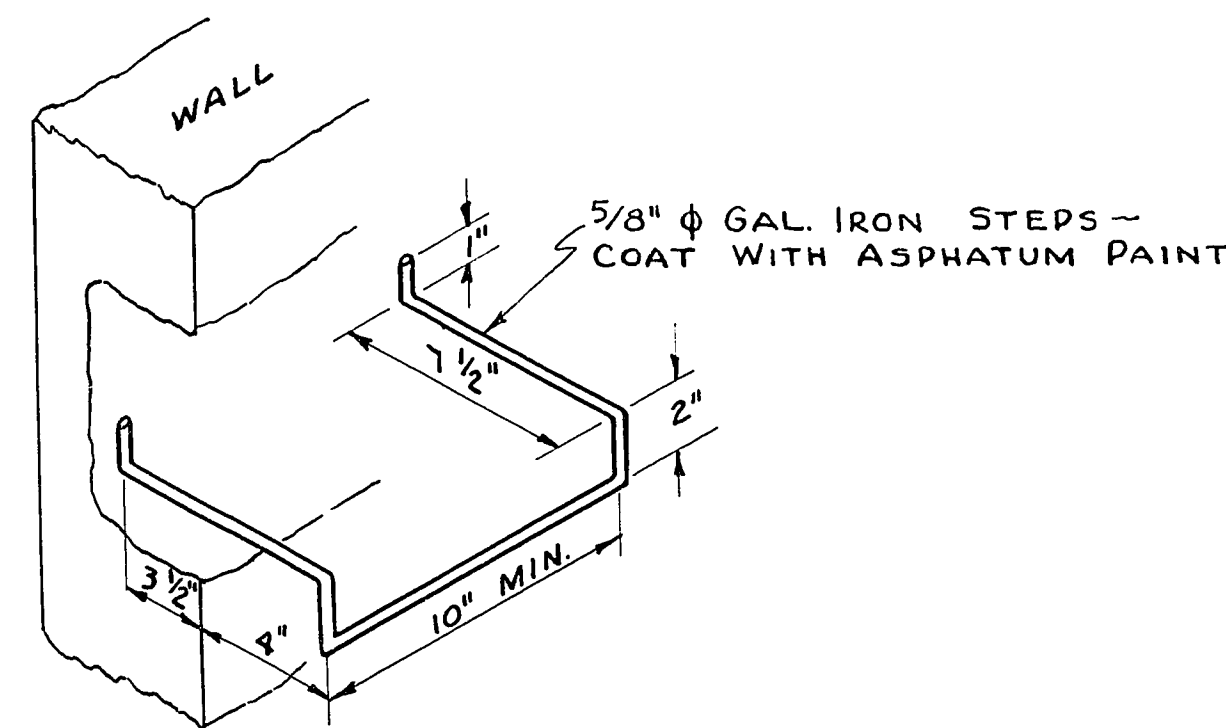
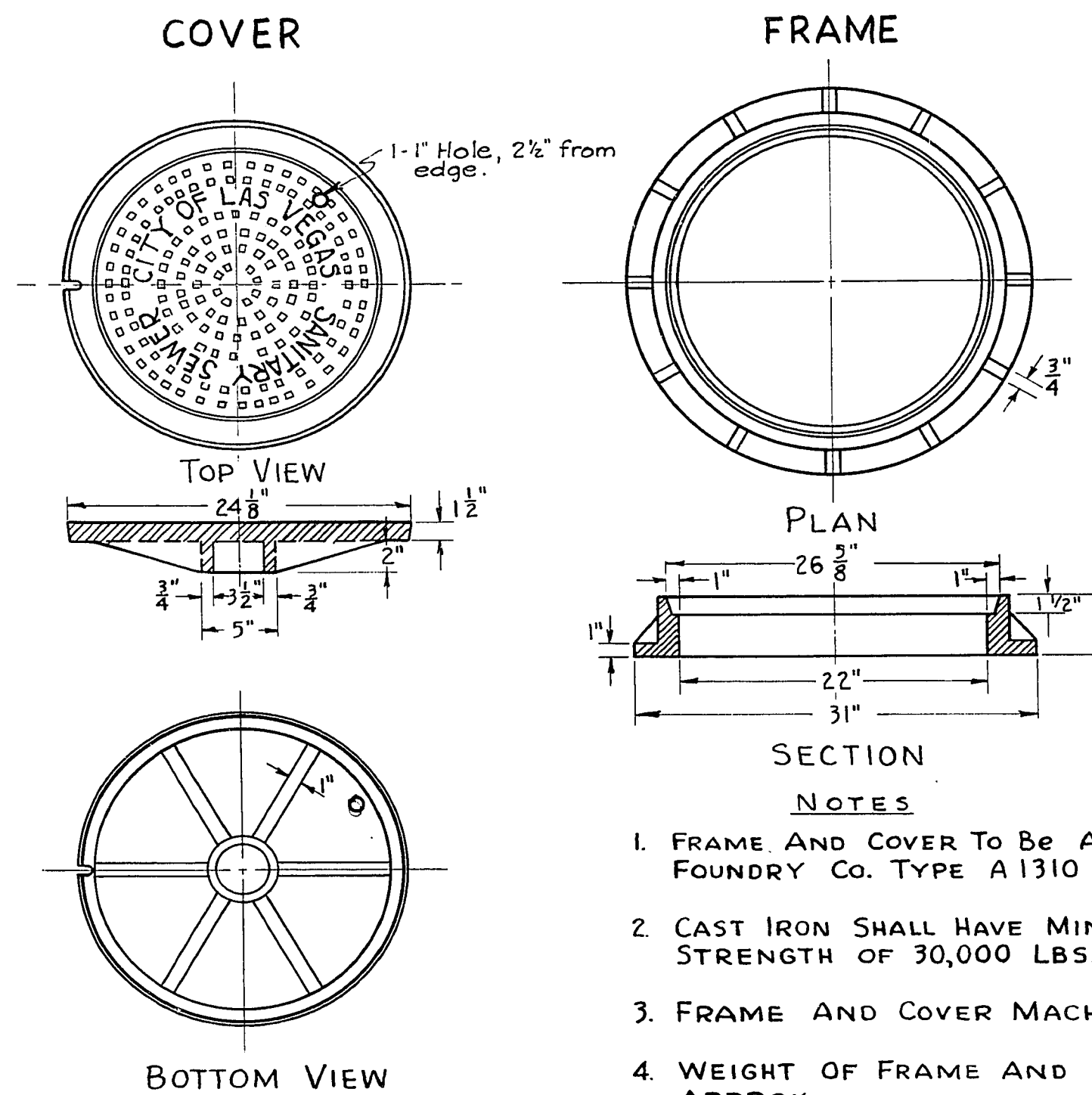


TYPICAL CONCRETE PIPE BENDING DETAIL  
NO SCALE



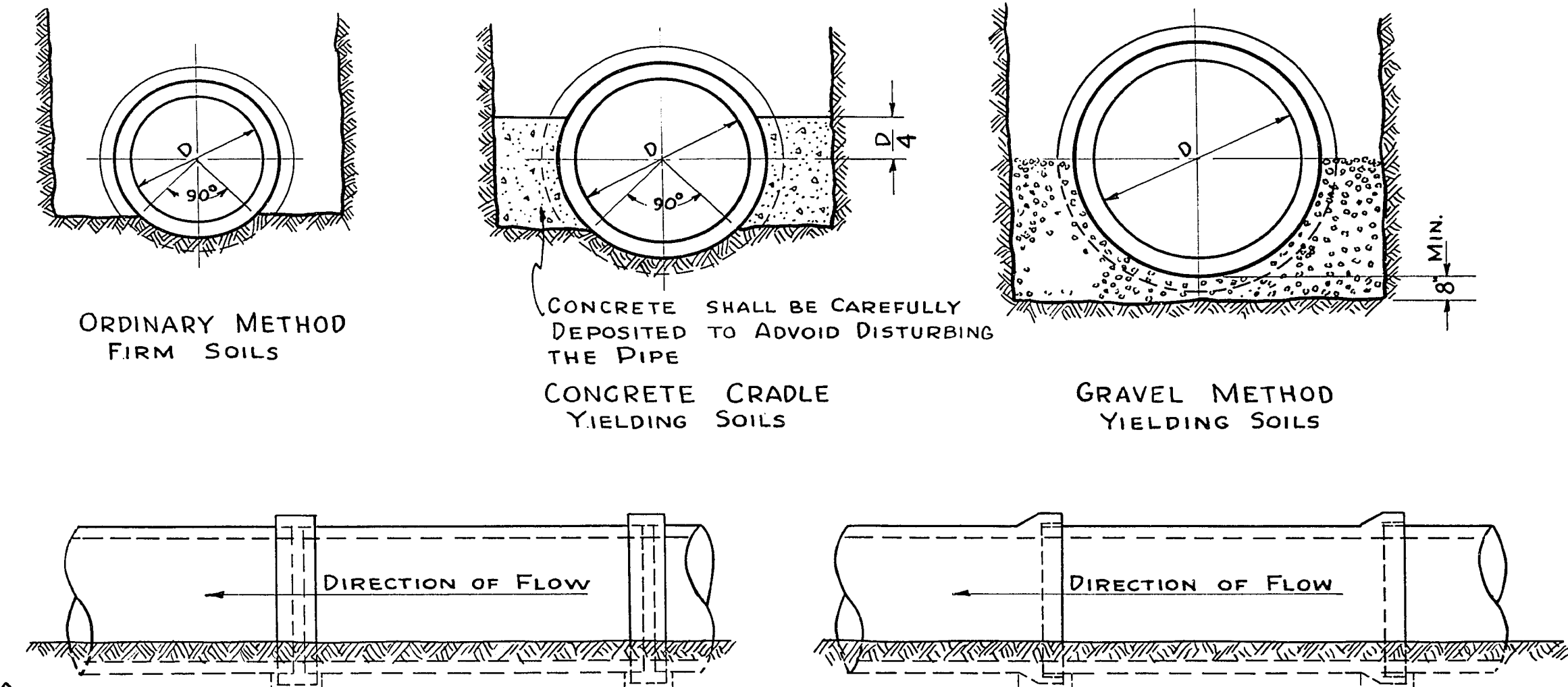
DETAIL OF WROUGHT IRON  
MANHOLE STEP

| PIPE DIA. | X        |
|-----------|----------|
| 24        | 43       |
| 27        | 42 3/8   |
| 30        | 41 3/4   |
| 33        | 41 1/8   |
| 36        | 40 9/16  |
| 39        | 39 5/16  |
| 42        | 39 3/16  |
| 45        | 38 9/16  |
| 48        | 38       |
| 51        | 37 5/16  |
| 54        | 36 13/16 |
| 57        | 36 5/16  |
| 60        | 35 1/2   |



STANDARD FRAME AND COVER  
ITEM #32

- NOTES
1. FRAME AND COVER TO BE ALHAMBRA FOUNDRY CO. TYPE A 1310 OR EQUAL.
  2. CAST IRON SHALL HAVE MINIMUM TENSILE STRENGTH OF 30,000 LBS./SQUARE INCH.
  3. FRAME AND COVER MACHINED TO FIT.
  4. WEIGHT OF FRAME AND COVER 390 LBS. APPROX.
  5. COVER TO BE MARKED "CITY OF LAS VEGAS SANITARY SEWER"



STANDARD PIPE LAYING METHODS

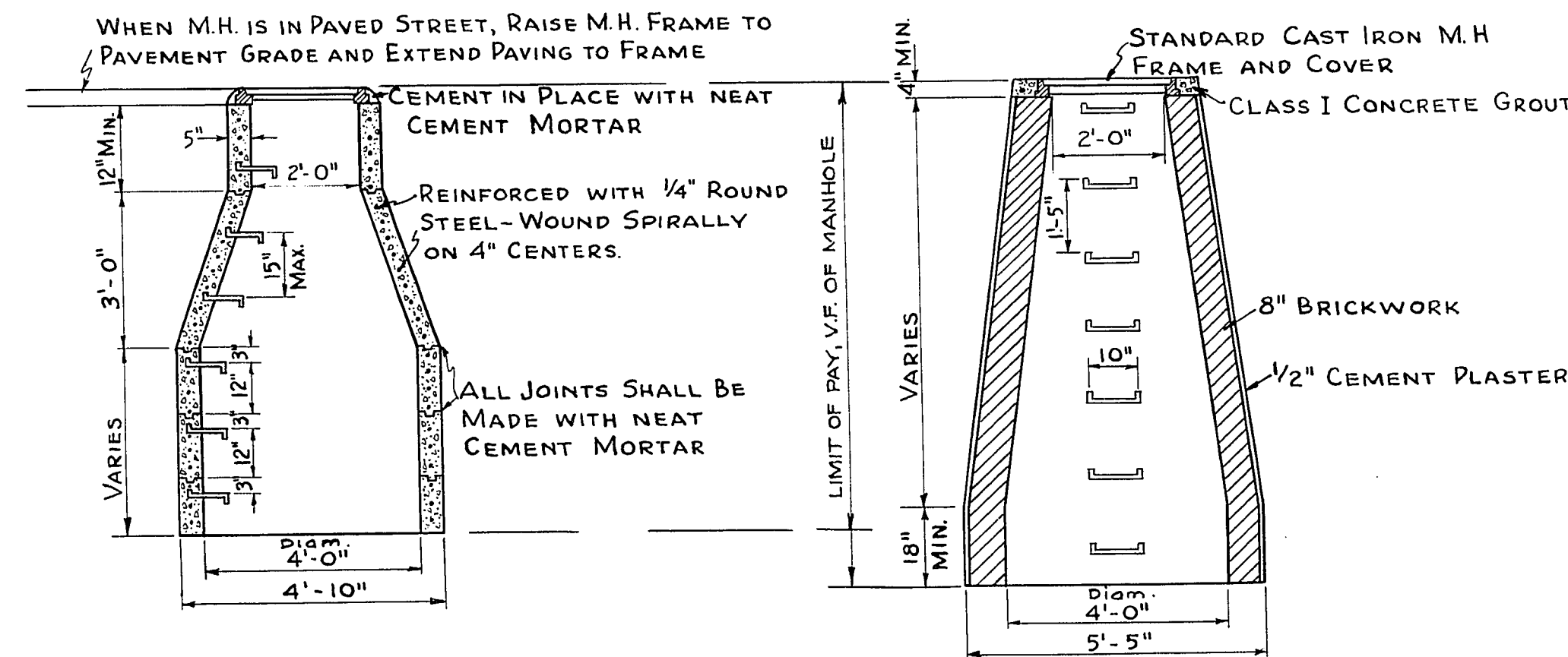
- NOTES
1. TEMPLATES SHALL BE USED TO PACK THE BOTTOM OF THE TRENCH TO FIT THE OUTSIDE PERIPHERY OF THE LOWER ONE FOURTH OF THE PIPE
  2. REMOVE SOFT OR SPONGY SOIL AND REPLACE WITH GRAVEL OR CRUSHED ROCKS. (SELECT AGGREGATE)-TYPE II
  3. TRENCH SHALL BE KEPT ENTIRELY FREE FROM WATER UNTIL BACKFILLED.
  4. START LAYING PIPE AT LOW END AND BUILD AGAINST THE DIRECTION OF FLOW.
  5. CONCRETE FOR CRADLE TO BE CLASS "C"

| Size of Pipe | Maximum and Minimum Width of Trenches |            | Size of Pipe | Max. Width | Min. Width |
|--------------|---------------------------------------|------------|--------------|------------|------------|
|              | Max. Width                            | Min. Width |              |            |            |
| 8"           | 26"                                   | 24"        | 33"          | 59"        | 54"        |
| 10"          | 28"                                   | 26"        | 36"          | 63"        | 58"        |
| 12"          | 30"                                   | 28"        | 39"          | 67"        | 62"        |
| 15"          | 34"                                   | 31"        | 41"          | 73"        | 68"        |
| 18"          | 37"                                   | 34"        | 45"          | 78"        | 72"        |
| 21"          | 41"                                   | 38"        | 48"          | 82"        | 76"        |
| 24"          | 46"                                   | 42"        | 51"          | 86"        | 80"        |
| 27"          | 50"                                   | 46"        | 54"          | 90"        | 84"        |
| 30"          | 54"                                   | 50"        | 57"          | 94"        | 88"        |

Note: Max. Width of Trench will not be used except when Fill over top of Pipe is greater than 14'-0"

"D" LOAD FOR REIN. CONC. PIPE.

| SIZE OF PIPE | "D" LOAD | SIZE OF PIPE | "D" LOAD |
|--------------|----------|--------------|----------|
| 24"          | 1500     | 42"          | 1250     |
| 27"          | 1500     | 45"          | 1250     |
| 30"          | 1250     | 48"          | 1250     |
| 33"          | 1250     | 51"          | 1250     |
| 36"          | 1250     | 54"          | 1250     |
| 39"          | 1250     | 57"          | 1250     |

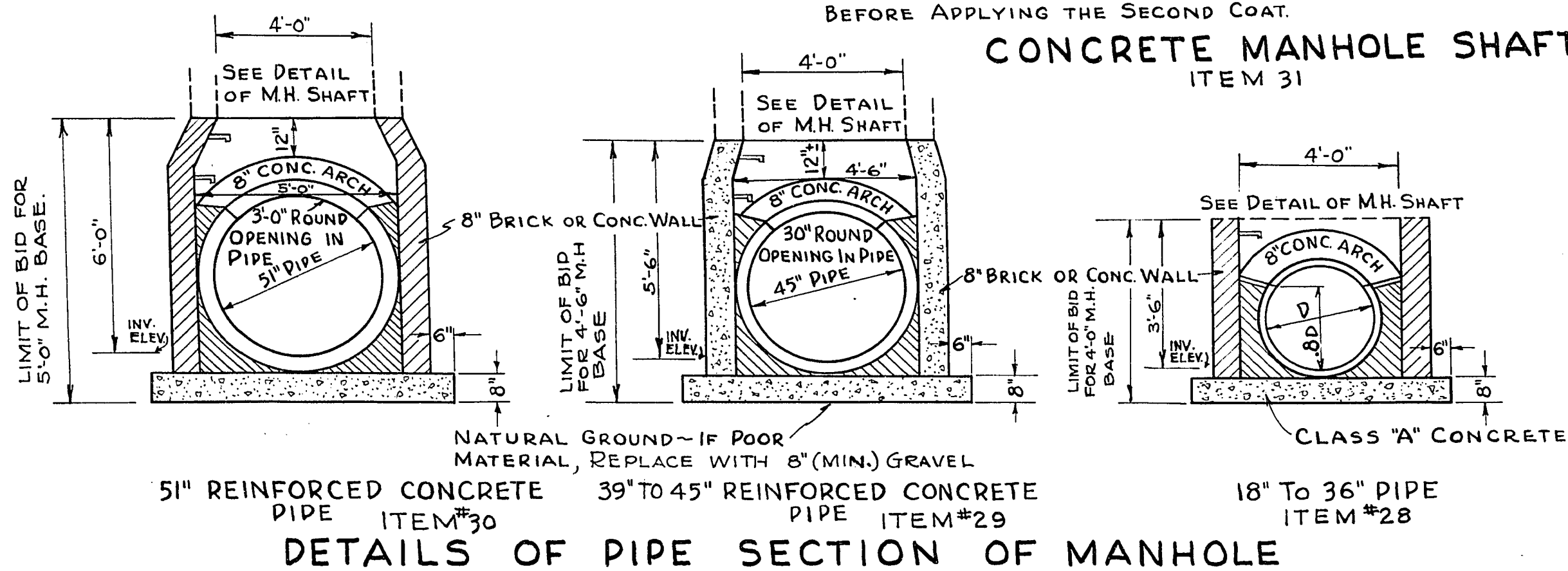


CONCRETE MANHOLE SHAFT  
ITEM #31

NOTE  
AFTER ERECTION, THE CONCRETE SURFACES SHALL BE DRY AND CLEAN AND GIVEN TWO COATS OF NO. 50 BITUMASTIC OR EQUAL. NO THINNER SHALL BE USED. THE FIRST COAT SHALL BE ALLOWED TO DRY 24 HOURS BEFORE APPLYING THE SECOND COAT.

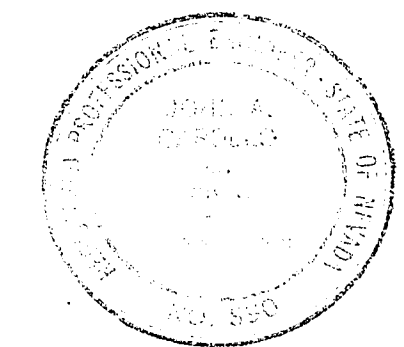
- NOTES
1. FOR SEWERS 15" OR MORE IN DIAMETER POUR 8" CONC. ARCH OVER PIPE.
  2. FOR SEWERS 12" OR LESS IN DIA. POUR 4" CONC. ARCH OVER PIPE
  3. THE LOWEST M.H. STEP SHALL BE PLACED NOT LESS THEN 16" NOR MORE THEN 24" ABOVE THE SHELF
  4. THE UPPER STEP SHALL BE PLACED ONE THICKNESS OF BRICK BELOW THE BOTTOM OF THE M.H. COVER AND SHALL PROJECT 2" INSIDE THE M.H.
  5. FOR SEWERS 15" OR LESS IN DIA. THE DEPTH OF THE CHANNEL IN THE BASE SHALL BE 2/3 OF THE INSIDE DIA. OF THE PIPE
  6. FOR SEWERS 18" OR MORE IN DIA. THE DEPTH OF THE CHANNEL IN THE BASE SHALL BE EQUAL TO THE INSIDE DIA. OF THE PIPE x 0.8 D

BRICK MANHOLE SHAFT  
ITEM #31



DETAILS OF PIPE SECTION OF MANHOLE

As Built



|   |                   |                      |                                 |
|---|-------------------|----------------------|---------------------------------|
| HEADMAN, FERGUSON & CAROLLO<br>PHOENIX, ARIZONA |                   |                      |                                 |
| LAS VEGAS<br>NEVADA                             |                   |                      |                                 |
| OUTFALL SEWER<br>DETAILS                        |                   |                      |                                 |
| DESIGNED<br>G.C.M.                              | CHECKED<br>G.C.M. | REVIEWED<br>MAY 1958 | SHEET NO. 19<br>TOTAL SHEETS 22 |
|   |                   |                      | 3678-B-1056                     |

NO SCALE

11-1-31

302-V-242