



## MEMORANDUM

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To: All affected City Staff and Design Consultants  
From: Jeff H. Edmonds, P.E., Director of Engineering Services  
Date: November 14, 2016  
Subject: Revisions to City Wastewater Standard Details and Spec 025205

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Updates to the following City Standard Construction Specifications and Details are now issued and posted to the Engineering Services website:

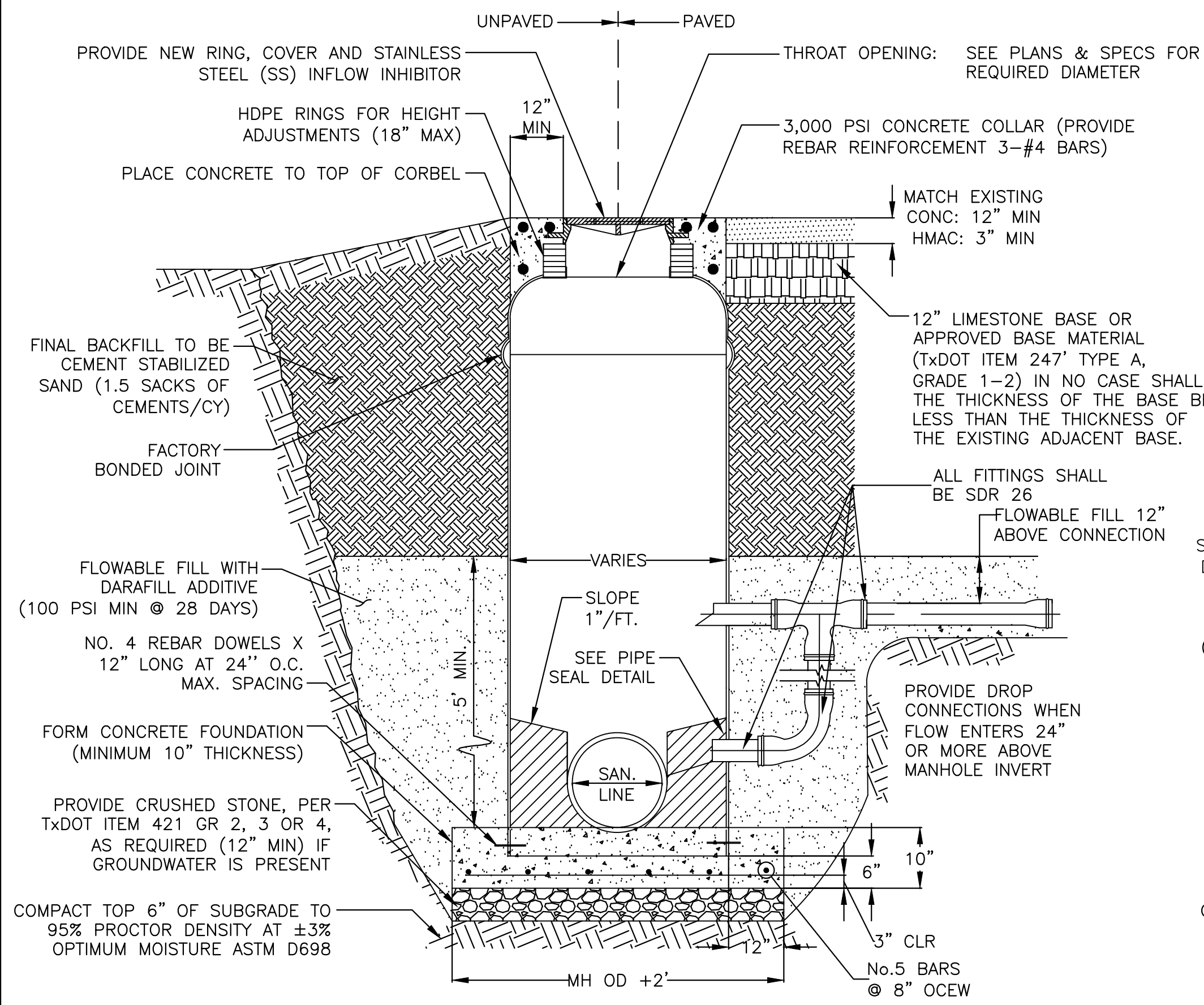
1. Wastewater Standard Details, Sheets 1-4 (11-9-2016)
  - Added note on Sheet 4 regarding requirements for street cut permit per City Ordinance 030040 to the detail for Trench Backfill for Wastewater Lines and Pavement Repair for Utilities.
  - Revised sheet title blocks for consistency with other City Standard Detail sheets.
2. 025205 Pavement Repair, Curb, Gutter, Sidewalk and Driveway Replacement (11-9-2016)
  - Added paragraph to Item 5 regarding City Ordinance 030040, Article III Cuts and Excavations.

The revised Specification and Detail Sheets may be downloaded from the Engineering Services website at the following locations:

<http://engineercc.com/standard-details>  
<http://engineercc.com/standard-specifications>

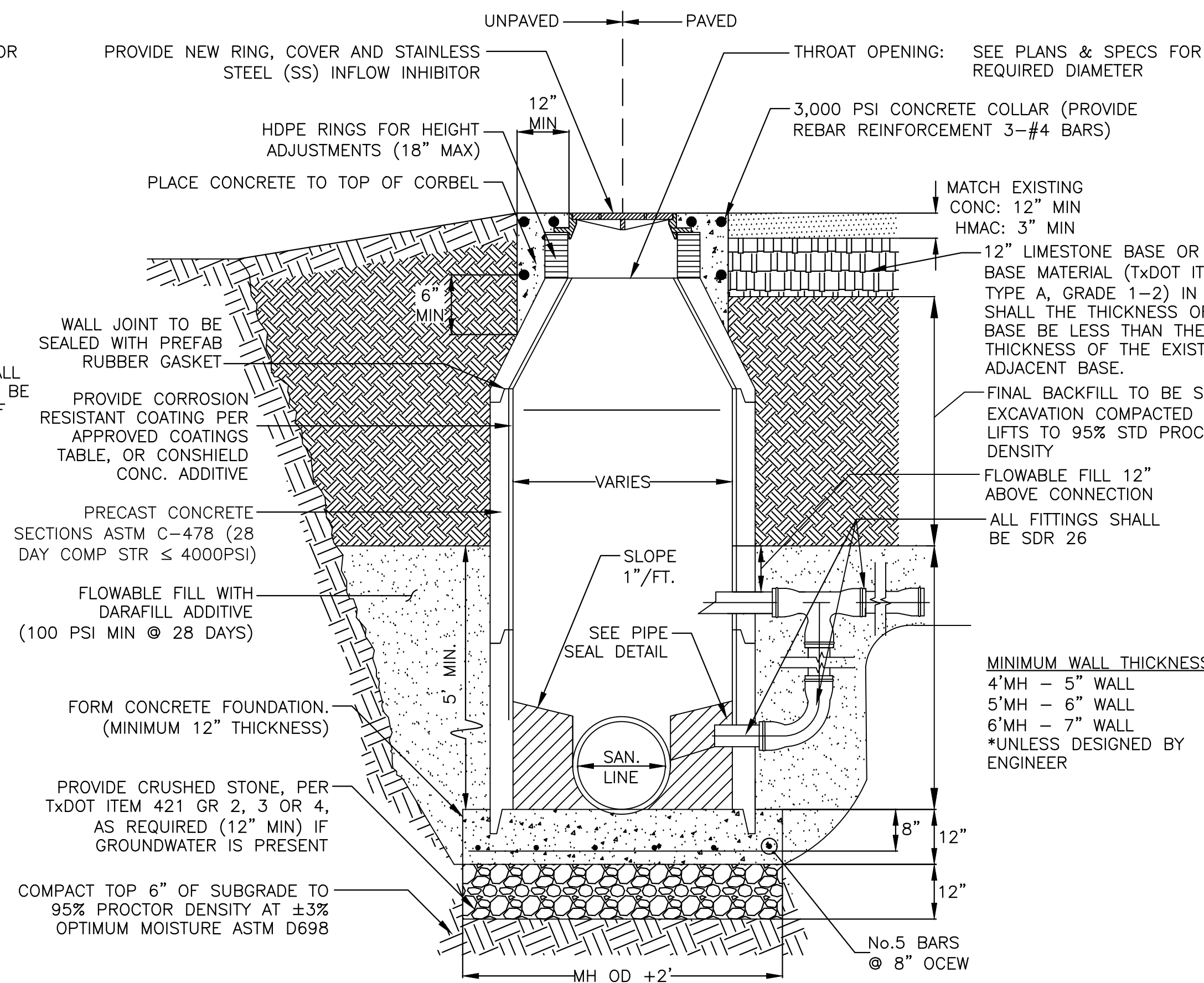
Please make sure that the most current versions of the City Standards are included in applicable City projects. We invite and appreciate your input and suggestions for future updates to the City Standard Specifications and Details.

J. H. Edmonds, P.E.  
Director of Engineering Services



**FIBERGLASS MANHOLE**

NOT TO SCALE



**CONCRETE MANHOLE**

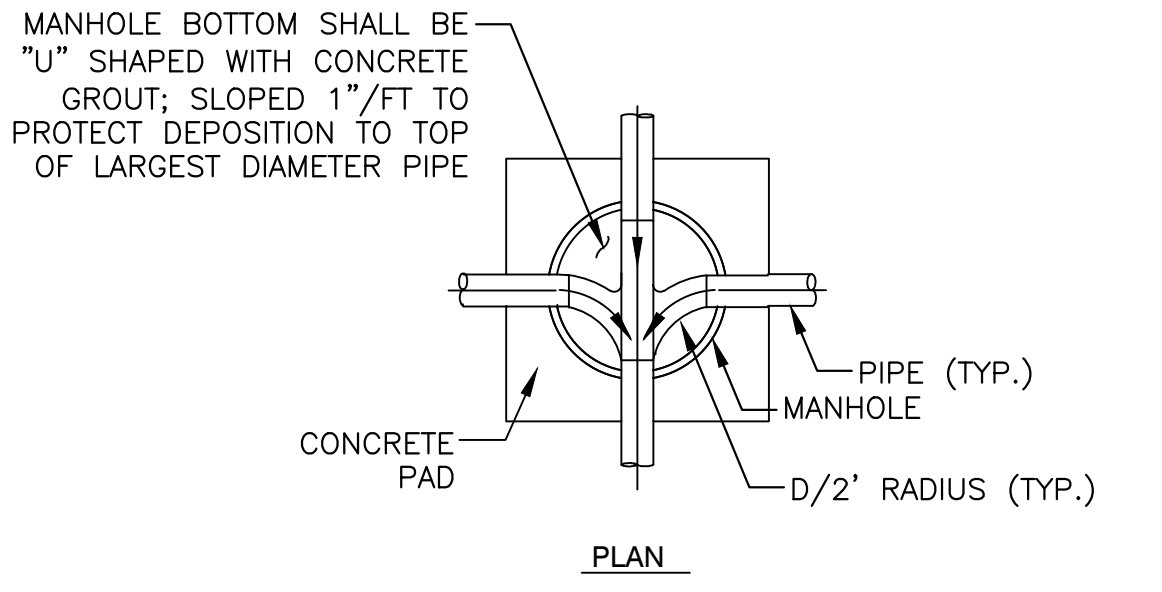
NOT TO SCALE

MANHOLE REQUIREMENTS	
PIPE DIAMETER	MANHOLE DIAMETER
≤18"	4'
18"< TO ≤36"	5'
36"< TO ≤42"	6'

APPROVED COATINGS TABLE	
MANUFACTURER	MODEL NAME
JEFFCOAT	JEFFCOAT 326
RAVEN LINING SYSTEM	RAVEN 405
SHERWIN WILLIAMS	DURAPLATE 5800
CARBOLINE	PHENOLINE 309

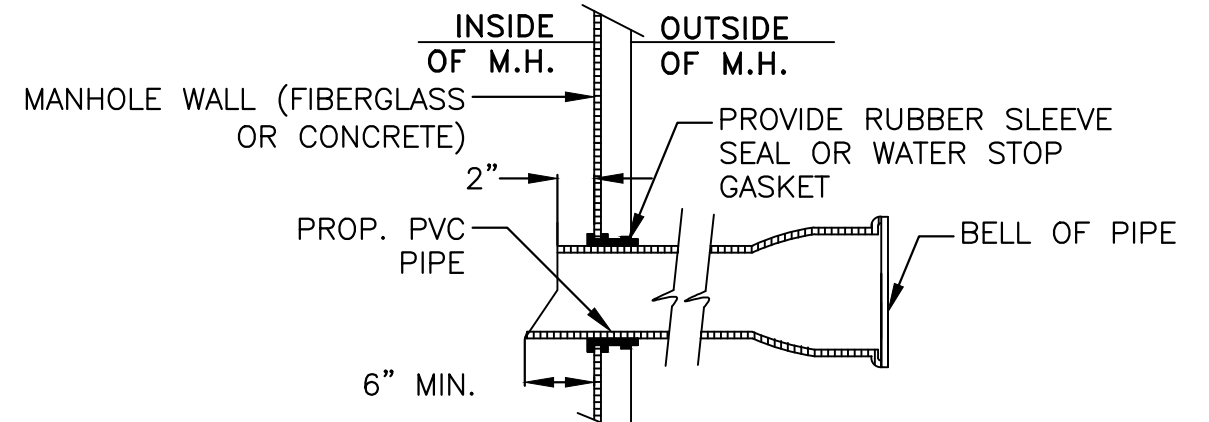
NOTE:  
COAT ALL CONCRETE SURFACES INCLUDING BENCH & WALLS.

**MINIMUM WALL THICKNESS\***  
 4' MH - 5" WALL  
 5' MH - 6" WALL  
 6' MH - 7" WALL  
 \*UNLESS DESIGNED BY ENGINEER



**WASTEWATER MANHOLE (BOTTOM)**

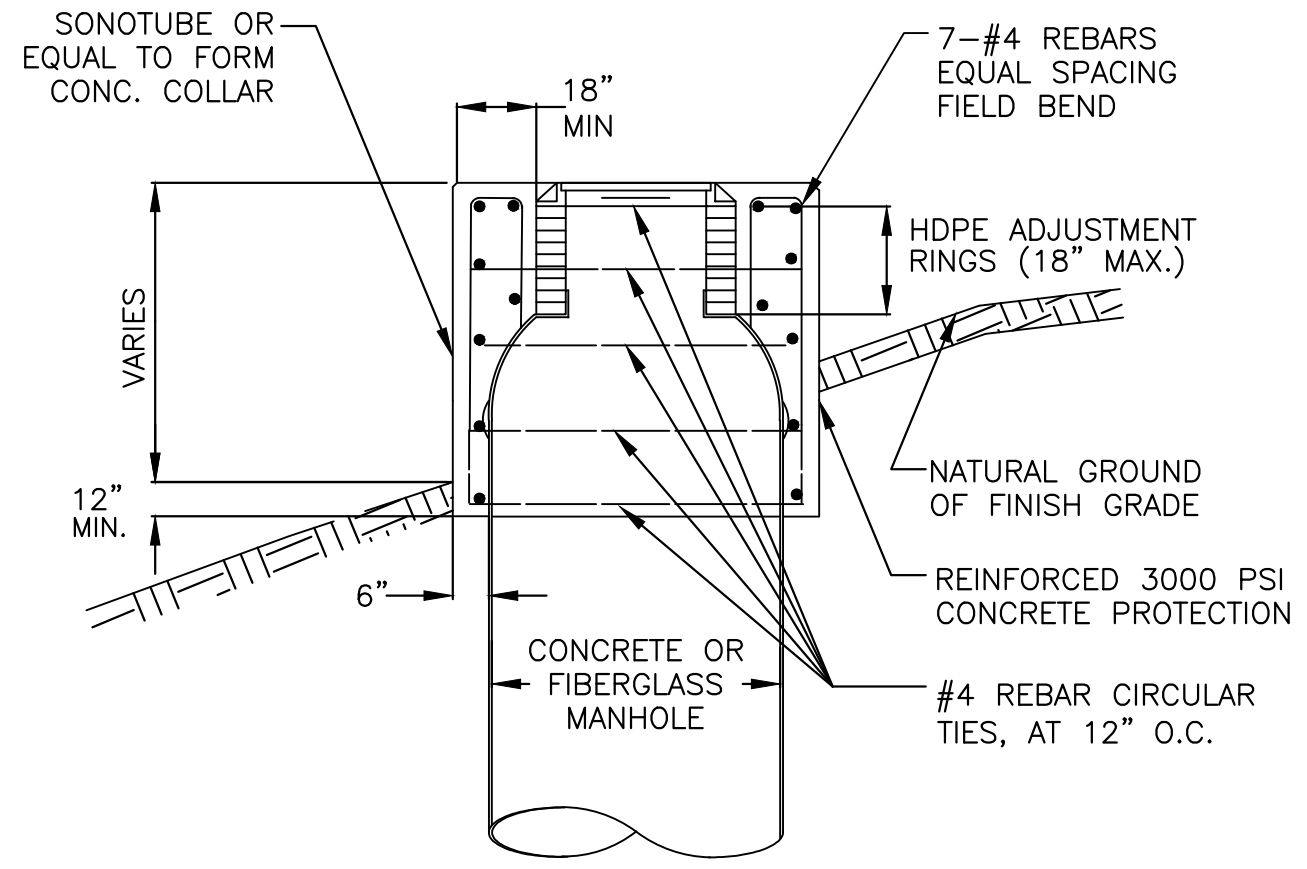
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**PIPE SEAL DETAIL**

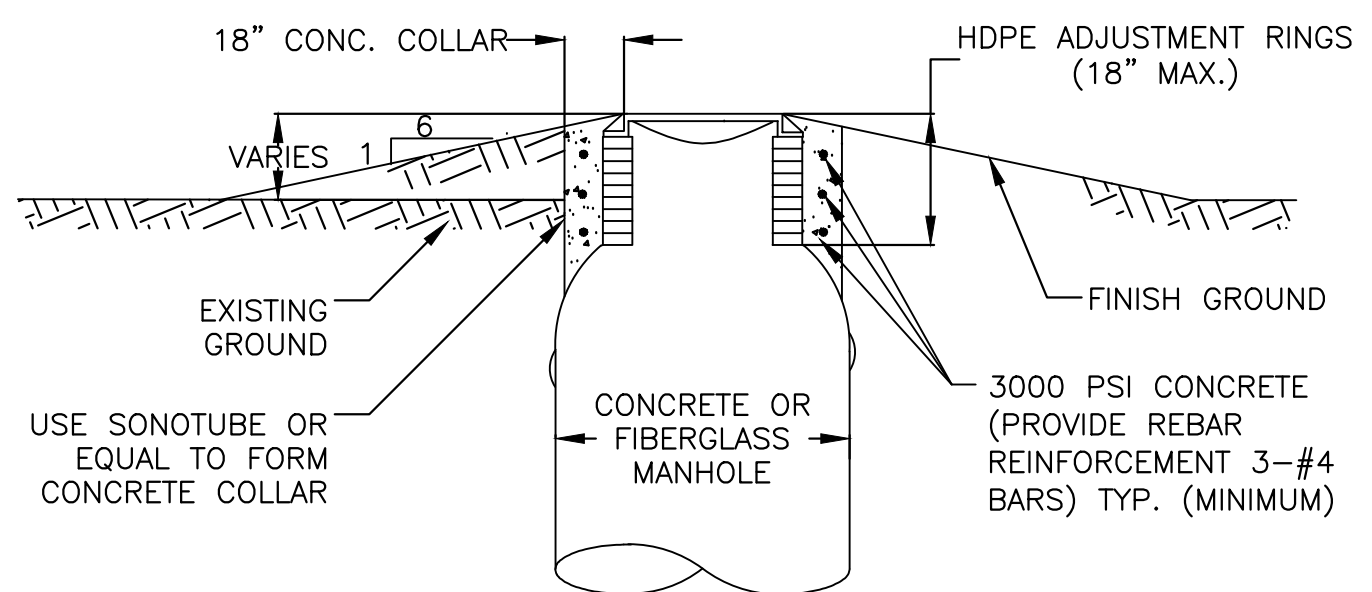
NOT TO SCALE

- NOTES:  
 1. INSTALL SEAL IN ACCORDANCE WITH MFGS. SPECS.  
 2. USE RUBBER SEAL ASSEMBLY APPROVED BY UTILITY DEPARTMENT. (TPSMHA OR PIPECONX OR INSERT A TEE)



**MANHOLE PROTECTION IN UNPAVED AREAS (CULTIVATED/SPECIAL)**

NOT TO SCALE

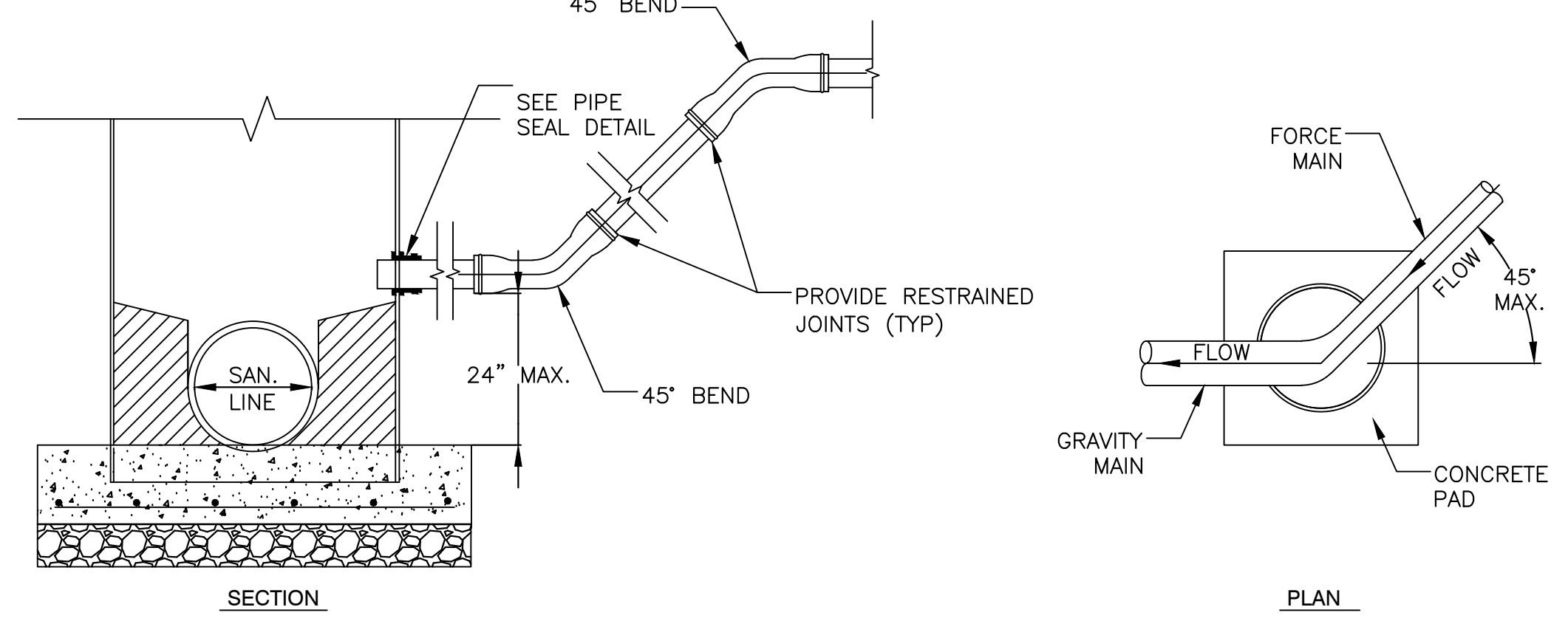


**MANHOLE PROTECTION IN UNPAVED AREAS (RESIDENTIAL)**

NOT TO SCALE

**GENERAL WASTEWATER CONSTRUCTION NOTES:**

1. THE CONTRACTOR SHALL VISIT THE SITE OF THE WORK AND EXAMINE LOCAL CONDITIONS TO BE ENCOUNTERED, IMPROVEMENTS THAT IS NECESSARY TO ENSURE THAT THE CONTRACTOR THOROUGHLY UNDERSTANDS THE PROJECT AND IS FULLY AWARE OF ALL THE CONDITIONS AND CONSTRAINTS THAT MAY BE ENCOUNTERED DURING THE COURSE OF CONSTRUCTION.
2. THE CONTRACTOR SHALL ADHERE TO ALL TCEQ REGULATIONS PER 30 TAC CHAPTER 217 AND TRENCH SAFETY FOR EXCAVATIONS.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL AND MUST ADHERE TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
4. ALL FIBERGLASS MANHOLES SHALL BE MONOLITHIC WITH 0.50" MINIMUM WALL THICKNESS. IF PROVIDED OR REQUIRED, FIBERGLASS BOTTOM SHALL BE DESIGNED TO WITHSTAND HYDROSTATIC HEAD PRESSURE UNDER ALL CONDITIONS.
5. THE MANHOLE WALL PENETRATIONS FOR PIPE (8"-15" DIAMETER PIPE) ABOVE THE FLOWLINE OF THE MANHOLE SHALL BE CORED AND SEALED WITH APPROVED SEAL GASKET WATER STOP ASSEMBLY.
6. FOR FIBERGLASS MANHOLES, THE MANHOLE FOUNDATION MAY BE PRECAST ON GROUND SURFACE. (PROCEDURE MUST BE SUBMITTED TO THE ENGINEERING SERVICES CONSTRUCTION ENGINEER FOR APPROVAL.)
7. THE CONTRACTOR SHALL PROVIDE PROTECTIVE COATING ON ALL EXPOSED CONCRETE SURFACES, INCLUDING CORBEL AREA, MANHOLE WALLS AND MANHOLE BENCH.
8. FOR FIBERGLASS MANHOLES WITH WATERTIGHT BOTTOM, ADHERE TO ALL MANUFACTURER REQUIREMENTS. FIBERGLASS BOTTOM AND BENCH MUST ALSO BE FACTORY INSTALLED.



**FORCE MAIN DISCHARGE MANHOLE DETAIL**

NOT TO SCALE

- NOTES:  
 1. ALL BENDS SHALL BE DUCTILE IRON WITH RESTRAINED JOINTS.  
 2. INFLUENT FORCE MAIN MUST BE NO MORE THAN 45° FROM PARALLEL WITH DOWNSTREAM FLOW DIRECTION.

REVISION NO.	DATE	BY	DESCRIPTION

**CITY OF CORPUS CHRISTI TEXAS**  
Department of Engineering Services

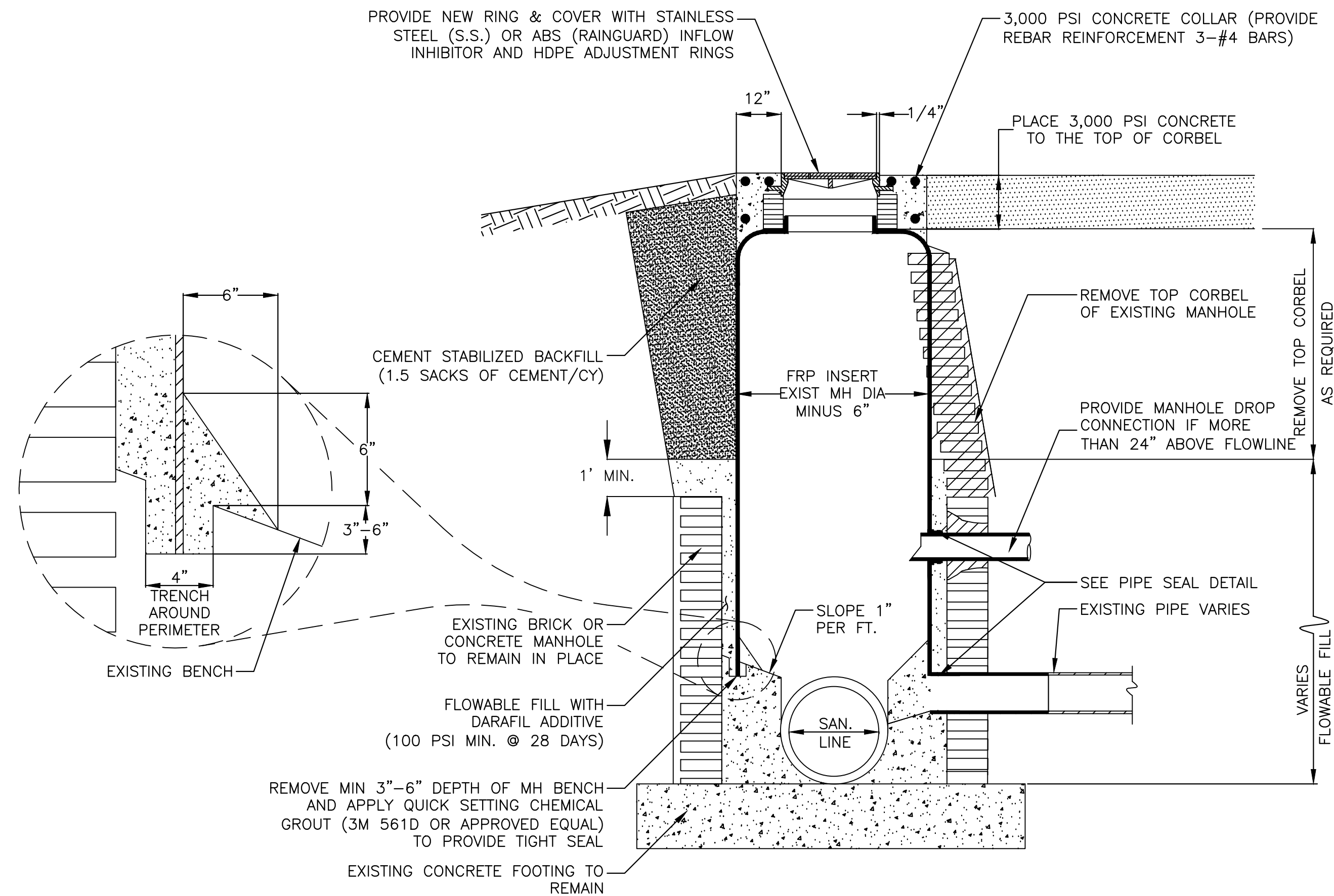
CITY OF CORPUS CHRISTI  
WASTEWATER STANDARD DETAILS  
MANHOLE INSTALLATION

1 OF 4

SHEET \_\_\_\_\_ of \_\_\_\_\_  
RECORD DRAWING NO. \_\_\_\_\_  
CITY PROJECT # \_\_\_\_\_

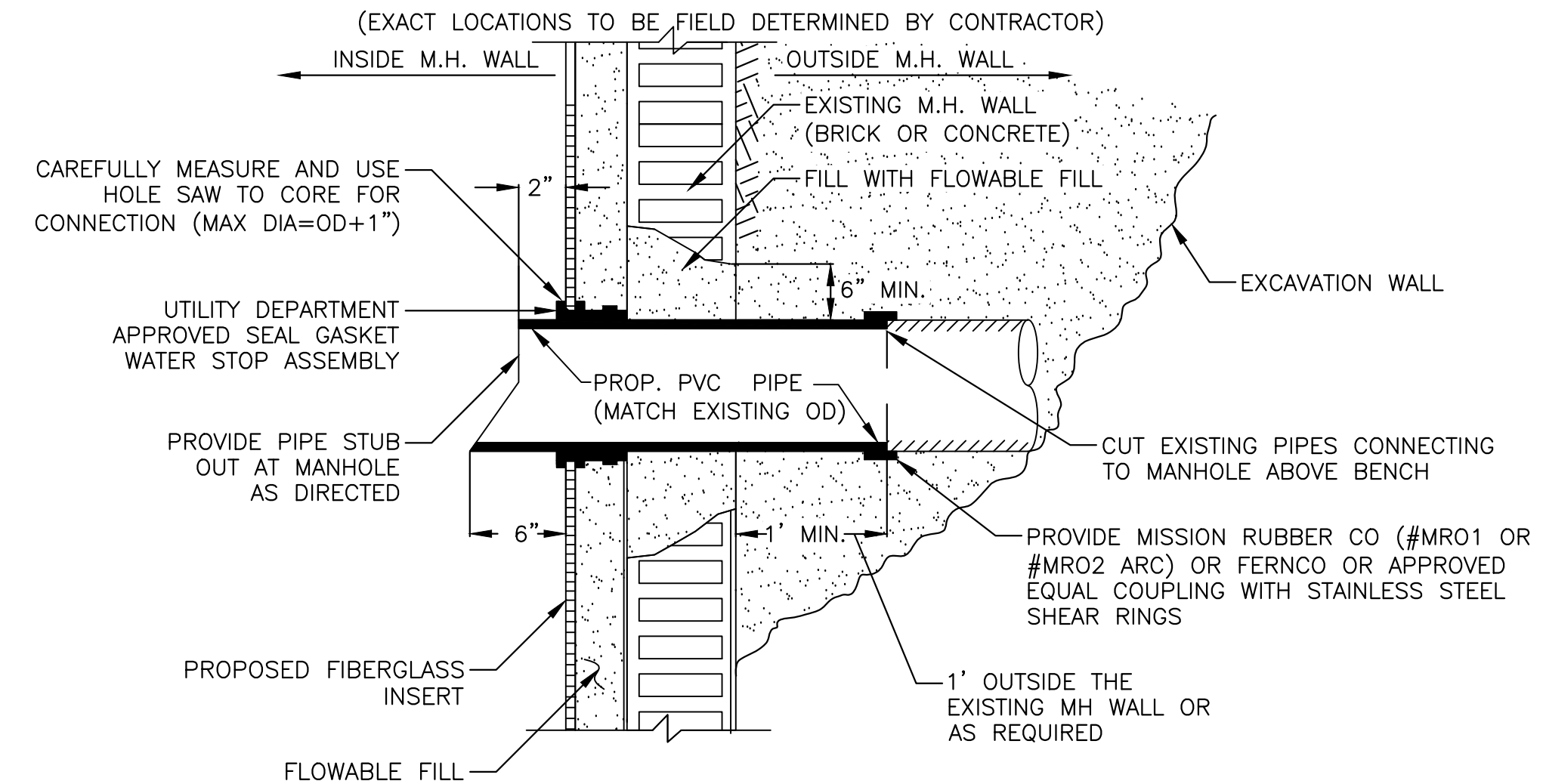
**FRP INSERT REHABILITATION OF EXISTING MANHOLE NOTES:**

1. THE CONTRACTOR SHALL FIELD-VERIFY THE EXISTING MANHOLE DIAMETER, FLOW LINE, RIM ELEVATION, NUMBER OF LATERALS, LOCATIONS, SIZES, AND OTHER INFORMATION NEEDED TO REHABILITATE EACH MANHOLE.
2. PRIOR TO INSTALLING CONTROL OF FLOW OR INITIATING MANHOLE REPAIRS, THE CONTRACTOR SHALL PLACE BARRICADES AND SIGNS TO DIVERT TRAFFIC AND PEDESTRIANS PER THE APPROVED TRAFFIC CONTROL PLAN, AS REQUIRED.
3. THE CONTRACTOR SHALL PREPARE THE INTERIOR OF THE EXISTING FOUNDATION STRUCTURE BY REMOVING ALL DEFECTIVE GROUT AND DEBRIS/BLOCKAGES, MECHANICALLY ROUGHEN THE ENTIRE INVERT, AND CLEAN THE INTERIOR WITH A HIGH-PRESSURE WATER JET.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL OF THE RESULTING SLUDGE AND DEBRIS AT AN APPROVED SITE, ACCORDING TO ALL PERTINENT WASTE DISPOSAL REGULATIONS.
5. THE CONTRACTOR SHALL USE QUICK-SETTING, NON-SHRINK CONCRETE GROUT TO SEAL AND RESHAPE THE BOTTOM. SUBMIT PROPOSED MATERIALS TO BE USED TO THE ENGINEER FOR APPROVAL.
6. PROVIDE COATING TO EXPOSED CONCRETE SURFACES WITH APPROVED SYSTEM TO PREVENT CORROSION.
7. FRP INSERT SHALL COMPLY WITH ASTM D3753 WITH SINGLE PIECE MONOLITHIC BARREL AND CORBEL CONSTRUCTION WITHOUT SEAMS, JOINTS OR SECTIONS. WALL THICKNESS SHALL PROVIDE AN AASHTO H-20 LOAD RATING AND WALL STIFFNESS OF 36 PSI MIN.
8. CUT BOTTOM OF FRP INSERT TO FIT EVENLY ON BENCHES OR CHIP BENCHES OUT TO EVENLY SUPPORT INSERT.
9. SEAL ANNULAR SPACE AROUND EXIST LINES WITH JUTE ROPE AND CHEMICAL GROUT.



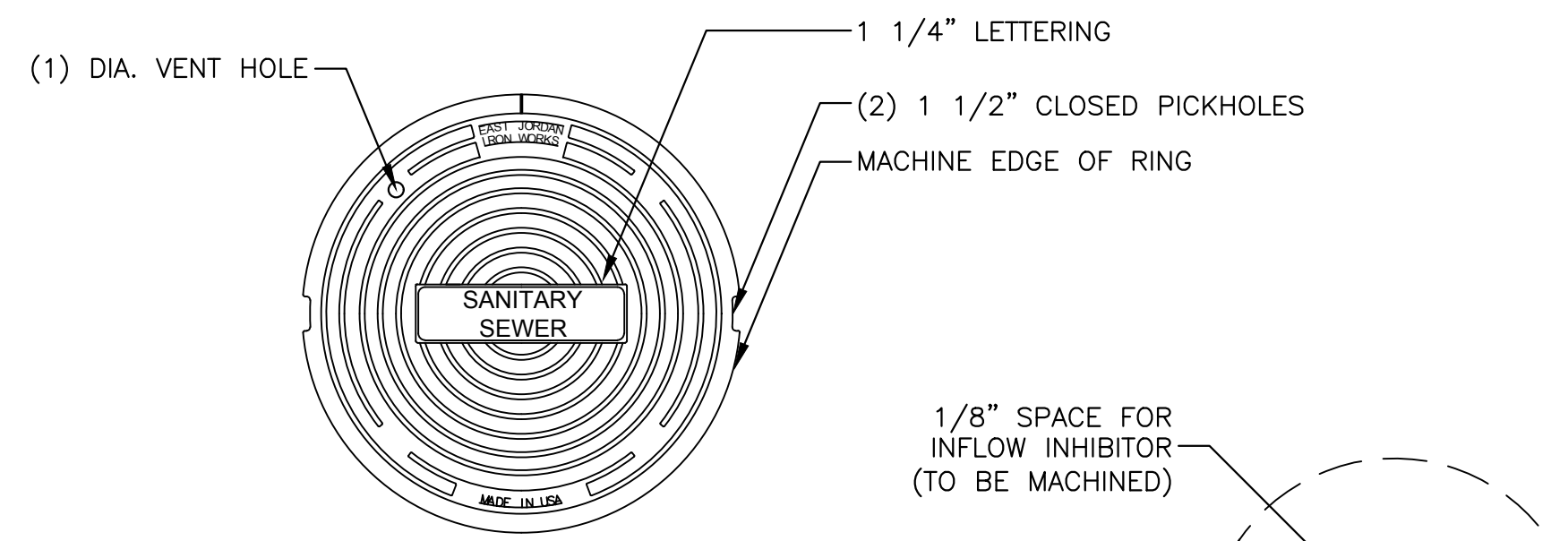
**FRP INSERT REHABILITATION OF EXISTING MANHOLE**

NOT TO SCALE



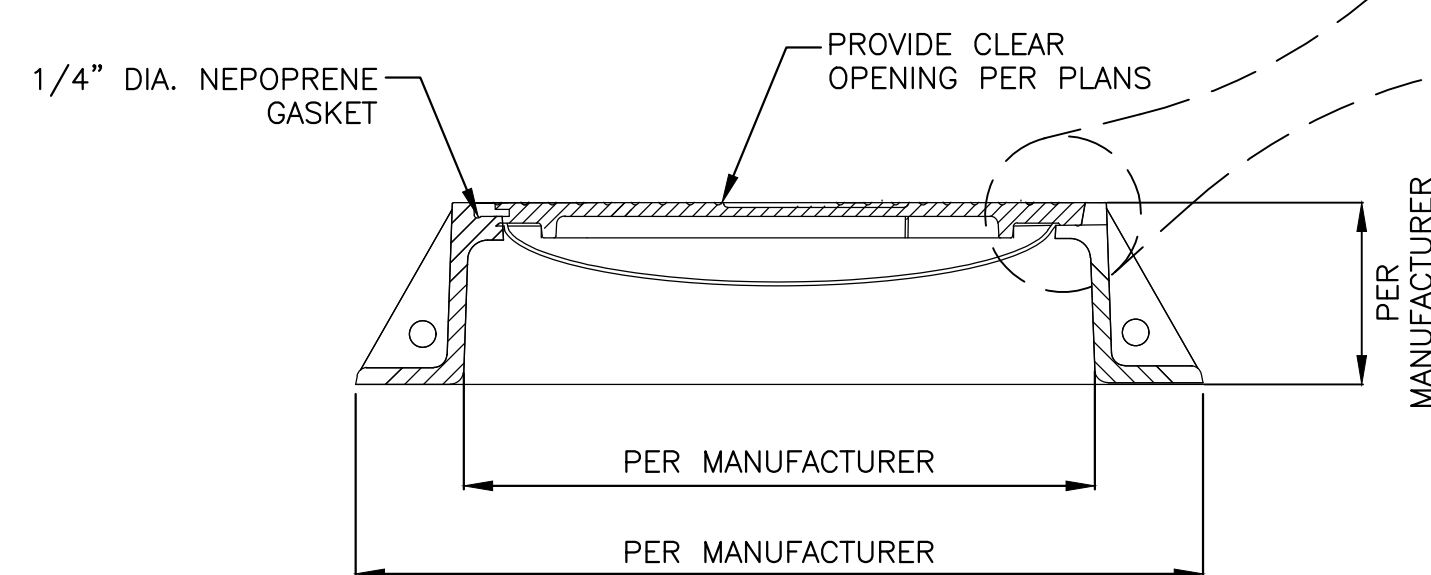
**FRP INSERT PIPE SEAL DETAIL**

NOT TO SCALE



**COVER PLAN VIEW**

NOT TO SCALE



**SECTION OF RING & COVER**

NOT TO SCALE

**ROADWAY MANHOLE RING AND COVER:**

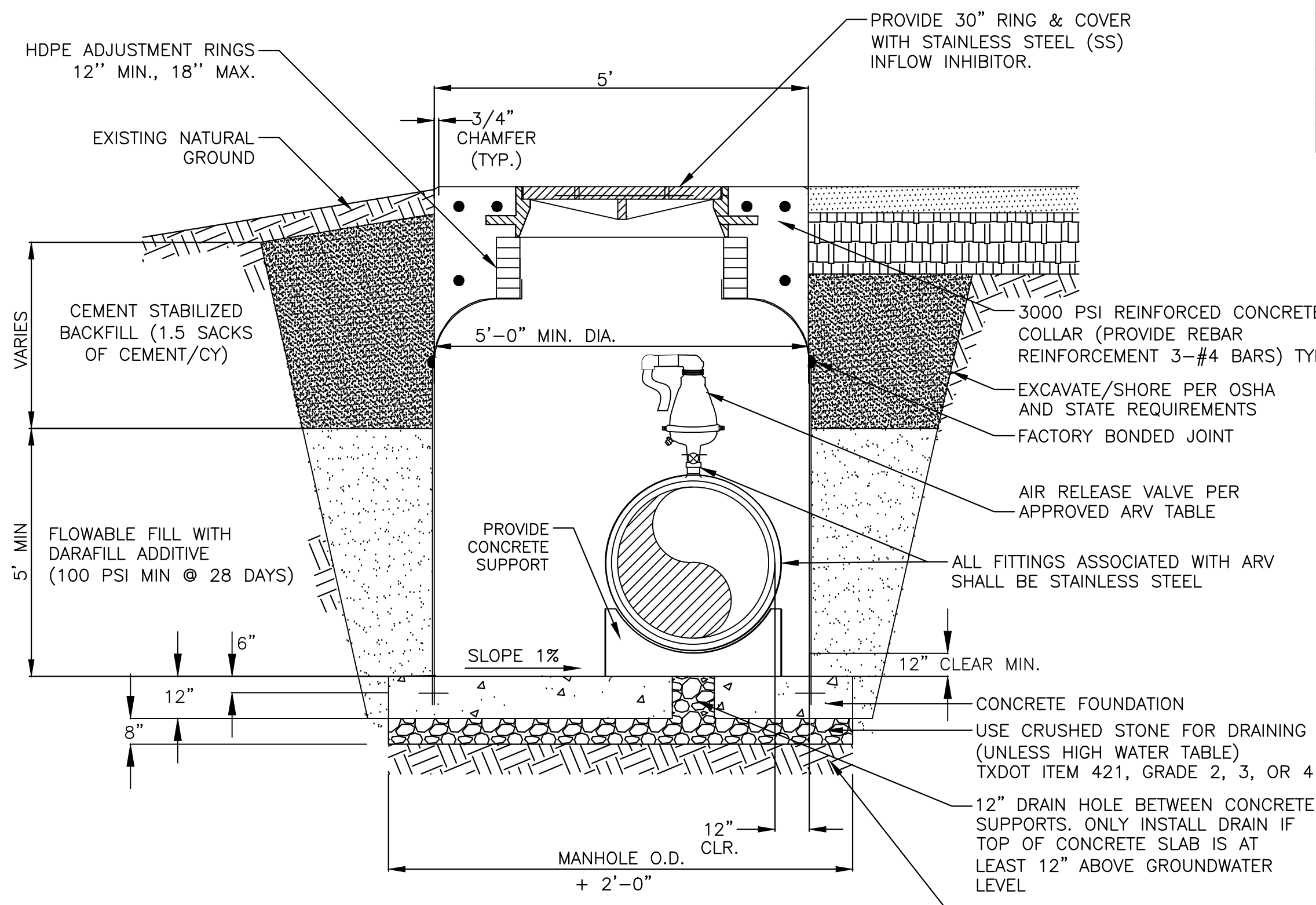
1. THE CONTRACTOR SHALL PROVIDE STAINLESS STEEL (S.S.) INFLOW INHIBITOR WITH SS TETHER SECURED TO MANHOLE WALL, SUCH THAT THE INNER LID IS FLUSH WITH THE OUTER LID.
2. TRAFFIC SHALL BE RESTRICTED FROM MANHOLE FOR 48 HOURS AFTER THE PLACEMENT OF CONCRETE, AND COLLAR SHALL PROVIDE A SUFFICIENT, CLEAR OPENING TO ACCOMMODATE THE SPECIFIED MANHOLE COVER.
3. AASHTO-M-306 (LATEST REVISION) PROOF LOAD TESTING IS REQUIRED (40,000 LBS) AND MUST BE INSPECTED. PRIOR TO INSTALLATION, THE RESULTS OF THE TEST SHALL BE SUBMITTED TO THE CITY.
4. THE MANUFACTURING FACILITIES FOR ALL PROVIDED RING AND COVER ASSEMBLIES SHALL MEET OR EXCEED ALL EPA ENVIRONMENTAL STANDARDS AND OSHA SAFETY STANDARDS. THE CASTINGS SHALL BE MANUFACTURED FROM RECYCLED MATERIALS. THE CONTRACTOR SHALL PROVIDE CERTIFICATION.

CLEAR OPENING	MANUFACTURER (1)	MODEL NUMBER*	INFLOW INHIBITOR
24"	EAST JORDAN IRON WORKS	V-1168	REQUIRED ON ALL INSTALLATIONS PER CITY SPECIFICATIONS
	U.S. FOUNDRY	COVER- #8018538 FRAME- #8022247	
	NEENAH FOUNDRY	R-1930-24	
30" (2)	EAST JORDAN IRON WORKS	COVER- V1430 FRAME- V1420	
	U.S. FOUNDRY	COVER- #9210048 FRAME- #8021361	
	NEENAH FOUNDRY	DF-1274	

(1) OR APPROVED EQUAL (MADE IN THE USA)  
 (2) UNLESS NOTED IN THE PLANS, ALL COVERS SHALL BE 24" DIAMETER AND NOT INTENDED FOR MANNED ENTRY.

**RING & COVER APPROVED LIST**

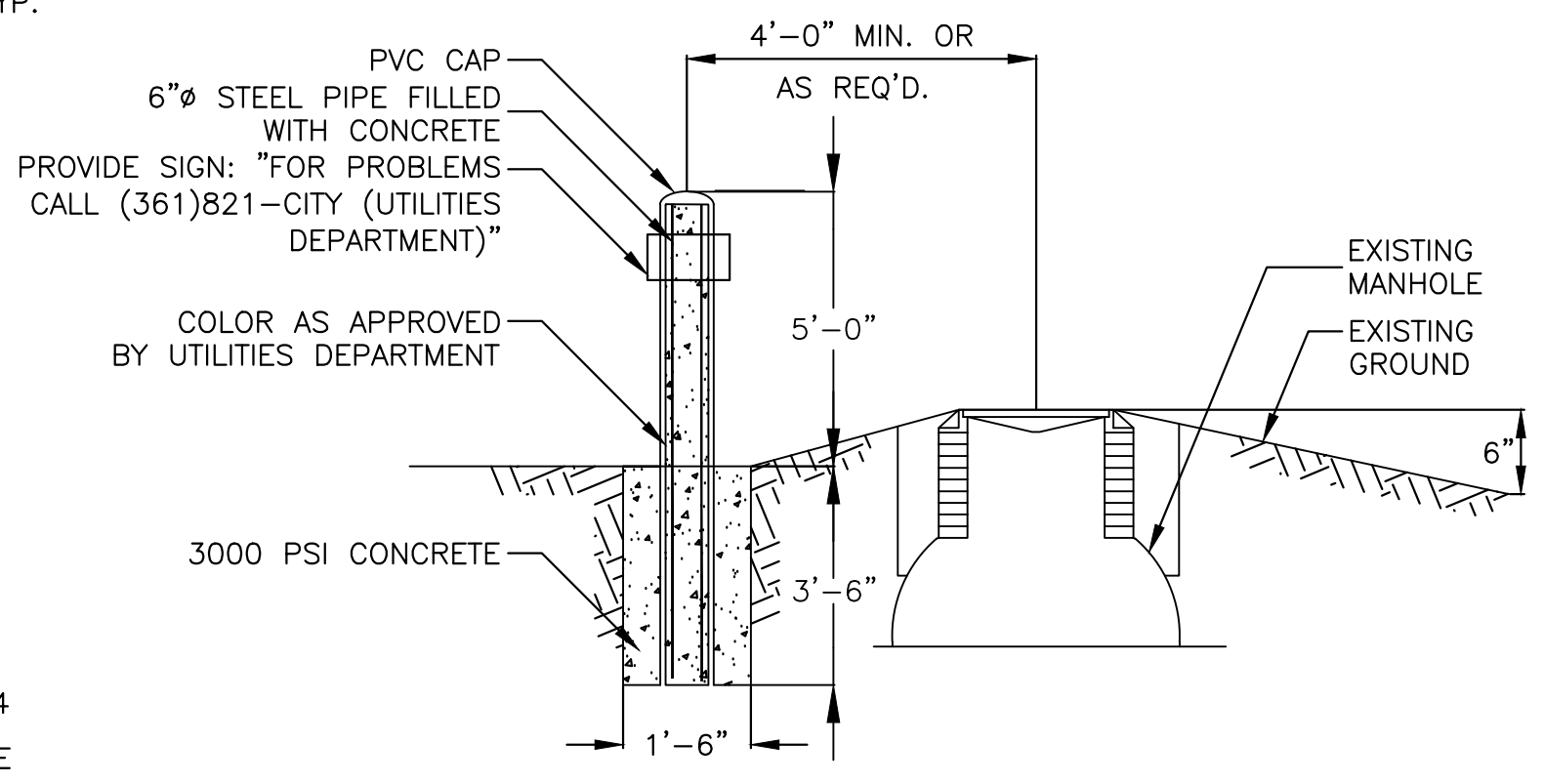
REVISION NO.	DATE	BY	DESCRIPTION



**AIR RELEASE VALVE AND MANHOLE**

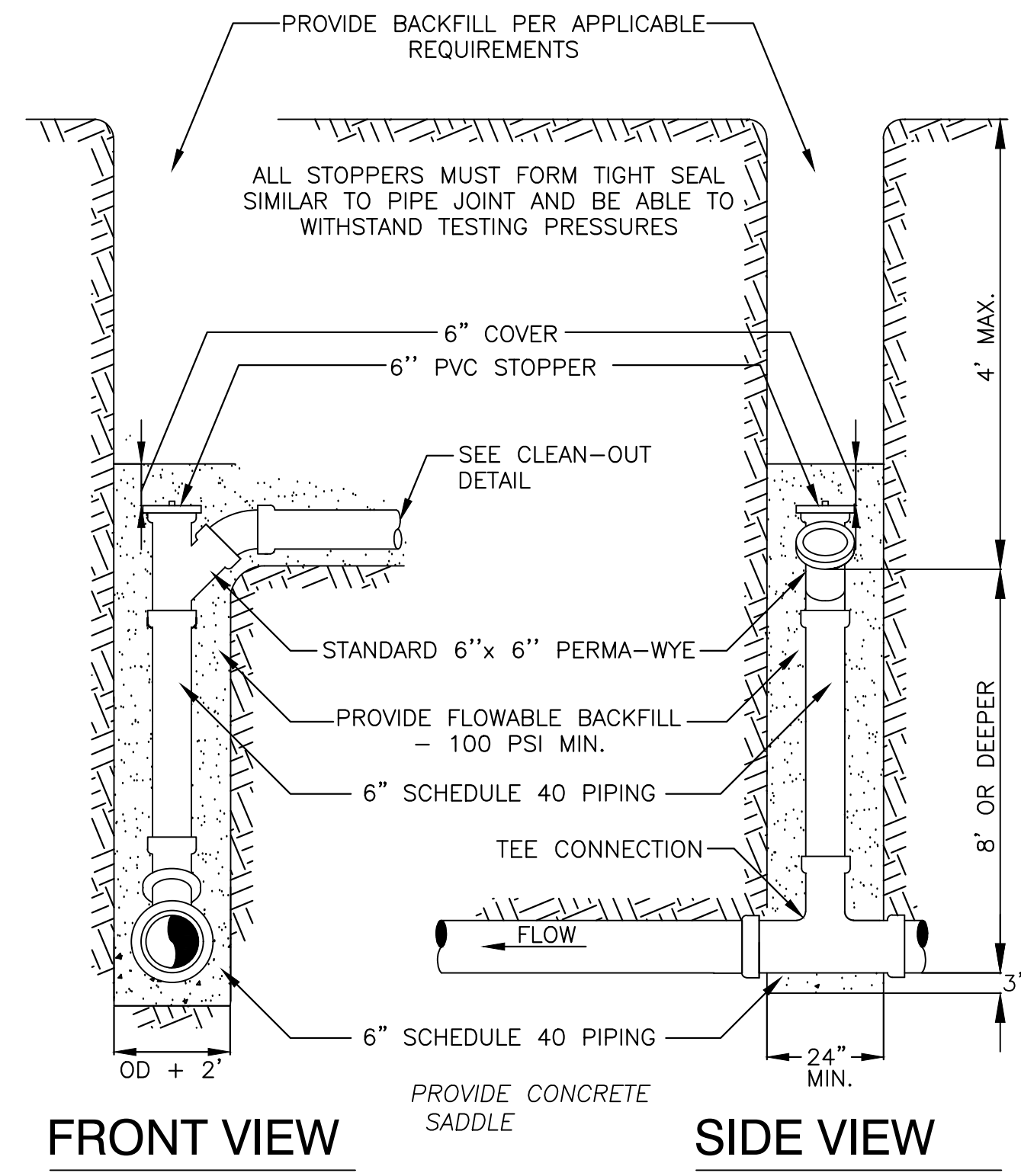
NOT TO SCALE

APPROVED ARVs		
MANUFACTURER	MODEL NAME	MATERIAL
A.R.I.	D-025 OR D-025 SHORT	316 SS
H-TEC	MODEL 986 (SS) AND 988	
VENT OMAT	MODEL RGXII (ST. STEEL)	
VALMATIC	VM 48AS OR VM 49AS	



**BOLLARD DETAIL**

NOT TO SCALE

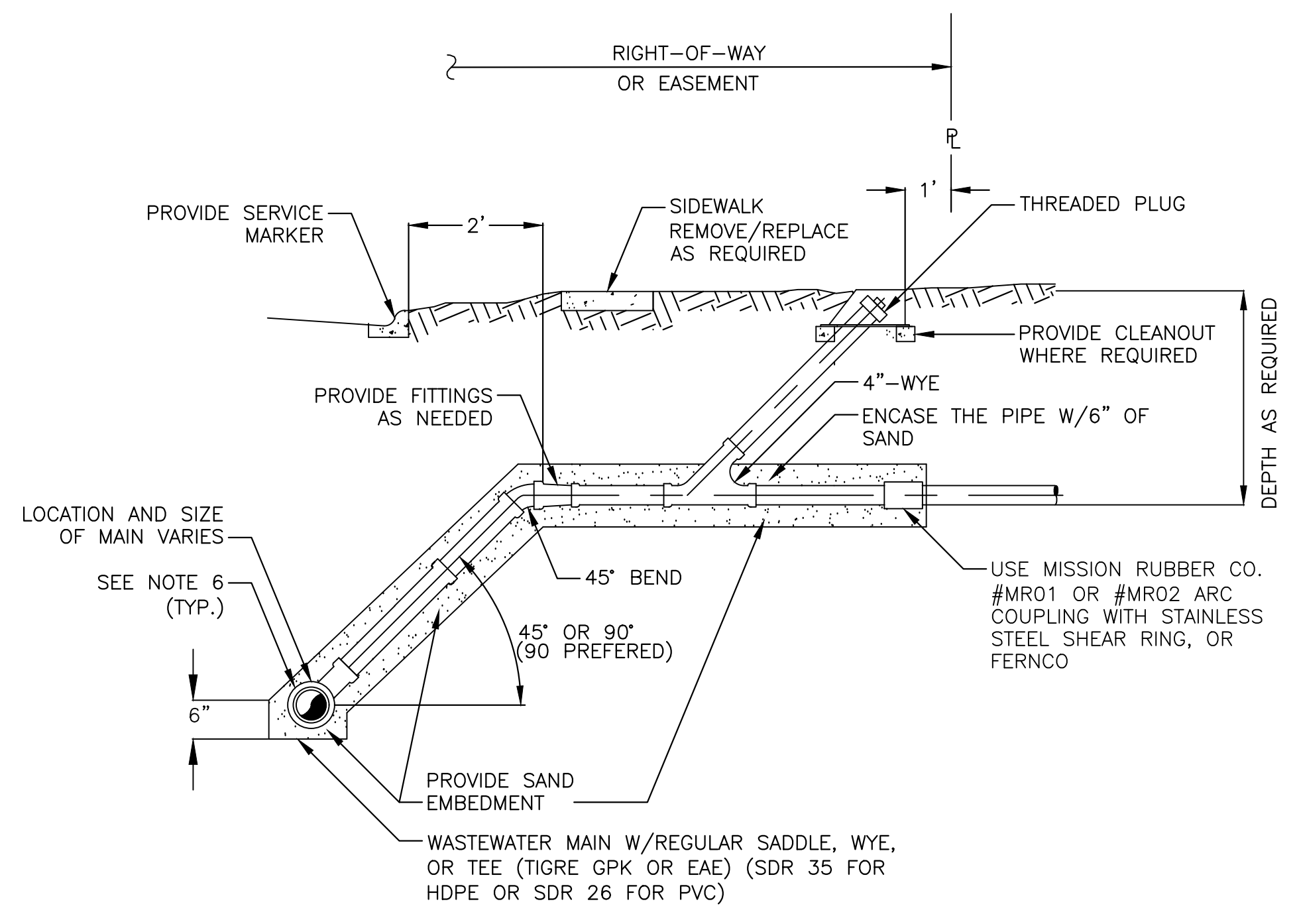


**FRONT VIEW**

**SIDE VIEW**

**DEEP CUT SERVICE CONNECTION**

NOT TO SCALE

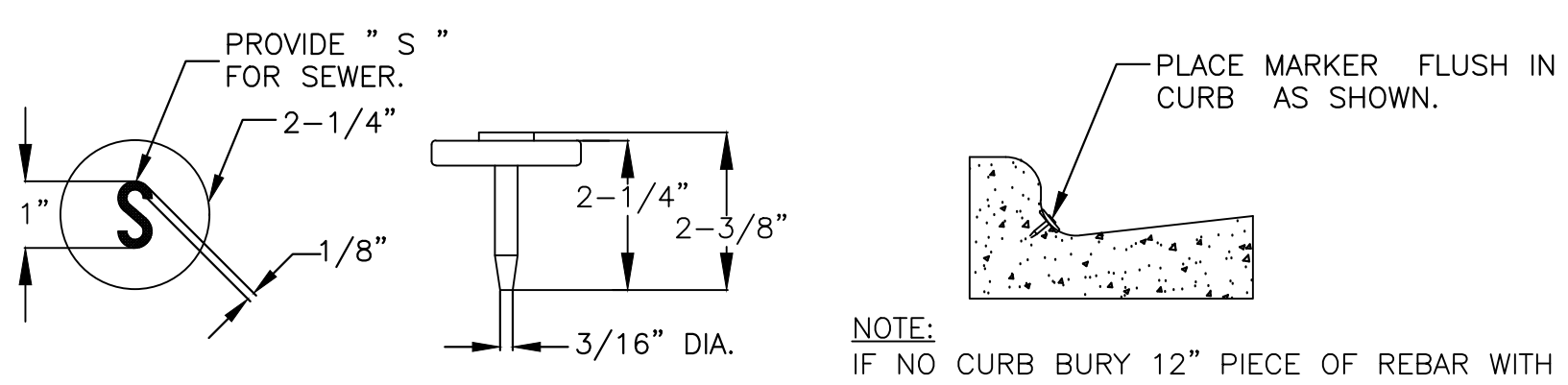


**SERVICE CONNECTION DETAILS**

NOT TO SCALE

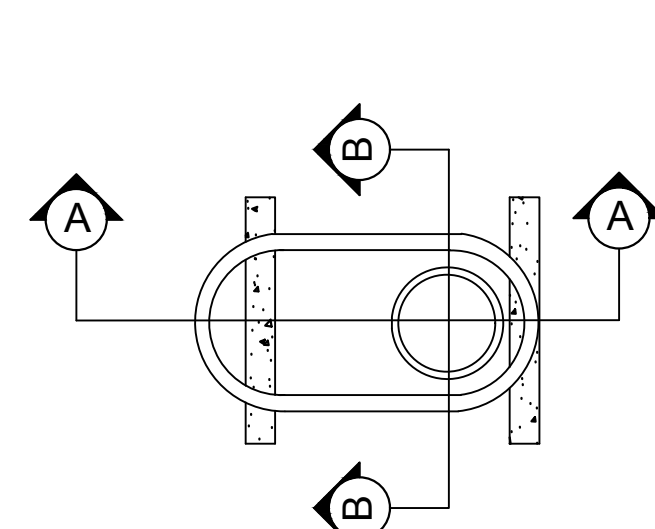
**SERVICE CONNECTION NOTES:**

- CONTRACTOR TO PROVIDE SERVICE CONNECTION TAP TO THE R.O.W. LINE & CONNECT EXIST. SERVICE LINE OUTSIDE EASEMENT AS SHOWN AND REQUIRED.
- ALL SERVICE PIPE AND FITTINGS TO BE SOLVENT WELD SCH 40 PVC UNLESS SHOWN OTHERWISE IN THE PLANS.
- FOR EXISTING MAIN PIPE MATERIAL - PVC AND/OR VCP USE UTILITY DEPARTMENT APPROVED CONNECTOR.
- FOR NEW PVC MAIN AND SERVICE, USE PVC WYE OR TEE AS DIRECTED AT SERVICE CONNECTION.
- IF PIPE LENGTH, ON SERVICE LINE, IS GREATER THAN 50', USE 6" PVC SCH 40 FROM CLEANOUT WYE TO THE MAIN LINE.



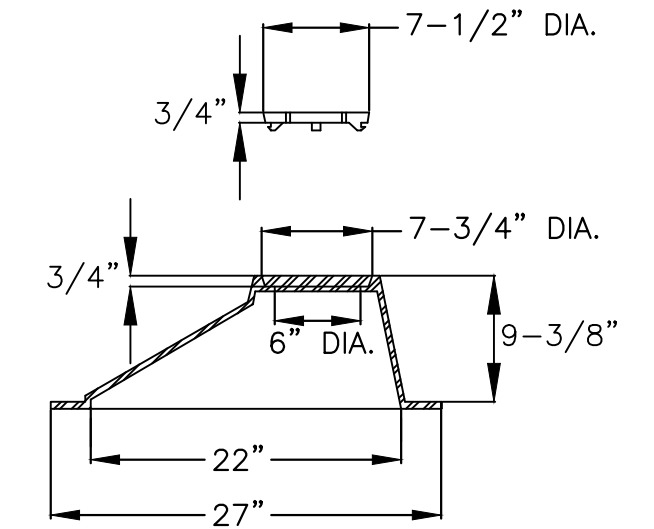
**STANDARD SERVICE MARKER**

BRASS - ONE REQUIRED EACH STREET TAP  
NOT TO SCALE



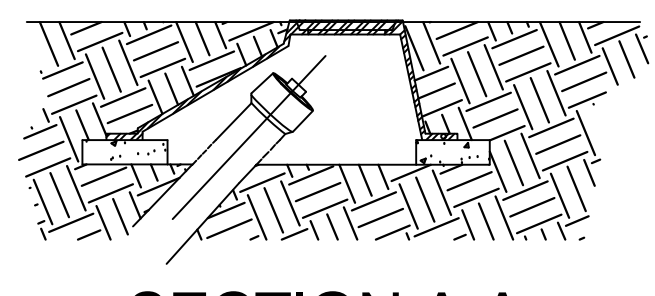
**PLAN**

NOT TO SCALE



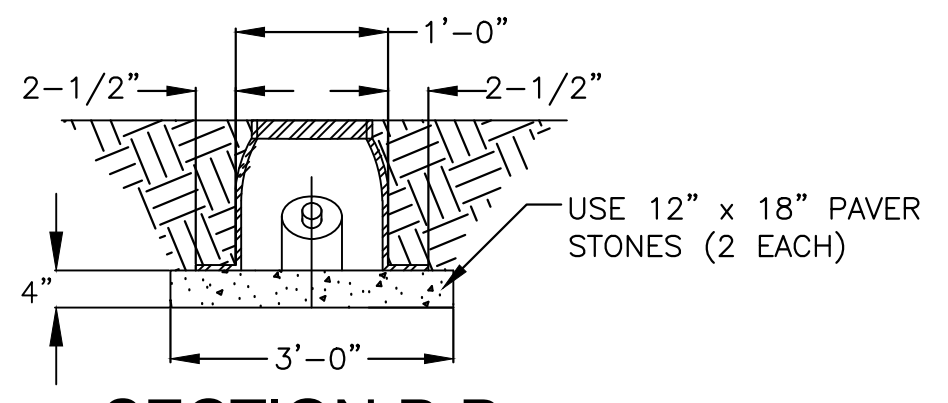
**CLEAN-OUT BOOT**

NOT TO SCALE



**SECTION A-A**

NOT TO SCALE



**SECTION B-B**

NOT TO SCALE

**TYPICAL CAST IRON CLEAN-OUT BOOT**

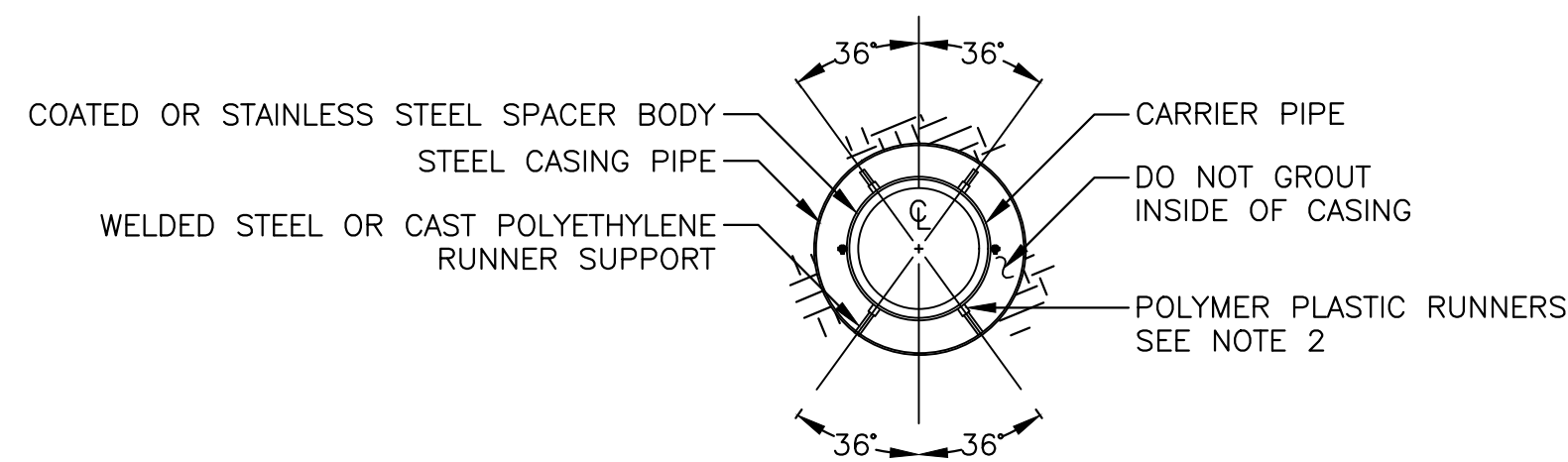
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REVISION NO.	DATE	BY	DESCRIPTION

**CITY OF CORPUS CHRISTI**  
TEXAS  
Department of Engineering Services

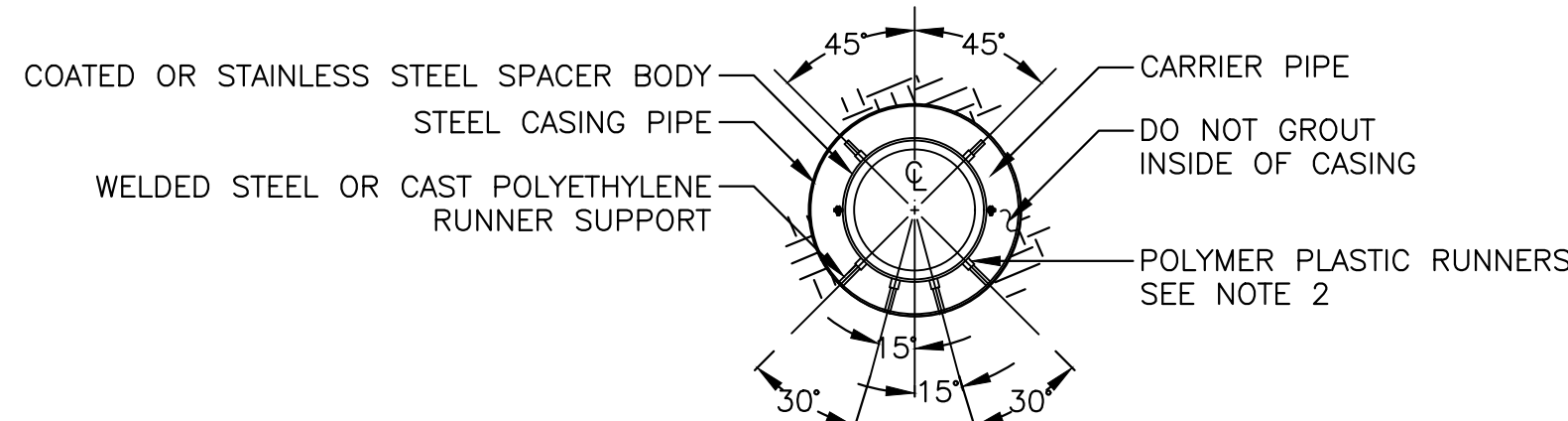
CITY OF CORPUS CHRISTI  
WASTEWATER STANDARD DETAILS  
AIR RELEASE VALVE, BOLLARD AND SERVICE CONNECTION DETAILS

SHEET \_\_\_\_ of \_\_\_\_  
RECORD DRAWING NO. \_\_\_\_  
CITY PROJECT # \_\_\_\_



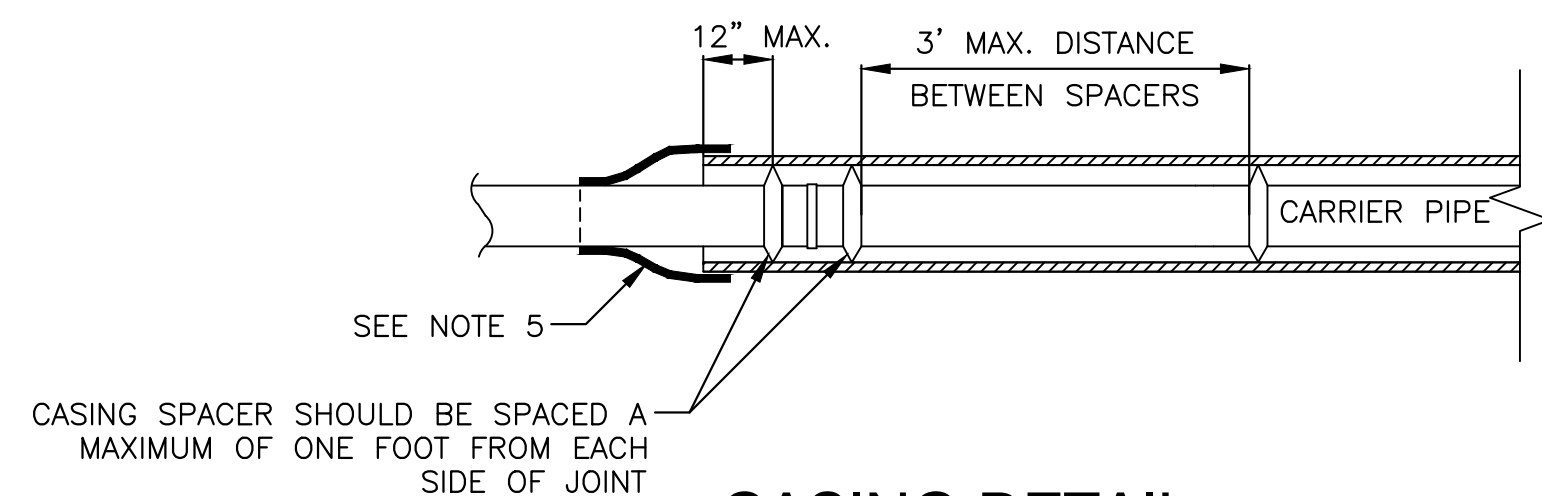
**4" TO 10" CASING DETAIL**

NOT TO SCALE



**12" TO 36" CASING DETAIL**

NOT TO SCALE

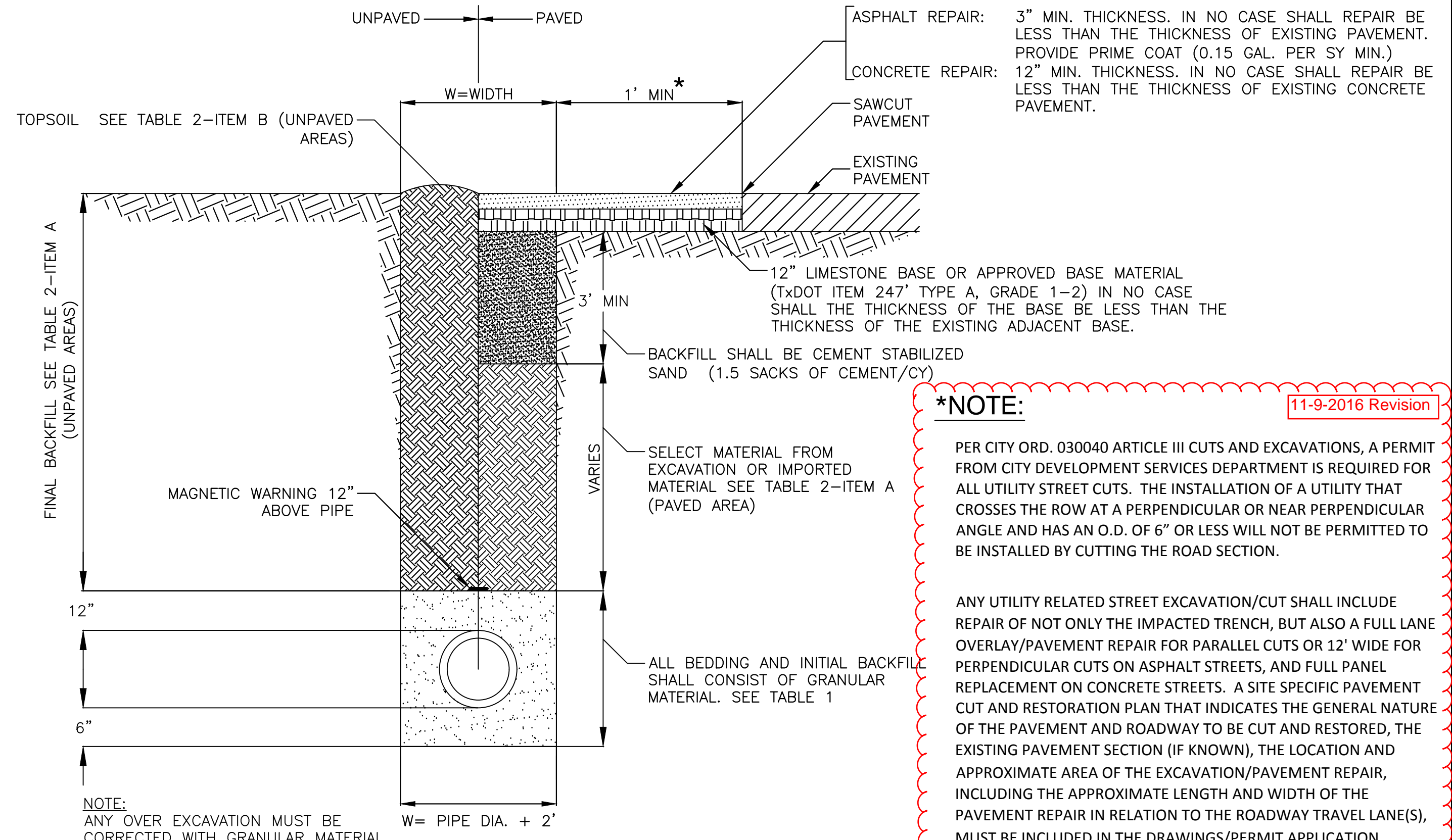


**CASING DETAIL**

NOT TO SCALE

**CASING NOTES:**

- CASING DIAMETER, LENGTH, LOCATION, AND WALL THICKNESS SHALL BE PER PROJECT SPECIFIC REQUIREMENTS. (MINIMUM SCHEDULE 40)
- ALL CARRIER PIPES IN INSTALLED CASINGS SHALL BE SUPPORTED BY BOLT-ON STYLE CASING SPACERS ("ADVANCED PRODUCTS" OR APPROVED EQUAL).
- THE CONTRACTOR SHALL PROVIDE MECHANICALLY RESTRAINED JOINTS FOR FORCE MAINS ONLY ON CARRIER PIPES. "MEGALUG" TYPE JOINT RESTRAINTS OR APPROVED EQUAL SHALL BE USED.
- CASING SPACERS SHALL BE SIZED TO SECURELY FASTEN TO THE CARRIER PIPE O.D. AND SHALL BE FURNISHED WITH A MINIMUM RUNNER HEIGHT TO MAINTAIN SEPARATION BETWEEN THE MAXIMUM O.D. OF THE CARRIER PIPE AND THE CASING WALL.
  - POSITIONING OF THE SPACERS SHALL ENSURE THAT THE CARRIER PIPE IS ADEQUATELY SUPPORTED THROUGHOUT ITS LENGTH.
  - SPACERS AT EACH END SHALL NOT BE FURTHER THAN 12" FROM THE END OF THE CASING.
  - CASING SPACERS SHALL BE INSTALLED IN THE CENTER OF THE PIPE SECTION. THE MAXIMUM SPACING OF THE CASING SPACERS SHALL BE 3 FEET.
- THE TWO ENDS OF THE CASING PIPE SHALL BE SEALED WATERTIGHT WITH AN ADVANCED PRODUCTS SYSTEM, INC. MODEL AZ - ZIPPER, PSI MODEL C END SEAL, OR AN APPROVED EQUAL.



**TRENCH BACKFILL FOR WASTEWATER LINES AND PAVEMENT REPAIR FOR UTILITIES**

NOT TO SCALE

**\*NOTE:** 11-9-2016 Revision

PER CITY ORD. 030040 ARTICLE III CUTS AND EXCAVATIONS, A PERMIT FROM CITY DEVELOPMENT SERVICES DEPARTMENT IS REQUIRED FOR ALL UTILITY STREET CUTS. THE INSTALLATION OF A UTILITY THAT CROSSES THE ROW AT A PERPENDICULAR OR NEAR PERPENDICULAR ANGLE AND HAS AN O.D. OF 6" OR LESS WILL NOT BE PERMITTED TO BE INSTALLED BY CUTTING THE ROAD SECTION.

ANY UTILITY RELATED STREET EXCAVATION/CUT SHALL INCLUDE REPAIR OF NOT ONLY THE IMPACTED TRENCH, BUT ALSO A FULL LANE OVERLAY/PAVEMENT REPAIR FOR PARALLEL CUTS OR 12' WIDE FOR PERPENDICULAR CUTS ON ASPHALT STREETS, AND FULL PANEL REPLACEMENT ON CONCRETE STREETS. A SITE SPECIFIC PAVEMENT CUT AND RESTORATION PLAN THAT INDICATES THE GENERAL NATURE OF THE PAVEMENT AND ROADWAY TO BE CUT AND RESTORED, THE EXISTING PAVEMENT SECTION (IF KNOWN), THE LOCATION AND APPROXIMATE AREA OF THE EXCAVATION/PAVEMENT REPAIR, INCLUDING THE APPROXIMATE LENGTH AND WIDTH OF THE PAVEMENT REPAIR IN RELATION TO THE ROADWAY TRAVEL LANE(S), MUST BE INCLUDED IN THE DRAWINGS/PERMIT APPLICATION.

**GENERAL NOTES FOR BACKFILL**

TABLE 1 BEDDING AND INITIAL BACKFILL (BELOW PIPE TO 12" ABOVE PIPE)		TABLE 2 FINAL BACKFILL (GREATER THAN 12" ABOVE PIPE)	
		UNPAVED AREAS	PAVED AREAS
ALL BEDDING AND INITIAL BACKFILL SHALL CONSIST OF THE FOLLOWING OR REFER TO DESIGN ENGINEER REQUIREMENTS: GRANULAR BACKFILL CONSISTING OF EITHER NATURAL SAND OR SANDY GRAVEL, OR MATERIAL PRODUCED BY CRUSHING OF NATURAL STONE OR GRAVEL:  ① EXCAVATIONS <20 FT. DEEP AND ABOVE WATER TABLE, USE MATERIAL MEETING THE FOLLOWING CRITERIA.  MEETING REQUIREMENTS OF ASTM D2487 FOR: SP GP SW GW SP-SM GP-GM SW-SM GW-GM  AND IN ADDITION: PASSING 1/2" SIEVE - 100% PASSING #4 SIEVE - 30% MINIMUM PLASTICITY INDEX (PI) - NP TO 10 MAX.  ② IN DEEP EXCAVATIONS (>20') OR BELOW WATER TABLE, USE CRUSHED STONE OR CRUSHED GRAVEL MEETING GRADATION OF:  A. CONCRETE COARSE AGGREGATE; TxDOT ITEM 421; GRADE 2, 3, OR 4.  OR  B. CRUSHED LIMESTONE PER TxDOT ITEM 421' GRADE 2, 3, OR 4.		A. FROM 12" ABOVE PIPE TO BOTTOM OF TOPSOIL BACKFILL SHALL BE APPROVED SELECT MATERIAL FROM THE EXCAVATION; OR IMPORTED MATERIAL; ALL TO BE FREE OF ROCKS, DEBRIS, OR ANY CLUMPS GREATER THAN 2" IN DIAMETER; LOOSE LIFTS TO BE PLACED 10" MAX.  COMPACT MATERIAL TO 95% STD. PROCTOR (D698).  MOISTURE TO BE ADJUSTED TO ± 3% OF OPTIMUM.  B. TOPSOIL TO BE PROVIDED EQUAL OR BETTER THAN EXISTING; AND MATCH EXISTING TOPSOIL DEPTH. COMPACT TO EXISTING ADJACENT TOP-SOIL THICKNESS. (CONSTRUCTION TO BE PERFORMED BY "DOUBLE DITCH" METHOD-TOP SOIL SALVAGED TO BE PLACED ON TOP)	A. FROM 12" ABOVE PIPE TO 3' BELOW BOTTOM OF ROAD BASE: BACKFILL SHALL BE SELECT MATERIAL FROM EXCAVATION OR IMPORTED MATERIAL. IN EITHER CASE, ALL MATERIAL SHALL MEET THE FOLLOWING:  LL<35 PI 8-20 NO CLUMPS > 2" DIA. MOISTURE - 1 TO +3% COMPACT 95% D698 STD PROCTOR  LOOSE LIFTS OF 12" MAX OR IF SELECT MATERIAL FROM EXCAVATION DOES NOT MEET REQUIREMENTS, THEN USE CEMENT STABILIZED SAND. SEE TABLE 2-ITEM B BELOW.  B. FROM 3' BELOW BOTTOM OF ROAD BASE TO BOTTOM OF ROAD BASE:  BACKFILL SHALL BE CEMENT STABILIZED SAND (1.5 SK/C.Y.) AND SHALL MEET THE FOLLOWING REQUIREMENTS:  SAND GRADATION: % PASSING #4 55-100 #10 40-100 #40 25-100 #200 10-20 PI NP-10  COMPACT TO 95% OF D588. MOISTURE TO BE ADJUSTED TO (+/-2%) OF OPTIMUM.

REVISION NO.	DATE	BY	DESCRIPTION

SECTION 025205  
PAVEMENT REPAIR, CURB, GUTTER, SIDEWALK AND DRIVEWAY REPLACEMENT

1. DESCRIPTION

This specification shall govern the removal and replacing of all types of pavements and surfacing required to complete the project.

2. MATERIALS

Unless otherwise specified on the drawings, materials and proportions used along with this specification shall conform to the respective following specifications:

City Standard Specifications

Section 022020 "Excavation and Backfill for Utilities"

Section 022100 "Select Material"

Section 025223 "Crushed Limestone Flexible Base"

Section 025424 "Hot Mix Asphaltic Concrete Pavement"

Section 025610 "Concrete Curb and Gutter"

Section 025612 "Concrete Sidewalks and Driveways"

Section 025620 "Portland Cement Concrete Pavement"

Section 030020 "Portland Cement Concrete", Class "A" Concrete

Section 032020 "Reinforcing Steel"

Section 038000 "Concrete Structures".

3. METHOD OF CUTTING

The outline of the trench shall be marked upon the surface of the pavement to be cut, and all cuts into the pavement shall be saw-cut as nearly vertical as it is possible to make them. All unwanted materials removed shall be disposed of by the Contractor and shall not be used as backfill material.

4. BACKFILL OF TRENCH

Excavation and backfilling of trench shall be in accordance with City Standard Specification Section 022020 "Excavation and Backfill for Utilities."

## 5. REPLACING STREET AND OTHER PAVEMENT

All pavements, driveways, sidewalks, and curbs and gutters which are cut shall be replaced in a workmanlike manner, with like or better materials or per pavement repair details to be provided on the drawings.

11-9-2016 Revision

Pavement cuts in a street for any utility requires a permit from the Director of Development Services in accordance with City Ordinance 030040, Article III Cuts and Excavations (12-17-2013). The installation of a utility that crosses the ROW at a perpendicular or near perpendicular angle and has an OD of 6" or less will not be permitted to be installed by cutting the road section. Street excavation/cut for a utility in an asphalt roadway shall include a full lane overlay or pavement repair for parallel cuts, or a 12' wide pavement repair for perpendicular cuts. Street excavation/cut for a utility in a concrete roadway shall include full panel replacement. The drawings and/or permit application should include a site specific pavement cut and restoration plan that indicates the general nature of the pavement and roadway (for examples, concrete arterial, asphalt residential) to be cut and restored, the existing pavement section (if known), the location and approximate area of the excavation/pavement repair, including the approximate length and width of the pavement repair in relation to the roadway travel lane(s).

## 6. REPLACING DRIVEWAY PAVEMENT

On all concrete driveway pavements, the replacement shall consist of a reinforced Class "A" concrete slab with a minimum thickness of six (6) inches. The type of finish for the replaced section shall be the same as that appearing on the old pavement. Reinforcement shall be #4 bars at 12 inches each way with additional diagonal bars as indicated on the drawings. Any other type shall be replaced with like or better replacement. Replacement shall, in general, be to original joint or score mark.

## 7. REPLACING SIDEWALKS

On all sidewalk pavements, the replacement shall consist of a reinforced Class "A" concrete slab four (4) inches thick. The type of finish for the replaced section shall be the same as that appearing on the old sidewalk. Replacement shall, in general, be to original joint or score marks. Reinforcement shall be 4" x 4" - W2.9 x W2.9 welded wire fabric located at mid-depth in the slab.

## 8. REPLACING CURB AND GUTTER

On all curb and gutter, the replacement shall consist of a section conforming in all details to the original section or to City of Corpus Christi Standard curb and gutter section, if required by the Engineer. Cuts through the curb shall be replaced with Class "A" concrete. Preserve the original steel reinforcing and reinforce all new curbs with three #4 bars. Adjust grades for positive drainage. Replacement shall, in general, be to original joint or score mark. For jointed concrete roadways, the joints in curb or in curb and gutter should match the concrete roadway joints.

## 9. REPAIRING STREET SHOULDERS AND UNIMPROVED STREETS

On streets or roads without curb and gutter where a shoulder is disturbed, it shall be restored to like or better condition. The shoulder surface shall be rolled to an acceptably stable condition. The requirements of City Ordinance 030040 as stated above apply also to unimproved streets unless a specific variance is granted by the Director of Development Services.

## 10. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, pavement repair shall be measured by the square yard of the type of repair specified; curb and gutter replacement shall be measured by the linear foot; and sidewalk and driveway replacement shall each be measured by the square foot. Payment will be made at the unit price bid for the completed work and shall be full compensation for all labor, materials, equipment, tools, and incidentals required to complete the work. No separate measurement or payment will be made for subgrade compaction, sand leveling course, geogrid, ordinary backfill, cement-stabilized sand backfill, flexible base, prime coat, hot-mix asphaltic concrete, etc.



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