



STANDARD DETAILS
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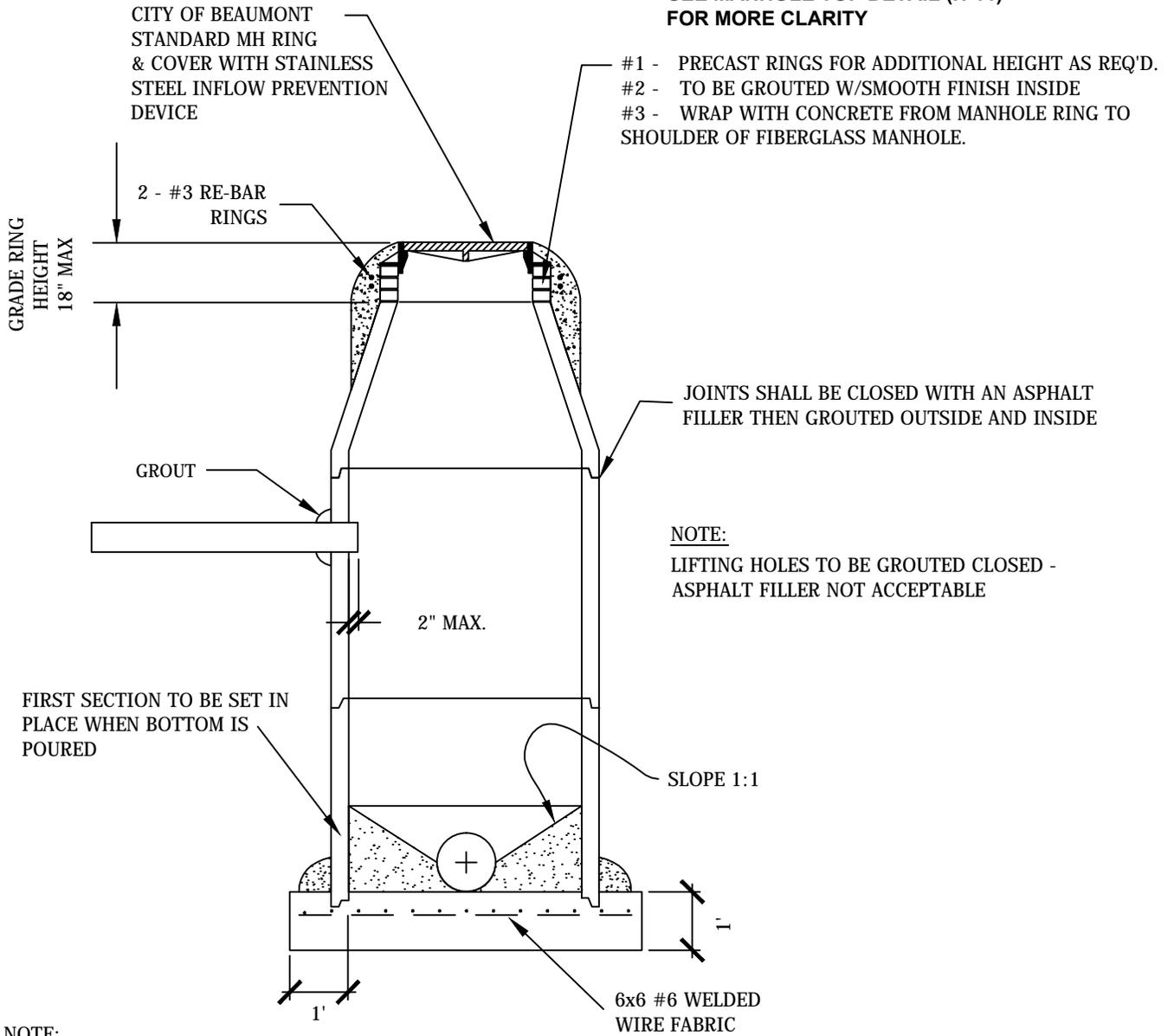
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NOTE:

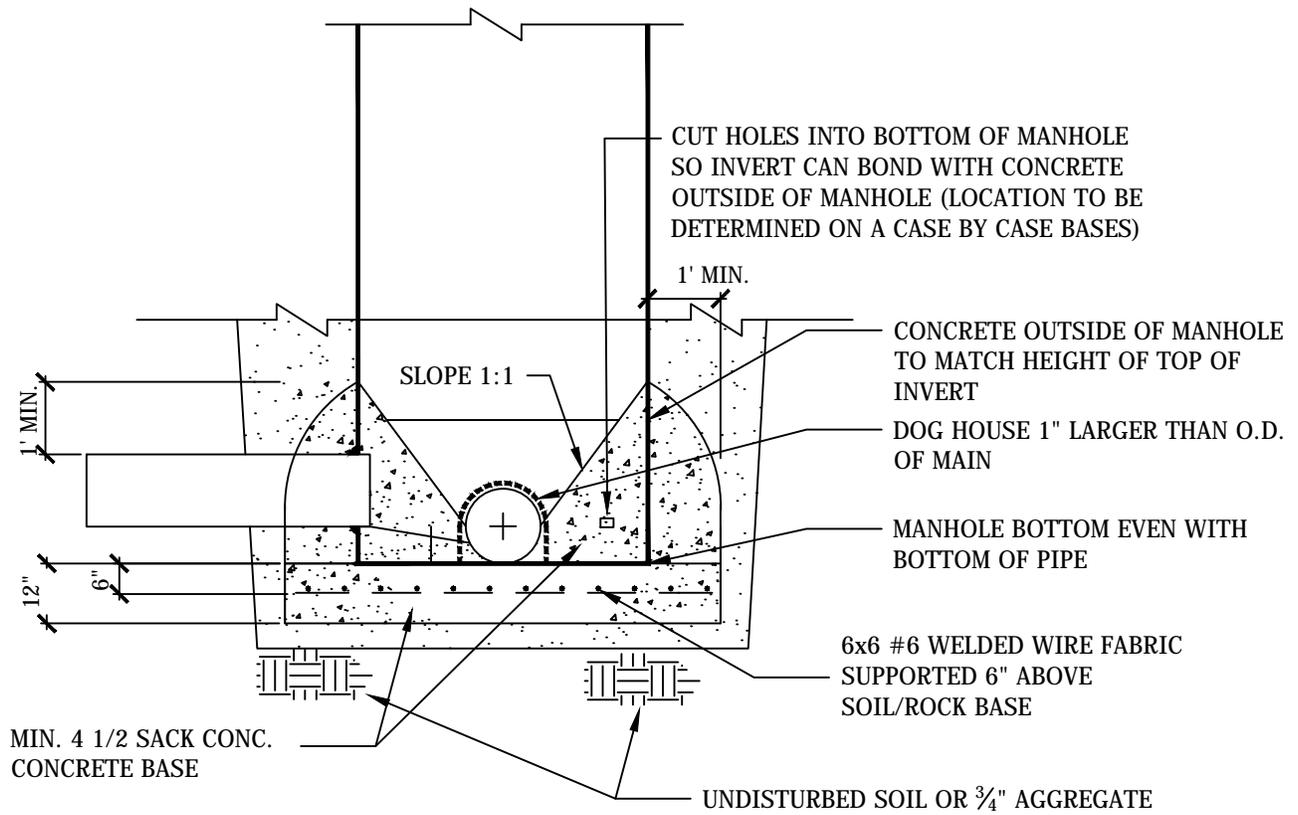
**** SEE MANHOLE TOP DETAIL (H-11)
FOR MORE CLARITY**



NOTE:

1. HANSON PIPE PRECAST BASE OR EQUAL (OPTIONAL)
2. IF A MANHOLE IS PLACED WITHIN A DITCH, THEN IT MUST BE PRE-CAST AND THE TOP OF THE MANHOLE MUST BE FOUR (4) INCHES ABOVE FINISHED DITCH GRADE.

TIE INTO EXISTING PRECAST MANHOLE DETAIL



NOTE:

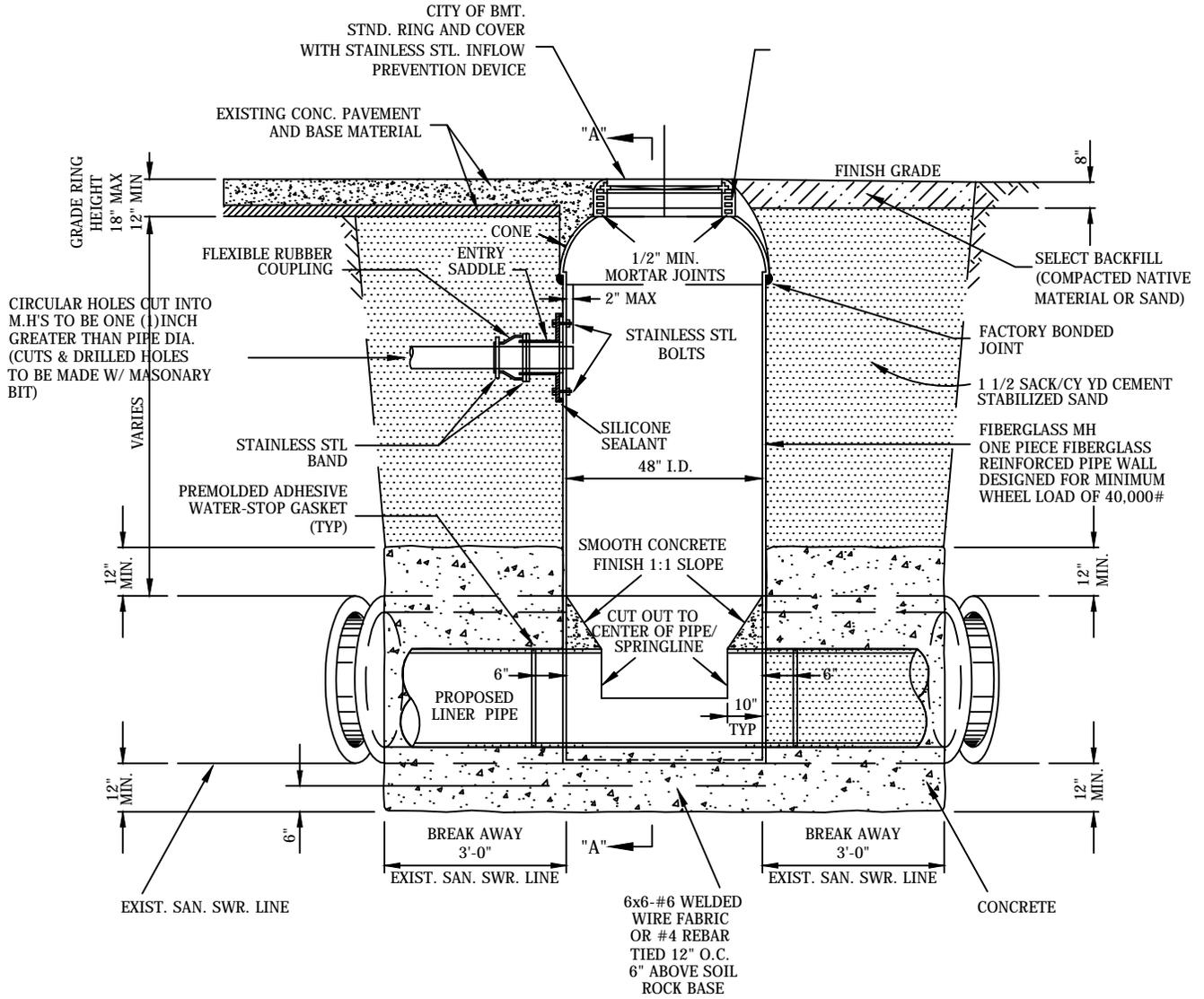
INSTALLATION SHALL BE COMPLY WITH MANUFACTURES
RECOMMENDED INSTALLATION INSTRUCTIONS

FIBERGLASS MANHOLE BOTTOM DETAIL

NOTE:

** SEE MANHOLE TOP DETAIL (H-11) FOR MORE CLARITY

- #1 - PRECAST RINGS FOR ADDITIONAL HEIGHT AS REQ'D.
- #2 - TO BE GROUTED W/SMOOTH FINISH INSIDE
- #3 - WRAP WITH CONCRETE FROM MANHOLE RING TO SHOULDER OF FIBERGLASS MANHOLE.

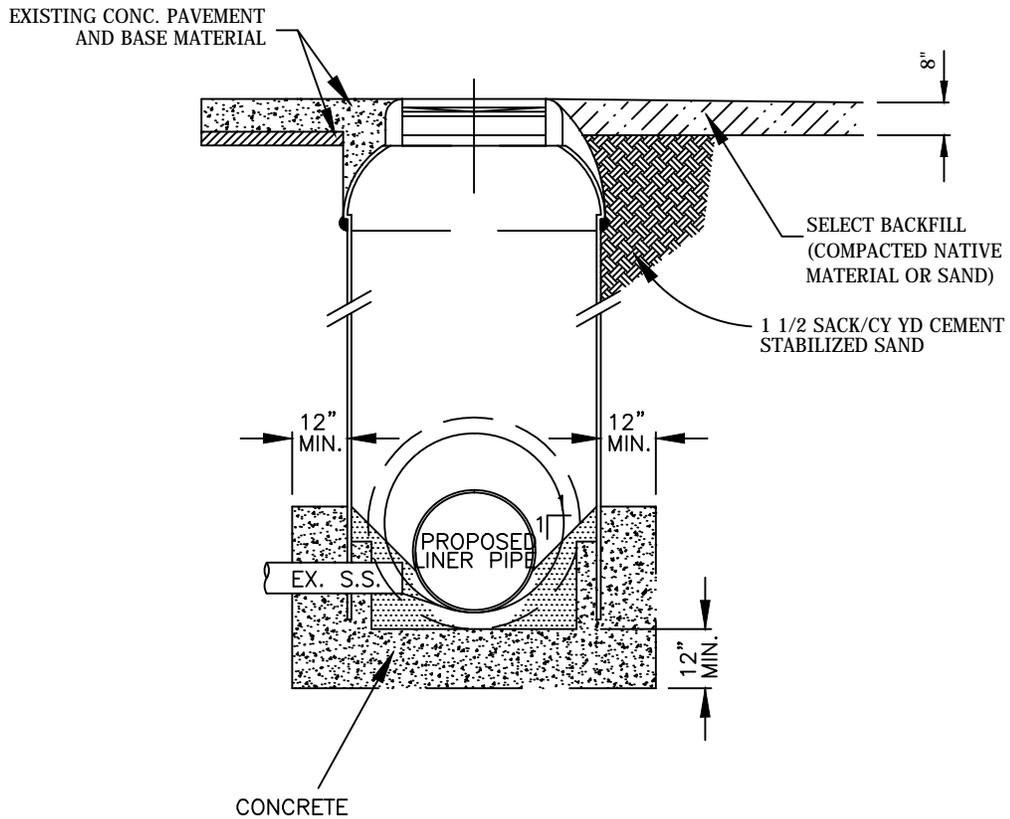


TYPICAL LINER CONNECTION TO NEW MANHOLE

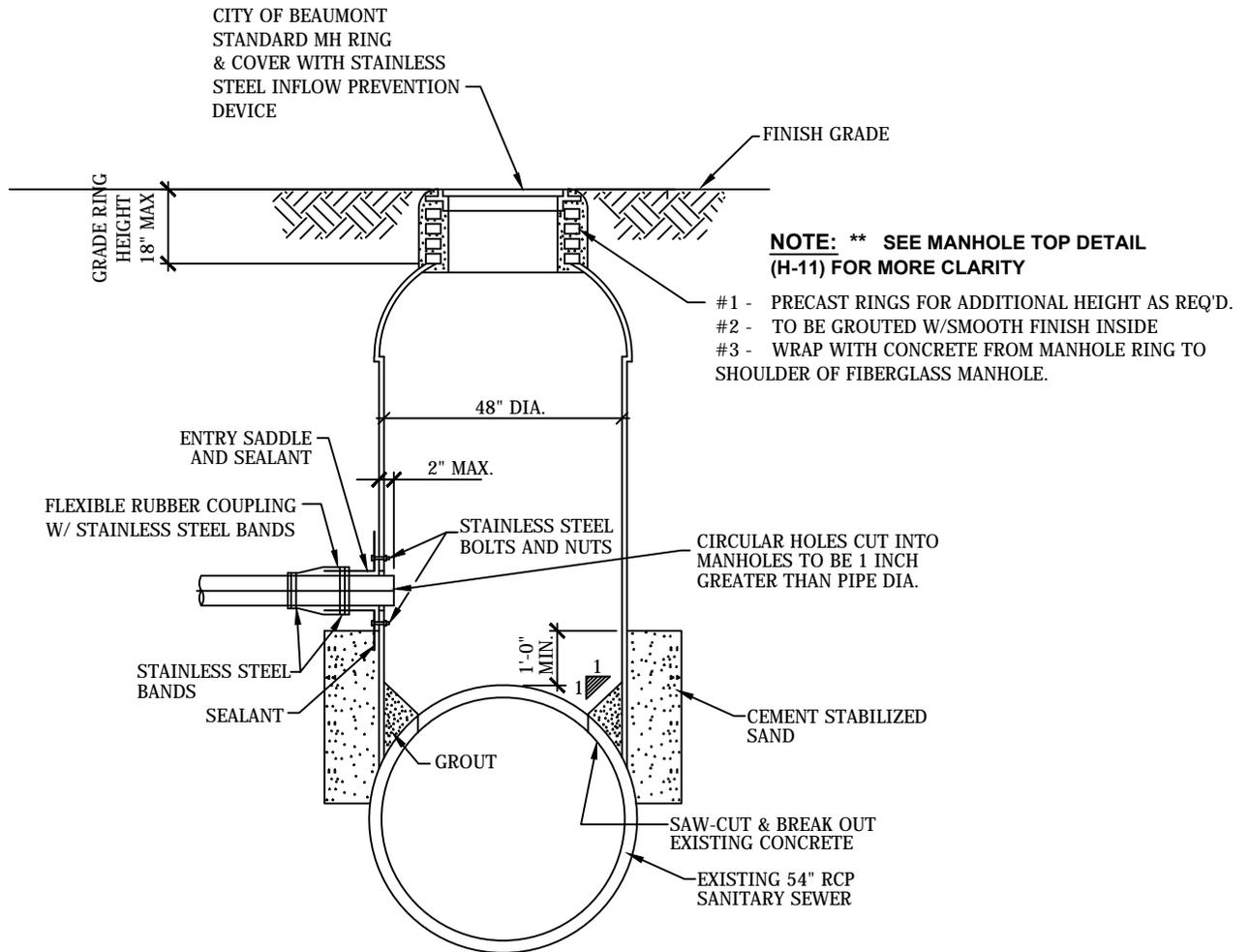
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WATER UTILITIES DEPARTMENT
N.T.S.

NOTE:

INVERT SHOULD BE SHAPED TO FORM A SMOOTH TRANSITION FROM MANHOLE WALLS TO INVERT OF EFFLUENT PIPE. ALL CORNERS SHALL BE FILLED WITH GROUT AND SHAPED SO AS TO CHANNEL FLOW TO INVERT OF EFFLUENT PIPE WITH NO OBSTRUCTIONS.



**SECTION "A-A" OF
TYPICAL LINER CONNECTION
TO NEW MANHOLE**



NOTE:

IF MANHOLE IS PLACED IN THE DITCH, SEE
H-1 (PRECAST MANHOLE DETAIL)

MANHOLE OVER EXISTING LARGE LINE (36" AND UP)

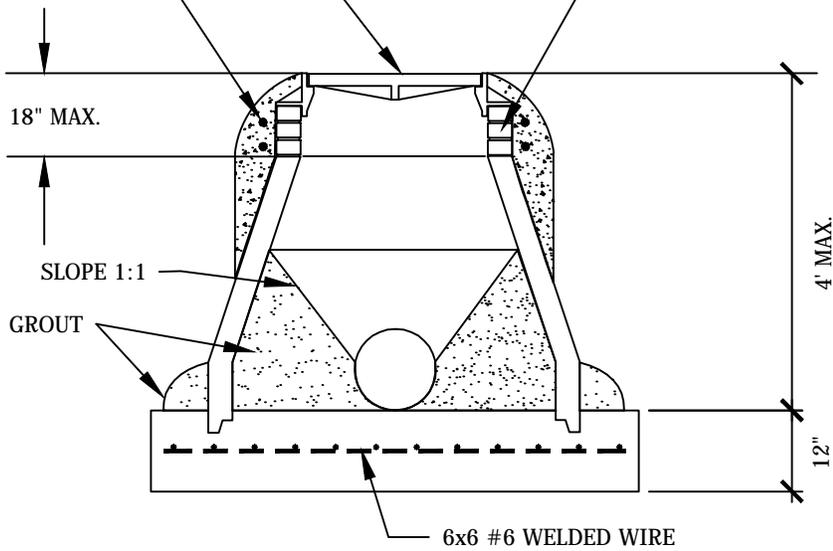
NOTE:

** SEE MANHOLE TOP DETAIL (H-11) FOR MORE CLARITY

- #1 - PRECAST RINGS FOR ADDITIONAL HEIGHT AS REQ'D.
- #2 - TO BE GROUTED W/SMOOTH FINISH INSIDE
- #3 - WRAP WITH CONCRETE FROM MANHOLE RING TO SHOULDER OF FIBERGLASS MANHOLE.

CITY OF BEAUMONT STANDARD RING AND COVER WITH STAINLESS STEEL INFLOW PREVENTION DEVICE

2 - #3 RE-BAR RINGS

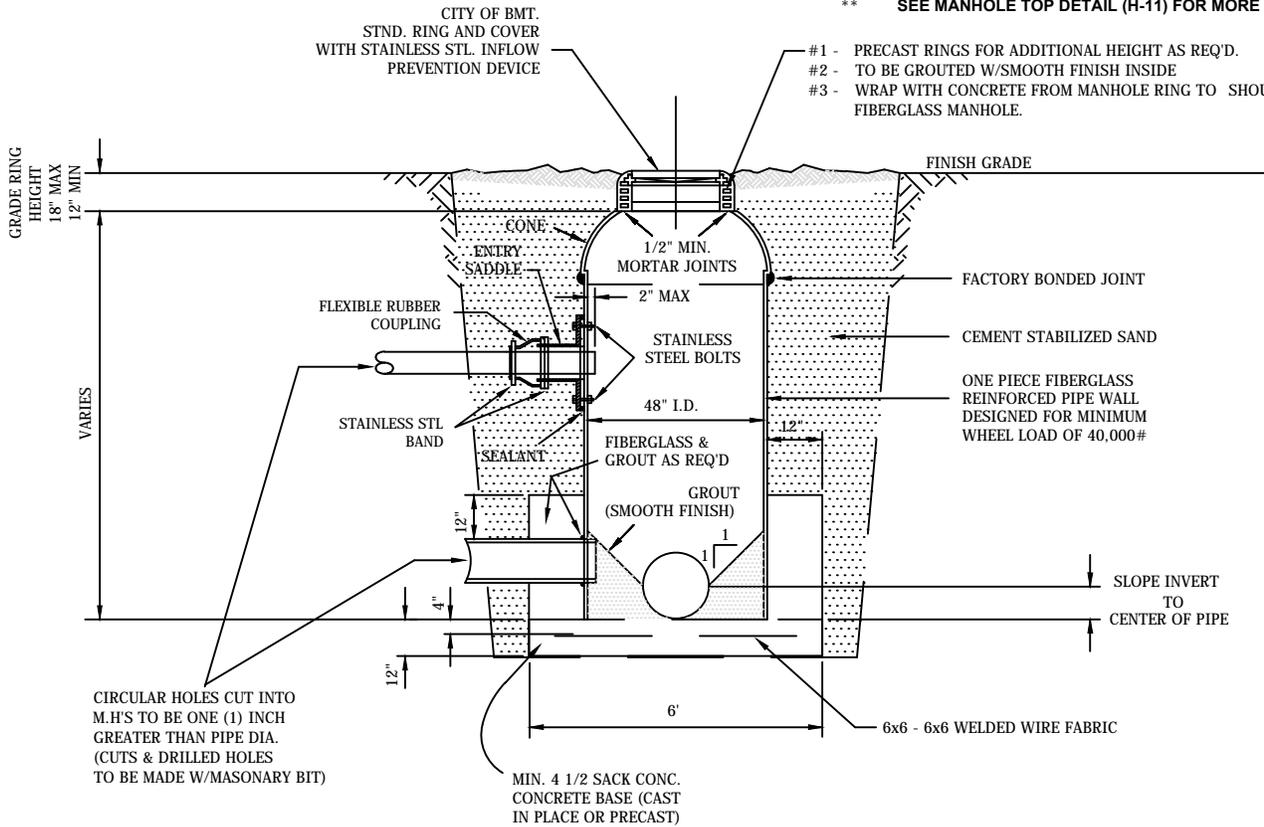


SHALLOW MANHOLE DETAIL

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NOTE:

** SEE MANHOLE TOP DETAIL (H-11) FOR MORE CLARITY



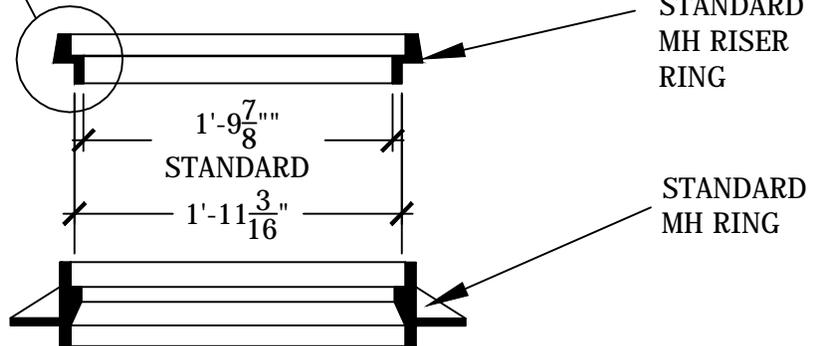
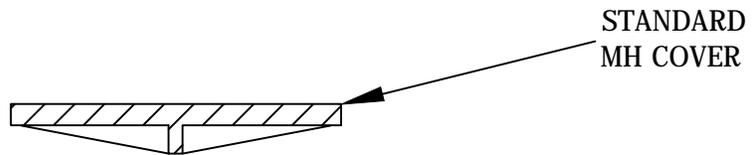
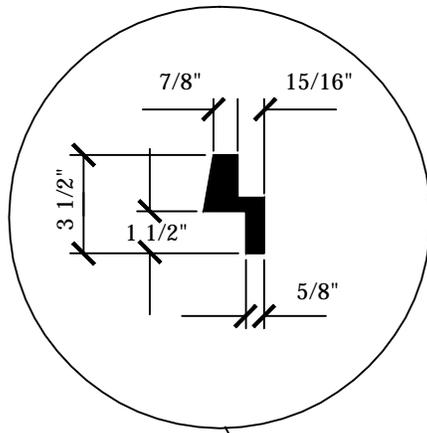
NOTES:

D3753-79 (STANDARD SPECIFICATION FOR GLASS FIBER-REINFORCED POLYESTER MANHOLES). ALL MANHOLES SUPPLIED WITH CONES SHALL BE CERTIFIED TO COMPLY WITH ANSI/ASTM. INSTALLATION SHALL COMPLY WITH MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.

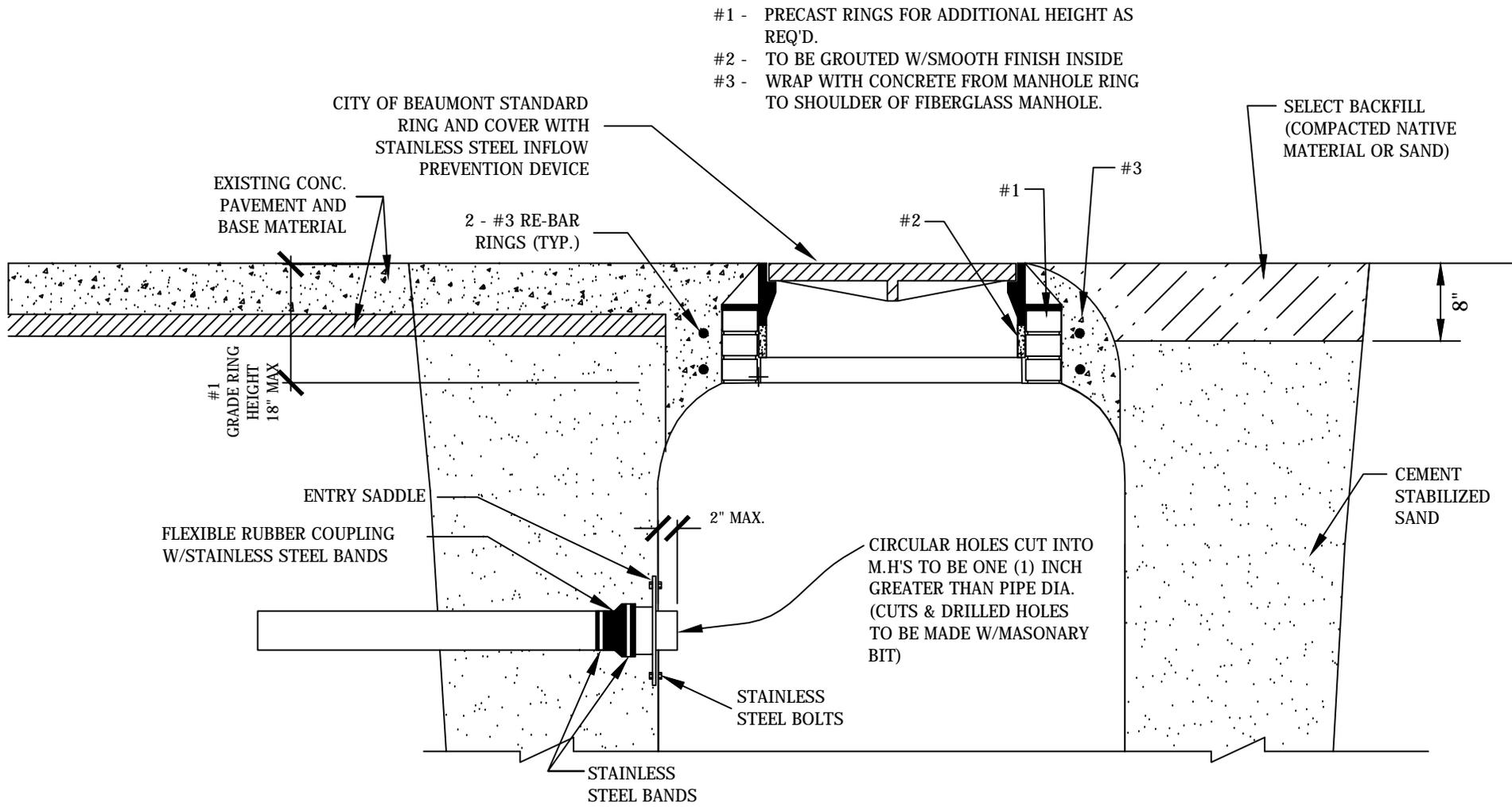
FIBERGLASS MANHOLE STIFFNESS - THICKNESS				
DEPTH	3'- 6'	7'- 12'	13'- 20'	21'- 25'
NOMINAL WALL THICKNESS	.25	.30	.48	.48
MIN. STIFFNESS F _{AY} , PSI (kPa)	.72 (4.96)	1.26 (8.69)	2.01 (13.86)	3.02 (20.82)

TYPICAL MANHOLE FOR PIPEBURSTING

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WATER UTILITIES DEPARTMENT
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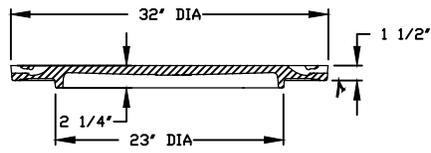
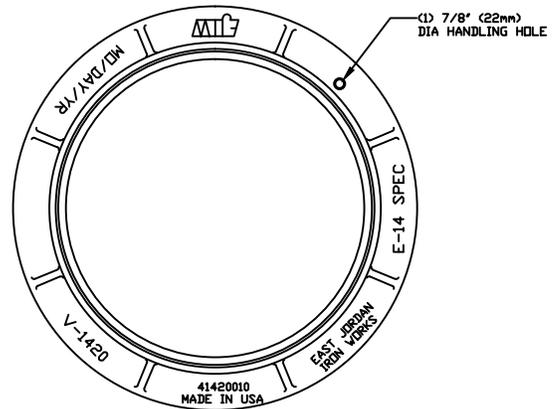
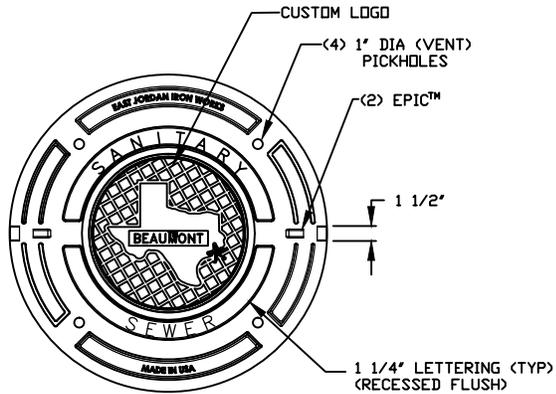
**MANHOLE INCREASER
 RING DETAIL
 FOR STANDARD
 MANHOLE FRAME AND COVER**



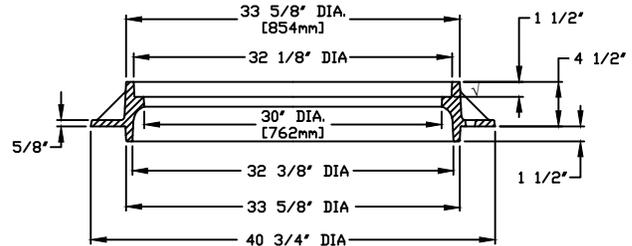
- #1 - PRECAST RINGS FOR ADDITIONAL HEIGHT AS REQ'D.
- #2 - TO BE GROUTED W/SMOOTH FINISH INSIDE
- #3 - WRAP WITH CONCRETE FROM MANHOLE RING TO SHOULDER OF FIBERGLASS MANHOLE.

MANHOLE TOP DETAIL

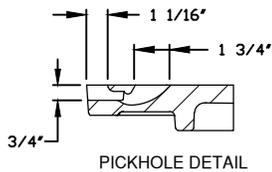
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 WATER UTILITIES DEPARTMENT
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COVER SECTION



FRAME SECTION



PICKHOLE DETAIL

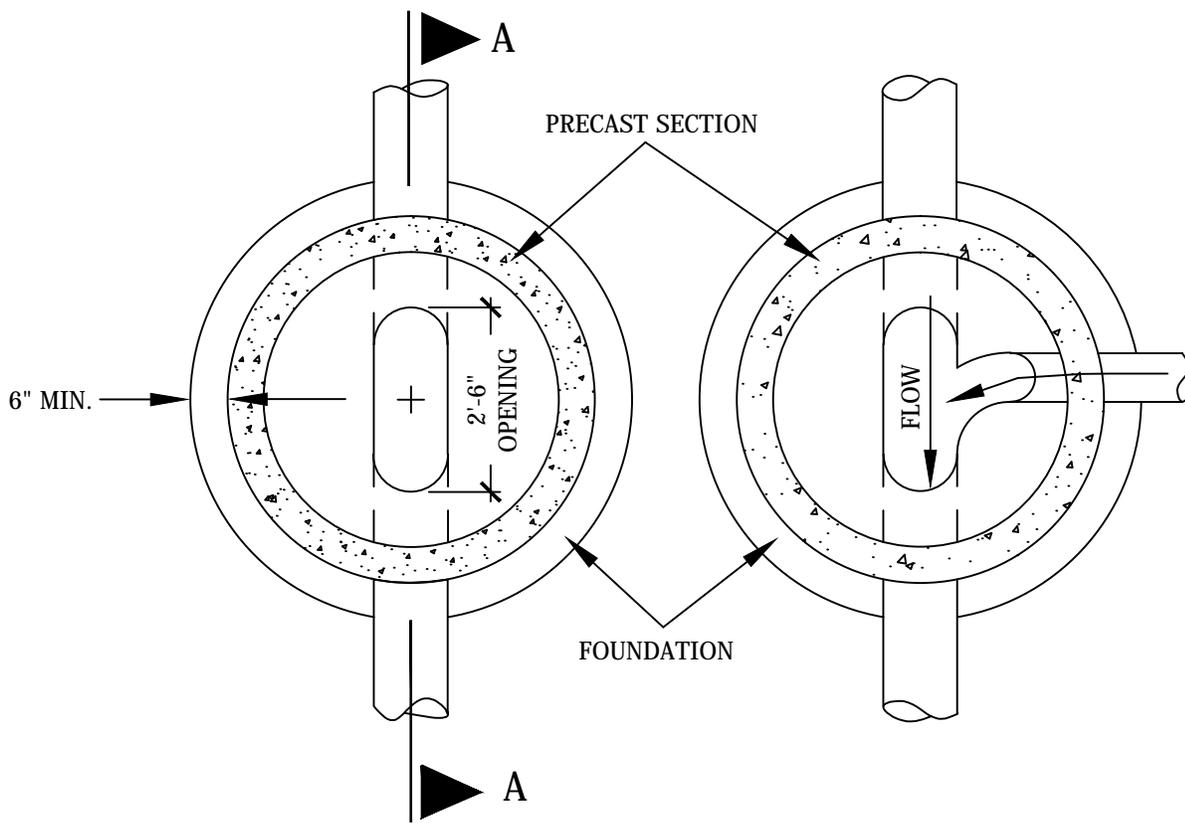
√ DENOTES MACHINED SURFACE

SPECIFICATIONS:

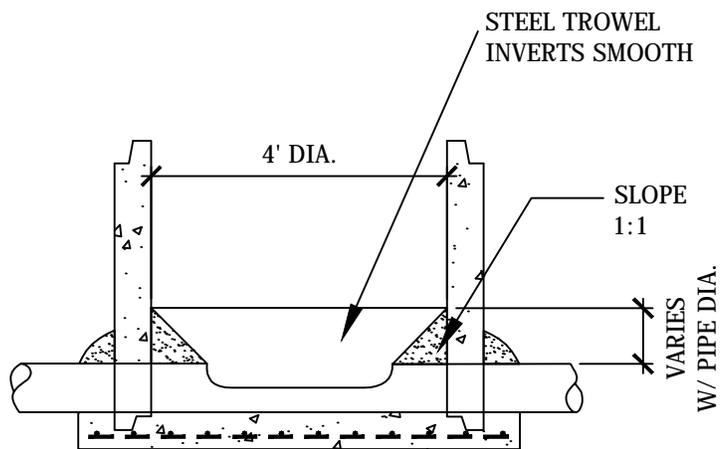
1. MATERIAL: RING: CAST IRON A. S. T. M. A-48, CLASS NO. 35, COVER: DUCTILE IRON, ASTM A536, AASHTO M306
2. ALL CASTINGS SHALL BE FIRST QUALITY, SMOOTH CASTINGS, FREE FROM FLAWS, BLOW HOLES, SAND HOLES OR OTHER IMPERFECTIONS.
3. THE BEARING SURFACES OF ALL FRAMES AND COVERS BOTH SHALL BE MACHINED FINISHED FOR FULL PERIPHERY EVEN BEARINGS.
4. ALL CASTINGS MUST BE SAND BLASTED CLEAN OF SCALE OR SAND SO AS TO PRESENT A SMOOTH, CLEAN AND UNIFORM SURFACE.
5. THE WEIGHT OF THE MANHOLE RING SHOULD NOT EXCEED 235 LBS.
6. THE WEIGHT OF THE MANHOLE COVER SHOULD NOT EXCEED 175 LBS.

STANDARD MANHOLE FRAME AND COVER

CITY OF BEAUMONT
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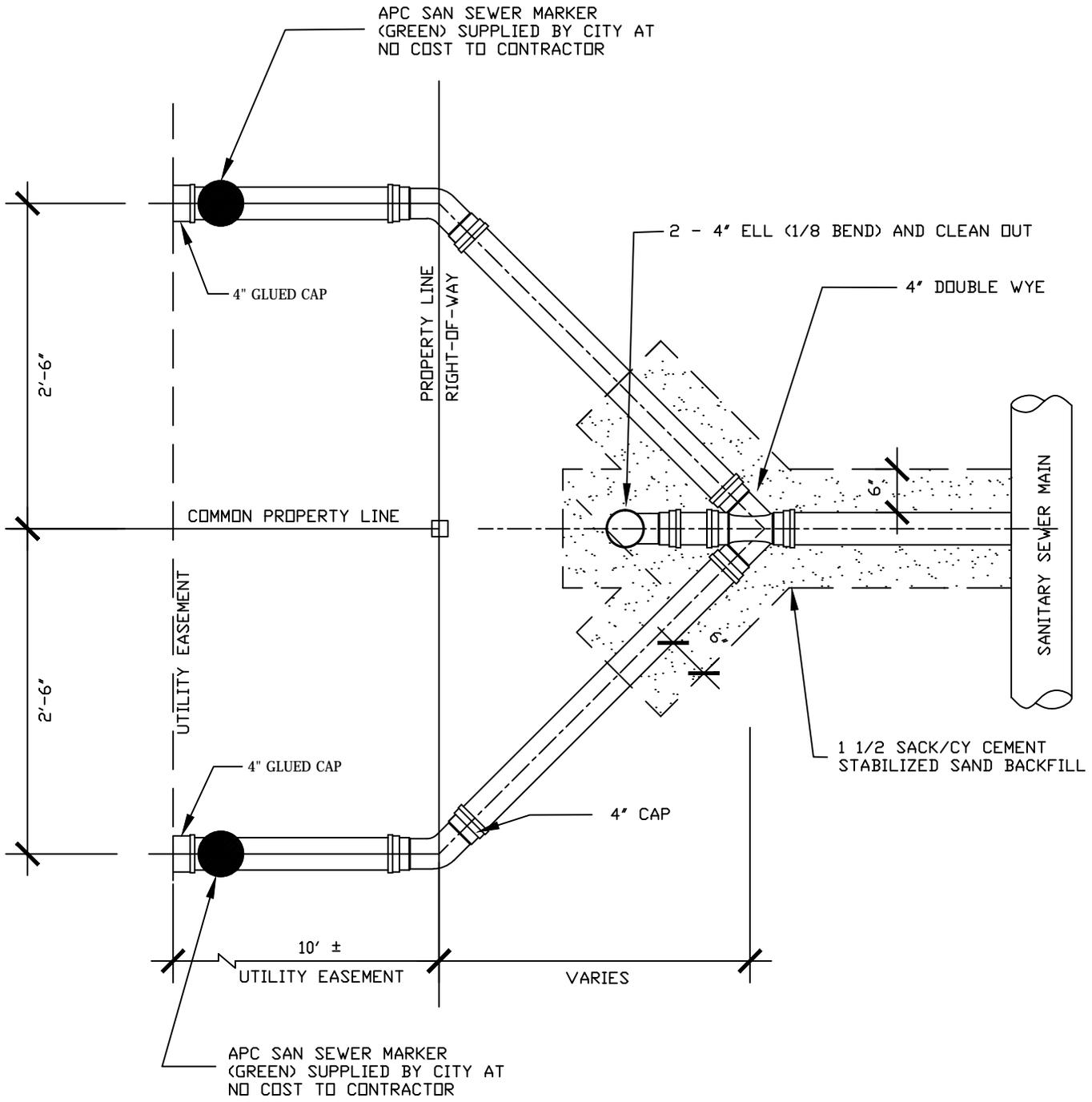


PLAN VIEW

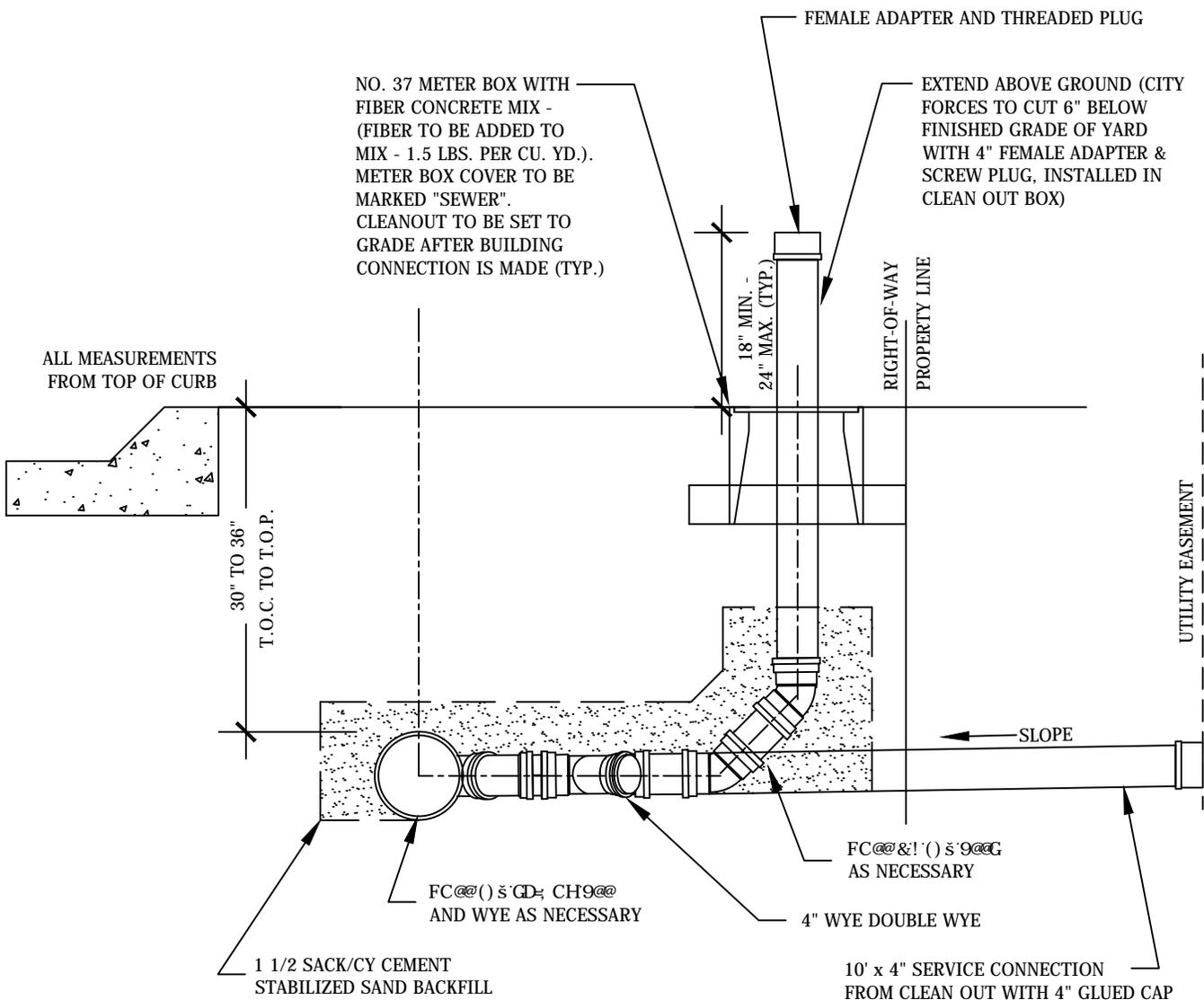


SECTION A-A

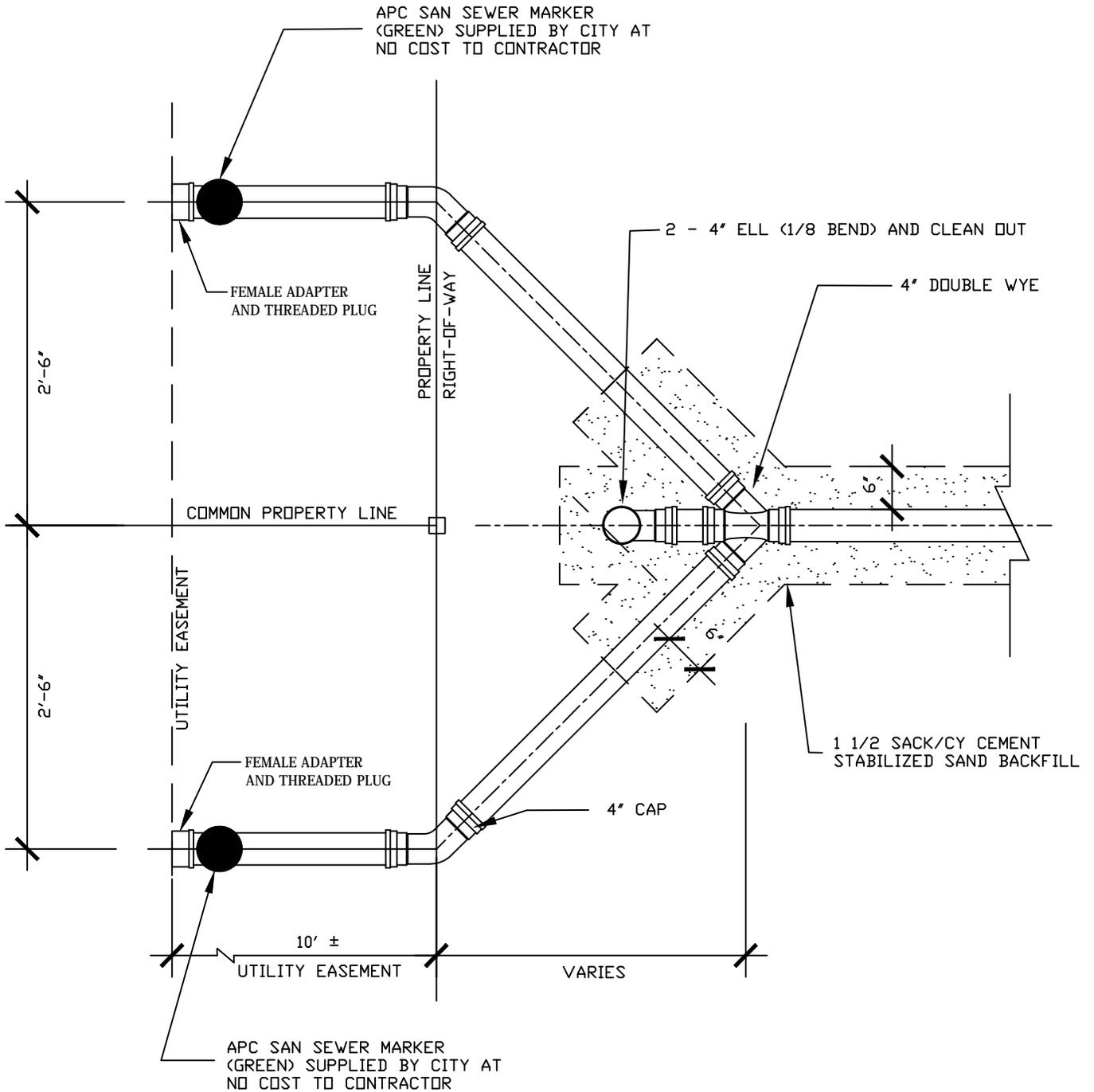
TYPICAL INVERT
SHAPING



PLAN VIEW
TYPICAL SHORT SIDE TAP DETAIL
FOR SEWER MAINS LESS THAN 6' DEEP

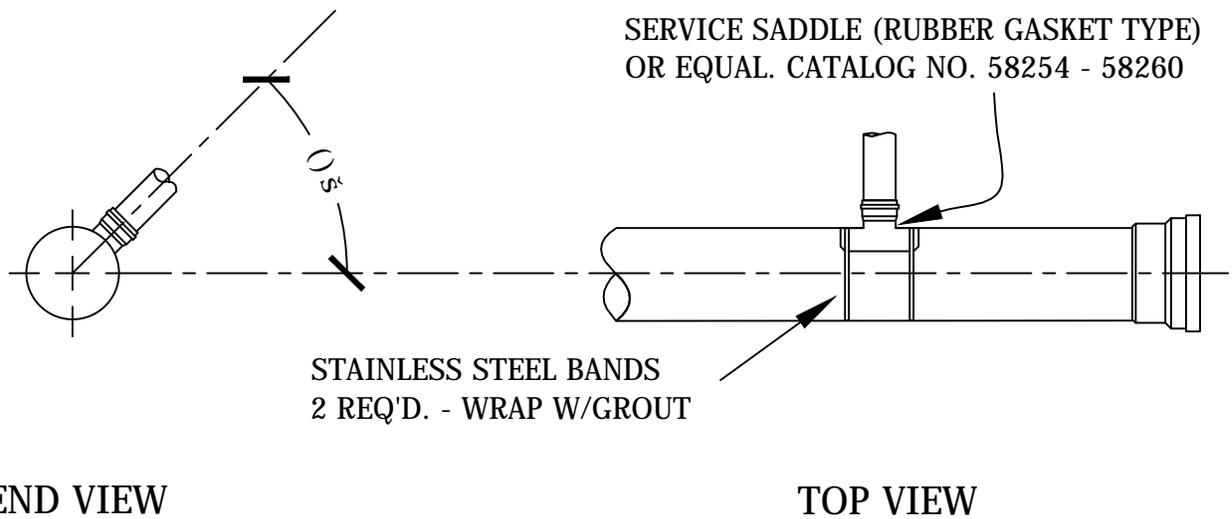


**PROFILE VIEW
TYPICAL SHORT SIDE TAP DETAIL
WITH SERVICE CONNECTION
FOR SEWER MAINS LESS THAN 6' DEEP**



PLAN VIEW
TYPICAL LONG SIDE TAP DETAIL
FOR SEWER MAINS LESS THAN 6' DEEP

FOR SADDLE LIP.

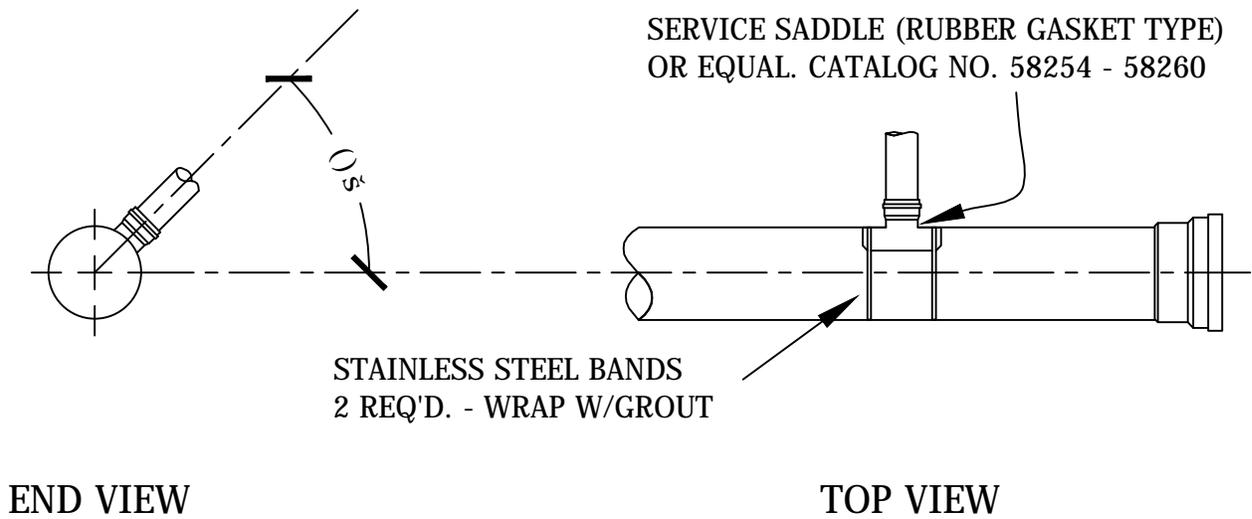


**TYPICAL SERVICE TAP
CONNECTION ONLY ON HDPE PIPE**

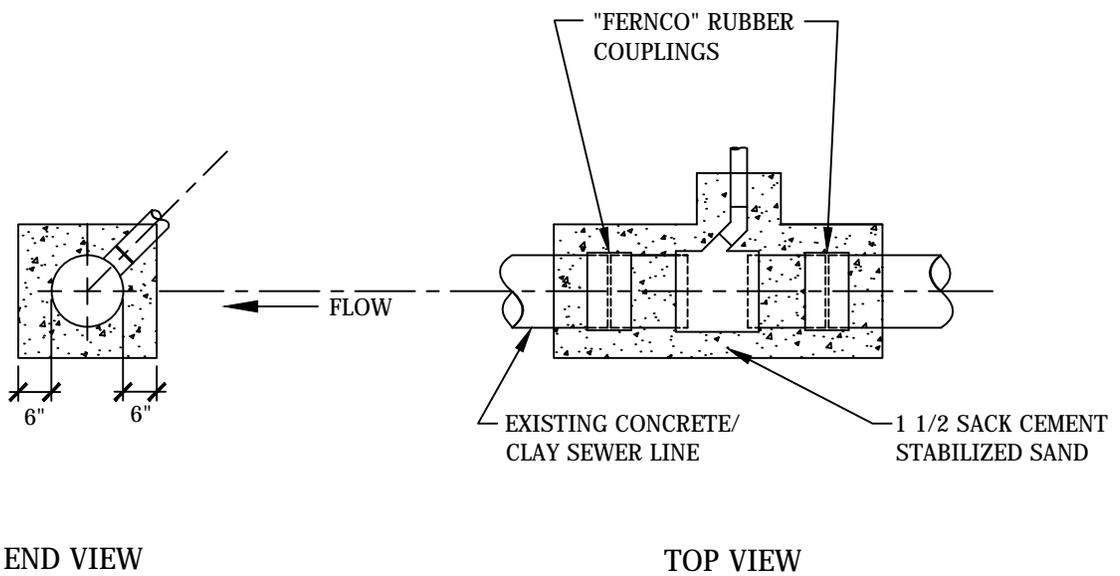
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N.T.S.

NOTE:

- * TO BE DRILLED WITH HOLE SAW AND GUIDE BIT. USE CORRECT DIAMETER FOR SADDLE LIP.

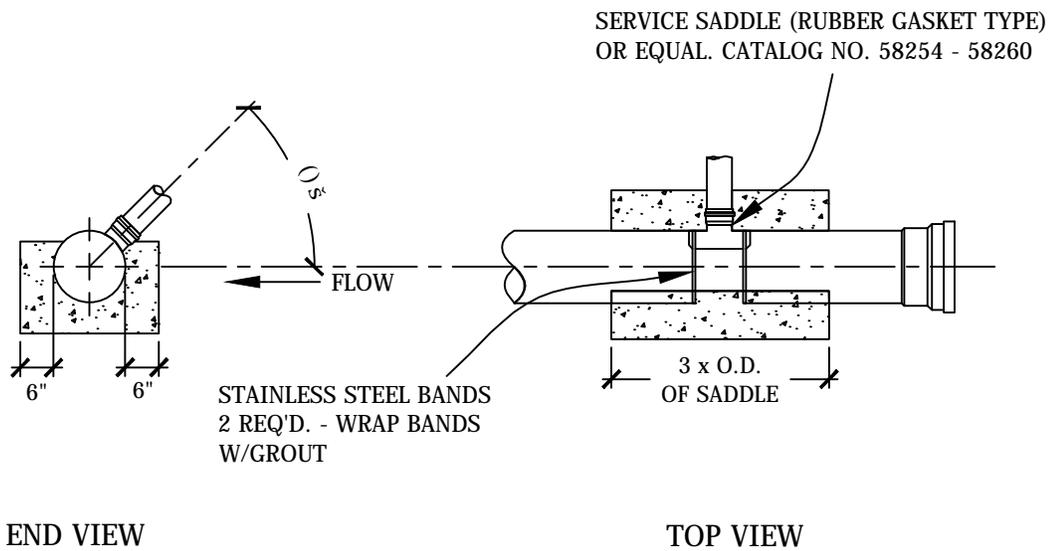


**TYPICAL SERVICE TAP
CONNECTION FOR PVC PIPE**

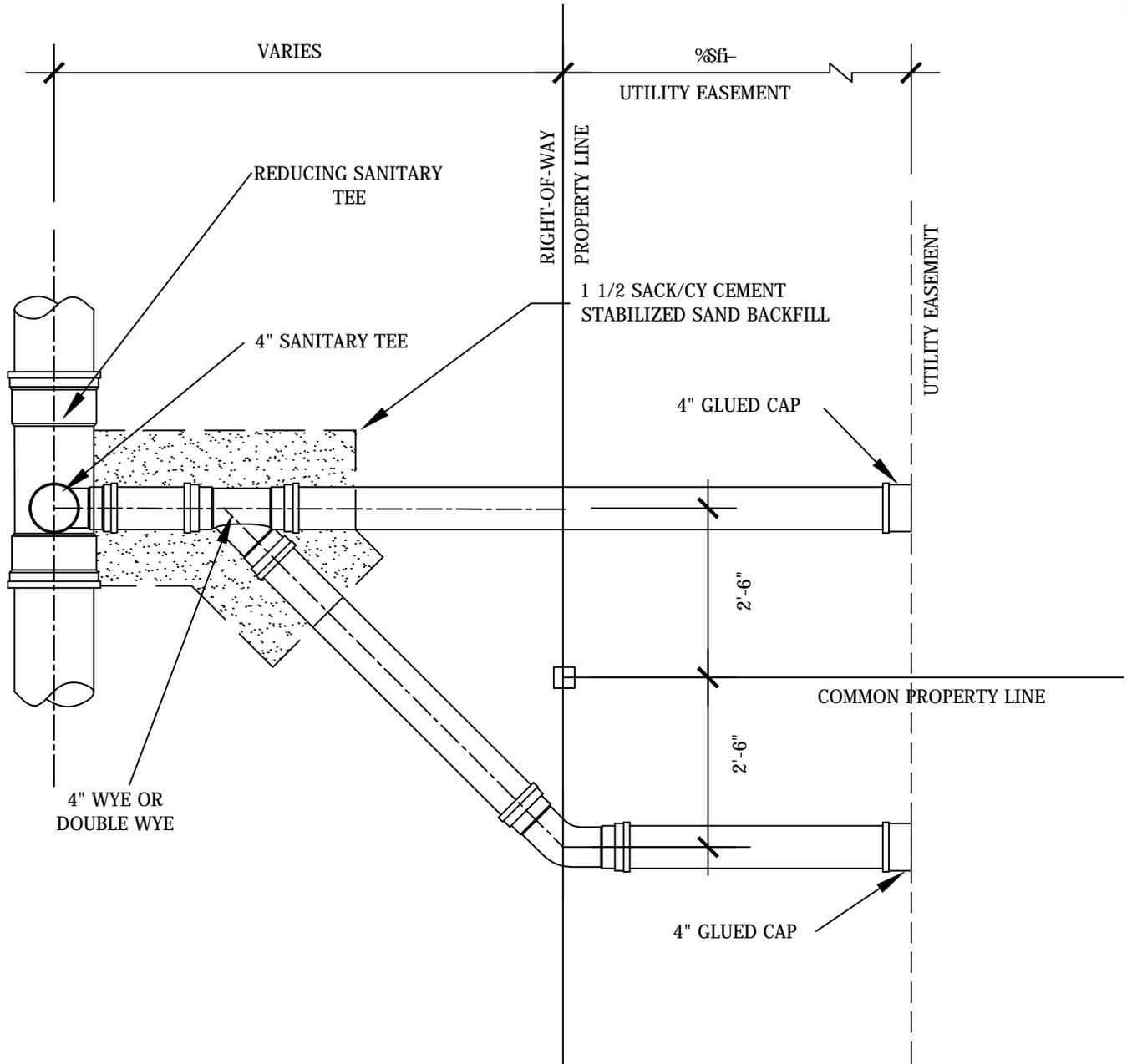


**STANDARD TYPICAL SERVICE
TAP CONNECTION FOR
CONCRETE/CLAY PIPE**

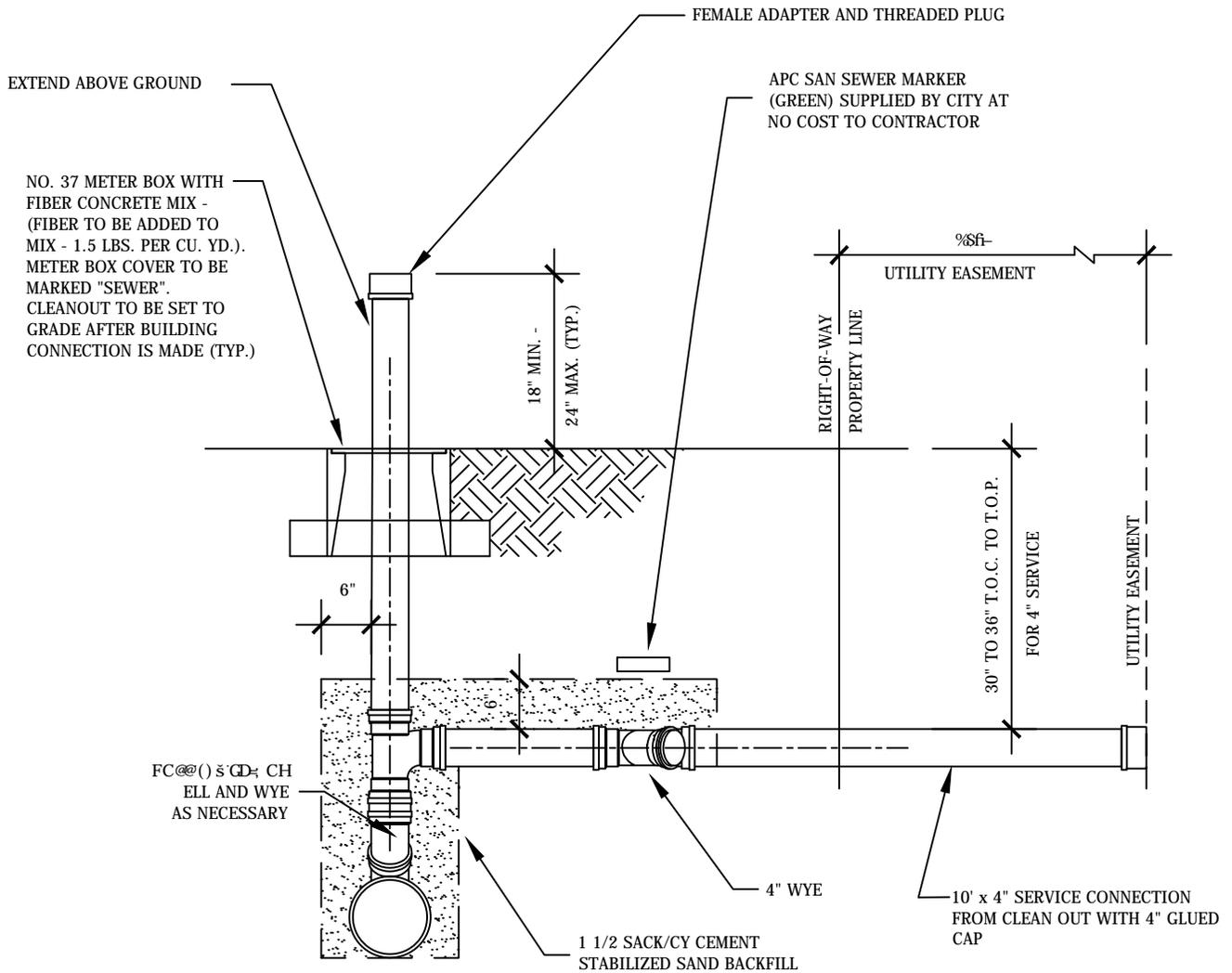
CITY OF BEAUMONT
WATER UTILITIES DEPARTMENT
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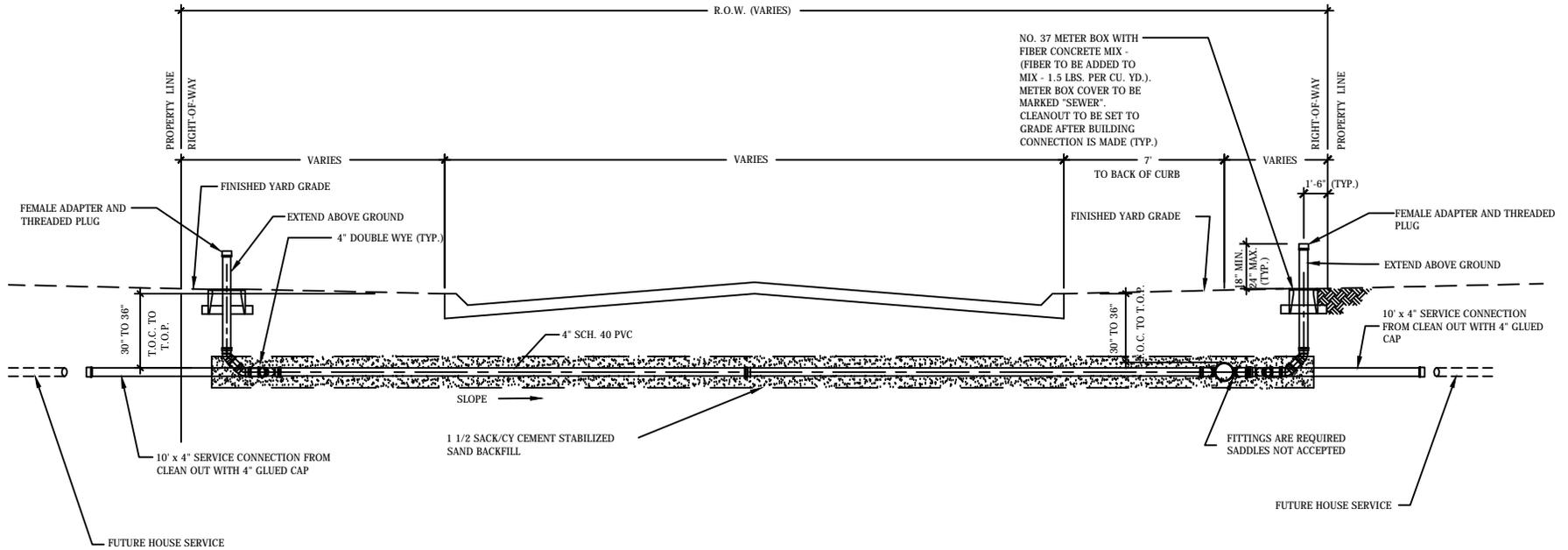
**TYPICAL SERVICE TAP CONNECTION
FOR CONCRETE/CLAY PIPE WITH SADDLE
(TO BE USED ONLY WHEN APPROVED BY
WATER UTILITIES ENGINEER)**



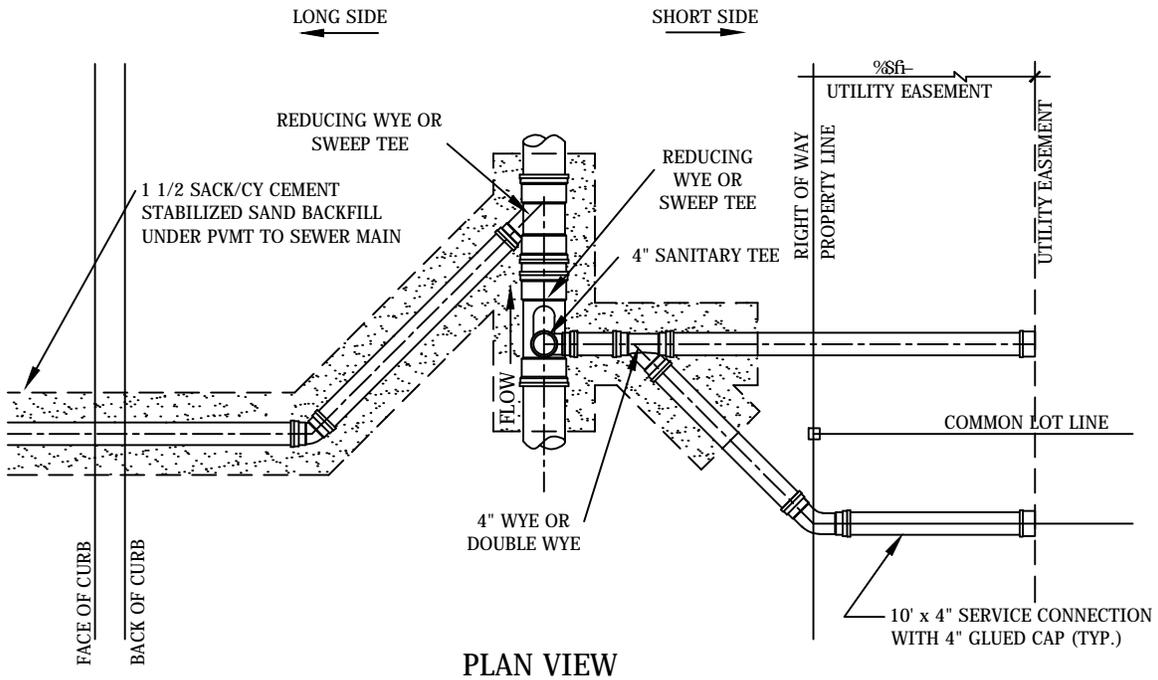
PLAN VIEW
TYPICAL SHORT SIDE TAP DETAIL
FOR SEWER MAINS DEEPER THAN 6'



**PROFILE VIEW
TYPICAL SHORT SIDE TAP DETAIL
FOR SEWER MAINS DEEPER THAN 6'**

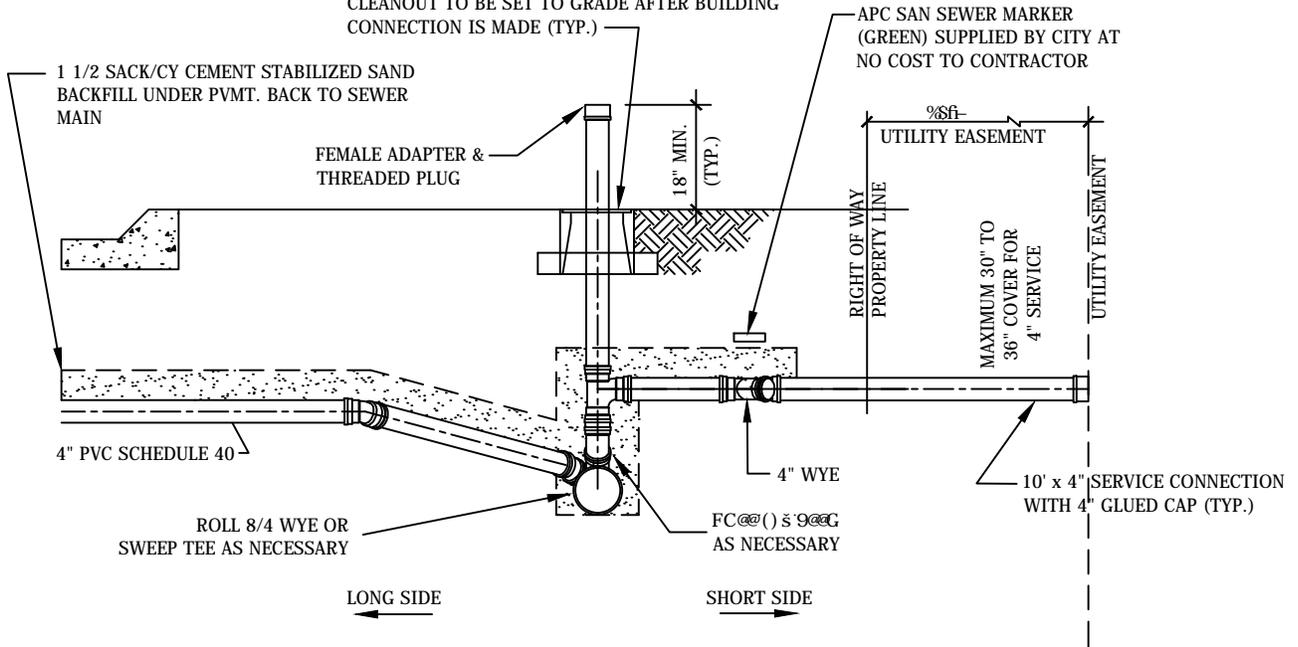


TYPICAL LONG AND SHORT SIDE SANITARY SEWER SERVICE CONNECTION AND STREET CROSSING DETAILS



PLAN VIEW

NO. 37 METER BOX WITH FIBER CONCRETE MIX -
 (FIBER TO BE ADDED TO MIX - 1.5 LBS. PER CU. YD.).
 METER BOX COVER TO BE MARKED "SEWER".
 CLEANOUT TO BE SET TO GRADE AFTER BUILDING
 CONNECTION IS MADE (TYP.)

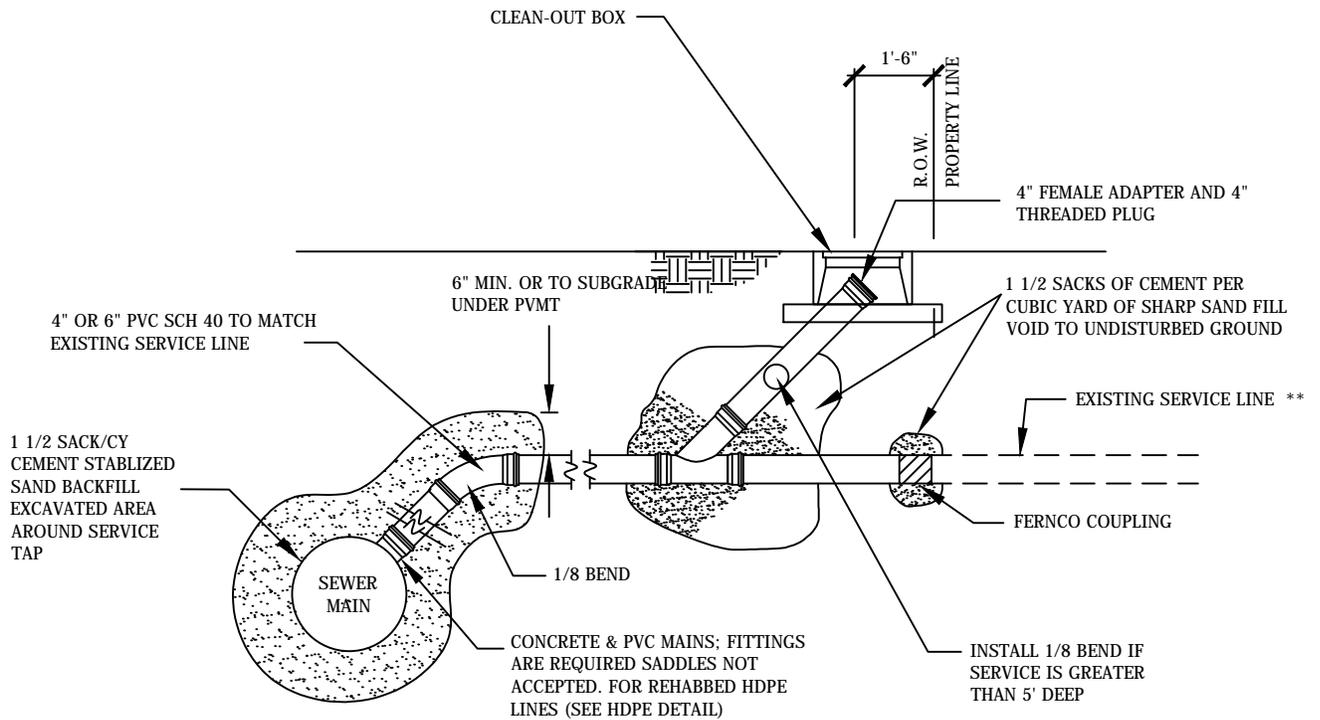


PROFILE VIEW

NOTE:

CLEAN OUT TO BE LOWERED TO 6" BELOW TOP OF CLEAN OUT BOX BY CITY FORCES AFTER BOTH SERVICE CONNECTIONS ARE IN SERVICE.

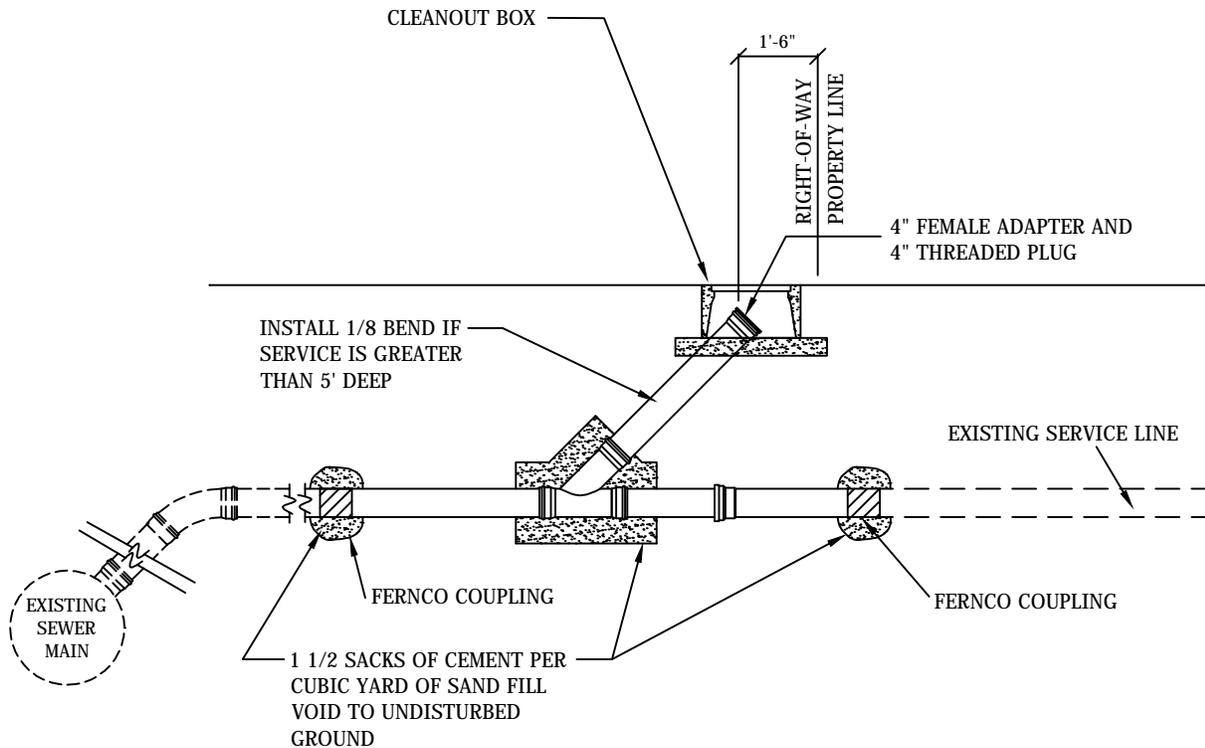
SANITARY SEWER SERVICE LINE DETAIL FOR SEWER MAINS OVER 6' DEEP



NOTE:

- * CLEAN OUT TO BE ACCESSABLE FROM PROPERTY IT SERVES
- * NO. 37 METER BOX WITH FIBER CONCRETE MIX - (FIBER TO BE ADDED TO MIX - 1.5 LBS. PER CU. YD.). METER BOX COVER TO BE MARKED "SEWER". CLEAN-OUT TO BE SET TO GRADE AFTER BUILDING CONNECTION IS MADE. (TYP.)
- ** MIRROR THE EXISTING CONCRETE SEWER SERVICE LINE, IF PVC IS VISIBLE AND OUT OF EASEMENT, CONTACT YOUR SUPERVISOR FOR APPROVAL TO DIG BACK TO PVC FOR TIE-IN.

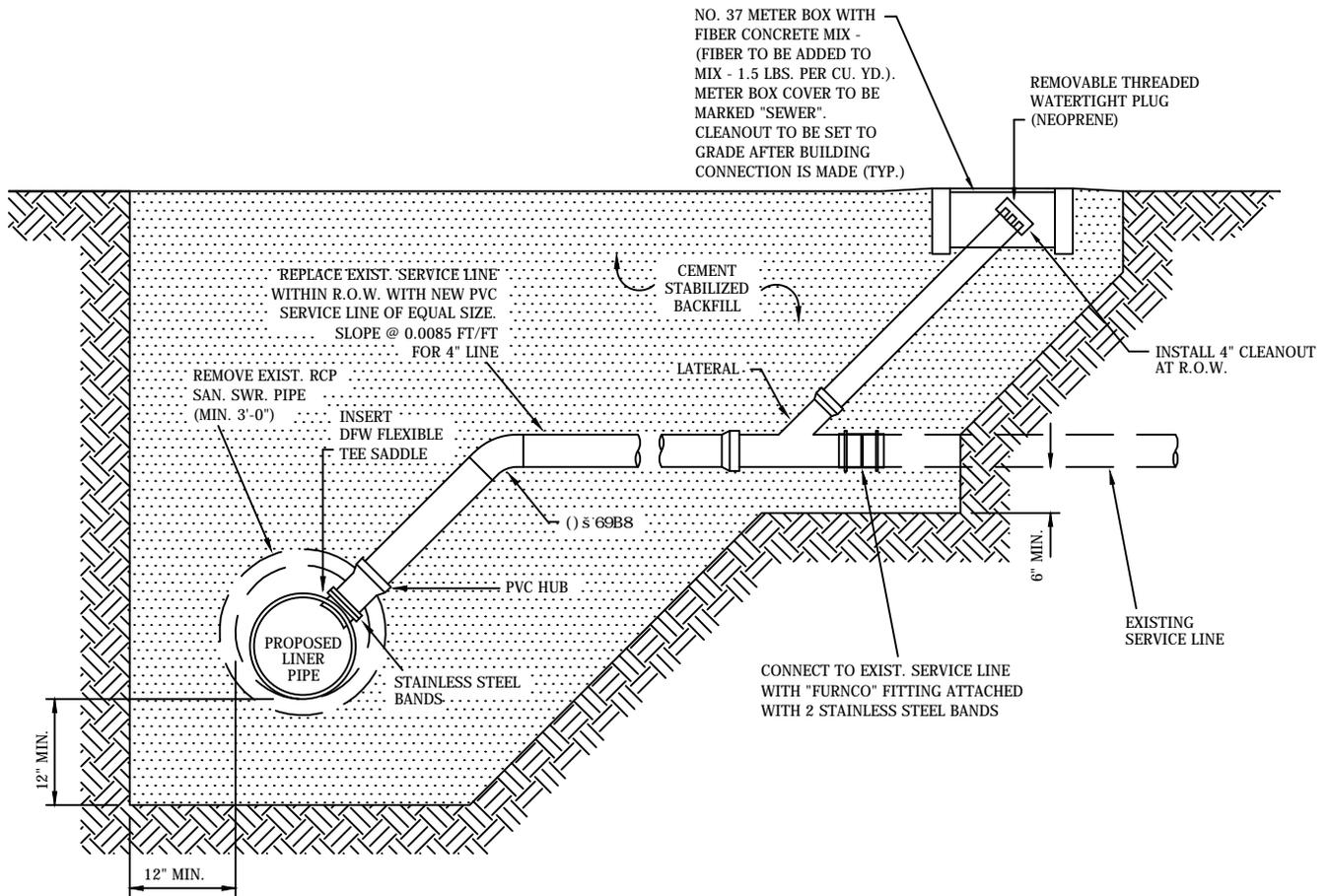
SANITARY SEWER CLEAN OUT DETAIL



NOTE:

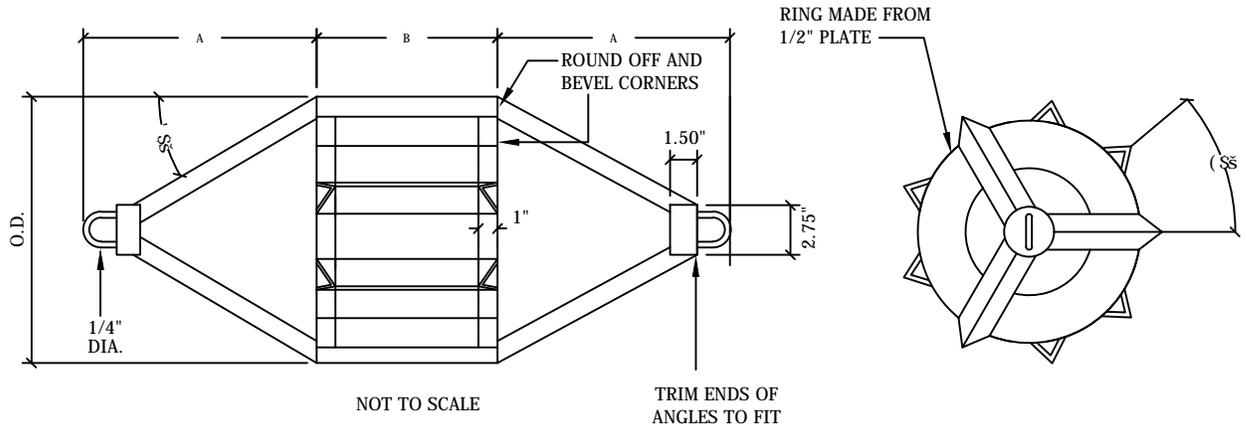
- * REPLACE 5FT OF EXISTING SERVICE LINE ON BOTH SIDES OF WYE. USE 4" OR 6" PVC SCH 40 TO MATCH EXISTING SERVICE LINE.
- * CLEAN OUT TO BE ACCESSABLE FROM PROPERTY IT SERVES
- * WRAP FERNCO'S AND 2-WAY CLEANOUT IN STABILIZED SAND OR DRY SACKRETE
- * NO. 37 METER BOX WITH FIBER CONCRETE MIX - (FIBER TO BE ADDED TO MIX - 1.5 LBS. PER CU. YD.). METER BOX COVER TO BE MARKED "SEWER". CLEAN OUT TO BE SET TO GRADE AFTER BUILDING CONNECTION IS MADE. (TYP)

INSTALLATION OF A CLEAN OUT ON AN EXISTING SANITARY SEWER SERVICE CONNECTION



TYPICAL SANITARY SEWER SERVICE LINE REPLACEMENT ON SLIP LINED SEWER MAIN

GO, NO-GO DEFLECTION TESTING MANDREL
 CONSTRUCTED FROM 1/2 - INCH ANGLE IRON



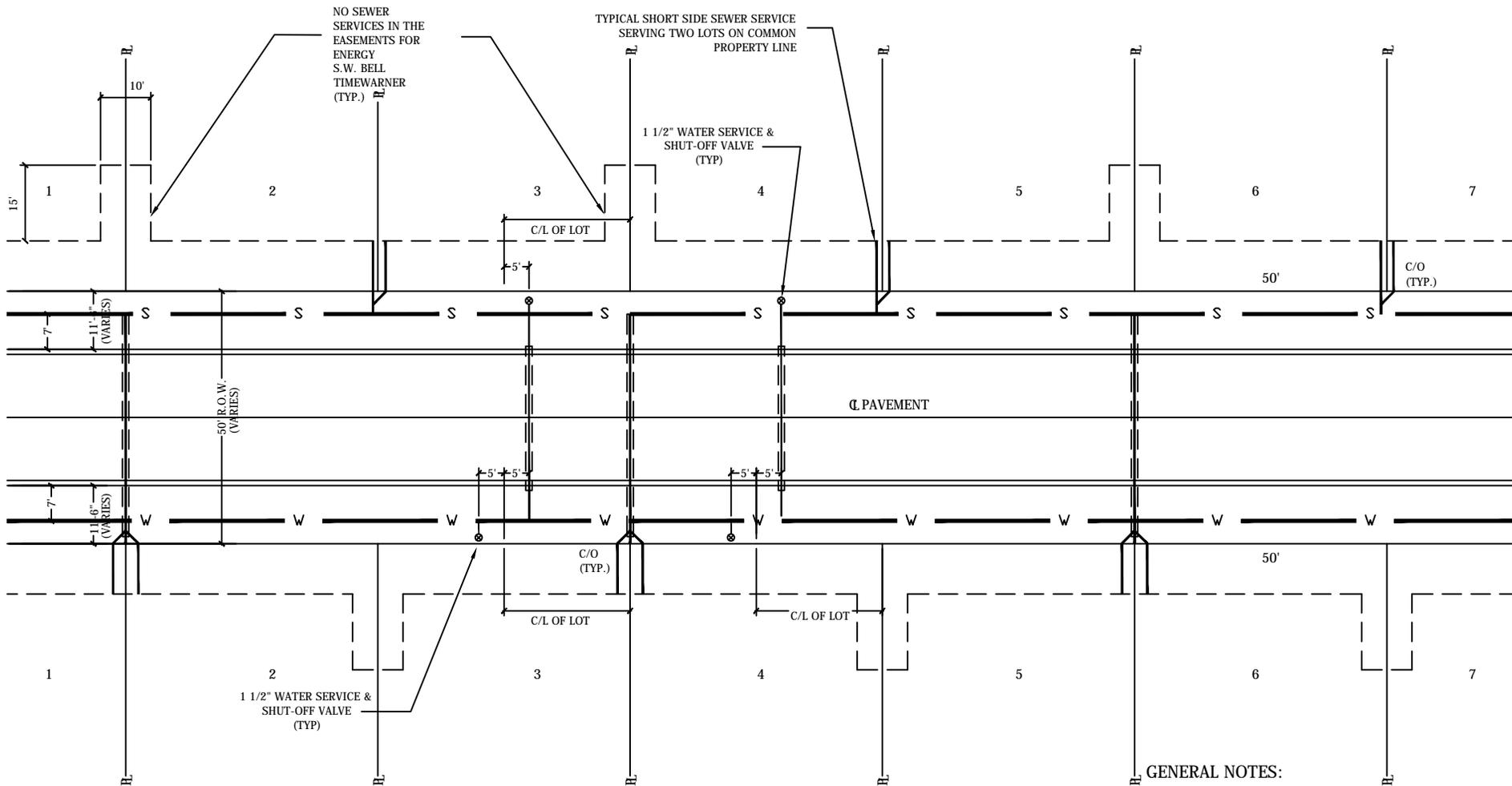
NOTE:

AFTER WELDING IS COMPLETED, TRUE THE OUTSIDE
 DIAMETER DIMENSION FOR THE FULL LENGTH OF "B"
 TO (\pm) 0.010" BY TOOL AND LATHE OR GRINDING

SIZE	A (inch)	B (inch)	Mandrel Outside Diameter (in.) For 7 1/2 % Deflection			Ring Outside Diameter (in.)			For Straight Wall-PVC	
			PSP DR 42	PSM DR 42	PSM DR 35	PSP DR 41	PSM DR 42	PSM DR 35	NOMINAL SIZE	MIN. I.D. OF PIPE
4	2.24	4	3.55		3.59	2.84		2.84	4	3.88
6	3.76	4	5.35		5.34	4.62		4.59	6	5.77
8	5.33	6	6.96	7.18	7.15	6.25	6.47	6.39	8	7.73
10	6.88	6	8.70	8.97	8.94	7.99	8.26	8.17	10	9.666
12	8.35	8	10.45	10.60	10.64	9.74	9.97	9.86	12	11.50
15	10.52	9	13.05		13.15				15	14.22
18	12.92	10			15.92				18	17.21
21	15.39	10			18.77				21	20.29
24	17.42	10			21.11				24	22.826
27	19.75	10			23.80				27	25.725

TYPICAL MANDREL DETAIL

CITY OF BEAUMONT
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GENERAL NOTES:

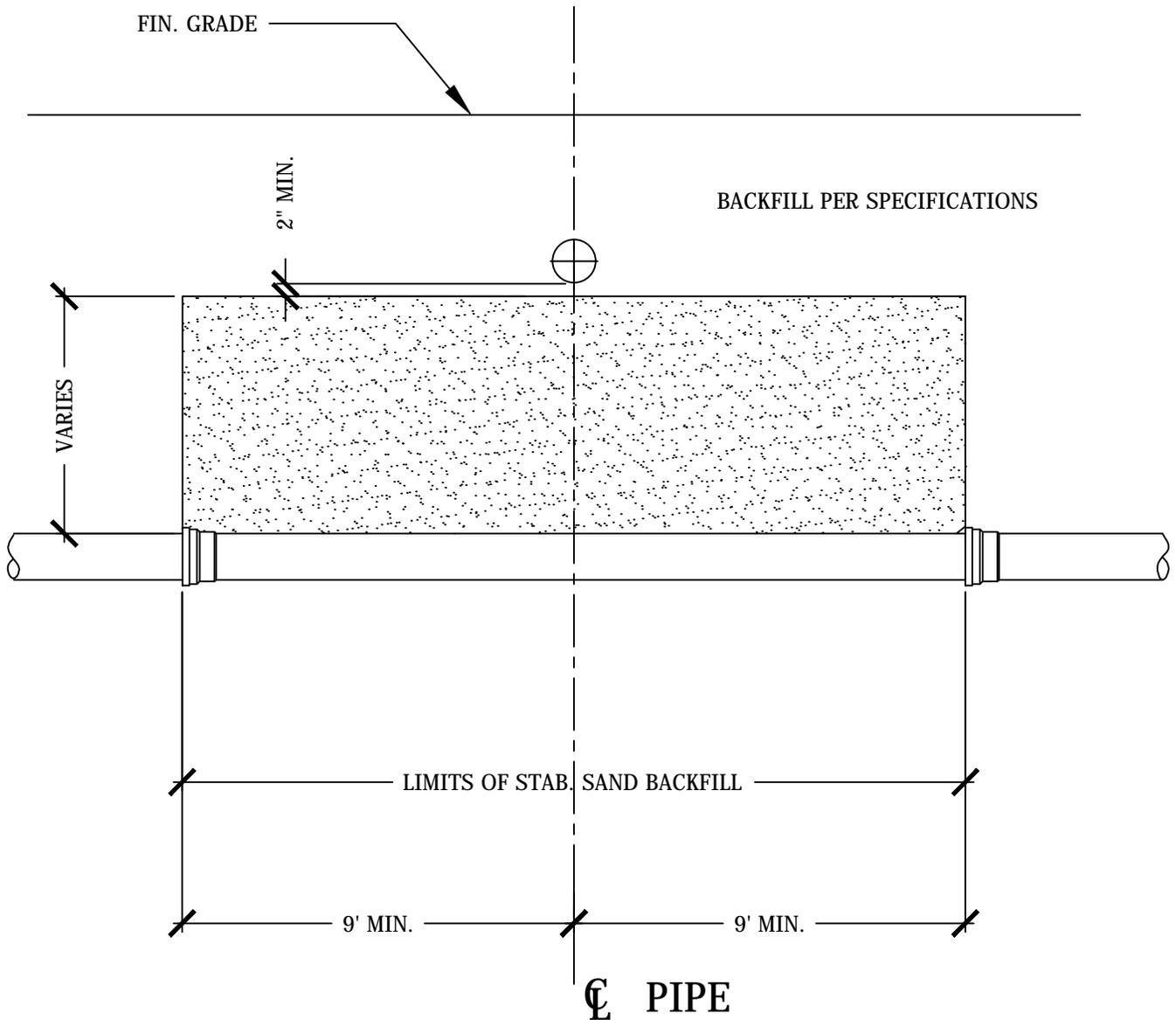
1. ALTERNATE SANITARY SEWER CONNECTIONS WITH ENERGY, S.W. BELL, AND TIMEWARNER EASEMENTS.
2. WATER SERVICES ARE TO BE LOCATED 5' TO THE RIGHT OF THE CENTER LINE OF THE LOT.
3. SEE APPENDIX II FOR ALL OTHER DESIGNATED UTILITY LOCATIONS.

TYPICAL LONG AND SHORT SIDE WATER AND SANITARY SEWER SERVICE CONNECTION

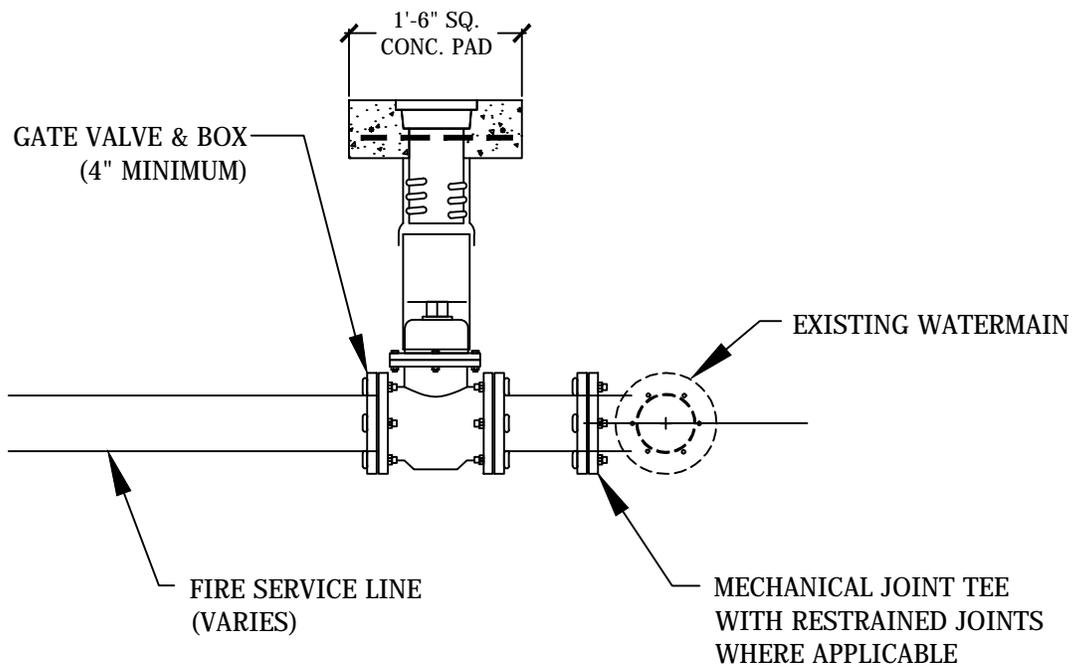
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WATER UTILITIES DEPARTMENT
N.T.S.

NOTE:

SEPARATION DISTANCES SHALL BE BASED ON
STATE AND FEDERAL REGULATIONS.



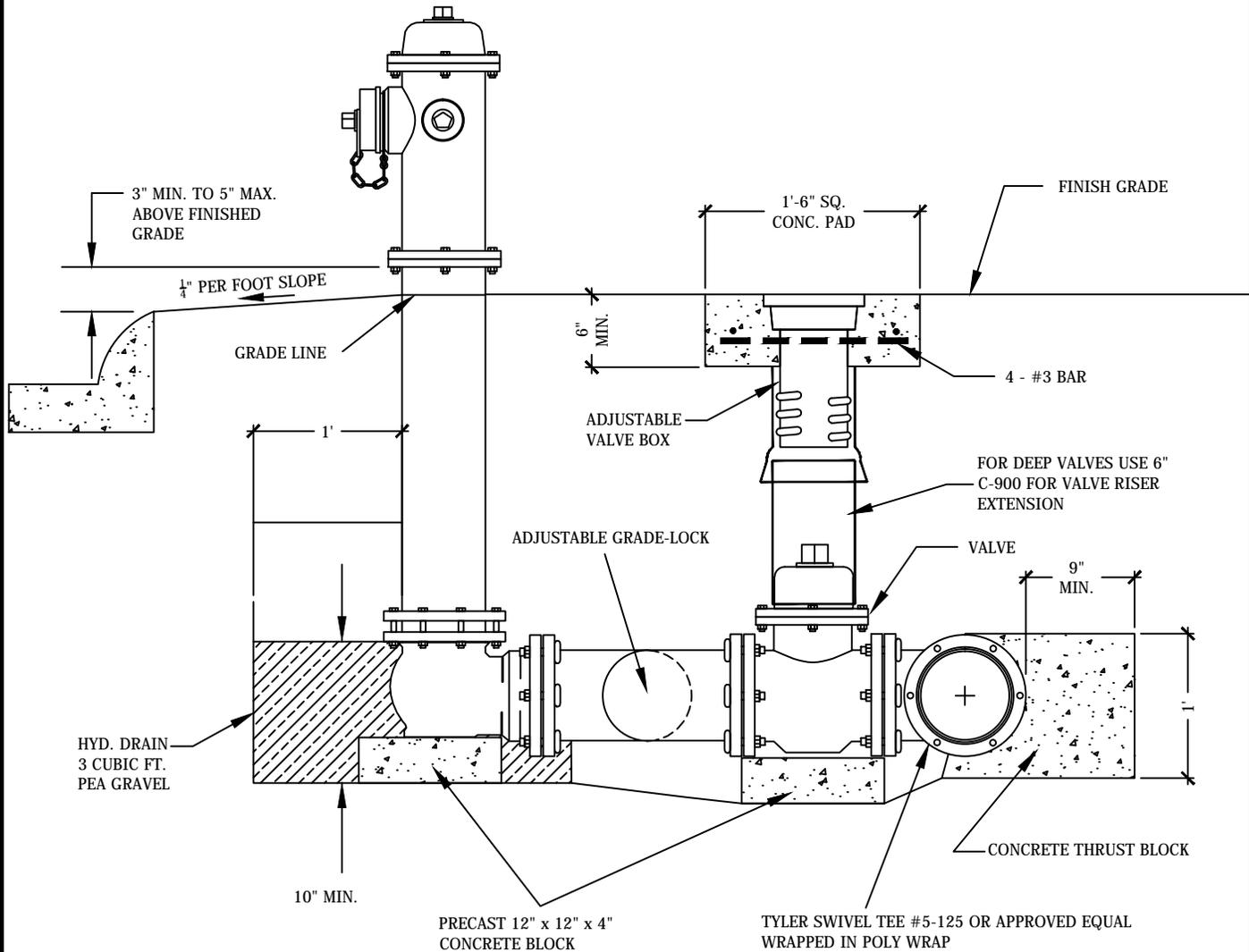
**TYPICAL WATER AND SANITARY SEWER
MAIN CROSSING**



TYPICAL FIRE SERVICE LINE CONNECTION

CITY OF BEAUMONT
WATER UTILITIES DEPARTMENT
N.T.S.

SEE SPEC. SHEET 808.01
SPECIAL REQUIREMENTS FOR
APPROVED FIRE HYDRANT



TYPICAL FIRE HYDRANT INSTALLATION

CITY OF BEAUMONT
WATER UTILITIES DEPARTMENT
N.T.S.

NOTE:

SET TOP OF METER BOX EVEN WITH GRADE IF ALREADY LANDSCAPED. IF NOT LANDSCAPED SET TOP OF BOX 2 INCHES ABOVE TOP OF CURB. (BY CITY FORCES).

THE PLUMBING CONTRACTOR IS TO MARK THE METER BOX LOCATION WITH A STAKE & FLAGGING. LABEL WHAT SIZE METER WILL BE INSTALLED ON THE STAKE.

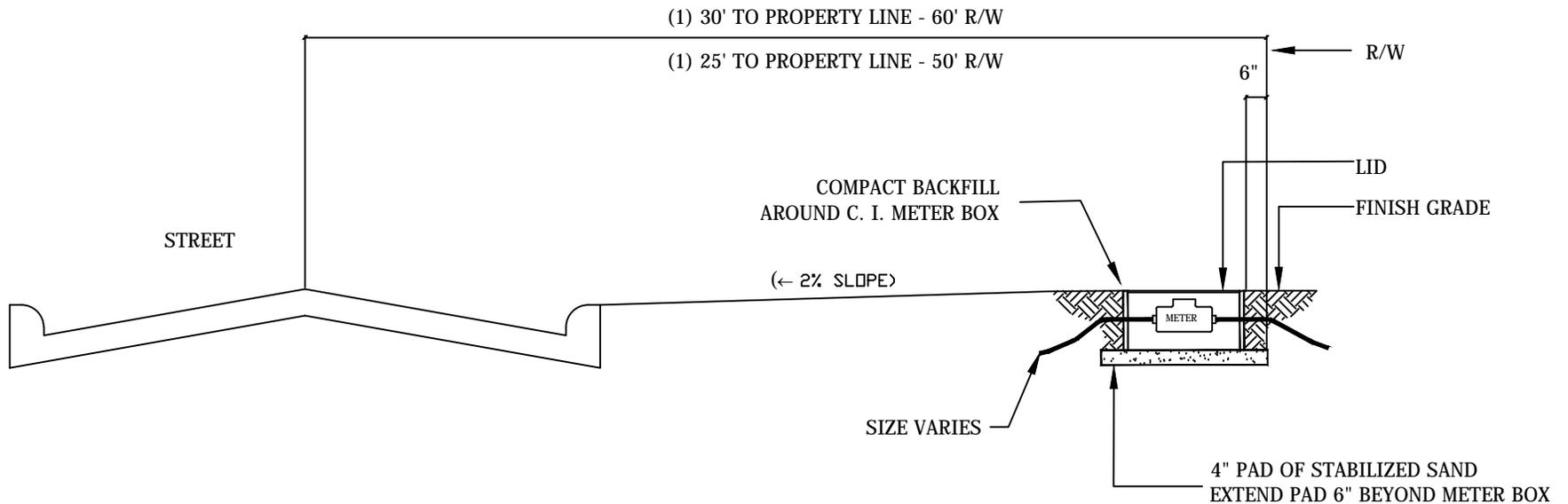
NOTE:

SERVICE LINE SIZES WILL VARY DEPENDING ON THE SIZE OF METER:

1" METER = 1 ½" SERVICE LINE

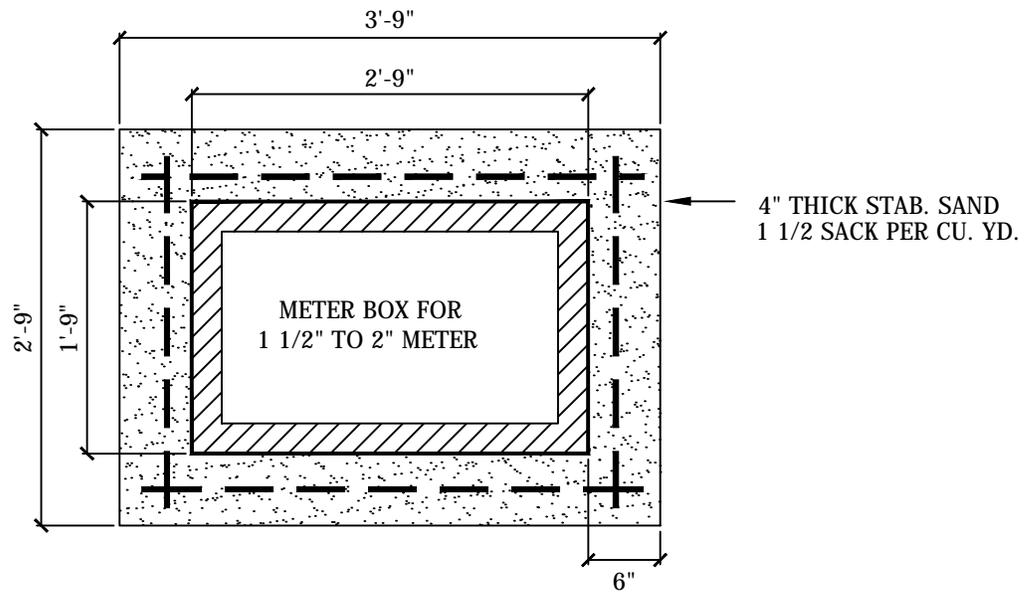
1 ½" METER = 2" SERVICE LINE

2" METER = 2" SERVICE LINE

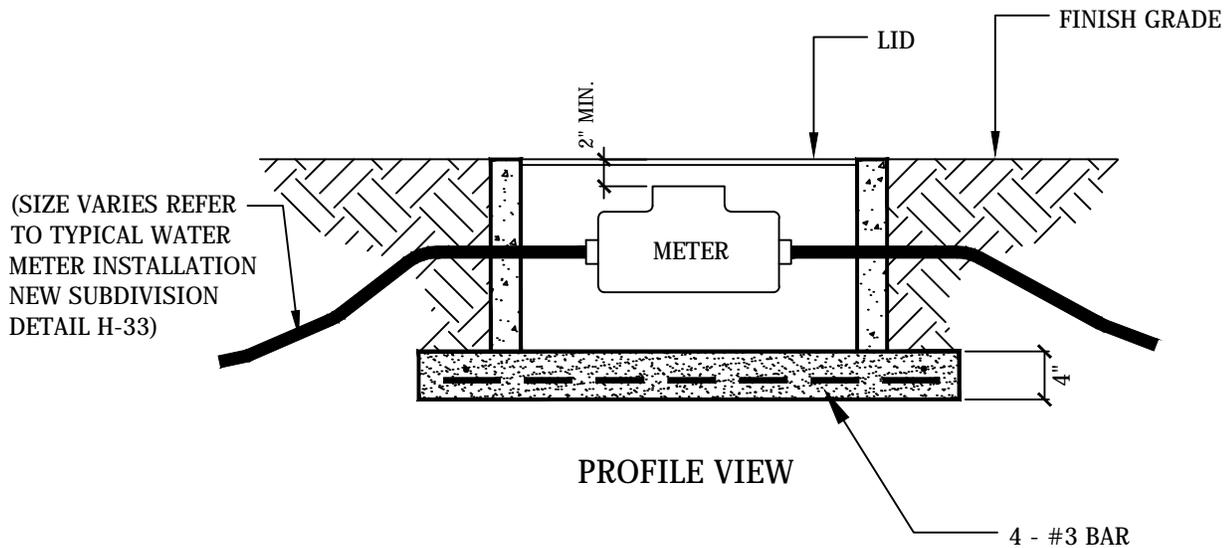


TYPICAL WATER METER INSTALLATION NEW SUBDIVISION

CITY OF BEAUMONT
WATER UTILITIES DEPARTMENT
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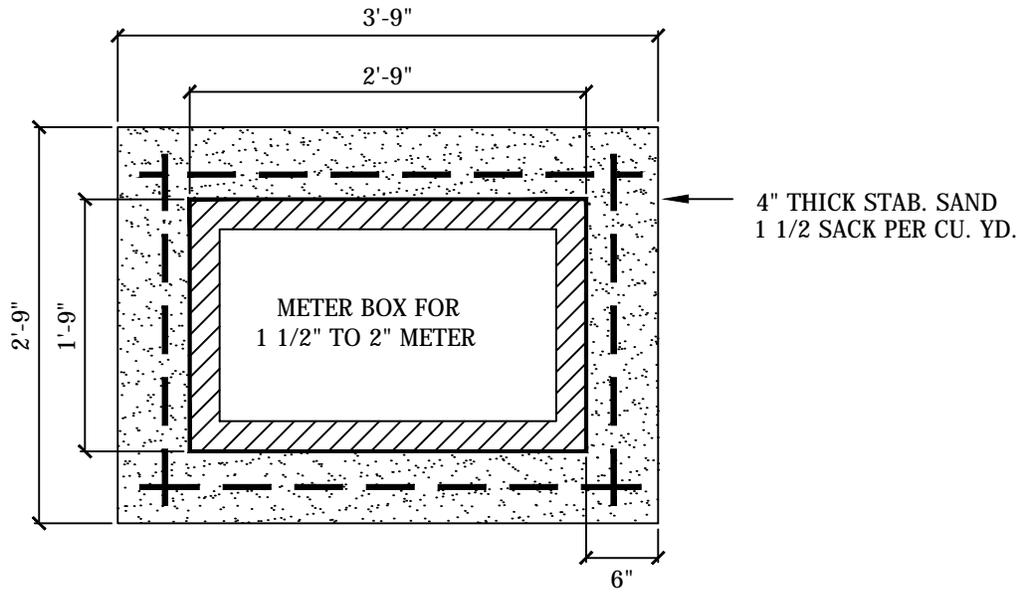


PLAN VIEW

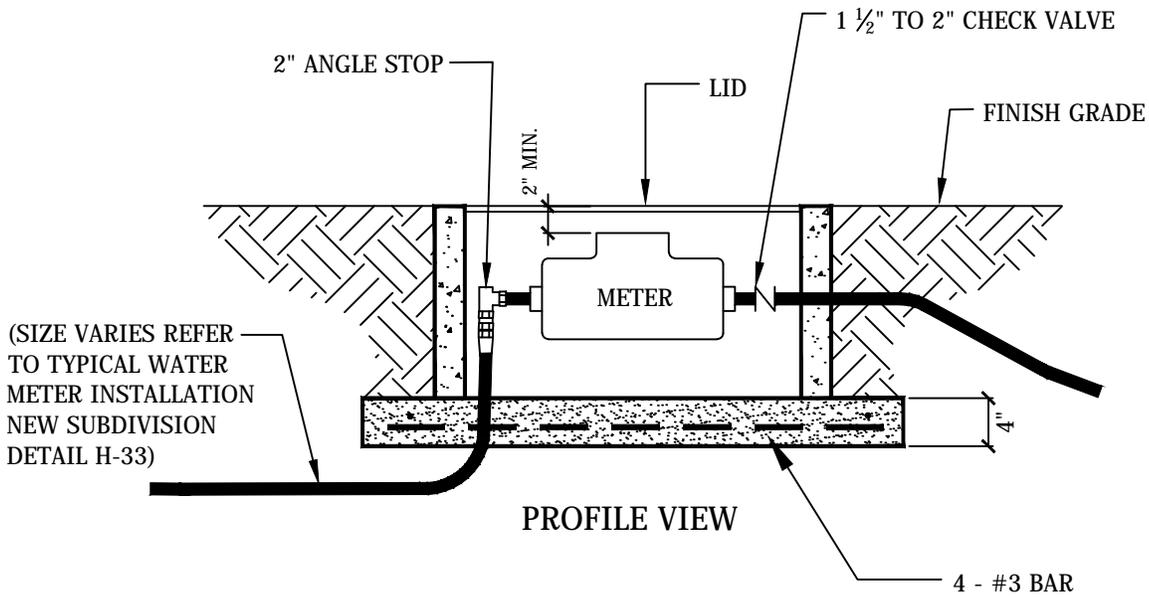


PROFILE VIEW

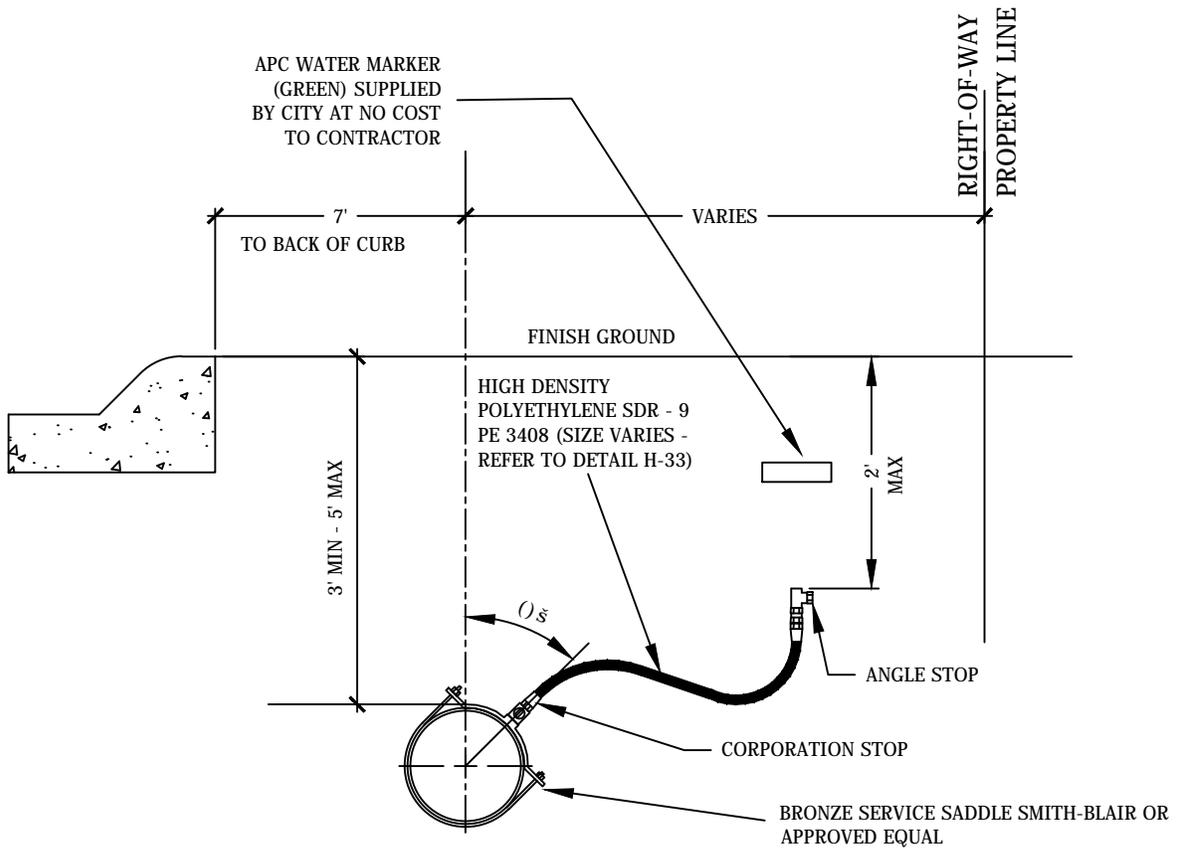
**TYPICAL METER INSTALLATION
OF 1 1/2" TO 2" METER
USING A CAST IRON METER BOX**



PLAN VIEW



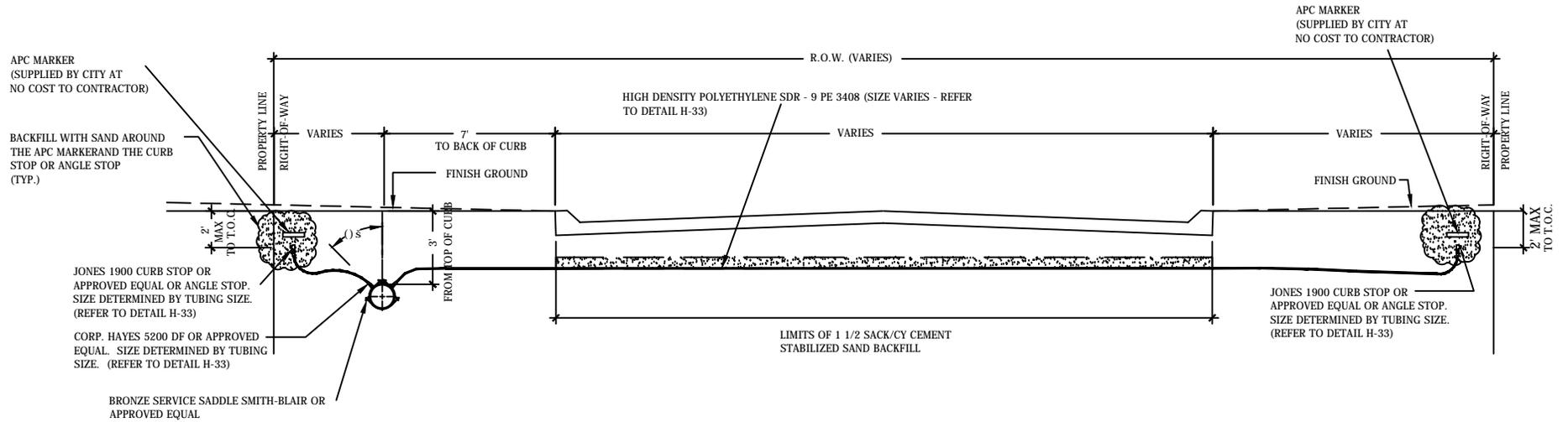
TYPICAL METER INSTALLATION
OF 1 1/2" TO 2" METER
USING A CONCRETE METER BOX



GENERAL NOTES:

1. DOUBLE STRAP ALL 1 1/2" & 2" ON 6" PIPE AND ABOVE.
2. CLOY TWIN SEAL TAPPING SADDLE STYLE 3401 OR APPROVED EQUAL FOR 2" OR 3" PVC PIPE.
3. FOR 2" SDR-26 MAINS; USE A BRASS TEE AND A CURB STOP.

TYPICAL WATER SERVICE CONNECTION

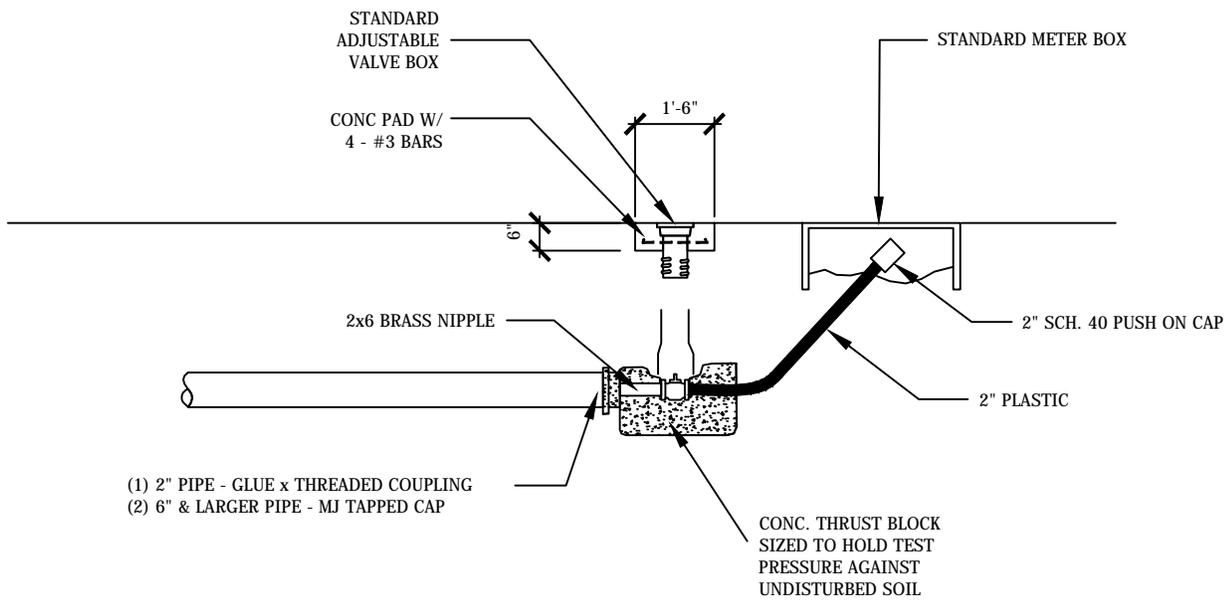


GENERAL NOTES:

1. DOUBLE STRAP ALL 1 1/2" & 2" ON 6" PIPE AND ABOVE.
2. SERVICE LINE SIZES WILL VARY DEPENDING ON THE SIZE OF METER.
3. CLOW TWIN SEAL TAPPING SADDLE STYLE 3401 OR APPROVED EQUAL FOR 2" OR 3" PVC PIPE.
4. FOR 2" SDR-26 MAINS; USE A BRASS TEE AND A CURB STOP.
5. ALL MEASUREMENTS FROM TOP AND BACK OF CURB.
6. LEAVE CURB STOP ABOVE OR ANGLE STOP ABOVE GROUND UNTIL PRESSURE TEST, FLOW TEST, LOCATION MARKED ON CURB, "W" STAMPED ON CURB OR CHISELED ON CURB AND LOCATOR DISC'S DELIVERED.

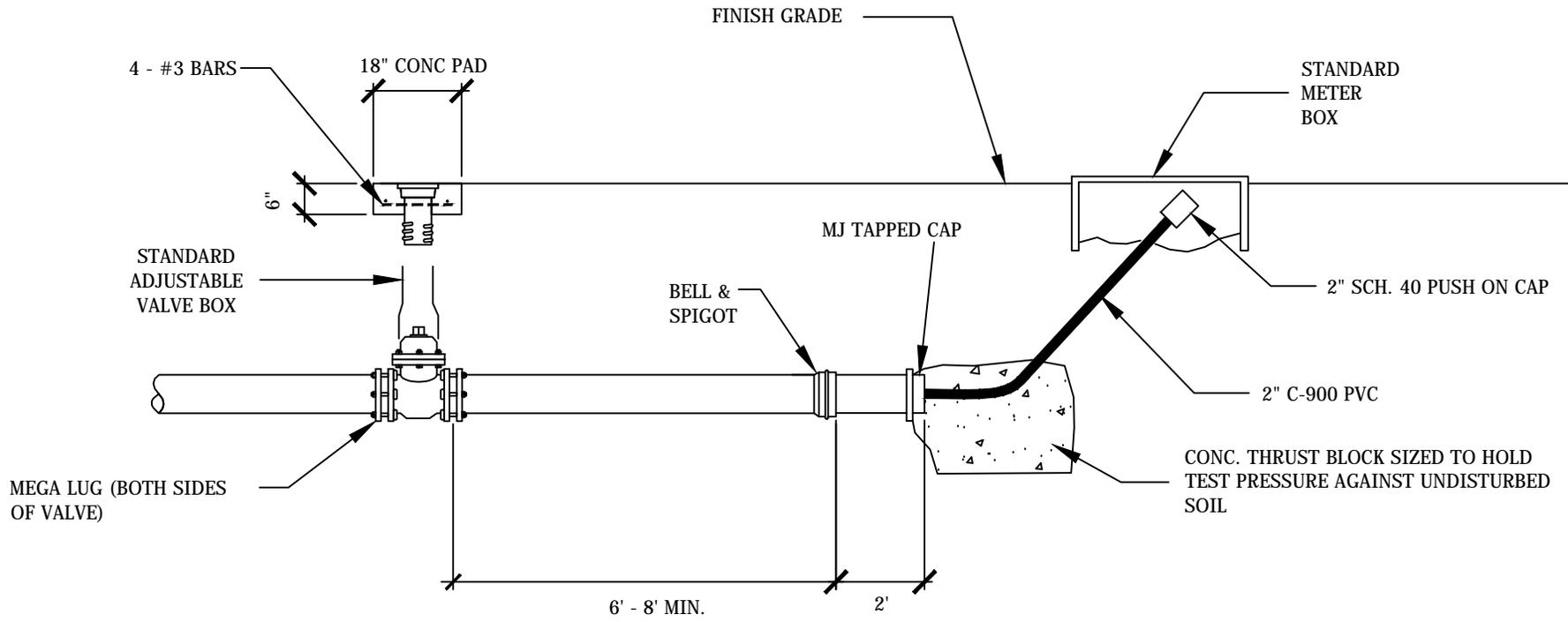
TYPICAL LONG AND SHORT SIDE WATER SERVICE CONNECTION AND STREET CROSSING DETAILS

CITY OF BEAUMONT
WATER UTILITIES DEPARTMENT
N.T.S.



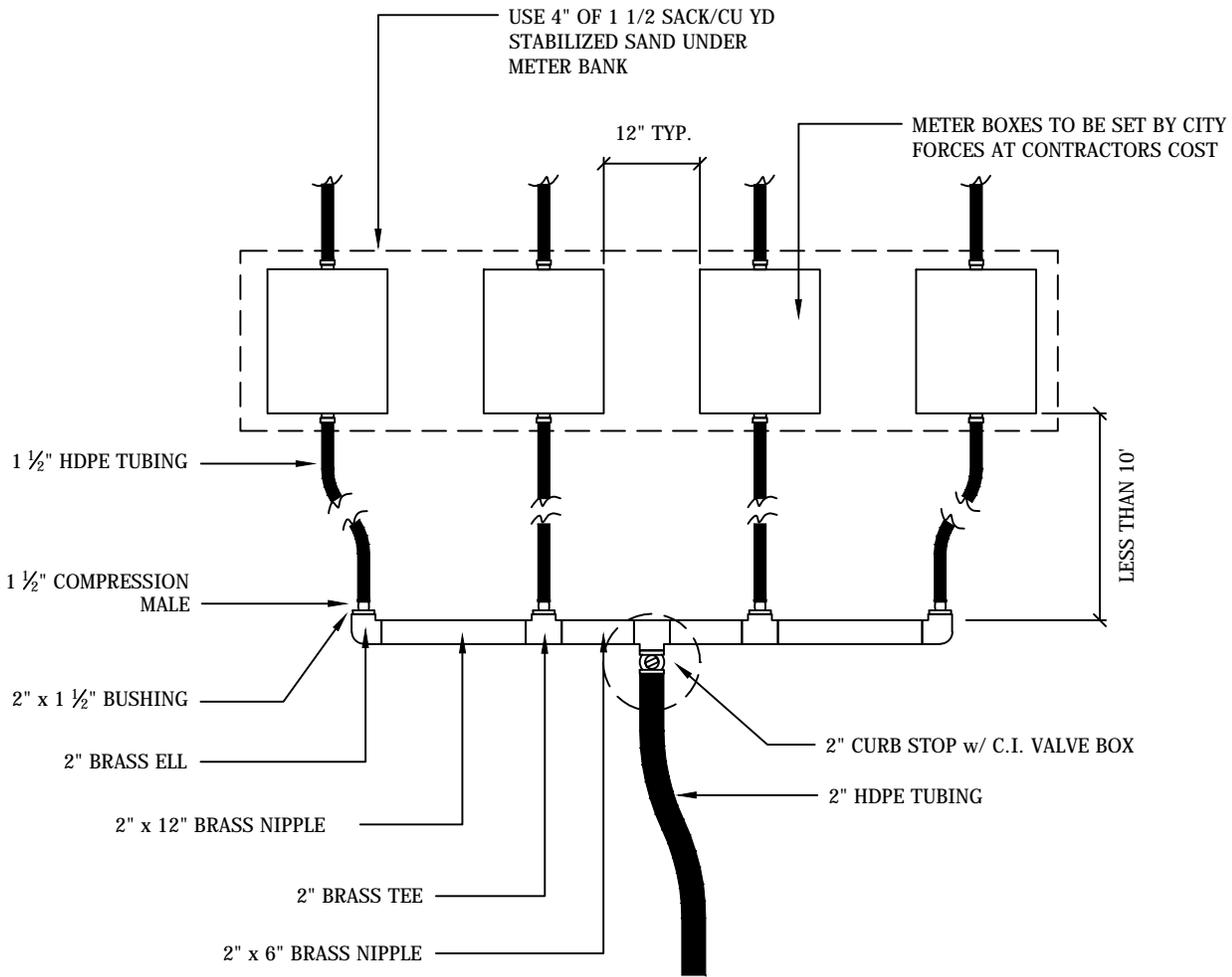
PERMANENT FLUSH OUT DETAIL

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TEMPORARY FLUSH OUT DETAIL

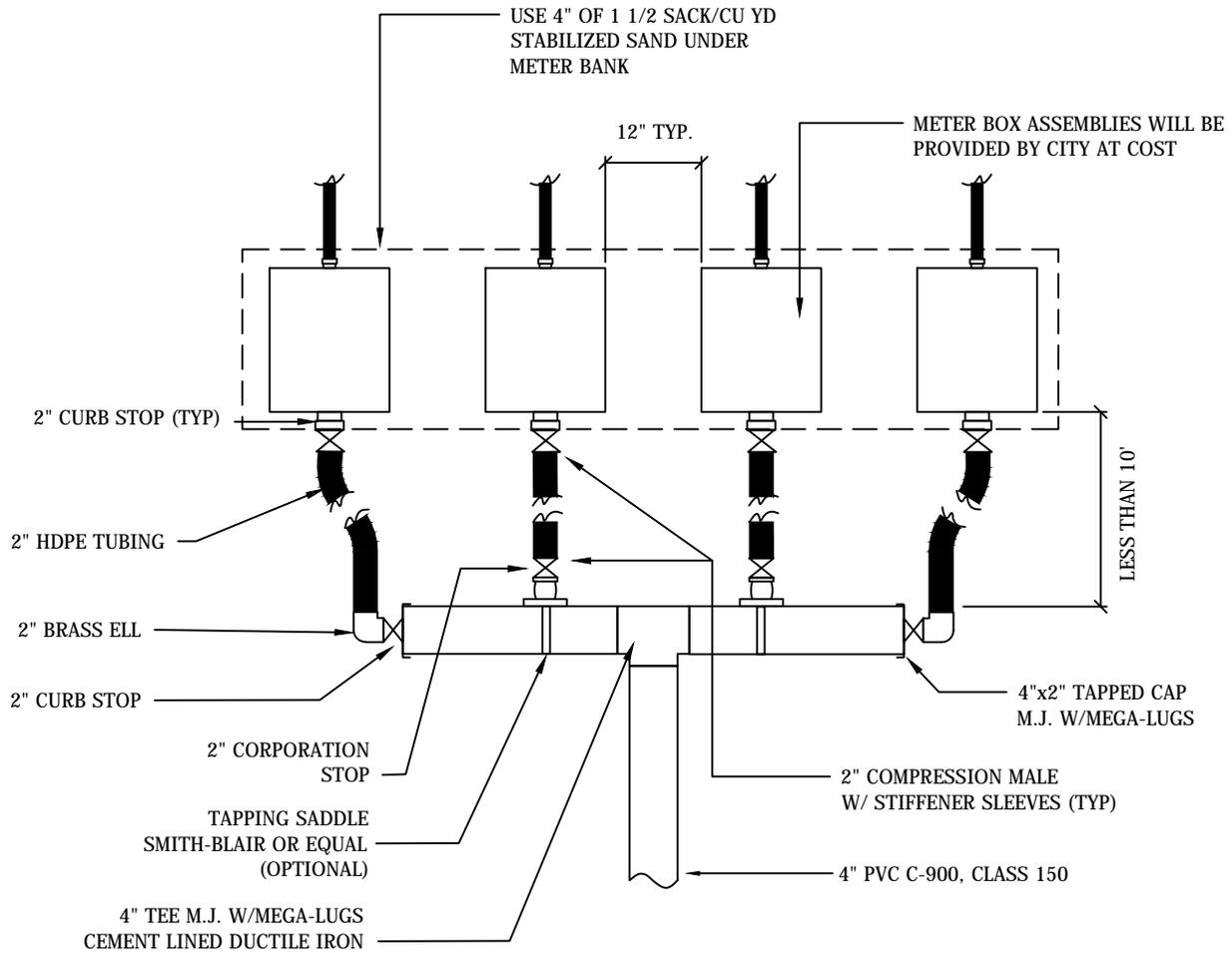
CITY OF BEAUMONT
 WATER UTILITIES DEPARTMENT
 N.T.S.



NOTES:

- ALL FITTINGS MUST BE BRASS
- NO MORE THAN 8 METERS ON MANIFOLD
- PLACE TOPS OF ALL METER BOXES AND VALVE BOX AT SAME ELEVATION, EVEN WITH GRADE
- IF METER AREA IS SURROUNDED BY CONCRETE THEN METER BANK AREA IS TO BE BACKFILLED WITH SAND & GRAVEL.
- BOLLARDS ARE TO BE SET AT EACH CORNER.

TYPICAL METER BANK INSTALLATION FOR 1" METERS

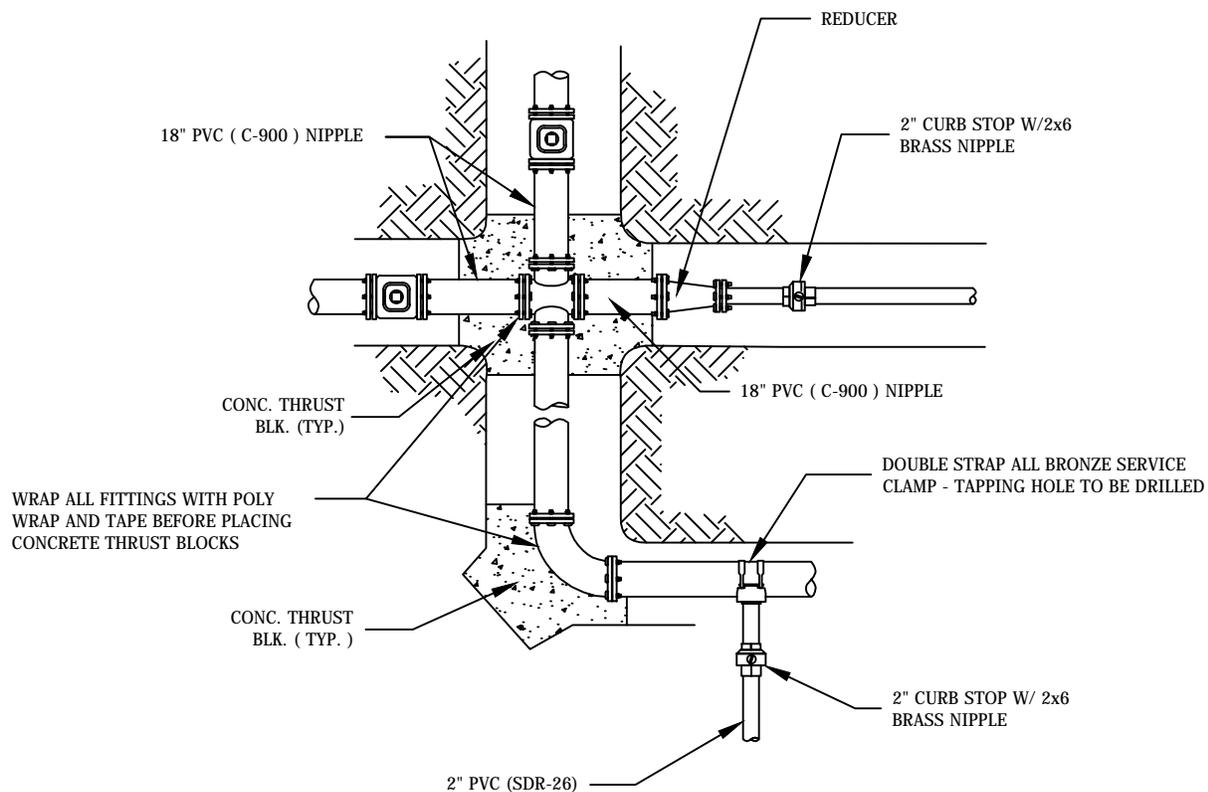


NOTES:

- ALL FITTINGS MUST BE BRASS OR CEMENT LINED DUCTILE IRON
- NO MORE THAN 8 METERS ON MANIFOLD
- PLACE TOPS OF ALL METER BOXES AND VALVE BOXES AT SAME ELEVATION, EVEN WITH GRADE
- IF METER AREA IS SURROUNDED BY CONCRETE THEN METER BANK AREA IS TO BE BACKFILLED WITH SAND & GRAVEL.
- BOLLARDS ARE TO BE SET AT EACH CORNER.

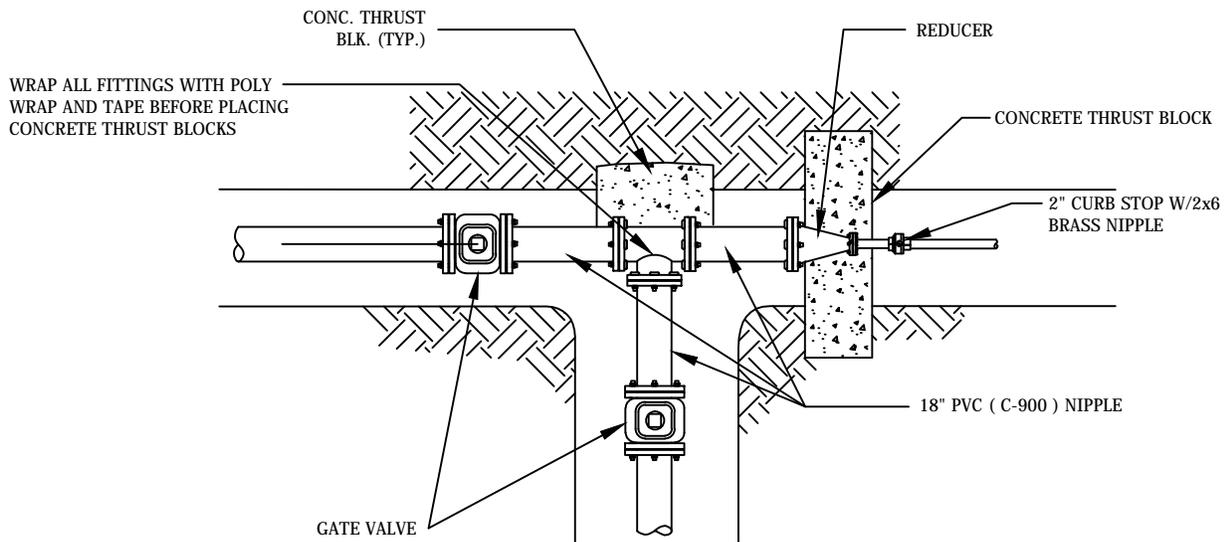
TYPICAL METER BANK INSTALLATION

FOR 1 1/2" AND 2" METERS



NOTE:
WRAP ALL FITTINGS WITH POLY WRAP AND TAPE

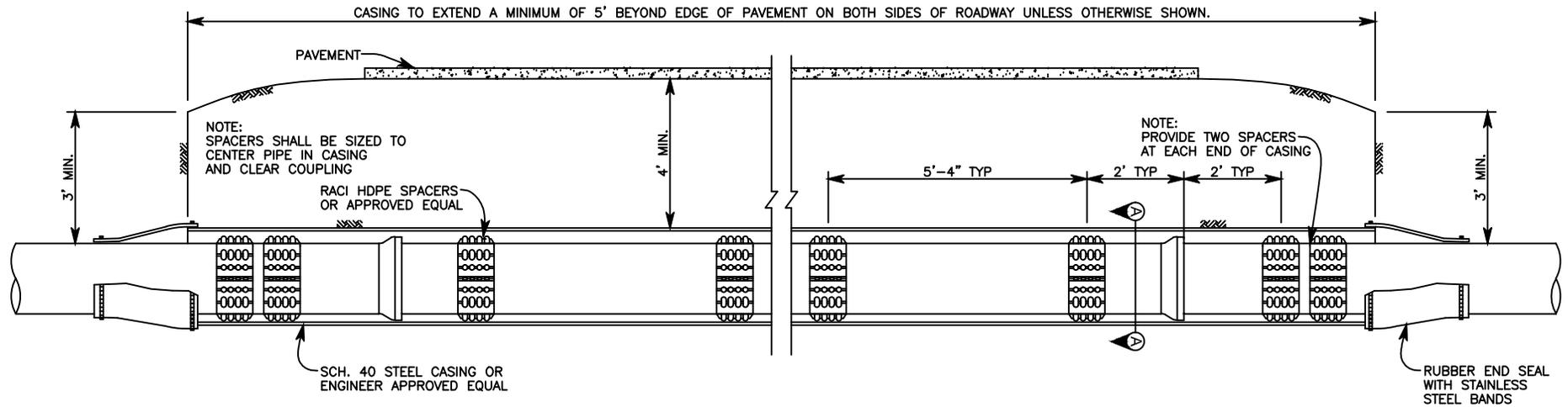
TYPICAL FITTINGS & CONCRETE THRUST BLOCK INSTALLATION



NOTE:

1. ALL BLOCKING TO UNDISTURBED TRENCH WALL
2. WRAP ALL FITTINGS WITH POLY WRAP AND TAPE

TYPICAL FITTINGS & CONCRETE THRUST BLOCK INSTALLATION

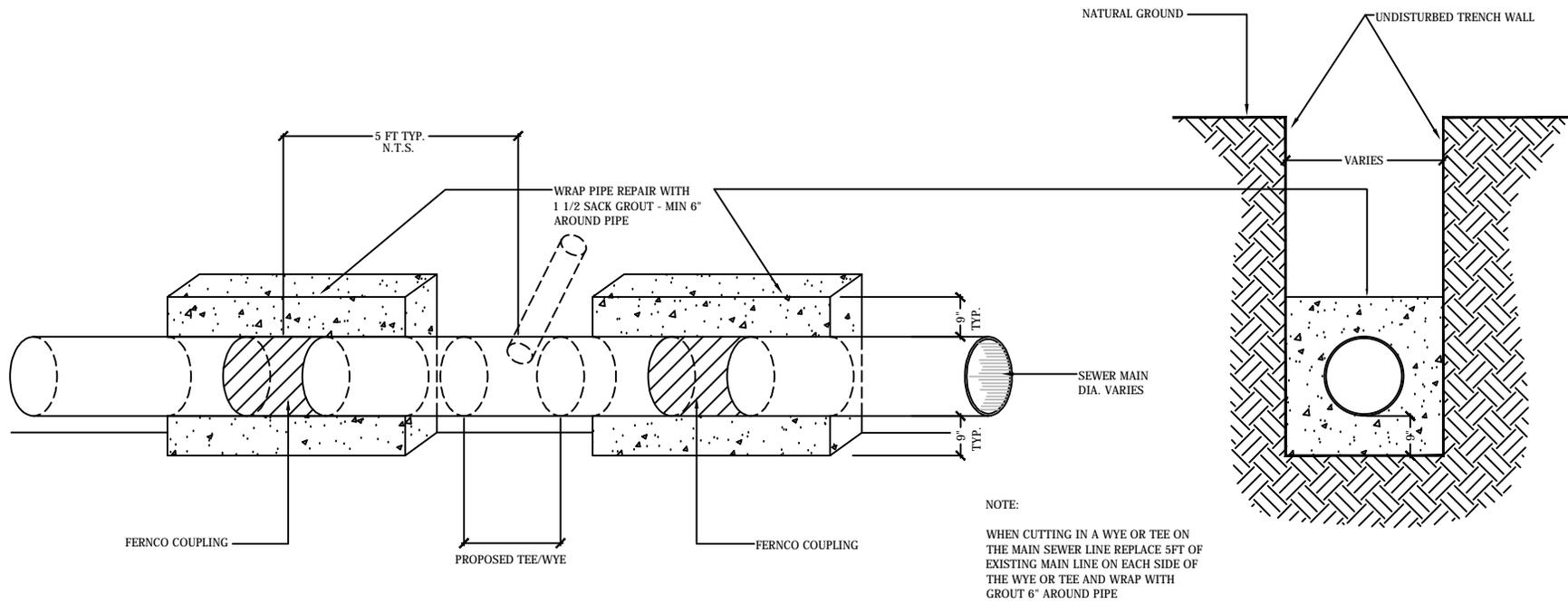


NOTE:
CASING PIPE SIZE TO BE DETERMINED BY THE
PROPOSED SIZE OF PIPE.

CASING DETAIL
TYPICAL LONGITUDINAL SECTION
(TUNNEL CONSTRUCTION)

TYPICAL CASING DETAIL

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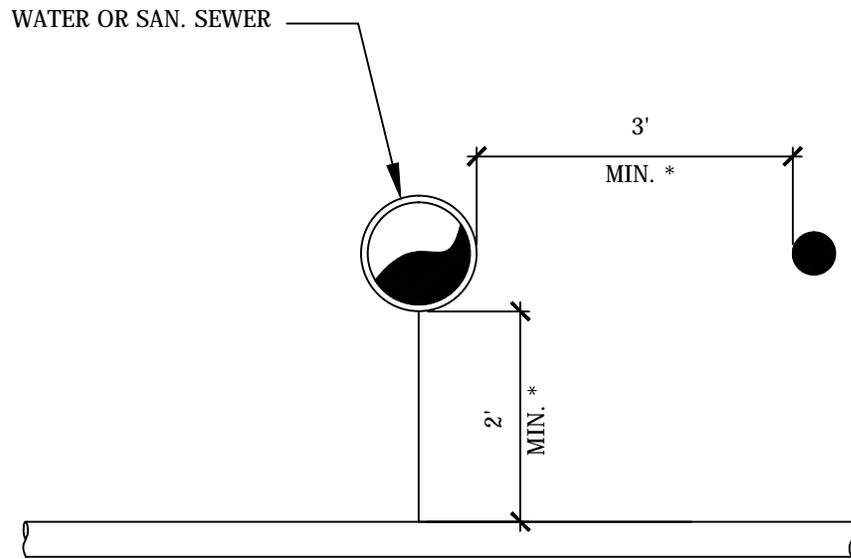


1 - TYPICAL MAIN LINE REPAIR

2 - END VIEW

MAIN LINE REPAIR DETAIL

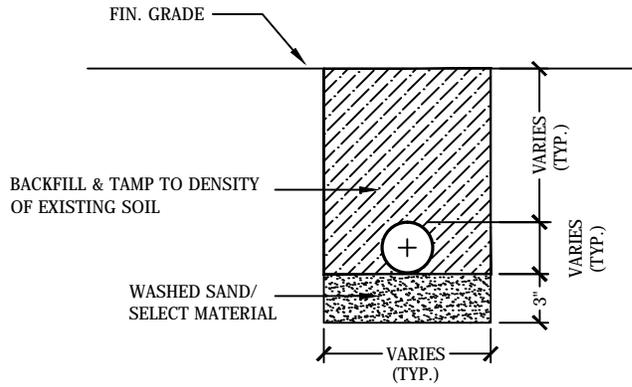
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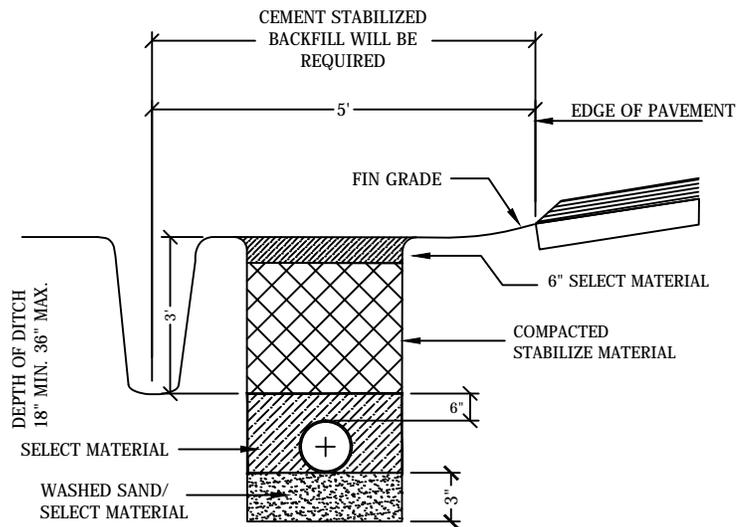
* MINIMUM CLEARANCE ON ALL UTILITY CROSSINGS

TYPICAL UTILITY CROSSING

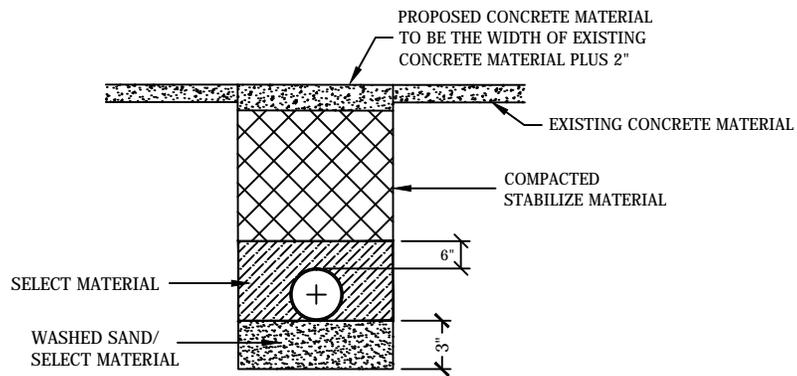
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N.T.S.



**TYPICAL TRENCH BACKFILLING
(AWAY FROM ROAD
RIGHT-OF-WAY)**



**TYPICAL SECTION AT
EDGE OF ROADWAY**



**TYPICAL TRENCH BACKFILLING
(UNDER CONCRETE PAVEMENT)**

TYPICAL ROAD & TRENCH BACKFILLING