

SANITARY SEWER STANDARD DRAWINGS

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FINISHED GRADE

SEE DRAWINGS 305 & 306

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

NON-SHRINK
GROUT AROUND
PIPE

48" DIA.

MIN. PIPE
OD

6" MIN.

FLOW

BASE
HEIGHT
VARIES

PIPE OD
VARIES

18" MAX.
TYP.

12" MAX.

18" MAX.
TYP.

6" MIN.

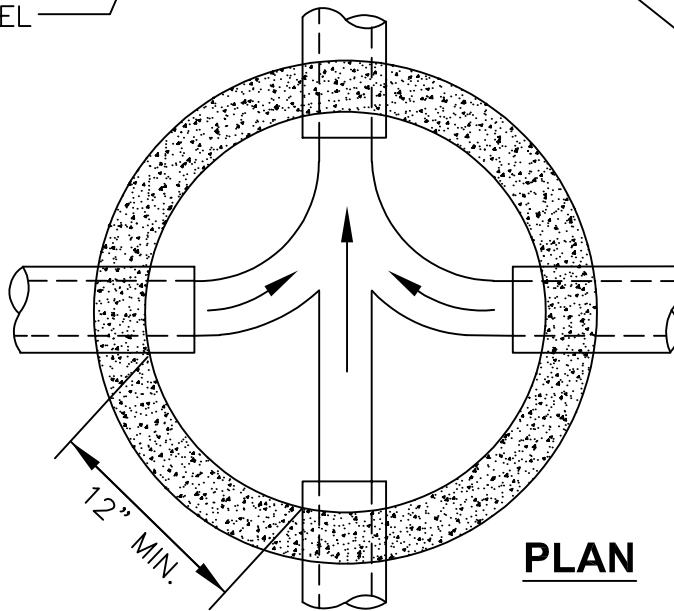
12" - 3/4"-0
COMPACTED ROCK
COMPACTION TO BE
95% & MEET T-180
REQUIREMENTS

CONSTRUCT CHANNEL
& SHELF IN FIELD

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**

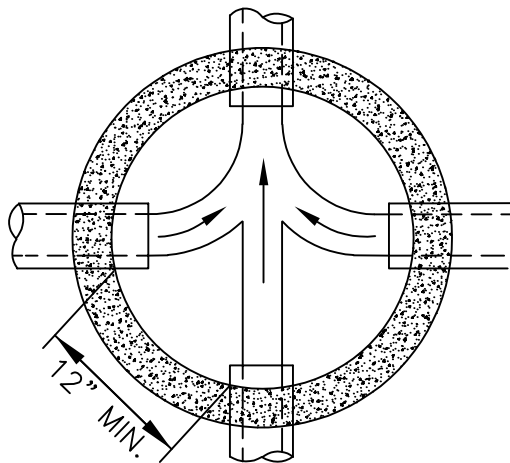
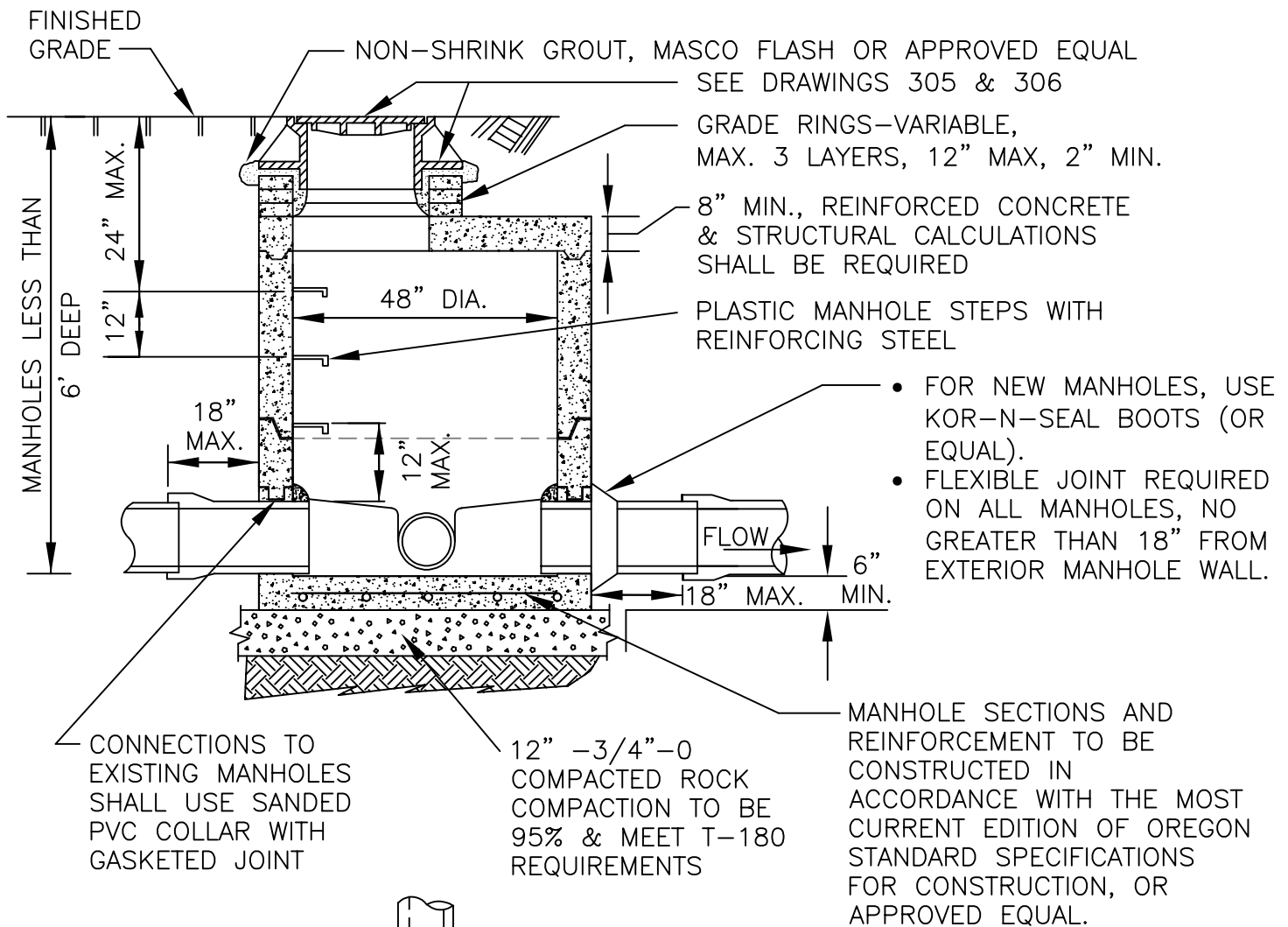
SCALE NTS

DATE JAN '24 REV. 1

ENGR. DW DRAWN KAE

DRAWING NO. 301



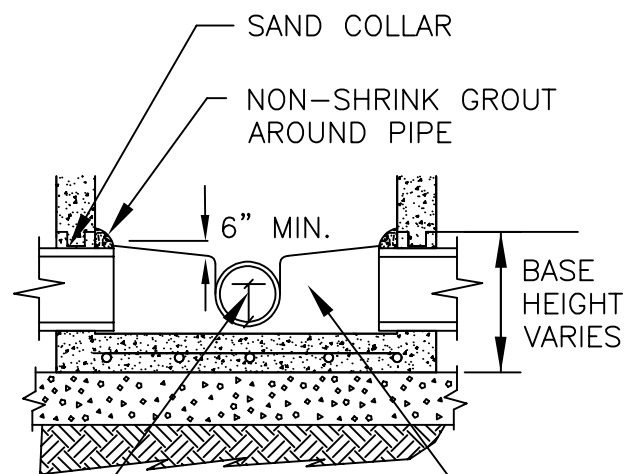


PLAN

NOTES:

1. ALL CONCRETE TO BE
MINIMUM 4000 PSI
COMPRESSIVE STRENGTH
2. SEE DRAWING 301

FORM CHANNEL
HEIGHT TO
3/4 PIPE OD



MANHOLE BASE

Public Works Standard Drawings

SHALLOW MANHOLE -
STORM & SANITARY SEWER

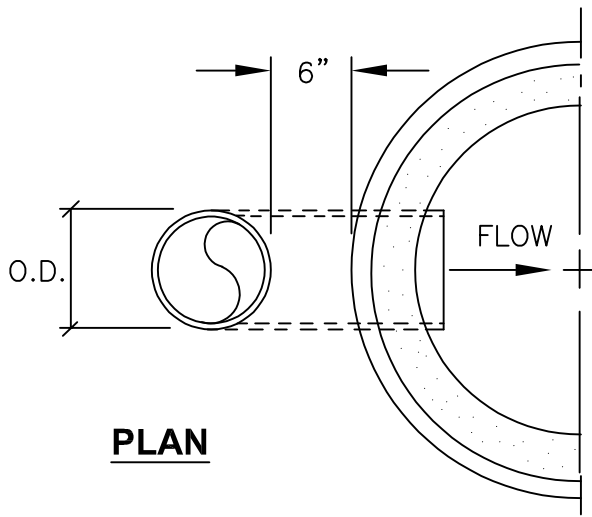
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DATE JAN '24 REV. 1

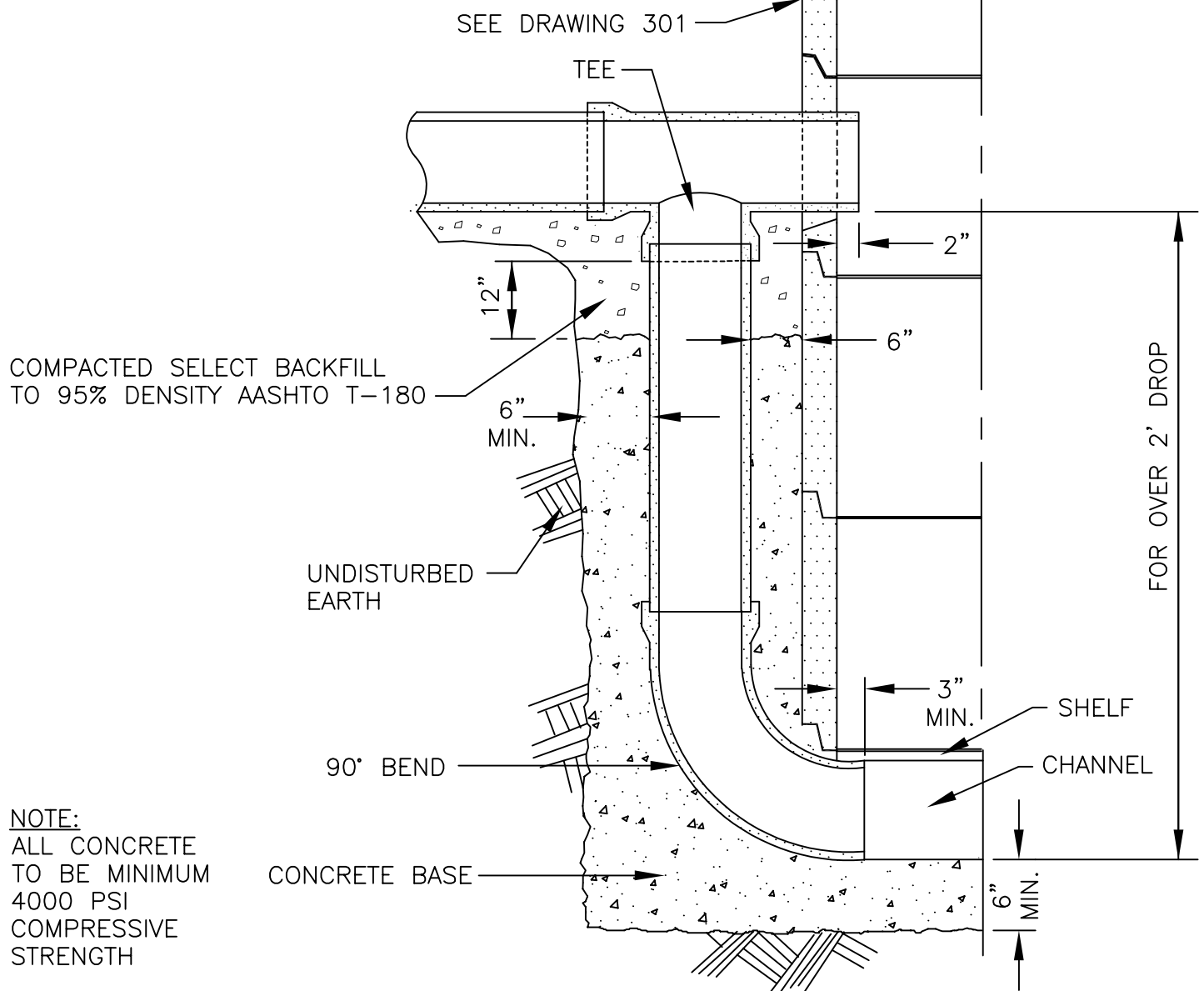
ENGR. DW DRAWN KAE

DRAWING NO. 302





HALF SECTION



NOTE:
ALL CONCRETE
TO BE MINIMUM
4000 PSI
COMPRESSIVE
STRENGTH



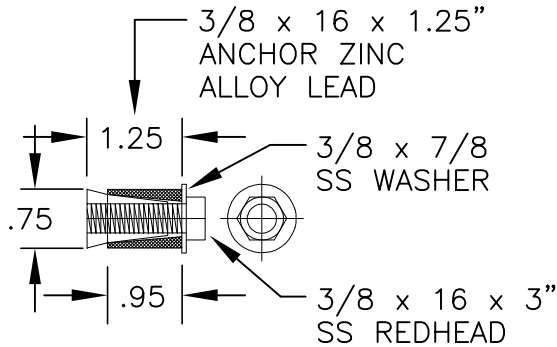
Public Works Standard Drawings

OUTSIDE DROP MANHOLE CONNECTION

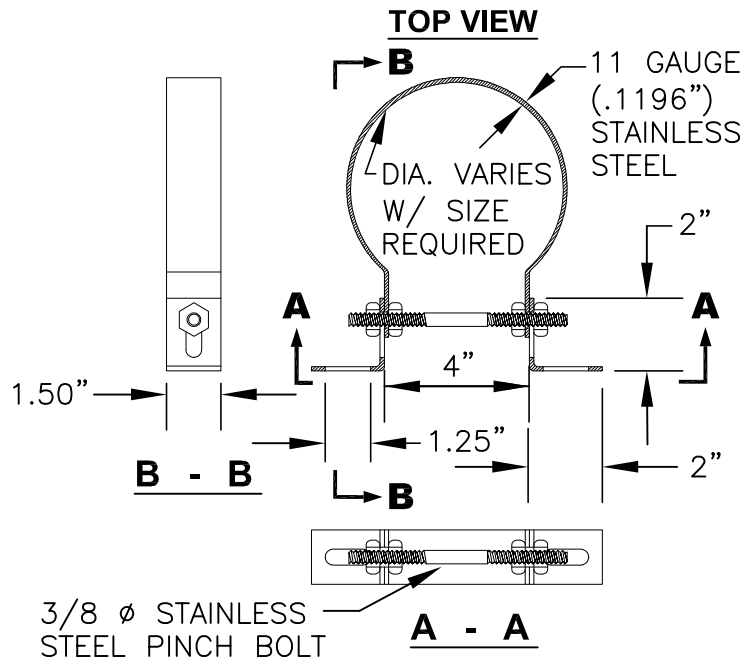
SCALE	NTS
DATE JAN '23	REV.
ENGR. DW	DRAWN KAE
DRAWING NO. 303	

SPECIFICATIONS:

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



ANCHOR DETAIL

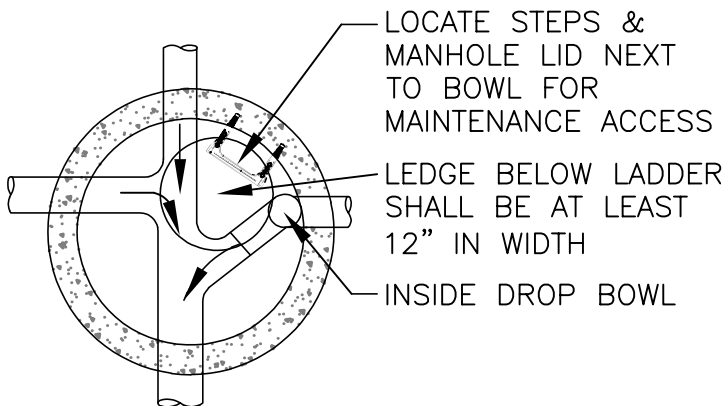
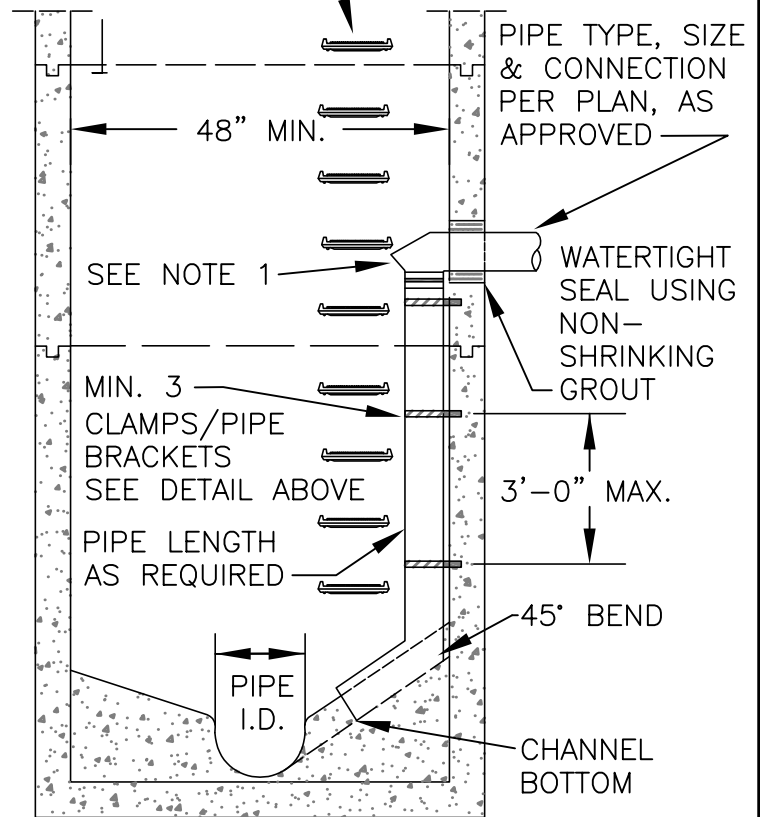


CLAMP/BRACKET DETAIL

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.

MANHOLE STEP
SEE DRAWING 307



Public Works Standard Drawings

INSIDE DROP MANHOLE CONNECTION

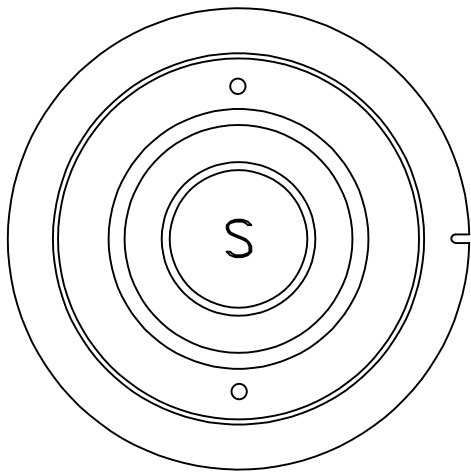
SCALE NTS

DATE JAN '23 REV.

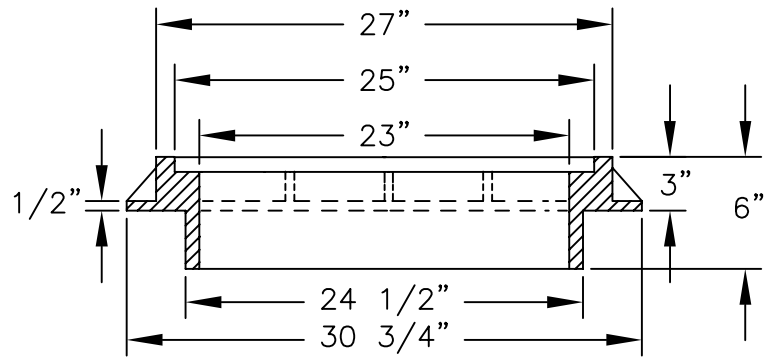
ENGR. DW DRAWN KAE

DRAWING NO. 303-A



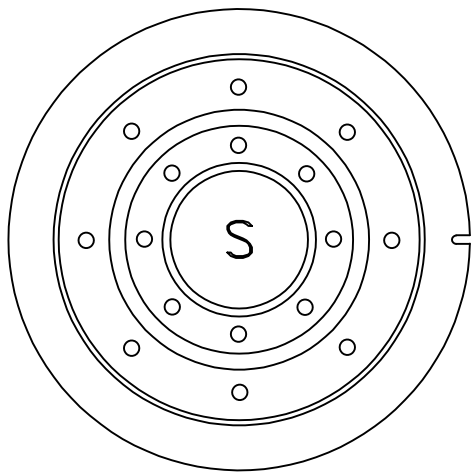


SANITARY SEWER COVER

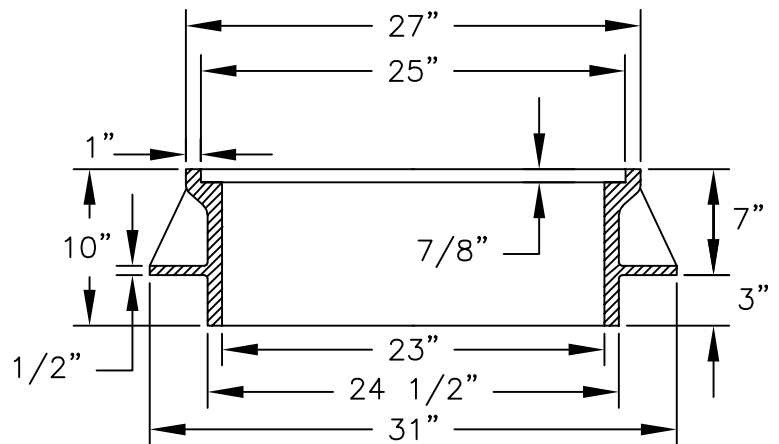


CAST IRON SUBURBAN FRAME

APPROX. WT. - 305 LBS.

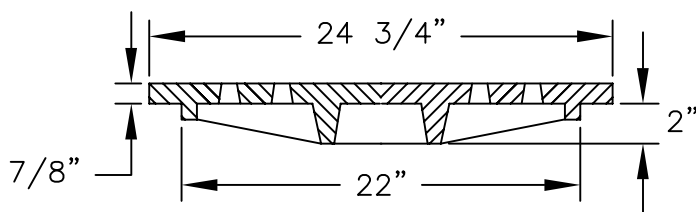


STORMWATER COVER



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.



Public Works Standard Drawings

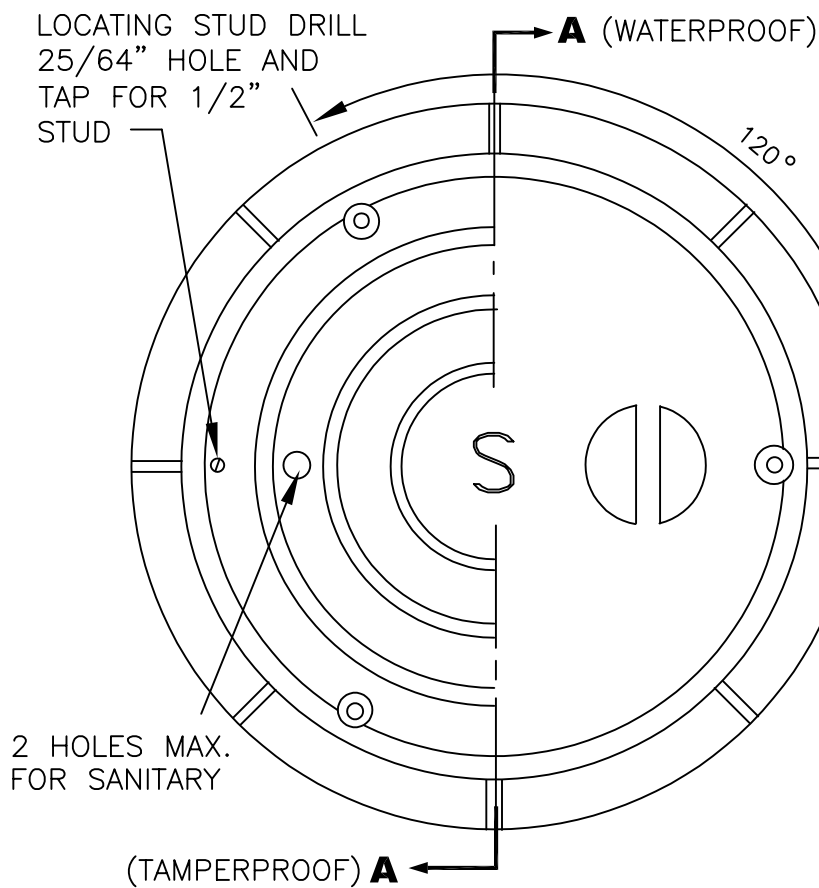
**MANHOLE FRAMES & COVERS -
STORM & SANITARY SEWER**

SCALE NTS

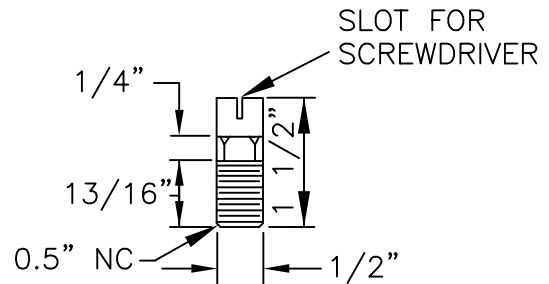
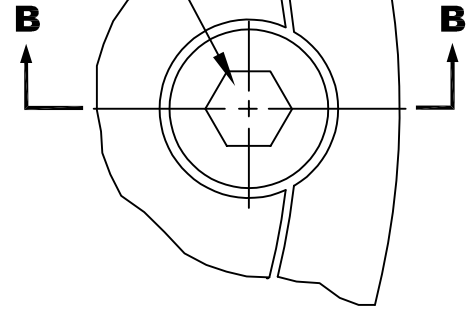
DATE JAN '23 REV.

ENGR. DW DRAWN KAE

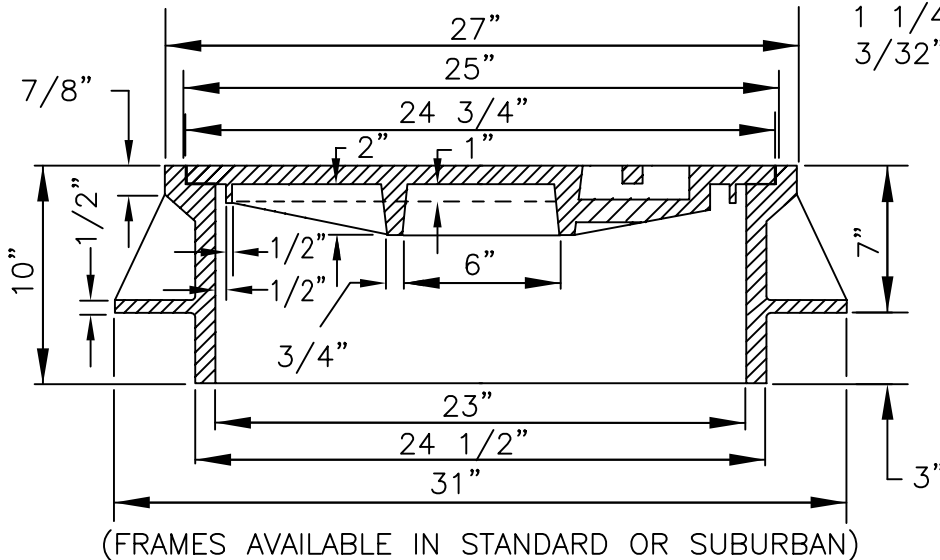
DRAWING NO. 305



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

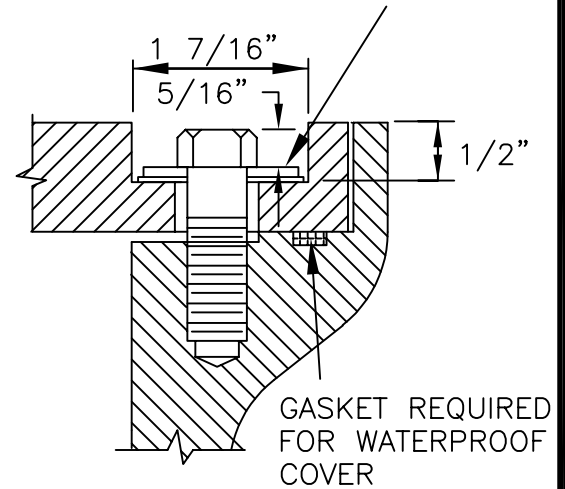


ONE REQUIRED PER COVER



SECTION A-A

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



SECTION B-B

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

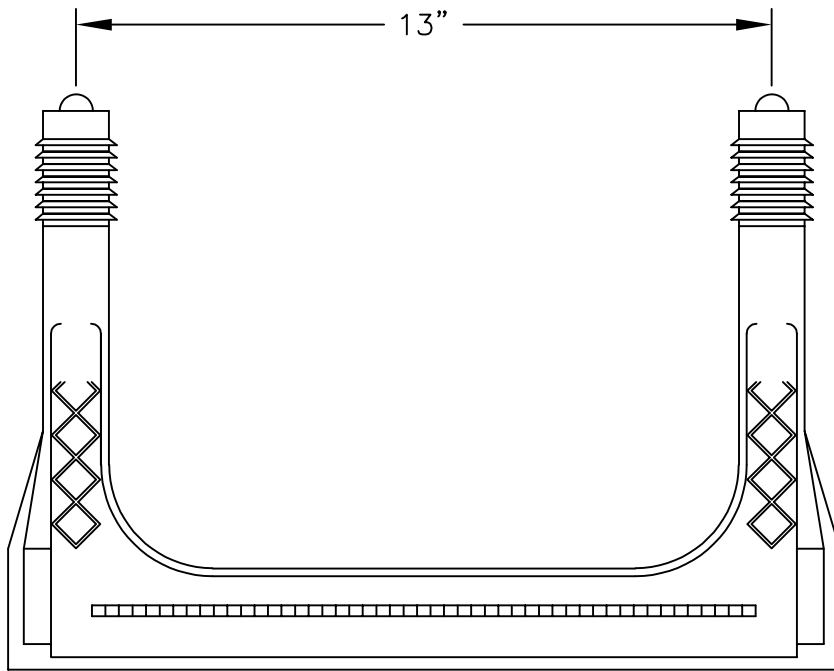
**WATERPROOF & TAMPERPROOF
MANHOLE FRAME & COVER**

SCALE NTS

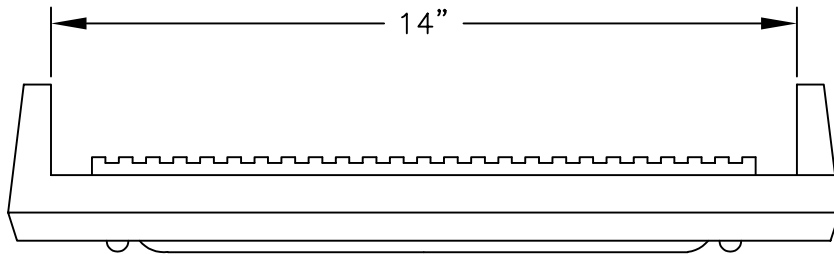
DATE JAN '23 REV.

ENGR. DW DRAWN KAE

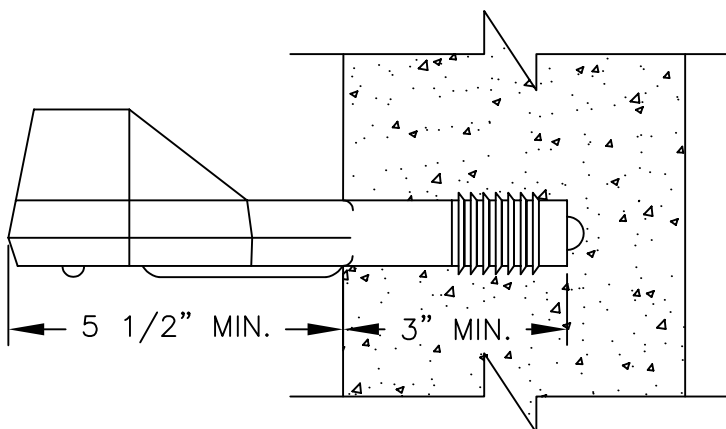
DRAWING NO. 306



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.

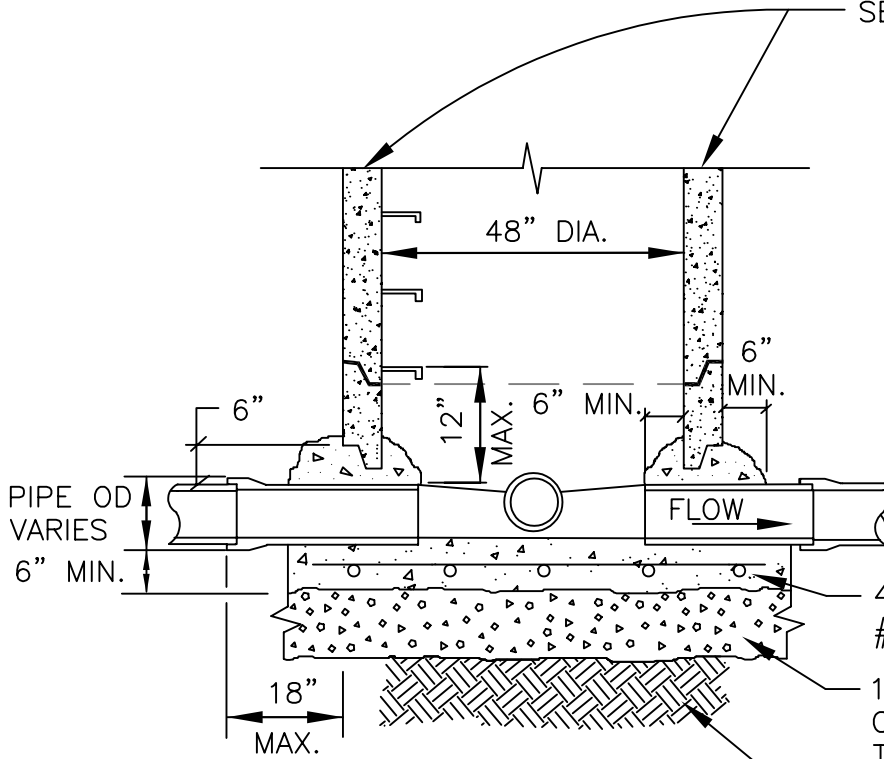


Public Works Standard Drawings

**MANHOLE STEP -
STORM & SANITARY SEWER**

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

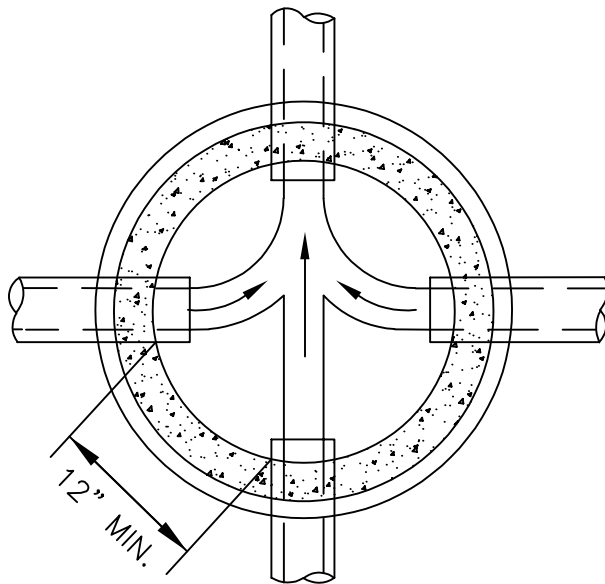
SEE DRAWING 301 FOR MANHOLE



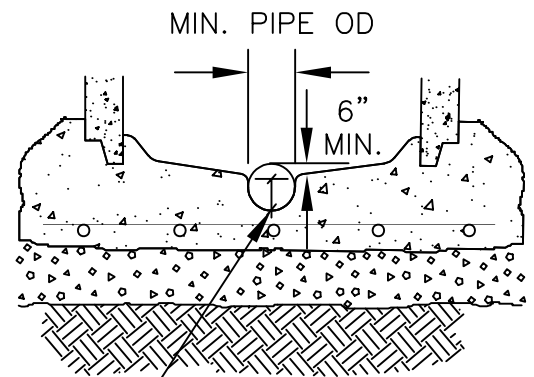
4000 PSI CONCRETE BASE
#4 REBAR 12" OC, BOTH WAYS

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

UNDISTURBED EARTH, OR
FOUNDATION STABILIZATION
AS REQUIRED.



PLAN



FORM CHANNEL
HEIGHT TO 3/4
PIPE OD

MANHOLE BASE

NOTES:

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

Public Works Standard Drawings

**POURED IN-PLACE MANHOLE BASE -
STORM & SANITARY SEWER**

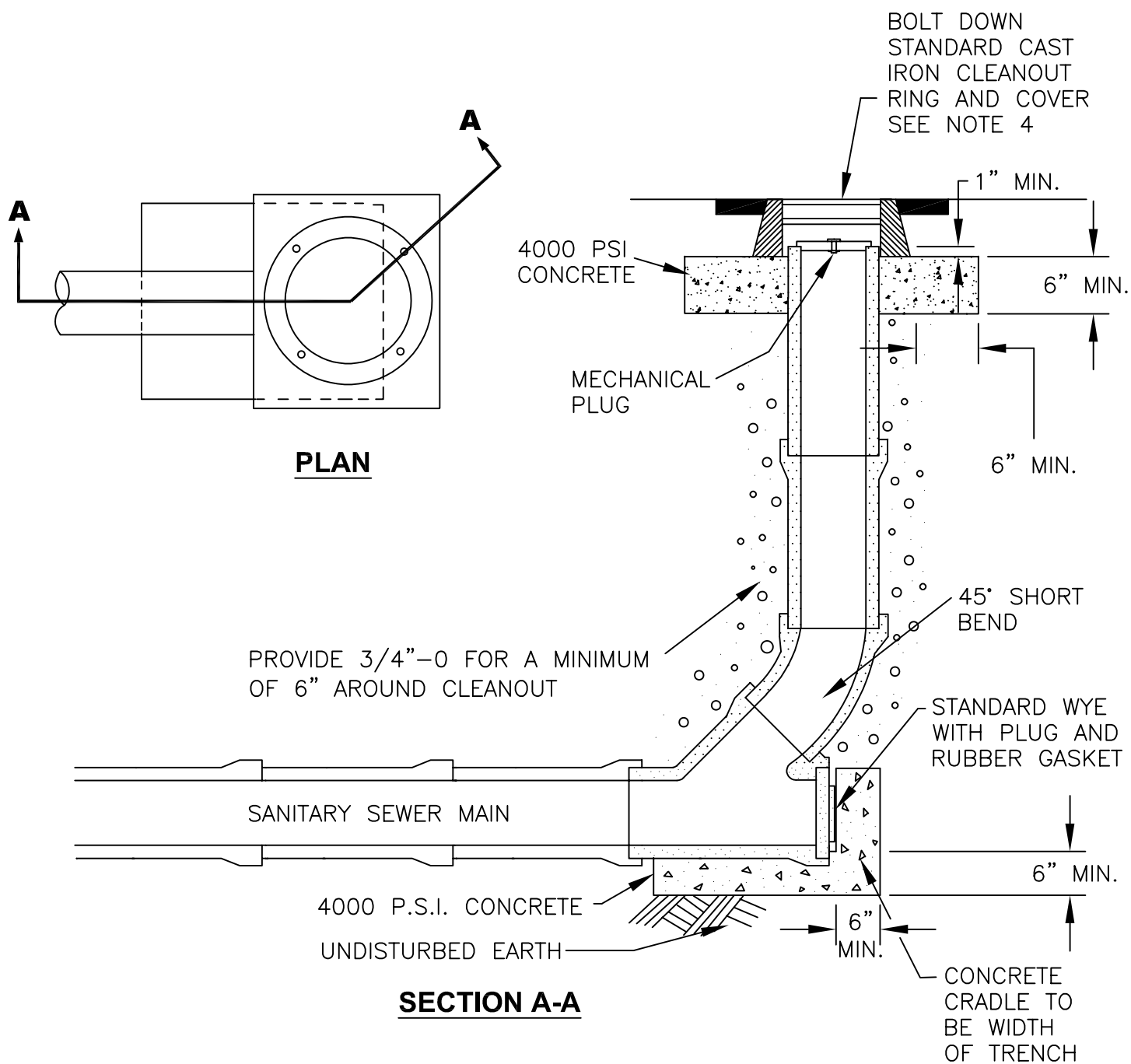
SCALE NTS

DATE JAN '23 REV.

ENGR. DW DRAWN KAE

DRAWING NO. 308





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**

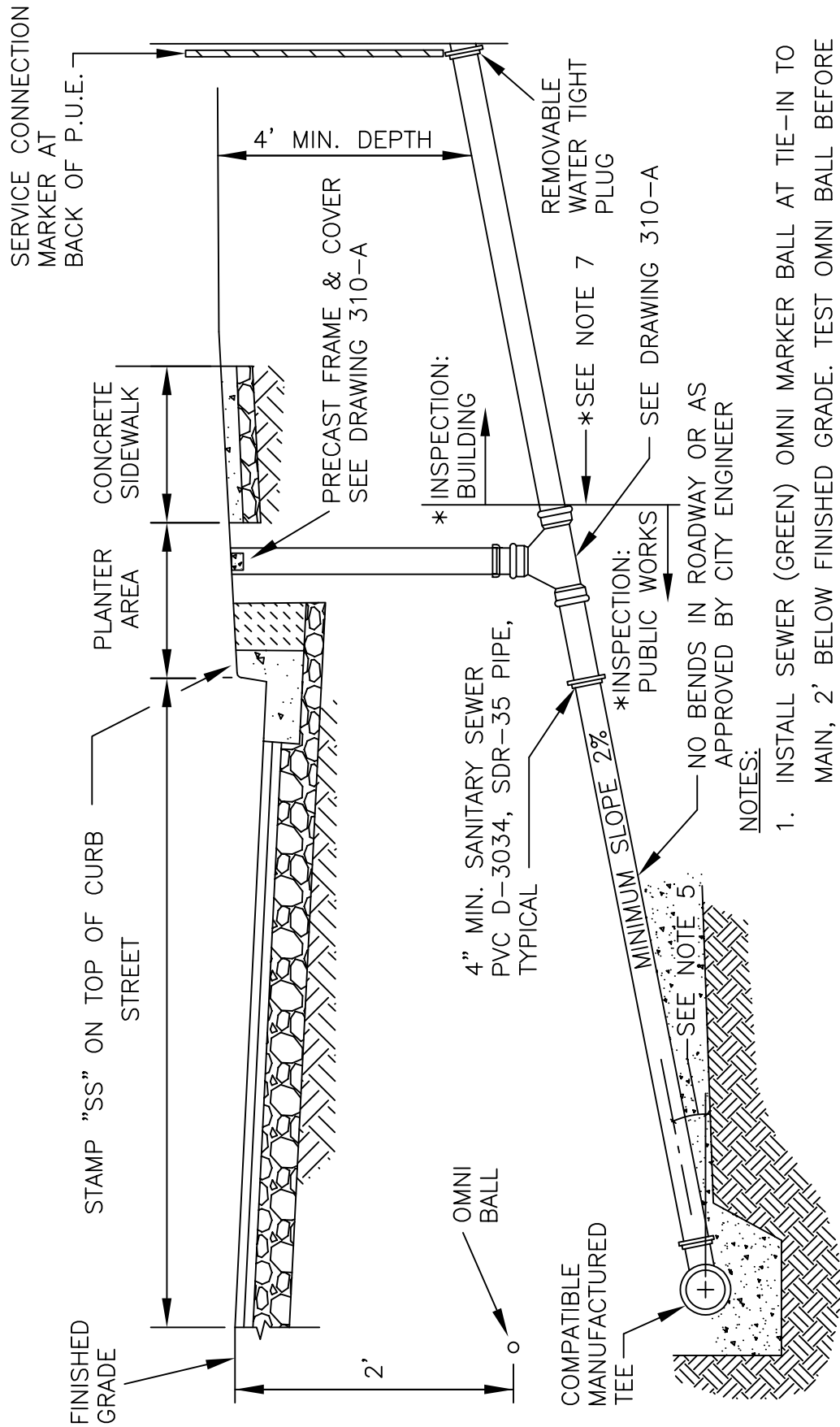
SCALE	NTS
DATE JAN '23	REV.
ENGR. DW	DRAWN KAE
DRAWING NO.	309



Public Works Standard Drawings

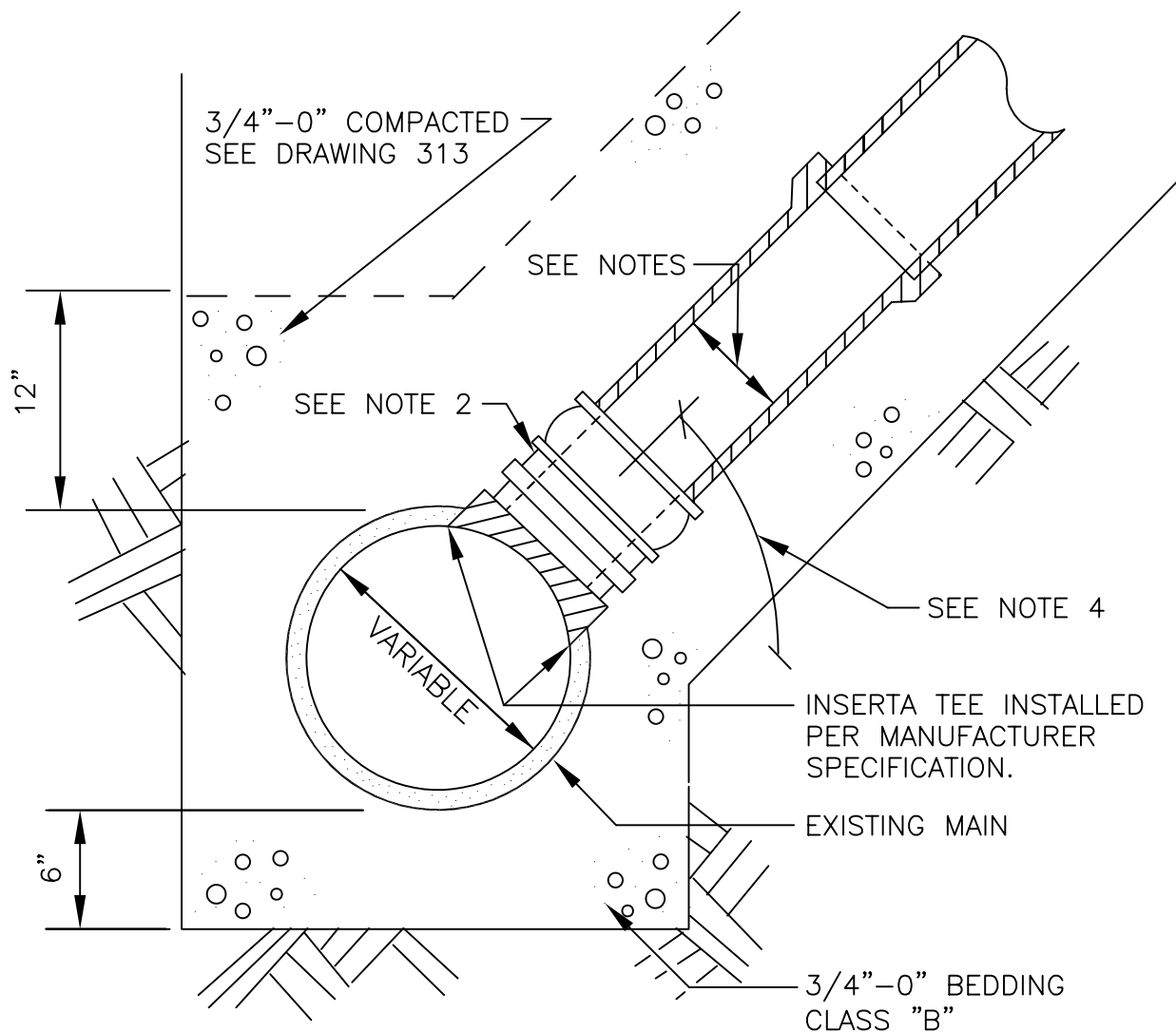
SANITARY SEWER SERVICE

SCALE		NTS	
DATE	JUN '24	REV.	2
ENGR.	DW	DRAWN	KAE
DRAWING NO. 310			



NOTES:

1. INSTALL SEWER (GREEN) OMNI MARKER BALL AT TIE-IN TO MAIN, 2' BELOW FINISHED GRADE. TEST OMNI BALL BEFORE INSTALLATION AND AGAIN AFTER FINISHED GRADE IS PLACED. OMNI BALL-SANITARY-GREEN, FREQUENCY 121.6 KHz, MODEL 162, UPC 60767.
 2. INSTALL 2-WAY CLEANOUT PER STANDARD DRAWING 310-A.
 3. VIDEO INSPECT LATERAL BETWEEN MAINLINE AND CLEANOUT PER APPLICABLE APWA/ODOT STANDARDS.
 4. 2" x 4" TREATED STAKE FROM INVERT TO 1' ABOVE FINISH GRADE. SERVICE MARKER SHALL BE CONTINUOUS AND REMAIN VERTICAL AFTER BACKFILLING. END SHALL BE PAINTED GREEN. (TYPICAL AT ALL SERVICES.)
 5. CENTERLINE OF SERVICE OUTLET ON TEE SHALL BE ABOVE SPRINGLINE.
 6. SANITARY SEWER SERVICE LINES SHALL BE 90° PERPENDICULAR TO SANITARY SEWER MAIN.
 7. CONTACT BUILDING DEPARTMENT FOR INSPECTIONS OF THE SERVICE BETWEEN CLEANOUT AND THE BUILDING.
- * DOES NOT APPLY TO NEW SUBDIVISIONS.



NOTES:

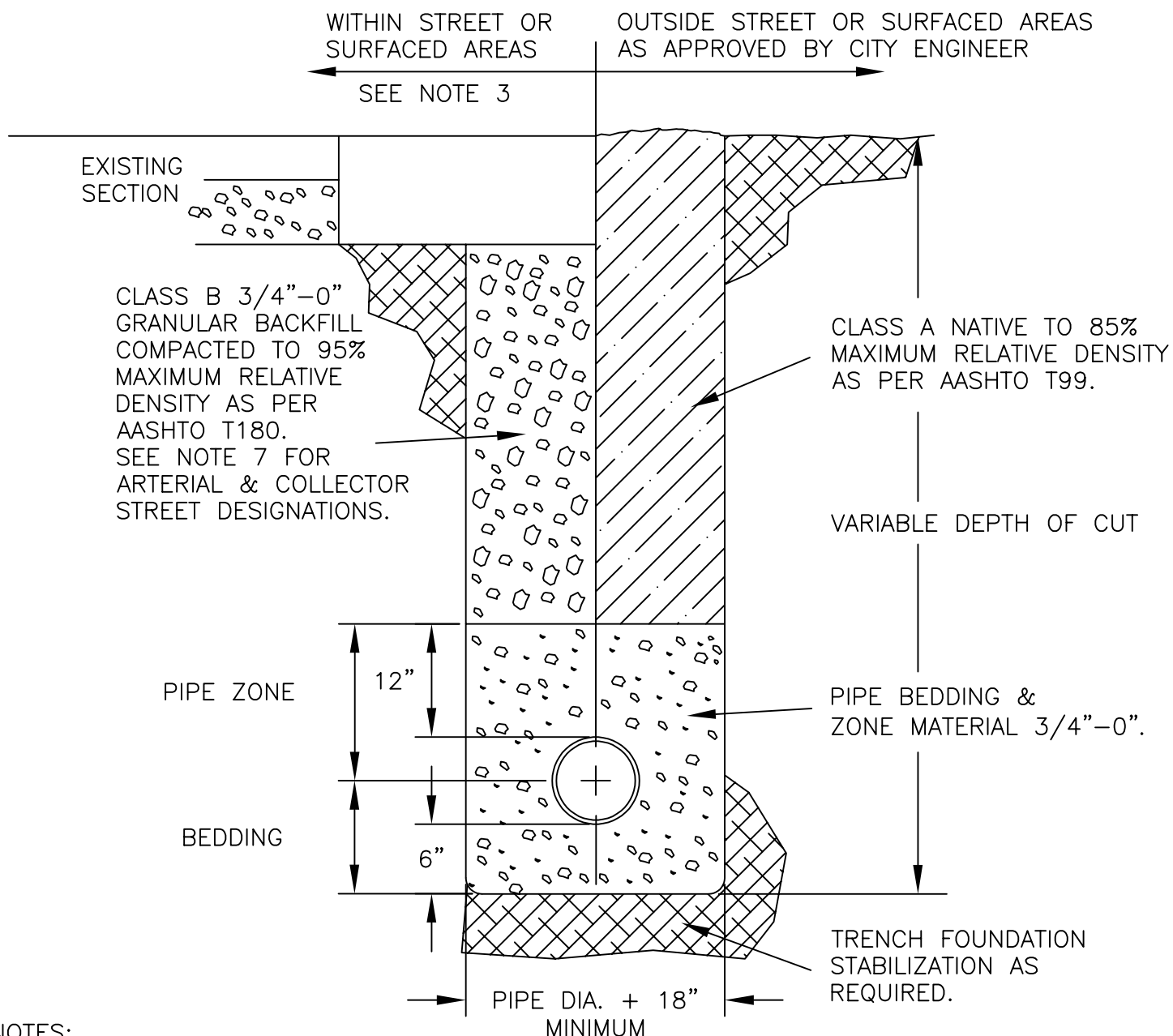
1. TAP SHALL BE MADE IN PRESENCE OF THE CITY INSPECTOR; NO CUTTING OR CONNECTING EXISTING SEWER PIPE WITHOUT CITY INSPECTOR APPROVAL.
2. INSERTA TEE OR APPROVED EQUAL SHALL BE USED FOR 4" OR 6" MAX TAP TO PVC PIPE. SEE NOTE 5 FOR OTHER TYPE PIPE MATERIAL.
3. HOLE IN MAIN SHALL BE CORED.
4. CENTERLINE 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



NOTES:

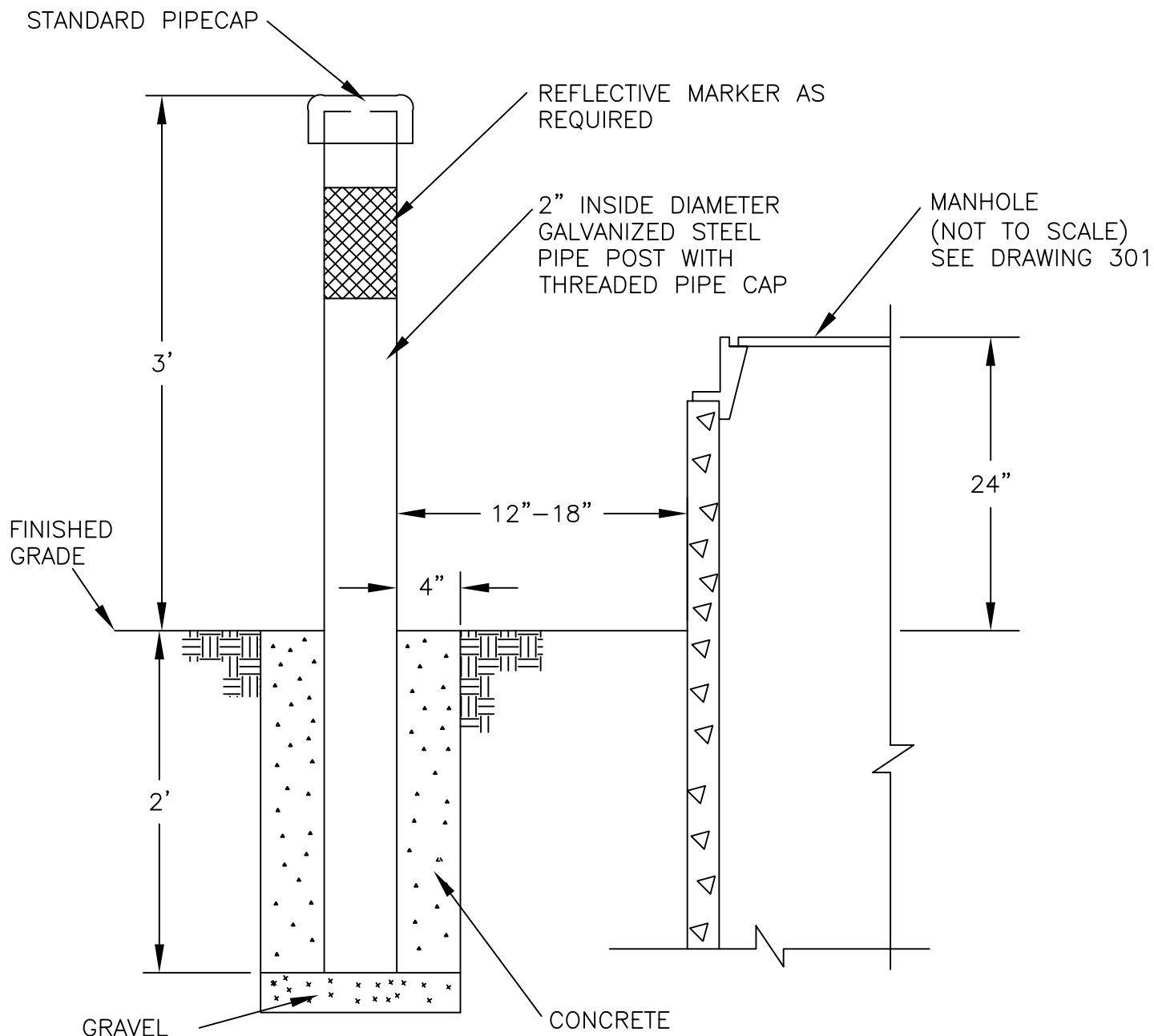
1. ALL CUTS IN PAVEMENT SHALL BE SAW CUT.
2. ALL PAVEMENT PATCH JOINTS AND ALL CUT EDGES SHALL BE SAND SEALED PER ODOT SPECS AND OREGON CITY SPECIAL PROVISIONS SEC-00744.51.
3. REFER TO OREGON CITY PAVEMENT CUT STANDARDS AND STANDARD DETAIL DRAWINGS 532, 533 & 534.
4. THIS TRENCH BACKFILL REQUIREMENT 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 COMPACTED IN A MAX. OF 24-INCH LIFTS. COMPACTION 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