STANDARD

SITE CONTAINMENT BACKFLOW PREVENTION

FEBRUARY 2020

VERSION: 2.0

HUNTER WATER

TABLE OF CONTENTS

Document Information **3**

Version History 3

Summary of Changes in this Version 3

Document Control 3

1 Purpose **4**

2 Scope **4**

3 Regulation **4**

4 Installation Requirement **4**

5 Connection Requirements **4**

6 Site Containment Backflow Prevention Scenarios **6**

7 Definitions, Acronyms & Abbreviations **9**

DOCUMENT INFORMATION

Version History

Version	Author	Sections Changed	Approved By	Date Approved
1.0	V Prasad	Converted from Policy to Standard	Chief Customer Services Officer	25/11/2016
2.0	G Heaney	Revised Standard	Executive Manager Customer Strategy and Retail	20/02/2020

Summary of Changes in this Version

Section Title	Section No.	Change Summary
Connection Requirements	5	• Change “connection requirements” to “Connection Standards”
Site Containment Backflow Prevention Scenarios.	6	• make Type/Category consistent • nominating that HW for the Backflow Standard class a residential lot as < 1500m2 • that single check valves are only allowed in extreme cases and require HW approval • reaffirming that 20kPa pressure differential is required on DCDA & RPDA devices

Document Control

Document Owner	Team Leader Technical Services
Approvals	Chief Customer Service Officer
Related Documents	Water Quality Policy
Associated Regulations / Standards	Australian and New Zealand Standard for Plumbing and Drainage Part 1 (AS/NZS 3500) Plumbing Code of Australia Hunter Water Services Connection Standards
Public Document	Yes

1 PURPOSE

The purpose of this standard is to ensure the protection of the drinking water supply system and to safeguard public health as set out in the Hunter Water Corporation Act, Operating Licence and Customer Contract.

2 SCOPE

This Site Containment Backflow Prevention Standard has been prepared for plumbers, consultants and property owners when designing and installing connections to Hunter Water's water supply. The standard is applicable to both new and existing water supply connections.

3 REGULATION

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

- Hunter Water Act 1991
- Hunter Water Operating Licence
- Hunter Water Regulation 2015
- Hunter Water Customer Contract
- The Plumbing Code of Australia
- Australian Standard Plumbing and Drainage – AS/NZS3500.1
- Australian Standard Water Supply – Backflow Prevention Devices – AS2845.(1,2&3)

4 INSTALLATION REQUIREMENT

The installation of an appropriate site containment backflow prevention device is necessary to ensure the drinking water is protected from the unintended cross connection and backflow of possible contaminants into Hunter Water's drinking water supply system.

Hunter Water maintains a site containment backflow prevention device register to protect the integrity of the drinking water supply and the health and safety of customers.

5 CONNECTION REQUIREMENTS

- All properties connected to the water infrastructure within Hunter Water's area of operations must comply with the site containment backflow requirements of Australia and New Zealand Standard for Plumbing and Drainage Part 1 (AS/NZS 3500), the Plumbing Code of Australia, this Standard and Hunter Water's Connection Standards.

- The site containment hazard rating of all properties connected to the water infrastructure must be determined by an accredited person.

- All properties with a water connection that present a medium or high hazard rating must install and maintain an appropriate backflow prevention device at the property boundary for site containment protection purposes in accordance with AS/NZS 3500 and this Standard.

- The customer is responsible for the installation, maintenance and testing of the site containment backflow prevention device. An approved test certification report for these devices must be completed and submitted to Hunter Water annually at their cost.

- Where the hazards are unknown for a commercial, industrial, rural or mixed development, the hazard rating will default to high, requiring the installation of a device appropriate for that hazard rating. If the hazard rating varies due to multiple processes or multiple tenants, the highest hazard rating must be applied.

- If the use, and hence the site containment hazard rating, of a premises changes, the customer must install the appropriate site containment backflow prevention device for the new hazard.

- Where Hunter Water supplies a customer with an alternative water supply such as recycled water, the customer must install a site containment backflow prevention device on the drinking water supply system in accordance with AS/NZS 3500 and this Standard.

- Hunter Water will maintain a register of all current testable site containment backflow prevention devices and annual test reports.

- Hunter Water manages site containment backflow prevention devices only. It is the responsibility of the property owner for zone and individual backflow prevention.

- If Hunter Water reasonably determines that the site containment backflow prevention for a premise is unsatisfactory, a notice will be issued requiring the customer to repair, test, replace or install a suitable site containment backflow prevention device. The customer must, at their expense, engage an accredited person to comply with the notice within the time specified in the notice.

- If the customer fails to meet the conditions as specified in a notice issued by Hunter Water, Hunter Water may in accordance with the Customer Contract, disconnect the water supply system until the customer has complied with the notice.

6 SITE CONTAINMENT BACKFLOW PREVENTION SCENARIOS

Whilst the scenarios below identify numerous onsite operations and configurations, Hunter Water can amend and/or require increased site containment backflow prevention on an individual property basis.

To download a copy of the Site Containment Backflow Prevention Standard Scenarios click here.

SITE CONTAINMENT BACKFLOW PREVENTION STANDARD SCENARIOS		
Premise Type/Category	**Examples (not limited to)**	**Hazard**
Alternative Water Supply * No interconnection with Hunter Water's drinking water supply permitted	Bore water Dams Reclaimed storm water Recycled waste water (black or grey water reuse)	High
Below Ground Rainwater Tank	Fully buried Partially buried Commercial Industrial 2+ residential strata units – 25mm+ water service	High
Premise with Restricted Access	Defence force Heavy industry Universities Chemical plant/processing or similar Petroleum processing plants or similar Radioactive reactor/processing or similar Major shopping centres Private network utilities Power stations and sub stations Coal mines Metal recyclers Water treatment works Prisons and corrective centres Airports	High
Water Front Facilities	Piers Docks Marinas Fishing co-ops Oyster/prawn/fish farms	High
Sewerage Treatment/Disposal/Recycling	Sewerage treatment works Sewage lift stations Sewage lift stations residential (with well washers) Sanitary depots Recreational vehicle sewerage dump points Effluent re-use plant	High
Automotive	Petrol stations, Vehicle maintenance (mechanic, panel beater) Vehicle, plant and plant equipment washing Caravan parks with sanitary dump point	High
Health Facilities	Hospitals Mortuaries Funeral parlours with embalming Day surgery premises Pathology laboratories General laboratories Dental surgeries – with direct water connection to dental chairs	High

SITE CONTAINMENT BACKFLOW PREVENTION STANDARD SCENARIOS		
Premise Type/Category	**Examples (not limited to)**	**Hazard**
Health Facilities (continued)	Nursing homes with dirty utility rooms – sterilisers, pan washing Medical/dental – autoclaves, sterilisers Bidets – residential/commercial/industrial	
Food Processing and Preparation	Abattoirs Food processing (where high hazard is identified – clean in place systems)	High
Metal Finishing	Galvanising Electro plating Chrome plating Zinc plating Powder coating	High
Agricultural	Drinking troughs (livestock) Crop farms Hydroponic operations Organic Veterinary surgeries Pest control facilities	High
Trade Waste	Oil separator (process, wash bay) Prison sanitary grinder system Dilution pit Commercial laundries Industrial silt trap DAF unit/collection tank with pH correction and/or coagulant dosing	High
Fire Control	Hydrant with chemical injection Hydrant within high hazard area Fire hose reel/s within high hazard area Sprinkler with chemical injection Below ground hydrants (existing only)	High
Sporting/Recreational	Golf course Irrigation with pump system or fertiliser/chemical injection Irrigation with below ground sprinkler heads (“pop up”)	High
Local Government – Council, Public Utility	Public swimming pool – with chemical storage (chlorine etc) Works depots Waste disposal facilities – garbage dumps	High
Development Construction (including vacant development lots)	Temporary construction water services for 3+ residential units, commercial and industrial developments (RPZD to be registered with Hunter Water upon connection and unregistered with Hunter Water upon disconnection)	High
Local Government – Council, Public Utility	Public swimming pool – no chemical storage Mixed use buildings – offices etc. Secondary school laboratories – dilution pit Spas Fountains	Medium
Food Processing and Preparation	Food and beverage processing plants	Medium
Fire Control	Commercial/industrial premises with sprinkler service Commercial/industrial premises with hydrant service Commercial/industrial premises with fire hose reel/s Residential fire services identified as medium risk	Medium
Recreational	Caravan parks without sanitary dump points	Medium
Trade Waste	Grease trap Silt trap	Medium
Above Ground Rainwater Tank	≥3 strata units/multiple occupancy units	Medium

SITE CONTAINMENT BACKFLOW PREVENTION STANDARD SCENARIOS		
Premise Type/Category	**Examples (not limited to)**	**Hazard**
Below Ground Rainwater Tank * Accepting Roof Water Only * Adequate Vermin Proofing * Require inlet and outlet	Single residential stand-alone dwelling 20mm water service	Medium 20mm Vented Dual Check Valve
Sewerage Lift Station	Single residential stand-alone dwelling 20mm water service (no internal well washers and with or without potable water flushing via an external air gap)	Medium 20mm Vented Dual Check Valve
Alternative Water Supply (Single Residential under 1500m2) *No interconnection with Hunter Water's drinking water supply permitted	Single residential stand-alone dwelling 20mm water service Residential bore water Residential reclaimed storm water	Medium 20mm Vented Dual Check Valve
Above Ground Rainwater Tank	Single stand-alone residential dwelling Strata duplex	Low
Commercial	Hairdressers basins or troughs	Low

Minimum Site Containment Backflow Requirements	
32mm water meter	Testable device – minimum double check valve (DCV)
40mm water meter	Testable device – minimum double check valve (DCV)
50mm water meter	Testable device – minimum double check valve (DCV)
80mm water meter	Testable device – minimum double check valve (DCV)
100mm water meter	Testable device – minimum double check valve (DCV)
150mm water meter	Testable device – minimum double check valve (DCV)
200mm water meter	Testable device – minimum double check valve (DCV)
Single check detector assembly	Not to be used within Hunter Water's area of operations (without formal approval)

NOTE:

1. Where multiple processes occur on a site, the site containment backflow hazard rating will be equal to, or greater than, the highest identified hazard
2. The nominated listings above may be varied if the onsite operations have been clearly identified. In these cases the hazard rating will be considered "high" until proven otherwise.
3. Hunter Water only recognise "mechanical" site containment backflow prevention devices.
   (a) Low Hazard – Dual Check Valve (minimum)
   (b) Medium Hazard – Testable Double Check Valve (minimum)
   (c) High Hazard – Testable Reduced Pressure Zone Device (minimum)
4. AS2845.3.2010 (Clause 2.2.2a and Table 2.1) requires all site containment backflow prevention devices to be certified by an accredited backflow prevention device tester on an annual basis, with the certification reports submitted to Hunter Water.
5. For the purpose of this Standard, residential is defined as suburban style lots sized <1500 square meters (excludes rural, commercial, industrial or mixed use lots).
6. Double Check Detector Assemblies (DCDA) and Reduced Pressure Detector Assemblies (RPDA) shall be configured to have 20kPa differential between the primary device and the bypass device.

7 DEFINITIONS, ACRONYMS & 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 3500	Australian / New Zealand Standard 3500 for Plumbing and Drainage Part 1
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 operations that is connected to a water infrastructure
Drinking water supply	The supply system into which Hunter Water Corporation delivers drinking water
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.
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.
Residential	For the purposes of this Standard, residential is defined as suburban style lots sized <1500 square metres (excludes rural, commercial, industrial or mixed use lots).