

**APPENDIX B**

***STANDARD DETAILS***

**ROBBINSVILLE TOWNSHIP**

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General Sanitary Sewer Notes:

**PERMIT REQUIRED**

Sanitary sewer extensions shall be constructed in accordance with the requirements of a New Jersey Department of Environmental Protection Treatment Works Approval permit. A copy of the permit shall be displayed at the construction site.

**SHOP DRAWINGS**

The Contractor shall submit shop drawings to the Township for all sanitary sewer appurtenances (pipe, manholes, connectors, fittings, gaskets, electrical equipment, building systems, mechanical components, fencing paving, etc.) at least two weeks prior to the pre-construction meeting. The Township shall retain two (2) complete sets of the shop drawings. The remaining copies will be returned to the contractor.

**POSTING OF PERFORMANCE GUARANTEE**

No Construction shall begin on any sewer extension project until a performance guarantee has been approved by the Township.

**ISOLATION FROM OPERATIONAL PORTION OF SYSTEM**

Before any new portion of a sanitary sewer system installation is started, temporary plugs shall be installed. The plugs shall protect sections of the existing system which have previously been placed into operation from accidental introduction of soil, construction debris, groundwater, water from sewer cleaning operations, etc. a secondary plug shall be installed in the outlet side of the new upstream manhole. These plugs shall remain in place until the new sewers have received approval for operation from the Township. The Contractor shall be responsible for repairs and/or maintenance of affected downstream facilities (e.g., removal of silt or construction debris, costs for pumping and/or treatment of extraneous water, etc...). the plugs may only be removed in the presence of a representative of the Township.

**INSPECTION REQUIRED**

No sanitary sewer system components (pipe, manholes, service connections, pump station facilities, force main, etc.) shall be installed or repaired without inspection by a representative of the Township. The Contractor shall be responsible to ensure that the Township, or its representative, has been notified at least 48 hours prior to any work which is to be performed on a sewer system.

**REQUEST FOR APPROVAL TO OPERATE**

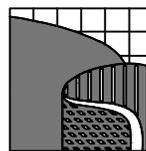
The Developer shall submit a written request for approval to operate a sewer system, or any portion thereof, to the Township office at least 10 calendar days prior to the next regularly scheduled meeting of the Township. The request shall be made only after all testing has been satisfactorily completed, and shall identify specific sewer mains to be placed into operation.

**GENERAL SANITARY SEWER NOTES**

**ROBBINSVILLE TOWNSHIP**

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## SEQUENCE OF CONSTRUCTION & TESTING

Upon installation of sewer main piping, manholes and laterals, the contractor may obtain a preliminary as-built survey and conduct an optional preliminary air test to confirm that the piping is leak free before other utility work is started in the vicinity of newly constructed sanitary sewers. This may help to avoid unnecessary disturbance of shallower utility systems and assist in locating portions of the sanitary sewer system which may become damaged during subsequent construction.

Approval of an-built survey by the Township shall be required prior to placing any sanitary sewer main into operation.

Upon completion of all utility trenching in the public right-of-way, the Contractor shall conduct the following tests, in the presence of a representative of the Township:

- Air Test
- Sewer Cleaning
- TV Inspection

Deflection/Deformation Test

Upon completion of stabilized base course paving, the Contractor shall conduct the manhole Leakage Tests, in the presence of a representative of the Township.

Where unusual project conditions make the above sequence impractical, in the opinion of the Engineer, the Engineer may permit the modification of the sequence at his discretion. Under no circumstances, however, shall any sewer main be placed into operation without having satisfactorily passed all regularly required testing.

The Township reserves the right to require retesting and/or repair of any portion of the newly constructed sanitary sewer system, as deemed necessary by the Engineer. All testing and repairs shall be at Developer's expense.

## PRELIMINARY AS-BUILT PLAN

Where, due to a temporary lack of sufficient permanent above -ground features (e.g. building foundations, storm sewer inlets, etc.), it is not possible to indicate inspection riser locations utilizing horizontal offset distance of 100 feet or less, a preliminary as-built plan may be accepted. A preliminary as-built plan (signed and sealed by a New Jersey licensed land surveyor) shall be submitted indicating manhole locations, wye connection locations, pump station facilities, force main and gravity pipe materials, inverts, lengths, lengths and slopes. The plan shall be clearly labeled as "preliminary". When construction of the project has progressed such that inspection riser locations can be properly documented, a final as-built survey shall be submitted. The as-built shall include a bench mark based off of U.S.G.S. datum.

## FINAL AS-BUILT PLAN

Final as-built plan submissions shall include one (1) reproducible mylar copy and one (1) print (Bearing the seal of a New Jersey licensed Land Surveyor). Final as-built plans shall include the locations of all items listed under the requirements for preliminary as-builts in addition to inspection riser locations. Inspection riser locations shall be shown by at least two horizontal offset distances from permanent above-ground site features. Trees, utility poles, etc. shall not be acceptable for this purpose. The submission of a final as-built plan shall be required prior to release of the performance guarantee.

## SEWER CLEANING

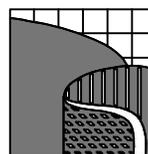
Pressurized hydraulic cleaning of all sanitary sewer mains and manholes installed shall be required. All sewer cleaning work shall be witnessed by a representative of the Township. All debris and sediment shall be removed at each manhole and connection to existing system.

## GENERAL SANITARY SEWER NOTES

### ROBBINSVILLE TOWNSHIP

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#### TV INSPECTION

TV inspection work shall be witnessed by a representative of the Township and shall immediately follow sewer cleaning operations. Water used during cleaning shall only be allowed to drain from the pipe by natural gravity flow, to demonstrate the hydraulic characteristics of the installed pipe. A closed-circuit television inspection shall be made. The TV camera and related equipment shall produce a high-quality image of the sewer pipe. The camera shall not be pulled by means of a water jetting nozzle. One (1) copy of the video recording (color VHS), with audio log superimposed on the video log, shall be submitted for the Township records. The videotape and case shall be clearly labeled, indicating the project name and date of inspection. A legible written log shall be submitted. The TV inspection shall document subdivision name; phase of development; street name; TV inspection firm and crew chief's name; name of Township Representative; date; manhole-to-manhole designation; direction of camera; type of pipe; type of joints; joint spacing; cleanliness; manhole conditions; pipe conditions; section length; pipe size; depth of pipe below grade; clarity of flow; continuous distance measurement; and location of all service lateral connections. Pipes with defects that may, in the opinion of the Engineer, adversely affect performance of the system shall not be approved for use by the Township.

#### DEFLECTION/DEFORMATION TEST

Deflection/deformation testing work shall be witnessed by a representative of the Township. A rigid mandrel shall be hand-pulled through the sewer main being tested. The mandrel shall be capable of detecting deflections and/or deformations of 7.5%. Any sewer mains with deviations in alignment or slope exceeding this amount shall not be approved for use by the Township.

#### AIR TESTING OF PIPE

For ductile iron pipe, air testing shall conform with the pipe manufacturer's recommendation or AWWA Standard for the pipes rated pressure. Where PVC pipe is used and no standard is available, the following procedure shall be used:

For the acceptance test, air shall be slowly supplied to the plugged section of pipe to be tested until the internal air pressure reaches 4.0 psi greater than the average back pressure of any groundwater that may submerge the pipe. At least two (2) minutes shall be allowed for temperature stabilization before proceeding further. The back pressure of any groundwater caused by the water head above the invert of the pipe must be determined by a method approved by the Engineer. This back pressure must be added to the standard test pressures to compensate for the groundwater effect on the air test.

Introduce low pressure air until the internal air pressure reaches 4.0 psig (pounds per square inch, gauge) greater than the average back pressure of any groundwater above the pipe.

The air pressure correction, which must be added to the 3.5 psig normal test starting pressure, is calculated by dividing the average vertical height, in feet of groundwater above the invert of the sewer pipe by 2.31. In no case should the starting pressure exceed 9.0 psig.

Throttle the air supply to maintain a constant pressure of 4.0 psig for at least two (2) minutes for temperature equalization.

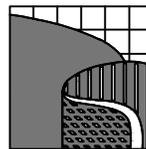
Shut off or disconnect the air supply. When the pressure in the line drops to 3.5 psig (greater than the average groundwater back pressure), commence timing.

Measure the amount of time for the pressure to drop 0.5 psig. Compare the actual time elapsed to the allowable times set. The test may be discontinued once the prescribed time has elapsed.

## GENERAL SANITARY SEWER NOTES

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#### MANHOLE LEAKAGE TEST

Manhole testing may be performed by water exfiltration tests. No visible leakage of water into a manhole shall be permitted under any circumstances.

Exfiltration tests shall be conducted by plugging inlet and outlet pipes and filling the manhole with water. The manhole shall be filled into the casting. Plugs shall be secured to prevent them from being pushed into the pipes. After a two-hour soaking period, a water level reading shall be taken. The drop in the water level shall be measured after 24 hours. Leakage in any manhole, regardless of depth, shall not exceed 5 gallons per day.

Vacuum test shall be conducted by plugging the inlet and outlet pipes. Plugs shall be secured to prevent them from being drawn into the manhole. The test head shall be placed in the manhole and the seal inflated in accordance with the manufacturer's recommendations. A vacuum of 10 inches of mercury shall be drawn and the vacuum pump shut off. With the valves closed, the time shall be measured for the vacuum to drop to 9 inches of mercury. The manhole shall pass if the time is greater than 60 seconds for 48" diameter manholes, 75 seconds for 60" diameter manholes and 90 seconds for 72" diameter manholes.

#### CONNECTION TO STRUCTURES

The connection of sanitary sewer laterals to the interior plumbing system of any building, prior to granting of approval to operate by the Township, is prohibited.

#### UTILITY CROSSINGS

Water mains and sanitary sewer and force main shall be separated by 10 feet horizontally. Otherwise, the sewer and water shall be in separate trenches with the sewer 18 inches below the bottom of the water main. At water and sewer crossings, the sewer shall be 18 inches minimum but not less than 6" below the water or sewer main and shall be C.L.D.I.P. with slip-on joints and encased in concrete for a minimum of 10 feet on each side of the crossing. Where the sanitary sewer crosses over or within 18 inches minimum but not less than 6" of a storm pipe the sanitary sewer shall be C.L.D.I.P. with slip-on joints and encased in concrete for a minimum of 10 feet each side of the crossing.

#### UTILITY NOTIFICATIONS

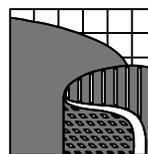
The contractor shall notify underground locations service at least 72 hours prior to commencement of excavation work.

## GENERAL SANITARY SEWER NOTES

### ROBBINSVILLE TOWNSHIP

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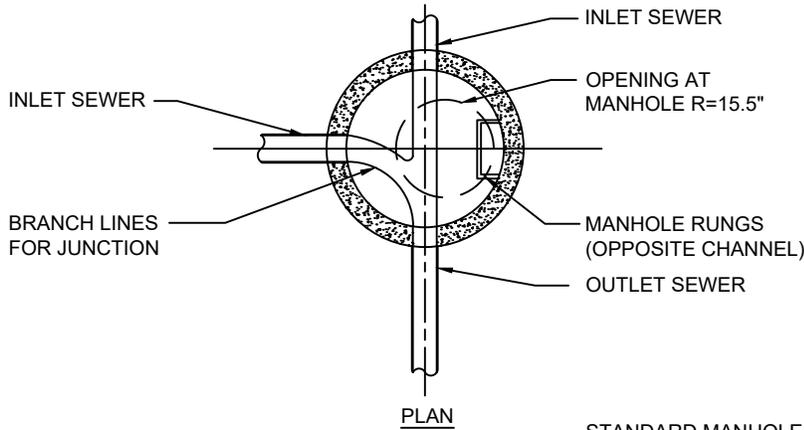
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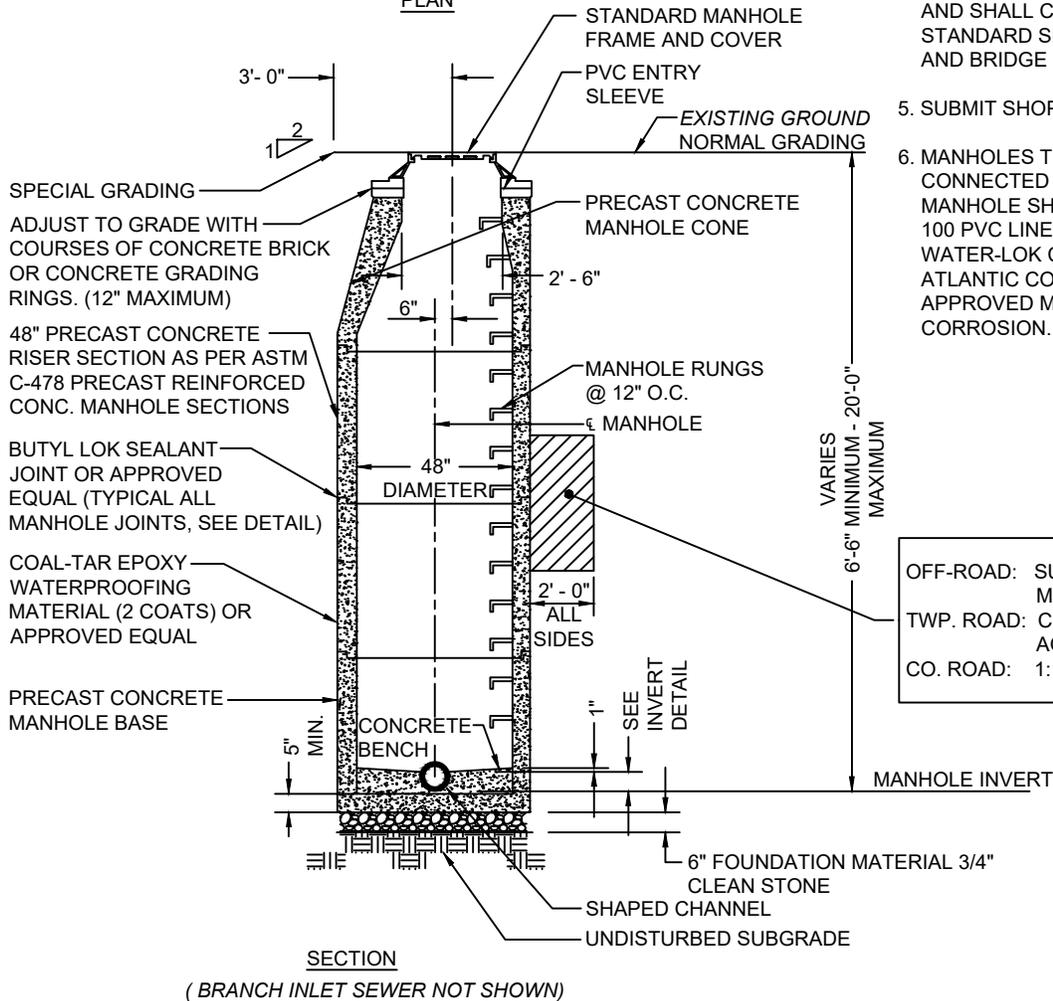
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**NOTES:**

1. SPECIAL GRADING TO BE USED WHERE TOP OF MANHOLE PROTRUDES ABOVE ORIGINAL GRADE.
2. TOE OF SLOPE SHALL NOT EXTEND BEYOND EASEMENT LINE.
3. SPECIAL GRADING IS SYMMETRICAL AROUND CENTER LINE OF MANHOLE COVER.
4. ALL PRECAST STRUCTURES SHALL MEET HS 20 LOADING REQUIREMENTS AND SHALL CONFORM WITH N.J.D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
5. SUBMIT SHOP DRAWINGS FOR APPROVAL.
6. MANHOLES TO WHICH FORCE MAINS ARE CONNECTED AND THE FIRST DOWNSTREAM MANHOLE SHALL BE LINED WITH DURA-PLATE 100 PVC LINER AND BE PROVIDED WITH WATER-LOK CONNECTOR AS MANUFACTURED BY ATLANTIC CONCRETE PRODUCTS, OR OTHER APPROVED MATERIAL RESISTANT TO SULFIDE CORROSION.

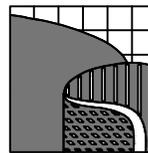


**STANDARD PRECAST MANHOLE**

N.T.S

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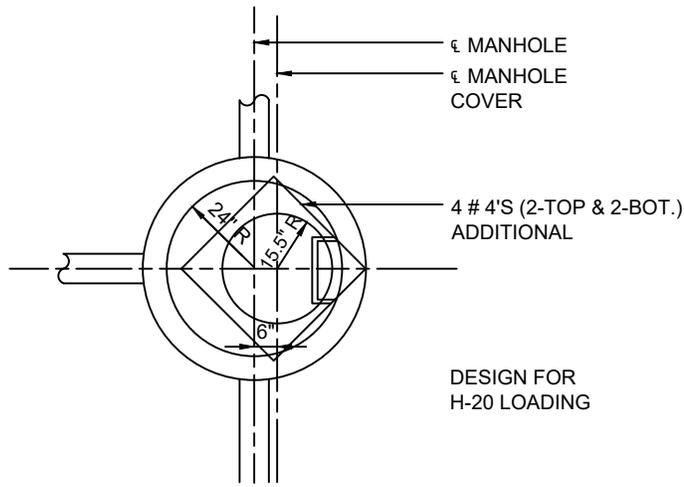
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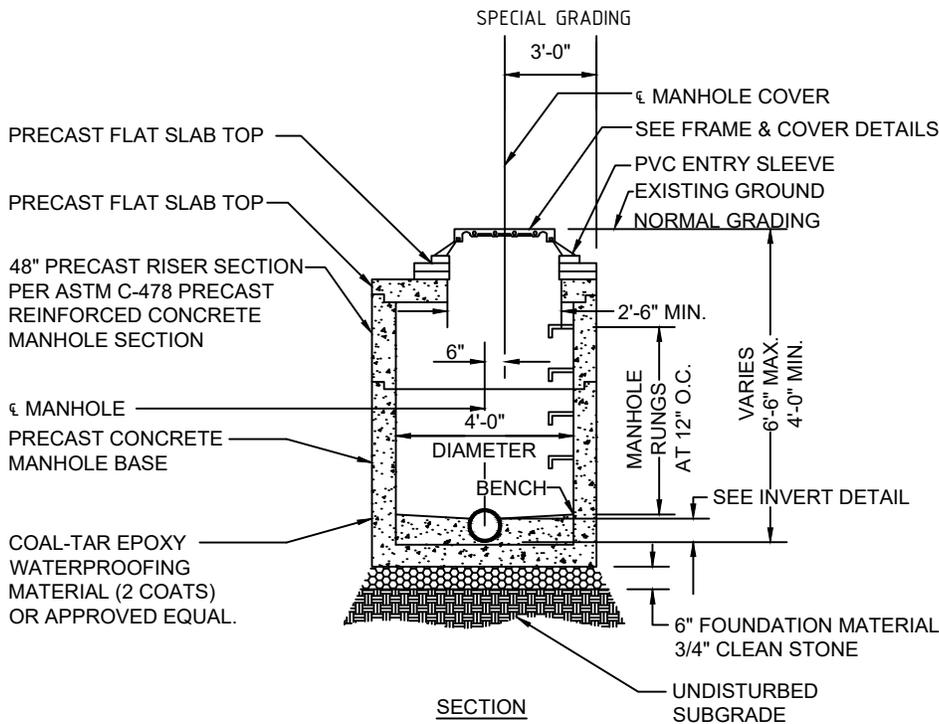
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FLAT SLAB TOP

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4. ALL PRECAST STRUCTURES SHALL MEET HS 20 LOADING REQUIREMENTS AND SHALL CONFIRM WITH N.J.D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
5. SUBMIT SHOP DRAWINGS FOR APPROVAL
6. MANHOLES TO WHICH FORCE MAINS ARE CONNECTED AND THE FIRST DOWNSTREAM MANHOLE SHALL BE LINED WITH DURA-PLATE 100 PVC LINER AND BE PROVIDED WITH WATER-LOK CONNECTOR AS MANUFACTURED BY ATLANTIC CONCRETE PRODUCTS, OR OTHER APPROVED MATERIAL RESISTANT TO SULFIDE CORROSION.



SECTION

NOTE:

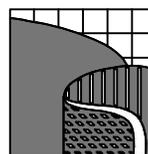
1. FOR INLET, OUTLET, BASE AND BRANCH DETAILS AND CONSTRUCTION NOTES, SEE INVERT DETAIL.
2. SUBMIT SHOP DRAWINGS FOR APPROVAL.

**SHALLOW PRECAST MANHOLE**

N.T.S.

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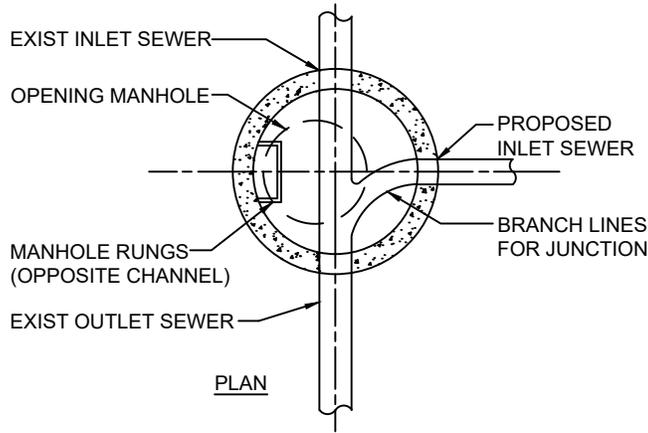
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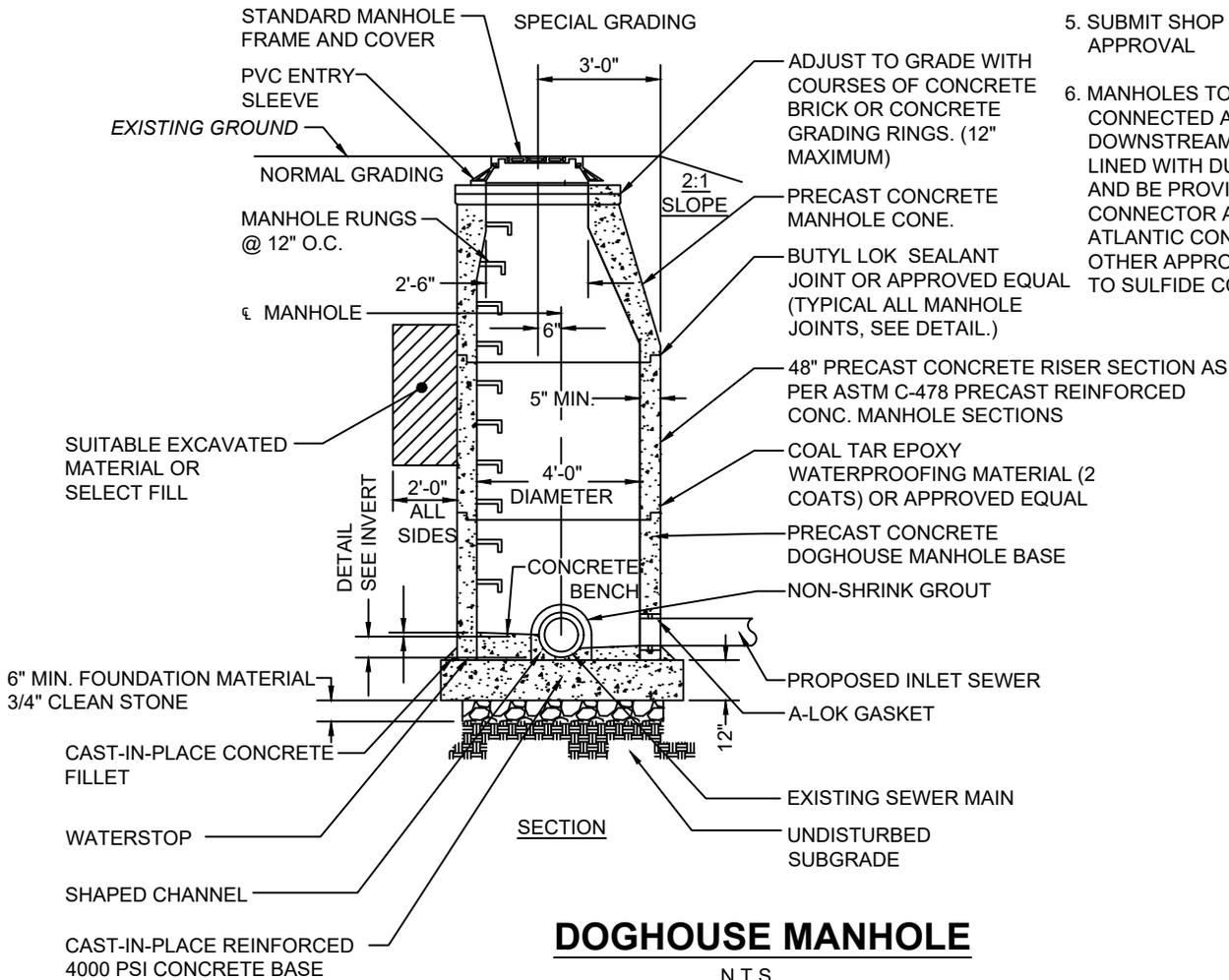
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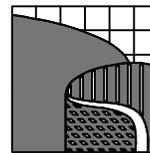


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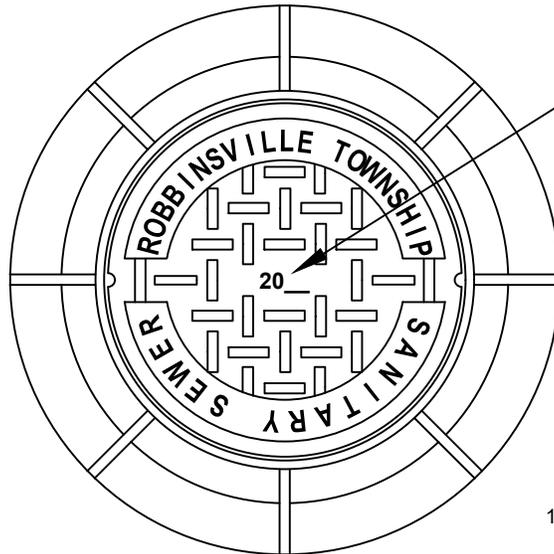
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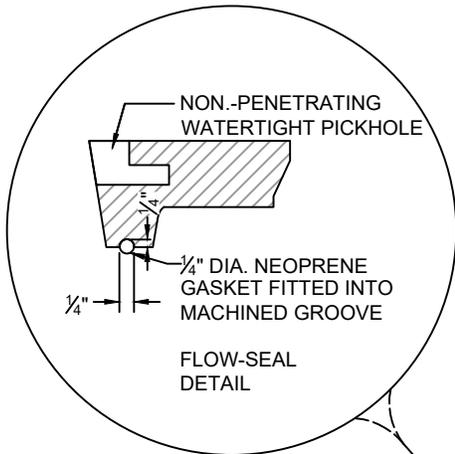
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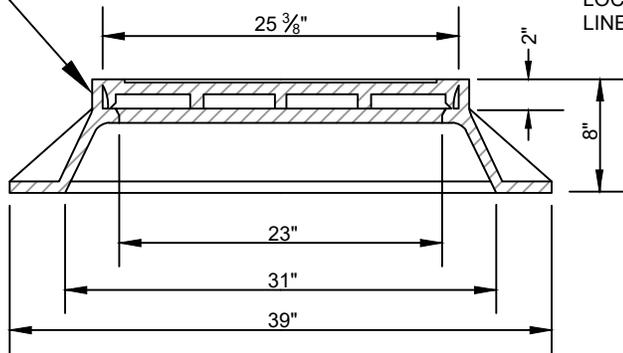


SET TO YEAR OF CONSTRUCTION



**NOTES:**

1. ALL DIMENSIONS ARE TO BE HELD TO A TOLERANCE OF 1/32" ON ALL CASTINGS TO PERMIT INTERCHANGING OF PARTS.
2. CAMPELL FOUNDARY # 1202B OR EQUAL MIN. WT. 425# WITH FLOW SEAL LID.
3. SUBMIT SHOP DRAWINGS FOR APPROVAL.
4. FRAME SHALL BE SET FLUSH WITH THE STABILIZED BASE COURSE PAVING SURFACE ELEVATION. USE RESURFACING MANHOLE EXTENSION RINGS TO ADJUST TO TOP COURSE PAVING SURFACE ELEVATION.
5. PLASTIC MANHOLE INSERTS SHALL BE PROVIDED FOR MANHOLES LOCATED WITHIN EASEMENTS, GUTTER LINES AND AREAS SUBJECT TO FLOODING.

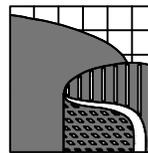


**STANDARD FRAME AND FLOW-SEAL COVER**

N.T.S.

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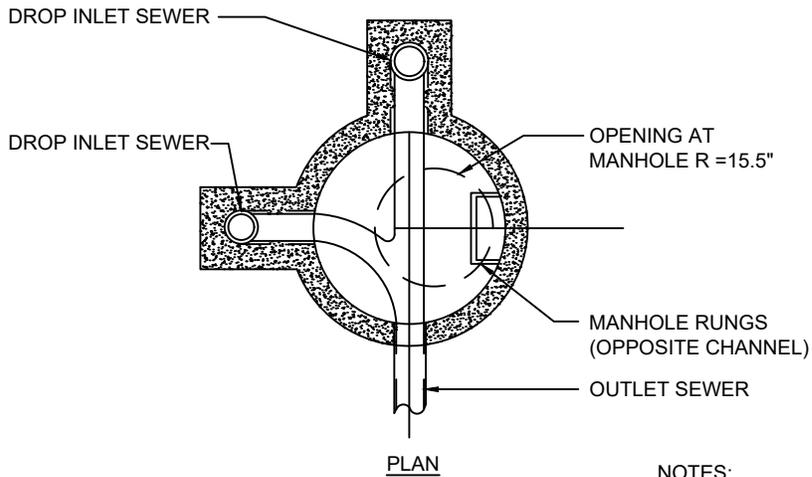
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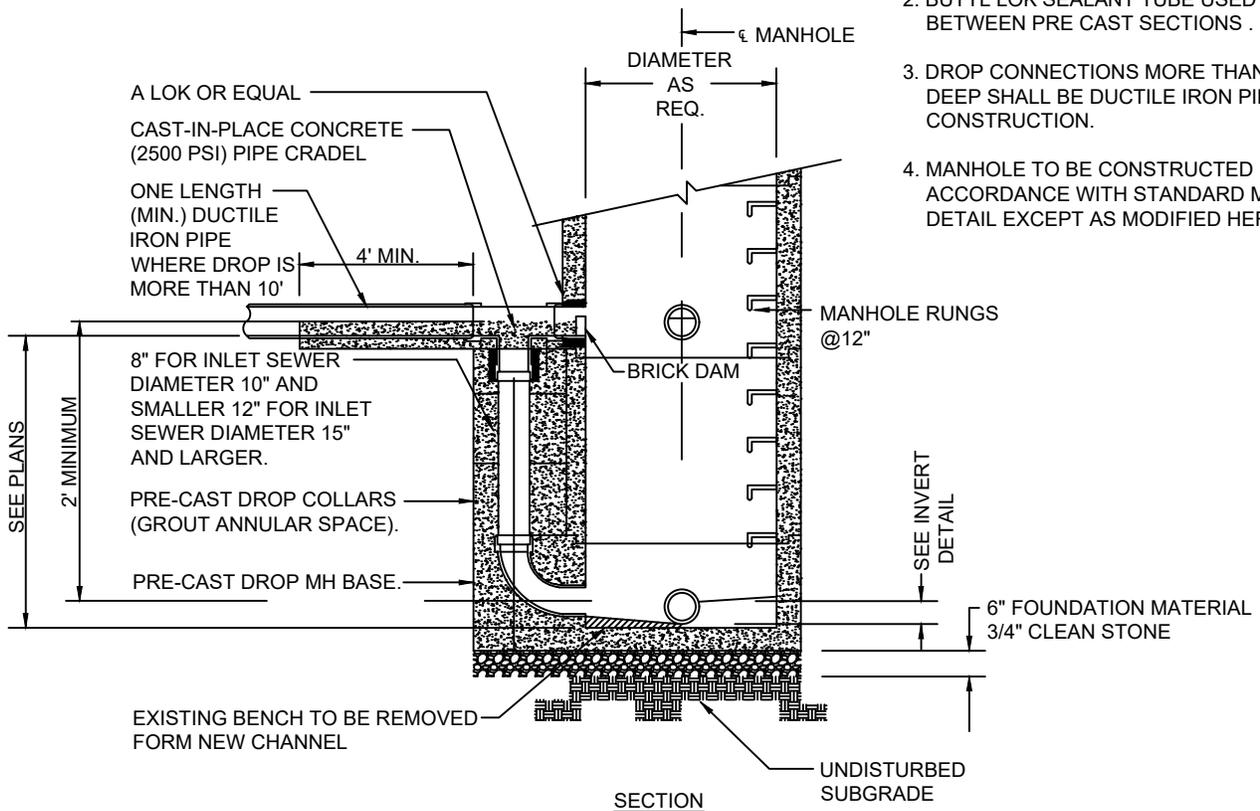
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**NOTES:**

1. SUBMIT SHOP DRAWINGS FOR APPROVAL.
2. BUTYL LOK SEALANT TUBE USED BETWEEN PRE CAST SECTIONS .
3. DROP CONNECTIONS MORE THAN 10 FEET DEEP SHALL BE DUCTILE IRON PIPE CONSTRUCTION.
4. MANHOLE TO BE CONSTRUCTED IN ACCORDANCE WITH STANDARD MANHOLE DETAIL EXCEPT AS MODIFIED HEREIN.

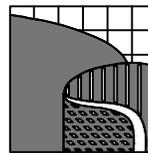


**DROP CONNECTION**

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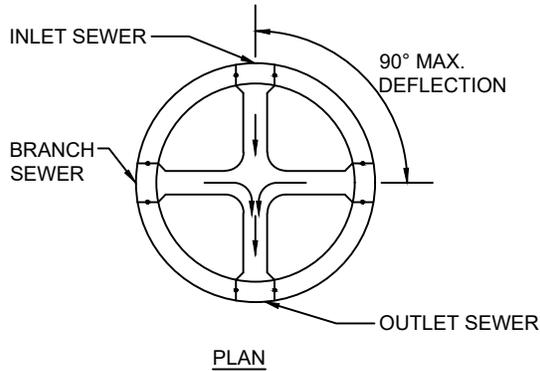


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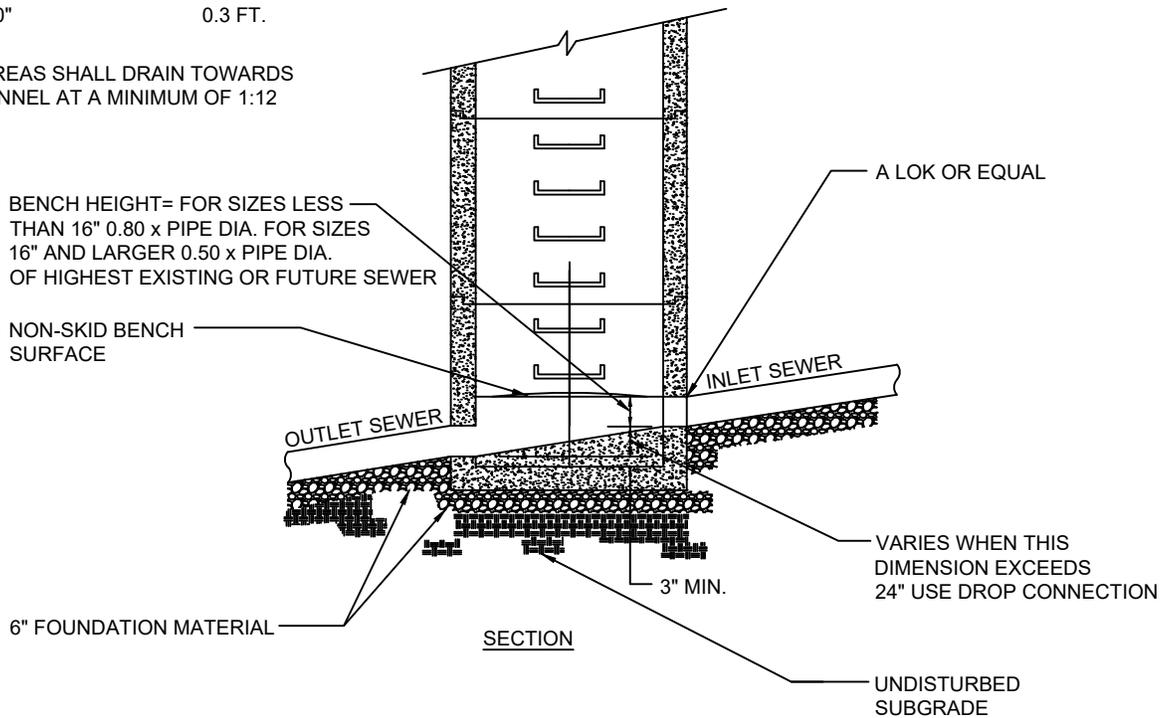
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- NOTES:**
1. WHEREVER THERE IS A CHANGE IN PIPE DIAMETER, THE CROWN OF THE PIPES SHALL BE AT THE SAME ELEVATION.
  2. WHEREVER THERE IS A CHANGE OF DIRECTION WITHOUT A CHANGE IN DIAMETER, THE FOLLOWING ELEVATION DIFFERENTIALS SHALL BE MAINTAINED THROUGHOUT THE MANHOLES.



ANGLE CHANGE	ELEV. DROP
0'-22"	0.1 FT.
22'-45"	0.2 FT.
45'-90"	0.3 FT.

3. SHELF AREAS SHALL DRAIN TOWARDS THE CHANNEL AT A MINIMUM OF 1:12

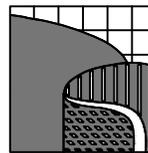


## MANHOLE INVERT

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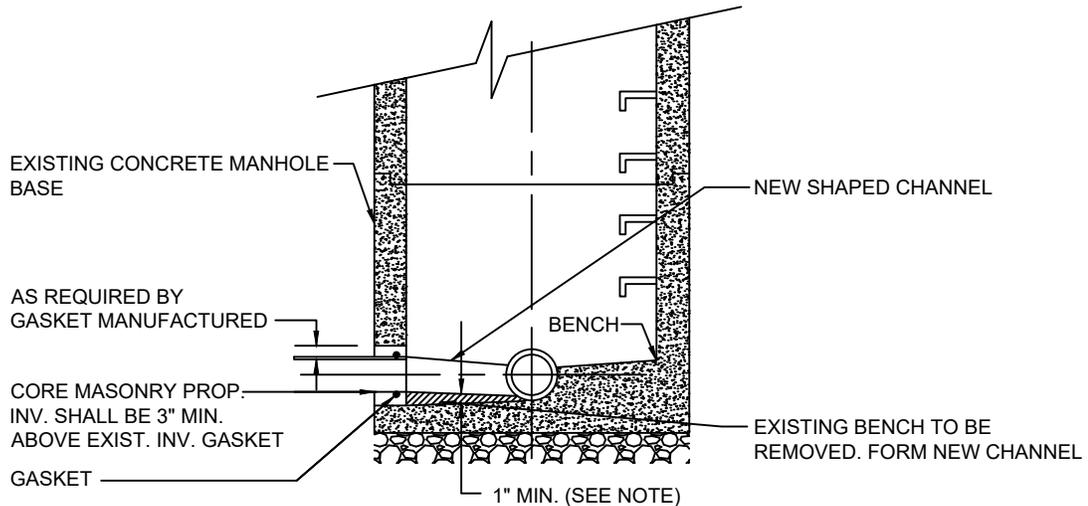
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NOTES:

1. CLEAN AND ROUGHEN ALL SURFACES AGAINST WHICH NEW MORTAR IS TO BE PLACED.
2. EXISTING CONCRETE SHALL BE REMOVED TO A LINE 1" BEYOND THE NEW CHANNEL LINE AND FINISHED OFF WITH NEW CEMENT MORTAR.
3. USE LINK-SEAL GASKET AS MANUFACTURED BY THUNDERLINE CORP., BELLEVILLE MICHIGAN (800-288-0404), OR APPROVED EQUAL.
4. IF THE PROPOSED PIPE COINCIDES WITH THE EXISTING MANHOLE RUNGS:
  - A. THE EXISTING MANHOLE OPENING AND CONE SECTION SHALL BE REALIGNED WITH THE PROPOSED ACCESS LADDER. THE EXISTING MANHOLE RUNGS WITHIN THE CONE SECTION MAY REMAIN AND ALL OTHERS SHALL BE REMOVED.
  - B. A NEW STAINLESS STEEL ACCESS LADDER SHALL BE INSTALLED. SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW.
5. OPENING SHALL BE A MINIMUM OF 3" VERTICALLY FROM A JOINT.
6. SUBMIT SHOP DRAWINGS FOR APPROVAL

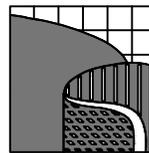


**NEW CONNECTION TO EXISTING M.H.**

N.T.S.

**ROBBINSVILLE TOWNSHIP**

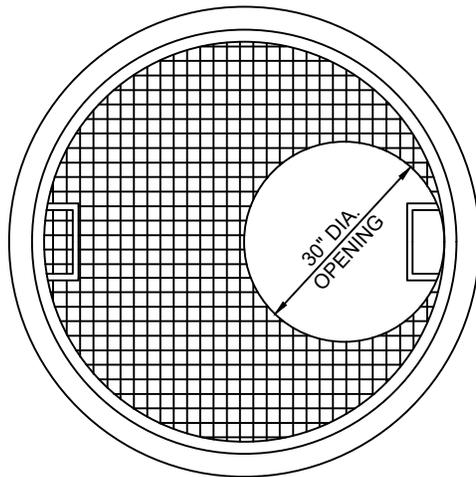
2298 ROUTE 33  
ROBBINSVILLE, NEW JERSEY 08691  
TELEPHONE: (609) 259-3600  
FAX: (609) 259-2128



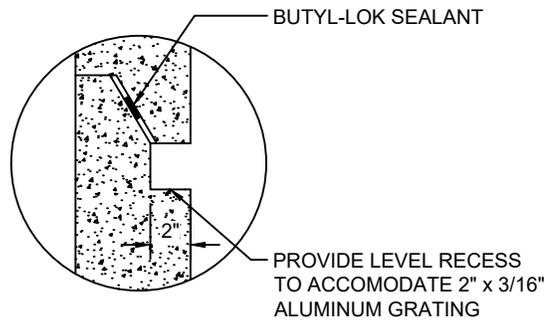
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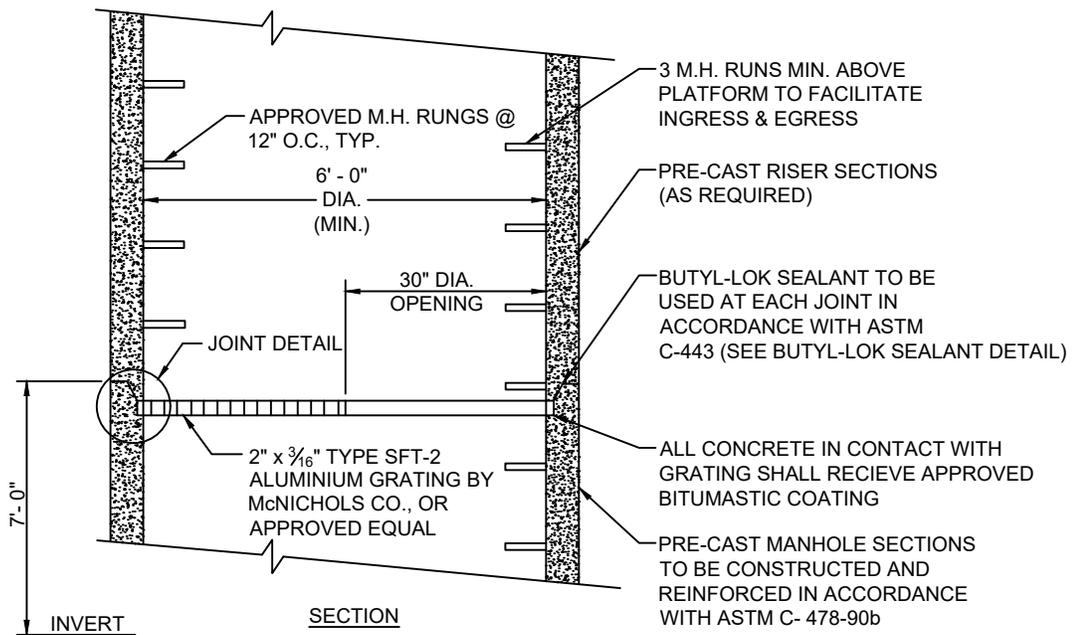
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PLAN



JOINT DETAIL



SECTION

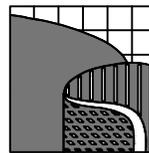
**NOTE:**  
 TO BE USED ONLY ON MANHOLES OVER 20' DEEP.  
 FOR ITEMS NOT SHOWN, SEE STANDARD PRECAST MANHOLE DETAIL.

## SAFETY PLATFORM DETAIL FOR DEEP MANHOLES

N.T.S.

### ROBBINSVILLE TOWNSHIP

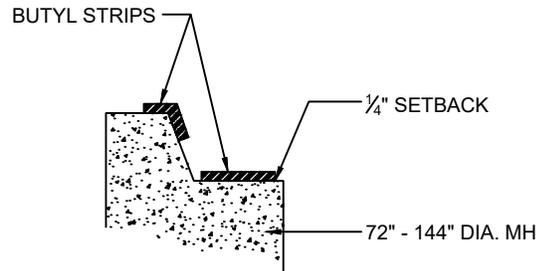
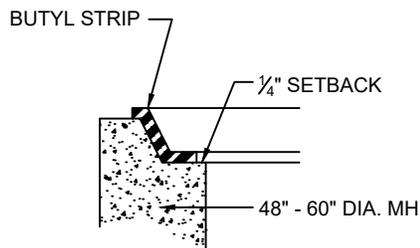
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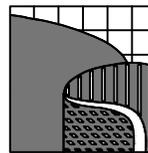
1. BUTYL-LOK SEALANT TO BE USED ON ALL MANHOLE JOINTS AND UNDER ALL CASTINGS
2. CLEAN SURFACE TO ENSURE PROPER ADHESION. BEST RESULTS ARE OBTAINED WITH AN APPLICATION OF PRIMER.
3. PLACE BUTYL MATERIAL AS INDICATED BY APPROPRIATE DIAGRAM. BUTT ENDS OF MATERIAL TOGETHER, NEVER OVERLAP.
4. CENTER AND LOWER TOP SECTION. USE SUFFICIENT PRESSURE FOR PROPER JOINT COMPLETION AND SQUEEZE OUT.
5. CARE SHOULD BE TAKEN TO PROPERLY PLUG ALL LIFT PIN INSERTS OF HOLES.

**BUTYL-LOK SEALANT**

N.T.S.

**ROBBINSVILLE TOWNSHIP**

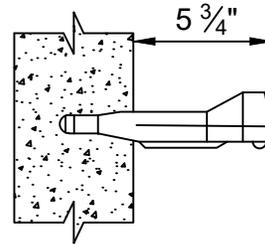
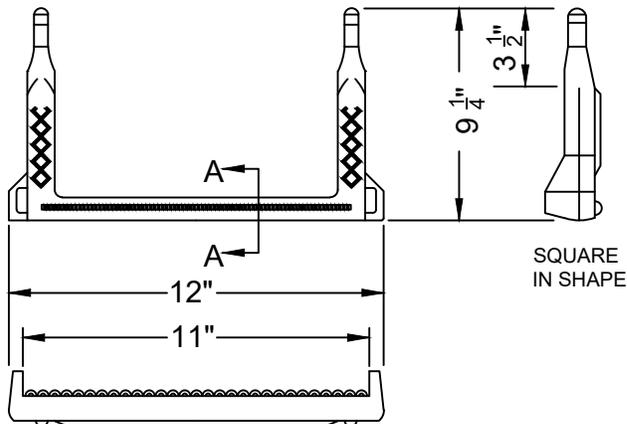
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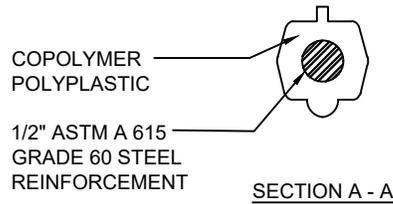
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**NOTE:**  
 1. STEP TO BE AMERICAN  
 STEP Co., INC.  
 ITEM No. I-11-NCR

2. SQUARE INSERTS MAY  
 BE OBTAINED FROM  
 A-LOK PRODUCTS, INC.

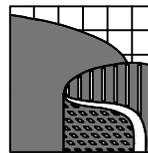


## LADDER RUNG

N.T.S.

### ROBBINSVILLE TOWNSHIP

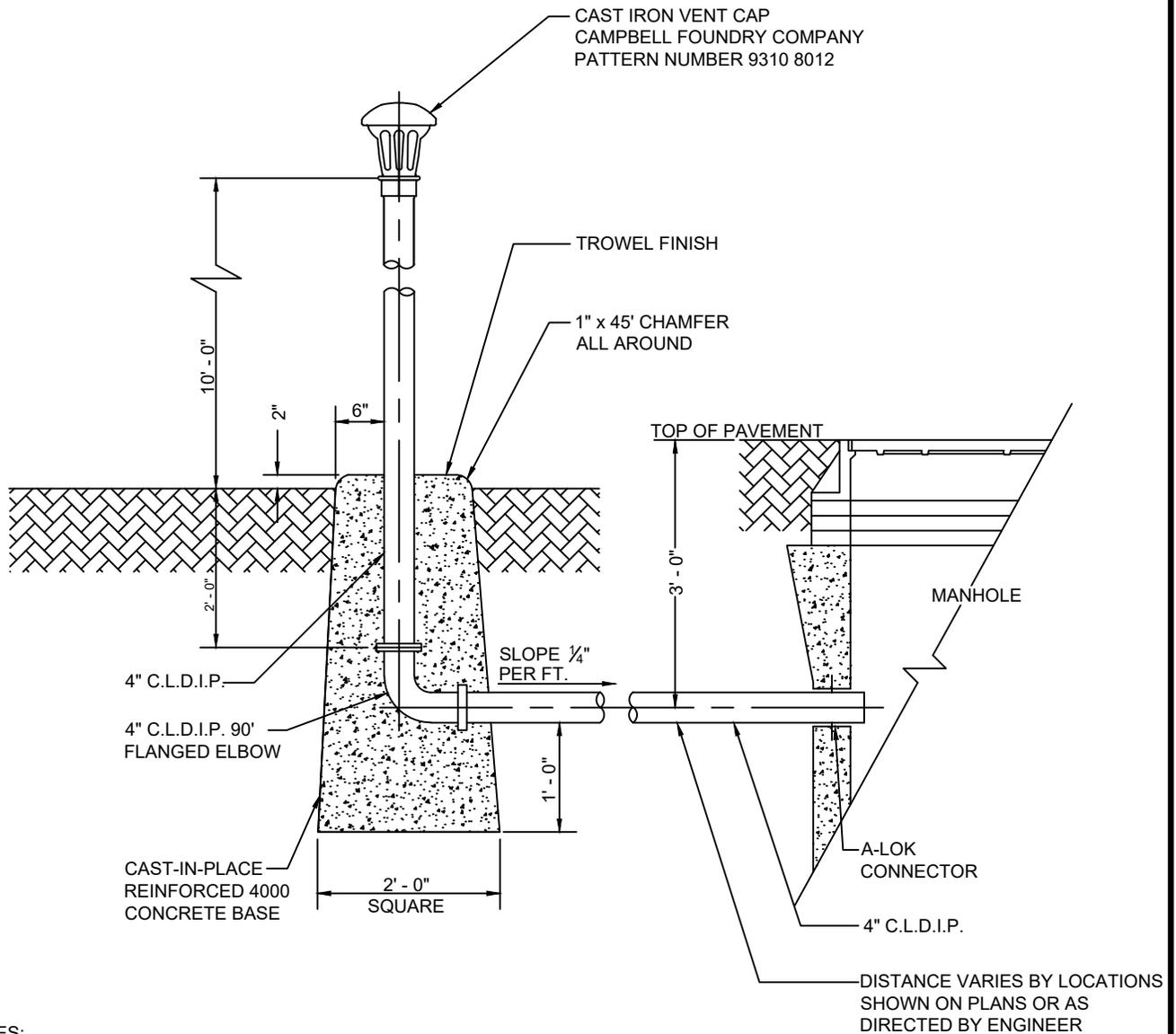
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**NOTES:**

ALL EXPOSED METAL SURFACES SHALL RECEIVE TWO (2) SEPARATE COATS OF PAINT: "FOLIAGE GREEN"; COLOR # 74-679, RUST 0 LASTIC PAINT, BY M.A.BRUDER OR APPROVED EQUAL. SURFACES TO BE PAINTED SHALL BE PREPARED AND PRIMED IN ACCORDANCE WITH THE PAINT MANUFACTURER'S INSTRUCTIONS.

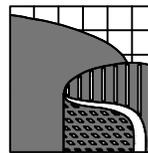
TO BE USED AT WATERTIGHT AND FORCE MAIN DISCHARGE MANHOLES.

**MANHOLE VENT**

N.T.S.

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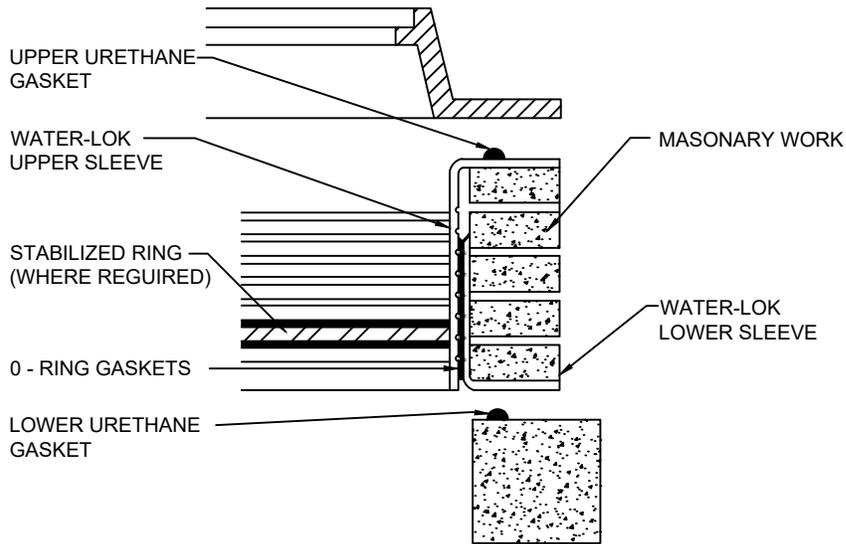


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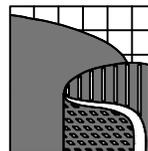
1. PROVIDE WATER-LOK CONNECTOR PVC ENTRY SLEEVE, AS MANUFACTURED BY A-LOK PRODUCTS, INC. (800-822-2565) OR APPROVED EQUAL.
2. FOR WATERTIGHT MANHOLES OR WHERE VACUUM TESTING IS TO BE USED PROVIDE MECHANICAL STABILIZING RING TO RESIST NEGATIVE AIR PRESSURE.

**MANHOLE ENTRY SLEEVE**

N.T.S.

**ROBBINSVILLE TOWNSHIP**

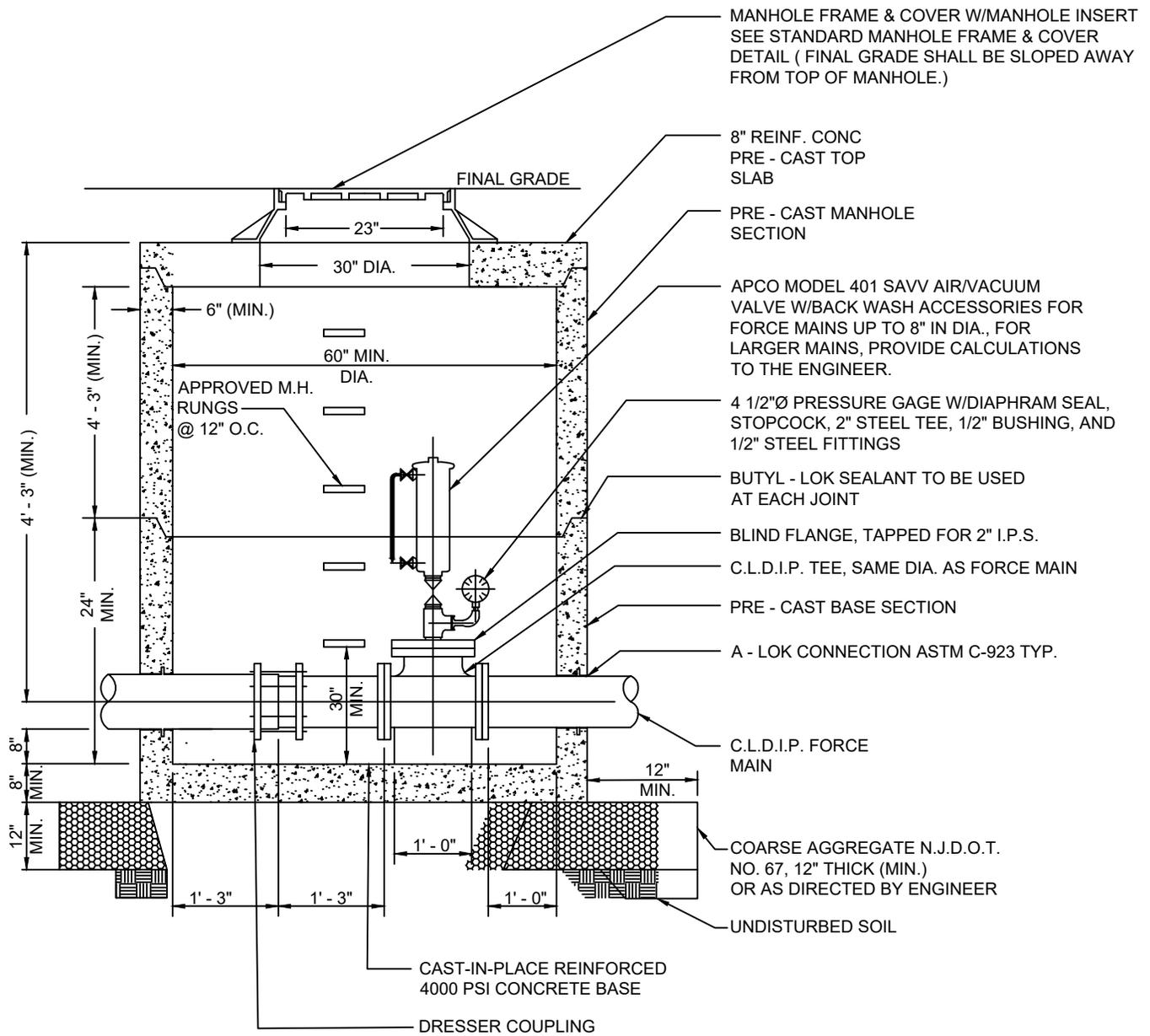
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**NOTE:**

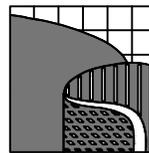
1. PRE-CAST MANHOLE TO BE CONSTRUCTED AND REINFORCED IN ACCORDANCE WITH ASTM SPECIFICATION C-478-90b.
2. TWO SEPARATE COATS OF APPROVED BITUMASTIC WATERPROOFING COMPOUND SHALL BE APPLIED PER MANUFACTURER'S INSTRUCTIONS TO THE ENTIRE EXTERIOR OF STRUCTURE.

**AIR RELEASE/VACUUM MANHOLE DETAIL - SECTION**

N.T.S.

**ROBBINSVILLE TOWNSHIP**

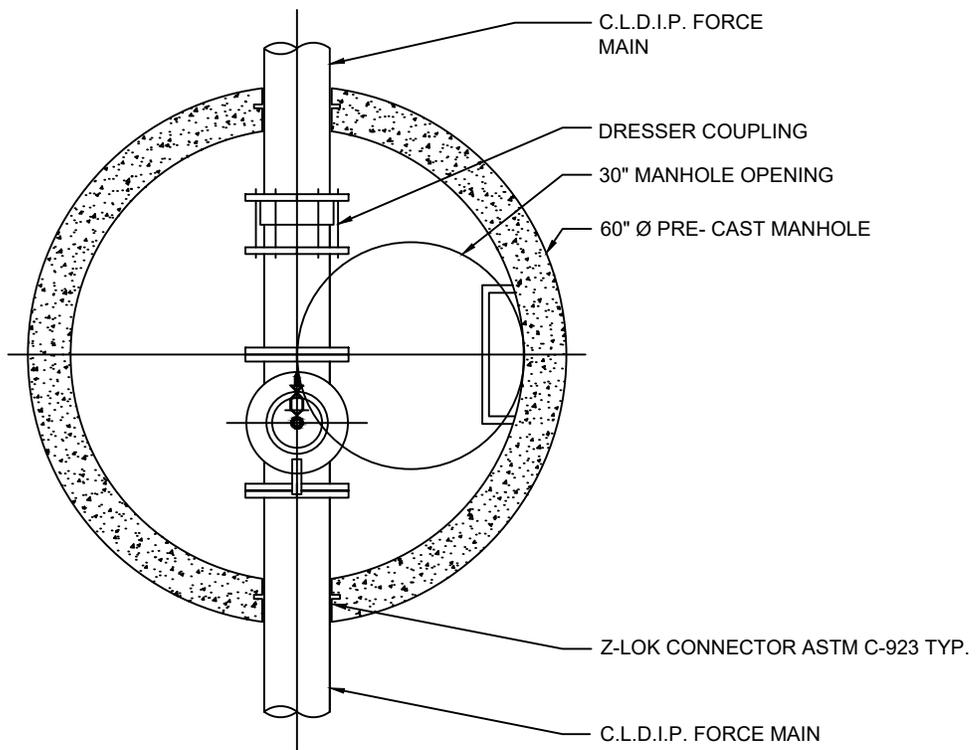
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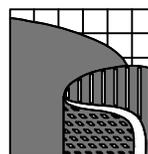
NOTE:  
 1. REQUIRED ALONG FORCE MAINS AT HIGH POINTS BETWEEN PUMP STATION AND THE POINT OF DISCHARGE.

**AIR RELEASE/VACUUM MANHOLE DETAIL - PLAN**

N.T.S.

**ROBBINSVILLE TOWNSHIP**

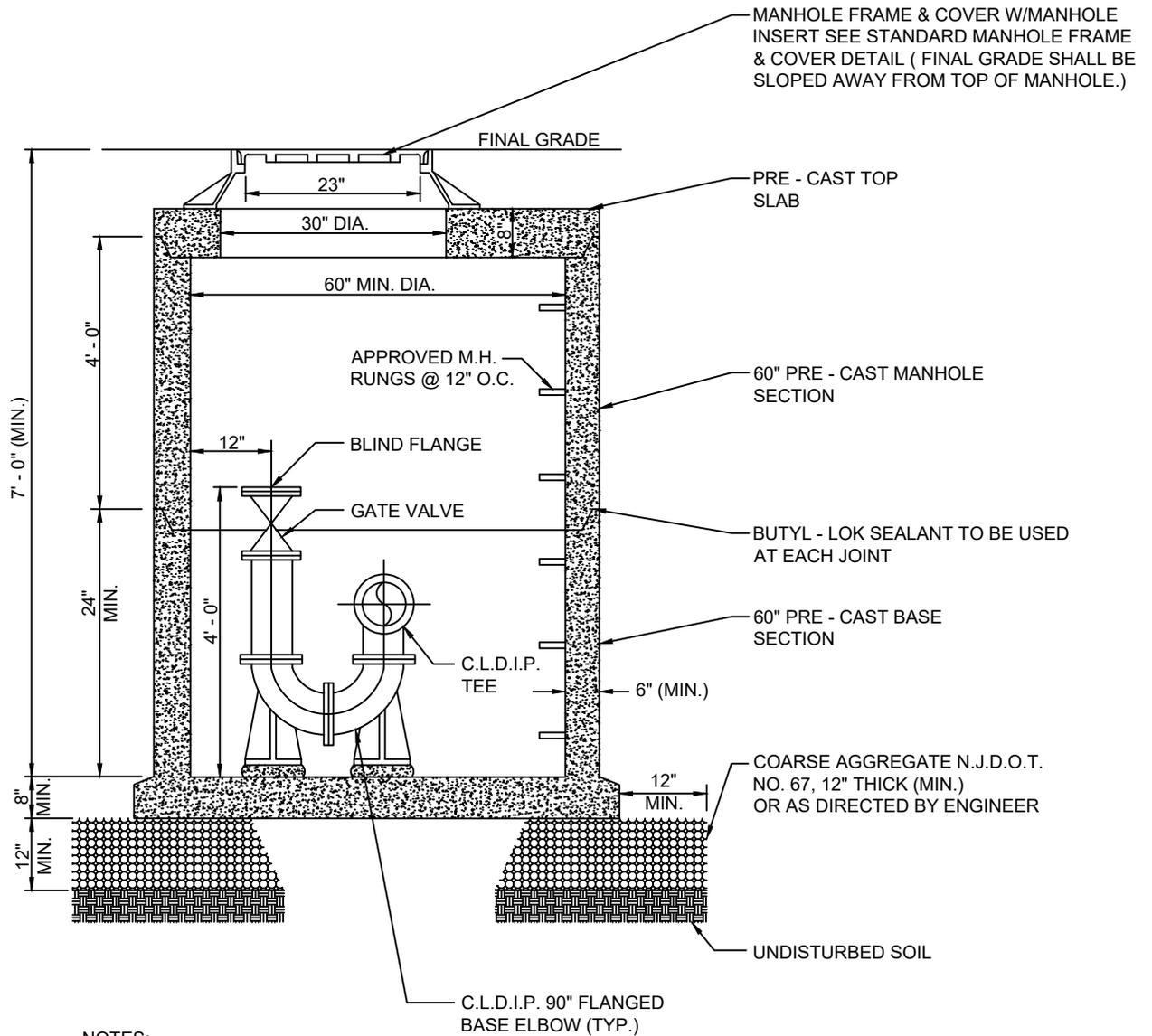
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**NOTES:**

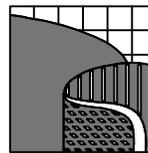
1. PRE - CAST MANHOLE TO BE CONSTRUCTED AND REINFORCED IN ACCORDANCE WITH ASTM SPECIFICATION C - 478 - 90b.
2. TWO SEPARATE COATS OF APPROVED BIT WATERPROOFING COMPOUND SHALL BE APPLIED PER MANUFACTURER'S INSTRUCTIONS TO THE ENTIRE EXTERIOR OF STRUCTURES.

**BLOWOFF MANHOLE DETAIL - SECTION**

N.T.S.

**ROBBINSVILLE TOWNSHIP**

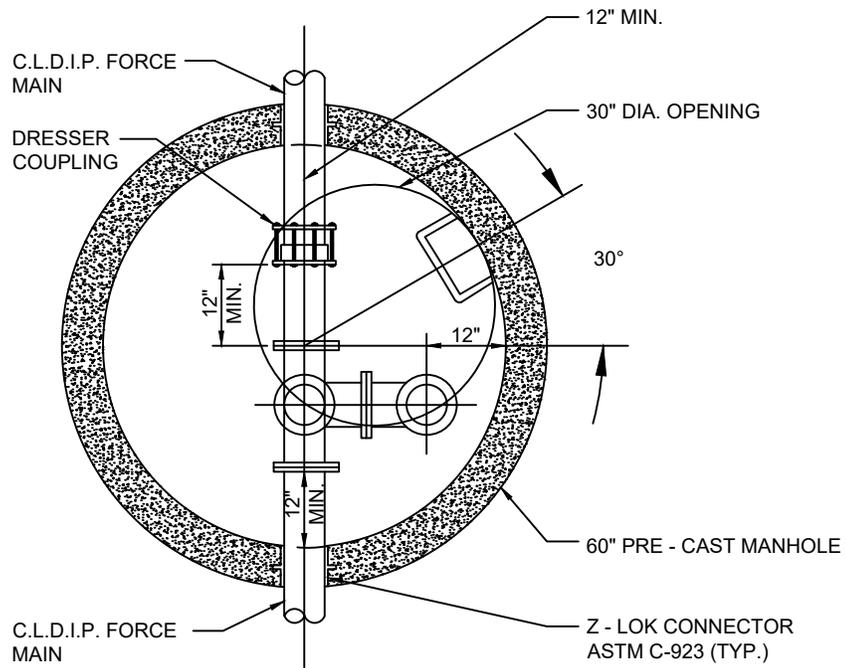
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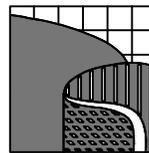
- NOTES:**
1. REQUIRED ALONG FORCE MAINS AT LOW POINTS BETWEEN PUMP STATION AND THE POINT OF DISCHARGE.
  2. SEWAGE SHALL NOT BE DISCHARGED INTO THE MANHOLE.

**BLOWOFF MANHOLE DETAIL - PLAN**

N.T.S.

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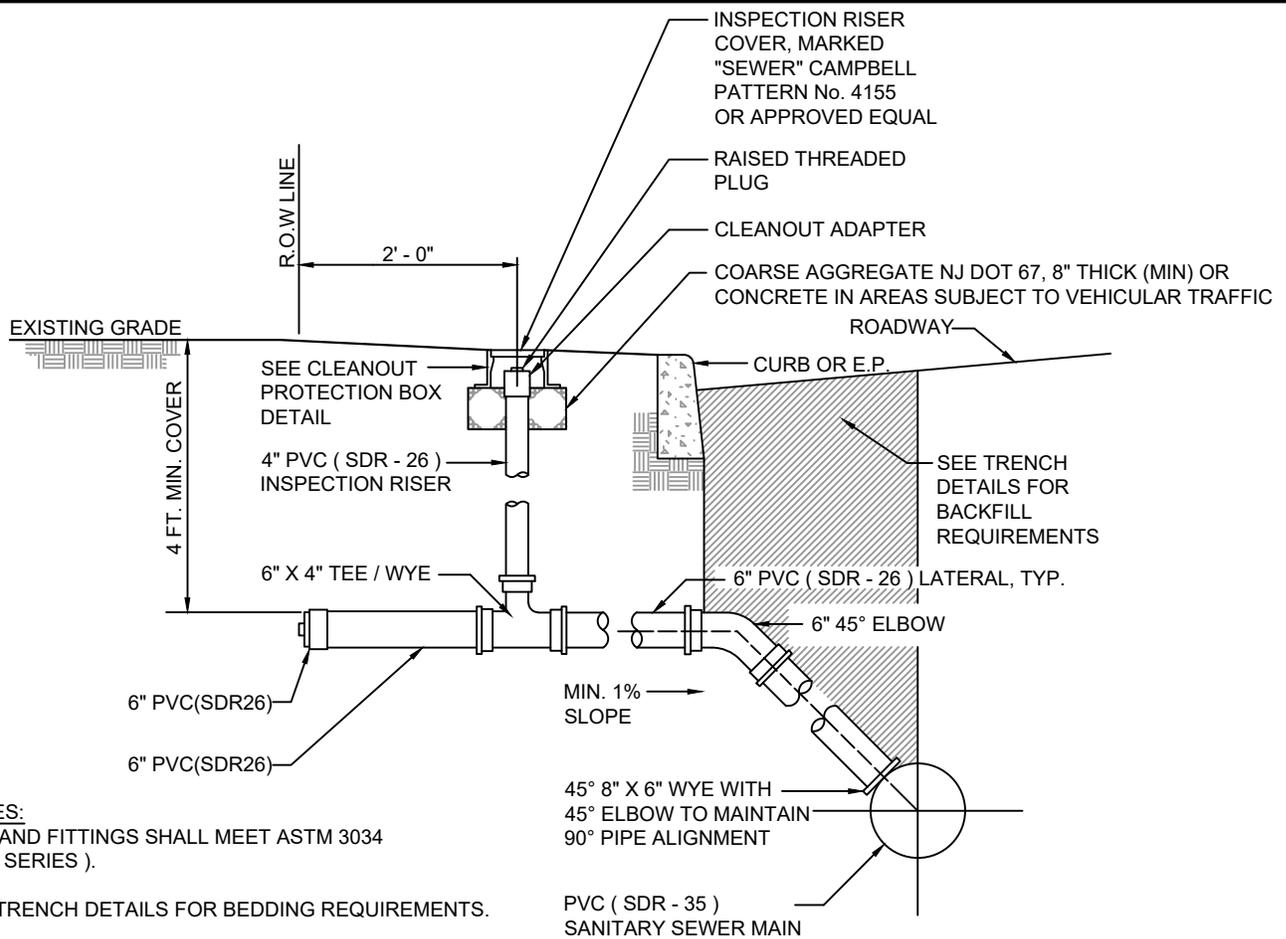
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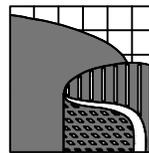
- NOTES:**
1. PIPE AND FITTINGS SHALL MEET ASTM 3034 (SDR SERIES).
  2. SEE TRENCH DETAILS FOR BEDDING REQUIREMENTS.
  3. INSPECTION RISERS SHOULD NOT BE LOCATED IN DRIVEWAY OR SIDEWALK AREAS.
  4. FOR CONNECTION TO AN EXISTING MAIN, A WYE SADDLE MAY BE USED. SADDLE SHALL BE ENCASED IN 6" MIN. CONCRETE (3000 PSI) AND SHALL UTILIZE STAINLESS STEEL STRAPS. NO BOLTED CONNECTIONS SHALL BE PERMITTED. SADDLES ARE PROHIBITED IN NEW CONSTRUCTION

## SERVICE LATERAL CONNECTION DETAIL

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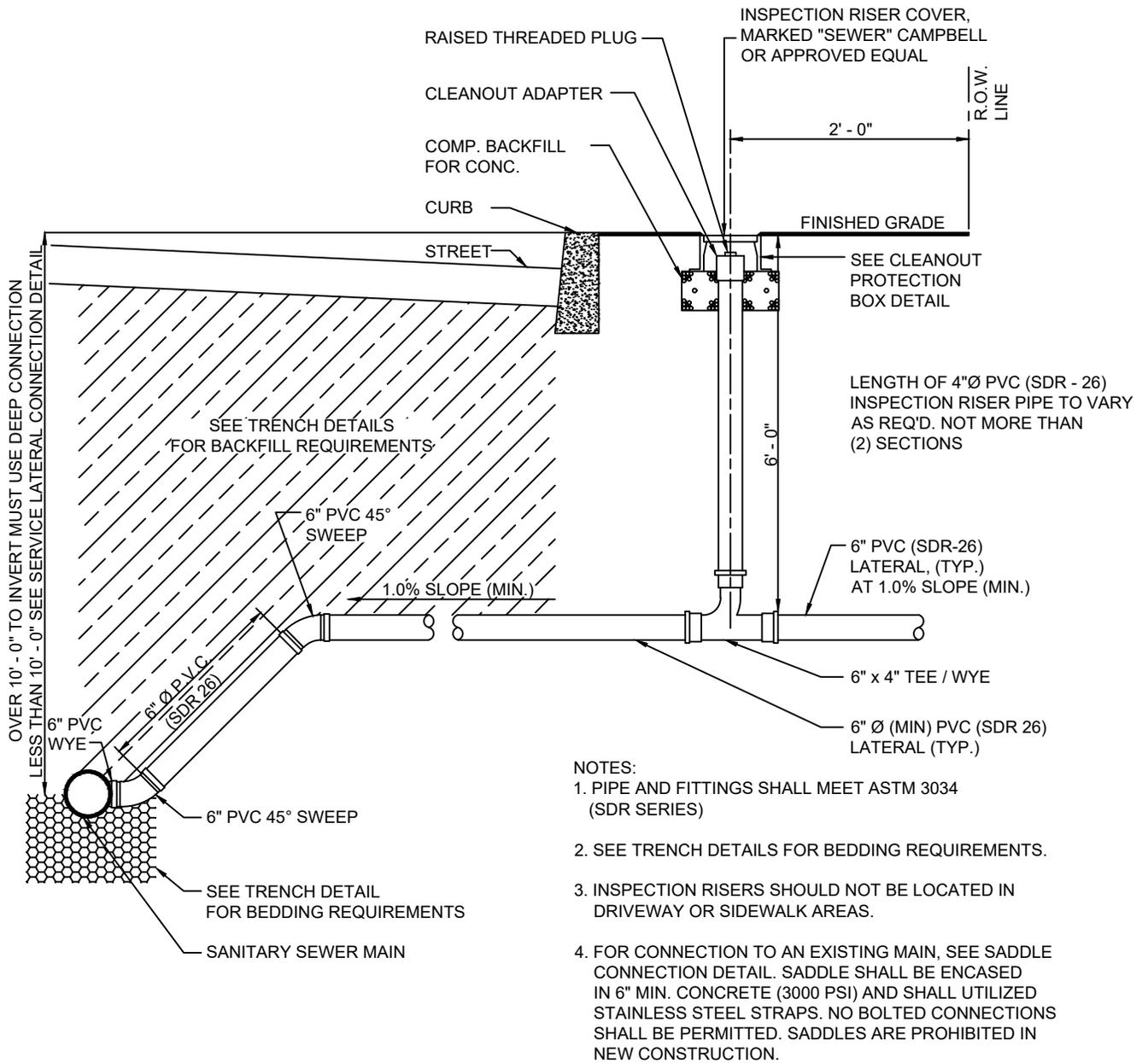
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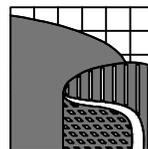


## DEEP SERVICE LATERAL DETAIL

N.T.S.

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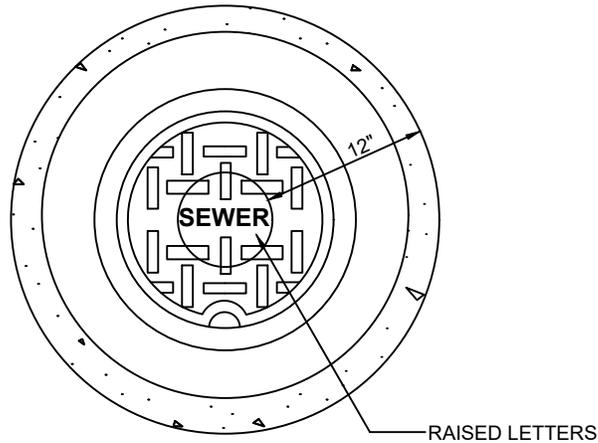


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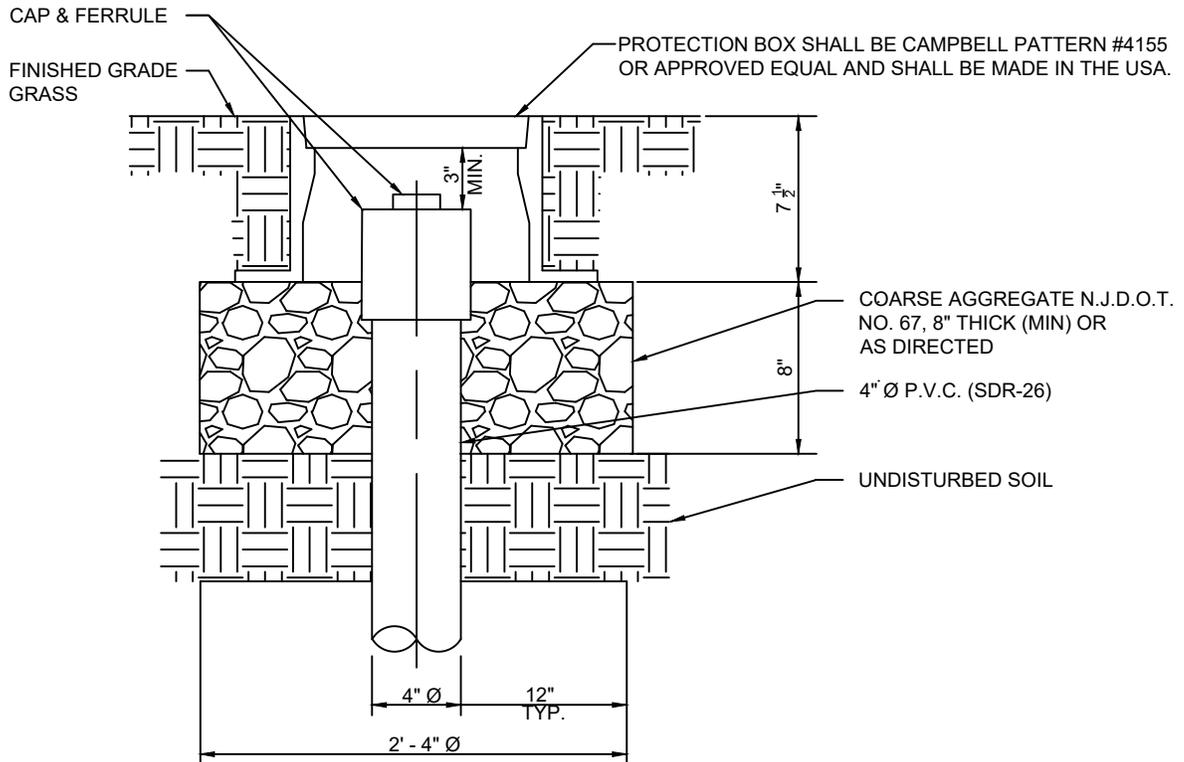
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PLAN



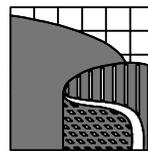
SECTION

**CLEANOUT PROTECTION BOX DETAIL  
IN UNPAVED AREA**

N.T.S.

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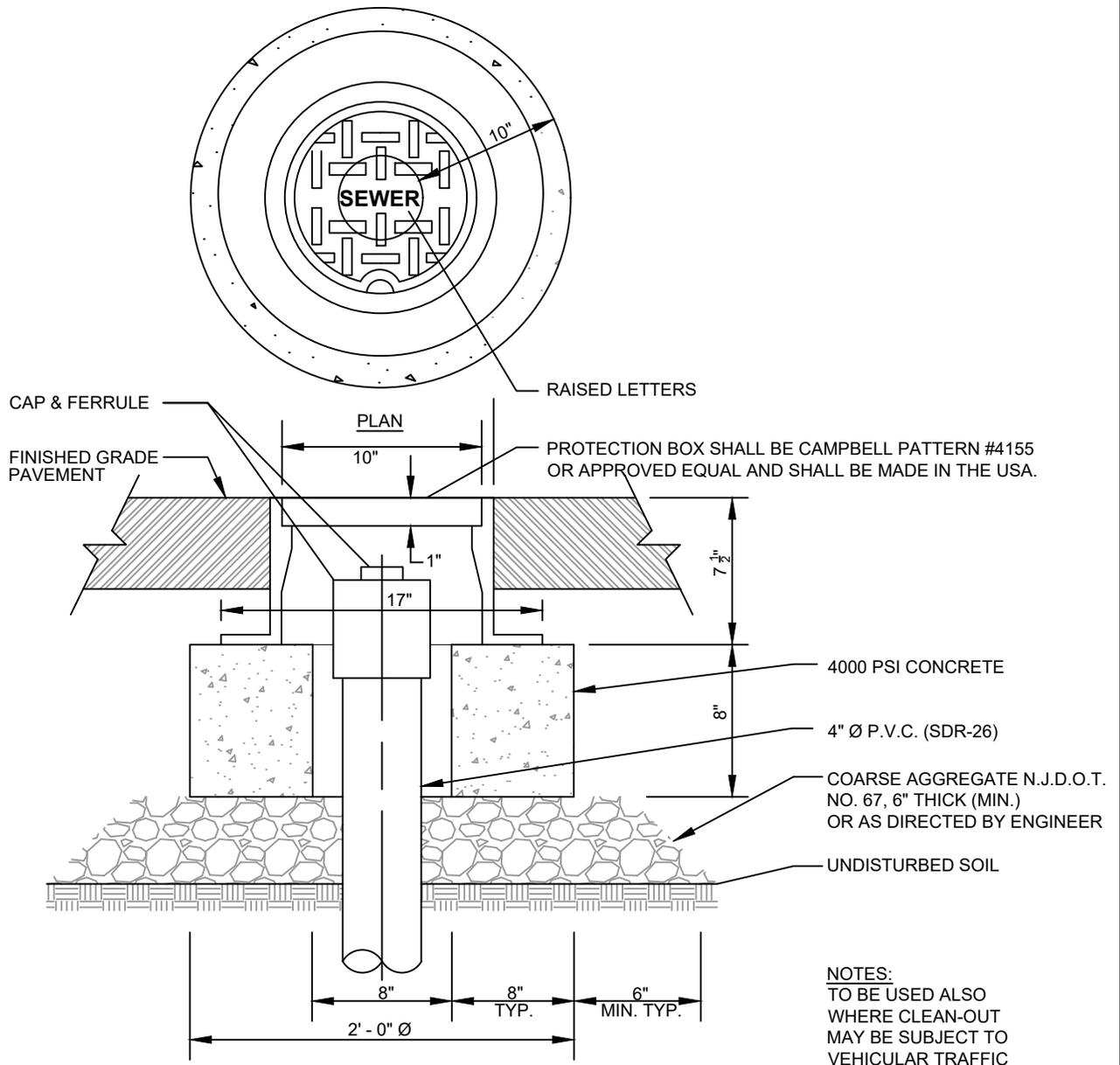


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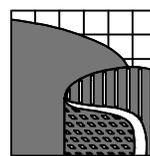


**CLEANOUT PROTECTION BOX DETAIL @ DRIVEWAY & SIDEWALK  
IN PAVED AREA**

N.T.S

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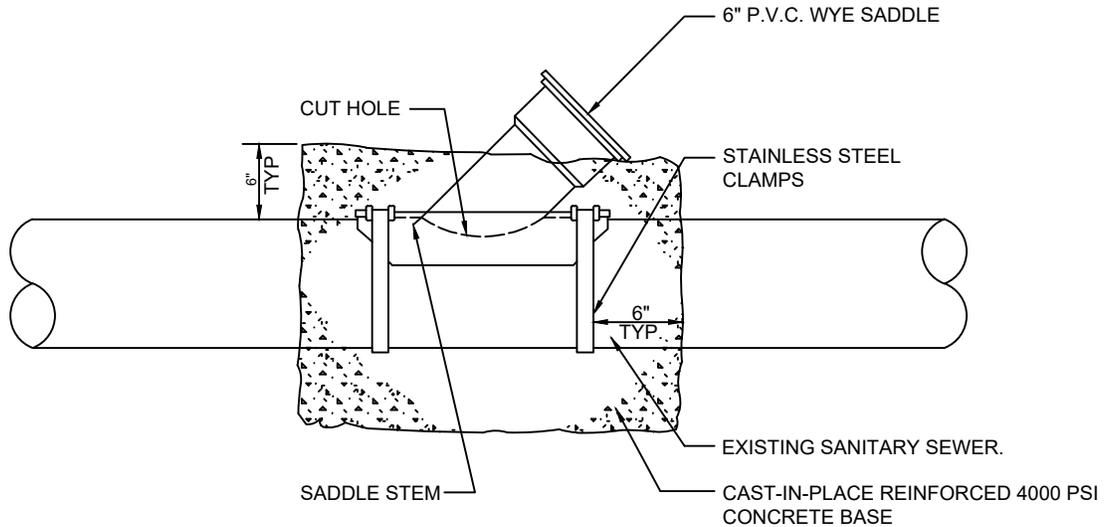
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**NOTES:**

THE P.V.C. SADDLE CONNECTION MAY BE MADE BY EITHER OF THE TWO METHODS DESCRIBED BELOW FOR P.V.C. MAIN. GASKET INSTALLATION ONLY FOR DUCTILE IRON PIPE. SEE LATERAL DETAIL FOR CONTINUATION OF CONNECTION.

**SOLVENT WELD:**

1. CUT HOLE IN EXISTING SANITARY SEWER  $\frac{1}{2}$ " LARGER THAN THE O.D. OF SADDLE STEM.
2. CLEAN BOTH SURFACES.
3. APPLY PRIMER TO BOTH SURFACES.
4. APPLY CEMENT AND IMMEDIATELY POSITION SADDLE
5. TIGHTEN STAINLESS STEEL SADDLE CLAMPS.
6. CONCRETE ENCASE.

**GASKET:**

1. CUT HOLE IN EXISTING SANITARY SEWER  $\frac{1}{2}$ " LARGER THAN THE O.D. OF SADDLE STEM; DOWNSTREAM SIDE TO BE CUT AT 45° TO ALLOW SADDLE STEM FIT.
2. MAKE SURE BOTH SURFACES ARE CLEAN.
3. APPLY GASKET.
4. POSITION SADDLE OVER HOLE.
5. TIGHTEN STAINLESS STEEL SADDLE CLAMPS.
6. CONCRETE ENCASE.

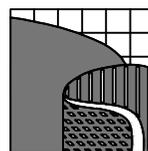
FOR 6" LATERAL CONNECTION INTO EXISTING SANITARY SEWER.

**SANITARY SADDLE CONNECTION DETAIL**

N.T.S.

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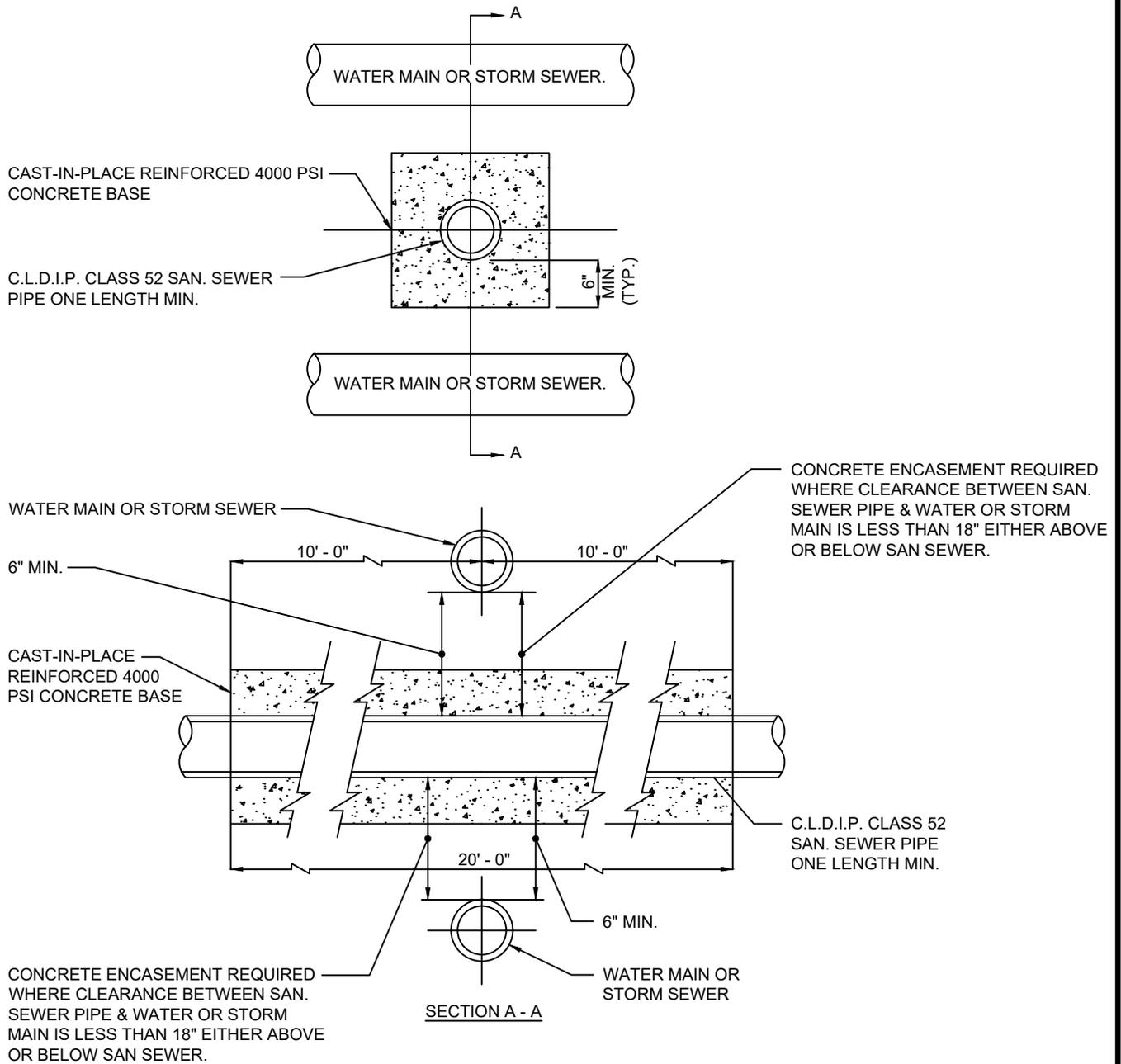


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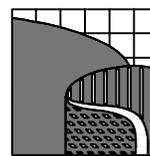


## CONCRETE ENCASEMENT DETAIL

N.T.S.

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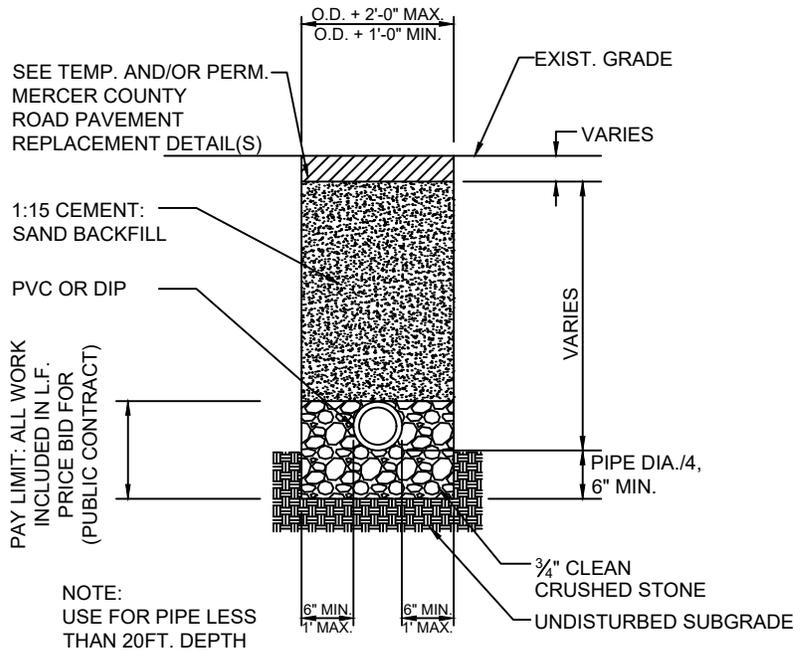


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1670 Whitehorse-Hamilton Square Rd.  
 Hamilton, New Jersey 08690  
 609-586-1141 fax 609-586-1143  
 www.RobertsEngineeringGroup.com

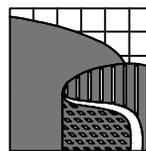


**SANITARY SEWER TRENCH: MERCER COUNTY RD.**

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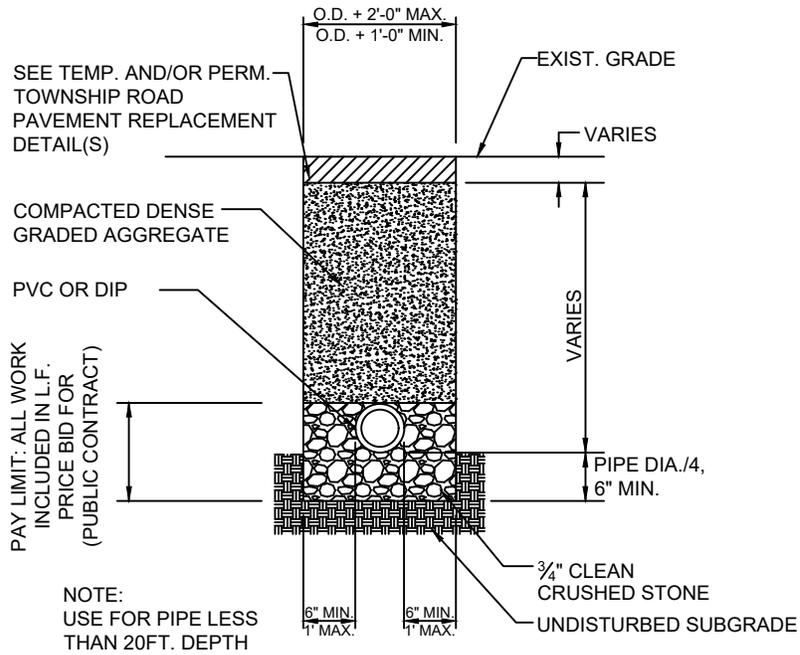


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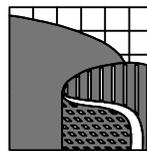


**SANITARY SEWER TRENCH: TOWNSHIP ROAD,  
PARKING LOTS OR OTHER PAVED AREAS**

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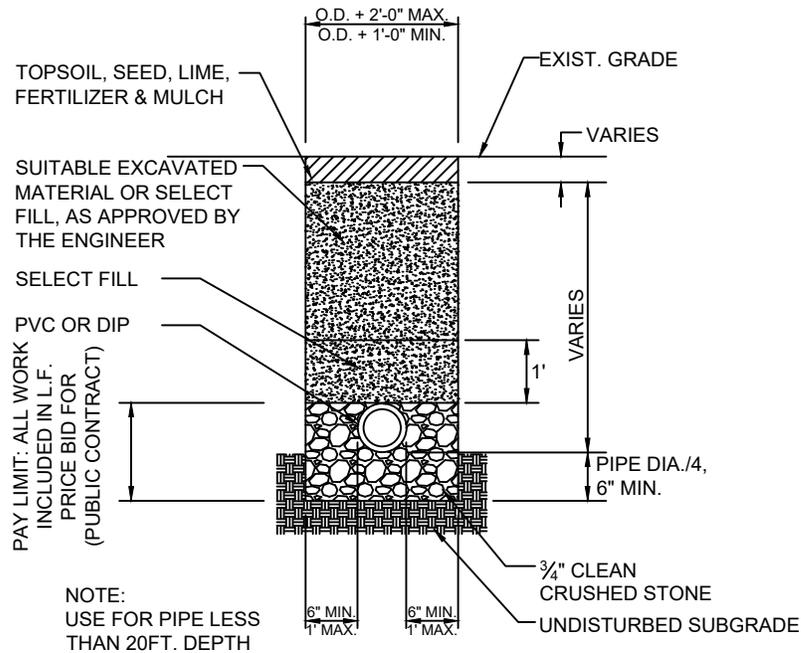


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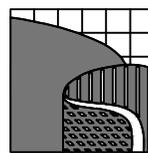


## SANITARY SEWER TRENCH: OFF-ROAD

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ROBBINSVILLE, NEW JERSEY 08691  
TELEPHONE: (609) 259-3600  
FAX: (609) 259-2128



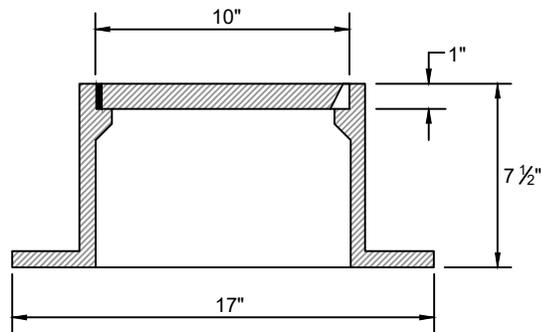
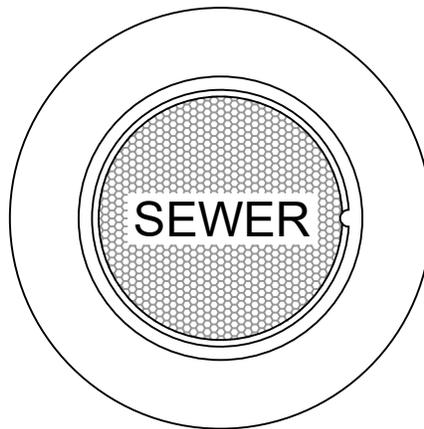
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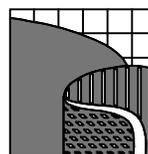
CAMPBELL FOUNDRY Co.  
PATTERN NUMBER 4155

**CLEANOUT  
ACCESS FRAME AND COVER**

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