

# PRIVATE SANITARY SEWER EXTENSIONS SERVING

## PHASE II

### LOT 1, BLOCK 1

### RIVER OAKS MOBILE HOME PARK

649 PPS (607861)

CITY OF WICHITA, KANSAS

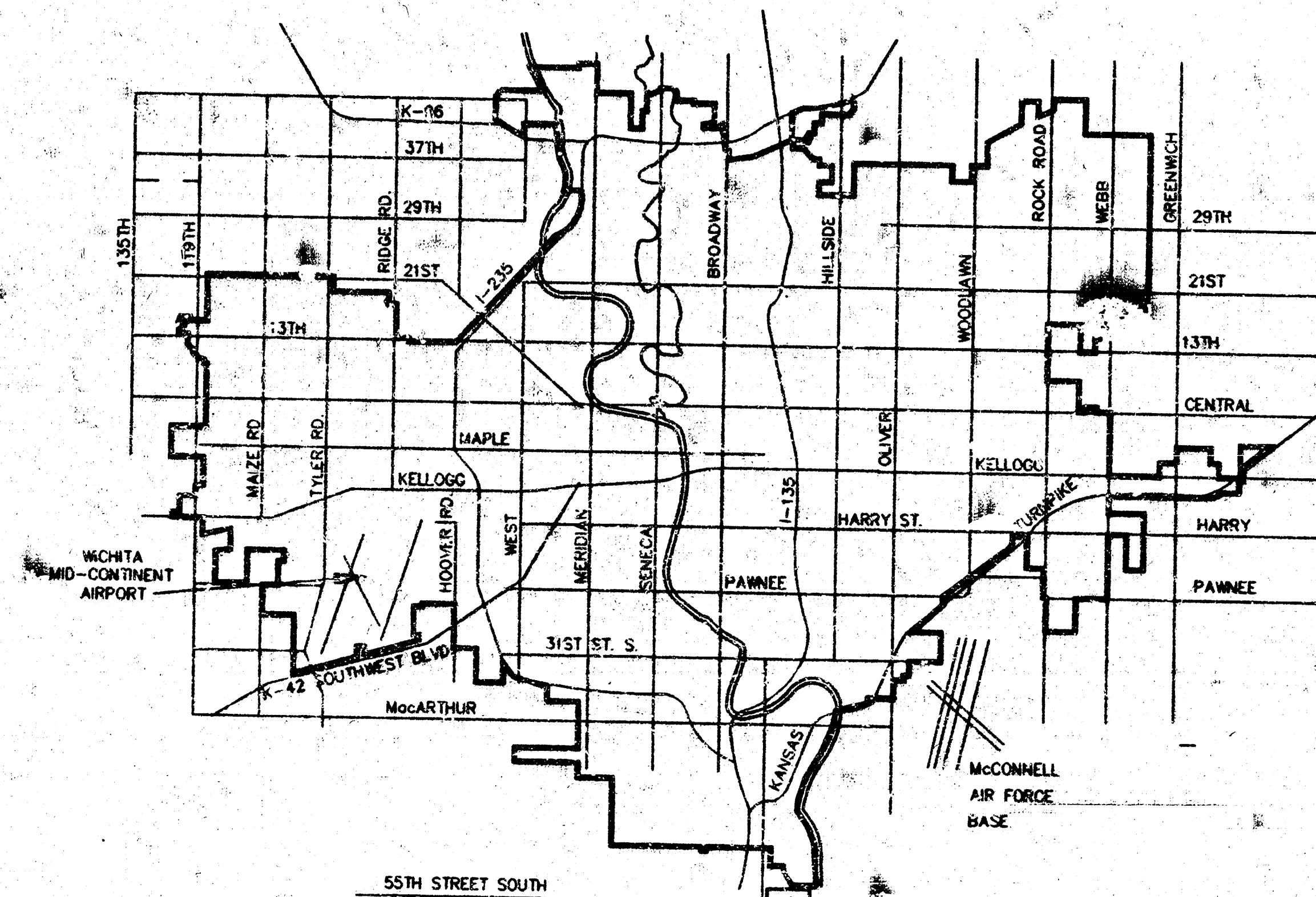
MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER

#### GENERAL NOTES

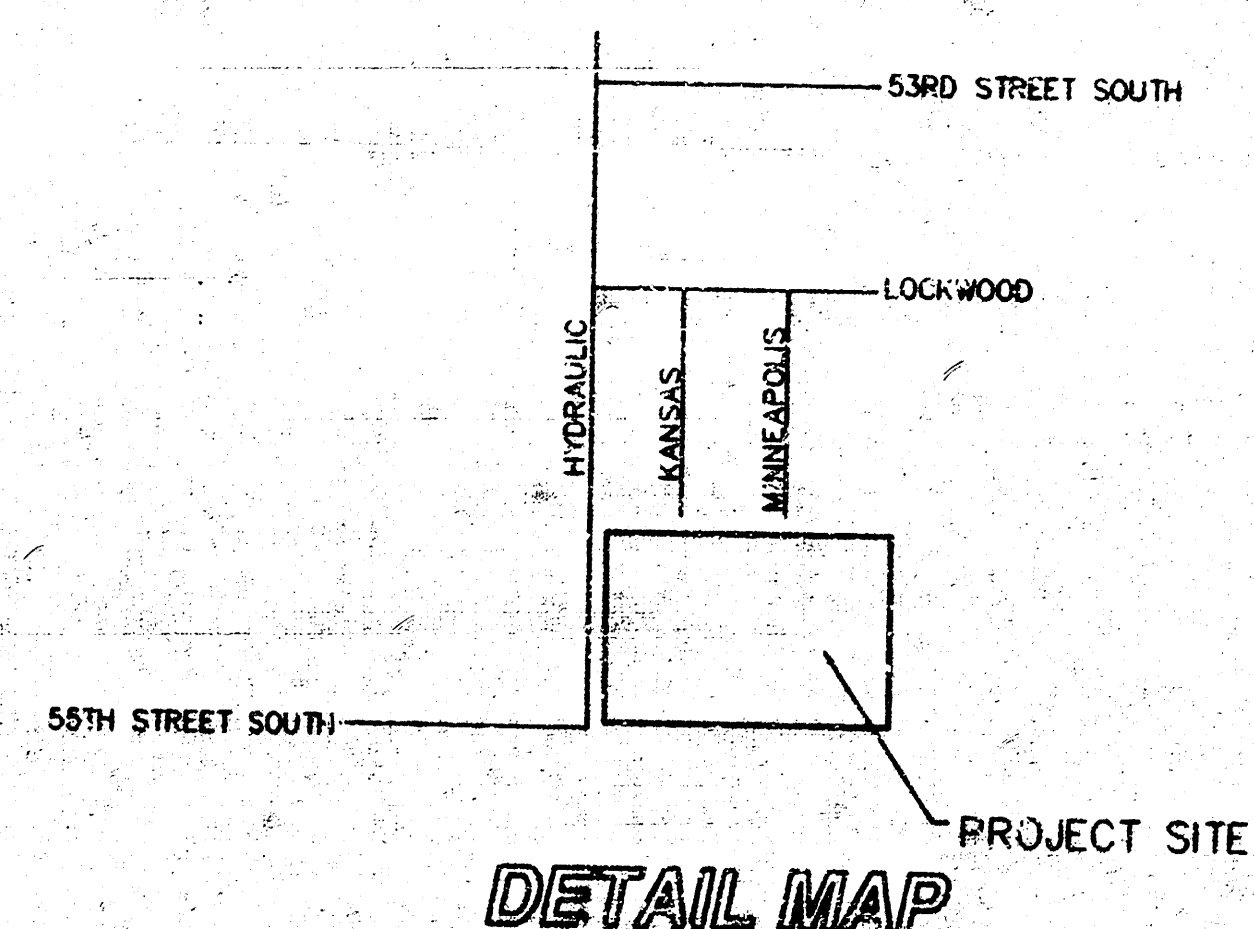
1. Contractor will be required to provide a minimum advance notice of forty-eight (48) hours to utility companies prior to starting any excavation as follows:  
Kansas One-Call 687-2470
2. All sanitary sewer or P<sup>u</sup> appurtenances shall be installed in accordance with City of Wichita, Kansas, Standard Specifications for Sanitary Sewer Construction.
3. The Contractor shall be responsible for preserving property lines. The Contractor will be required to re-establish any property lines which are damaged or destroyed by his construction operations. Such lines shall be re-established by a licensed land surveyor in accordance with state laws.
4. All areas north of the north line of Lot 1, River Oaks Mobile Home Park which are disturbed by Contractor's operations shall be restored in accordance with City of Wichita Administrative Regulation AR78. Channel slopes shall be mulched after seeding and fertilizing.

#### INDEX

1. TITLE SHEET
2. PLAN/PROFILE
- 3-4. SHALLOW MANHOLE DETAILS
5. STANDARD MANHOLE DETAILS



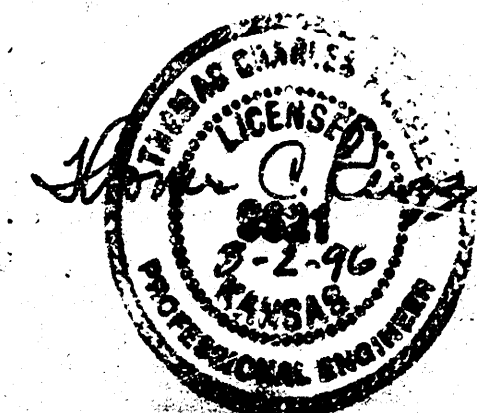
VICINITY MAP



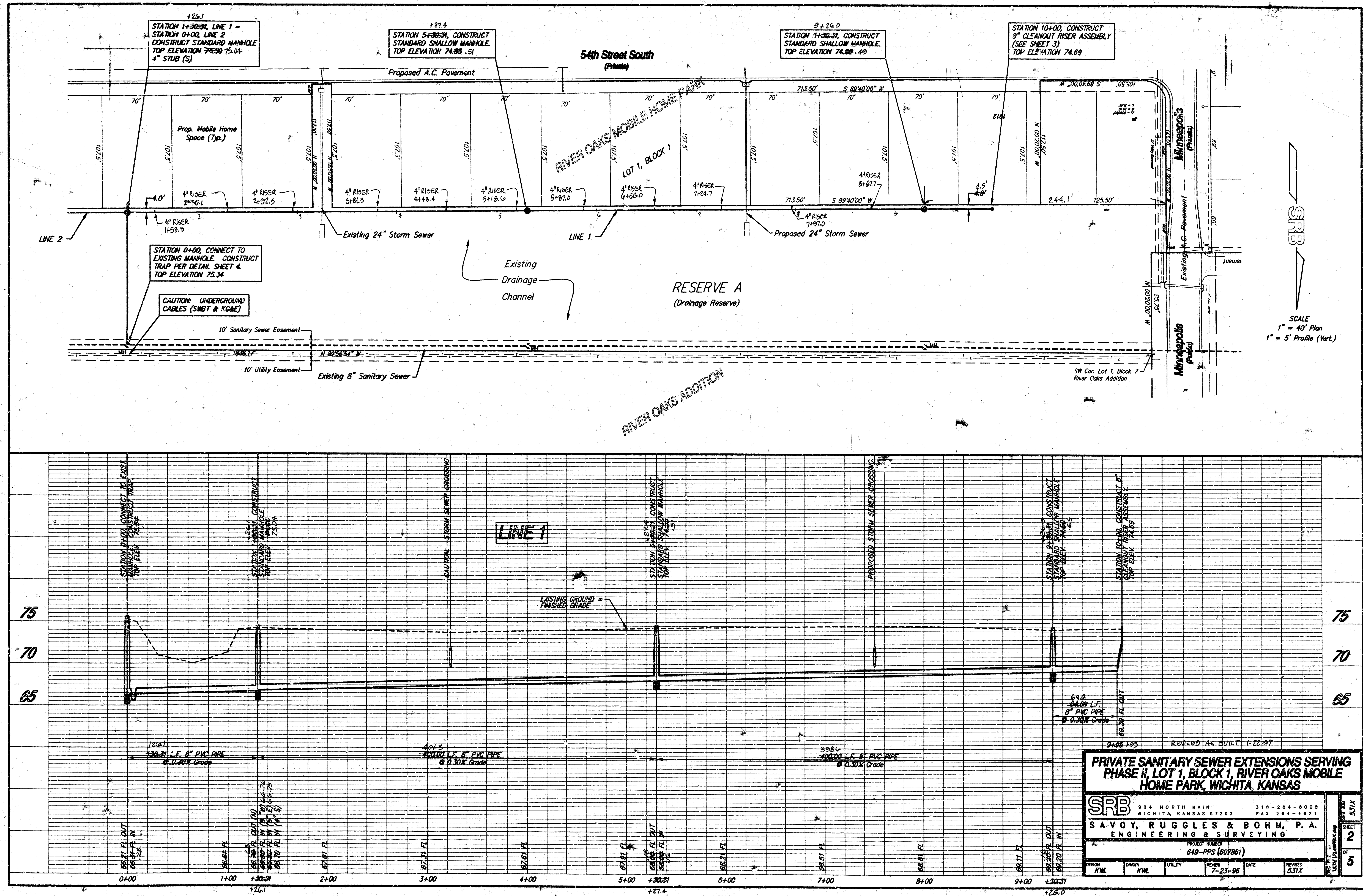
DETAIL MAP

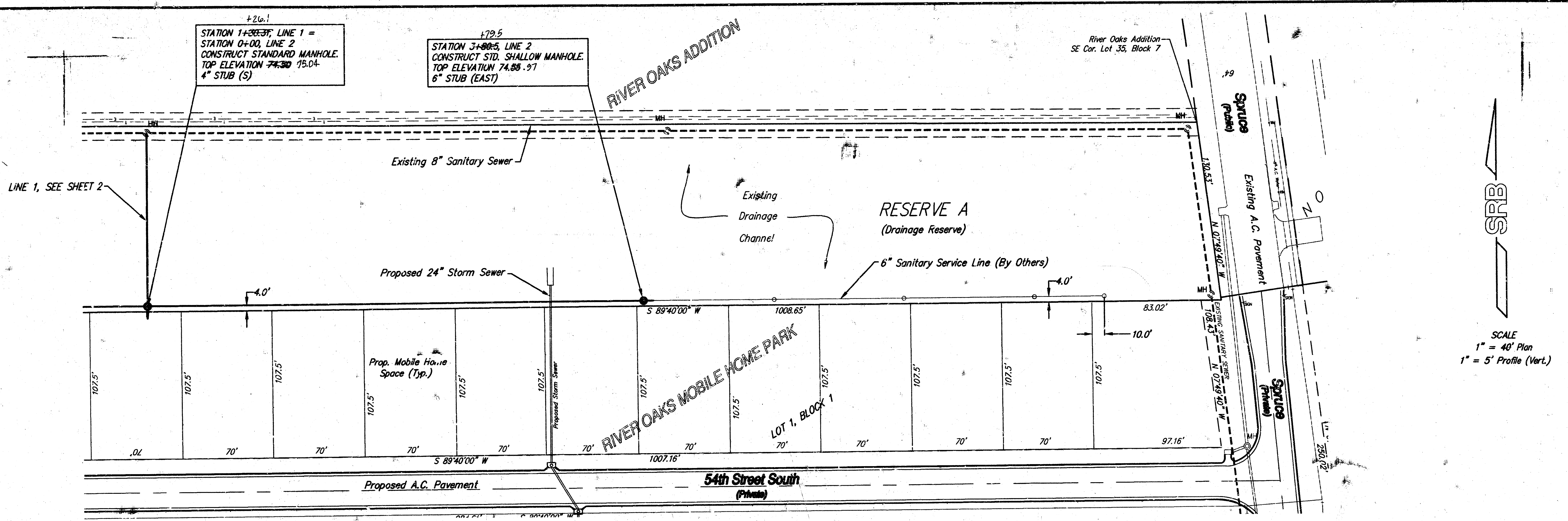
INSPECTION AND TESTING FOR THIS PROJECT TO BE PROVIDED BY A LICENSED CONSULTING ENGINEERING FIRM UNDER CONTRACT WITH THE OWNER/DEVELOPER. SAID INSPECTION TO BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD CONSTRUCTION ENGINEERING PRACTICES AND CONTROLLED BY A LICENSED PROFESSIONAL ENGINEER. NO WORK SHALL BE PERFORMED IN DESIGNATED EXISTING OR PUBLIC RIGHT-OF-WAY BY THE CONTRACTOR WITHOUT SUCH INSPECTIONS AND SHALL ANY WORK BE COMMENCED IN DESIGNATED EXISTING OR PUBLIC RIGHT-OF-WAY WITHOUT WRITTEN AUTHORIZATION BY THE CITY ENGINEER.

APPROVED AS NOTED  
By CITY ENGINEER OF WICHITA  
Sanitary Sewers VRH 8/12/96  
Storm Sewers \_\_\_\_\_  
Driveway Approaches \_\_\_\_\_  
Water Mains \_\_\_\_\_  
Paving \_\_\_\_\_



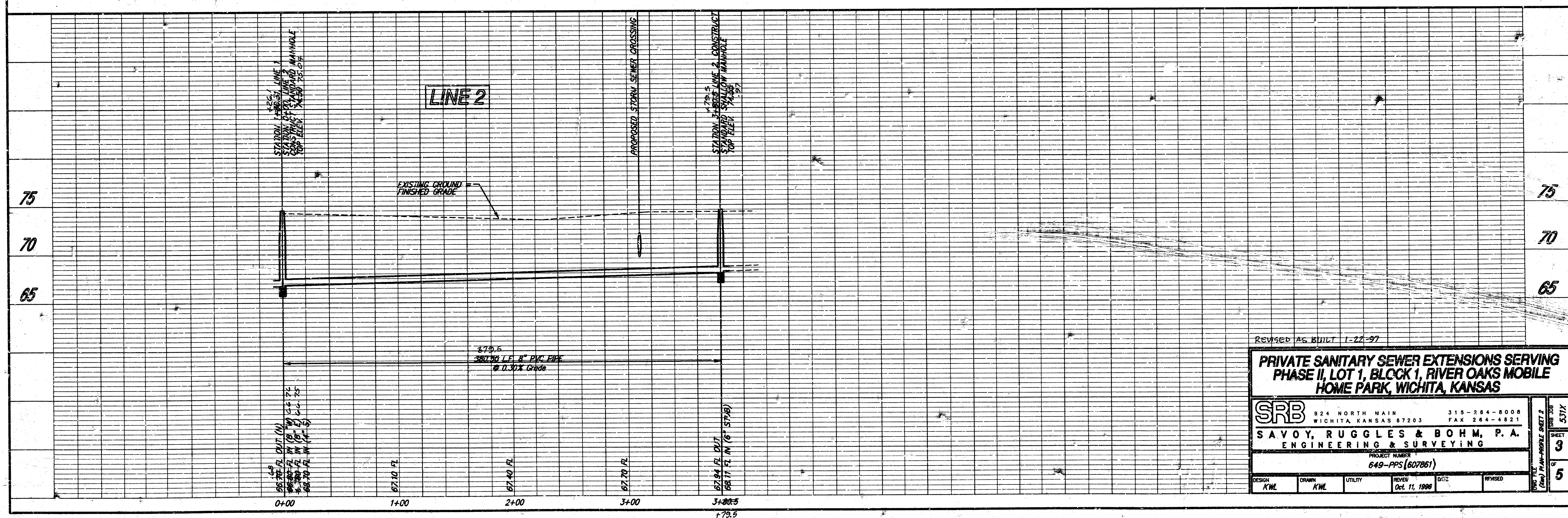
REVISED AS BUILT 1-22-97 OCR  
**SRB** 934 NORTH MAIN 316-264-8008  
WICHITA, KANSAS 67203 FAX 264-4621  
**SAVOY, RUGGLES & BOHM, P.A.**  
ENGINEERING & SURVEYING





SRB

SCALE  
 1" = 40' Plan  
 1" = 5' Profile (Vert.)



REVISED AS BUILT 1-22-97

**PRIVATE SANITARY SEWER EXTENSIONS SERVING  
 PHASE II, LOT 1, BLOCK 1, RIVER OAKS MOBILE  
 HOME PARK, WICHITA, KANSAS**

**SRB**  
 924 NORTH MAIN  
 WICHITA, KANSAS 67203  
 315-264-8008  
 FAX 264-4821

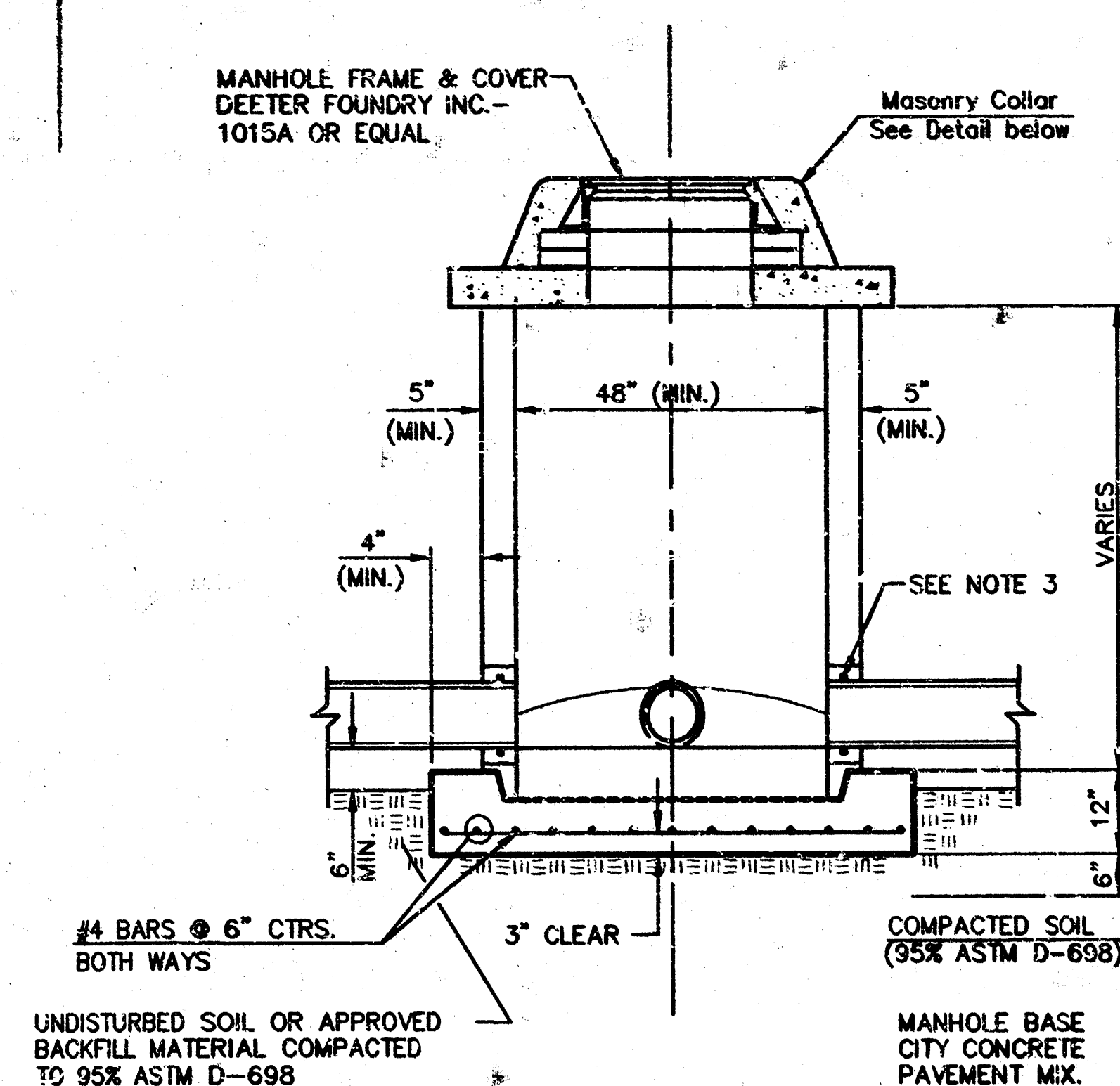
**SAVOY, RUGGLES & BOHM, P.A.**  
 ENGINEERING & SURVEYING

PROJECT NUMBER  
 649-PPS(607861)

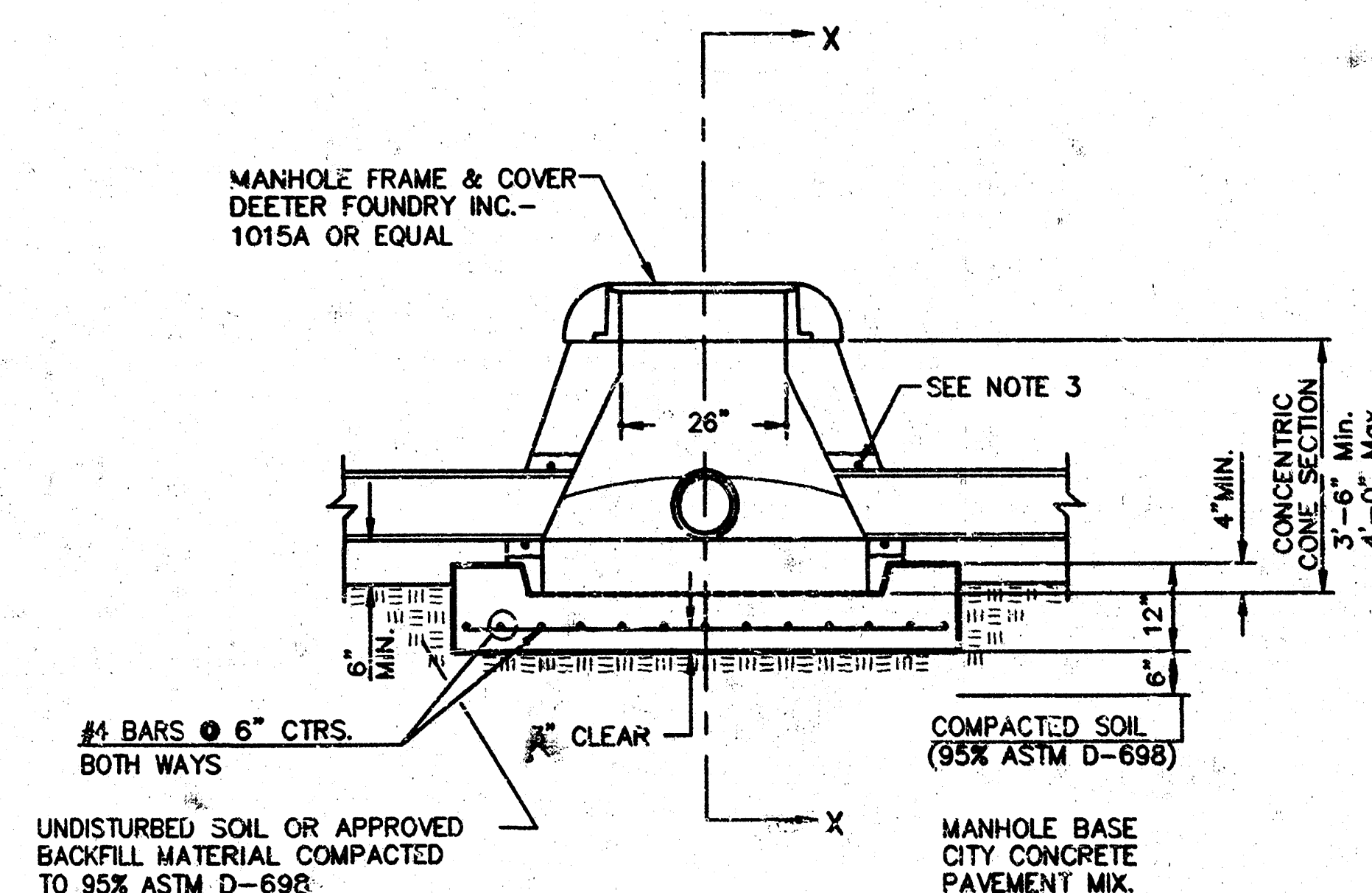
|               |              |         |                        |      |         |
|---------------|--------------|---------|------------------------|------|---------|
| DESIGN<br>KWL | DRAWN<br>KWL | UTILITY | REVIEW<br>Oct 11, 1998 | DATE | REVISED |
|---------------|--------------|---------|------------------------|------|---------|

531X  
 3  
 5

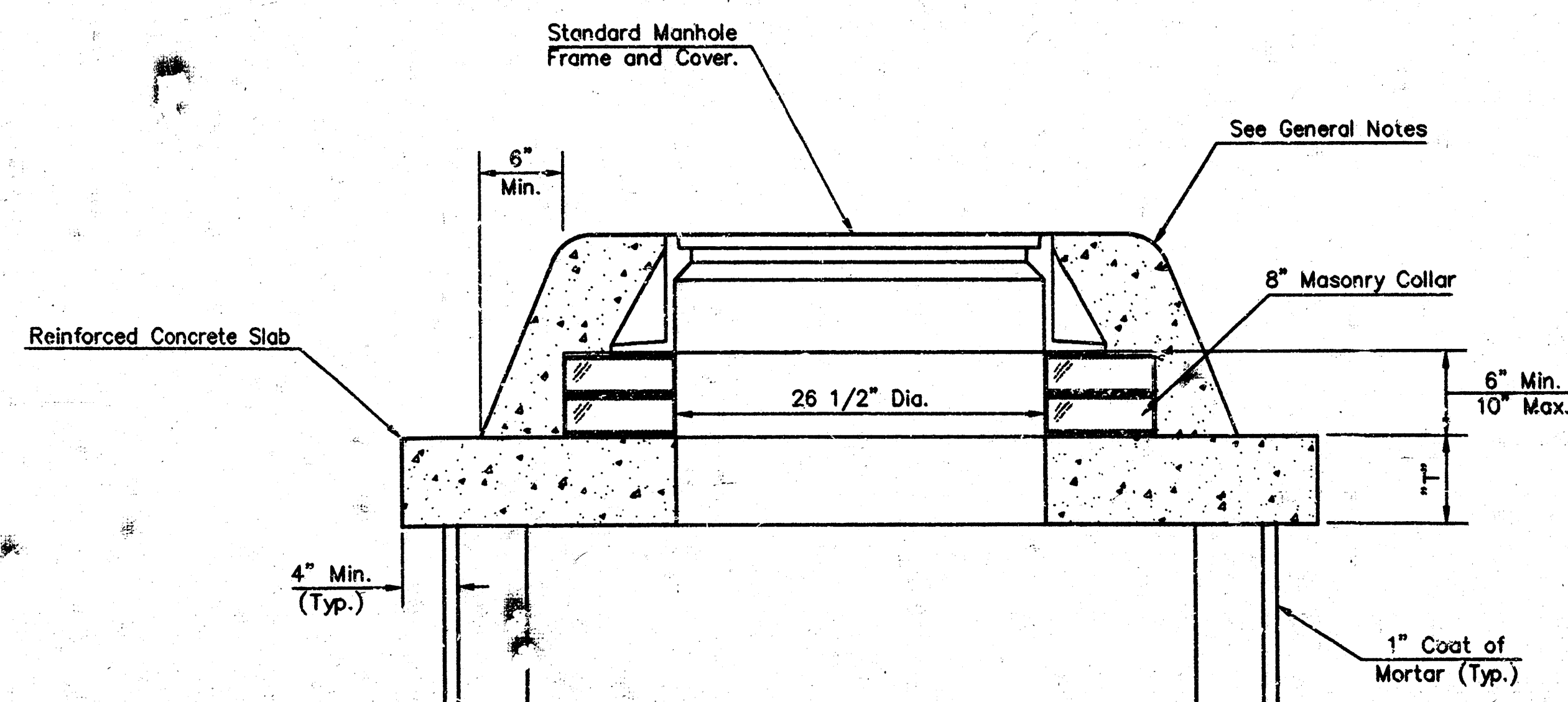
P: ACTIVE PROJECTIONS: RIVER OAKS MOBILE HOME PARK (SEE SHEET 2)



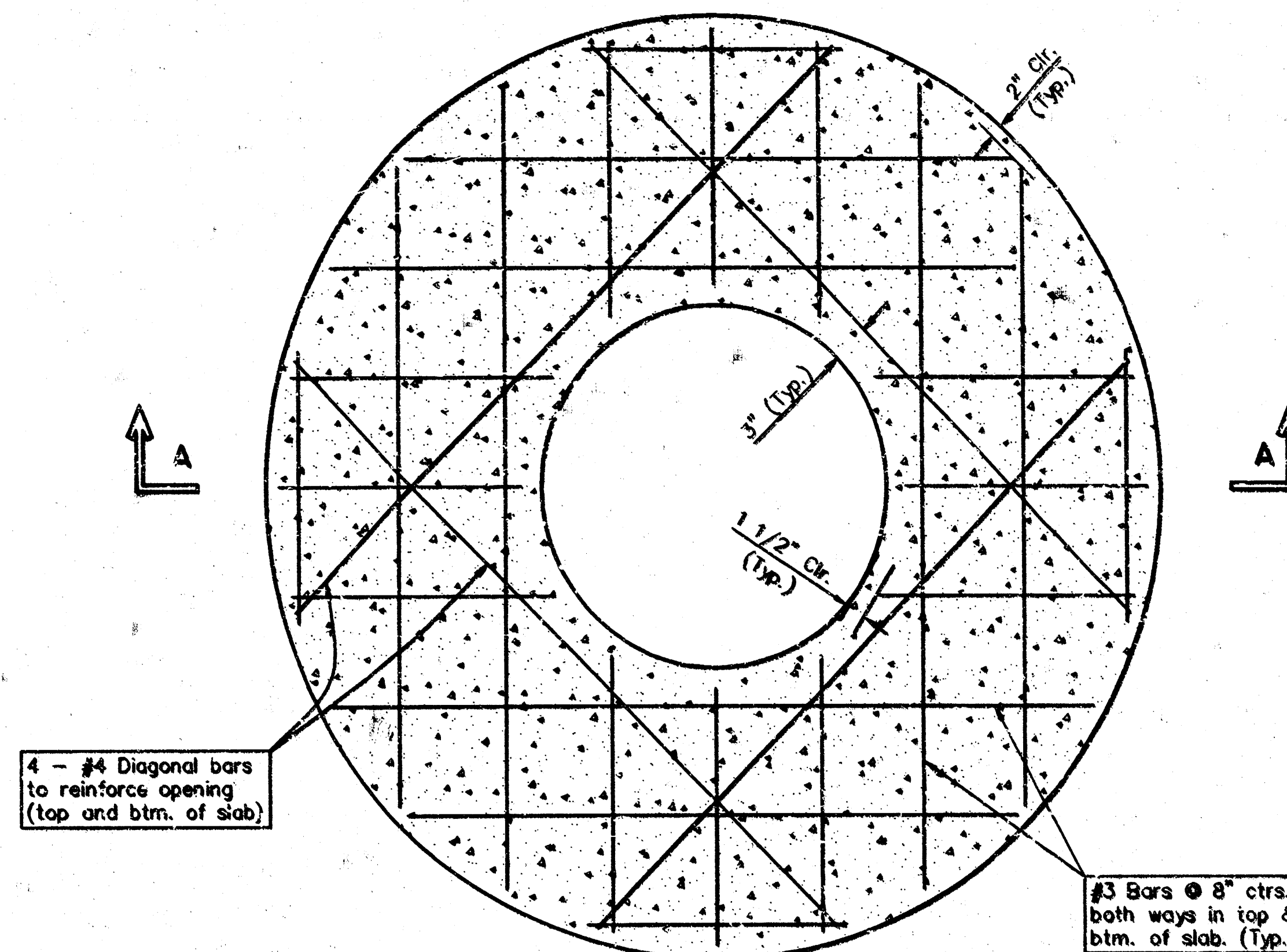
**SHALLOW TYPE 'P' MANHOLE**



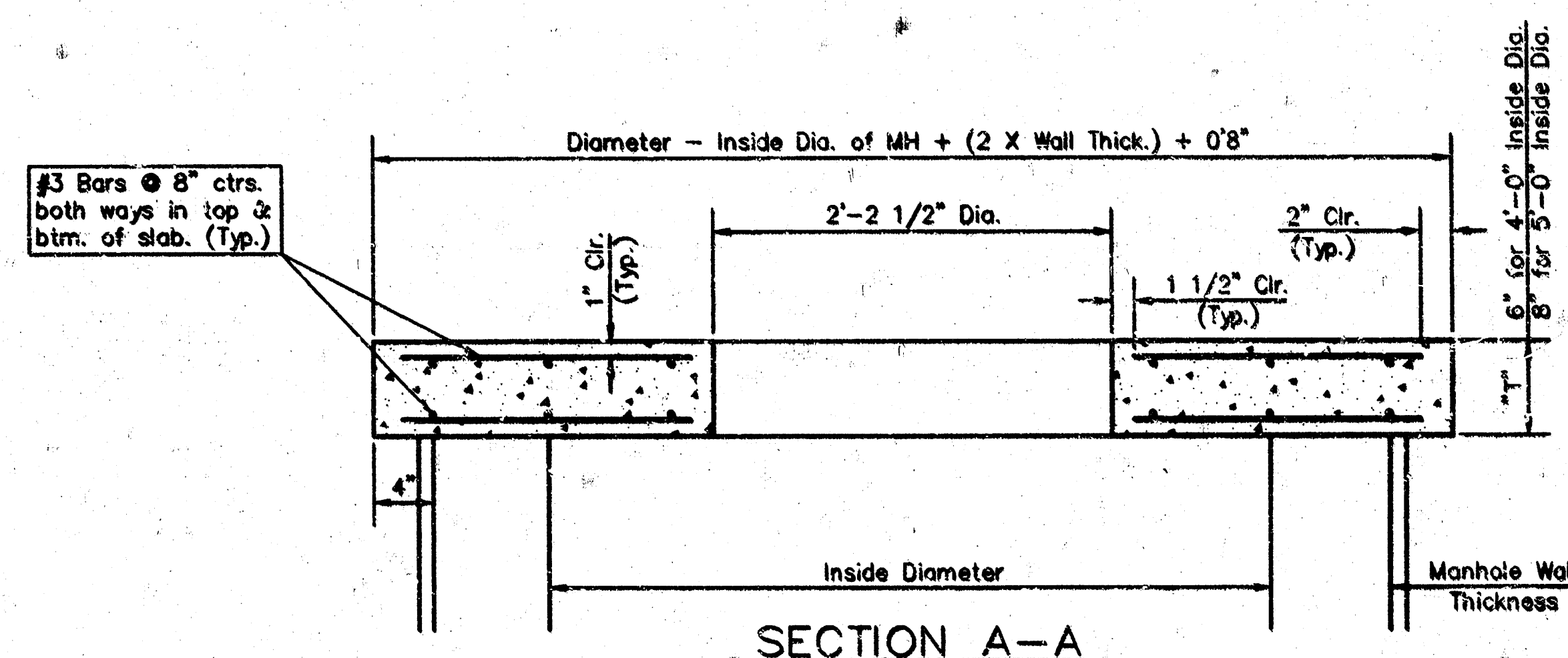
**SPECIAL SHALLOW TYPE 'P' MANHOLE**



**MASONRY COLLAR DETAIL**

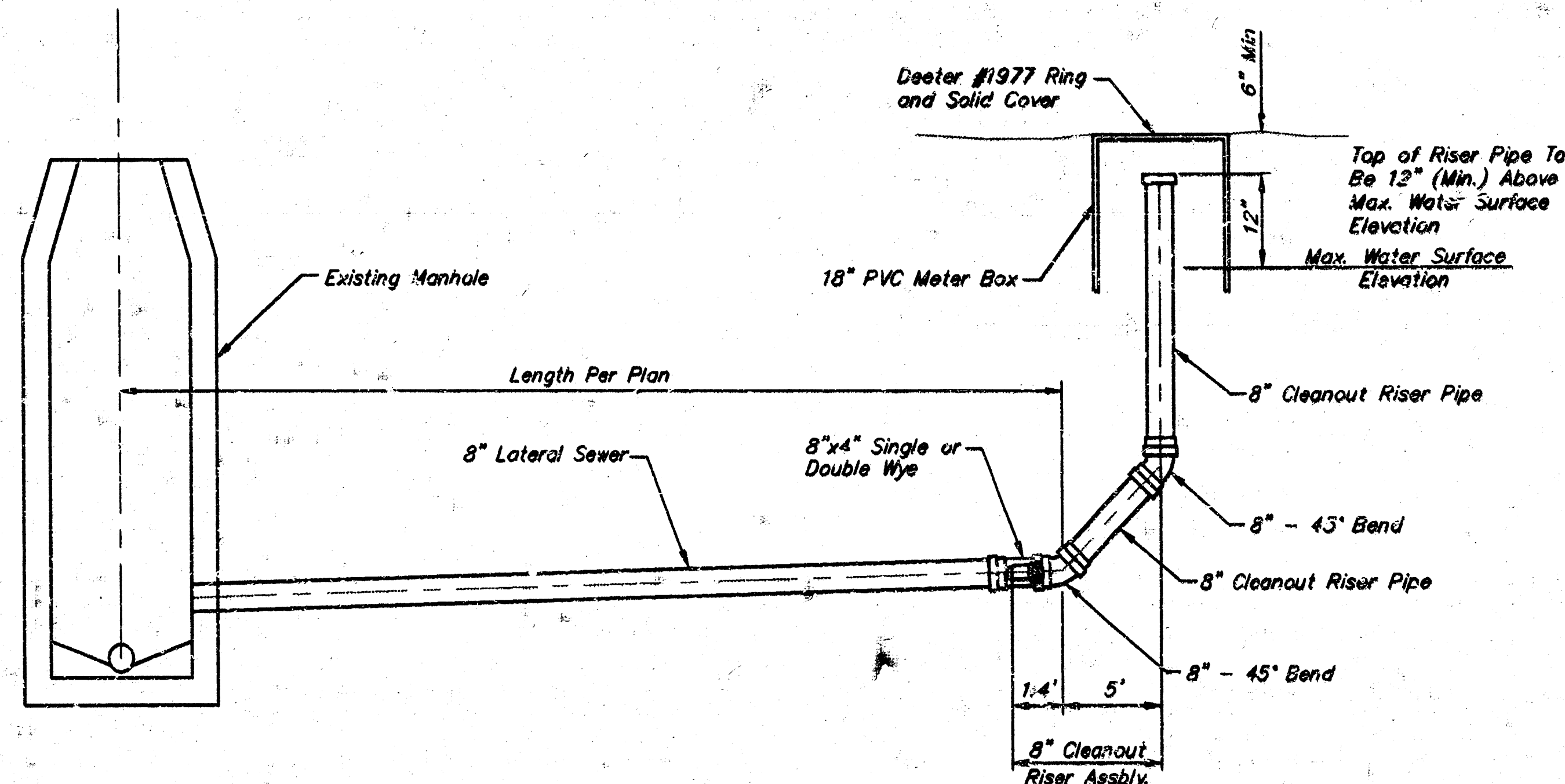


**PLAN**



**SECTION A-A**

**CONCRETE SLAB DETAILS**



**CLEANOUT RISER DETAIL**

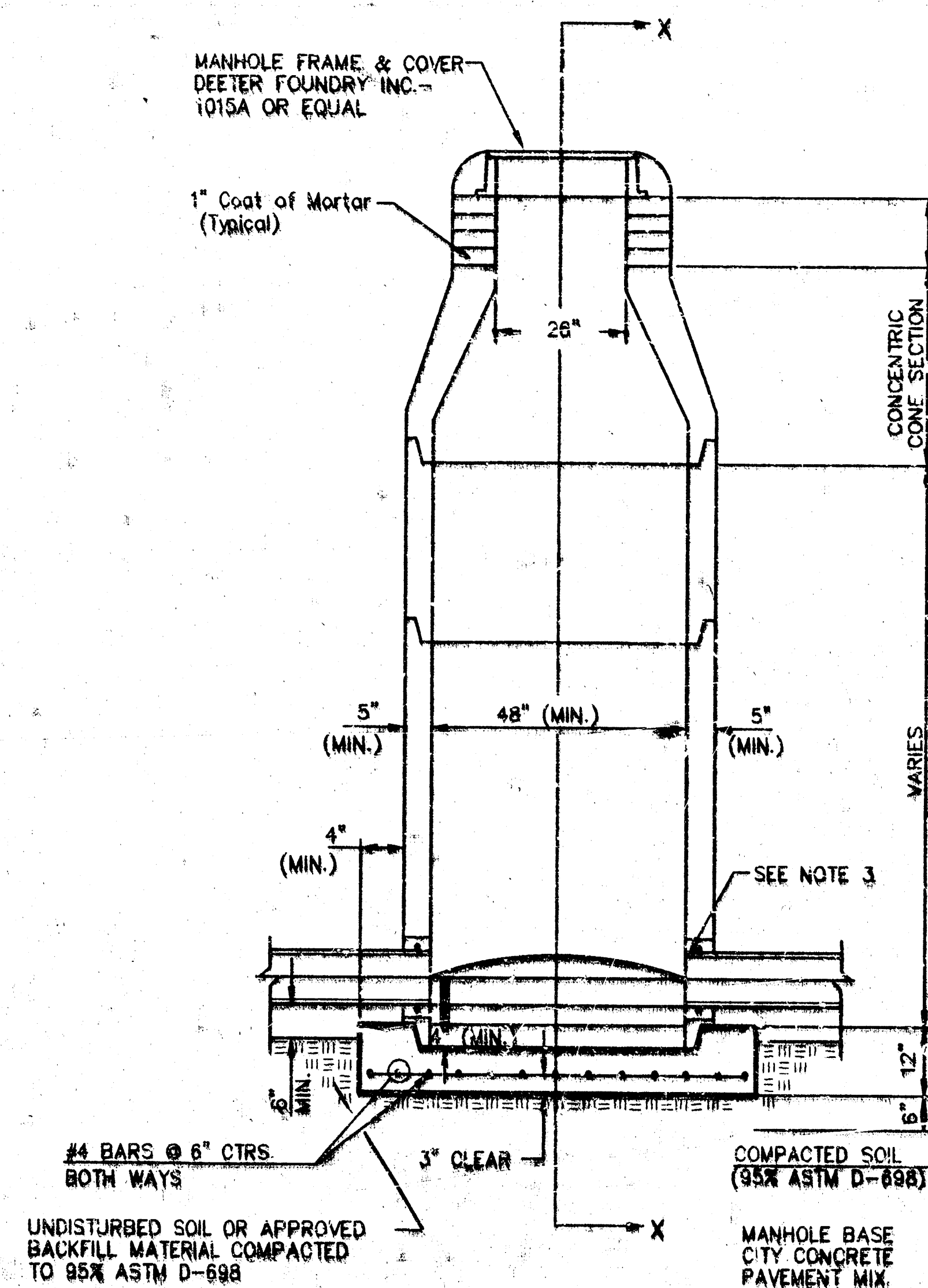
**GENERAL NOTES**

1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
3. APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS INEMEC SERIES 66 HI-BUILD EPOXYGUNE, DRY THICKNESS OF 8 MILS (MIN.).
5. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
6. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
8. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHARPED INVERT.
9. LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
10. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 BAGS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE PASSES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE AN INSIDE DIAMETER OF 4". MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE 24" OR LARGER SHALL HAVE AN INSIDE DIAMETER OF 5". COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
11. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
12. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
13. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE GRADED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
14. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
15. ALL BRICK USED IN MANHOLE CONSTRUCTION SHALL MEET GRADE SW OF ASTM C852 OR C82-87.

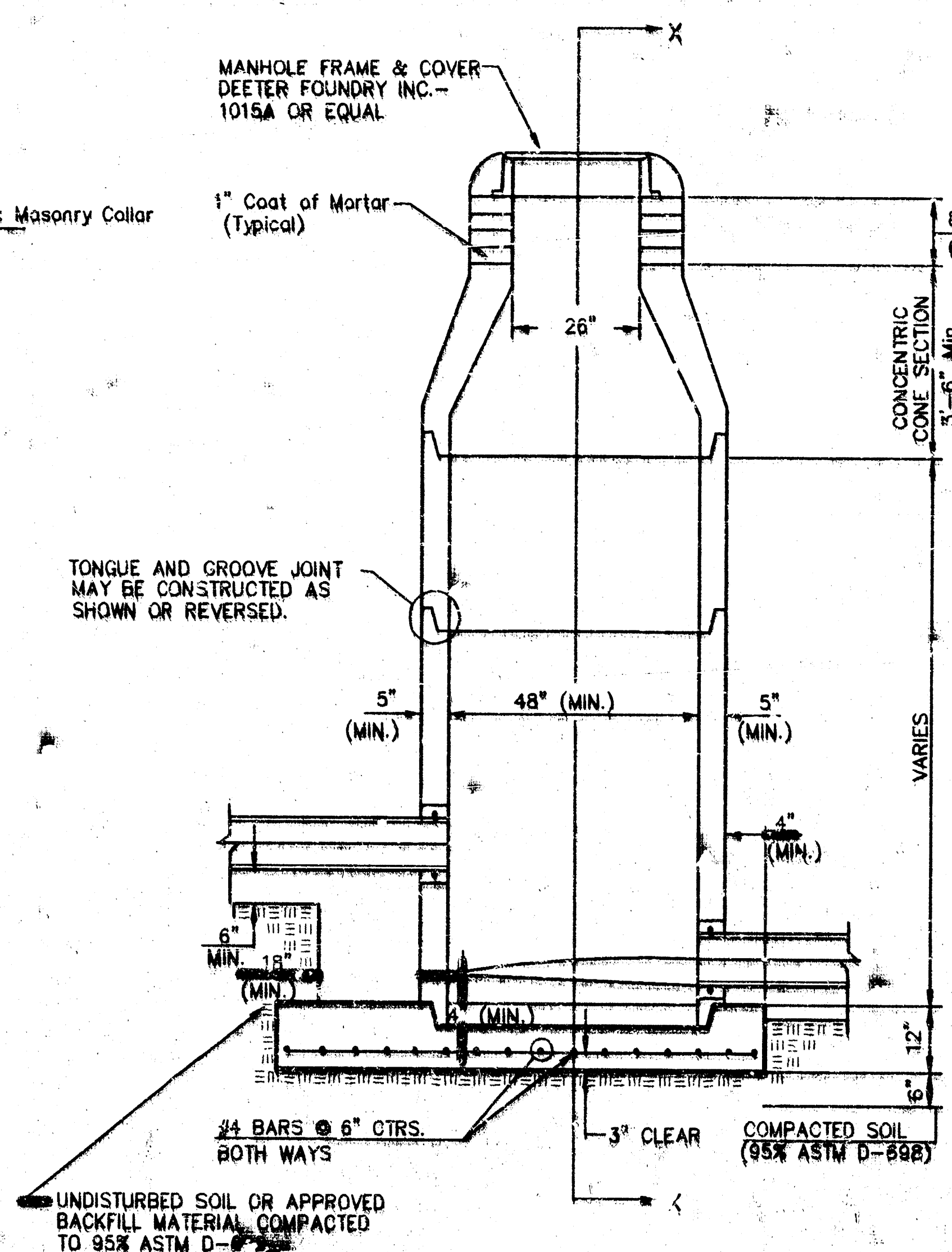
**SHALLOW TYPE 'P' MANHOLE DETAILS**

|                                        |        |                |              |
|----------------------------------------|--------|----------------|--------------|
| <b>SRB</b>                             |        | 224 NORTH MAIN | 310-284-8008 |
| WICHITA, KANSAS 67203                  |        | FAX 284-4821   |              |
| <b>SAVOY, RUGGLES &amp; BOHM, P.A.</b> |        |                |              |
| ENGINEERING & SURVEYING                |        |                |              |
| PROJECT NUMBER                         |        |                |              |
| 649-PPS-607861                         |        |                |              |
| DRAWN                                  | DESIGN | REVIEW         | DATE         |
| DKD                                    |        |                | 7-1-98       |
|                                        |        |                | UTILITY      |
|                                        |        |                | SRB JOB      |
|                                        |        |                | 531X         |

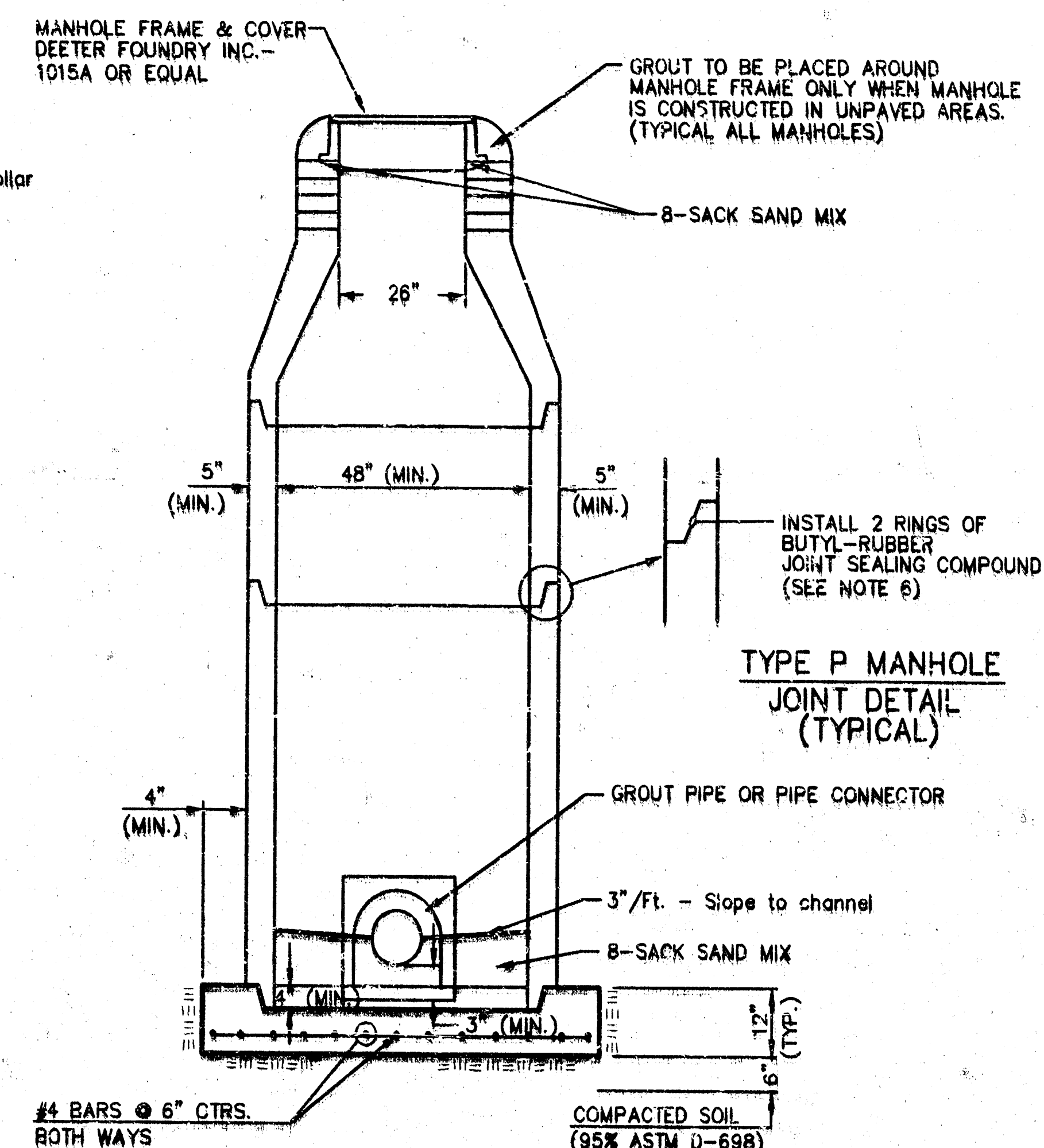
# SEWER APPURTENANCES DETAILS



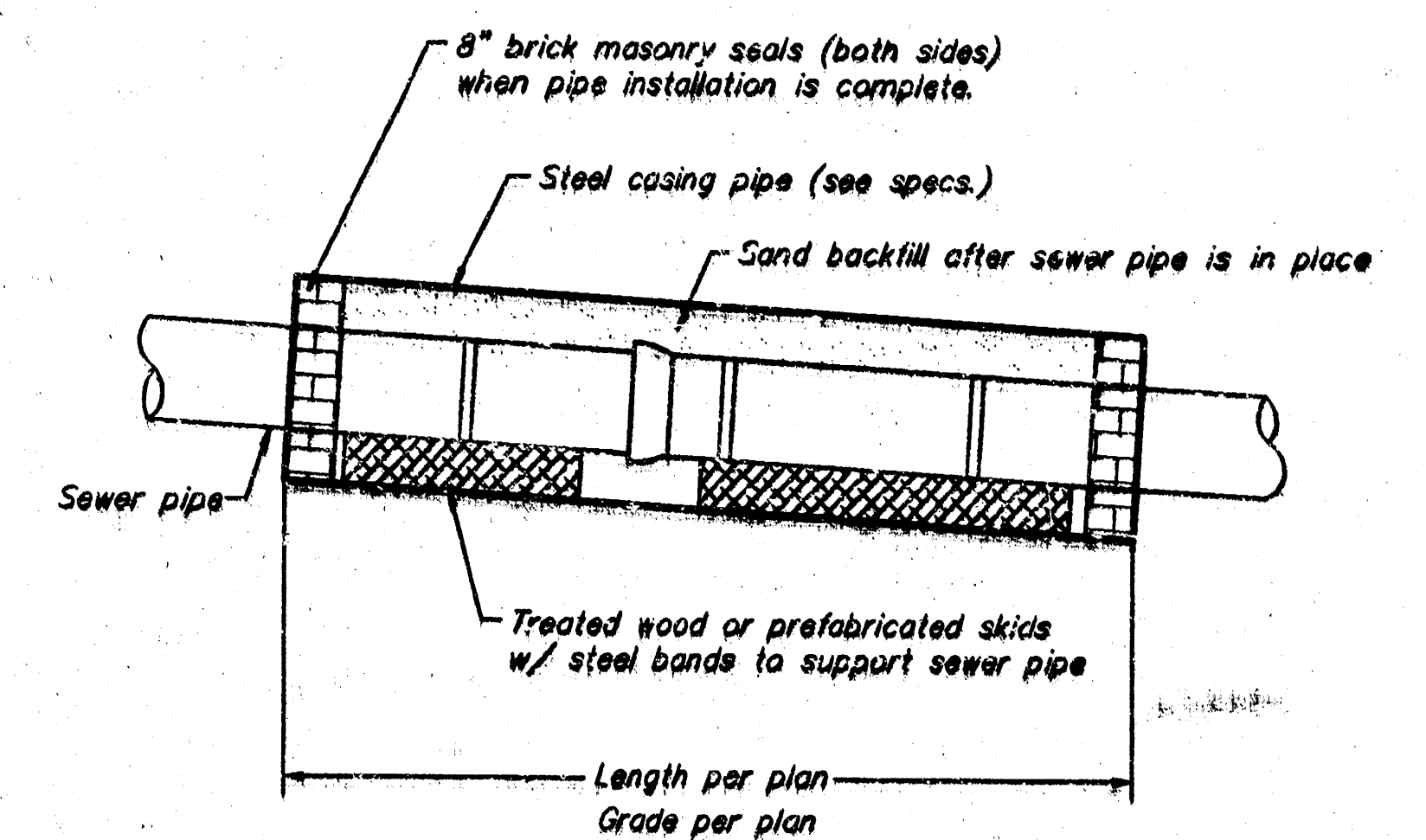
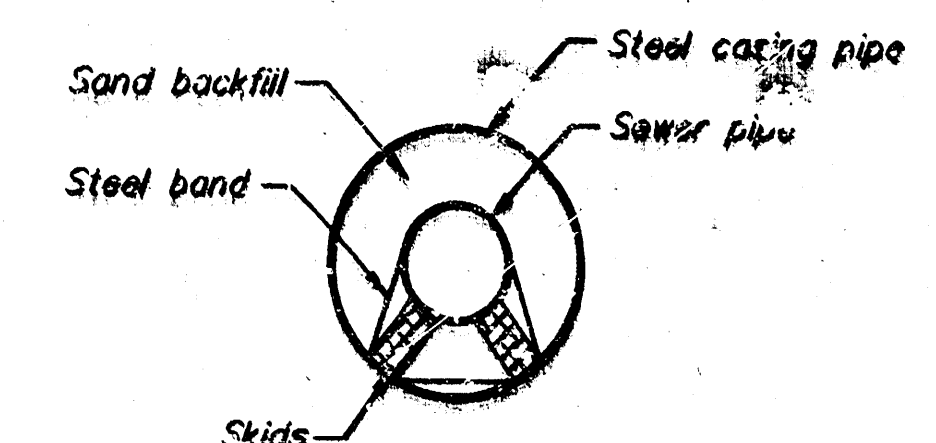
TYPE P  
STANDARD MANHOLE



TYPE P  
INSIDE DROP MANHOLE



SECTION X  
(TYPICAL)

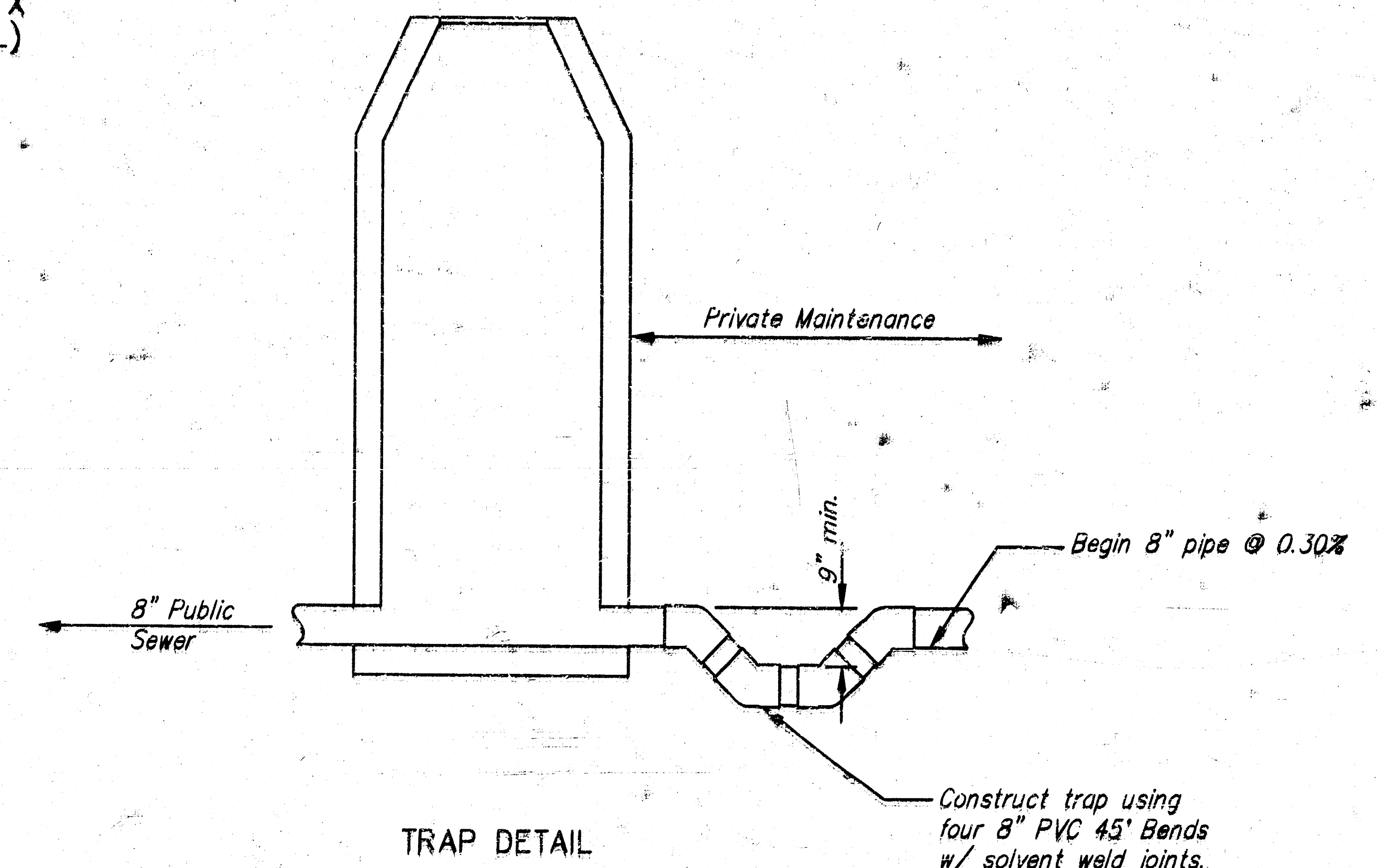


BORING AND JACKING  
STEEL PIPE CASING DETAIL

- GENERAL NOTES
- PRECAST MANHOLE NOTES
- ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
  - NO SHrink GROUT SHALL BE NON-METALLIC TYPE.
  - APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
  - ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS (MEMO SERIES 88 H-BUILD EPOXY) DRY THICKNESS OF 8 MILS (MIN.).
  - EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
  - JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
  - PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
  - TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
  - LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
  - MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 BAGS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE AN INSIDE DIAMETER OF 4". MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE 24" OR LARGER SHALL HAVE AN INSIDE DIAMETER OF 6". COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.

- REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 8" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 1" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
- OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
- THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
- PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.

- MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
- THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
- STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
- A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.



TRAP DETAIL

STANDARD MANHOLE DETAILS  
SEWER APPURTENANCES DETAILS  
CITY OF WICHITA, KANSAS

5  
5