

SANITARY SEWER STANDARD DRAWINGS

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STORM & SANITARY SEWER
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STORM & SANITARY SEWER & WATER PIPE
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FINISHED GRADE

SEE DRAWINGS 305 & 306

24" MAX.
12" TYP.

NON-SHRINK GROUT,
MASCO FLASH OR
APPROVED EQUAL

GRADE RINGS,
MAX. 3 LAYERS,
12" MAX, 2" MIN.

FOR NEW MANHOLES,
USE KOR-N-SEAL
BOOTS (OR EQUAL).

FLEXIBLE JOINT
REQUIRED ON ALL
MANHOLES, NO GREATER
THAN 18" FROM
EXTERIOR MANHOLE
WALL.

PLASTIC MANHOLE
STEPS WITH
REINFORCING STEEL

CONNECTIONS TO
EXISTING MANHOLES
SHALL USE SANDED
PVC COLLAR WITH
GASKETED JOINT

18" MAX.
TYP.

PIPE OD
VARIES

12" -3 1/4"-0
COMPAKTED ROCK
COMPACTION TO BE
95% & MEET T-180
REQUIREMENTS

CONSTRUCT CHANNEL
& SHELF IN FIELD

NON-SHRINK
GROUT AROUND
PIPE

48" DIA.

MIN. PIPE

OD

12" MAX.

MIN. PIPE

OD

18" MAX.

TYP.

6" MIN.

FLOW

BASE
HEIGHT

VARIES

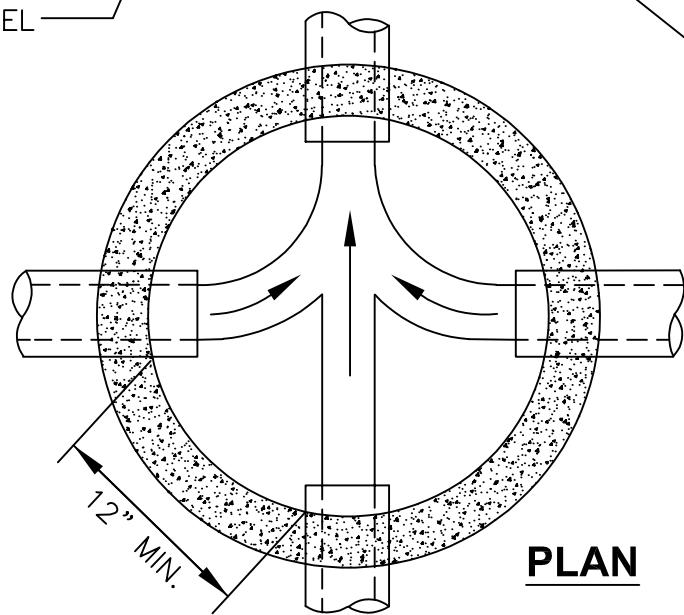
6" MIN.

FORM CHANNEL HEIGHT
TO 3/4 PIPE OD

MANHOLE SECTIONS
AND REINFORCEMENT
TO BE CONSTRUCTED
IN ACCORDANCE
WITH THE MOST
CURRENT EDITION OF
OREGON STANDARD
SPECIFICATIONS FOR
CONSTRUCTION, OR
APPROVED EQUAL.

NOTE:

ALL CONCRETE
TO BE MINIMUM
4000 PSI
COMPRESSIVE
STRENGTH



PLAN

Public Works Standard Drawings

MANHOLE -
STORM & SANITARY SEWER

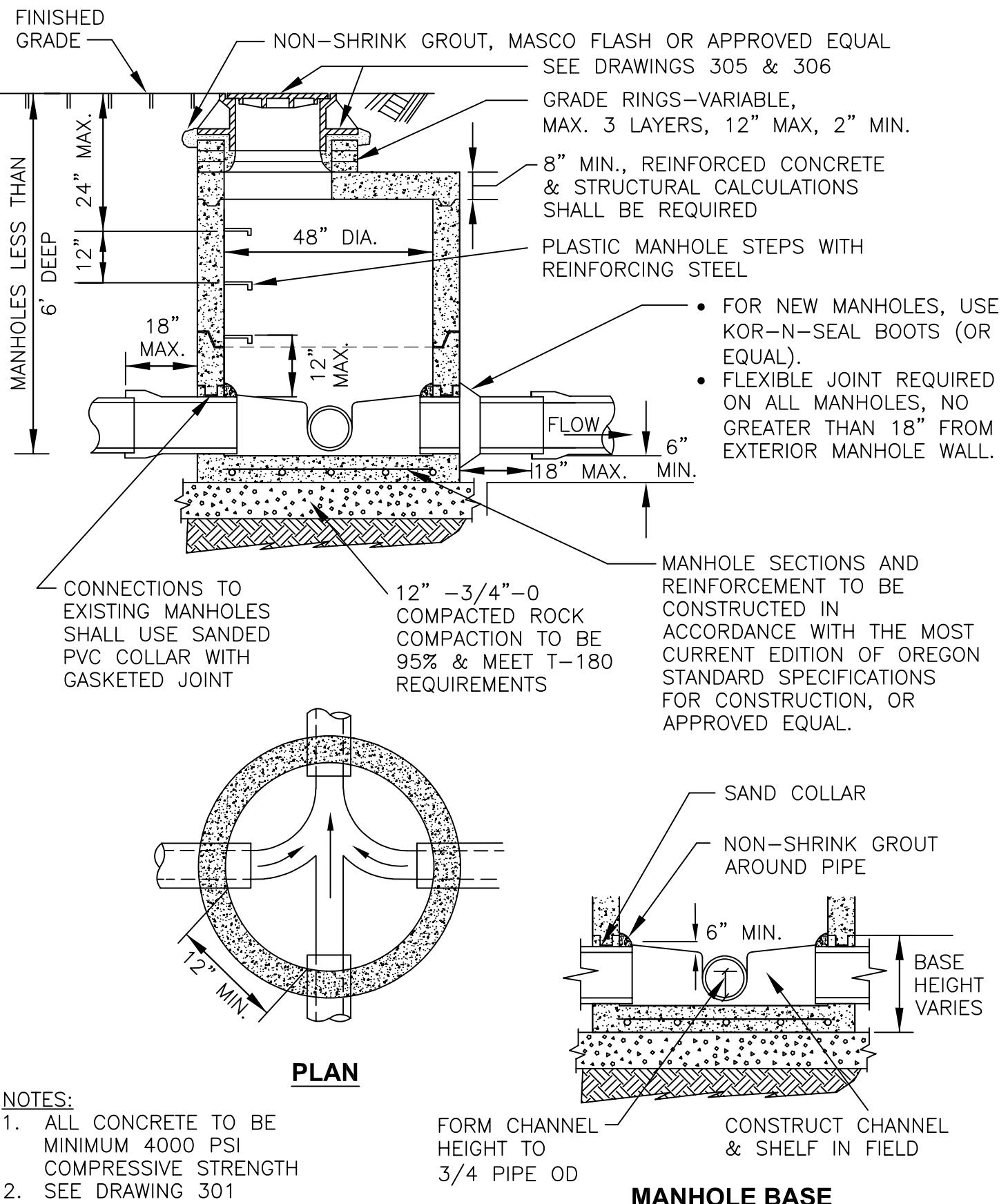
SCALE NTS

DATE JAN '24 REV. 1

ENGR. DW DRAWN KAE

DRAWING NO. 301

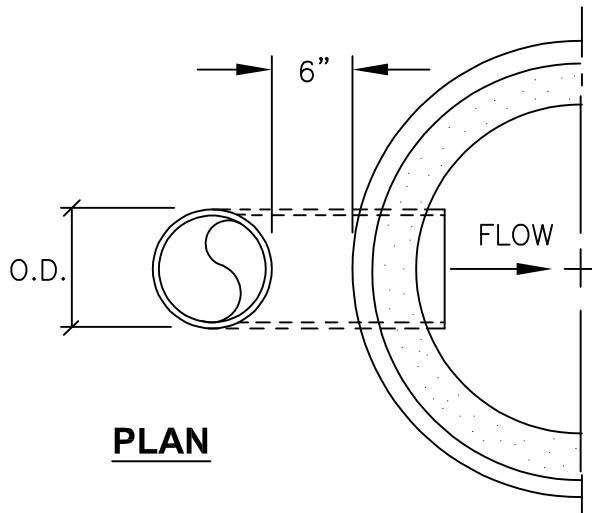




Public Works Standard Drawings

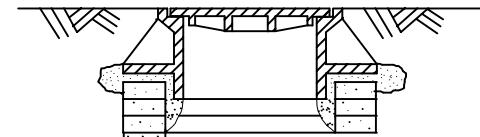
SHALLOW MANHOLE -
STORM & SANITARY SEWER

SCALE	NTS
DATE JAN '24	REV. 1
ENGR. DW	DRAWN KAE
DRAWING NO.	302

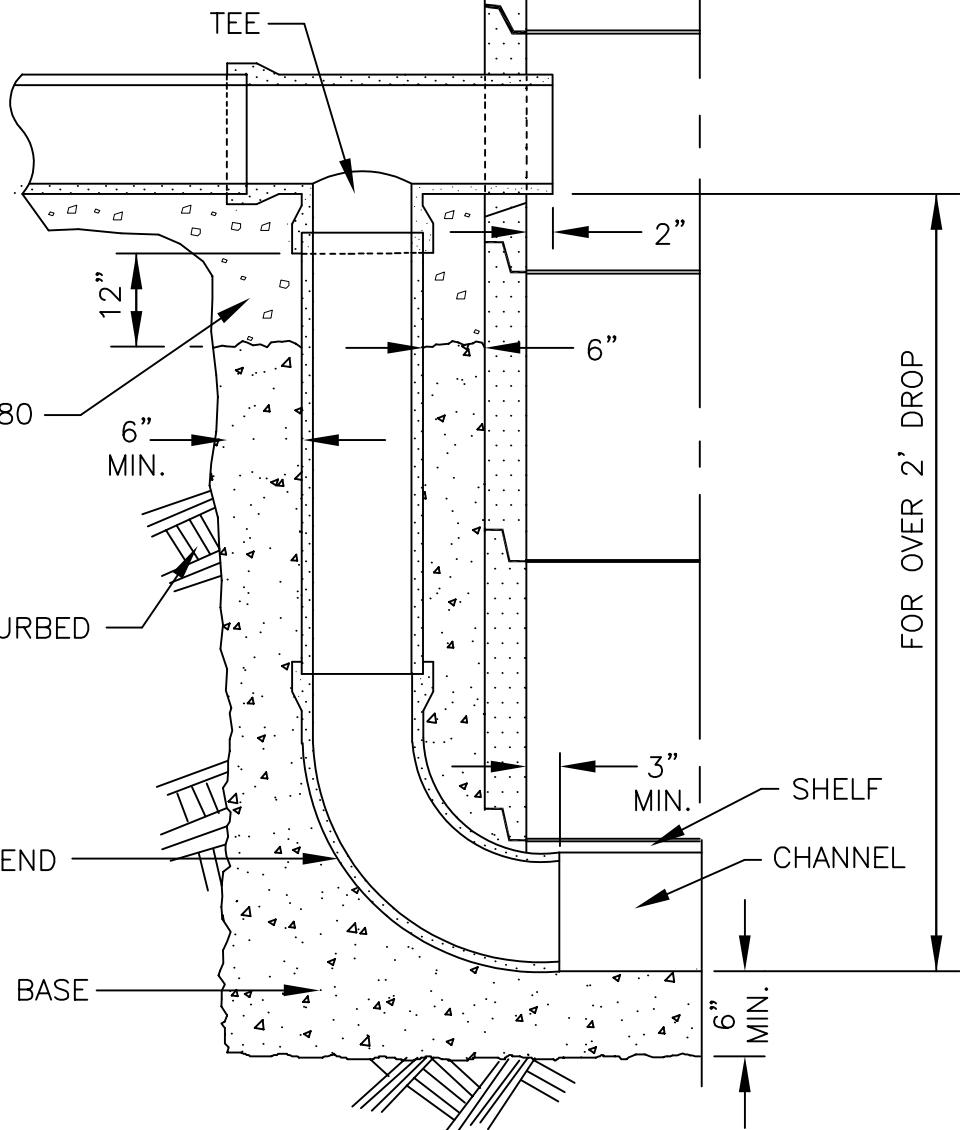


PLAN

HALF SECTION



SEE DRAWING 301



NOTE:

ALL CONCRETE
TO BE MINIMUM
4000 PSI
COMPRESSIVE
STRENGTH



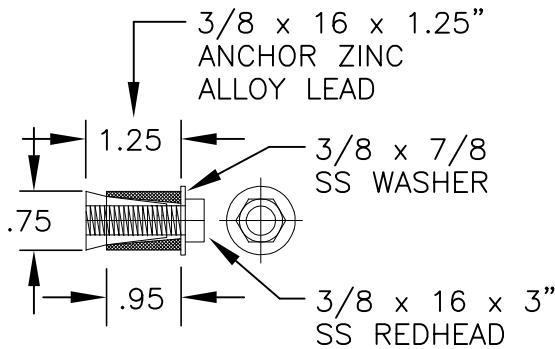
Public Works Standard Drawings

OUTSIDE DROP MANHOLE CONNECTION

SCALE	NTS	
DATE	JAN '23	REV.
ENGR.	DW	DRAWN KAE
DRAWING NO. 303		

SPECIFICATIONS:

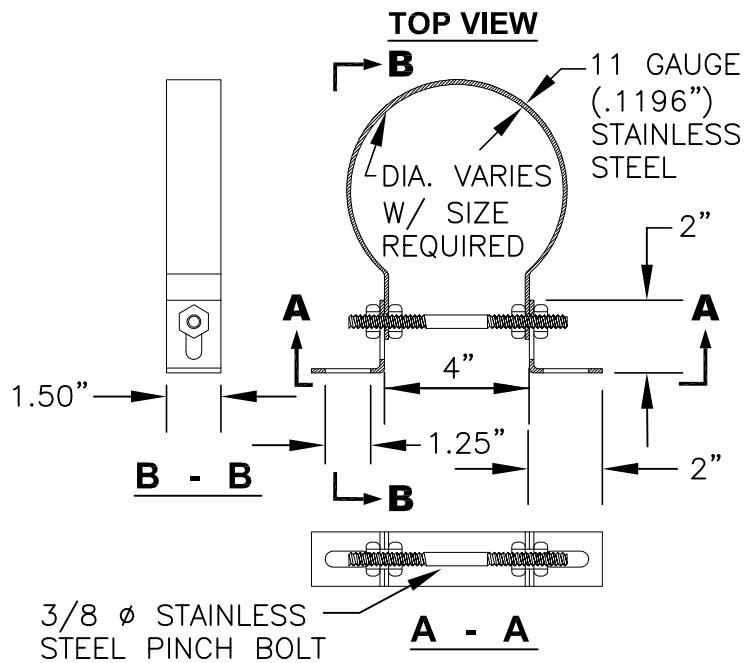
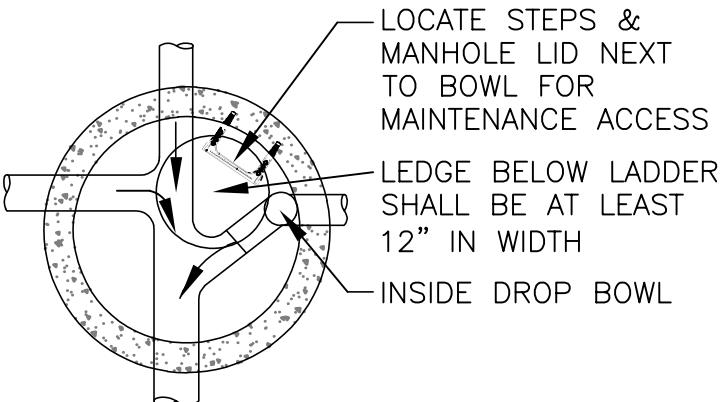
1. CLAMP AND BRACKETS ARE TYPE 304 STAINLESS STEEL, 11 GAUGE (.1196").
2. 3/8" \varnothing PINCH BOLT AND NUTS IS TYPE 18-8 STAINLESS STEEL.
3. RELINER CLAMP/BRACKET AND ANCHOR OR APPROVED EQUAL.



ANCHOR DETAIL

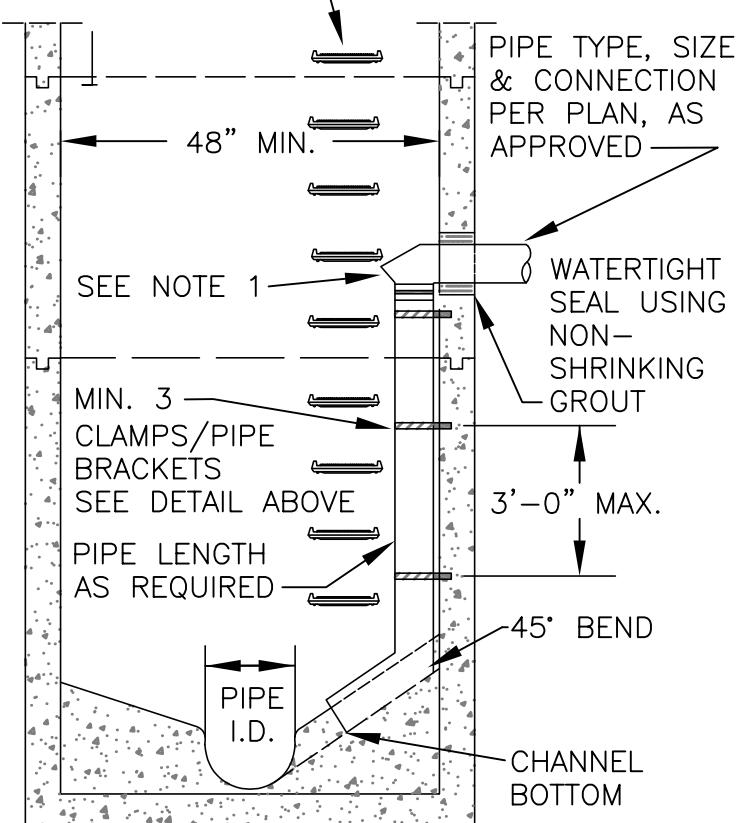
NOTES:

1. DROP BOWL AS MANUFACTURED BY RELINER-DURAN INC. OR APPROVED EQUAL.
2. DROP BOWL TO BE SIZED PER MANUFACTURERS RECOMMENDATIONS (INFORMATION AVAILABLE @ RELINER.COM) OR AS REQUIRED BY CITY.
3. PIPE AND FITTING FOR DROP ASSEMBLY SHALL BE: AWWA C150-1, AWWA C-900 OR PVC ASTM 3034 SDR 35.
4. NO MORE THAN ONE DROP BOWL PER MANHOLE WITHOUT WRITTEN APPROVAL BY CITY.
5. WRITTEN APPROVAL BY CITY IS REQUIRED FOR DROP BOWL INSTALLATION ON PIPELINES WITH A SLOPE OF 5% OR GREATER.



CLAMP/BRACKET DETAIL

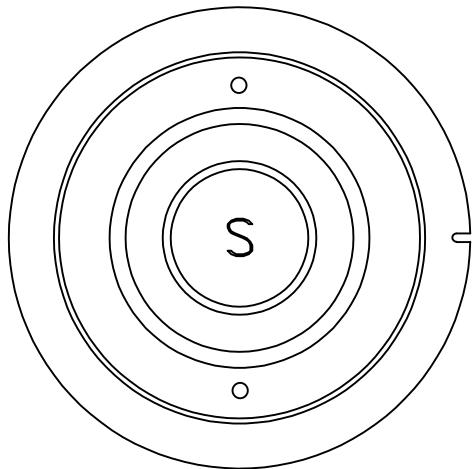
MANHOLE STEP
SEE DRAWING 307



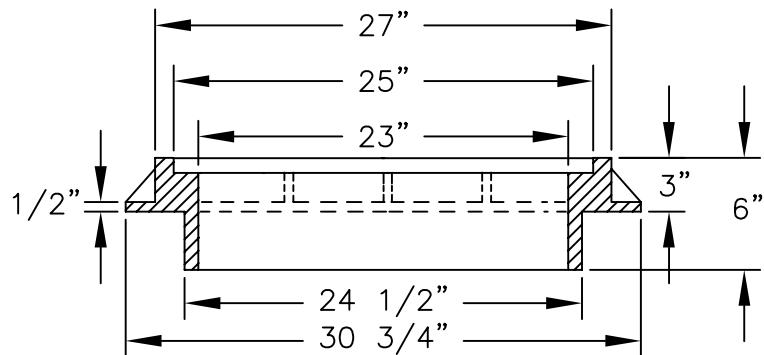
Public Works Standard Drawings

INSIDE DROP MANHOLE CONNECTION

SCALE	NTS
DATE	JAN '23
REV.	
ENGR.	DW
DRAWN	KAE
DRAWING NO.	303-A

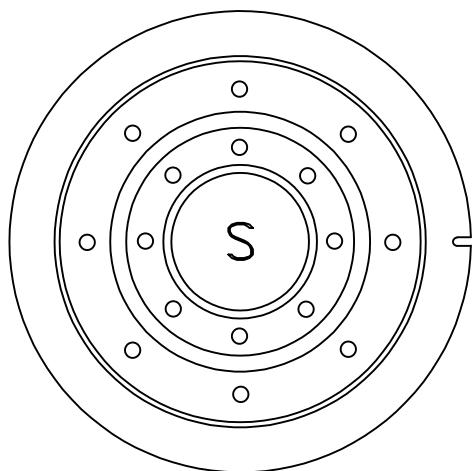


SANITARY SEWER COVER

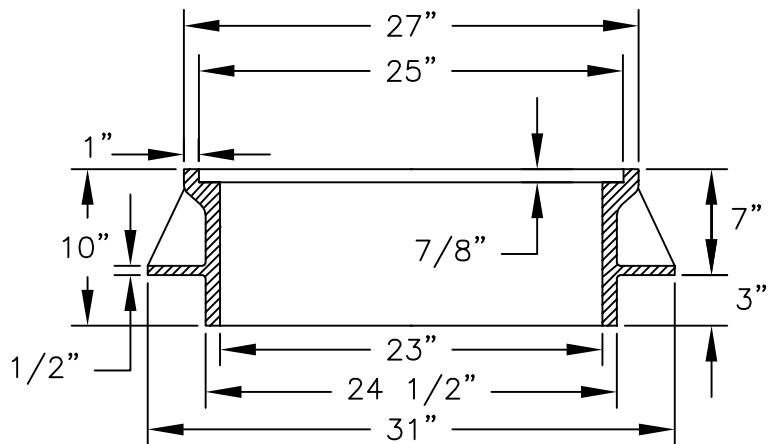


CAST IRON SUBURBAN FRAME

APPROX. WT. - 305 LBS.

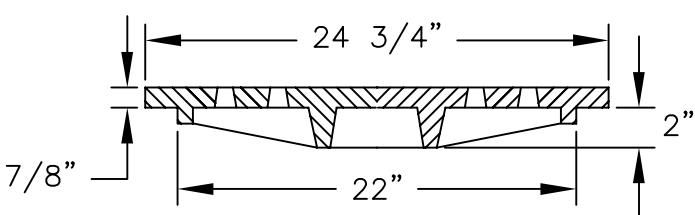


STORMWATER COVER



CAST IRON STANDARD FRAME

APPROX. WT. - 387 LBS.

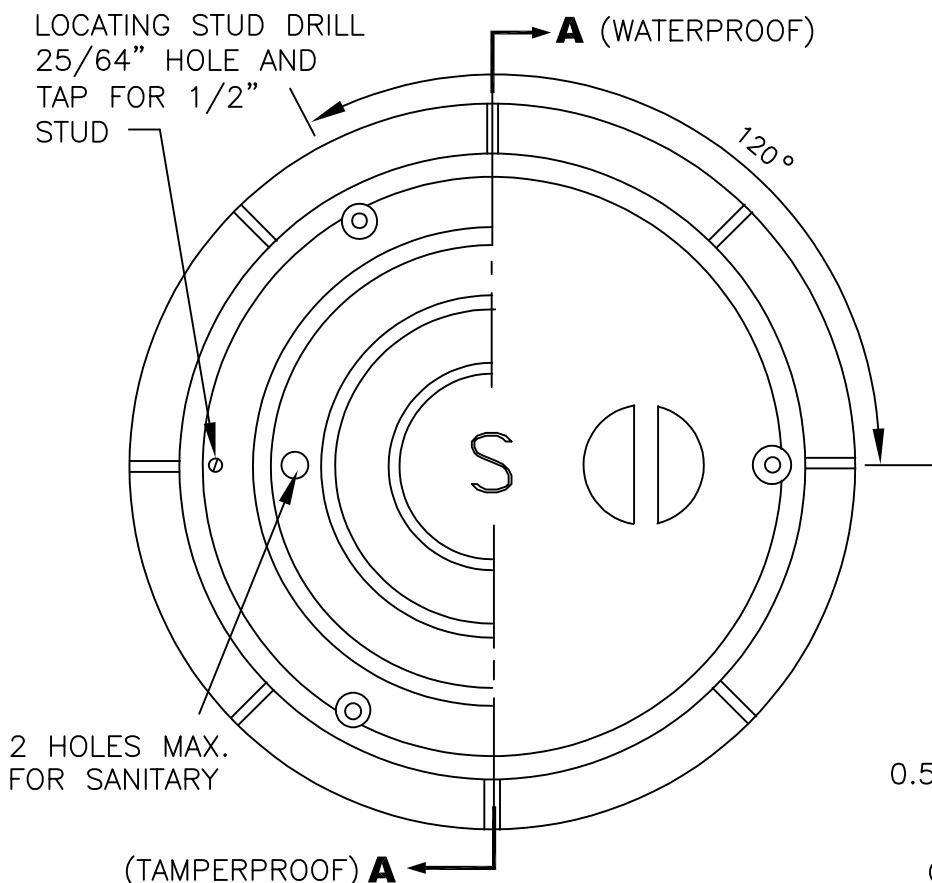


COVER

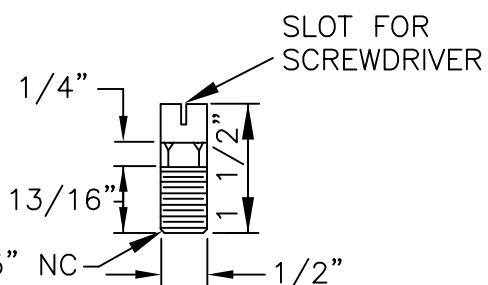
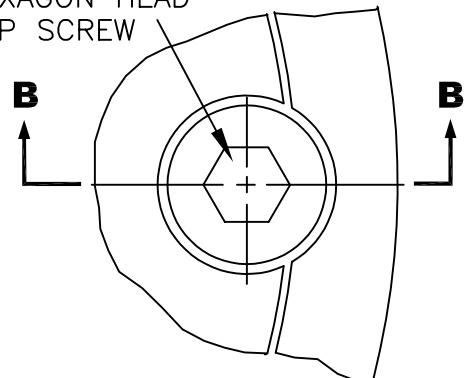
NOTES:

1. COVER AND FRAME TO BE MACHINED FOR TRUE BEARING.
2. MATERIAL SHALL BE GREY CAST IRON A.S.T.M. A-48 CLASS 30.

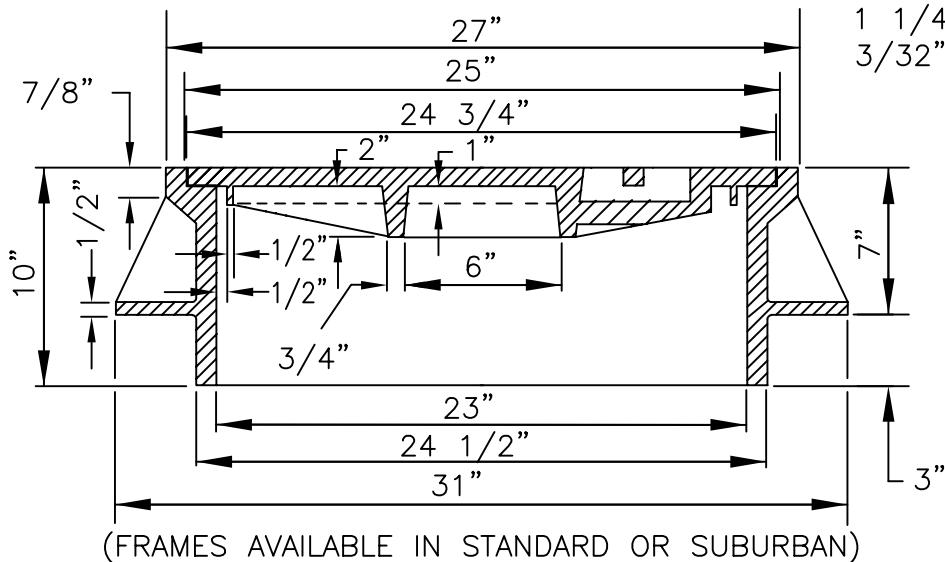




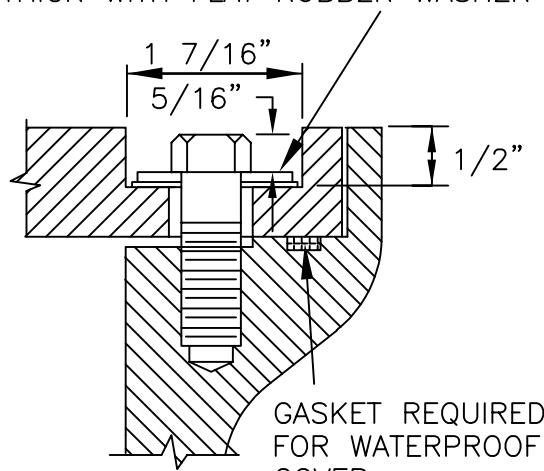
1/2" - 13NCx1"
STAINLESS STEEL
HEXAGON HEAD
CAP SCREW



LOCATING STUD
ONE REQUIRED PER COVER



1 1/4" OD STAINLESS STEEL WASHER
3/32" THICK WITH FLAT RUBBER WASHER



SECTION A-A

NOTES:

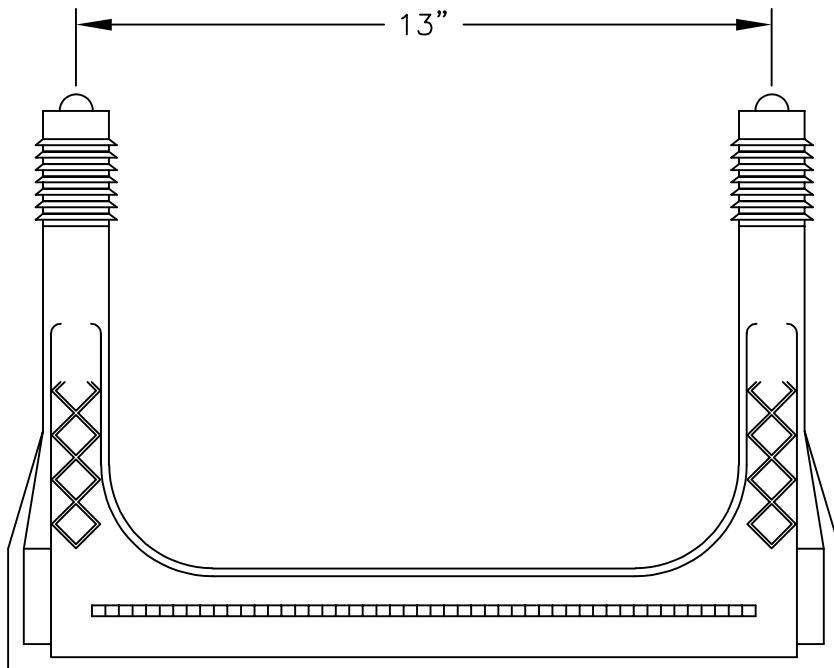
1. TAMPERPROOF COVERS REQUIRED ON SANITARY OR STORM MANHOLES LOCATED IN UNIMPROVED EASEMENTS AND RIGHT OF WAYS.
2. WATER TIGHT COVERS REQUIRED IF LOCATED WHERE COVER MAY BE SUBMERGED.
3. COVER AND FRAME TO BE MACHINED TO A TRUE BEARING ALL AROUND.
4. MATERIAL SHALL BE OF GREY IRON A.S.T.M. A-48 CLASS 30.



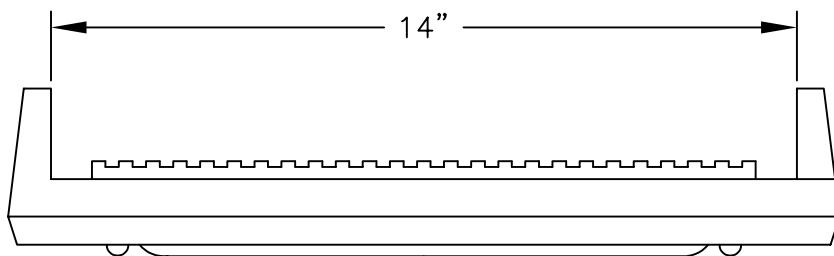
Public Works Standard Drawings

WATERPROOF & TAMPERPROOF
MANHOLE FRAME & COVER

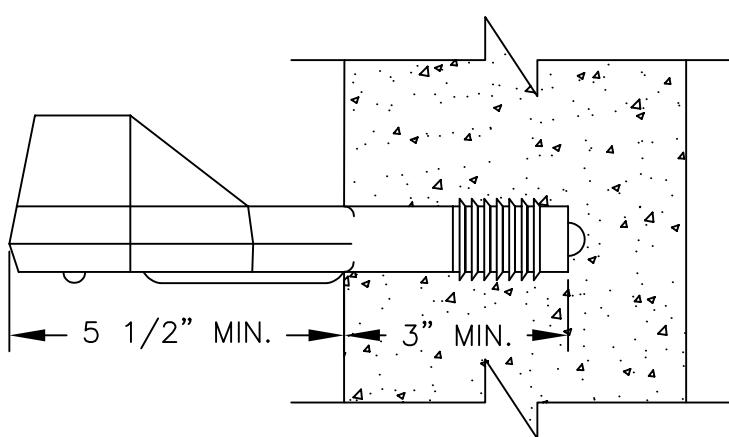
SCALE		NTS	
DATE		JAN '23	REV.
ENGR.	DW	DRAWN	KAE
DRAWING NO.	306		



TOP



FRONT



SIDE

NOTES:

1. STEPS SHALL BE DEFORMED STEEL REINFORCED POLYPROPYLENE PLASTIC, CONFORMING WITH ASTM C478 AND ASTM A615.
2. ALL STEPS WITHIN A MANHOLE SHALL BE OF THE SAME DESIGN TYPE AND SIZE. (MIXING OF UNMATCHED STEPS WITHIN THE SAME MANHOLE IS NOT PERMITTED.)
3. LOOSE STEPS SHALL BE CAUSE FOR REJECTION OF THAT MANHOLE CONE OR SECTION.
4. STEPS ARE TO BE DRIVEN INTO PRE-FORMED HOLES IN PRECAST CONCRETE MANHOLE CONE AND SECTIONS BY THE MANHOLE MANUFACTURER PRIOR TO DELIVERY TO THE JOB SITE.
5. MINIMUM HORIZONTAL PULLOUT LOAD SHALL BE 1500 LBS.
6. STEPS SHALL BE ALIGNED VERTICALLY.
7. STEPS SHALL BE SPACED 12" O.C.

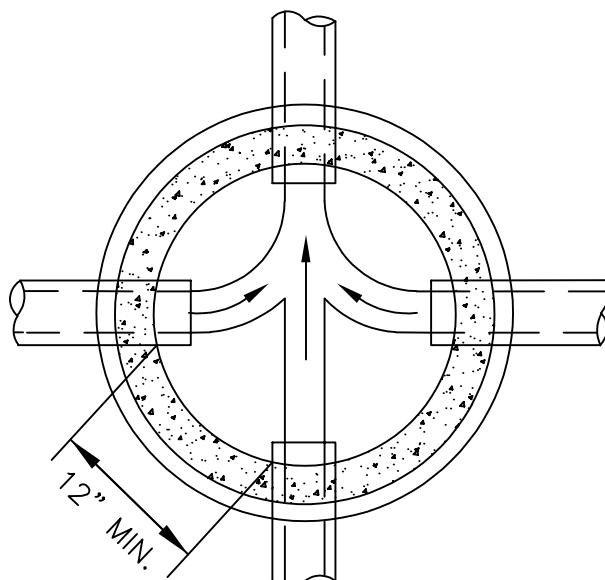
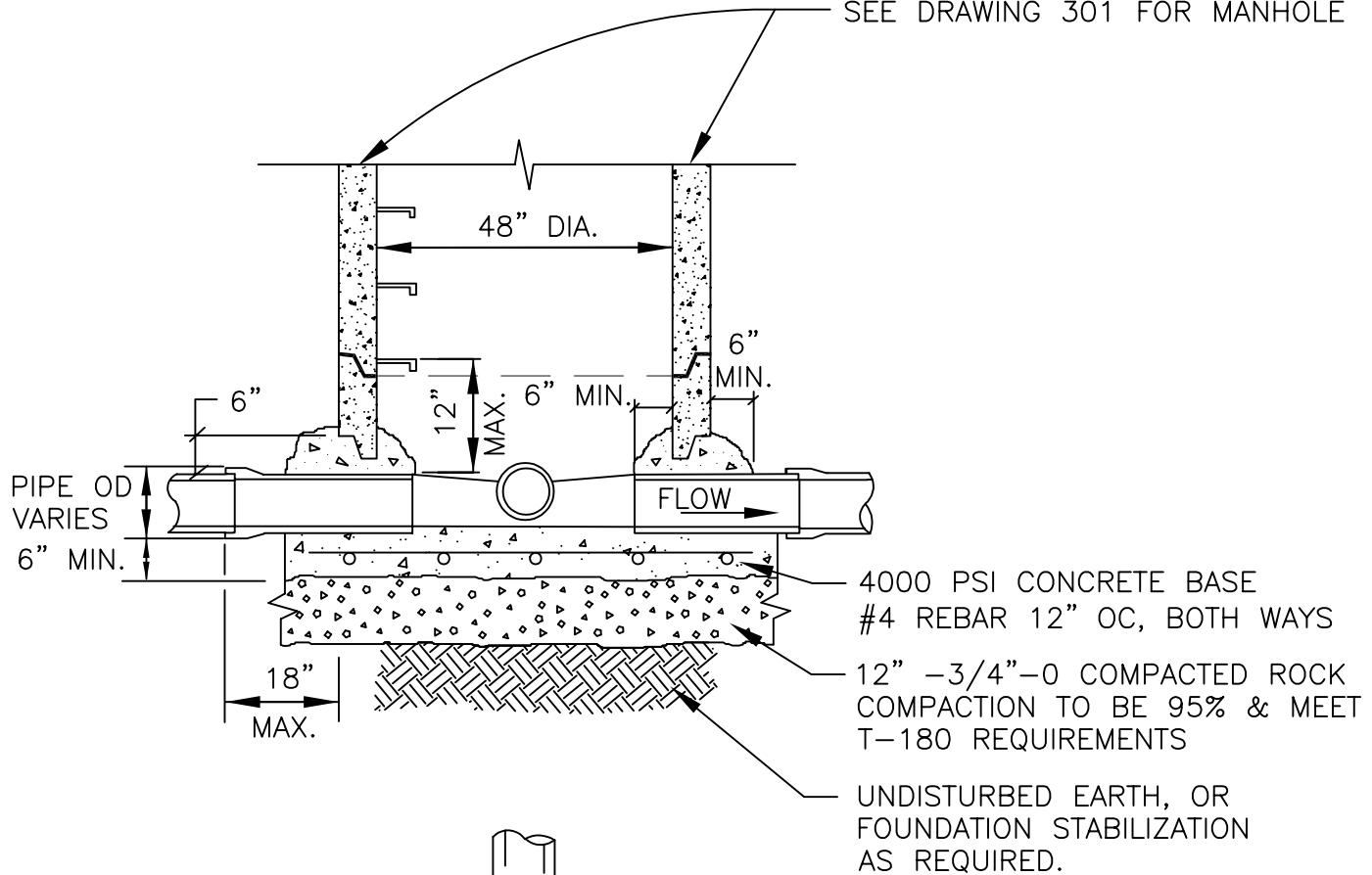


Public Works Standard Drawings

**MANHOLE STEP -
STORM & SANITARY SEWER**

SCALE	NTS
DATE	JAN '23
REV.	
ENGR.	DW
DRAWN	KAE
DRAWING NO.	307

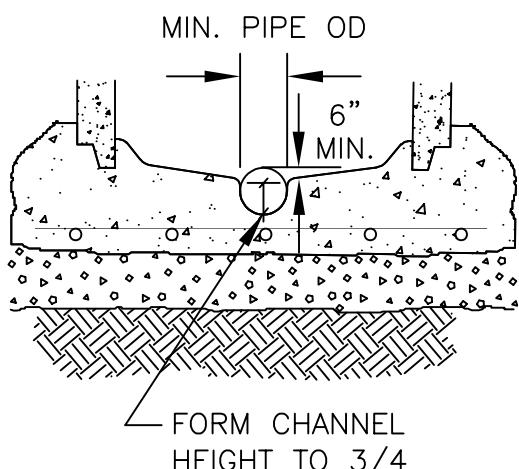
SEE DRAWING 301 FOR MANHOLE



PLAN

NOTES:

1. ALL CONCRETE TO BE MINIMUM 4000 PSI COMPRESSIVE STRENGTH
2. SAME METHOD FOR SCALLOPED MANHOLE BASE SECTION.



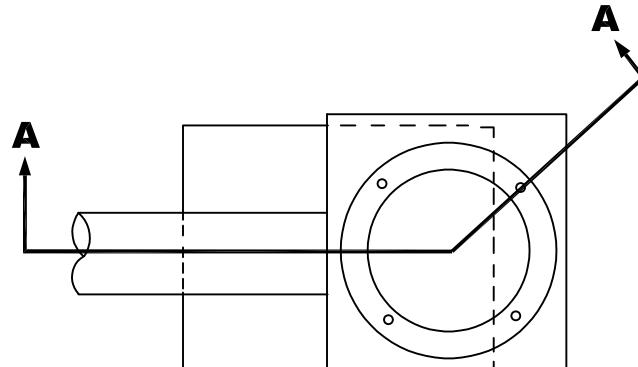
MANHOLE BASE



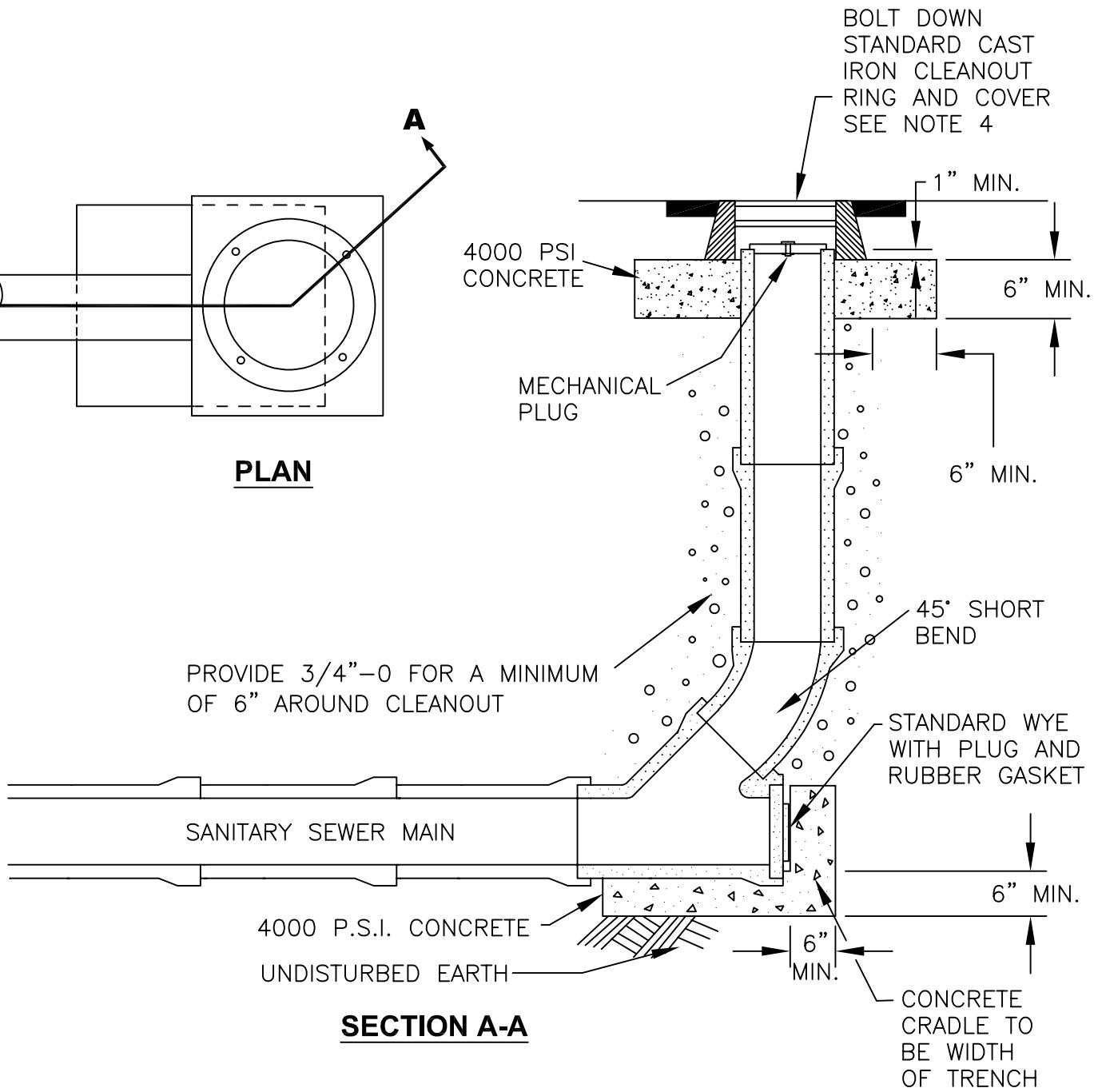
Public Works Standard Drawings

POURED IN-PLACE MANHOLE BASE -
STORM & SANITARY SEWER

SCALE	NTS
DATE	JAN '23
ENGR.	DW
DRAWN	KAE
DRAWING NO.	308



PLAN



SECTION A-A

NOTES:

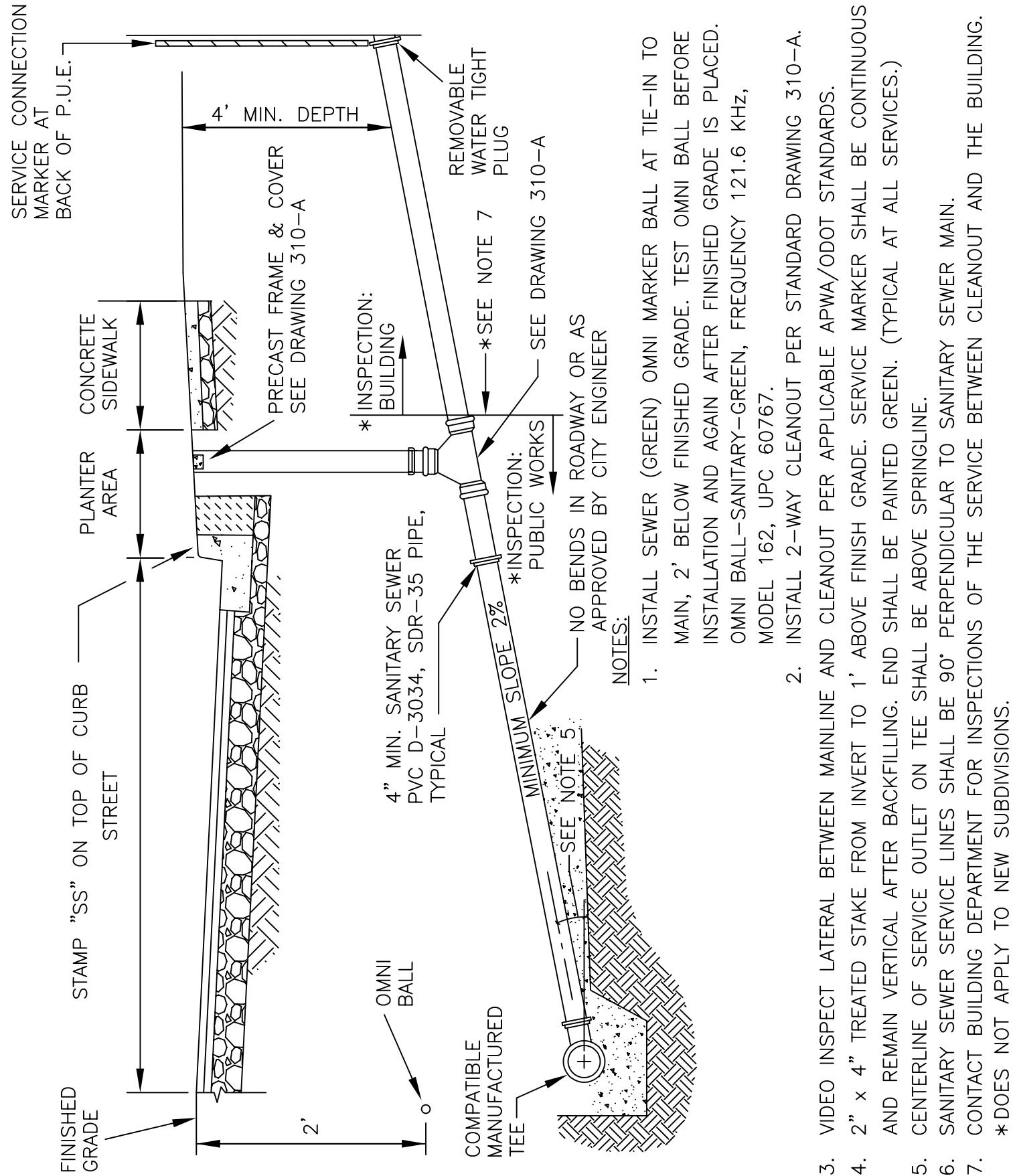
1. UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER, CLEANOUTS ARE TO BE USED ONLY AS A TEMPORARY TERMINUS.
2. CLEANOUT SIZE AND MATERIAL SHALL BE SAME AS SEWER MAIN PIPE.
3. ALL CONCRETE TO BE MINIMUM 4000 PSI COMPRESSIVE STRENGTH.
4. LOCKING CLEAN OUT FRAME & COVER SHALL BE OLYMPIC FOUNDRY PART NO. M1035 D/T OR APPROVED EQUAL.



Public Works Standard Drawings

**SANITARY SEWER
CLEAN-OUT ON MAIN LINE**

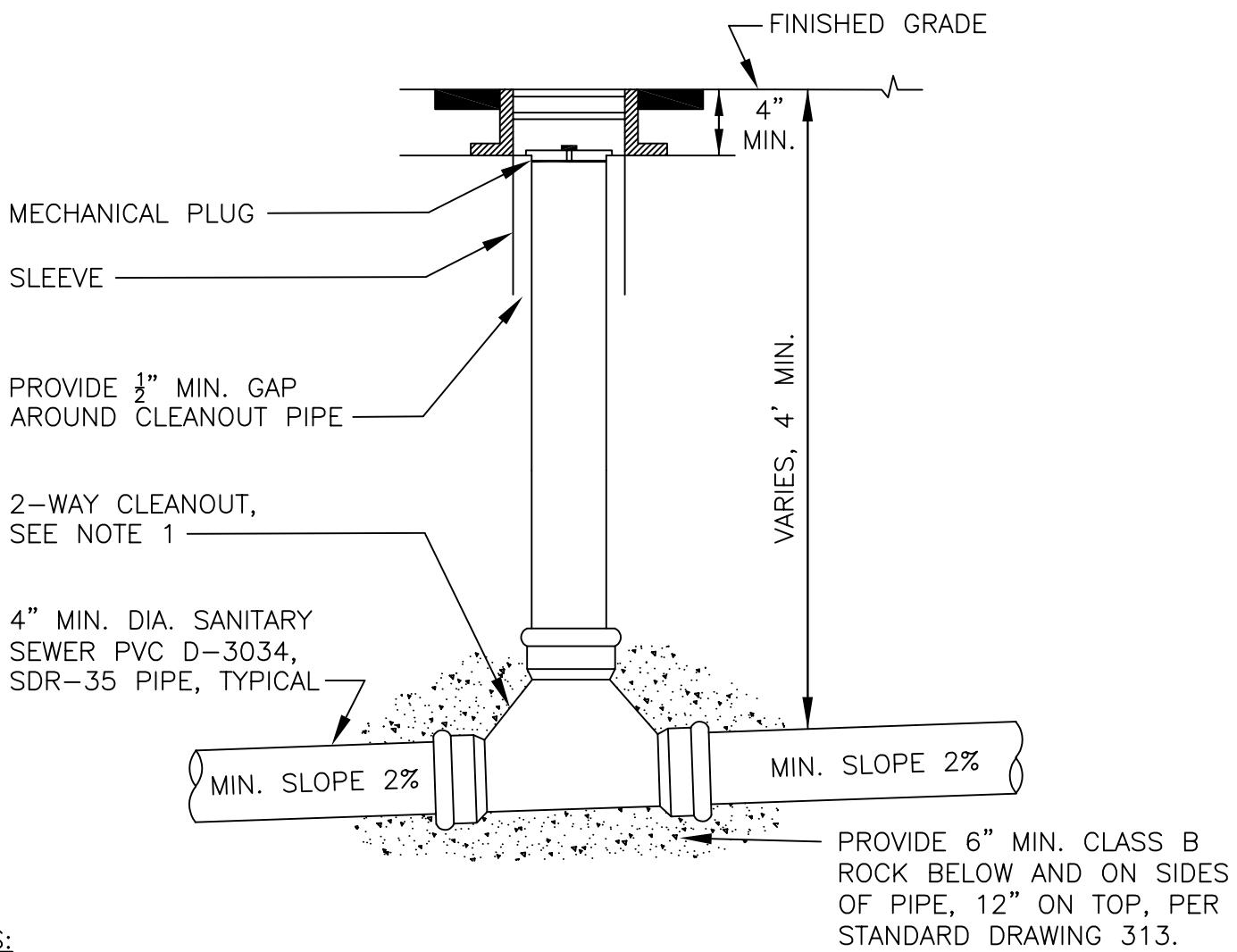
SCALE	NTS
DATE	JAN '23
REV.	
ENGR.	DW
DRAWN	KAE
DRAWING NO.	309



Public Works Standard Drawings

SANITARY SEWER SERVICE

SCALE	NTS	
DATE	JUN '24	REV.
ENGR.	DW	DRAWN
DRAWING NO.	310	KAE

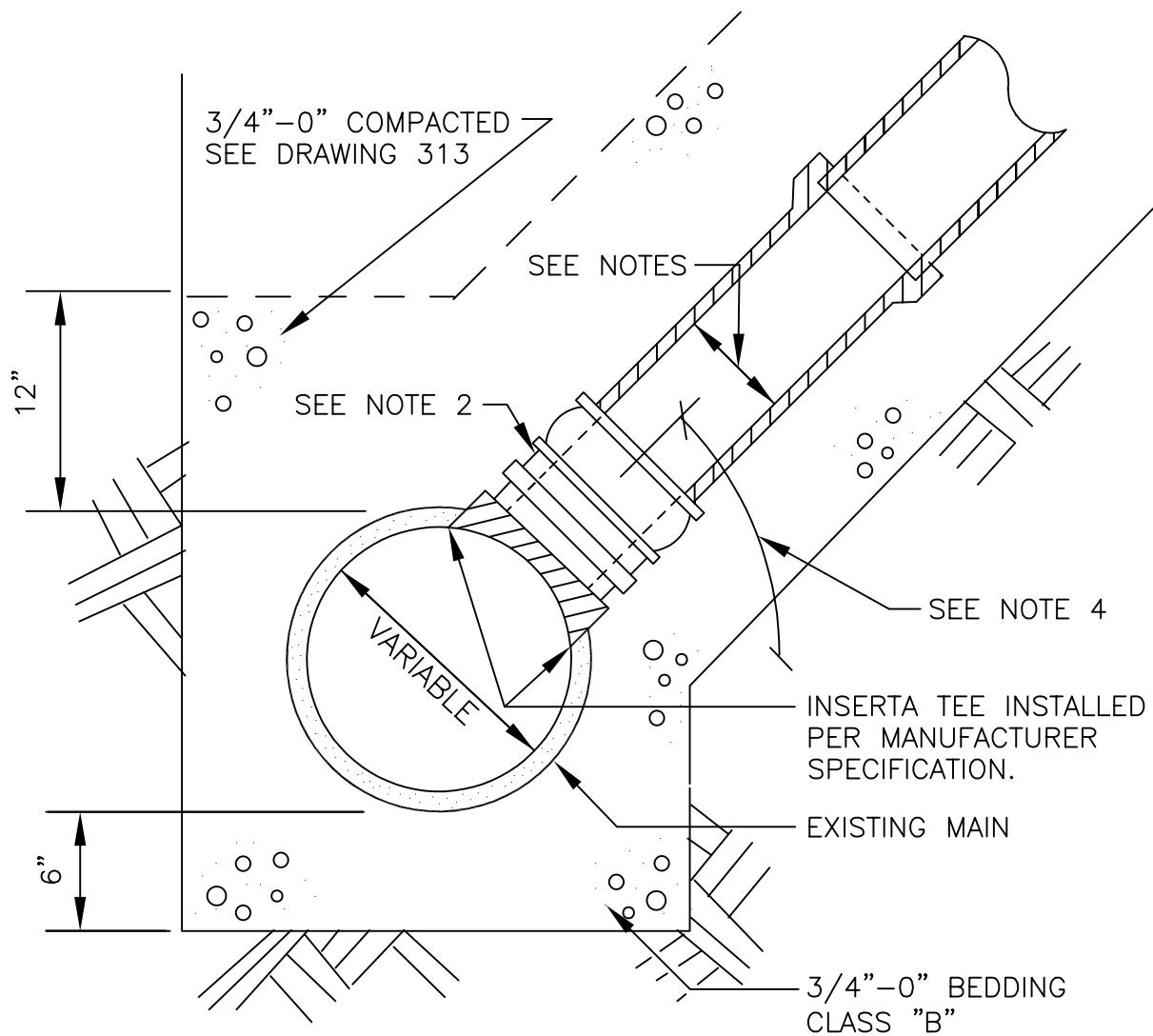


NOTES:

1. SERVICE CLEANOUT TO BE SAME DIAMETER AND MATERIAL AS SERVICE LATERAL.
 - A. 2-WAY CLEANOUT TO BE USED FOR SEWER DEPTHS UP TO 3 FEET DEEP.
 - B. 1-WAY DIRECTIONAL CLEANOUT SWEEPING TOWARD MAINLINE TO BE USED FOR SEWER DEPTHS GREATER THAN 3 FEET UNLESS DIRECTED OTHERWISE BY ENGINEER.
2. USE OLYMPIC FOUNDRY 8"X4" CLEANOUT RING & COVER PART #M1007 OR APPROVED EQUAL.
3. LOCATION:
 - A. WHERE NEW CURB IS BEING INSTALLED OR EXISTING CURB IS PRESENT AND A PLANTER AREA IS OR WILL EXIST BETWEEN CURB AND SIDEWALK, CLEANOUT SHALL BE PLACED 2 FEET BEHIND CURB.
 - B. WHEN A PLANTER AREA DOES NOT EXIST (i.e. CURB TIGHT SIDEWALK), THE CLEANOUT SHALL BE 12 INCHES FROM BACK OF SIDEWALK TO CENTER OF CLEANOUT.
 - C. WHEN NO CURB OR SIDEWALK EXISTS, LOCATE CLEANOUT 1 FOOT INSIDE RIGHT OF WAY LINE OR AS DIRECTED BY THE ENGINEER.
 - D. WHERE CURB EXISTS BUT NO SIDEWALK, CLEANOUT SHALL BE PLACED 2 FEET BEHIND CURB.
4. VIDEO INSPECT ALL LATERALS FROM MAINLINE TO CLEANOUT/ROW LINE, OR FROM CLEANOUT/ROW LINE TO MAINLINE, PER APPLICABLE APWA/ODOT STANDARDS.



SCALE	NTS
DATE JAN '26	REV. 2
ENGR. DW	DRAWN KAE
DRAWING NO.	310-A



NOTES:

1. TAP SHALL BE MADE IN PRESENCE OF THE CITY INSPECTOR; NO CUTTING OR CONNECTING EXISTING SEWER PIPE WITHOUT CITY INSPECTOR APPROVAL.
2. INSERTA TEE OR APPROVED EQUAL SHALL BE USED FOR 4" OR 6" MAX TAP TO PVC PIPE. SEE NOTE 5 FOR OTHER TYPE PIPE MATERIAL.
3. HOLE IN MAIN SHALL BE CORED.
4. CENTERLINE OF SERVICE TAP OUTLET SHALL BE ABOVE SPRINGLINE.
5. FOR CONCRETE, CLAY OR NON-PVC EXISTING SEWER MAIN PIPE MAY REQUIRE CUT-IN MANUFACTURED TEE WITH APPROVED COUPLERS, PER CITY DIRECTION.
6. 4" DIAMETER SANITARY SERVICE LATERAL SHALL BE USED FOR SINGLE FAMILY RESIDENTIAL LOTS.
7. 6" DIAMETER STORM SERVICE LATERAL SHALL BE USED FOR SINGLE FAMILY RESIDENTIAL LOTS.
8. TO ENSURE PROPER INSTALLATION, VIDEO INSPECTION OF MAINLINE AT INSERTA TEE CONNECTION IS REQUIRED WITHIN 3 BUSINESS DAYS OF INSTALLATION.



Public Works Standard Drawings

SERVICE TAP TO EXISTING MAINS

SCALE		NTS
DATE	JAN '26	REV. 1
ENGR.	DW	DRAWN KAE
DRAWING NO.		311

WITHIN STREET OR
SURFACED AREAS

OUTSIDE STREET OR SURFACED AREAS
AS APPROVED BY CITY ENGINEER

SEE NOTE 3

EXISTING
SECTION

CLASS B 3/4"-0"
GRANULAR BACKFILL
COMPAKTED TO 95%
MAXIMUM RELATIVE
DENSITY AS PER
AASHTO T180.

SEE NOTE 7 FOR
ARTERIAL & COLLECTOR
STREET DESIGNATIONS.

CLASS A NATIVE TO 85%
MAXIMUM RELATIVE DENSITY
AS PER AASHTO T99.

VARIABLE DEPTH OF CUT

PIPE ZONE

12"

BEDDING

6"

PIPE DIA. + 18"
MINIMUM

PIPE BEDDING &
ZONE MATERIAL 3/4"-0".

TRENCH FOUNDATION
STABILIZATION AS
REQUIRED.

NOTES:

1. ALL CUTS IN PAVEMENT SHALL BE SAW CUT.
2. ALL PAVEMENT PATCH JOINTS AND ALL CUT EDGES SHALL BE SAND SEALED PER ODOT SPECS AND OREGON CITY SPECIAL PROVISIONS SEC-00744.51.
3. REFER TO OREGON CITY PAVEMENT CUT STANDARDS AND STANDARD DETAIL DRAWINGS 532, 533 & 534.
4. THIS TRENCH BACKFILL REQUIREMENT APPLIES TO ALL UNDERGROUND CONDUITS.
5. CLASS "B" BACKFILL SHALL EXTEND 3 FEET BEYOND EDGE OF STREET OR SURFACED AREA.
6. BACKFILL SHALL BE PLACED AND COMPAKTED IN A MAX. OF 24-INCH LIFTS. COMPAKCTION TESTING REQUIRED AT A FREQUENCY OF 1 TEST EVERY 100 FEET OF TRENCH MINIMUM.
7. EXISTING ARTERIAL & COLLECTOR STREET DESIGNATIONS REQUIRE CLSM (aka CDF) PER ODOT STANDARDS, SEC-00442 FOR ALL TRENCH TRANSVERSE OR PERPENDICULAR CROSSINGS OF VEHICLE TRAVEL LANES.



Public Works Standard Drawings

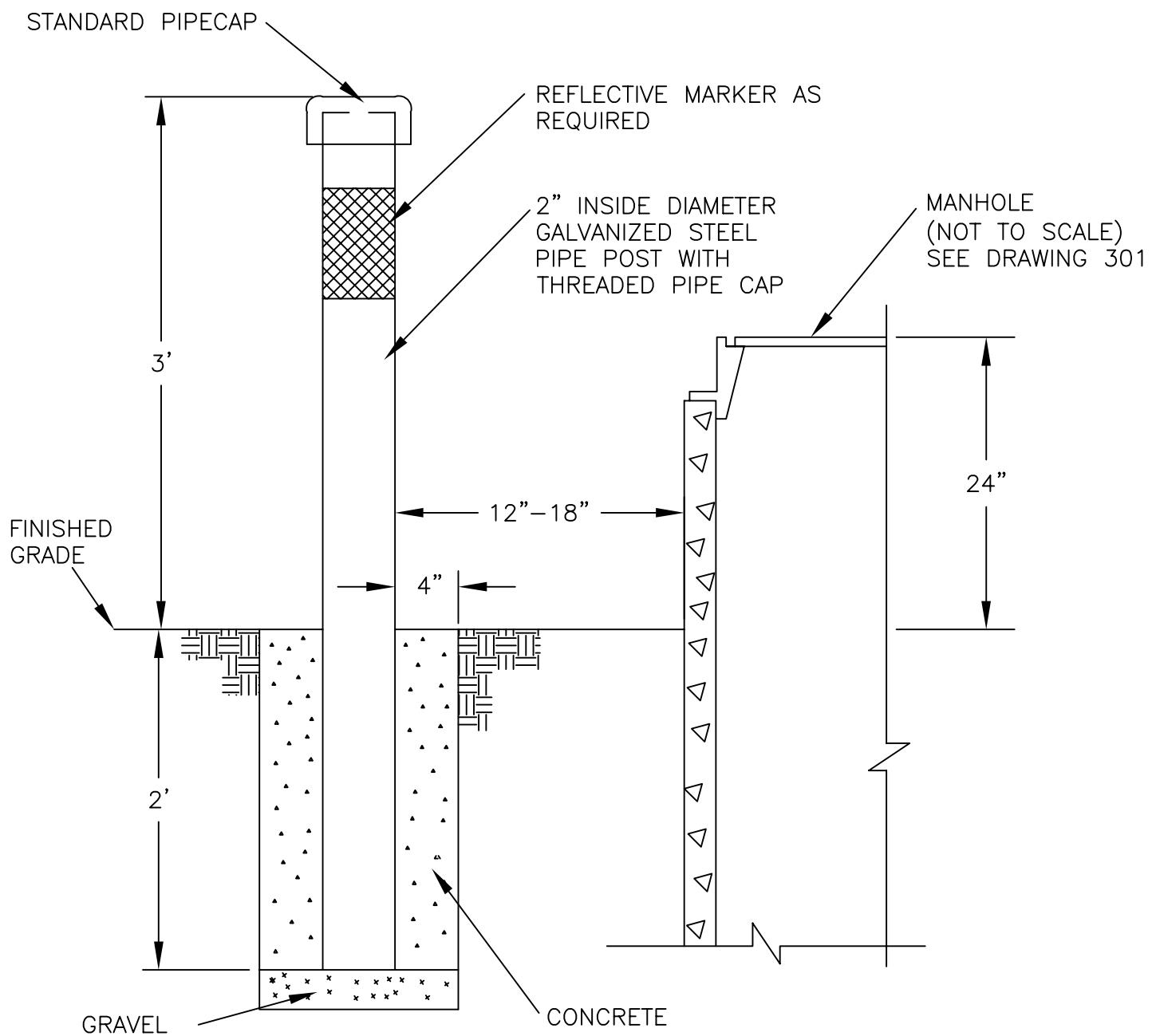
PIPE BEDDING AND TRENCH BACKFILL -
STORM & SANITARY SEWER & WATER PIPE

SCALE NTS

DATE JAN '23 REV.

ENGR. DW DRAWN KAE

DRAWING NO. 313



MARKER POST AT MANHOLE OR CLEANOUT

NOTES:

1. AS DIRECTED THE POST SHALL BE LOCATED ON THE STRAIGHT SIDE OF MANHOLE CONE.
2. POSTS SHALL BE SET IN CONCRETE.
3. AS AN ALTERNATIVE, A TREATED 4 X 4 POST OR 4" CONCRETE FILLED PVC PIPE POST MAY BE USED, IF APPROVED.
4. POSTS SHALL BE PAINTED WHITE.
5. REQUIRED IN UNIMPROVED RIGHT-OF-WAY.



Public Works Standard Drawings

MARKER POST

SCALE NTS	
DATE JAN '23	REV.
ENGR. DW	DRAWN KAE
DRAWING NO. 317	