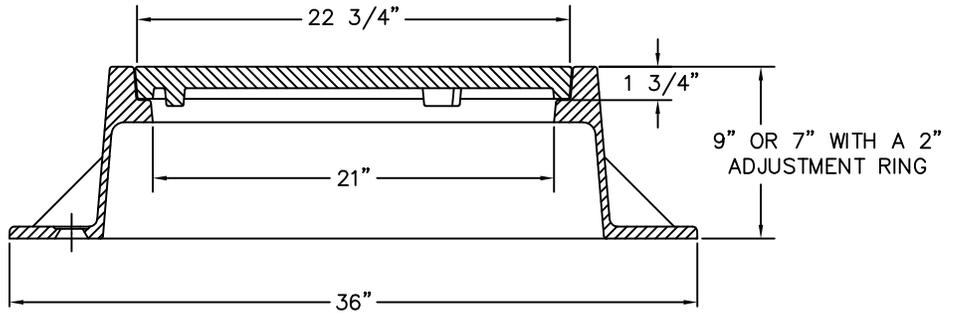
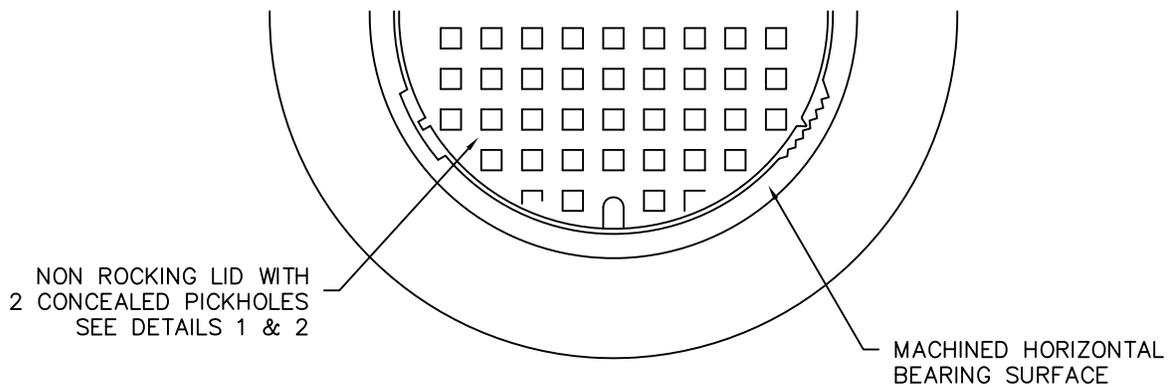


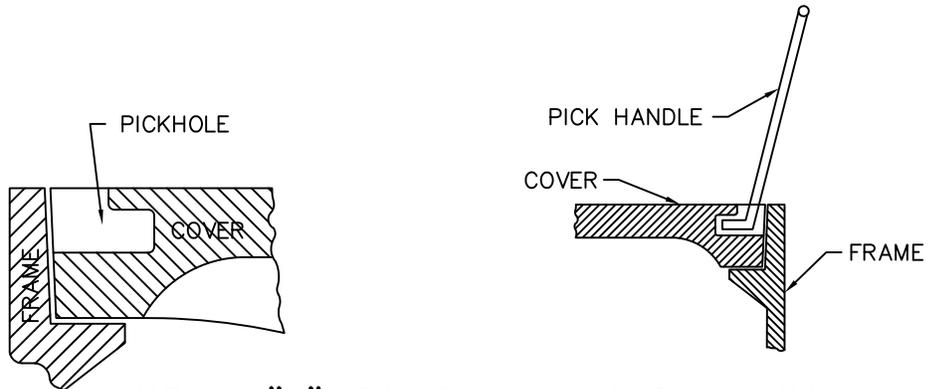
MANHOLE RING & COVER TYPE "A"



TYPE "A" SECTION VIEW

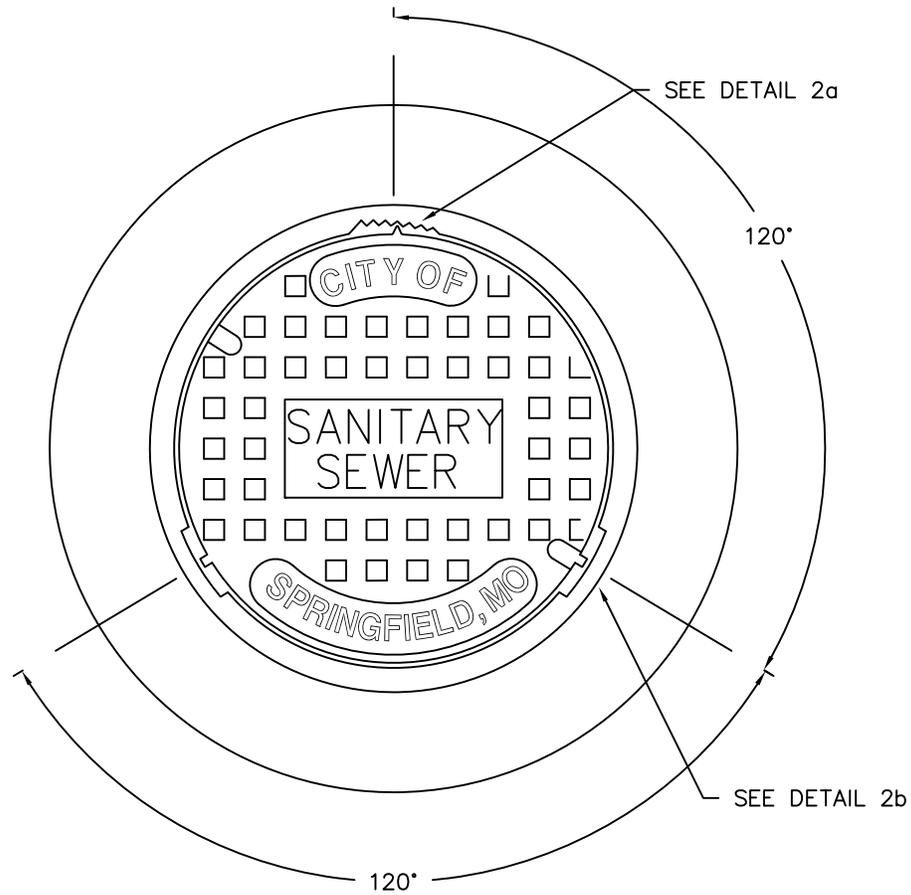


TOTAL WEIGHT
RING AND COVER
TYPE "A" = 540 lbs.



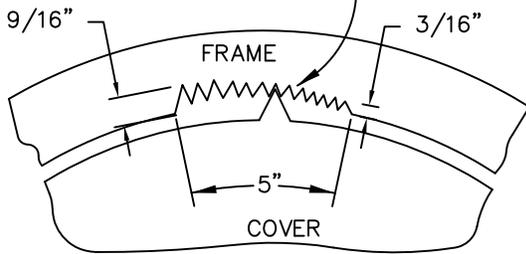
DETAIL "1" CONCEALED PICKHOLES

DETAIL "2" NON ROCKING COVER
 SEE SAN-1 FOR TYPE "A" SECTION VIEW

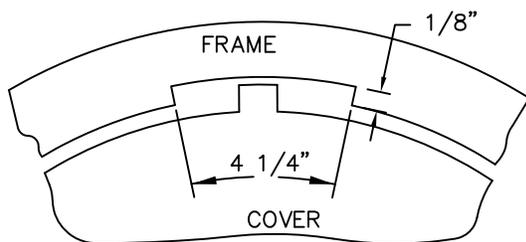
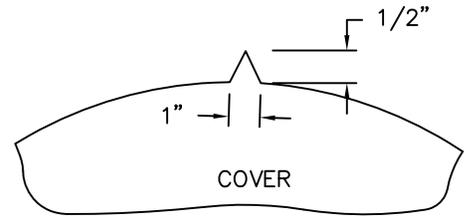


EACH OF THE 16 GROOVES IN THE GRADUATED RACK VARIES THE DIAMETER BY EQUAL AMOUNTS.

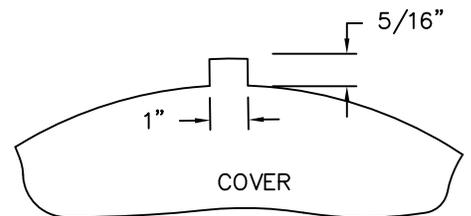
LOADS HS20
 COMPONENT NOS.: FRAME NEENAH 1715-2001, LID 1715-XXXX
 MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
 FINISH: NO PAINT
 WEIGHT: FRAME APPROX. 234#, LID APPROX. 127#



DETAIL 2a



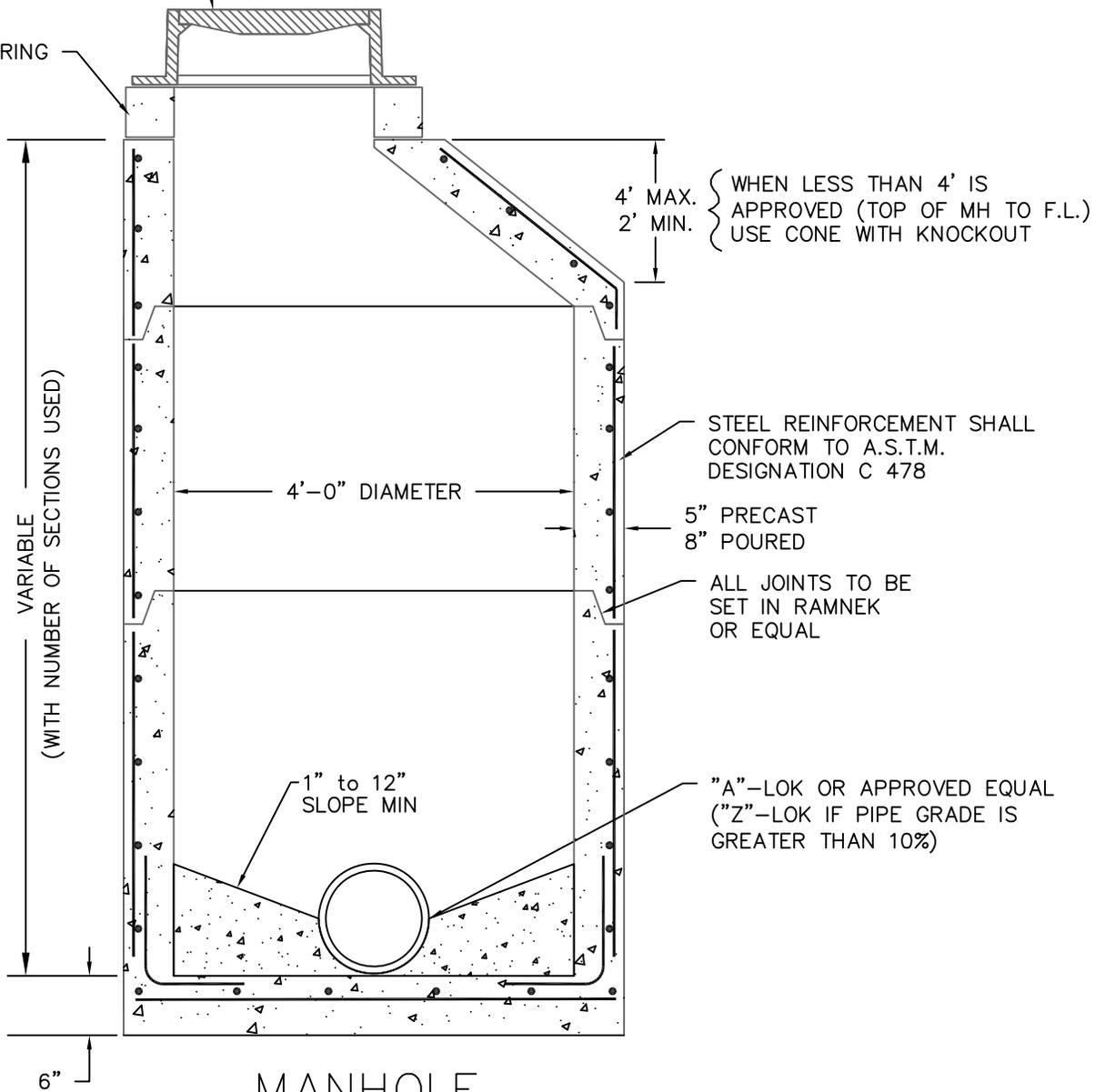
DETAIL 2b



MANHOLE FRAME & COVER
 -TYPE "A". IF MANHOLE IS
 IN FLOODPLAIN OR PRONE
 TO SUBMERSION, USE
 WATER-TIGHT, HINGED
 PAMREX OR EJ 24" ERGO
 NO. EJ001040013L01 LID AND
 FRAME

NOTE:
 NO MORE THAN 2 ADJUSTMENT RINGS,
 NOT TO EXCEED 12-INCHES

ADJUSTMENT RING



4' MAX.
 2' MIN. { WHEN LESS THAN 4' IS
 APPROVED (TOP OF MH TO F.L.)
 USE CONE WITH KNOCKOUT

VARIABLE
 (WITH NUMBER OF SECTIONS USED)

4'-0" DIAMETER

STEEL REINFORCEMENT SHALL
 CONFORM TO A.S.T.M.
 DESIGNATION C 478

5" PRECAST
 8" POURED

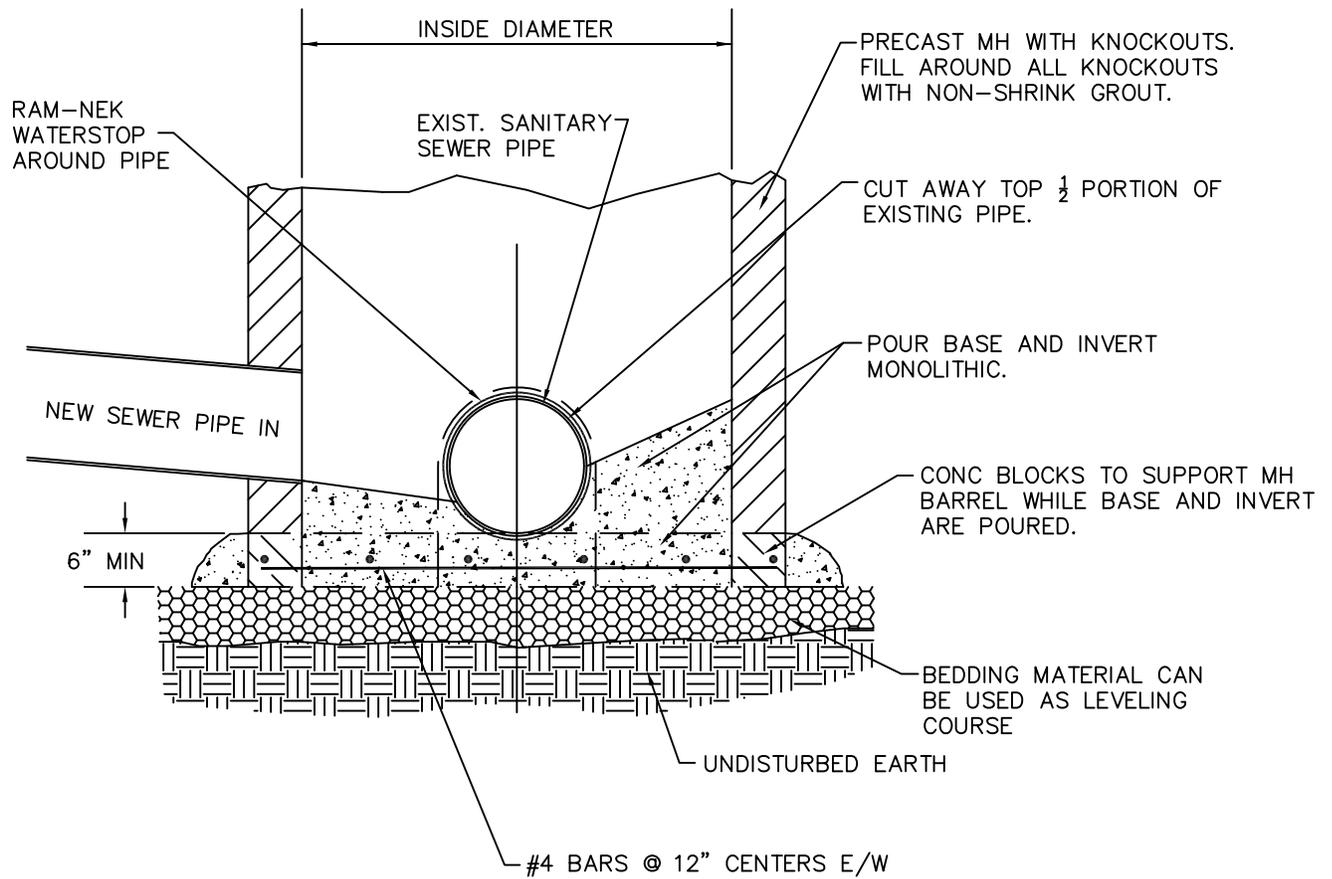
ALL JOINTS TO BE
 SET IN RAMNEK
 OR EQUAL

1" to 12"
 SLOPE MIN

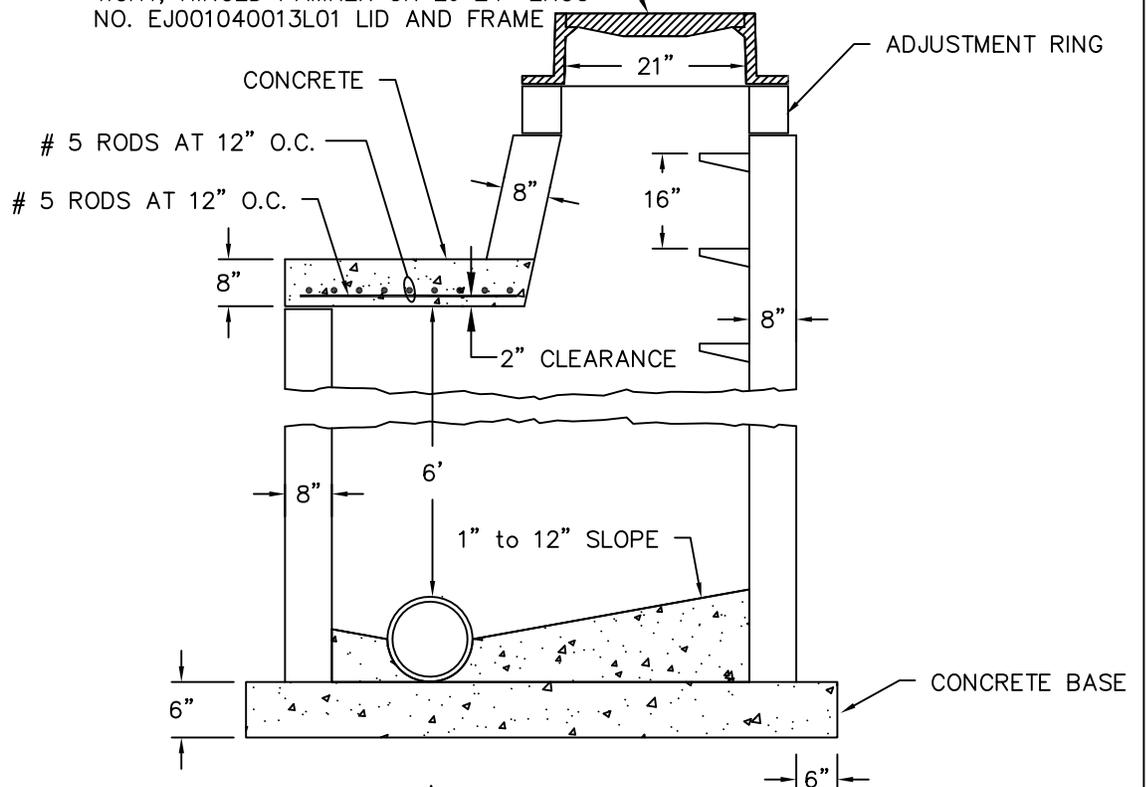
"A"-LOK OR APPROVED EQUAL
 ("Z"-LOK IF PIPE GRADE IS
 GREATER THAN 10%)

6"

MANHOLE
 8" TO 24" PIPE

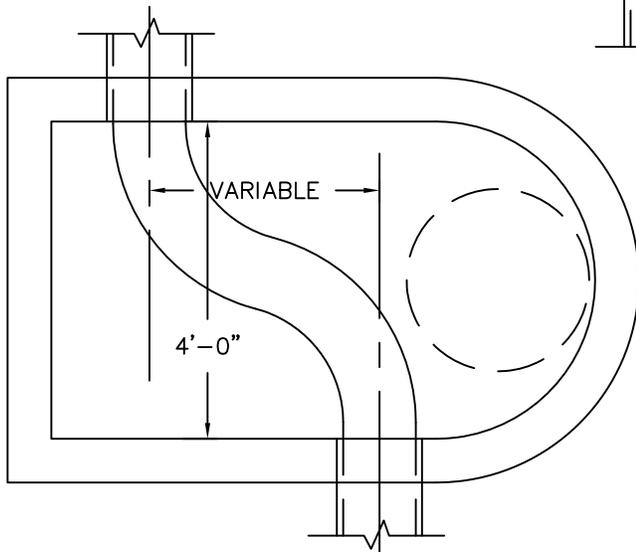
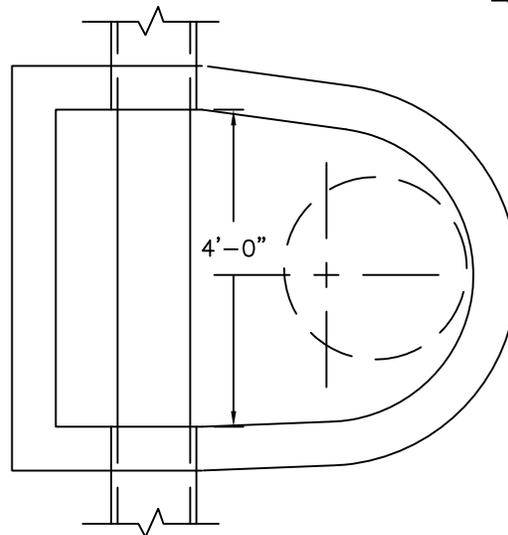


MANHOLE FRAME & COVER -TYPE "A".
 IF MANHOLE IS IN FLOODPLAIN OR
 PRONE TO SUBMERSION, USE WATER-
 TIGHT, HINGED PAMREX OR EJ 24" ERGO
 NO. EJ001040013L01 LID AND FRAME



NOTES:

1. WALLS SHALL BE POURED CONCRETE OR PRECAST.
2. THICKNESS OF WALLS TO BE INCREASED TO 12" AT 12' BELOW UNDERSIDE OF FRAME.
3. CONSTRUCTION METHODS TO BE SAME AS STANDARD MANHOLES.



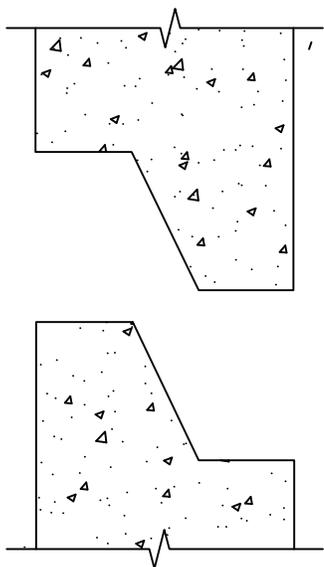
NOTE:
 NO MORE THAN 2 ADJUSTMENT RINGS,
 NOT TO EXCEED 18-INCHES

BITUMASTIC INSTALLATION (OR EQUAL)

SEALING OF TONGUE & GROOVE PRECAST MANHOLES

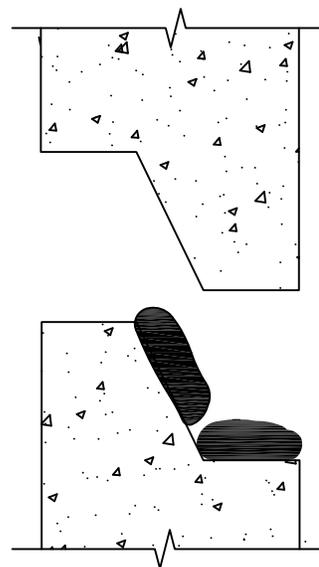
1. SURFACE PREPARATION (CLEANING)

REMOVE ALL LOOSE PARTICLES, DUST,
DIRT, ETC.



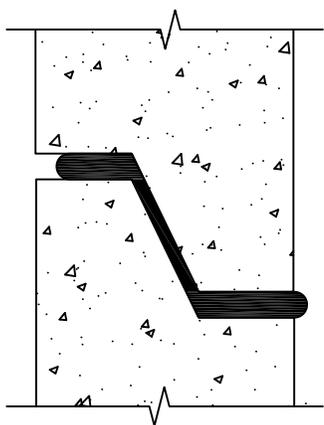
2. APPLYING BITUMASTIC SEAL

PLACE BITUMASTIC ROPE OR EQUAL IN GROOVE.

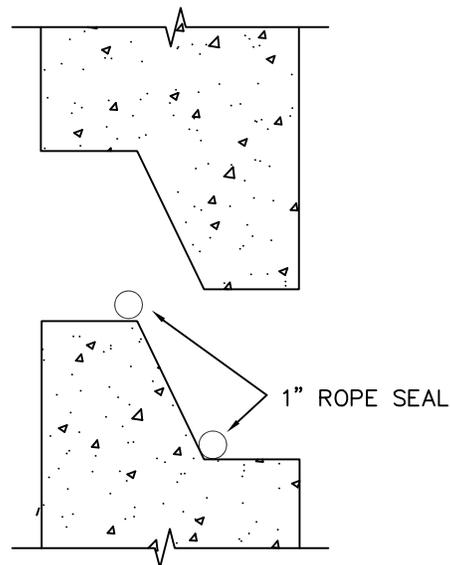


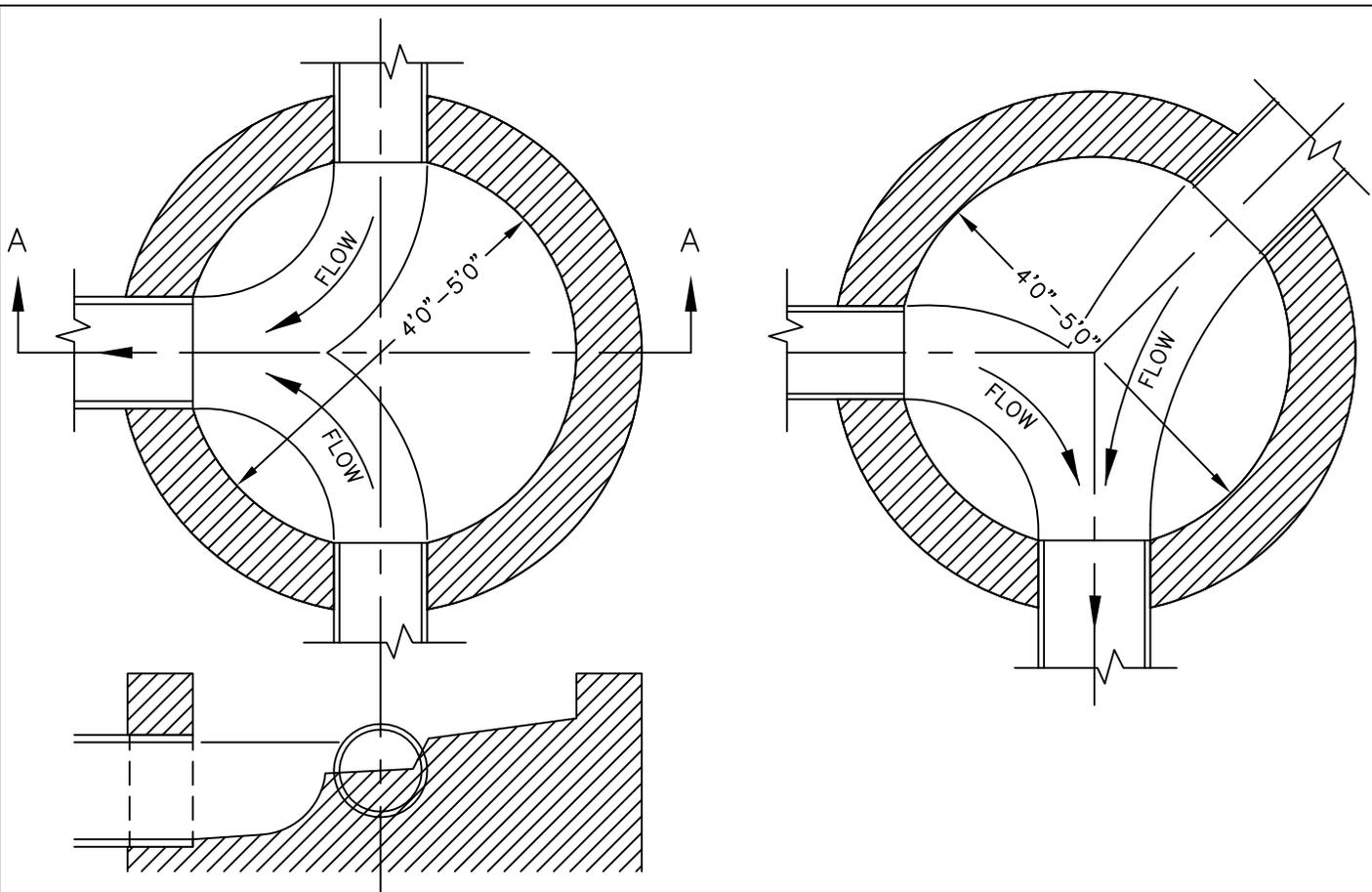
3. COMPLETION OF BITUMASTIC SEAL

LOWER THE NEXT LENGTH OF PIPE
(TONGUE INTO GROOVE) AND SEAL WILL
BE ACCOMPLISHED BY WEIGHT OF PIPE.

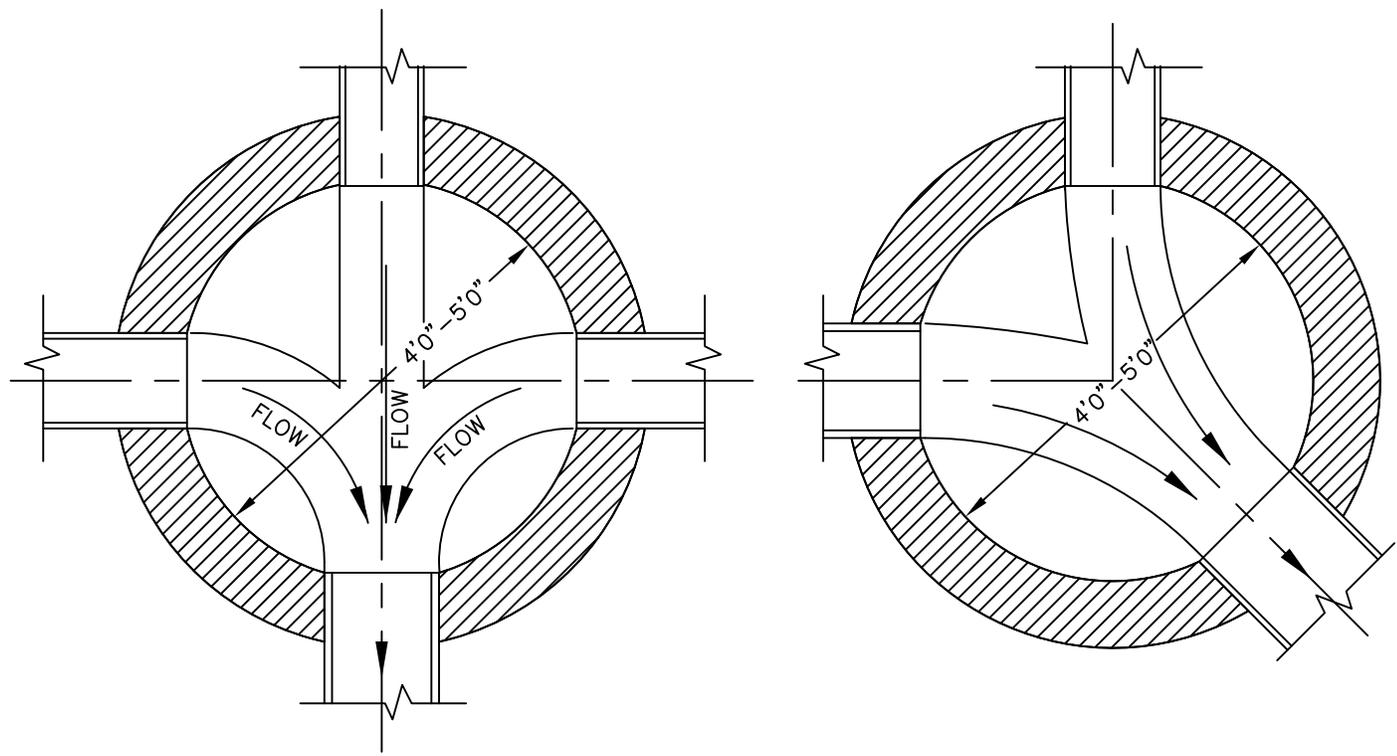


APPLYING ROPE SEAL





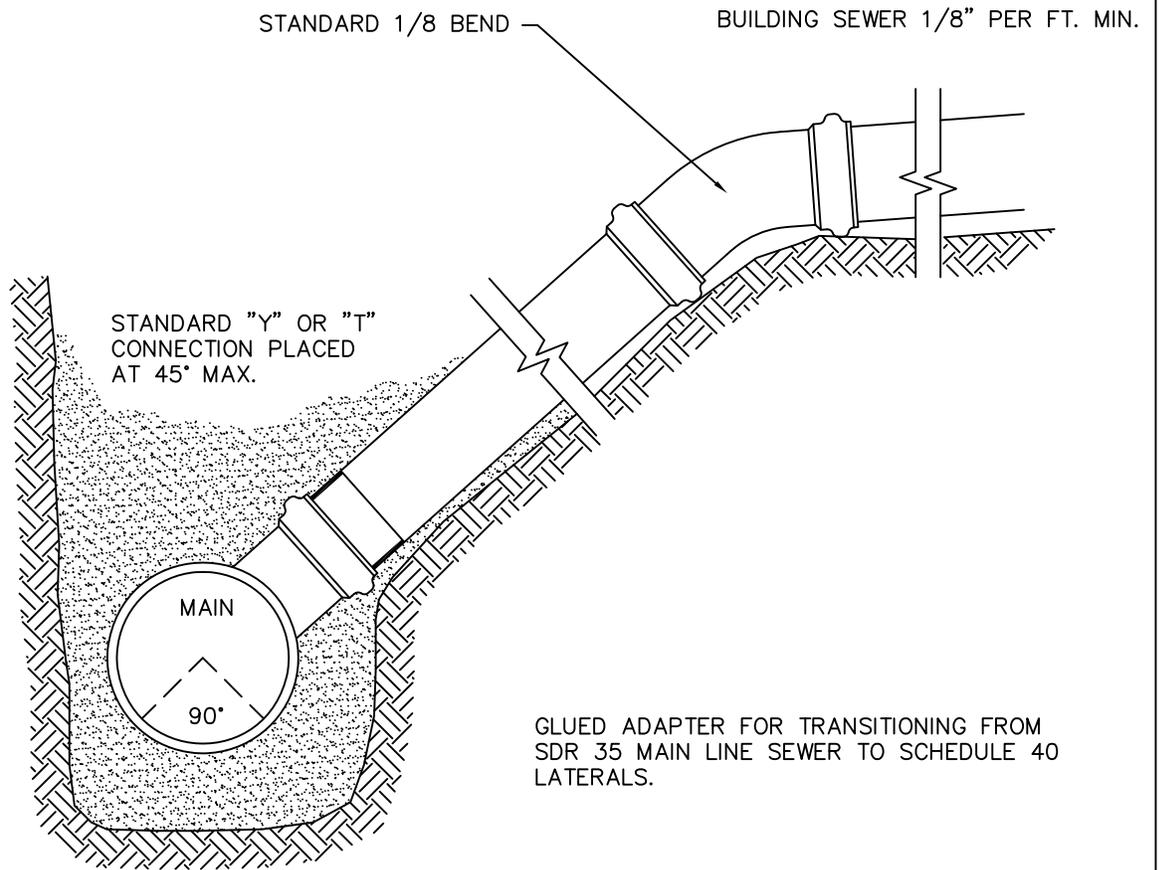
SECTION A-A



PIPES CANNOT ENTER MANHOLES AT ANGLES LESS THAN 90° TO EACH OTHER.

NOTE:

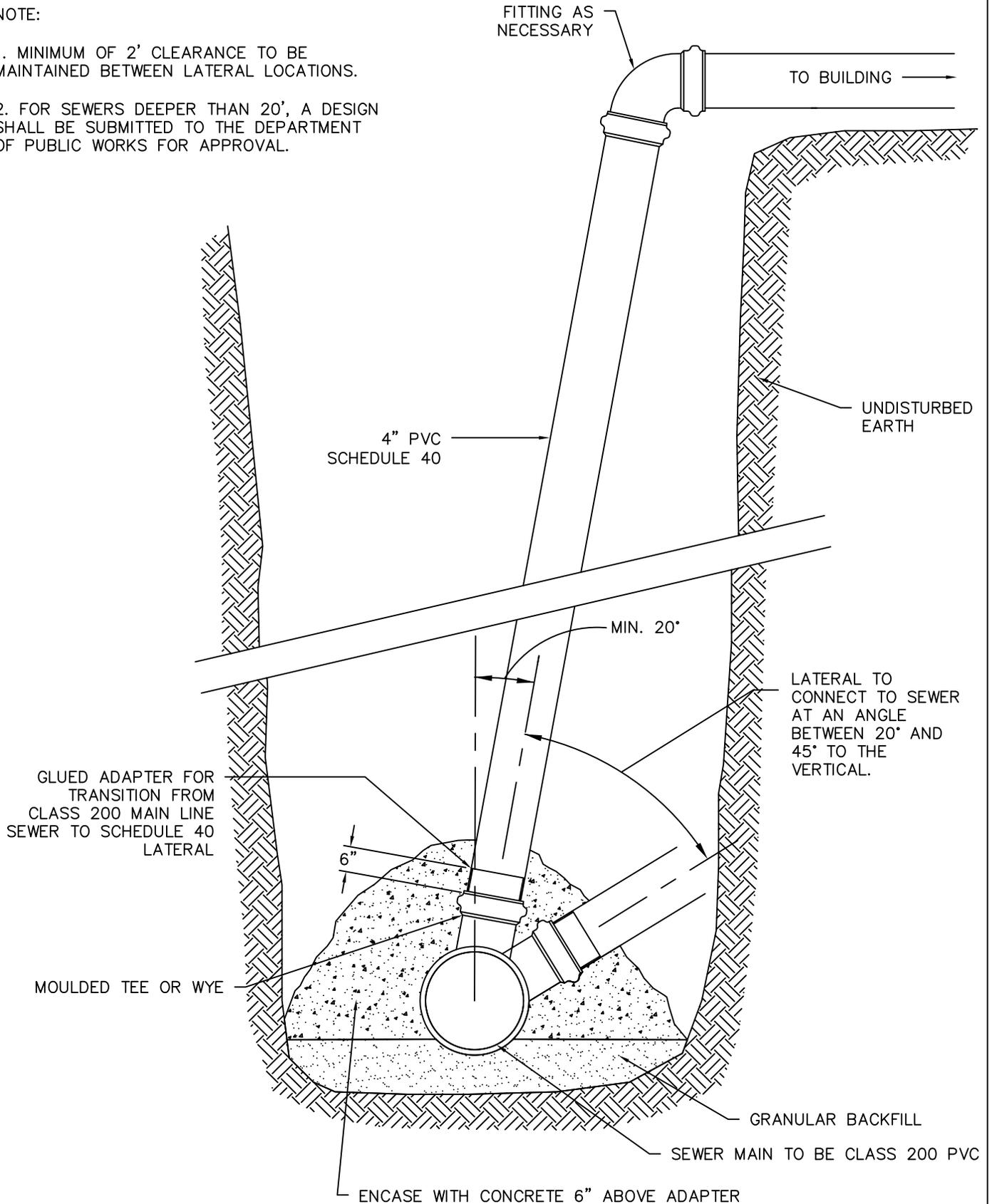
MOULDED TEES ARE REQUIRED FOR ALL LATERALS ON NEW SEWER LINES. ALL LATERALS SHALL BE SCHEDULE 40 PIPE AND JOINTS SHALL BE GLUED WITH AN APPROVED ADHESIVE.

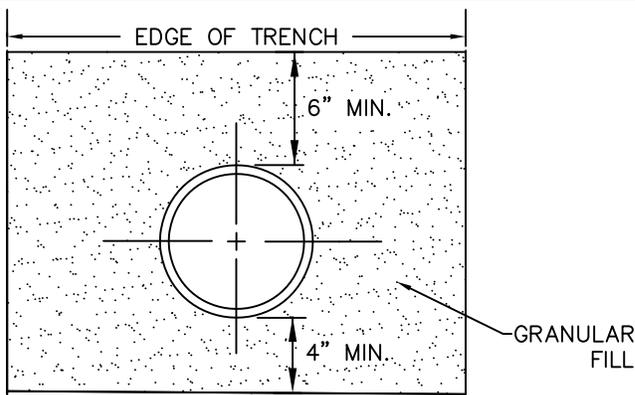


NOTE:

1. MINIMUM OF 2' CLEARANCE TO BE MAINTAINED BETWEEN LATERAL LOCATIONS.

2. FOR SEWERS DEEPER THAN 20', A DESIGN SHALL BE SUBMITTED TO THE DEPARTMENT OF PUBLIC WORKS FOR APPROVAL.

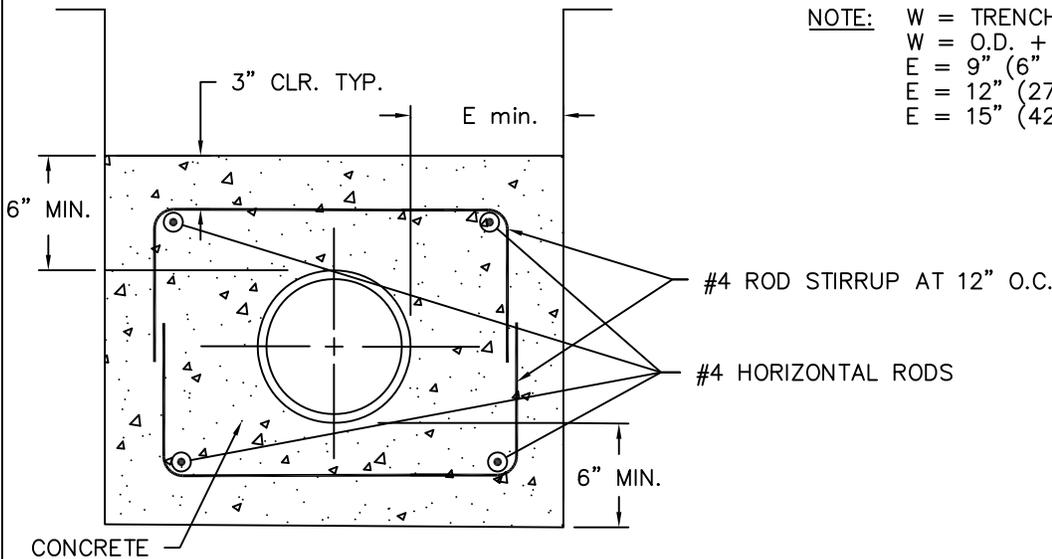




MINIMUM DEPTH OF GRANULAR BACKFILL --
 1/4 PIPE DIAMETER BUT NEVER LESS THAN 4" BELOW
 THE PIPE AND A MINIMUM OF 6" ABOVE THE PIPE.

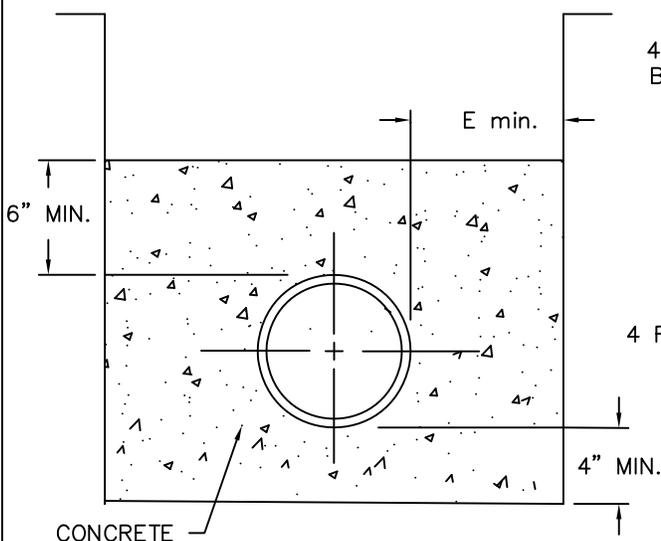
GRANULAR BACKFILL MUST CONFORM TO BEDDING
 MATERIAL. (IN CUTS GREATER THAN 12' MINIMUM
 AGGREGATE COVER IS 12")

IMPROVED BEDDING

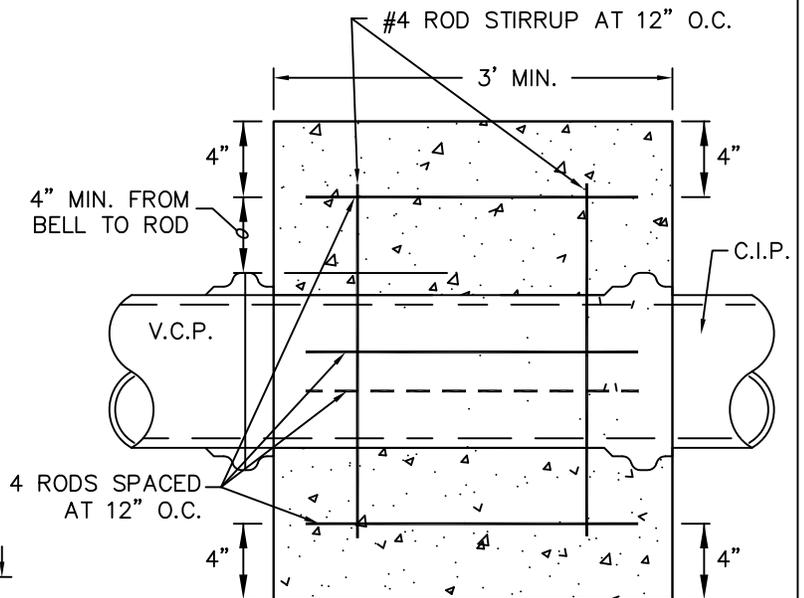


NOTE: W = TRENCH WIDTH
 W = O.D. + 2E
 E = 9" (6" to 24" PIPE)
 E = 12" (27" to 36" PIPE)
 E = 15" (42" to 72" PIPE)

CONCRETE ENCASEMENT IF ON SOIL

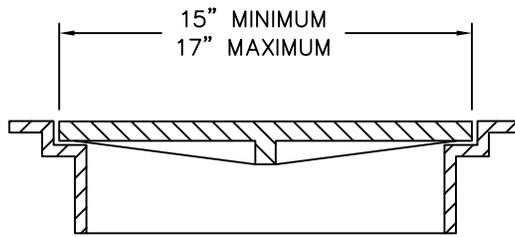


CONCRETE ENCASEMENT IF ON BEDROCK



FOR 8" PIPE A V.C.P.-C.I.P. "ADAPTER"
 FERNCO COUPLING OR EQUAL

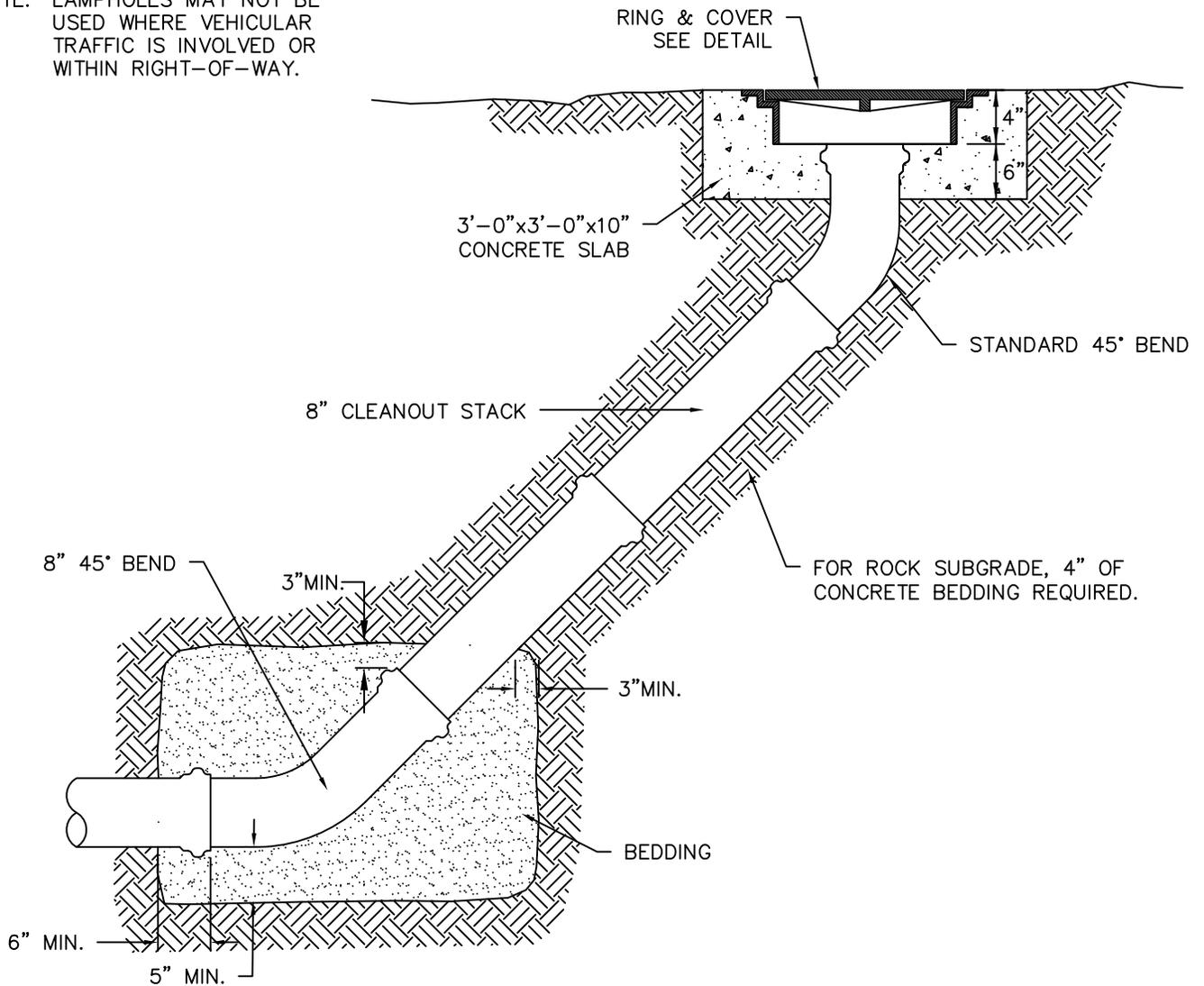
EXISTING V.C.P.-C.I.P. JUNCTION ENCASEMENT



MINIMUM WEIGHT 90 lbs.
NEENAH R-1976 OR EQUAL

RING & COVER DETAIL

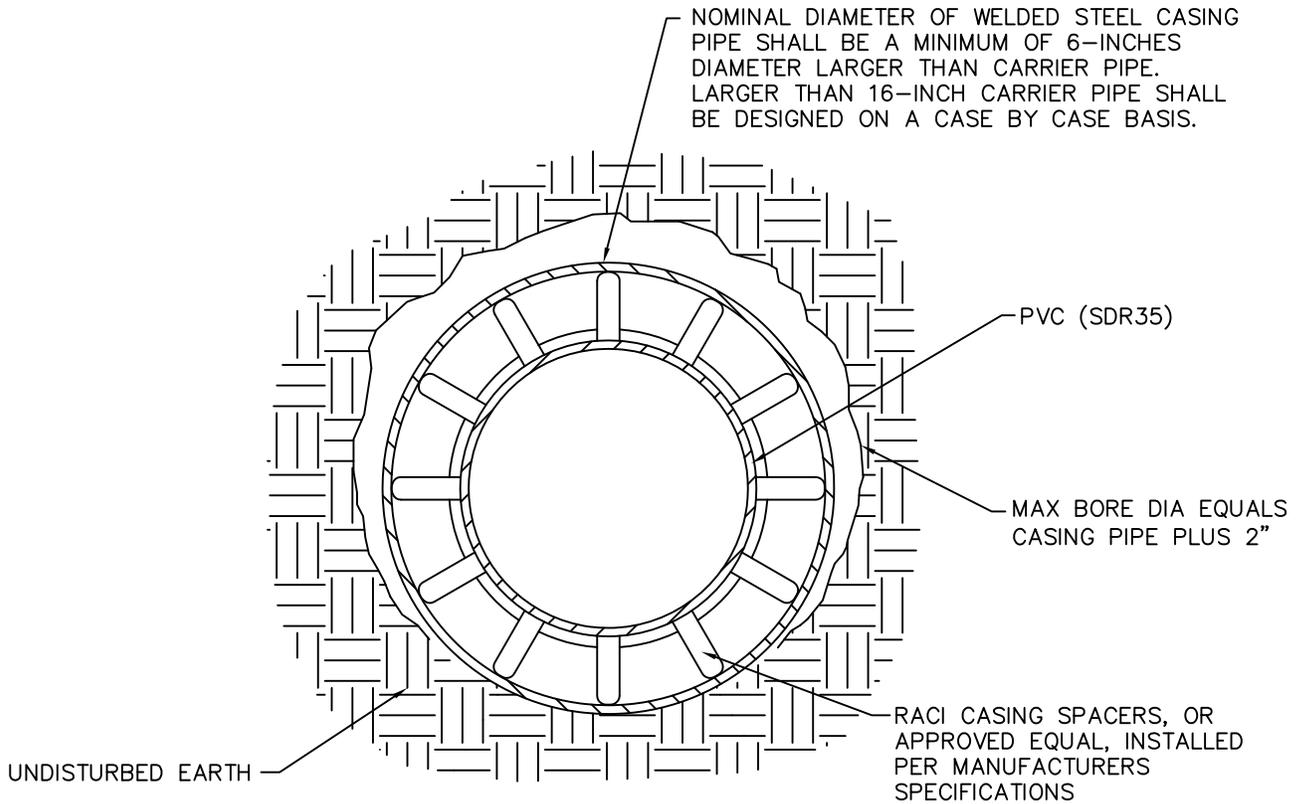
NOTE: LAMPHOLES MAY NOT BE USED WHERE VEHICULAR TRAFFIC IS INVOLVED OR WITHIN RIGHT-OF-WAY.



STANDARD CLEANOUT LAMPHOLE

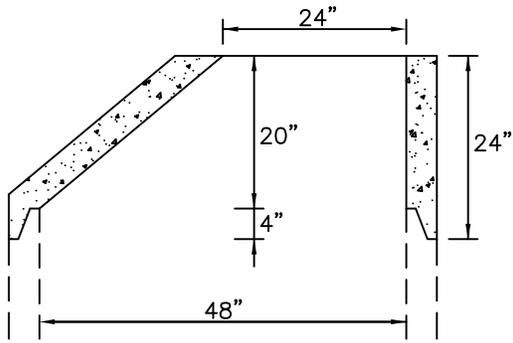
NOTES:

- 1) MINIMUM 1% DESIGN SLOPE ON CASING AND CARRIER PIPES
- 2) IF PVC IS NOT TO BE USED AS CARRIER PIPE, CONTRACTOR SHALL SUBMIT A DESIGN FOR APPROVAL PRIOR TO CONSTRUCTION
- 3) RUBBER END SEAL, WITH STAINLESS STEEL BANDS, TO BE INSTALLED AT BOTH ENDS OF CASING PIPE
- 4) END ELEVATIONS AND SLOPE OF CASING PIPE TO BE FIELD VERIFIED PRIOR TO ACCEPTANCE
- 5) MIN. WALL THICKNESS 0.25"

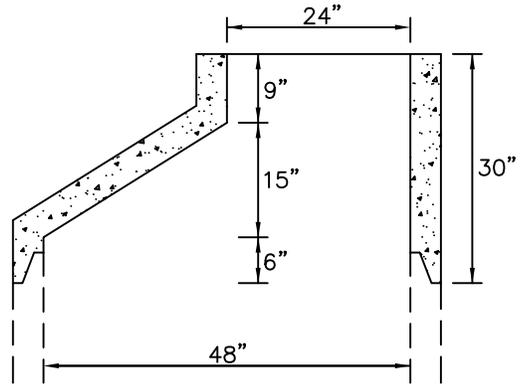


BORING CASING

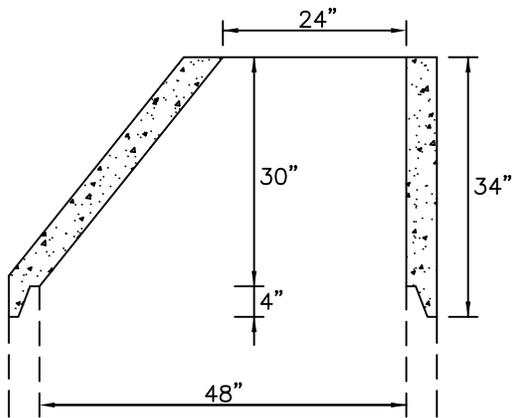
TREATMENT FOR 8" SEWER, OTHER SIZES TO BE SIMILAR, APPROVAL WILL BE REQUIRED.



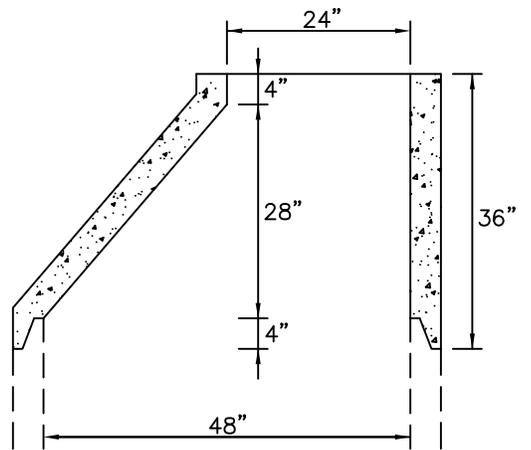
24" CONE



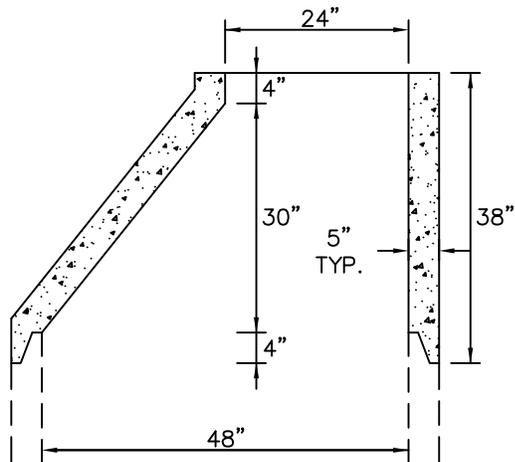
30" CONE



34" CONE

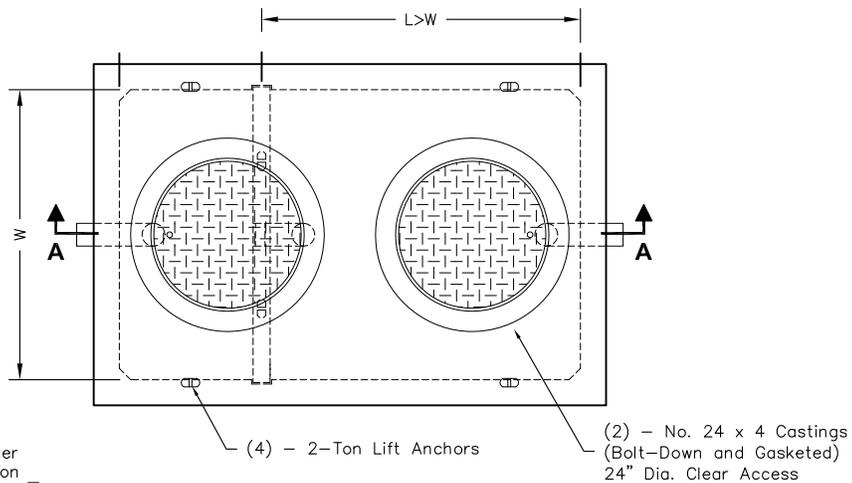


36" CONE



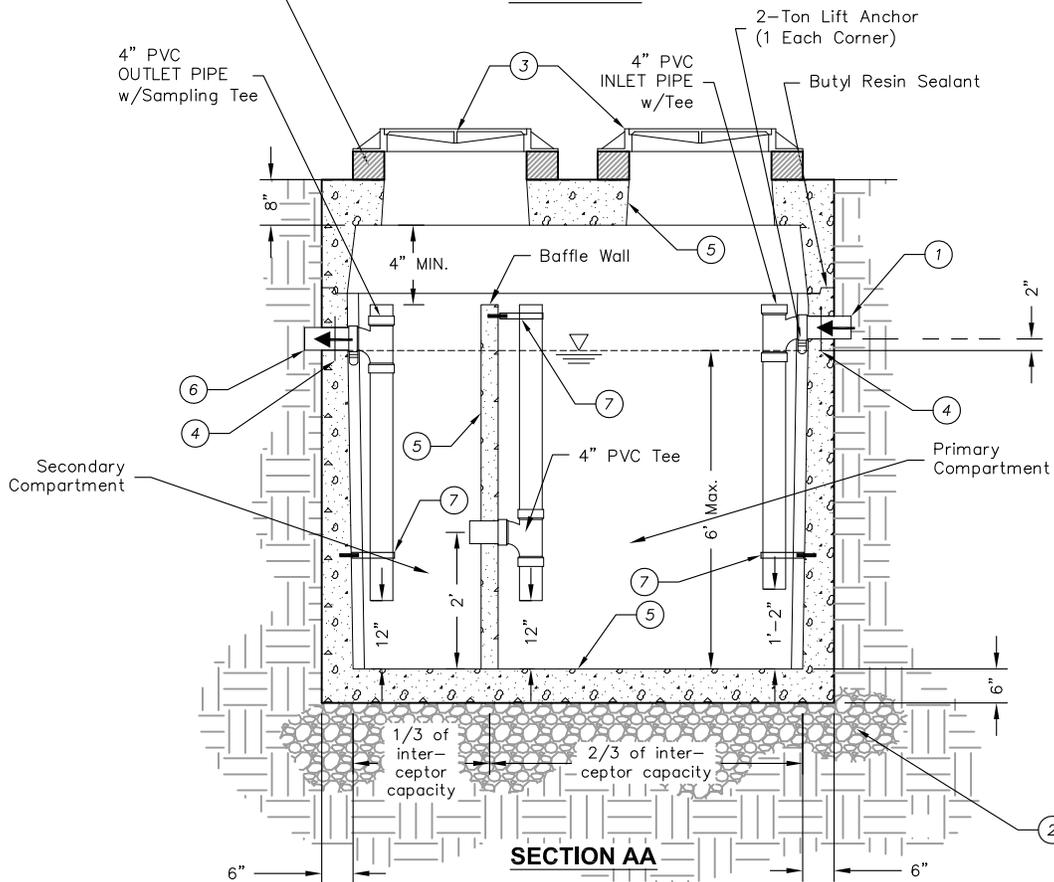
38" CONE

NOTE: WALL THICKNESS 5" TYP.



Adjustment Rings per City construction standard Revision #3, dated August 25, 2005

PLAN VIEW



Notes:

- To be constructed in accordance with ASTM C 890 for AASHTO HS20-44 vehicle loading.
- Tank & all appurtenances to be fabricated and assembled at plant. Field fabrication not allowed.
- Manufacturer must be city certified and approved bi-annually. Contact Environmental Services at (417)864-1923 for inspection & certification.
- Not maintained by Environmental Services.
- to be sized in accordance with sizing form.

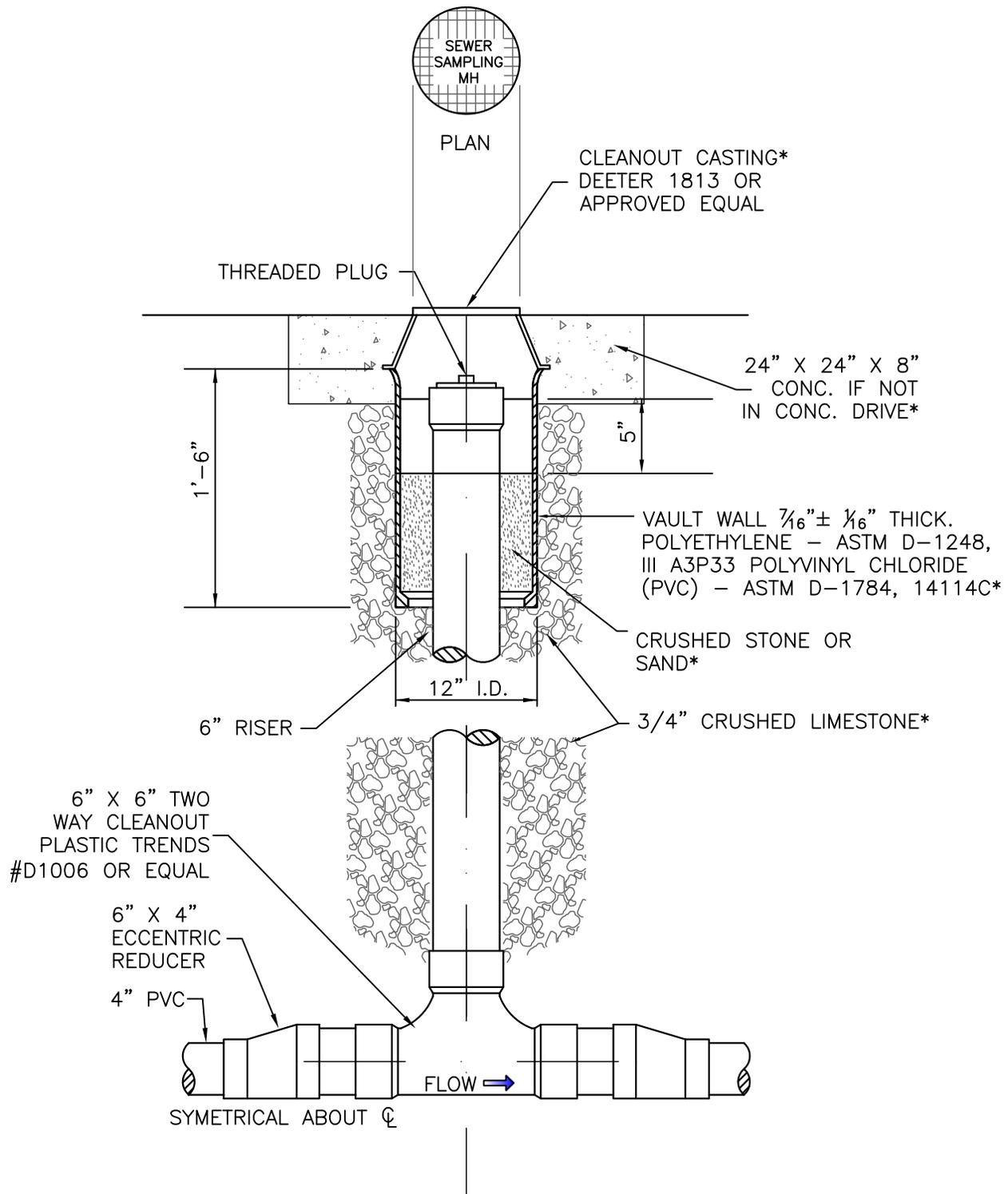
Keynotes

1	4"-6" Inlet Pipe, w/female connection
2	4"-6" Sand or Gravel Backfill
3	Water-tight gasketed Heavy Duty Cast Iron Covering
4	A-LOK water-tight gasket(or equal) - cast in place
5	Sherwin-Williams Tank Clad HS Corrosion resistant epoxy coating(or approved equal)-all interior surfaces
6	4"-6" Outlet Pipe w/female connection
7	Cast-in-place stainless steel all-thread with stainless steel Cooper B3149 pipe hangers or equal.

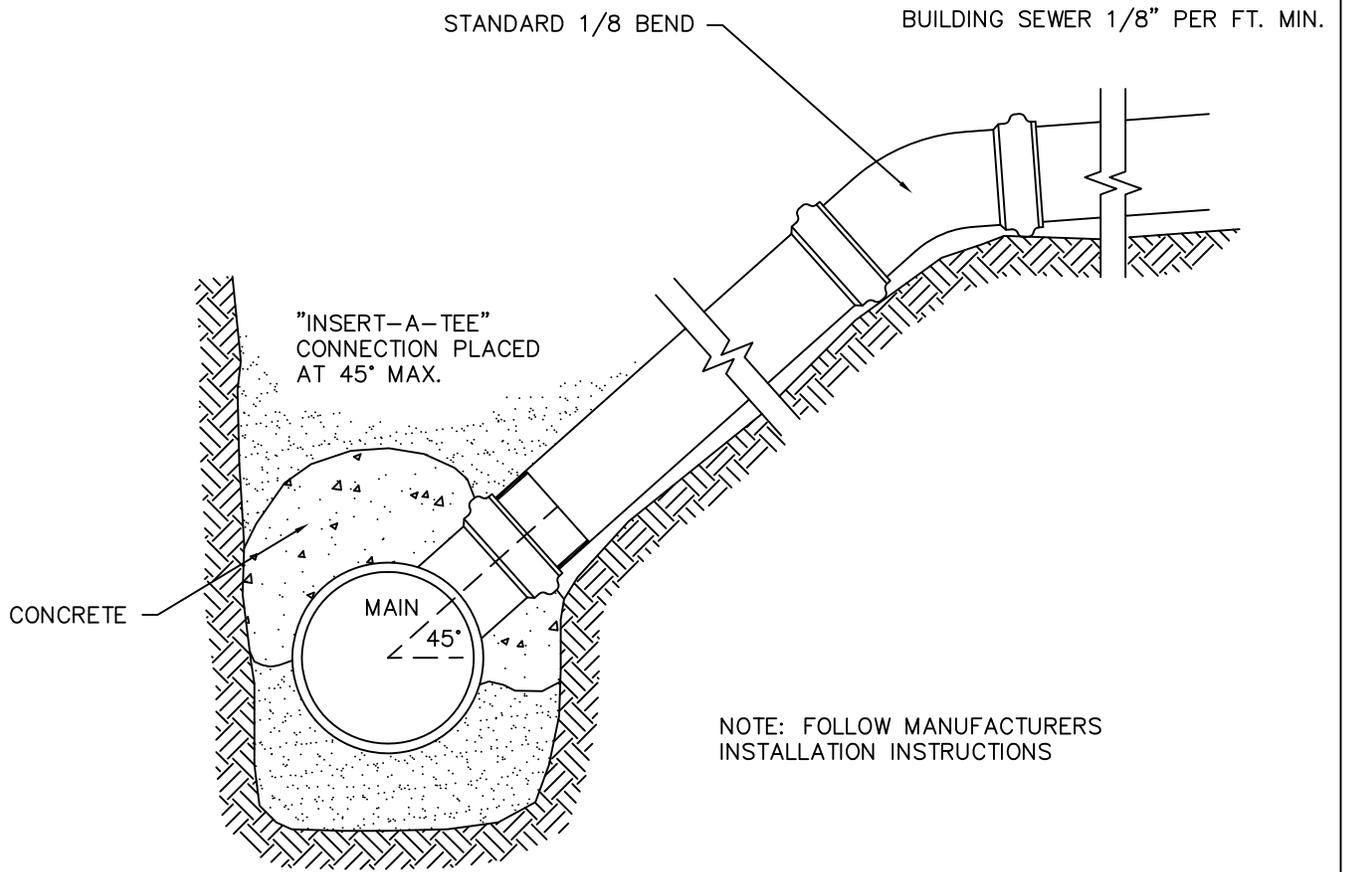
DEPARTMENT OF PUBLIC WORKS
SPRINGFIELD, MO.

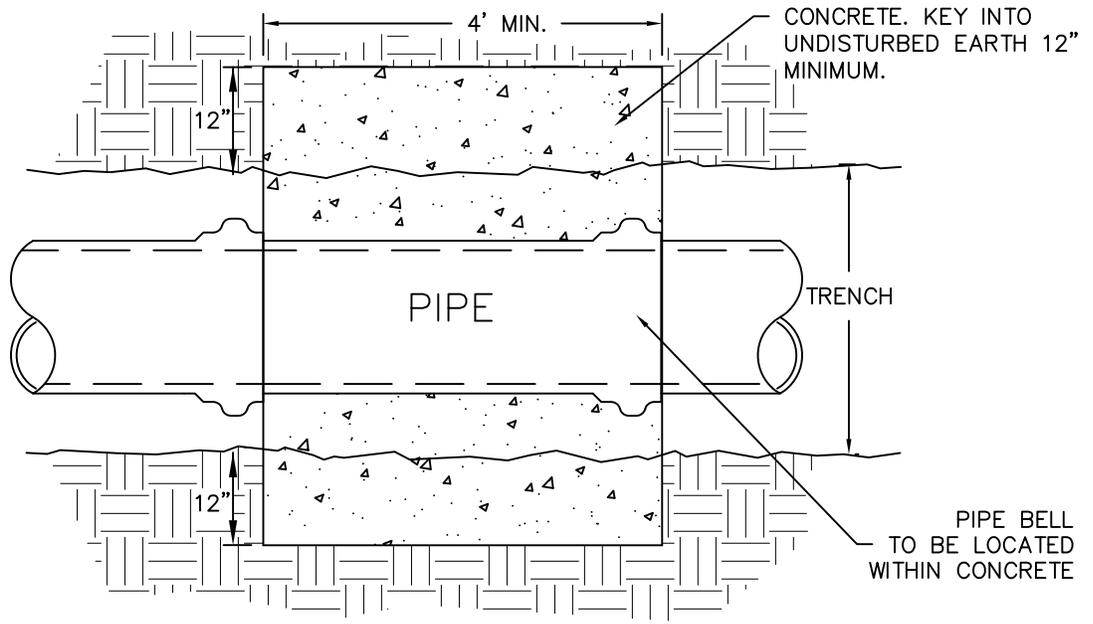
**PRECAST CONCRETE
GREASE INTERCEPTOR**

ADOPTED:11-13-2012
SAN-18

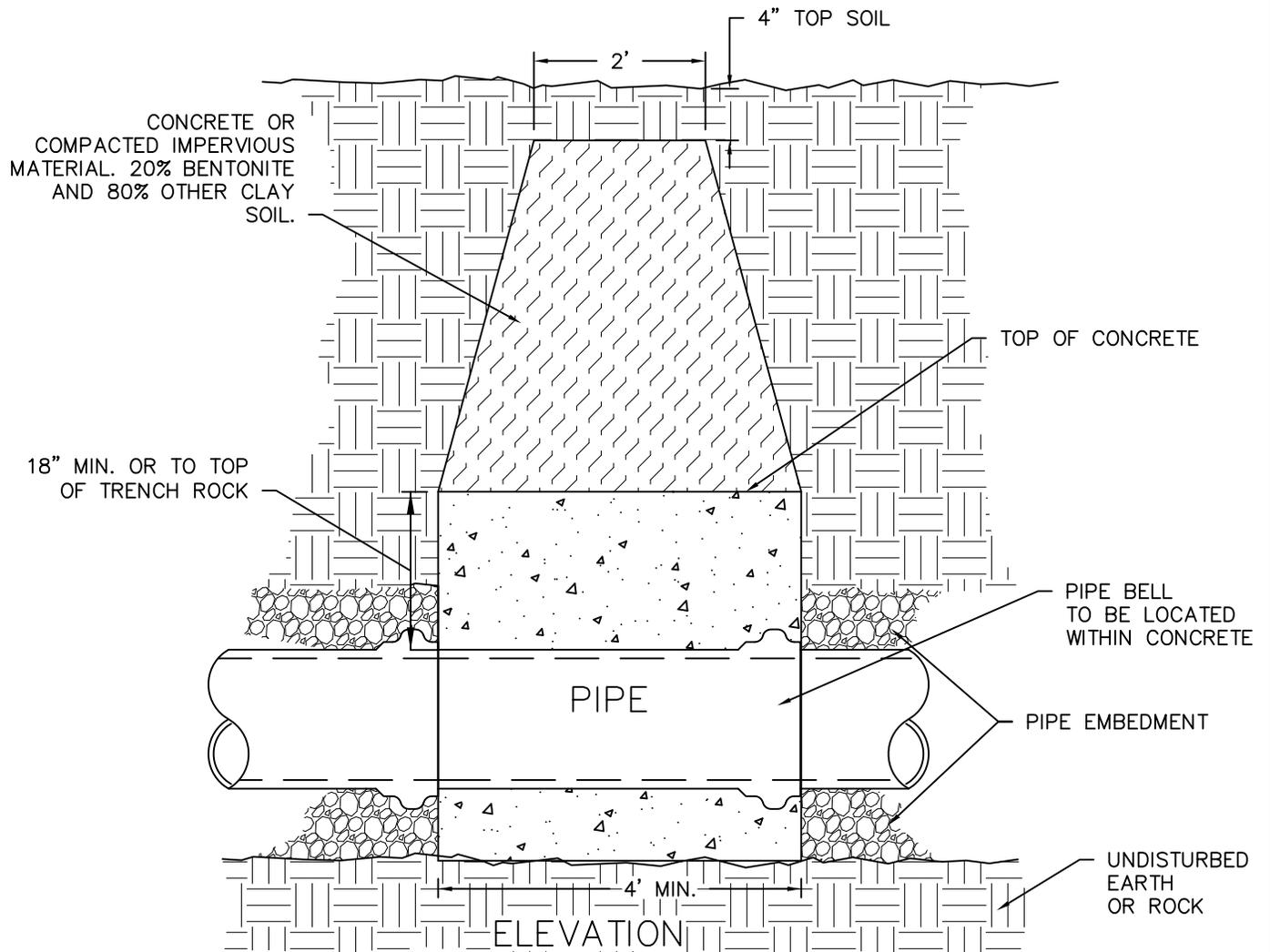


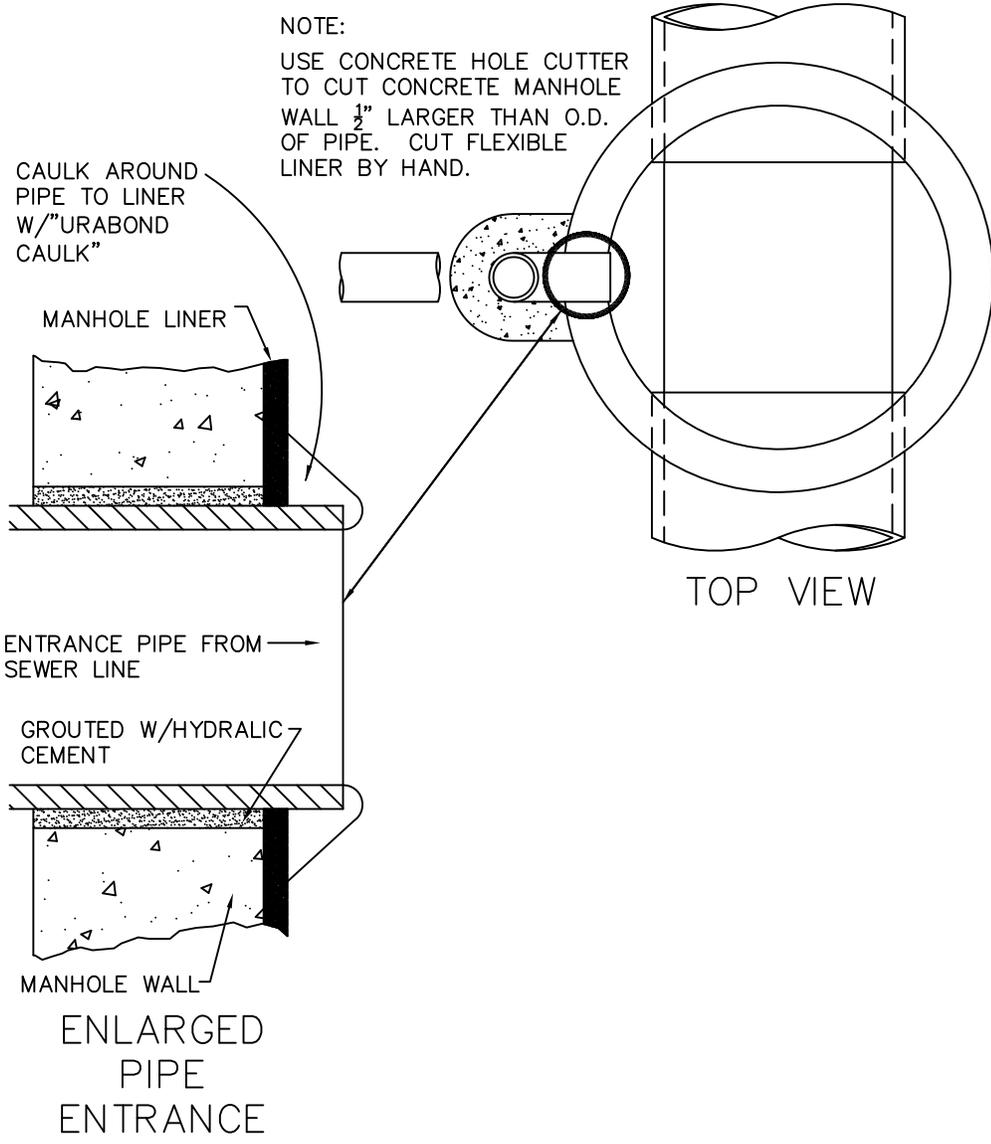
*Not required if located indoors on sites where no outside location is available.
-Not maintained by Environmental Services





TOP VIEW





NOTE:
 USE CONCRETE HOLE CUTTER
 TO CUT CONCRETE MANHOLE
 WALL $\frac{1}{2}$ " LARGER THAN O.D.
 OF PIPE. CUT FLEXIBLE
 LINER BY HAND.

CAULK AROUND
 PIPE TO LINER
 W/"URABOND
 CAULK"

MANHOLE LINER

ENTRANCE PIPE FROM
 SEWER LINE

GROUTED W/HYDRALIC
 CEMENT

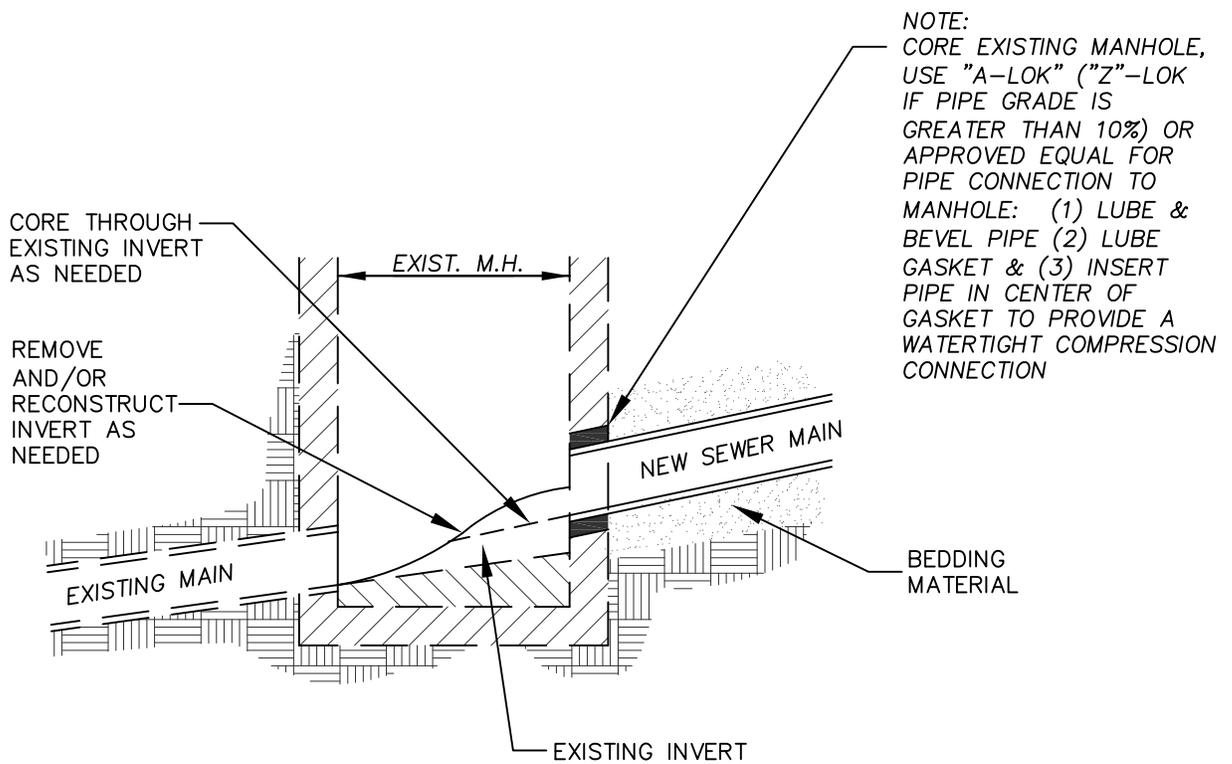
MANHOLE WALL

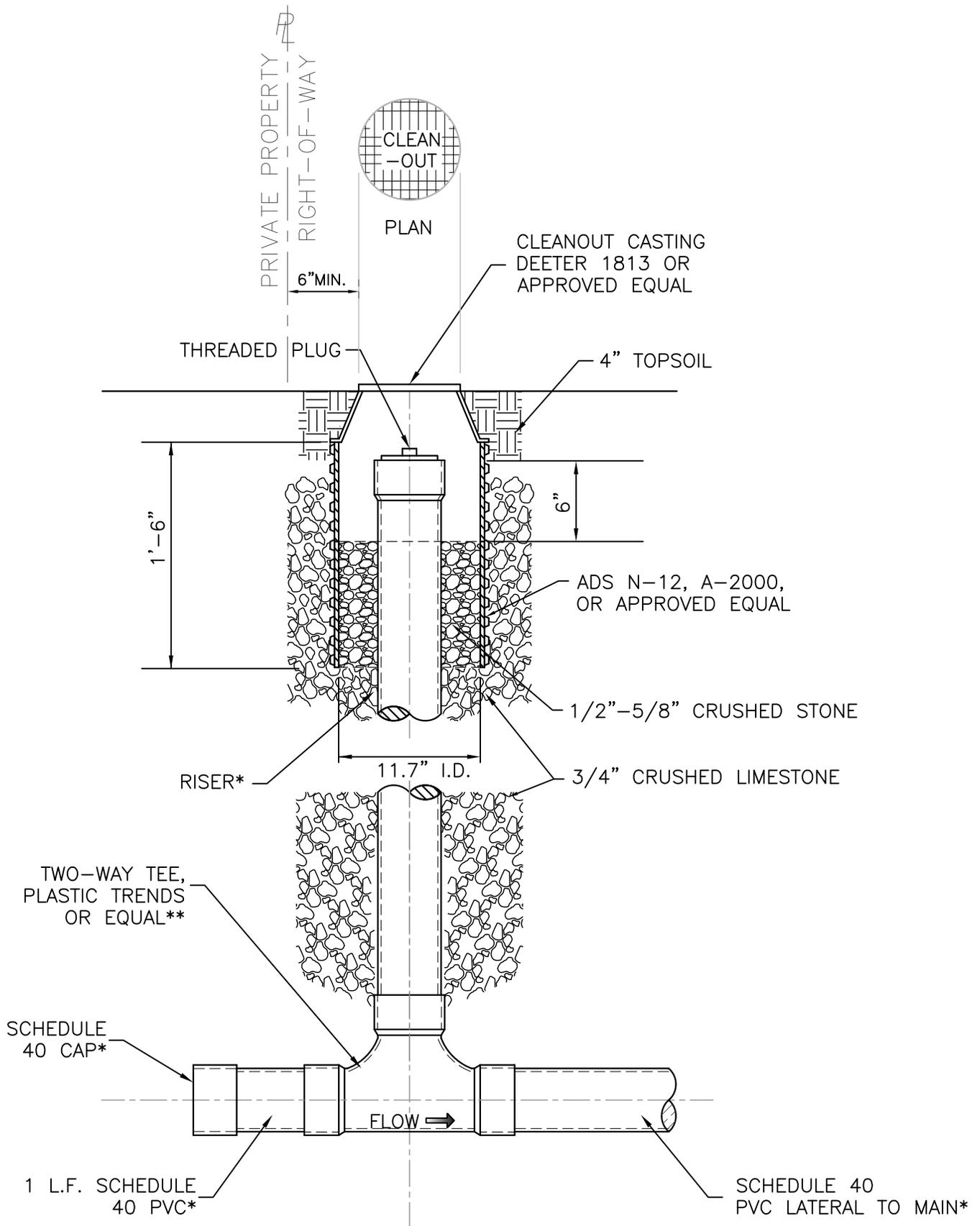
ENLARGED
 PIPE
 ENTRANCE

TOP VIEW

IT SHALL BE THE
 CONTRACTOR'S
 RESPONSIBILITY TO REPAIR
 ANY DAMAGE TO PLASTIC
 LINER.

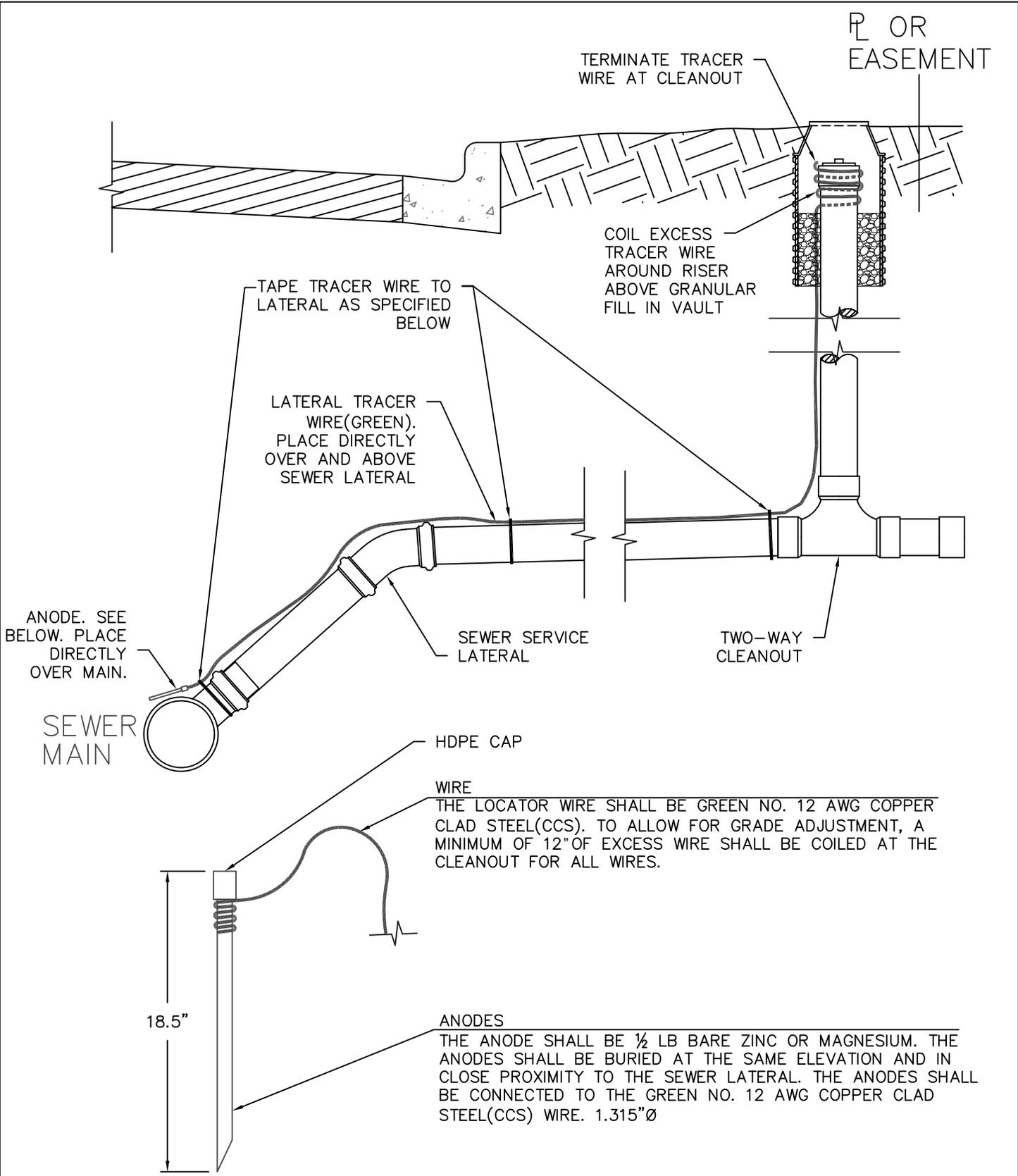
NOTE:
 "URABOND CAULK" MFG. BY
 POLYRESINS
 P.O. BOX 158
 SUN VALLEY, CA 91352





NOTES:

- NOT MAINTAINED BY ENVIRONMENTAL SERVICES.
- ADJUST LATERAL DEPTH AS NECESSARY TO AVOID UTILITY CONFLICT.
- RISER TO BE LOCATED A MIN. OF 6" INSIDE RIGHT-OF-WAY.
- * 4" OR 6" SCHEDULE 40 PVC.
- ** 4"X4" NO. #D1004; 6"X6" NO. #D1006 BY PLASTIC TRENDS.



WIRE
 THE LOCATOR WIRE SHALL BE GREEN NO. 12 AWG COPPER CLAD STEEL (CCS). TO ALLOW FOR GRADE ADJUSTMENT, A MINIMUM OF 12" OF EXCESS WIRE SHALL BE COILED AT THE CLEANOUT FOR ALL WIRES.

ANODES
 THE ANODE SHALL BE 1/2 LB BARE ZINC OR MAGNESIUM. THE ANODES SHALL BE BURIED AT THE SAME ELEVATION AND IN CLOSE PROXIMITY TO THE SEWER LATERAL. THE ANODES SHALL BE CONNECTED TO THE GREEN NO. 12 AWG COPPER CLAD STEEL (CCS) WIRE. 1.315"Ø

TRACER WIRE DETAIL

CONDUCTIVE TYPE PIPE LOCATOR/TRACER WIRE SHALL BE INSTALLED TO LOCATE ALL SEWER LATERALS. THE WIRE SHALL EXTEND THE ENTIRE LENGTH OF THE PROPOSED LATERAL. THE WIRE SHALL BE INSTALLED DIRECTLY ON TOP THE PIPE AND SECURED TO THE LATERAL BY TAPE AT BASE OF RISER, SEWER MAIN AND EVERY 15'. CORROSION PROOF/FILLED WIRE CONNECTORS SHALL BE USED AT SPLICE LOCATIONS. ELECTRICAL TAPE SHALL BE USED AND NO BARE WIRE SHALL BE EXPOSED. TEST STATIONS SHALL BE INSTALLED INSIDE ALL CLEANOUT VAULTS AND EXISTING WIRES SHALL BE CONNECTED. ZINC OR MAGNESIUM ANODES SHALL BE ATTACHED AT BOTH THE BEGINNING AND THE END OF THE TRACER WIRE. A TYPICAL LAYOUT OF THE LOCATOR WIRE AND CLEANOUT IS PROVIDED IN THE FIGURE ABOVE. CONDUCTIVITY TO BE TESTED BEFORE ACCEPTANCE.