

# **ENGINEERING STANDARDS**

## **City of Mountlake Terrace**



**Effective April, 2001**

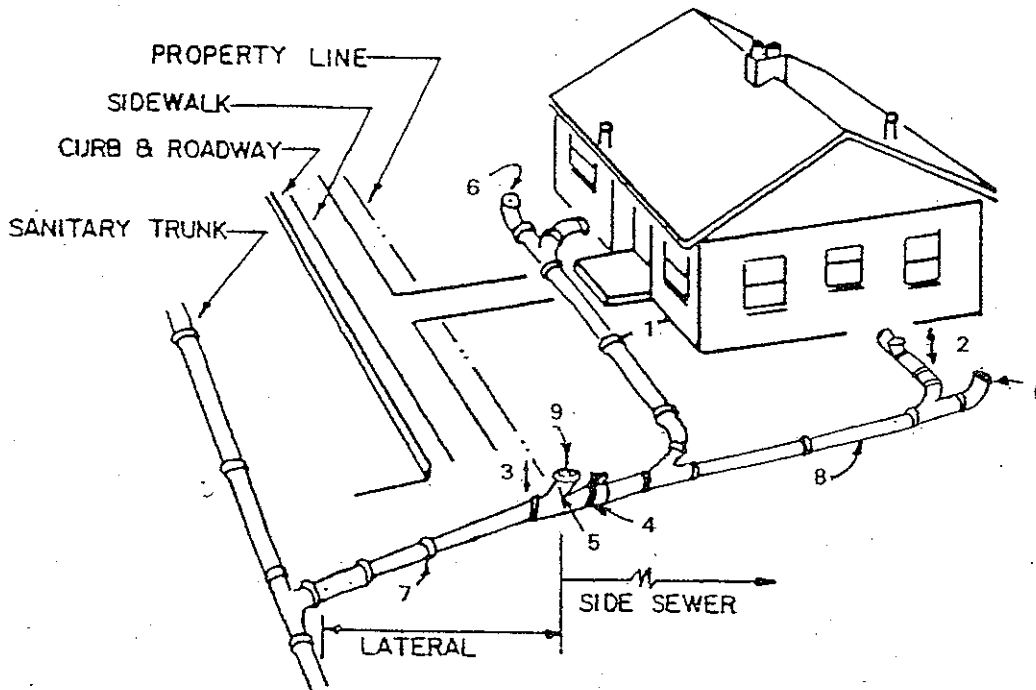
SECTION – 3

**SANITARY SEWER**

# ENGINEERING STANDARDS

## SECTION 3 - SANITARY SEWER

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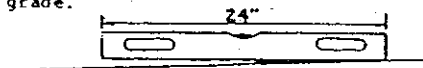


1. 30" minimum distance from house.
2. 18" minimum coverage of pipe.
3. 24" minimum coverage at property line.
4. Standard 6" to 4" reducer and test tee. At the discretion of the City Inspector the test tee shall be plugged and tested with water.
5. 6" cleanout with 22° or 45° riser brought to the surface inside a cleanout box. See Standard Plan #303.
6. Cleanout with 22° or 45° riser brought within 6" of surface in unpaved areas.
7. 6" minimum sewer pipe for street installations and multiple services, else where as directed.
8. 4" minimum sewer pipe on property. 2% minimum grade, 100% maximum grade. (See below.)
9. Cleanout at the property line under a paved surface shall be installed in a cast iron cleanout ring and cover. Cleanout at the property line in dirt or grass shall be installed in a Fogite O1 box. See Standard Plan #303.

**NOTES:**

1. All construction shall be in accordance with Ordinance #158. An approved plan, a permit, and payment of fee is required.
2. Service laterals and side sewers shall be constructed of cast iron soil pipe or PVC ASTM D3034 SD35 pipe, solvent weld, rubber gasket of other approved joint material. Pipe joint lubricant shall be of a type recommended and approved by the gasket manufacturer or pipe supplier.
3. Side sewers under foundations, floors, and driveways shall conform to the Uniform Plumbing Code.
4. All house plumbing outlets must be connected to the sewer.
5. No downspouts or storm drainage may be connected to the sanitary sewer. All runoff will be discharged into a storm sewer or a roadside ditch.
6. Lay pipe in a straight line between bends. Make all changes in grade or line with a bend or wye. Make 90° change with two fittings of 45° or less. A cleanout is required for all bends greater than 45°, otherwise at every other change of direction but not to exceed 100 feet.
7. Construction in street must be done by a licensed sewer contractor.
8. Pipe shall be laid on a firm bed of sand or pea gravel or as directed by the Inspector. Fill shall be compacted subject to City approval.
9. Parallel water and sewer lines shall be 10 feet apart whenever possible.
10. When a changeover is made from a septic to a gravity system, the septic tank may be left in the ground. Tanks shall be pumped and filled with earth of a granular material.
11. For on site septic systems, design shall be approved by the Snohomish Health District prior to building permit approval by the City.

Method of obtaining 2% grade.



Attach 1/2" shim to level, lay level on pipe with knob pointing in direction of low. Level bubble must read level.

**SIDE SEWER INSTALLATION  
FOR SINGLE FAMILY RESIDENCE**



# SIDE SEWER INSTALLATION FOR SINGLE FAMILY RESIDENCE (CONT'D)

## NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ORDINANCE #158. AN APPROVED PLAN, A PERMIT AND PAYMENT OF FEE IS REQUIRED.
2. SERVICE LATERALS AND SIDE SEWERS SHALL BE CONSTRUCTED OF PVC ASTM D3034 SDR35 PIPE, RUBBER GASKET OR OTHER APPROVED JOINT MATERIAL. PIPE JOINT LUBRICANT SHALL BE OF A TYPE RECOMMENDED AND APPROVED BY THE GASKET MANUFACTURER OR PIPE SUPPLIER.
3. SIDE SEWERS UNDER FOUNDATIONS, FLOORS AND DRIVEWAYS SHALL CONFORM TO THE UNIFORM BUILDING CODE.
4. ALL HOUSE PLUMBING OUTLETS MUST BE CONNECTED TO THE SEWER.
5. NO DOWNSPOUTS OR STORM DRAINAGE MAY BE CONNECTED TO THE SANITARY SEWER. ALL RUNOFF WILL BE DISCHARGED INTO A STORM SEWER OR A ROADSIDE DITCH.
6. LAY PIPE IN A STRAIGHT LINE BETWEEN BENDS. MAKE ALL CHANGES IN GRADE OR LINE WITH A BEND OR WYE. MAKE 90° CHANGE WITH TWO FITTINGS OF 45° OR LESS. A CLEANOUT IS REQUIRED FOR ALL BENDS GREATER THAN 45°, OTHERWISE AT EVERY OTHER CHANGE IN DIRECTION, BUT NOT TO EXCEED 100 FEET.
7. CONSTRUCTION IN STREET MUST BE DONE BY A LICENSED SEWER CONTRACTOR.
8. PIPE SHALL BE LAID ON A FIRM BED OF SAND OR PEA GRAVEL OR AS DIRECTED BY THE INSPECTOR. FILL SHALL BE COMPACTED SUBJECT TO CITY APPROVAL.
9. PARALLEL WATER AND SEWER LINES SHALL BE 10 FEET APART WHENEVER POSSIBLE.
10. WHEN A CHANGEOVER IS MADE FROM A SEPTIC TO A GRAVITY SYSTEM, THE SEPTIC TANK MAY BE LEFT IN THE GROUND. TANKS SHALL BE PUMPED AND FILLED WITH EARTH OF A GRANULAR MATERIAL.
11. FOR ON-SITE SEPTIC SYSTEMS, DESIGN SHALL BE APPROVED BY THE SNOHOMISH COUNTY HEALTH DISTRICT PRIOR TO BUILDING PERMIT APPROVAL THE CITY.



CITY OF MOUNTLAKE TERRACE  
DEPARTMENT OF COMMUNITY DEVELOPMENT

DWG TITLE:

SIDE SEWER INSTALLATION CONT'D

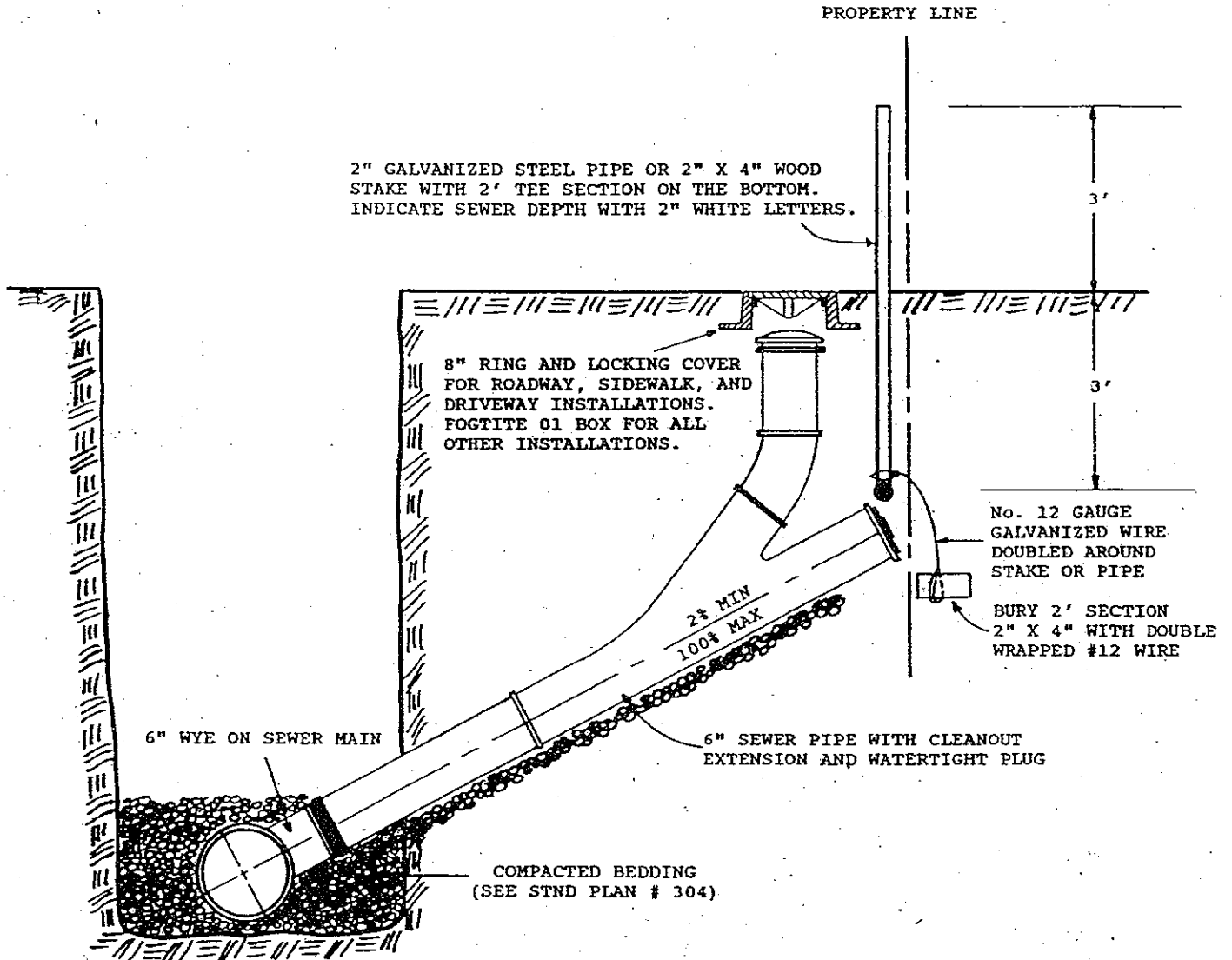
SCALE: N.T.S.

PLAN No.

301A

REV. DATE:

6/99

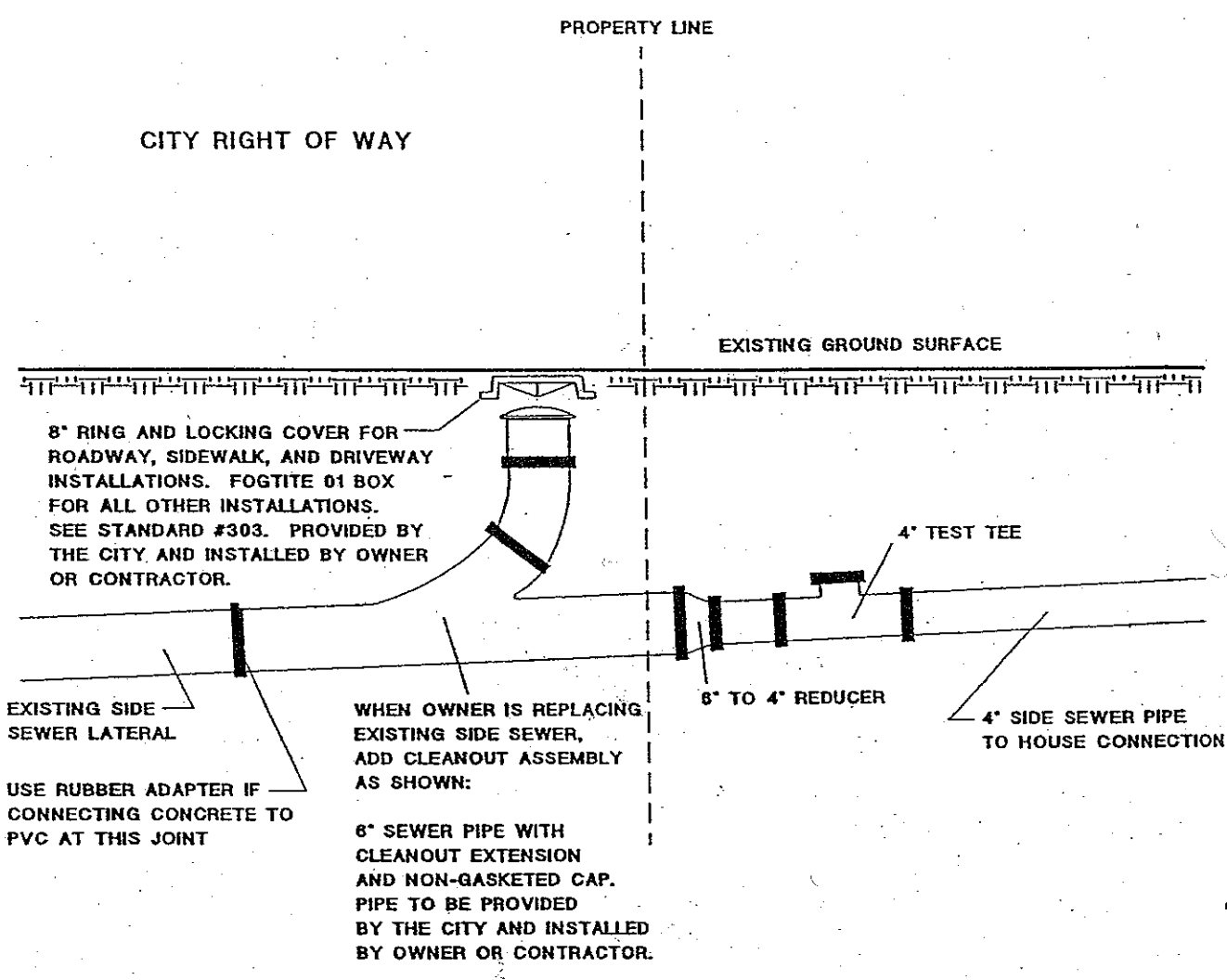


TYPICAL LATERAL SEWER CONNECTION



STANDARD PLAN 302

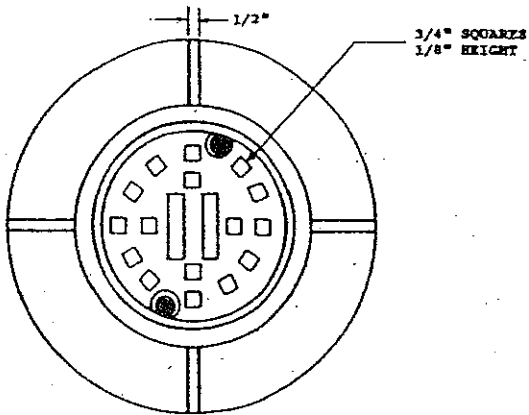
REV. DATE 2/91



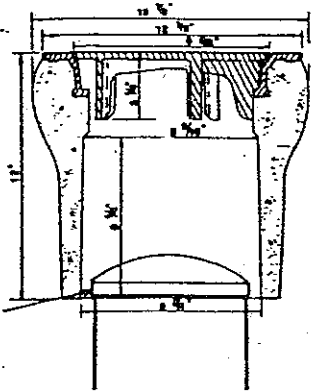
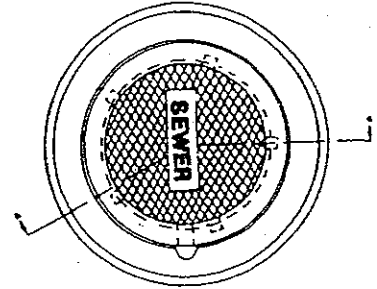
# CLEANOUT DETAIL FOR RESIDENTIAL SIDE SEWER UPGRADE



STANDARD PLAN 302-A  
REV. DATE 8/95

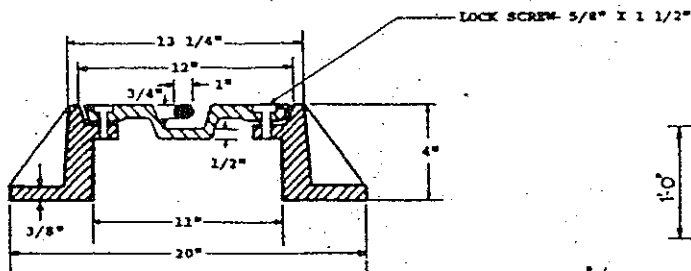


PVC CAP - DO NOT GLUE

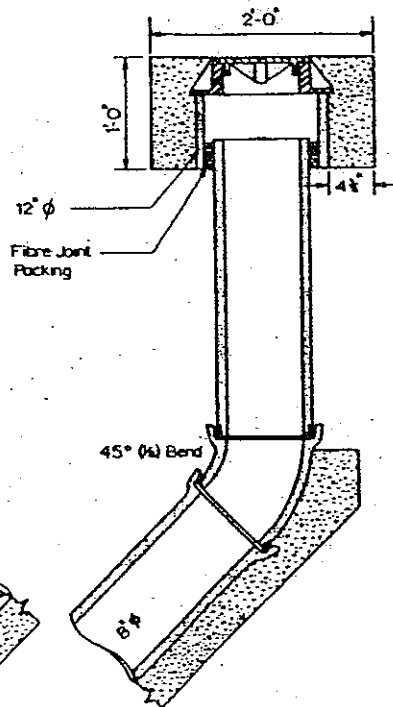


FOGTITE 01 BOX FOR AREAS NOT

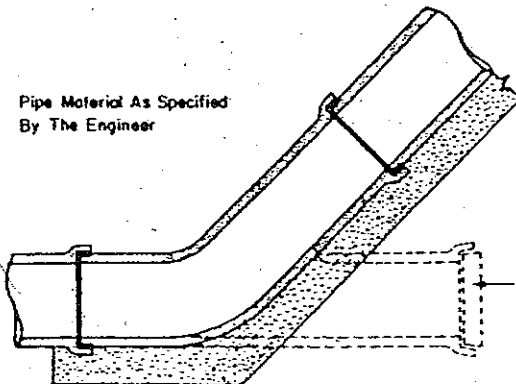
PAVED WITH CONCRETE OR ASPHALT



LOCKING CAST IRON RING AND COVER FOR ALL  
AREAS PAVED WITH CONCRETE OR ASPHALT



Pipe Material As Specified  
By The Engineer



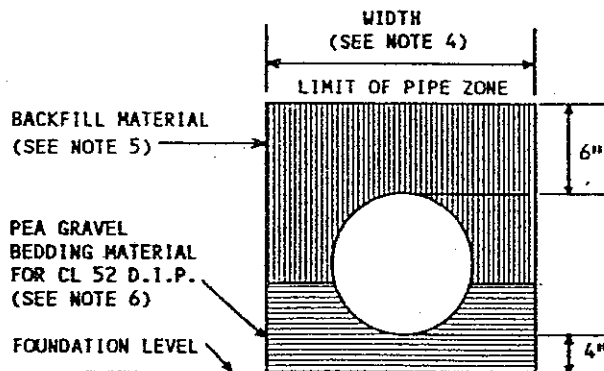
Plug To Be Sealed In Some Manner  
AS Main Sewer Joints.



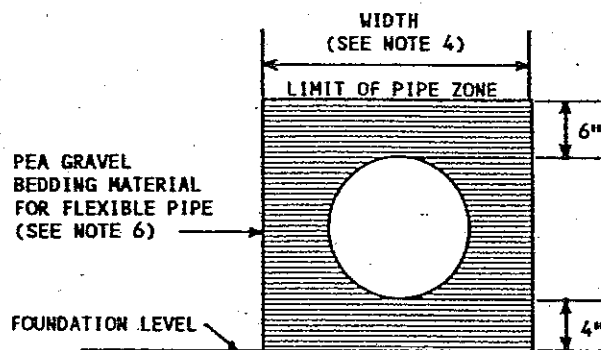
SEWER CLEANOUT DETAILS

STANDARD PLAN 303

REV. DATE 2/91



**BEDDING FOR RIGID  
PIPE IN TRENCHES**



**BEDDING FOR FLEXIBLE  
PIPE IN TRENCHES**

**NOTES:**

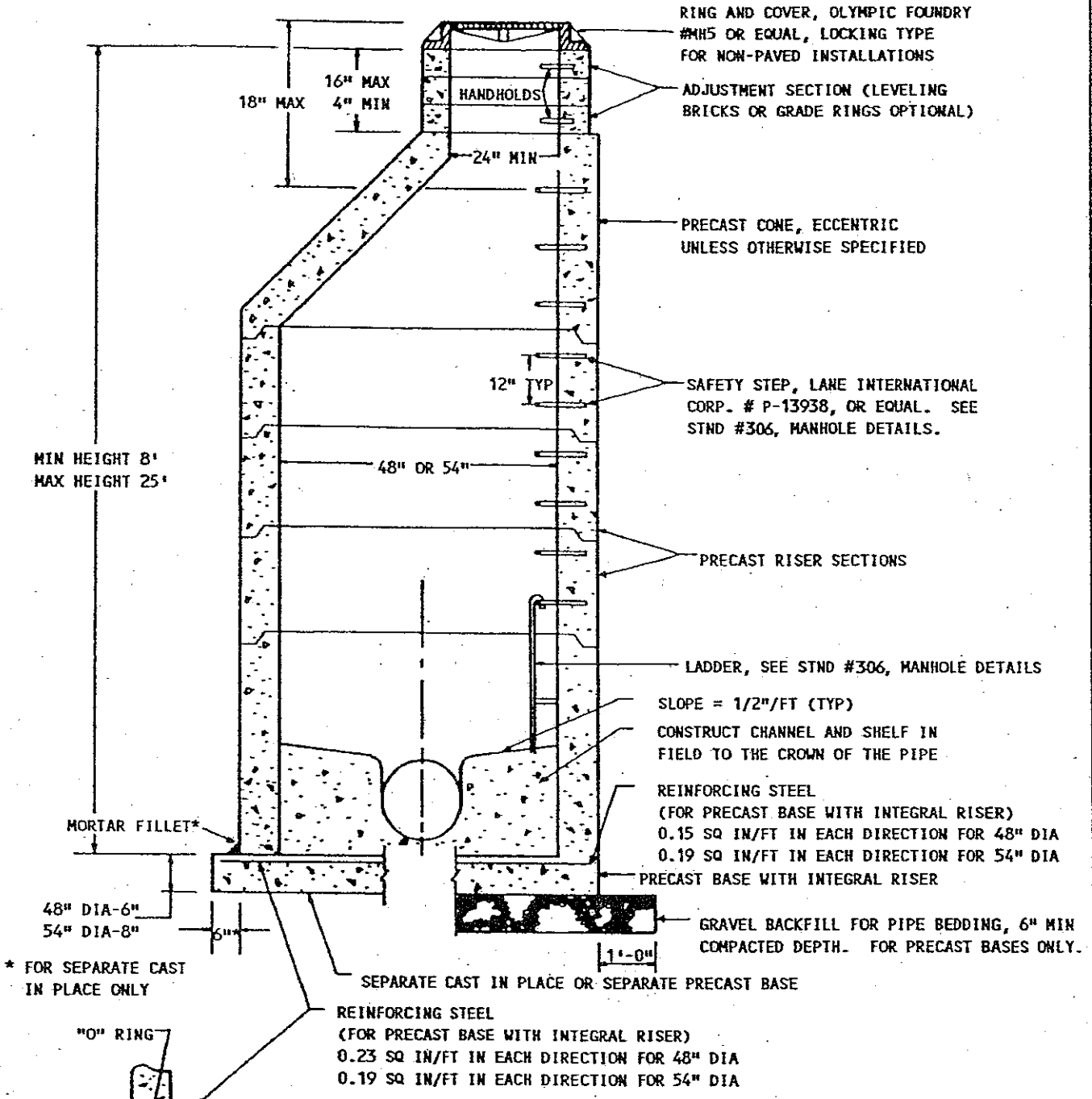
1. Provide uniform support under barrel.
2. Hand tamp under haunches.
3. Compact bedding material to 95% maximum density over pipe. Hand tamp only.
4. See section 7-17.3(1)A Standard Specifications for trench width and trenching options.
5. Trench backfill shall be native material as specified in Section 7-17.3(3).
6. See section 9-03.15 of the Standard Specifications for pea gravel material specifications.
7. Pipe must be anchored in such a manner as to ensure flow line is maintained.

**PIPE BEDDING FOR SANITARY  
SEWERS IN TRENCHES ONLY**



STANDARD PLAN 304

REVISION DATE 2/91



**DESIGN ASSUMPTIONS**  
 HEIGHT: 8' TO 12'; SOIL BEARING VALUE EQUALS 3300 LB/FT (MIN)  
 HEIGHT: OVER 12' TO 25'; SOIL BEARING VALUE EQUALS 3800 LB/FT (MIN)

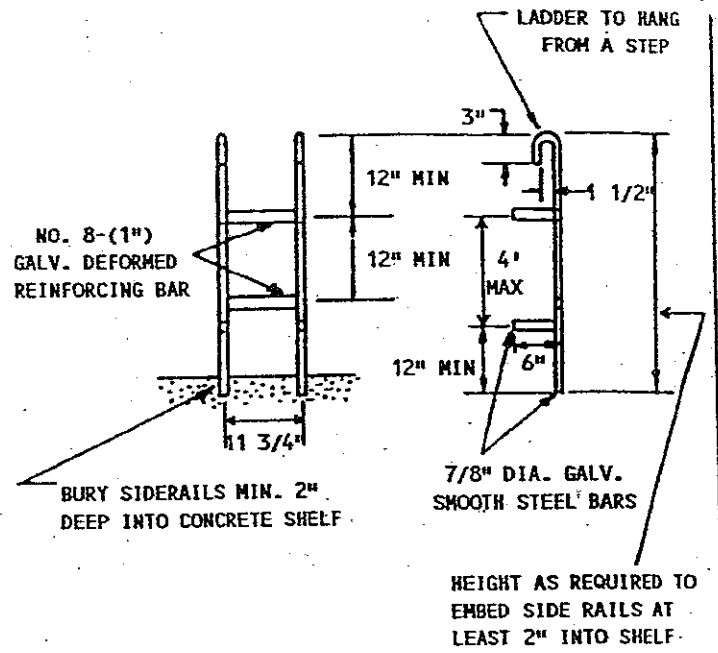
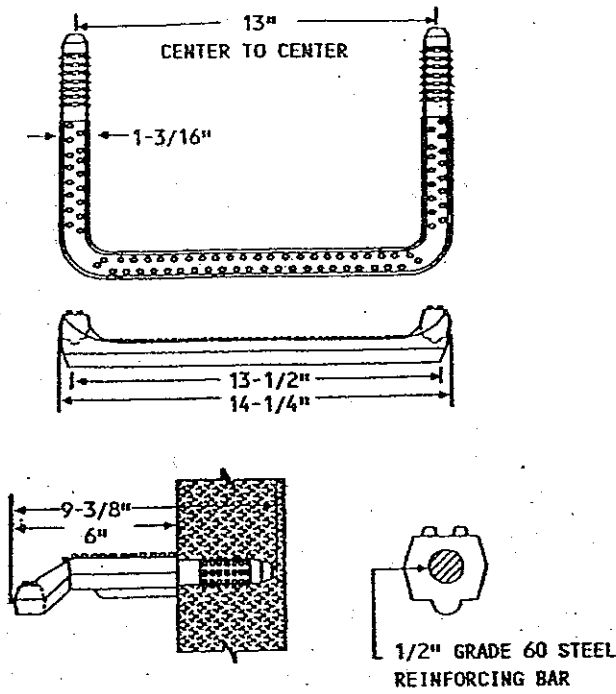
**NOTES:**

1. All reinforced cast in place concrete shall be Class-4000. Non-reinforced concrete shall be Class 3000.
2. See Standard Plan # B-23b for 72" manhole. See Standard Plan # B-23c for type 3 manholes.
3. For installations less than 8' in height a flat top section shall be used in place of a precast cone.

**MANHOLE TYPE I - 48" AND 54"**

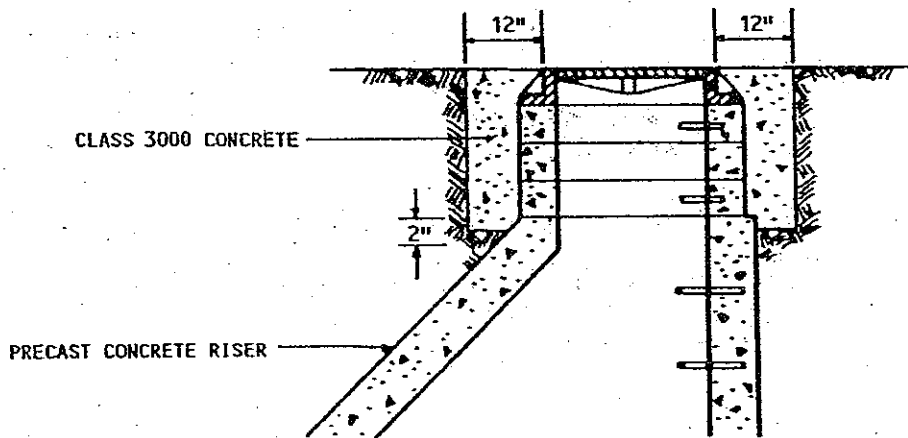


STANDARD PLAN 305  
 REVISION DATE 1/96



POLYPROPYLENE SAFETY STEP

LADDER



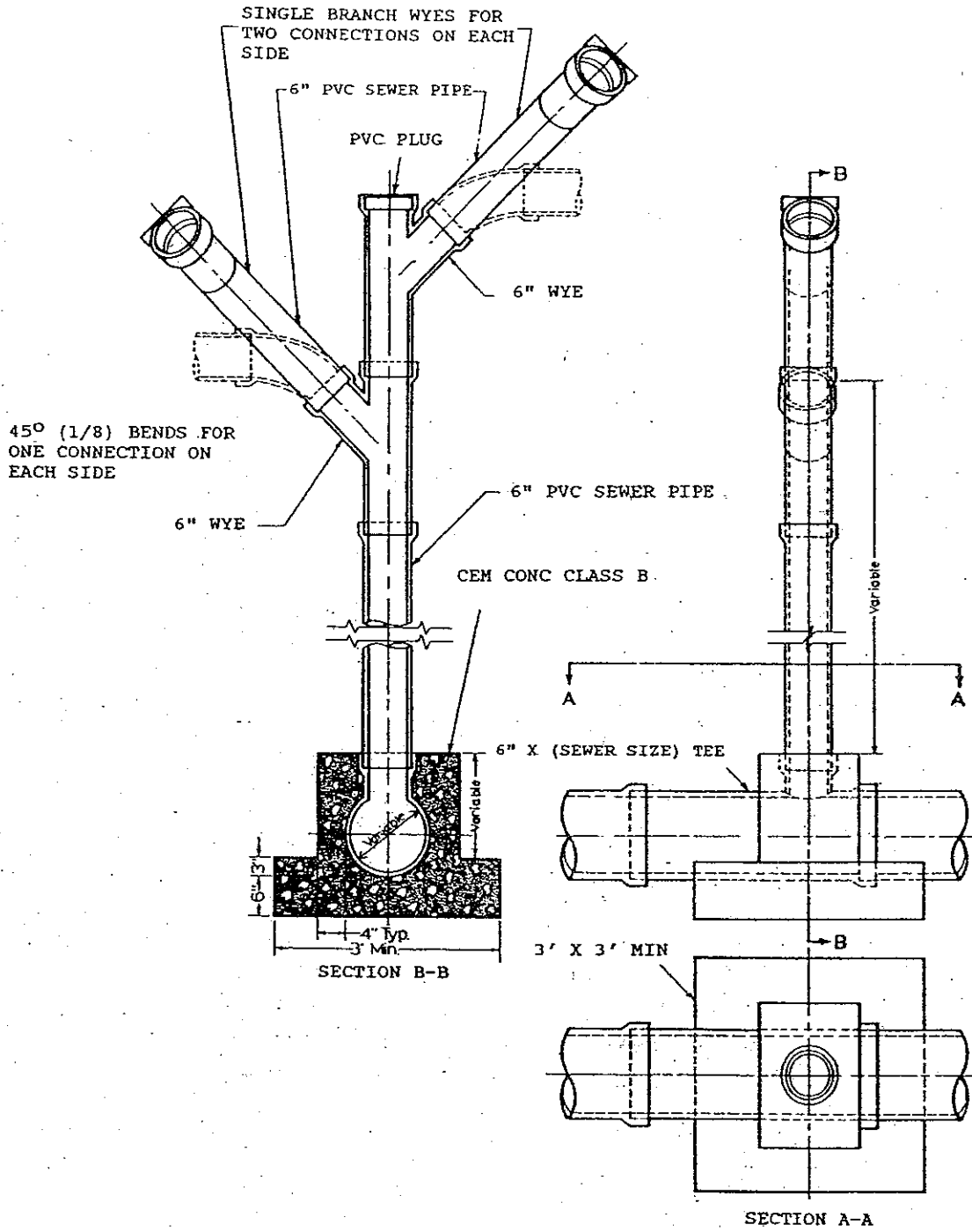
MANHOLE INSTALLATION FOR UNPAVED AREAS

MANHOLE DETAILS



STANDARD PLAN 306

REVISION DATE 1/96

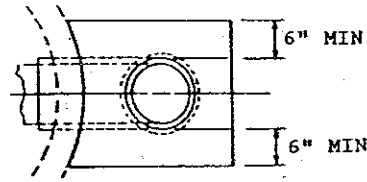
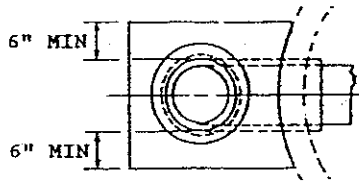


**VERTICAL CONNECTION**



STANDARD PLAN 307

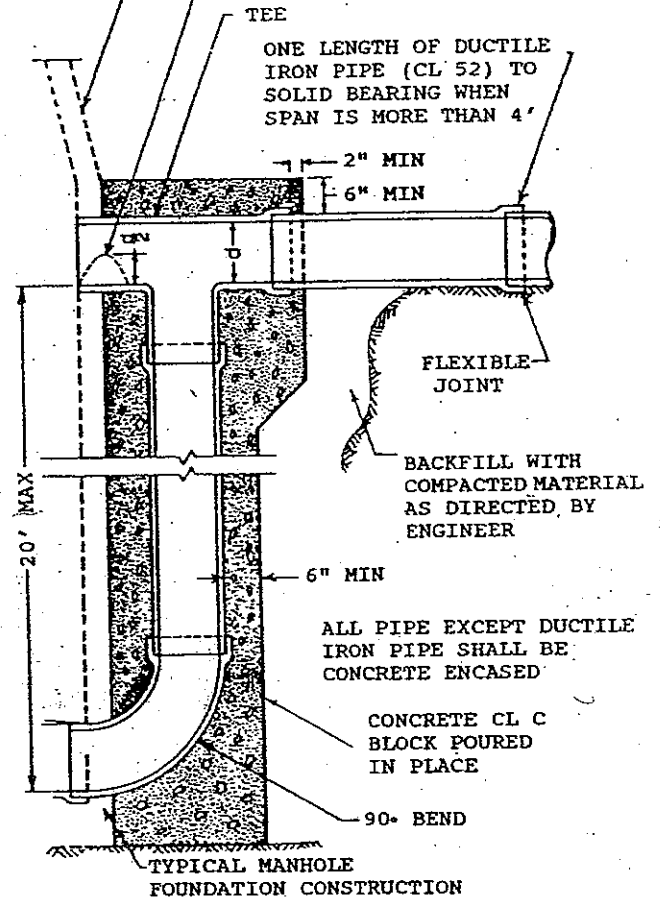
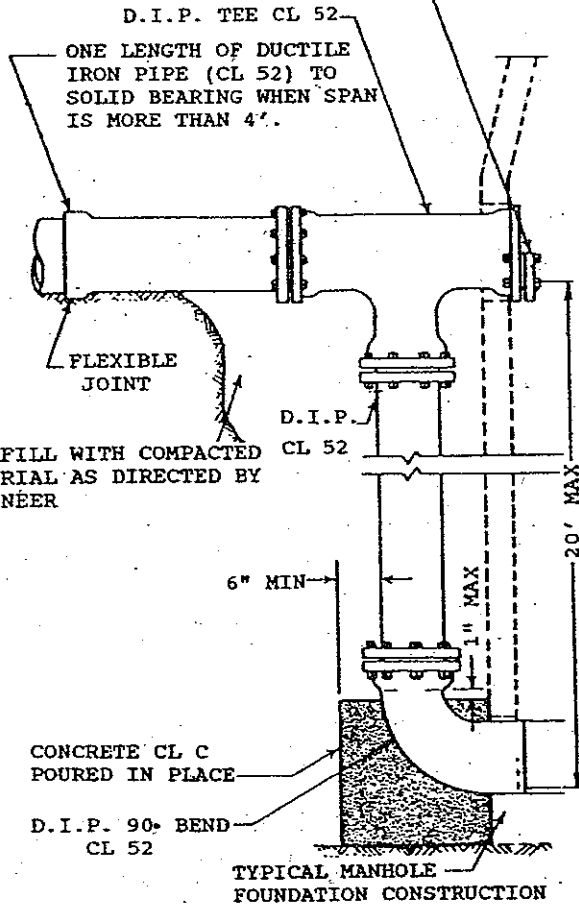
REV. DATE 2/91



1/2 BLIND FLANGE AS DAM

TYPICAL  
MANHOLE

MORTAR DAM OR PLUG AS  
REQUIRED BY ENGINEER



**DUCTILE IRON  
DROP CONNECTION**

**CONCRETE ENCASED  
DROP CONNECTION**

**DROP CONNECTION**



STANDARD PLAN 308

REV. DATE 2/91