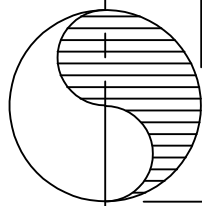


SYMMETRICAL
ABOUT CENTER LINE OF WATER
MAIN

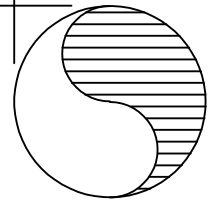


WATER LINE

10' MINIMUM

18" MINIMUM

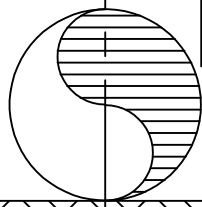
SANITARY SEWER PIPE



UTILITY SEPARATION SECTION C1-2

REQUIRED SEPARATION BETWEEN WATER LINES AND SANITARY SEWERS
PARALLEL CONSTRUCTION

SYMMETRICAL
ABOUT CENTER LINE OF WATER
MAIN



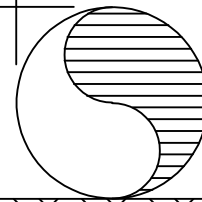
WATER LINE

5' MINIMUM

18" MINIMUM

UNDISTURBED
EARTH

SANITARY SEWER PIPE



UTILITY SEPARATION SECTION C1-3

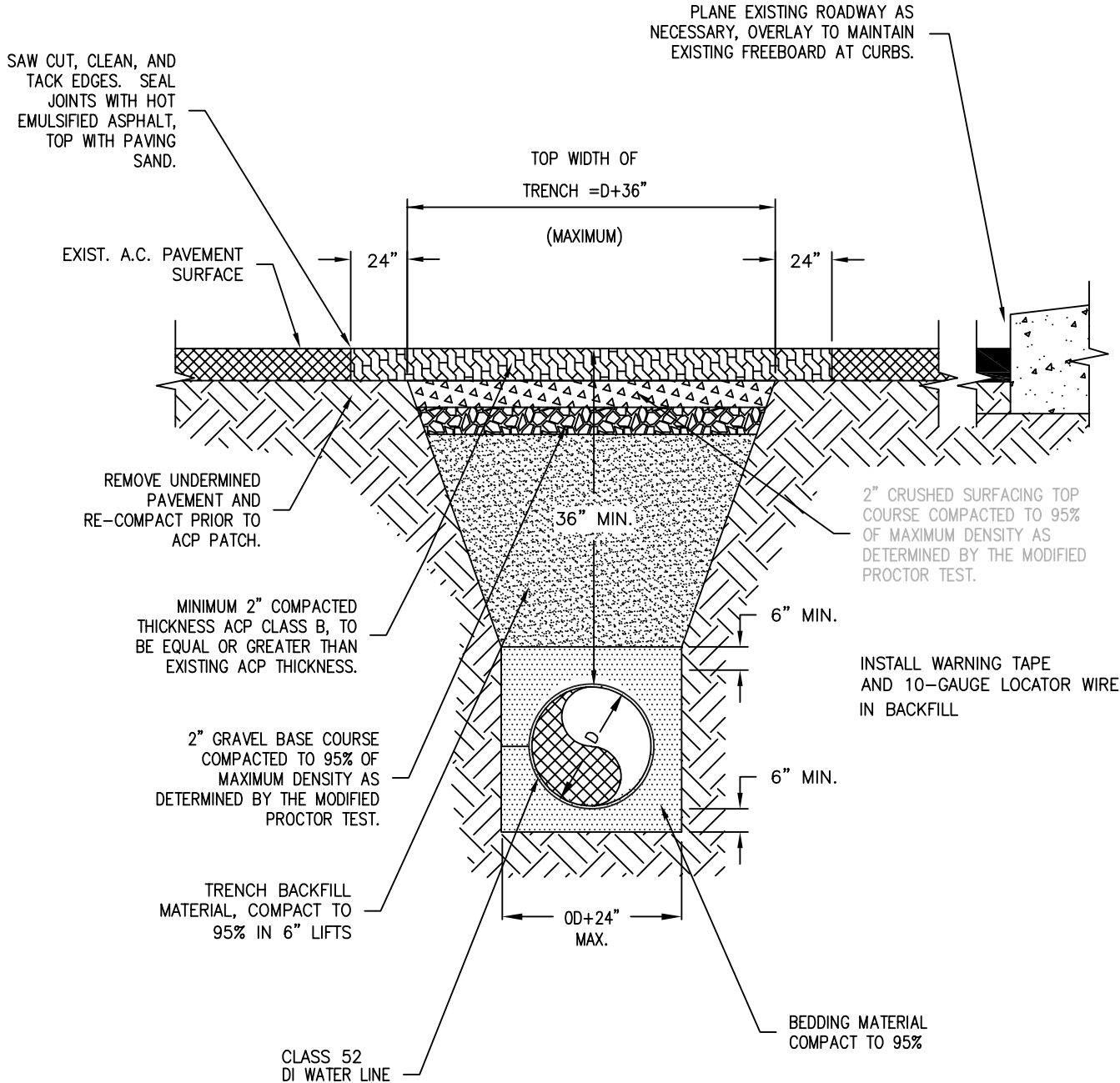
REQUIRED SEPARATION BETWEEN WATER LINES AND SANITARY SEWERS
UNUSUAL CONDITIONS PARALLEL CONSTRUCTION

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West Sound Utility District
Standard Water Details

Separation Standards

REVISED: FEBRUARY 2008



WATERLINE TRENCH DETAIL

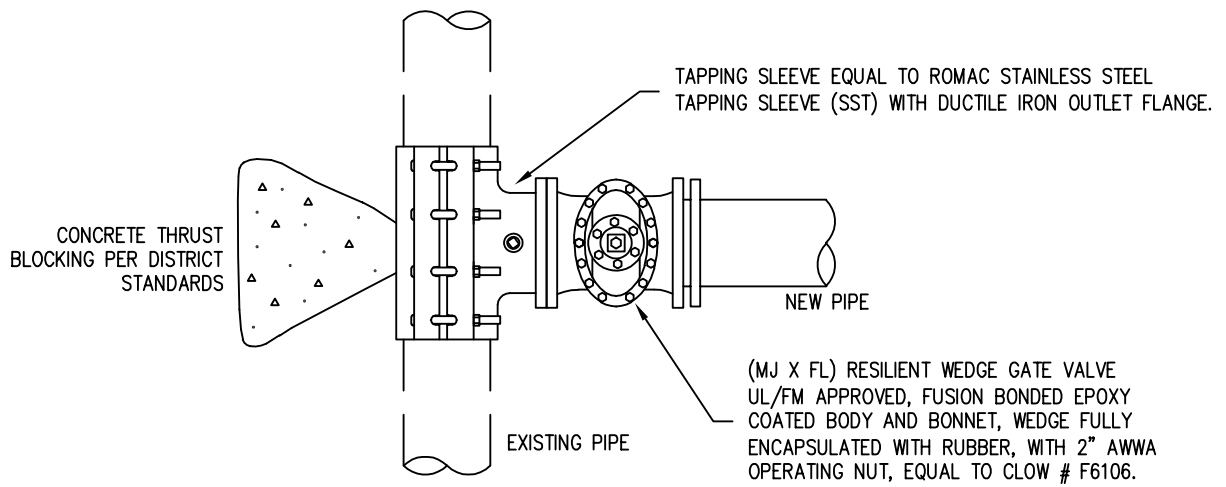
NOT TO SCALE

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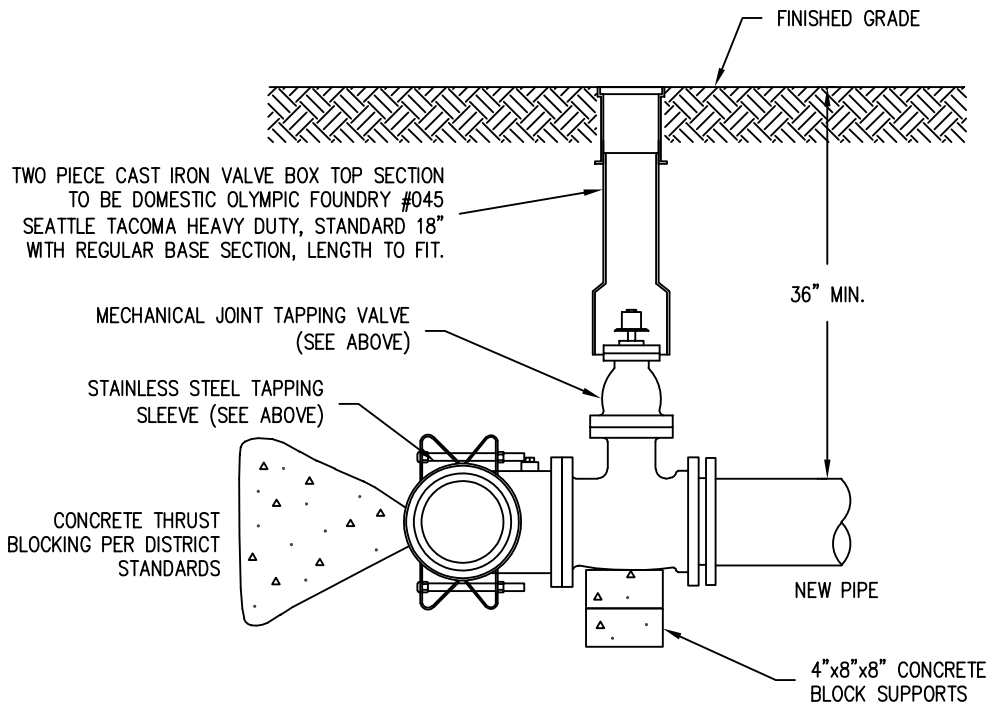
**West Sound Utility District
Standard Water Details**

Water Main Trench

REVISED: FEBRUARY 2008



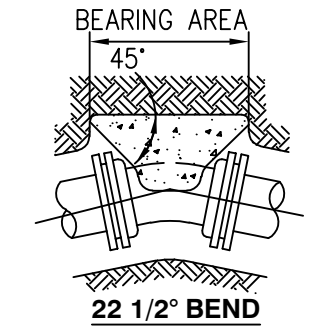
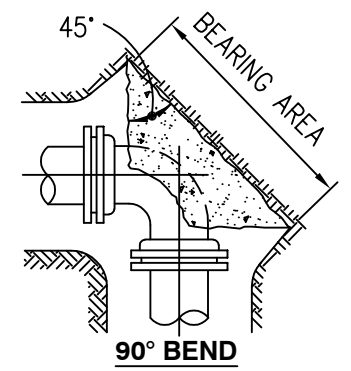
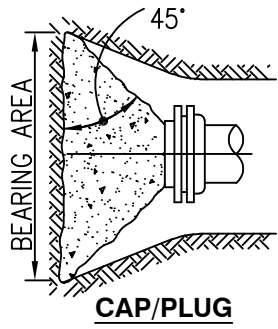
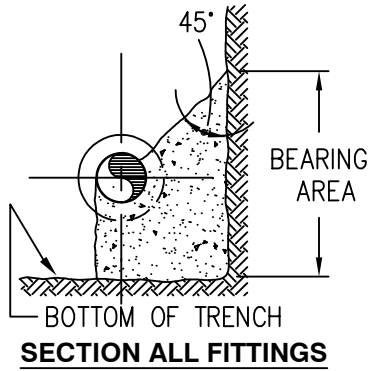
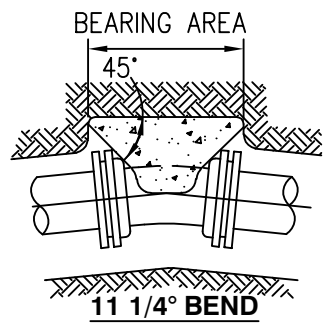
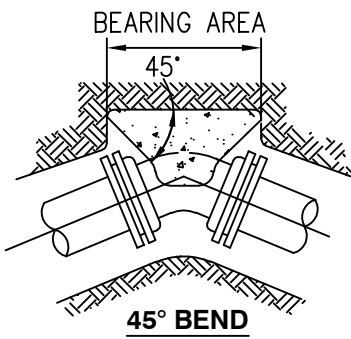
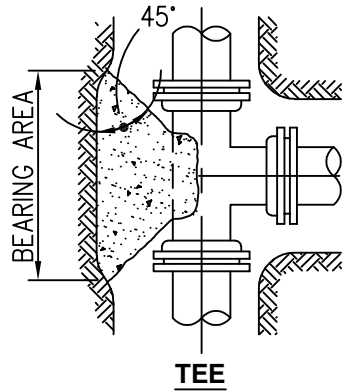
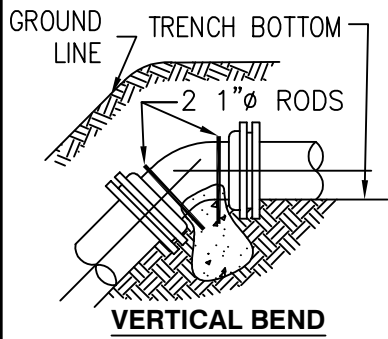
PLAN



ELEVATION

- NOTES:
1. PRIOR TO BORING:
 - A. TAPPING SLEEVE AND VALVE SHALL BE PRESSURE TESTED AT 200 PSI FOR A PERIOD OF 15 MINUTES. PRESSURE LOSS DURING TESTING SHALL NOT EXCEED 5 PSI.
 - B. TAPPING SLEEVE AND VALVE SHALL BE STERILIZED PER SPECIFICATIONS
 2. PRIOR TO FINAL CONNECTION OF TAPPING VALVE TO NEW PIPING, THE NEW PIPING SHALL BE PRESSURE TESTED AND STERILIZED PER SPECIFICATIONS

WET TAP DETAIL



THRUST BLOCK REQUIREMENTS																
BEARING AREA REQUIRED IN SQUARE FEET																
PIPE SIZE		TEE/CAP OR PLUG			90 Degree BEND			45 Degree BEND			22.5 Degree BEND			11.25 Degree BEND		
nominal	outside dia.	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi
4	4.80	1.8	2.0	2.3	2.6	2.9	3.2	1.4	1.6	1.7	0.7	0.8	0.9	0.4	0.4	0.4
6	6.90	3.7	4.2	4.7	5.3	5.9	6.6	2.9	3.2	3.6	1.5	1.6	1.8	0.7	0.8	0.9
8	9.05	6.4	7.2	8.0	9.1	10.2	11.4	4.9	5.5	6.2	2.5	2.8	3.1	1.3	1.4	1.6
12	13.20	13.7	15.4	17.1	19.4	21.8	24.2	10.5	11.8	13.1	5.3	6.0	6.7	2.7	3.0	3.4
16	17.40	23.8	26.8	29.7	33.6	37.8	42.0	18.2	20.5	22.7	9.3	10.4	11.6	4.7	5.2	5.8
18	19.50	29.9	33.6	37.3	42.2	47.5	52.8	22.9	25.7	28.6	11.7	13.1	14.6	5.9	6.6	7.3
24	25.80	52.3	58.8	65.3	73.9	83.2	92.4	40.0	45.0	50.0	20.4	22.9	25.5	10.2	11.5	12.8

NOTES:

- ALL CONCRETE BLOCKING SHALL BE POURED AGAINST DRY, UNDISTURBED SUBGRADE. TABLE IS BASED ON 2000 POUNDS PER SQUARE FOOT ALLOWABLE SOIL BEARING. WEAKER SOIL WILL REQUIRE INCREASED BEARING AREA. SEE SOIL BEARING LOAD CHART.
- KEEP CONCRETE CLEAR OF JOINTS AND ACCESSORIES. USE FORMING AS NECESSARY.
- HORIZONTAL ANCHOR BLOCKING CONFIGURATIONS FOR FITTINGS NOT SHOWN SHALL HAVE PRIOR APPROVAL.
- THE SQUARE FOOT AREAS REQUIRED FOR BEARING ARE CALCULATED BY THE FOLLOWING FORMULAS:
 FORMULA AT TEE & CAP OR PLUG:
 $T = PA$
 T = THRUST IN POUNDS
 P = TEST PRESSURE IN PSI
 A = CROSS-SECTIONAL AREA OF PIPE IN SQUARE INCHES
 K = ASSUMED 2000 PSF SOIL BEARING PRESSURE
 FORMULA AT ALL PIPE BENDS:
 $T = 2PA (\sin 1/2 \Delta)$ WHERE Δ = THE DEGREE BEND OF THE FITTING.
 T = THRUST IN POUNDS
 P = TEST PRESSURE IN PSI
 A = CROSS-SECTIONAL AREA OF PIPE IN SQUARE INCHES
 K = ASSUMED 2000 PSF SOIL BEARING PRESSURE
- WRAP FITTINGS WITH VISQUEEN PRIOR TO BLOCK POUR.

SAFE BEARING LOADS IN LBS/SQ. FT.

THE SAFE SOIL BEARING LOADS SHOWN BELOW ARE FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER PIPE EXCEEDS 3 FEET.

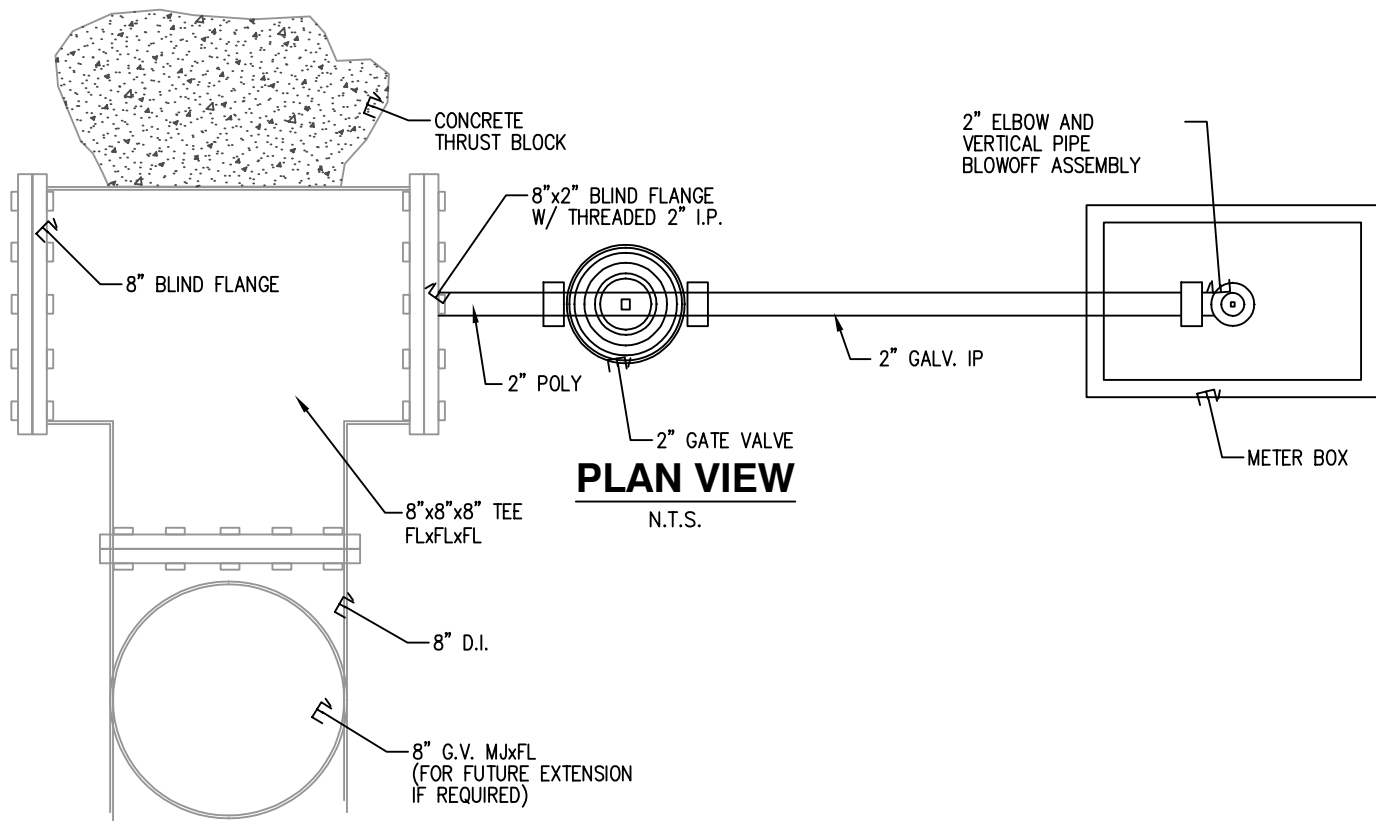
SOIL	SAFE BEARING LOAD LBS/SQ. FT.
MUCK, PEAT, ETC	0
SOFT CLAY, SILT	1,000
SAND, SANDY SILT	2,000
SAND AND GRAVEL	3,000
SAND AND GRAVEL CEMENTED W/CLAY	4,000
HARD SHALE	10,000

IN MUCK OR PEAT, ALL THRUST SHALL BE RESTRAINED BY PILES OR TIE RODS TO SOLID FOUNDATIONS OR BY REMOVAL OF MUCK OR PEAT AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THRUSTS.



**West Sound Utility District
Standard Water Details**

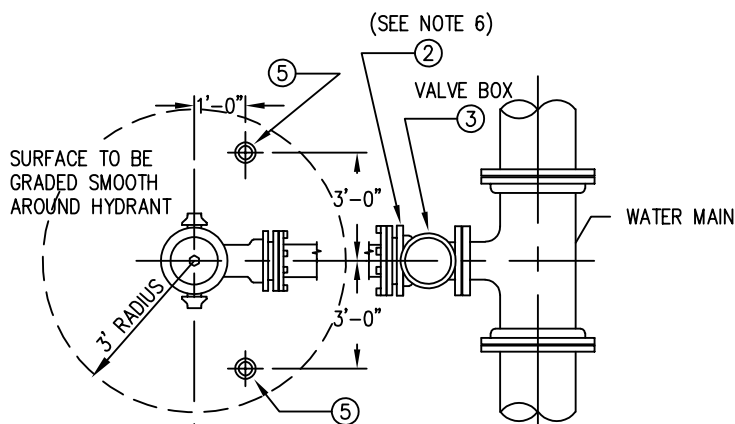
Thrust Blocking



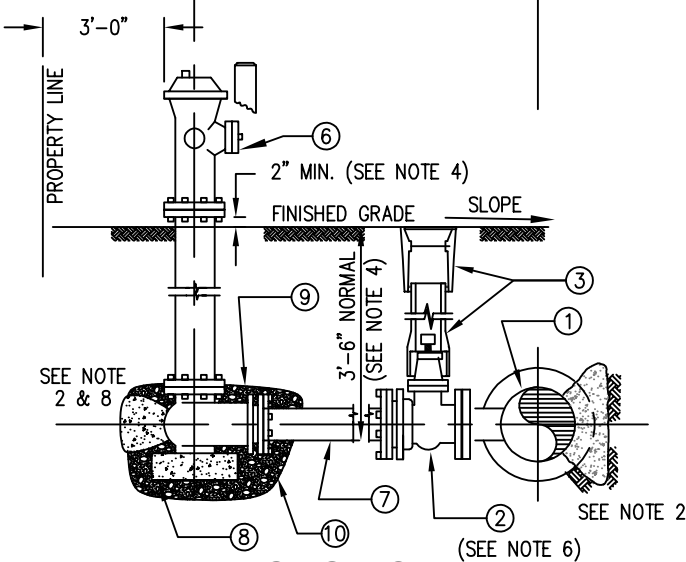
STANDARD 2" BLOWOFF ASSEMBLY

N.T.S.

NO.	ITEM
1	BLOWOFF SPOOL TAPPED FOR 2" IPT
2	2" PIPE AND FITTINGS, GS
3	2" GATE VALVE WITH 2" SQUARE OPERATING NUT
4	VALVE BOX
5	METER BOX, MID-STATE PLATICS MODEL MSBCF 1118 W/DI LID
6	2" THREADED COUPLING W/ HAND TIGHTENED 2" THREADED PLUG
7	VALVE MARKER POST



PLAN

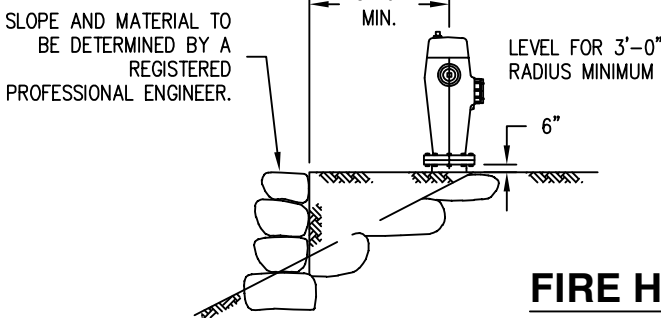


SECTION

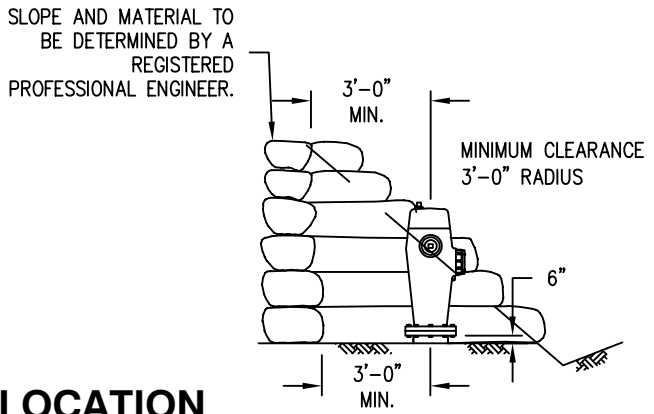
BILL OF MATERIALS		
No.	NOMENCLATURE	REQUIRED
1	MJ x FL TEE	1
2	VALVE WITH FLG. x M.J. CONNECTIONS, SEE NOTE 6.	1
3	2 PIECE CAST IRON VALVE BOX	1
4	NOT USED	
5	REINFORCED CONCRETE GUARD POST 9"φ x 6' (PRIVATE PROP. ONLY)	2
6	FIRE HYDRANT WITH STORTZ ADAPTER	1
7	PIPE, 6" CL. 52 D.I., FIELD CUT WITH MEGALUG RETAINER GLANDS	1
8	12" x 12" x 4" SOLID CONCRETE BEARING BLOCK (If Required)	1
9	1/4 C.Y. DRAIN ROCK, 1-1/2" - 3/4", NO FINES, 7 C.F. OF 7/8" WASHED ROCK WRAPPED IN GEOTEXTILE FABRIC	
10	6 OZ. GEOTEXTILE FABRIC	

- NOTES:
1. ALL MATERIALS AND BRANDS MUST BE APPROVED BY DISTRICT.
 2. 6-INCH MEG-A-LUGS ARE TO BE INSTALLED AT VALVE AND HYDRANT M.J. OUTLETS.
 3. HYDRANT SHALL HAVE DISTRICT'S STANDARD HOSE THREADS AND OPERATING NUTS.
 4. HYDRANT LENGTH AND TRENCH DEPTH SHALL BE SO AS TO PROVIDE FOR HYDRANT SETTING AT CORRECT ELEVATION RELATIVE TO FINISH GRADE.
 5. SET HYDRANT VERTICAL. USE LEVEL. COMPACT ALL BACKFILL.
 6. VALVE SHALL BE AWWA STANDARD GATE "O" RING PACKING, NON-RISING STEM, 2" OPERATION NUT. RESILIENT WEDGE GATE.
 7. TOP OF GUARD POST TO BE LEVEL WITH TOP OF HYDRANT.
 7. WHEN GUARD POSTS ARE USED, THE TOP OF THE POST WILL BE LEVEL WITH THE HYDRANT.
 8. FOR CENTER STEM HYDRANTS THE CONCRETE BLOCK WILL BE BELOW THE DRAIN HOLES AND DRAIN ROCK. TAKE CARE TO NOT PLUG DRAIN HOLES OR CONTAMINATE DRAIN ROCK.
 9. ALL HYDRANTS SHALL BE FURNISHED WITH STORZ COUPLINGS.
 10. ALL HYDRANTS AND BENDS SHALL BE SECURED WITH MEGA-LUGS.
 11. STENCIL THE DISTANCE FROM THE FOOT VALVE ON THE HYDRANT BARREL WITH 1-1/2" LETTERS.

NOTE: ANY HYDRANT RUN OVER ONE FULL LENGTH OF PIPE, SHALL HAVE A RESTRAINED JOINT GASKET EQUAL TO FIELD LOK GASKETS.



FIRE HYDRANT LOCATION IN CUT AND FILL



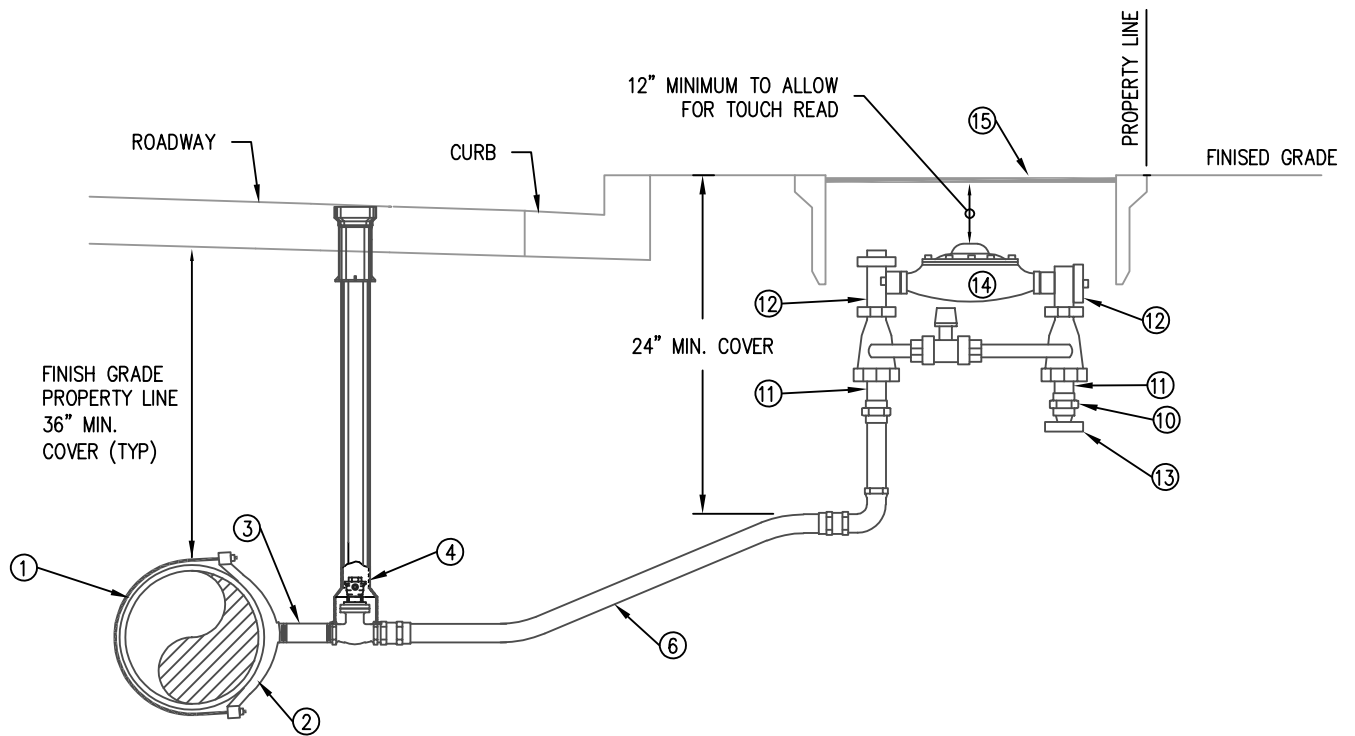
CUT



West Sound Utility District Standard Water Details

Fire Hydrant Assembly

REVISED: December 2010



MATERIAL LIST FOR 1 1/2" OR 2" WATER SERVICE

- | | |
|--|--|
| <p>1. EXISTING WATER MAIN</p> <p>2. 2" (IP THREAD) DOUBLE STRAP SADDLE EQUAL TO ROMAC STYLE 202S</p> <p>3. CORP. STOP</p> <p>4. RSGV</p> <p>5. 2" MIPT X CTS GRIP JOINT EQUAL TO FORD C8477G</p> <p>6. 2" HDPE, MAINTAIN 36" COVER FROM WATER MAIN TO WITHIN 48" OF METER BOX.</p> <p>11. MIP x COMP</p> | <p>12. 2" METER SETTER WITH HIGH BYPASS . FLANGED BALL VALVE WITH LOCK WINGS AND CHECK VALVE.</p> <p>13. SCHEDULE 40 2" PVC THREADED PLUG. REMOVED WHEN CONNECTION MADE TO CUSTOMER LINE</p> <p>14. WATER METER – TO BE SUPPLIED BY THE DISTRICT</p> <p>15. METER BOX SHALL BE EQUAL TO FOG TITE # 2 WITH TRAFFIC COVER AND HINGED INSPECTION LID. PROVIDE TOUCH READ PIT LID. PLACE BACK OF METER BOX FLUSH WITH PROPERTY LINE.</p> |
|--|--|

NOTE: ALL FITTINGS TO BE BRASS.

SERVICE CONNECTION PROTOCOL

**FOR EXISTING
WATER
SERVICES**

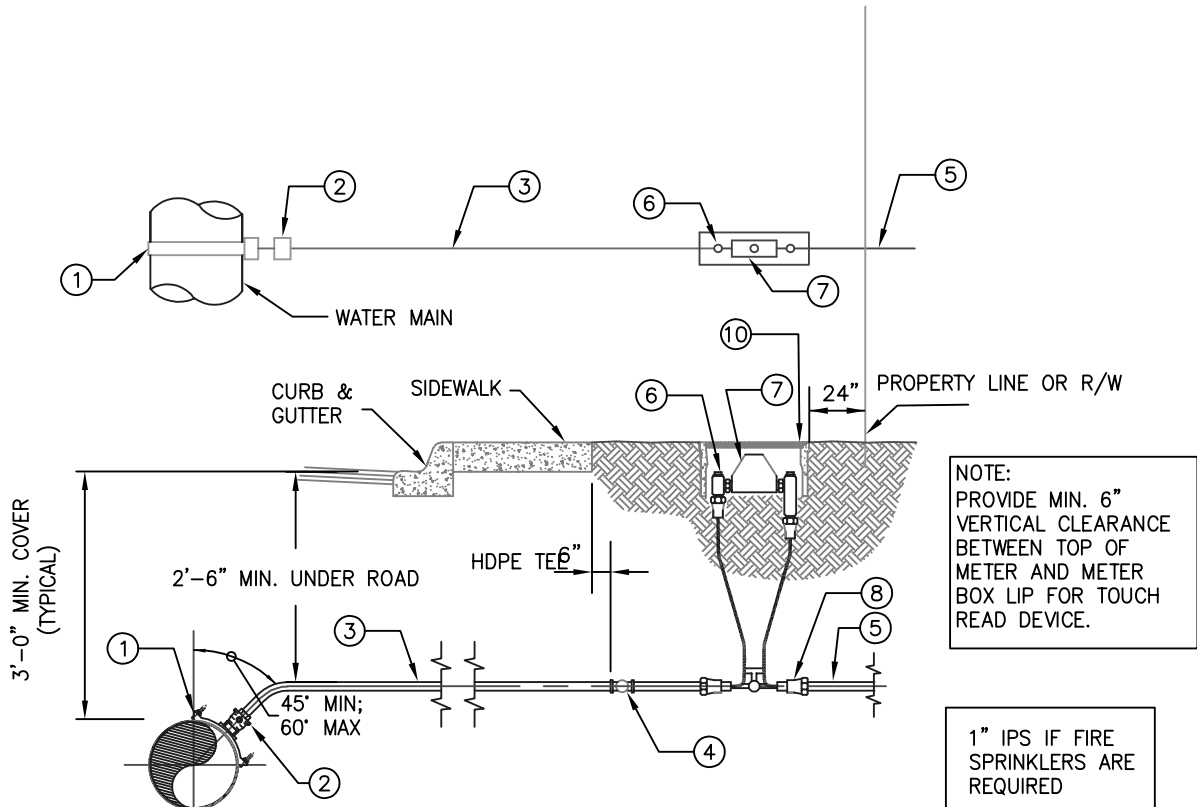
PROCEDURE

PROVIDE AND INSTALL METER BOX ADJACENT TO EXISTING. COORDINATE WITH DISTRICT FOR INSTALLATION OF METER. NOTIFY PROPERTY OWNER OF SERVICE INTERRUPTION (24 HOUR NOTICE REQUIRED). CONNECT DISTRICT PROVIDED METER TO EXISTING SERVICE. CONTRACTOR TO PROVIDE AND INSTALL ALL PIPE, COUPLINGS AND FITTINGS FOR A COMPLETE CONNECTION.

**FOR VACANT
(OR FUTURE
SERVICE) LOTS**

PROVIDE AND INSTALL METER BOX AT PROPERTY LINE. STUB OUT OF METER SETTER WITH 3 FEET OF PE SERVICE PIPE AND CAP.

1. WHENEVER AND WHEREVER POSSIBLE SINGLE SERVICE CONNECTIONS SHALL BE GROUPED CLOSE TOGETHER ON CORRESPONDING LOTS.
2. ON LONGER DISTANCE RUNS THE SERVICE PIPE MAY BE UPSIZED TO 1" FOR VOLUME PURPOSES



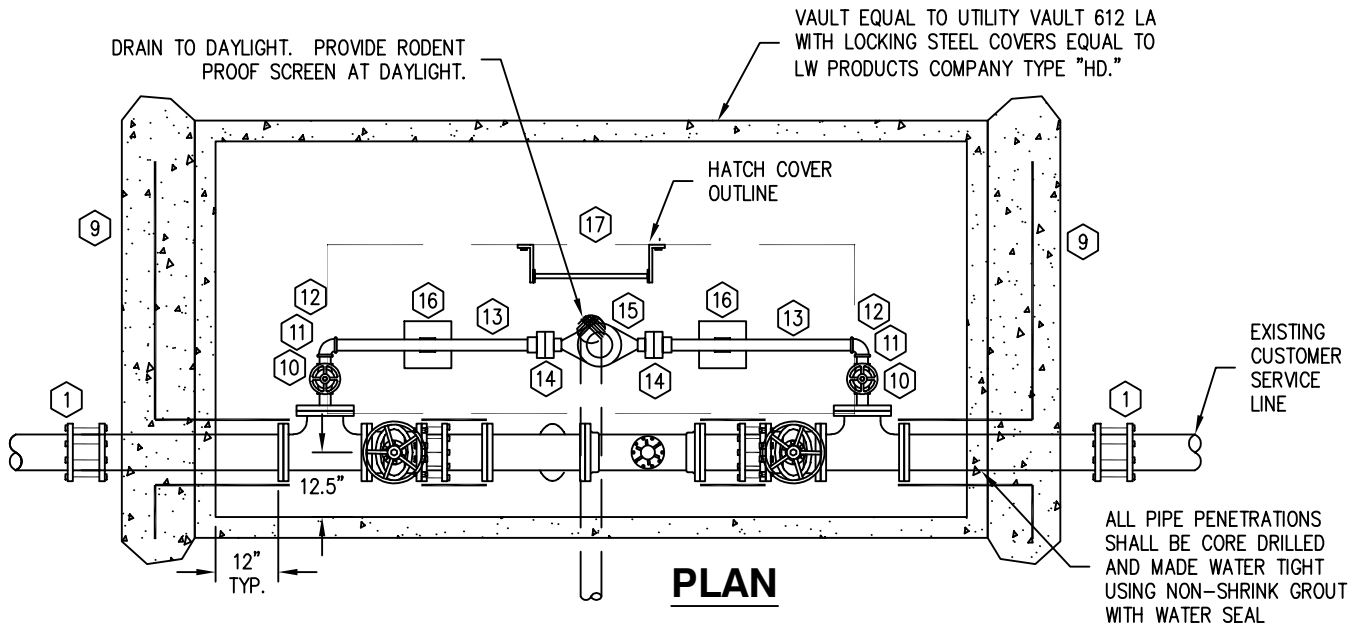
NO.	ITEM	MANUFACTURER AND NO. AND/OR DESCRIPTION	SINGLE SERVICE	SERVICES OVER 1"
1	SADDLE	ROMAC 101S	SINGLE STRAP SADDLE	DOUBLE STRAP SADDLE
2	CORP. STOP	FORE FB1100-3 OR EQUAL- FOR IPS PIPE (3/4")	3/4"	AS DETERMINED BY DISTRICT
3	SERVICE PIPE	PE 3408, SDR 7 BLUE IPS POLY PIPE (3/4")	3/4"	
4	NOT IN USE	----		
5	PIPE	SEE "SERVICE CONNECTION PROTOCOL"		
6	METER SETTER	FORD VBH72-12W WITH VALVE, 12" RISE	3/4" x 5/8"	
7	METER	TOUCH READ, SUPPLIED BY DISTRICT	3/4"	
8	COUPLING	MATCH EXISTING PIPE TYPE (FORD QUICK JOINT W/STIFFENER)	3/4" x 5/8"	
9	BOX	MID-STATE PLASTICS MODEL MSBCF 1118	-	
		W/DI LID AND TRPL HOLE		
10	MOUNTING HOLE	1-3/4" HOLE FOR TOUCH READ PAD	-	



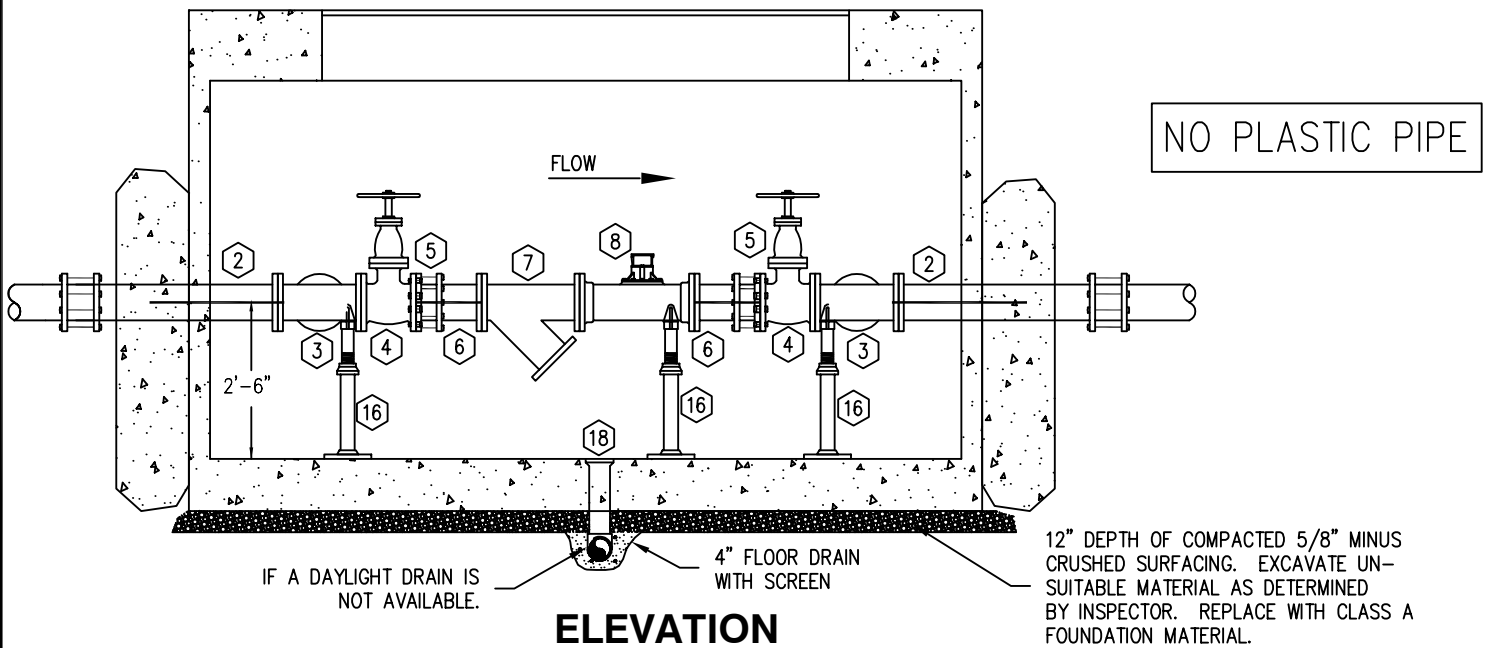
**West Sound Utility District
Standard Water Details**

Single and Double Water Service

REVISED: MARCH 2019



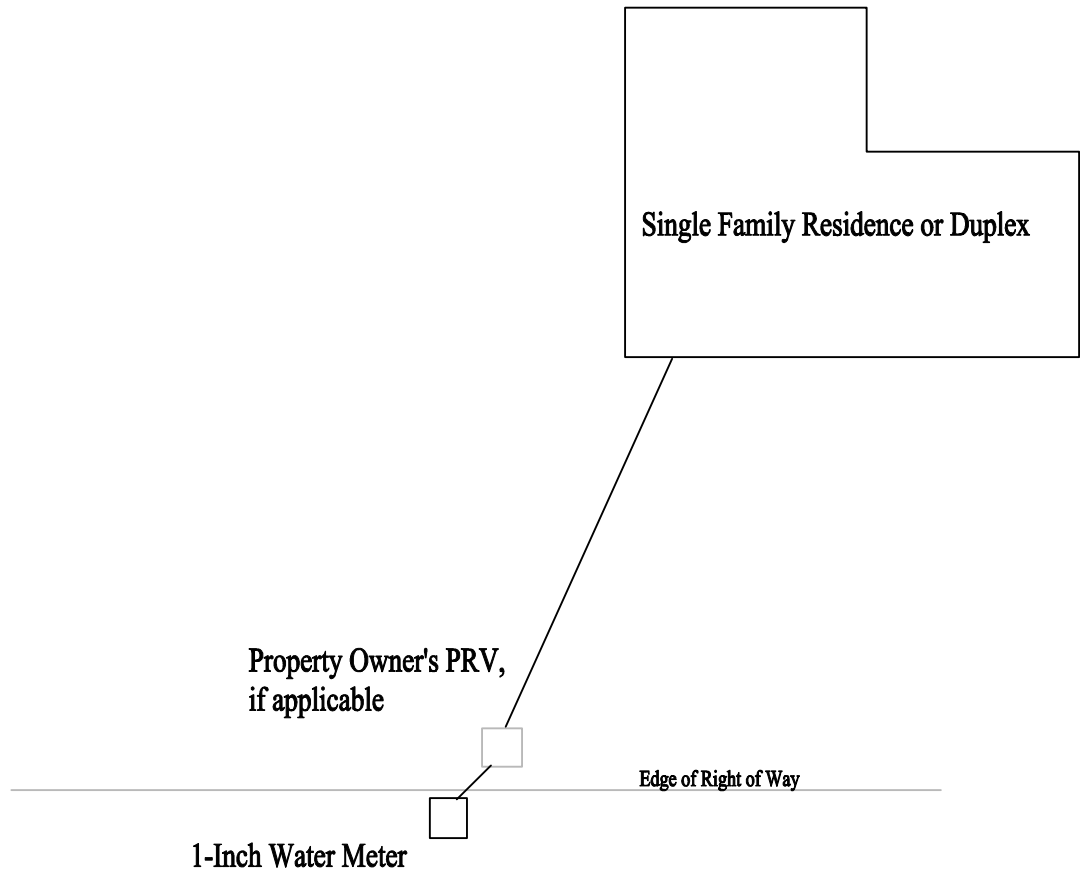
- | | | |
|--|--|---|
| ① LONG BODY SLEEVE | ⑦ STRAINER (FLxFL), DISTRICT TO PROVIDE | ⑭ 2" FLANGE METER COUPLINGS |
| ② DI SPOOL (FLxPE), 3'-0" LONG | ⑧ COMPOUND METER W/TOUCH READ (FLxFL), DISTRICT TO PROVIDE | ⑮ 2" BYPASS METER W/TOUCH READ, DISTRICT TO PROVIDE |
| ③ DI TEE (FLxFLxFL) WITH BLIND FLANGE WITH 2" IPT TAP | ⑨ CONCRETE THRUST RESTRAINT WITH TIE RODS PER DISTRICT STANDARDS | ⑯ ADJUSTABLE PIPE SUPPORT EQUAL TO STANDON #S92 |
| ④ RESILIENT SEAT GATE VALVE (FLxFL) WITH HAND WHEEL | ⑩ 2" THREADED BRASS NIPPLES (3" LONG) | ⑰ FREE STANDING GALVANIZED STEEL LADDER, ATTACH TO FLOOR AND SIDE OF HATCH. |
| ⑤ FCA | ⑪ 2" RESILIENT SEAT GATE VALVE THREADED WITH HAND WHEEL | ⑱ 4" FLOOR DRAIN W/ SCREEN 4" SCHEDULE 40 PVC PIPE |
| ⑥ 6" DI SPOOL (FLxPE), 0'-9" LONG
4" DI SPOOL (FLxPE), 1'-6" LONG
3" DI SPOOL (FLxPE), 1'-11" LONG | ⑫ 2" BRASS ST ELL | |
| | ⑬ 2" THREADED BRASS PIPE, LENGTH TO FIT | |



West Sound Utility District
Standard Water Details

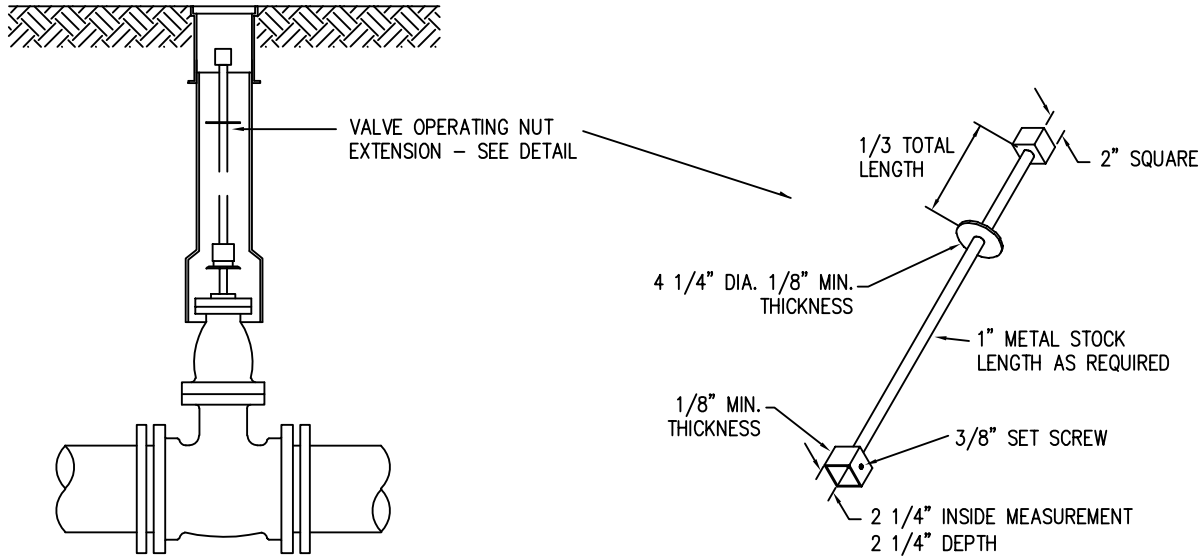
3", 4" AND 6" Compound Meter
Service

REVISED: FEBRUARY, 2008



If a residential fire sprinkler system is used:

1. The water meter will be at least a 1-inch meter
2. The sprinkler system will be privately owned and maintained,
3. The sprinkler system will be connected to the owner's service line and will be a flow-through system.



VALVE OPERATING NUT EXTENSION

EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN THREE (3) FEET BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF ONE (1) FOOT LONG, ONLY ONE EXTENSION PER VALVE. ALL EXTENSIONS ARE TO BE MADE OF STEEL SIZED AS NOTED, AND PAINTED WITH TWO COATS OF CARBON ELASTIC (ATCO NO. 2221) OR APPROVED EQUAL.

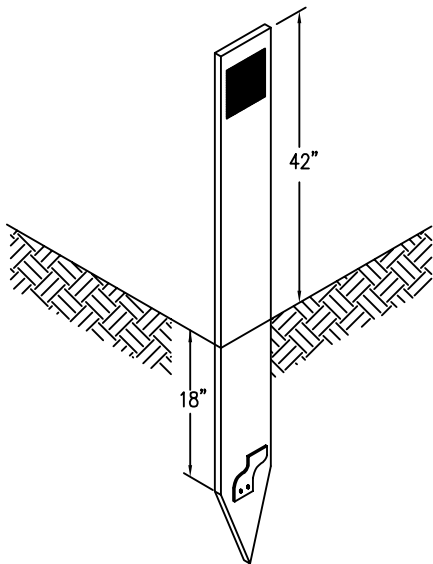
VALVE MARKER POST

PROVIDE A VALVE MARKER POST FOR EACH VALVE. THE FIBERGLASS VALVE MARKER POST SHALL BE BLUE IN COLOR, 4" WIDE (FLAT), 72" LONG AND FURNISHED WITH A 2"x2" HIGH-INTENSITY WHITE REFLECTOR (250 CANDLEPOWER) AND A FLEXIBLE ANCHOR BARB.

THE VALVE MARKER POST SHALL BE A CARSONITE CURV-FLEX MARKER OR DISTRICT APPROVED EQUAL.

THE POST SHALL BE SITUATED IN A SAFE, REASONABLY CONSPICUOUS LOCATION, AND AT A RIGHT ANGLE TO THE ROADWAY FROM THE VALVE.

THE DISTANCE FROM THE MARKER TO THE VALVE SHALL BE WRITTEN ON THE BACK OF THE MARKER IN 1-1/2" HIGH BLACK LETTERS.



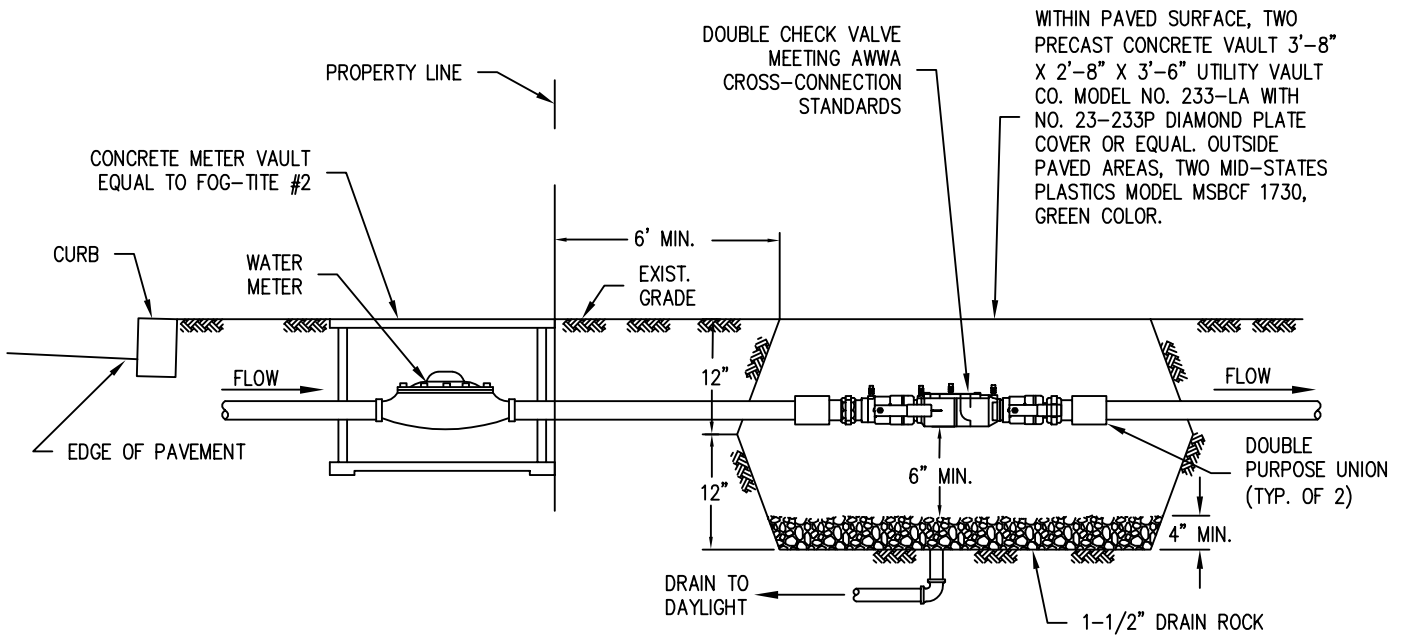
GENERAL MISCELLANEOUS DETAILS

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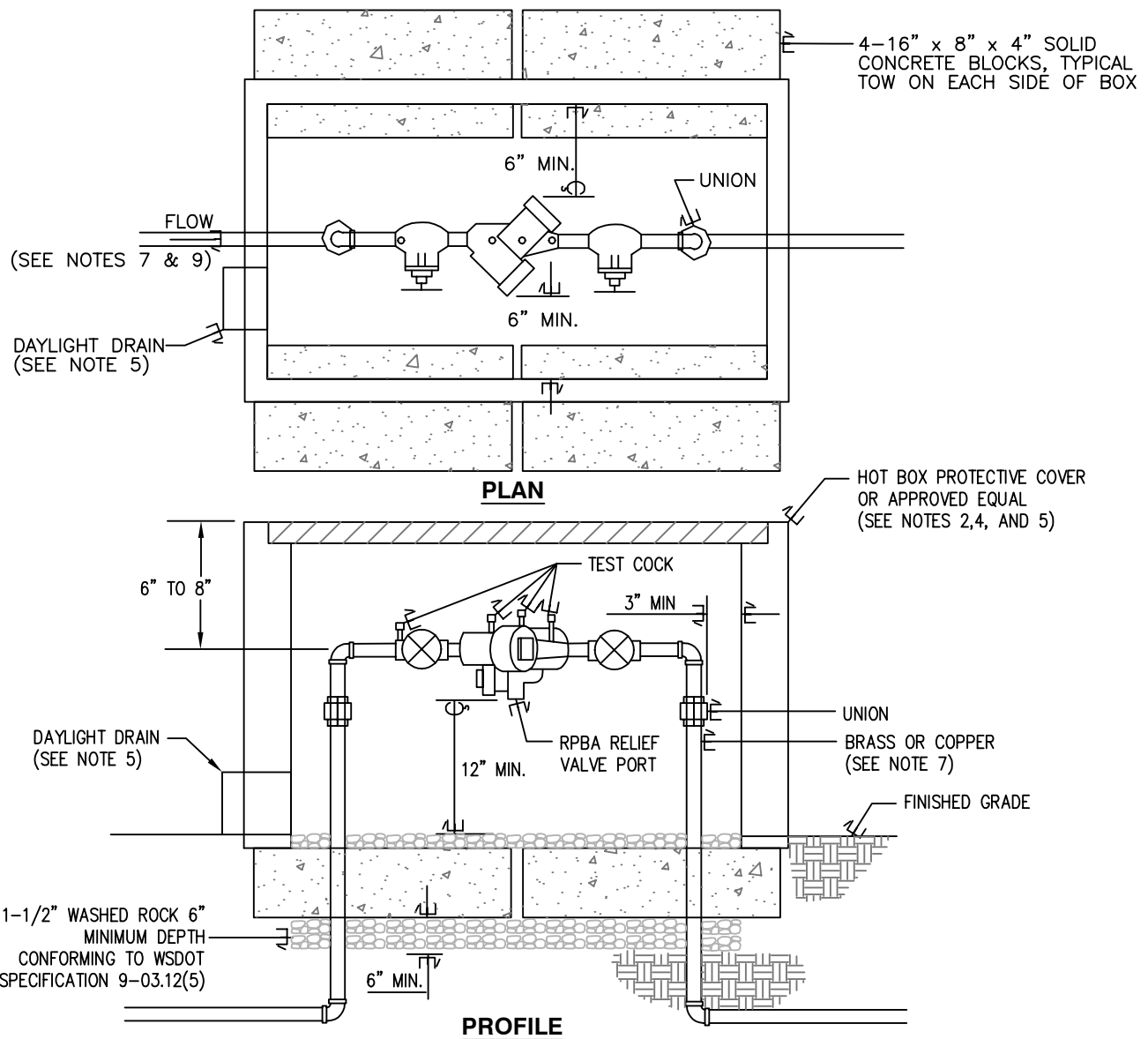
**West Sound Utility District
Standard Water Details**

Valve Marker/Valve Extension

REVISED: FEBRUARY, 2008



BELOW GROUND



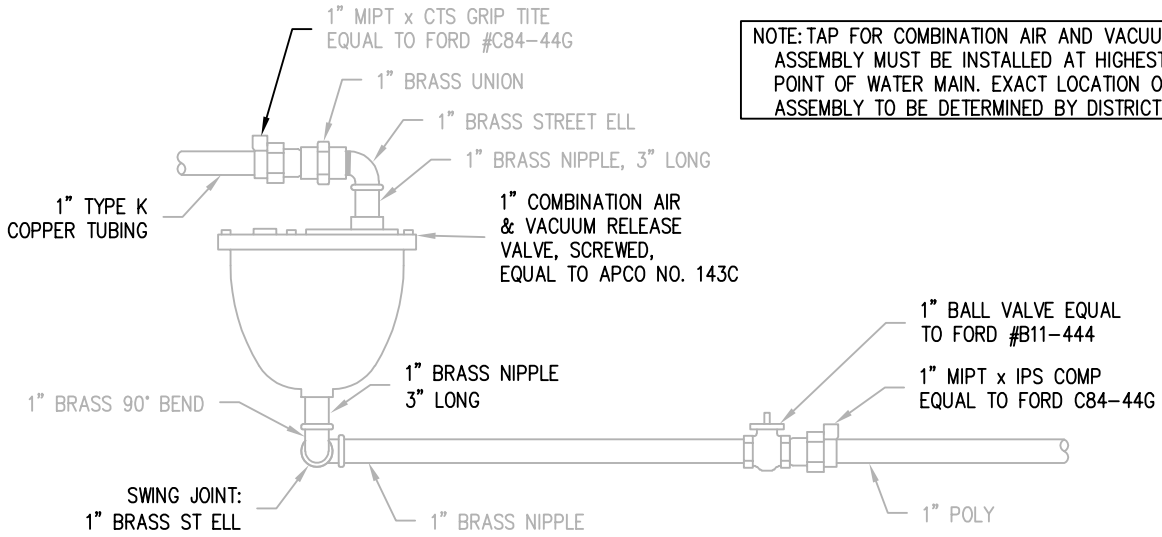
1. BACKFLOW ASSEMBLY MUST BE SELECTED FROM WASHINGTON STATE DEPARTMENT OF HEALTH'S LIST OF BACKFLOW PREVENTION ASSEMBLIES APPROVED FOR INSTALLATION IN WASHINGTON STATE, LATEST EDITION.
2. THE RPBA SHALL BE INSTALLED WITH ADEQUATE SPACE TO FACILITATE MAINTENANCE AND TESTING. IT SHALL BE TESTED AFTER INSTALATION, BY A WASHINGTON STATE CERTIFIED BACK-FLOW ASSEMBLY TESTER, TO INSURE ITS SATISFACTORY OPERATION BEFORE OCCUPANCY, AND ANNUALLY THEREAFTER. SEND TEST RESULTS TO WEST SOUND UTILITY DISTRICT.
3. THE RPBA MUST BE PURCHASED AS A UNIT. NO MODIFICATIONS TO THE ASSEMBLY ARE ALLOWED.
4. THE RPBA SHALL NOT BE INSTALLED IN A PIT BELOW GROUND LEVEL.
5. THE PROTECTIVE COVERING FOR THE RPBA, WHICH PROTECTS THE ASSEMBLY FROM FREEZING, MUST INCLUDE A DAYLIGHT DRAIN. THE DRAIN MUST BI INSTALLED ABOVE GROUND OR ABOVE THE MAXIMUM FLOOD LEVEL, WHICHEVER IS HIGHER. THE DRAIN MUST BE A MINIMUM OF TWICE THE SIZE OF THE RPBA, TO BE ABLE TO HANDLE THE VOLUME OF WATER THAT POTENTIALLY COULD BE DISCHARGED FROM THE RELIEF VALVE PORT.
6. THE RPBA SHALL BE SIZED EQUAL OR COMPARABLE TO THE METER SIZE.
7. USE ONLY BRASS OR COPPER BETWEEN THE METER AND THE BOTTOM VERTICAL 90 DEGREE BEND ON THE CUSTOMER'S SIDE OF THE RPBA.
8. UNIONS SHOULD BE USED IN CASE REPLACEMENT IS EVER REQUIRED.
9. THE RPBA SHOULD BE LOCATED IMMEDIATELY DOWN STREAM OF THE METER, AND SHOULD NOT BE INSTALLED INSIDE A BUILDING.
10. AN RPBA INSTALLED MORE THAN FIVE (5) FEET ABOVE FLOOR LEVEL MUST HAVE A PLATFORM UNDER IT FOR THE TESTER OR MAINTENANCE PERSON TO STAND ON. THE PLATFORM MUST BE OSHA APPROVED AND MEET ALL APPLICABLE SAFETY STANDARDS AND CODES.



West Sound Utility District
Standard Water Details

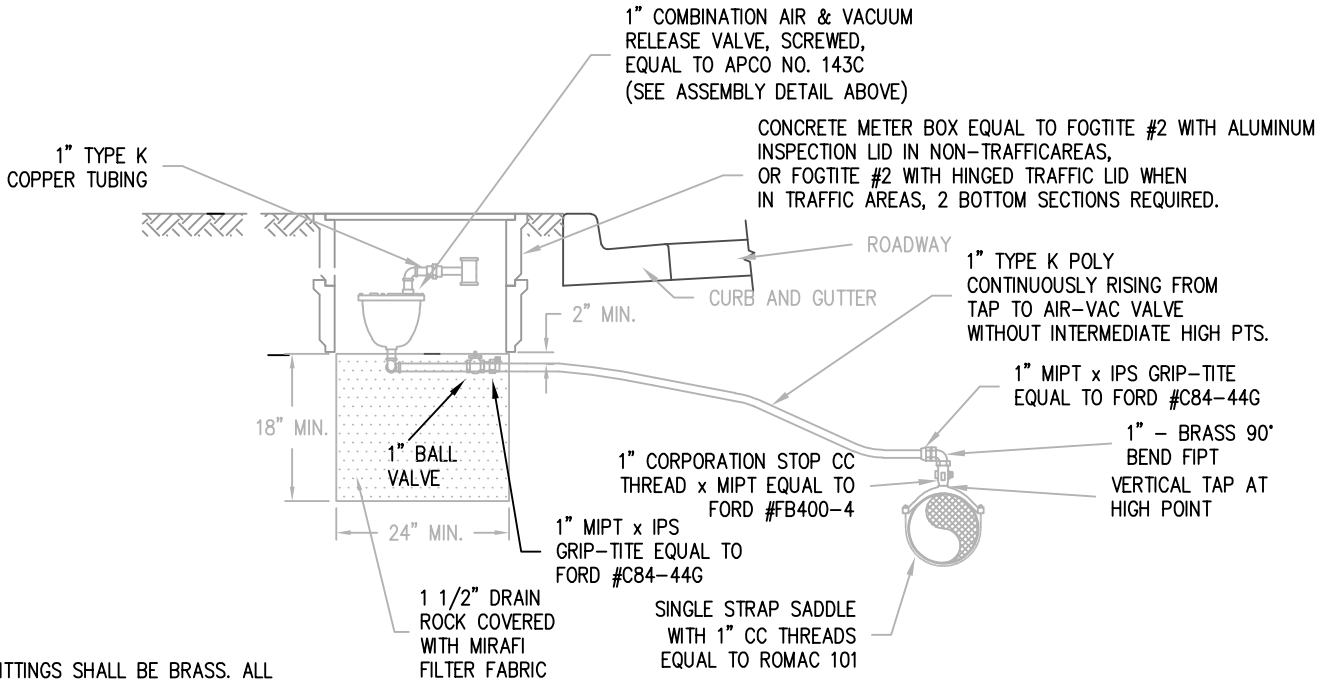
**2" AND SMALLER REDUCED
PRESSURE BACKFLOW ASSEMBLY
INSTALLATION**

REVISED: MARCH 2019



NOTE: TAP FOR COMBINATION AIR AND VACUUM VALVE ASSEMBLY MUST BE INSTALLED AT HIGHEST POINT OF WATER MAIN. EXACT LOCATION OF ASSEMBLY TO BE DETERMINED BY DISTRICT.

VALVE ASSEMBLY DETAIL



NOTE: ALL FITTINGS SHALL BE BRASS. ALL PIPE SHALL BE COPPER.

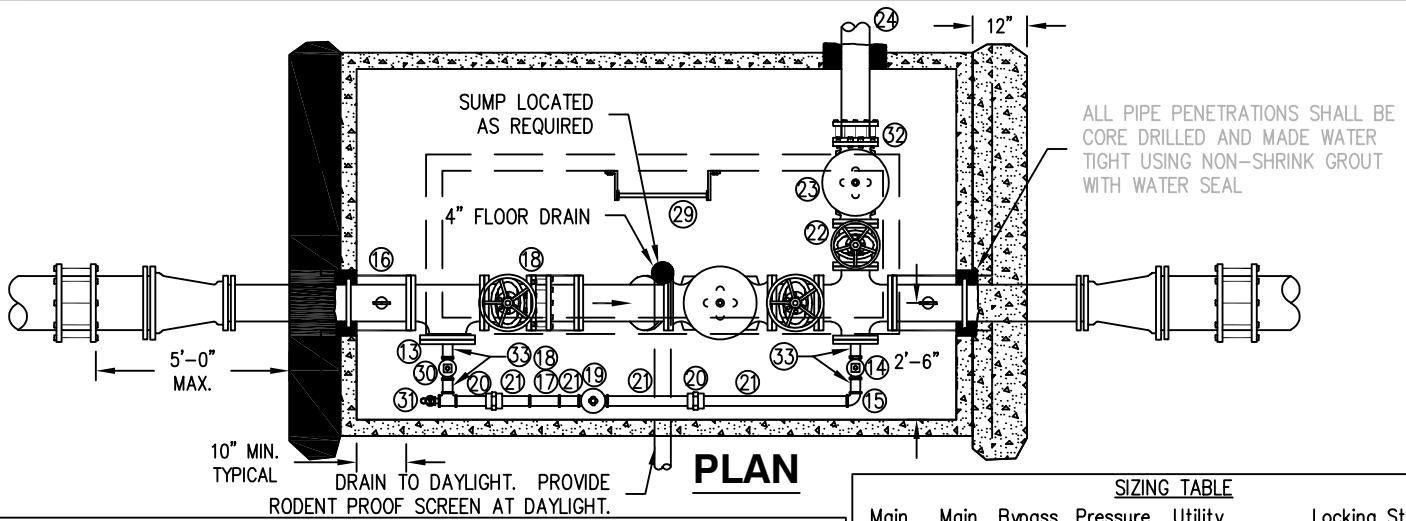
1" COMBINATION AIR AND VACUUM VALVE ASSEMBLY



**West Sound Utility District
Standard Water Details**

Air/Vac Assembly

REVISED: MARCH 2019



PLAN

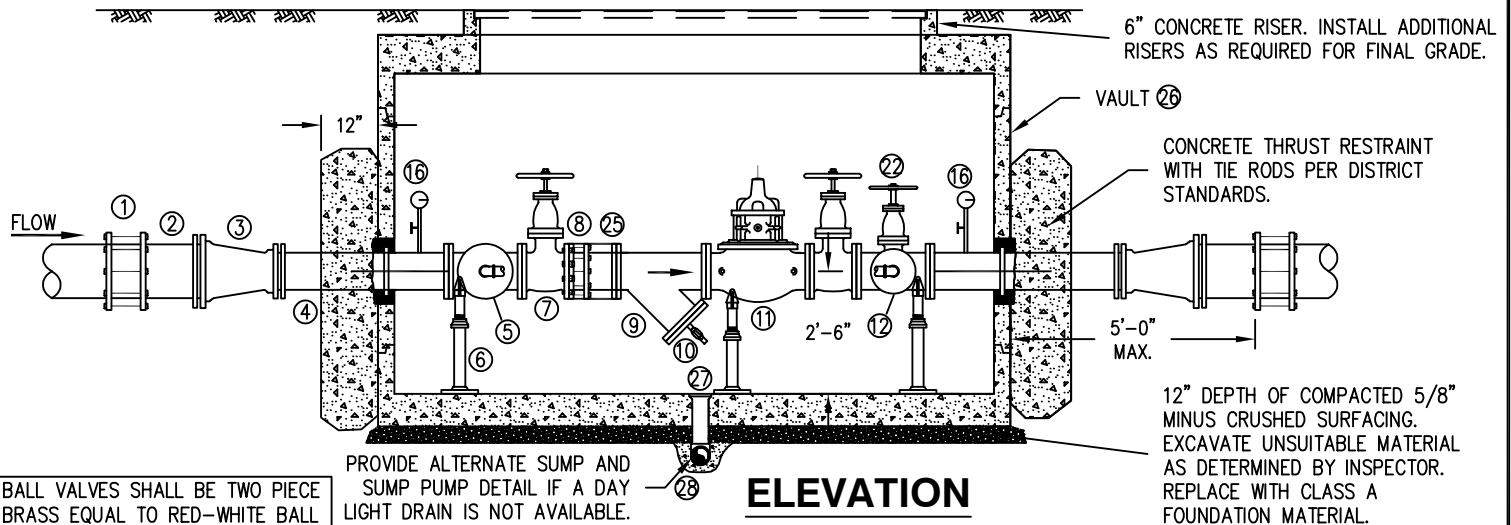
NOTES

1. PAINT INTERIOR WALLS WITH TWO COATS OYSTER WHITE, FACTORY APPLIED.
2. SUBMIT FOR APPROVAL ALL SUPPLIER CUT SHEETS ON ALL MATERIALS TO BE USED.
3. TWO COATS VAN DEX WATERPROOFING TO BE APPLIED ON OUTSIDE SURFACES OF VAULT.
4. ALL BRASS OR COPPER GALVANIZED CONNECTIONS SHALL HAVE DIELECTRIC BUSHINGS.

SIZING TABLE

Main Line	Main PRV	Bypass Line	Pressure Relief	Utility Vault	Locking Steel Covers
* 12"	8"	3"	Sized for Project	712-LA	LW PRODUCTS TYPE "HD"
10"	8"	3"		712-LA	LW PRODUCTS TYPE "HD"
8"	6"	2"		612-LA	LW PRODUCTS TYPE "HD"
6"	4"	2"		5106-LA	LW PRODUCTS TYPE "HD"

* Size shown in this figure.

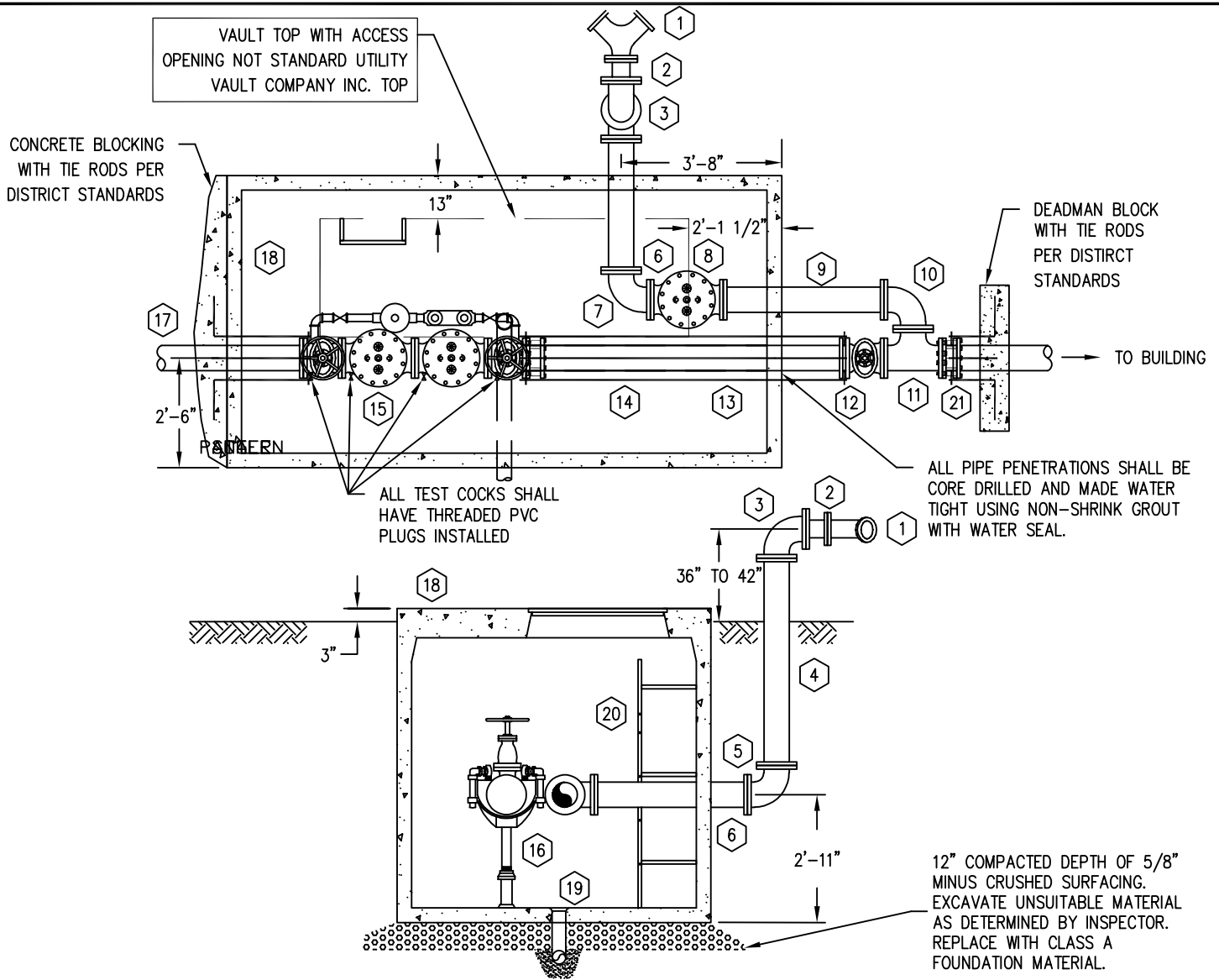


ELEVATION

BALL VALVES SHALL BE TWO PIECE BRASS EQUAL TO RED-WHITE BALL VALVE #5044F

PROVIDE ALTERNATE SUMP AND SUMP PUMP DETAIL IF A DAY LIGHT DRAIN IS NOT AVAILABLE.

- | | | |
|--|---|---|
| <ol style="list-style-type: none"> ① 1" CAST IRON COUPLING EQUAL TO ROCKWELL 431 WITH LONG LENGTH SLEEVE. ② 12" DI PIPE, LENGTH TO FIT. ③ 12" TO 8" DI REDUCER (MJxMJ). ④ 8" DI SPOOL WITH COLLAR (PExFL), LENGTH TO FIT. ⑤ 8" DI TEE (FL x FL x FL). ⑥ ADJUSTABLE PIPE SUPPORT EQUAL TO STANDON MODEL S92. ⑦ 8" RESILIENT SEAT GATE VALVE (FLxFL) WITH HAND WHEEL. ⑧ 8" FLANGE COUPLING ADAPTER EQUAL TO ROCKWELL 913 WITH ANCHOR STUDS. ⑨ 8" STRAINER (FLxFL) EQUAL TO MUESSCO NO. 751. ⑩ 2" BRONZE CORPORATION STOP (IPTxFIPT) EQUAL TO FORD FB 1700-7 ⑪ 8" PRESSURE REDUCING VALVE (FLxFL), EQUAL TO CLA-VAL 90G-01ABS OR APPROVED EQUAL WITH TEST COCKS, COPPER TUBING TRIM, EPOXY LINING, AND VALVE POSITION INDICATOR. | <ol style="list-style-type: none"> ⑫ 8" TO 6" BRANCH REDUCING CROSS (FLxFLxFLxFL). ⑬ 8" DI BLIND FLANGE WITH 3" IPS TAP (TYPICAL). ⑭ 3" R.S. GATE VALVE WITH HAND WHEEL (SxS). ⑮ 3" BRASS 90° BEND (SxS) ⑯ PRESSURE GAUGE (0 TO 200 PSI) WITH BALL VALVE AND BRASS FITTINGS. TAP PIPE FOR CONNECTION, CENTER BETWEEN FLANGE AND VAULT WALL. ⑰ 3" STRAINER (FLxFL) WITH 1/8" PERFORATIONS BRASS SCREEN EQUAL TO MUESSCO NO. 751. TWO 3" BLIND FLANGES WITH 3" FIPT THREAD. ⑱ 3/4" BRONZE CORPORATION STOP (IPTxFIPT) EQUAL TO FORD FB1700-3 ⑲ 3" PRESSURE REDUCING VALVE (SxS), EQUAL TO CLA-VAL 90G-01ABS WITH TEST COCKS AND VALVE POSITION INDICATOR. ⑳ 3" BRASS UNION. ㉑ 3" BRASS THREADED PIPE, LENGTH TO FIT (TYPICAL) ㉒ RESILIENT SEAT GATE VALVE (FLxFL) WITH HAND WHEEL (DISTRICT TO SIZE FOR EACH PROJECT). | <ol style="list-style-type: none"> ㉓ PRESSURE RELIEF VALVE (FL) EQUAL TO CLA-VAL 50G-01 WITH TEST COCKS AND VALVE POSITION INDICATOR. (DISTRICT TO SIZE FOR EACH PROJECT). ㉔ DI PIPE. (DISTRICT TO SIZE FOR EACH PROJECT). ㉕ 8" DI SPOOL (FLxPE) APPROX. 9" LONG ㉖ PRECAST VAULT EQUAL TO UTILITY VAULT - SEE SIZING TABLE. ALL JOINTS TO BE INSTALLED USING NON-SHRINK GROUT AND TESTED TO ACHIEVE WATER TIGHTNESS. ㉗ 4" FLOOR DRAIN WITH SCREEN AND 4" SCHEDULE 40 PVC PIPE. ㉘ 4" SCHEDULE 40 PVC 45° BEND (2 each). ㉙ FREE STANDING GALVANIZED STEEL LADDER ATTACH TO FLOOR AND SIDE OF HATCH. ㉚ 3" BRASS TEE (SxS) WITH 3" x 3/4" BUSHING AND 3/4" BALL VALVE ㉛ HOSE BIB WITH VACUUM BREAKER ㉜ FLANGE COUPLING ADAPTER (SIZE PER DISCHARGE PIPING) ㉝ 3" BRASS THREADED PIPE, 3" LONG |
|--|---|---|



1. 4"x2 1/2" FIRE DEPARTMENT DOUBLE CONNECTION FOR STAND PIPE WITH BREAKABLE CAST IRON HOSE CAPS.
2. 4" ADAPTER (FLxSCREWED)
3. 4" OR 6" 90° BEND (FL)
4. 4" OR 6" PIPE (FLxFL), LENGTH TO FIT
5. 4" OR 6" 90° BEND (FL)
6. 4" OR 6" PIPE (FLxFL), 3'-0" LONG
7. 4" OR 6" 90° BEND (FL)
8. 4" OR 6" SWING TYPE GRAVITY OPERATED CHECK VALVE(FL)
9. 4" OR 6" PIPE (FLxFL), 3'-8" LONG
10. 4" ASSEMBLY: 4" SHORT RADIUS 90° BEND (FL), 6" AND 8" ASSEMBLY: 6" SHORT RADIUS 90° BEND (FL), 10" ASSEMBLY: 8"x6" REDUCING 90° BEND (FL)
11. 4" ASSEMBLY, 4" TEE (FL)
6" ASSEMBLY, 6" TEE (FL)
8" ASSEMBLY, 8"x8"x6" TEE (FL)
10" ASSEMBLY, 10"x10"x8" TEE (FL)
12. 4", 6", 8", OR 10" RESILIENT WEDGE GATE VALVE (FLxMJ) WITH INDICATOR POST. INDICATOR POST VALVE SAME SIZE AS DOUBLE CHECK VALVE.

13. 4", 6", 8", OR 10" DI CLASS 52 NIPPLE PIPE, CEMENT LINED, LENGTH TO FIT, WITH TIE RODS PER DISTRICT STANDARD.
14. 4", 6", 8", OR 10" FLANGED COUPLING ADAPTER
15. DETECTOR DOUBLE CHECK VALVE ASSEMBLY. EACH ASSEMBLY SHALL INCLUDE TWO RESILIENT WEDGE GATE VALVES AND TEST COCKS, BY-PASS ASSEMBLY, AND BE APPROVED CROSS-CONNECTION CONTROL ASSEMBLIES PER THE LATEST D.O.H. APPROVED LIST.
16. ADJUSTABLE PIPE SUPPORT UNDER CHECK VALVES EQUAL TO STANON MOD. #S92 (THREE REQUIRED).
17. 4", 6", 8", OR 10" (FLxPE) PIPE WITH COLLAR 18" FROM PE:
4" - 5'-6" LONG 6" - 4'-6" LONG
8" - 3'-6" LONG 10" - 3'-0" LONG

18. PRECAST CONCRETE VAULT WITH LOCKING STEEL COVERS. COVER EQUAL TO LW PRODUCTS COMPANY TYPE "HD." VAULT EQUAL TO UTILITY VAULT CO. #612-LA.
19. 6" MIN. DRAIN WITH SCREEN TO DAYLIGHT OR STORM DRAIN SYSTEM. PROVIDE RODENT PROOF SCREEN AT DAYLIGHT.
20. FREE STANDING GALVANIZED STEEL LADDER ATTACH TO FLOOR AND VAULT WALL.
21. 4", 6", 8", OR 10" FLANGED COUPLING ADAPTER

LEGEND



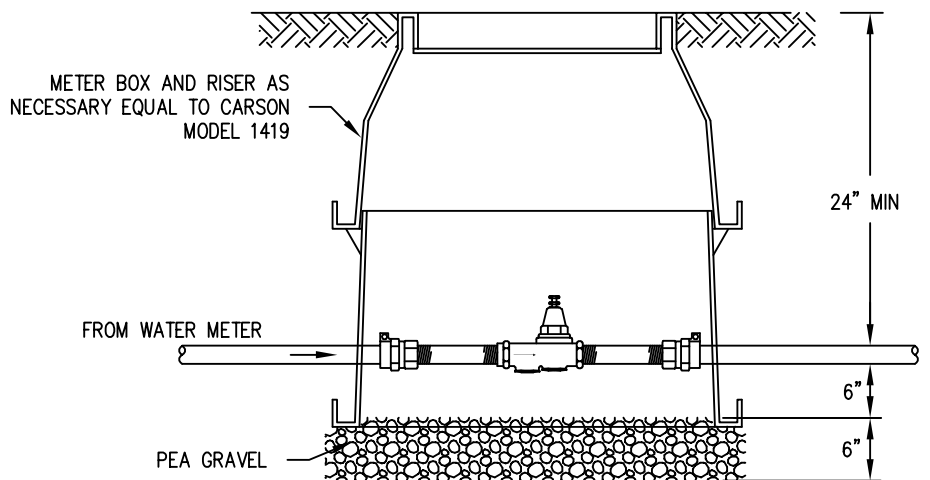
West Sound Utility District Standard Water Details

Fire Service Connection

REVISED: FEBRUARY, 2008

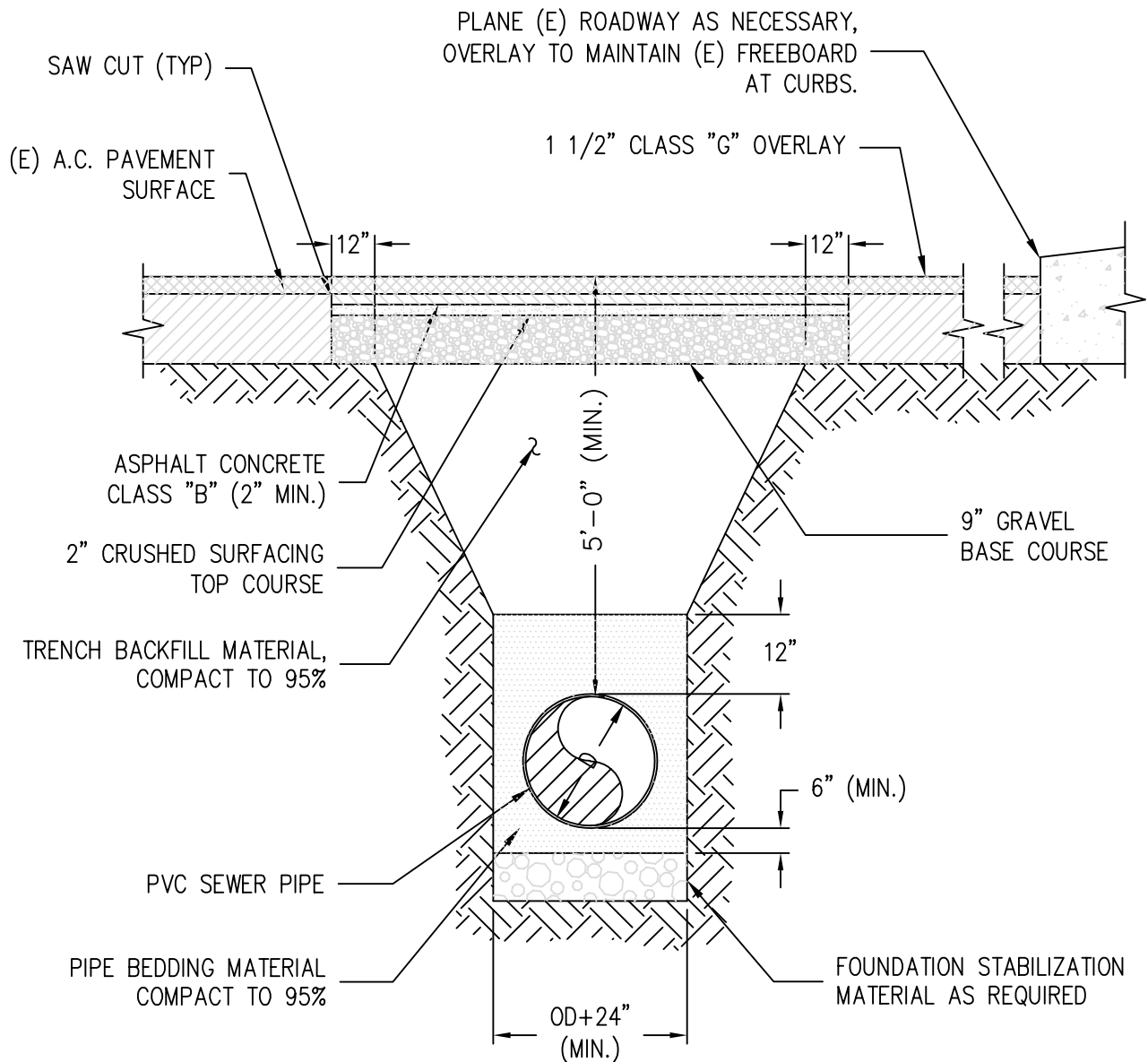
INSTALLATION

THE PRESSURE REDUCING VALVE SHALL BE LOCATED ON THE CUSTOMER'S PROPERTY "DOWNSTREAM" OF THE METER BOX. THE FUNCTION OF A PRESSURE REDUCING VALVE IS TO REDUCE HIGH-WATER PRESSURES IN THE SERVICE CONNECTION TO AN ACCEPTABLE RANGE OF 50 TO 75 PSI. INSTALLATION OF A PRESSURE REDUCING VALVE IS REQUIRED WHERE THE SERVICE CONNECTION PRESSURE EXCEEDS 80 PSI IN ACCORDANCE TO THE UNIFORM PLUMBING CODE.



ADJACENT TO WATER METER

THE CUSTOMER IS RESPONSIBLE FOR INSTALLATION AND MAINTENANCE



NOTES:

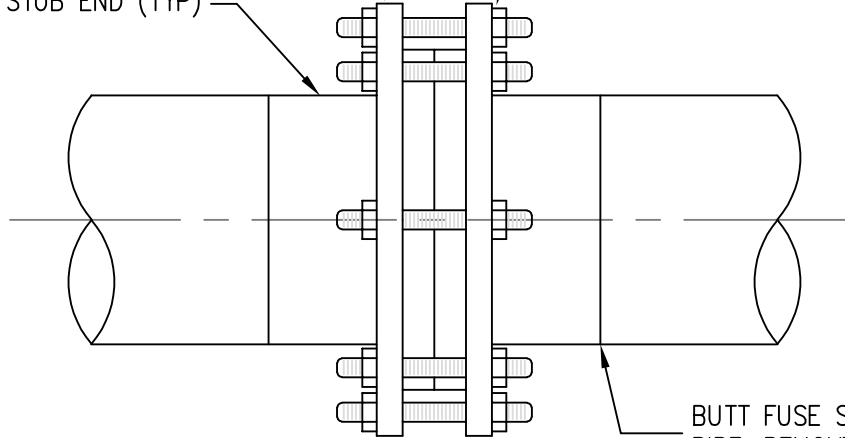
- 1) BED THE ENTIRE WIDTH OF THE TRENCH
- 2) PAVEMENT RESTORATION MAY VARY DEPENDING ON PERMIT REQUIREMENTS OF GOVERNING AGENCY.



SLIP ON BACKING FLANGE
316 S.S. OR DUCTILE IRON (TYP)

316 S.S. BOLT AND NUTS
(SEE NOTE)

STUB END (TYP)



BUTT FUSE STUB END TO
PIPE, REMOVE INTERNAL BEAD

NOTE:

1. USE ANTI-SEIZE COMPOUND ON ALL
THREADED 316 S.S. NUTS AND BOLTS.

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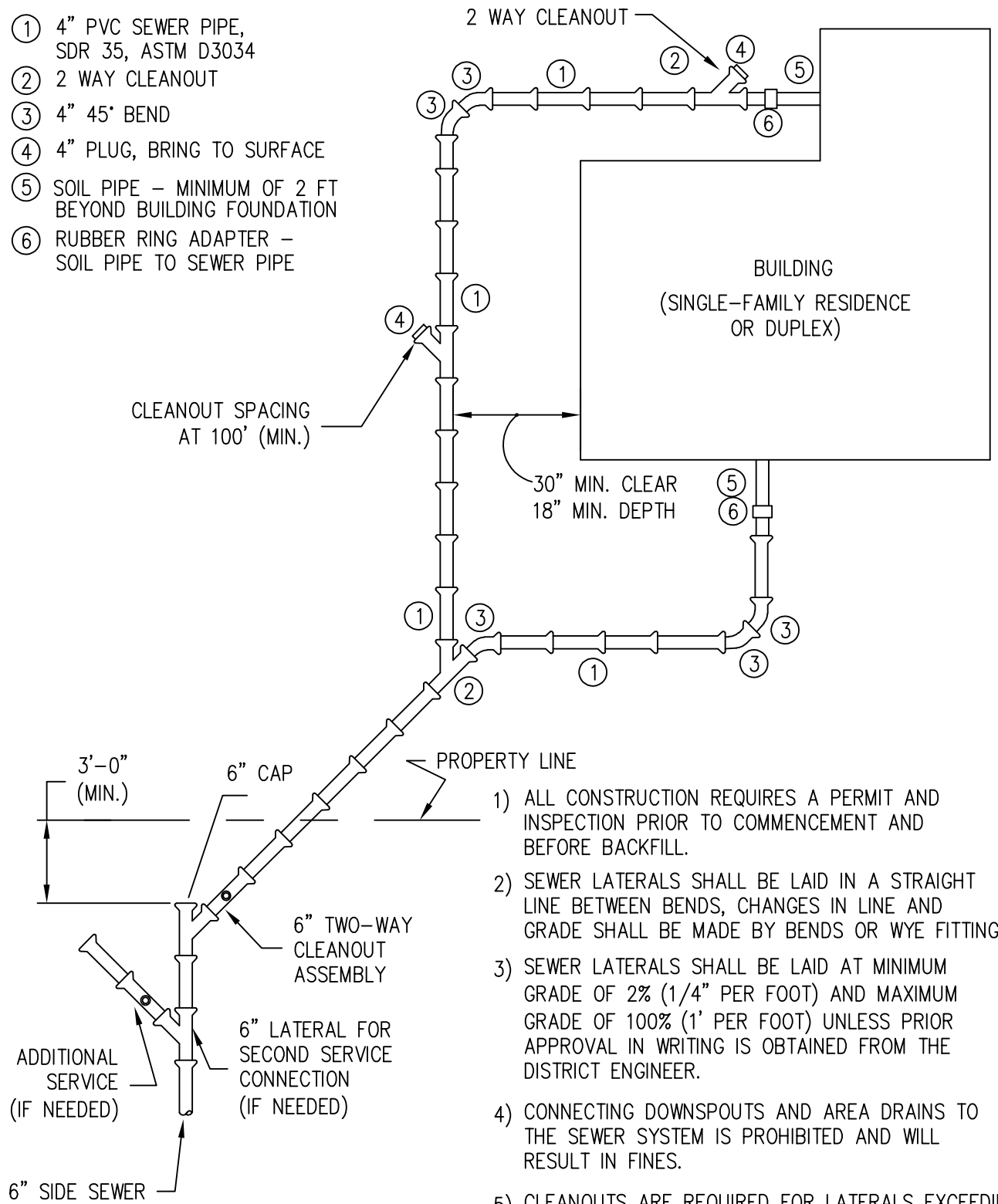
**West Sound Utility District
Standard Sewer Details**

HDPE Flange Connection

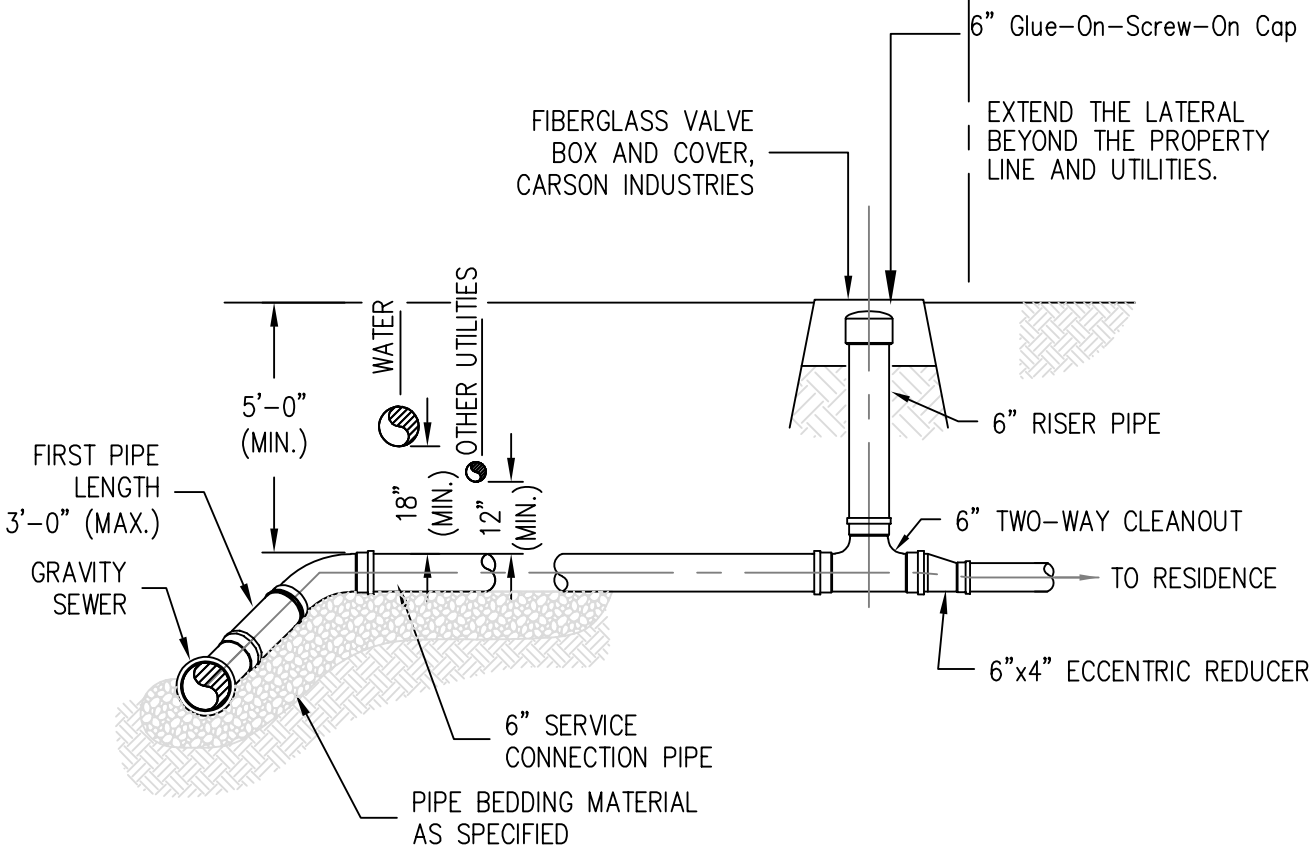
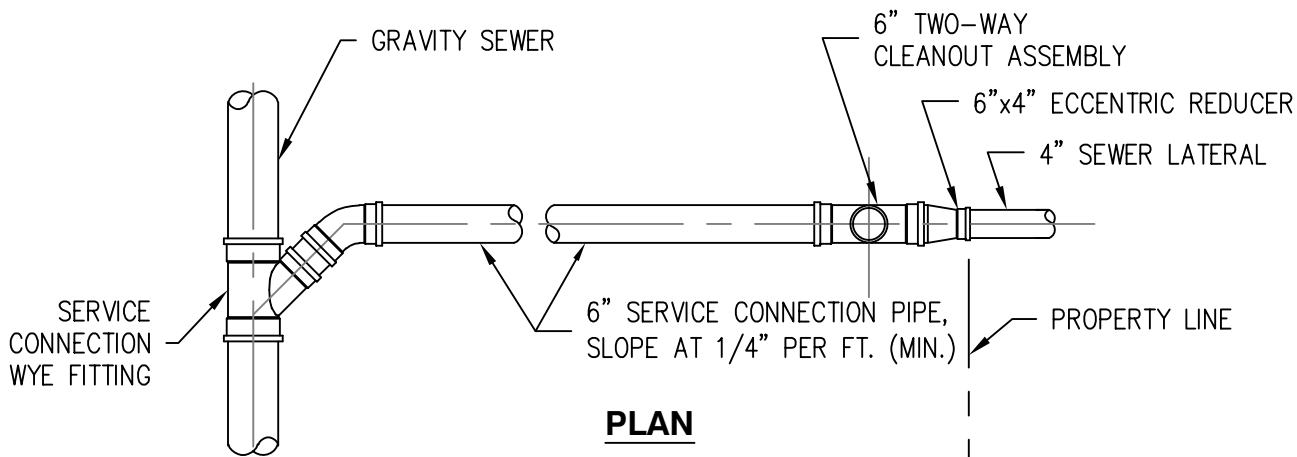
REVISED: FEBRUARY, 2008

LEGEND:

- ① 4" PVC SEWER PIPE, SDR 35, ASTM D3034
- ② 2 WAY CLEANOUT
- ③ 4" 45° BEND
- ④ 4" PLUG, BRING TO SURFACE
- ⑤ SOIL PIPE – MINIMUM OF 2 FT BEYOND BUILDING FOUNDATION
- ⑥ RUBBER RING ADAPTER – SOIL PIPE TO SEWER PIPE

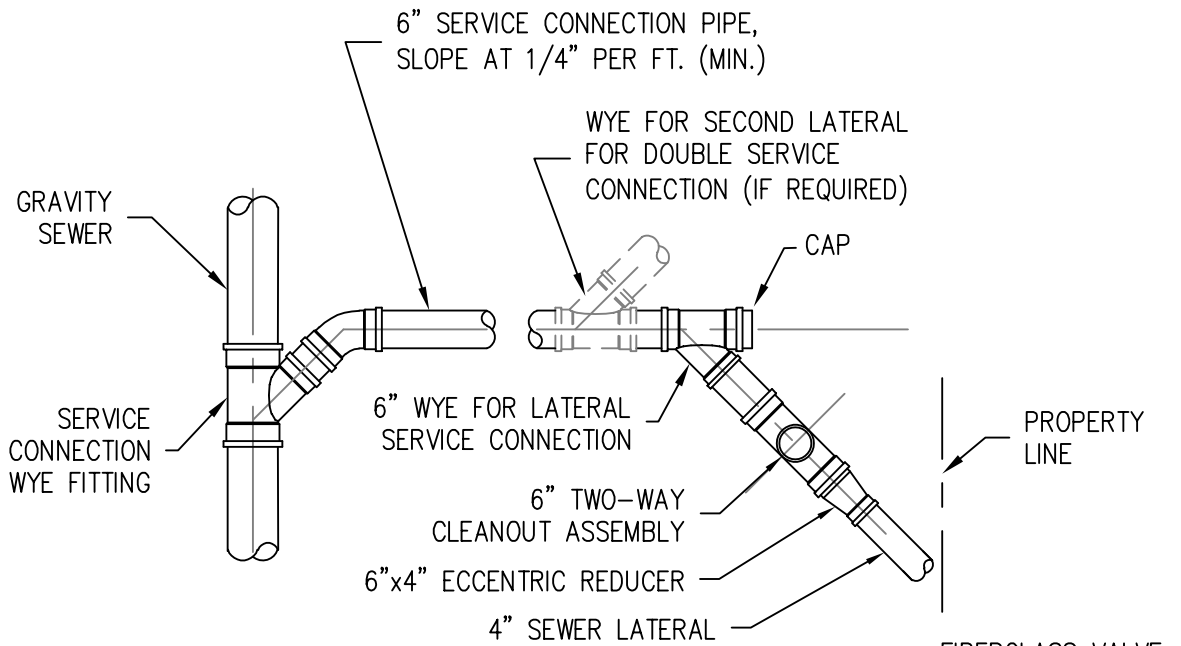


- 1) ALL CONSTRUCTION REQUIRES A PERMIT AND INSPECTION PRIOR TO COMMENCEMENT AND BEFORE BACKFILL.
- 2) SEWER LATERALS SHALL BE LAID IN A STRAIGHT LINE BETWEEN BENDS, CHANGES IN LINE AND GRADE SHALL BE MADE BY BENDS OR WYE FITTING.
- 3) SEWER LATERALS SHALL BE LAID AT MINIMUM GRADE OF 2% (1/4" PER FOOT) AND MAXIMUM GRADE OF 100% (1' PER FOOT) UNLESS PRIOR APPROVAL IN WRITING IS OBTAINED FROM THE DISTRICT ENGINEER.
- 4) CONNECTING DOWNSPOUTS AND AREA DRAINS TO THE SEWER SYSTEM IS PROHIBITED AND WILL RESULT IN FINES.
- 5) CLEANOUTS ARE REQUIRED FOR LATERALS EXCEEDING 100 FT., AT ANY BEND EXCEEDING 1/8" BEND (45°) AND WITHIN TEN (10) FT OF A BUILDING FOUNDATION.

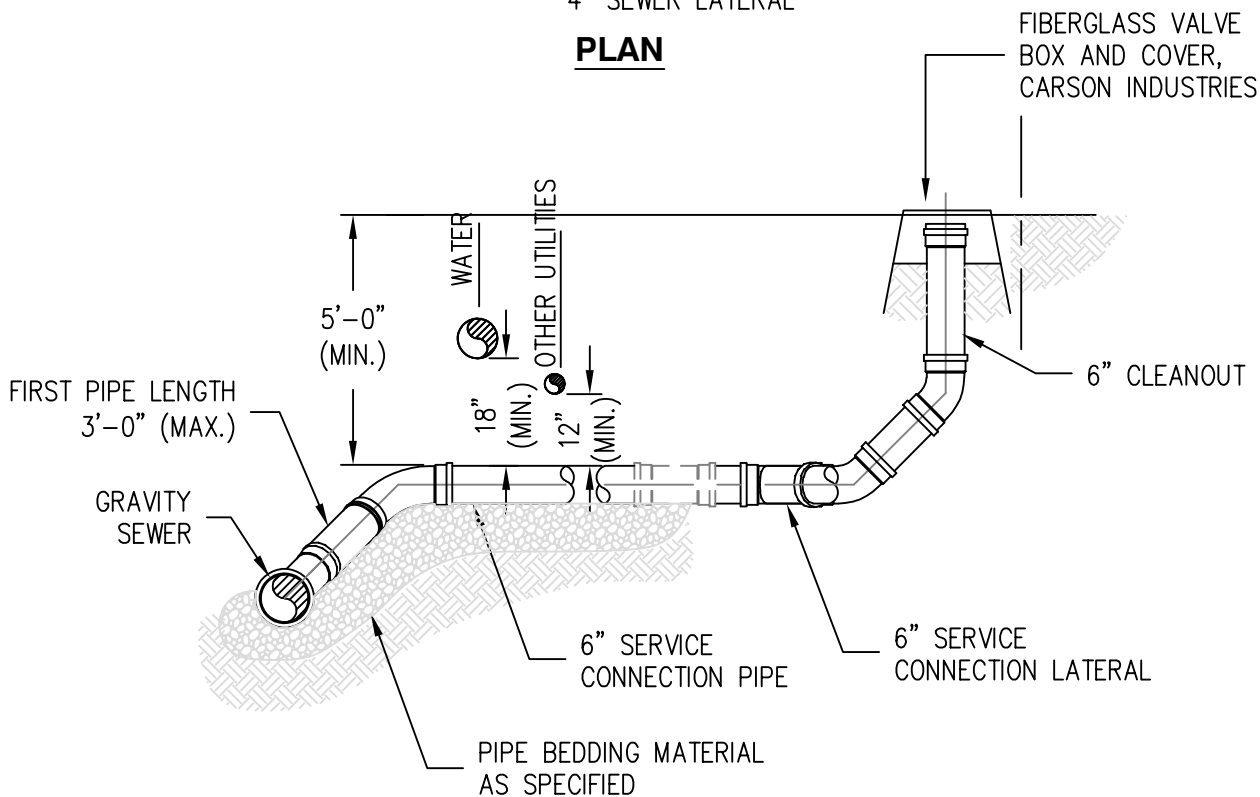


INSTALL LOCATOR WIRE ON ALL LATERALS TO THE SEWER MAIN

NOTE:
CONNECT ALL SERVICE CONNECTIONS 8" AND LARGER AT MANHOLE. DETAILS TO BE APPROVED BY ENGINEER.



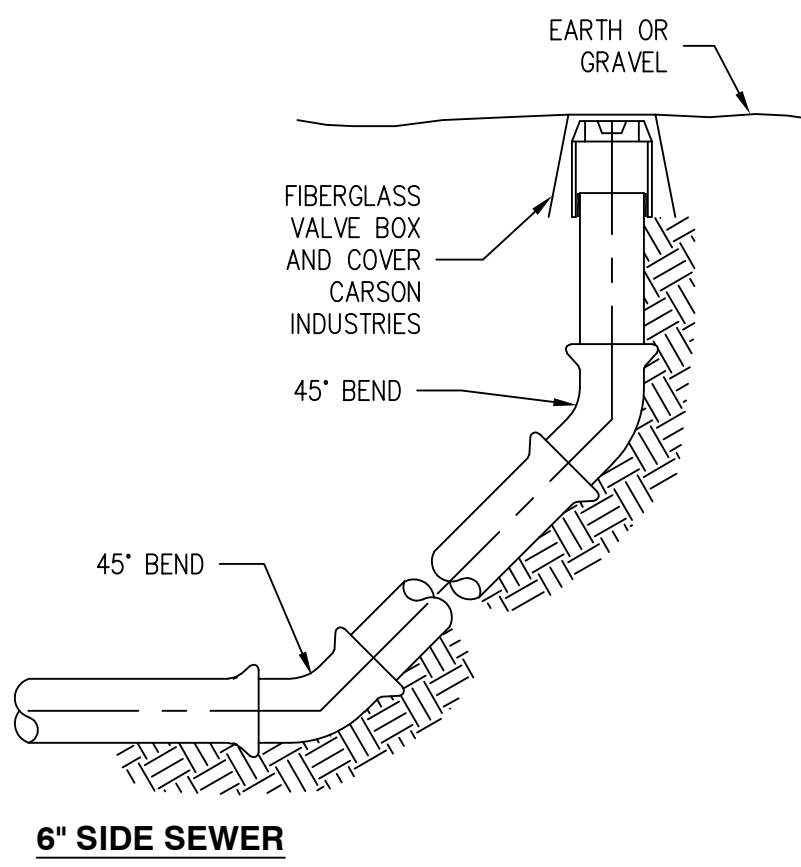
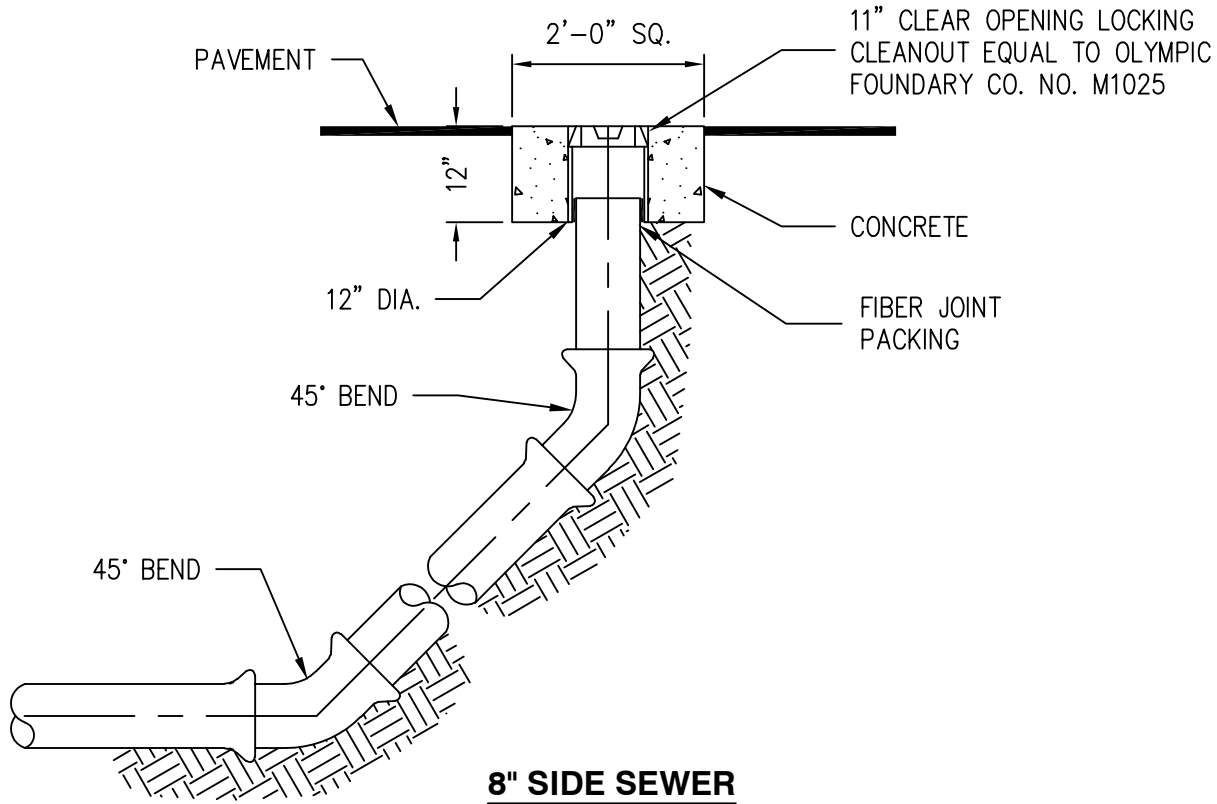
PLAN

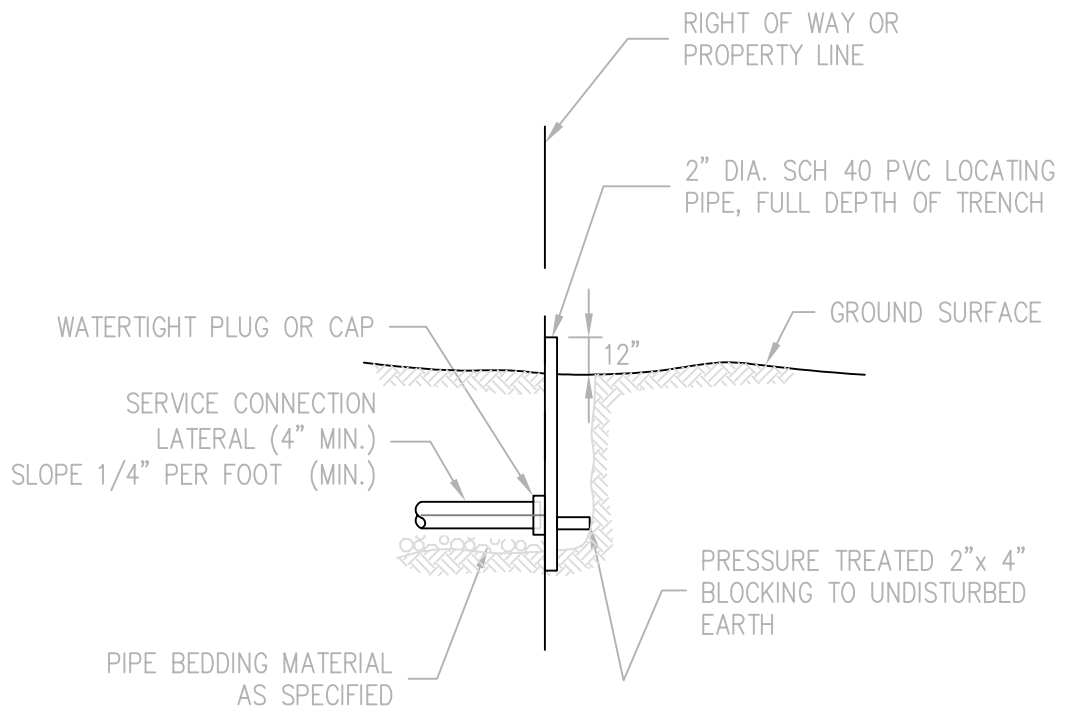


SECTION

EXTEND THE LATERAL BEYOND
THE PROPERTY LINE AND
UTILITIES.
INSTALL LOCATOR WIRE ON ALL
LATERALS TO THE SEWER MAIN.

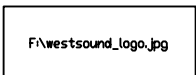
NOTE:
CONNECT ALL SERVICE CONNECTIONS 8" AND LARGER
AT MANHOLE. DETAILS TO BE APPROVED BY ENGINEER.





NOTES:

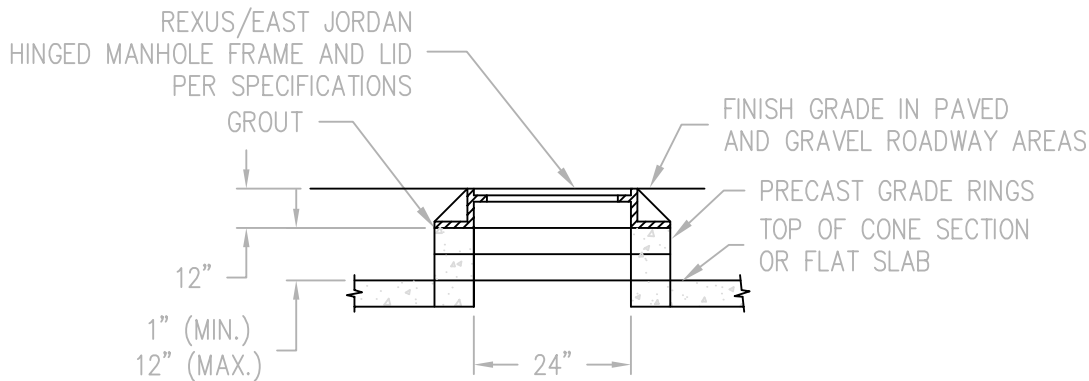
- 1) PROVIDE SOLID COPPER TRACE WIRE (NO. 12 MIN.) WRAPPED ALONG LENGTH OF SERVICE CONNECTION LATERAL AND MARKER.
- 2) STENCIL "SEWER" ON LOCATING PIPES AND DEPTH TO INVERT IN 2" HIGH LETTERS.



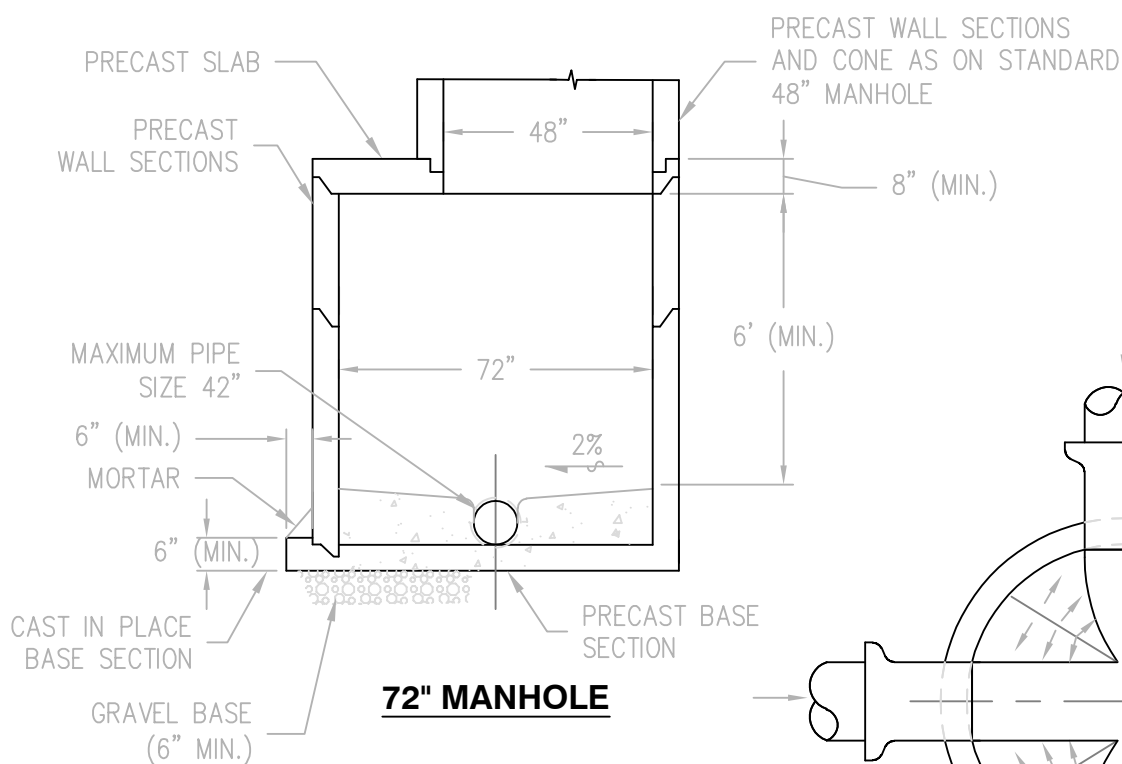
**West Sound Utility District
Standard Sewer Details**

Service Connection Marker

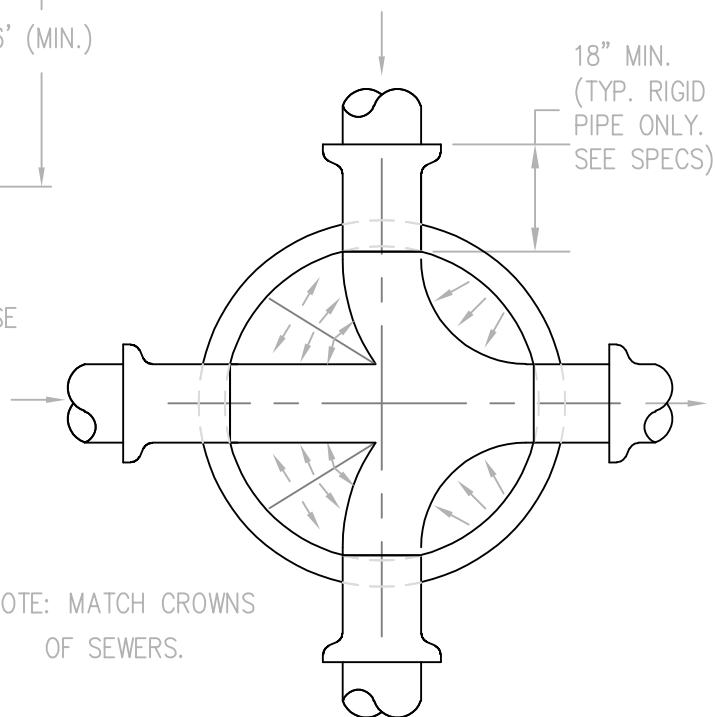
REVISED: FEBRUARY, 2008



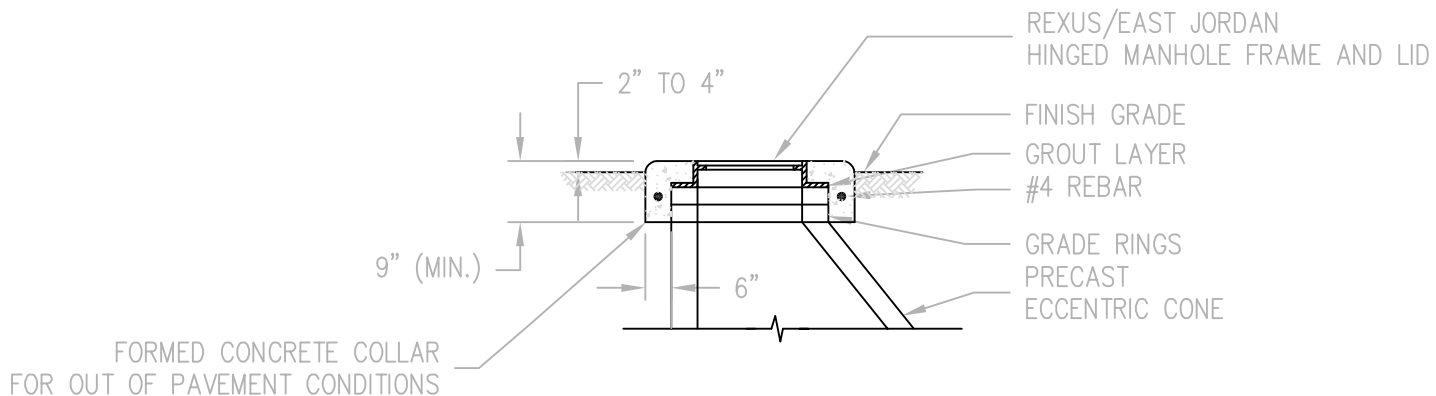
TYPICAL TOP SECTION



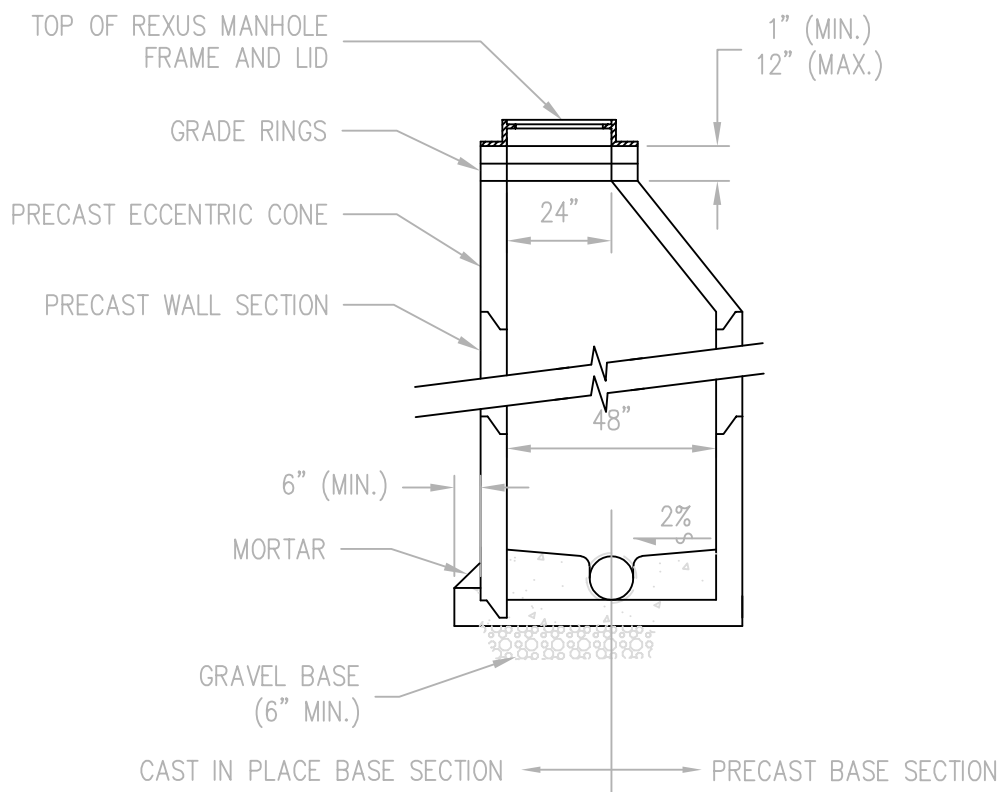
72" MANHOLE



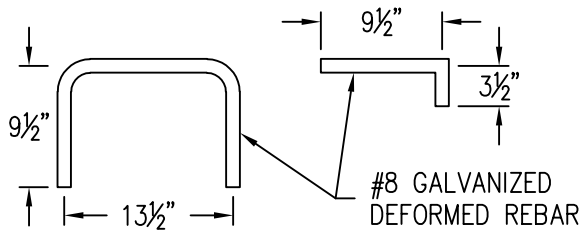
**GENERAL PLAN OF
CHANNEL INTERSECTION**



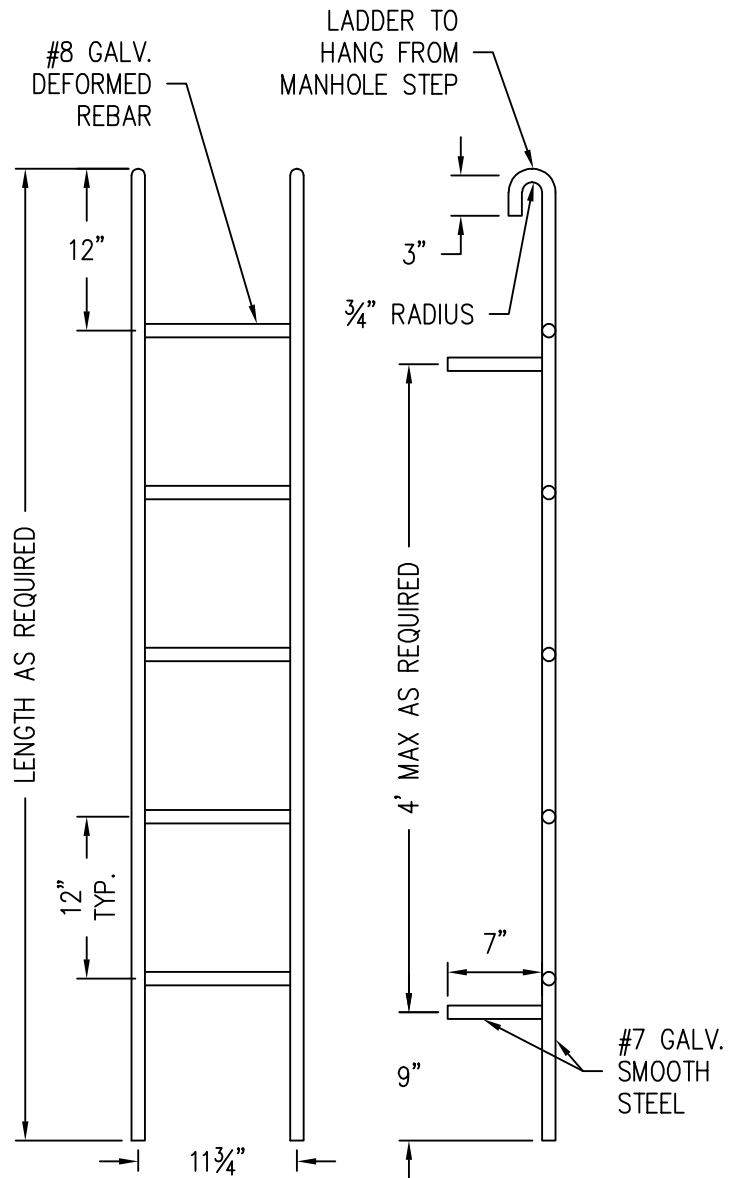
MANHOLE FRAME COLLAR
UNPAVED AREAS



STANDARD 48" MANHOLE



SAFETY STEP



PREFABRICATED LADDER

MANHOLE GENERAL NOTES:

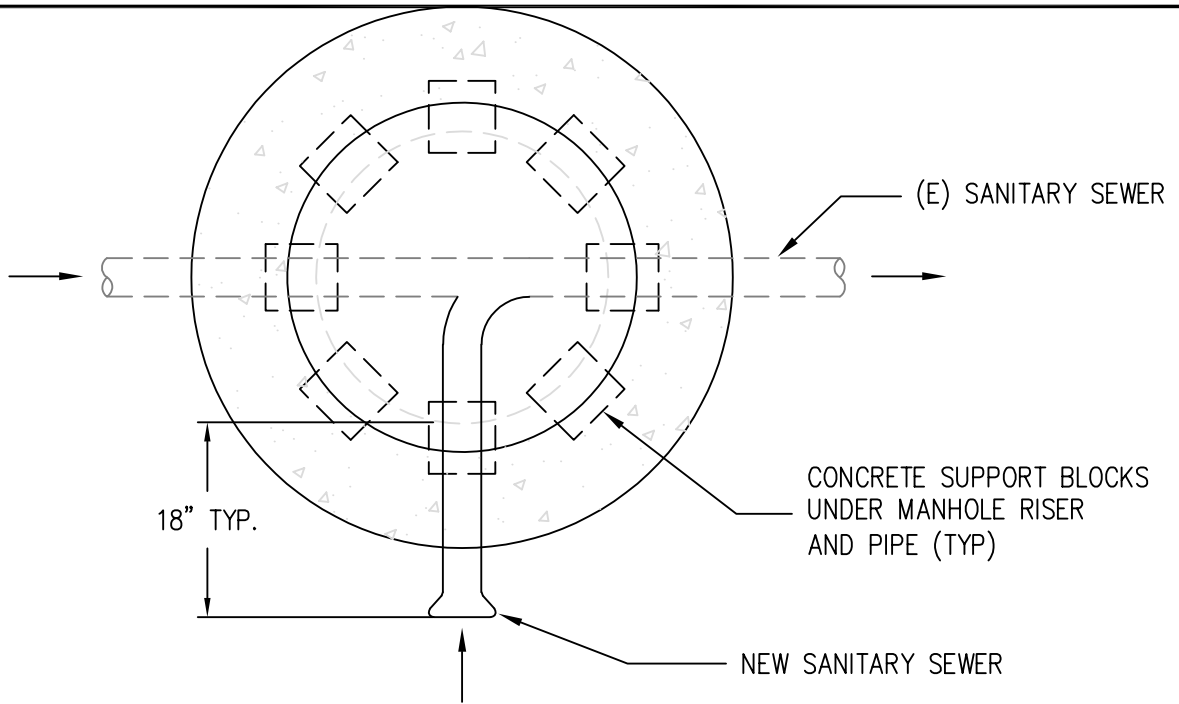
1) IN UNIMPROVED AREAS AND EASEMENTS, MANHOLE SHALL EXTEND A MINIMUM OF 2" AND A MAXIMUM OF 4" ABOVE FINISHED GRADE. RING AND COVER SHALL BE AS SPECIFIED BELOW AND SHALL HAVE 3 RECESSED 5/8" IINC x 1/4" STAINLESS STEEL SOCKET HEAD CAP SCREWS FOR LOCKING.

2) MANHOLE RING AND COVER SHALL HAVE A 24" CLEAR OPENING AND BE EQUAL TO OLYMPIC FOUNDRY CO. NO. MH30AD/T WITH A SINGLE CAST IN PICK HOLE. WORDING ON COVER SHALL BE "SEWER" IN 3" RAISED LETTERS.

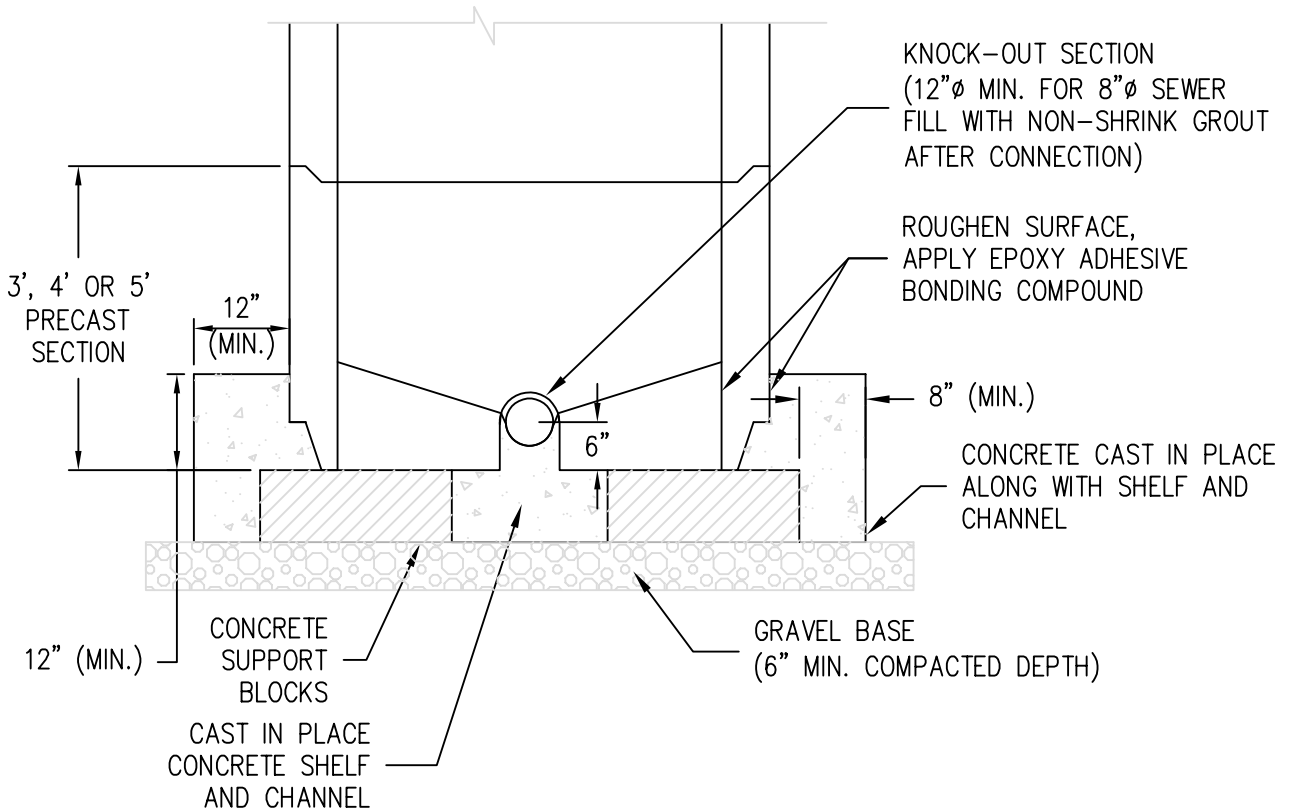
3) ALL MANHOLE JOINTS SHALL USE A CONFINED ROUND RUBBER GASKET MEETING ASTM C-443 SPECIFICATIONS.

4) ALL PVC PIPE THROUGH MANHOLE WALL SHALL HAVE A PVC MANHOLE ADAPTER EQUAL TO GPK. PIPE SHALL BE GROUTED INTO PLACE FROM EACH SIDE.

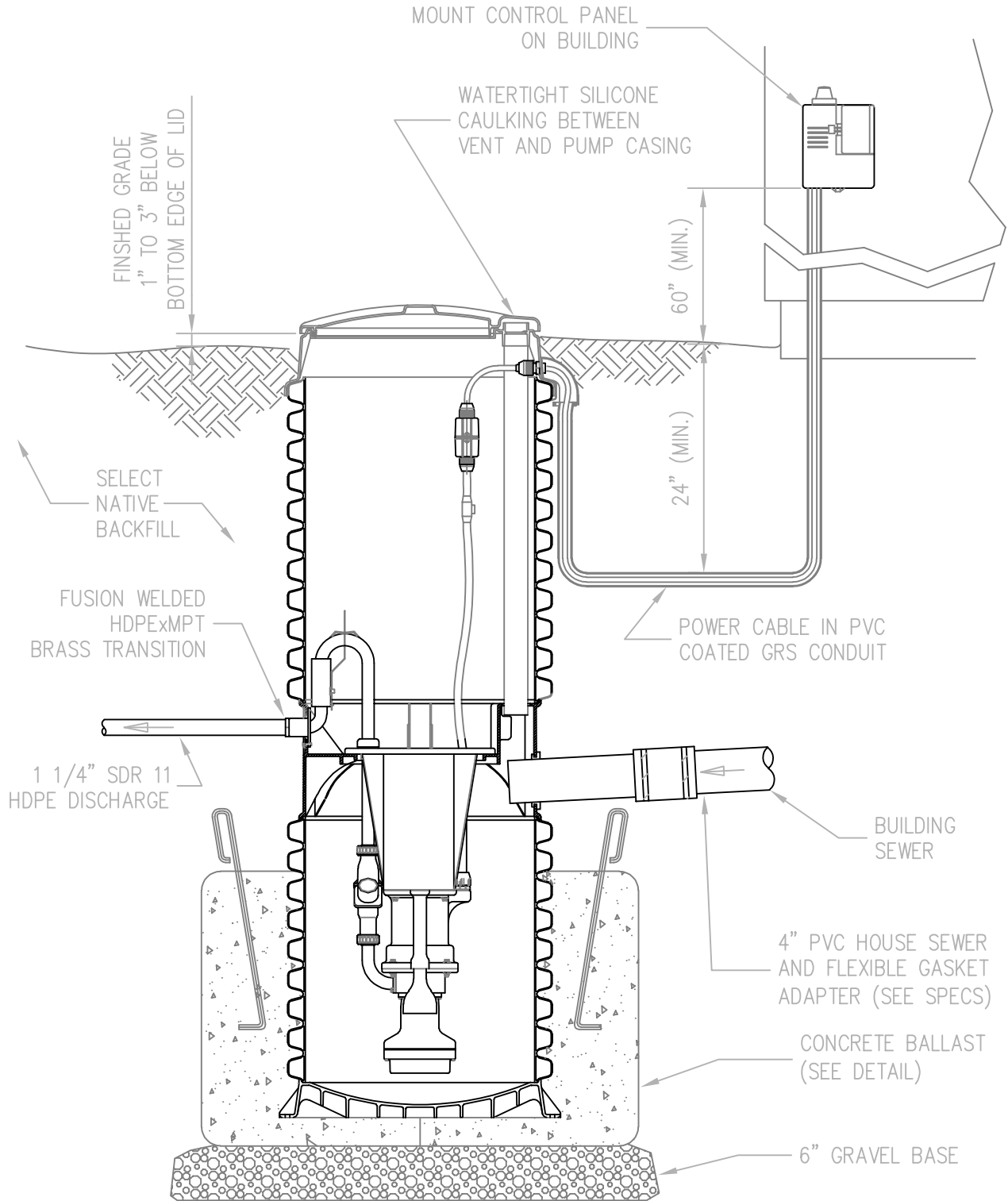




PLAN VIEW



MANHOLE SECTION



USE #12 TRACE WIRE AND WARNING TAPE ON ALL FORCE MAINS AND SIDE MARKERS

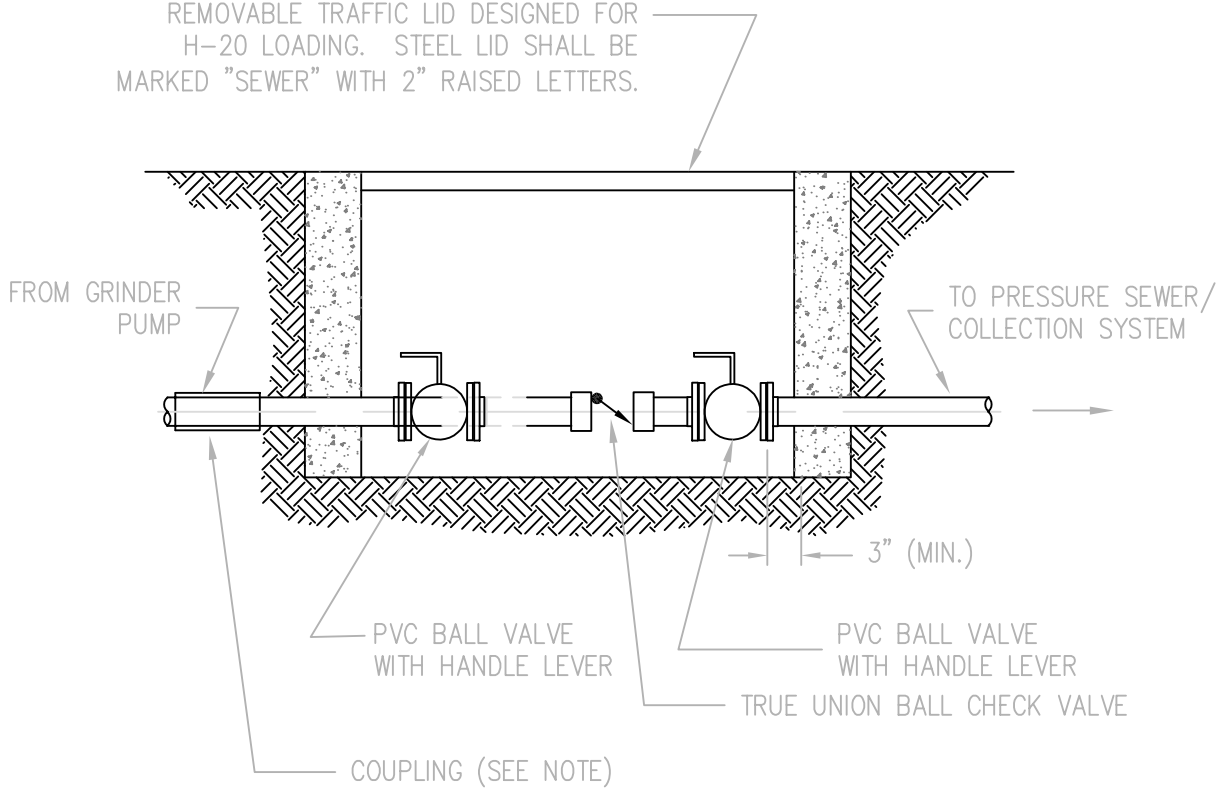


**West Sound Utility District
Standard Sewer Details**

**Typical E-1 Grinder
Pump Installation**

REVISED: MARCH 2019

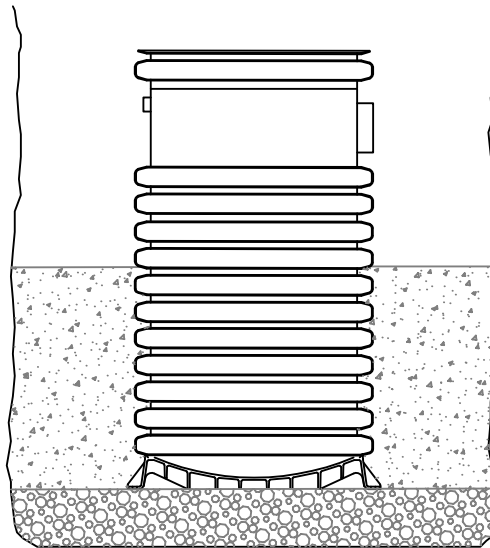
PRECAST CONCRETE VALVE BOX, FOG-TITE NO. 1 METER BOX OR EQUAL, WITH REMOVABLE TRAFFIC LID DESIGNED FOR H-20 LOADING. STEEL LID SHALL BE MARKED "SEWER" WITH 2" RAISED LETTERS.



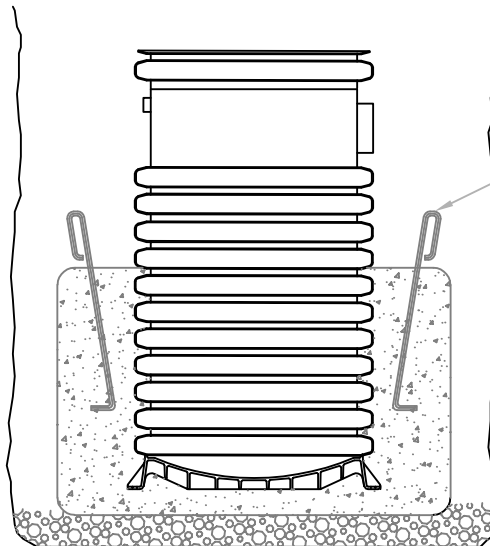
USE #12 TRACE WIRE AND WARNING TAPE ON FORCE MAIN AND SIDE SEWER

NOTES:

- 1) ON NEW INSTALLATIONS, BUTT FUSE WELD INSTEAD OF COUPLING.
- 2) ON EXISTING APPLICATIONS, USE HDPE FUSION WELDED COUPLING OR COMPRESSION COUPLING WITH SS BANDS. TO BE APPROVED BY DISTRICT ENGINEER.



POURED IN PLACE

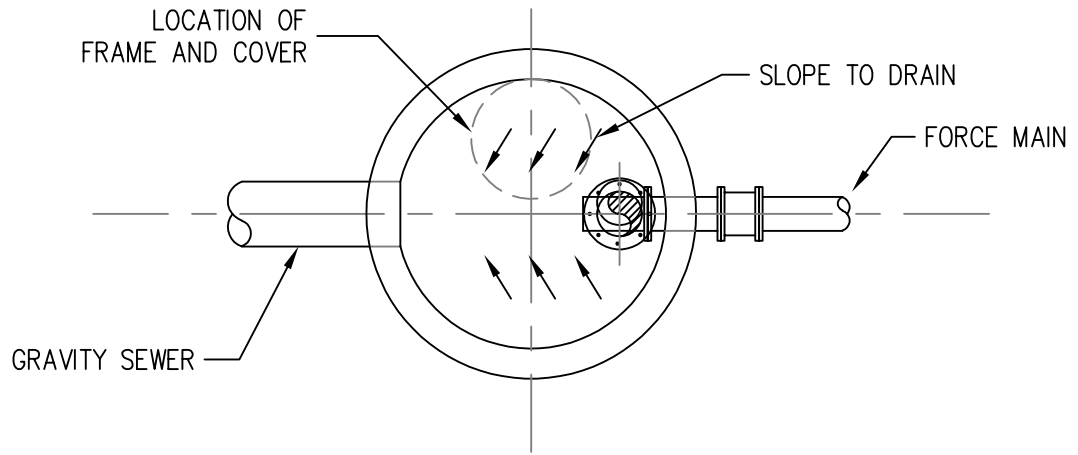


LIFTING EYES,
CONTRACTOR TO
SIZE AS REQUIRED

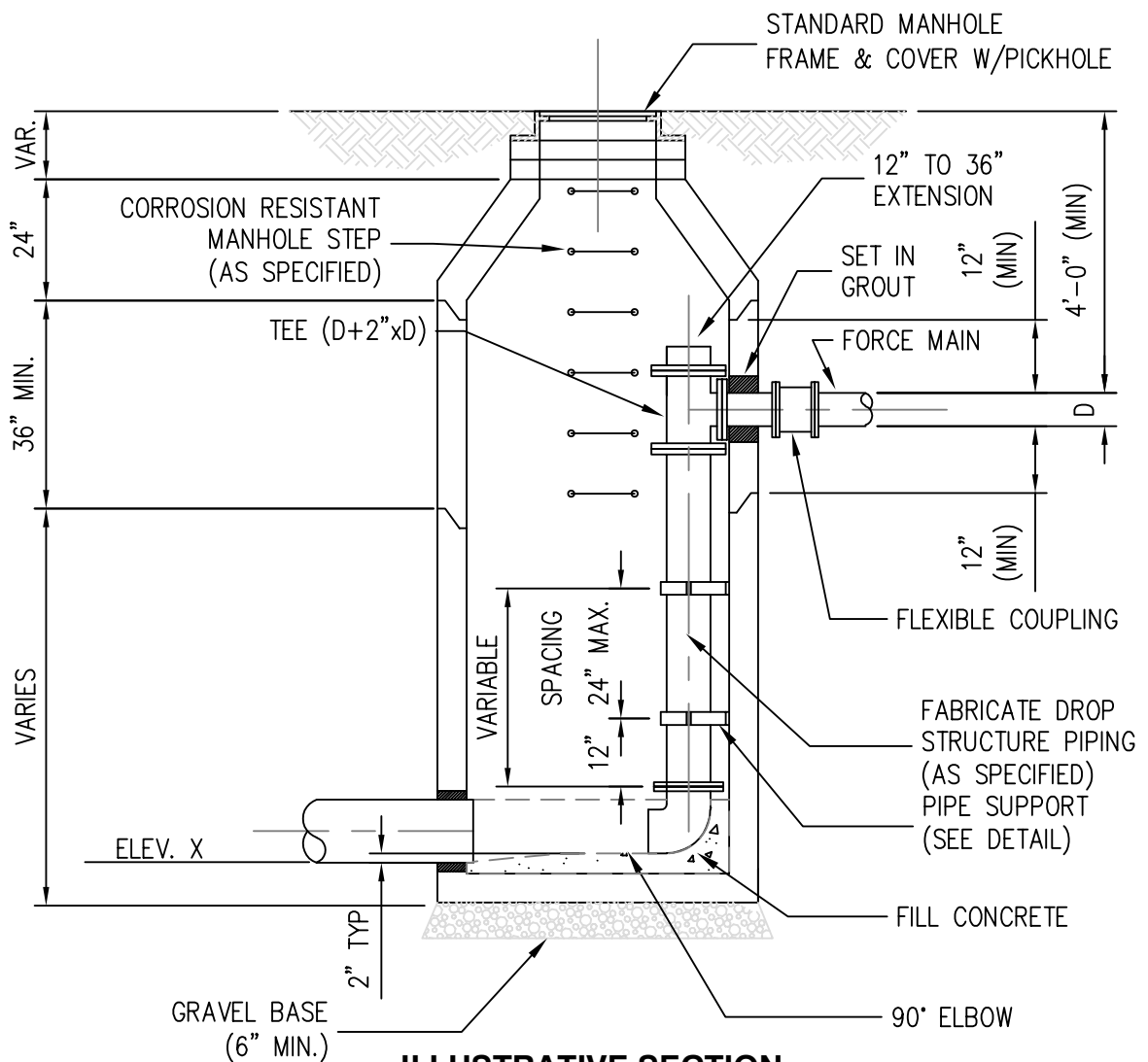
PRECAST

NOTES

1. THE FOLLOWING QUANTITIES OF CONCRETE ARE NECESSARY TO ANCHOR THE TANKS:
2. E- ONE MODEL NO. DH071 REQUIRES 405 lbs. (2.7 CU.FT.) OF CONCRETE.
3. E-ONE MODEL NO. WH231 REQUIRES 1274 lbs. (8.5 CU.FT.) OF CONCRETE.



PLAN



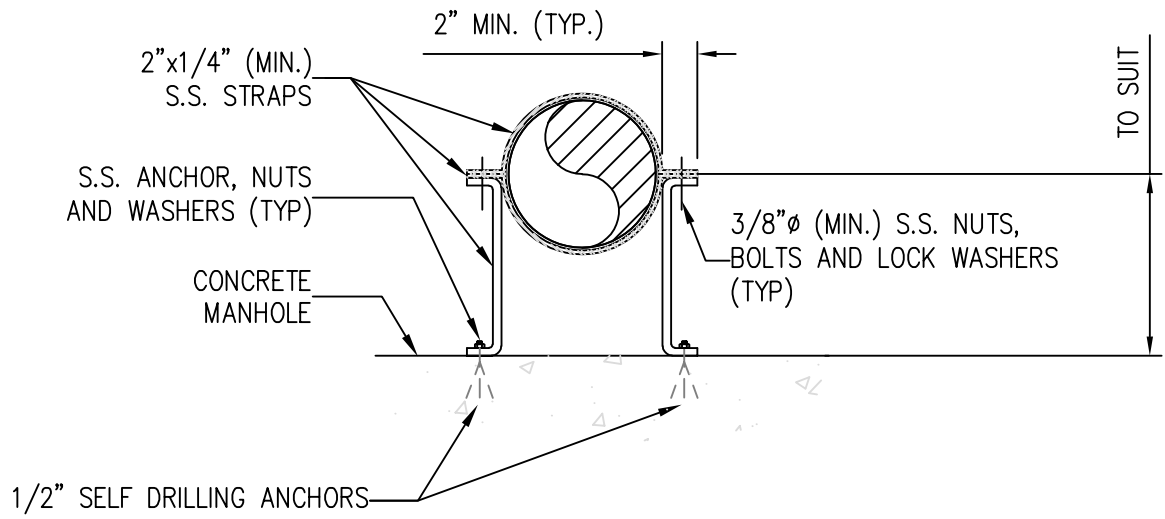
ILLUSTRATIVE SECTION

**West Sound Utility District
Standard Sewer Details**

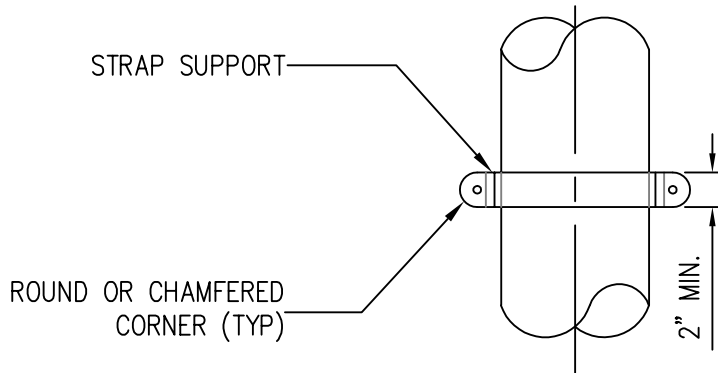
**Force Main Drop
Structure**

REVISED: FEBRUARY, 2008

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PLAN



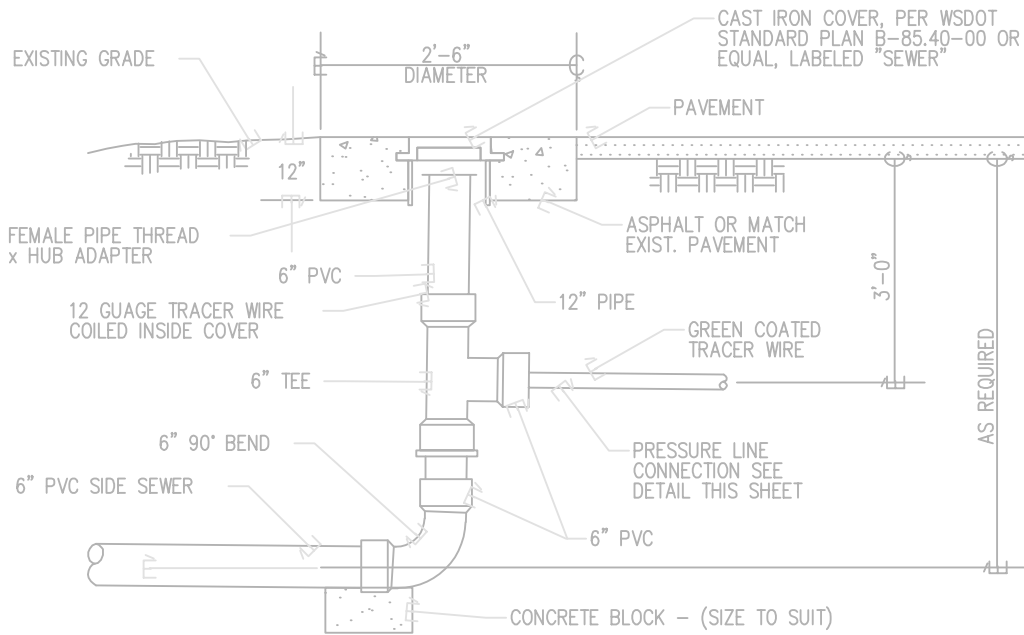
SECTION

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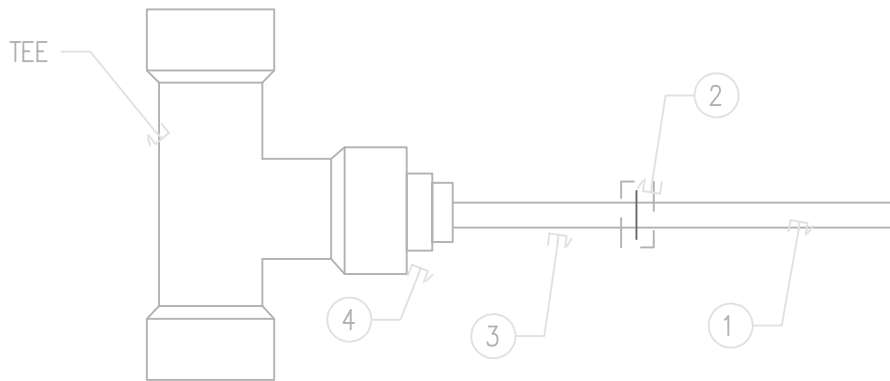
**West Sound Utility District
Standard Sewer Details**

**Force Main Drop
Support Clip**

REVISED: FEBRUARY, 2008



PRESSURE LINE CONNECTION TO GRAVITY SANITARY SEWER DETAIL



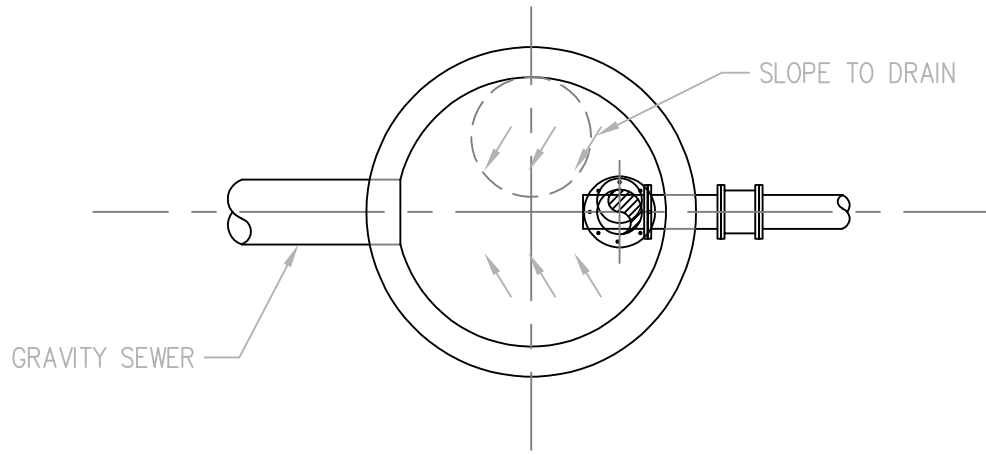
- 1. 1 1/4 HDPE (LENGTH TO SUIT)
- 2. HDPE BUTT FUSION OR FUSION WELD
- 3. 1 1/4 TRANSITION FITTING HDPE x MIP SDR 11
- 4. 6 x 1 1/4 SPIGOT x FIP



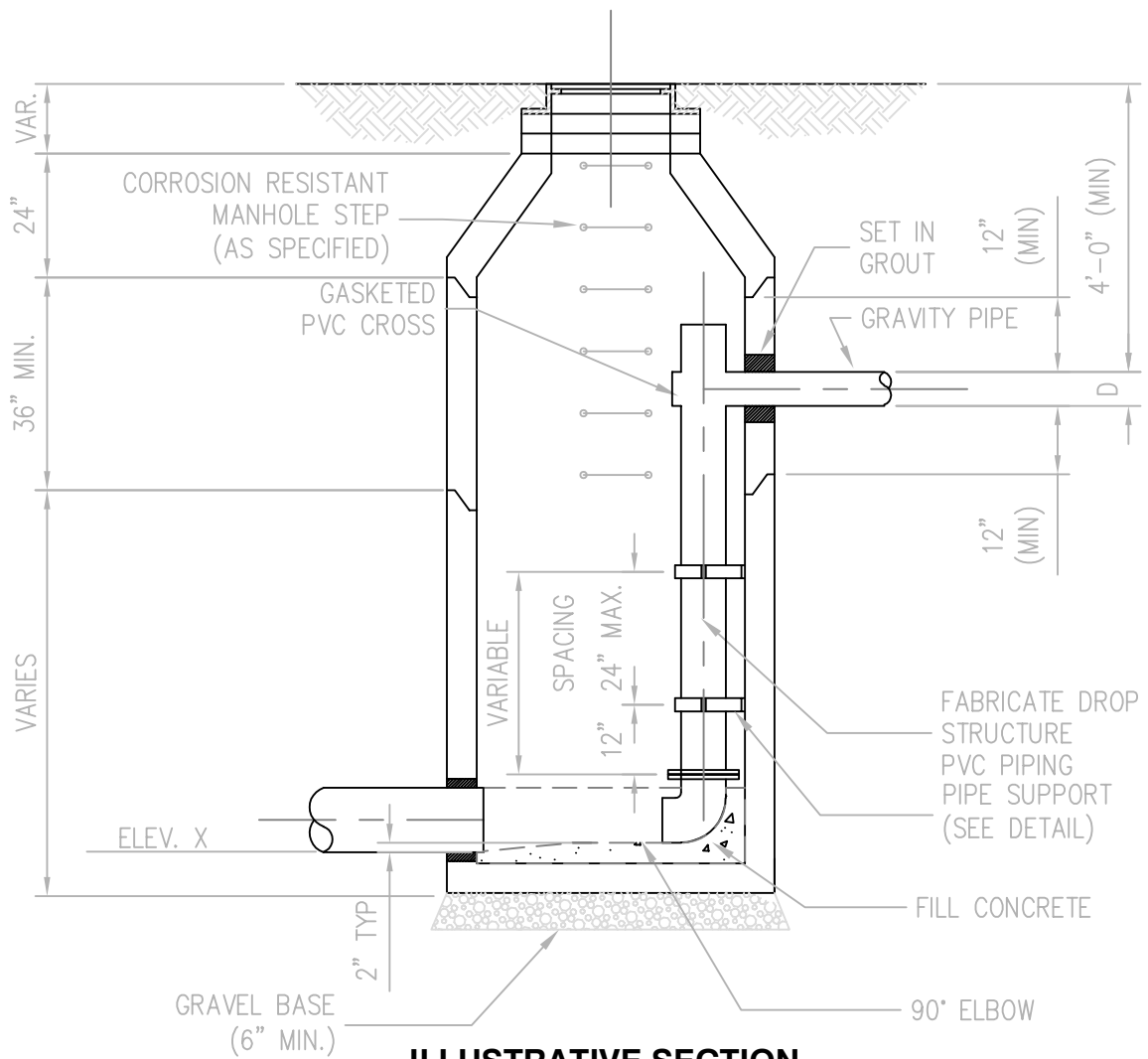
**West Sound Utility District
Standard Sewer Details**

**LOW PRESSURE CONNECTION
TO GRAVITY SEWER**

REVISED: MARCH 2019



PLAN



ILLUSTRATIVE SECTION