

CITY OF CASHMERE

Cashmere, Washington

WATER SYSTEM STANDARD DETAILS

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CONTACT INFORMATION

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CASHMERE, WA 98815
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CALL 48 HOURS BEFORE YOU DIG
ONE CALL

REPORT ALL SPILLS
DEPT. OF ECOLOGY 1-800-258-5990

ABBREVIATIONS

CB	CATCH BASIN	GALV	GALVANIZED	PROP	PROPOSED
CONC	CONCRETE	HDPE	HIGH-DENSITY POLYETHYLENE	PSI	POUNDS PER SQUARE INCH
CL	CONSTRUCTION CENTERLINE	HMA	HOT MIXED ASPHALT	PVC	POLYVINYL CHLORIDE
CSBC	CRUSHED SURFACING BASE COURSE	ID	INSIDE DIAMETER	SPEC	SPECIFICATIONS
CSTC	CRUSHED SURFACING TOP COURSE	IE	INVERT ELEVATION	SS	SANITARY SEWER
DI	DUCTILE IRON	J-BOX	JUNCTION BOX	SSMH	SANITARY SEWER MANHOLE
DIAM	DIAMETER	LF	LINEAR FEET	SST	STAINLESS STEEL
DWG	DRAWING	MH	MANHOLE	STD	STANDARD
E	EASTING	MJ	MECHANICAL JOINT FITTING	STL	STEEL
EG	EXISTING GROUND	NO	NUMBER	TEL	TELEPHONE
ELEV	ELEVATION	OC	OFF CENTER	TEMP	TEMPORARY
EX	EXISTING	OD	OUTSIDE DIAMETER	TYP	TYPICAL
EW	EVEN WIDTH	P	POWER	WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
FG	FINISHED GRADE	PE	PLAIN END		

DEVELOPED BY RH2 ENGINEERING, INC.



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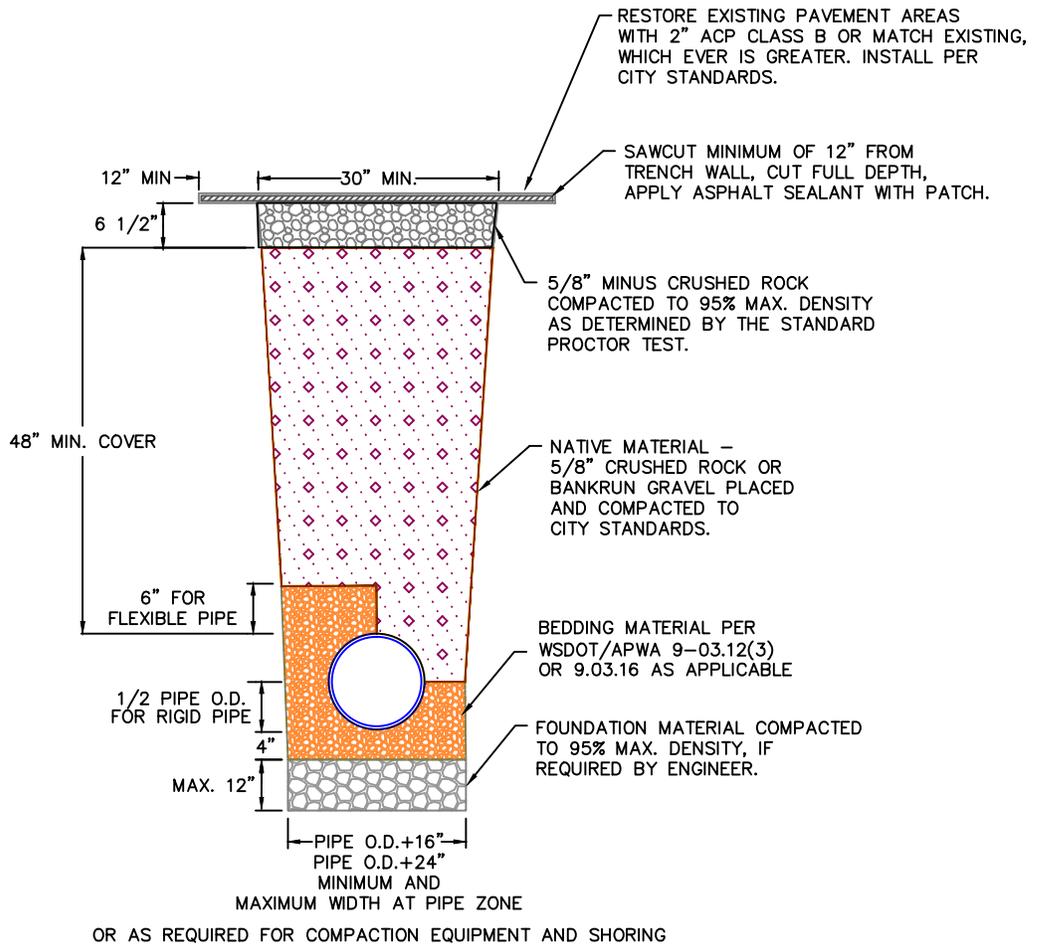
WATER SYSTEM STANDARD DETAIL

COVER

FILE:CA-WDT00.DWG

REVISED: 2/20/2015

DETAIL NO.: WS00



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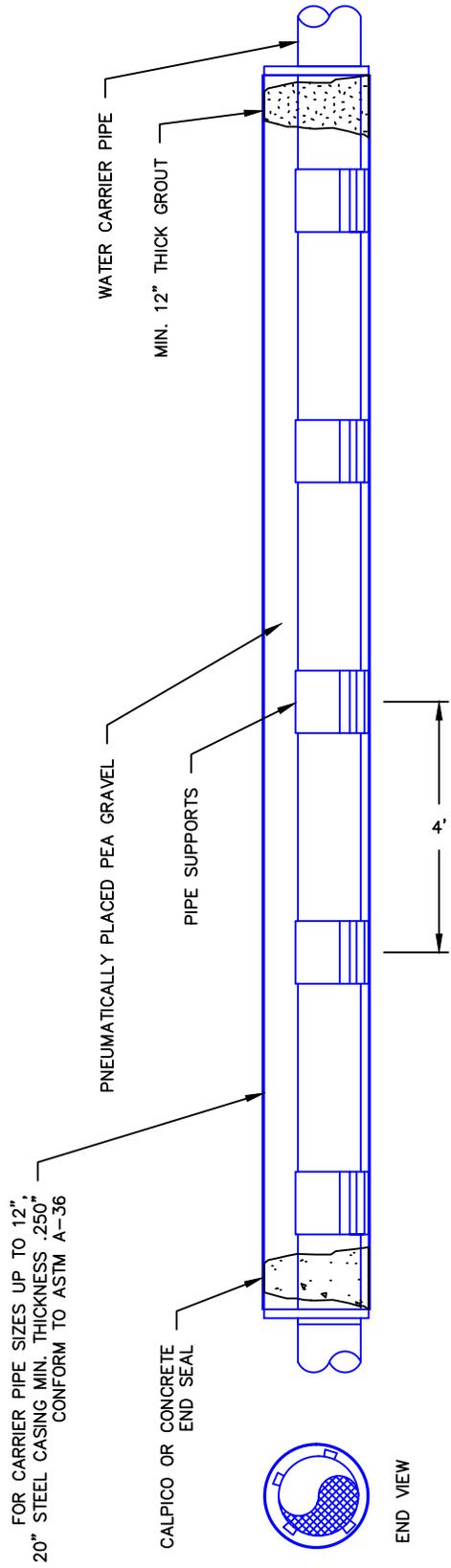
WATER SYSTEM STANDARD DETAIL

TYPICAL TRENCH SECTION

FILE: CA-WDT1.DWG

REVISED: 2/20/2015

DETAIL NO.: WS01



FOR CARRIER PIPE SIZES UP TO 12",
20" STEEL CASING MIN. THICKNESS .250"
CONFORM TO ASTM A-36

CALPICO OR CONCRETE
END SEAL

PNEUMATICALLY PLACED PEA GRAVEL

PIPE SUPPORTS

4'



END VIEW

NOT TO SCALE

PIPE SUPPORTS FOR PVC AND DIP
WATER MAIN ARE CALPICO MODEL
PX OR EQUIVALENT, SIZE SKID
HEIGHT TO PREVENT PIPE BELL TO
CASING HEIGHT.



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WATER SYSTEM STANDARD DETAIL
TYPICAL BORED CASING PROFILE

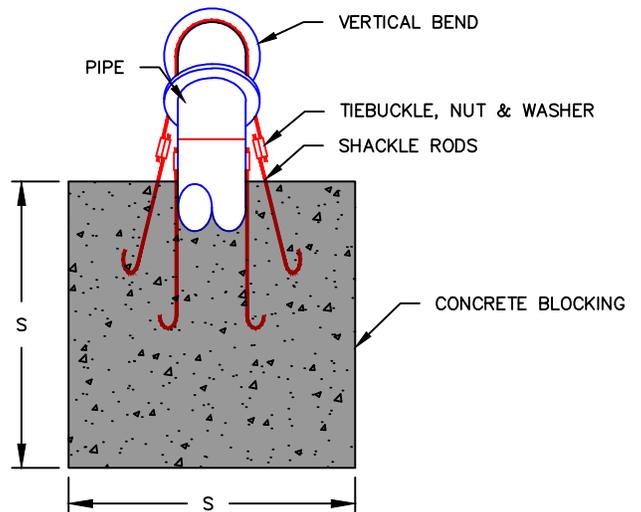
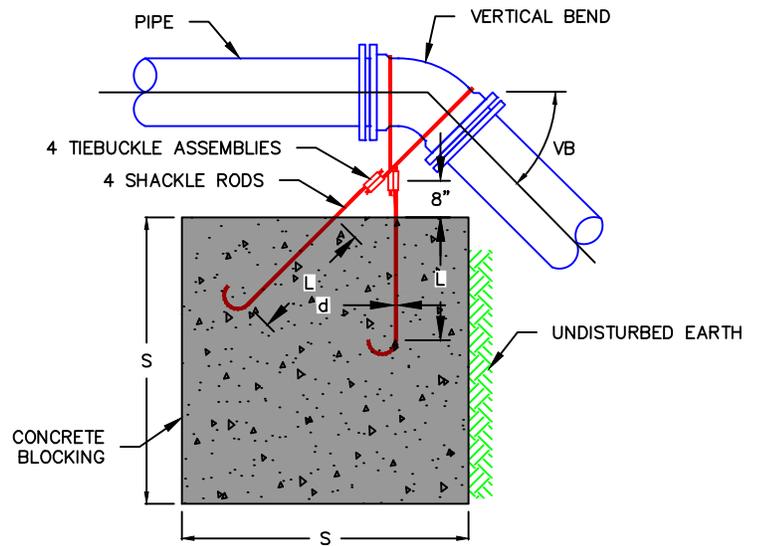
FILE: CA-WDT2.DWG

REVISED: 2/20/2015

DETAIL NO.: WS02

VERTICAL THRUST BLOCKING FOR 11 1/4', 22 1/2', AND 45' BENDS							
PIPE SIZE NOM. DIAMETER - INCHES	TEST PRESSURE PSI	VB VERTICAL BEND DEGREES	AMOUNT CONCRETE BLOCKING - CU FT	S LENGTH OF SIDE FEET	d SHACKLE ROD DIA. INCHES	L DEPTH OF ROD IN CONCRETE INCHES	NUMBER OF TIE ROD SETS (2 EMBEDDED RODS PER SET)
3"	300	11 1/4	3.4	1.5	5/8	12"	2
		22 1/2	5.4	1.75	5/8	12"	2
		45	11.4	2.25	5/8	12"	2
4"	300	11 1/4	5.4	1.75	5/8	12"	2
		22 1/2	11.4	2.25	5/8	12"	2
		45	20.8	2.75	5/8	12"	2
6"	300	11 1/4	11.4	2.25	5/8	12"	2
		22 1/2	27.0	3.0	5/8	12"	2
		45	42.9	3.5	5/8	12"	2
8"	300	11 1/4	20.8	2.75	5/8	12"	2
		22 1/2	42.9	3.5	5/8	12"	2
		45	76.8	4.25	5/8	12"	2
10"	300	11 1/4	34.3	3.25	5/8	12"	2
		22 1/2	64.0	4.0	5/8	12"	2
		45	125	5.0	3/4	24"	2
12"	300	11 1/4	42.9	3.5	5/8	12"	2
		22 1/2	91.1	4.5	5/8	12"	2
		45	166	5.5	5/8	12"	4

NOTE:
CONCRETE SHALL HAVE A MINIMUM 28 DAY
COMPRESSIVE STRENGTH OF 3000 PSI.



VERTICAL THRUST BLOCK

NOT TO SCALE



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WATER SYSTEM STANDARD DETAIL

VERTICAL THRUST BLOCK

FILE: CA-WDT3.DWG

REVISED: 2/20/2015

DETAIL NO.: WS03

CONSTRAINTS

1. SOIL CONDITIONS AND BEARING CHARACTERISTICS ARE TO BE DETERMINED BY THE CITY.
2. THIS STANDARD DETAIL IS FOR HORIZONTAL THRUST RESTRAINT ONLY.
3. CONCRETE BLOCKING SHALL BE PER APWA SPECIFICATION 7-11.3(13).
4. CONCRETE THRUST BLOCKING FOR FITTINGS LARGER THAN 12" SHALL BE AS SHOWN ON THE PROJECT PLANS.
5. MAINTAIN 18" MINIMUM GROUND COVER OVER THE TOP OF ALL CONCRETE BLOCKING.

PROCEDURE

1. DETERMINE BEARING FACTOR IN TABLE 1 CORRESPONDING TO APPROPRIATE PIPE SIZE AND TYPE OF FITTING.
2. MULTIPLY THE BEARING FACTOR DETERMINED IN TABLE 1 BY THE MULTIPLICATION FACTOR IN TABLE 2 FOR THE APPROPRIATE SOIL CLASSIFICATION.

THE RESULT IS THE REQUIRED AREA OF CONCRETE (IN SQ. FT.) WHICH MUST BEAR AGAINST UNDISTURBED SOIL.

3. USING TABLE 3 LOCATE THE MINIMUM DEPTH OF CONCRETE (D_{min}) CORRESPONDING TO THE REQUIRED BEARING AREA.
4. USING D_{min} , THE HEIGHT AND LENGTH OF THE THRUST BLOCKING CAN BE DETERMINED FROM THE DIMENSION RELATIONSHIPS ILLUSTRATED IN FIGURE 1 AND DESCRIBED BELOW:

- A. "H" EQUALS "D"
- B. MAX. "L" EQUALS 2 X "H"
- C. MIN. "L" EQUALS "H"

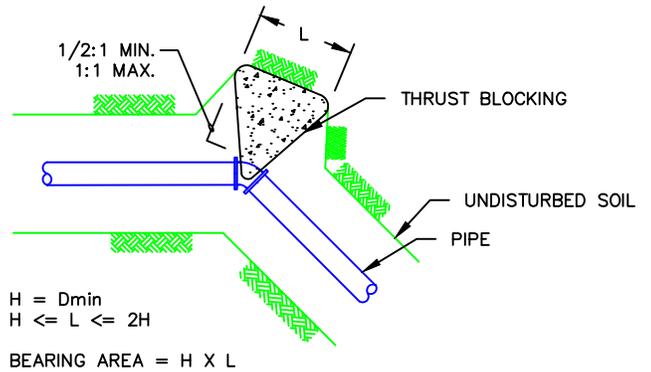
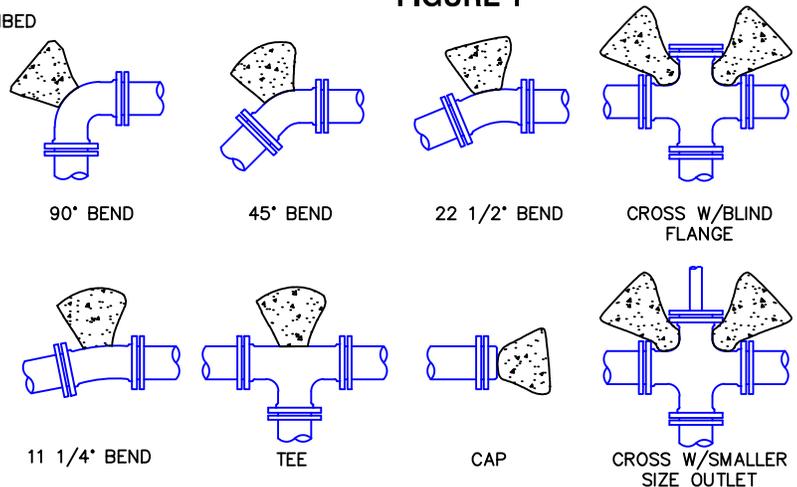


FIGURE 1

SIZE	TEST PRESSURE	TEES				
		DEAD ENDS	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
3	300	2.25	2.25	2.25	2.25	2.25
4	300	2.25	2.25	2.25	2.25	2.25
6	300	2.83	4.00	2.25	2.25	2.25
8	300	5.00	7.11	3.85	2.25	2.25
10	300	7.86	11.11	6.00	3.06	2.25
12	300	11.31	16.00	8.66	4.41	2.25

* 2.25 BASED ON GEOMETRIC FACTORS

BEARING FACTOR
TABLE 1



SOIL CONDITION	MULTIPLICATION FACTOR
*MUCK, PEAT, etc.	-
SOFT CLAY	3.0
SAND	1.5
SAND AND GRAVEL	1.0
SAND AND GRAVEL CEMENTED W/ CLAY	0.75
HARD SHALE	0.30

* THRUST BLOCKING SHALL BE DESIGNED BY ENGINEER

MULTIPLICATION FACTOR
TABLE 2

REQ'D BEARING AREA (SQ. FT.)	MINIMUM DEPTH D_{min}
2.25 MIN. - 5.0	1.5'
5.01 - 10.0	2.25'
10.01 - 15.0	3.0'
15.01 - 30.0	4.0'
30.01 - 40.0	4.5'
40.01 - 50.0	5.0'
50.01 - 70.0	6.0'

BLOCK SHAPE
TABLE 3

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WATER SYSTEM STANDARD DETAIL HORIZONTAL THRUST BLOCKING

FILE: CA-WDT4.DWG

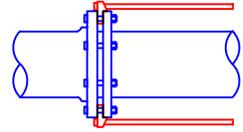
REVISED: 2/20/2015

DETAIL NO.: WS04

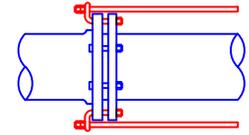
TIE ROD SELECTION TABLES

ASTM A242 (COR-TEN® OR EQUAL) STEEL										ROD DIAMETER: 5/8" OR (3/4")	
PIPE DIAMETER	NUMBER OF TIE RODS PER JOINT				MAXIMUM TIE ROD LENGTH, FEET						
	TEE DEAD END 90° BEND VALVE	45° BEND	22.5° BEND	11.25° BEND	TEE DEAD END 90° BEND VALVE	45° BEND	22.5° BEND	11.25° BEND			
3	2 -	2 -	2 -	2 -	100 --	100 --	100 --	100 --			
4	2 (2)	2 (2)	2 (2)	2 (2)	100 (100)	100 (100)	100 (100)	100 (100)			
6	2 (2)	2 (2)	2 (2)	2 (2)	60 (90)	80 (100)	100 (100)	100 (100)			
8	3 (2)	2 (2)	2 (2)	2 (2)	50 (50)	50 (70)	90 (100)	100 (100)			
10	4 (4)	4 (2)	2 (2)	2 (2)	40 (60)	60 (50)	60 (80)	100 (100)			
12	6 (4)	4 (4)	2 (2)	2 (2)	60 (60)	60 (80)	50 (80)	100 (100)			
14	8 (6)	6 (4)	4 (2)	2 (2)	60 (70)	60 (60)	80 (60)	80 (100)			
16	10 (6)	8 (6)	4 (3)	2 (2)	60 (50)	60 (70)	60 (70)	60 (90)			
18	12 (8)	8 (6)	6 (3)	3 (2)	50 (50)	50 (60)	70 (50)	70 (70)			
ASTM A36 STEEL										ROD DIAMETER: 5/8" OR (3/4")	
3	2 -	2 -	2 -	2 -	100 --	100 --	100 --	100 --			
4	2 (2)	2 (2)	2 (2)	2 (2)	100 (100)	100 (100)	100 (100)	100 (100)			
6	2 (2)	2 (2)	2 (2)	2 (2)	60 (90)	80 (100)	100 (100)	100 (100)			
8	3 (2)	3 (2)	2 (2)	2 (2)	50 (50)	70 (70)	90 (100)	100 (100)			
10	6 (4)	4 (4)	2 (2)	2 (2)	70 (60)	60 (90)	60 (80)	100 (100)			
12	8 (6)	6 (4)	4 (2)	2 (2)	80 (90)	80 (80)	100 (80)	100 (100)			
14	10 (8)	8 (6)	4 (4)	2 (2)	70 (90)	80 (90)	80 (100)	80 (100)			
16	12 (10)	10 (6)	4 (4)	3 (2)	70 (80)	80 (70)	90 (90)	90 (90)			
18	- (12)	12 (8)	6 (4)	3 (2)	-- (80)	80 (80)	70 (70)	70 (70)			

APPROVED ATTACHMENTS



"DUC-LUG"
STELLAR CORPORATION OR EQUAL

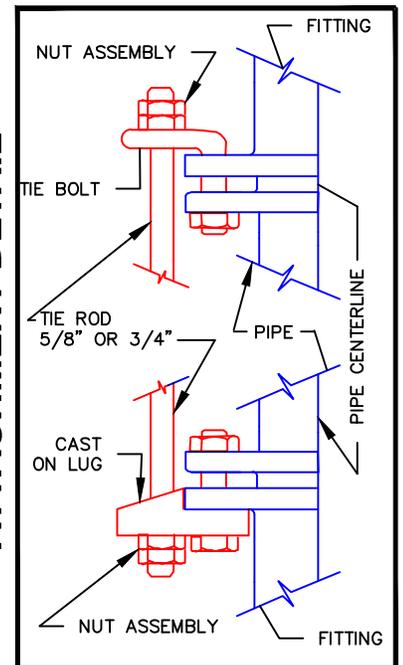


TIE BOLT
STAR SUPPLY CORPORATION OR EQUAL

GENERAL NOTES

- 1) TIE RODS SHALL BE GALVANIZED "ALL THREAD" ROD OF EITHER ASTM A242 OR A36 STEEL.
- 2) TIE RODS SHALL HAVE "NATIONAL-COARSE" THREAD WITH EITHER TWO NUTS OR ONE SELF-LOCKING NUT AT EACH END. (ALL NUTS SHALL BE GALVANIZED)
- 3) NUMBER OF TIE RODS PER JOINT SHALL BE IN ACCORDANCE WITH TIE ROD SELECTION TABLES ABOVE UNLESS OTHERWISE SHOWN ON APPROVED DESIGN PLANS.
- 4) TIE ROD ASSEMBLY SHALL BE COATED WITH 2 COATS OF COAL TAR EPOXY (16 MIL MINIMUM DRY FILM THICKNESS).
- 5) TIE RODS SHALL BE ASSEMBLED SYMMETRICALLY ABOUT EACH JOINT (IF AN EVEN NUMBER OF RODS ARE USED THEN EACH ROD SHALL HAVE A ROD LOCATED ON THE DIRECT OPPOSITE SIDE OF JOINT. IF 3 OR 6 RODS ARE USED THEN AN EQUAL NUMBER OF UNSHACKLED BOLT HOLES SHALL BE LEFT BETWEEN ANY TWO TIE RODS.)
- 6) TIE ROD NUTS SHALL BE TIGHTENED UNIFORMLY AT EACH JOINT PRIOR TO COATING.
- 7) TIE ROD LENGTHS SHALL NOT EXCEED THOSE LISTED IN ABOVE TABLES, UNLESS SPECIFICALLY SHOWN ON APPROVED PLANS.
- 8) TIE ROD COUPLINGS SHALL BE GALVANIZED "STAR NATIONAL PRODUCTS TIECOUPLING" OR EQUAL.
- 9) TIE RODS SHALL BE ATTACHED TO JOINTS WITH TIE BOLTS, EXCEPT FOR FIRE HYDRANT INSTALLATIONS WHICH SHALL USE EITHER TIE BOLTS OR GALVANIZED CAST ON LUGS. TIE BOLTS SHALL BE GALVANIZED "STAR NATIONAL PRODUCTS TIEBOLT" OR EQUAL.
- 10) 20" FITTINGS AND LARGER SHALL HAVE TIE ROD DESIGN INCLUDED ON DESIGN PLANS.

ATTACHMENT DETAIL



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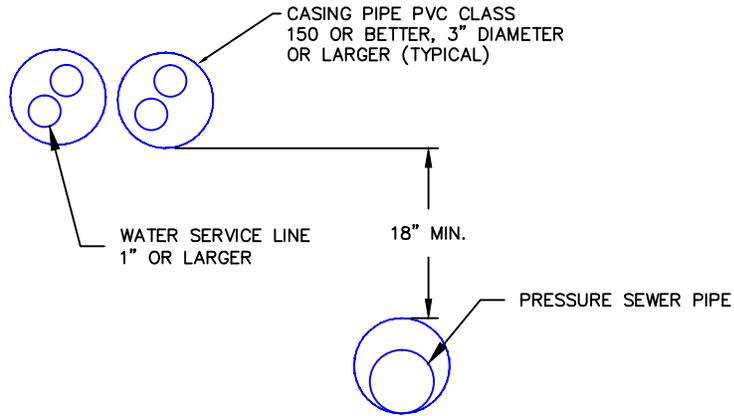
WATER SYSTEM STANDARD DETAIL

TIE ROD DETAIL

FILE: CA-WDT5.DWG

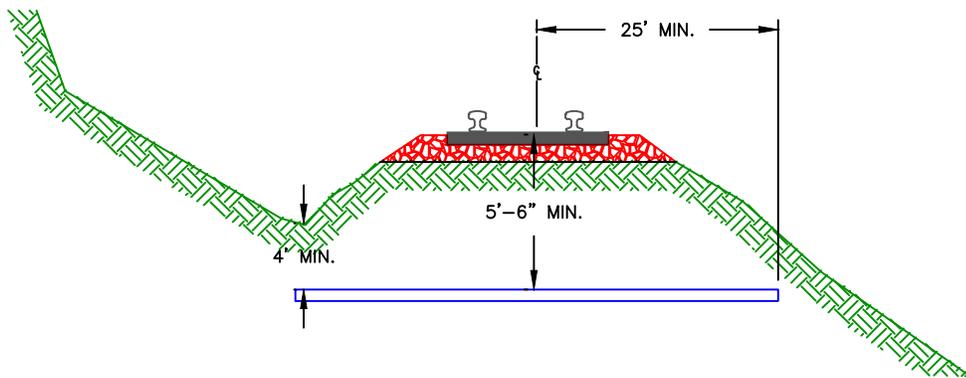
REVISED: 2/20/2015

DETAIL NO.: WS05



**CROSS-SECTION OF CASING
UNDER RAILROAD TRACKS**

NOT TO SCALE



PIPE LINES SHALL BE INSTALLED UNDER TRACKS BY BORING OR JACKING IF PRACTICAL. BORING EXCAVATION SHALL NOT EXCEED OUTSIDE DIAMETER OF PIPE.

PIPE LINES SHALL BE LOCATED PREFERABLY AT RIGHT ANGLES TO THE TRACK, BUT NOT LESS THAN 45'. THE LINE(S) SHALL NOT BE PLACED WITHIN CULVERTS, UNDER RAILWAY BRIDGES OR CLOSER THAN 45' TO ANY PORTION OF A RAILWAY BRIDGE.

PIPE LINES LAID LONGITUDINALLY ON THE RAILROAD RIGHT-OF-WAY SHALL BE BURIED NOT LESS THAN 5' FROM THE GROUND SURFACE TO TOP OF PIPE.

PIPE LINES CARRYING NONFLAMMABLE SUBSTANCES INCLUDES WATER OR ANY OTHER SUBSTANCE THAT MIGHT CAUSE DAMAGE IF ESCAPING ON OR IN THE VICINITY OF RAIL WAY PROPERTY. SEWERS AND DRAINS DO NOT REQUIRE CASING PIPE UNLESS CONDITIONS EXIST WHICH WILL ENDANGER SECURITY OF THE TRACK, BUT SHOULD BE OF SUFFICIENT STRENGTH TO HANDLE E-80 RAILWAY LOADING.

INSIDE DIAMETER OF CASING PIPE SHALL EXCEED OUTSIDE DIAMETER OF CARRIER PIPE JOINTS OR COUPLINGS BY 2" FOR CARRIER PIPE LESS THAN 6" IN DIAMETER, AND 4" FOR CARRIER PIPE OVER 6" IN DIAMETER.

MINIMUM WALL THICKNESS OF STEEL CARRIER PIPE LESS THAN 14" DIAMETER IS 0.188 INCHES, AND MUST HAVE A MINIMUM YIELD STRESS OF 35,000 PSI.

ALL DESIGN CRITERIA MUST MEET MINIMUM STANDARDS REQUIRED BY THE RAILROAD FOR EACH SPECIFIC CROSSING.



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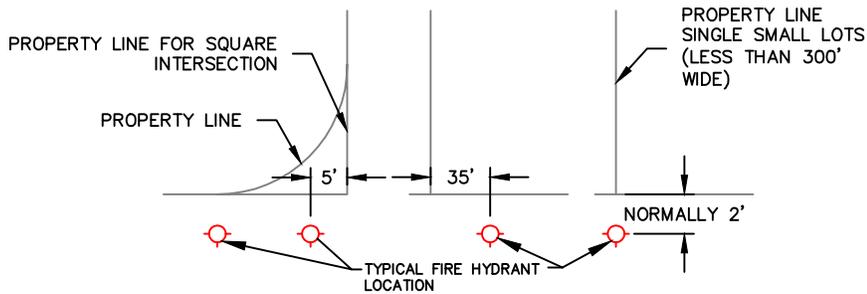
WATER SYSTEM STANDARD DETAIL

**CONSTRUCTION OF PIPE LINES ON
RAILROAD RIGHT-OF-WAY**

FILE: CA-WDT6.DWG

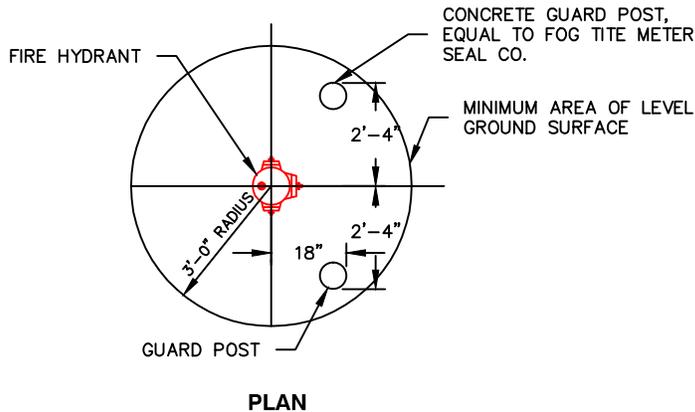
REVISED: 2/20/2015

DETAIL NO.: WS06

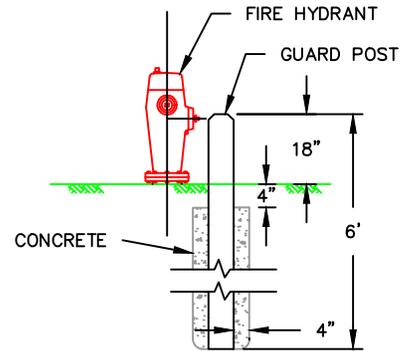


TYPICAL FIRE HYDRANT LOCATION

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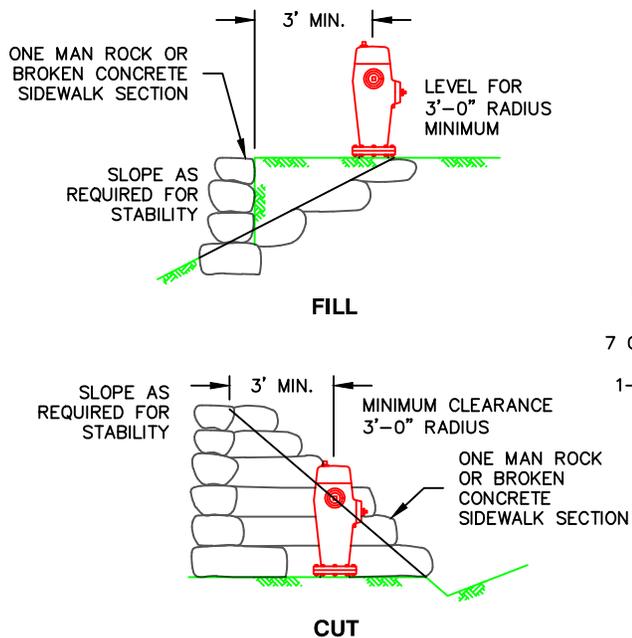
PLAN



ELEVATION

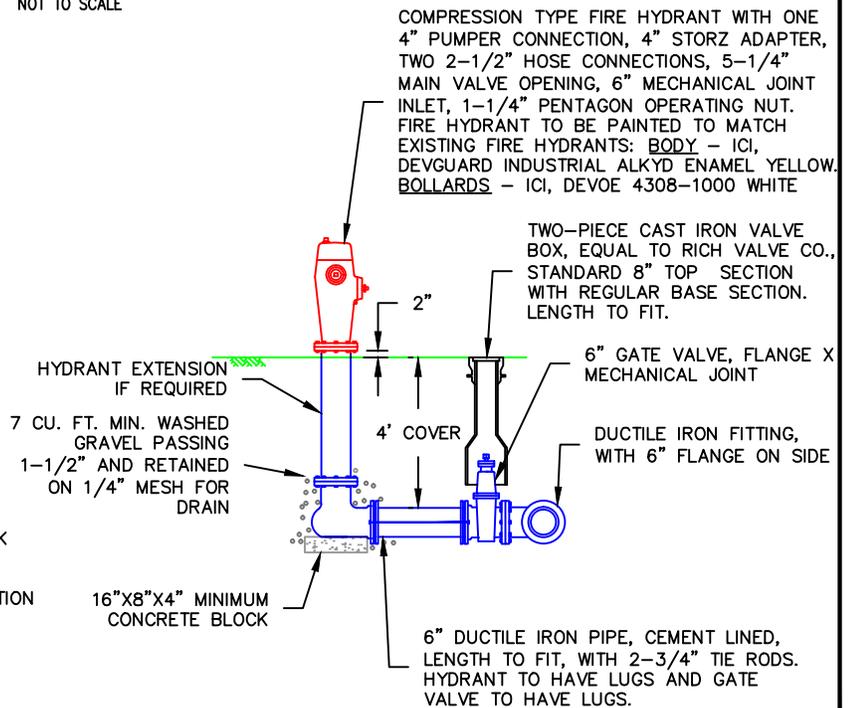
FIRE HYDRANT GUARD POSTS

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FIRE HYDRANT LOCATION IN CUT OR FILL

NOT TO SCALE



FIRE HYDRANT ASSEMBLY

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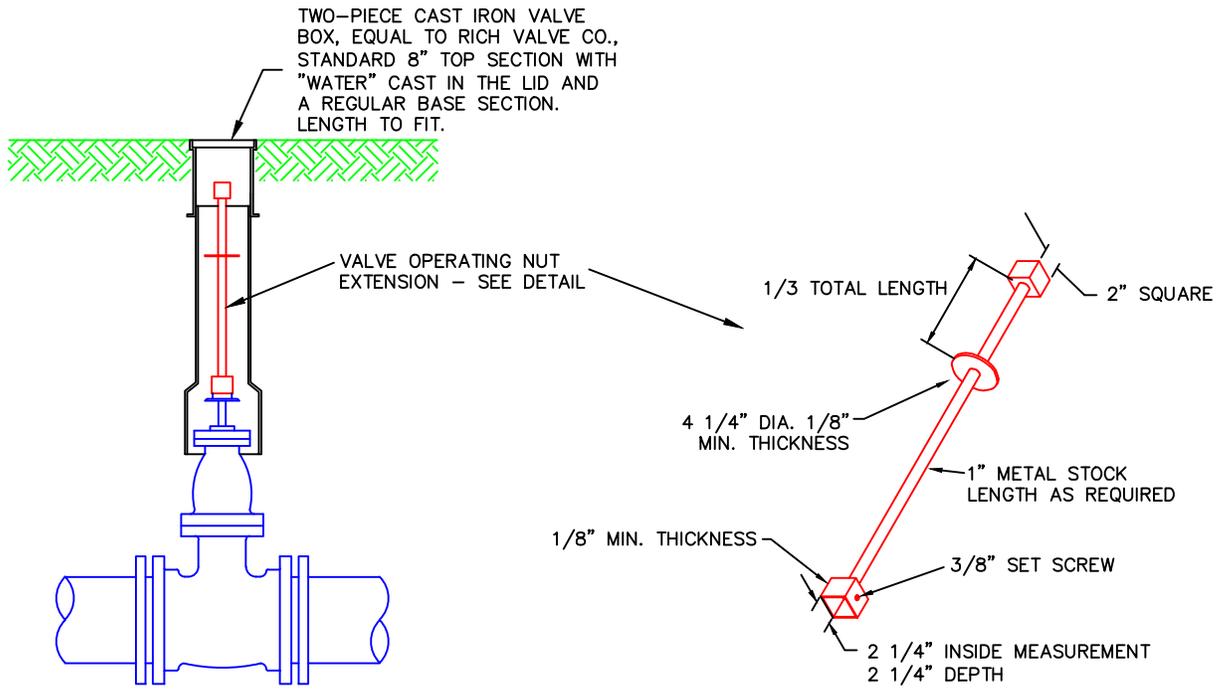
WATER SYSTEM STANDARD DETAIL

FIRE HYDRANT

FILE: CA-WDT7.DWG

REVISED: 2/20/2015

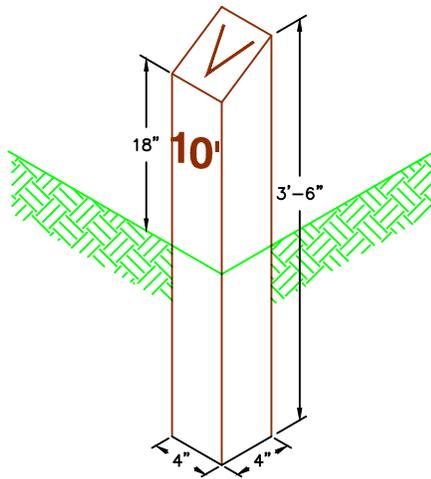
DETAIL NO.: WS07



VALVE OPERATING NUT EXTENSION

NOT TO SCALE

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) AS SPECIFIED BY PRESERVATIVE PAINT CO. OR APPROVED EQUAL.



VALVE MARKER POST

NOT TO SCALE

VALVE MARKER POST SHALL BE A RENTON CONCRETE PRODUCTS NO. VM-1 OR APPROVED EQUAL. VALVE MARKER SHALL BE PAINTED WITH TWO COATS OF ICI DEVOE 4308-1000 WHITE. THE POST SHALL BE SITUATED IN A SAFE AND REASONABLY CONSPICUOUS LOCATION AT A RIGHT ANGLE TO THE ROADWAY FROM THE VALVE. DISTANCE TO THE VALVE SHALL BE NEATLY STENCILED ON THE POST WITH TWO-INCH NUMBERS WITH NO. 43-102 (BLACK) PAINT AS SPECIFIED BY PRESERVATIVE PAINT CO. OR APPROVED EQUAL.

VALVE MARKERS ARE NOT REQUIRED WHEN VALVES ARE LOCATED WITHIN PAVED SURFACES.



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WATER SYSTEM STANDARD DETAIL

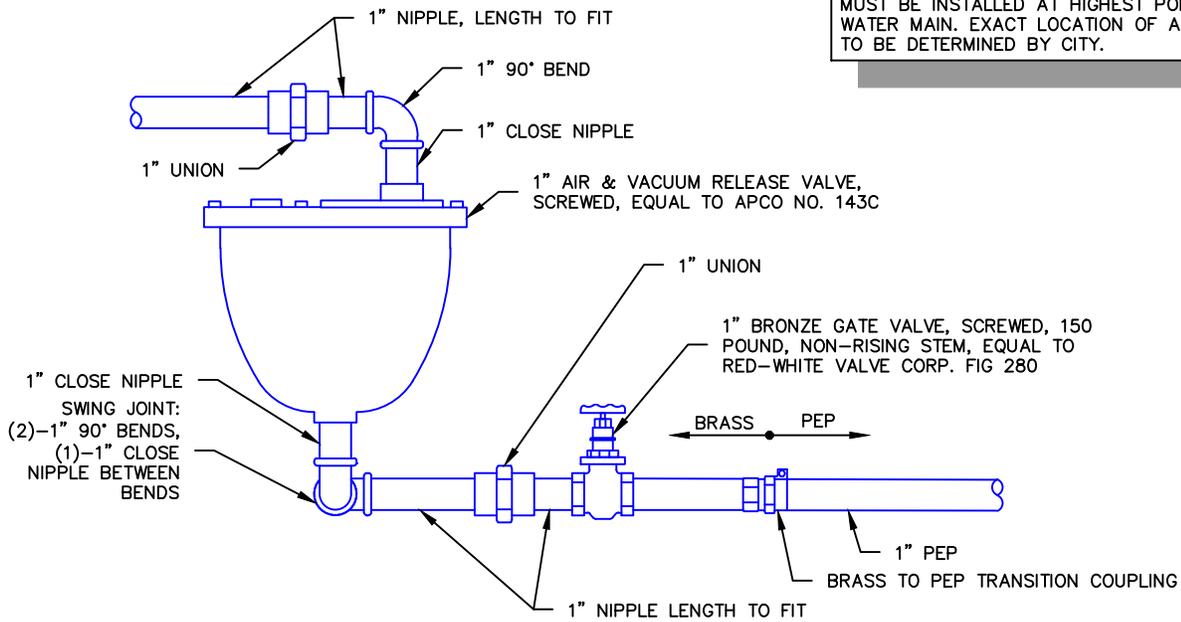
VALVE BOX, EXTENSION, AND MARKER DETAILS

FILE: CA-WDT8.DWG

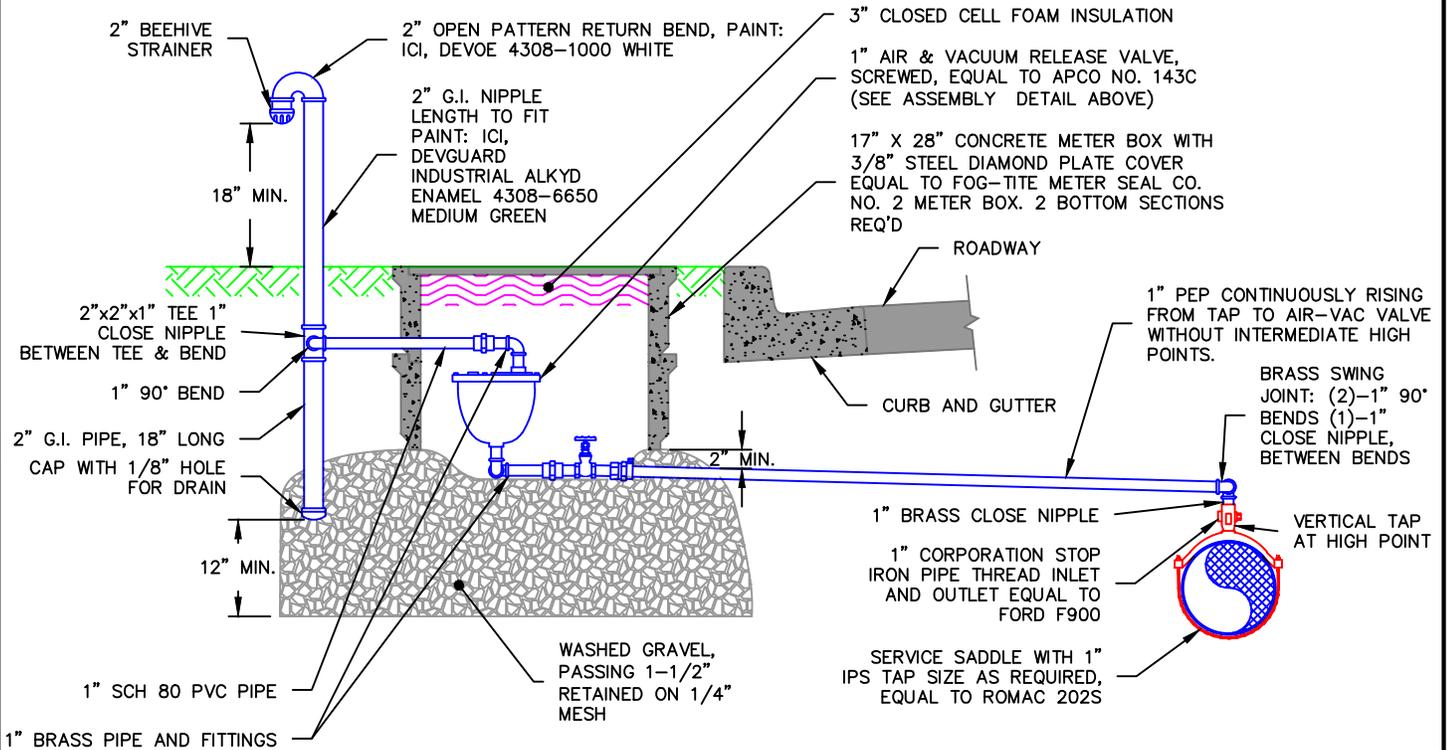
REVISED: 2/20/2015

DETAIL NO.: WS08

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



VALVE ASSEMBLY DETAIL
NOT TO SCALE



1" AIR AND VACUUM VALVE ASSEMBLY
NOT TO SCALE



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WATER SYSTEM STANDARD DETAIL

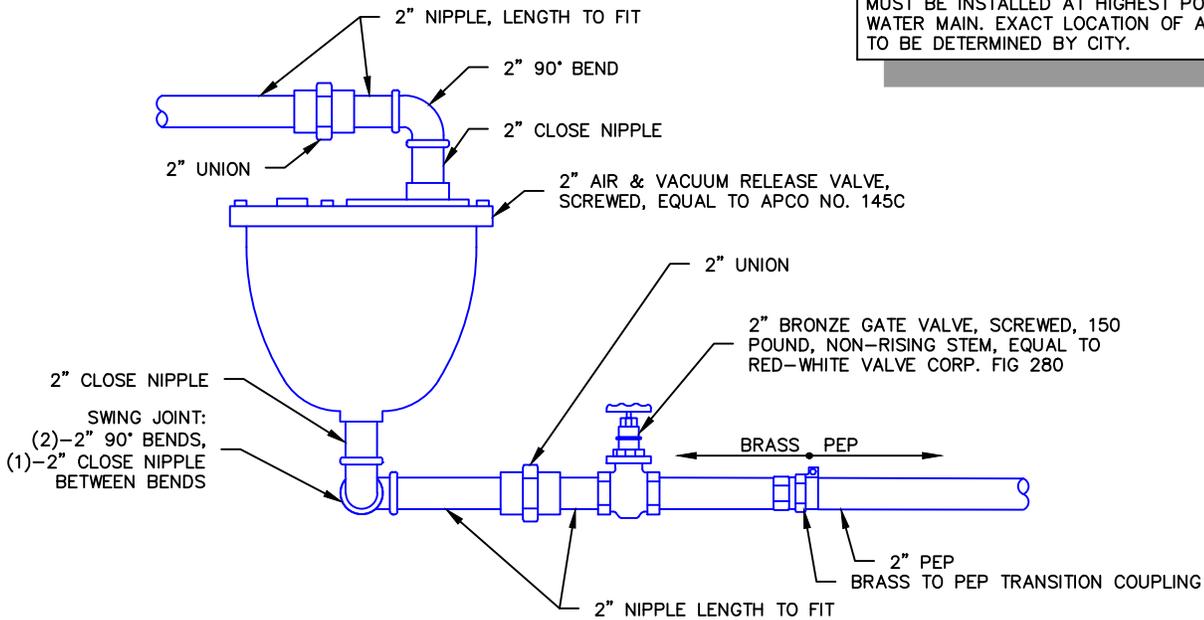
1" AIR AND VACUUM VALVE ASSEMBLY

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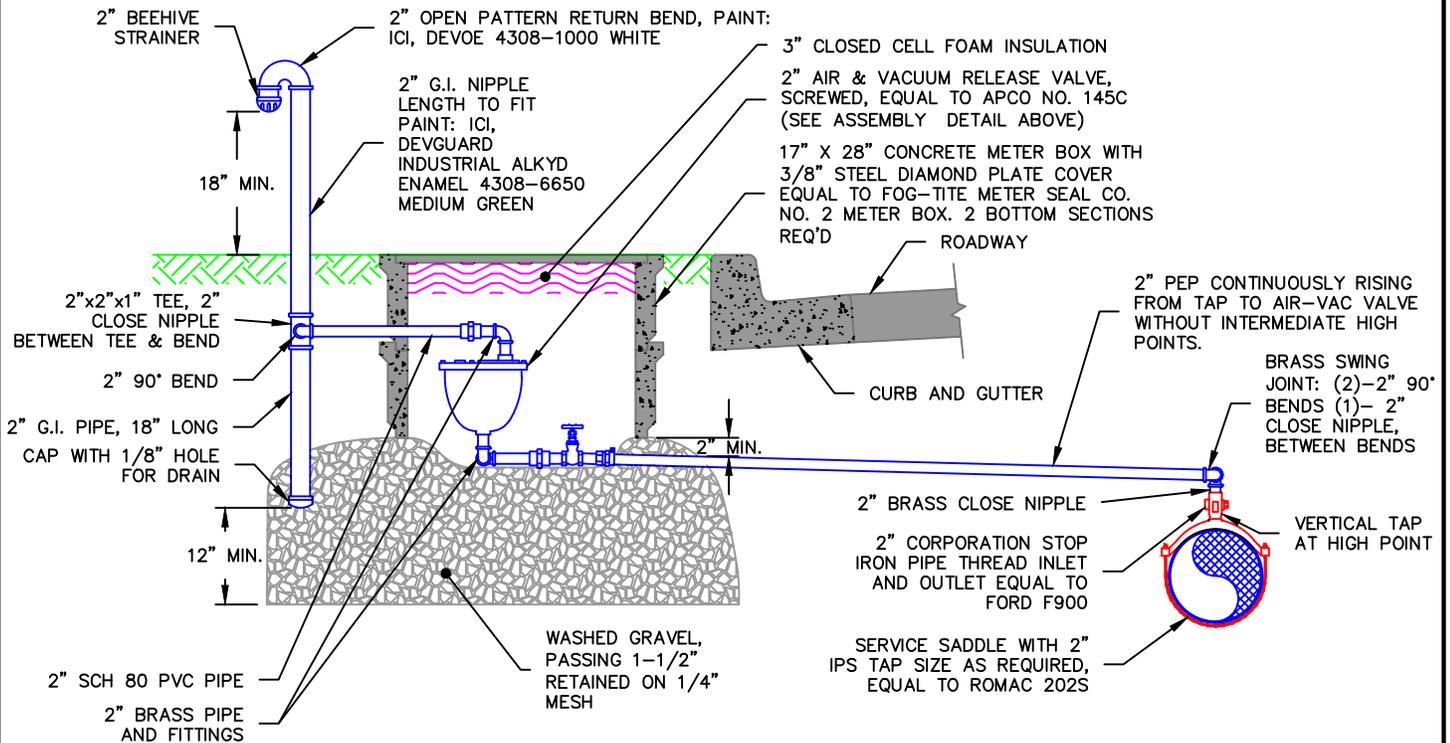
REVISED: 2/20/2015

DETAIL NO.: WS09

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



VALVE ASSEMBLY DETAIL
NOT TO SCALE



2" AIR AND VACUUM VALVE ASSEMBLY
NOT TO SCALE



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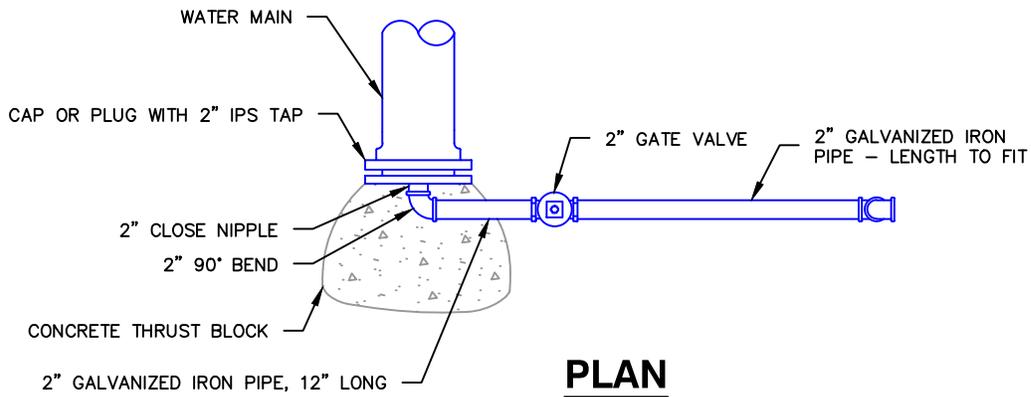
WATER SYSTEM STANDARD DETAIL

2" AIR AND VACUUM VALVE ASSEMBLY

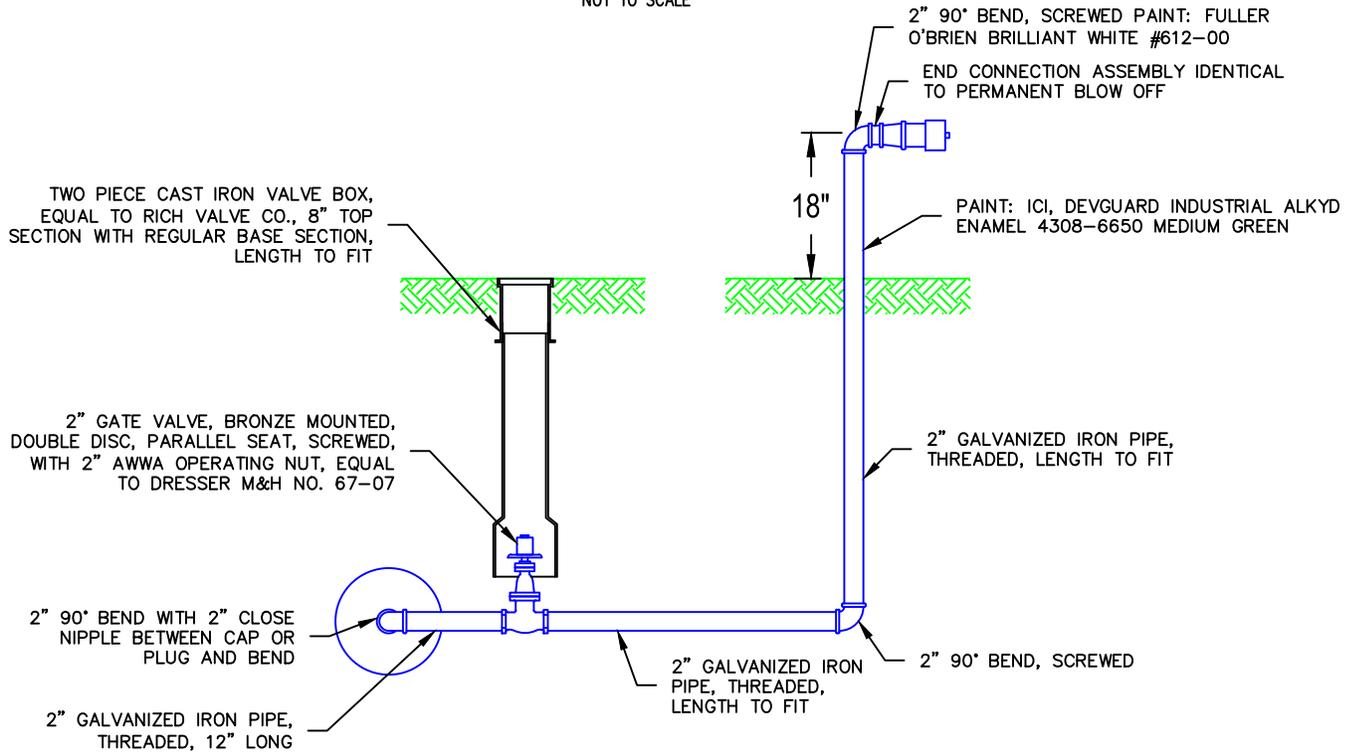
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DETAIL NO.: WS10



PLAN
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ELEVATION
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NOTE:
ALL GALVANIZED IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE TAPE SPECIFICALLY MANUFACTURED FOR THAT PURPOSE.



City of Cashmere

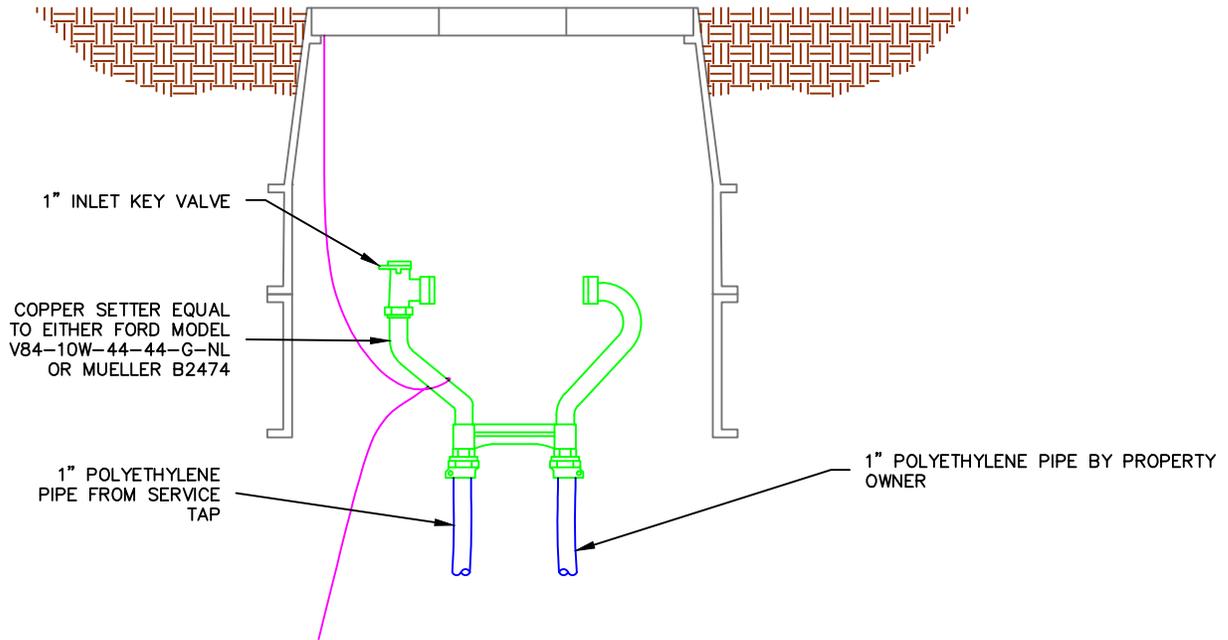
101 Woodring St
509 782-3513
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WATER SYSTEM STANDARD DETAIL
TEMPORARY 2" BLOW-OFF ASSEMBLY

FILE: CA-WDT12.DWG

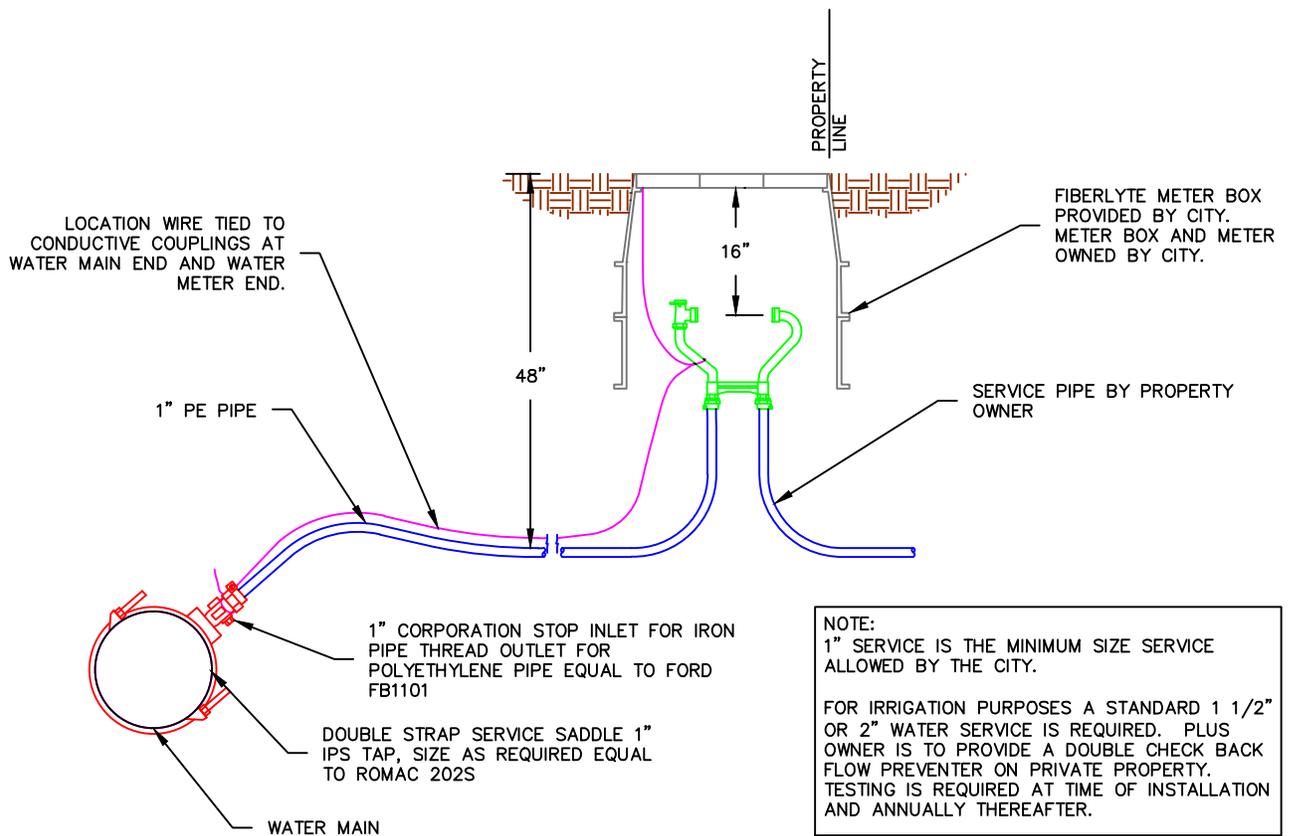
REVISED: 2/20/2015

DETAIL NO.: WS12



METER SETTER DETAIL

NOT TO SCALE



1" WATER SERVICE

NOT TO SCALE



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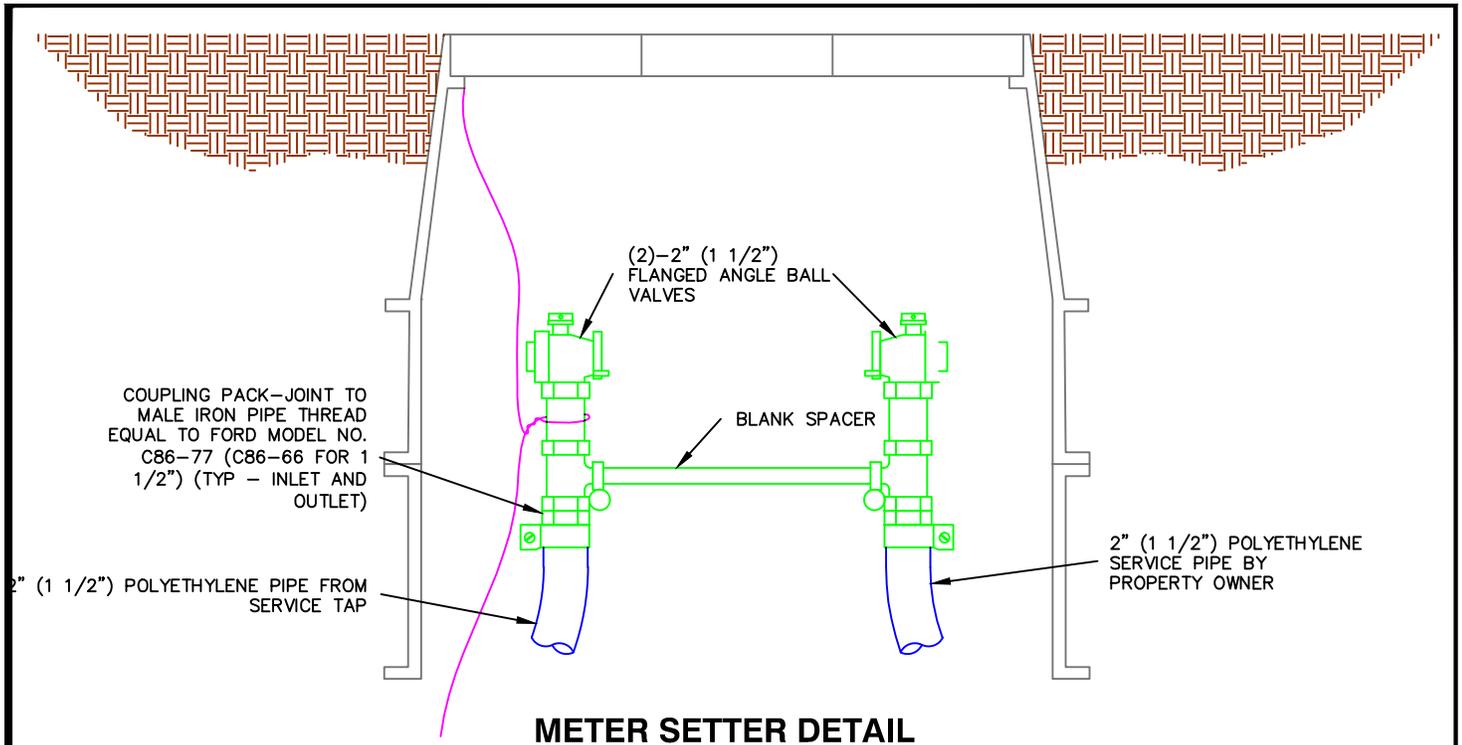
WATER SYSTEM STANDARD DETAIL

1" WATER SERVICE

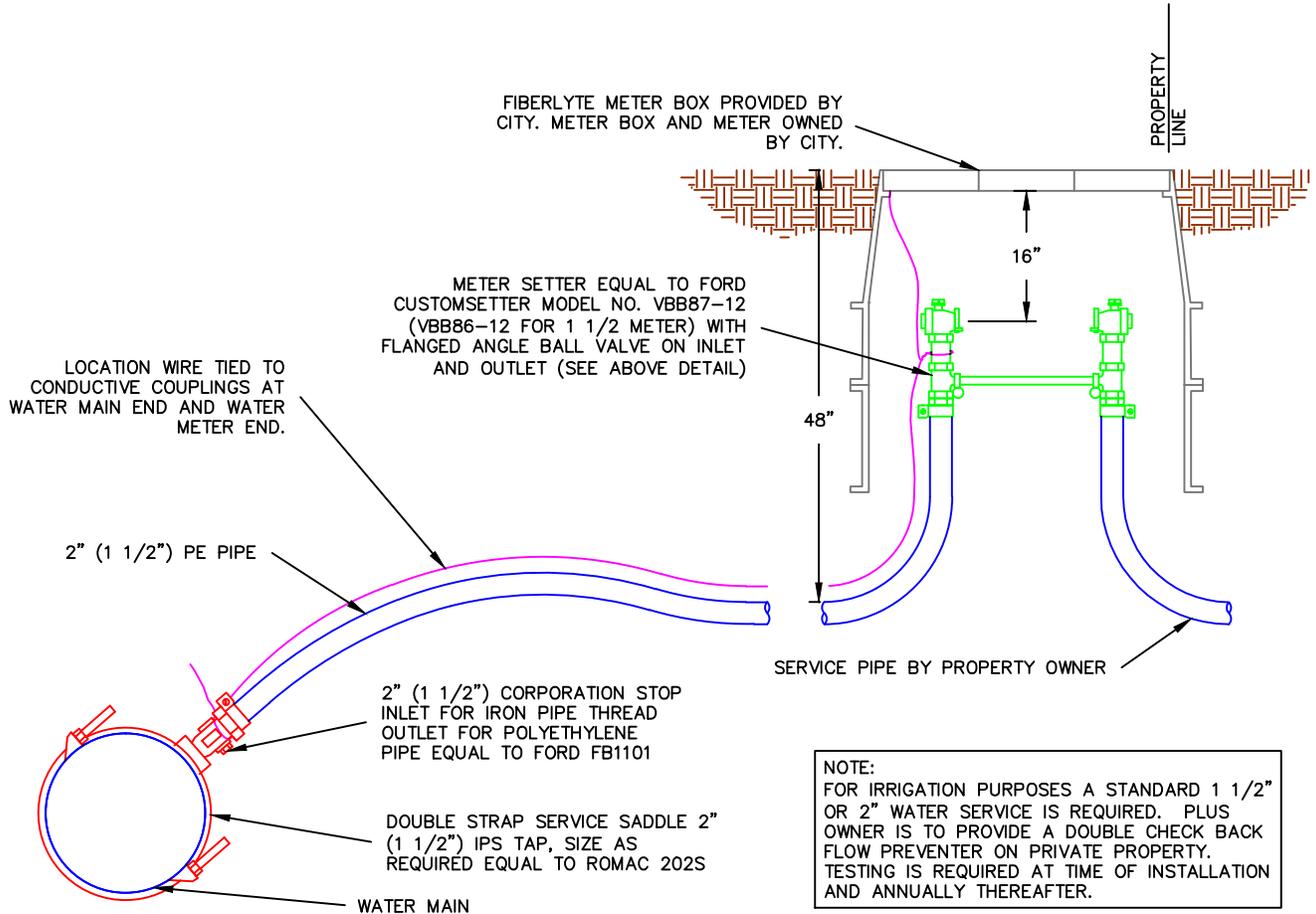
FILE: CA-WDT13.DWG

REVISED: 2/20/2015

DETAIL NO.: WS13



METER SETTER DETAIL



NOTE:
 FOR IRRIGATION PURPOSES A STANDARD 1 1/2" OR 2" WATER SERVICE IS REQUIRED. PLUS OWNER IS TO PROVIDE A DOUBLE CHECK BACK FLOW PREVENTER ON PRIVATE PROPERTY. TESTING IS REQUIRED AT TIME OF INSTALLATION AND ANNUALLY THEREAFTER.

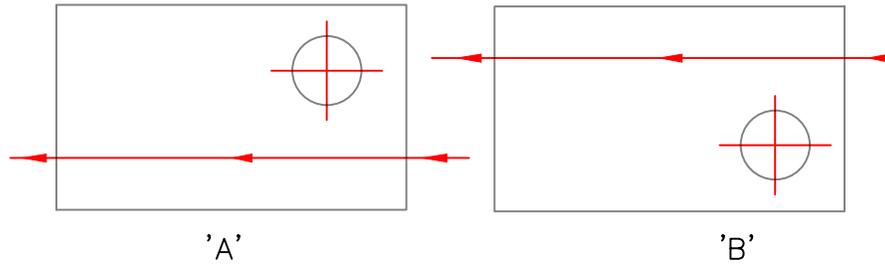
1 1/2" & 2" WATER SERVICE



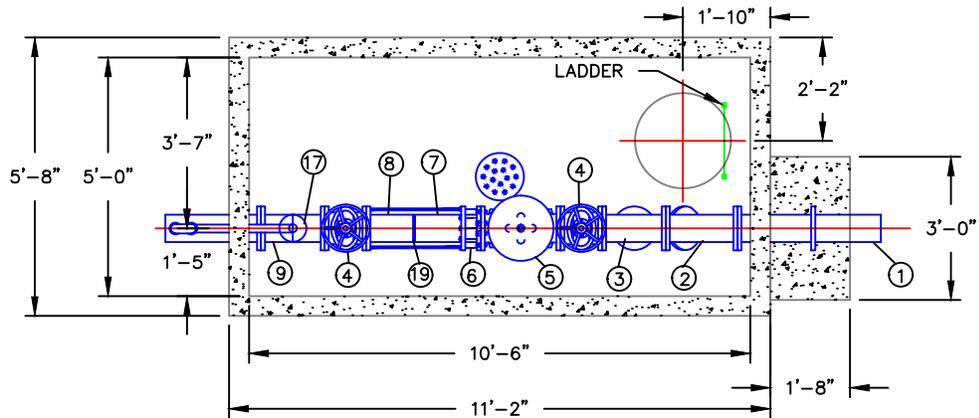
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WATER SYSTEM STANDARD DETAIL

1 1/2" & 2" WATER SERVICE

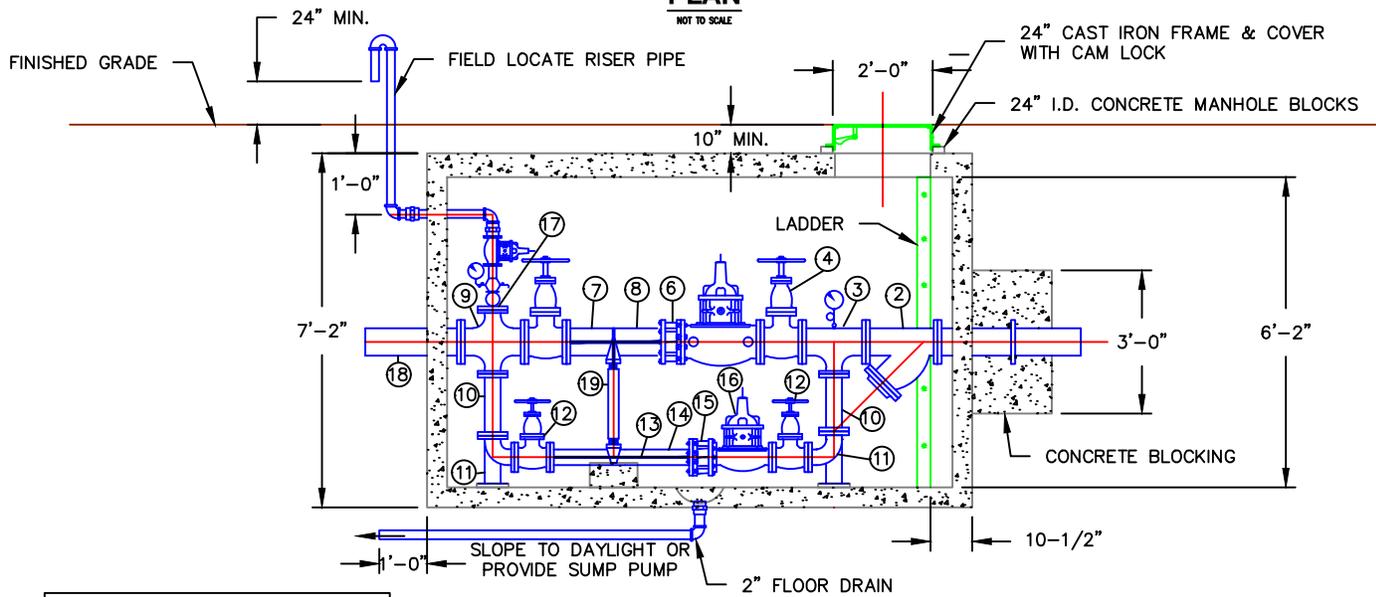


TYPE ARRANGEMENT



PLAN

NOT TO SCALE



ELEVATION

NOT TO SCALE

NOTE:
SEE "PRESSURE REDUCING STATION NOTES" SHEET FOR FITTING NOTES.



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WATER SYSTEM STANDARD DETAIL

6" PRESSURE REDUCING STATION

FILE: CA-WDT15.DWG

REVISED: 2/20/2015

DETAIL NO.: WS15

PRE-CAST CONCRETE UNDERGROUND VAULT EQUAL TO UTILITY VAULT COMPANY VAULT AS SHOWN

BASE SECTION 5106-BL WITH 2 INCH FLOOR DRAIN EQUAL TO OLYMPIC FOUNDRY NO. 3206 CAST IN SUMP WITH 2 INCH CAST IRON PIPE EXTENDING OUT MINIMUM 12 INCHES BEYOND WALL IN DIRECTION REQUIRED.
 58 INCH SECTION 5106-ML.
 TOP SECTION 5106-T24E WITH 24 INCH DIAMETER STANDARD OPENING AS SHOWN.
 LADDER NO. 7 REBAR RUNGS, 5/16" X 1-3/4" FLAT BAR RISER, WITH PROVISIONS TO ANCHOR AT TOP AND BOTTOM WITH 1/2 INCH ROUND CADMIUM PLATED BOLTS. LADDER ASSEMBLY, HOT DIP GALVANIZED AFTER FABRICATION, EQUAL TO UTILITY VAULT COMPANY STANDARD LADDER.

1-1/4" PRESSURE RELIEF ASSEMBLY

INSTALL CROSS FOR PRESSURE GAGE ASSEMBLY AND 3/4" HOSE BIB.
 INSTALL 1-1/4" PRESSURE RELIEF VALVE, SCREWED EQUAL TO CLA-VAL NO. 50G.
 1-1/4" GALV. IRON PIPE TO OUTSIDE OF CHAMBER.
 2" RISER WITH 2" OPEN PATTERN RETURN BEND WITH 2" GALV. IRON PIPE 6" LONG, P.E. X THREADED (SET BOTTOM OF PIPE MIN. OF 24" ABOVE FINISHED GRADE).
 INSTALL MIN. OF 1 UNION INSIDE OF CHAMBER.
 INSTALL 1-1/4" AND 2" GALV. IRON PIPE AND FITTINGS AS REQUIRED.

NOTE: LOCATION OF RISER SHALL BE DETERMINED IN FIELD BY THE ENGINEERS.

PRESSURE GAGE ASSEMBLY

INSTALL 1/4" TEE HAND COCK, MARSH TYPE 1900.
 INSTALL 1/4" PIG TAIL SIPHON, MARSH TYPE 38.
 ONE 4-1/2" PRESSURE GAGE, MARSH TYPE 1, 0 TO 200 PSI.
 ONE 4-1/2" PRESSURE GAGE, MARSH TYPE 1, 0 TO 60 PSI.
 INSTALL ADDITIONAL PIPE AND FITTINGS AS REQUIRED.

PAINTING SCHEDULE

CONCRETE EXTERIORS BELOW GRADE
 SURFACE SHALL BE CLEAN AND DRY. PAINT WITH TWO COATS OF TNE MEC PRIMER SERIES 46-465 COAL TAR SOLUTION (OR EQUAL) 8.0 TO 10.0 MILS DFT.

CONCRETE INTERIORS
 WALLS AND CEILINGS - TWO (2) COATS OF ICI DEVOE 4308-1000 WHITE
 FLOORS - NONE.

METAL (EXCEPT FACTORY FINISH PAINTED EQUIPMENT)
 ONE (1) SHOP COAT OF ICI DEVOE RUST BLOCK, 4100-7100 RED METAL PRIMER
 TWO (2) COATS ICI DEVOE GROTTO BLUE D-104

MATERIAL LIST

ITEM	DESCRIPTION
1.	6" WALL PIPE, FL. X P.E., 3'-0" LONG INTEGRALLY CAST COLLAR AT CENTER.
2.	6" SEDIMENT SEPARATOR, FL., EQUAL TO CRANE NO. 989-1/2 WITH 1-1/2" CORPORATION STOP AND 1-1/2" GALV. IRON PIPING TO FLOOR DRAIN.
3.	6" X 6" X 3" TEE, FL., WITH 1/4" TAP FOR PRESSURE GAGE ASSEMBLY.
4.	TWO 6" GATE VALVES, FL., OS & Y WITH HAND WHEEL EQUAL TO IOWA LIST 14.
5.	6" PRESSURE REDUCING VALVE, FL., EQUAL TO CLA-VAL NO. 90G-01AB
6.	6" FLEXIBLE FLANGED COUPLING ADAPTER, EQUAL TO SMITH-BLAIR NO. 912-3-396.
7.	6" PIPE, FL. X P.E., 20-1/2" ± LONG (LENGTH TO FIT).
8.	TWO TIE RODS, 3/4" DIA. (LENGTH TO FIT).
9.	6" X 6" X 3" X 3" CROSS, FL.
10.	TWO 3" PIPE, FL. X FL., 15" LONG.
11.	TWO 3" 90° BASE BENDS, FL.
12.	TWO 3" GATE VALVES, FL., OS & Y WITH HAND WHEEL EQUAL TO IOWA LIST 14.
13.	TWO TIE RODS 5/8" DIA. (LENGTH TO FIT).
14.	3" PIPE, FL. X P.E., 3' - 2-1/2" + LONG (LENGTH TO FIT).
15.	3" FLEXIBLE FLANGED COUPLING ADAPTER EQUAL TO SMITH-BLAIR NO. 912-3-396.
16.	3" PRESSURE REDUCING VALVE, FL., EQUAL TO CLA-VAL NO. 90G-01AJ
17.	3" BLIND FLANGE, WITH 1-1/4" TAP, INSTALL 1-1/4" CORPORATION STOP TO MOUNT 1-1/4" PRESSURE RELIEF ASSEMBLY.
18.	6" WALL PIPE, FL. X P.E., 24" LONG.
19.	6" PIPE STANCHION SADDLE EQUAL TO GRINNELL FIGURE 259 AND 3" ADJUSTABLE PIPE SADDLE SUPPORT EQUAL TO GRINNELL FIGURE 264, COMPLETE WITH 2-1/2" AND 3" PIPING AND 2-1/2" X 3" REDUCER.

ALL 3" AND LARGER PIPE AND FITTINGS TO BE CAST IRON.



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WATER SYSTEM STANDARD DETAIL

6" PRESSURE REDUCING STATION NOTES

FILE: CA-WDT16.DWG

REVISED: 2/20/2015

DETAIL NO.: WS16

INSTALLATION

THE PRESSURE REDUCING VALVE SHALL BE LOCATED ON THE CUSTOMER'S PROPERTY "DOWNSTREAM" OF THE METER BOX. RESPONSIBILITY FOR PROPER INSTALLATION, OPERATION, AND MAINTENANCE OF THE VALVE SHALL BE ASSUMED BY THE CUSTOMER. THREE POSSIBLE CONFIGURATIONS FOR INSTALLATION OF THE VALVE ARE SHOWN BELOW.

MATERIALS



3/4" PRESSURE REDUCING VALVE. WILKINS REGULATOR MODEL #600.



3/4" ADAPTER. ONE END FOR THREADED BRASS, OTHER END AS NECESSARY FOR SERVICE CONNECTION.



3/4" BRASS NIPPLE, APPROX. 4" LONG. IPT BOTH ENDS.

FUNCTION

THE FUNCTION OF A PRESSURE REDUCING VALVE IS TO REDUCE HIGH-WATER PRESSURES IN THE SERVICE CONNECTION TO AN ACCEPTABLE RANGE OF 25 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.

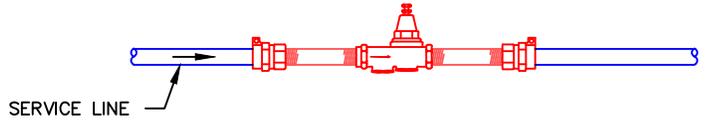
SUPPLIERS

HD FOWLER CO, INC.
13440 S.E. 30th
BELLEVUE, WA
746-8400

KELLER SUPPLY CO.
18315 N.E. 76th
REDMOND, WA
885-9508

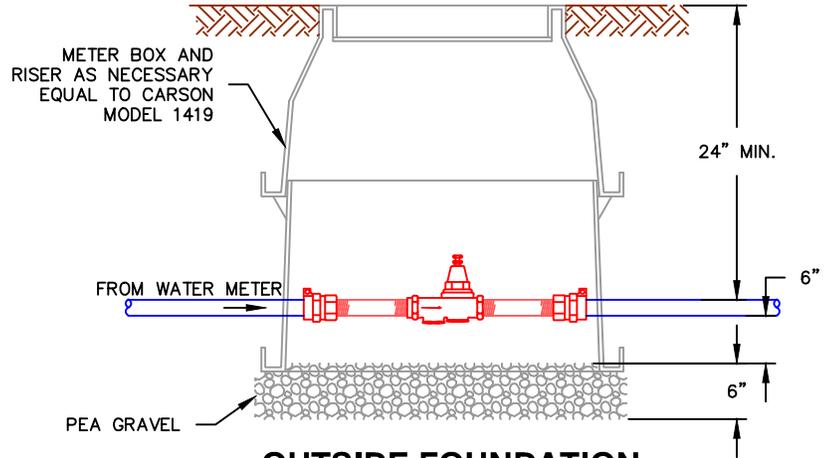
FAMILIAN NORTHWEST INC.
1700 132nd N.E.
BELLEVUE, WA
641-5700

ROSEN SUPPLY CO INC.
2920 S CHANDLER
TACOMA, WA
628-8826



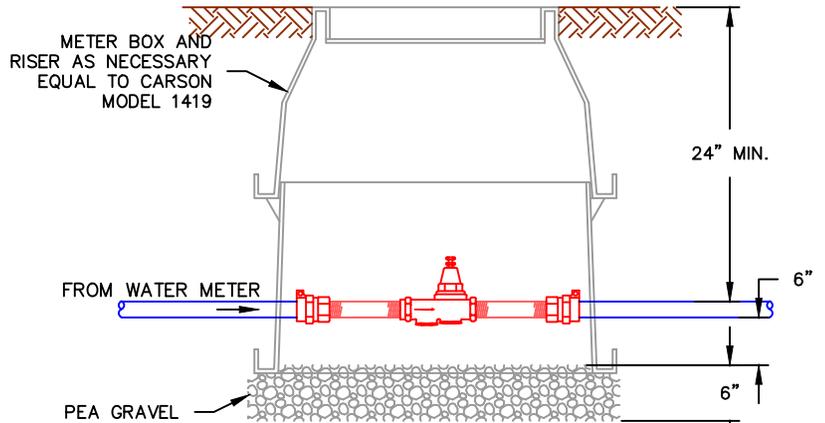
SERVICE LINE

INSIDE HOUSE



OUTSIDE FOUNDATION

NOT TO SCALE



ADJACENT TO WATER METER

NOT TO SCALE



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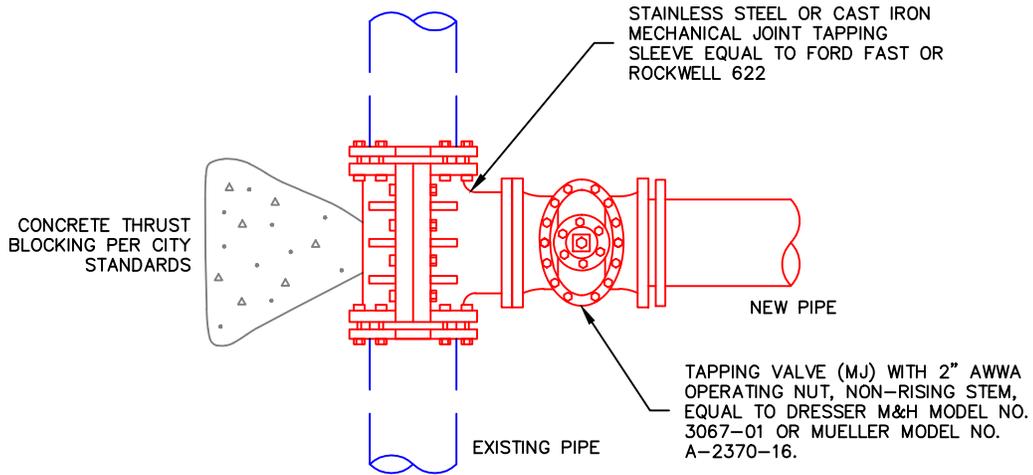
WATER SYSTEM STANDARD DETAIL

SERVICE PRESSURE REDUCER

FILE: CA-WDT17.DWG

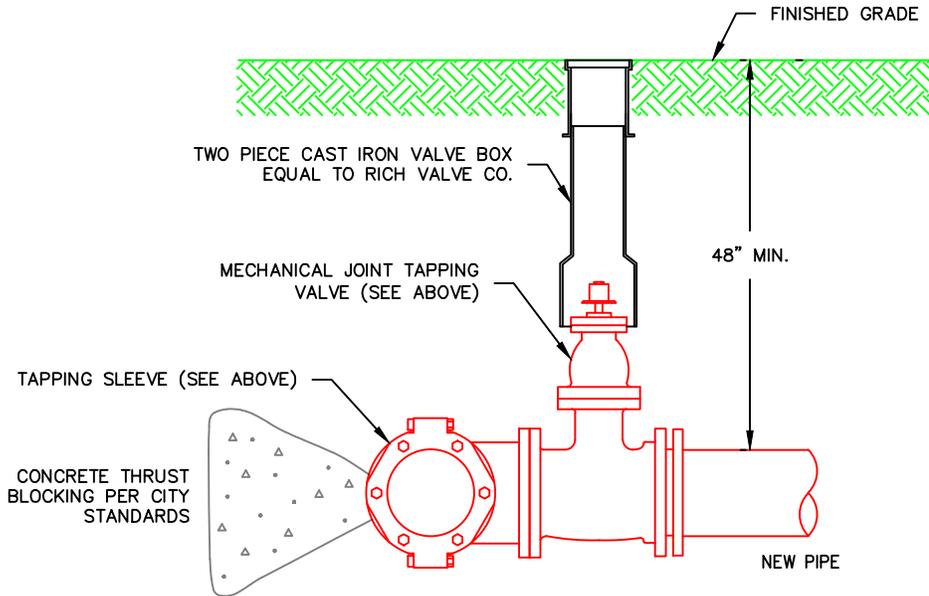
REVISED: 2/20/2015

DETAIL NO.: WS17



PLAN

NOT TO SCALE



ELEVATION

NOT TO SCALE

- NOTES:**
1. PRIOR TO BORING:
 - A. TAPPING SLEEVE AND VALVE SHALL BE PRESSURE TESTED AT 225 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.



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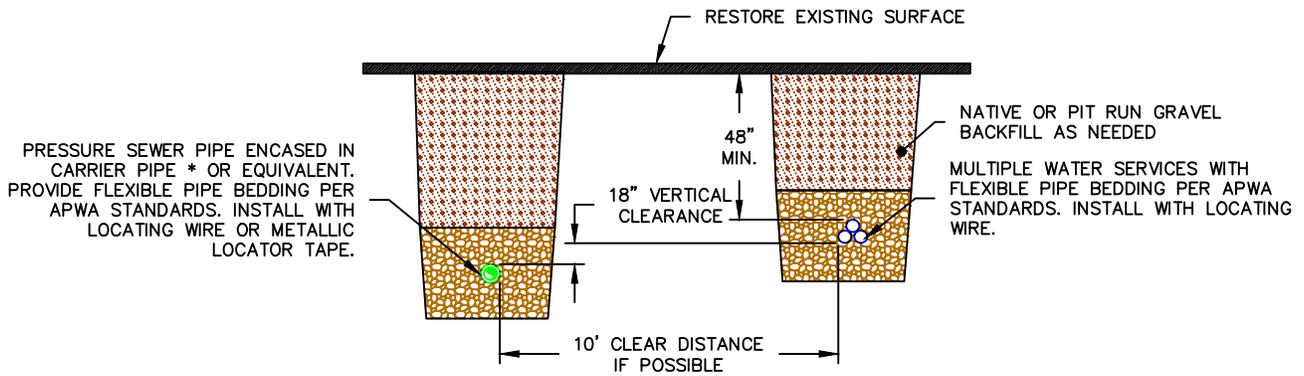
WATER SYSTEM STANDARD DETAIL

WET TAP DETAIL

FILE: CA-WDT18.DWG

REVISED: 2/20/2015

DETAIL NO.: WS18



*WHERE THIS DISTANCE EXCEEDS TEN FEET, THE PRESSURE SEWER MAY BE INSTALLED WITHOUT ENCASEMENT. HOWEVER, WHEREVER A SEWER OR WATER SERVICE CROSSING REDUCES THE CLEAR DISTANCE TO LESS THAN TEN FEET, CONTINUOUS ENCASEMENT OF THE SERVICE PIPE WILL BE REQUIRED PER DEPARTMENT OF ECOLOGY REQUIREMENTS.

ELEVATION

NOT TO SCALE



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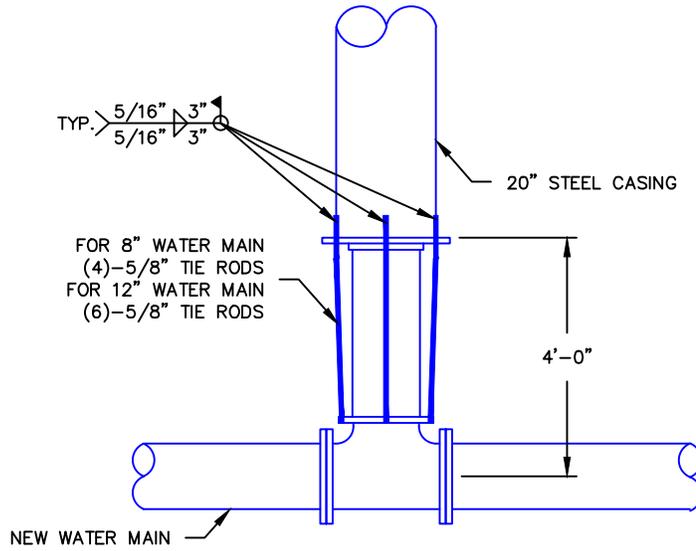
WATER SYSTEM STANDARD DETAIL

**TYPICAL PRESSURE SEWER AND
WATER SERVICE TRENCH SECTION**

FILE: CA-WDT19.DWG

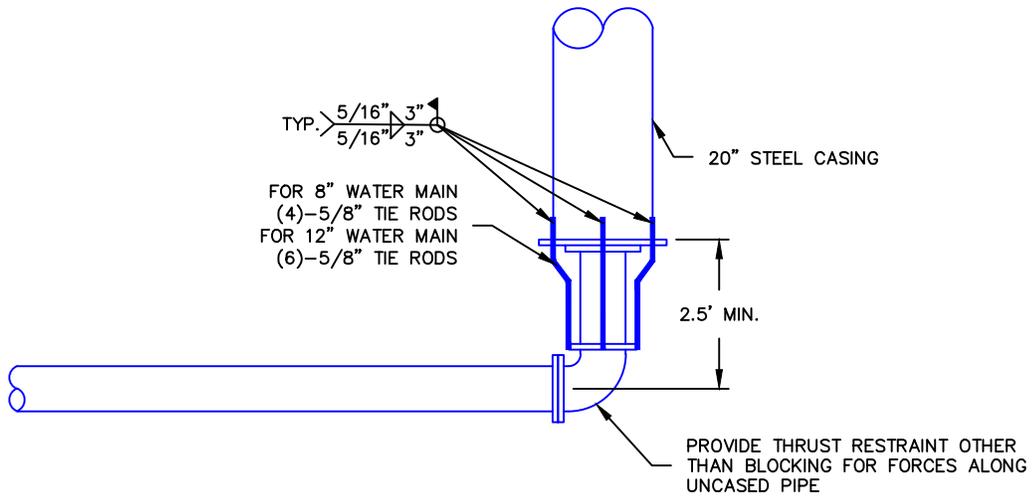
REVISED: 2/20/2015

DETAIL NO.: WS19



BORE CASING THRUST RESTRAINT-TEE

NOT TO SCALE



BORE CASING THRUST RESTRAINT-90° BEND

NOT TO SCALE



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WATER SYSTEM STANDARD DETAIL

BORE CASING THRUST RESTRAINT DETAILS

FILE: CA-WDT20.DWG

REVISED: 2/20/2015

DETAIL NO.: WS20

REVISION HISTORY

2/20/2015

UPDATED STANDARD DETAIL FORMATTING, MADE MINOR EDITS PER CITY COMMENTS; ADDED NEW COVER SHEET, REVISION SHEET AND FULL SIZE DRAWINGS WITH EIGHT (8) DETAILS ON EACH.



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WATER SYSTEM STANDARD DETAIL

REVISION HISTORY

FILE:WDT-REVHIST

REVISED: 2/20/2015

DETAIL NO.: WDT-REVHIST