



STANDARD WATER SERVICES CONNECTIONS

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CONTENTS

1. Purpose	5
2. Scope	6
3. Potable Water Supply	6
3.1. Connection to the Water Network Infrastructure (Property Service – Main to Meter)	6
3.2. Privately Owned Property Services	7
3.3. Pre-laid Water Services	8
3.4. Installation Requirements for Privately Owned and Pre-laid Property Services	9
3.5. Non-standard Privately Owned Water Services	10
3.6. Private Domestic and Fire Hydrant / Fire Sprinkler Services	12
3.7. Drilling (Tapping) in Water Mains	12
3.8. Water Main Drilling Connections – Service Components	14
3.9. Installation of Tee and Services Stop Valves	14
3.10. Retention of Existing Work	16
4. Water Metering	16
4.1. Ownership and Responsibilities for Meters	16
4.2. Application for Water Connection	16
4.3. Relevant Standards and Reference Documents	17
4.4. Water Meter and Property Service Sizing	17
4.5. Water Meter Assembly Design Requirements	17
4.6. Water Meter Positioning	18
4.7. Water Meter Installation	20
4.8. Metering of Multiple Occupancy Developments	20
4.9. Related Metering Issues	22
4.10. Metering of 'Non-Standard' (Temporary) Water Services	24
5. Portable Metered Standpipes and Water Tankering	24
5.1. General	24
5.2. Compliance Conditions for Water Tanks	25
6. Non-Portable Water Supplies	26
6.1. Reticulated Recycled Water	26
6.2. Rainwater	27
6.3. Alternative Water Supply	29
7. Fire Service	30
7.1. Use of Fire Service	30
7.2. Metering of Fire Services	30
7.3. Designated Fire Hydrant / Fire Sprinkler Service	30
7.4. Storage Tank Fire System	30
7.5. Sealing of Fire Services	30
7.6. Low-flow Bypass Metering and Accountability	30
7.7. Hydrants on Private Property	31
8. Pump Stations	31
8.1. Fire Service Pumps	31
8.2. Domestic Service Pumps	31
9. Administration	32

10. Definitions, Acronyms and Abbreviations..... 33





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1. Purpose

This Standard provides the minimum water connection requirements for properties located within Hunter Water's area of operations. All existing connections and new applications for connection will be required to meet the requirements of this Standard.

Connection to services is subject to any condition Hunter Water may lawfully determine to ensure the safe, reliable and financially viable supply of services to properties in the area of operations in accordance with the Operating Licence.

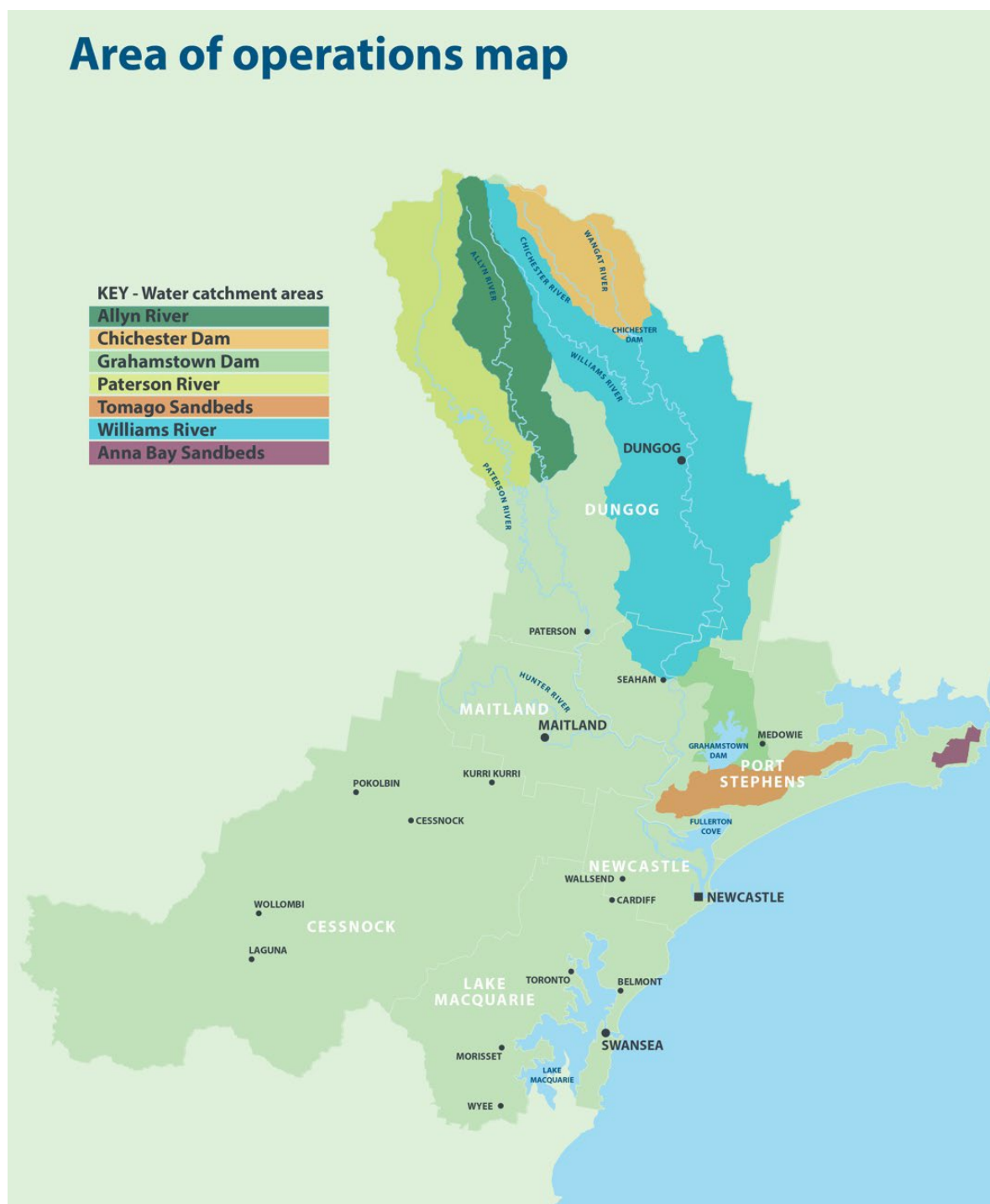


Figure 1: Hunter Water Area of Operations (Water Supply)



2. Scope

This section sets out the minimum general requirements to be followed for the work of plumbing and drainage connected to Hunter Water's network infrastructure.

In accordance with Hunter Water's Operating Licence, connection to services is subject to any condition Hunter Water may lawfully determine to ensure the safe, reliable and financially viable supply of services to properties in the area of operations in accordance with the license.

Property water service installation and design parameters are not defined or regulated under the Plumbing and Drainage Act and Regulations. Therefore, the installation and maintenance of property water services are regulated by Hunter Water.

Hunter Water specifies the installation and maintenance responsibilities regarding property water service installation in the Hunter Water Regulation (2015), Hunter Water's Customer Contract, Backflow Standard, and this Standard.

3. Potable Water Supply

Each land parcel shall have an individual property service connection to Hunter Water's water network infrastructure (where frontage is available).

No water supply pipeline shall be extended to another lot or land parcel without the prior written approval of Hunter Water.

In cases where a property is to be subdivided, and where existing buildings are to remain, each designated land parcel shall have an independent connection to Hunter Water's water network infrastructure.

A site containment backflow prevention device, compliant with Hunter Water's Backflow Prevention Standard and Australian Standards AS/NZS3500.1 Water Supply, shall be installed on the property water service, downstream of the water meter. Hunter Water's Backflow Prevention Standard takes precedence over AS/NZS3500.1.

The requirement for site containment backflow prevention is nominated in various laws and regulations including:

- Hunter Water Act 1991
- Hunter Water Operating Licence 2022-2027
- Hunter Water Regulations 2015
- Hunter Water Customer Contract 2022-2027
- The Plumbing Code of Australia
- Australian Standard – Plumbing and Drainage – AS/NZS 3500.1 – Water Supply
- Australian Standard – Backflow Prevention Devices – AS/NZS 2845 (1,2 and 3)

3.1. Connection to the Water Network Infrastructure (Property Service – Main to Meter)

Hunter Water approves two types of supply connections to its water network infrastructure:

1. Privately Owned (Property Owner)
2. Pre-laid (Hunter Water Owned)

NOTE:

- Common or joint private water supply services have historically been approved however are no longer recognised by Hunter Water as a compliant water supply connection / configuration. These water services are now considered Non-Standard (see Section 3.5) and are NOT an approved



current water service connection. While it is acceptable to own a property with common or joint water supply system, reconfiguration to an individual direct water connection to Hunter Water's water main is recommended at the time of resale, upgrading of a dwelling, building or replacement of plumbing works. Hunter Water may be contacted to assess the possibility of individual properties having their own direct connection to Hunter Water's water main infrastructure. Hunter Water DO NOT own or maintain common or joint privately owned water pipelines.

- Hunter Water accepts no responsibility or gives any guarantee or assurance for the currency, accuracy or comprehensibility of any information, plans or diagrams provided for water connection.

3.2. Privately Owned Property Services

Privately owned property water services are connected to Hunter Water's water main infrastructure by:

- Main tap(s) at the water main (generally for water services sized 20mm to 50mm).
- Tee and stop valve, located immediately adjacent to the water main, for water services sized 80mm or larger.

3.2.1. Installation

Privately owned property water service connections are applicable to residential, commercial, industrial, redevelopment and vacant land.

A "Water Connection" application and appropriate fee(s) must be submitted to Hunter Water prior to water connection works for a privately owned property water service.

The installation of a privately owned property water service must satisfy the requirements listed in this Standard and the following publications:

- AS/NZS 3500.1 Plumbing and Drainage
- Hunter Water's Customer Contract
- Hunter Water's Backflow Standard

For typical water meter and privately-owned property service connection arrangements, refer to the following drawings in the list of downloadable Standard Drawings on the **Plumber Resource Centre** page of the Hunter Water website:

- "Drawing TSW 001 Water Connection 1 to 5".
- "Drawing TSW 002 Water Connections 3A to 6".

3.2.2. Connections for Dual Occupancies and Granny Flats

Developments (new and reconfigured) which fall between a single residential dwelling and a development requiring the submission of a Hydraulic Design Assessment (eg. Dual occupancy, granny flat etc), shall have the property water service (including water main configuration and water meter), designed, sized and certified by a qualified person (hydraulic consultant, licenced plumber) using AS/NZS3500.1 Plumbing and Drainage. The exception to this is dual occupancies that require multi-metering; a hydraulic assessment is required for this type of development.

Certification shall utilise the "minimum head pressure available" and AS/NZS3500.1 "Sizing Method for Supply Piping for Dwellings". Certification shall confirm that the water supply piping system is sufficient to satisfy the "probable simultaneous demand" of the total proposed development.

Formal certification shall be submitted to Hunter Water and the property owner(s).

Hunter Water will NOT be held responsible for any low water pressure or low water flow from current or future property owners / tenants in such developments.



3.2.3. Maintenance Requirements of Private Property Services

The replacement of, or any maintenance to, a privately owned property service shall comply with the requirements of this Standard and the publications listed above.

Any replacement pipe work shall be installed in the equivalent internal diameter as the existing property service (as a minimum).

Soft solder is not an approved jointing method on new property water service installation or existing property water service reconfiguration or repairs.

Note: It is the responsibility of the Property Owner to obtain a dated Certificate of Compliance from the licenced plumber to determine the liability period for the works.

After the installation and maintenance liabilities of the licenced plumber have expired, the following privately owned property water service maintenance responsibilities shall take effect.

Hunter Water does not own privately owned property water services but will maintain private property water services where the service is sized up to and including 40mm as detailed in Hunter Water's Customer Contract.

Exceptions to this include:

- Wilful or negligent damage
- Water services connected to privately owned water main e.g. Community Title
- Common or shared private water services
- Illegal water services
- Water services installed contrary to regulations
- Non-Standard Water Services
- Water services which require reconfiguration, replacement, resizing, repair and removal as part of the redevelopment of property service.

Note: All other privately owned property water services must be maintained by the property owner.

Hunter Water does not maintain designated fire hydrant or sprinkler services.

The main tap or the isolating service valve (at a tee and valve connection), is the responsibility of the property owner to maintain and replace. Hunter Water will provide a shutdown of the water main to assist the owner/s agent to initiate repairs, replacement or removal. The owner shall submit an application and pay fees as directed by Hunter Water to provide the required shutdown of the water main to carry out the required rectification works.

Hunter Water does not own the "tee" or "valve" on a tee and valve connection and should the water service become redundant it is the property owners responsibility to have the tee and valve connection removed from Hunter Waters' network infrastructure - see Section 3.10.2 of this Standard.

In some cases, Hunter Water may carry out the repair, replacement or disconnection of the main tap or isolating service valve and charge the customer as detailed in Hunter Water's Customer Contract/

3.3. Pre-laid Water Services

A pre-laid water service is installed by the developer on residential subdivisions at the time the water main is installed or connected to an existing watermain at the time of subdivision. A pre-laid water service is installed from the water main to inside the property boundary (within 1 metre). The pre-laid water service may be connected to more than one property and in this case is called a "joint pre-laid water service". A pre-laid water service is owned and maintained by Hunter Water.

A "Water Connection" application and appropriate fee/s shall be submitted to Hunter Water for water connection works to a pre-laid property service.



Note:

1. Commercial, industrial and some rural subdivisions do not have pre-laid water services installed at the time of development due to the unknown water service demand and location of proposed development structures.
2. Pre-laid water services are NOT approved to be installed unless Hunter Water has a Developer Services Deed in place and the ownership of the pre-laid water service/s transferred to Hunter Water.

For typical pre-laid water serviced configuration refer to Drawing TSW 003 Water Connection Type 1 in the list of Standard Drawings on the **Plumber Resource Centre** page of the Hunter Water website. See also the Hunter Water Guideline on pre-laid services on the same web page.

3.3.1. Maintenance Responsibilities of the Pre-Laid Property Service by Property Owner

If the pre-laid water service requires relocation due to an owner's requirement to install retaining walls, fencing, garden beds, driveways or the raising of existing ground levels, the property owner shall engage the services of a licenced plumber to carry out the works at the property owner's expense.

Should the pre-laid water service location require the installation of a new individual water service, the existing pre-laid water service for the impacted property shall be:

- For a single service disconnected at the water main.
- For a joint service disconnected at the common tee.

Appropriate application(s) and relevant fee(s) shall be submitted to Hunter Water prior to works commencing.

3.3.2. Maintenance Responsibilities of the Pre-Laid Property Service by Hunter Water

Hunter Water is responsible for maintenance from the water main connection, up to and including the outlet union of the water meter.

Exceptions to this include:

- Wilful or negligent damage
- Water services which require reconfiguration, replacement, resizing or repair as part of the redevelopment of a property.

3.4. Installation Requirements for Privately Owned and Pre-laid Property Services

3.4.1. Flared Compression Joint

Privately Owned Service:

Brass fittings shall NOT be silver brazed or soft soldered between the water main and the outlet union of the water meter, for sizes 20mm, 25mm, 32mm, 40mm and 50mm diameter. The connection to the water main shall be made by a compression flare union or "Water Mark" approved union and fittings where the socket (with approved "o ring") and pipe are crimped together, positioned to allow easy disconnection between the flared pipe fitting and main tap connection.

Note nut and compression olive fittings shall not be used as any part of the water service.

Pre-laid Service:

Installed as per Water Services Association of Australia (WSAA) requirements.

3.4.2. Pressure Limiting Valve

Hunter Water requires that property water services (pre-laid and privately owned) incorporate a 500 kPa pressure limiting valve to satisfy the maximum internal water pressure requirement nominated in AS/NZS3500.1 Plumbing and Drainage.



“Provision shall be made to ensure that the maximum static pressure at any outlet, other than a fire service outlet, within a building does not exceed 500 kPa”.

Hunter Water will not be held accountable for elevated internal water pressure, and/or any issues or damage at properties which do not incorporate an approved, operational 500 kPa pressure limiting valve.

3.4.3. Approved Property Water Service Materials & Components

All materials and products used in property water service installations shall comply with AS5200.000 and AS/NZS3500 (Section 2 and 5).

3.4.4. Electrical Isolation

Where a 20mm/25mm water main drilling is installed, the “drilling band” must be an appropriate type and compatible with the water main material to ensure electrical isolation. Drilling bands for metallic water mains (ductile and cast iron) must have a nylon insert or equivalent to ensure electrical isolation.

Where a tee and valve connection to Hunter Water’s water main is installed, the flanged joint between the service valve and the service pipe shall be electrically isolated by inserting a rubber gasket between the flanged ends (“copper mate electrical isolation flange”) and providing insulating washers and sleeves of plastic material (“delrin top hat washers”) around the flange bolts and nuts to provide necessary electrical isolation.

3.4.5. Tuberculation

All connections (drilling or tee and valve) to Hunter Water’s Cast Iron (CICL) and Ductile Iron (DIDL) water mains shall incorporate a tuberculation bush. The tuberculation bush is to be fitted to the water main penetration.

3.5. Non-standard Privately Owned Water Services

3.5.1. General

A private water service which is installed by the owner’s agent at the owner’s cost where:

- A property does NOT have frontage to Hunter Water’s reticulated water main network.
- The reticulated water main network is not required to be extended to service the property due to the property’s remote location.

A Non-Standard Water Service is deemed remote from Hunter Water’s infrastructure and thus the development’s water connections is not governed by Hunter Water’s Customer Contract. A special agreement (Non-Standard Water Service Agreement) shall be entered into with Hunter Water, which will outline the specifics of the connection requirements. This includes:

- A Non-Standard Water Service shall not have another registered lot or parcel of land connected to that designated service.
- The water meter assembly shall be located within private land immediately adjacent to the water main connection and protected from damage. The owner of the designated land where the water meter assembly is to be located shall provide Hunter Water with a letter of approval for its location.
- The Non-Standard Water Service pipeline may transverse local council footpaths and roadways. The responsible persons controlling that land will be required to provide written approval to Hunter Water for the location of the pipeline.

Prior to the purchase of a property which is serviced by a Non-Standard Water Service, it is recommended that potential purchasers seek legal advice confirming that current approval/s for the location of the water meter and pipeline outside the property boundaries are recognised by all relevant parties.

If a property is sold, the Non-Standard Water Service Agreement with Hunter Water ceases, and the “new” property owner is required to enter into a new Agreement.



Hunter Water considers that any water service to a property that does not have a direct frontage to a Hunter Water main to be known as a “Non-Standard Water Service”. This applies to all such water services irrespective if there is a Non-Standard Water Service Agreement in place.

Hunter Water specifies the installation and maintenance responsibilities regarding Non- Standard Water Service installation in Hunter Water’s Regulation, Hunter Water’s Customer Contract and the specific Agreement.

Note: Non-Standard Water Services will only be permitted in cases where Hunter Water determines that a property is too remote from the existing reticulated water network infrastructure. This will be assessed having regard to potential future development and the distance from existing network infrastructure. Non-Standard Water Services are temporary and may be disconnected by Hunter Water at its discretion. Non-Standard Water Services must be removed from service where a reticulated water supply main is installed in the future which allows frontage to the property. In these cases, the property water service shall be connected to the new water main at a location which provides frontage to the property and will be considered a “standard water service”. All costs for the disconnection and reconnection are to be borne by the property owner.

3.5.2. Application for a Non-Standard Water Service

An application for a Non-Standard Water Service must be from a single legal entity. A designed plan of the proposed Non-Standard Water Service is required to be submitted to Hunter Water and formal approval issued prior to commencement of works. The following documentation is required:

- Designs that comply with Hunter Water Services Connection Standard, Hunter Water Backflow Standard and AS/NZS3500.1 Plumbing and Drainage.
- Written permission from the landowner to have the water meter assembly on that landowner’s private property.
- Written permission from the relevant authority (or multiple authorities) for the private water pipeline to traverse public lands and/or roadside reserves.
- Location and depth of the proposed service.
- Environmental and cultural assessment as required by relevant authority (Council or/and State Government).
- Pipe material and components must be of an approved type.
- Pipe material components from water main to water meter shall be Polyethylene.
- PN16 or Copper Type B minimum (refer to standard drawing TWS-010 Water Meter Connection Type 1A Privately Owned Property Service).
- Polyethylene piping to be installed in an approved conduit for road crossings (refer to standard drawing TWS-010).
- Approved surface marker plates are to be installed at 300 metre maximum intervals, and at changes of direction, along the length of the Non-Standard Water Service.
- All valves are to be fitted with risers, valve covers and concrete surrounds at surface level.

The responsible person or authorised owner’s agent is required to contact Hunter Water to arrange for the work to be verified prior to final backfilling of trenches. A 1500 kPa minimum pressure test is to be carried out on the property service (main to meter) in the presence of a Hunter Water representative.

The alignment of the “as-constructed” water service is to be surveyed on completion with a formal plan and details forward to Hunter Water within 7 days.

The owner must agree to indemnify Hunter Water against all claims for loss, damage, injury or whatsoever which may arise out of the installation, operation or use of the water service.

Non-Standard Water Services are not intended to be provided for firefighting purposes.



Civil matters may arise from disputes regarding ownership, maintenance and water leaks on Non-Standard Water Services – especially “joint” Non-Standard Water Services. All civil matters pertaining to ownership, maintenance responsibilities and water leaks are to be resolved by the related parties.

Hunter Water will charge for all water usage registered by the water meter attached to a designated Non-Standard Water Connection as detailed in the Non-Standard Water Service Agreement.

3.6. Private Domestic and Fire Hydrant / Fire Sprinkler Services

Private Domestic & Fire Hydrant / Fire Sprinkler Services are individually assessed by Hunter Water with requirements to be listed in a Hydraulic Assessment application. Below are some scenarios and requirement examples:

- A common pipeline from the water main to within 1 metre of the property boundary facing the water main. At this point, the pipeline continues to supply the properties designated fire service, and the drinking water service is bifurcated off the common pipeline (fire supply & drinking water supply are separated). Metering and site containment backflow prevention for the drinking water service, along with “low flow” metering and site containment backflow prevention for the fire service are installed at this location (refer to standard drawing TWS-002 Water Meter Connection Schematic Drawing – Types 3A – 6).
- Hunter Water may require the installation of bypass metering systems to register low flows on large domestic and fire hydrant/sprinkler services. In all cases where there is a low flow meter installed there shall be a minimum 20 kPa pressure difference between the large diameter main flow backflow prevention device and the smaller diameter bypass backflow prevention device.
- Where a “critical customer” installs fire and domestic systems, Hunter Water recommend the installation of dual site containment backflow devices in parallel to ensure continuity of supply during backflow testing and maintenance. To be designed and installed in compliance with the Building Code of Australia Volume 1 and related Standards, and in accordance with this Standard.

Note: Hunter Water acknowledges “combined internal domestic and fire services” have been previously installed within Hunter Water’s area of operations; however, this water connection configuration is not a current approved design. These systems should be separated during property redevelopment or amendments.

Any design outside of the allowed water connection configurations, will require an individual application to be submitted to Hunter Water for specific approval.

3.7. Drilling (Tapping) in Water Mains

There are 2 options for drilling connections to Hunter Water’s water main.

- Drilling by Hunter Water (unrestricted water main size)
- Drilling by an accredited driller (80mm to 200mm water main size)

Only a Hunter Water representative or Hunter Water accredited licenced plumber may perform an under-pressure water main drilling.

3.7.1. Drillings by Hunter Water

Hunter Water operatives carry out this service and there are no restrictions relating to water main size or location in Hunter Water’s area of operations. Specific fees apply to the drilling of water mains, which are based on the number of drillings and size of the drilling saddle / water main.

3.7.2. Accredited Watermain Driller

The accredited watermain driller is authorised to drill Hunter Water’s mains sized from 80mm to 200mm. The accredited driller is required to notify Hunter Water of the date and time of works. Hunter Water audits the work practices of accredited persons on a regular basis. For water main drilling excavation requirements see



the Hunter Water Guideline “Preparation of Watermain for Drilling” available from the **Plumber Resource Centre** on the Hunter Water website.

Note:

- Not all water mains are available for a property water service connection.
- Where the property has frontage to more than one water main, the allowed water main to be used is at the discretion of the Hunter Water. In such cases Hunter Water must be contacted prior to any excavation/connection works for confirmation of appropriate connection watermain.

3.7.3. Application and Requirements

A “Water Connection” application shall be submitted to Hunter Water with applicable fees paid prior to any water connection works being carried out. This application shall include a “Meter Affixture” application and related fee. Both applications shall nominate a date of service connection and a date for meter affixture.

Hunter Water will affix an approved water meter after the property water service has been installed by the owner’s engaged licenced plumber. It is necessary for the owners engaged licenced plumber to install an approved metallic meter pipe spacer to enable the supply of water until the water meter affixture has been carried out.

Should the metallic meter pipe spacer be non-compliant with Hunter Water requirements and Hunter Water are unable to affix the water meter, the property owner/ licenced plumber will be required to rectify the pipe spacer and submit an additional Meter Affixture Application and related fee.

Hunter Water affix water meters sized 20mm, 25mm, 32mm & 40mm. Water meters sized 50mm and larger can be collected from a location nominated by Hunter Water. These meters are required to be affixed by the engaged licenced plumber immediately after collection.

Hunter Water may require a Section 50 Certificate to be issued prior to approval being given for connection to the water supply network.

3.7.4. Approved Materials and Fittings for Property Services

Use only equipment and materials listed on the Hunter Water Authorised Products and Materials List provided in Appendix 1 of this Standard.

3.7.5. Drilling Excavations

For drillings carried out by Hunter Water and Accredited Drillers, the licenced plumber shall:

- Confirm the drilling time by contacting Hunter Water giving two working days notice prior to water main drilling.
- Prior commencement of any works, obtain the location of all Utility services (eg. Gas communications, electricity etc) from Dial Before You Dig (DBYD).
- Expose the water main with adequate clearance (sides and below), and free of all ground water when the driller arrives. Allow half an hour each side of the drilling time for any unexpected time delays or changes. The minimum excavation size is 1m x 1m with water main centred. A clearance of 150mm is required below the water main. Connection to the water main must be at right angles to the intended position of the water meter.
- Be onsite at the time of the drilling, and take all precautions necessary for the safety of the excavation, including traffic management and the protection of pedestrians – work health and safety and road opening permits.
- Supply an approved watermain tap (ball valve) to allow drilling process.
- Ensure there are no water main collars / spigots or other drillings within 600mm of the proposed drilling location (unless authorised by Hunter Water).

Note: Failure to comply with all of the above requirements may result in cancellation of the drilling for that day by Hunter Water, making it necessary for the plumber to re-book and pay a “Non-Compliant” drilling fee.



Loose polyethylene sleeving (green sleeve) is used to protect ductile iron water mains against corrosion. The sleeving is essential to prolong the life of the reticulation system and care should be taken when exposing the main to protect this sleeving from damage. Sleeving shall be refitted to the water main upon completion of works.

3.8. Water Main Drilling Connections – Service Components

The following table provides guidance of selection of components for water main drilling connections.

Table 1: Guidance on Service Components for Main Drilling Connections

Property Service Size	No. Drillings	Nominal Size of Drillings	Size of Water Meter
20mm Total length not to exceed 18m One residential property	1	20mm	20mm
25mm Total length not to exceed 18m One residential property	1	20mm	20mm This connection type would normally be used for battle-axe properties with longer than typical on-lot pipes up to 100m
25mm	1	25mm	25mm
32mm	1	25mm	To be confirmed by Licenced Plumber or Hydraulic Consultant using watermain pressure and developments "probable simultaneous demand (PSD)".
40mm	1	25mm	
50mm	2	25mm	
65mm	2	25mm	

Note: All property services with a connection size greater than or equal to 65mm, require a tee and valve connection or by an approved direct tapping method as detailed in Hunter Water's *Delivery of Developer Works Manual* available on the Hunter Water website.

3.9. Installation of Tee and Services Stop Valves

3.9.1. General

The installation of a Tee and Service Stop Valve to Hunter Water's infrastructure requires an application for tee and valve installation and fee from the owner's agent to be submitted to Hunter Water.

Methods of connection may impact on existing customers and are assessed individually. The owner's agent is informed of the requirements, which will include the nominated connection method.

Common connection methods include:

1. Conventional Method shut down: Water main connection location isolated by Hunter Water using water main stop valves. Excavation, traffic control and insertion of tee and service stop valve at approved location by accredited plumbing contractor.
2. Direct Tapping (Hot Tap): Accredited Hunter Water contractor to be engaged for pressurised main tapping (service valve offtake 80mm and larger). Excavation at approved location and traffic control by accredited plumbing contractor.
3. Pressurised Isolation Method (Hydra Stop/Aqua Stop): Accredited Hunter Water contractor to be engaged to isolate the water main connection location using specific under pressure stop valves. Excavation at approved location/s, and traffic control by an accredited plumbing contractor.



This process may require the installation of a temporary bypass water supply.

Should the works affect “critical customers” in the water zone to be interrupted, it may be a requirement for the responsible persons to initiate with Hunter Water an alternative water supply e.g. Accredited water tanker and potable water supply pump.

Note: Connection method may incorporate one or a combination of the above methods. Hunter Water may be engaged to carry out works as described in methods 1 and 3 above. This option will require payment of applicable fees.

In Hunter Water’s area of operations, the following requirements shall apply to the supply and installation of service stop valves:

- Only “clockwise closing” service valves shall be used on all water supply installations on drinking water and designated fire hydrant and sprinkler services.
- Wheel operated butterfly valves shall be full bodied. The butterfly valve must not protrude outside the valve body. Hunter Water do not recognise the installation of “¼ turn quick action” butterfly valves on any property service water meter frame or back flow prevention site containment assembly.
- Stop valves on water meter assemblies from 20mm to 50mm shall be an approved ball valve type.

3.9.2. Protection of Hunter Water Assets

In the process of completing the works, the “authorised person” is responsible to ensure that all necessary protection of Hunter Water’s infrastructure is implemented as a priority. Hunter Water reserves the right to seek compensation for damage to its infrastructure.

3.9.3. Disused Services

Where the property water service becomes disused or redundant, it shall be disconnected at the water main, as required by Hunter Water, by a licenced plumber at the property owner’s expense. The redundant water meter/s shall be returned to Hunter Water and a Water Disconnection Application submitted with the applicable fee. A metallic spacer can be installed in place of the water meter to enable water supply for a maximum 48 hour period.

3.9.4. Small Property Service

Where the property water service with a 20/25mm drilling to the water main is no longer required, it shall be capped off at the main tap (water main) with an approved cap and/or approved fittings. A Water Disconnection Application and applicable fee shall be made to Hunter Water prior to works being carried out.

3.9.5. Large Property Service

For tee and service stop valve connections (65/80mm or larger) the service stop valve shall be removed to Hunter Water requirements. An individual assessment will be conducted by Hunter Water to determine if the water main connection tee is to be removed or a blank sealing flange of approved material affixed to the tee fitting branch. An application for tee and valve removal and applicable fee shall be made to Hunter Water prior to works being carried out.

3.9.6. Re-use of Existing Property Services

Existing water main drilling(s) and existing property service pipe may be retained where:

- Existing pressures and flows are found to be adequate to service the proposed development (to be substantiated in writing by a hydraulic consultant or suitably qualified person).
- The existing water service is in an approved location, constructed of an approved material (fit for purpose). NOTE: (Galvanised wrought iron pipe work shall not be re-used).
- The tapping is sized appropriately for the new development in accordance with Table 1 above, or AS/NZ3500.1 Plumbing and Drainage.



Hunter Water may require a pressure test to be carried out to verify soundness of the installation.

Note: Should a new water meter be required to be installed, the cost shall be directed to the property owner.

3.10. Retention of Existing Work

Systems not currently connected to Hunter Water's water infrastructure may be connected only if the work consists of approved materials and with Hunter Water's permission.

Works must comply with:

- Hunter Water's Water Services Connection Standard
- Building Code of Australia
- Plumbing Code of Australia
- AS/NZS3500.1 Plumbing and Drainage

4. Water Metering

Properties that are connected to Hunter Water's drinking and recycled water systems are required to be fitted with a water meter for billing purposes. The meter is used to measure the quantity of drinking water and where relevant, the recycled water supply.

The water meter technology will be appropriate to the type of development, its intended purpose and required flow rates. Hunter Water will endeavour to provide the most cost-effective water meter, however some water services, fire service (industrial / commercial developments) will require a different water meter arrangement, which will not impede water flow or introduce pressure losses. These specific water metering arrangements may be at a higher cost to the property owner.

Individual (sub) metering may be approved for strata title and community title developments subject to terms and conditions outlined in Hunter Water's Individual (sub) Metering of Community and Strata Title Development requirements (refer Hunter Water's website).

Note: All water meters used for the purpose of billing must be supplied by Hunter Water. All water meters shall be installed horizontally and in the upright position.

4.1. Ownership and Responsibilities for Meters

The property owner is responsible for maintaining all pipe work from the outlet side of the main water meter, including any sub or check meter assemblies. All Hunter Water approved and supplied meters remain the property and responsibility of Hunter Water at all times.

Once fitted the water meter remains the property of Hunter Water and is maintained and replaced periodically at no cost to the owner unless the meter has been damaged or stolen. The property owner is responsible to ensure that Hunter Water has unrestricted access to the meter at all times for reading, maintenance and replacement purposes.

This does not include private water meters not supplied or approved by Hunter Water.

4.2. Application for Water Connection

Prior to connecting a property to water, the owner or their agent (i.e. plumber, builder etc.) is required to make an application for connection with Hunter Water. Water meters are supplied and/or installed by Hunter Water upon payment of regulated application fee/s. see Hunter Water's website for detailed information on the application process.



4.3. Relevant Standards and Reference Documents

Hunter Water policies and systems reflect support of the National Framework for Urban Water Metering and associated Codes of Practice. All work carried out with relation to connections and metering is to comply with the following legislative, regulatory instruments, standards and requirements:

- National Measurement Act
- Water Act (NSW)
- National Measurement Regulation
- AS3566.1 Technical Requirements
- AS3656.4 Meters for Water Supply
- AS/NZS3500 – Plumbing and Drainage
- Plumbing Code of Australia and NSW Amendments (PCA)
- Building Code of Australia (BCA)
- Hunter Water Act 1991
- Hunter Water's Operating Licence 2022-2027
- Hunter Water's Customer Contract 2022-2027

4.4. Water Meter and Property Service Sizing

All water meters are to comply with probable simultaneous demand for the development. For large residential and all non-residential developments, the size of the service pipe to the property is to be determined by the property owner's authorised agent, a qualified water consultant or industry expert, and a design submitted to Hunter Water for review and subsequent approval – Hydraulic Assessment.

The reference documents are AS/NZS3500: Plumbing and Drainage; and the manufacturer's specification for water metering.

4.5. Water Meter Assembly Design Requirements

General design requirements for all water meter assemblies:

- 20mm and 25mm water meters servicing properties identified as low hazard are provided with an integral dual check valve. This does not include Hunter Water supplied strata/community title (sub) meters.
- 20mm and 25mm water meters servicing properties identified as medium or high hazard require a separate testable "site containment" backflow prevention device. Refer to the Hunter Water Backflow Prevention Standard.
- Shall be constructed using approved metallic pipe work fixtures, valves, unions and flanges.
- Where the water meter is more than one size smaller than the inlet and outlet pipe work of the water meter assembly, surge pipes will be required.
- Information regarding the surge pipes will be nominated in the Hydraulic Approval letter.
- Water meter assemblies 20mm to 50mm shall be designed and constructed as per Type 1, 1A, 2, 3 or 3A in the Water Drawing Diagram TWS-001 and TWS-002. All Hunter Water standard Drawings are available on the Hunter Water website.
- The property water services (20mm to 50mm) shall be connected to the main tap and metered tap by compression flared fittings or "Water Mark" approved fittings where the socket (with approved "o ring") and pipe are crimped together.

Note: Kinko nut and compression olive fittings shall not be used as any part of the water service.



- The metallic pipe inlet and outlet connection shall have a minimum of 1 metre of pipe for the base of the approved materials such as Poly Ethylene (PE). There are allowances to this requirement for services sized 80mm and larger.
- Water meter assemblies shall be completed on the day of the connection to the Hunter Water supply infrastructure.
- The completed water meter assembly shall include the required meter spacer for services 20mm to 40mm (including associated site containment testable backflow prevention device for 32 and 40mm services).
- Meters sized 50mm and greater shall be fitted by the property owners licenced plumber and will also require a Hunter Water dirt box to be fitted to the assembly where required.
- Approved combined fire/domestic water services require an approved main domestic water meter (so as not to restrict flow) to be installed with a smaller approved by-pass meter for registering low flows. Special approval is required for this configuration (upgrade of existing systems only).
- Designated standalone fire services require no meter on the main flow but require an approved by-pass check meter to detect leaks or improper use.

Note: for meter assembly specifications refer to:

- "Drawing TSW 001 Water Connection 1 to 5"
- "Drawing TSW 002 Water Connection 3A to 6"

Octave water meters are preferred to be used in developments where there is fluctuation between both very high and very low rates of flow for accurate measurement of consumption for billing. For example: multi-occupancy developments, holiday accommodation, schools, etc. The need for this type of meter is assessed on a case-by-case basis.

Magflow water meters (Electromagnetic Flow) or Octave water meters (up to 300mm diameter) may be preferred on some large industrial developments that have very high flow requirements and specific data requirements. These are assessed on a case-by-case basis and may require specific design requirements which are at the customer's expense.

4.6. Water Meter Positioning

4.6.1. Positioning of Main and Master Water Meters

The following are Hunter Water's requirements for typical meter types and sizes (also refer to drawing diagrams TWS-003 through to TWS-008):

- The water meter assembly must be within 1 metre inside the property boundary facing the water main.
- The water meter assembly must be fitted at right angles to the water main, in line with the tapping or connection point.
- The water meter assembly must be fully supported and have ground clearance.
- Between 150mm – 250mm for the standard metering configurations (low and medium hazard backflow rating).
- For metering configurations which require a Reduced Pressure Zone backflow prevention device, a minimum of 300mm from the finished ground level to the backflow prevention device relief vent.
- The water meter assembly pipe risers must not be encased in concrete.
- Water meters must be readily accessible for reading, maintenance and replacement.



- Recycled water meters are to be positioned adjacent and parallel to the drinking water meter assembly. There shall be a 300mm clearance minimum between the drinking water and recycled water meter assemblies. Refer to Figure 9.1 AS/NZ3500.1 – Plumbing and Drainage.

Note: Any variations in positioning of water meter assemblies must have prior approval of Hunter Water. No water meter assemblies are to be located within a pit (below ground).

4.6.2. Sub Meter Positioning

Only strata or community title properties that meet Hunter Water's Individual (sub) Metering of Community and Strata Title development requirements are eligible for a sub meter for individual billing purposes. Sub metering applications may only be assessed and approved for the entire development (i.e. not individual units).

Hunter Water recommends that all individual parcels of land that can be deemed multiple occupancy be provided with an individual water meter assembly (as referenced in Residential Tenancies Act 2010 and AS/NZ23500: Plumbing and Drainage). This individual water meter assembly may be utilised for future installation of a Hunter Water meter or in the case of commercial and industrial a private water meter.

Hunter may approve the supply of individual sub-meters for developed strata and community title properties subject to the following general metering requirements.

- Sub meters shall have clear signage fixed adjacent to the meter identifying the lots/units serviced by the sub meter.
- Meters and meter assemblies are located above ground and fully accessible at all times for meter reading and maintenance purposes.
- Meter assemblies are not to be installed behind any fences or enclosed areas or confined spaces.

Where a sub meter assembly has been installed but does not meet Hunter Water's requirements for sub metering, Hunter Water will not install sub meters.

Refer to Hunter Water's Individual (sub) Metering of Community and Strata Title Development requirements on Hunter Water's website. This includes fact sheets, guidelines for developers, application forms, fees and copies of agreements for specific information.

4.6.3. Altering / Offsetting Location of Water Service and Meter Assembly

Altering or offsetting the location of the property water service and meter assembly is not permitted in new developments.

In some instances, the water service location may be offset to allow for logical additions or changes to existing site conditions – such as driveways, paving or fencing etc. where it would be impractical not to do so (e.g. it creates a hazard or obstruction and the meter cannot be accessed). All costs associated with the offsetting of existing water meters shall be borne by the owner/applicant.

The relocation of the assembly is permitted by either offsetting of the service pipe, or capping off the existing main tap and re-drilling the water main and installing a new property service in accordance with the following standards:

- The water meter assembly may be offset a maximum of 1 metre without the use of directional markers.
- A maximum offset of 3 meters is permitted with the use of directional markers.
- The existing water meter can be located within 1 metre of the title boundary.
- Relocation work is to be carried out by the property owner's licenced plumber.
- (licenced by Building Commission NSW) and the scope of work is to comply with Hunter Water.
- Service Connection Standard requirements – See the Standard Water Drawing Diagrams on the Hunter Water website.



- Hunter Water only maintain up to 1m along the pipe inside the property boundary of offset water services, as stated in the Customer Contract.

These standards apply equally for drillings located on the same side (short) of the road reserve and those located on the opposite side (long) of the road reserve.

Where the relocation of any recycled water meter assembly is required, it is to be carried out by an accredited licenced plumber or Hunter Water operative. Both assemblies (drinking water and recycled water) will be relocated at the owner's expense. The assemblies shall remain 300mm minimum apart with the drinking water meter assembly located closest to the property side boundary. The new property service shall be inspected by Hunter Water (mandatory requirement).

4.7. Water Meter Installation

Only Hunter Water or an authorised licensed plumber can affix water meters to a property. No other persons shall install, remove or tamper with a water meter without prior approval by Hunter Water.

Water meters sized from 20mm up to 40mm are affixed by Hunter Water. Water meters that are sized 50mm or larger are supplied by Hunter Water with the plumber able to obtain the meter by pickup from Hunter Water's nominated stores location. The "Water Connection" application is required to advise the date the meter assembly will be ready for meter affixture and/or pickup of the meter 50mm or greater and payment of the relevant fees at the time of application.

If the water service installation is found to be non-compliant, the owner/agent is responsible to rectify the installation at their own expense. A further fee will be applied to re-schedule the work. Failure to comply with these requirements may result in Hunter Water disconnecting the water service from the water main at the owner's expense.

Note: Should the meter assembly not be ready for affixture of the meter at the date nominated, a further fee will be applied to re-schedule the work.

4.8. Metering of Multiple Occupancy Developments

4.8.1. Single Title Multi Dwelling Properties

Single title multi dwelling properties with separate metering only receive one bill, however, usage for each individual meter will be itemised on the bill.

Single title dual occupancy properties (e.g. duplex, house with granny flat) with one meter are treated as a stand-alone house for billing purposes. Where a single title dual occupancy has multiple meters, the property is treated as two flats/units for billing purposes - the impact of this change is an increase in fixed service charges for the property per annum. There are no billing impacts for properties with three or more dwellings.

4.8.2. Four or Less Separate Dwellings (not Strata Titled)

Properties with four or less separate dwellings on a single lot are required to incorporate a property water service and metering configuration compliant with the following:

1. The property water service (water main to meter frame – including manifold) is to be sized to satisfy the demand of the development. Hunter Water will not be accountable for low pressure or low flow.
2. The property water service shall incorporate a manifold where the water service for each occupancy is taken off the main line inside the property boundary (within 1 metre).
3. The manifold is configured on a single water supply servicing the property.
4. The manifold is to be designed / installed so that the water meter frames are a minimum 200mm apart to allow for meter installation, replacement and maintenance.



5. Each water meter assembly must be within 1 metre inside the property boundary facing the water main.
6. Each water meter must be fitted at right angles to the water main, in line with the connection point.
7. Each water meter assembly must incorporate a brass engraved tag securely fixed to each water meter frame which nominates the dwelling to which it supplies.
8. Each water meter assembly must be fully supported and have ground clearance between 150mm – 250mm for the standard metering configurations (low and medium hazard backflow rating). Ground clearance for high hazard or additional site containment device/s incorporating a vent port shall be 300mm to the vent port.
9. Water meter assembly pipe risers must not be encased in concrete.
10. Water meters must be readily accessible for reading, maintenance and replacement.

Development will fall into two main types:

- A new development (with water pipework designed / installed as nominated below), or
- Retrofitting an existing development (this requires reconfiguration of existing water pipework to allow for separate metering as nominated below).

NOTE: A manifold is a water piping configuration where separate lines are taken off the property water service to supply individual metered water supplies to each occupancy

4.8.3. More Than Four Separate Dwellings

Properties with more than four separate dwellings on a single lot need to be strata titled and satisfy the requirements of our Individual Metering of Strata and Community Title Developments Guideline before separate metering can be implemented.

Properties with more than four separate dwellings where strata title is not implemented will utilise only one Hunter Water meter and one bill will be issued for the property.

4.8.4. Strata Title Developments

Multiple occupancies, usually units or apartments, with individual title within the strata plan. A main water meter is required to service the entire development for both drinking water and recycled water. Under conditions of the Individual (sub) Metering of Community and Strata Title Development requirements, individual sub meters may be approved by Hunter Water to enable meter reading and billing for each strata unit.

4.8.5. Stratum Development

Usually two, but sometimes more, Torrens title type developments (usually one on top of the other); each title may consist of strata title subdivisions. Often one title is commercial and the other is residential (e.g. Ground floor shops with residential units above). Each stratum title must have its own individual main meter system. Hunter Water requires a single connection to the water main with a manifold assembly for servicing and metering each individual stratum title within the development.

4.8.6. Community Title Development

A horizontal subdivision of land into lots and common areas. Hunter Water currently has two types of servicing for Community Title Developments, described below. The developer nominates which type of servicing is preferred.

Each lot has individual service connection

Water and sewer mains are designed to comply with Hunter Water's design requirements to service the entire development. In this instance each lot will have a direct frontage and will be required to have an individual meter for billing purposes once connected.



One connection to the entire development

Only one connection and main meter will service the entire development with one account billed to the Community Association. Individual (sub) metering may be approved subject to the Individual (sub) Metering of Community and Strata Title Development requirements (refer to Hunter Water website for more information).

4.9. Related Metering Issues

4.9.1. Inaccessible Meters

- The property owner is responsible to ensure that Hunter Water has unrestricted access to the meter at all times for the purpose of reading and maintenance.
- If the meter is unable to be accessed for the purpose of reading, Hunter Water will request the customer to make the meter accessible, and in the interim that the customer provides a self-read of the meter for the purpose of billing. If the customer fails to provide the requested self-read, an estimate of the customer's usage will be used for billing of the meter.
- If the meter is unable to be accessed for the purpose of reading on two or more consecutive occasions, Hunter Water is entitled to relocate the meter to an.
- Accessible position at the property owner's expense.
- This action will only be taken if no engagement is received from the property owner regarding the establishment of an alternative meter reading arrangement.
- If the meter is unable to be accessed for the purpose of maintenance or exchange, Hunter Water will contact the owner to discuss suitable access arrangements.

4.9.2. Damaged, Missing or Stolen Meters

- The property owner is responsible to ensure that the water meter is protected from damage or theft.
- If the water meter is damaged, stolen or missing, it will be replaced by Hunter Water at the owner's / applicant's expense.
- A regulated fee for the supply and installation of the replacement water meter and any other associated works will be charged.
- Where the water meter is found to be missing or the meter assembly damaged, Hunter Water will provide the owner/applicant 14 days' notice to rectify the meter assembly.
- The owner must engage a licenced plumber. Should the owner/applicant not have re-installed the water meter assembly within 14 days, Hunter Water will carry out the necessary works and the associated costs will be forwarded to the owner/applicant.
- The owner/owner's agent is required to notify Hunter Water as soon as any damage or theft of the water meter has occurred.

4.9.3. Protection of Water Meters

Hunter Water may require the property owner to install additional protection for water meters due to safety, theft and other issues. This may require the installation of a water meter cage or an approved protective surround. The design is to be approved by Hunter Water prior to installation.

In such cases the cages / surrounds must conform to the following requirements:



- Must have a gate, which can be safely and easily opened by one person. If lockable, a standard industry key or a 003 key must be able to open the lock.
- Provide adequate space around the water meter (within the cage) for maintenance and/or replacement of the water meter.
- The property owner is responsible for the maintenance and safekeeping of the structure.
- Cages and structures such as fenced enclosures on a property may require the property owners to gain appropriate council approval prior to the installation of the alterations.
- Safety bollards may be applicable in some cases.

4.9.4. Removal of Water Meters

No person shall remove a water meter or alter its position unless that person has first obtained permission from Hunter Water to do so. Water meters removed are not to be reused - as per the National Measurement Regulations.

If a building is being demolished and an application has not been lodged for a redevelopment of the property, it is a requirement that the property service be disconnected at the water main and the water meter returned. An application and associated fees are to be paid which allows the meter removal record to be processed and the properties billing details to be adjusted.

All work performed on water services must be carried out by a licensed plumber.

4.9.5. Return of Water Meters

If an existing development is to be demolished the existing water service is to be disconnected at the water main and the water meter is to be returned to Hunter Water or disposed of in a Hunter Water approved method.

An application is to be made for the water service disconnection. A photo of the meter number, reading of the volume used and a photo of the ends of the meter damaged to prevent the meter from being re-used are to be attached to the online disconnection application.

The disconnection application is necessary to confirm the water service disconnection has been completed in an approved manner, and to ensure that the metering and billing of water charges is amended.

Any new water service connection for the property will require a connection application and meter affixture application to allow a new meter to be installed.

If the existing water service is to be re-used the work must be completed by a licensed plumber and comply with Hunter Water Services Connection Standard. The water meter can be re-used for the upgraded service if required.

4.9.6. Downsizing Water Meter

All water service and water metering devices are designed and installed to comply with the demand of the property water supply. Hunter Water records reflect all existing and historical connection sizes that are connected by these criteria.

Where property water meters are proposed to be downsized, the owner is required to engage a suitable qualified licensed plumber or water supply consultant to evaluate the current water supply demand and verify that any designated firefighting or fire suppressing system will not be detrimentally impacted from the proposed water meter downsizing. The responsible person shall also carry out an investigation of the required water supply demand of the development to the requirements of AS/NZS3500.1 Plumbing and Drainage, related Fire Hydrant / Fire Sprinkler / Fire Hose Reel Australian Standards, the National Construction Code and Hunter Water Services Connection Standard.

The accredited person will be required to provide a written response in the following attached format:

- The letter must clearly certify the fire flows (if applicable), and if any pressure/flow requirements for the development are compliant with the downsizing of the water meter; and



- The accredited person will be required to clearly identify to Hunter Water the required drinking water flow demands and specify the size of the required meter.

A Technical Inspection Review fee is payable on submission of the application to Hunter Water. If approval is granted to downsize the water meter, Hunter Water will require:

- An application for water disconnection and reconnection including the relevant application fee.
- The return of the existing meter to Hunter Water at the time of water disconnection application.
- Payment of a meter affixture fee for installation of the new meter.

Hunter Water may require a mandatory audit inspection for the complete works.

4.10. Metering of 'Non-Standard' (Temporary) Water Services

All new or altered Non-Standard Water Services must be metered by Hunter Water. The water meter is to be located at a point as close as practicable to the connection at the reticulation water main (which may be some distance from the property). The water meter must be located within private property in a position that prevents damage and provides ease of reading and maintenance. In some instances, an approved lockable cage or structure may be required to be fitted over the water meter assembly to prevent tampering, damage or vandalism.

The general metering and service requirements for Non-Standard Water Service include:

- A Non-Standard Water Service shall not have another registered lot or parcel of land connected to that designated service without the approval of Hunter Water.
- Hunter Water does not provide sub metering for joint non-standard water supply connections
- The water meter assembly shall be located in private land and protected from damage, the owner of the designated land shall provide Hunter Water with a letter of approval for its location.
- The Non-Standard Water Service pipeline may traverse local council footpaths or roadways. The responsible persons controlling that land will be required to provide written approval to Hunter Water for the location of the pipeline. The owner is required to obtain an easement for the water service if it is to traverse privately titled land prior to approval.

Note: Non-Standard Water Services are considered temporary and may be disconnected by Hunter Water at its discretion. The Non-Standard Water Service must be removed from service where a reticulated water supply main is installed in the future. All costs are to be borne by the property owners.

Civil matters may arise from disputes regarding ownership, maintenance and water leaks on Non-Standard Water Services – especially relating to historically approved “joint Non-Standard Water Services”. All civil matters pertaining to ownership, maintenance responsibilities and water leaks are to be resolved by the related parties.

5. Portable Metered Standpipes and Water Tankering

5.1. General

Hunter Water is committed to providing our customers with high quality, continuously safe drinking water. Water tankers (also known as water carts) are essential to move large volumes of potable water for various purposes such as drinking water, dust suppression and irrigation. Water tanker operators use standpipes to fill from designated fill points throughout Hunter Water's water supply network.

Standpipes are portable hydrants designed to be connected to a fire hydrant in a water main to gain access to bulk water. All standpipes used in Hunter Water's area of operation must be metered and hired from us. Standpipes for water tanker filling can only be used at approved designated hydrants; details are provided in the Standpipe Terms and Conditions. Standpipes are also used for on-site works, without use of a water tanker.



Standpipes are only issued subject to Hunter Water approval of an application for a licence to extract water. Refer to Hunter Water's website www.hunterwater.com.au for application and hire conditions. Each standpipe has its own account which is billed three times per year which include a hire fee and the charge of the water usage. These charges are listed on the Hunter Water website.

Un-metered standpipes or unapproved standpipes (e.g. from other areas) must not be used in Hunter Water's area of operations. Hunter Water standpipes are fitted with a Double Check Valve to prevent backflow into the water supply network.

Standpipe inspections are completed by our meter maintenance contractor following completion of the online inspection form by the customer. There is no fee for this inspection.

5.2. Compliance Conditions for Water Tanks

5.2.1. Air Gap at Fill Point

All water tankers are required to maintain a minimum air gap of 2 x the internal diameter (ID) of the water discharge pipe from the water spill level of the tanker to the bottom of the water discharge pipe (see Figure 2 below). This requirement is in accordance with AS/NZS3500.1 Plumbing and Drainage standard.

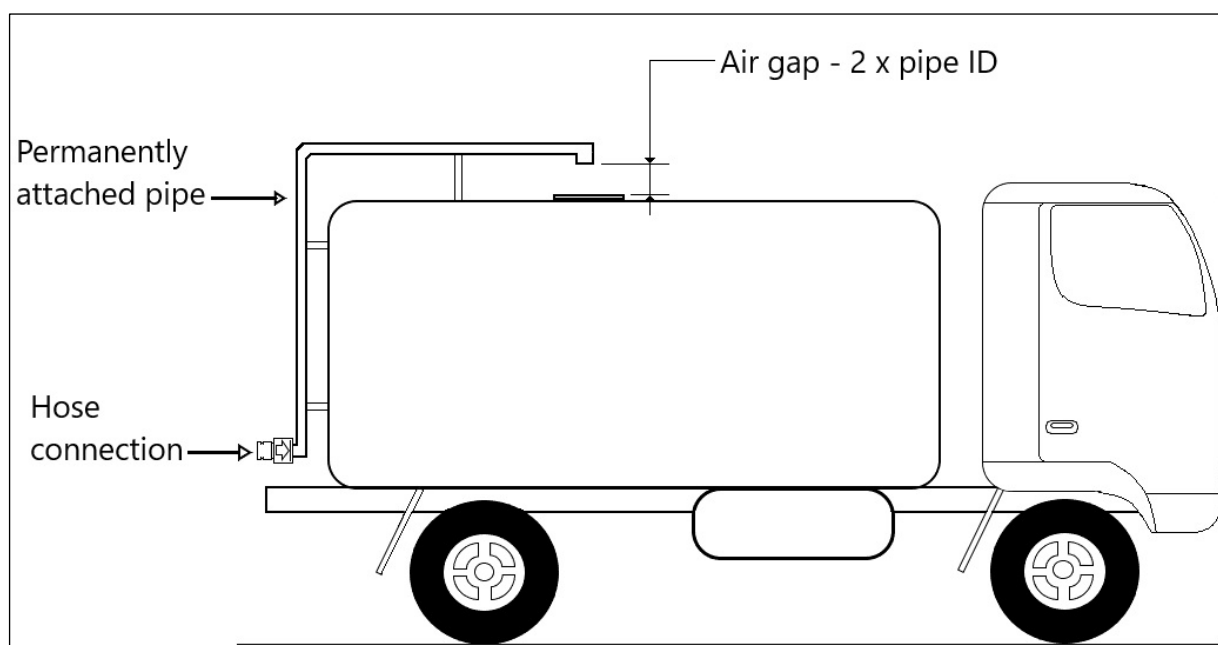


Figure 2: Requirement for Air Gap and Check Valve for Water Tanker

5.2.2. Sludge Pipes and Valves

A drain pipe (sludge pipe) shall be fitted where the capacity of the tank exceeds 500 litres. The minimum size of the valve shall be no less than half the inlet pipe size, or no less than 40mm. A non-return valve (check valve) should be fitted to the sludge pipe to prevent cross contamination via connecting the inlet hose to the sludge pipe.

5.2.3. Overflow

An overflow cut out is required on all Water Cart / Tankers that have built up walls around the discharge water pipe or have been used to extend the water spill level of a tanker.

The distance from a wall to the water discharge pipe is to be 3 times the Internal diameter of the water discharge pipe if affected by a single wall, or 4 times the internal diameter of the water discharge pipe when affected by intersecting walls.

The overflow size is to be no less than 40mm and to be sized in accordance with section 8.4.4 of AS/NZS3500.1 Plumbing and Drainage standards.



5.2.4. Valves

The appropriate valves are to be fitted to delineate/distinguish between bottom inlet/outlet valves, i.e. sludge point cannot be confused with fill point – if there is a chance of confusing bottom tank point connection with potable water fill connection point, the potable fill point must be labelled clearly and a different sized Cam lock fitting are to be used, or cap that valve. A non-return valve should be fitted at the fill point connection to stop the excess water being spilled on the operator once filling is complete.

5.2.5. Pipework

All pipework on the Water Cart / Tanker must be permanently attached to the tanker; temporary and/or unsecured pipework will be deemed non-compliant.

5.2.6. Non-Compliance

Water cartage / storage tank non-compliance relates to both new and existing applications.

If Hunter Water issues a notice that a Water cartage/Storage tank does not comply with Hunter Water's standards (including AS/NZS3500.1 Plumbing and Drainage standard), the Tanker owner must modify, repair, maintain, replace or (as specified in the notice) within the timeframe given. If the owner fails to comply with such notice, Hunter Water may (in accordance with Hunter Waters Standpipe terms and conditions), terminate or suspend a standpipe licence until the customer has complied with the notice.

5.2.7. Annual Water Tanker Inspection

Annual inspections of water tankers is undertaken online via photographs submitted by tanker operators, following payment of the inspection fee. A detailed overview of the process and example photographs are provided on the **Standpipes and Water Carriers** page on the Hunter Water website.

6. Non-Portable Water Supplies

6.1. Reticulated Recycled Water

Currently, three Lower Hunter suburbs are supplied with both drinking water and recycled water, also known as dual reticulation or 'third pipe' schemes. They are Gillieston Heights, Thornton North and Chisholm. Recycled water is suitable for use in toilet flushing, garden irrigation, washing machines, car washing and surface cleaning only.

An application for a recycled water connection may be submitted by the property owner, or a person that has authority to act on behalf of the property owner (e.g. plumber, builder or managing agent).

Recycled residential internal water service is regulated by Building Commission NSW. Hunter Water issue a recycled water meter for every residential recycled water service. Connection to the recycled property water service is not permitted until Building Commission NSW has completed and approved the "Final Recycled Water Inspection".

Upon completion and approval of the final recycled inspection, the licenced plumber must contact Hunter Water with the property details, licenced plumber details, and Building Commission inspection number. Hunter Water will authorise the recycled water connection and process the recycled water meter affixture.

Detailed information of Hunter Water's recycled water services is provided on the Hunter Water website.

6.1.1. Customer Responsibilities for Recycled Water Connections

The responsibilities of customers with regards to the reticulated recycled water systems are as follows:

- For all internal reticulated recycled water installations, namely any future system modifications, the property owner is to ensure that they use a licensed plumber.



- An inspection by Building Commission NSW may be required to check any changes that are made to the plumbing system. You are required to contact Building Commission NSW for information regarding this.
- On completion of the plumbing work, the owner is to request a Certificate of Compliance from the qualified licensed plumber.
- Site containment backflow prevention devices shall meet the requirements of Hunter Water's Site Containment Backflow Prevention Standard and AS/NZS3500.1 Plumbing and Drainage.
- Recycled residential property service (watermain to meter) requirements are as per the WSAA Code).

6.2. Rainwater

6.2.1. Hazard Rating and Backflow Prevention

The requirement for a backflow prevention device is dependent on the site configuration, as shown in the following table. Further information is provided in the Site Containment Backflow Standard, available on the Hunter Water website.

Table 2: Hazard Rating and Backflow Prevention

Property Type	Tank Configuration	Hazard Rating	Backflow Prevention Required
Single or duplex residential dwelling 20mm or 25mm service	Above-ground	LOW	No
≥3 Strata units / multiple occupancy units	Above-ground	MEDIUM	Yes
Single or duplex residential dwelling 20mm or 25mm water service	Below-ground	MEDIUM	Yes
>2 residential strata units with >25mm water service	Below-ground	HIGH	Yes
Commercial and Industrial Developments	Below-ground	HIGH	Yes

Hunter Water reserves the right to increase the site containment hazard rating of any rainwater tank installation above the default rating, at its discretion. Hunter Water may take this action if any of the following occur:

- The water stored in the tank becomes polluted by decaying plant or animal material.
- The tank develops a leak at or below ground surface.
- Liquids other than mains water or rainwater are stored in the tank.
- Chemicals are added to the tank such that they pose a health risk.
- Roof, guttering or tank corrosion or weathering by-products pollute the water in the tank.
- The roof and/or guttering system being used to collect rainwater becomes polluted.

6.2.2. Installation of Backflow Prevention Devices

Where the site containment hazard rating requires a testable backflow prevention device, the test results shall be entered into the Hunter Water register. Hunter Water requires that certification of the devices operation be forwarded to Hunter Water on an annual basis. The certification shall be completed by a qualified backflow prevention contractor at the property owner's expense.

A backflow prevention device is defined in AS/NZS3500: Plumbing and Drainage as a mechanical device which will prevent the reverse flow of water from a potentially polluted source into the drinking water supply system.

For cross connected low and medium hazard rainwater tanks, backflow prevention devices are required at the property boundary – integral of or in line with the water meter (site containment protection).

Hunter Water require a minimum of one external hose tap located adjacent to the water meter (to enable confirmation of water meter operation and allow emergency water supply) on all properties that have an interconnection between Hunter Water's supply and an on-site rainwater tank.

The below diagrams provide examples of compliant and non-compliant plumbing configurations for properties with connected rainwater tanks.

It is recommended by Hunter Water and NSW Health that rainwater is only used for non-potable purposes, such as laundry and toilet flushing.

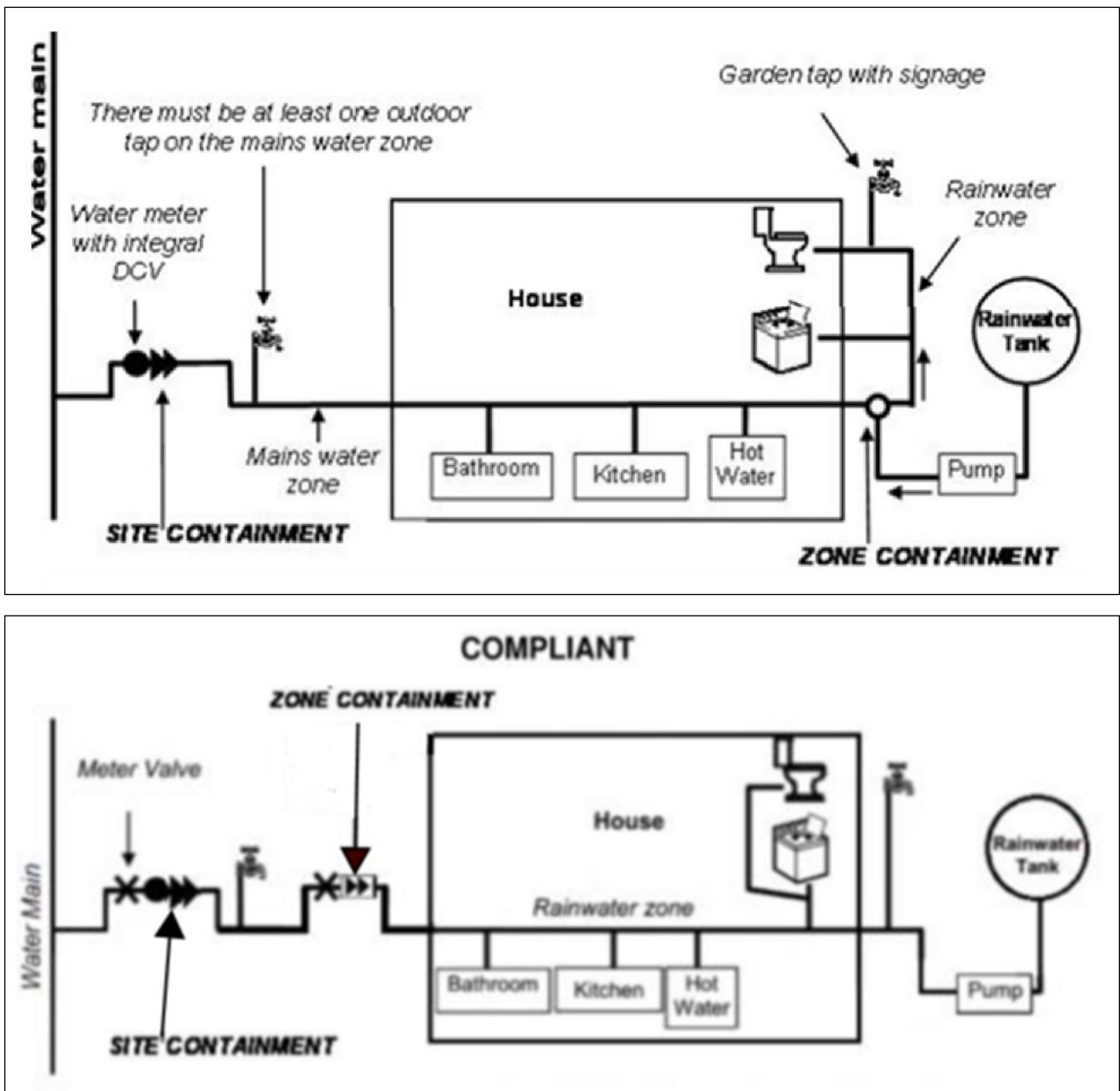


Figure 3: Compliant Backflow Prevention Layouts for Households with Rainwater Tanks

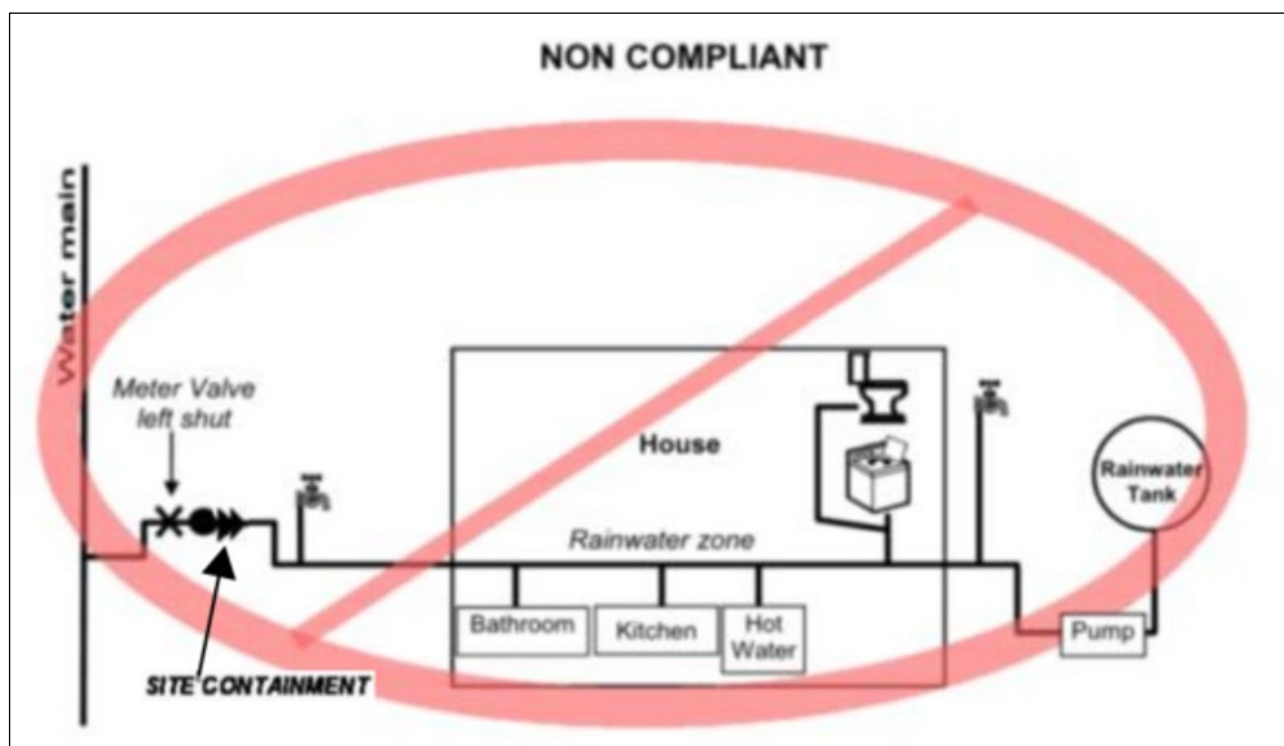


Figure 4: Non-Compliant Backflow Prevention Layout for Households with Rainwater Tanks

6.3. Alternative Water Supply

There shall be no interconnection between Hunter Water's drinking water supply and any alternative water supply without Hunter Water's written authorisation.

Contact should be made with the NSW Health and Environment Protection Authority (EPA) for their requirements determining the permitted use of non-drinking water.

Examples of alternative water supply include but not limited to:

- Dam Water
- Sea Water
- Storm Water
- Recycled Water
- Bore Water
- Reclaimed Water

Any connection approvals will carry strict mandatory requirements to maintain the integrity of Hunter Water's drinking water through the installation of approved backflow protection devices as listed in Hunter Water's Site Containment Backflow Prevention Standard, Plumbing Code of Australia – NSW additions and AS/NZS3500.1.



7. Fire Service

7.1. Use of Fire Service

The supply of water from a fire service for any purpose other than firefighting or testing of firefighting equipment is not Permitted and shall only be permitted under special conditions imposed by Hunter Water.

7.2. Metering of Fire Services

Water metering of fire services will be assessed on the type, size and use of the development. Typically:

- **Hose Reel Services**
All fire hose reels must be connected to a metered domestic service to the property, unless otherwise permitted by Hunter Water.
- **Designated Fire Hydrant Services**
All fire hydrants must be fitted with an Australian Standard approved Double Check Detector Assembly (DCDA) and an appropriately size by-pass water meter supplied by Hunter Water.
- **Residential / Home Fire Sprinkler Services**
Such services, designed under the AS2118.4 or AS2118.5, which utilise a low volume of water, requires the installation of an Australian Standard approve Double Check Detector Assembly (DCDA) or equivalent and an appropriately sized by-pass water meter supplied by Hunter Water.

7.3. Designated Fire Hydrant / Fire Sprinkler Service

This system incorporates a Double Check Detector Assembly (DCDA) with a 20mm or 25mm low flow bypass metering system. A 20KPA (minimum) pressure differential is required between the larger size high flow piping system and the 20mm / 25mm low flow by-pass system. The DCDA shall be installed inside the property boundary as close as possible to the connection of the water main, and prior to any suction/booster assembly.

7.4. Storage Tank Fire System

In the case of a fire system supplied from a storage tank, the Licensee shall be responsible to Hunter Water for:

- Pipework from the water main to the jacking pump including the Backflow Prevention Device.
- The Storage Tank.
- The air gap and overflow (compliant to AS/NZS3500.1 Plumbing and Drainage requirements).

The storage tank shall be initially filled, and ongoing water level maintained, from a metered domestic water supply.

7.5. Sealing of Fire Services

Hunter Water may require sealing of:

- Hydrants
- Hose Reels
- Control valves that are installed in an unmetered fire service.

7.6. Low-flow Bypass Metering and Accountability

The low flow bypass meter on a fire service is monitored by Hunter Water. If excessive flows are detected, a site inspection of the developments is carried out by a Hunter Water representative. These site inspections may reveal misuse, leakage, required fire system testing or may be the result of actual firefighting use.



The accounts of individual properties may be adjusted to reference the true amount of water supply used on the development. The calculation for water used may be determined through estimation.

7.7. Hydrants on Private Property

Hunter Water does not allow the installation of in ground hydrants on private property.

8. Pump Stations

Pump systems may be categorised as:

1. System pumping, or
2. System pressure boosting

Note: This Standard will use the term “system pumping” which will refer to both categories.

8.1. Fire Service Pumps

8.1.1. Application to Install Fire Service Pump

Fire system pumping may be allowed subject to the written approval of Hunter Water. A written request for the approval of fire system pumping must be lodged with Hunter Water, as part of the application for conditions of connection, and should include details of pump curves and pumps to be used.

Note: The maximum pump flow should not result in the capacity of the street main reducing to below Hunter Water's Operating Licence pressures. This must be confirmed and approved by Hunter Water as part of the application for conditions of connection process.

Variable speed pumps are preferred; however, consideration will be given for the use of direct drive pump sets. In some cases, consideration may also have to be given to installing a break pressure tank to provide added protection to Hunter Water's water supply infrastructure assets.

8.1.2. Installation of Fire Service Pump

The installation and design of fire service pumps shall be submitted to Hunter Water for review and connection conditions shall be stipulated. The fire service pumping system shall be designed and certified for compliance by responsible accredited person/s.

The installation and design of fire service pumps shall not create pressure surges, water hammer or shock waves to Hunter Water's water supply system. The operation and maintenance of fire service pumps shall not affect other customers.

If a fire service pump is activated for firefighting or testing, the operation of the system shall not reduce the available pressure in Hunter Water's water mains below Hunter Water's Operating Licence allowed pressures.

In certain instances, Hunter Water may require testing of fire service pumps to be conducted during designated times or on nominated days, due to the water supply system specific daily demands.

A copy of the Certificate of Compliance shall be submitted to Hunter Water within 7 days of system completion.

The installation and ongoing maintenance of fire service pumps shall only be carried out by person(s) licensed under Building Commission NSW.

8.2. Domestic Service Pumps

8.2.1. Application to Install Domestic Service Pump

Due to the topography of specific developments, the introduction of pumping may be required. System pumping may be permitted, subject to the written approval of Hunter Water. **Proposed domestic or**



drinking water pumping system designs must be submitted as part of a Technical Assessment Application to Hunter Water.

A written request for the approval of variable speed inline pumps must be lodged with Hunter Water, as part of the application for conditions of connection, and should include details of pump curves and pumps to be used. Specific connection conditions will be provided by Hunter Water if the application is approved.

Note: The maximum pump flow should not result in the capacity of the street main reducing to below Hunter Water's Operating Licence pressures. This will be determined by Hunter Water.

8.2.2. Installation of Domestic Service Pump

In Hunter Water's area of operations, only approved variable speed drive pumps shall be installed on domestic systems.

The operation of pumping units shall not create pressure surges, water hammer or shock waves to Hunter Water's water supply systems. The ongoing operation and delivery of water supply from private pumping station shall not affect other customers.

The installation, design and ongoing maintenance of the pumping system shall not reduce the available flows in Hunter Water mains below the specified level in the Operating Licence.

The installation of a domestic service pump shall meet the requirements as listed in AS/NZS3500.1 Plumbing and Drainage.

9. Administration

The administration as detailed in the Water Services Connections Standard describes the requirements of how to apply for connection or disconnection to the water supply infrastructure.

After an application has been reviewed and accepted by Hunter Water, the connecting to services will be deemed authorised. The authorisation is subject to the condition to the Services Connection Standard and the Customer Contract.



10. Definitions, Acronyms and Abbreviations

Term	Definition
Accredited person / tester	A licensed plumber who holds accreditation from a Registered Training Organisation (RTO) for backflow prevention device commissioning and certification
AS/NZS 2845 Parts 1, 2 and 3	Australian / New Zealand Standard 2845 (1,2 &3) specifies requirements for the materials, design, performance and testing of mechanical backflow prevention devices that are used for the protection of water supplies.
AS/NZS 3500.1	Australian / New Zealand Standard 3500 for Plumbing and Drainage Part 1 – Water Supply..
Backflow	Backflow is the unintended flow of water from any domestic, industrial or institutional piping system into Hunter Water's drinking water supply system. Backflow can be caused by a loss of pressure in the drinking water supply main or by the flow from a pressurised system through an unprotected cross connection.
Backflow prevention device	A device to prevent the reverse flow of water from a potential contaminated source, into the drinking water supply.
Cross Connection	Any connection or arrangements between the systems, connection to the water main or any fixture that may enable non-drinking water or other contamination to enter the system.
Customer	The property owner within Hunter Water Corporation area of operation that is connected to a water infrastructure.
Drinking water supply	The supply system into which Hunter Water Corporation delivers drinking water.
Operating Licence	Licence granted to Hunter Water under Section 12 of the Hunter Water Act 1991.
Owner	A person who holds ownership title to the property, as defined by the Hunter Water Act 1991.
Property	An individual, dwelling, or premises used for any purpose; or Land, whether built or not (excluding public land); or A lot in a strata plan that is registered under the Strata Schemes (Freehold Development) Act 1973 or the Strata Schemes (Leaseholder Development) Act 1986 that is connected to, or for which a connection is available, to Hunter Water's water supply system or wastewater system.
Recycled Water	Highly treated wastewater that can be used in industrial processes, to irrigate agriculture, urban parks and landscapes, and in the home for flushing toilets, car washing and watering gardens. It is not used for drinking or personal use.
Residential	For the purposes of this Standard, residential is defined as suburban style lots sized <1500 square meters (excludes rural, commercial, industrial or mixed-use lots).
Site containment	The installation of a backflow prevention device on the water supply system at the property boundary, to prevent backflow from within the property entering the supply system.