

NOTES:

1. ALL DOMESTIC AND IRRIGATION METERS SHALL BE SUPPLIED, OWNED AND INSTALLED BY THE CITY OF VANCOUVER PER VMC 14.04.170(B)
2. ALL METERS 2" AND LESS SHALL BE OF THE NUTATING DISC TYPE, TURBINE METERS ARE NOT ALLOWED.
3. PRIOR TO CITY INSTALLATION OF METERS, ALL SERVICE APPLICATIONS MUST BE COMPLETED, APPROVED AND SERVICE FEES PAID IN FULL.
4. CONTRACTOR SHALL CONTACT CITY CONSTRUCTION MANAGER'S OFFICE (360) 487-7750 48 HRS. PRIOR TO INSTALLING ANY WATER SERVICE CONNECTIONS.
5. METERS WILL NOT BE SET BY THE CITY PRIOR TO DISINFECTION OF THE MAIN AND SERVICE, AND PRIOR TO A SUCCESSFUL BACTERIOLOGICAL TEST.
6. WATER SERVICES SHALL BE PRESSURE TESTED ALONG WITH THE MAIN.
7. DURING THE PRESSURE TEST, THE MAIN SHALL BE OPEN TO INSPECTION AT ALL CORPORATIONS.
8. METER BOX SHALL NOT BE ALLOWED IN HARD SURFACE AREAS WITHOUT PRIOR CITY OF VANCOUVER WRITTEN APPROVAL..
9. ALL SERVICES ARE SUBJECT TO REVIEW FOR BACKFLOW PROTECTION REQUIREMENTS.
10. ALL SINGLE FAMILY LOTS 50' AND WIDER SHALL PLACE THE SERVICES AND METER BOXES ALONG THE PROPERTY FRONTAGE NEAR THE CENTER OF THE LOT LINE
11. ALL SERVICE REPLACEMENTS MUST TERMINATE AT EITHER A NEW YOKE, AN ANGLE STOP OR A CURB STOP. NEW ANGLE OR CURB STOPS SHALL BE MUELLER 110 FITTINGS OR APPROVED EQUAL.
12. A MAXIMUM OF ONE FITTING (MUELLER 110 3 PART COMPRESSION x COMPRESSION, OR APPROVED EQUAL) SHALL BE ALLOWED BETWEEN THE CORP. STOP AND THE METER SET ON ALL SERVICE TRANSFERS.
13. ALL SERVICE TAPS IN AC PIPE MUST BE PERFORMED USING A SERVICE SADDLE.
14. TRACER WIRE IS REQUIRED ON ALL MUNICEPEX TUBING AND SHALL BE COPPERHEAD 1030 COPPER COATED STEEL WIRE DESIGNED FOR DIRECT BURY APPLICATIONS OR APPROVED EQUAL.
15. COMPRESSION FITTINGS WITH STAINLESS STEEL INSERTS SHALL BE USED ON ALL CONNECTIONS TO MUNICEPEX TUBING.
16. TRACING WIRE SHALL NOT BE SPLICED AND SHALL BE TESTED FOR CONTINUITY PRIOR TO ACCEPTANCE.

N.T.S.



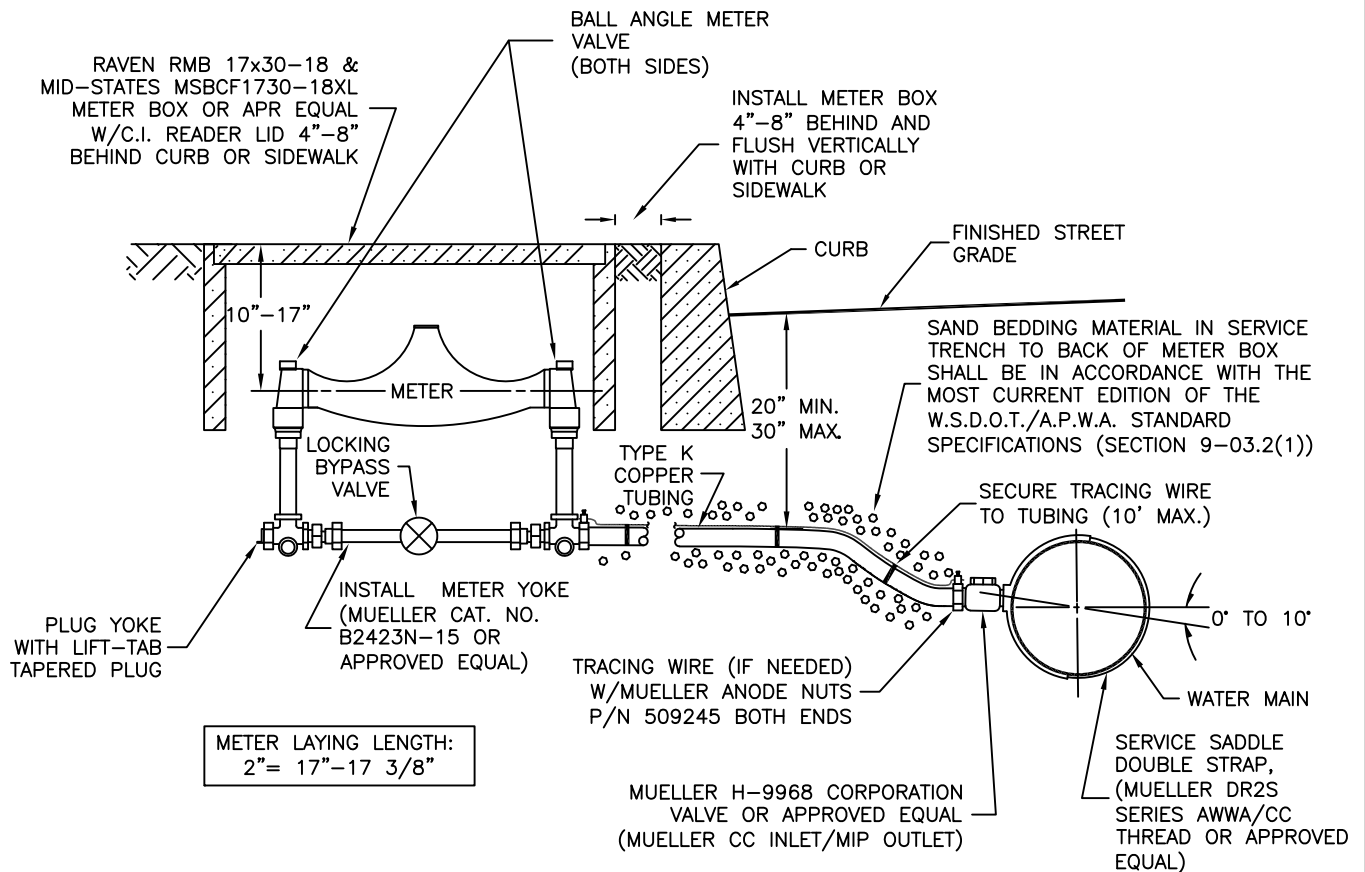
CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

STANDARD 1" WATER SERVICE

REV. NO.	DATE	BY	APPROVED
8	01/13	G.P.H.	T.W.C.
9	01/15	G.P.H.	T.W.C.
10	01/17	G.P.H.	T.W.C.
11	01/19	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-1



NOTES:

1. ALL DOMESTIC AND IRRIGATION METERS SHALL BE SUPPLIED, OWNED AND INSTALLED BY THE CITY OF VANCOUVER PER VMC 14.04.170(B)
2. ALL METERS 2" AND LESS SHALL BE THE NUTATING DISC TYPE, TURBINE METERS ARE NOT ALLOWED.
3. PRIOR TO CITY INSTALLATION OF METERS, ALL SERVICE APPLICATIONS MUST BE COMPLETED AND APPROVED. SERVICE FEES PAID IN FULL AND AS-BUILTS SUBMITTED AND APPROVED.
4. CONTRACTOR SHALL CONTACT CITY CONSTRUCTION MANAGER'S OFFICE (360)487-7750 48 HOURS PRIOR TO INSTALLING ANY WATER SERVICE CONNECTIONS.
5. METERS WILL NOT BE SET BY THE CITY PRIOR TO DISINFECTION OF THE MAIN AND SERVICE, AND PRIOR TO A SUCCESSFUL BACTERIOLOGICAL TEST.
6. WATER SERVICES SHALL BE PRESSURE TESTED ALONG WITH THE MAIN.
7. DURING THE PRESSURE TEST, THE MAIN SHALL BE OPEN FOR INSPECTION OF ALL CORPORATION STOPS.
8. USE 1-7/8" BIT FOR ALL 2" SADDLE TAPS.
9. METER BOX SHALL NOT BE ALLOWED IN HARD SURFACE AREAS WITHOUT PRIOR CITY OF VANCOUVER WRITTEN APPROVAL.
10. METERS PLACED IN HARD SURFACED AREAS SHALL BE CALLED OUT AS SUCH ON THE PLANSET.
11. ALL SERVICES ARE SUBJECT TO REVIEW FOR BACKFLOW PROTECTION REQUIREMENTS.
12. ALL 1-1/2" AND 2" METER INSTALLATIONS SHALL BE 2" TAPS AND 2" SERVICE PIPING.
13. TRACER WIRE IS REQUIRED ON ALL MUNICIPEX TUBING AND SHALL BE COPPERHEAD 1030 COPPER COATED STEEL WIRE DESIGNED FOR DIRECT BURY APPLICATIONS OR APPROVED EQUAL.
14. COMPRESSION FITTINGS WITH STAINLESS STEEL INSERTS SHALL BE USED ON ALL CONNECTIONS TO MUNICIPEX TUBING.
15. TRACING WIRE SHALL NOT BE SPLICED AND SHALL BE TESTED FOR CONTINUITY PRIOR TO ACCEPTANCE.

N.T.S.



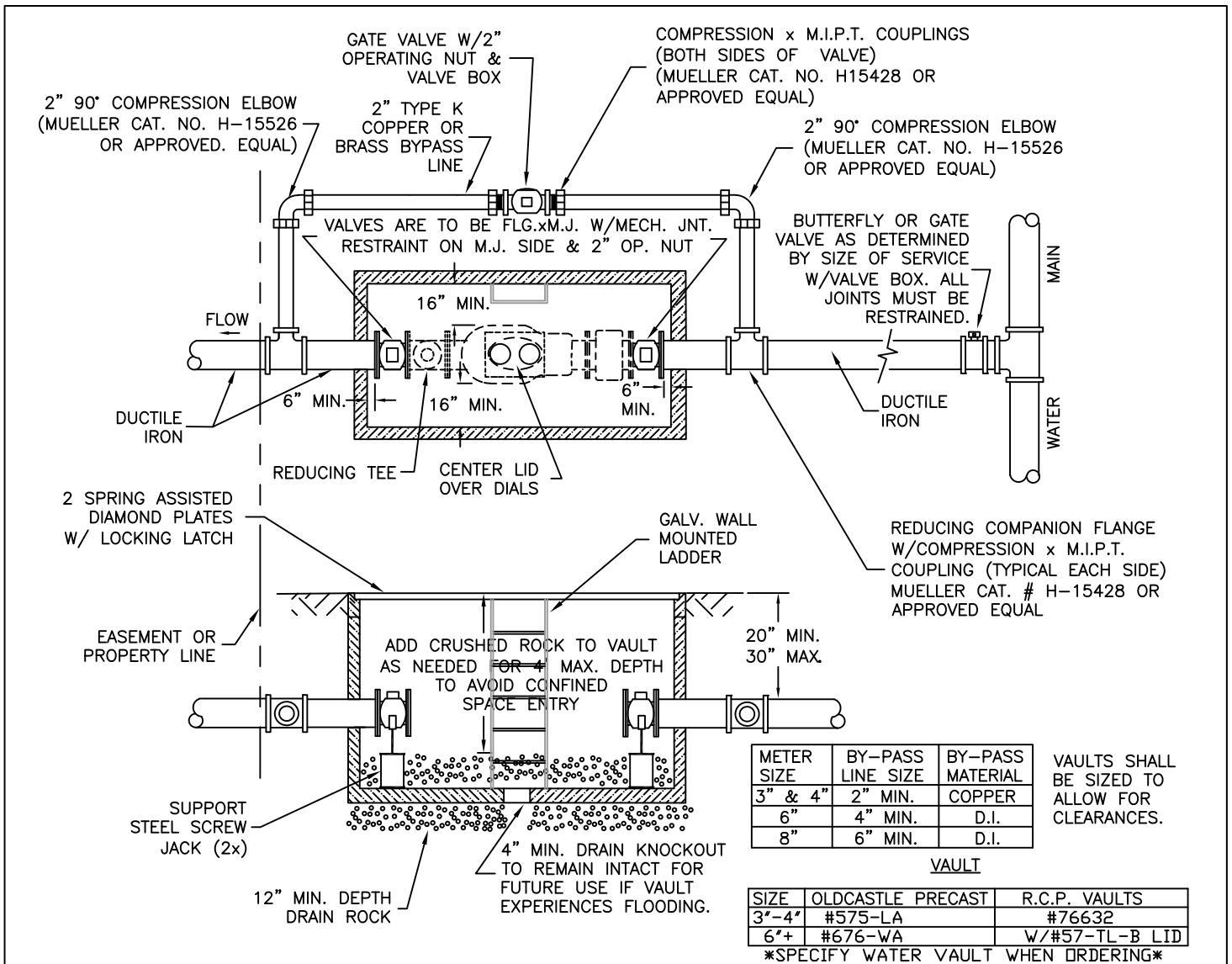
STANDARD 2" WATER SERVICE

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
7	01/13	G.P.H.	T.W.C.
8	01/15	G.P.H.	T.W.C.
9	01/17	G.P.H.	T.W.C.
10	01/19	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-2



NOTES:

1. CITY TO SUPPLY, OWN AND MAINTAIN THE METER, METER SPACER, REDUCING TEE AND STRAINER. CONTACT CITY INSPECTOR 2 WEEKS PRIOR TO INSTALLATION.
2. PIPE SUPPORTS REQUIRED ON ALL METERS 6" AND LARGER.
3. TEN PIPE DIAMETERS OF STRAIGHT PIPE REQ'D. IN & OUT OF METER. (IF USING 6" PIPE, NO BENDS ALLOWED WITHIN 5' OF THE METER IN EITHER DIRECTION. IE: 6" x 10 = 60")
4. CONTRACTOR SHALL USE APPROPRIATE METHODS TO ENSURE COPPER PIPE, FITTINGS AND JOINTS WILL REMAIN LEAK-TIGHT.
5. ALL METERS SHALL BE INSTALLED BY THE CITY OF VANCOUVER PER VMC 14.04.170(B). CONTRACTOR TO INSTALL TEMP. SPACER AS PER NOTE 1.
6. INSTALL VAULT IN SOFT-SCAPE AREA, VERTICALLY FLUSH WITH CURB OR SIDEWALK.
7. METER BOX SHALL NOT BE ALLOWED IN HARD SURFACE AREAS WITHOUT PRIOR CITY OF VANCOUVER WRITTEN APPROVAL..
8. IF VAULT MUST BE LOCATED IN A WALKING AREA, A NON-SKID TRAFFIC RATED LID SHALL BE REQUIRED.
9. ALL SERVICES ARE SUBJECT TO REVIEW FOR BACKFLOW PROTECTION REQUIREMENTS.

N.T.S.



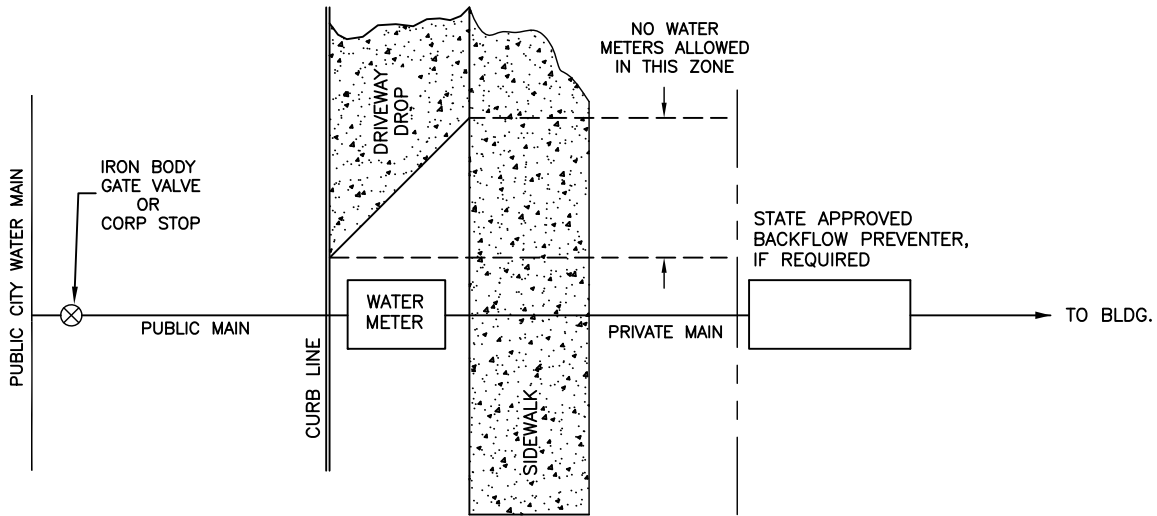
STANDARD 3" AND LARGER METER INSTALLATION

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

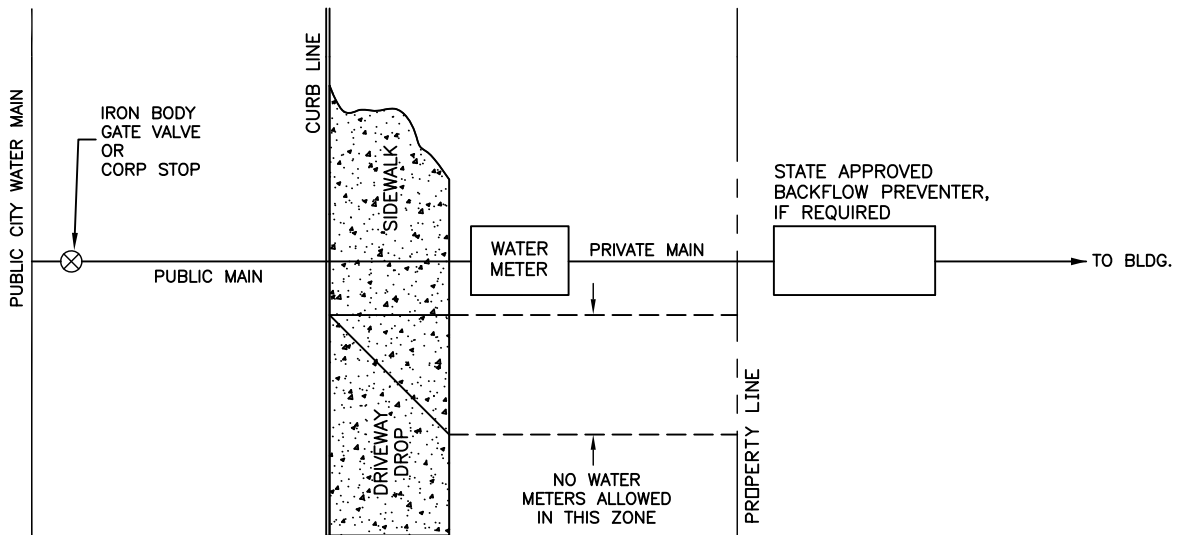
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STANDARD PLAN NO.

W-3



DETACHED SIDEWALK



ATTACHED SIDEWALK

NOTES:

1. ALL NON-SINGLE FAMILY DOMESTIC SERVICES SHALL BE TAPPED SEPARATELY FROM ANY FIRE PROTECTION AND FIRE HYDRANT LEAD PIPING.
2. SEE WATER METER DETAILS W-1 THROUGH W-4 FOR WATER METER INSTALLATION INFORMATION.
3. ALL SINGLE FAMILY LOTS 50' AND WIDER SHALL PLACE THE SERVICES AND METER BOXES ALONG THE PROPERTY FRONTAGE NEAR THE CENTER OF THE LOT LINE.
4. WATER METERS ARE NOT ALLOWED IN THE DRIVEWAY WING EXTENSION AREAS.
5. EXCEPTIONS TO THESE REQUIREMENTS SHALL BE SUBMITTED IN WRITING WITH A PLAN FOR REVIEW TO COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT-ENGINEERING (360) 487-7804 FOR ROUTING TO WATER ENGINEERING.
6. DIRECT ALL DESIGN QUESTIONS TO CITY OF VANCOUVER WATER ENGINEERING AT (360) 487-7130.

N.T.S.



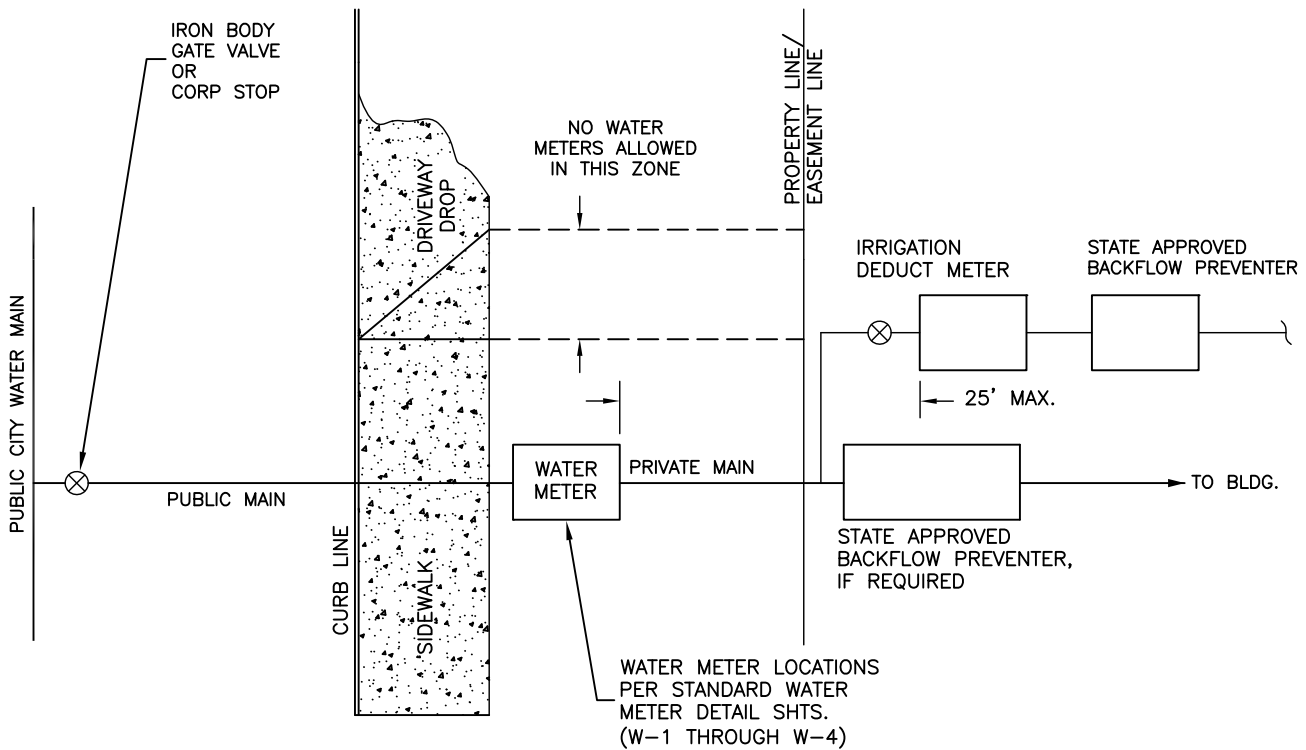
STANDARD DOMESTIC METER LOCATIONS

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
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9	01/19	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-4



NOTES:

1. WATER METERS ARE NOT ALLOWED IN THE DRIVEWAY WING EXTENSION AREAS.
2. ALL DEDUCT METERS SHALL BE PER APPROVED PLAN.
3. DEDUCT METERS SHALL BE PLACED IN A STANDARD METER BOX WITH READER LID ACCORDING TO METER SIZE. (SEE W-1 & W-2)
4. DEDUCT METERS SHALL BE CONSTRUCTED PER THE DOMESTIC METER DETAIL OF THE SAME METER SIZE (SEE W-1, W-2 & W-3)
5. IRRIGATION DEDUCT METERS WILL BE READ DURING THE BILLING CYCLES FROM APRIL THROUGH OCTOBER.
6. DEDUCT METERS SHALL BE PURCHASED FROM THE CITY OF VANCOUVER COMMUNITY ECONOMIC DEVELOPMENT PERMIT COUNTER.
7. DEDUCT METERS ARE SUPPLIED AND INSTALLED BY THE CITY OF VANCOUVER OPERATIONS DEPARTMENT
8. DEDUCT METERS SHALL BE OWNED AND MAINTAINED BY THE CUSTOMER, INCLUDING ANY BATTERY REPLACEMENT.
9. IF THE DEDUCT METER CANNOT BE LOCATED WITHIN 25' OF THE DOMESTIC METER, A TOUCH READ DEVICE MAY BE REQUIRED.
10. EXCEPTIONS TO THESE REQUIREMENTS SHALL BE SUBMITTED IN WRITING WITH A PLAN FOR REVIEW TO COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT-ENGINEERING (360) 487-7804 FOR ROUTING TO WATER ENGINEERING.
11. DIRECT ALL DESIGN QUESTIONS TO CITY OF VANCOUVER WATER ENGINEERING AT (360) 487-7130.
12. INSTALLATION QUESTIONS SHOULD BE DIRECTED TO CITY OF VANCOUVER UTILITIES AT (360) 487-7999.

N.T.S.



STANDARD DEDUCT METER LOCATIONS

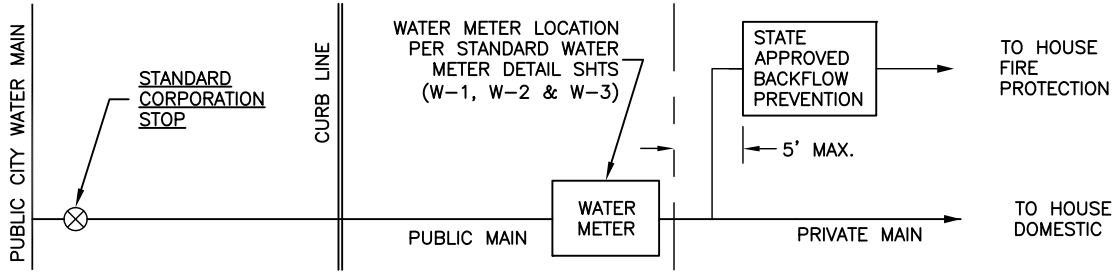
CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

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6	01/19	G.P.H.	T.W.C.

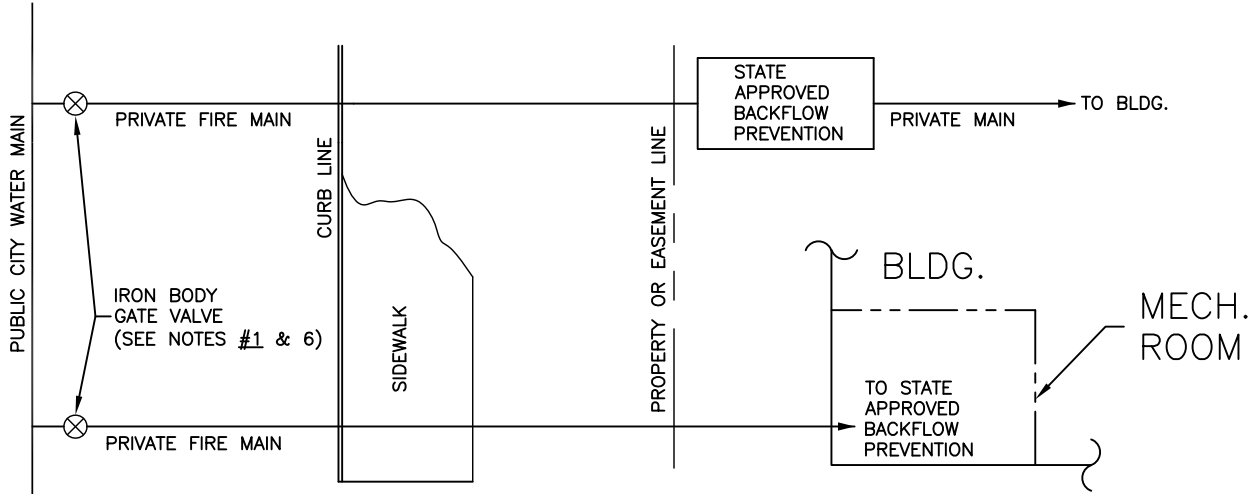
STANDARD PLAN NO.

W-5

SINGLE FAMILY FIRE PREVENTION INSTALLATION



COMMERCIAL/MULTI-FAMILY BACKFLOW PREVENTION INSTALLATION



NOTES:

1. ALL STAND ALONE FIRE PROTECTION SERVICES (F.P.S.) SHALL HAVE A 4" OR LARGER IRON BODY GATE VALVE AS DESCRIBED IN 2-2.06 IN THE CITY OF VANCOUVER ENGINEERING SERVICES GENERAL REQUIREMENTS AND DETAILS. VALVES SHALL BE LOCATED AT THE CONNECTION TO THE WATER MAIN. WATER METERS ARE NOT REQUIRED ON NON-SINGLE FAMILY RESIDENTIAL FIRE PROTECTION SERVICES.
2. FIRE PROTECTION SERVICES 2" AND SMALLER SHALL BE MUNICIPEX (PEX A) W/TRACER WIRE OR TYPE "K" COPPER. ALL F.P.S. SERVICES LARGER THAN 2" SHALL BE 4" OR LARGER EXTERNALLY ZINC COATED DUCTILE IRON PIPE.
3. ALL BACKFLOW DEVICES SHALL BE PER APPROVED PLAN.
4. BACKFLOW DEVICES SHALL BE PLACED IN A STANDARD CONCRETE METER BOX, PLASTIC IRRIGATION BOX OR CONCRETE VAULT WITH LID PER W-21, W-22, W-23, W-24 AND W-25 AS APPROPRIATE.
5. WITH THE EXCEPTION OF SINGLE FAMILY RESIDENCES, ALL BACKFLOW DEVICES MAY BE INSTALLED INSIDE THE BUILDING MECHANICAL ROOM AS ALLOWED BY U.B.C. AND U.P.C., AND WRITTEN APPROVAL FROM THE C.O.V. WATER QUALITY GROUP
6. ALL FIRE PROTECTION SERVICES SHALL BE PRIVATELY OWNED AND MAINTAINED DOWNSTREAM OF THE GATE VALVE LOCATED AT THE PUBLIC MAIN.
7. REQUESTS FOR EXCEPTIONS TO THESE REQUIREMENTS MAY BE SUBMITTED IN WRITING WITH THE PLAN VIEW TO COMMUNITY ECONOMIC DEVELOPMENT ENGINEERING (360) 487-7804. ALL RESPONSES SHALL BE MADE IN WRITING.
8. ALL BACKFLOW DEVICES ARE PRIVATELY OWNED, TESTED AND MAINTAINED.
9. SINGLE FAMILY WATER METERS SHALL BE SIZED TO MEET THE REQUIRED FIRE FLOW.
10. PER RCW CHAPTER 70.119A.210, THE CITY OF VANCOUVER SHALL NOT BE LIABLE FOR DAMAGES RESULTING FROM THE SHUTDOWN OF SINGLE FAMILY SERVICES DUE TO ROUTINE MAINTENANCE, NONPAYMENT; OR WATER SYSTEM EMERGENCIES.
11. ALL FIRE PROTECTION SERVICES, EXCEPT SINGLE FAMILY APPLICATIONS, SHALL BE TAPPED SEPARATELY FROM ALL DOMESTIC SERVICES AND FIRE HYDRANT LEADS.

N.T.S.



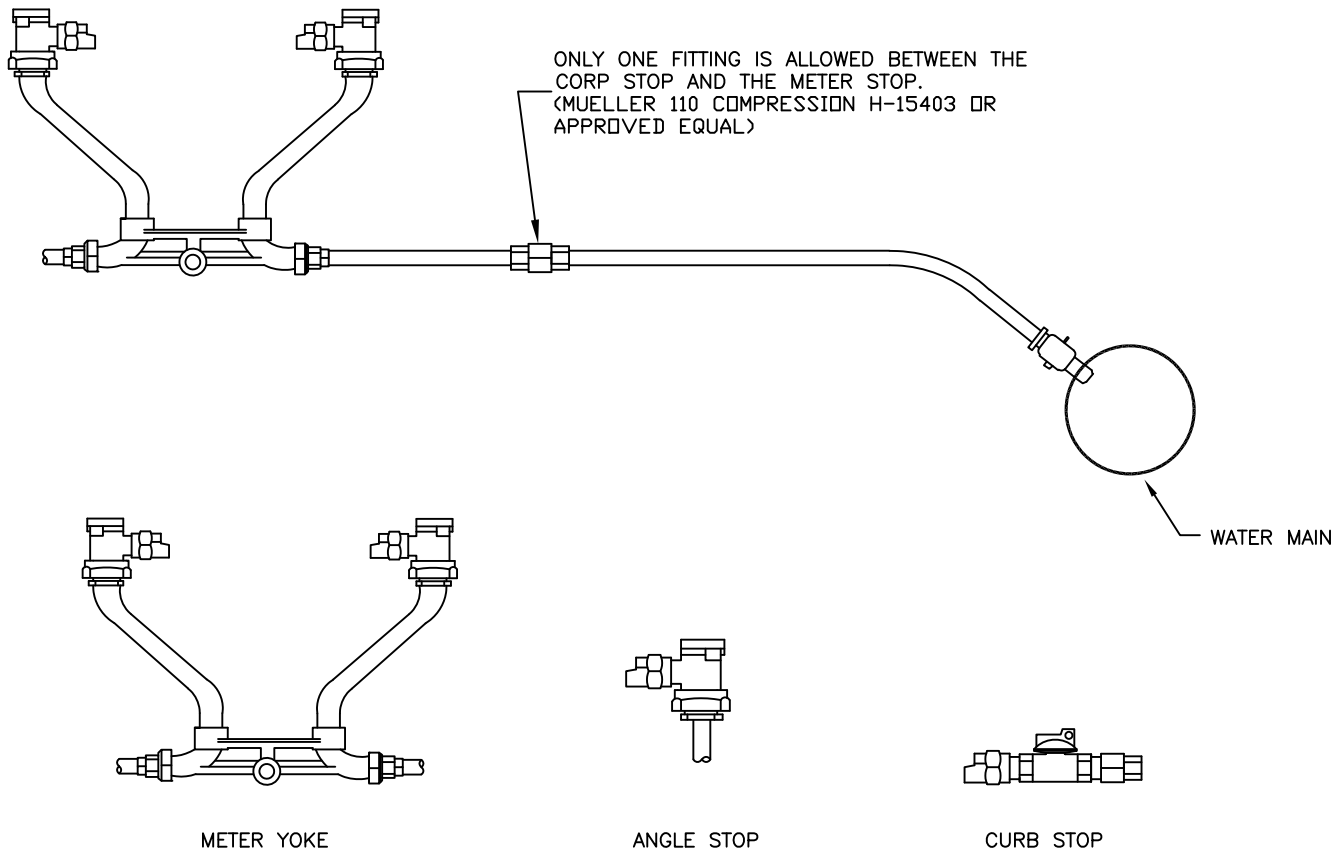
STANDARD FIRE PROTECTION BACKFLOW LOCATIONS

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

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STANDARD PLAN NO.

W-6



NOTE:

1. REPLACE ALL SERVICES WHICH MEET ANY OF THE FOLLOWING CONDITIONS:
 - A. METER BOX IS RELOCATED
 - B. SUBSTANDARD EITHER BY MATERIALS OR LACK OF COVER
 - C. THE YOKE MUST BE REPLACED WITH LIKE SIZED SERVICE.
2. ALL SERVICES MUST TERMINATE AT EITHER A NEW YOKE, CURB STOP OR ANGLE STOP. (MUELLER "110 COMPRESSION" OR APPROVED EQUAL)
3. FOR SERVICE TRANSFERS, ONLY ONE FITTING IS ALLOWED BETWEEN THE CORP STOP AND THE METER STOP. A METER ADAPTER REDUCING FROM A 1" SERVICE TO A SMALLER METER MAY BE ALLOWED IN ADDITION TO THE ONE FITTING.

N.T.S.



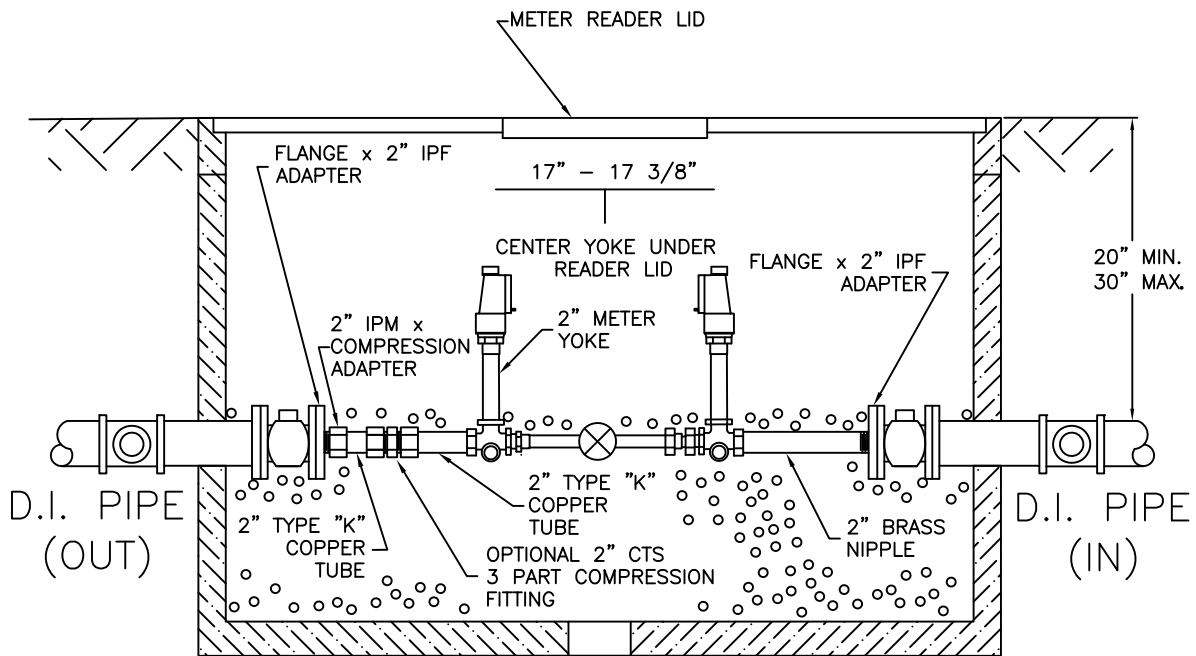
METER SERVICE TRANSFER AND REPLACEMENT

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
5	01/13	G.P.H.	T.W.C.
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7	01/17	G.P.H.	T.W.C.
8	01/19	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-7



NOTES:

1. 2", 1-1/2" 1" AND 5/8" METERS SET IN COMPOUND METER VAULT SHALL BE SET IN A 2" METER YOKE ONLY.
2. FILL VAULT WITH 5/8" ROCK TO BOTTOM OF OPERATIONAL NUTS ON THE CONTROL VALVES.
3. CENTER THE 2" METER YOKE UNDER THE METER READER LID.

N.T.S.



COMPOUND METER REDUCTION

CITY OF VANCOUVER
 DEPARTMENT OF PUBLIC WORKS
 WATER ENGINEERING

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STANDARD PLAN NO.

W-8

MORRISON #155 TEE VENT
OR APPROVED EQUAL

AS SHOWN ON PLANS &
STAKE IN FIELD

1"X24" GALV.
NIPPLE

SEE NOTE #2

VALVE BOX
W/O LID
GROUT IN PIPE

SLOPE
1% MIN.

2-90° GALV.
ELBOWS W/NIPPLE

2" GALV. NIPPLE
2"X1" REDUCER
1" 90° GALV. ELBOW OR STREET ELBOW

24" HANSON TYPE
45 AREA DRAIN
CATCH BASIN, T&G
CONC. PIPE OR
MANHOLE

(4) 1"
WEEP
HOLES

2" COMBINATION AIR RELEASE VALVE
(APCO NO. 145-C & ARI D-040-C
OR APPROVED EQUAL)

6"
(TYP.)
4"
6"
6"

2" COMP.
IRON BODY
GATE VALVE
2" BRASS OR RIGID
TYPE K COPPER
TUBING

CONCRETE BASE
DRAIN ROCK

SLOPE 1% MIN.

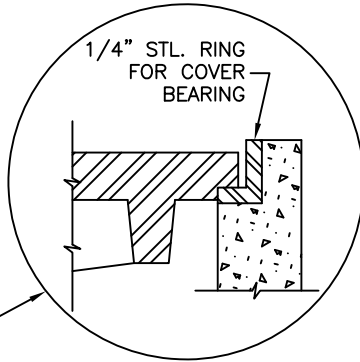
2" COPPER NIPPLE

USE ONLY THREADED
NIPPLES AND FITTINGS

2" MUELLER
H-15526 COMP. 90° ELBOW
H-15428 MIPxCOMP STRAIGHT
(OR APPROVED EQUAL)

2" MUELLER
CORP STOP
MUELLER CC
INLET,
MIP OUTLET
(H-9968
OR APPROVED
EQUAL)

2" TAPPING
SADDLE



NOTE:

1. PLACE VENT AND AIR RELEASE UNIT ASSEMBLY OUTSIDE OF HARD SURFACED AREA IN R.O.W. OR 15' EASEMENT DEDICATED TO THE CITY OF VANCOUVER
2. MANHOLE COVER SHALL MEET SANITARY SEWER STANDARD DETAIL S-2.2 STANDARD LID OR APPROVED EQUAL.
3. ADD 4'x4'x4" CONCRETE PAD IF THE AIR RELEASE IS INSTALLED IN A "SOFTSCAPE" AREA.

N.T.S.



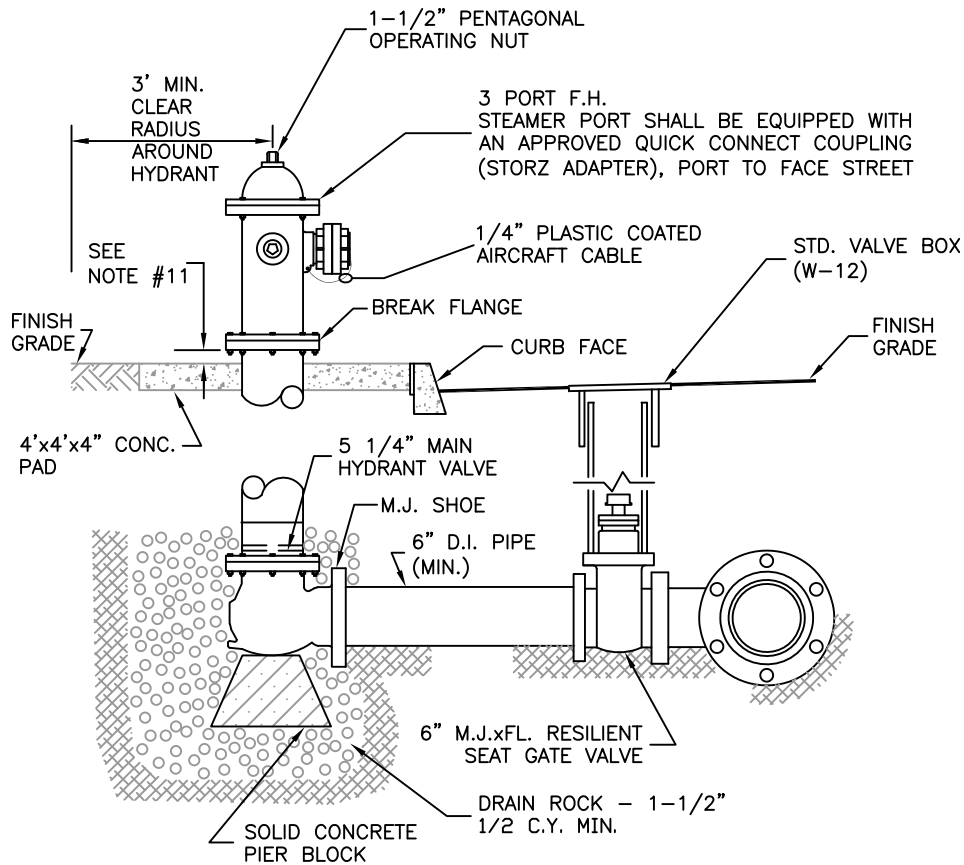
COMBINATION AIR RELEASE VALVE

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

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STANDARD PLAN NO.

W-9



NOTES:

1. FIRE HYDRANT INSTALLATIONS SHALL BE APPROVED BY THE CITY INSPECTOR PRIOR TO BACKFILLING.
2. IN GENERAL, FIRE HYDRANT LOCATIONS SHALL BE AS SHOWN ON THE PLANS AND SHALL CONFORM TO THIS DETAIL. FIRE HYDRANTS SHALL NOT BE SET UNTIL LOCATION AND DEPTH ARE APPROVED BY THE CITY.
3. THE FIRE HYDRANT SHALL BE INSTALLED SO THAT IT IS PLUMB IN ALL DIRECTIONS.
4. NO DOMESTIC OR FIRE PROTECTION SERVICES SHALL BE TAPPED OFF OF THE FIRE HYDRANT PIPING.
5. A CONCRETE PAD NO LESS THAN 4'x4'x4", SHALL BE CENTERED AROUND THE FIRE HYDRANT.
6. THE CONCRETE PAD SHALL BE PLACED FLUSH IN ELEVATION AND ADJOINED W/BACK OF CURB (IF THE SIDEWALK IS DETACHED OR DOESN'T EXIST) OR BACK OF SIDEWALK (IF SIDEWALK IS ATTACHED). EXPANSION JOINT MATERIAL SHALL BE PLACED BETWEEN THE CONCRETE PAD AND CURB/SIDEWALK.
7. CONCRETE PAD SHALL BE FINISHED TO APWA SIDEWALK STANDARDS.
8. ALL JOINTS SHALL BE RESTRAINED UTILIZING MECHANICAL RESTRAINT SYSTEMS. CONCRETE THRUST BLOCKS SHALL NOT BE ALLOWED.
9. FIRE HYDRANTS SHALL BE FACTORY PAINTED OR QUALITY FIELD PAINTED WITH RODDA SILICONE ALKYD ENAMEL HEAVY DUTY GLOSS SAFETY YELLOW 7-32616-1 TO NEW CONDITION.
10. FIRE HYDRANT MAINS SHALL BE 8" MIN., A 6" MAIN CAN BE USED FOR A DEAD-END RUN OF LESS THAN 50' TO A HYDRANT SUBJECT TO ADEQUATE FIRE FLOW.
11. DESIGN SEPARATION SHALL BE 3 INCHES, WITH AN AS-BUILT SEPARATION OF 2-4 INCHES.
12. BOLLARDS SHALL NOT BE INSTALLED AS FIRE HYDRANT PROTECTION.

N.T.S.



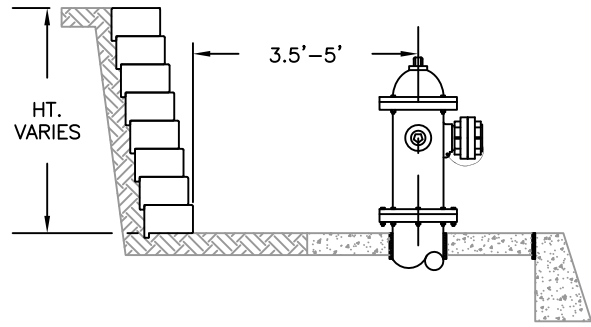
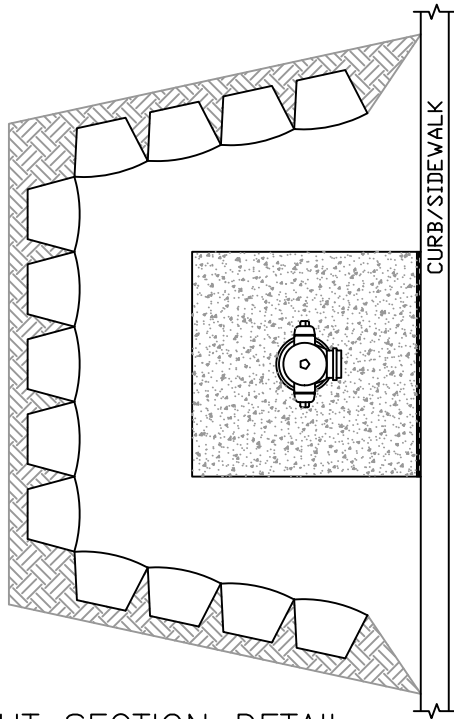
STANDARD FIRE HYDRANT ASSEMBLY

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

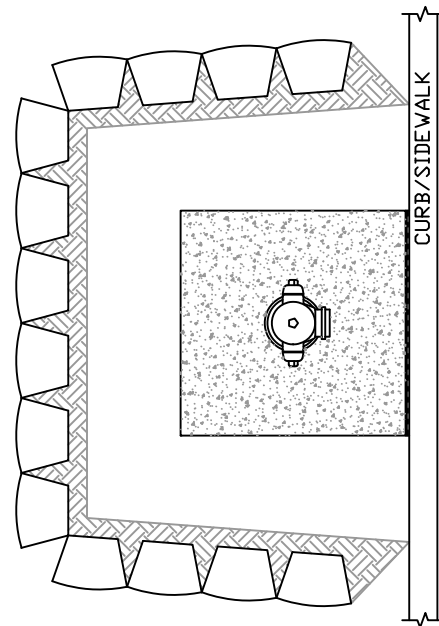
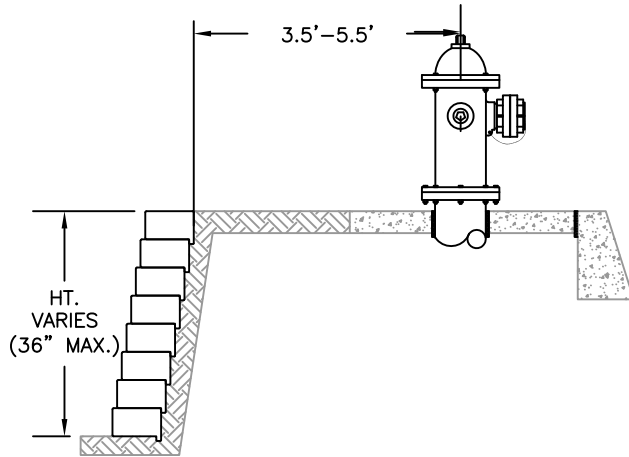
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STANDARD PLAN NO.

W-10



CUT SECTION DETAIL



FILL SECTION DETAIL

NOTES:

1. CONSULT I.B.C. FOR RETAINING WALL CONSTRUCTION REQUIREMENTS.
2. THE AREA WITHIN THE RETAINING WALL BOUNDARIES FROM THE CURB/SIDEWALK TO THE REAR RETAINING WALL SHALL HAVE A MAXIMUM SLOPE OF 1% IN ANY DIRECTION.
3. THE 4'x4' CONCRETE PAD SHALL HAVE A MAXIMUM SLOPE OF 1%.
4. RETAINING WALL SHALL MAINTAIN A MINIMUM RADIUS OF 3.5' AROUND THE HYDRANT

N.T.S.



HYDRANT RETAINING WALL DETAIL

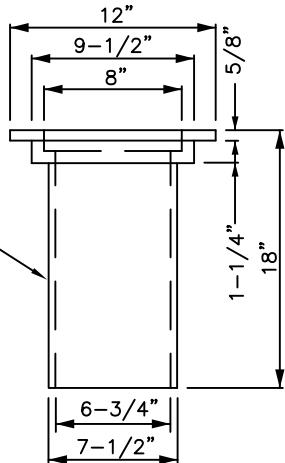
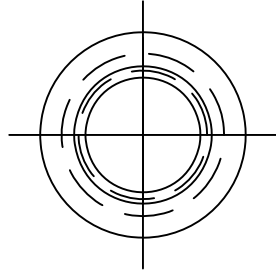
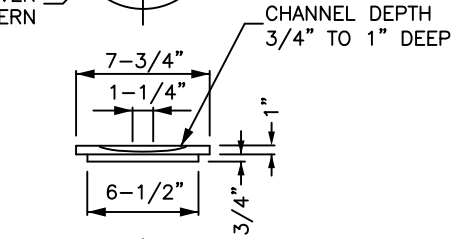
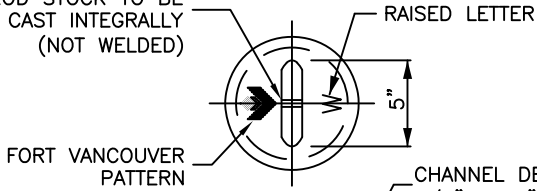
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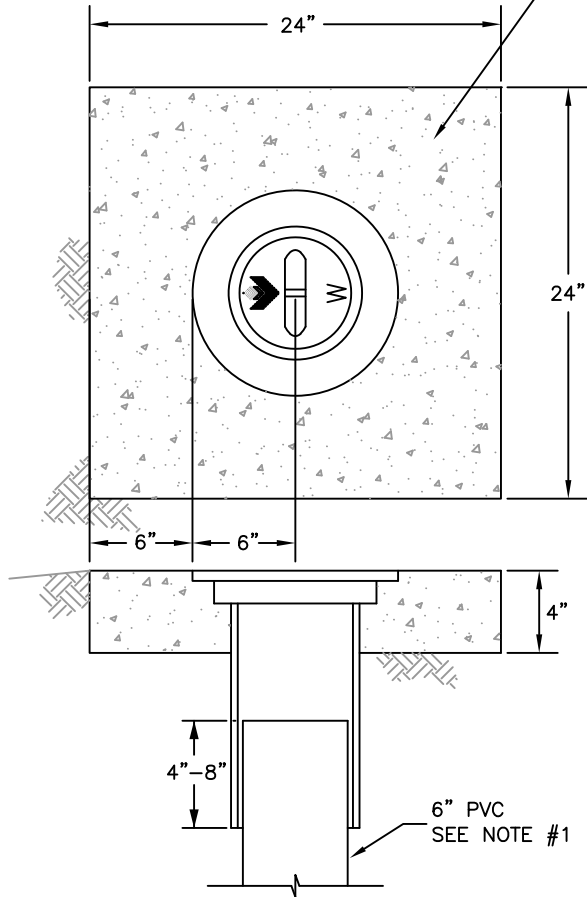
W-11

LID AND 1/4" X 4" ROD STOCK TO BE CAST INTEGRALLY (NOT WELDED)



SEE NOTE #2

CONCRETE OR ASPHALT PAD FOR VALVE BOXES NOT SET IN PAVED AREAS. (24" SQUARE, 4" THICK)



NOTES:

1. EXTENSIONS SHALL BE 6" ASTM D 3034 SDR 35 PVC PIPE (ONE PIECE)
2. VALVE BOX SHALL BE U.S. FILTER/PACIFIC WATER WORKS NO. 910 OR EQUAL.
3. THE LID SHALL INCLUDE THE FORT VANCOUVER LOGO AND "W" IN THE DESIGN.
4. IF THE ORIGIN IS OTHER THAN USA, THE COUNTRY OF ORIGIN SHALL BE CAST ON THE UNDERSIDE OF THE LID
5. THERE SHALL BE 1/2" CLEARANCE UNDER THE PIN CAST INTO THE LID.
6. THE OPERATOR NUT SHALL HAVE A DEPTH FROM 18"-36" FROM FINISH GRADE TO THE OPERATOR NUT.

N.T.S.



STANDARD VALVE BOX AND COVER

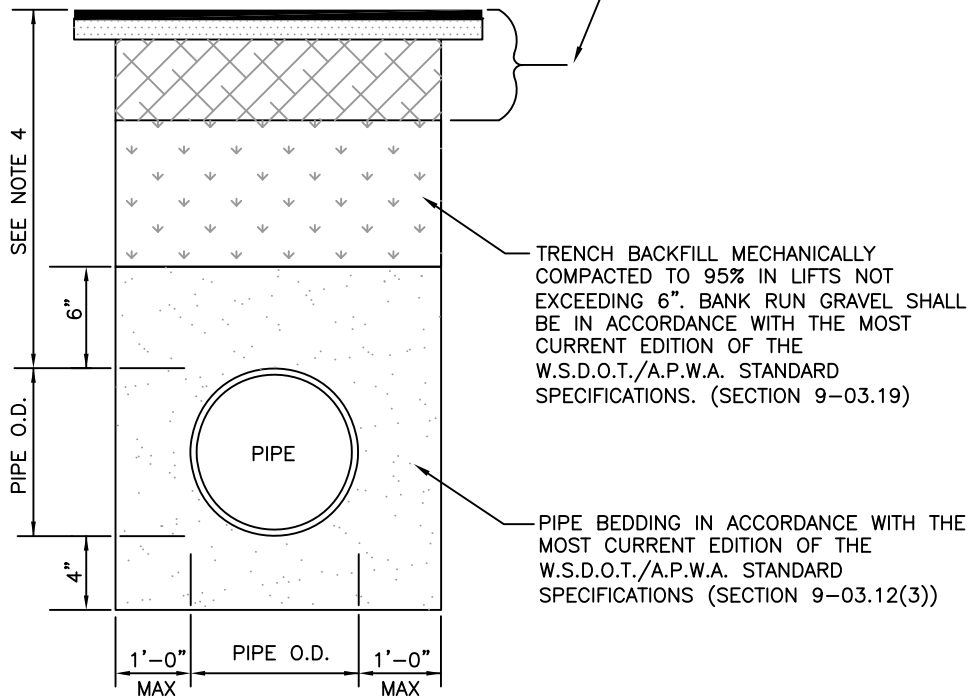
CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

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6	01/13	G.P.H.	T.W.C.
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STANDARD PLAN NO.

W-12

FOR THIS ZONE OF THE TRENCH SECTION, SEE CITY, COUNTY OR WSDOT STANDARD PLANS AND/OR PERMIT CONDITIONS. FOR NON-PAVED SURFACES, MATCH EXISTING GRAVEL OR SEEDED LAWN, OR REFER TO APPROVED DRAWINGS.



NOTE:

1. CLEAN NATIVE MATERIAL MAY BE USED AS PIPE BEDDING AND TRENCH BACKFILL AS APPROVED BY CITY OF VANCOUVER CONSTRUCTION INSPECTOR PER WSDOT SPECIFICATION (SECTION 9-03.12(3)).
2. CONTROL DENSITY FILL (CDF) MAY BE REQUIRED BASED ON THE LOCAL JURISDICTION'S STANDARDS.
3. OVERSIZE MATERIAL (4"+) SHALL NOT BE ALLOWED IN TRENCH.
4. PIPE DEPTH OF BURY MEASURED FROM TOP OF PIPE TO FINISH GRADE:
 36" FOR ALL PIPE 10" AND SMALLER
 48" FOR ALL PIPE DIAMETERS 12" AND LARGER

N.T.S.



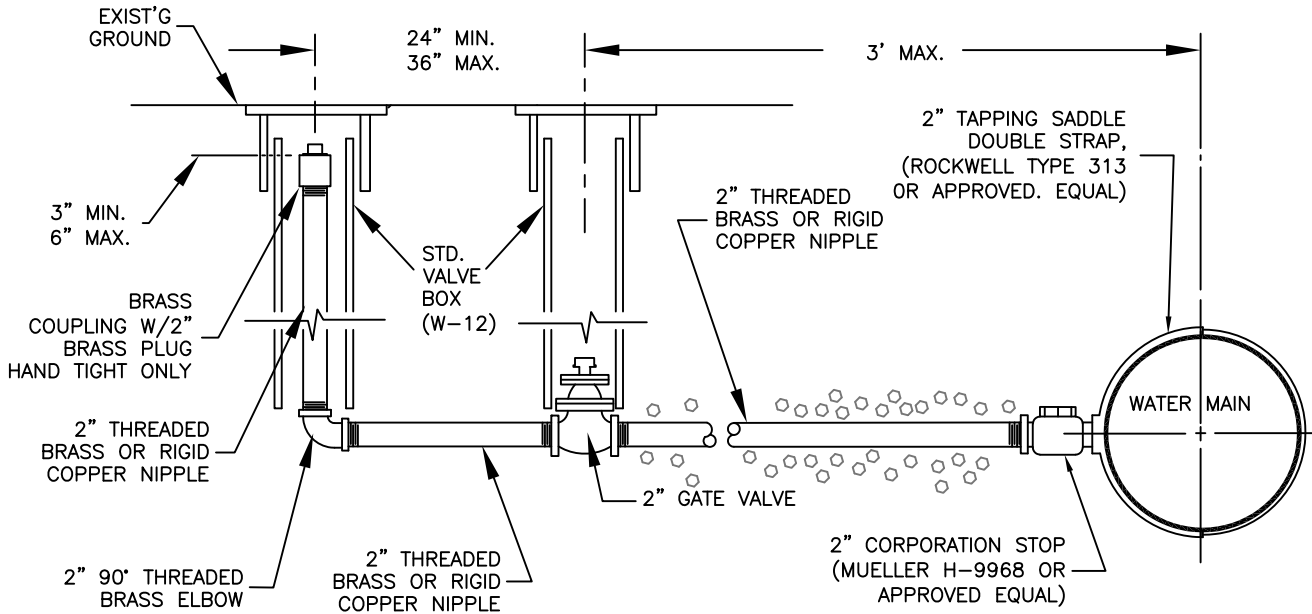
WATER PIPE TRENCH BEDDING & BACKFILL

CITY OF VANCOUVER
 DEPARTMENT OF PUBLIC WORKS
 WATER ENGINEERING

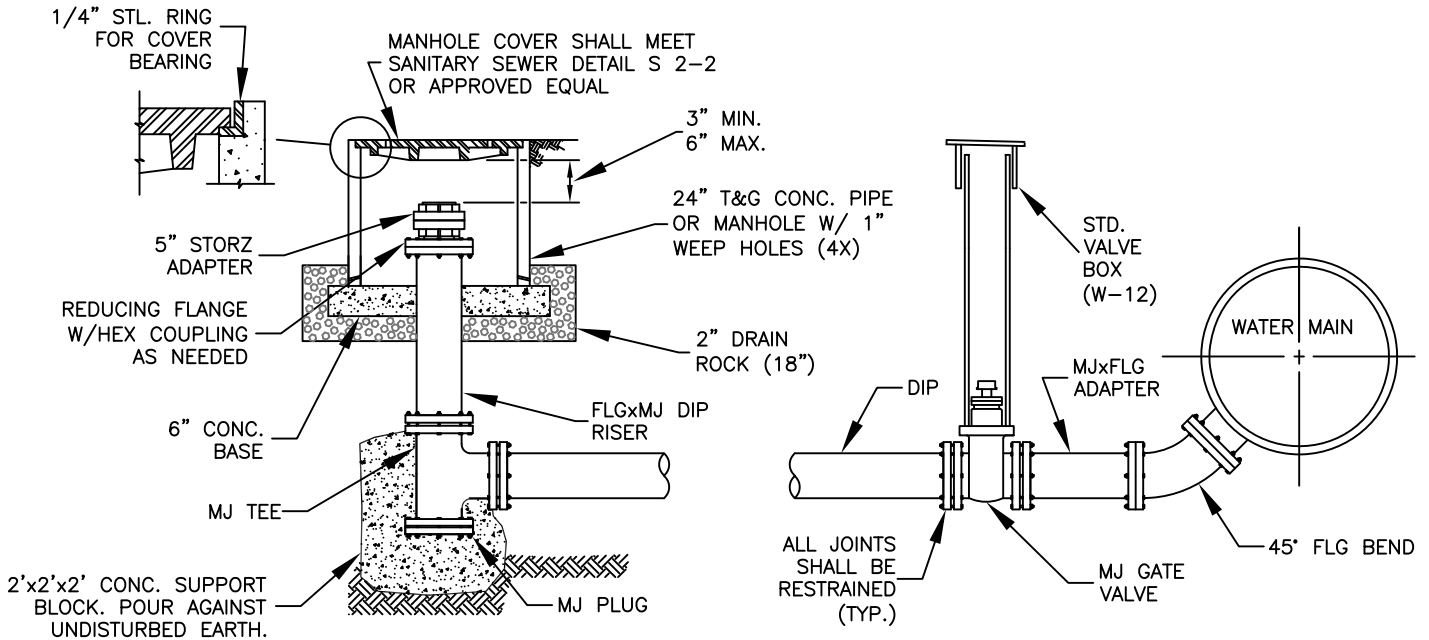
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STANDARD PLAN NO.

W-13



2" BLOWOFF ASS'Y



4" / 6" BLOWOFF ASS'Y

NOTES:

1. BLOWOFFS SHALL BE INSTALLED 1' FROM THE END OF THE MAIN.
2. (3/4-) GRAVEL SHALL BE USED AS BEDDING AND BACKFILL.
3. ALL PIPING UPSTREAM OF THE 2" GATE VALVE SHALL BE RIGID TYPE K COPPER OR BRASS
4. A 2'x2'x4" CONCRETE PAD SHALL BE INSTALLED IN UNIMPROVED AREAS.
5. IF THE BLOWOFF IS TO BE UTILIZED FOR CONSTRUCTION PURPOSES, THE BLOWOFF SHALL BE SIZED PER STANDARD DETAIL W-15.

TABLE "A"

MAIN DIAMETER	VALVE TYPE	BLOW-OFF DIAMETER
<12"	GATE	2" MINIMUM
12"-20"	BUTTERFLY	4" MINIMUM
>20"	BUTTERFLY	6" MINIMUM

N.T.S.



STANDARD BLOWOFF ASSEMBLY

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

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STANDARD PLAN NO.

W-14

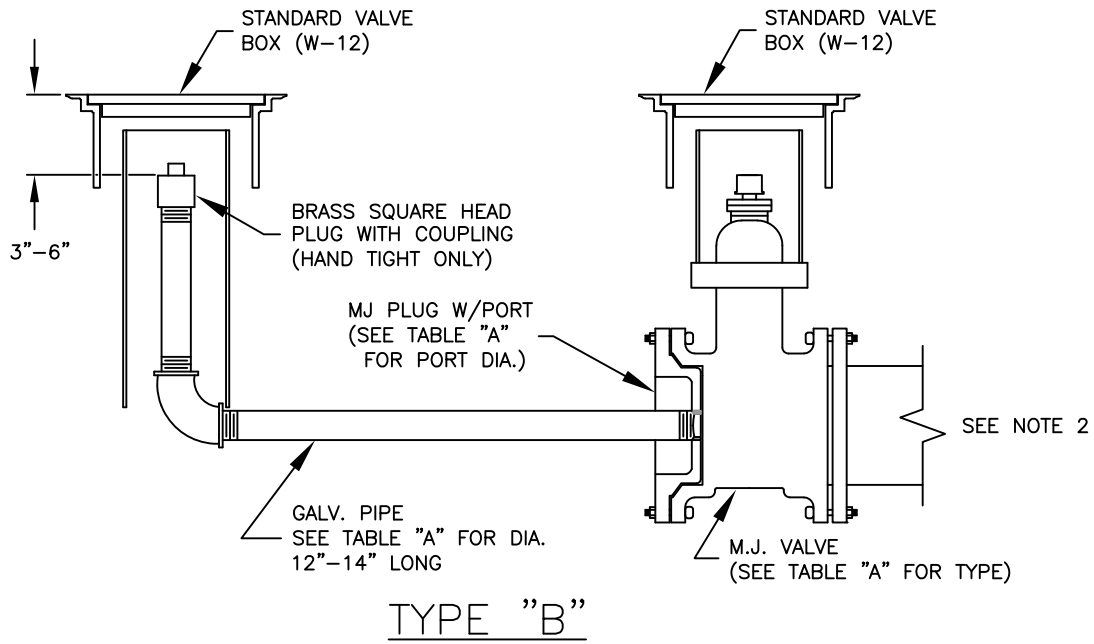
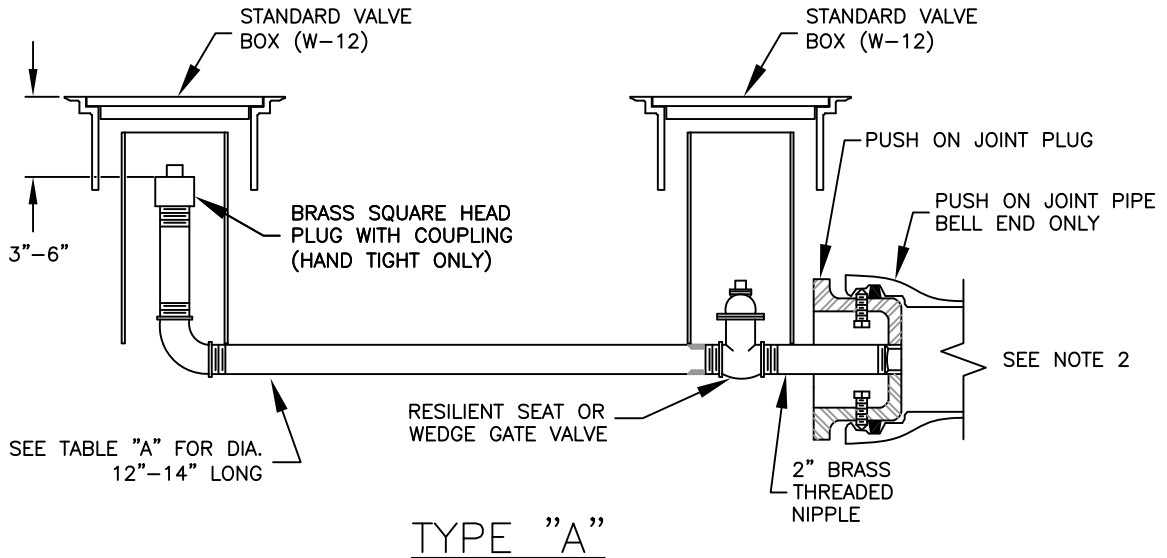


TABLE "A"

MAIN DIAMETER	4"-6"	8"	10"	12"	16"-20"	>20"
VALVE TYPE	GATE VALVE		BUTTERFLY VALVE			
BLOWOFF DIAMETER	2"	2.5"	3"	4"	6"	*8"

TABLE "B"

MAIN DIAMETER	4"	6"	8"	10"	12"	14"	16"	18"
RESTRAINT LENGTH	26'	38'	49'	60'	64'	74'	84'	93'

* ADDITIONAL AND/OR ALTERNATIVE MEASURES MAY BE REQUIRED TO MITIGATE WATER QUANTITIES

NOTES:

1. SIZE OF BLOWOFF DETERMINED BY SIZE OF MAIN
2. ALL JOINTS SHALL BE RESTRAINED UPSTREAM OF VALVE. SEE TABLE 'B' FOR MINIMUM RESTRAINT DISTANCES.
3. A SPOOL SHALL BE REQUIRED ON BUTTERFLY VALVE INSTALLATIONS DOWNSTREAM OF THE BUTTERFLY VALVE.
4. CIVIL PLANS SHALL CLEARLY INDICATE WHICH TYPE OF BLOWOFF IS TO BE INSTALLED AT EACH LOCATION.

N.T.S.



TEMPORARY BLOWOFF ASSEMBLIES

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
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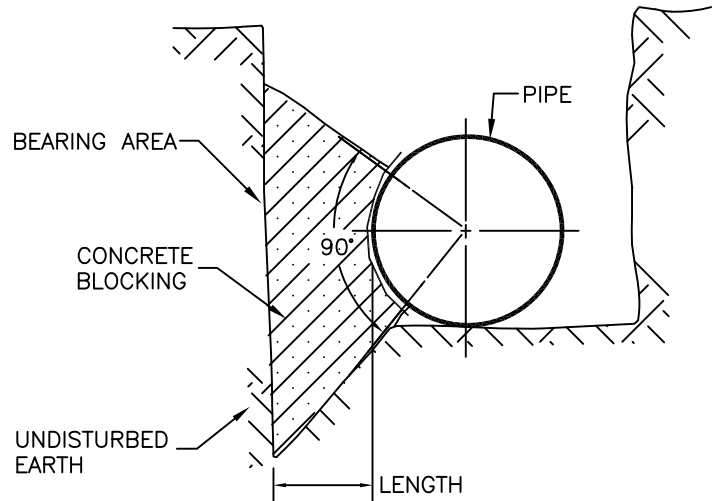
STANDARD PLAN NO.

W-15

SOIL BEARING = 2000 LB/S.F.				
PIPE SIZE	HORZ. BENDS	MIN. BEARING AREA S.F.	MIN. VOL. OF BLOCKING C.F.	MIN. LENGTH OF BLOCKING
4"	TEE	2.3	0.8	0.86
	90°	3.2	1.4	1.06
	45°	1.7	0.5	0.73
	22-1/2°	0.9	0.2	0.46
6"	TEE	4.7	2.4	1.24
	90°	6.6	4.0	1.53
	45°	3.6	1.6	1.05
	22-1/2°	1.8	0.6	0.66
8"	TEE	8.0	5.4	1.63
	90°	11.4	9.0	2.00
	45°	6.2	3.6	1.37
	22-1/2°	3.1	1.3	0.87
10"	TEE	12.1	9.9	2.00
	90°	17.1	16.7	2.46
	45°	9.3	6.6	1.69
	22-1/2°	4.7	2.4	1.08
12"	TEE	17.1	16.7	2.37
	90°	24.2	28.0	2.93
	45°	13.1	11.2	2.01
	22-1/2°	6.7	4.1	1.28
16"	TEE	23.8	27.3	2.73
	90°	33.6	46.0	3.37
	45°	18.2	18.3	2.29
	22-1/2°	9.3	6.7	1.42
18"	TEE	29.9	38.5	3.05
	90°	42.2	64.7	3.79
	45°	22.9	25.8	2.57
	22-1/2°	11.7	9.4	1.60
24"	TEE	52.3	89.1	4.03
	90°	74.0	149.8	5.00
	45°	40.0	59.7	3.55
	22-1/2°	20.4	21.7	2.11
	11-1/4°	10.3	7.7	1.18

NOTES:

1. ALL BLOCKING SHALL BE POURED AGAINST FIRM UNDISTURBED SOIL.
2. ALL CONCRETE BLOCKING SHALL BE POURED IN PLACE WITHOUT DIRECT CONTACT TO PIPE, FITTINGS OR FLANGES. 15 LB. ASPHALT-IMPREGNATED FELT, OR EQUIVALENT AS APPROVED BY THE INSPECTOR, SHALL BE PLACED BETWEEN THE CONCRETE AND PIPE, FITTINGS OR FLANGES.
3. LAYOUT TO BE APPROVED BY THE INSPECTOR PRIOR TO AND AFTER CONCRETE POUR.
4. CONCRETE FOR ALL BLOCKING SHALL HAVE A 28-DAY MINIMUM COMPRESSIVE STRENGTH OF 2,300 P.S.I.
5. THIS CHART IS NOT APPLICABLE TO VERTICAL BENDS. LOCATION SPECIFIC DESIGN IS REQUIRED FOR SUCH INSTALLATIONS.
6. WHERE THE TRENCH SOIL HAS A BEARING PRESSURE LESS THAN 2000 POUNDS PER SQUARE FOOT, LOCATION SPECIFIC DESIGN IS REQUIRED.
7. THRUST BLOCKS SHALL ONLY BE USED AT CONNECTIONS TO EXISTING WATER MAIN AND AT ALL "LIVE TAP" CONNECTIONS



N.T.S.



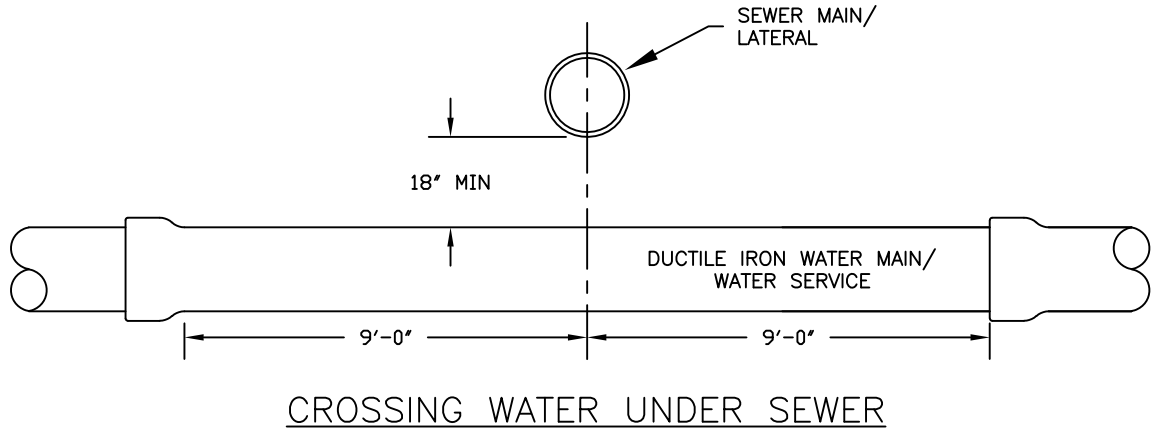
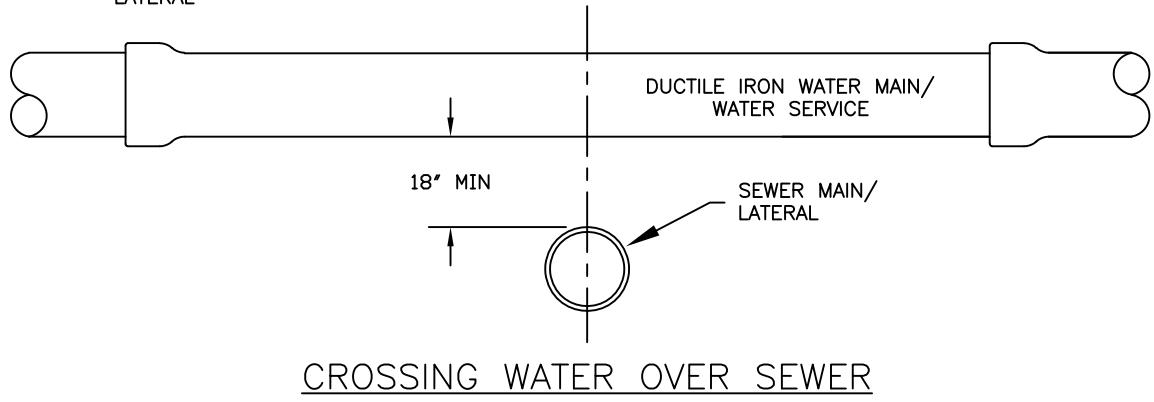
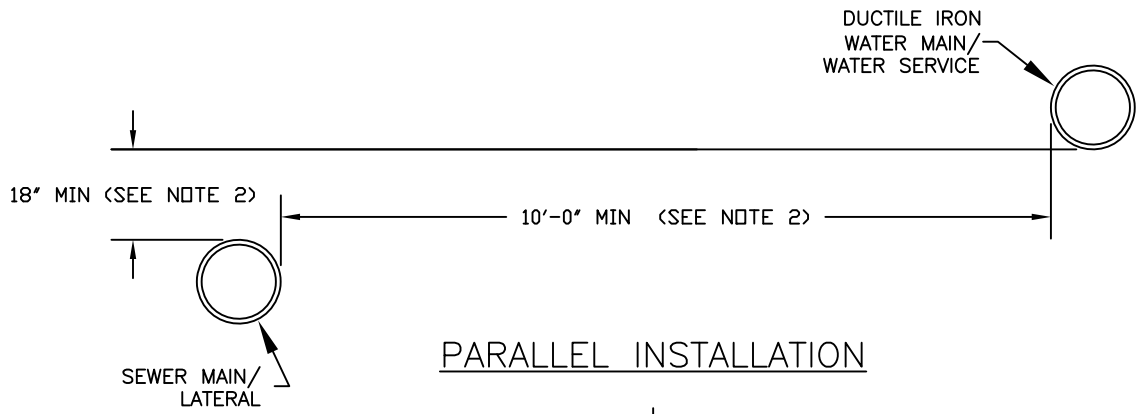
STANDARD THRUST BLOCK

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

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STANDARD PLAN NO.

W-16



NOTES:

1. EXCEPTIONS SHALL BE APPROVED BY THE CITY OF VANCOUVER IN WRITING.
2. WHERE MINIMUM CLEARANCES CANNOT BE MET, THE SEWER MAIN SHALL BE PLACED IN SEPARATE TRENCHES AND CONSTRUCTED OF MATERIALS EQUIVALENT TO THE CITY OF VANCOUVER WATER MAIN STANDARDS, INCLUDING PRESSURE TESTING. ADEQUATE RESTRAINT SHALL BE PROVIDED TO ALLOW TESTING TO OCCUR.
3. ALL SEWER CROSSINGS OVER OR UNDER WATER MAINS SHALL MAXIMIZE THE JOINT SEPARATION BY USING THE LONGEST STANDARD LENGTH PIPE AVAILABLE FROM THE MANUFACTURER FOR BOTH THE WATER AND SEWER MAINS. BOTH PIPES SHALL BE CENTERED AT THE POINT OF CROSSING.
4. ALL SEWER CROSSING OVER WATER MAINS SHALL BE CONSTRUCTED OF MATERIALS EQUIVALENT TO THE CITY OF VANCOUVER WATER MAIN STANDARDS, INCLUDING PRESSURE TESTING.
5. SPACING REQUIREMENTS SHALL ALSO APPLY TO SEWER LATERALS AND WATER SERVICES.

N.T.S.



WATER AND SEWER SPACING

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

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8	01/19	G.P.H.	T.W.C.

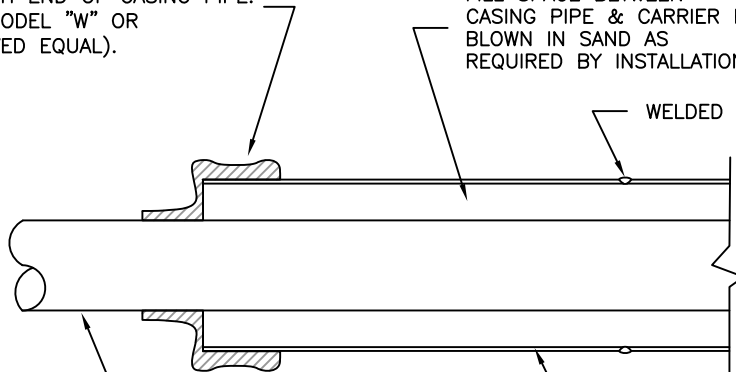
STANDARD PLAN NO.

W-17

INSTALL FLEXIBLE END SEAL
ON EACH END OF CASING PIPE.
(*PSI MODEL "W" OR
APPROVED EQUAL).

FILL SPACE BETWEEN
CASING PIPE & CARRIER PIPE WITH
BLOWN IN SAND AS
REQUIRED BY INSTALLATION PERMITS.

WELDED JOINT



(***)RESTRAINED JOINT
D.I. CARRIER PIPE

(**)STEEL CASING
ASTM A 139 GRADE B
MIN. WALL THICKNESS(**)

(**)SEE PLANS FOR CASING SIZE
AND MINIMUM WALL THICKNESS

(***)SEE PLANS FOR CARRIER PIPE
SIZE AND CLASS RATING

*Pipeline Seal and Insulator, Inc.

PVC COATED STEEL CASING SPACER
SEE SCHEDULE FOR SIZE
(*PSI MODEL C8G-2 OR APPROVED EQUAL)
3 PER 18' JOINT OF PIPE, EQUALLY SPACED

CASING SIZING REQUIREMENTS

CARRIER PIPE	MINIMUM CASING REQUIREMENTS	WALL THICKNESS
4"	16" A36 STEEL	3/8"
6"	16" A36 STEEL	3/8"
8"	24" A36 STEEL	3/8"
10"	24" A36 STEEL	3/8"
12"	24" A36 STEEL	3/8"
16"	36" A36 STEEL	5/8"
24"	48" A36 STEEL	5/8"

1. CASING TO BE EXTENDED 5' BEYOND ANY CURBS, WALLS, STRUCTURES OR FOOTINGS
2. PUBLIC AND PRIVATE MAINS SHALL BE PLACED IN SEPARATE CASINGS.
3. FOR CASINGS UNDER RAILROAD TRACKS, WRITTEN PERMISSION FROM THE OWNER OF THE RAILROAD TRACKS IS REQUIRED PRIOR TO OBTAINING CITY OF VANCOUVER PERMITS TO PROCEED.
4. NO OTHER UTILITIES SHALL BE ALLOWED IN CITY OF VANCOUVER CASINGS.

N.T.S.



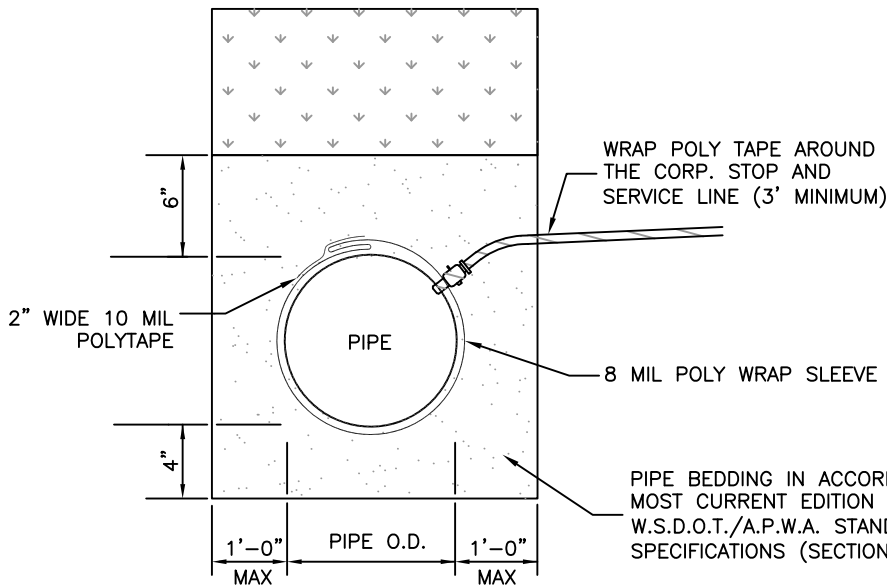
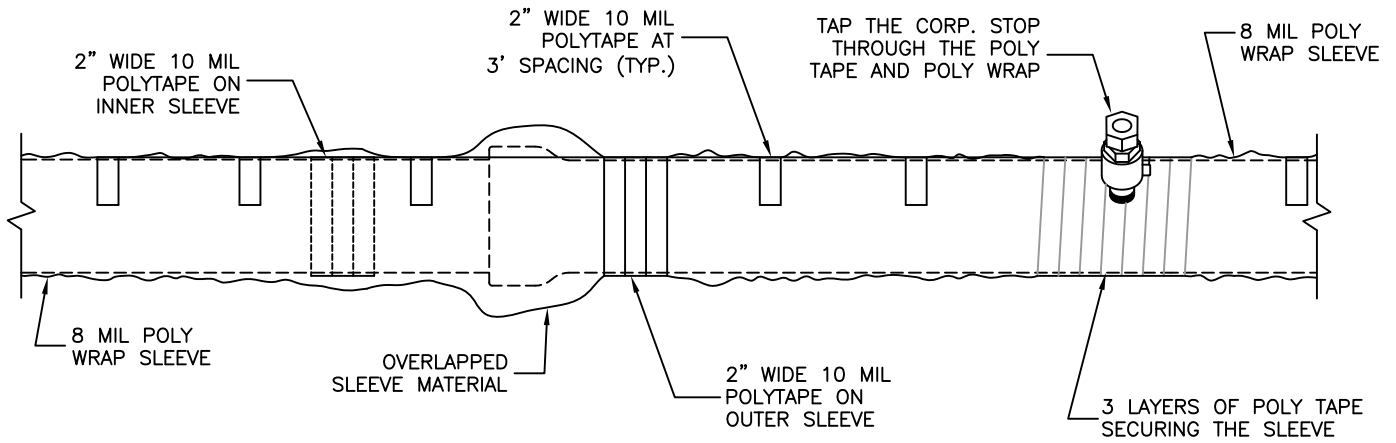
PIPE AND CASING DETAIL

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

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STANDARD PLAN NO.

W-18



PIPE DIAMETER (IN.)	POLYWRAP FLAT TUBE WIDTH (IN.)
4	16
6	20
8	24
12	30
16	37
24	53

NOTE:

1. ALL POLYWRAPPED MAIN SHALL CONFORM TO THE REQUIREMENTS OF AWWA C105.
2. ALL VALVES, FITTINGS, JOINTS, BOLTS SHALL BE WRAPPED WITH 8 MIL POLYWRAP AND SEALED WITH 2" POLY TAPE.
3. THE INNER POLY SLEEVE SHALL EXTEND 1' PAST THE BELL OR FITTING AND BE TAPED TO THE PIPE.
4. THE OUTER SLEEVE SHALL OVERLAP THE INNER SLEEVE BY 2'
5. EXCESS POLYWRAP TO BE FOLDED ON THE TOP OF THE PIPE AND SECURED WITH POLY TAPE AT 3' SPACING
6. APPLY POLY TAPE COMPLETELY AROUND THE PIPE FOR A WIDTH TO PROTECT THE POLY WRAP FROM THE TAPPING MACHINE
7. SEE CHART FOR MINIMUM WRAP SIZING

N.T.S.



STANDARD POLYETHYLENE PIPE WRAP

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

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3	01/19	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-19

W-20
RESERVED FOR
FUTURE DETAILS

N.T.S.



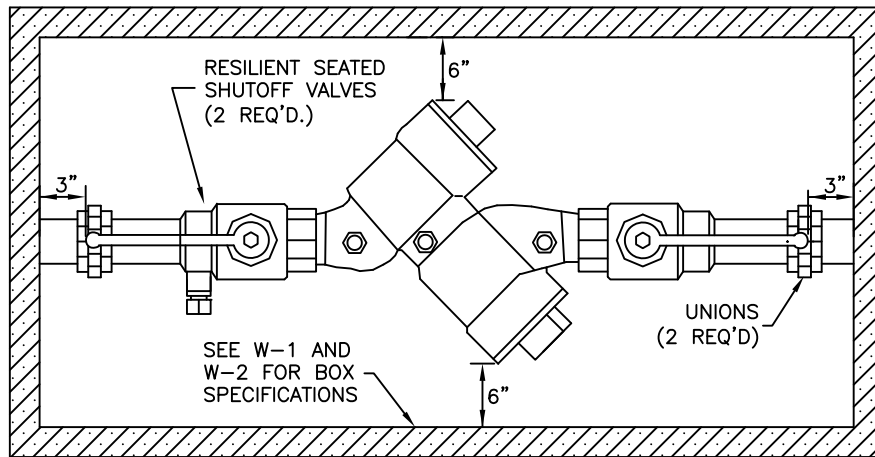
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WATER ENGINEERING

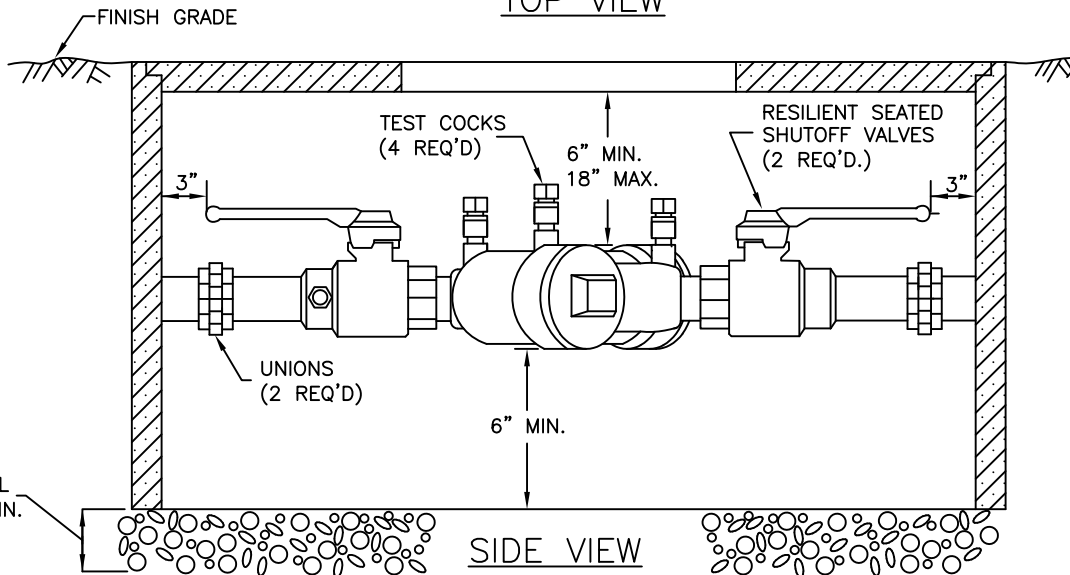
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STANDARD PLAN NO.

W-20



TOP VIEW



SIDE VIEW

NOTES:

1. APPROVED DOUBLE CHECK VALVE ASSEMBLY (DCVA) TO LAY HORIZONTAL WITH GROUND. (VERTICAL ALLOWED IF APPROVED BY WA. DEPT. OF HEALTH)
2. DCVA MAY BE INSTALLED ABOVE OR BELOW GROUND PROVIDED ALL CLEARANCES ARE MET.
3. DESIGN FOR BACK SIPHONAGE AND BACK PRESSURE.
4. TEST COCKS TO EITHER FACE OUTWARDS OR UPWARDS FROM ASSEMBLY.
5. THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACKFLOW PREVENTER.
6. DCVA SHALL NOT BE INSTALLED IN AN AREA SUBJECT TO FLOODING.
7. DCVA MUST BE ACCESSIBLE AND PROTECTED FROM FREEZING.
8. ALL INSTALLATIONS SHALL HAVE 2 UNIONS.
9. DCVA SHALL BE APPROVED BY THE STATE OF WASHINGTON
10. A PLUMBING PERMIT IS REQUIRED—CONTACT THE APPROPRIATE JURISDICTION'S PERMITS COUNTER
11. DCVA MUST BE TESTED WITHIN 30 DAYS AFTER INSTALLATION, RELOCATION OR REPAIR, THEN ANNUALLY BY A WA. STATE CERTIFIED BACKFLOW TESTER. RESULTS SHALL BE SENT TO THE CITY WATER QUALITY GROUP.

N.T.S.



STANDARD DOUBLE CHECK VALVE ASSEMBLY 2" AND SMALLER

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

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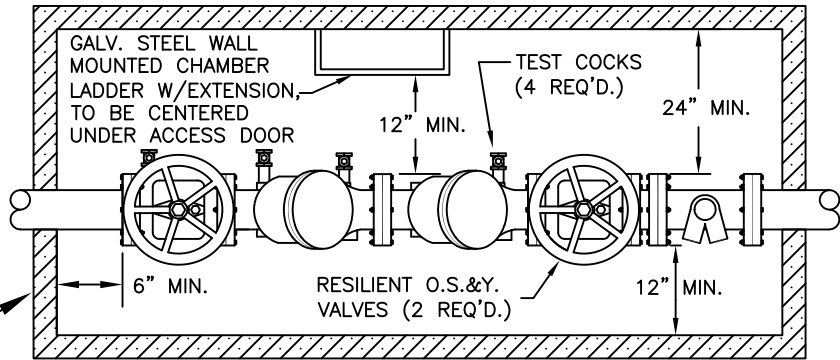
STANDARD PLAN NO.

W-21

UTILITY VAULT SIZING CHART
(OR APPROVED EQUAL)

PIPE DEPTH UP TO	DCVA SIZE	FDC TEE INSIDE VAULT	FDC TEE OUTSIDE VAULT
4'	4"	675-WA W/2-332P	575-WA W/2
6'	4"	676-WA	577-WA
4'	6"	687-WA	675-WA W/2
6'	6"		676-WA
6'	8"	5106-WA	687-WA
6'	10"	5106-WA	5106-WA

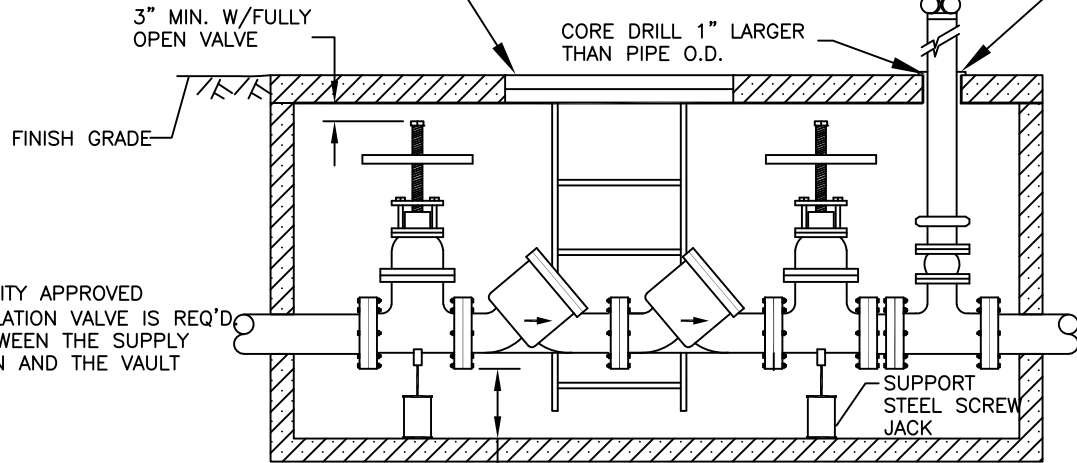
PRE-CAST CONC.
VAULT H-20 LOADING
LID W/LADDER



TOP VIEW

VAULT SHALL BE EQUIPPED W/36"x36"
SPRING ASSISTED, HOT DIPPED GALV.
DIAMOND PLATE DOOR.
UTILITY VAULT #332P

PUMPER CONNECTION (FDC) MAY
BE INSTALLED THROUGH VAULT
LID (AS SHOWN), SIDE WALL OR
DOWNSTREAM OF VAULT, DEPENDING
UPON SITE LOCATION



SIDE VIEW

NOTES:

1. THE DCVA MAY BE INSTALLED ABOVE OR BELOW GROUND PROVIDED ALL CLEARANCES ARE MET.
2. APPROVED DCVA TO LAY HORIZONTAL WITH THE GROUND. (VERTICAL IF APPROVED BY DEPT. OF HEALTH)
3. DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE.
4. THE WATER LINE SHALL BE DISINFECTED, FLUSHED AND PRESSURE TESTED PRIOR TO INSTALLING THE BACKFLOW ASSEMBLY. THE DCVA SHALL BE PROTECTED FROM FREEZING AND FLOODING.
5. ALL PIPE, VALVE AND FITTING JOINTS, FROM SUPPLY MAIN, SHALL BE FLANGED OR RESTRAINED.
6. ALL VAULTS SHALL BE PRE-APPROVED PRIOR TO INSTALLATION.
7. DCVA SHALL BE INSTALLED AT THE PROPERTY LINE OR EASEMENT LINE AND ON OWNER'S PROPERTY.
8. DCVA SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL STRUCTURES.
9. DCVA MUST BE TESTED WITHIN 30 DAYS AFTER INSTALLATION, RELOCATION OR REPAIR, THEN ANNUALLY BY A WA. STATE CERTIFIED BACKFLOW TESTER. RESULTS SHALL BE SENT TO THE CITY WATER QUALITY GROUP.
10. GROUT PIPE ENTRANCE AND EXIT, IN VAULT, WITH WATERTIGHT GROUT.

N.T.S.



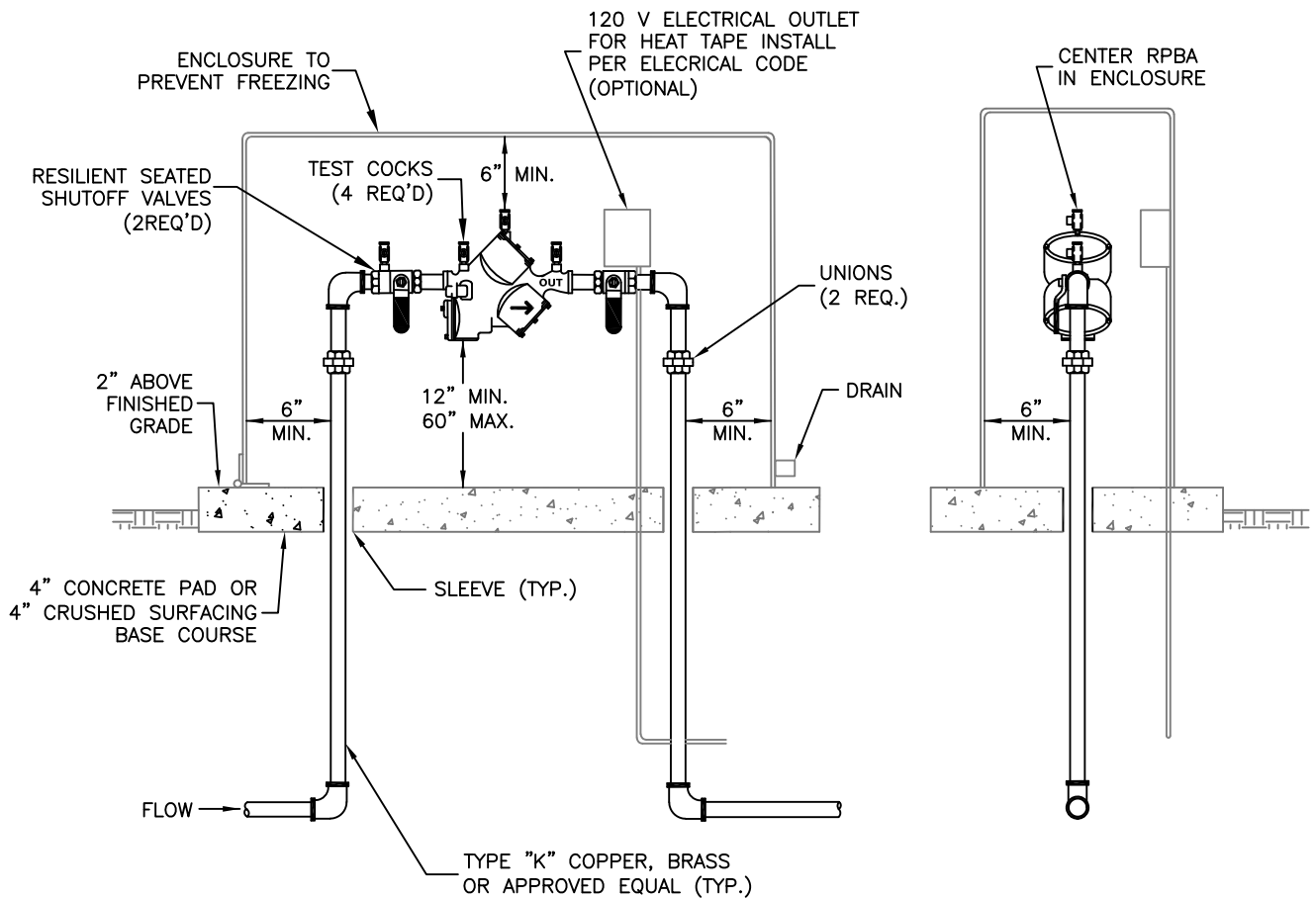
STANDARD DOUBLE CHECK VALVE ASSEMBLY-2 1/2" & LARGER

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

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10	01/19	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-22



NOTES:

1. A REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) SHALL ONLY BE INSTALLED IN THE ORIENTATION (VERTICAL OR HORIZONTAL) FOR WHICH THEY ARE APPROVED.
2. THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACKFLOW PREVENTER.
3. DO NOT INSTALL IN A PIT, TRENCH OR AN AREA SUBJECT TO FLOODING.
4. RPBA MUST BE ACCESSIBLE.
5. PROTECT RPBA FROM FREEZING.
6. A PLUMBING PERMIT IS REQUIRED—CONTACT THE APPROPRIATE JURISDICTION'S PERMITS COUNTER
9. RPBA MUST BE TESTED WITHIN 30 DAYS AFTER INSTALLATION, RELOCATION OR REPAIR, THEN ANNUALLY BY A WA. STATE CERTIFIED BACKFLOW TESTER. RESULTS SHALL BE SENT TO THE CITY WATER QUALITY GROUP.
10. RPBA SHALL BE APPROVED BY THE STATE OF WASHINGTON.
11. DRAIN SHALL BE SIZED PER THE AWWA CROSS CONNECTION CONTROL MANUAL

(ABOVE GROUND INSTALLATION ONLY)

N.T.S.

**STANDARD REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY
2" & SMALLER**

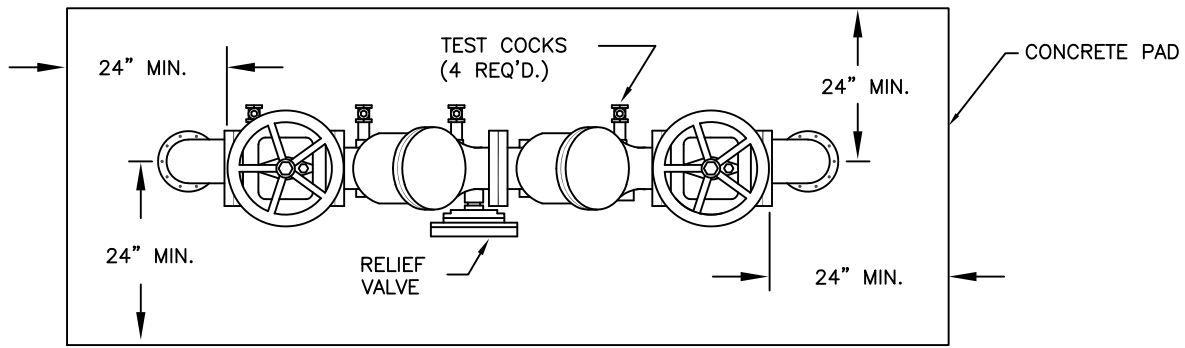
STANDARD PLAN NO.



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WATER ENGINEERING

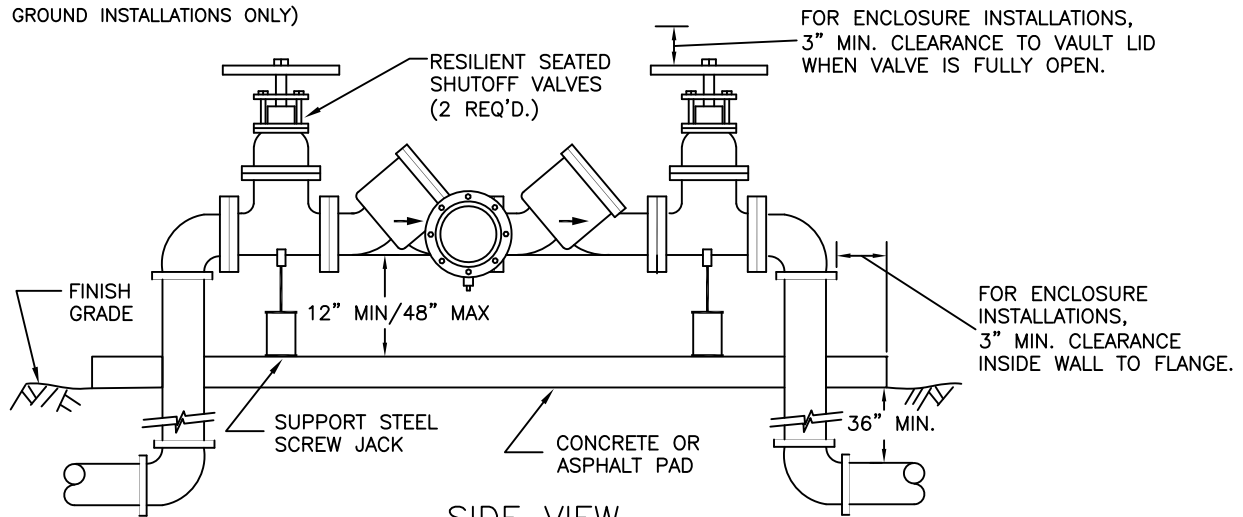
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9	01/19	G.P.H.	T.W.C.

W-23



TOP VIEW

(ABOVE GROUND INSTALLATIONS ONLY)



SIDE VIEW

NOTE:
A CITY APPROVED VALVE IS REQ'D. BETWEEN THE SUPPLY MAIN AND THE R.P.B.A.

NOTE:
PROVIDE HEAT AND/OR INSULATION

NOTES:

1. A REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) SHALL ONLY BE INSTALLED IN THE ORIENTATION (VERTICAL OR HORIZONTAL) FOR WHICH THEY ARE APPROVED.
2. DO NOT INSTALL IN A PIT, TRENCH OR AN AREA SUBJECT TO FLOODING.
3. THE WATER LINE SHALL BE DISINFECTED, FLUSHED AND PRESSURE TESTED PRIOR TO INSTALLING THE RPBA.
4. ALL UNDERGROUND PIPE, VALVES AND FITTING JOINTS SHALL BE RESTRAINED FROM THE SUPPLY MAIN. ALL ABOVE GROUND JOINTS SHALL BE FLANGED.
5. GROUT PIPE ENTRANCE AND EXIT IN VAULT, WITH WATERTIGHT GROUT.
6. ALL ENCLOSURES SHALL BE PRE-APPROVED PRIOR TO INSTALLATION.
7. RPBA SHALL BE INSTALLED AT PROPERTY LINE OR EASEMENT LINE AND ON OWNER'S PROPERTY.
8. ADEQUATE GRAVITY DRAINAGE SYSTEM REQUIRED WITH APPROVED AIR GAP.
9. MINIMUM 24" CLEARANCE ON ALL SIDES AROUND RPBA.
10. RPBA MUST BE TESTED WITHIN 30 DAYS AFTER INSTALLATION, RELOCATION OR REPAIR, THEN ANNUALLY BY A WA. STATE CERTIFIED BACKFLOW TESTER. RESULTS SHALL BE SENT TO THE CITY WATER QUALITY GROUP.
12. HEAT AND/OR INSULATION SHALL BE PROVIDED TO PREVENT FREEZING.

N.T.S.



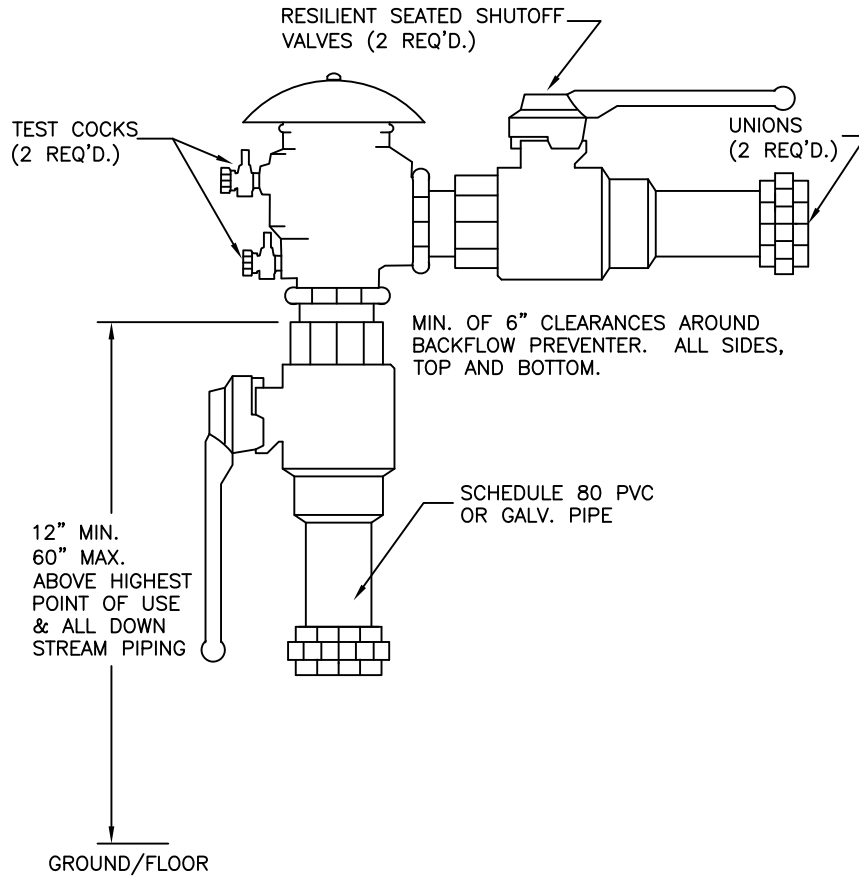
**STANDARD REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY
2 1/2" & LARGER**

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
7	01/13	G.P.H.	T.W.C.
8	01/15	G.P.H.	T.W.C.
9	01/17	G.P.H.	T.W.C.
10	01/19	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-24



NOTE:

1. APPROVED PRESSURE VACUUM BREAKER ASSEMBLY, (PVBA), MUST BE INSTALLED VERTICALLY, 12" MIN. – 60" MAX. ABOVE THE HIGHEST POINT OF USE AND ALL DOWNSTREAM PIPING.
2. DESIGNED FOR BACK SIPHONAGE ONLY, NOT BACK PRESSURE.
3. THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACKFLOW PREVENTER.
4. IF A PVBA IS INSTALLED INDOORS, CONSIDERATION MUST BE GIVEN TO THE WATER LEAKAGE IF BACKFLOW PREVENTER FAILS. (EXCESSIVE WATER SPILLAGE)
5. DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
6. UNIT MUST BE PROTECTED FROM FREEZING CONDITIONS.
7. THE BACKFLOW ASSEMBLY SHALL BE A STATE APPROVED MODEL.
8. A PLUMBING PERMIT IS REQ'D. – PLEASE CONTACT YOUR LOCAL PLUMBING PERMIT CENTER.
9. MUST BE TESTED AFTER INSTALLATION AND YEARLY THEREAFTER BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST RESULTS SHALL BE SENT TO THE CITY OF VANCOUVER WATER QUALITY SERVICES.
10. PVBA SHALL BE APPROVED BY THE STATE OF WASHINGTON.

(ABOVE GROUND INSTALLATION ONLY)

N.T.S.



STANDARD PRESSURE VACUUM BREAKER ASSEMBLY 2" & SMALLER

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
6	01/13	G.P.H.	T.W.C.
7	01/15	G.P.H.	T.W.C.
8	01/17	G.P.H.	T.W.C.
9	01/19	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-25

All reduced pressure and backflow devices shall be WA State approved, per WAC 246-290. Fire sprinkler and irrigation systems shall be protected with State approved backflow protection as prescribed in WAC 246-290.

All commercial, industrial and multi-family facilities shall be protected with Washington State approved backflow protection.

If chemicals are added to the Fire Protection System, a reduced pressure principle backflow preventer is required.

An approved air gap or reduced pressure backflow assembly is required for all service connections and fire protection systems on a site with access to unapproved auxiliary water supplies connected to a piping system whether or not an interconnection exists between the unapproved auxiliary water supply and City water system.

Where a vault is required, a galv. steel wall mounted chamber ladder w/extensions is required and shall be centered under the access door.

Double check assemblies shall be installed in an approved vault.

Reduced pressure assemblies shall be installed outside above ground.

All backflow devices shall be protected from freezing.

Backflow prevention assembly vaults (i.e.: fire and service protection) must be installed at the customer's side of the easement or property line. Alternate locations must be requested in writing and approved by City of Vancouver Water Quality Services prior to installation.

No part of the backflow prevention assembly shall be submerged in water or installed in a location subject to flooding. If a backflow prevention assembly is installed in a vault or basement, adequate drainage shall be provided.

All fire protection services shall have a iron body gate valve at the public main and shall be private after that valve.

All fire protection services shall be constructed to City of Vancouver public main material and restraint standards up to the backflow device.

Atmospheric Vacuum Breakers are not an acceptable form of backflow protection.

All Backflow prevention devices must be tested within 30 days after installation, relocation or repair, then yearly thereafter by a certified backflow assembly tester. Test results shall be sent to the City of Vancouver Water Quality Group.

Mail test results to:

Operations Center - Water Quality Services
 City of Vancouver
 P.O. Box 1995
 Vancouver, WA. 98668
 Email: backflowtestreports@cityofvancouver.us

Fax# (360) 487-8236



GENERAL BACKFLOW NOTES

CITY OF VANCOUVER
 DEPARTMENT OF PUBLIC WORKS
 WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
5	01/13	G.P.H.	T.W.C.
6	01/15	G.P.H.	T.W.C.
7	01/17	G.P.H.	T.W.C.
8	01/19	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-26