



**Drinking Water
Protection
Conference 2023**

From the source to the last flowing tap

Backflow Device Selection for Small & Rural Supplies

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Backflow Device Selection for Small & Rural Supplies

Topics:

- What is/is not a Small Supplier.
- What is a Mixed-Use Rural Supplier, Acceptable Solutions for Households.
- Acceptable Solutions for Spring or Bore Water Sources.
- Acceptable Solutions for Rainwater Roof Water Sources.
- Appropriate Backflow Protection Selection Criteria.
- Types of Devices



Backflow Device Selection for Small & Rural Supplies

What is/is not a Small Supplier:

- A single dwelling such as a Home, Bach, or Rural property that only supplies the household is classified as a **Domestic Self-Supplier** and does not classify as a small supplier.
- A “**Very Small Supplier**” is supplying more than one household or dwelling, and up to 25 people, or up to 50 people for up to 60 days in any 12-month period.
- A “**Small Supplier**” is supplying more than one household or dwelling, and between 25 & 100 people.



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What is a Mixed-Use Rural Supplier, Acceptable Solutions for households:

- A mixed-use rural supply provides water via a network to consumers' properties; Not less than 50% of water supplied is intended for agricultural or horticultural purposes, for example stock water and irrigation.
Not more than 50% is used for domestic purposes, including drinking water.
- A mixed-use rural drinking water supplier must ensure all water intended for drinking, is treated by an end point treatment system servicing no more than 3 buildings.
The supplier is responsible for ensuring these treatment systems are installed, operated, and maintained according to the Acceptable Solution.
- All end-point treatment systems are designed, configured, and installed according to the Acceptable Solution.
Water provided for flushing toilets and outdoor use may be untreated but must be marked as non-potable in accordance with the Building Code.



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What is a Mixed-Use Rural Supplier, Acceptable Solutions for households:

- Backflow prevention devices must be installed on all connections to the mixed-use rural water supply.
The location of the device must be after the point of supply and before any untreated storage tanks or the treatment system.
The minimum requirement is for non-testable double check valves.
- If there is a medium or high backflow risk/hazard, a testable backflow prevention device must be installed appropriate to the identified risk/hazard level.
Testable backflow prevention devices must be inspected and tested annually.



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Acceptable Solutions for water sources:

- Drinking water Acceptable Solutions are covered under the Water Services Act 2021, They offer practical ways for drinking water suppliers to provide safe drinking water that are proportionate to the scale, complexity, and risk profile of the relevant type of supply.
- A drinking water supplier that chooses to adopt and comply with an Acceptable Solution must be treated as having complied with the legislative requirements (other than the duties to provide safe drinking water that complies with Drinking Water Standards)
- A drinking water supplier who complies with this Acceptable Solution does **not** need to prepare a drinking water safety plan (including a source water risk management plan) or provide a copy to Taumata Arowai.
- Drinking water suppliers adopting this Acceptable Solution must also comply with their other obligations under the Act and any other relevant legislation.



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Acceptable Solutions for spring or bore water sources:

- All drinking water supplied by the spring or bore water supply, after testing to ensure suitability for cartridge filtration and UV Disinfection, must be treated by an end-point treatment system and supply up to 3 building within one property and up to 100 people.
- Water provided for flushing toilets and outdoor use may be untreated but must be marked as non-potable in accordance with the Building Code.
- Backflow prevention devices must be installed on all connections to the mixed-use rural water supply.
The location of the device must be after the point of supply and before any untreated storage tanks or the treatment system.
The minimum requirement is for non-testable double check valves.
- If there is a medium or high backflow risk/hazard, a testable backflow prevention device must be installed appropriate to the identified risk/hazard level.
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Acceptable Solutions for rainwater roof sources:

- The Roof, Spouting, Fittings Tanks etc must be compliant with the acceptable solution.
- Storage capacity should be a minimum of 96 hours of average demand.
- The End Point Treatment System must be compliant with the building act and building code, and be designed to prevent backflow into the water supply system.
- UV disinfection must meet standards specified in the acceptable solution.
- Each end point treatment system must have 2 stage cartridge filtration, UV disinfection, and other details specified in the acceptable solution.
- If supplementary supply is used, it must be tested to ensure suitability for cartridge filtration and UV Disinfection, and delivered to the storage tank and pass through the end point treatment.



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Appropriate Backflow Protection Selection Criteria:

- Water Source - Dam, Bore, Rainwater Collection, River/Stream, Tanker Supply.
- Available Pressure - Head Height, Bore Pressure, Gravity Feed, Water Pump.
- Pressure & Flow Variations – Device Size, Single or Dual Units.
- Level of Debris – Strainers and capacities.
- Source Protection – Bore Regulations etc.
- “Network” Protection – Acceptable Solutions or Bespoke system.
- Level of Risk/Hazard – Device appropriate to Risk/Hazard Level.



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Types of Devices:

- Compliant air gap, No pressure losses, simple with no maintenance,
- Low Hazard - Non-Testable Dual Check, small pressure loss, low maintenance, no ongoing testing.
- Medium Hazard – Pressure Vacuum Breaker, Spill-Proof Vacuum Breaker, Testable Double Check, small pressure loss, annual testing, maintenance as required.
- High Hazard – Pressure Vacuum Breaker, Spill-Proof Vacuum Breaker, Testable Reduced Pressure Zone Device, higher pressure loss, discharge from vent at times, annual testing, maintenance as required.



Questions? Patai?