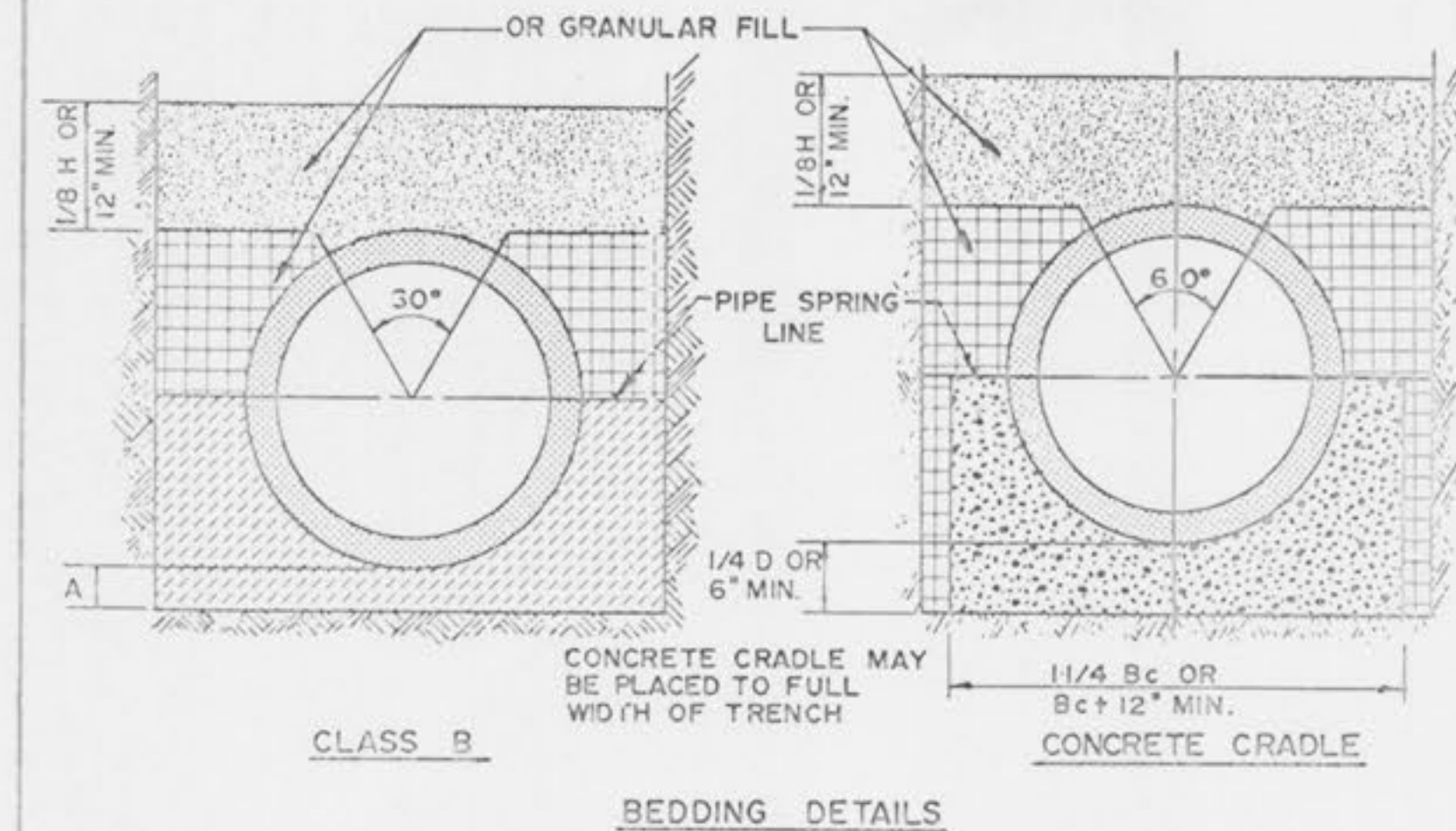
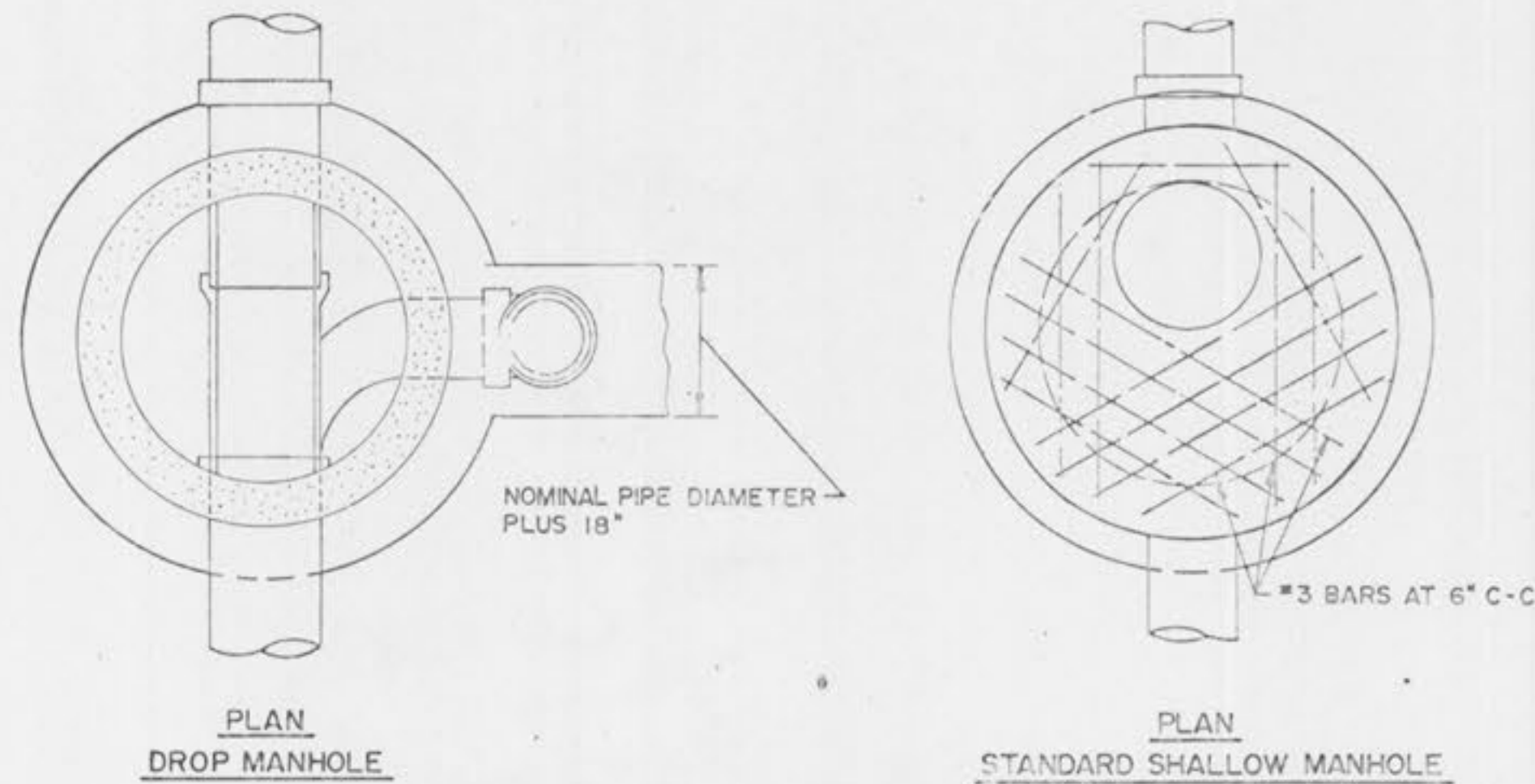


WALL THICKNESS	
DIA. M.H.	"D" DIM. PRE CAST
48"	5"
60"	6"
72"	7"

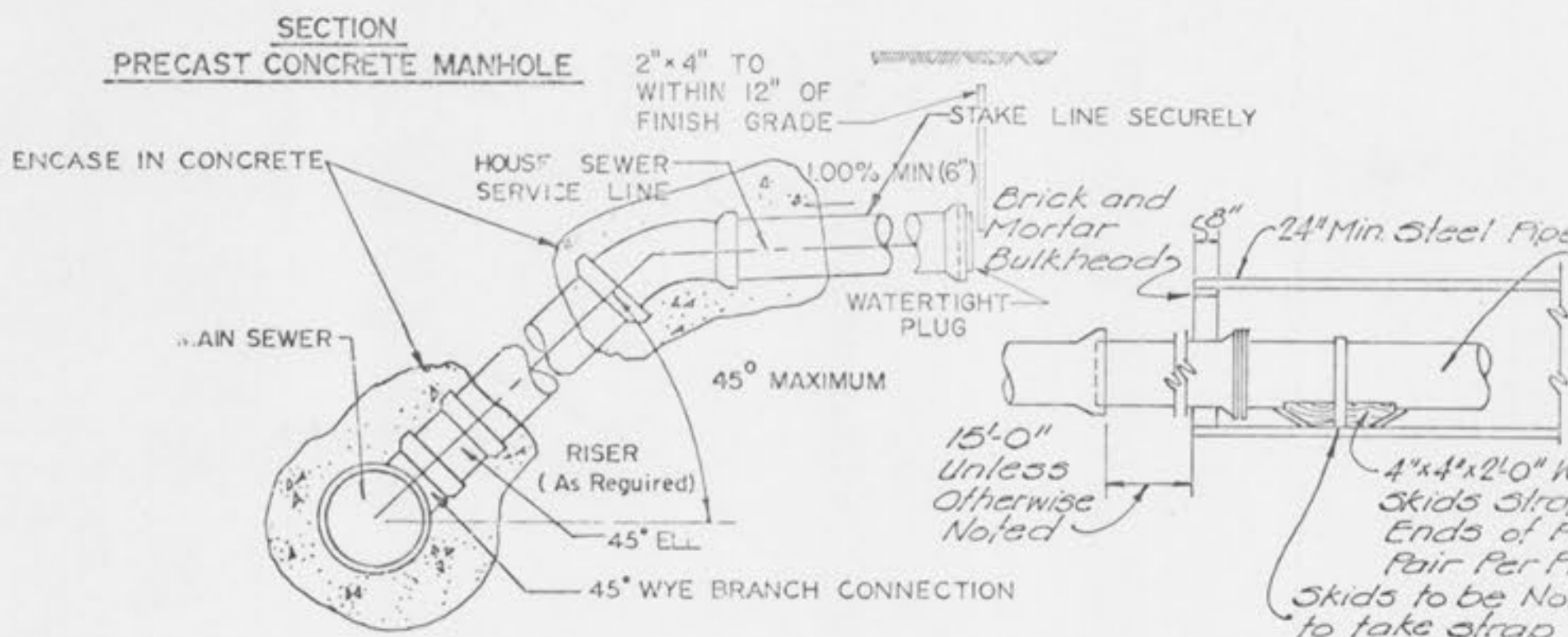
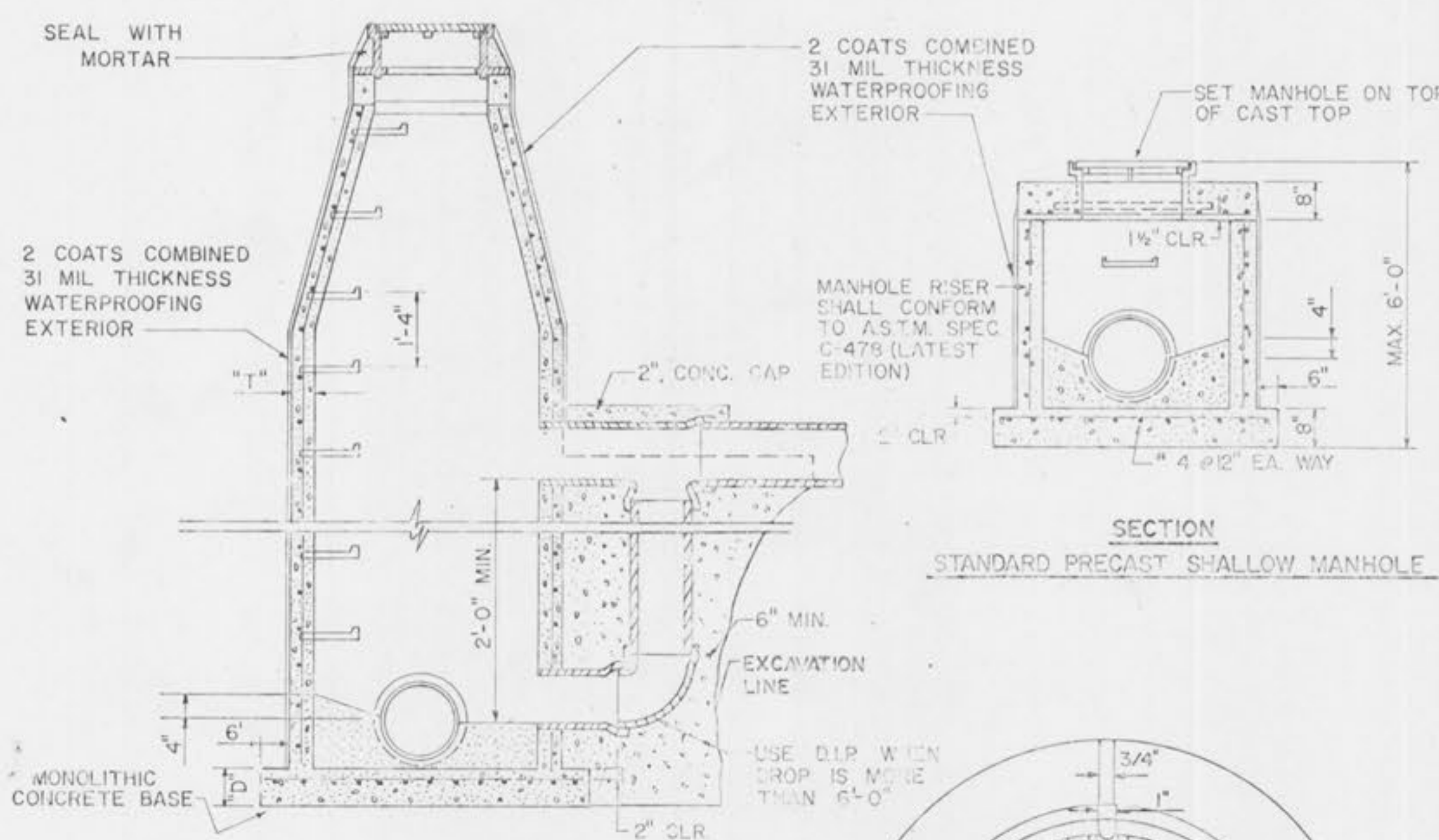
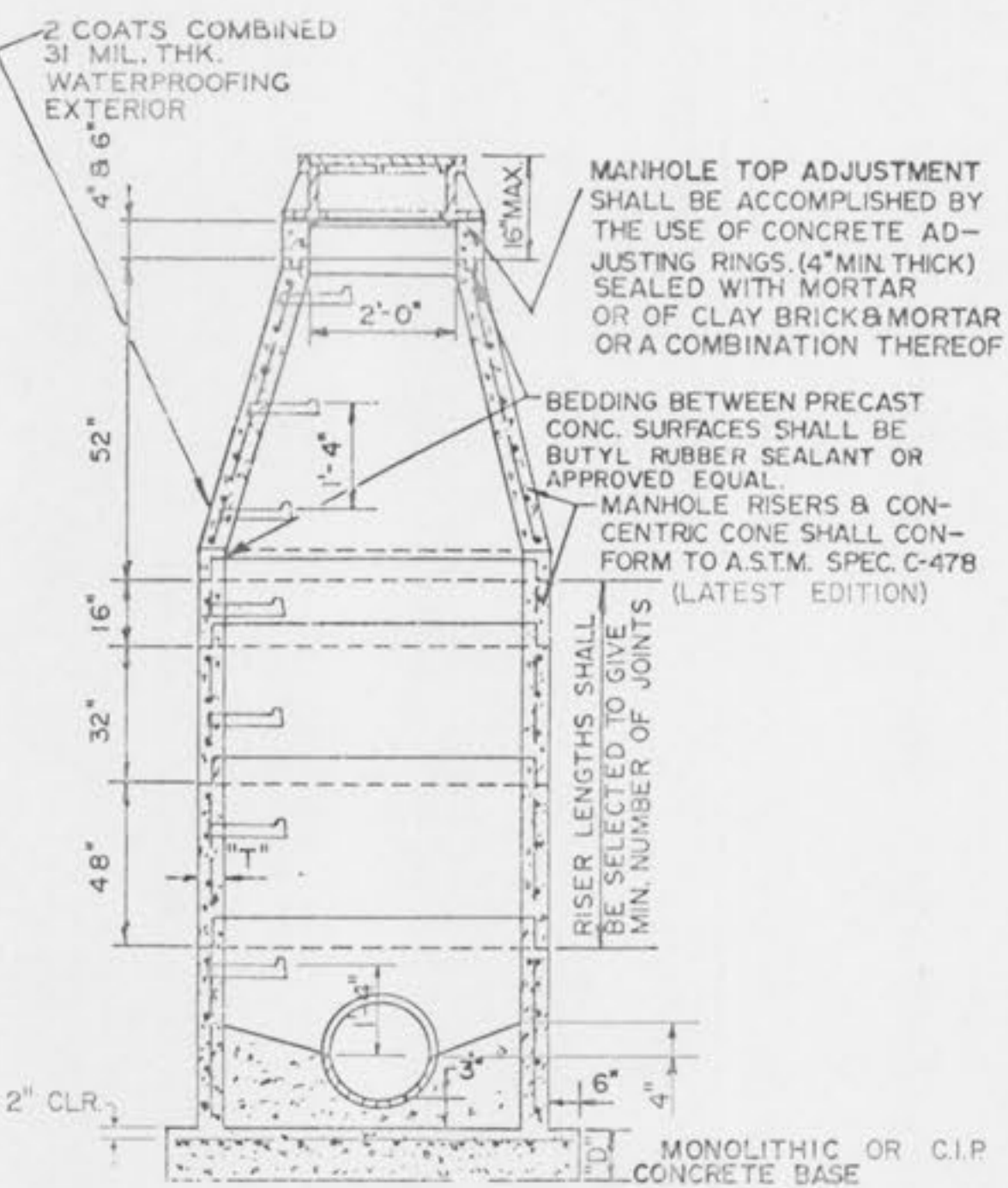
MANHOLE BASE THICKNESS	
DEPTH (FEET)	"D" DIM.
0-20	8" w/ #4 BARS @ 12" CTRS. EACH WAY
20-30	8" w/ #4 BARS @ 9" CTRS. EACH WAY
30-40	10" w/ #5 BARS @ 10" CTRS. EACH WAY



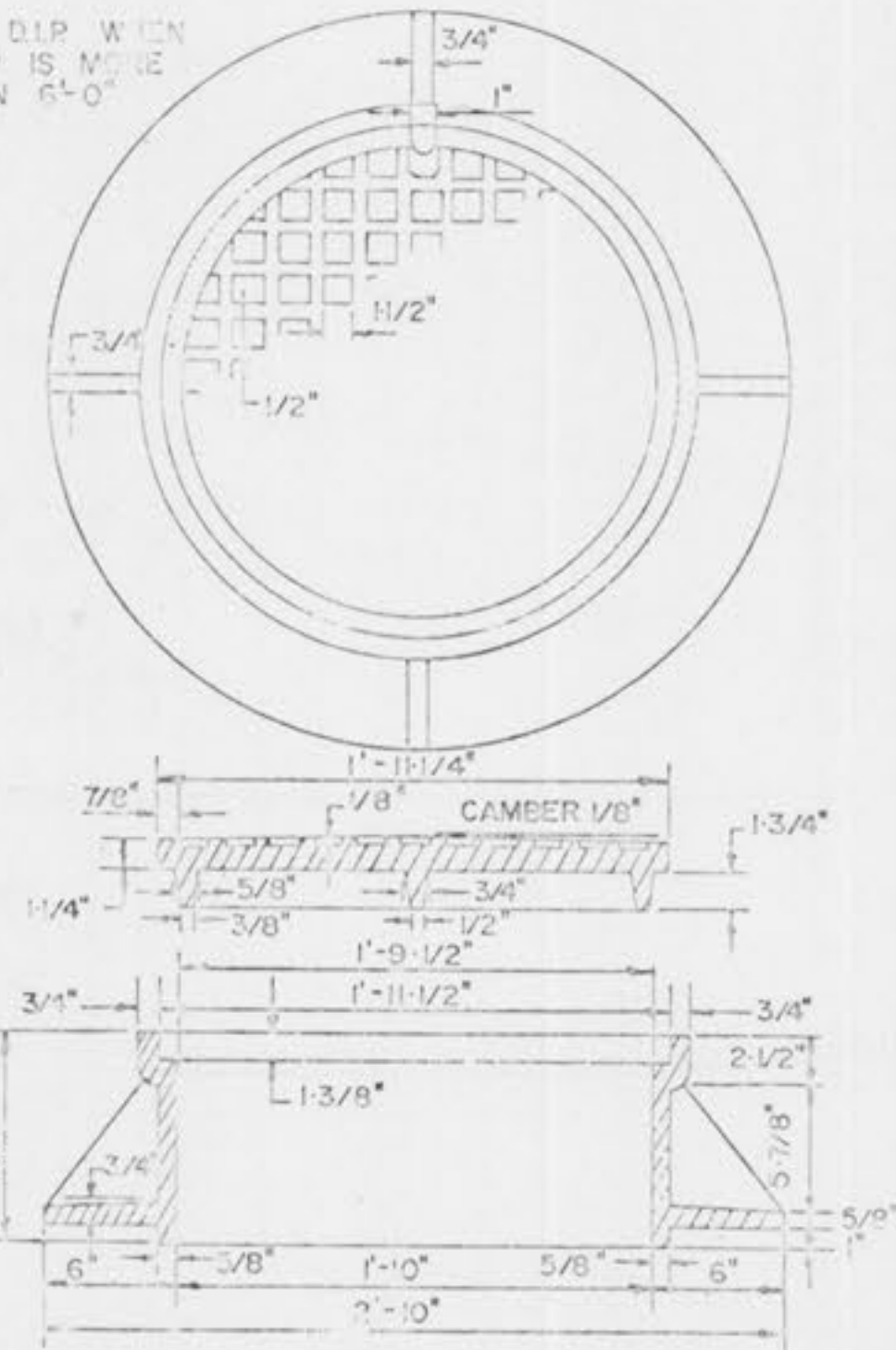
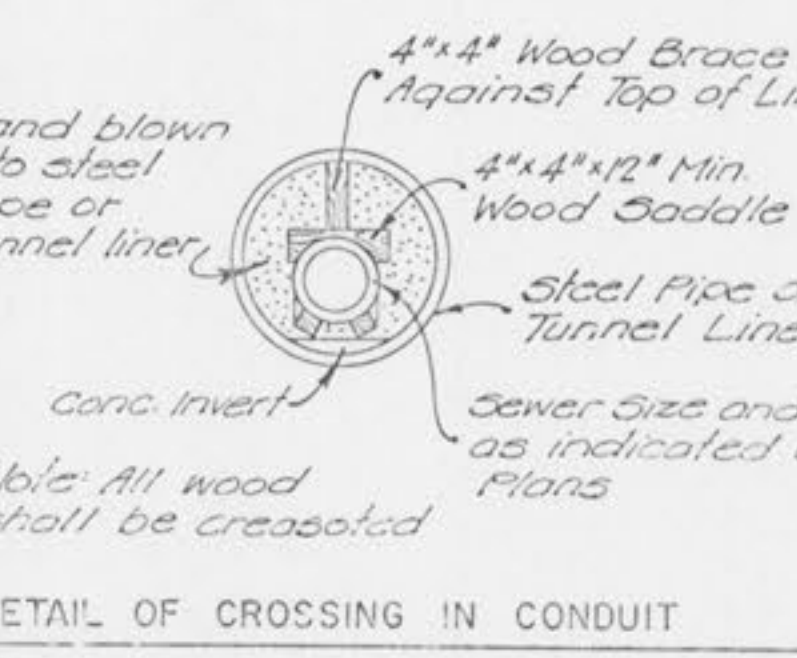
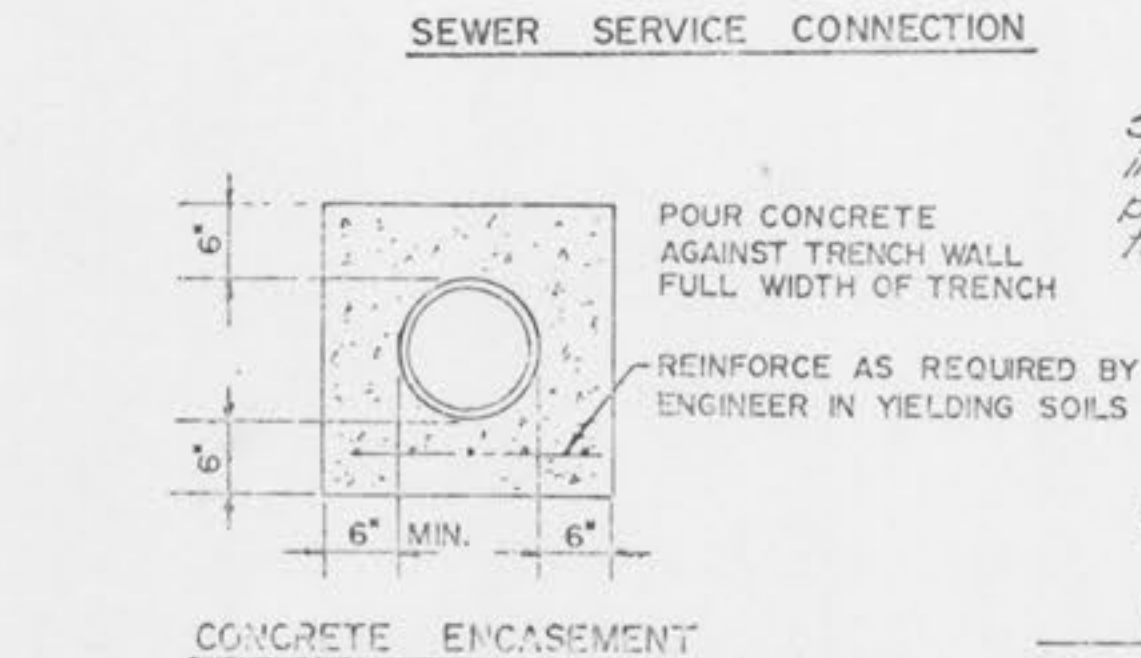
**LEGEND:**

- Bc OUTSIDE DIA. OF PIPE
- H BACKFILL COVER ABOVE TOP OF PIPE
- D NOMINAL PIPE SIZE
- A FILL BELOW PIPE (SEE TABLE BELOW)

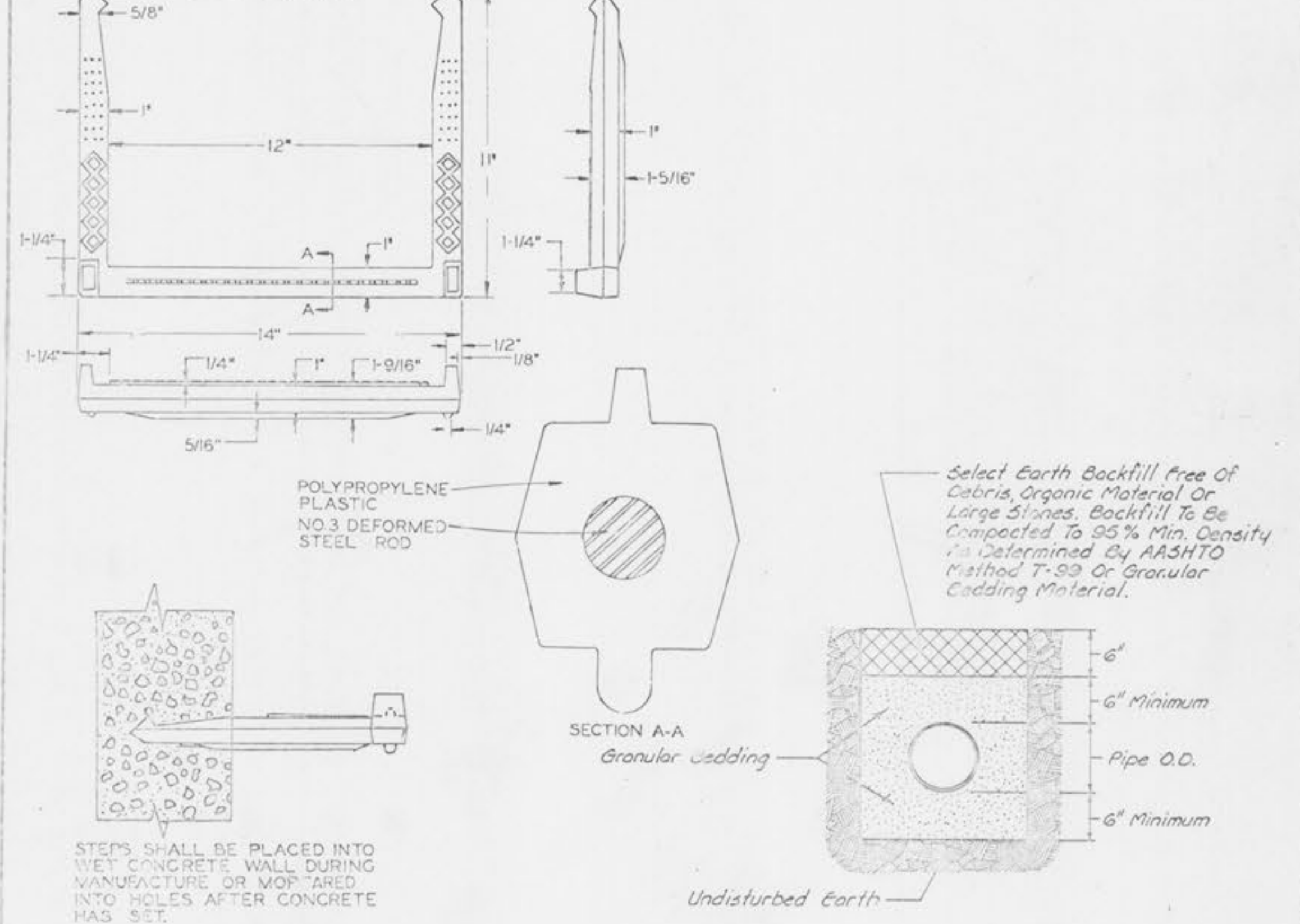
TABLE OF FILL BELOW PIPE	
D	A MIN.
27" & SMALLER	3"
30" TO 60"	4"
66" & LARGER	6"



- NOTES:**
1. ANY MATERIAL EXCAVATED BENEATH PIPE ENTERING OR LEAVING MANHOLES SHALL BE REPLACED WITH CONCRETE.
  2. ALL MANHOLE RINGS AND ADJUSTING RINGS SHALL BE SET IN MORTAR.
  3. INSIDE DIAMETER OF MANHOLES TO BE 4'-0" FOR PIPE 2" & SMALLER, 5'-0" FOR PIPE 24" THRU 30", 6'-0" FOR PIPE OVER 30".
  4. PLASTERING OF INSIDE OF MANHOLES SHALL BE THE OPTION OF THE CONTRACTOR.
  5. ALL SEWERS EXTENDING FROM MANHOLES SHALL BE SUPPORTED WITH CONCRETE TO FIRST JOINT.
  6. CONTRACTOR SHALL BE PAID FOR 6" CONCRETE ENCASEMENT AROUND PIPE AS SHOWN IN DETAIL.
  7. LAMP LINES BEFORE AND AFTER INSTALLATION OF CONCRETE ENCASEMENT.
  8. PRECAST MANHOLE SHALL BE WATERPROOFED OUTSIDE.
  9. ALL CONC. MANHOLES TO HAVE RUBBER GASKET ON ALL PIPE OPENINGS.



- NOTES:**
1. GRANULAR FILL TO BE CRUSHED STONE OR PEA GRAVEL WITH NOT LESS 95% PASSING 1/2" AND NOT LESS THAN 95% TO BE RETAINED ON A #4, TO BE PLACED IN NOT MORE THAN 6" LAYERS AND COMPACTED BY SLICING WITH A SHOVEL (1/2" B & 4" REFERS TO SIEVE SIZE).
  2. TAMPED BACKFILL SHALL BE FINELY DIVIDED JOB EXCAVATED MATERIAL FREE FROM DEBRIS, ORGANIC MATERIAL AND STONES, COMPACTED TO 95% MAXIMUM DENSITY AS DETERMINED BY AASHTO STANDARD METHOD T-99. GRANULAR FILL MAY BE SUBSTITUTED FOR TAMPED BACKFILL TO TOP OF THE PIPE.
  3. HAND PLACED BACKFILL SHALL BE FINELY DIVIDED MATERIAL FREE FROM DEBRIS AND STONES.
  4. ALL BEDDING DETAILS APPLY TO BUILDING SEWER SERVICE LINES AS WELL AS OTHER SEWERS.
  5. CONCRETE CRADLE SHALL BE USED WHEN TRENCH WIDTH EXCEEDS 24" PLUS THE PIPE DIAMETER.
  6. PVC PIPE SHALL BE BEDDED IN ACCORDANCE WITH ASTM D 2321 USING CLASS 1 (3/4" TO 1/4") GRANULAR MATERIAL.



STANDARD MANHOLE RING AND COVER  
 CITY & COUNTY - NO. 2008  
 DESIGNED BY - R-1735  
 CHECKED BY - 1315  
 OR EQUAL

**GBA**  
 GEORGE BUTLER ASSOCIATES  
 CONSULTING ENGINEERS ARCHITECTS  
 LANDSCAPE ARCHITECTS PLANNERS

OFFICES:  
 SUITE 305-A FAIRWAY OFFICE CENTER  
 4770 JOHNSON DRIVE - SHAWNEE MISSOURI 64205  
 1100 CITY CENTER SQUARE  
 1100 BEAN / KANSAS CITY 2 MISSOURI 64108  
 SUITE 134 - WESTSIDE PLAZA #2  
 4700 CORPORATE DRIVE - KANSAS CITY MISSOURI 64120

**HIGHWAY 'M'**  
**UTILITY RELOCATIONS**  
**PHASE 1**

DATE: 5/9/11  
 SCALE: 1/8" = 1'-0"  
 SHEET NO: 10 OF 10