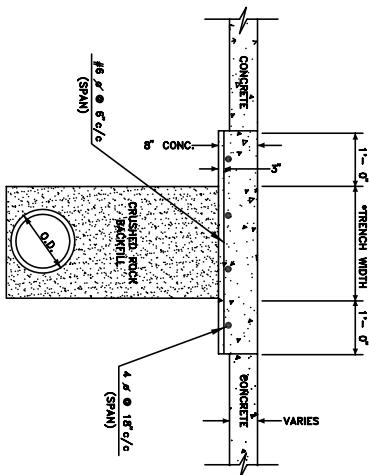
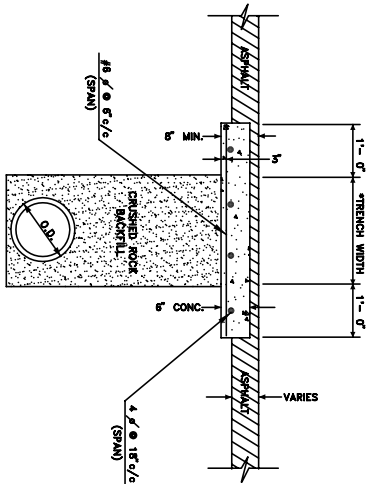


PAVING CUT AND PERMANENT REPAIR

(RIGID PAVEMENT)



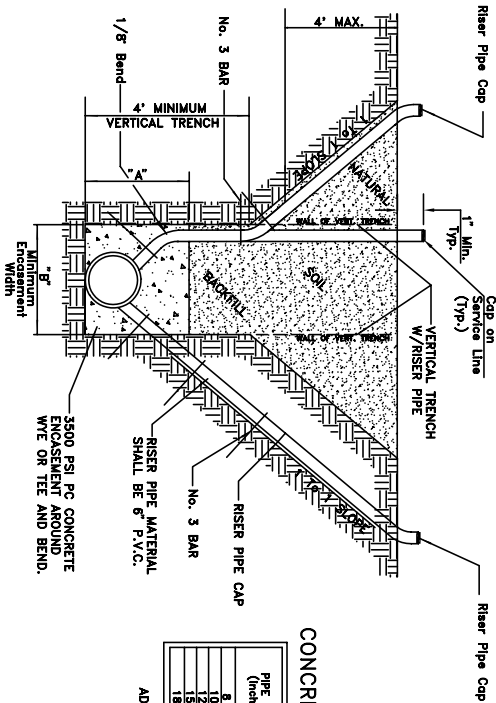
(FLEXIBLE PAVEMENT)



• FOR THE TRENCH WIDTH SEE THE MINIMUM/MAXIMUM TRENCH WIDTH TABLE

NOTE: Crushed rock backfill may be required in lieu of the sand backfill.

SERVICE CONNECTION INSTALLATION



CONCRETE ENCASEMENT FOR RISER PIPE

PIPE SIZE (Inches)	"A" (feet)	"B" (feet)	LENGTH OF ENCASEMENT (feet)
6	1.5	2.2	2.0
8	2.0	2.2	2.0
10	2.0	2.2	2.0
12	2.0	2.2	2.0
14	2.0	2.2	2.0
16	2.0	2.2	2.0
18	2.0	2.2	2.0

ADD 1'-0" TO "B" WHEN USING BRACING OR SHORING

CONNECTION TYPES

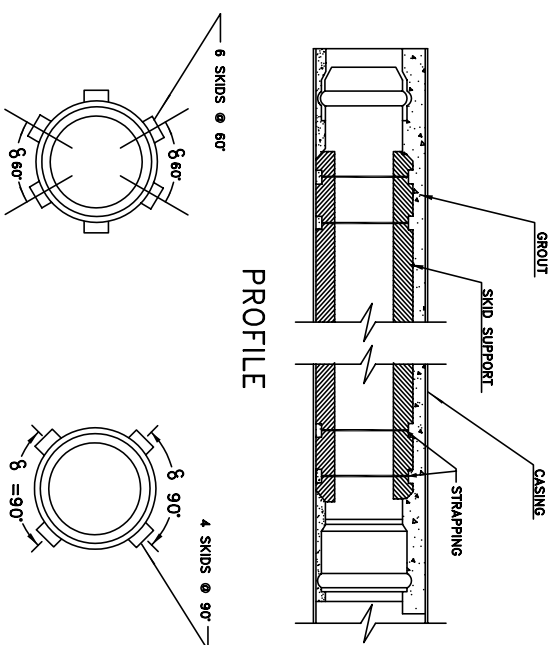
- EXTERNAL CONNECTIONS FOR NEW CONSTRUCTION
  - WYE BRANCHES - For new construction there shall be installed wye branches of size and type shown on the plans with six (6) inch openings at locations shown on the plans or as designated by the Engineer.

- EXTERNAL CONNECTION TO EXISTING MAIN - Connections to existing main may be accomplished as follows:
  - SADDLES - Connections may be made by excavating to the existing main and cutting a hole using approved equipment and installing a saddle sewer service connections constructed with saddles shall include strips, a one-eighth (1/8) degree bend, and a closure piece. When existing main has been rehabilitated by trenchless method of construction, the saddle connection shall be made to the trenchless pipe and/or liner.
  - TEES - Connections may be made by removing a section of the existing pipe and installing a tee. Sewer service connections constructed with tees shall include a one-eighth (1/8) band, and when required, an elbow and a closure piece.
  - WYE BRANCHES - Connections may be made by removing a section of existing pipe and installing a wye branch. Fittings, riser and closure assembly shall be made to make the connection complete when backfilling and subsequent surface restoration is complete. Service connections constructed with wye branches shall include a one-eighth (1/8) degree bend, elbow, and when required, a closure piece.

- RISER
  - INSTALLATION - The riser pipe may be installed in one of the three ways shown above.
  - SIZE and MATERIAL - Riser pipe shall be six inch (6") or four inch (4") schedule 40 PVC as shown on the plans.
  - CONCRETE ENCASEMENT - Concrete encasement around riser shall meet the requirement established above.

- LOCATOR TAP - A locator tape, green in color and studded "CAUTION - SANITARY SEWER RISER PIPE BURIED BELOW" shall be attached to the sanitary sewer riser and extend a minimum of two (2) feet above ground. The tape shall be three (3) inch width Durflex as manufactured by THOR Enterprises, Inc. or Sun Fracor, Michigan or approved equal. This shall aid in locating any services that may be lost due to accidental removal of the riser pipe.

STANDARD DETAIL FOR BORING



SKID POSITION FOR PIPES GREATER THAN 12"

SKID POSITION FOR PIPES 12" AND SMALLER

SECTION

NOTES:

- WOOD SKID SUPPORTS - Wood skid supports, from bell to spigot, shall be used and fastened securely to pipe with steel strapping, cables or clamps. Use of petroleum products shall not be allowed as a lubricant to ease installation. When wood skids are used, they shall be pressure treated with creosote pentachlorophenol, or salt type preservative in accordance with AIA/CES-C-2. Cut surfaces shall be given two (2) heavy brush coats of the same preservative.
- PLUGGED PIPE ENDS - Both ends of the casing pipe shall be plugged with a grout of concrete having a minimum compressive strength of twenty five (25) psi and a minimum length of eight (8) inches. The grouting pressure shall be in accordance with the pipe manufacturer's recommendations.
- FILLING ANNULAR SPACE - The annular space between the sanitary sewer pipe and the steel casing shall be filled with a flowable fill consisting of a portion of cement grout having a minimum twenty eight (28) day compressive strength of one thousand (1,000psi) or more per square inch. The contractor shall install a vent pipe higher than the upper end of the pipe to ensure that the annulus is completely filled with grout.

- CASING PIPE SIZE - Steel casing pipe shall have the following suggested minimum diameters:

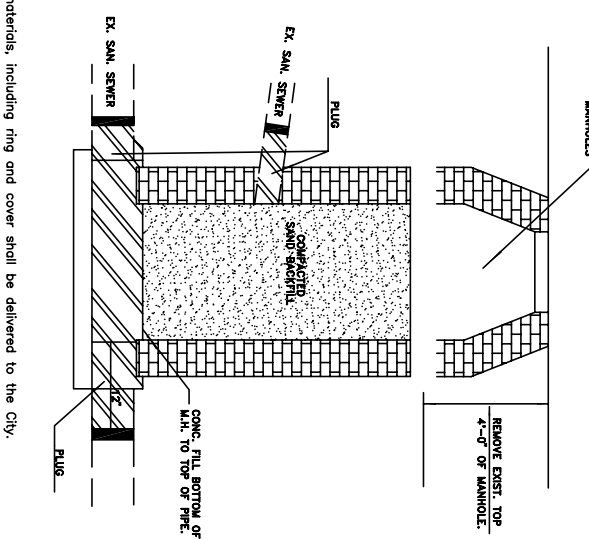
Pipe Nominal Size (Inches)	Suggested Casing Pipe Inside Diameter (Inches)
4	8 to 10
6	10 to 12
8	14 to 16
10	16 to 18
12	18 to 20
15	20 to 22
18	24 to 26
24	31 to 33
27	35 to 36
30	36 to 42
36	42 to 48
42	54 to 60
48	60 to 66

- CASING PIPE THICKNESS - Steel casing pipe shall have the following minimum thickness(es), in inches, for the indicated maximum depth of cover(s), in feet:

OUTSIDE DIAMETER (Inches)	UNDER HIGHWAY		UNDER RAILROAD	
	WALL THICKNESS (Inches)	MAXIMUM COVER (feet)	WALL THICKNESS (Inches)	MAXIMUM COVER (feet)
≤ 12	3/4	30	0.250	30
16	0.188	30	0.281	30
18	0.250	30	0.322	30
20	0.250	30	0.344	30
24	0.250	30	0.406	30
30	0.322	30	0.489	30
36	0.375	25	0.531	25
42	0.375	25	0.531	25
48	0.438	25	0.531	25
54	0.438	25	0.531	25
60	0.438	20	0.531	20
66	0.438	20	0.531	20

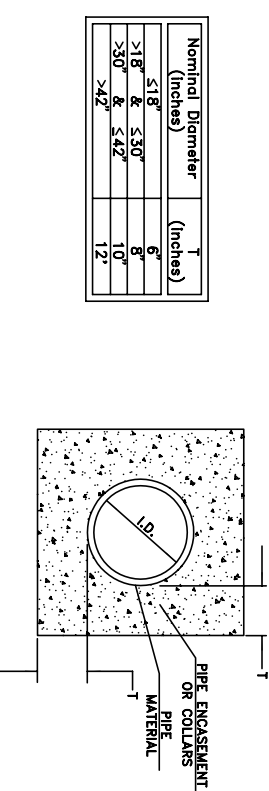
- CASING MATERIAL - Steel casing pipe shall conform with ASTM A-139. Standard specification for Electric-Fusion (AFC)-Welded Steel Pipe (NPS4 and Over). The steel material shall be new, smooth wall, carbon steel, Grade B, with a minimum sixty six thousand (60,000 psi) pounds per square inch tensile strength, and minimum thirty five thousand (35,000 psi) pounds per square inch yield strength.

STANDARD DETAIL FOR ABANDONING MANHOLES



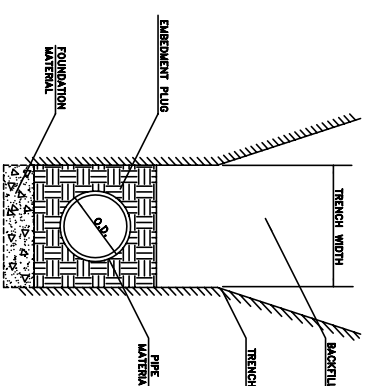
NOTE: Shingled materials, including ring and cover shall be delivered to the City.

STANDARD DETAIL FOR PIPE ENCASEMENT AND COLLARS



NOTE: For collars, the concrete encasement shall be placed to a minimum of twelve (12) inches on either side of the joint.

STANDARD DETAIL FOR EMBEDMENT PLUGS



- NOTES:
- Two types of embedment plugs may be used, at the Contractor's option, as follows:
    - CLAY PLUGS - The embedment and backfill material shall be select clay separated from excavated material and shall be approved by the Engineer prior to placement. This material shall be free of clods, lumps, debris, organic material and stones. All clay plug material shall be compacted to a minimum of 95 percent relative density (ASTM D-998) at plus or minus (±) three (3%) percent of Optimum Moisture Content.
    - FLOWABLE FILL PLUGS - Flowable fill plugs shall consist of a Portland Cement grout having a minimum twenty-eight (28) day compressive strength of five hundred (500 psi) pounds per square inch.

The City of MOORE Oklahoma

Sanitary Sewer Standard Details No. 304

APPROVED BY: DATE: 03/06/2008

REVISIONS: 03/05/2008