

# CITY OF COQUITLAM

## **WATER METER SPECIFICATIONS**

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**July, 2015**

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1. **Preamble**

The following specifications detail the City's requirements for the installation of meters on City water service connections.

An applicant is responsible for the supply and installation of meters and associated piping, chambers and equipment on metered water service connections. The City must accept the installation prior to activation of the service.

The specifications identifies acceptable meter types, location and installation requirements.

2. **Definitions**

**ANSI:** American National Standards Institute.

**ASTM:** American Society for Testing and Materials.

**AWWA:** American Water Works Association

**Activation:** Opening of the service valve to permit the flow of water.

**Applicant:** A person, company or agency that makes application for a water service connection from the City water system as required by the City's Water Distribution Bylaw 2973.

**Engineer:** A professional engineer registered in the province of British Columbia practicing in the field of Civil or Mechanical Engineering.

**FM:** Factory Mutual Engineering and Research Organization, a research and testing agency accepted by the Insurance Industry.

**NSF:** NSF International

**ULC:** Underwriters' Laboratories of Canada, a research and testing agency accepted by the Insurance Industry.

**Water Distribution Bylaw:** Refers to the City of Coquitlam Water Distribution Bylaw 2973 as amended.

3. **Services to be Metered**

The Water Distribution Bylaw identifies service connections that require meters. This includes but is not limited to all property intended for commercial, industrial, institutional, agricultural, and public.

All service connections to such properties including fire and domestic services shall have meters.

4. **Location of Meters**

Meters shall be placed at the interface between the City and private water system. In most circumstances the interface occurs at the property line of the site. The meter and meter chamber shall be located entirely on private property unless approved otherwise by the City.

Where a City water main is within private property in a right-of-way, place the meter at the right-of-way boundary line.

Where possible locate meters in landscaped areas. If unavoidable meters may be placed in pedestrian areas or parking stalls. If meter is placed in a parking stall the pit-pad should be placed in a smaller box where it may be easily accessed. Meters must not be located in driveways or roadways.

Vaults and chambers should be placed in proximity to the site drainage system to permit installation of a gravity drain.

5. **Meter Types**

There are three types of cold-water meters accepted for use by the City. These are displacement, turbine and compound types.

The actual meter or combination of meters accepted for use must accurately account for the total water use of the property serviced. All meters must be new. Used or reconditioned meters are not acceptable.

**Displacement** meters are to be either nutating disk or oscillating piston type to AWWA C-700. Meters are to have a lead free bronze (NSF/ANSI 61, Annex G and Annex F) case with cast iron or plastic frost protection cover. Meters 38mm and 50mm in size are to have oval two bolt flanged ends.

Acceptable displacement type meters are:

- Sensus SR11
- Neptune T-10

**Turbine** meters are to conform to the AWWA C-701 class II. All turbine meters are to have lead free bronze (NSF/ANSI 61, Annex G and Annex F), stainless steel or ductile iron with epoxy coating cases with flanged connections. 38mm and 50 mm sizes are to have oval two bolt flanges. Meters are to have horizontal turbines.

Acceptable turbine type meters are:

- Sensus OMNI R<sup>2</sup>, T<sup>2</sup>
- Neptune HP

**Compound** meters are to conform to AWWA C-702. All compound meters are to have lead free bronze (NSF/ANSI 61, Annex G and Annex F), stainless steel or ductile iron with epoxy coating cases with flanged connections. Meters 50mm in diameter are to have oval two bolt flanges.

Acceptable compound meters are:

- Sensus OMNI C<sup>2</sup>
- Neptune TRU/FLO

## 6. Registers

All meters are to have direct reading, sealed absolute encoder registers. The unit of measure shall be cubic meters. Registers must be new. Used or reconditioned registers are not acceptable. All registers shall be programmed to read all digits left of the decimal place (minimum 5 digits).

Registers shall have an antenna that will allow remote electronic reading of the meter with a portable data acquisition unit. The antenna shall be designed for mounting in the meter chamber lid.

Acceptable encoder registers for indoor use are:

- Sensus Electronic Register ECR, 3 wire with Neptune R900, V4 wall meter interface unit (MIU)
- Neptune E-Coder / R900i, V4 inside version

Acceptable encoder registers for pit installations are:

- Sensus Electronic Register ECR WP (waterproof), 3 wire with Neptune R900, V4 pit MIU and pit lid antenna
- Neptune E-Coder / R900i, V4 pit version and pit lid antenna (wire length to suit)

NOTE: If a customer has a meter located outside and it is not easily read, a second register display spliced into the existing register and run to a more accessible location at the customer's expense.

## 7. Meter Selection

The type or combination of types of meters to be used for recording water consumption from a service connection must accurately record consumption over the expected range of flow. The size selected shall ensure pressure losses are within acceptable limits and provide long meter life.

The following table provides a guide for acceptable meter types and sizes for a range of uses and flows.

WATER USE	LAND USE	SIZE		ACCEPTABLE METER TYPE	FLOW RATES (l/sec)		
		mm	in		Operating Range	Normal Continuous Flow	Maximum Flow
Domestic	Commercial	16	5/8	Displacement	0.032-1.26	0.63	1.26
	Institutional	19	3/4	Displacement	0.047-1.89	0.95	1.89
	Industrial	25	1	Displacement	0.063-3.15	1.58	3.15
		38	1 1/2	Displacement*	0.126-6.31	3.15	6.31
		50	2	Displacement*	0.158-10.09	5.05	10.09
		75	3	Compound	0.032-28.39	10.09	28.39
		100	4	Compound	0.063-63.09	15.77	63.09
		150	6	Compound	0.095-126.2	31.55	126.2
Irrigation/ Bulk Water Use	Agricultural	38	1 1/2	Turbine	0.032-10.09	6.31	10.09
	Golf Courses	50	2	Turbine	0.032-10.09	6.31	10.09
	Parks	75	3	Turbine	0.158-31.55	15.14	31.55
	Some Industrial Uses	100	4	Turbine	0.189-63.09	26.5	63.09
		150	6	Turbine	0.252-126.18	58.04	126.18
		200	8	Turbine	0.316-220.82	100.95	220.82

\* acceptable meter types are displacement or approved equal

Conversion Factors: l/sec to USGPM multiply by 15.850  
L/sec to IGPM multiply by 13.198

Individual turbine meters are acceptable only in applications involving continuous high flows such as dedicated irrigation systems or some industrial processes. Use of turbine meters requires approval by the City.

#### **8. Dedicated Fire Services**

Fire service connections are to be metered to detect unauthorized use. Provide all fire services with a double detector check valve in combination with an appropriately sized "tattle tail" displacement type meter and double check valve on a bypass. Install tattle tail meters in accordance with these specifications.

#### **9. Combined Fire Domestic Services**

All new water service connections to the municipal water system shall have a separate fire line and domestic service pipe, unless approved otherwise by the City.

Where the City approves the use of a combined domestic and fire service, an FM approved ULC listed compound meter assembly shall be provided to measure all flows. The compound meter assembly shall include a strainer, check valve, turbine meter and a smaller domestic meter on a bypass. The meter set

shall be factory assembled. Acceptable preassembled meter sets are Neptune HP Protectus III, and Sensus OMNI F<sup>2</sup> (FireLine) with check valve and smaller domestic meter on a bypass.

**10. Installation Requirements**

Installation requirements are summarized on the following table and illustrated on the appended typical drawings.

Size mm	Type	By Pass*		Strainer Required	Strainer Type	Chamber		
		Required	Size			Type	Size mm	Model
16x19	Displacement	No	-	No	-	Meter Box	300x500	Brooks 37
19-25	Displacement	No	-	No	-	Meter Box	425x750	Brooks 66
38-50	Displacement	Yes	25 mm	No	-	Meter Box	560x860	AEC 5686
75	Compound	Yes	50 mm	Yes	Straight	Vault	1200x2000	AEC 2121
100	Compound	Yes	50 mm	Yes	Straight	Vault	3260x1760	AEC 3151
150	Compound	Yes	50 mm	Yes	Straight	Vault	3260x1760	AEC 3151
150	Combined	Yes	50m m	Yes	FM/UL	Vault	3260x1760	AEC 3151
100-150	Detector Check	No	-	No	-	Vault	1200x2000	AEC 2121
200	Detector Check	No	-	No	-	Vault	3260x1760	AEC 3151

\* A bypass is not required for dedicated irrigation meters.

The applicant's engineer must design installations for meters not shown on the above table

**Installation and Piping Requirements:**

Install meters horizontally with register casings plumb, facing upward. Where installed in a meter box, center meter in box.

All connecting piping, valves and fittings shall be equal to the diameter of the meter for a distance of at least 5 pipe diameters up and down stream of the meter.

Where required, install strainers immediately upstream of the meter using a flanged connection. Strainers shall be of the same manufacture and size as the meter.

Provide isolation valves upstream and downstream of the meter to allow removal of meter and strainer cases. Install one valve on bypasses. Provide a lock wing on the operating nut of bypass valves 50mm and smaller.

For all compound and turbine meter installations provide a straight section of horizontal pipe, 5 pipe diameters in length, between the strainer and the upstream isolating valve. Do not install elbows, bends, non-concentric reducers, check valves, backflow preventors and/or PRV's within 10 pipe diameters upstream of 5 pipe diameters downstream of a meter.

Provide a test point for all meters 75mm in diameter and greater. In the absence of a test plug on the meter case, install a testing tee with a 50mm diameter threaded nipple and cap between the meter and the downstream isolating valve.

For meters 75mm in diameter and larger provide a mechanical flange adapter on the downstream side of the meter to provide flexibility for meter and strainer case removal.

Support all meters, valves and bypasses within chambers with adjustable pipe stands. Bricks, concrete or wood blocking are not acceptable means of support.

Vaults and chambers require drain connection to a storm drainage system. Where a gravity connection to the storm system is not available, the city may approve one of the following options:

- Installation of a electric sump pump
- Installation of a rock pit. A Professional Engineer specializing in geotechnical design must design rock pits
- Installation of a hydraulic sump ejector assembly.

**Antenna Installation:**

One antenna shall be installed for each register. In non-traffic areas mount antenna in the chamber lid in accordance with the manufacturer's instructions. Where the lid is in a traffic area, mount the antenna in an adjacent Brooks 37 Box as shown on Drawing WM 7. Remote wiring connections shall be either factory or field sealed to ensure connections are water proof. Field seals shall be in accordance with the manufacturer's instructions.

**11. Materials**

**Pipe**

**Copper Pipe:** Copper pipe to be Certified Type K soft copper to ASTM B 88m.

All copper tubing joints are to be compression type or Victualic. Acceptable compression fittings are McDonald "T", James Jones "Super Grip", Ford "Quick Joint" or Mueller "110". Soldered joints are not permitted

**Red Brass Pipe:** Red Brass pipe to meet AWWA C-800.

Red brass joints to be threaded to ANSI B1.20.1.

**Steel Pipe:** Steel pipe is to meet AWWA C-200, electrically welded. Steel to ASTM A36. Epoxy coat the interior and exterior of all steel pipe and fabrications to AWWA C-210 or AWWA C-213.



Steel pipe joints are to be flanged to AWWA C-208 or made with mechanical couplers, mechanical flange adapters, and "Uniflange" or "EZ Flange" style adapters.

**Stainless Steel Pipe:** Stainless steel pipe is to be Schedule 10S, dual certified 304 series stainless steel.

Grooved ends to be roll grooved per Victaulic Standard Groove specifications.

### **Fittings**

**Brass:** Brass fittings to 75mm to meet AWWA C-800. All fitting joints to be compression type, threaded to ANSI B1.20.1, flanged or Victaulic. Acceptable compression fittings are specified in the latest edition of the City's MMCD supplemental specifications and approved products list.

**Steel:** Steel fittings are acceptable in sizes 75mm and larger. Fabricated steel fittings to meet AWWA C-208 and AWWA C-207. Epoxy coat steel fittings to AWWA 210 or AWWA-213. All fitting connections shall be shop welded, flanged or Victaulic. Flange dimensions and drilling are to be ANSI B16.1

**Stainless Steel:** Welded stainless steel fittings to be Class 150 weld-neck or slip-on type with continuous weld.

All grooved fittings to be Schedule 10S, 304 series stainless steel. Couplings to be Victaulic Style 489.

### **Valves**

All valves are to be suitable for buried service.

Valves on domestic service connections up to 50mm in diameter shall be bronze ball or cylinder corporation style valves meeting AWWA C-800. Valves shall have rubber o-ring seals. Connections shall be threaded, compression type or flanged. Actuation is to be by a tee-head style operating nut. Provide a lock wing on the tee-head and case for all bypass valves (locking mechanisms on levers are not acceptable).

Valves on domestic service connections 75mm to 250mm in diameter are to be cast iron, resilient seat, NRS gate valves to AWWA C-509 with flanged ends. Stem seal to be o-ring type. Actuation of buried valves or valves in vaults shall be by a standard 50mm square operating nut. Valves within man entry chambers shall be operated by hand wheel. Provide a Nelson style valve box over buried valves.

Fire service valves within vaults or chambers shall be resilient seat, OS&Y gate valves to AWWA 509.

### **Detector Check Valves**

Double detector check valves are to comply with AWWA C-510. Detector check valves for fire service use must be FM approved and ULC listed.

### **Flange Adapters**

Mechanical Flange adapters for 50mm to 200mm sizes shall be to AWWA C219.

Connections between flanged fittings and steel piping may be made with “Uni-flange” or “EZ-flange” adapters.

### **Bolts and Nuts**

Bolts and nuts are to be stainless steel to ASTM F-593 and F-594. Rolled threads, fit and dimension to AWWA C-111.

### **Meter Boxes**

The box, vault or chamber shall be precast concrete to the dimensions provided in the table below. Vaults shall be design for boulevard (off road) use with static H-20 loading. Chambers shall be designed for roadway use with H-20 loading or deep installations. The minimum headroom for chambers shall be 1.9 meters for man entry.

Boxes shall have galvanized steel, cast iron or aluminum lids capable of withstanding H-20 static loads. Lids shall include a “bolt down” capability.

Vaults sized 1200 x 2000 shall have two hinged aluminum lids providing an 800mm x 1700mm opening. Vaults sized 1760 x 3260 shall have three hinged aluminum lids providing an 820mm x 2590mm opening. Vault lids shall be capable of withstanding H-20 static loading. Lids shall include a “bolt down” capability.

Lids for chambers shall be 1200mm x 1200mm square split hinged aluminum. Chamber lids shall be capable of withstanding H-20 loading. Lids shall include a “bolt down” capability.

Lids for boxes, vaults and chambers in non-traffic areas shall be predrilled for remote reading receptacles.

Where the depth from the top of the lid frame to the chamber floor exceeds 1.5 meters provided an aluminum ladder securely fastened to the chamber floor and wall. Ladders shall have a telescoping aluminum post fixed to the ladder to enable safe man entry or exit (Bilco LadderUP Safety Post LU4 or approved equal).

Damp proof the exterior of all vaults by applying an asphalt emulsion coating to all exterior surfaces. Make construction joints water tight with an appropriate sealant.

Acceptable boxes, vaults and chambers are as follows:

Type	Size (mm)	Model	Hatch Size (mm)
Boxes	300x500	Brooks 37	300x450 cast iron
	425x750	Brooks 66	450x750 galv. steel
	560x860	AE Concrete 5686	630x940 aluminum
Vaults	1200x2000	AE Concrete 2121	2 – 880x880 aluminum
	1760x3260	AE Concrete 3151	3 – 880x880 aluminum
Chambers	1760x3260	AE Concrete 3152	2 – 600x1200 aluminum

## **12. Inspection Procedure**

A request for water service connections is initiated by application for a Plumbing Permit through the City's Development Services Department.

The Applicant's Engineer shall determine from the City whether the service connection requires a meter and shall select the appropriate meter type for the intended use in accordance with the City's Water Meter Specifications. Plans submitted as part of the Plumbing Permit Application must indicate the meter size, type and chamber location. The plans shall also indicate the expected range of flows and the average expected flow for the proposed installation.

For non-typical meter installations, or for meters of 200mm diameter and greater, the applicant's Engineer must provide detailed drawings giving complete details of the installation.

The City Development Services Department will inspect the meter installation to ensure conformance to this specification and the B.C. Plumbing Code.

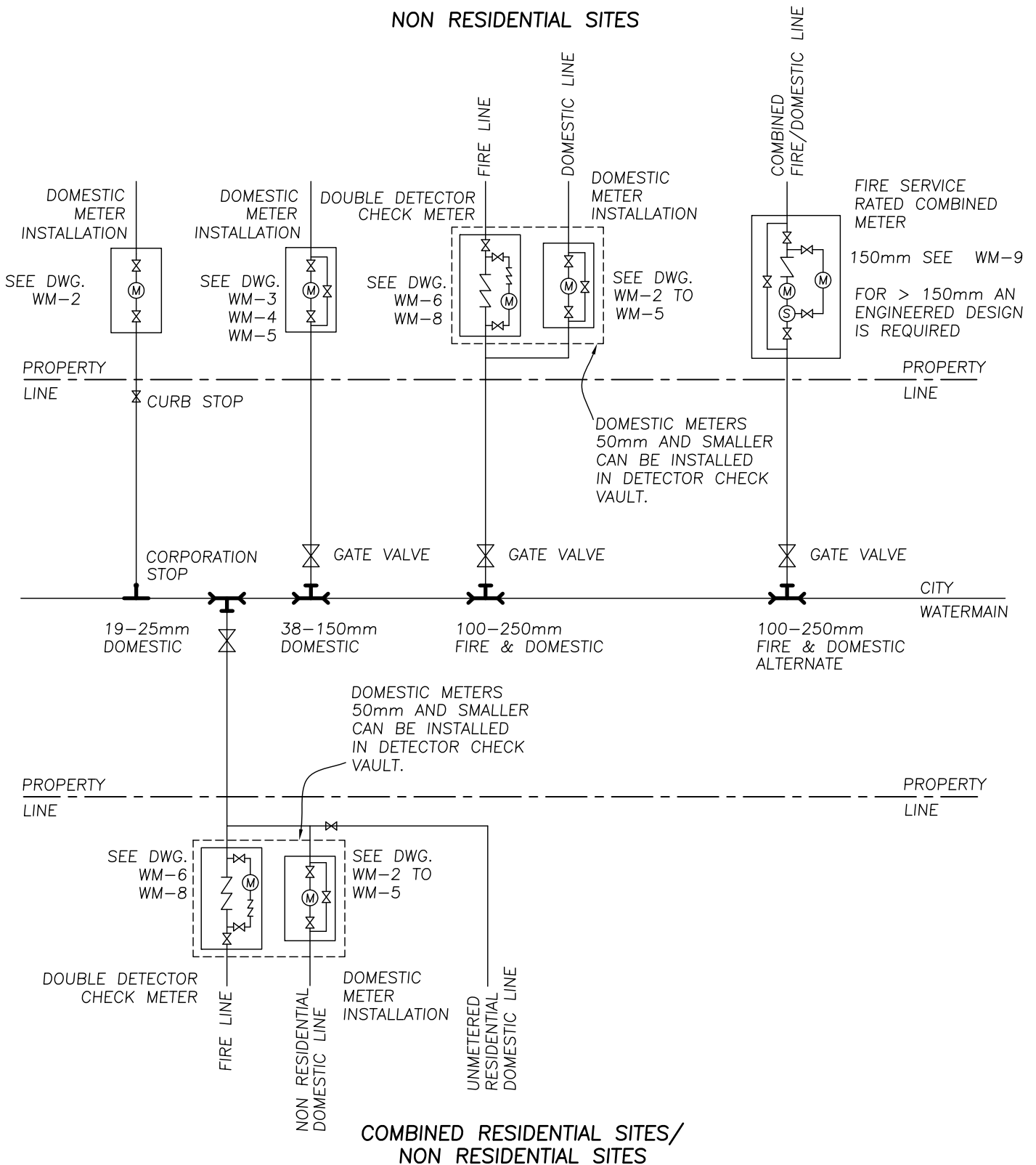
Upon approval of the installation by the Plumbing Inspector, the developer is to call the Engineering and Public Works Department (604-927-3500) to lock the bypass valve where applicable, take the initial meter reading and activate the service connection. All factory tags and labels are to remain on the meter until the Public Works department removes them.

## **13. Temporary Water Services**

Temporary water service connections required during construction phase of a development project must also be metered. Meters installed on temporary service connections are to conform to the requirements of this specification in all respects. The meter must be in place prior to the activation of the service. Only City Engineering personnel may only deactivate temporary services. Contact the City Engineering Customer Service Desk at 927-3500 prior to removing a meter from a temporary service connection.

Water Meter Specification  
**Detailed Drawings**

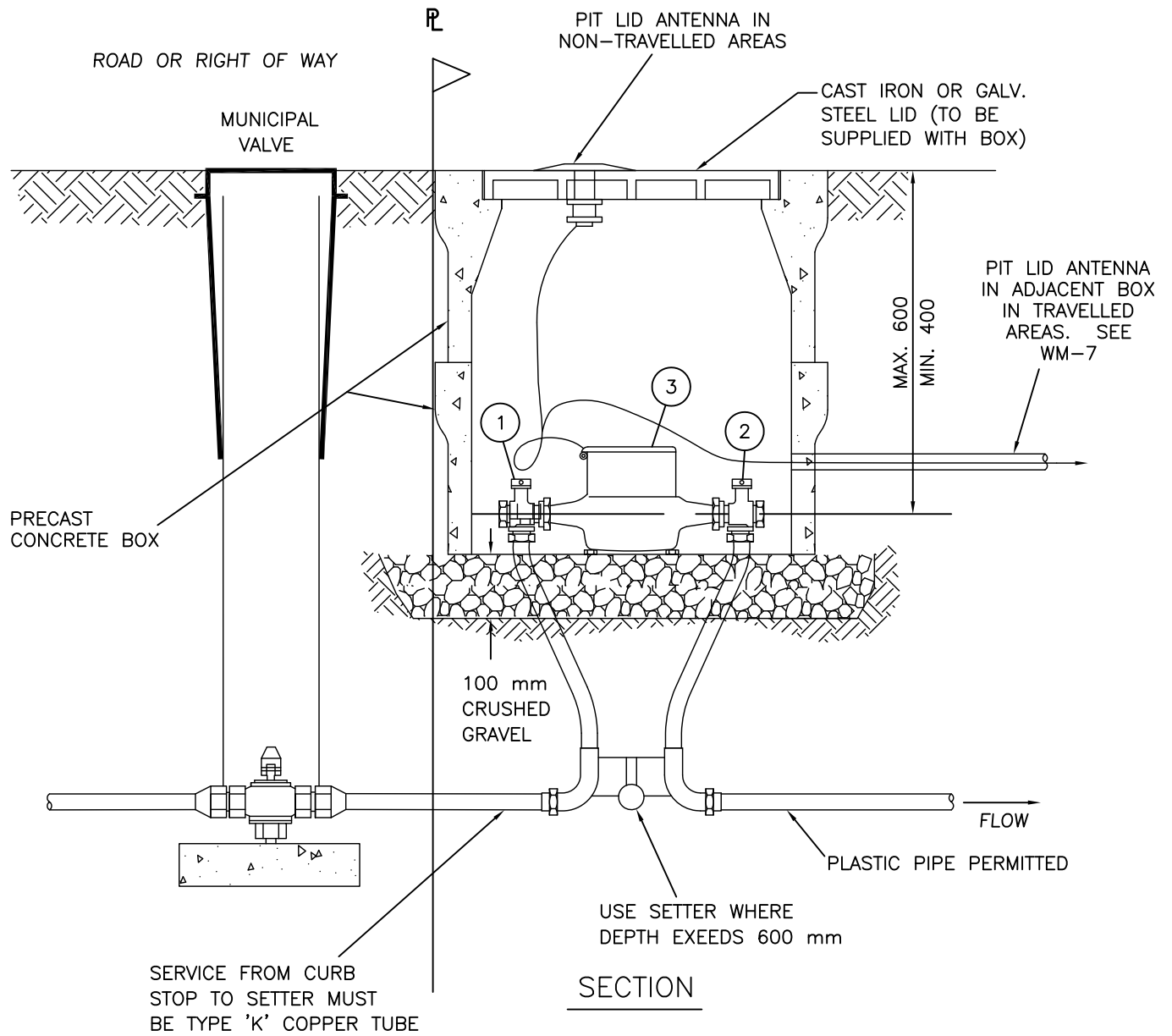
# NON RESIDENTIAL SITES



## Coquitlam Water Utility

### TYPICAL SERVICE INSTALLATION

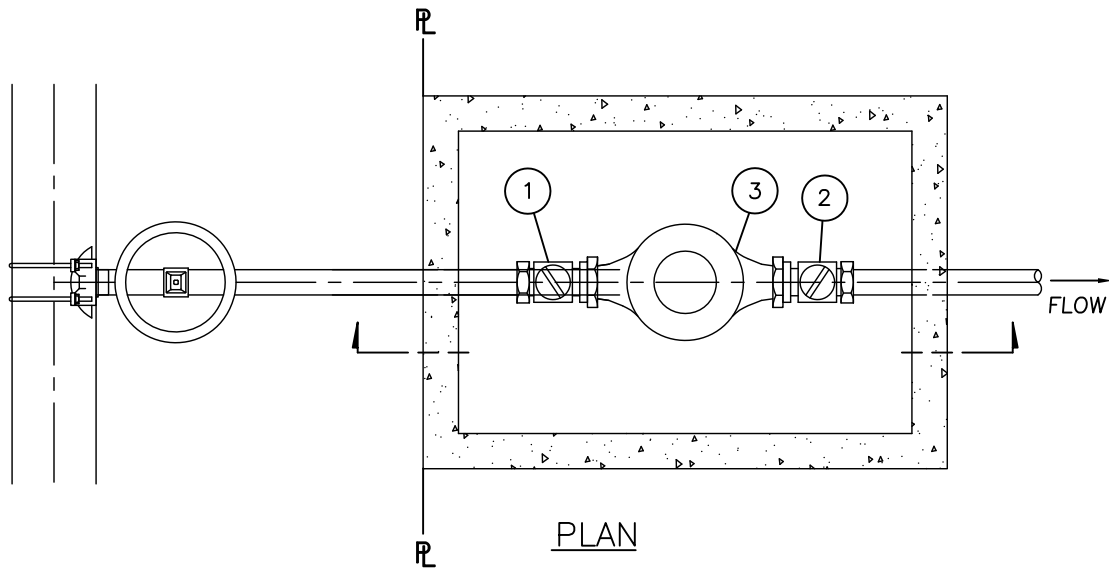
Combined Residential/Non Residential Sites added		5	10/06	M.C.	
Bypass added to fire service meter.		4	10/04	M.C.	
REVISIONS			No.	DATE:	CKD.
DESIGNED BY: M.C.	DRAWN BY: A.S.K.	CHECKED BY: M.C.	APPROVED BY:		
SCALE: N.T.S.	DATE: October 17/94		DRAWING NO.: WM-1		



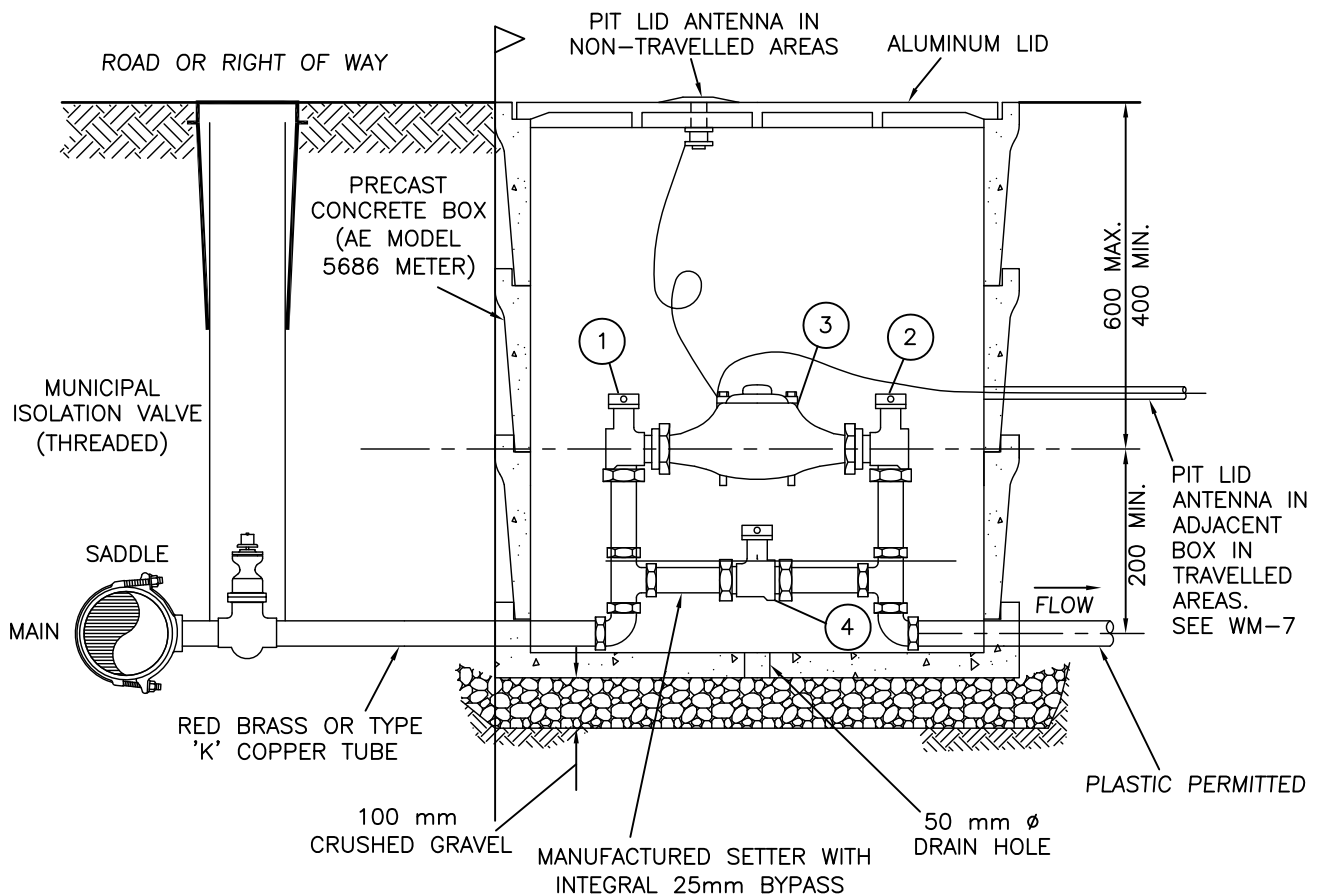
BOXES			
16 mm	METER	-	BROOKS 37
16x19 mm	METER	-	BROOKS 37
19 mm	METER	-	BROOKS 66
25 mm	METER	-	BROOKS 66

No.	DESCRIPTION
1	CURB STOP WITH LOCKWING
2	DOWNSTREAM CURB STOP
3	METER, NEPTUNE OR SENSUS

Coquitlam Water Utility				
16 mm $\phi$ - 25 mm $\phi$ DISPLACEMENT METER INSTALLATION				
minor text changes	5	07/15	D.K.S.	
minor text changes	4	01/15	D.K.S.	
REVISIONS	No.	DATE:	CKD.	APP.
DESIGNED BY: MC	DRAWN BY: A.S.K.	CHECKED BY:	APPROVED BY:	
SCALE: N.T.S.	DATE: 11/10/94		DRAWING NO.: WM-2	



PLAN



SECTION

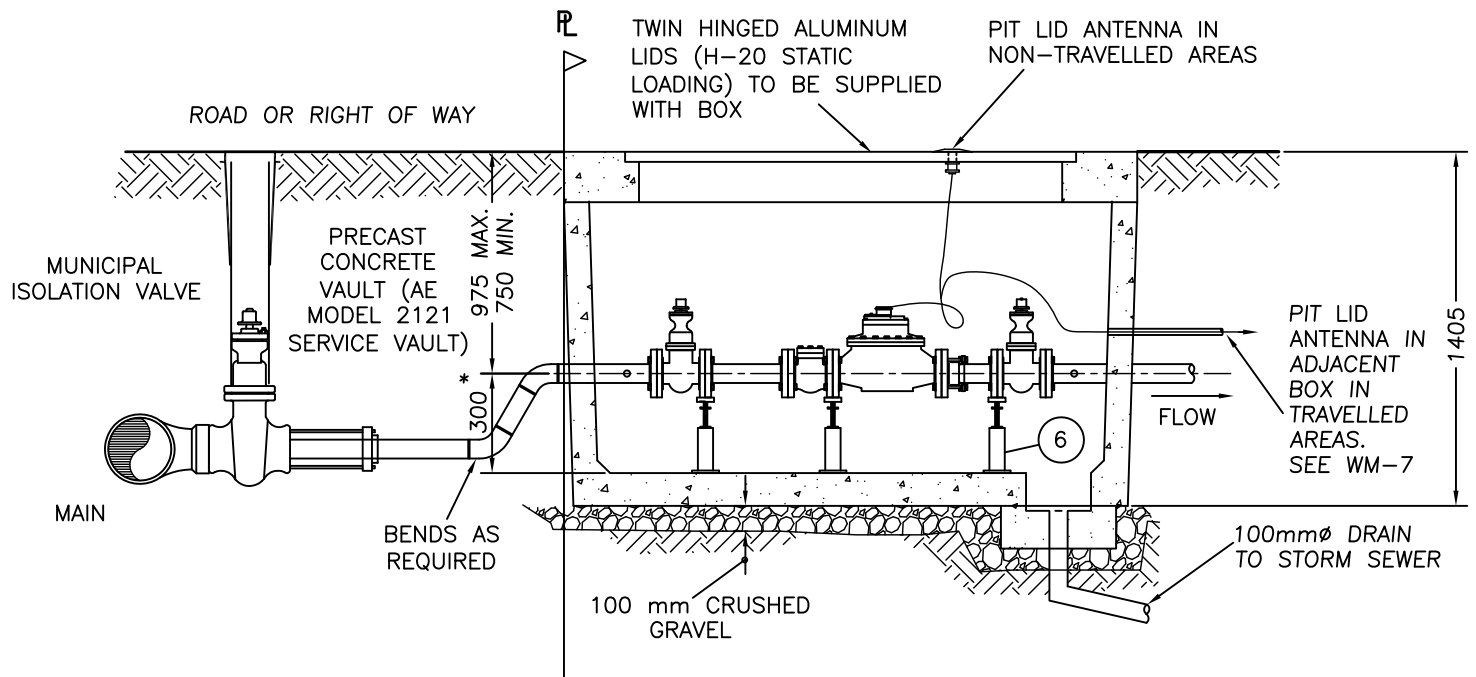
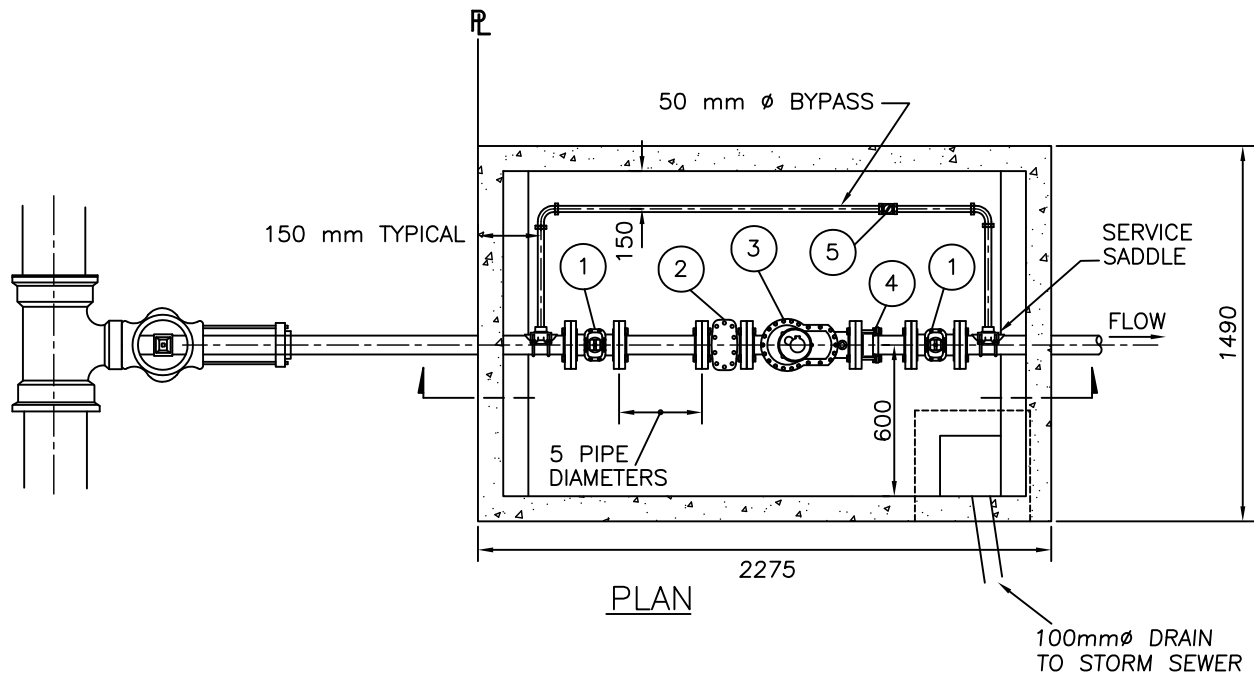
ALL FIELD JOINTS TO BE THREADED OR COMPRESSION.  
ALL PIPE TO BE BRASS OR COPPER TUBE.  
MANUFACTURED SETTERS MAY HAVE SOLDERED JOINTS.

No.	DESCRIPTION
1	STOP WITH LOCKWING
2	DOWNSTREAM STOP
3	METER, NEPTUNE OR SENSUS
4	BYPASS STOP WITH LOCKWING

## Coquitlam Water Utility

### 38 mm $\phi$ - 50 mm $\phi$ DISPLACEMENT METER INSTALLATION

minor text changes.	5	07/15	D.K.S.	
minor text changes.	4	01/15	D.K.S.	
REVISIONS	No.	DATE:	CKD.	APP.
DESIGNED BY: MC	DRAWN BY: A.S.K.	CHECKED BY:	APPROVED BY:	
SCALE: N.T.S.	DATE: 11/10/94		DRAWING NO.: WM-3	



**SECTION**

No.	DESCRIPTION
1	GATE VALVE (ISOLATION)
2	STRAINER
3	METER, NEPTUNE OR SENSUS
4	MECHANICAL FLANGE ADAPTOR
5	BYPASS BALL VALVE WITH LOCKWING
6	ADJUSTABLE PIPE STANDS

NOTES:  
 \*PIPE: TO BE TYPE K COPPER, BRASS, EPOXY COATED WELDED STEEL OR SS.

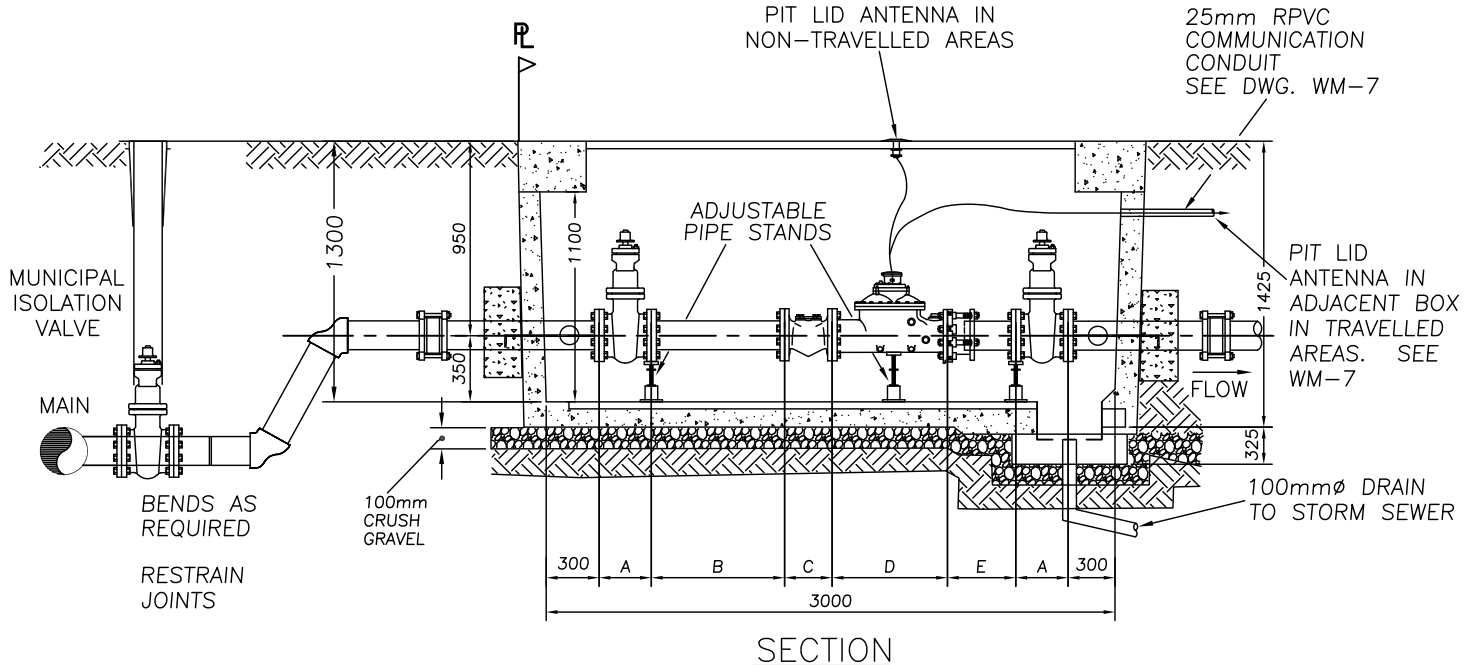
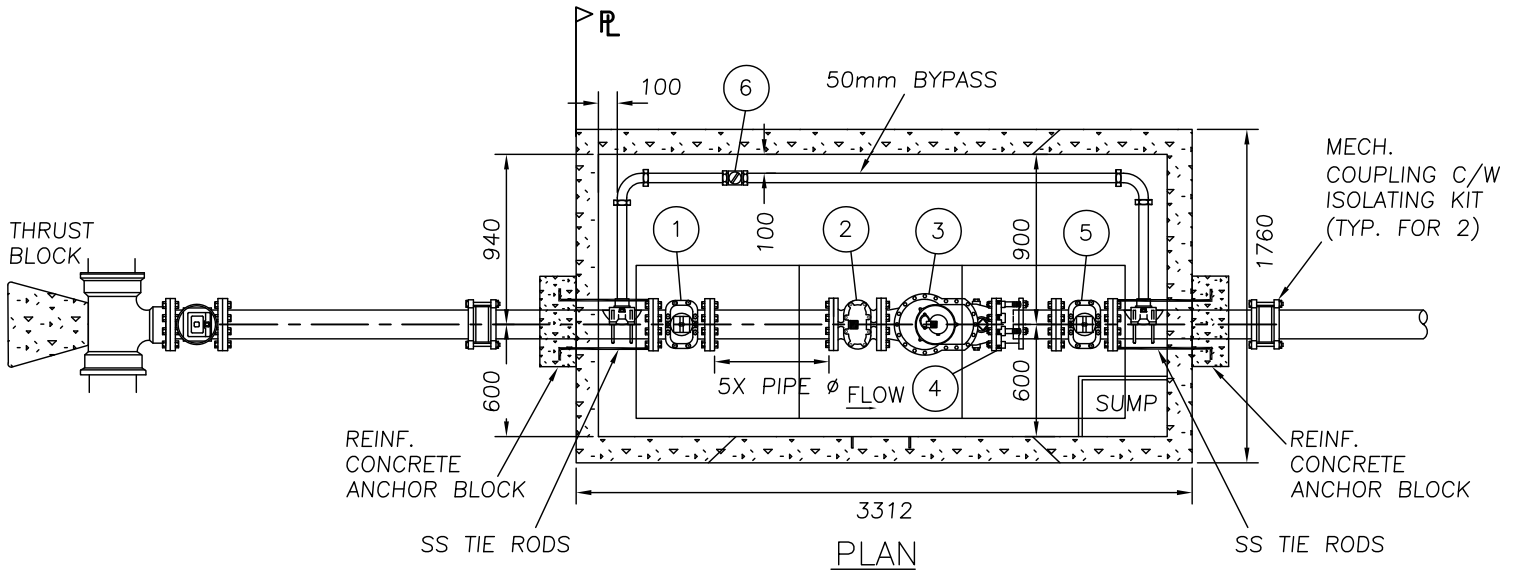
CONNECTIONS:  
 BRASS: IPT  
 COPPER: COMPRESSION OR VICTAULIC. NO SOLDER PERMITTED  
 STEEL: FLANGED, "UNIFLANGE", OR "EZ FLANGE" OR VICTAULIC

**Coquitlam Water Utility**

**75 mm  $\phi$  COMPOUND METER INSTALLATION**

minor text changes	6	07/15	D.K.S.	
minor text changes	5	01/15	D.K.S.	
REVISIONS	No.	DATE:	CKD.	APP.
DESIGNED BY: MC	DRAWN BY: A.S.K.	CHECKED BY:	APPROVED BY:	
SCALE: N.T.S.	DATE: 11/10/94		DRAWING NO.: WM-4	





No.	DESCRIPTION
1	UPSTREAM RESILENT SEAT GATE VALVE
2	STRAINER
3	METER, NEPTUNE OR SENSUS
4	MECHANICAL FLANGE ADAPTOR
5	DOWNSTREAM RESILENT SEAT GATE VALVE
6	BYPASS BALL VALVE WITH LOCKWING

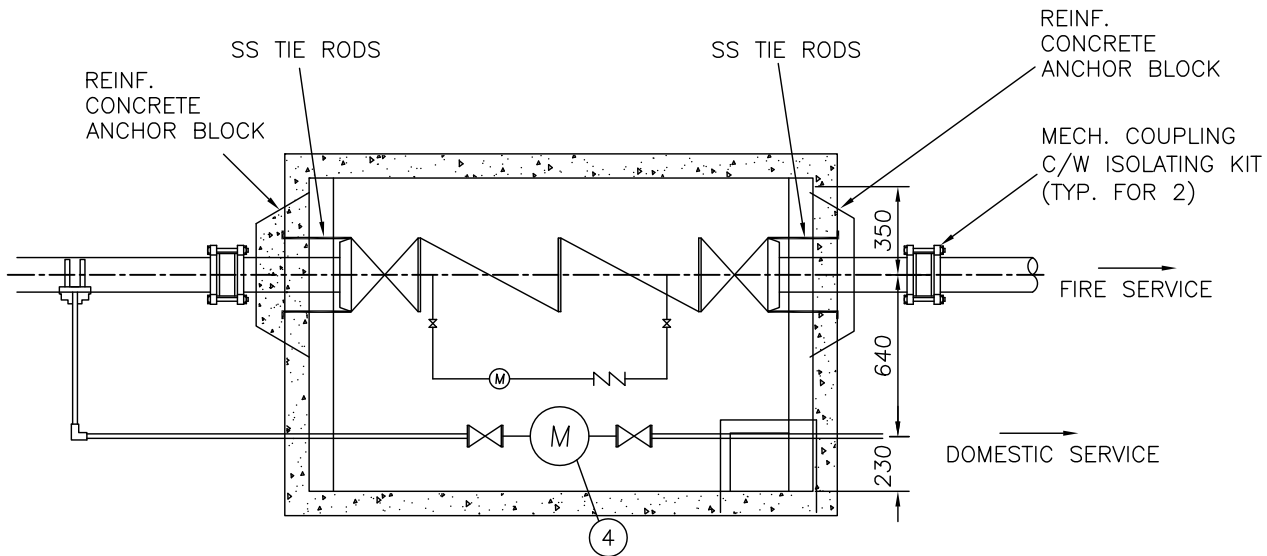
NOTES:  
 PIPE: TO BE TYPE K COPPER, BRASS, EPOXY COATED WELDED STEEL OR SS.

CONNECTIONS:  
 BRASS: IPT  
 COPPER: COMPRESSION OR VICTAULIC. NO SOLDER PERMITTED  
 STEEL: FLANGED, "UNIFLANGE", "EZ FLANGE" OR VICTAULIC

DIMENSIONS		
METER	100Ø	150Ø
A	229	267
B	508	762
C*	191	229
D*	508	610
E*	735	765

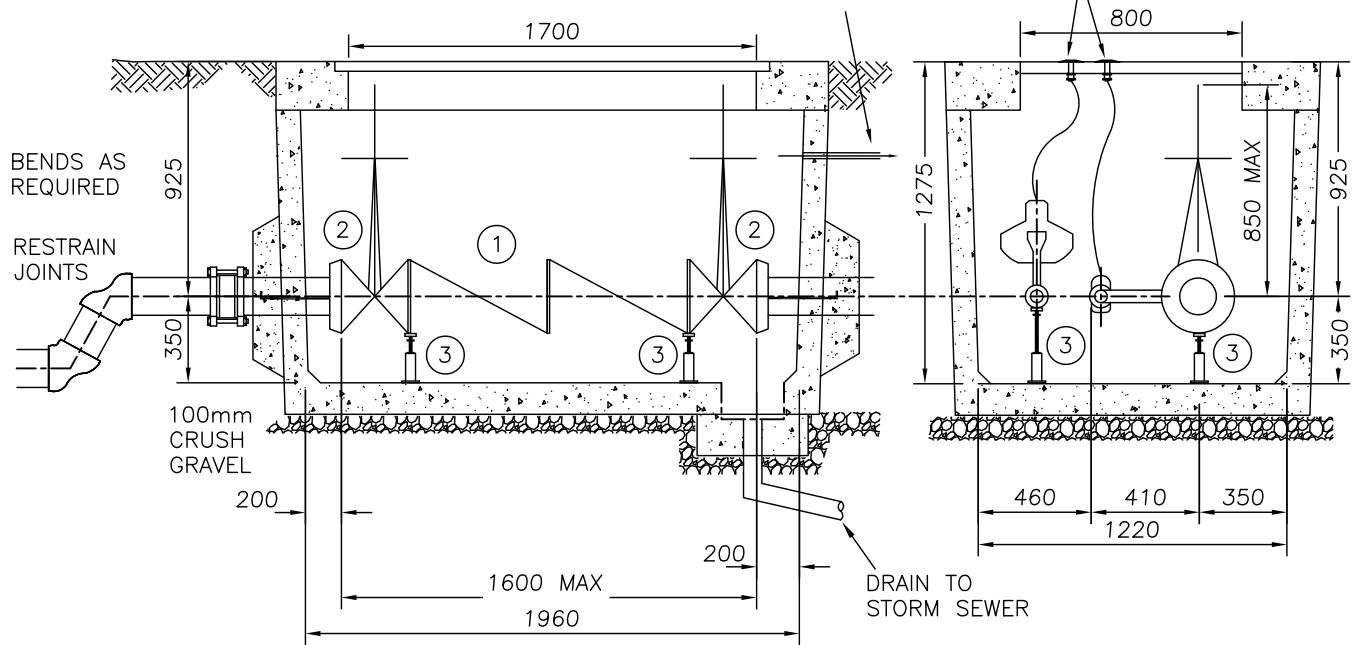
\* VERIFY THESE DIMENSIONS WITH MANUFACTURER

<b>Coquitlam Water Utility</b>			
<b>100 mm Ø - 150 mm Ø COMPOUND METER (AE CONCRETE MODEL 3151 VAULT)</b>			
minor text changes	6	07/15	D.K.S.
minor text changes	5	01/15	D.K.S.
REVISIONS			No. DATE: CKD. APP.
DESIGNED BY: MC	DRAWN BY: A.S.K.	CHECKED BY:	APPROVED BY:
SCALE: N.T.S.	DATE: 11/10/94		DRAWING NO.: WM-5



PIT LID ANTENNA IN ADJACENT BOX IN TRAVELLED AREAS. SEE WM-7

PIT LID ANTENNA IN NON-TRAVELLED AREAS



**NOTES**

PIPE: TO BE TYPE K COPPER, BRASS, EPOXY COATED WELDED STEEL OR SS.

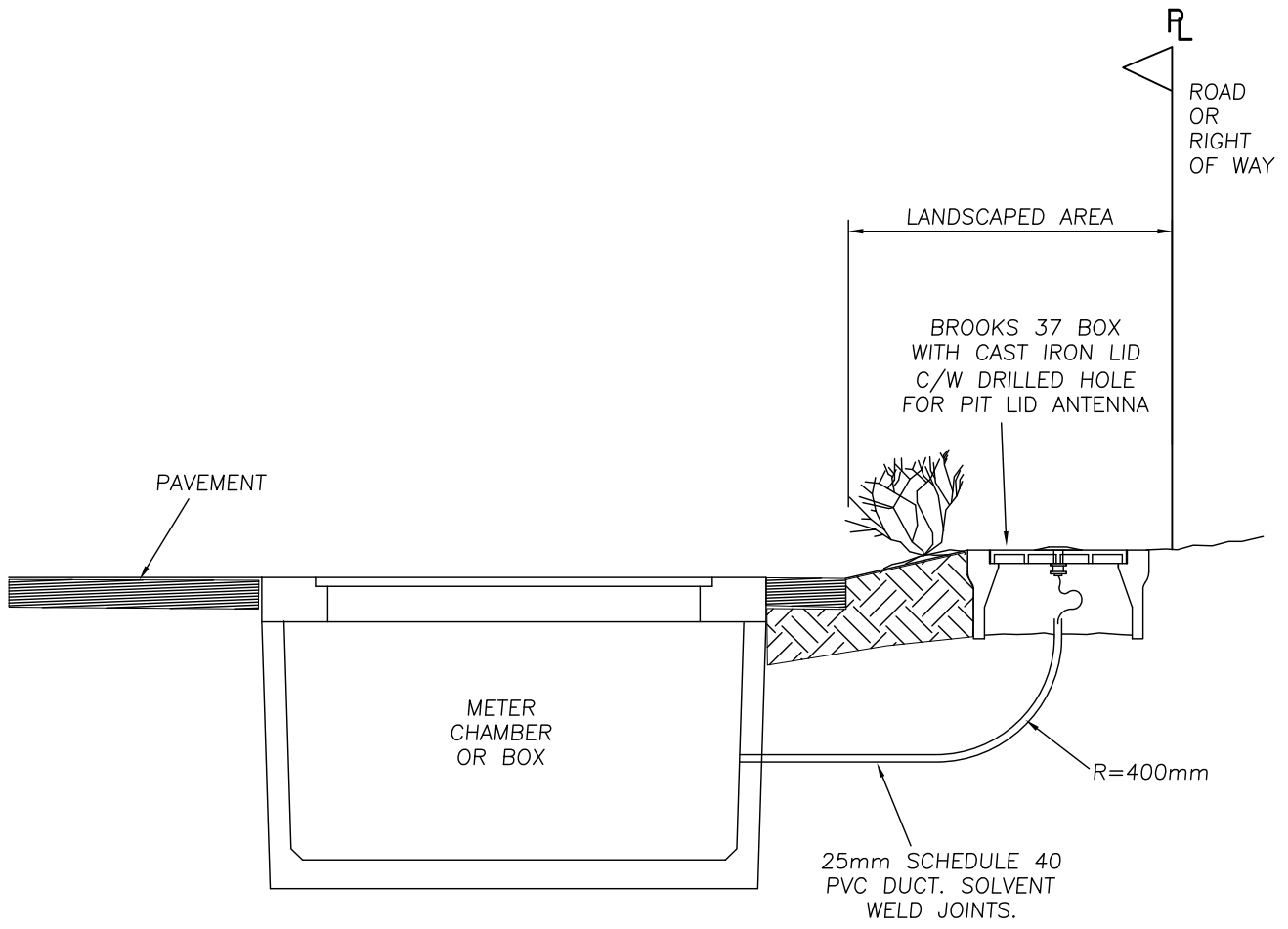
**CONNECTIONS:**

BRASS: IPT  
 COPPER: COMPRESSION OR VICTAULIC. NO SOLDER PERMITTED  
 STEEL: FLANGED, "UNIFLANGE", "EZ FLANGE" OR VICTAULIC

AS PER BC BUILDING CODE 3.2.4.9.1), 2) & 3), VALVE HANDWHEELS CONTROLLING THE FIRE WATER SERVICE SHALL BE ELECTRICALLY SUPERVISED AND MONITORED.

No.	DESCRIPTION
1	FM APPROVED ULC LISTED DOUBLE DETECTOR CHECK ASSEMBLY CW 2 OS & Y GATE VALVES, TEST COCKS, METER AND BY PASS.
2	"UNIFLANGE" OR "MEGA LUG" FLANGE ADAPTORS.
3	ADJUSTABLE PIPE STANDS.
4	50mm DOMESTIC METER WITH LOW BYPASS SETTER. METERS > 50mm REQUIRE SEPARATE VAULT.

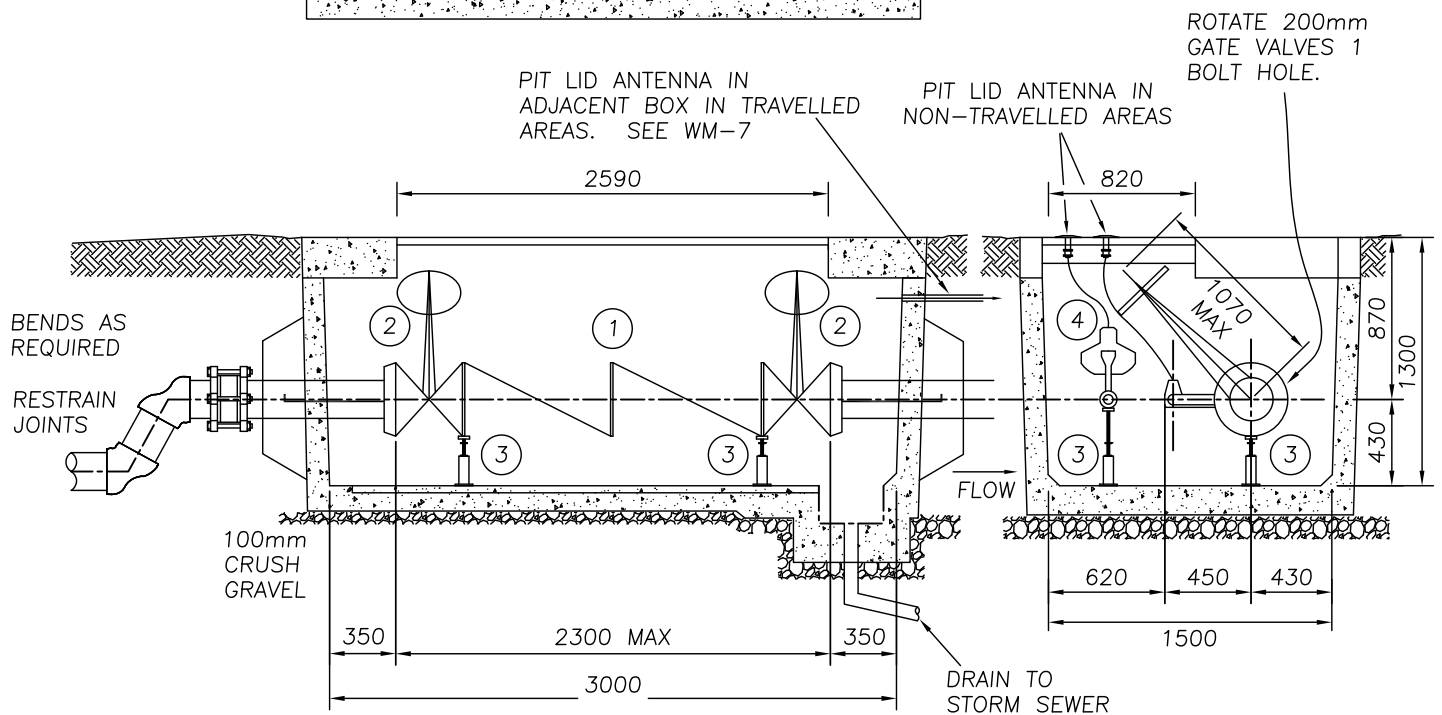
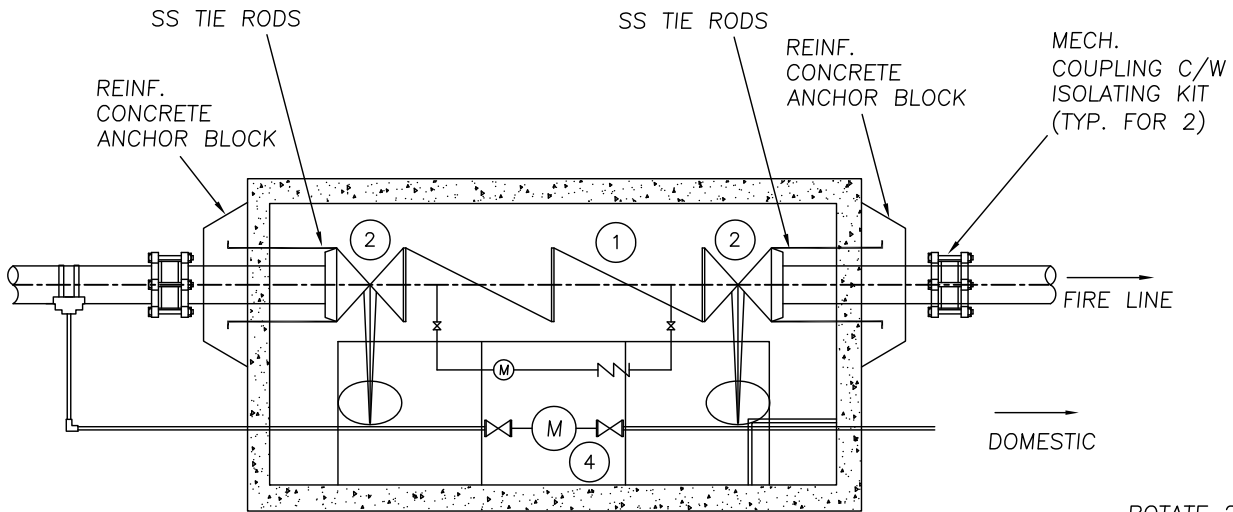
Coquitlam Water Utility			
VAULT FOR 100mm-150mm DOUBLE DETECTOR CHECK (AE CONCRETE MODEL 2121 VAULT)			
minor text changes	6	07/15	D.K.S.
minor text changes	5	01/15	D.K.S.
REVISIONS		No.	DATE: CKD. APP.
DESIGNED BY: MC	DRAWN BY: A.S.K.	CHECKED BY:	APPROVED BY:
SCALE: N.T.S.	DATE: NOV 5, 1996	DRAWING NO.: WM-6	



## Coquitlam Water Utility

### PIT PAD INSTALLATION Travelled Areas

minor text changes			3	07/15	D.K.S.	
minor text changes			2	01/15	D.K.S.	
REVISIONS			No.	DATE:	CKD.	APP.
DESIGNED BY: MC	DRAWN BY: A.S.K.	CHECKED BY:	APPROVED BY:			
SCALE: N.T.S.	DATE: JUL 20, 2001		DRAWING NO.: WM-7			



NOTES  
 PIPE: TO BE TYPE K COPPER, BRASS, EPOXY COATED WELDED STEEL OR SS.

CONNECTIONS:  
 BRASS: IPT  
 COPPER: COMPRESSION OR VICTAULIC. NO SOLDER PERMITTED  
 STEEL: FLANGED, "UNIFLANGE", "EZ FLANGE" OR VICTAULIC

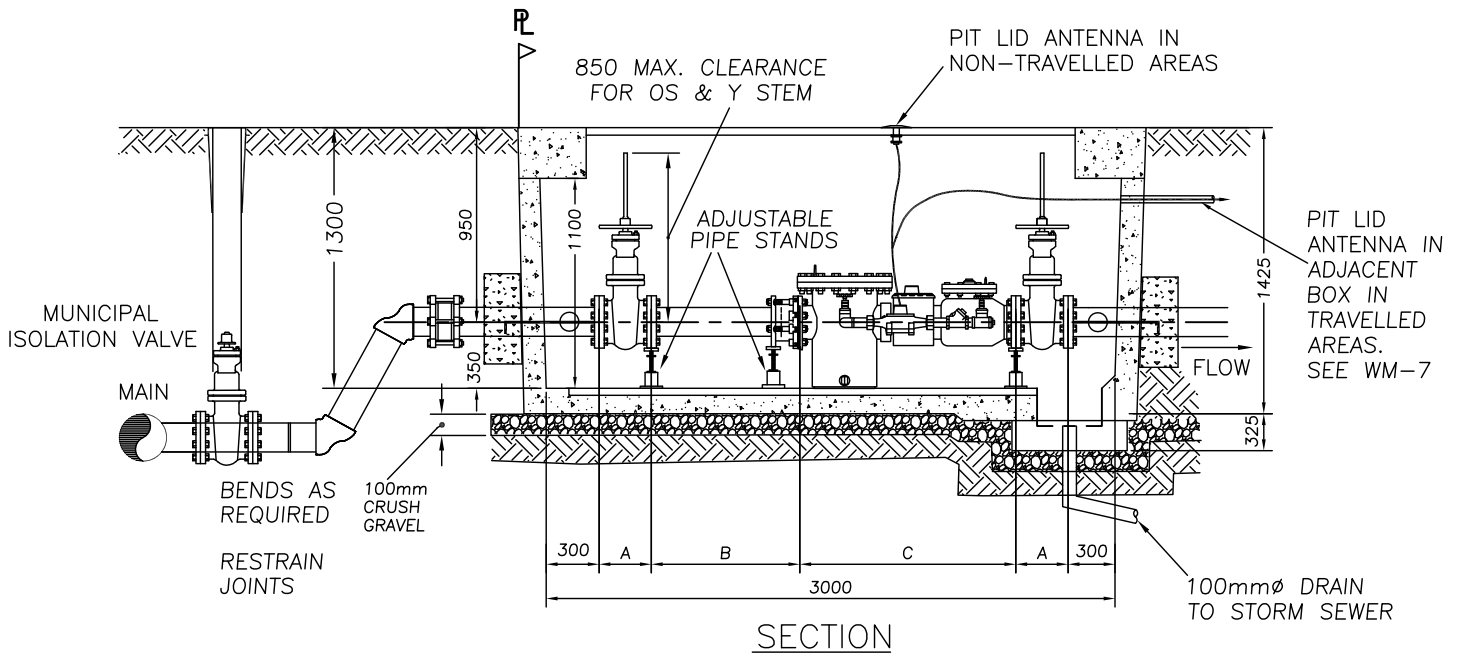
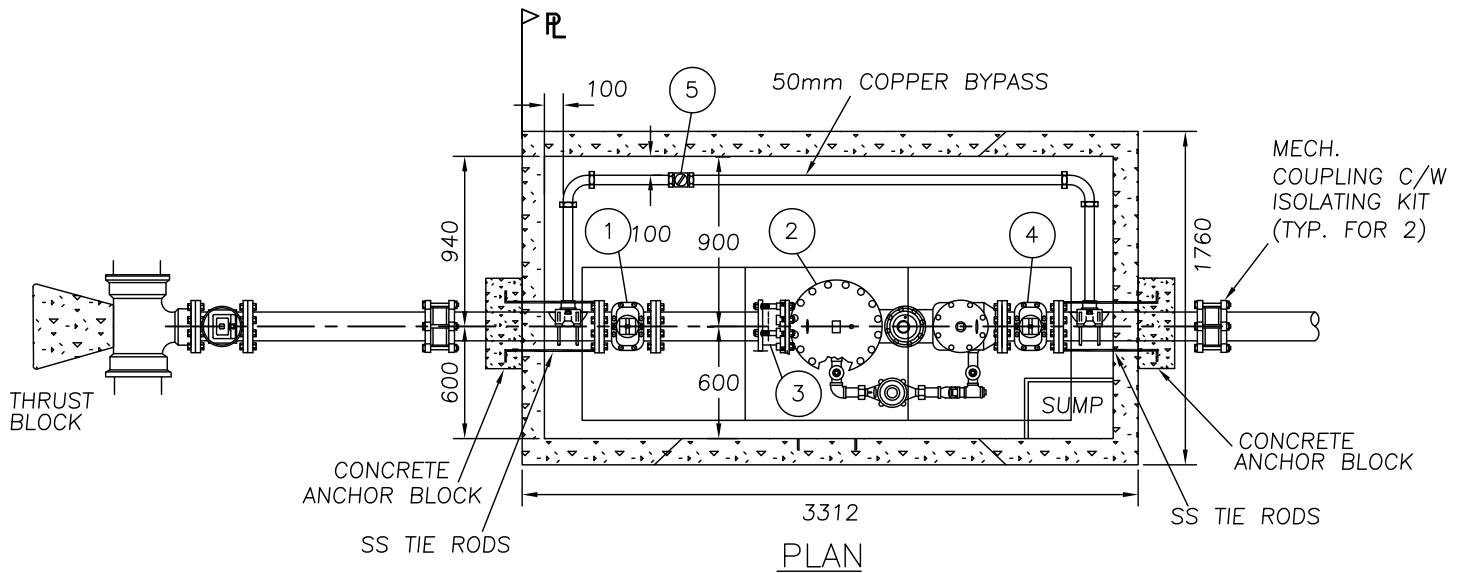
AS PER BC BUILDING CODE 3.2.4.9.1), 2) & 3), VALVE HANDWHEELS CONTROLLING THE FIRE WATER SERVICE SHALL BE ELECTRICALLY SUPERVISED AND MONITORED.

No.	DESCRIPTION
1	FM APPROVED ULC LISTED DOUBLE DETECTOR CHECK ASSEMBLY C/W 2 OS & Y GATE VALVES, TEST COCKS, METER AND BY PASS.
2	"UNIFLANGE" OR "MEGA LUG" FLANGE ADAPTORS.
3	ADJUSTABLE PIPE STANDS.
4	50mm DOMESTIC METER WITH LOW BYPASS SETTER. METERS > 50mm REQUIRE SEPARATE VAULT.

## Coquitlam Water Utility

### VAULT FOR 200mm DOUBLE DETECTOR CHECK (AE CONCRETE MODEL 3151 VAULT)

minor text changes	6	07/15	D.K.S.	
minor text changes	5	01/15	D.K.S.	
REVISIONS	No.	DATE:	CKD.	APP.
DESIGNED BY: MC	DRAWN BY: A.S.K.	CHECKED BY:	APPROVED BY:	
SCALE: N.T.S.	DATE: NOV 5, 1996		DRAWING NO.: WM-8	



No.	DESCRIPTION
1	UPSTREAM RESILIENT SEAT GATE VALVE (OS & Y)
2	METER, NEPTUNE PROTECTUS III OR SENSUS COMPACT FIRE LINE.
3	MECHANICAL FLANGE ADAPTOR
4	DOWNSTREAM RESILIENT SEAT GATE VALVE (OS & Y)
5	BYPASS BALL VALVE WITH LOCKWING

NOTES  
 PIPE: TO BE TYPE K COPPER, BRASS, EPOXY COATED WELDED STEEL OR SS.

CONNECTIONS:  
 BRASS: IPT  
 COPPER: COMPRESSION OR VICTAULIC. NO SOLDER PERMITTED  
 STEEL: FLANGED, "UNIFLANGE", "EZ FLANGE" OR VICTAULIC

AS PER BC BUILDING CODE 3.2.4.9.1), 2) & 3), VALVE HANDWHEELS CONTROLLING THE FIRE WATER SERVICE SHALL BE ELECTRICALLY SUPERVISED AND MONITORED.

DIMENSIONS	
METER	150 $\phi$
A	267
B	723
C*	1143

\* VERIFY THIS DIMENSION WITH MANUFACTURER

Coquitlam Water Utility			
150 mm $\phi$ FIRE/DOMESTIC METER (AE CONCRETE MODEL 3151 VAULT)			
minor text changes	5	07/15	D.K.S.
minor text changes	4	01/15	D.K.S.
REVISIONS			No. DATE: CKD. APP.
DESIGNED BY: MC	DRAWN BY: A.S.K.	CHECKED BY:	APPROVED BY:
SCALE: N.T.S.	DATE: 6/08/99		DRAWING NO.: WM-9