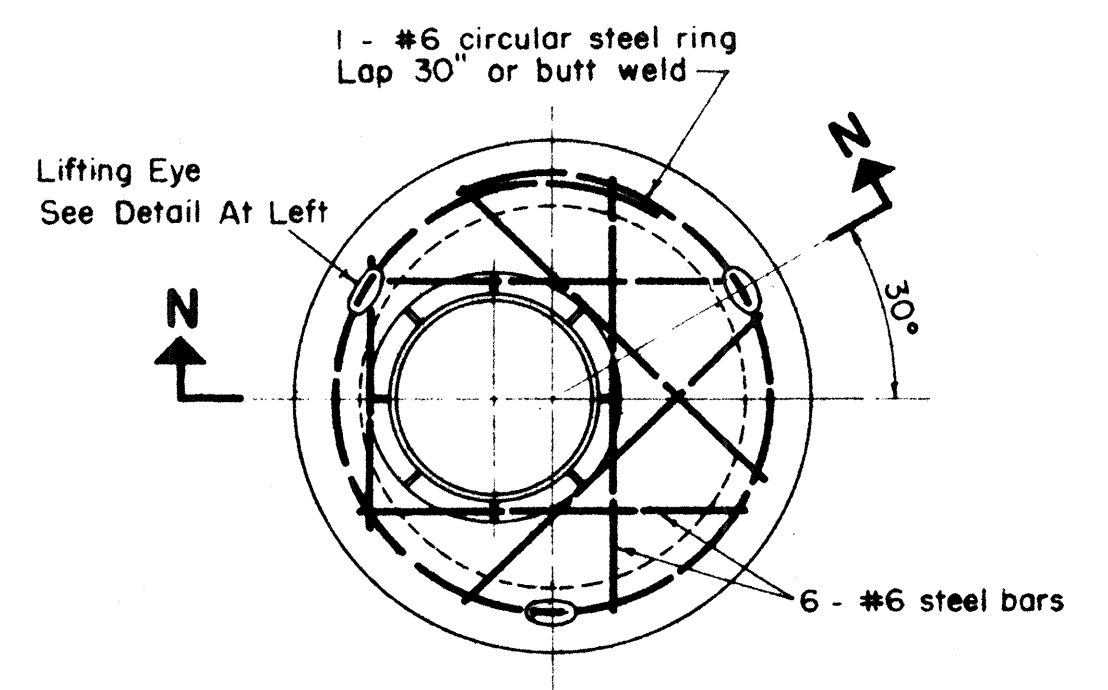
NOTE: Reinforcing steel shall be the same as that required for plain manhole except as noted.



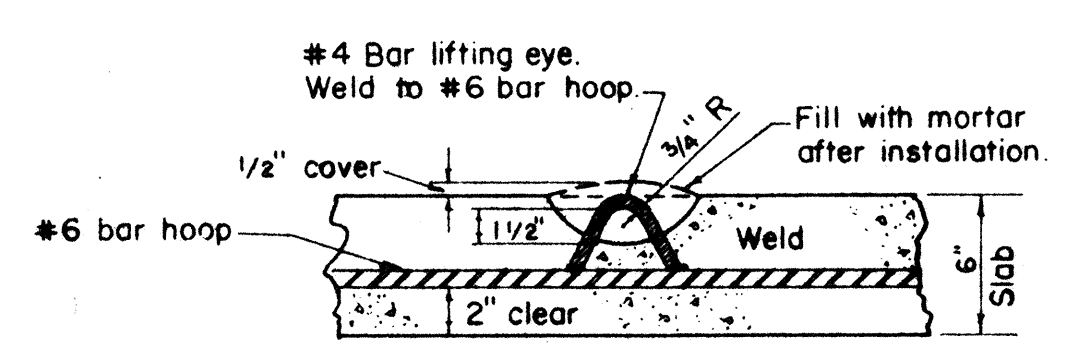
SECTION F - F



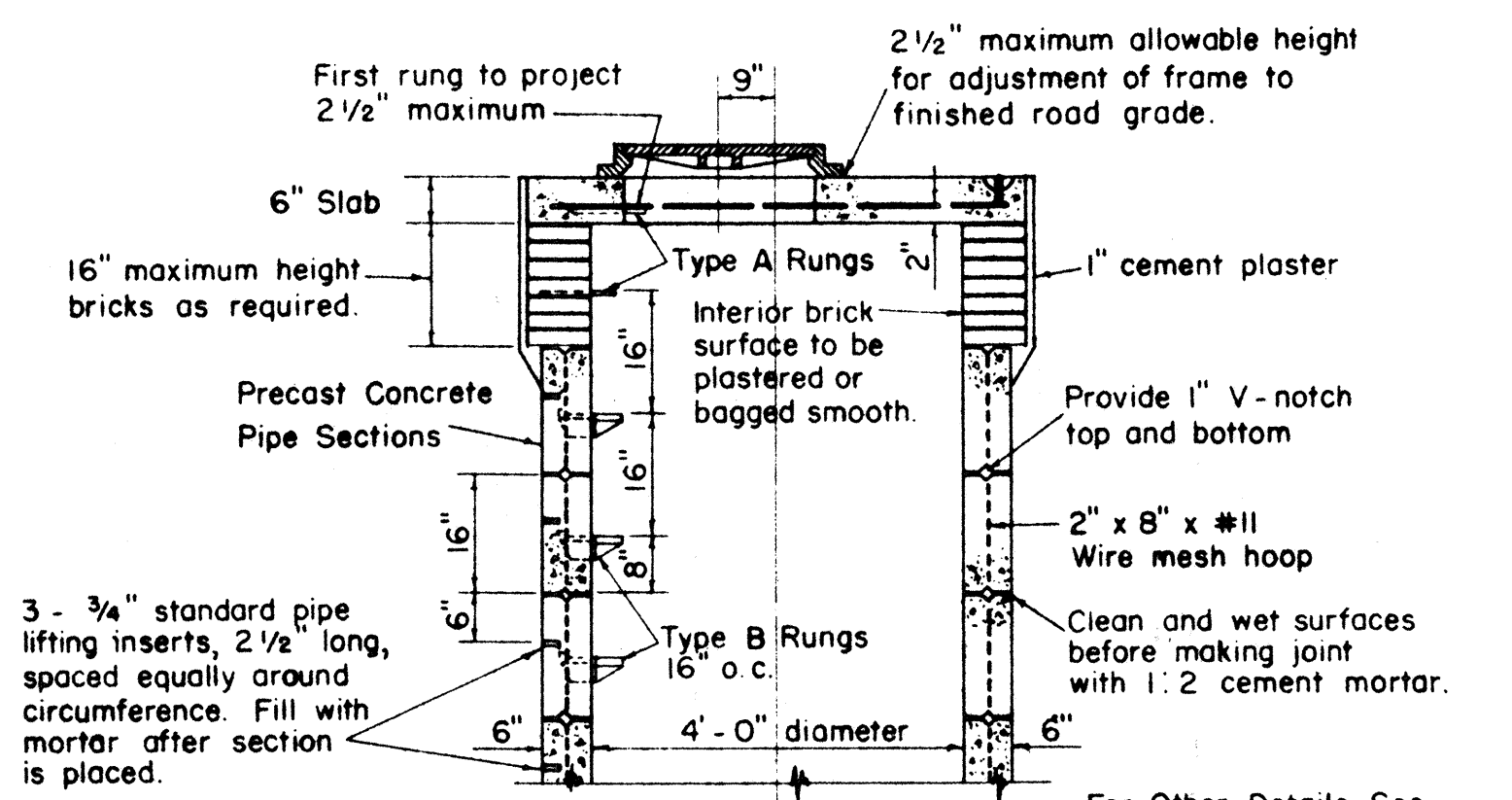
PLAN
DETAIL OF PILES
UNDER MANHOLES
Scale: 1/2" = 1'-0"



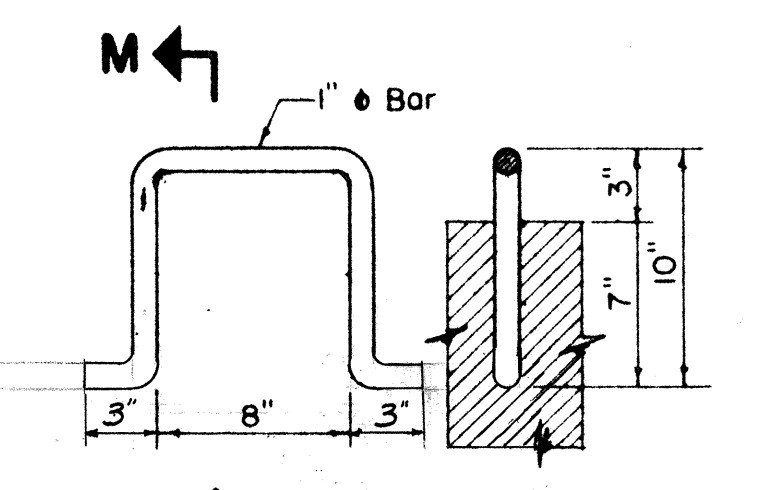
PLAN
PRECAST MANHOLE
Scale: 1/2" = 1'-0"



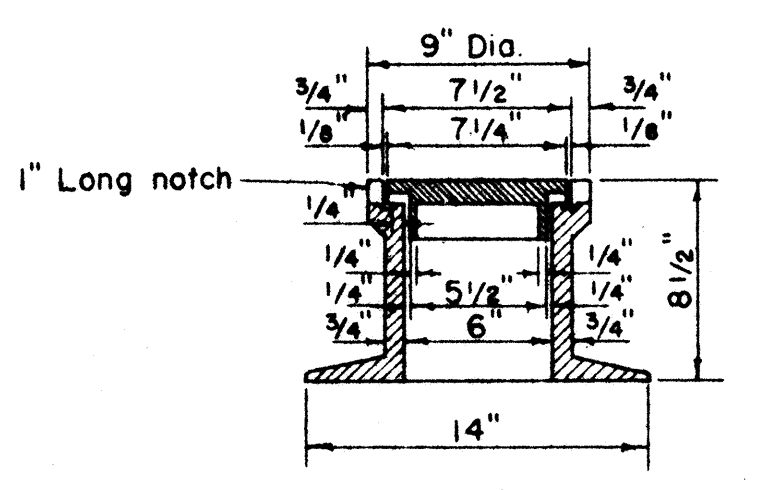
SECTION OF LIFTING EYE
Scale: 1 1/2" = 1'-0"



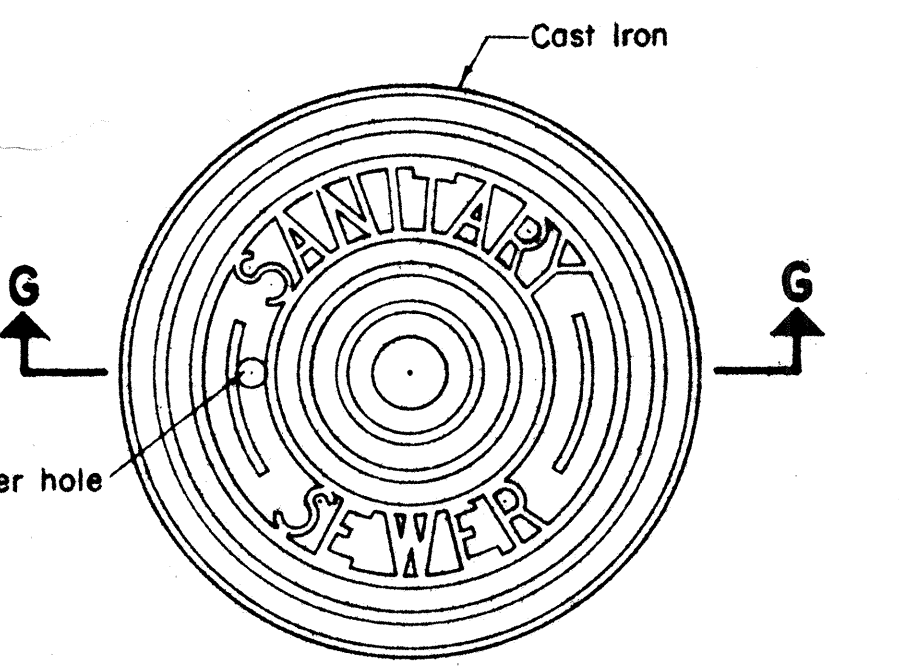
SECTION N - N



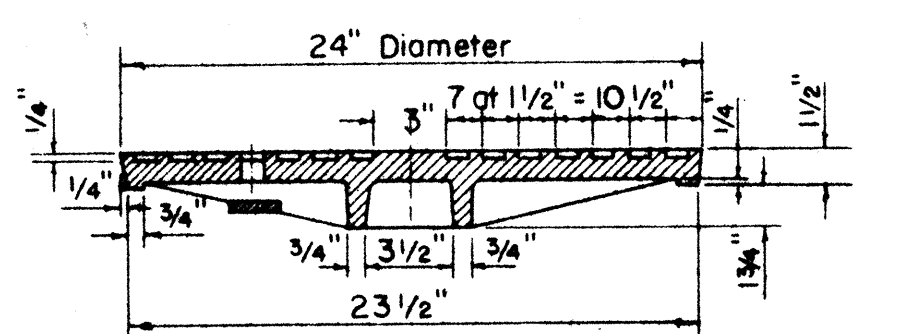
PLAN SECTION M - M
TYPE A MANHOLE RUNGS
WROUGHT IRON
Scale: 1 1/2" = 1'-0"



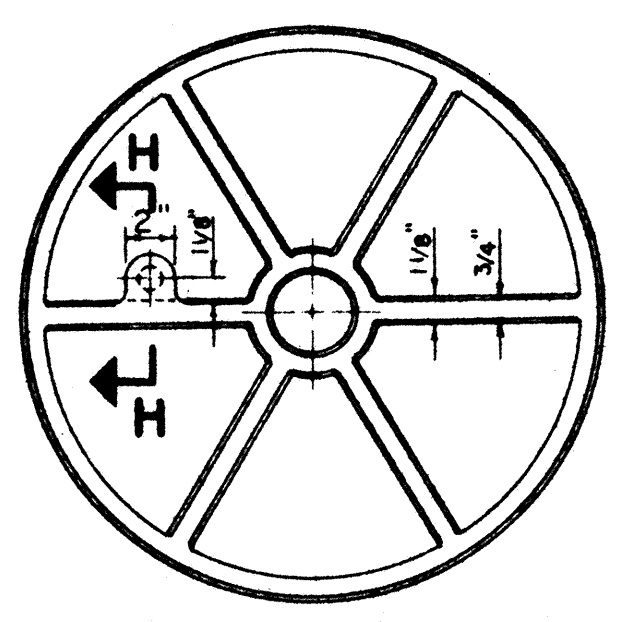
SECTION
DROP MANHOLE
CHIMNEY CASTINGS
Scale: 1 1/2" = 1'-0"



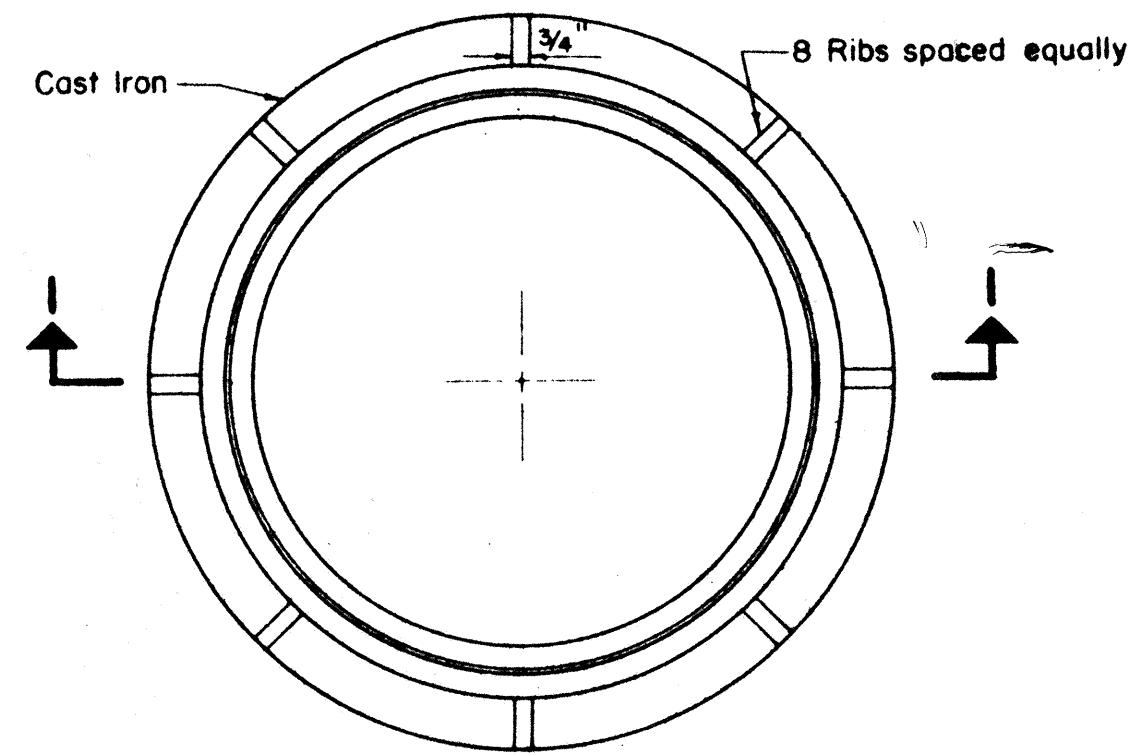
PLAN OF MANHOLE COVER
Scale: 1 1/2" = 1'-0"



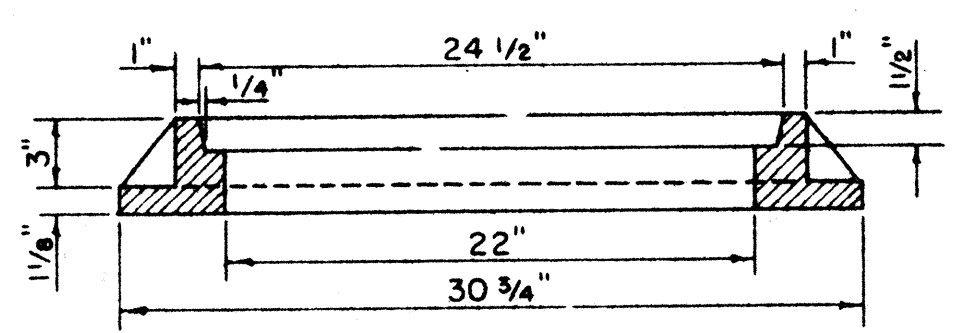
SECTION G - G



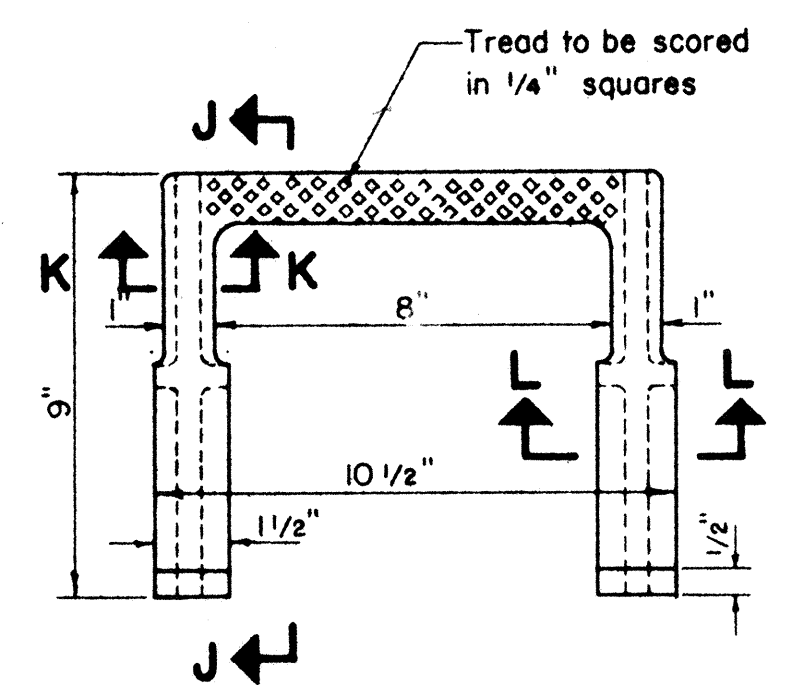
BOTTOM VIEW OF COVER
Scale: 1 1/2" = 1'-0"



PLAN OF MANHOLE FRAME
Scale: 1 1/2" = 1'-0"



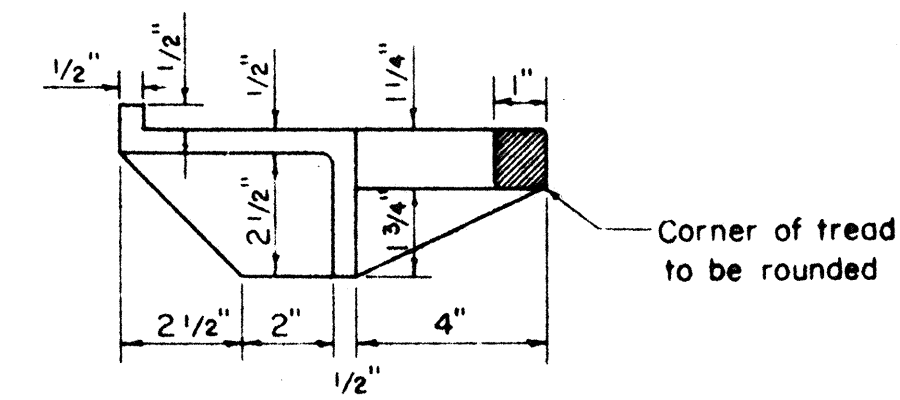
SECTION I - I



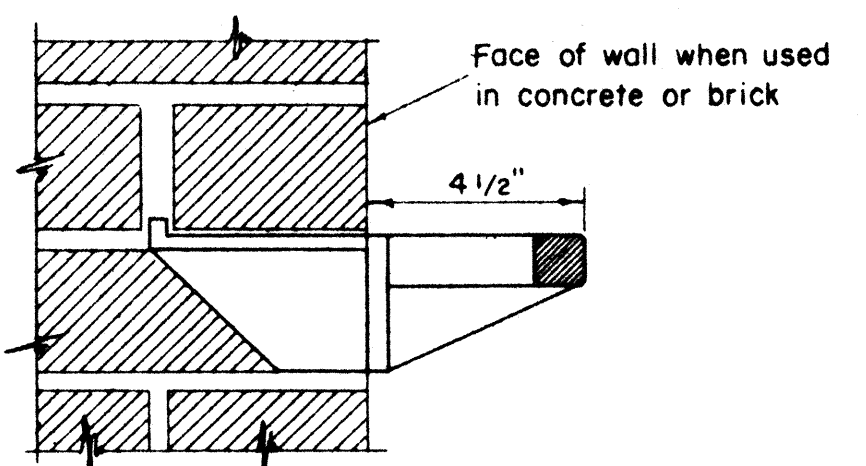
PLAN

SECTION K - K

SECTION L - L

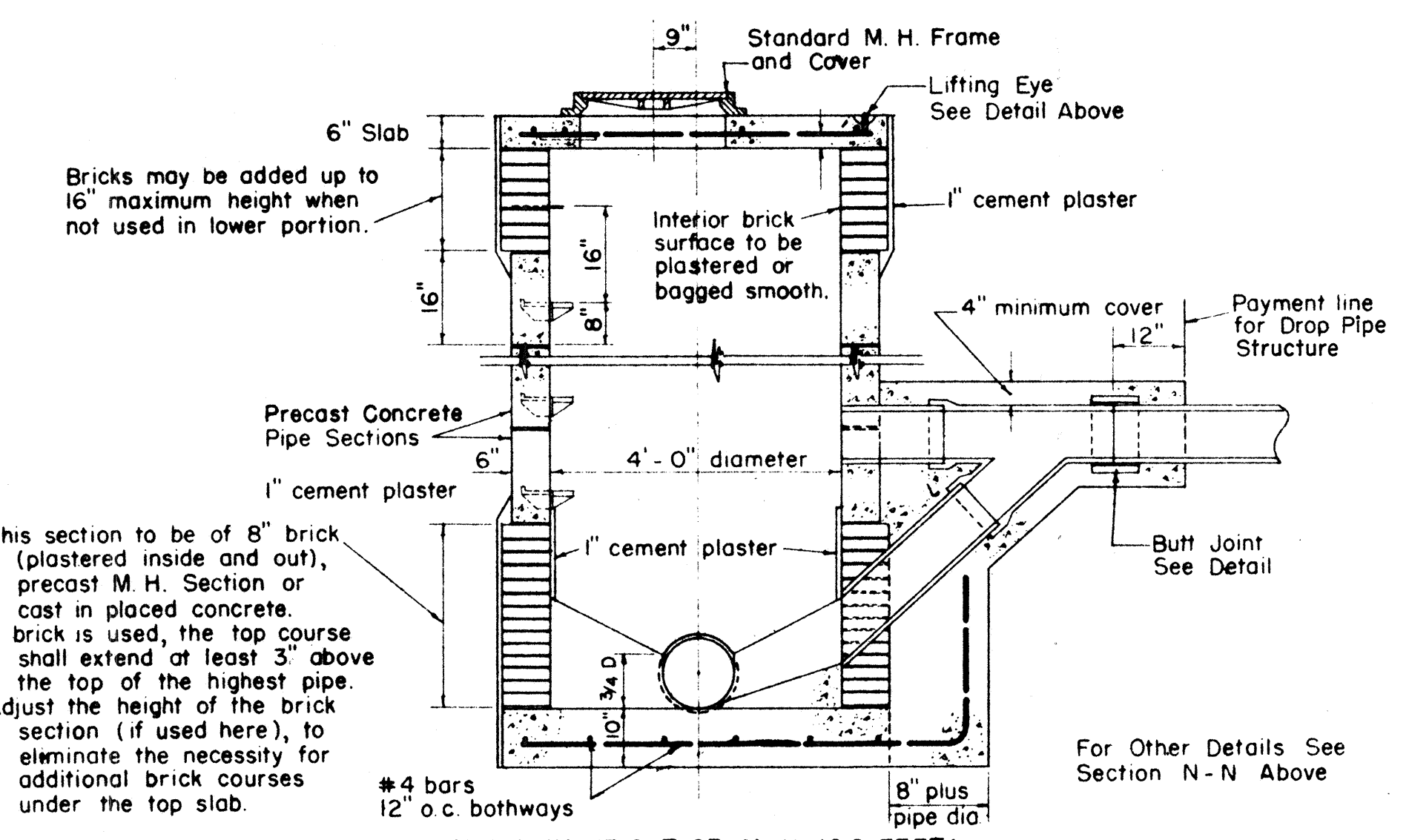


SECTION J - J



METHOD OF
INSTALLATION

TYPE B MANHOLE RUNGS
(CAST IRON)
Scale: 3" = 1'-0"



SHALLOW DROP MANHOLE
USING PRECAST CONCRETE PIPE SECTIONS
Scale: 1/2" = 1'-0"

- NOTE:
- 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.
 - Pipe Sections may be made in heights other than 16 inches if desired.
 - Size of drop pipe shall be same as influent pipe.

HAWAII STATE HIGHWAY DEPARTMENT					
STATE OF HAWAII					
MOANALUA ROAD	US-S-0720 (3)	UNIT 3			
LUNALILO FREEWAY	BU -072-1(2)	UNIT 4			
MIDDLE STREET	BU -065-1(1)	UNIT 3			
DEPARTMENT OF PUBLIC WORKS					
CITY AND COUNTY OF HONOLULU					
DIVISION OF SEWERS					
REVISED					
STANDARD DETAILS					
(SUPERSEDES STANDARD DATED 11-1-54)					
ENGINEER	<i>A. Tamm</i>	DATE	October 4, 1957		
DRAFTSMAN	<i>A. Tamm</i>	CHECKED BY	<i>A. Tamm</i>		
SCALE	As Shown	TRACER	<i>C. M.</i>		
APPROVED	<i>A. Tamm</i>	APPROVED	<i>A. Tamm</i>		
CHIEF ENGINEER		DIVISION ENGINEER			
W. S.	CR. SEC.	PROF.	C. S.		
W. M. BY:	F. W. BY:	S. BY:			