

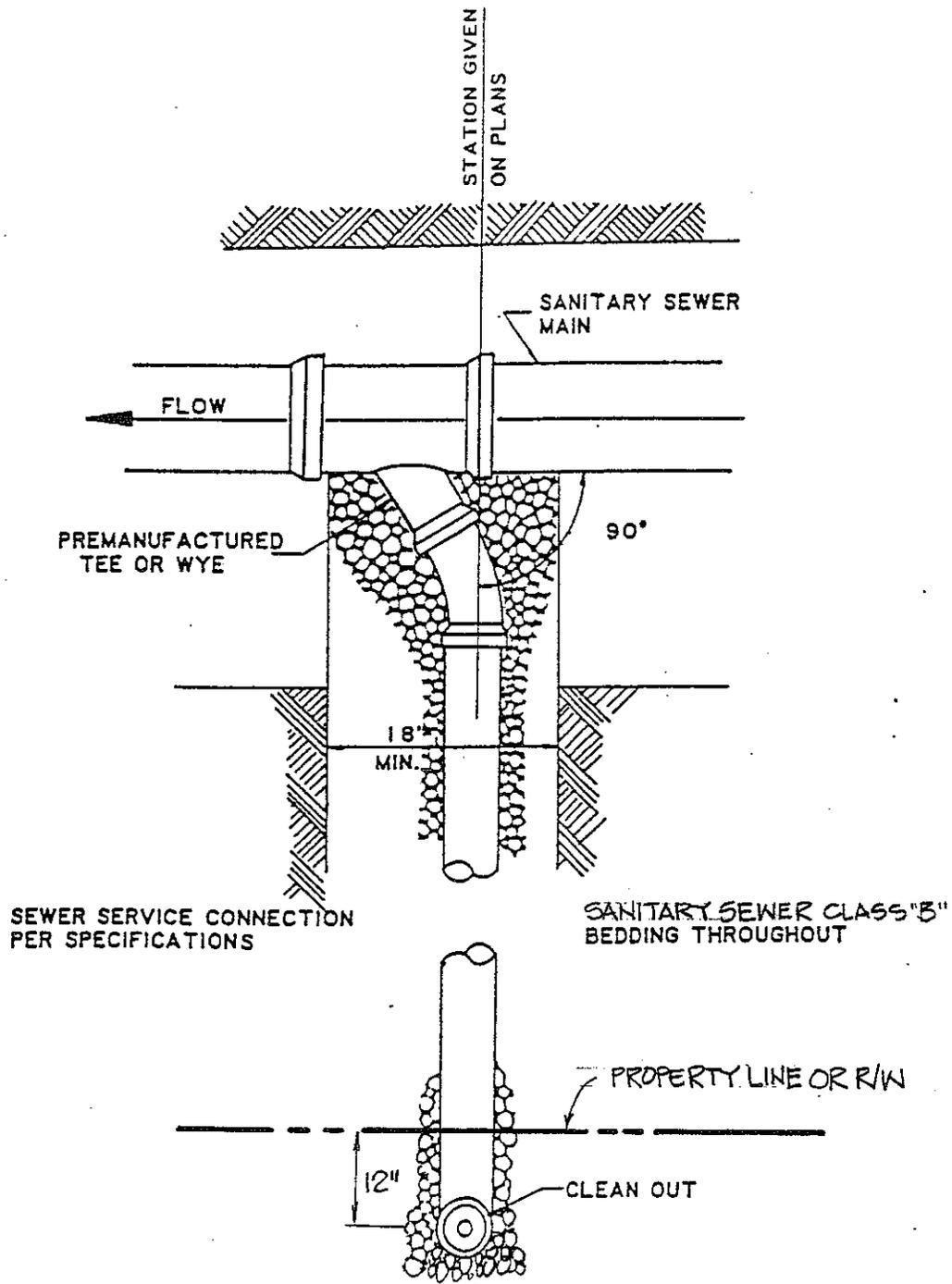
### ARTICLE III

#### SANITARY SEWER SYSTEM

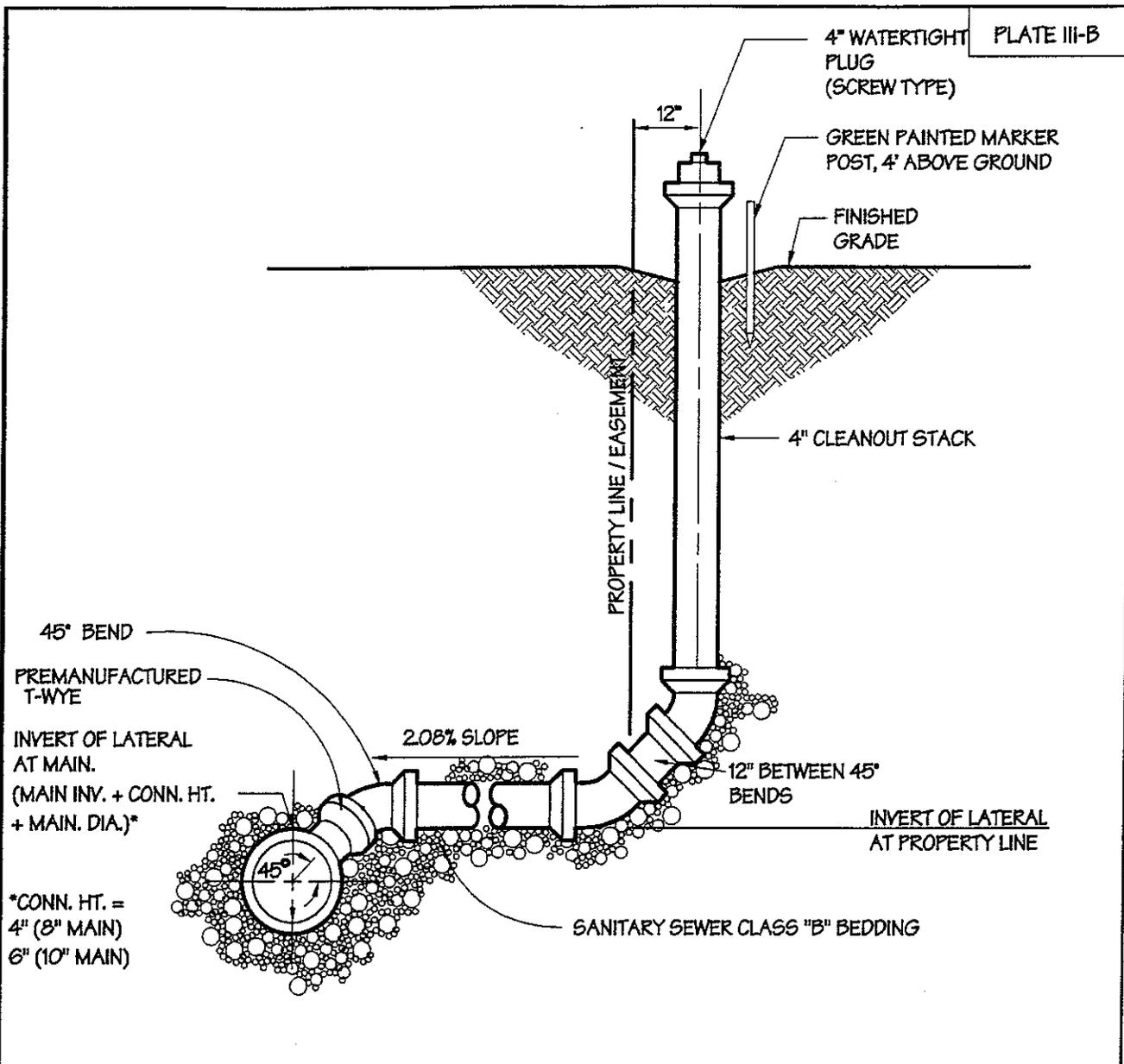
##### SECTION 307.00 - TYPICAL DETAILS

<u>Detail</u>	<u>Plate</u>
Sanitary Sewer Service Connection	III-A
Standard Lateral Detail	III-B
4' Diameter Precast Manhole	III-C
5' and 6' Diameter Precast Manholes with Riser Units	III-D
Precast Manhole Flat Top	III-E
Precast Manhole Reducer	III-F
Precast Manhole Conical Reducer	III-G
4' Diameter Precast "Dog-House" Manhole	III-H
Outside Drop Connection Detail	III-I
Inside Drop Connection Detail	III-IA
Waterproof Manhole Insert	III-IB
Pavement Patching Detail	III-J
Pipe Bedding and Encasement at Stream Crossings	III-K





**SANITARY SEWER SERVICE CONNECTION**



1. CONTRACTOR SHALL INSTALL A VERTICAL RISER TO FINISHED GRADE.

2. PLUMBER SHALL CUT THE VERTICAL RISER AT THE REQUIRED ELEVATION TO SERVICE THE BASEMENT AND INSTALL A WYE, A 45° FITTING AND TEST TEE. THE VERTICAL RISER SHALL THEN BE EXTENDED TO SURFACE GRADE AND PLUGGED TO SERVE AS A CLEANOUT.

3. THE LATERAL RISER PIPE AND FITTINGS SHALL BE OF THE SAME MATERIAL AS THE MAIN SEWER TO THE POINT WHERE THE PLUMBER CUTS THE VERTICAL RISER PIPE. GLUE JOINT PVC PIPE AND FITTINGS MAY THEN BE USED FOR THE HOUSE LATERAL.

4. WITHIN FIVE FEET OF THE HOUSE, THE PLUMBER / CONTRACTOR SHALL INSTALL A SECOND CLEANOUT TO FINISH GRADE ELEVATION.

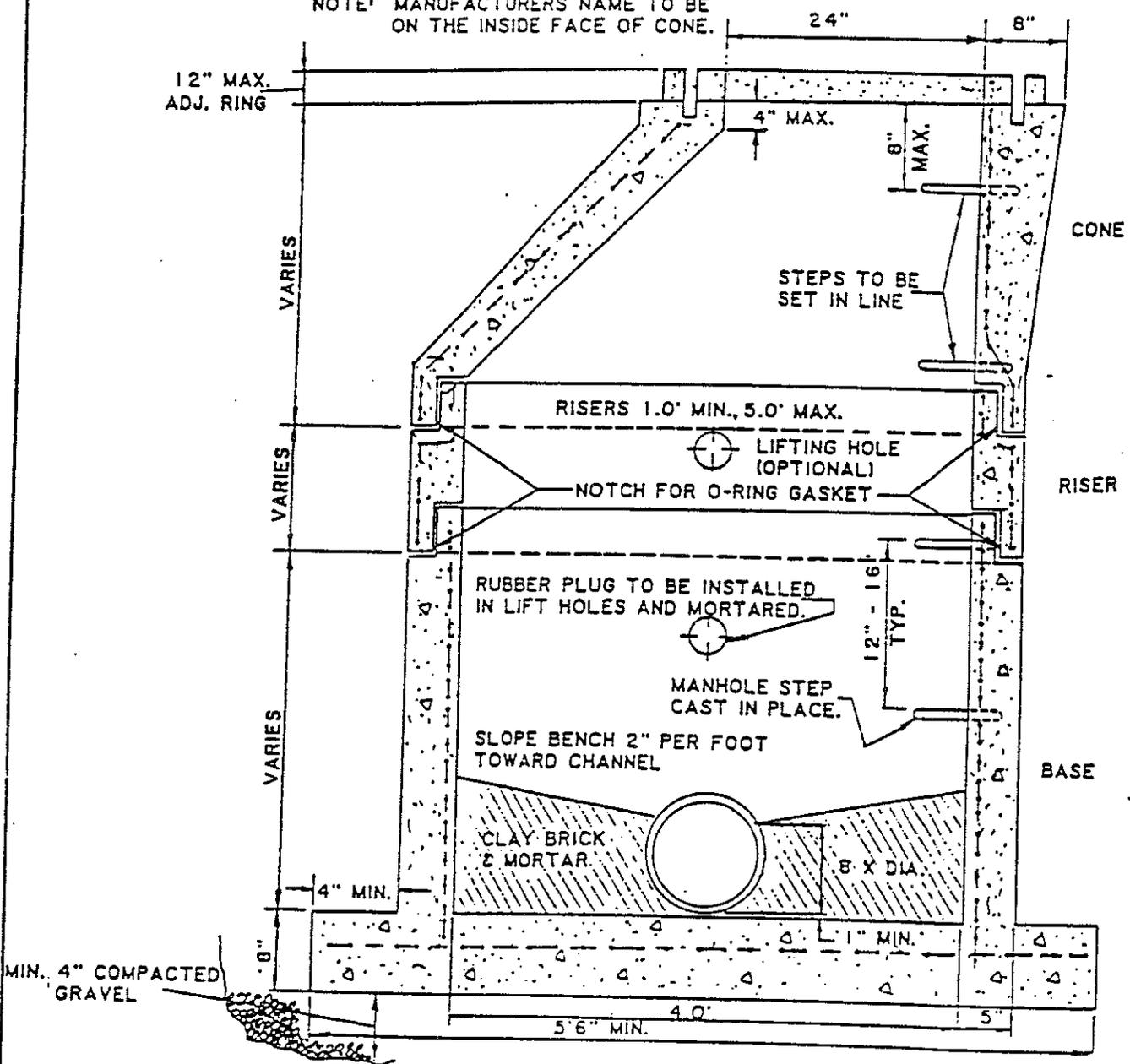
5. ALL SEWER MAINS, LATERALS AND FITTINGS SHALL BE PVC C-900 GASKETED, ASTM D1599 & F477.

## STANDARD LATERAL DETAIL

NOTES:

1. MANHOLE TO MEET CURRENT REQUIREMENTS OF ASTM SPEC. C-478.
2. ALL REINFORCING STEEL TO MEET CURRENT REQUIREMENTS OF ASTM SPEC. A-615.
3. CONCRETE TO BE 4000 PSI MINIMUM COMPRESSIVE STRENGTH.
4. TAPERED JOINT WITH O-RING GASKET TO MEET CURRENT REQUIREMENTS OF ASTM SPEC. C-361 & C-443.
5. 301 MASTIE OR APPROVED EQUAL SHALL BE USED IN ADDITION TO THE JOINT SPECIFIED.
6. APPROVED FLEXIBLE JOINT REQUIRED ON ALL PIPE CONNECTIONS TO MANHOLES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. VOID SHALL BE FILLED FLUSH WITH INSIDE FACE OF MANHOLE WITH NON-SHRINK GROUT. WHERE FIELD CONDITIONS WILL NOT PERMIT THE USE OF A SLEEVE, A MAXIMUM 48" STUB MAY BE USED AT THE APPROVAL OF THE INSPECTOR. JOINT TO BE SEALED WITH A NON-SHRINKING GROUT.

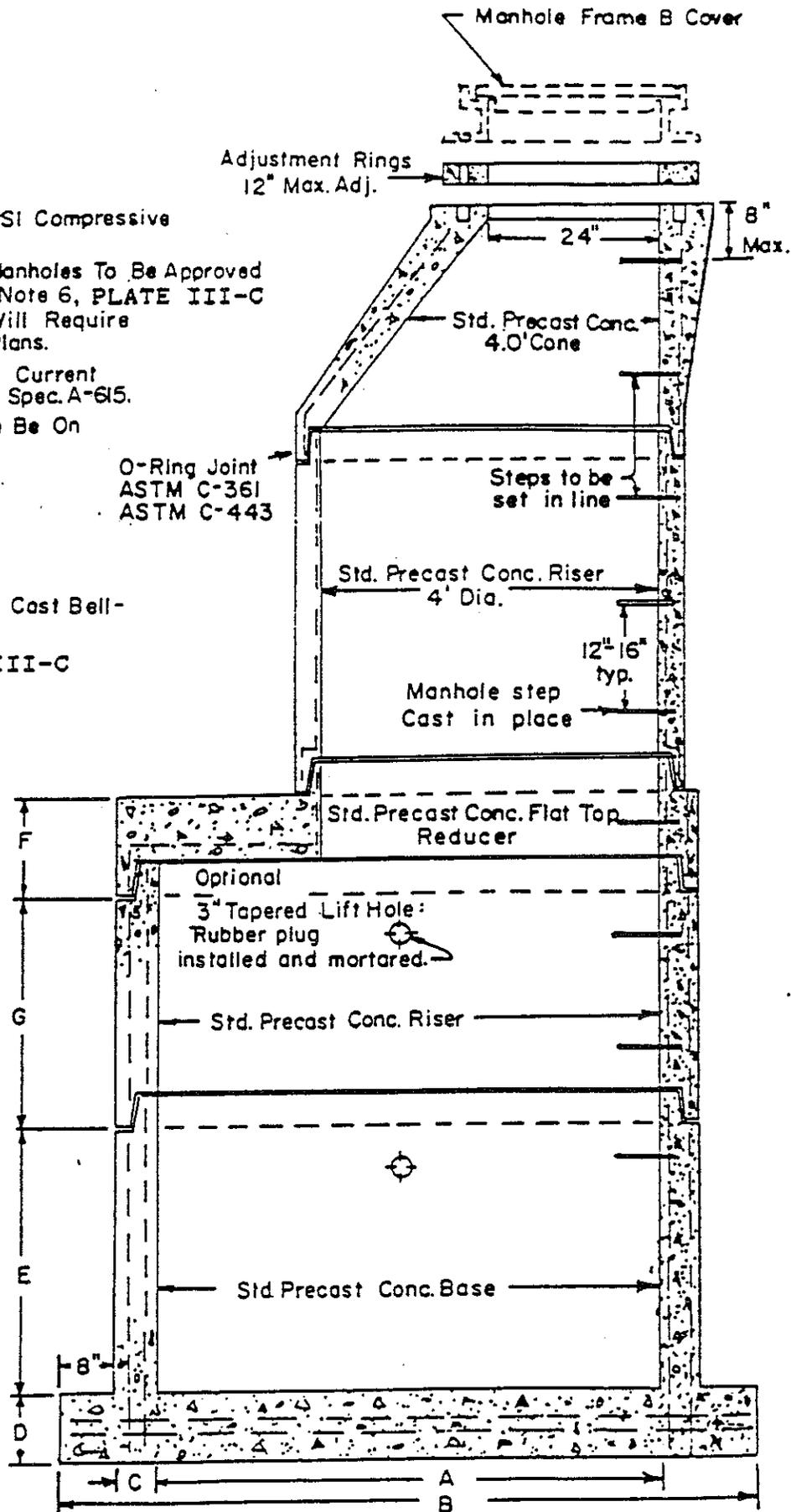
NOTE: MANUFACTURERS NAME TO BE ON THE INSIDE FACE OF CONE.



4' DIAMETER PRECAST MANHOLE

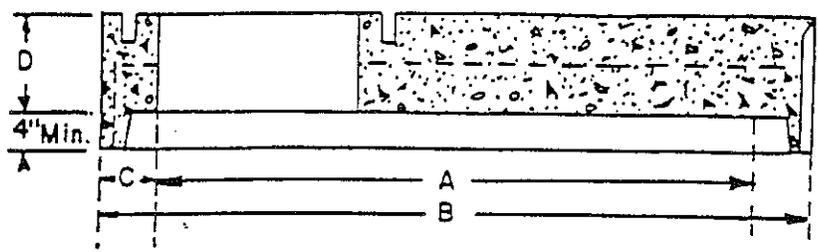
NOTES:

1. Concrete To Be 4000 PSI Compressive Strength, Minimum.
2. Pipe Connections To Manholes To Be Approved Flexible Sleeves. (See Note 6, PLATE III-C)
3. Manholes Over 6' Dia. Will Require Detailed Drawings On Plans.
4. All Reinforcing To Meet Current Requirements Of ASTM Spec. A-615.
5. Manufacturer's Name To Be On Inside Face Of Cone.
6. Manhole To Meet Current Requirements Of ASTM Spec. C-478
7. Compacted Gravel Under Base Sections.
8. Joint Configuration May Cast Bell-Up Or Spigot Up.
9. See Note 5, PLATE III-C



		Manhole Diameter In Feet	
		5'	6'
Dimensions	A	60"	72"
	B	84"	98"
	C	6"	7"
	D	8"	8"
	E	Varies	
	F	13" min. 13" min.	
	G	Varies	

5' & 6' DIAMETER PRECAST MANHOLES WITH RISER UNITS



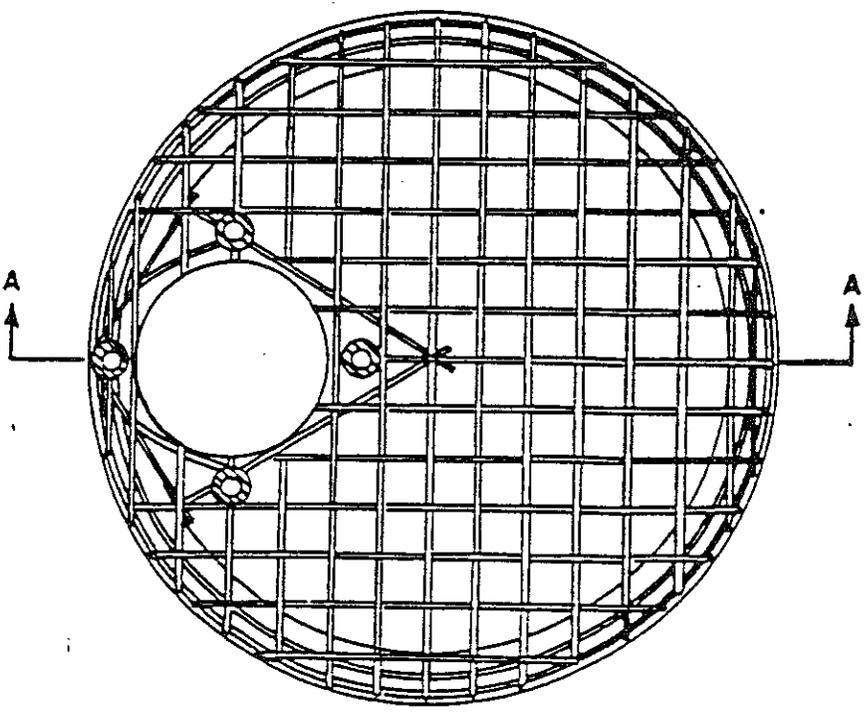
SECTION AA

**NOTES**

1. Concrete To Be 4000 PSI Compressive Strength, Min.
2. All Reinforcing Steel To Meet Current Requirements Of ASTM Spec. A-615.
3. Manhole Sections To Meet Current Requirements Of ASTM Spec. C-478.
4. Flat Top Shall Be Used Only When Specifically Required By The Plans Or Where There Is Height Or Invert Conflict As Determined By The Contractor And Approved By The Inspector.
5. Joint Configuration May Be Cast Bell-Up Or Spigot-Up
6. See note 5, PLATE III-C

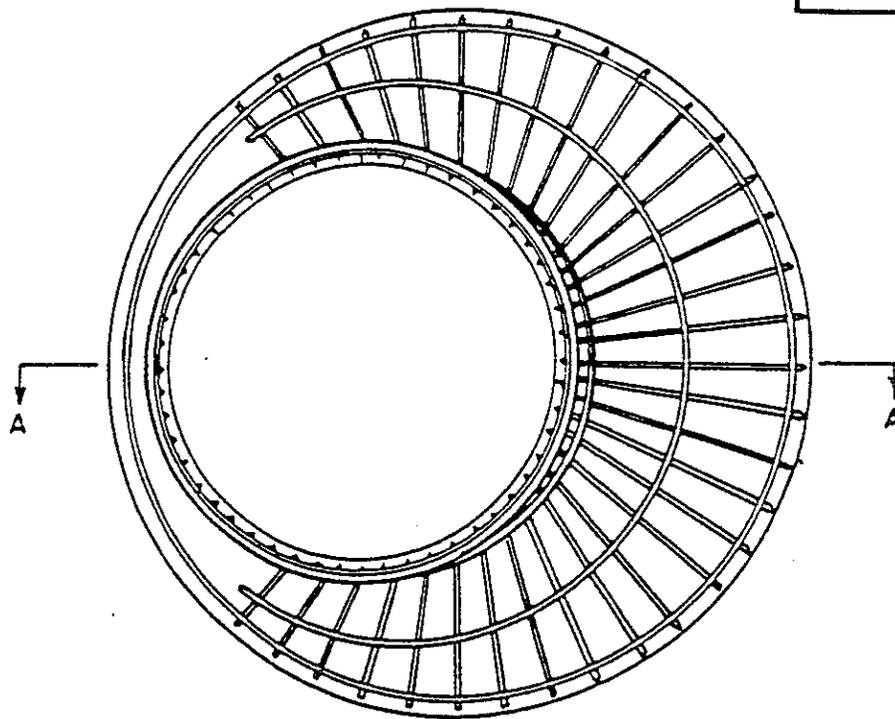
**MANHOLE SIZE**

	4'	5'	6'
A	48"	60"	72"
B	58"	72"	86"
C	5"	6"	7"
D	6"	8"	8"



TOP VIEW

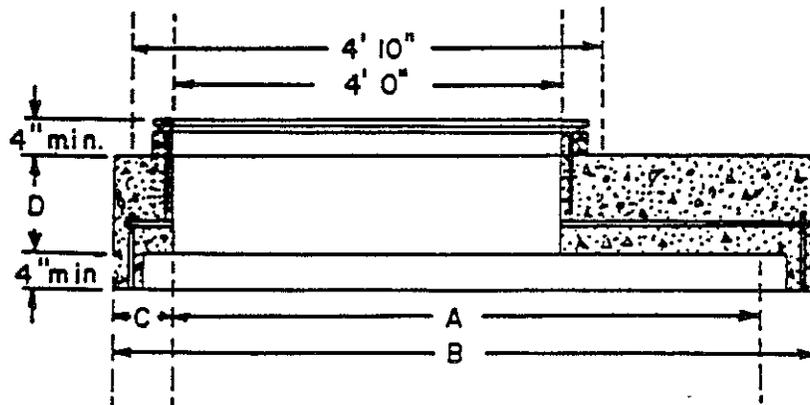
PRECAST MANHOLE FLAT TOP



TOP VIEW

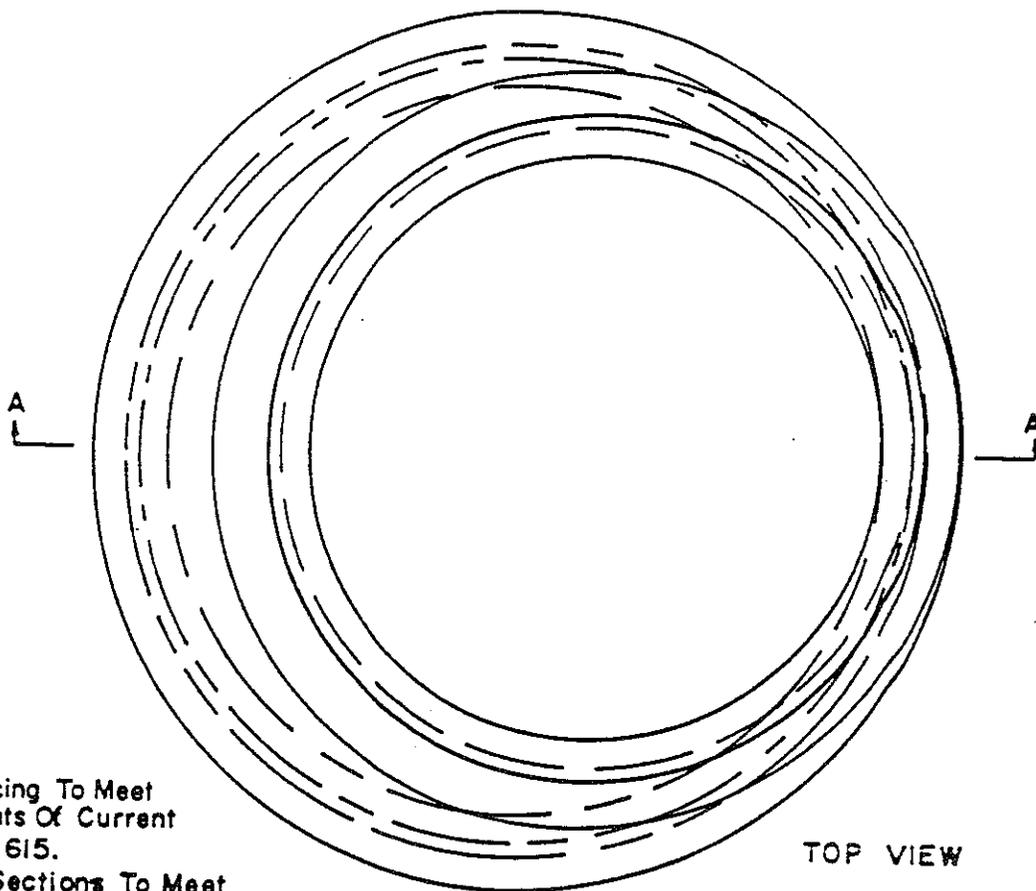
- NOTES:**
1. Concrete To Be 4000 PSI. Compressive Strength, Min.
  2. All Reinforcing Steel To Meet Current Requirements Of ASTM. Spec. A-615.
  3. Manhole Section To Meet Current Requirements Of ASTM Spec. C-478.
  4. Joint Configuration May Be Cast Bell-Up And Spigot-Up.
  5. See Note 5, PLATE III-C

DIMENSIONS	
	5'4" 6'4"
A	60" 72"
B	72" 86"
C	6" 7"
D	8" 8"

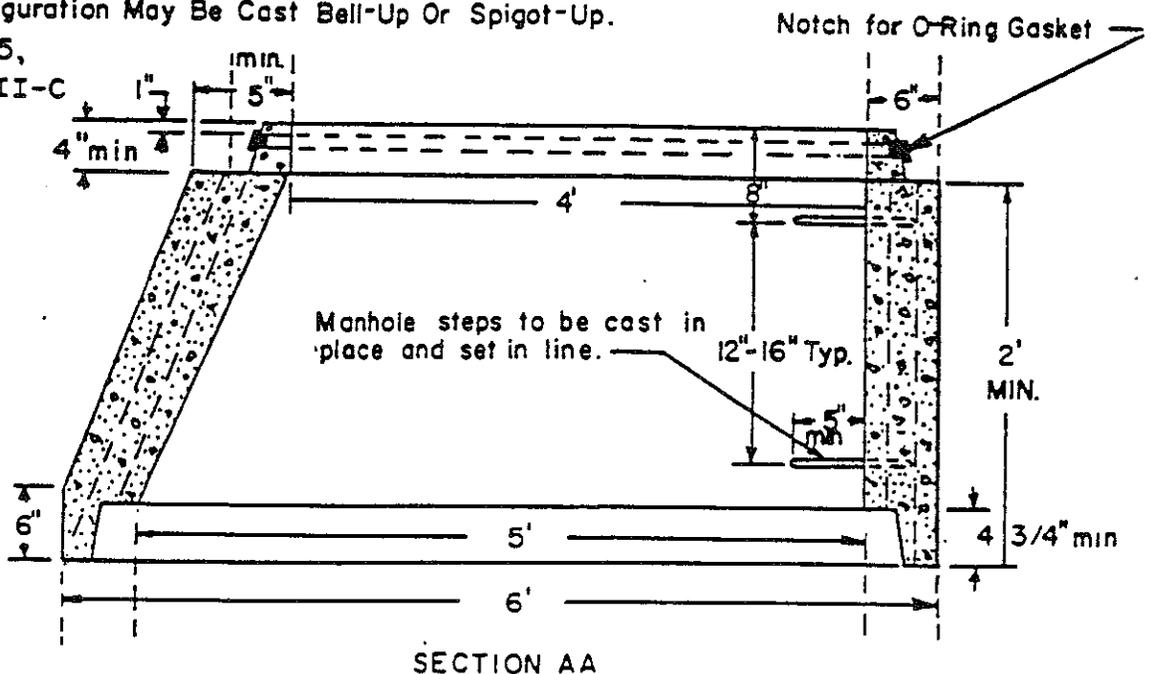


SECTION AA

PRECAST MANHOLE REDUCER

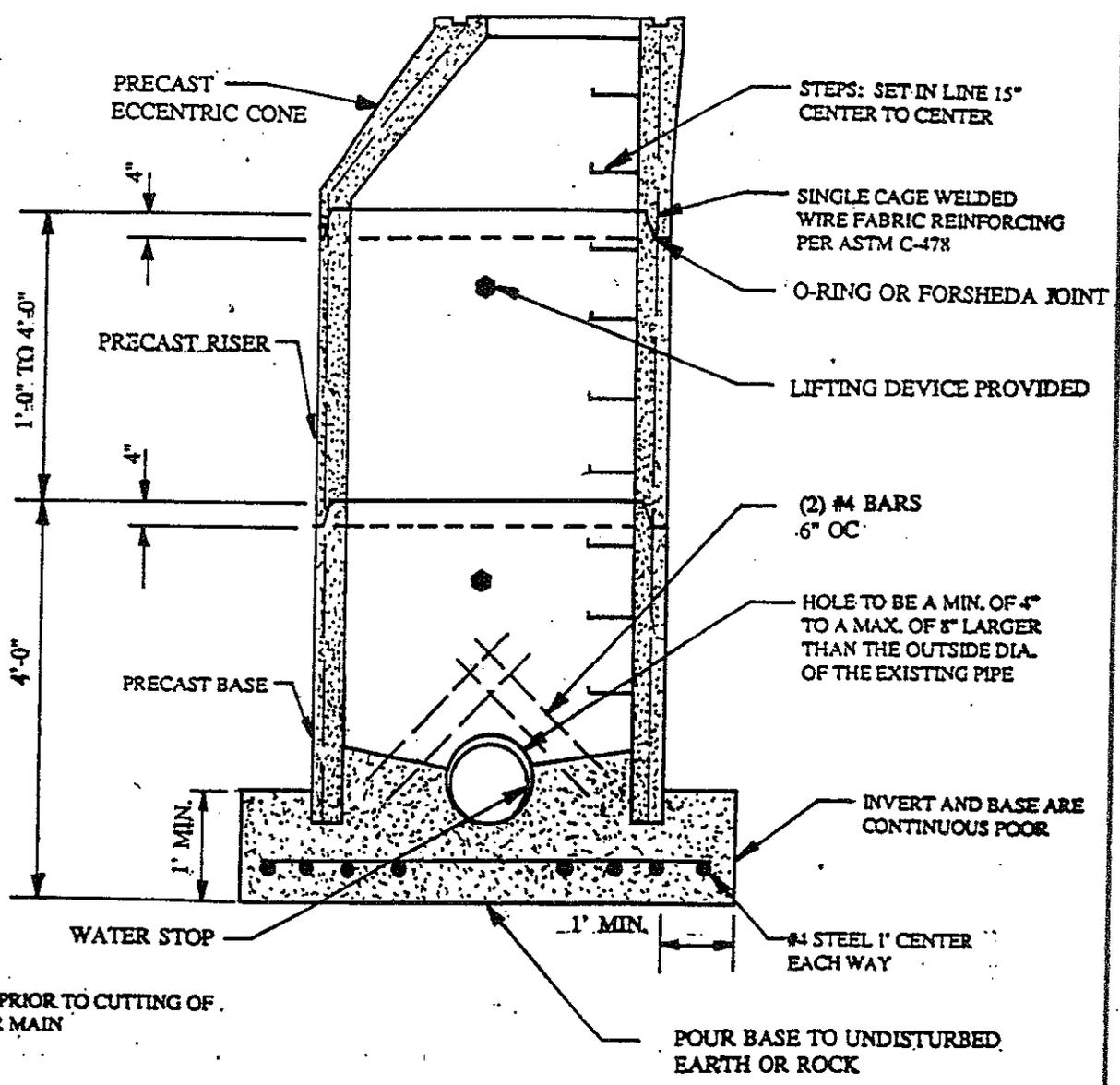
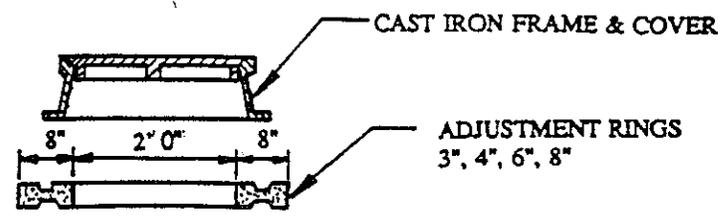


- NOTES**
1. All Reinforcing To Meet Requirements Of Current ASTM A-615.
  2. Manhole Sections To Meet Current Requirements Of ASTM Spec. C-478.
  3. Tapered Joint With O Ring Gasket To Meet Current Requirements Of ASTM Spec. C-361
  4. Joint Configuration May Be Cast Bell-Up Or Spigot-Up.
  5. See Note 5, PLATE III-C



PRECAST MANHOLE CONICAL REDUCER

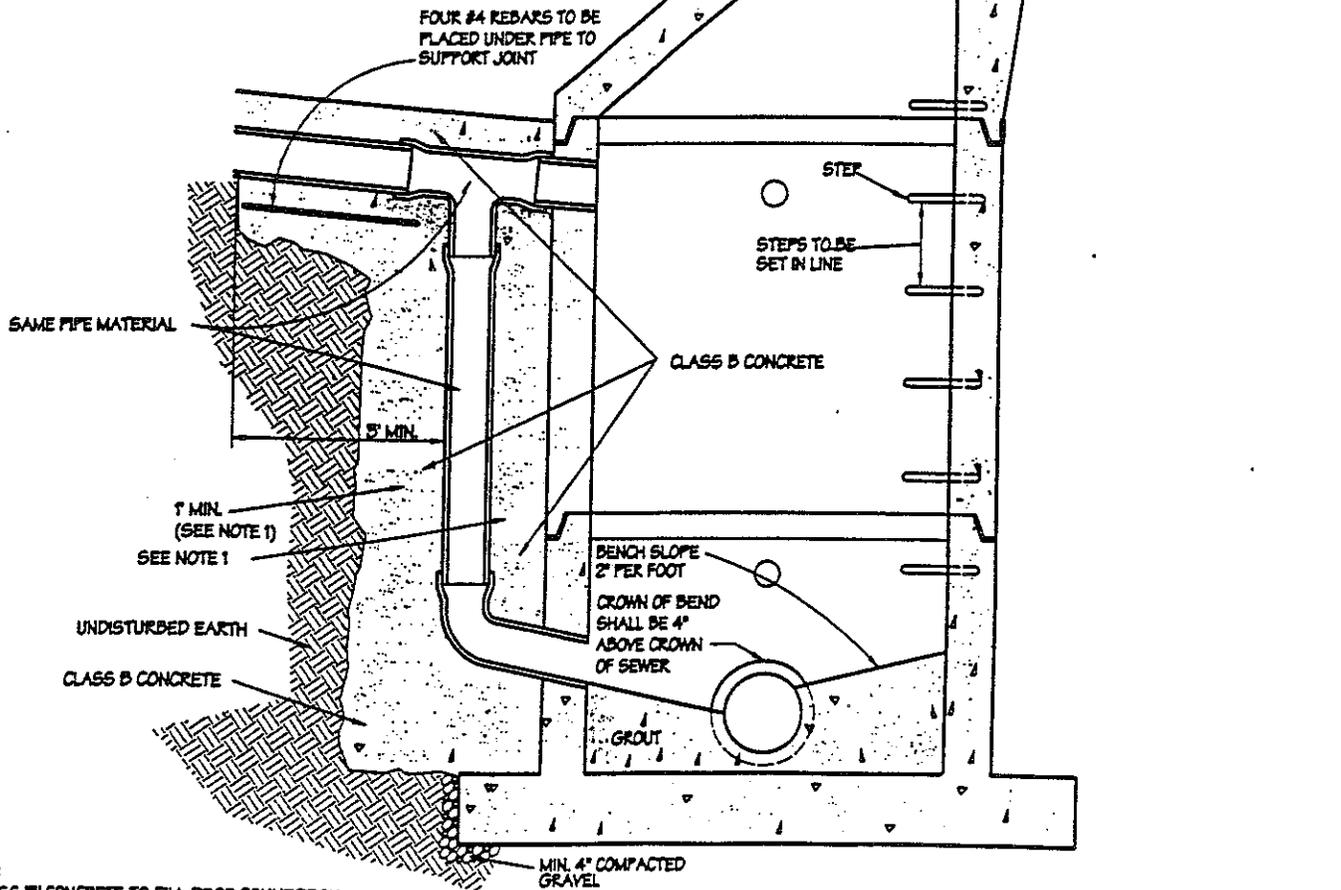
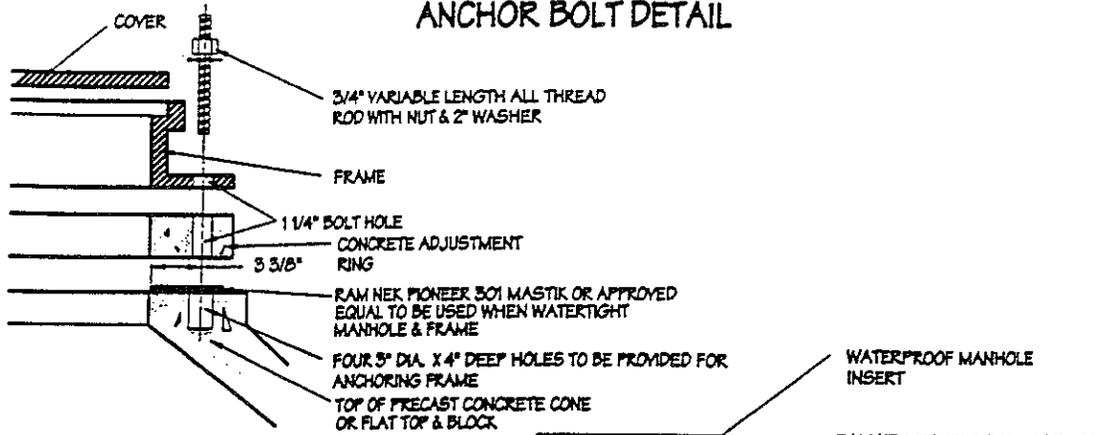
MAXIMUM FRAME ADJUSTMENT  
6" IN EASEMENT, 12" IN PAVEMENT.



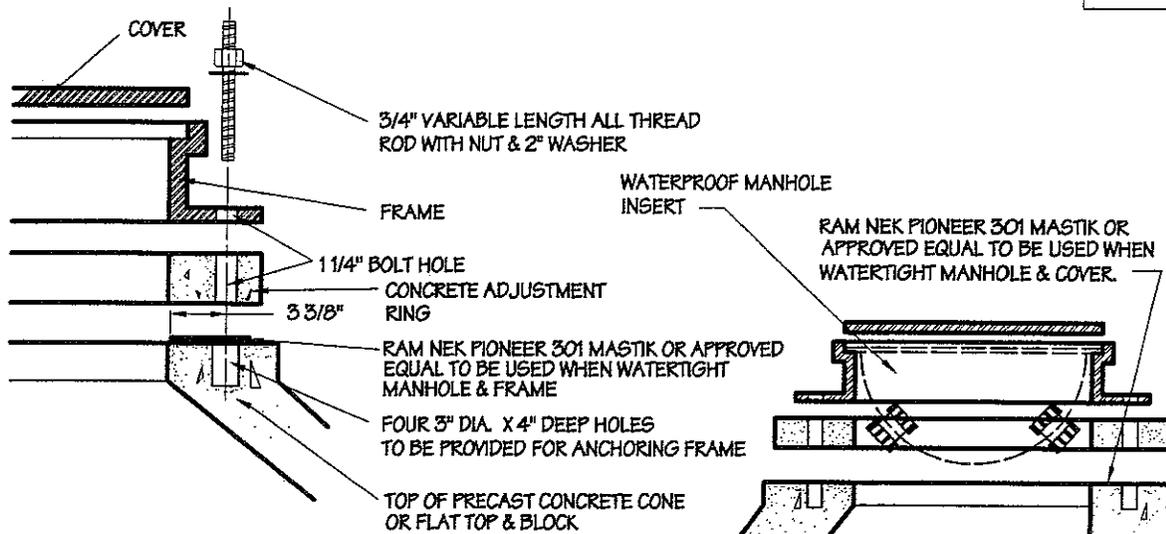
TEST MANHOLE PRIOR TO CUTTING OF EXISTING SEWER MAIN

4' DIAMETER PRECAST "DOGHOUSE" MANHOLE

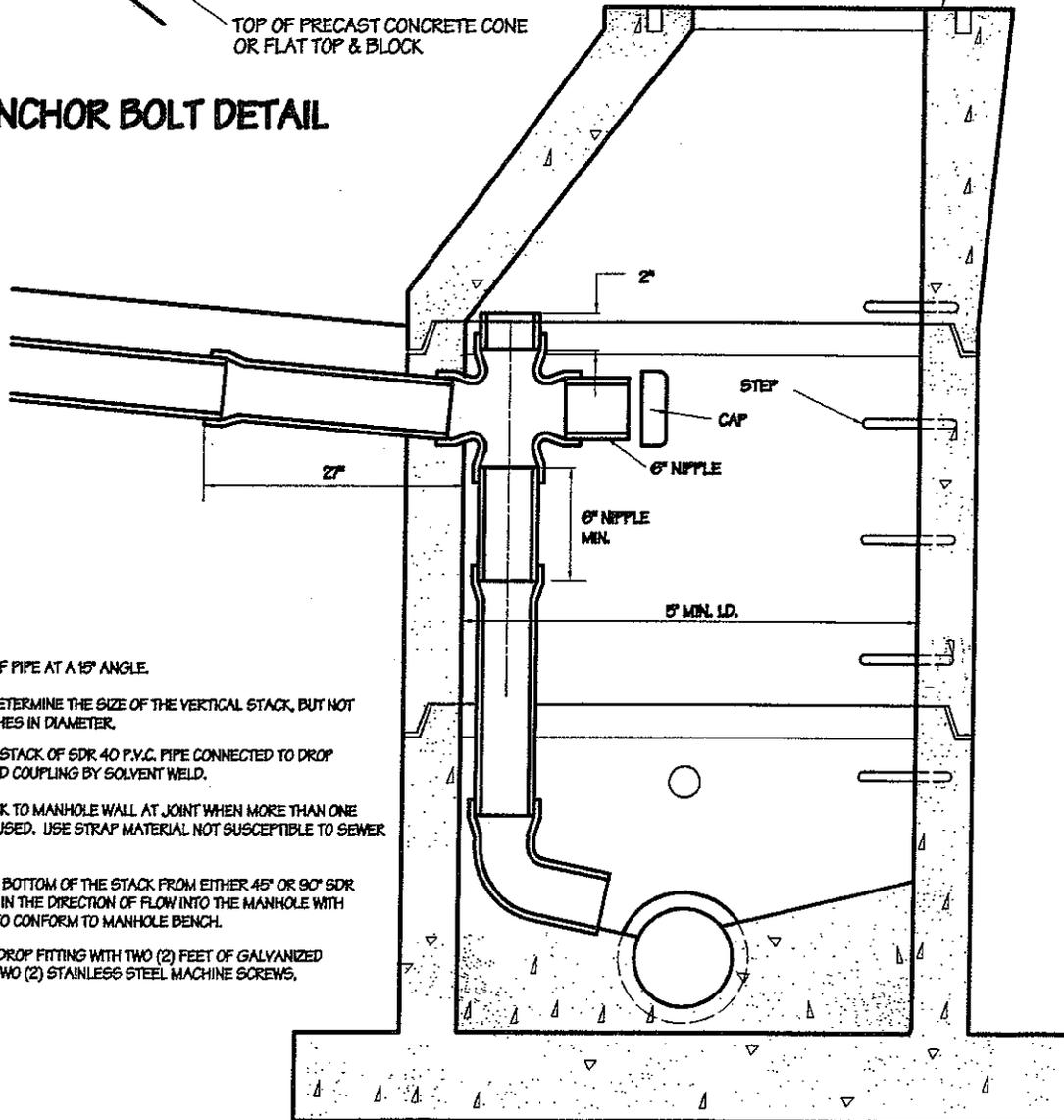
ANCHOR BOLT DETAIL



OUTSIDE DROP CONNECTION DETAIL  
MANHOLE FRAME & COVER DETAIL



**ANCHOR BOLT DETAIL**



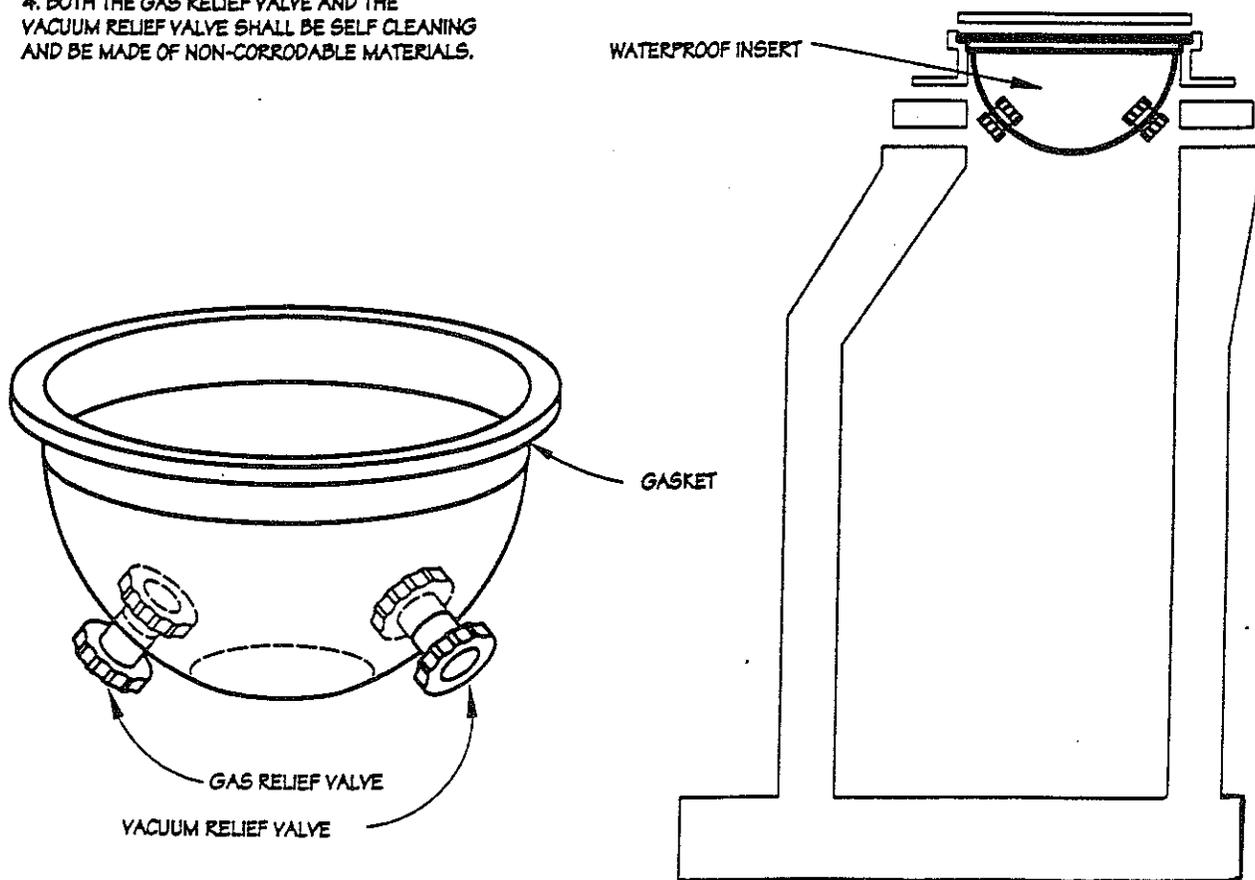
**NOTES:**

- 1) CHAMFER ALL SIZES OF PIPE AT A 15° ANGLE.
- 2) THE ENGINEER WILL DETERMINE THE SIZE OF THE VERTICAL STACK, BUT NOT LESS THAN SIX (6) INCHES IN DIAMETER.
- 3) CONSTRUCT VERTICAL STACK OF SDR 40 P.V.C. PIPE CONNECTED TO DROP FITTING WITH STANDARD COUPLING BY SOLVENT WELD.
- 4) STRAP VERTICAL STACK TO MANHOLE WALL AT JOINT WHEN MORE THAN ONE (1) SECTION OF PIPE IS USED. USE STRAP MATERIAL NOT SUSCEPTIBLE TO SEWER GAS CORROSION.
- 5) CONSTRUCT ELBOW AT BOTTOM OF THE STACK FROM EITHER 45° OR 90° SDR 40 P.V.C. BEND PLACED IN THE DIRECTION OF FLOW INTO THE MANHOLE WITH BENCH CONSTRUCTED TO CONFORM TO MANHOLE BENCH.
- 6) SECURE ALL CAPS TO DROP FITTING WITH TWO (2) FEET OF GALVANIZED CHAIN SECURED WITH TWO (2) STAINLESS STEEL MACHINE SCREWS, NUTS AND WASHERS.

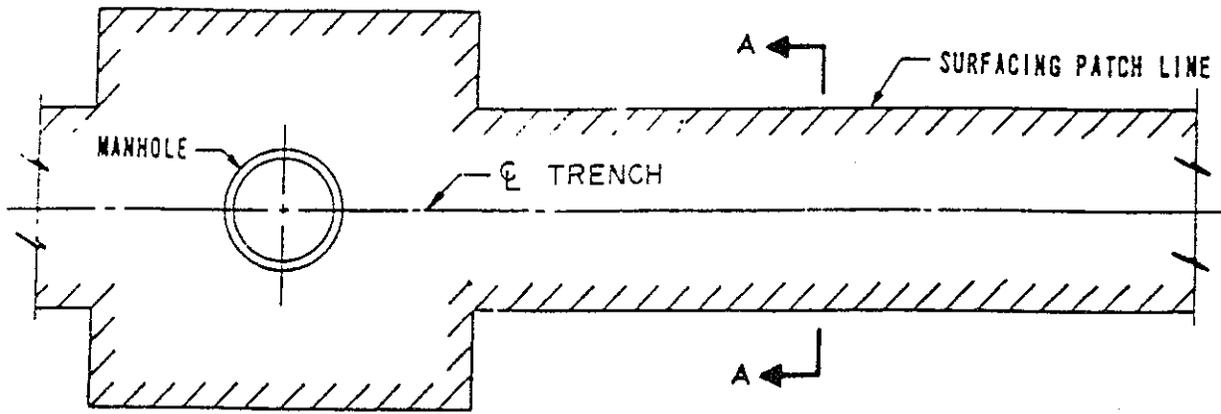
**INSIDE DROP CONNECTION DETAIL  
MANHOLE FRAME & COVER DETAIL**

NOTES

1. THE INSERT SHALL BE DEEP ENOUGH TO PREVENT THE MANHOLE COVER FROM COMING IN CONTACT WITH THE VALVES WHEN THE MANHOLE COVER IS REMOVED OR INSTALLED.
2. THE INSERT WILL RESTRICT FLOW TO NO MORE THAN 1 GALLON IN 24 HOURS.
3. THE MANHOLE INSERT WILL BE MADE OF NON-CORRODABLE MATERIALS AND WILL NOT BE DAMAGED BY SEWER GASES OR ROAD OIL.
4. BOTH THE GAS RELIEF VALVE AND THE VACUUM RELIEF VALVE SHALL BE SELF CLEANING AND BE MADE OF NON-CORRODABLE MATERIALS.
5. THE GAS RELIEF VALVE WILL BE AUTOMATICALLY ACTIVATED AT A PRESSURE DIFFERENTIAL OF APPROX. 2.25 PSI.
6. THE VACUUM RELIEF VALVE WILL BE AUTOMATICALLY ACTIVATED AT A PRESSURE DIFFERENTIAL OF APPROX. 2.25 PSI.
7. A GASKET WILL BE INSTALLED UNDER THE LIP OF THE INSERT TO INSURE A TIGHT SEAL BETWEEN THE INSERT AND THE MANHOLE FRAME.

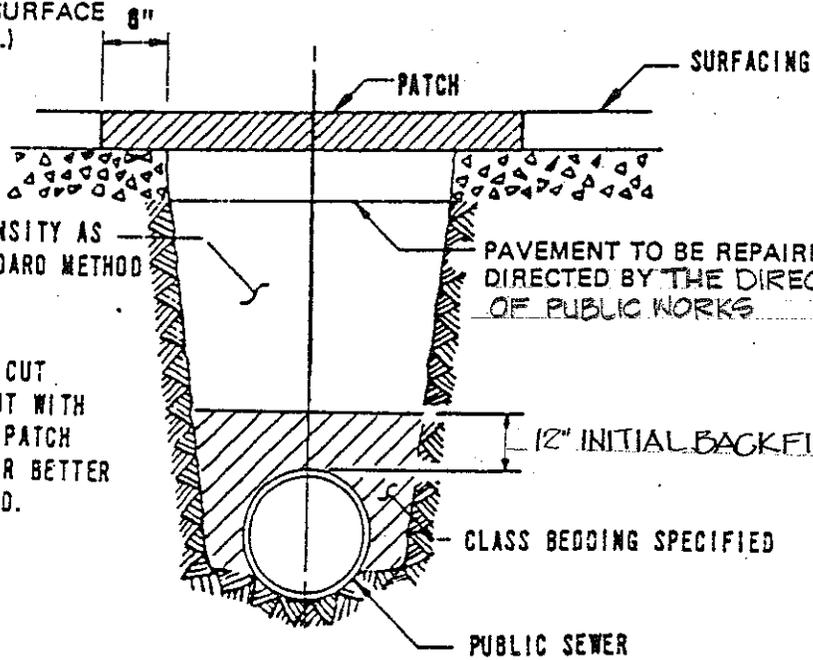


WATERPROOF MANHOLE INSERT



PLAN

CUT SURFACING BACK MINIMUM OF 6" BEYOND EDGE OF TRENCH (OR 6" BEYOND LIMIT OF HEAVED OR OTHERWISE DAMAGED SURFACE WHEN BLASTING REQUIRED.)



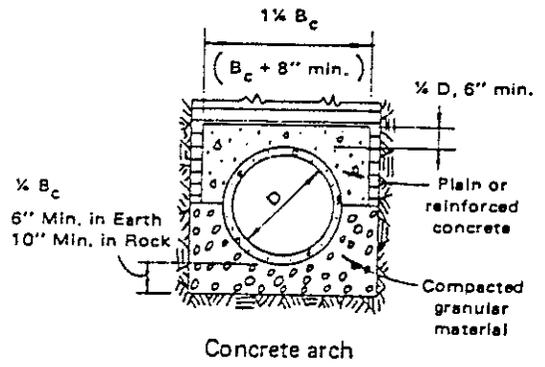
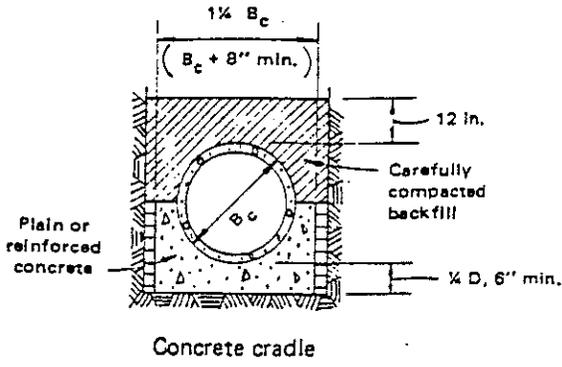
COMPACTED TO 95% MAX. DENSITY AS DETERMINED BY AASHO STANDARD METHOD

PAVEMENT TO BE REPAIRED AS DIRECTED BY THE DIRECTOR OF PUBLIC WORKS

NOTE: SURFACING TO BE CUT NEAT AND STRAIGHT WITH A CONCRETE SAW. PATCH SHALL BE EQUAL OR BETTER THAN THAT REMOVED.

SECTION A-A

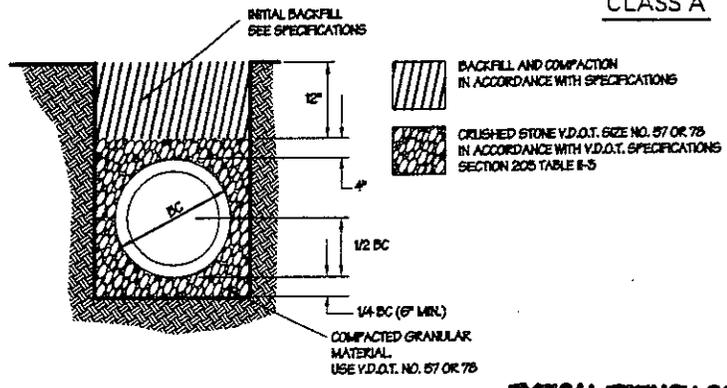
PAVEMENT PATCHING DETAIL



Concrete cradle

Concrete arch

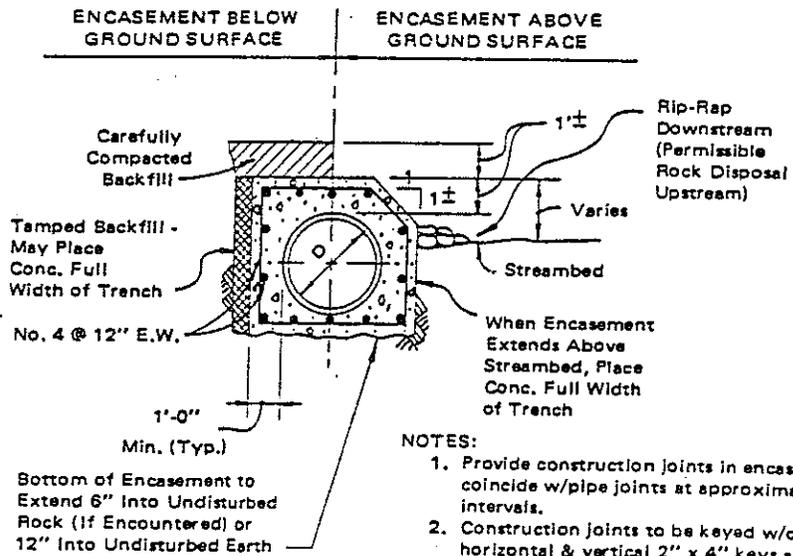
**CLASS A**



**NOTE 1:**  
THE WIDTH OF THE TRENCH IS TO BE AS SPECIFIED BY THE ENGINEER ON THE PLANS OR AS SET FORTH IN THE SPECIFICATIONS.

**NOTE 2:**  
THE PIPE SHALL BE BEDDED IN CAREFULLY COMPACTED GRANULAR MATERIAL PLACED ON A FLAT TRENCH BOTTOM. THE GRANULAR MATERIAL SHALL BE CRUSHED STONE V.D.O.T. SIZE 57 OR 78, IN ACCORDANCE WITH V.D.O.T. SPECIFICATIONS, SECTION 205, TABLE 8-5. THE GRANULAR BEDDING SHALL HAVE A MINIMUM THICKNESS OF ONE-FOURTH THE OUTSIDE PIPE DIAMETER (6" MIN) AND SHALL EXTEND VERTICALLY IN ACCORDANCE WITH ALTERNATES A OR B. IF THE MAXIMUM WIDTH OF THE TRENCH AT THE TOP OF THE PIPE EXCEEDS THOSE SPECIFIED, GRANULAR BEDDING MATERIAL WILL BE BROUGHT TO THE TOP OF THE PIPE FOR THE FULL WIDTH OF THE TRENCH. THE REMAINDER OF THE SIDE FILLS AND A MINIMUM DEPTH OF 12" OVER THE TOP OF THE PIPE SHALL BE FILLED WITH CAREFULLY COMPACTED MATERIAL. SHOULD THE CONTRACTOR ELECT TO USE LARGER STONE TO CARRY THE WATER, THE LARGER STONE IS TO BE PLACED BENEATH THE SPECIFIED AMOUNT OF GRANULAR MATERIAL. THE LARGER STONE IS NOT IN ANY WAY TO EFFECT THE AMOUNT OF GRANULAR MATERIAL USED.

**TYPICAL TRENCH CONSTRUCTION  
SANITARY SEWER CLASS "B" BEDDING**



- NOTES:**
1. Provide construction joints in encasement to coincide w/pipe joints at approximately 32' intervals.
  2. Construction joints to be keyed w/continuous horizontal & vertical 2" x 4" keys around conduit.
  3. Construction joints shall have a separation area of at least 75% of total encasement cross section.
  4. Discontinue longitudinal reinforcement at construction joints.
  5. Begin & End Encasement at Pipe Joint.

**CLASS C - STREAM CROSSING**

**PIPE BEDDING AND ENCASEMENT AT STREAM CROSSINGS**

