

# Metering and Servicing Requirements

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## Revision History

<b>Version</b>	<b>Date</b>	<b>Contact</b>	<b>Description of Amendments</b>
V8	<i>2023, January 27</i>	<i>Metering Team Lead</i>	<i>Reverted from T1 document to T3 document. Minor wording changes and clean up required</i>
V7	<i>2021, December</i>	<i>Metering Team Lead</i>	<i>Removed obsolete content and added links for updated reference documentation (Land Dev manual)</i>

## Purpose

The objectives of this document are:

- (a) To protect the environment and promote water conservation
- (b) To protect the health and safety of members of the public and Barwon Water's employees.
- (c) To provide fair equity for Barwon Water's customers
- (d) To encourage best practice
- (e) To ensure a consistent approach to metering solutions
- (f) To encourage compliance with Barwon Water's Metering and Servicing guidelines, the By-Laws and the *Water Act 1989*.

## Roles and Responsibilities

Role (Position)	Responsibilities
<u>Metering Team Lead</u>	<ul style="list-style-type: none"> <li>• <i>Provide appropriate advice regarding the requirements to internal and external stakeholders</i></li> <li>• <i>Ensure any changes to this document are communicated effectively</i></li> </ul>
<u>Barwon Water staff</u>	communicate details of document to customers to ensure requirements are met

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## 1. Introduction

This document contains Barwon Water's requirements for the connection to, and management of, all meter installations to Barwon Water's assets and applies to drinking water and non-drinking water services and trade waste connections.

These requirements apply to all properties within the Barwon Water service region and is to be referenced by Barwon Water staff, contractors, customers, plumbers and developers. This document is supported by:

- National Measurement Act 1960 (Cth)
- National Measurement Regulations 1999 (Cth)
- The Water Act Victoria 1989
- Utility Meters (Metrological Controls) Act 2002
- The Water (Estimation, Supply and Sewage) Regulations 2014
- The Water (Trade Waste) Regulations 2014
- Victorian Plumbing Regulations 2018
- Trade Measurement Act Victoria 1995
- National Measurement Institute (NMI R-49)
- National Framework for Urban Water Metering
- Barwon Water's Backflow Prevention Policy
- Trade Waste Policy
- Land Development servicing requirements
- Barwon Water Billing Pricing Schedule
- AS 2845 Water supply – Backflow Prevention devices
- AS/NZS 3500 National Plumbing and Drainage
- AS/NZS 3565 Meter for Water Supply
- National Association of Testing Authorities (NATA) Rules
- WSAA Metering Codes of Practice.
- MRWA WSA 03-2011-3.1
- WSAA Water Supply code of Australia 2022

### 1.1.Changes to this document

Barwon Water may change or replace any part of this document at any time. The latest version of this Metering and Servicing requirements document can be obtained from Barwon Water by downloading a copy from our website [www.barwonwater.vic.gov.au](http://www.barwonwater.vic.gov.au).

Any changes to this document will operate prospectively and not retrospectively.

## 1.2. Who to contact

If you have any questions or comments about aspects of this document, please ring us on 1300 656 007, email: [info@barwonwater.vic.gov.au](mailto:info@barwonwater.vic.gov.au) or, or visit our website: [www.barwonwater.vic.gov.au](http://www.barwonwater.vic.gov.au).

## 1.3. Definitions

### Backflow

Backflow is the reverse flow of a liquid within a piped plumbing system. It may be caused from back siphonage, back-pressure or a combination of both. It can result in contaminants being drawn back into the Water Corporation's water supply system through a cross connection. All connections to the water supply system must provide for an appropriate containment backflow prevention device at the outlet of the main water meter, in accordance with the relevant Australian Standard.

### Class A Recycled Water

Class A recycled water is the highest quality of recycled water and is achieved after a tertiary treatment process combined with pathogen removal. The Department of Health & Human Services (DH) ([www2.health.vic.gov.au](http://www2.health.vic.gov.au)) has classified Class A recycled water as safe for use on irrigation of food crops – including those eaten raw. DH requires an extensive verification process to ensure Class A water can be guaranteed. Environment Protection Authority Victoria (EPA Victoria) ([www.epa.vic.gov.au](http://www.epa.vic.gov.au)) also supports its use.

Class A recycled water has a wide range of uses including:

- Residential garden watering
- Toilet flushing
- Process/cooling water for industry
- Fire hydrant systems (external to the property), subject to approval
- Irrigation of municipal parks and sports grounds
- Water for contained wetlands or ornamental ponds
- Food crops that are consumed raw or sold to consumers uncooked or processed (Recycled Water is also known as 'Non Drinking Water')

### Conditions of Connection

A list of conditions that the relevant Water Corporation issues as part of its consent to carry out plumbing work for water and sewerage. Provided for under section 145 of the Water Act 1989 (VIC) Control over Connections.

### Drinking Water

The highest quality water, also known as potable water.

### Dry Tapping

A dry tapping is generally 20mm in diameter (nominal Ø) and installed by the developer at the time the water mains are laid within residential estates. A dry tapping includes a connection and service pipe which terminates within each parcel of land (lot) within the

estate. The Water Corporation installs the water meter assembly including the water meter on request and payment of the applicable fee.

### **Wet Tapping**

A wet tapping is a type of connection which is made into the reticulated water supply main under pressure. A wet tapping may be for any size from 20mm Ø to 200mm Ø and greater.

### **Water Supply by Agreement**

Where a parcel of land is not fronted by a Water Corporation's water main, however is connected via a private water service (owned & maintained by the property owner/s) located generally in the road reserve to the Water Corporation's main some distance away. It is connected with the consent of the Water Corporation under section 145 of the Water Act 1989. Please note: Section 145 of the Act provides that a Water Corporation may consent to a person's works being connected to the works of the Water Corporation and that consent may be subject to any reasonable terms and conditions the Water Corporation thinks fit.

### **Master/Main Water Meter**

A main water meter is the Water Corporation approved water meter connected directly from the water main located as close as possible to the properties' title boundary on any water service (drinking water, recycled water and fire).

### **Private Fire Service**

Part of any works from the water main of a Water Corporation to an outlet on a serviced property, where the outlet is designed to supply water to the property for the principal purpose of combatting an outbreak of fire on the property, whether or not that part of the works is also connected to another outlet used for purposes other than combating an outbreak of fire.

### **Remote Read Water Meter**

A remote water meter may consist of a conventional water meter with a remote reading device attached or an integrated unit. A remote reading device electronically records the volume of water flowing through the water meter and transmits the reading by radio or similar technology when activated by the water meter reader. The benefits of remote water meters are that the Water Corporation reads the water meter outside of the property thereby ensuring security and privacy for the customer.

### **Reticulated water/sewer supply system**

A network of water/sewer mains, pump stations etc. owned and operated by the Water Corporation to provide for the community's water and sewerage needs.

### **SCDAT**

A single check detector assembly testable is a testable device for use in 'low hazard' conditions in private fire services only, to prevent backflow caused by back-siphonage or back pressure. It is intended for use in private fire service lines under continuous pressure and to allow billing of small draw-offs of water by incorporating a metered bypass line (minimum 25mm diameter), bridging from upstream of the non-return valve to downstream of the non-return valve.

### **Self-Contained Occupancy Commercial/ Industrial**

Has the same meaning as used by Council Valuers for producing valuations to determine municipal rates. The definition of the term has been developed as Commercial/Industrial by



both Common law and legislation, in accordance with the Valuation of Land Industrial Act 1960 and Local Government Act 1989. For the purpose of determining the appropriateness of water metering/provisioning for metering, a self-contained occupancy shall contain a tea sink, toilet and basin as a minimum. The occupants are not required to utilise common facilities outside the individual occupancy. All parent property general water connections are required to be metered in accordance with the requirements documented in these guidelines.

### **Single Check Valve Testable (SCVT)**

A single check valve testable is designed to prevent the unwanted reversal of flow from the private fire service into the Water Corporation's water supply system. Assists in the proactive management of water supply systems. A single check valve testable is designed for use in 'low hazard' conditions in private fire services to prevent backflow caused by back-siphonage or back pressure. It is intended for use under continuous pressure conditions.

### **Stop Tap/Valve (Isolation)**

A flow control fitting capable of regulating and shutting off the flow in a water main or property service pipe, and includes any fitting of a stop tap type, gate valve, ball valve or ferrule tap type.

### **Sub Meter / Check Meter**

A Water Corporation's approved water meter connected after a main water meter used to register water used by individual multi-dwelling /occupancy developments on a parcel of land. For billing reasons, a sub /check meter must not be supplied through another sub /check meter; it must be supplied directly from a main water meter.

## **2. Metering and servicing requirements objectives**

The objectives of this document are:

- (a) To protect the environment and promote water conservation
- (b) To protect the health and safety of members of the public and Barwon Water's employees.
- (c) To provide fair equity for Barwon Water's customers
- (d) To encourage best practice
- (e) To ensure a consistent approach to metering solutions
- (f) To encourage compliance with Barwon Water's Metering and Servicing guidelines, the By-Laws and the *Water Act 1989*.

### **2.1. Legal and regulatory framework**

#### **2.1.1. Water Act 1989**

Barwon Region Water Corporation (Barwon Water) is a statutory authority with water supply and sewerage responsibilities conferred on it by *the Act*, including by

- Part 7 - General Powers, specifically sections 142 Water Meters and 150 Notice to repair;
- Part 14 - Enforcement of the Act, specifically section 288 Interference with Authority's property;
- Section 160 – The Act empowers the Authority to make by laws in respect of the management, protection and use of all lands, waterways and works under its management and control, including penalties and enforcement of procedures for non-compliances.

### 2.1.2. Non-Compliance

A person who fails to comply with, or do anything required to be done under *the Act*, Regulation or By-Law, is guilty of an offence and risks prosecution by the Authority.

## 3. Metering – General

### 3.1. Meter standards<sup>1</sup>

Materials, techniques, workmanship and finishes throughout shall comply with the provisions and requirements of the *National Measurement Act*, as administered by the National Measurement Institute (NMI) specifications and codes, in conjunction with Australian Standards AS 3565 and WSA codes. Where no Australian Standard exists, materials, techniques, workmanship and finishes throughout shall comply with the provisions and requirements of:

- (a) The British Standards Institution specifications and codes
- (b) Relevant local, Victorian and Commonwealth Government regulations
- (c) Respective controlling authorities
- (d) To the entire satisfaction of Barwon Water.

### 3.2. Meter acquisitions

All meters and products supplied to Barwon Water conform to the NMI R49-1, Australian Standard AS/NZS 3565 and AS/NZS 3855, including the 'Standards Mark' and are compliant with the requirements of the *National Measurement Act*.

Meter supply contractors will be requested to warrant this within the Manufacturer's Warranty documentation using the following:

- Without limiting any other warranty by statute law.
- If a defect (fair wear and tear excepted) appears in the goods within a warranty period, the Supplier shall promptly remedy such defect by either repairing or replacing the defective goods without cost to Barwon Water.

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<sup>1</sup> Reference: National Measurement Institute (NMI R-49) and AS 3565

Any meter supplied or approved by Barwon Water is owned by Barwon Water once it has been installed, and all meters must be:

- Installed by a licensed plumber or Barwon Water's agents
- Replaced by Barwon Water at no extra cost to the customer, except where:
  - the meter is stolen
  - the meter is damaged
  - the meter assembly does not meet current Australian Standards AS/NZS 3500<sup>2</sup>
  - if the meter is not readily accessible; for reading, replacement or maintenance purposes.

Then the occupier or owner shall pay Barwon Water the cost if its replacement, repair or proper installation.

- Replaced or maintained by Barwon Water at no extra cost to the customer, except where:
  - the meter installation is non-compliant
  - the meter is in a hazardous environment.

Then the occupier or owner shall pay the cost if its maintenance, replacement, or installation.

### 3.3. Water meter ownership

Barwon Water retains ownership of all meters and will operate them in accordance with the *Water Act 1989*<sup>3</sup> for the purpose of measuring volume usage, as described in section 142 as follows:

- (1) An Authority may:
  - (a) Provide or install, and maintain, a meter on any land to measure the amount of water delivered to the land by the Authority in the exercise of its water supply or delivery functions
  - (b) Position the meter on the land, as it considers appropriate.
- (1A) Without limiting subsection (1), an Authority may provide or install, and maintain, a separate meter:
  - (a) for each occupancy on any land
  - (b) if water is delivered for more than one type of service, a separate meter to measure the amount of water delivered for each service
- (1B) In determining what constitutes a separate occupancy, the Authority must use the relevant principles set out in the *Valuation of Land Act 1960*.
- (2) If an Authority believes that a meter on any land connected to its system is functioning inaccurately, the Authority may compute the quantity of water

<sup>2</sup> Reference: AS/NZS 3500 National Plumbing and Drainage part 1 Water Services

<sup>3</sup> Reference: *Water Act 1989* No 80 Section 142

delivered to the land in the exercise of its water supply or delivery functions during a specific period

- (a) By having regard to the quantity of water delivered to the land in any previous or subsequent period or periods, or the quantity of water delivered to any similar property during the period concerned; or
  - (b) In any other way that is prescribed.
- (3) A meter provided or installed by an Authority remains the property of that Authority.

### 3.3.1. Custody of Meters – (Damaged/Missing Meters)<sup>4</sup>

1. Any licensed plumber to whom Barwon Water supplies a meter for installation upon a particular property, shall be responsible for the safe custody thereof and if the meter is damaged while in the licensed plumber's custody or is lost or installed on the wrong property, the licensed plumber responsible shall pay to Barwon Water the cost of its repair, replacement or retrieval and proper installation.
2. The occupier or owner of any property upon which any meter of Barwon Water is installed shall be responsible for the safe custody of the meter and if it is stolen, damaged or is not readily accessible for reading replacement or maintenance purposes the occupier or owner shall pay to Barwon Water the cost of its replacement, repair or proper installation.

**NB: An occupier of land must notify the water corporation of the loss of, damage to, a water meter installed on the land within 2 business days after first becoming aware of the loss or damage.**

3. On the termination of any metered water service the licensed plumber responsible for the work shall forthwith return the meter to Barwon Water, and shall be responsible for the safe custody of the meter and if the meter is lost or damaged while in the licensed plumber's custody the licensed plumber shall pay to Barwon Water the cost of its retrieval replacement or repair.
4. A police report is required for any reported stolen meters.

### 3.3.2. Notice to Install Meters

Barwon Water may, by notice in writing, specify any of the following and the date by which any such work shall be completed:

1. Direct any person to whom water is supplied for any purpose to install a meter in accordance with the requirements of the Regulations
2. Order the transfer of any meter from one location to another within any property
3. Order the return to Barwon Water of any meter supplied by Barwon Water.

<sup>4</sup> Reference: Water (Estimation, Supply and Sewerage) Regulations 2014

### 3.3.3. Removal of Meters

No meter shall be removed or position altered unless a licenced plumber has approval from Barwon Water.

### 3.3.4. Return of Meters

Where an existing water service is no longer required, the water service must be cut and sealed at the main ferrule and the water meter must be returned to Barwon Water within 5 working days.

A plan of the cut and seal work is required to be submitted by a Licenced plumber in order for the meter record to be removed and billing ceased. A cut and seal is not required when an existing water main is being decommissioned/ abandoned. This is to be recorded on the 'as constructed' notes and any meters are still required to be returned.

## 3.4. Disconnection of water services

Barwon Water requires that a formal application to disconnect from its water assets be filed along with the application fee. The plumber will be required to disconnect the water service by means of cutting off the service pipe at the main ferrule and sealing the ferrule with a brass plug. Alternatively, the service may be converted to what is termed a 'Dry Tapping' arrangement as described below.

### 3.4.1. Disconnection of a Water Service Pre 1990 - 20/25 mm

Plumbers can disconnect 20/25mm services constructed pre-1990 by means of cutting off the service pipe at the main ferrule and sealing the ferrule with a brass plug. Alternatively, the service may be converted to what is termed a 'Dry Tapping' arrangement, provided that all the following conditions are met:

- The meter is removed and returned to Barwon Water
- If the ferrule is in a road way or nature strip, the old service must be replaced, with a new service which complies with Australian Standards approved material and with Barwon Water's requirements
- That any riser pipes, and front taps are removed
- That the ball valve is plugged/capped and buried within the property
- That a tracing tape is attached to the ball valve leading up to the natural surface
- If using Polyethylene (PE) a trace wire must place along the entire length of pipe from the main ferrule
- That accurate offset measurements are taken referring to the location of the ball valve in relation to the boundary lines and submitted to Barwon Water. (See Figure 1 & 2)
- All works will be at the property owner's cost.

### 3.4.2. Disconnection of a Water Service Post 1990 – up to 50 mm

For services up to 50mm in size and constructed after 1990, at the property owner's cost a plumber can disconnect the pipe at the reticulation water main and seal the ferrule with a brass plug, or alternatively the service may be converted to a 'Dry Tapping' arrangement provided all the following conditions are met:

- That the service is reduced to 20mm

- That the service is either 20mm copper, (or 25mm PE)
- That the service is no older than 1990
- That the meter is removed and returned to Barwon Water
- That any riser pipes, and front taps are removed
- That the ball valve is plugged/capped and buried within the property
- That a tracing tape is attached to the ball valve leading up to the natural surface
- If using Polyethylene (PE) a trace wire must place along the entire length of pipe from the main ferrule.
- That accurate offset measurements are taken referring to the location of the ball valve in relation to the boundary lines and submitted to Barwon Water. (See Figure 1 & 2)
- All works will be at the property owner's cost.

### Barwon Water - 20mm Dry Tapping meter set up requirements

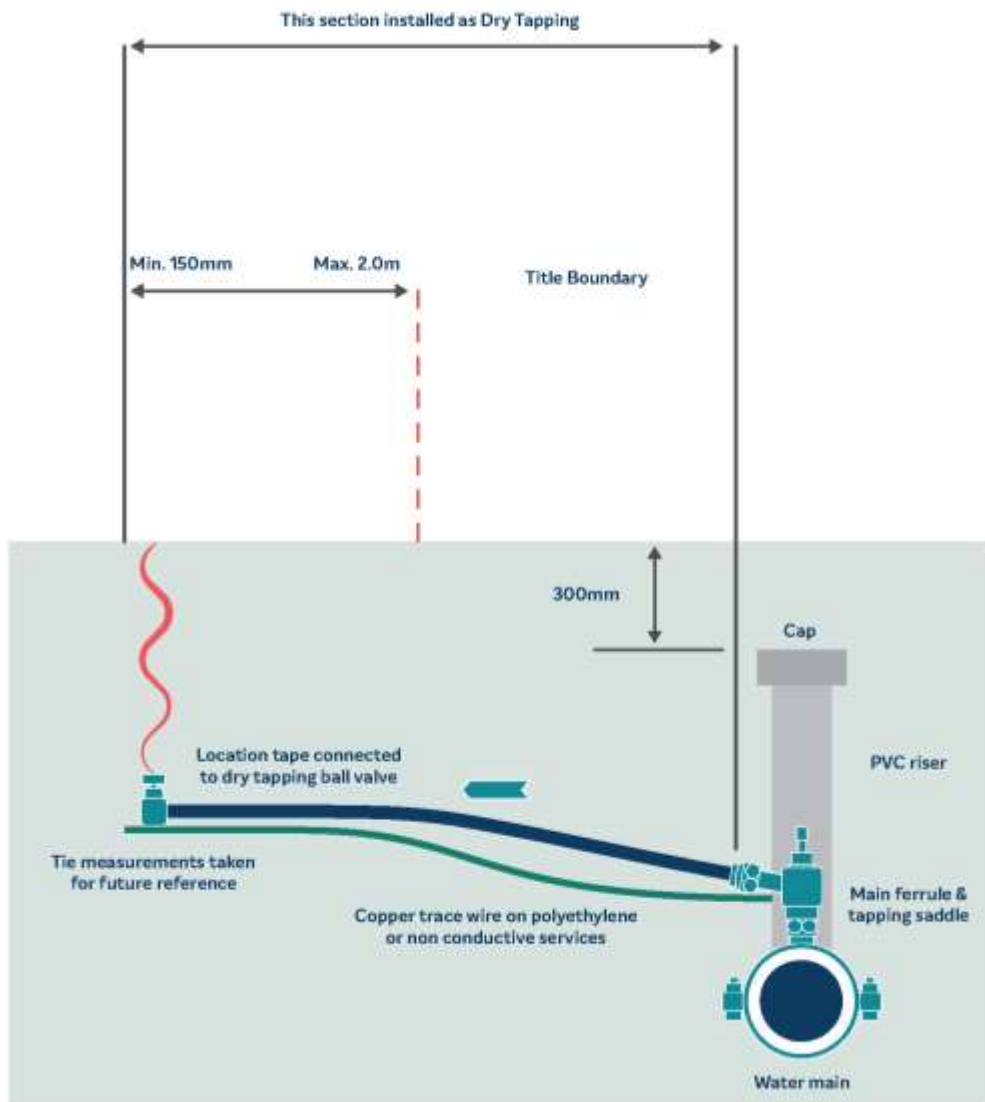


Figure 1 20mm dry tapping meter set up requirements

### Barwon Water - 20mm Dry Tapping meter set up requirements

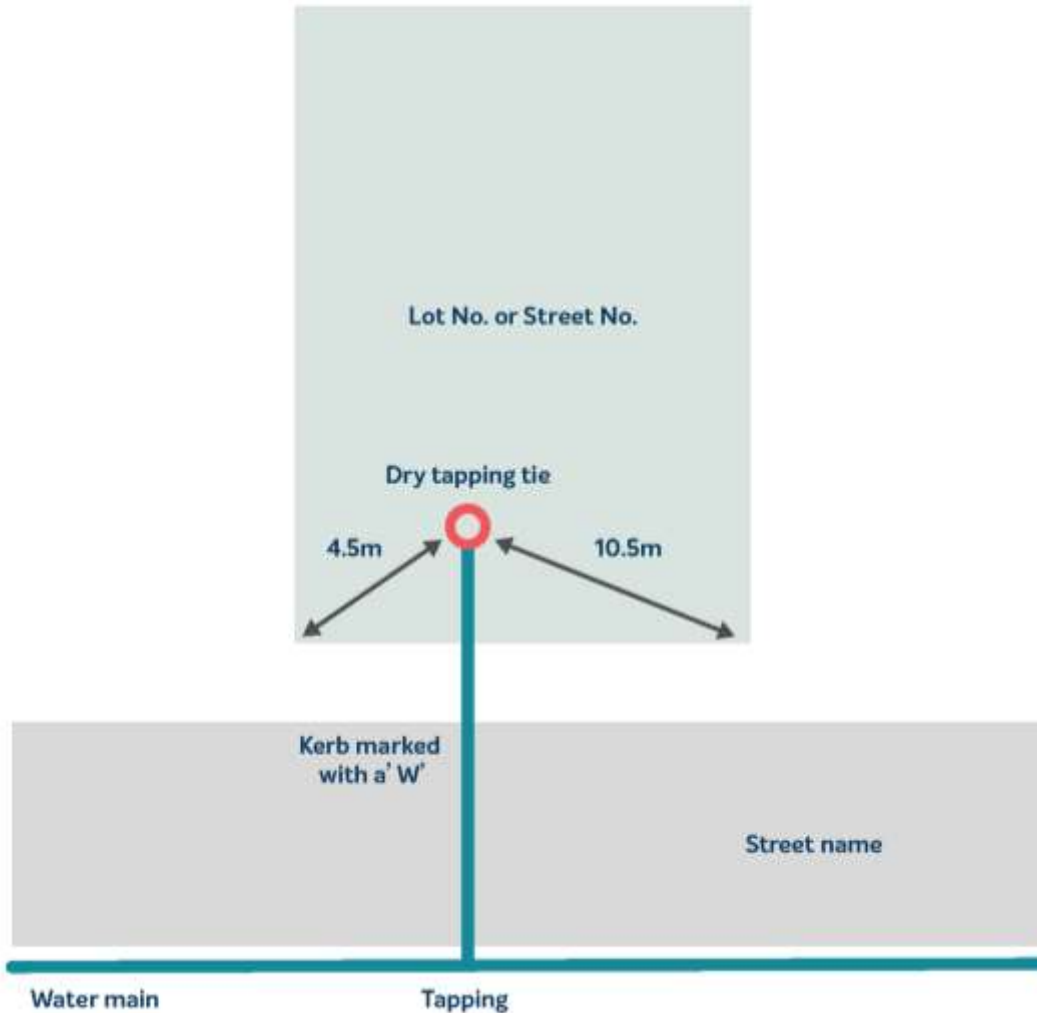


Figure 2 20mm dry tapping meter set up requirements

#### 3.4.3. Disconnection of Large Tappings (Tee-Removal)

Where a property has a service connection larger than 50mm which is no longer required, it must be removed. Removal of a large tapping, which is called a 'Tee-Removal', is only to be undertaken by Barwon Water or its' nominated agents. All works associated with the tee-removal will be at the property owner's cost.

The removal of the water or fire service from the first sluice valve to the property is the property owner's responsibility.

Note: The service cannot be capped off, because the valve and the tee must be removed and the integrity of the water main restored. Arranging a tee-removal is the same procedure as booking a tee-insertion.





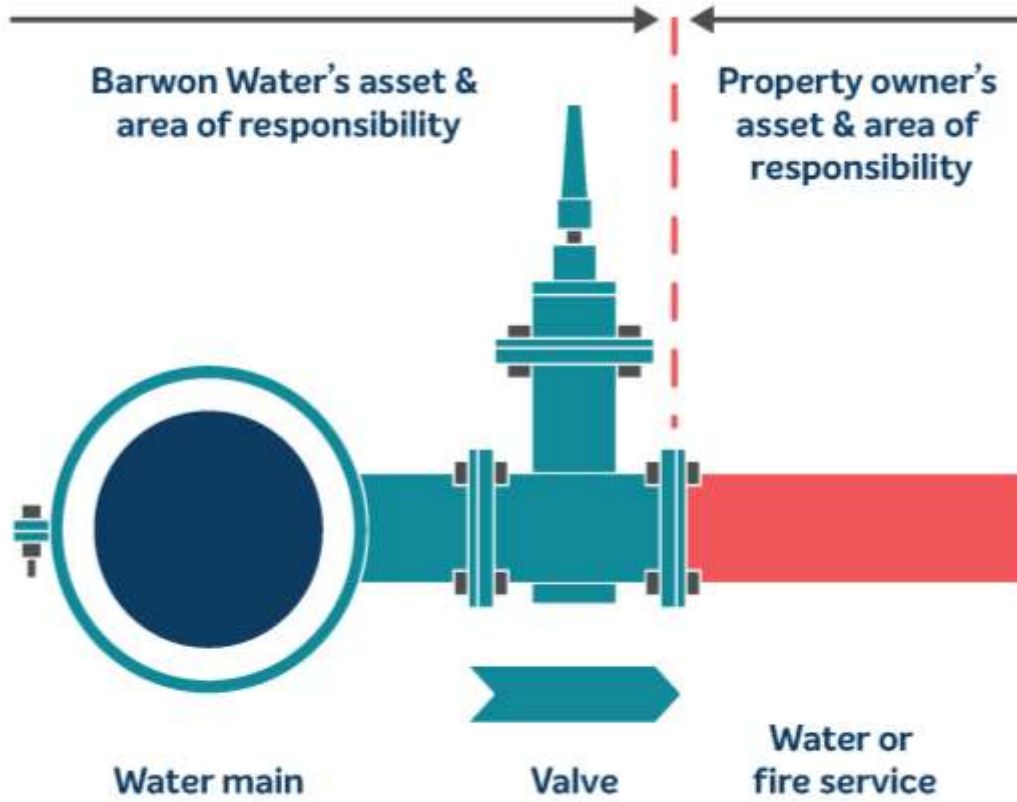


Figure 3 Barwon water versus property owner's area of responsibility

## 4. Metering – Installation

### 4.1. General metering requirements

Barwon Water may require that all connected properties or occupancies that have one installation number or more, e.g. residential properties, unit developments, multi-story buildings including dwellings above shops and commercial buildings, to be individually metered<sup>5</sup>

A water service tapping shall not be placed under a drive way or crossover. The meter assembly must be a minimum of 300mm from the side boundary and no closer than 700mm to any other services (i.e. sewer, electrical etc.)

Any development that has an existing dry tapping servicing the property and where the design of the development impacts the tapping or meter location, Barwon Water shall require the tapping to be relocated to avoid the main ferrule and being located under a drive way and meter subject to damage.

All works will be at the property owner's cost.

Fees will apply in line with the Barwon Water Billing Pricing Schedule.

### 4.2. Excavation for water tapping

Excavation dimensions for water tapplings and meter installations, please refer to the [Tapping Requirements Information Fact Sheet](#).

#### 4.2.1. Polyethylene Water Services

Barwon Water requires that where polyethylene (PE) or any non-conductive material is used for the water service between Barwon Water's reticulation water main and the water meter assembly, whether it be for a new tapping or a service replacement, a copper tracing wire must be installed on the outside of the pipe for the full length of the service.

The trace wire must be continuous, with one end of the wire connected to the copper inlet riser at the meter assembly, and the other end to the main ferrule or the brass bend at the ferrule at the water main. This is to assist with the future location of the water service.

If a tapping has been booked by a plumber; and Barwon Water's tapping crew find that a trace wire has not been provided, in accordance to Barwon Water's specification, the tapping will be cancelled, until the trace wire requirement is complied with and a rebooking fee will apply.

All tapplings shall have 100mm PVC tube fitted as a riser over main tap ferrule; the riser shall come to within 300mm of the surface, a loose fitting cap shall be placed on the top to prevent dirt from entering PVC riser. This allows for service key access to the main ferrule tap (see Figure 4 & 5).

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<sup>5</sup> Reference: Water Act 1989 No 80 Section 142

Barwon Water 20mm & 25mm wet & dry tapping meter set up requirements for drinking water

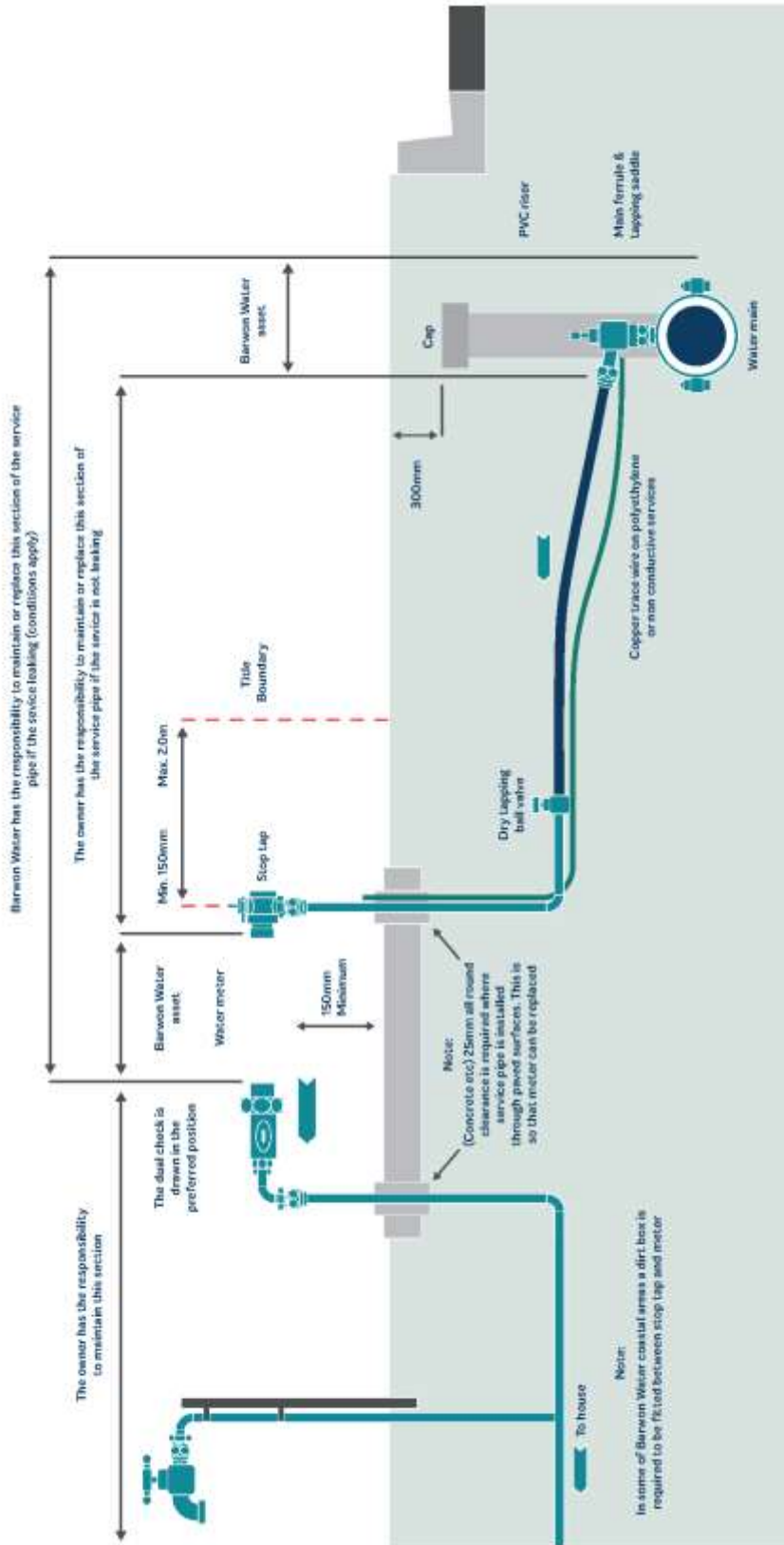


Figure 4 20 & 25mm wet and dry tapping meter set up requirements for drinking water

### 4.3. Meter location

Unless otherwise approved in writing, Barwon Water requires meters to be within the property and accessible, positioned within 2 metres of the property boundary, being directly opposite to the connection and at right angles to the reticulation water main (in line with the tapping).<sup>6</sup>

Unless otherwise approved in writing, Barwon Water requires meters for domestic dwellings, commercial developments and shops to be positioned within the property boundary, not inside the building. External recessed areas within the shop front or rear are acceptable provided that the meter and service is not imbedded in concrete or in driveways, and is accessible and clear of obstructions to enable unfettered access for reading, testing, inspection, maintenance and exchange at all times.

The meter assembly shall be located and protected to avoid damage<sup>7</sup> and vandalism. Meters and pipe work are not to be imbedded in or under brick fences or pillars (purpose designed recessed areas in fences that allow reading, testing, inspection, maintenance and exchange are acceptable).

Note: No water meter is to be located near or in an electrical cables, cabinets or control rooms.

### 4.4. Installation 20/25 mm

Only licensed plumbers or persons authorised by Barwon Water in the course of their duty shall carry out any work for the installation of any meter.

The costs of installing a meter will be the responsibility of the property owner. Costs for installing new meters in existing properties will be the responsibility of the party who requested the installation.

Barwon Water's general requirements for the location, installation and protection of water meters is in accordance with AS/NZS 3500 and this document.

Plumbers who fail to install meters in accordance to Barwon Water's requirements will be required to rectify the non-compliance at their own expense.

#### 4.4.1. Meter Assembly Set Up

Meters are to be assembled as required by AS/NZS 3500.<sup>8</sup>

In addition to AS/NZS 3500, Barwon Water requires all 20/25mm meters to be set at a minimum height of 150mm above the ground in a horizontal position. Areas requiring 'y' type inline strainers, must be installed a minimum of 150mm above the ground for servicing.

Where a Reduced Pressure Zone Device (RPZD) is installed as part of the meter assembly, the minimum height above the natural ground for the RPZD relief valve shall be 300mm.

#### 4.4.2. Frost Protection

Water meters and meter assemblies located in frost sensitive areas shall be protected against damage caused by the freezing of water. Plumbers installing meters in these areas must ensure that they have installed the meter in accordance to the AS/NZS 3500 section 13 Frost Protection

<sup>6</sup> Reference: AS/NZS 3500 National Plumbing and Drainage part 1 Water Services

<sup>7</sup> Reference: AS/NZS 3500 National Plumbing and Drainage part 1 Water Services

<sup>8</sup> Reference: AS/NZS 3500 National Plumbing and Drainage part 1 Water Services

First instance of a meter damaged due to frost - a letter will be sent reminding the owner that a plumber should have installed the meter in accordance to the AS/NZS 3500 section 13 Frost Protection; and rectify the meter installation. The instance shall be noted in Barwon Water's Billing System.

Re-occurrence of a meter damaged due to frost – the cost for the damage to the meter will be passed on to the owner, again reminding them that it is a requirement under the AS/NZS 3500 section 13 Frost Protection that a plumber should have installed the meter in accordance to the standard and rectify the meter installation.

#### 4.4.3. Meter pits

Meters in pits can only be installed upon application and approval from Barwon Water. The meter, meter fittings and stop valves within the pit must be installed to allow easy access for reading, replacement. The maintenance of the pit is, and will remain the responsibility of the property owner whether it is within the property boundary or not. If reading, replacement or maintenance cannot be performed due to the nature of the pit or meter installation the owner will be directed to remedy the problem.

Meter pits must be installed to comply with AS/NZS 3500, and if installed in public areas are to be of a type (non-plastic) or approved type by Barwon Water. A radio read remote type meter may also be required.

Meter pits shall comply with the following:

- Be self-draining
- Crushed rock around and under the pit
- Break out concrete collar to avoid damage to surrounding concrete.

No fittings, including but not limited to: bends, elbows, stop taps, check valves or meters, shall be encased in concrete.

If a water meter is placed in a meter pit for any reason, the pit and the maintenance of the pit is, and will remain the responsibility of the property owner whether it is within the property boundary or not. The meter, meter fittings and stop valves within the pit must be installed to allow easy access for maintenance, if maintenance cannot be performed due to the nature of the pit or meter installation the owner will be directed in writing to remedy the problem.

Meter pits must be installed to comply with AS/NZS 3500, and if installed in public areas are to be of a type (non-plastic) or approved type by Barwon Water. A radio read remote type meter may also be required.

Meter pits embedded in concrete shall comply with the following:

- Be self-draining
- Crushed rock around and under the pit
- Break out concrete collar to avoid damage to surrounding concrete.

NO Fittings, including but not limited to: bends, elbows, stop taps, check valves or meters shall be encased in concrete.

A conduit containing the water service may also be required to extend from the pit to clear any concrete obstruction.

#### 4.4.4. Concrete Clearance

If a meter or meter installation is found imbedded in concrete, the owner or occupier will be asked to remove the concrete from around the meter installation. Should the owner or occupier wish to install a concrete 'mower strip' around the water meter, then the concrete should only surround (not encase) the vertical risers of the meter assembly where they enter the ground.

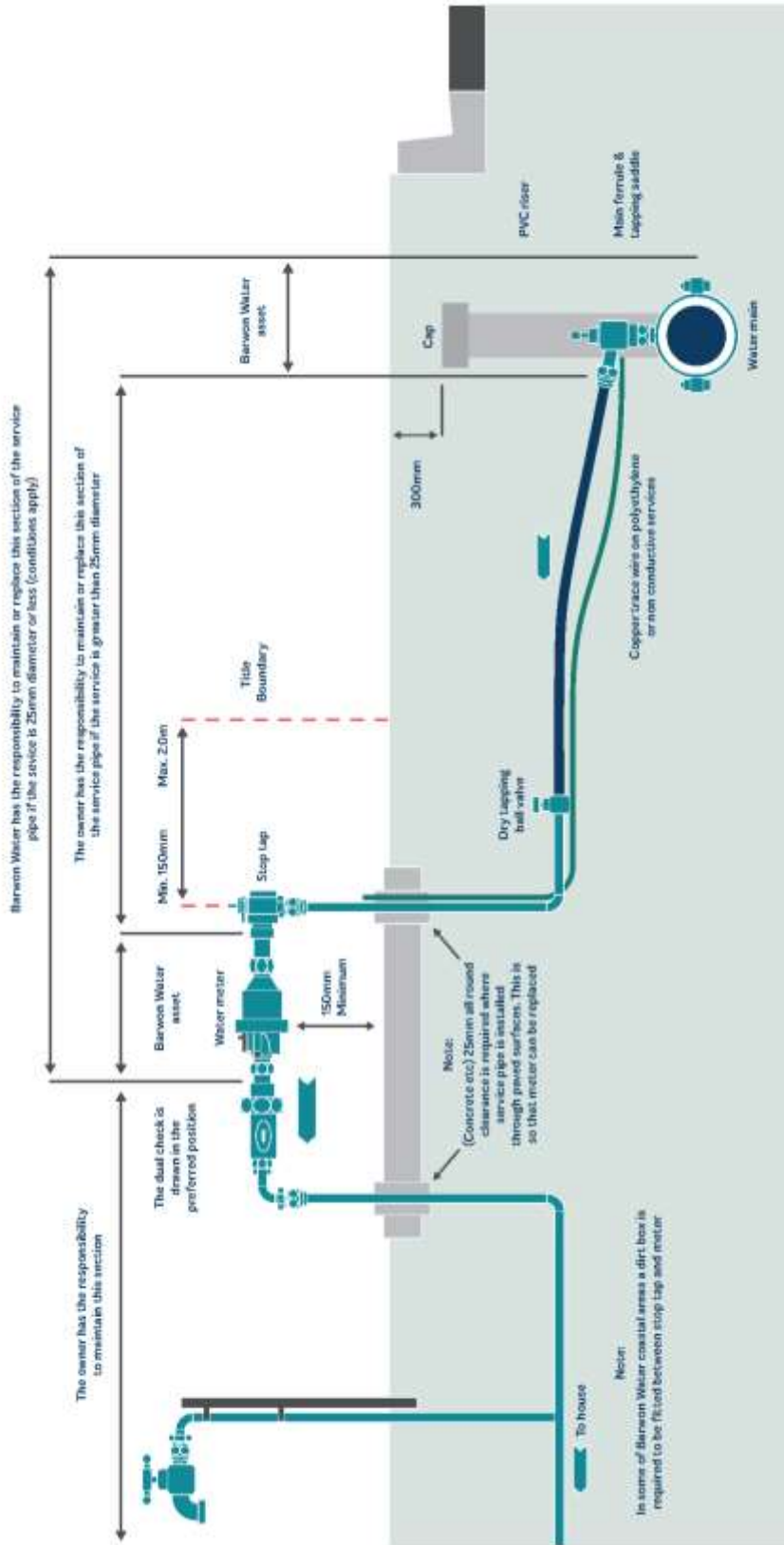
Placing plastic or UPVC sleeves around the vertical rises before the concrete is poured will enable the meter to be exchanged without the need to remove the concrete.

The horizontal pipes and the body of the meter must be left clear of concrete at all times.

The tapping connection point must not be placed under a driveway. Tappings will need to be relocated at owners or developers expense.

- A dimensioned 'as Constructed' Water Plan must also be supplied.

Barwon Water drinking water 20mm & 25mm meter installation – not to be used for non-drinking water



Note :  
 plastic spacers or bridging pieces are **not permitted** for use in place of water meters unless authorized by Barwon Water  
 Connecting to a dry tapping without first booking in a meter installation will result in a contravention notice and a possible prosecution as set out in Barwon Water's water supply and sewerage plumbing by-law

Approximate meter gap spacing between inlet and outlet for tapping crew to fit meter, couplings and dribsn where required			
20mm	minimum gap	maximum gap	
meter without dribox	230mm	250mm	
meter with dribox	320mm	350mm	
25mm	minimum gap	maximum gap	
meter without dribox	250mm	300mm	
meter with dribox	350mm	400mm	

Figure 5 - 20 & 25mm wet and dry tapping meter set up requirements – Not to be used for non- drinking water



Barwon Water – 20mm & 25mm Non-Drinking Water Meter Installation – not to be used for drinking water

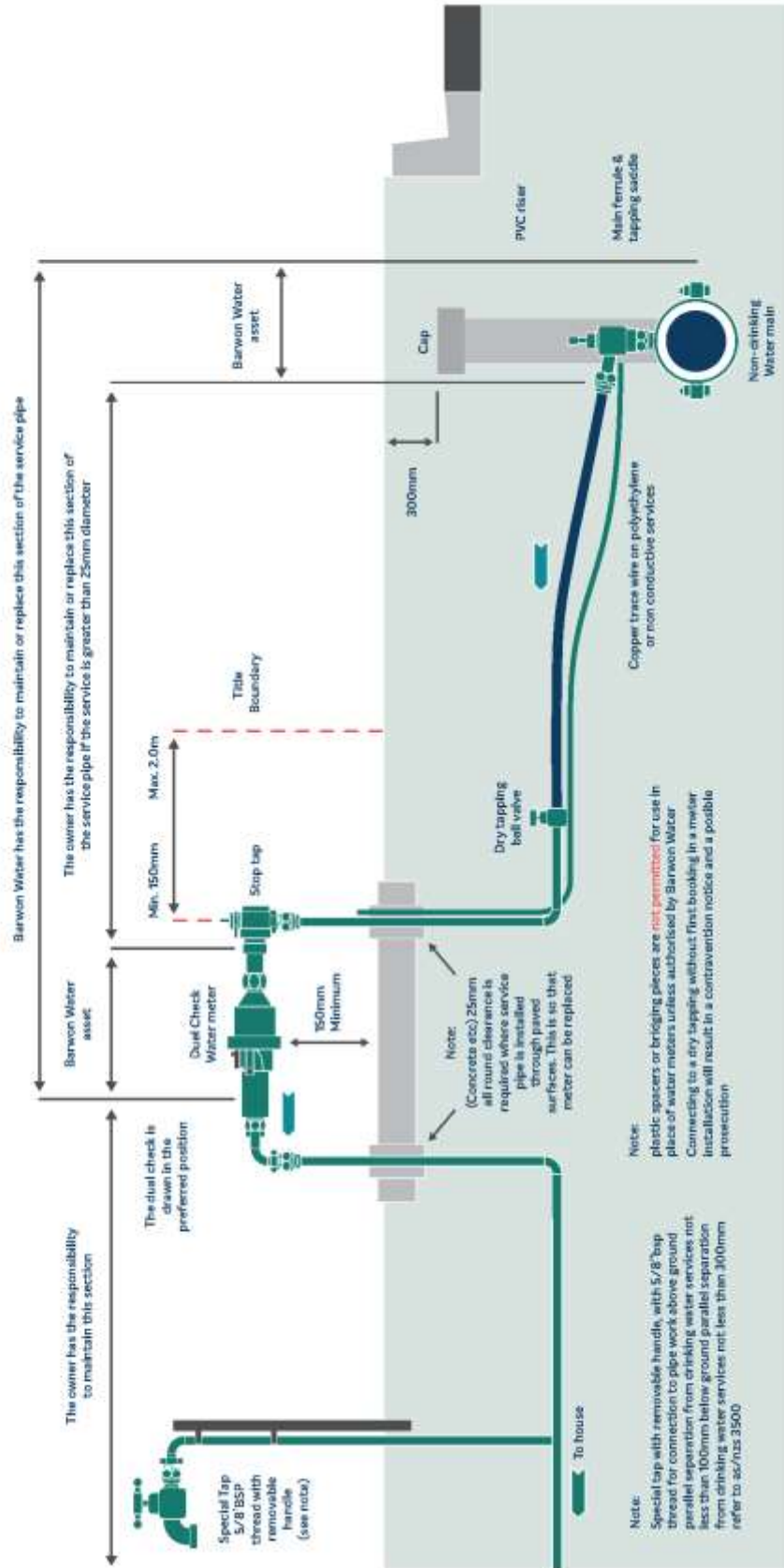


Figure 6 20 & 25mm Non drinking water meter installation – Not to be used for drinking water



#### 4.4.5. Meter Re-location

If a property owner has a need to offset the meter within the property boundary, the offset will be limited to one (1) metre.

On application and only in the case of an extreme exceptional circumstance, an absolute maximum offset of two (2) metres may be permitted. (e.g. long tapping across a major road, or an obstruction preventing tapping). In addition, the following is required:

- A Fitzroy box with an isolation valve must be provided of the point of offset.
- Barwon Water will require a notification form to be filled out with a detailed drawing including dimensions of the alteration.
- Offsets greater than two (2) metres will require the service pipe to be relocated and clear of obstructions. This will include an application to cut and seal off the existing tapping; and a second application for a new tapping. This new tapping must be directly opposite the connection and at right angles to the reticulation water main and in line with the meter re-location. Fees will apply.<sup>9</sup>
- A water service tapping shall not be placed under a drive way or crossover.
- Any development that has an existing dry tapping servicing the property, and, where the design of the development impacts the tapping or meter location, Barwon Water shall require where ever possible the tapping to be relocated to avoid the main ferrule and being located under a drive way and meter subject to damage. Cost of relocation is the responsibility of the owner or developer. Fees will apply<sup>10</sup>.

#### 4.5. AMI/AMR remote/radio read meter installation

To be read in conjunction with Sections 6, 6.1 & 6.5 Sub Meter Installation.

A remote reading device is attached to a water meter to electronically record the volume of water flowing through the meter. The reading is then transmitted by radio wave when activated by the meter reader. The benefit of remote meters is that Barwon Water reads the meter from outside the property, thereby ensuring security and privacy for customers.

An approved Barwon Water remote (radio read) meter reading system must be fitted to all new installations that have restricted access or are not accessible for reading purposes. This includes, but not limited to water meters located behind fences, in locked-up positions, unit developments and in multi-storey buildings including dwellings above shops.

Existing inaccessible meter installations, or meter installations that become inaccessible for meter reading purposes due to changes in property security, dogs, fencing, redevelopment or for the safety of the meter readers, must also be upgraded to a (radio read) remote read meter. (Barwon Water will provide the meters). Fees will apply.<sup>11</sup>

The cost of the remote meter and installation will be at the property owner's expense, unless there are extenuating circumstances, or the property owner is in financial necessitous circumstances.

<sup>9</sup> Reference: Barwon Water Billing Pricing Schedule

<sup>10</sup> Reference: Barwon Water Billing Pricing Schedule

<sup>11</sup> Reference: Barwon Water Billing Pricing Schedule

A licensed plumber, following Barwon Water's installation guideline, shall carry out any plumbing alterations to accommodate the meter set up. Barwon Water will supply, install, and commission the remote read meter.

To ensure correct operation of the remote meter the installation shall be as follows:

- 150mm minimum distance between the centre of the pipe and the nearest wall
- 250mm minimum distance between the centres of the pipe of each meter assembly
- NO meter shall be installed in any ceiling spaces or floor cavities inside buildings
- NO water meter is to be located near electrical cables, cabinets or control rooms. A minimum clearance of 700mm is required.

#### 4.6. Meters for special needs customers

Barwon Water uses a BLUE METER<sup>12</sup> to identify a special needs customer with medical conditions. This can include dialysis and haemodialysis kidney machines that are used within the property.

The meter installation must have BLUE SECURITY CLAMPS fitted, and under no circumstances shall the meter be changed or the supply disrupted until the customer has been consulted and permission granted.

## 5. Unit development meter installation

### 5.1. Unit development meter installation

#### 5.1.1. Minimum sizing of service pipe supplying water to multiple buildings

Pipe sizing shall be determined by using the 'flow rates and loading unit table', and 'probable instantaneous demand table' set out in AS/NZ. 3500<sup>13</sup> Section 3 - Sizing of Water Services.

Note: Pipe size calculations, based on a DN copper service, shall not be not less\* than the table set out below. And does not included the hydraulic limitations of the water meter.

Note: \* subject to the approval of Barwon Water

Where available pressure in Barwon Water's reticulation water main is less than 300 kPa, or the length of the service pipe from the reticulation water main to the furthest dwelling supplied is greater than 60m, the sizes stated in the table may not ensure adequate flow rates.

<sup>12</sup> Reference: AS/NZS 3500 National Plumbing and Drainage part 1 Water Services

<sup>13</sup> Reference: AS/NZS 3500 National Plumbing and Drainage part 1 Water Services

**Table 1: Pipe size calculations**

Domestic Buildings supplied	Commercial Buildings supplied	Service pipe size (DN Copper)
1 - 2*	1 - 2 *	20mm*
2 - 5	2 - 6	25mm
6 -10	6- 14	32mm
11 - 20	15 - 25	40mm
Over 20	Over 25	As approved

### 5.1.2. Water supply to six units or less

- (1) The applicant (developer, owner or representative) shall submit an application for metering at the same time that hydraulic plans are lodged for the development.
- (2) The application shall include schematic drawings detailing the internal water service design within the development clearly marking the proposed location and size of each meter and the area or unit or dwelling served.
- (3) The unit number must be permanently tagged on the service pipe next to the location of the water meter to indicate the recipient of the water supply.
- (4) Plumbers who fail to install meter assembly arrangements in accordance to Barwon Water's requirements will be required to rectify the non-compliance at their own expense. (Refer to Figures 9 - 24). A dual check valve is to be installed to all meter installations.
- (5) Barwon Water's meter installer will allocate meters to each unit in accordance with the tagging on the service pipe.
- (6) Once installed, water meters are NOT to be removed without permission from Barwon Water.
- (7) Plumbers will ensure that the tapping and meter assembly arrangements are carried out to Barwon Water's requirements, and that water services to each area or unit or dwelling served match that shown on the pipe work and plans.
- (8) Water supplying the development can be from one or more tappings or using a manifold system.

### 5.2. Typical meter placement guidelines for 2 - 6 unit developments

This guideline applies to both drinking water and non-drinking meter installations (Refer to Figures 9 - 24).

- (1) Service pipes between meters and units may be installed in a common trench, but shall be connected according to guidelines shown.
- (2) Units on irregular shaped blocks shall be serviced in a similar way.
- (3) Any existing meter that has been retained must also be marked and must service the original installation or front unit (Lot 1).
- (4) Reticulation water main extension may be required in some sub-divisions.

- (5) Meters shall not obstruct driveways.
- (6) If the common driveway is too narrow to safely install meters, then:
  - a) meters servicing the properties shall be placed so that all owners have unfettered access to their individual meters, or,
  - b) a separate common ground area at the entrance and next to the driveway must be provided within development
  - c) a meter servicing a separate dwelling/unit shall not be locked or placed with in another owners allotment
  - d) service pipes should not cross title boundaries.
- (7) Battle-Axe blocks provisions for the placement water meter shall be at the entrance of the drive way or common ground near the fount boundary or common ground (also refer to point 6).

### 5.2.1. Acceptable servicing solutions for 2 - 13 Units

Please refer to the [Land Development manual](#) for suggested servicing plans.

## 6. Sub-meter installation

### 6.1. Sub-meter purpose

Sub-metering is a term used to refer to individual water meters generally fitted to measure an individual customer's water usage. These meters are located downstream and are in addition to the main (master) meter located at the property boundary, which is used to measure bulk supply into the property.

Sub-metering allows for separate billing to customers on a 'User Pays' basis and avoids customers subsidising other consumers located in the same development. The combined consumption recorded on all of the sub-meters in the development is deducted from the master meter consumption. Where relevant, any residual consumption on the master meter for common area usage shall be billed to the relevant legal body e.g. Owners Corporation, Community Association and Management of Commercial Developments, or shared between property owners etc. for bill payment.

### 6.2. Application and approval of sub-metering

For relevant types of developments, as outlined in Section 6, all applications are subject to the following requirements:

- (1) Meet the requirements of WSAA Sub-Metering Code of Practice<sup>14</sup> and Barwon Water specifications.
- (2) The applicant (developer, owner or representative) shall submit an application for sub-metering at the same time that hydraulic plans are lodged for new developments.

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<sup>14</sup> Reference: WSAA Codes of Practice

- (3) The application shall include schematic drawings detailing the internal water service design within the development clearly marking the proposed location of each sub meter.
- (4) The applicant shall submit a completed checklist confirming that the design conforms to the requirements in this document and any additional design specifications required by Barwon Water.
- (5) Approval of the application will be subject to Barwon Water assessment of the application and compliance with the requirements in this document.
- (6) The applicant shall be required to modify the design at their own cost and resubmit their application should the original application not be compliant with the requirements.
- (7) For existing developments the applicant is required to submit schematic drawings of the existing water service design and mark the planned service alterations and proposed locations of each sub-meter in accordance with the requirements.
- (8) Sub-meters will not be installed until the application has been approved by Barwon Water.
- (9) Location of sub-meters must take in to account, but not be limited to - physical access, meter design configuration and limitations and OH&S.

### 6.3. Types of development

#### 6.3.1. New developments

The Sub-Metering Policy shall be applied to the following types of development where approved to:

- (1) Dual Residential – two dwellings on one parcel of land
- (2) Multi-Dwelling Residential:
  - a) Multiple dwellings on a single parcel of land
  - b) Community Titled schemes – generally horizontal developments with separate title for each unit/lot
- (3) Strata Title schemes – Body Corporate or Owners Corporation – may be single or multiple story developments
- (4) Mixed Developments – parcels of land or developments that have their title boundary dwellings/occupancies used for both residential and non-residential purposes
- (5) Lifestyle/Gated Community developments alternate arrangements may apply (see Section 6.5.9).

For all the above developments, a sub-meter will be required for each individual occupancy on the drinking water supply.

Where applicable a sub-meter will also be required for each individual occupancy on the recycled water supply.

Where a new stage of development is to be completed, the developer is to submit a new application with drawings outlining the proposed location of the additional sub-meter(s).

### 6.3.2. Development of existing sites or staged developments

This focuses on the approval and installation of new developments, the other circumstances that will trigger the requirements of this document include:

- (1) Staged developments – the developer may choose to stage a development usually for funding and/or property market reasons. This may involve releasing and constructing the development in multiple stages. Each stage shall require plans to be submitted for approval based on the original design and additional requirements to ensure that the entire development remains compliant.
- (2) Subdivisions within an existing development with sub-meters – e.g. a Torrens Title subdivision of a Community Title lot. The subdivided lot(s) will require individual sub-meters. Plans shall be required to be submitted for approval based on the original design and new development to ensure that the entire development remains compliant.
- (3) Existing Developments requiring sub-meters – will be required to submit an application and plans in accordance with this document. All costs associated with the redesign and retrofit of the water service and sub-metering requirements is borne by the owners of the development.

### 6.4. Internal water service design plan – schematic drawings

A full set of hydraulic and schematic drawings must be submitted to Barwon Water for assessment as part of the application process. The drawings shall:

- (1) Include a plan showing the design and layout of the water service within the development and location of the master and sub-meters for each proposed occupancy.
- (2) For each schematic drawing for the development, include a table of:
  - a) each unit number / lot occupancy
  - b) the location of the sub-meters for each occupancy
  - c) the location of the master meter(s)
- (3) Where the water service provider is required to approve a sub-meter to be installed on common property (e.g. pool area, common gardens etc.), the plan shall:
  - a) Show the proposed location of the sub-meter on the plan.
  - b) Ensure all communal water fixtures in the common area are metered.

The developer shall not proceed with construction of the internal water service until the hydraulic assessment has been completed and the schematic drawings of sub-meter locations and any other design requirements have been approved by Barwon Water.

### 6.5. Location of sub-meters

This section specifies the general requirements for the installation, location and protection of sub-meters and applies to both new developments and existing developments.

Barwon Water requires that the master meter be positioned within 2 metres of the property boundary, being directly opposite to the connection and at right angles to the reticulation water main (in line with the tapping).

### 6.5.1. Location of sub-meters – General requirements

Sub-meters used for billing purposes shall (This includes remote read sub-meters - see Section 4.5):

- (1) Be located within the developed property boundary
- (2) Provide access to enable reading, testing, inspection, maintenance and exchange without impediment and kept clear of obstructions at all times
- (3) Water meters shall be placed in a serviceable area in a position protected from vehicle traffic and vandalism or in secured areas of main buildings, e.g. in utility room(s) or meter cabinets located within common access areas on each level. If locked the lock shall be able to be opened by a 003 key.

Water meters shall be placed in a serviceable area in a position protected from vehicle traffic and vandalism. Or in secured areas of main buildings, e.g. in utility room(s) or meter cabinets located within common access areas on each level.

- (4) Meters installed in utility room(s) or meter cabinets will require an additional stop tap installed adjacent to the meter outlet and the installation of a drip tray will be required as part of the installation to prevent water damage during meter exchanged.
- (5) Meter assemblies 20mm & 25mm shall be set up in accordance with Metering Installation Figure 5 & 6 and shall be installed in a horizontal position
- (6) Meter assemblies shall be installed above ground and must not be higher than 1.5 metres from the finished floor level.
- (7) Provide for adequate hazard protection using backflow prevention to protect the water supply in accordance with the AS/NZS3500.
- (8) Not be encased in concrete to ensure the service pipes and meter can be maintained.
- (9) Where sub-meter assemblies DN 32 or larger are installed:
  - a) Must be supported independently of piping supporting the meter in a horizontal position.
  - b) Must be fitted with a test ferrule immediately downstream of the water meter and the downstream outlet valve<sup>15</sup> (and are require independent of any test points on RPZ's or testable backflow devices).

Note: Meters must NOT be installed inside apartments, shops, in the ceiling space or floor cavities.

The developer is responsible for any costs associated with re-designing the water service locations to be compliant with this document.

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<sup>15</sup> Reference: Building Act -Plumbing Regulation1998 No. 148



### **6.5.2. Multi-unit development meter installation**

All new multi-unit developments that have more than six units must have a main (master) meter at the property boundary and individual sub-meter installed for each separate installation within the development. Any water meter including the pipes and fittings must not be imbedded in concrete formwork, or concrete walls. Meters must not be installed inside apartments, shops or in the ceiling space, or in cabinets containing fire hose reels.

The plumber must ensure that the position of the meter(s) is accessible and clear of obstructions to enable reading, testing, inspection and exchange. The meter assembly shall be located and protected to avoid damage, and must be in an area that meets Barwon Water approval.

### **6.5.3. Multi-storey buildings meter installation**

All new multi storey building developments must have a main (master) meter at the property boundary and a Barwon Water approved remote meter reading system installed. Meters must be installed inside the property boundary in secured areas of main buildings, e.g. in utility areas or meter cabinets (NOT in cabinets containing fire hose reels) located within common access areas on each level (NOT in floor pits or within walls within shops or commercial premises). In addition, meters installed in commercial buildings must at all times be provided with clear safe access around the water meter for maintenance purposes. The water meter including the pipes and fittings must not be embedded in concrete formwork or concrete walls.

An additional stop tap must be installed adjacent to the meter outlet and the installation of a drip tray may be required, to prevent water damage during meter exchange.

Note: NO meter shall be installed in any ceiling spaces inside a building.

### **6.5.4. Commercial buildings meter installation**

All new multi-tenanted or commercial building developments must have a main (master) meter at the property boundary and a Barwon Water approved remote meter reading system installed. Meters must be installed inside the property boundary in secured areas of main buildings, e.g. in utility areas or meter cabinets (NOT in cabinets containing fire hose reels) located within common access areas on each level (NOT in floor pits or within walls within shops or commercial premises). In addition, meters installed in commercial buildings must at all times be provided with clear safe access around the water meter for maintenance purposes. The water meter including the pipes and fittings must not be embedded in concrete formwork or concrete walls.

An additional stop tap must be installed adjacent to the meter outlet and the installation of a drip tray may be required, to prevent water damage during meter exchange.

Note: NO meter shall be installed in any ceiling spaces inside a building.

Sub-meters, if approved, may be placed outside on top of the roof of commercial buildings, provided that all meters are accessible via designated roof access walkways with safety railings, and must be within 500mm of the safety railing, and have ease of access from ground level (not portable ladders) incorporated in the design.

If located outside of a building, meters must be placed in a serviceable area in a position protected from vehicle traffic and vandalism.





If the meter is located inside a building, a drip tray shall be required, and a stop valve shall be installed in an accessible position outside the building.<sup>16</sup>

For new developments of six tenants or less, individual meters, not sub-meters, must be installed (see Section 5).

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<sup>16</sup> Reference: Building Act - Plumbing regulation 1998 No. 148

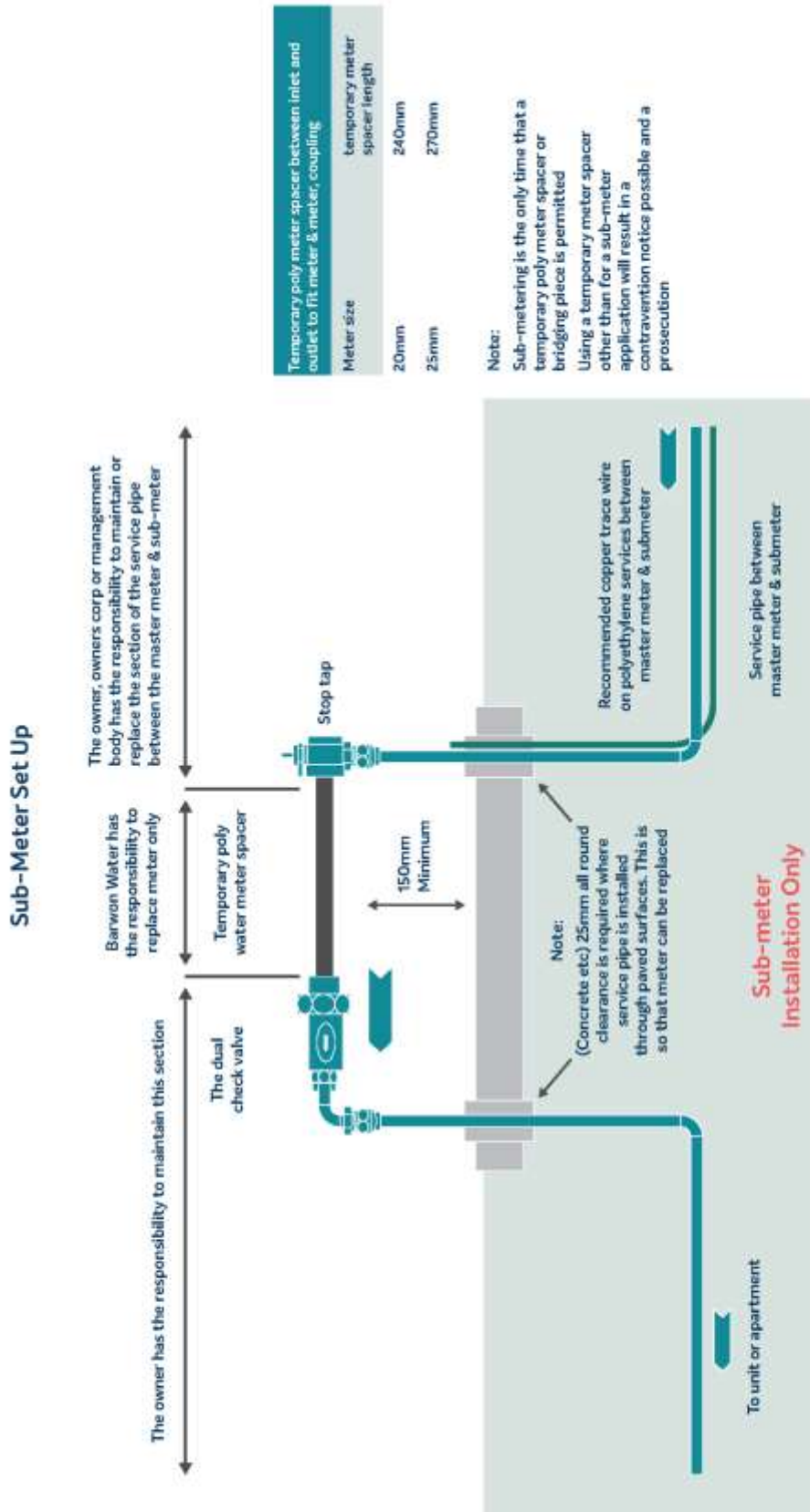


Figure 7 – Sub meter set-up

Barwon Water 20mm & 25mm meter cabinet / utility room installation

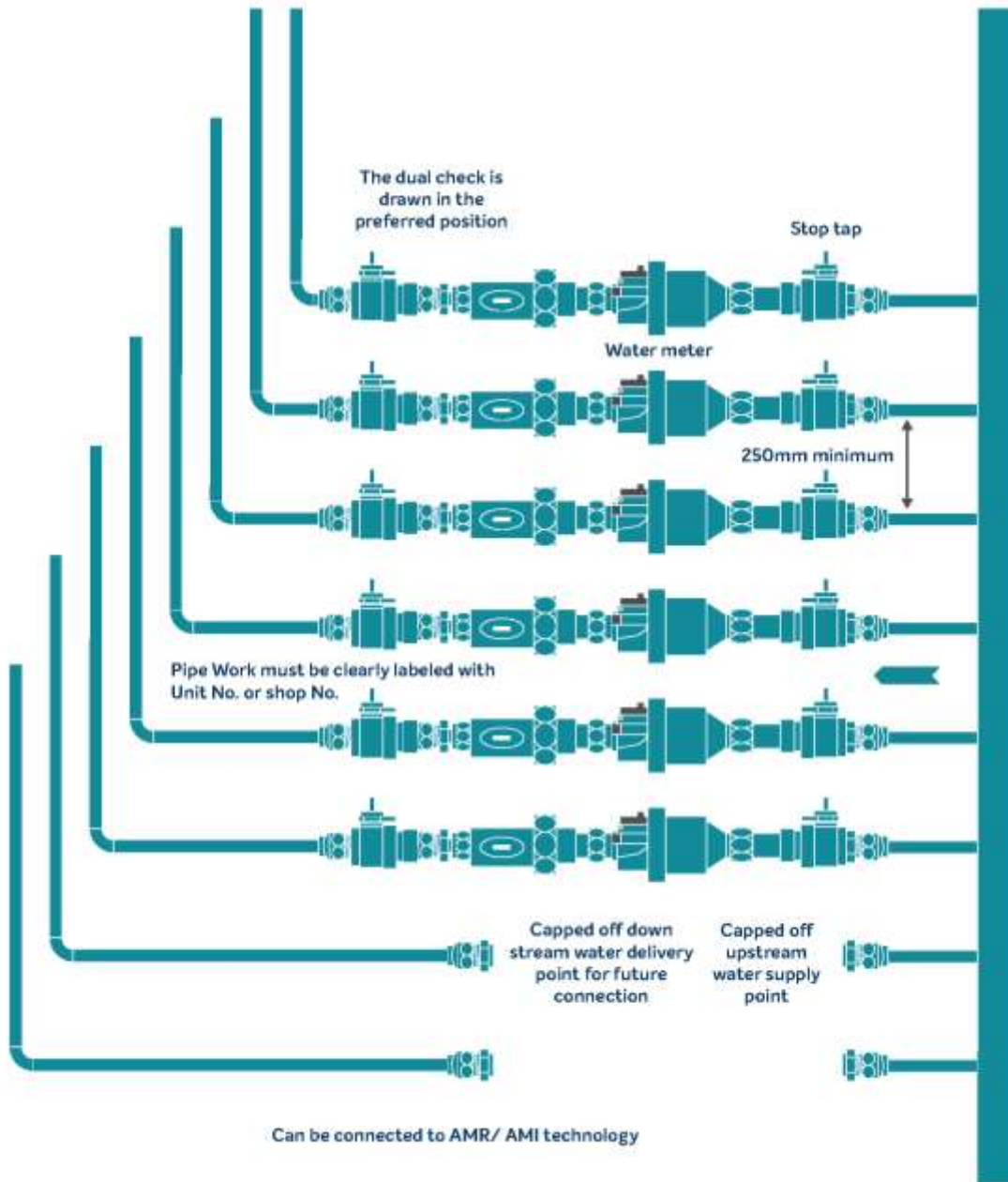


Figure 8 - Multi-meter 20 & 25mm meter cabinet / utility room installation

**6.5.5. Sub-Meter location design options**

To meet the physical access requirements of Section 6.2, Barwon Water may require more detailed design specifications. These specifications may vary depending on site specific issues of the relevant development (e.g. security access, high rise, gated communities etc.).

Sections 6.5.2 and 6.5.3 are design options which can be used to overcome some of these issues to ensure that the general requirements at Section 6.5.1 can be met.

All installations 32mm and greater must be fitted with a test ferrule immediately downstream of the water meter and the outlet valve<sup>17</sup> and the meter assembly correctly supported in line with AS/NZS 3500.

#### **6.5.6. Secured sites using standard metering technology (Mechanical meters)**

This option would suit a secured development with restricted access (e.g. high rise/vertical developments, gated community etc.) which uses mechanical meters (see Figure 26).

To ensure unfettered access by Barwon Water, this option shall:

- (1) Provide a secured location (purpose designed utility room/compound) for all meters with walk up ground floor access from the street
- (2) Ensure that the secured meter room would be in a separate common area outside of the secured occupancies
- (3) Allow meters to be manually read by meter readers with direct walk up access to the meter compound from the street
- (4) Not allow the room/compound to be accessible by persons other than the building manager, building maintenance staff and water service provider representatives.

Ensure that all meter installations comply with Section 6.

#### **6.5.7. Secured sites with AMR/AMI technology**

This option is for secured development with restricted access (e.g. high rise/vertical developments, gated community etc.) that uses AMR/AMI technology which solves the metering access problems and provides meter reading efficiency.

This option may feature the following:

- (1) In high rise or vertical complexes the sub meters may be located in a purpose designed meter utility room or water meter cabinet(s) (not in cabinets with fire hose reels) which are located in a common area on each floor
- (2) In a gated community or secured horizontal development the sub meters may be located on common property within the development
- (3) Alternatively, for either type of development the sub meters may be located in a water meter utility room that is accessible through the common property
- (4) To enable unfettered access for meter reading, meter exchange or maintenance, AMI/AMR technology would be deployed in accordance with Section 4.5.

#### **6.5.8. Development release**

Barwon Water requires all conformances to be met, and a separate dimensioned 'As Constructed Sewerage Plan' and 'As Constructed Detailed Water Plan', which must include the location of all meters and what they service. These plans must be supplied prior to release of any development.

<sup>17</sup> Reference: Plumbing Regulation 1998 No. 148 part 31D ref. 12.8

### 6.5.9. Gated community or lifestyle community development meter installation

Barwon Water may require all new lifestyle/ gated community developments to have special water and wastewater metering systems installed prior to connection to Barwon Water's infrastructure.

The development of private infrastructure where a single pipe scheme or a combined Fire/Domestic water service is requested will have to be approved by Barwon Water.

Any lifestyle or gated community development that uses combined Fire/Domestic infrastructure and uses private sub-meters will be subject to the plumbing solution (see Figure 33a)

Private sub-meters must be 'pattern approved' and meet *National Measurement Act*<sup>18</sup> and National Measurement Regulation, as administered by the National Measurement Institute (NMI) specifications and codes, in conjunction with Australian Standards AS 3565 and AS/NZS 3500 and WSAA codes.

## 7. Re-development or retrofit metering

This section must be read in conjunction with Sections 4, 5, & 6.

### 7.1. Existing units/ re-development or subdivision

Where an existing property or unit development is re-developed or subdivided and/or an application is made for individually metering, the plumbing must be altered to ensure that the meter locations comply with the requirements outlined in this document. In addition to this, if any pipe alterations are made, then the plumbing work must comply with *Plumbing Regulations 1998 No. 14819 section 31C. 'Performance requirements for the design and construction of cold water services' and backflow prevention.*

Plumbing work carried out for the installation of, or alterations, additions or repairs to any part of the cold-water service of any property (this includes a house renovation/ re-development), must comply with the requirements outlined in this document and with AS/NZS 3500. This will include upgrading or the replacement of any galvanised property service pipes from Barwon Water's reticulation water main to the meter assembly.

Barwon Water requires all conformances to be met, and a separate dimensioned 'As Constructed' detailed Water Plan, which must include the location of all meters and what they service be provided. These plans must be supplied prior to release of any development.

### 7.2. Retro fitting individual or sub-metering on existing unit developments

In line with Section 4.1 of this document, Barwon Water requires that all connected properties that have more than one installation number, (e.g. residential properties, unit developments, multi-story buildings including dwellings above shops and commercial buildings), are individually metered, Barwon Water will require an application for any additional meter or sub-meter.

- (1) Owner(s) of existing units within an owners' corporation who operate under the shared service arrangement; who later request to have individual meter(s) or

<sup>18</sup> Reference: National Measurement Institute (NMI R-49)

<sup>19</sup> Reference: Building Act -Plumbing regulation 1998 No. 148

(sub-meter) fitted to their unit(s), must firstly apply in writing to their owner's corporation for approval. If the request is approved by the owner's corporation, then:

- a) Barwon Water may require the owners' corporation to consider the possibility of requesting all unit owners within the development to be individually metered or sub-metered at that time.
- (2) Owner(s) of existing units who operate under the shared service arrangement; who later choose to have individual meter(s) or (sub-meter) fitted to their unit(s):
- a) Barwon Water may require all or remaining unit owners within the development to also install individual meters or sub-meters at that time.
- (3) Owners of large existing multi-unit properties who decide to redevelop and separately title each unit should note that metering or sub-metering all units may not always be possible due to the nature of internal plumbing, in these cases:
- a) Barwon water will not install sub-meters and the owner's corporation will be responsible for the water account and the unit owner(s) will be responsible for any fixed charges, or
  - b) In the case of retrofit sub-metering, common area garden taps shall be removed and capped off unless separately metered. If common area garden taps are retained the owner's corporation will be responsible for the water account.

### 7.3. Private extensions

Private water extensions are constructed privately at the cost of the property owner.

If more than one property is to be connected via the private extension, then agreement between parties connected to the private extension will be required. A conditional supply agreement must be entered into with Barwon Water before the construction of the private extension is commenced.

- 1) Barwon Water requires all private extensions to have a 'Master Meter' and a backflow prevention device installed at the tapping point. (Refer AS/NZS 3500, to determine hazard rating.).
- 2) A flow limiting valve may be specified as a condition of connection.
- 3) A flow limiting valve may be specified for differing properties on the private extension to ensure balanced supply for each connected property.
- 4) The meter must be located in a position that prevents damage and provides ease of reading and maintenance if required.
- 5) A fully dimensioned, 'As Constructed' Water Plan must be supplied to Barwon Water.



## 8. Commercial and industrial metering

### 8.1. Excavation

#### 8.1.1. Excavation dimensions for water tapplings and meter installations

In addition to the basic dimensions of excavating (see Figure 4 Length = 2000mm x width = 1500mm), a 1500mm clearance on the valve side of the reticulation water main is required for tapping equipment. A 150mm minimum clearance is required behind pipe, 150mm minimum clearance under pipe. In most cases, tapplings over 50mm are undertaken under pressure, by utilising a stainless steel band, which is placed around the water main. An isolating sluice valve is bolted to it and the main drilled under pressure.



Figure 9 - Wet tapping

#### 8.1.2. 'T' Insertion - complete with divide valves and fire plugs

Large tapplings may require, a 'T' Insertion.

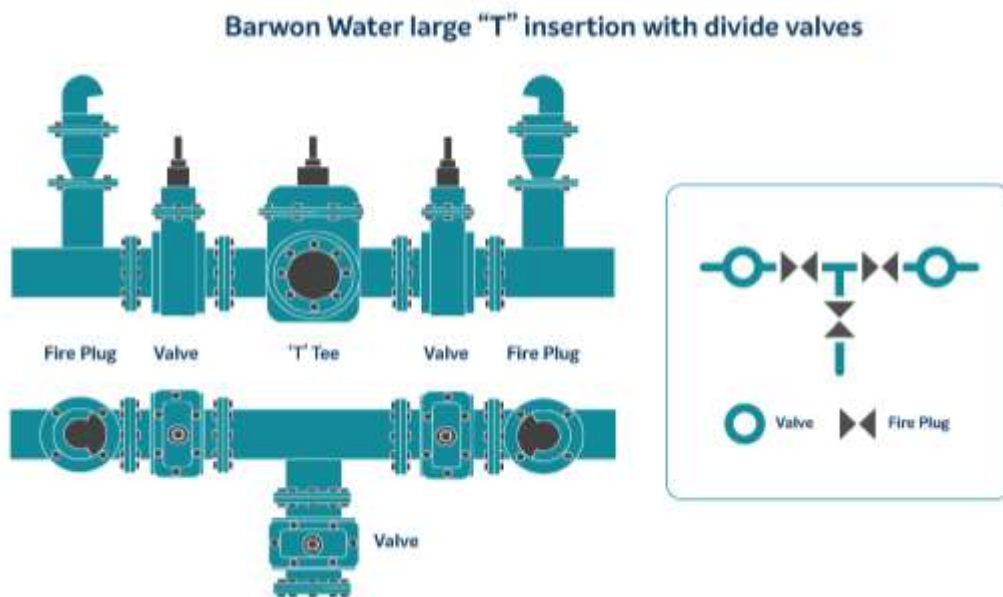


Figure 10 - Diagram 28 in Doc – 'T' insertion with divide valves

## 8.2. Meter installation sizes 32mm & above

Meter installations for 32mm and above must be set up as shown in, Section 8.3 'Meter Setup Solutions - Typical Arrangements'

Only licensed plumbers or persons authorised by Barwon Water in the course of their duty shall carry out any work for the installation of any meter.

The costs of installing a meter will be the responsibility of the property owner. Costs for installing new meters in existing properties will be the responsibility of the party who requested the installation.

Barwon Water's general requirements for the location, installation and protection of water meters is in accordance with AS/NZS 3500 and this policy.

Plumbers who fail to install meters in accordance to Barwon Water's requirements will be required to rectify the non-compliance at their own expense.

### 8.2.1. Meter assembly set up

- (1) Meters are to be assembled as required by AS/NZS 3500. Barwon water also requires that:
  - (2) All 32mm meters and greater to be set at a minimum height of 300mm above the ground in a horizontal position.
  - (3) Where a Reduced Pressure Zone Device (RPZD) is installed as part of the meter assembly the minimum height above the natural ground for the RPZD relief valve shall be 300mm.
  - (4) No water meter or fire meter, shall be placed in a location that creates an OH&S issue for either the public or Barwon Water personnel, limits access, or is a 'Confined Space'.
  - (5) The design of the meter location must allow ample clearance surrounding the meter for the correct installation of the meter assembly, including backflow, test ferrule and where required upstream and downstream flow straighteners as specified for helix type meters.
  - (6) Meters are to be clear of obstructions to enable reading, testing, inspection, maintenance and exchange at all times
  - (7) All installations 32mm and greater must be fitted with a separate test ferrule immediately downstream of the water meter and the outlet valve<sup>20</sup> and the meter assembly correctly supported in line with AS/NZS 3500. This test ferrule is in addition to any test points on testable backflow prevention device
  - (8) No water meter or fire service leak detector check valve with by-pass meter shall be placed in a location that creates an OH&S issue, limits access or is a 'Confined Space'.
  - (9) If any water meter is placed in a meter pit for any reason, (request must be approved by Barwon Water), the pit and the maintenance of the pit is, and will remain the responsibility of the property owner whether it is within the property

<sup>20</sup> Reference: Plumbing Regulation 1998 No. 148 part 31D ref. 12.8



boundary or not; and must also meet requirements as set out in Section 4.4.3 Meter Pits,

- (10) If meters or valves are located in a pit, they must be installed to allow easy access for maintenance, if maintenance cannot be performed due to the nature of the pit the owner will be directed in writing to remedy the problem.
- (11) Where an electronic mag-flow meter is installed, a secure 240v electricity supply access point must be provided.

(Non-residential customers consuming more than 5ML pa are required to enter into a 'Permanent Water Conservation Plan'. Properties identified using more than 5ML pa may be required to have data logging equipment installed as part of the monitoring process).

### 8.2.2. Valves

- (1) Resilient seated flanged gate valves are required meter assemblies 80mm DN and over
- (2) If Dura type butterfly valves are used, then they must be either flanged or lugged type and MUST have a geared spindle.

Note: Quick shut off valves, sandwich valves or wafer butterfly valves are not acceptable.

### 8.2.3. Backflow

Please refer to the Barwon Water [Backflow Policy](#).

### 8.2.4. Backflow requirements on existing properties when meter upgrades and replacements become due

If it is found that the meter installation does NOT meet the current AS/NZS 3500<sup>21</sup> National Plumbing and Drainage part 1.2 Water supply – Acceptable solutions; and AS 2845<sup>22</sup> Water supply – Backflow Prevention Devices, a request in writing will be made to direct any person to whom water is supplied for any purpose to upgrade the installation on their property to meet the current regulations.

The costs of upgrading the installation will be the responsibility of the property owner. Barwon Water will provide the new water meter at no charge, for the purposes of upgrading and testing only.

Damaged meters will be charged to the owner, in line with the schedule of charges set out in the Barwon Water Billing Pricing Schedule.

In line with Barwon Water's 'Backflow Prevention Policy'<sup>23</sup>, any property identified as having a high or medium hazard rating, must install a backflow prevention device appropriate to the hazard rating.

A licensed plumber will be required to undertake all work in accordance with current regulations, and the hazard rating determined on the property. When a meter is released to the authorised plumber, it is the responsibility of the plumber for the safe custody of the

<sup>21</sup> Reference: AS/NZS 3500 National Plumbing and Drainage part 1 Water Services

<sup>22</sup> Reference: AS 2845 Water supply – Backflow Prevention devices

<sup>23</sup> Reference: Backflow Prevention Policy

meter(s). If the meter is damaged, lost or installed incorrectly, the plumber will bear all costs.<sup>24</sup>

All water meters will be:

- NMI approved
- Owned by Barwon Water
- Supplied (meter only) by Barwon Water at no extra cost to the customer (this does not include replacement of customer's infrastructure and ancillary equipment at the meter assembly)
- Installed by a licence plumber or Barwon Water or a Barwon Water contractor
- Privately owned and installed meters will NOT be approved, maintained or accepted by Barwon Water.

Water meters are owned and maintained by Barwon Water but can be installed by a licensed plumber or Barwon Water contractor (this does not include replacement of customer's infrastructure and ancillary equipment at the meter assembly).

#### **8.2.5. Meter upgrades and replacements**

In the case when a meter is required to be replaced for any reason. The meter will be supplied by Barwon Water.

Where possible Barwon Water will install the meter except where the plumbing requires alteration, or, in a hazardous environment, or, a confined space.

All Trade Waste meter installations will be assumed to be a Hazardous Environment and a registered plumber shall be engaged to upgrade or replace a Flow Meter Trade Waste (FMTW).

The costs of installing a new meter will be the responsibility of the property owner. This includes any Flow Meter Trade Waste installation or any installation that requires upgrading to meet current AS/NZS 3500, or WSA code.

The occupier or owner of a property upon notification by Barwon Water is responsible to arrange a licenced plumber to install the meter and meter assembly. The cost will be the responsibility of the property owner.

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<sup>24</sup> Reference: Water (Estimation, Supply and Sewerage) Regulations 2014

### 8.3. Meter setup solutions - typical arrangements

Figure 11 - 32mm, 40mm & 50mm PD Meter Assembly with Non-Testable Device

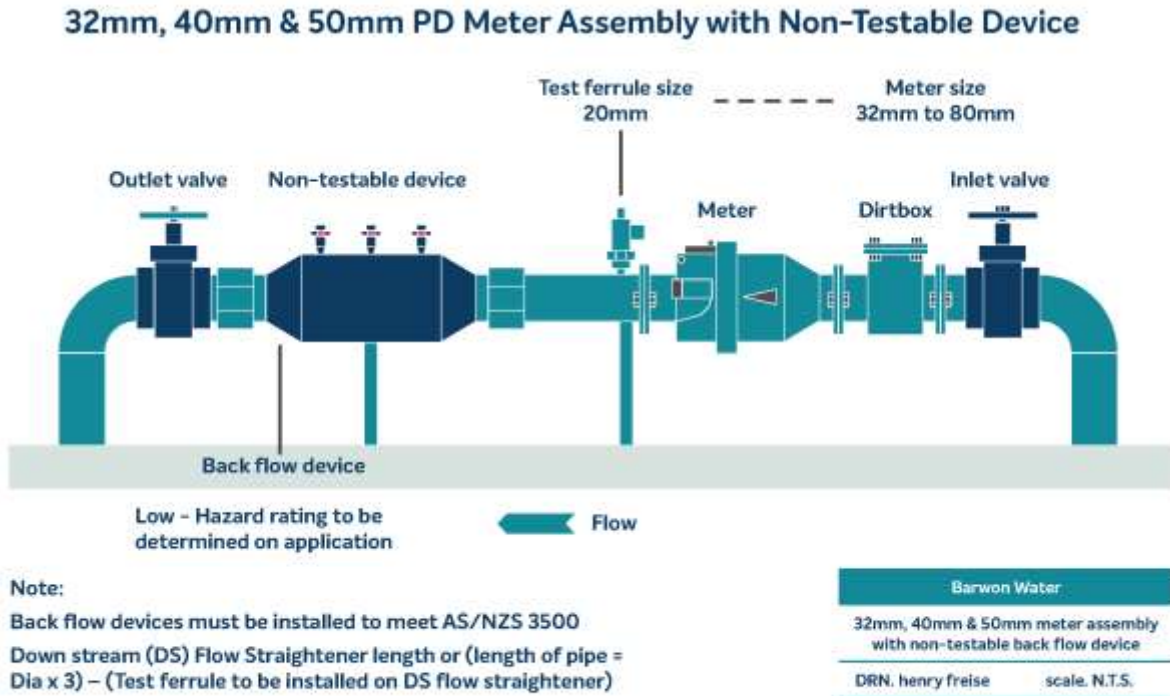


Figure 12 – 32mm, 40mm & 50mm PD Meter Assembly with Testable Device

Barwon water requires a 'Certificate of Currency' – for testable Backflow Prevention Device at the time of installation and commissioning.

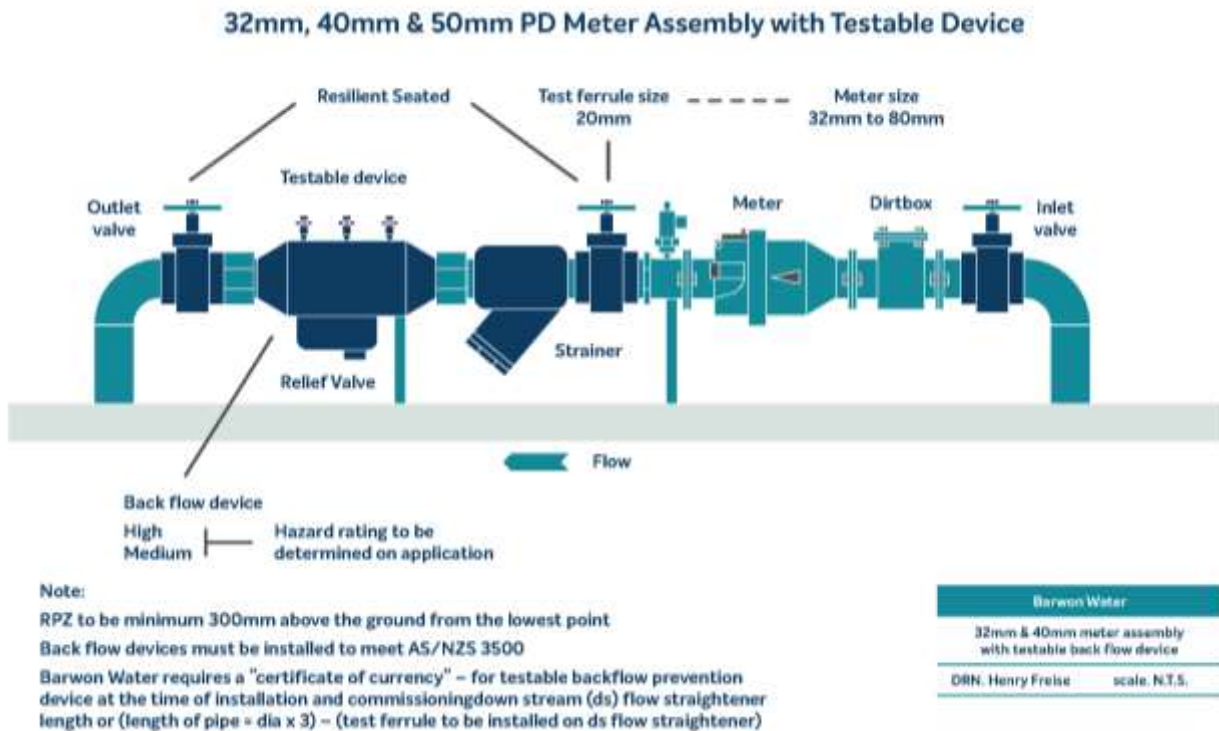


Figure 13 – 40mm to 150mm Single Jet Meter Assembly with Non-Testable Device

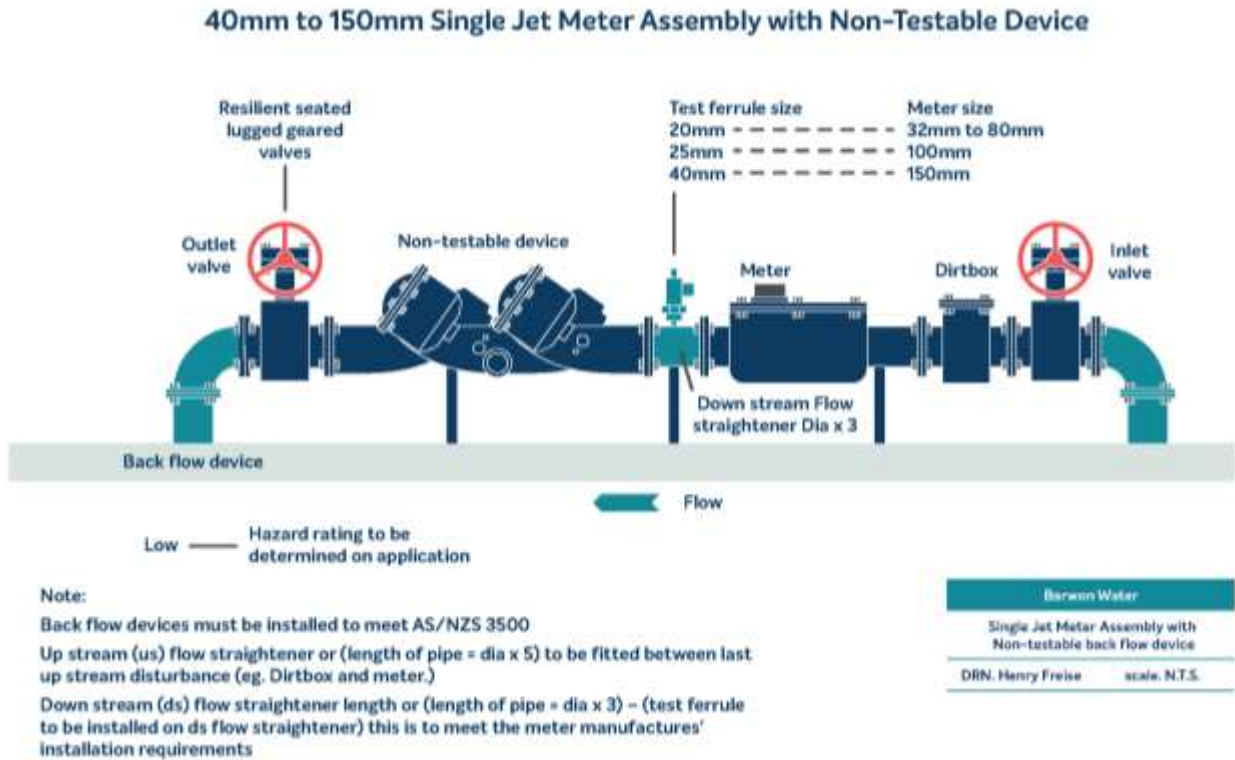


Figure 14 – 40mm to 150mm Single Jet Meter Assembly with Testable Device

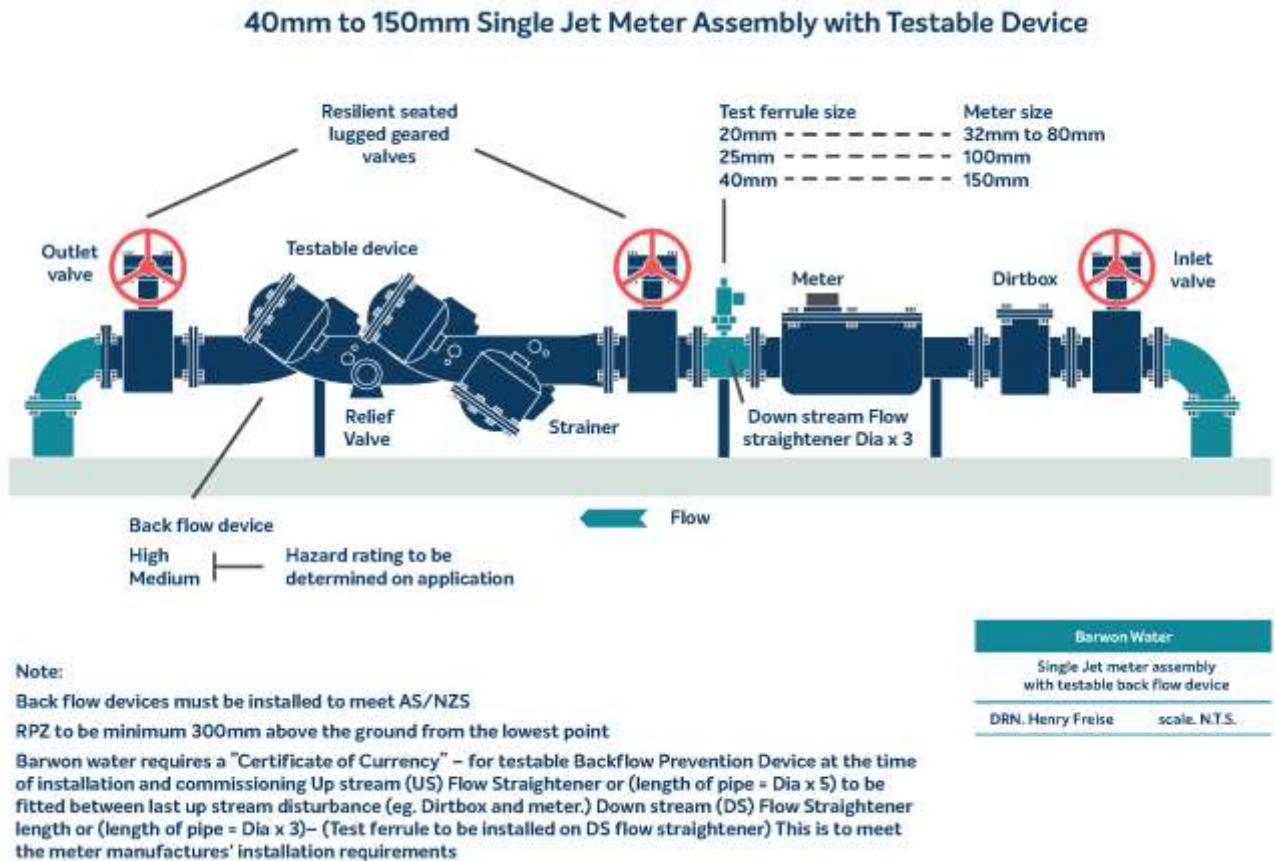




Figure 15 – 50mm to 150mm Helix Meter Assembly with Non-Testable Device



Figure 16 – 50mm to 150mm Helix Meter Assembly with Testable Device

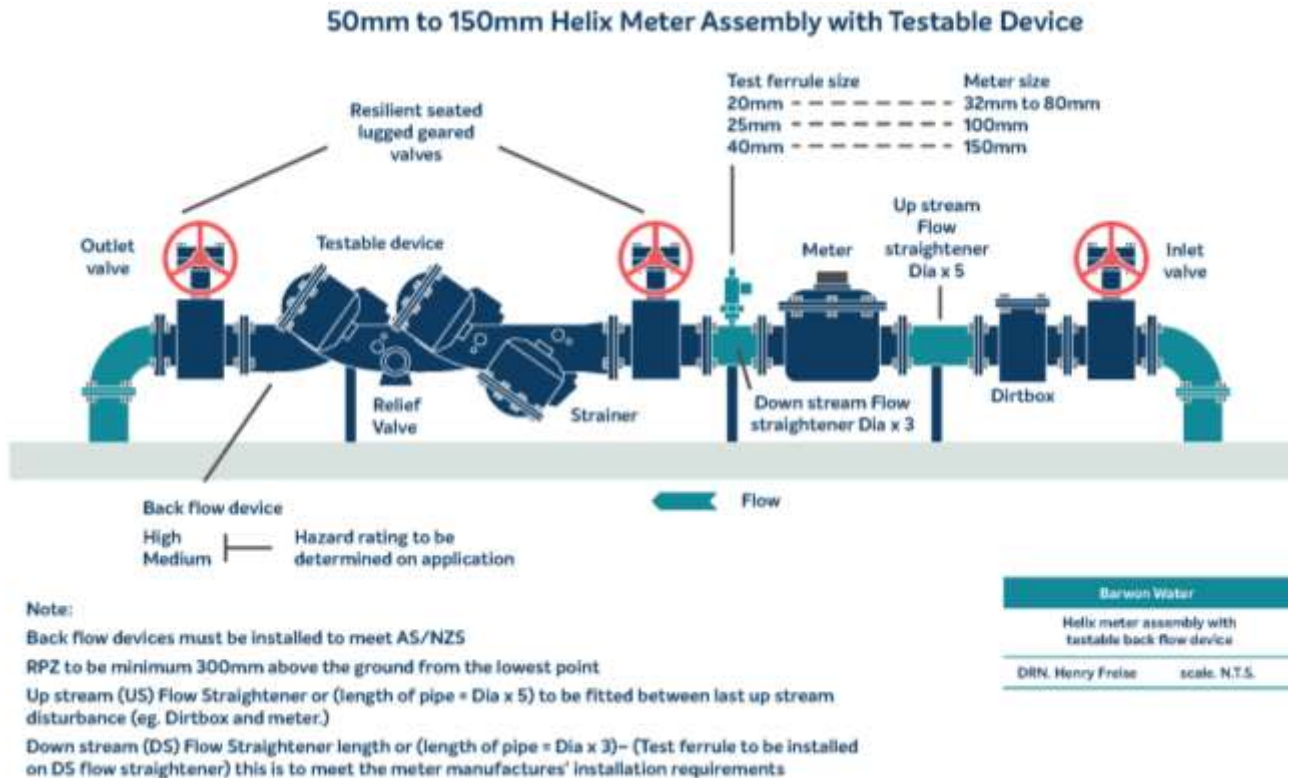


Figure 17 – 100mm to 200mm MagFlow Meter Assembly with Non-Testable Device

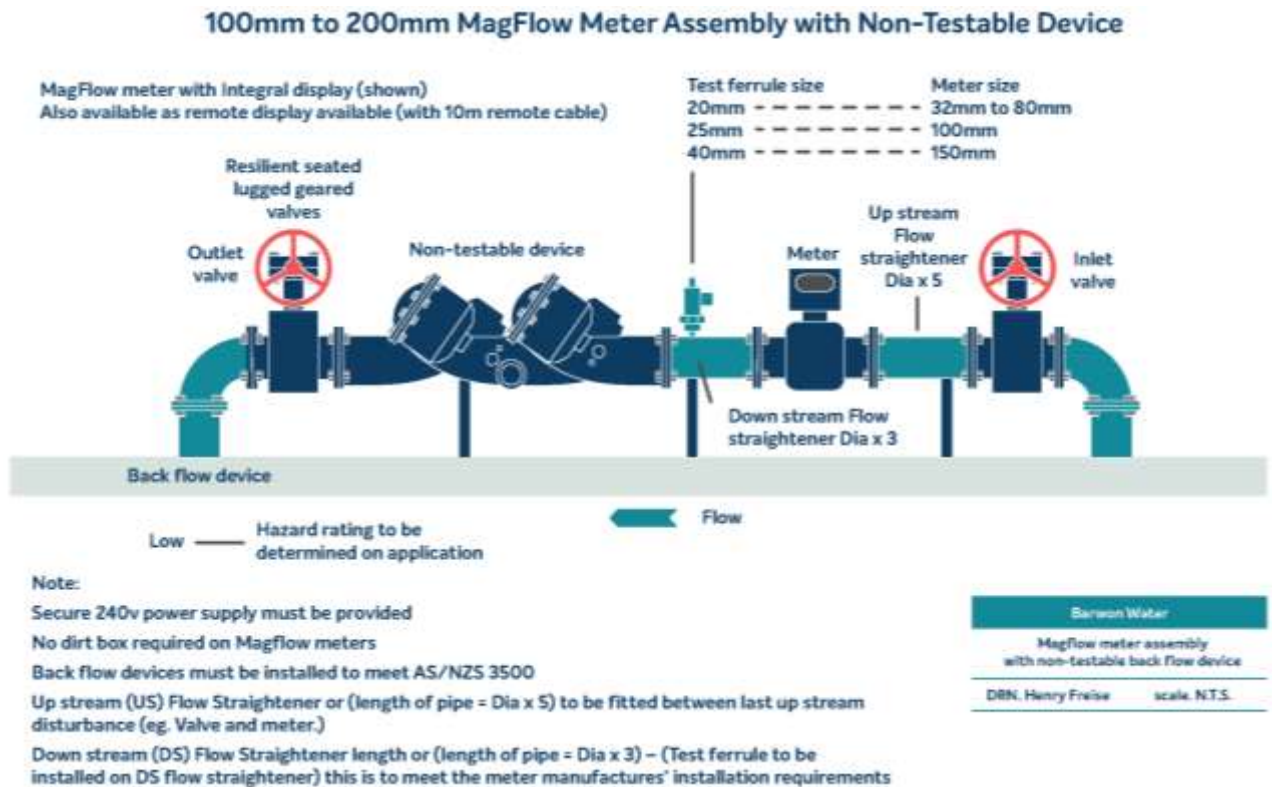


Figure 18 – 100mm to 200mm MagFlow Meter Assembly with Testable Device

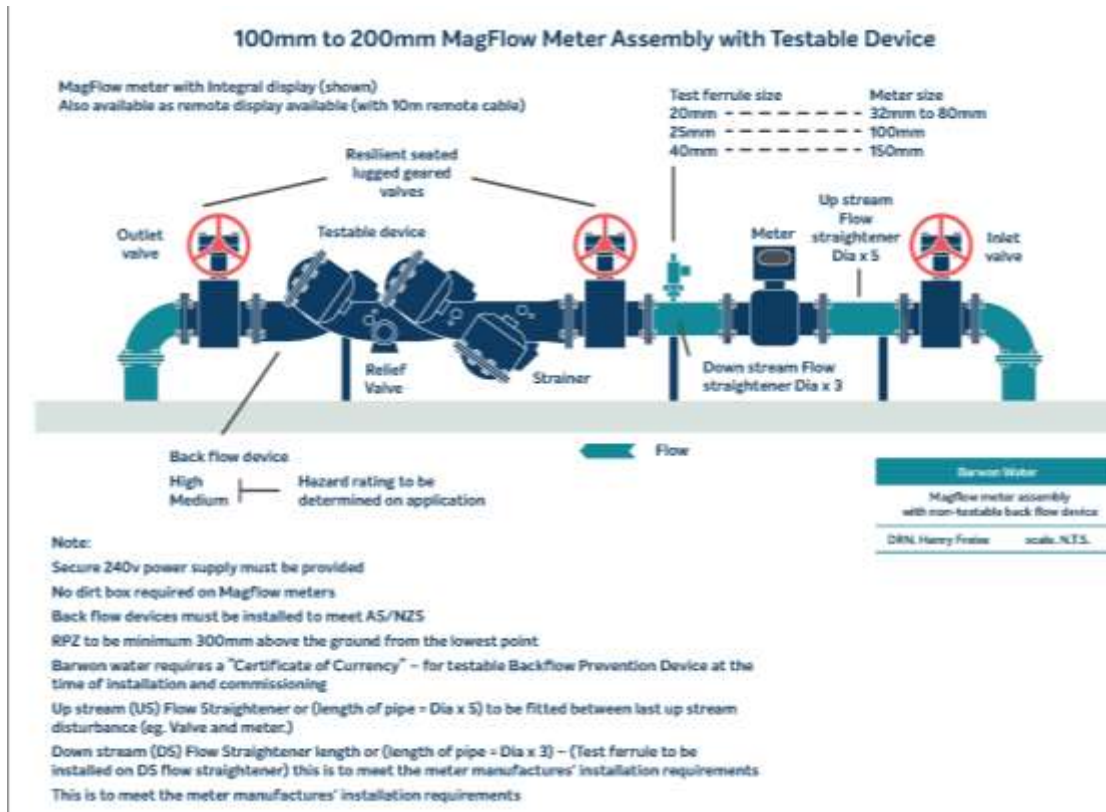
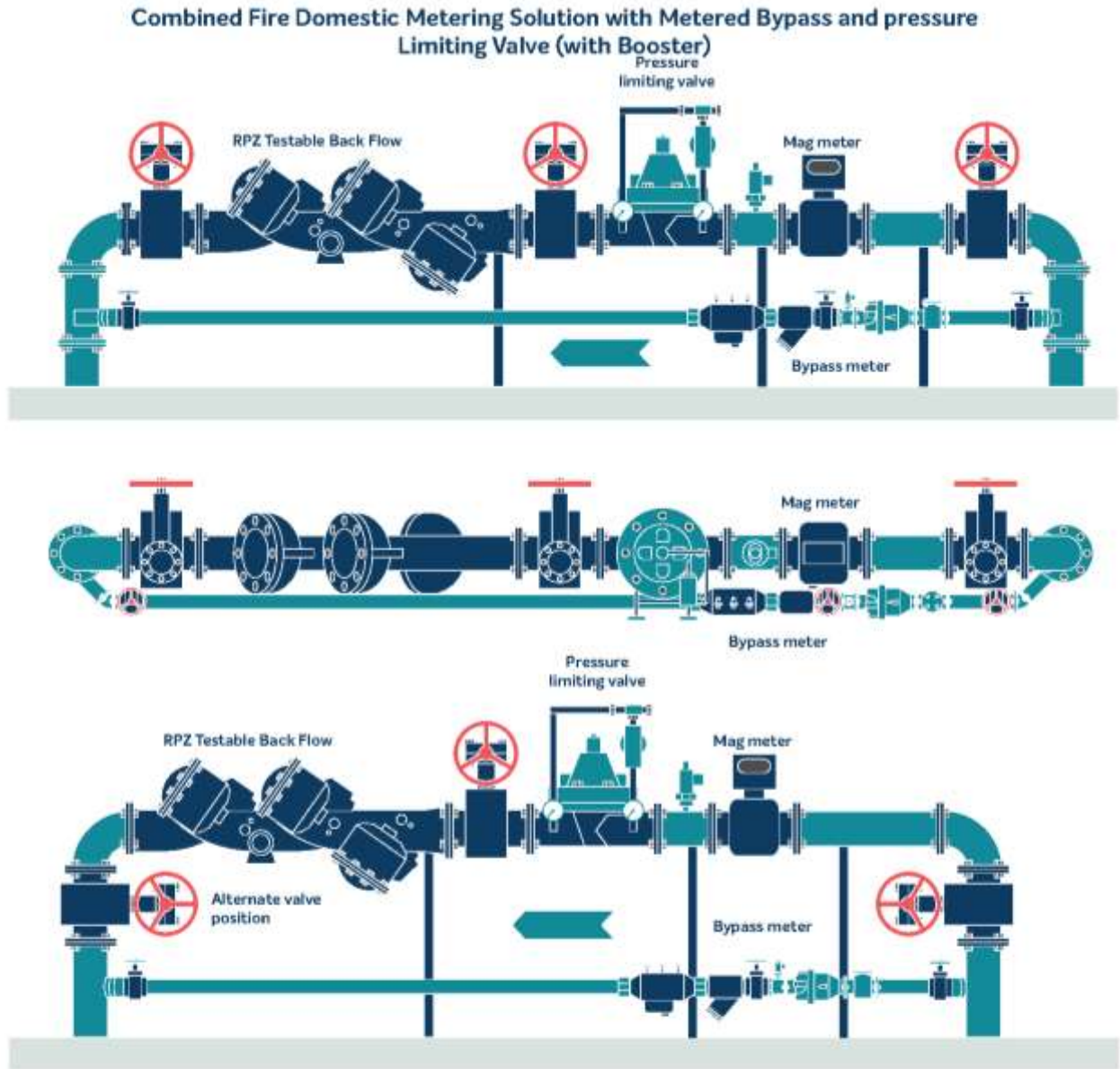


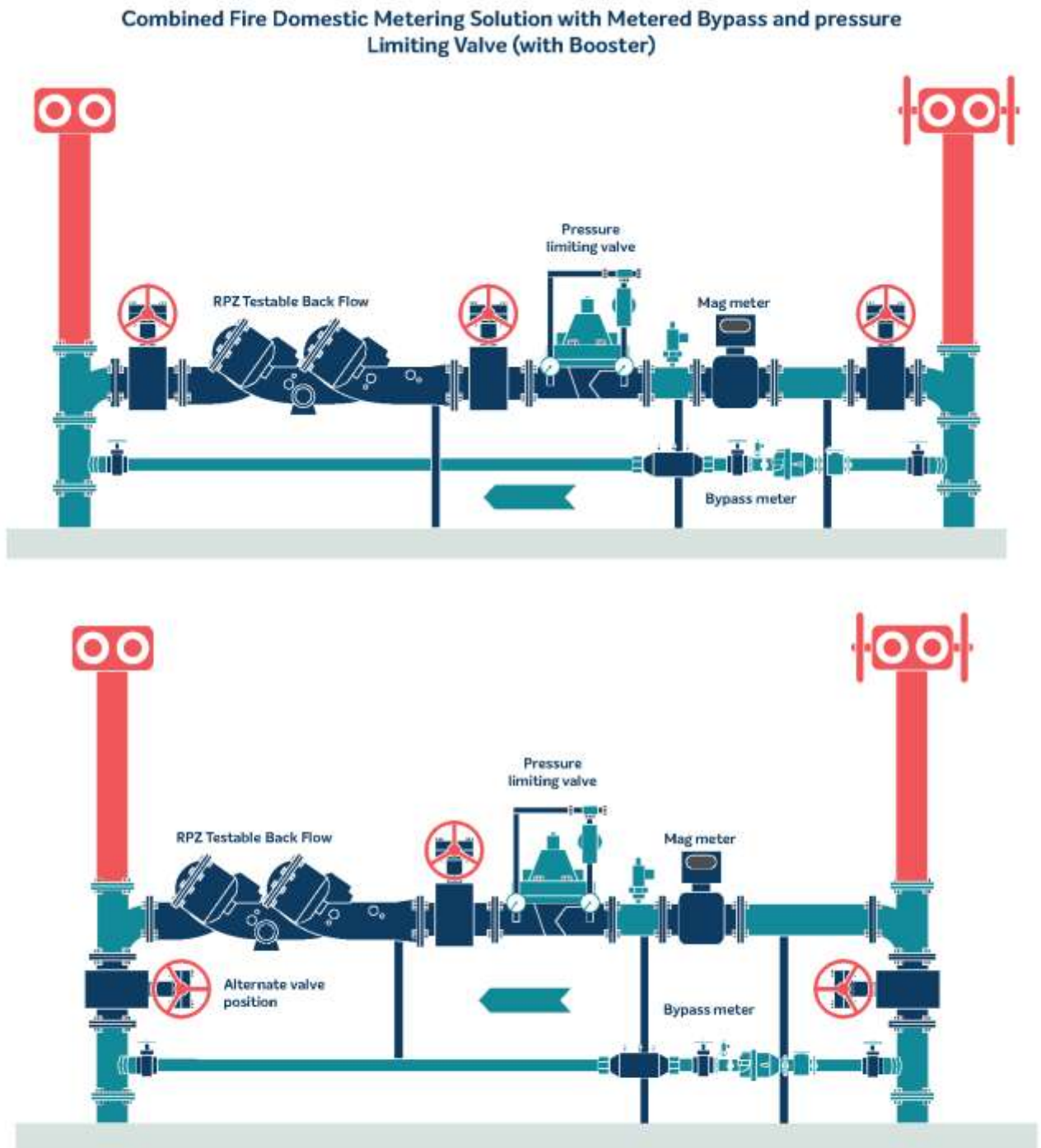
Figure 19 – Combined Fire Domestic Metering Solution with Metered Bypass and pressure Limiting Valve (No Booster)



**Note:**  
 Life style village Combined Fire Domestic Solution without booster - With Testable Backflow Prevention Device and Pressure Limiting Valve (PLV to be set 20-30kPA less than available pressure)  
 100mm MagFlow Meter & 40mm by-pass meter, (by-pass meter can be MagFlow meter)  
 150mm MagFlow Meter & 50mm by-pass meter, (by-pass meter can be MagFlow meter)  
 Normal Valve Positions and Alternate Valve Position  
 Barwon water requires a copy of a "Certificate of Currency" - for RPZ or testable Backflow Prevention Device at the time of installation and commission



Figure 20 – Combined Fire Domestic Metering Solution with Metered Bypass and pressure Limiting Valve (With Booster)



Life style village Combined Fire Domestic Solution without booster - With Testable Backflow Prevention Device (NOT RPZ) and Pressure Limiting Valve (PLV to be set 20-30kPA less than available pressure (If RPZ Fitted an additional single check shall be required immediately after both the RPZ's to prevent relief valve on RPZ form operating during boosting operations.

100mm MagFlow Meter & 40mm by-pass meter, (by-pass meter can be MagFlow meter)

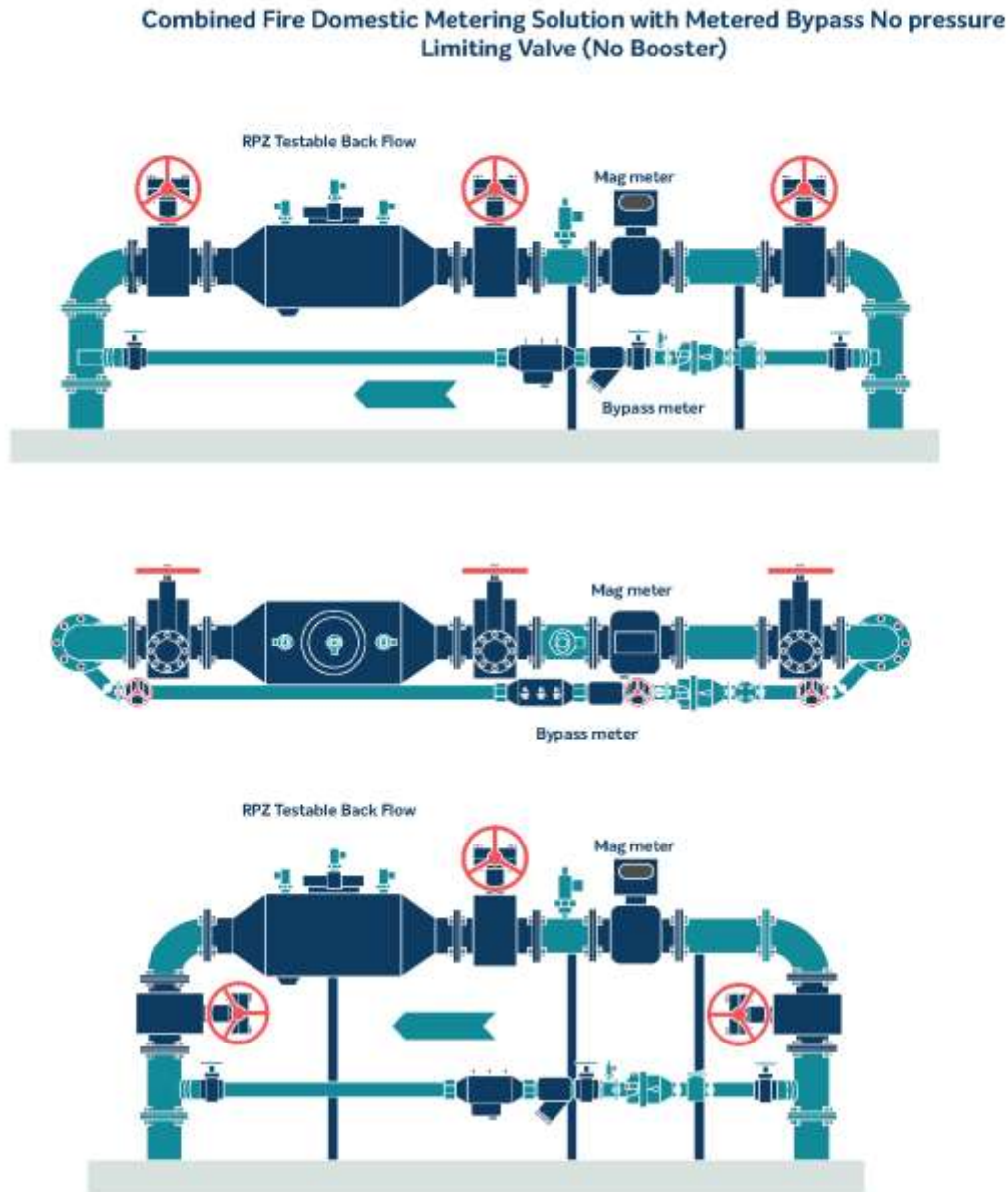
150mm MagFlow Meter & 50mm by-pass meter, (by-pass meter can be MagFlow meter)

Normal Valve Positions and Alternate Valve Position

Barwon water requires a copy of a "Certificate of Currency" – for RPZ or testable Backflow Prevention Device at the time of installation and commission

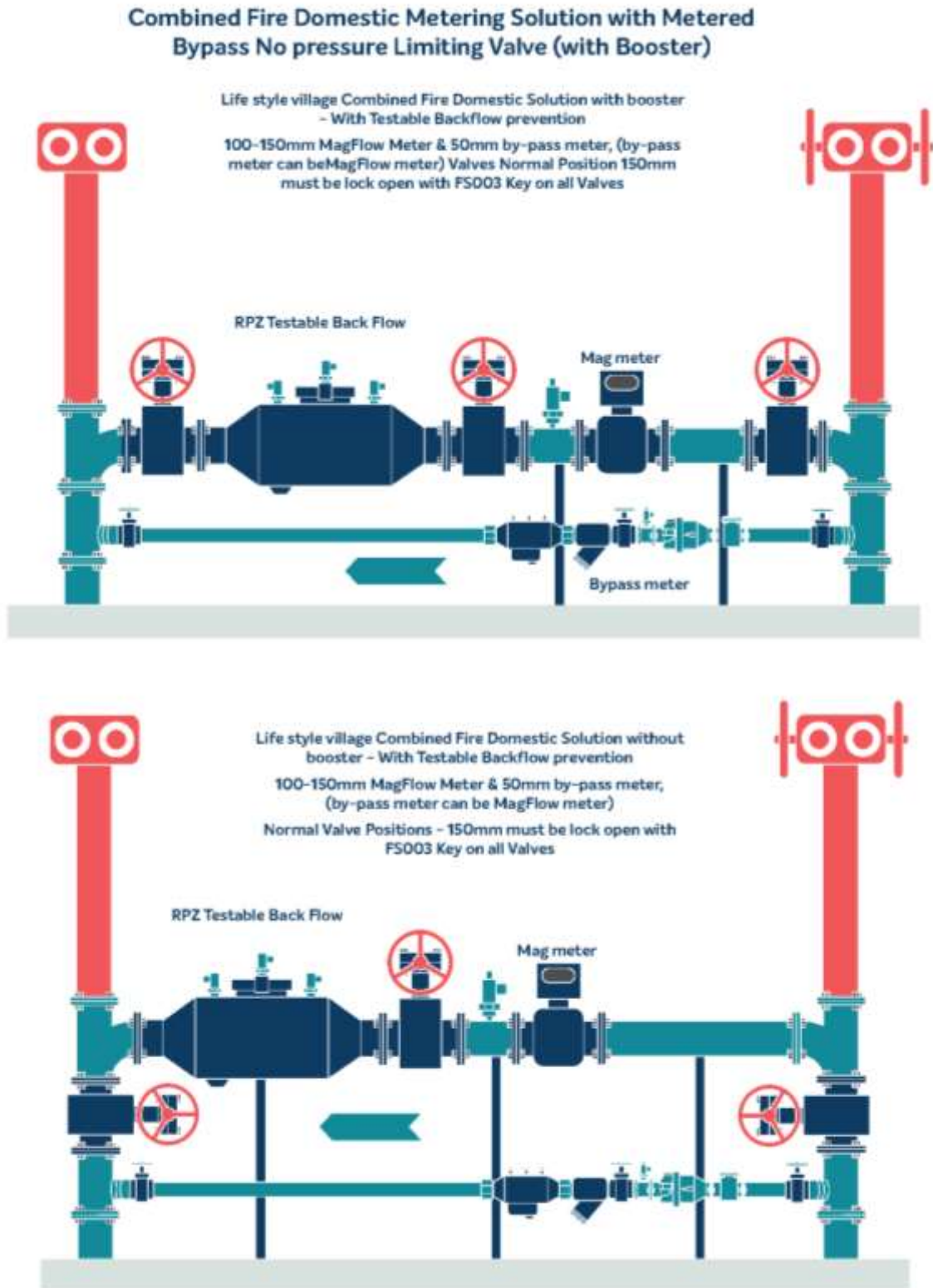


Figure 21 –Combined Fire Domestic Metering Solution with Metered Bypass No pressure Limiting Valve (No Booster)



**Note:**  
 Life style village Combined Fire Domestic Solution without booster - With Testable Backflow Prevention Device and Pressure Limiting Valve (PLV to be set 20-30KPA less than available pressure  
 100mm MagFlow Meter & 40mm by-pass meter, (by-pass meter can be MagFlow meter)  
 150mm MagFlow Meter & 50mm by-pass meter, (by-pass meter can be MagFlow meter)  
 Normal Valve Positions and Alternate Valve Position  
 Barwon water requires a copy of a "Certificate of Currency" – for RPZ or testable Backflow Prevention Device at the time of installation and commission

Figure 22 – Combined Fire Domestic Metering Solution with Metered Bypass No pressure Limiting Valve (with Booster)



## 9. Plumbing solutions – water and general fire service typical arrangements

### 9.1. Water general and fire service typical arrangements

**Table 2: Notes on plumbing solutions**

Note 1	For 20mm -25mm services, a right-angled ball valve is required at the meter inlet.
Note 2	For 32mm + Services, Gate Valve at the meter inlet, a test ferrule and a gate valve downstream of the test ferrule, a Dirt-Box is required for all services
Note 3	For 'Low Hazard' rating, containment protection is required. Non- Testable Backflow Prevention Device must be fitted on the outlet side of the meter
Note 4	For 'Medium & High Hazard' ratings, Containment protection is mandatory.
Note 5	Arrangement of valves to suite as per - General Service size and applicable 'Hazard Rating'.
Note 6	The threaded outlet of any testing ferrule must be 'Capped or Plugged'
Note 7	Double Check Valves may need to be fitted as Zone Protection on Fire Service Hose Appendix E reels. Refer AS/NZS3500
Note 8	The fitting of a Single Check Valve or appropriate Backflow Prevention Device on the metered by-pass of a Check Valve is required.
Note 9	Where testable Backflow Prevention Devices are required, the isolating valve shown immediately upstream of the line strainer and immediately downstream of the device, must have resilient seated valves

LEGEND	
	Valve
	Dirt Box
	Meter
	Test Ferrule
	Line Strainer
	Backflow Prevention Device
	Single Detector Check
	Detector Check Valve

Figure 23

**General Service - Low Hazard (Residential/Industrial) - Typical Arrangement**

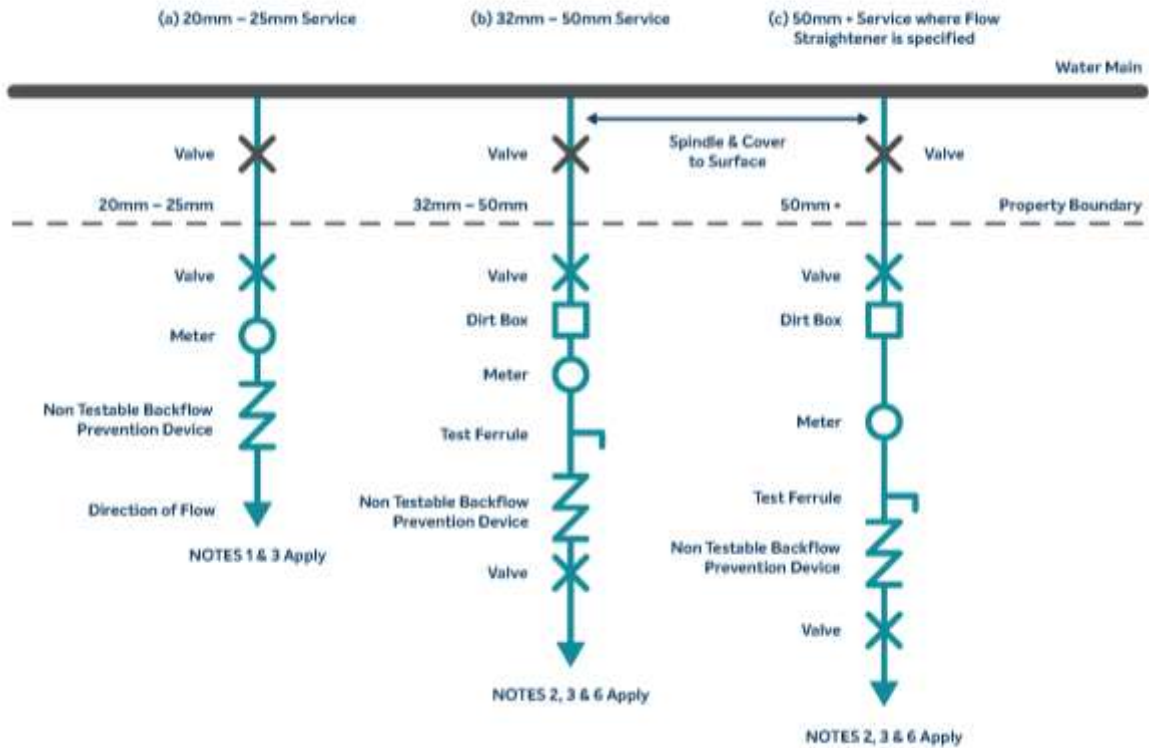


Figure 24

**General Service - Medium/High Hazard (Industrial) - Typical Arrangement**

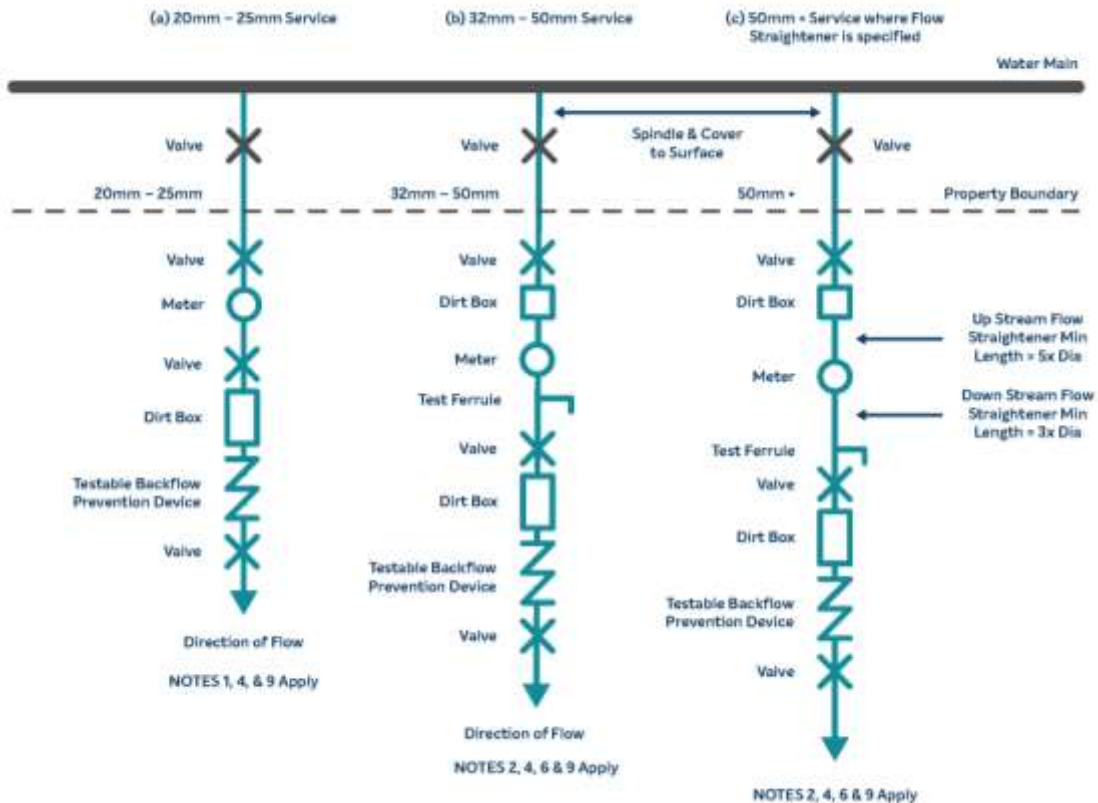




Figure 25

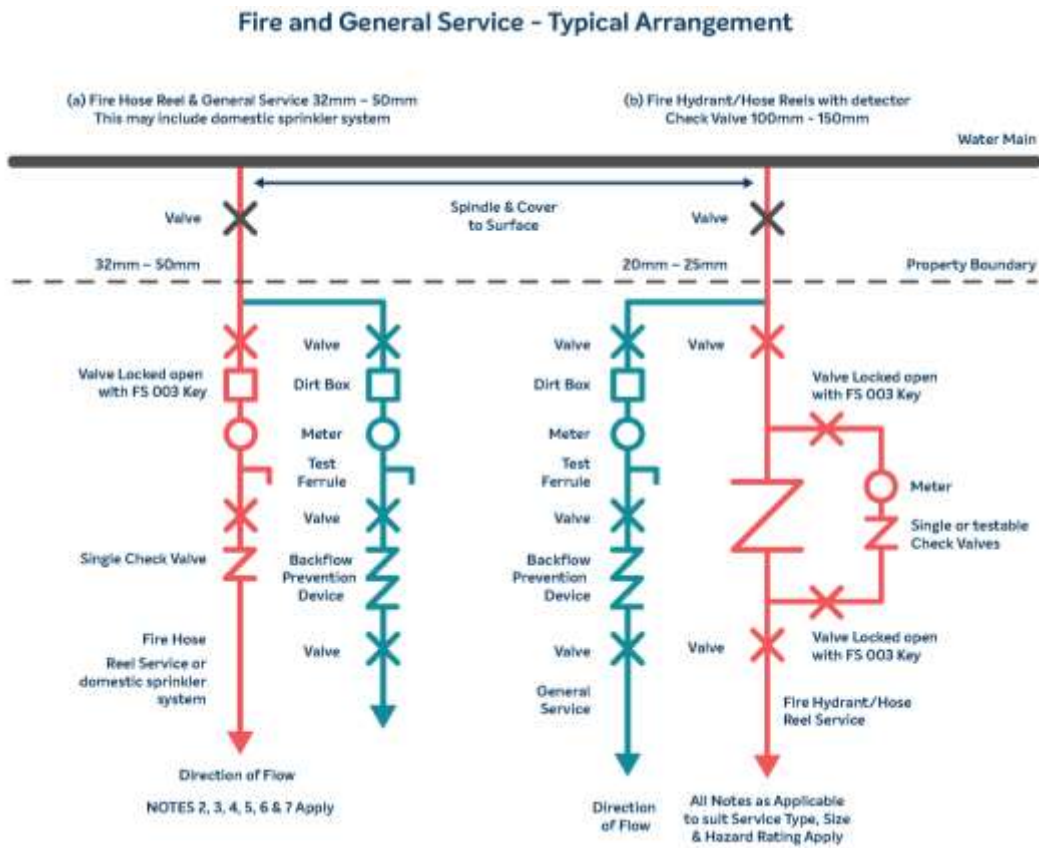


Figure 26 NB: Large tapplings may require, a 'T' Insertions and valves

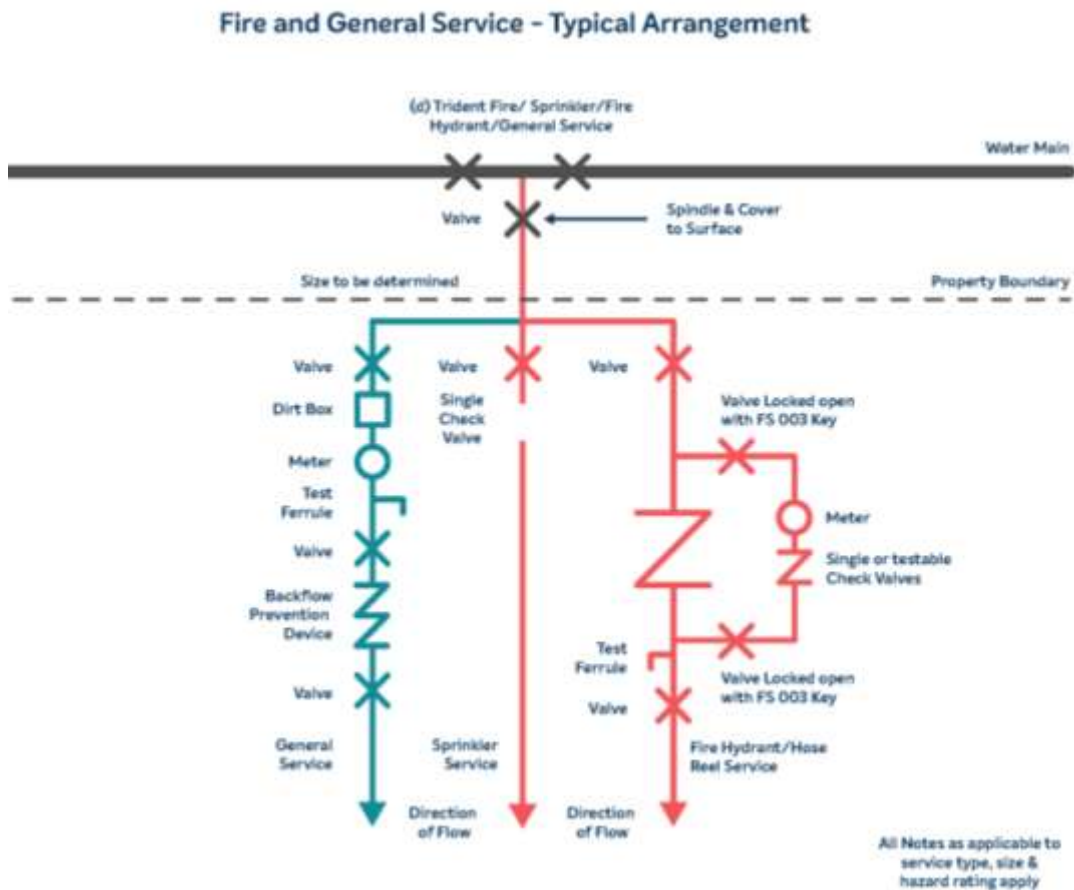




Figure 29 NB: Large tappings may require, a 'T' Insertions and valves

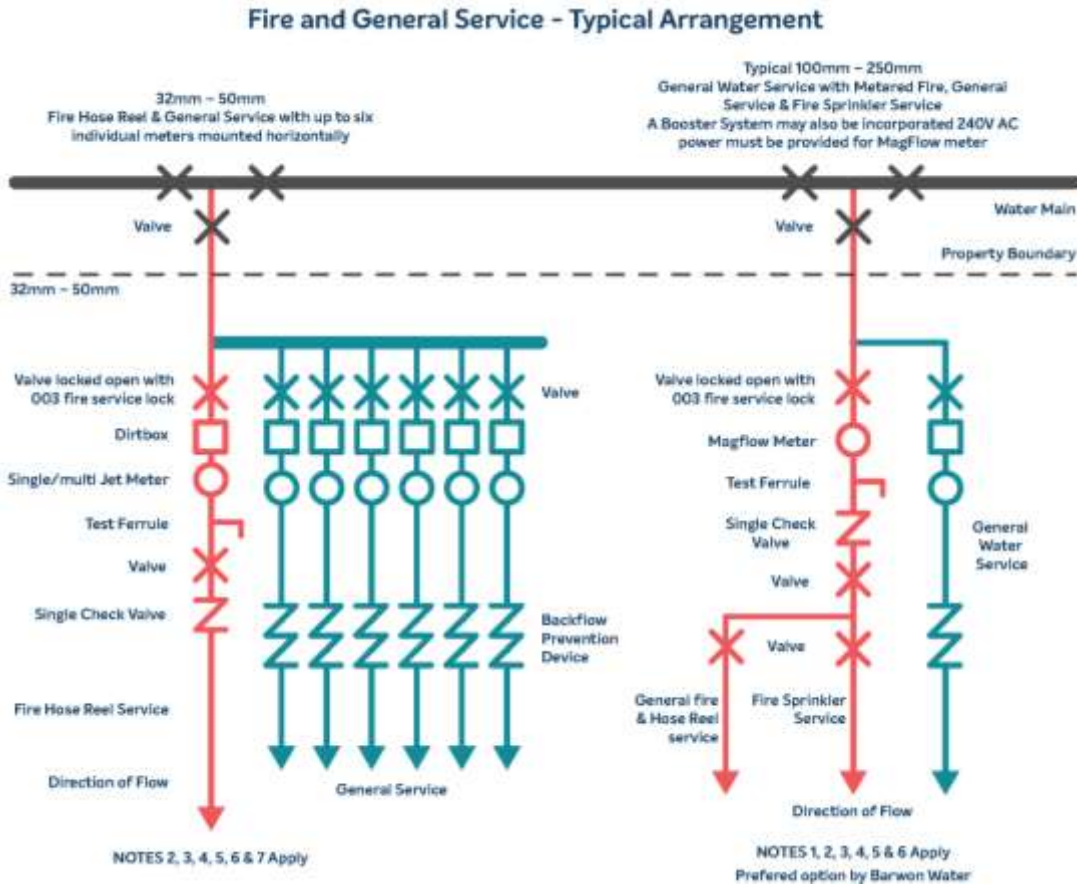


Figure 30 NB: Large tappings may require, a 'T' Insertions and valves

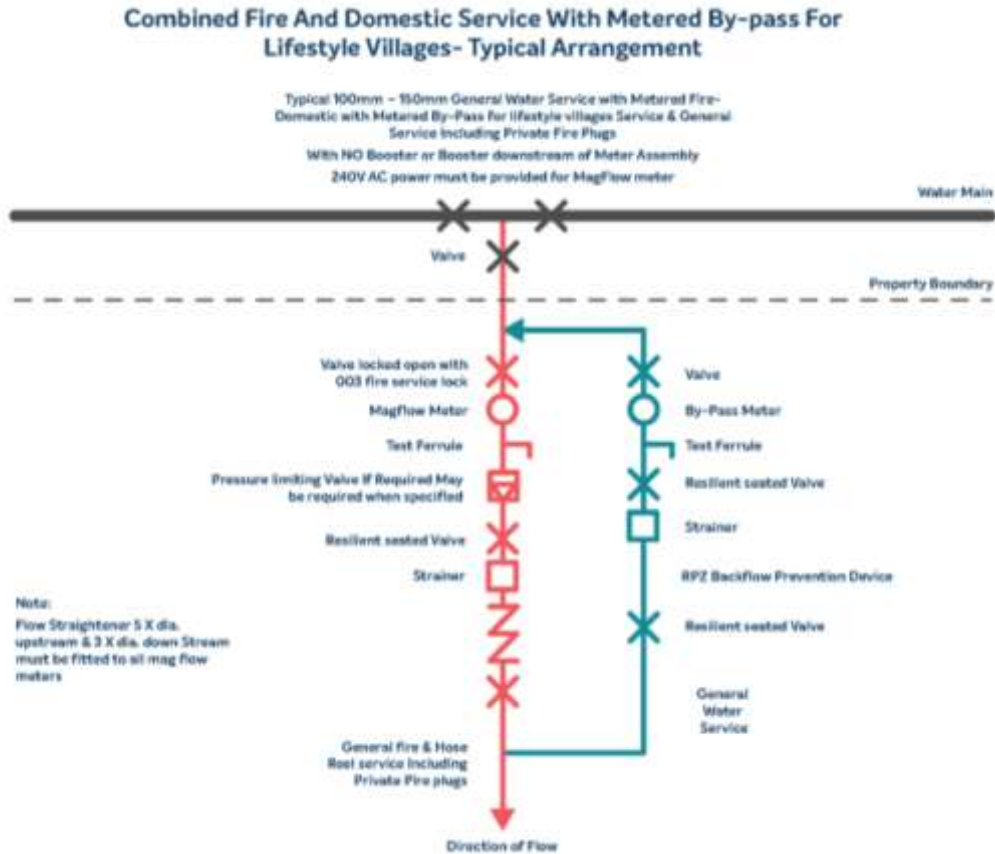
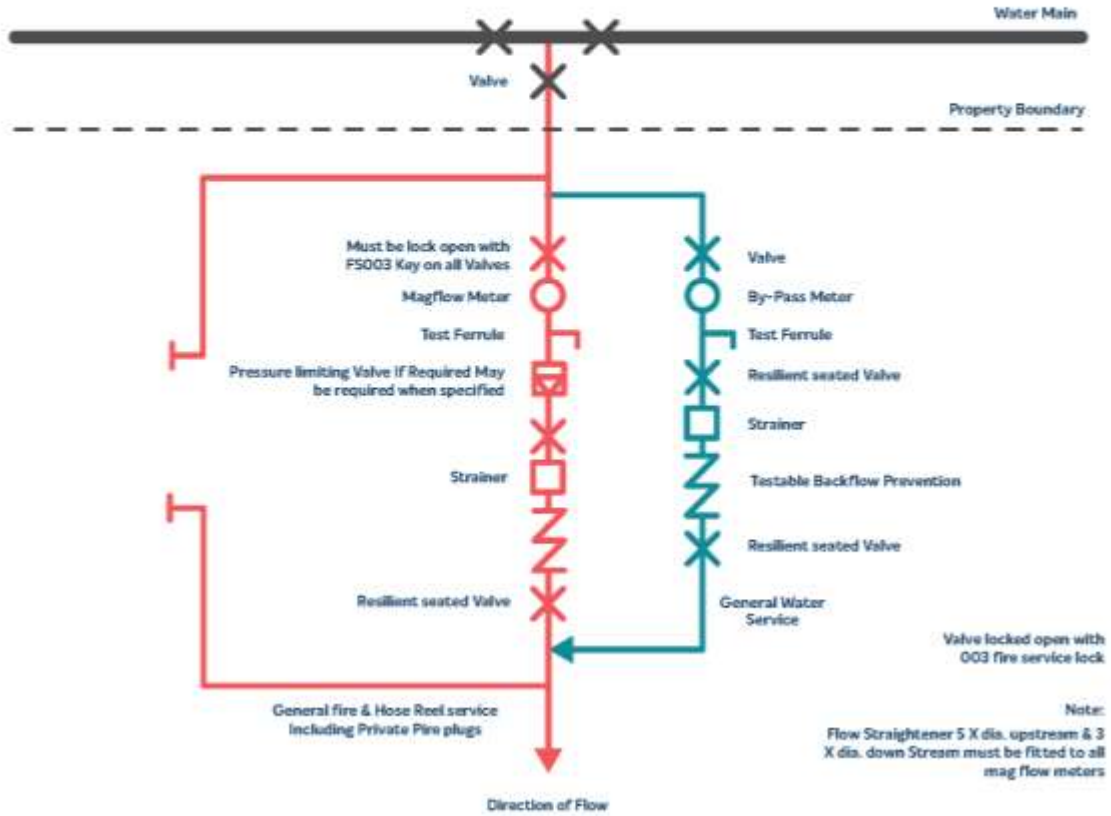


Figure 31 NB: Large tapings may require, a 'T' Insertions and valves

### Combined fire and domestic service with metered bypass for lifestyle villages- typical arrangement

Typical 100mm – 150mm General Water Service with Metered Fire- Domestic with Metered By-Pass for lifestyle villages Service & General Service including Private Fire Plugs A Booster System may also be incorporated in Fire service additional single check valve required to prevent RPZ device dump valve operating during boosting  
240V AC power must be provided for MagFlow meter





## 10. Metering in special cases

### 10.1. Metering of fire services<sup>25</sup>

*The Water Act 1989* provides that an Authority must provide water without charge from fireplugs for the purpose of fighting fires and cleaning sewers and drains. There is no requirement for an Authority to make sure that water pressure is adequate for firefighting.

No person shall, without approval of Barwon Water, use any water from any private fire service for any purpose other than to fight a fire. No person shall extend any branch from any private fire service or use any fire service to serve more than one property.

The property owner is responsible for maintaining private fire services up to the valve at the water main. Barwon Water requires the following for private fire service installations. Where no person shall without written approval of Barwon Water:

- Use any water from any private fire service for any purpose other than to extinguish a fire; test a fire service by servicing agent or OH&S staff training
- Extend any branch from any private fire service
- Use any fire service to serve more than one property.

Fire Services are restricted in use and:

- Are to be separately metered and every hose reel sealed
- NO person shall break the seal except for authorised use. In the event that a seal is accidentally broken the occupier must notify Barwon Water within two working days
- Fire servicing agents must reseal hose reels after testing

Barwon Water may waive the requirements to keep the hose reel sealed if it is satisfied that water will not be misused.

#### 10.1.1. Fire service regulations

The Building Code of Australia sets down a number of requirements for fire services for buildings. In particular, for hose reels the following is stated:

Where connected to a metered supply:

- (a) Maintain the required flow rate and at the most hydraulically disadvantaged hose reel
- (b) Have a meter and a street supply to the allotment with a nominal diameter of not less than 25mm
- (c) Have any system valve which can isolate flow in the hose reel water supply main:
  - i. Secured in the OPEN position by a padlock or metal strap
  - ii. Labelled..... 'Fire services valve – close only to service fire hose reels'.
- (d) Where supplied by a fire hose reel main greater than 25mm nominal bore and connected to a fire hydrant main, have a valve in accordance with (c) fitted to the connection main.

<sup>25</sup> Reference: Metering of Fire Services - 15th October 1997 Board Report

Note: Australian Standards require that hose reels are tested every 6 months and other services every 12 months.

### 10.1.2. Use/ misuse of metered/ un-metered fire services

Experience has shown the main area of potential for loss of water through fire services is the misuse of hose reels. Random audits indicate that misuse does exist in Barwon Water's district, particularly with premises with wash down areas, car parks, etc. (This is a breach of the permanent water saving rules and penalties apply). The potential for misuse of water from hydrants is considerably less and sprinkler services pose no risk.

The Essential Services Commission (ESC) expects that water business will ensure that every effort is made to reduce unaccounted water loss.

Where un-lawful/misuse of a metered/un-metered fire service is detected, the occupier will be in breach of the *Water Act 1989* (penalties apply) and may be required to rearrange the fire and domestic plumbing.

### 10.1.3. Exempt fire service use

No person shall break the seal except:

- In the case of a fire
- The fire service is tested by a relevant servicing agency to ensure that it is in proper working order, in which case the agency shall replace the seal
- Documented staff safety training needs, again after each event the service should be resealed.

This is the only time, other than in the event of a fire, when water can be used through the service. Fire services are provided for the sole purposes of firefighting and OH&S. After testing, new seals must be placed, or in the event of a fire, if the seal is broken the occupier must notify Barwon Water within two working days.

### 10.1.4. Fire seals

Fire services and hose reel fire services must be metered.

Barwon Water may waive the requirement to keep the hose reel sealed if it is satisfied that water will not be misused. Barwon Water personnel, who are responsible for sealing fire hose reels to reduce unaccounted water loss adhere to a process involving: auditing of a fire hose reel seal, placing warning labels on the service and issuing a follow up letter to an occupier who is found to have an unsealed fire service(s).

### Sealing of fire-hose taps

- (1) Private fire services must be metered and sealed
- (2) Existing private fire services without meters must have every fire-hose tap sealed in an approved manner and kept sealed unless otherwise approved in writing by Barwon Water
- (3) Except in the case of fire or by written consent of Barwon Water, no person shall wilfully break the seal affixed to any fire-hose tap
- (4) In the event of any such seal being broken the occupier of the property shall, within two working days thereafter, give Barwon Water notice in writing of such breakage

- (5) Notwithstanding sub-clause (1) Barwon Water may, by approval given in writing, waive the requirement to keep any hose-tap sealed provided that Barwon Water is satisfied that no water drawn from there will be used for purposes other than for fire-fighting, documented fire-fighting practice or for testing and proving the fire-service installation
- (6) Barwon Water may at any time revoke any approval given under sub-clause (5) and may require that meters shall be fitted at the owner's expense to measure all the water supplied
- (7) Servicing agents may break the fire seal to test fire service for compliance. On completion of testing, the servicing agents must reseal the fire service.

#### 10.1.5. New developments with fire services

All new fire service installations shall be metered. The type of meter for the fire service will be assessed with each application and be dependent on the type, size and nature of the business. The main options of metering are:

- Hose reels to be supplied off a metered fire/hydrant service
- Separately metered hose reel service
- Individual hose reels are NOT to be connected to the metered domestic supply
- Detector check valve with a 40mm a metered by-pass and lockable valves (FS-003 key) installed on the fire service
- Magnetic flow meters - shall be to be used for combined hydrant fire and sprinkler services
- New fire sprinkler service will require metering using a MagFlow Meter
- Located in an area approved by Barwon Water.

Note: No water meter or fire service detector check valve with by-pass meter shall be placed in a location that creates an OH&S issue, limits access or is a 'Confined Space'.

Note: No permanent booster pump shall be connected directly to any incoming water service. Booster pumps can only be connected downstream of onsite storage tanks.

#### 10.1.6. Existing fire service installations

Existing fire sprinkler services connected to an alarm may not be required to be metered, If the fire service is upgraded, it will require metering.

Barwon Water has undertaken a program of sealing hose reels and placing a notice in its vicinity advising that the hose reel should only be used for firefighting. A notice will also be provided to each occupier advising that the hose reel should remain sealed at all times and be resealed immediately after each service, preferably by the Contractor testing the appliance.

An audit program of random site visits is undertaken to inspect and reseal fire services. Fees will apply,<sup>26</sup> for resealing of fire services when in breach of section 10.1.4 'Fire Seal' clause 3 & 4.

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<sup>26</sup> Reference: Barwon Water Billing Pricing Schedule

Further occurrences of the breaking of hose reel seals would be treated seriously and the occupier would be required to pay the cost installing a water meter on the fire service. If co-operation was not obtained regarding the meter installation, the matter will be pursued as an offence under the provisions of the *Water Act 1989*.

Figure 32 Detector check valve with bypass meter

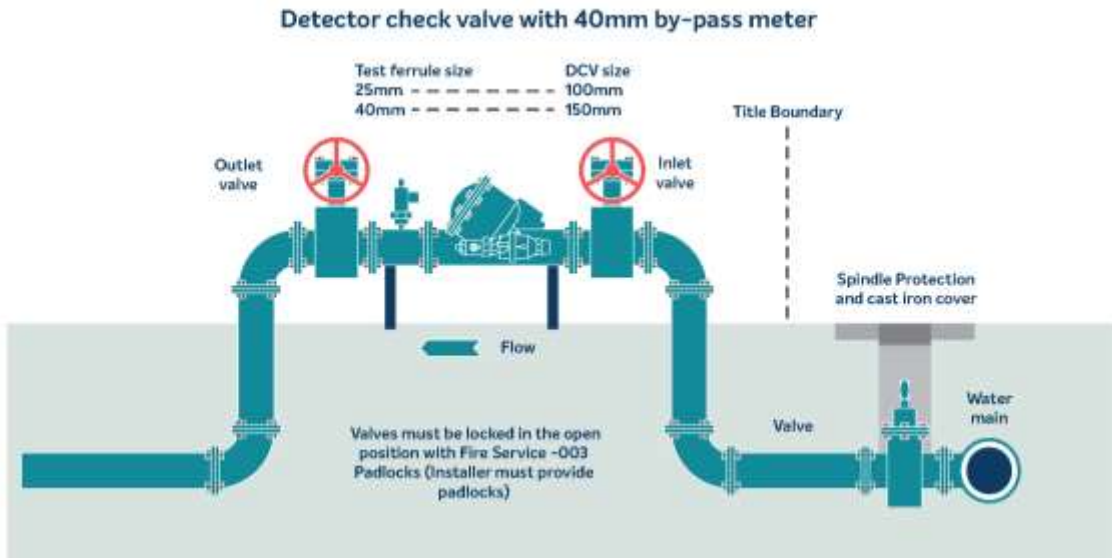


Figure 33 Detector check valve with by-pass meter

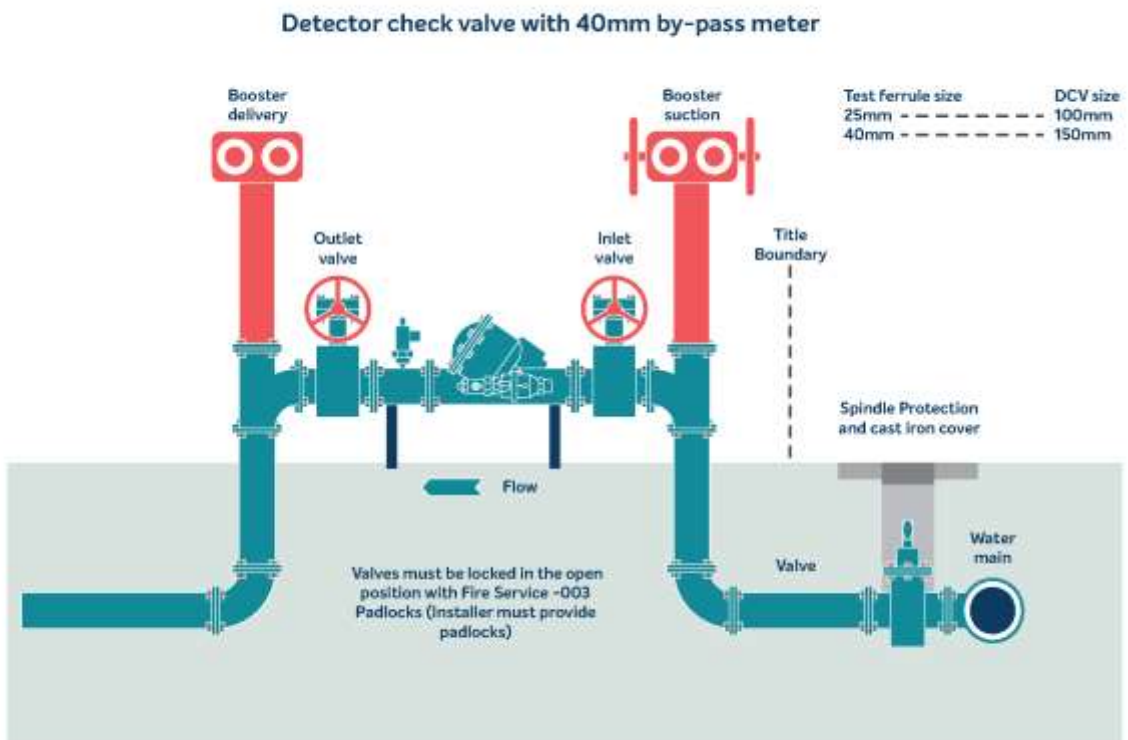


Figure 35 Area of responsibility

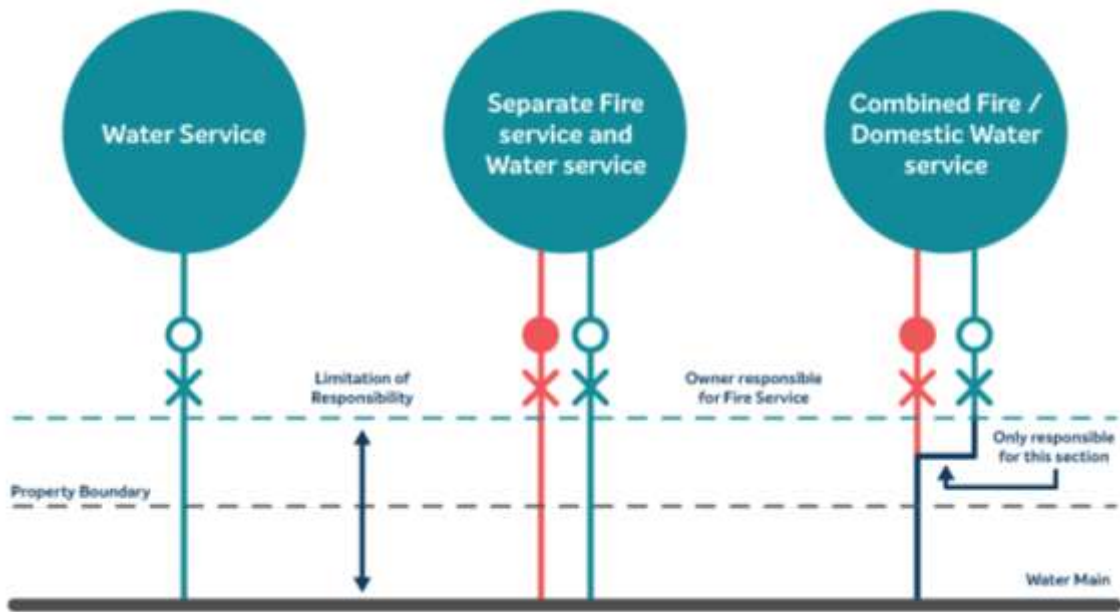
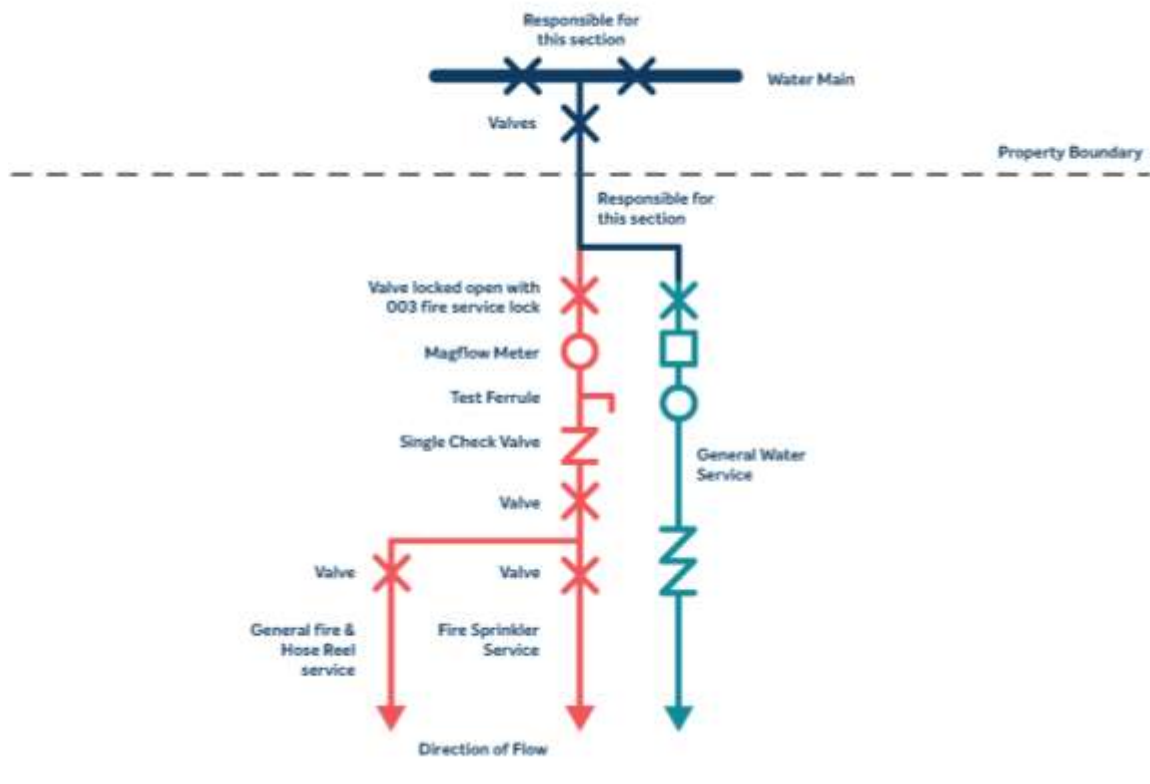


Figure 36 Area of responsibility combined fire and domestic

**Barwon Water Area of responsibility combined /Fire Domestic**



## 10.2. Standpipes

Overhead standpipes are owned by the relevant local councils; and it is their responsibility to maintain, service, and operate them within Water Restriction By-Laws.

Water taken via a council owned standpipe must only be used in accordance Water Restriction By-Laws. (Penalties Apply)

Barwon Water is only involved in the reading of the meter and raising the account, which is paid by relevant local councils.

The size, location and tap heights shall be in accordance with AS/NZS 3500.1<sup>27</sup>

- Standpipes shall not be smaller than DN 15, and shall be connected downstream of the lower outlet bend of the water meter assembly.
- All standpipes connected to the water service shall be securely supported by fixing to walls of buildings or other rigid supports. Standpipe taps shall be at a height of not less than 450 mm above the ground surface or the top of a disconnecter gully as applicable.

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<sup>27</sup> Reference AS/NZS 3500.1 National Plumbing and Drainage part 1 Water Services – Section 5.8 –Standpipes.

## 11. Trade waste

A Flow Meter Trade Waste (FMTW) shall be installed at new trade premises that discharge trade waste in excess of 10 kilolitres per day. The MagFlow meter shall be provided by Barwon Water (fees apply) a data logger will also be required as part of the connection approval. The location of the meter installation shall be approved by Barwon Water.

- a) A Trade Waste Agreement is required for each meter.
- b) Replacement trade water meters will be provided by Barwon Water with the owner arranging installation at their cost. Responsibility<sup>28</sup>

Due to the environment in which the trade waste meter is installed, the responsibility of developing a regular maintenance schedule and the physical maintenance of the trade waste meter is that of the discharge licensee. Responsibility to monitor compliance and ensuring that the maintenance has been performed is that of Barwon Water.

In line with the WSAA Code of Practice,<sup>29</sup> if the trade waste flow meter is owned by a water utility, a maintenance schedule shall be in accordance to the Table in 11.3 Inspection & Cleaning and is based on the medium being passed through the meter provided to the discharge licensee.

### 11.1. Maintenance<sup>30</sup>

This section specifies the general requirements for the maintenance and the frequency of maintenance of the trade waste flow meters including the meter installation, ancillary components, valves and pipe work.

The maintenance shall include inspections, the cleaning of both internal fittings, the testing of the trade waste flow meter both electronically and where possible a flow test, reporting the findings and corrective actions taken. If the trade waste flow meter has been off-line for any reason, a detailed corrective actions report needs be documented; this shall include date/time of the occurrence and date/time when the trade waste meter is back on line.

### 11.2. Inspection and cleaning<sup>31</sup>

Trade waste flow meters once installed require regular maintenance and cleaning dependant of the medium being measured. Maintenance reports must be available on request.

Inspections and cleaning shall include, but not be limited to:

- Documented maintenance schedule
- Inspection and testing the condition of bridging straps used to prevent electrocution due to stray electrical current or earth leakage
- Inspection and testing of upstream & downstream isolating sluice / knife valves
- Condition reports of fittings/fastenings and supports associated with trade waste flow meter assembly
- CTV camera reports for internal pipe inspection

<sup>28</sup> Reference: WSA 15 Trade Waste Metering Code of Practice

<sup>29</sup> Reference: WSA 15 Trade Waste Metering Code of Practice

<sup>30</sup> Reference: WSA 15 Trade Waste Metering Code of Practice

<sup>31</sup> Reference: WSA 15 Trade Waste Metering Code of Practice





- Cleaning of internal surfaces with jetting machine
- Telemetry connections.

**Table 3: Trade Waste Meter & Pipe Inspection/Maintenance Schedule**

<b>Inspection or maintenance requirement</b>	<b>LOW levels of residue or corrosive environment</b>	<b>MEDIUM levels of residue or corrosive environment</b>	<b>HIGH levels of residue or corrosive environment</b>
CTV camera reports for internal pipe inspection	12 months	6 months	3 months
Cleaning of internal surfaces with jetting machine,	12 months	6 months	3 months
Inspection / Testing of bridging straps	12 months	6 months	3 months
Inspection of Electrical connections	12 months	6 months	3 months
Inspection / Testing of upstream isolating valves.	12 months	6 months	3 months
Inspection / Testing of downstream isolating valves.	12 months	6 months	3 months
Condition reports of fittings/fastenings	12 months	12 months	6 months
Condition reports of supports	12 months	12 months	6 months
Pit Condition	12 months	12 months	12 months

If located in a pit or confined space, maintenance of the pit or confined space shall be included in maintenance schedule.

Confined space entry procedures shall strictly be adhered to.

**11.3. Replacement schedule<sup>32</sup>**

Meters do not have a predetermined life, provided that the trade waste flow meter operates within the accuracy requirements, as set out by the regulations, then it can stay in service.

**11.4. Electronic calibration<sup>33</sup>**

The responsibility of calibration the trade waste flow meter is the responsibility of Barwon Water.

Calibrations shall be to be carried out annually by the manufacturer (or accredited agent thereof).

**11.5. Trade waste flow meter compliance failure<sup>34</sup>**

When a trade waste flow meter fails compliance testing or when a trade waste flow meter is no longer serviceable then Barwon Water may require the trade waste flow meter to be replaced.

Barwon Water has the responsibility to inform the trade waste discharge licensee of the corrective actions required to have a new trade waste flow meter back on line.

<sup>32</sup> Reference: WSA 15 Trade Waste Metering Code of Practice

<sup>33</sup> Reference: WSA 15 Trade Waste Metering Code of Practice

<sup>34</sup> Reference: WSA 15 Trade Waste Metering Code of Practice



The new trade waste meter installation shall in all respects comply with the relevant regulations and standards as well as any other conditions set out by this document and Barwon Water.

### 11.6. Flow meter trade waste installation requirements

Meter installation design can vary greatly. As trade waste entering the sewer system may be gravity fed, a key requirement for a MagMeter installation is that the meter is in a full pipe configuration at all times. Configuration may include above ground installations.

If the meter is in a pit, the design must include:

- Sump for sump pump with sump pump or above ground extraction pipe.
- Upstream and downstream valves for servicing and testing
- Upstream injection connection and downstream test connection - for flushing and testing in situ
- All items accessible from outside the confined space. See typical solution in Figure 37

Figure 37 Flow meter set up – confined space

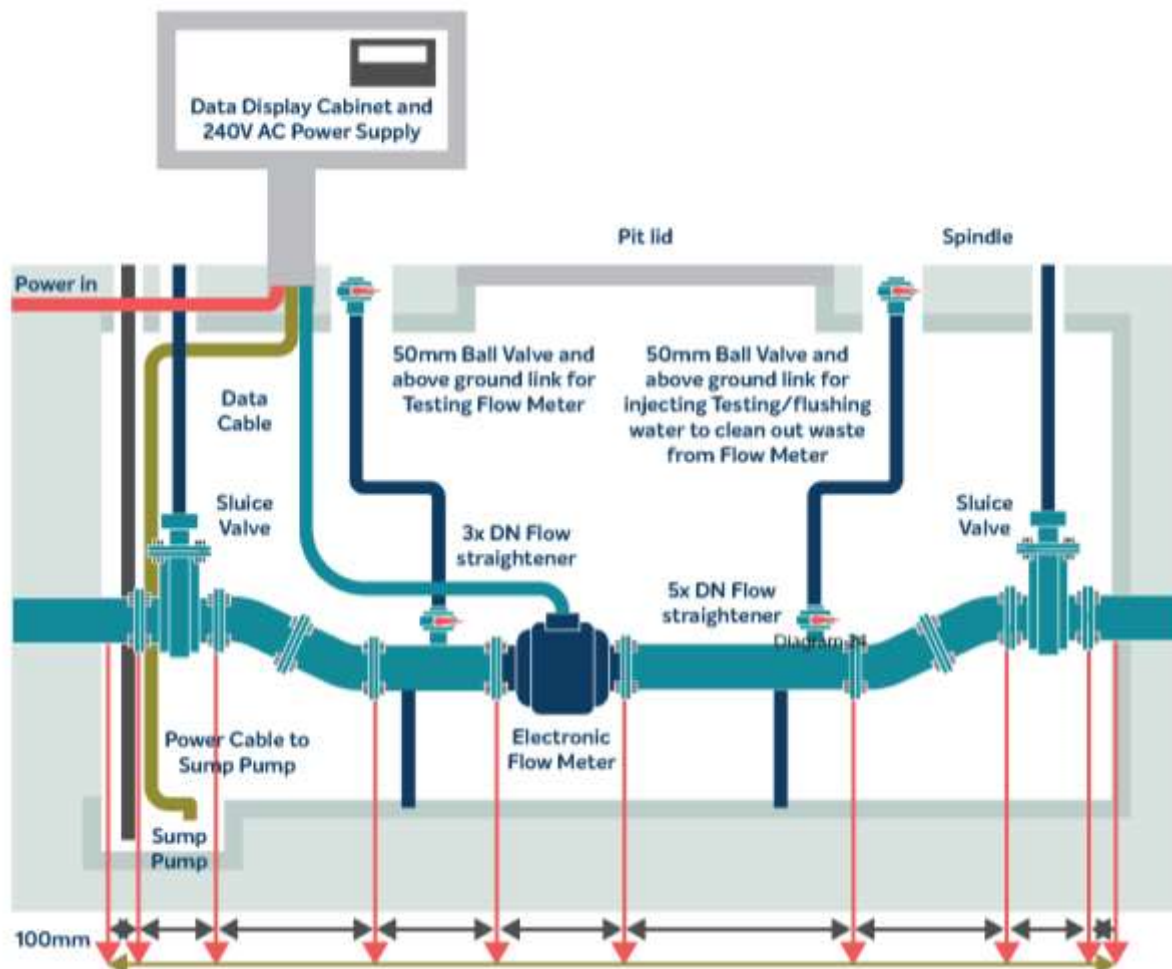
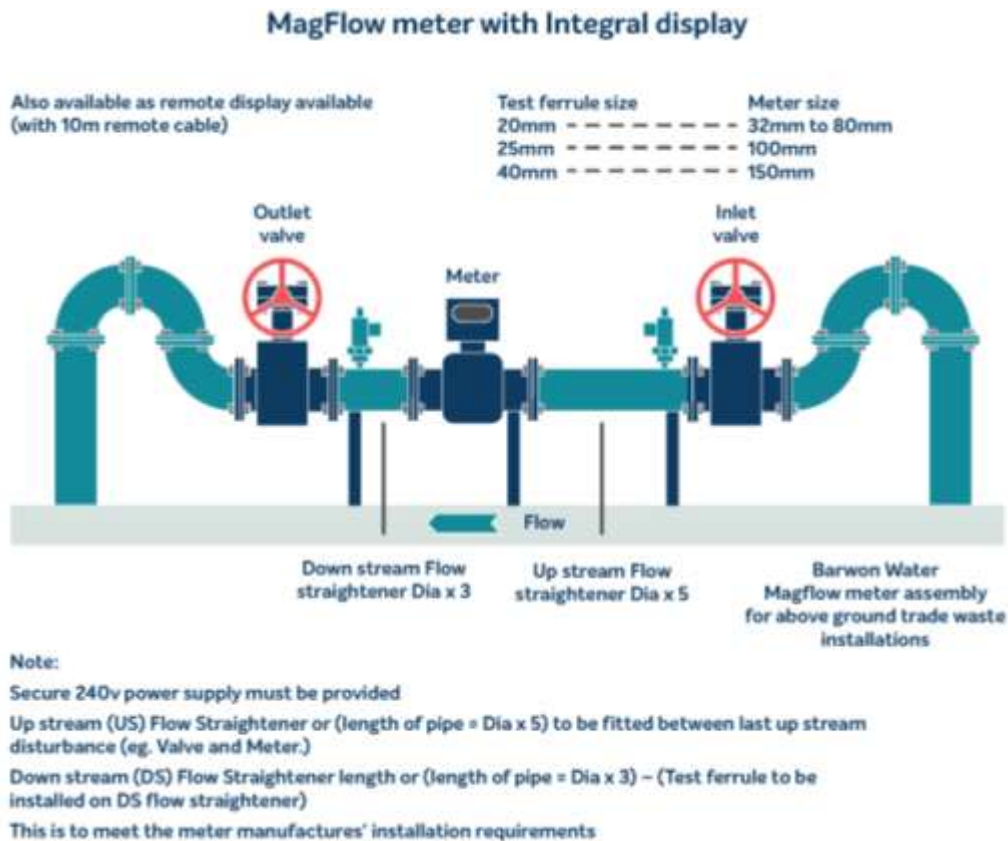


Figure 38 Integrated flow meter set up



## 12. Main to meter replacement and repairs

### 12.1. Main to meter - General

In accordance with Barwon Water's 'Main to Meter' Policy detailed in, the Customer Charter and subject to water law, Barwon Water will implement policy and programs to maintain water services and system performance in accordance with approved service standards. Including processes to minimise water loss that impact the environment and community:

Clause 9.3 of the Customer Charter - Delivery quality (flow rates) requires Barwon Water to ensure that a customer's water supply is at least equal to the minimum flow rates set out in the table below, except to the extent that:

- (a) a property owner's infrastructure falls short of the required condition;
- (b) a service is provided via a private extension;
- (c) there is a drought or an emergency beyond Barwon Water's control including sabotage, fire, flood, power shortage, extreme rain event, and industrial action;
- (d) there is a water shortage due to peak summer demand;
- (e) there is an unplanned or planned interruption;
- (f) there is a reduction to the non-drinking water supplied due to shortage or in accordance with our regulations around use
- (g) supply is restricted or disconnected in accordance with the Customer Charter; or
- (h) The *Water Act 1989* allows.

Barwon Water will provide a water supply to meet the customers' reasonable needs, with minimum flow rates through a service pipe that conforms to AS/NZS 3500 and measured at the outlet side of the water meter as shown in the table below. No minimum flow rates apply to 15mm service pipes or poor quality galvanised or damaged service pipes.

**Table 4: Service pipe diameters and minimum flow rates**

Property water service pipe diameter (mm)	20	25	32	40	50
Minimum flow rate (litres per minute)	20	35	60	90	160

### 12.1.1. Barwon Water's maintenance obligations (Water main to meter)

Subject to water law Water (Estimation, Supply and Sewerage) Regulations 2014 and the *Water Act 1989*, Barwon Water will implement programs to maintain its systems in accordance with its approved service standards.

In addition to this general system obligation, Barwon Water will maintain systems to minimise water loss that impact the environment and community:

Barwon Water will maintain property service pipes and, where necessary, replace leaking galvanised iron property service pipes (including commercial and industrial connections),

Barwon Water will maintain the water service pipe from our water reticulation main up to:

- a) the first water meter installed after the water main; or
- b) the property boundary if the first water meter is more than two metres inside the property boundary or there is no accessible stop valve; or
- c) The first accessible stop valve where the first water meter or part of the water service pipe is within or beneath the walls of a structure built on the serviced property or where there is no water meter.

An 'accessible stop valve' means a stop valve that is placed above ground or is placed below ground, within a stop valve cover approved by Barwon Water.

### Stop Taps and Valves

Barwon Water may replace a stop tap or valve on the inlet side of the meter or the first stop tap or valve inside the property boundary. The stop tap washer will be replaced or a top section, in the case of a seized top section, (this is classified as fair wear and tear).

### 12.1.2. In addition to this general system obligation

Barwon Water, in line with its environmental and community obligations, will undertake emergency repair work of fire or fire domestic services to minimise water loss, the property owner(s) or owner's corporation will be responsible to pay costs to Barwon Water for any works undertaken.

Barwon Water will issue a maintenance order made under Section 151 of the *Water Act 1989* where an emergency or temporary repair has been performed and the service requires replacing.

All costs incurred by Barwon Water for repairing or replacing a fire or fire/domestic or any service order made under Section 151 of *the Water Act 1989*, the property owner(s) or owner's corporation will be responsible to pay costs.

### 12.1.3. Property owner's maintenance obligations

The property owner(s) or owner's corporation is responsible for:

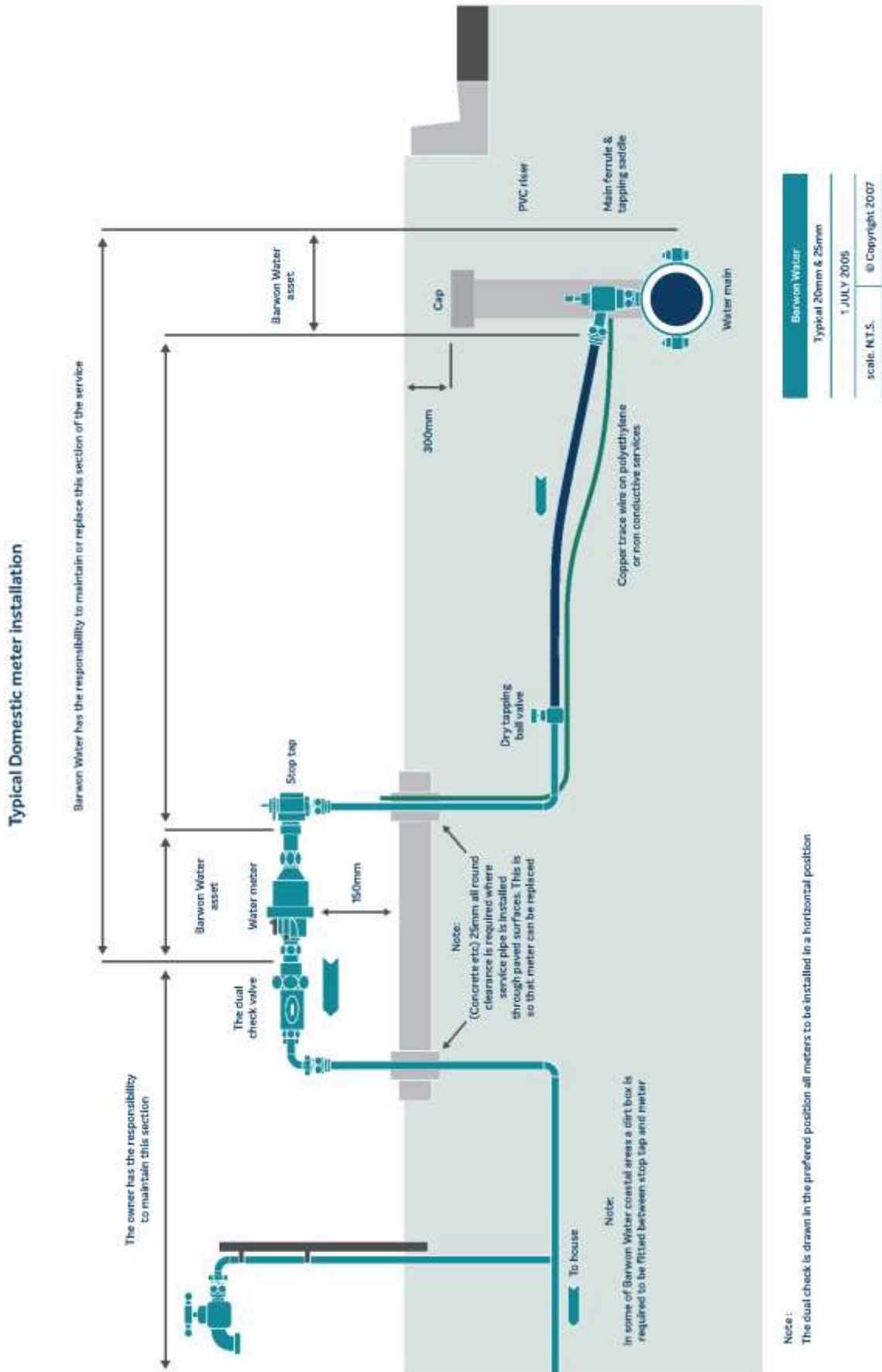
- (a) Costs associated with meter relocation, any accidental or deliberate damage to a water service pipe, stop tap and /or valves (except for fair wear and tear) and meter installations – note: broken handles, bent or damaged spindles etc., are not considered to be fair wear and tear, and the cost of repair/replacement may be passed on to the customer
- (b) Any stop valves that form part of a sub-meter assembly
- (c) All costs associated with maintaining or replacing a fire service pipe up to the valve at the water main
- (d) Maintenance or replacement of a backflow prevention device and pressure-limiting valve installed at the outlet of the meter
- (e) Private extensions or trunk services or water service pipes from private extensions
- (f) For maintaining all plumbing within the property boundary, from the taps and appliances to the meter assembly (meter outlet) or the property boundary where no meter is fitted
- (g) The installation, maintenance, repair and replacement of any meter pit, pit lid or meter cage
- (h) Any accidental or deliberate damage to property service pipes, stop taps, and meter installations
- (i) For the service pipe(s) between master meter and any sub-meter(s)
- (j) Stop valves that form part of a sub-meter assembly
- (k) Any meter pit, and its maintenance
- (l) Any meter pit or cage, which is in a public area but services a property as part of a main to meter property service
- (m) To the maintenance or required replacement of any shared water service under a joint arrangement between all connected property owners including Owners Corporation
- (n) Any existing galvanised services which are required to be upgraded under plumbing regulation if or when a property is redeveloped or renovated
- (o) The service from the property boundary if the first water meter is more than two metres inside the property boundary or there is no accessible stop valve
- (p) The service from the first accessible stop valve where the first water meter or part of the water service pipe is within or beneath the walls of a structure built on the serviced property or where there is no water meter.

## 12.2. Assisted replacement of galvanised property service pipes

In the case of a single residential property serviced by a galvanised property service pipe DN25mm or less, Barwon Water will respond by making an assessment on whether their property water service pipe requires renewal. If the water pipe requires renewal, Barwon Water will then arrange for a Barwon Water appointed plumbing contractor to undertake the works.

**Note:** If a property owner wishes to replace a service pipe for any reason other than as defined under the obligatory rules, then the owner will be required to pay 100% of the replacement costs.

Figure 39 – Typical domestic meter installation



### 12.3. Asset ownership - Main to meter - 20 & 25 mm

Historically, a property owner has been the owner of the water service asset connection from the main ferrule on the reticulation water main to the property, including the stop tap at the meter assembly and from the outlet side of the meter to the house and all fixtures. As stated in Section 12.1.1 under 'main to meter' obligations, Barwon Water is responsible for the maintenance of all water services regardless of size. In the case of a leaking galvanised iron water service where potable water is delivered to the property, the service pipe must be replaced to meet current Australian Standards.

Barwon Water retains ownership and is also responsible for the replacement and maintenance of the water meter (meter only) as required by legislation for meter fleet management (Section 142 (1a) *Water Act 1989*).

Prior to the introduction of the Developer Works Process on July 1, 2000 (where 'dry tapplings' are provided for individual properties within the costs associated with the water service provided to the property) or where the property owner has paid for a 'wet tapping' to the property (i.e. not 'dry tapplings'), the ownership of the water service asset remains with the property owner.

Therefore, after July 1, 2000, all individual property water services 25mm or less in size provided with service pipe connections under the Developer Works Process are retained as Barwon Water assets, and after July 1, 2000, all new water services 25mm or less provided by the property owner; or service pipes replaced by Barwon Water under the 'main to meter' obligation will be vested to Barwon Water and registered on the water infrastructure database as such.

Essential Services Commission – 'Customer Service Code for Metropolitan Retail and Regional Water Businesses' - The code regulates water businesses from 1 July 2005 and limits the service pipes to DN25mm.

2014 Subject to water law *Water (Estimation, Supply and Sewerage) Regulation 2014* and the *Water Act 1989* increased the DN size for water utilities with some limitations on the utility obligation.

In addition to this general system obligation, Barwon Water will maintain systems to minimise water loss that impact the environment and community.

**Note:** Any fire service or fire/domestic service servicing an individual property will remain the property owner's asset to maintain.

## 13. Meter testing

### 13.1. Testing of water meters

The owner or occupier of any land may request a test to the accuracy and reliability of any meter owned by Barwon Water installed on their land

The meter will be tested in accordance with the *National Trade Measurement Regulation 2009 Cth*.



### 13.2. Testing requirements

All meters shall be tested in a National Association of Testing Authorities (NATA) Water Meter Testing Laboratory in accordance with NATA 'Rules' and procedural requirements.

Provisions are set out within the *Water Act 1989* and the *Water (Estimation, Supply and Sewerage) Regulation 2014* for when a meters' accuracy comes into question by a customer.

On application to have a meter tested the customer shall be offered the opportunity to witness the meter test in the NATA Meter Testing Laboratory.

### 13.3. Testing reports

Test reports shall include a Metrological Performance Certificate and Mechanical Inspection report

### 13.4. Test equipment

All testing apparatus and reference measures shall be traceable and comply with the *National Measurement Act 1960*, in accordance with the *Trade Measurement Act Victoria 1995*, Number 59, and Regulation 80.

### 13.5. Testing as a result of a high consumption enquiry

Barwon Water may at any time, and must within 10 working days of a requested meter test, remove the meter to be tested and replace it with a new meter.

A copy of the test report will be provided to the customer within 5 days of having completed the meter test and mechanical examination.

Barwon Water will conduct the meter test and calculate any measurement error in the methods approved the National Measurement Institute (NMI).

If the meter being tested, is found to be **exceeding** the upper parameter of the Maximum Permissible Error (MPE), compared to the actual water quantity measured into the certified test measure), a reduction shall be made in the quantity of water to be charged for in accordance with a method which is representative of customers' consumption patterns.

If during the inspection of the internal workings, the meter is found to be mechanically faulty, it will be considered as inaccurate, and a reduction shall be made in the quantity of water to be charged for, in accordance with the *Water Act 1989*, this document and Barwon Water's Billing Pricing Schedule. Barwon Water will then:

- refund any charge paid by the customer for the tests
- refund or credit any amount overcharged.

If the meter is shown to be accurate, the cost of the test will be borne by the customer and the fee will be charged in accordance with the relevant tariff fees for meter testing.

### 13.6. Test fees for Barwon Water owned meters

The cost of all meter test fees regardless of size will be passed on to the customer.



### 13.7. Meter compliance

Barwon Water only purchases meters that are compliant with the *National Measurement Act 1960* as set out by the National Measurement Institute (NMI). These meters comply with NMI R49-1 and AS 3565. The *Utility Meters (Metrological Control) Act 2002* requires that water utilities ensure that their meter fleet performs within legislated accuracy limits.

Populations of water meters shall be replaced when they no longer maintain the required accuracy limits. It is not economical to test every meter within a population. Therefore, statistical sampling techniques are used to measure performance.

Barwon Water uses Australian Standard 3565.4 'Meter for Water Supply Part 4: In-service Compliance Testing' and 'WSAA In-service Compliance Testing Code Practice' as its performance based analysis of the water meter fleet. The standard and code specifies the requirements for timely sampling, testing and assessments of in-service meter populations.

The in-service test criterion has been established to ensure that meter accuracy is maintained throughout the economic life of the meter which recognises the low flow accuracy deterioration of meters in service. It should be noted that meters as they age generally lose accuracy and under register actual volume passed through the meter.

Meters are tested at designated flow rates based on water usage studies and represent the flow rates that water is used by consumers within a typical household. The standard provides for weighting to be applied to each meter tested, this final result is used in the determination of the meter population's performance.

#### 13.7.1. Meter Replacement Program (MRP) 20 to 25 mm

Barwon Water's MRP is designed to ensure that all meters are operating within acceptable limits.

A water meter no longer has a predetermined life expectancy, due to the fact that water quality is continually improving, as is the infrastructure providing water to the meters. A guide to the approximate life expectancy is shown below.

The approximate life expectancy of a 20mm water meter is:

- 15 years or 3600 KL for 20mm.

For 25mm water meters Barwon Water uses:

- 10 years or 8500 KL for 25mm.

NB: Barwon Water uses the above guide to determine our replacement schedule.

#### 13.7.2. Meter Replacement Program (MRP) 32 to 40 mm

Barwon Water's MRP is designed to ensure that all meters are operating within acceptable limits. A larger meters operate over varying operating conditions and although a water meter no longer has a predetermined life expectancy. A guide to the approximate life expectancy is shown below.

For 32mm water meters Barwon Water uses:

- 10 years or 15,000 KL



For 40mm water meters Barwon Water uses:

- 10 years or 20,000 KL

NB: Barwon Water uses the above guide to determine our replacement schedule

A meter population identified as failing compliance testing earlier than the life expectancy will be scheduled for replacement through a planned replacement program.

Owners or occupiers of properties identified as requiring replacement will be provided with a notification of intended meter replacement seven (7) clear working days in advance.

### **13.7.3. Replacement Program**

Where a water meter is to be replaced under a scheduled meter replacement program, notification will be provided to the customer at least 7 days prior to the work being carried out.

Notification in the form of a card is left at a customer's house when the exchange is completed, or if unable to perform meter exchange, the card will request the customer to make arrangements to rectify the problem and advise Barwon Water on completion.

## 14. Appendix A

### Reference: AS/NZS 3500 National Plumbing and Drainage Part 1 Water Services

(See also section 4.4.1 of this document)

#### AS/NZS 3500 - Section 13 INSTALLATION OF WATER METERS

13.1 SCOPE OF SECTION – This Section specifies the general requirements for the location, installation and protection of water meters.

13.2 LOCATION OF WATER METERS – Water meters used for billing purposes shall be located as follows:

- (a) Within the property
- (b) Proximity to street alignment – as near as practicable to the street alignment.
- (c) Proximity to isolating valve – positioned immediately downstream of the meter-isolating valve.
- (d) Relationship to the reticulation water main– directly opposite the connection and at right angles to the water main.
- (e) Within easements – at the front of the property. Where the property service is required to be offset within a private easement or right-of-way, an isolating valve shall be provided downstream of the offset.
- (f) In other locations – as required by the relevant network utility operator -

#### **(Barwon Water requires copper trace wire on all non-metallic services)**

#### 13.3 INSTALLATION OF WATER METERS

13.3.1 General Water meters shall be installed –

- (a) So as to be readily accessible for reading, maintenance or removal and be clear of obstacles;
- (b) In a horizontal position unless designed to operate otherwise; and
- (c) So that no branch pipe is closer than the lower outlet bend of the water meter assembly.

13.3.2 Inside buildings - When a water meter is installed inside a building and water damage may result from the removal of the meter; an additional stop tap shall be fitted adjacent to the meter outlet.

13.3.3 Below ground - Water meters installed below ground level shall be located in a chamber that has a cover which is capable of being removed by one person; and

- (a) A base that enables drainage.

**13.4 PROTECTION** - Where liable to vehicular damage, water meters shall be protected.

**13.5 SUPPORT** – Meters DN 50 or larger shall be supported independently of piping

(Barwon Water requires support under meters 32mm DN or larger)

**13.5 FROST PROTECTION** – Water meters and meter assemblies located in frost-sensitive areas shall be protected against damage caused by freezing of water

**13.5 ELECTRICAL SAFETY PRECAUTIONS** - When uncoupling meter connections the precautions in Clause 5.2 shall be observed

CLAUSE 5.2

**ELECTRICAL SAFETY PRECAUTIONS EARTHING** - Before any existing metallic water service pipe, which forms part of an earth electrode for an electrical installation is cut or uncoupled, the following precautions shall be taken to reduce the risk of electrical shock.

- (a) The main switch or switches on the premises shall be switched off and a tag reading 'DANGER DO NOT SWITCH ON' attached over the switch.
- (b) A bridging conductor, fitted with suitable clamps and having a current rating of not less than 70 A, shall be connected across the intended gap.
- (c) The pipe shall be cleaned to bare metal where the clamps are to be connected.
- (d) The electrical bridge shall not be broken or removed until all work on the water service is completed and continuity of the metallic service pipe is restored.
- (e) Where any existing metallic service pipe is to be replaced in part or in its entirety by plastics pipe or other non-metallic fittings or couplings, the work shall not commence until the earthing requirements have been checked by an electrical contractor and modified, if necessary.

## Appendix B

### Meter Tampering – Wrongful taking of water

In accordance with sections 145, 288, 289 & 290 of the *Water Act 1989*, it is an offence to interfere with an Authority's assets. This includes the removal, or substitution of any water meter or metered hydrant or connecting to Barwon Water's infrastructure without the written consent from Barwon Water. Penalties are provided in the *Water Act 1989*.

Barwon Water will investigate any reported breach, the meter shall be checked for any evidence of interference and any meter that appears to, or has been interfered with, will be replaced and security clamps placed on meter couplings.

Barwon Water will prosecute any offenders who tamper with or interferes water meters or unlawfully takes water from Barwon Water.

## 15. Appendix C

### Portable Metered Hydrants

All relevant details in relation to the use of portable metered hydrants can be found via the below link.

<https://www.barwonwater.vic.gov.au/properties-and-development/property-connections/terms-and-conditions-for-hiring-and-using-a-barwon-water-smart-pipe>