

THREE WATERS MANAGEMENT PRACTICE NOTE

HCC 08: Automated Greywater Reuse

1.1 Introduction

This practice note¹ has been developed to provide general information and minimum design requirements for the use of greywater reuse systems for on-site wastewater management.

1.2 Greywater reuse

Reusing water from your laundry and bathroom can help to save water and cut down on demand for water supplies in your area. With the right technology, water used to wash yourself and your clothes can be reused on the garden or for flushing toilets. This wastewater is called 'greywater'.

However, it is important that any system you use for collecting and reusing greywater is properly installed and maintained. Greywater also needs to be kept away from human contact as there are possible detrimental effects on health.

You'll need to check with Council Building Consent Unit before installing a system to collect and reuse greywater.

1.3 What is greywater?

All household wastewater from kitchen sinks, dishwashers, laundry tubs, washing machines, showers, baths and basins is called greywater. You can collect greywater from baths, showers and washing machines for re-use on your garden or for toilet flushing. You will need a building consent to collect and reuse grey-water.

Greywater is not potable water – it cannot be used for cooking, bathing, brushing teeth, swimming or drinking.

The wastewater from your toilet or bidet is known as blackwater. You can't re-use it, it has to go into the wastewater system. Greywater from kitchen sinks, dishwashers, and laundry tubs is also unsuitable for reuse.

1.4 Is greywater safe to use?

In most situations yes, but only if a system is properly installed and maintained. A specific design by a suitably qualified Engineer and review by the Hamilton City Council Building Consent Unit is required for automated greywater reuse systems.

It is possible that greywater can contain faecal matter and microbes which are harmful to human health. Possible detrimental health effects can come about if drinking water becomes contaminated with greywater or there is direct contact with collected greywater that has become septic. The Ministry of Health considers that greywater reuse carries potential health risks and does not promote its use in homes. Businesses that use water in production processes may be able to more suitably capture and reuse their water.

If you do want to have a greywater recycling system at home:

- It needs to be designed and installed in accordance with AS/NZS 1547 and the New Zealand Building Code G14 Foul Water. Engineering design is required.

- It needs to be properly maintained.
- Greywater should not be used to wash clothes.
- The greywater needs to be kept away from direct human contact if you're using it in the garden. Don't use a sprinkler for grey water.
- It should be discharged under the soil (not on top) by subsurface irrigation and it should not be discharged in areas where food plants grow.
- Untreated greywater should be used within 24 hours. Your system should be set up so that any greywater not used in that time goes to the wastewater system.
- Any overflows from the greywater reuse system should drain to the wastewater system.

It is vital that the risk of someone unwittingly drinking greywater is minimised. Council Building Consent Unit will be able to advise you about necessary precautions and signage.

1.5 Description

There are two main automated greywater treatment systems:

- Diversion devices, which redirect greywater for use outside the home on the garden or lawns using sub-surface irrigation/dripper-lines, as illustrated in Figure 1 below.
- Treatment systems, which are more complex and treat greywater for reuse inside the home in the washing machine or toilet, as well as outside on the garden.

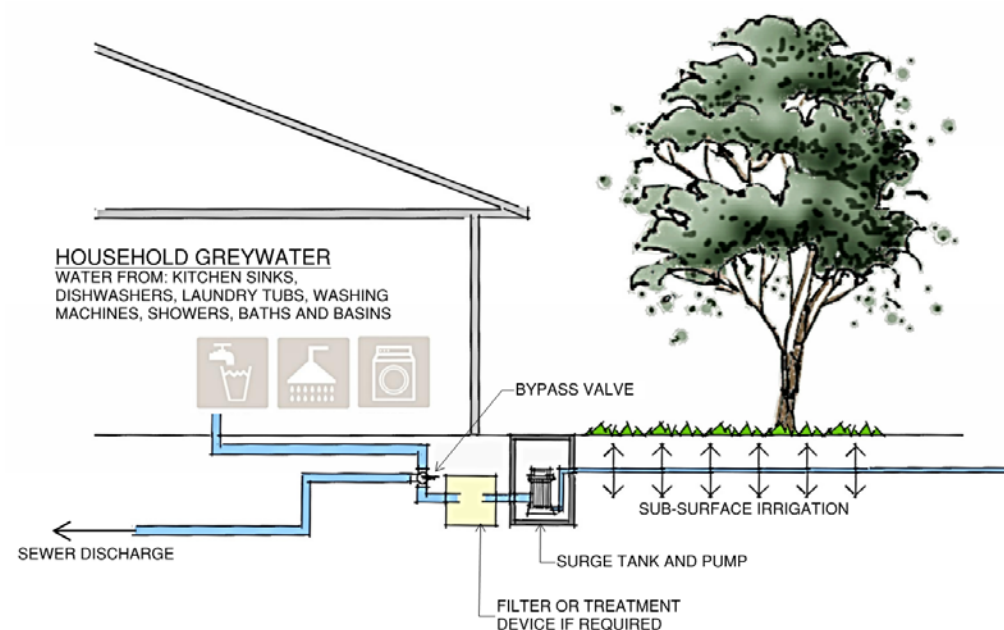


Figure 1: Residential greywater reuse schematic

1.6 Advantages of rainwater reuse and detention tanks

Automated greywater reuse systems provide the following benefits:

- *Reduces the use of potable water from the public water supply system.*

- *Reduces the wastewater peak flows discharging to council's wastewater system.*
- *Ensures gardens and lawns can be maintained during drought periods.*

1.7 Minimum design requirements

Automated greywater reuse systems for the home need to be specifically designed by a suitably qualified Engineer in accordance with AS/NZS 1547 and New Zealand Building Code G13 Foul Water and approved by the Hamilton City Council Building Control Unit.

1.8 Additional Information

Some additional Information regarding the use of greywater is listed below. For further information contact Hamilton City Council.

Do

- Gain Council approval and research your lands suitability prior to purchasing or installing a greywater system.
- Divert untreated greywater to the sewerage system if it is not used immediately (e.g. during heavy rain).
- Ensure the plants and turf varieties in your garden are greywater tolerant.
- Choose laundry detergents that are designed for greywater re-use. These will usually contain low nitrogen, phosphorous and salts and will be labelled appropriately.
- Use greywater only when your garden needs watering and try not to over-water as this may damage plants and soil structure.
- Prevent run-off into neighbouring properties as this may cause a health risk.
- Ensure you wash your hands thoroughly after coming into contact with greywater and use gloves if possible.

Don't

- Store untreated greywater. Greywater contains contaminants and bacteria that can multiply quickly and potentially cause a smell or a health risk.
- Allow children, pets or human contact to occur where greywater has been used.
- Use greywater that has been used to wash heavily soiled items such as nappies or work uniforms.
- Allow greywater to flow into stormwater drains, or to pollute a watercourse or groundwater.
- Allow greywater to pond, as this may cause offensive odours and potentially become a health risk.
- Allow greywater to come into contact with vegetables, herbs or edible plants, or allow it to splash onto them.
- Use greywater if you have used detergents that contain harmful salts, as this may kill plants or damage soil structure

1.9 SUMMARY OF PLANNING REQUIREMENTS

Your greywater reuse system must be consented either as part of the whole site's building consent or as a separate building consent. For details on building consents please contact Hamilton City Council's Building Control Unit phone (07) 838 6699.

Greywater reuse systems are required to be designed by a suitably qualified engineer based on current best practice. As-laid plans, authorised by a registered drain layer, are required for your greywater reuse system and shall be provided to council.

¹ Three Waters Management Practice Notes are Hamilton City Council controlled documents and will be subject to ongoing review. The latest version can be downloaded from the Hamilton City Council website: <http://www.hamilton.govt.nz/our-council/council-publications/manuals/Pages/Three-Waters-Management-Practice-Notes.aspx>
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