

12.3.4 a) LPP17 - Water Conservation



SHIRE OF JERRAMUNGUP LOCAL PLANNING POLICY NO 17 WATER CONSERVATION

1. BACKGROUND

Water is a precious, finite resource in the Shire of Jerramungup and throughout the State. This Policy has been drafted to require new residential development to provide a rainwater tank, plumbed into the house.

This Policy also encourages the use of greywater reuse systems and water-wise development including native gardens.

This will achieve a number of benefits including:

- Reduce risk of future water restrictions,
- Assist in managing stormwater from residential development, particularly on clay soils;
- Increased local awareness of water scarcity and sustainable usage,
- Reduce demand on the Water Corporation supply network, thereby helping to ease one obstacle to the growth of the townsites in the Shire;
- Increased security of water for individual lot owners through decentralised supply;
- Encourage water-wise developments through recycling of Greywater and other initiatives, and
- Promote an increased level of sustainability within the Shire.

This Policy is not intended to apply to areas of the Shire that already have Scheme requirements to provide their own water, including the Rural and Rural Residential zones.

2. POLICY BASIS

Clauses 2.2 and 2.4 of the Shire of Jerramungup Town Planning Scheme No. 2 ('the Scheme') provides for the preparation of Local Planning Policies. This Policy has been prepared in accordance with the Scheme.

Clause 5.3.2 of the Residential Design Codes of WA (the Codes) allows a Council, with the approval of the WAPC, to vary any aspect of the 'acceptable development' provisions of the Codes where it can be shown that there is a specific need in that region.

The Policy does not bind the local government in respect of any application for development approval but the local government is to have due regard to the provisions of this Policy and the objectives which the Policy is designed to achieve before making its determination.

3. SCHEME REQUIREMENTS

Clause 8.2 (b) excludes single houses, extensions and ancillary outbuildings from requiring planning approval except where:

(i) *the proposal requires an exercise of a discretion by the local government under the Scheme to vary the provisions of the Residential Design Codes...*

This Policy has been adopted under Clause 5.3.2 of the Residential Design Codes of WA (the Codes) that allows a Council, with the approval of the WAPC, to vary any aspect of the 'acceptable development' provisions of the Codes.

This Policy varies "*Part 6.9 Design for climate requirements*" of the Codes by clarifying the acceptable development solution that will satisfy *6.9.2 Stormwater disposal* by stipulating that plumbed rainwater tanks must be used.

Clause 10.2 of the Scheme outlines general matters that Council can take into consideration when assessing any application. In particular, clause part (l) requires Council to consider *the likely effect of the proposal on the natural environment and the means that are proposed to protect or mitigate impacts on the natural environment*.

This policy expands on and complements the existing Scheme and Residential Design Code requirements.

4. POLICY STATEMENT

This policy applies to all applications for 'residential' land uses including:

- Single House;
- Grouped Dwellings
- Multiple Dwellings;
- Ancillary Accommodation;
- Bed & Breakfast;
- Caretakers Dwelling;
- Residential Building; and
- All extensions to a 'residential' land use over 50m² in area and where the addition incorporates a toilet, water heater or a laundry cold water outlet.

It applies all land within the Shire of Jerramungup with the exception of those lots zoned 'Rural' or 'Rural Residential'. These zones already have requirements for water supply stipulated in the Local Planning Scheme.

The policy is aimed at ensuring all residential development uses rainwater tanks to augment domestic water supply and encourages greywater reuse and water-wise measures within the Shire of Jerramungup.

5. OBJECTIVES

The objectives of this policy are as follows:

- To require the connection of plumbed rainwater tanks to supplement water supply to dwellings and assist with stormwater management for all new residential development.
- To establish clear standards for the siting and development of rainwater tanks.
- To encourage greywater reuse systems for residential development;
- To encourage water conservation in residential development throughout the Shire; and
- To improve the environmental sustainability of housing and other developments within the Shire.

6. DEFINITIONS

For the purpose of this Policy, the following definitions shall apply:

'Greywater reuse system' shall mean any equipment designed and used to treat and reuse greywater from a residential dwelling (approved by the Department of Health, Western Australia).

'Rainwater tank' means storage that is purpose designed to collect rainfall runoff from roofs.

A large variety of rainwater storage vessels are available including traditional stand-alone tanks, modular tanks, site-constructed tanks and some other alternative proprietary products including modular systems. Provided that they meet all relevant regulatory requirements that may apply all such storages are legitimate forms of rainwater tank.

'Residential land use' for the purposes of this policy includes the following land uses listed in the Scheme Zoning Table:

- Single House;
- Grouped Dwellings
- Multiple Dwellings;
- Ancillary Accommodation;
- Bed & Breakfast;
- Caretakers Dwelling; and
- Residential Building”

7. REQUIREMENTS

7.1 'Deemed to Comply' Development

Proposals that meet all of the acceptable development criteria as set out in section 7.2 will not require planning consent to be issued, as they are deemed to comply with the planning requirements.

7.2 General Conditions and Requirements

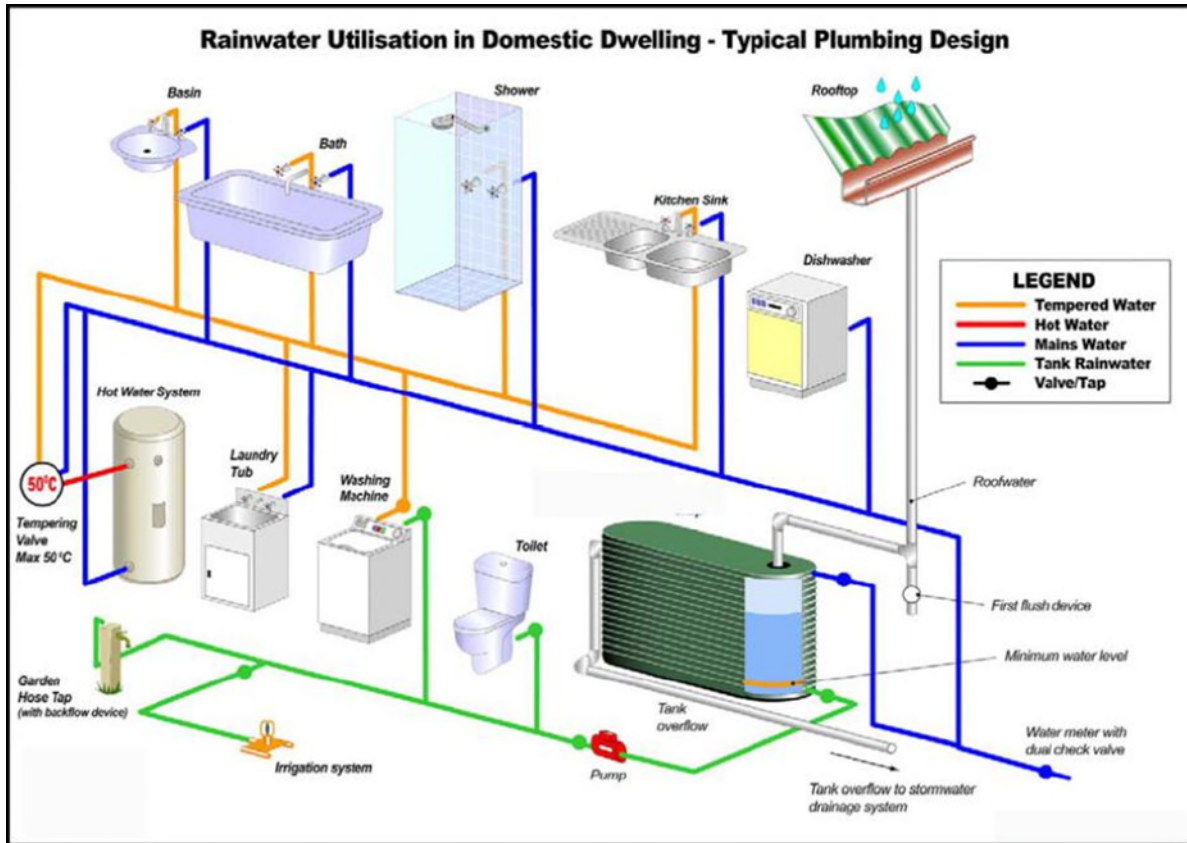
Rainwater Tanks

1. Plumbed rainwater tanks with a minimum capacity of 4.5 kilolitre (4500 litres) are required for:
 - All new 'residential land uses', as defined by this policy; and
 - All extensions/additions to existing 'residential land uses' where the roof area of the extension/addition is at least 50m² and/or;
 - Any extensions/additions to a 'residential land use' that incorporates a toilet or a laundry cold water outlet.
2. The rainwater tank is to be plumbed by a licensed plumber to at least:
 - one toilet; OR
 - laundry cold water outlet.

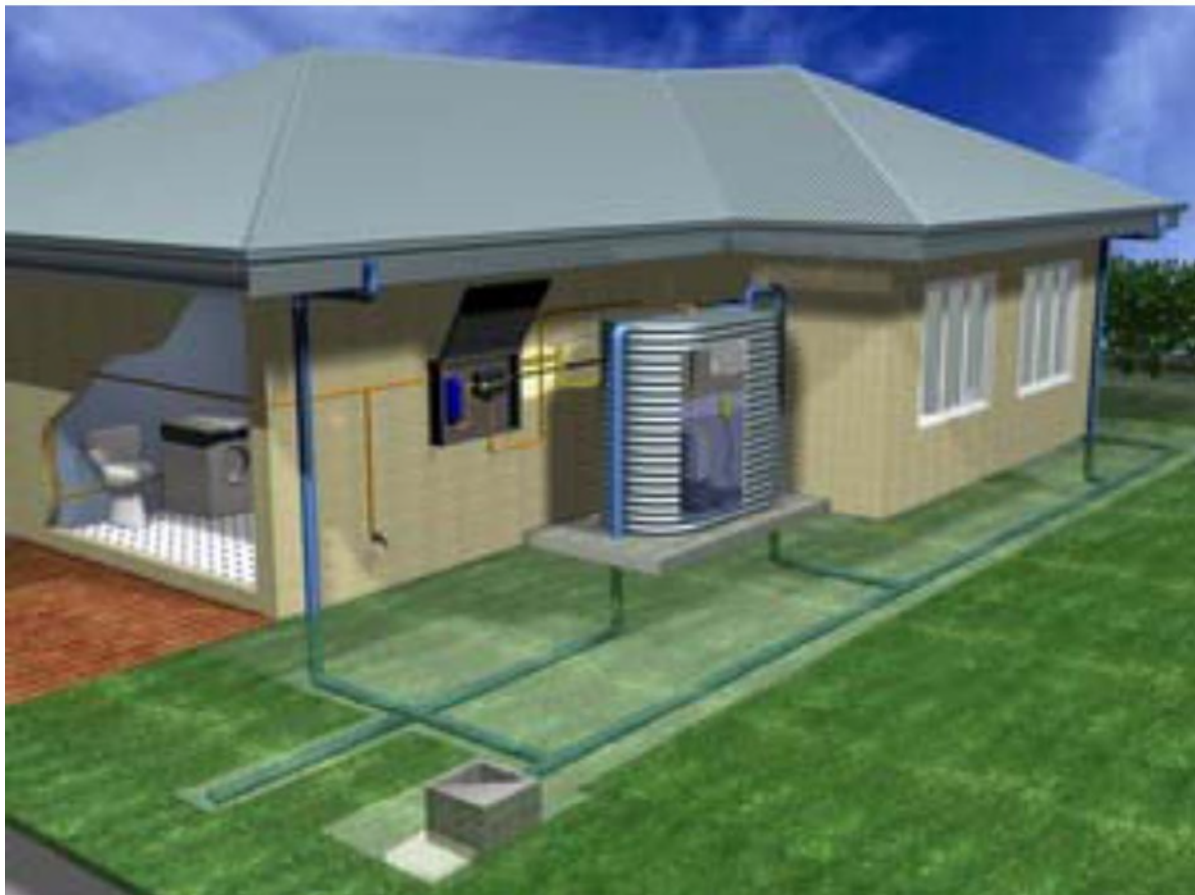
Further connections to garden hose taps and irrigation systems are encouraged.

Plumbing a rainwater tank to the drinking supply is not required by this Policy due to Department Health considerations including an increased risk of pollution by airborne chemical and microbiological contamination.

3. There are four additional technical requirements:
 - The rainwater tank must be fitted with an overflow device that disposes of overflow from the rainwater tank. Any runoff from the tank must not overflow onto adjoining properties.
 - A backflow protection device is to be installed in accordance with AS3500.1.
 - The inlet and overflow of the rainwater tank must be fitted with mosquito proof, non-degradable screens to ensure continual rainwater tank water quality.
 - Appropriate consideration needs to be given to the adequacy of the structure supporting the plumbed rainwater tank.
4. In the case of Grouped or Multiple Dwellings that use a common rainwater tank, the minimum rainwater tank size is determined by multiplying the number of dwellings that contribute to the rainwater tank by a minimum volume of 2 kilolitres (2000 litres) of rainwater for each dwelling.
5. Rainwater tanks are to be located behind the building line.
6. **Rear and side setbacks are to be in accordance with the Scheme requirement.**
7. **A Building Permit is required for any rainwater tank of 5,000L or larger**



Typical plumbing design for a rainwater tank system (source – www.savewater.com.au)



8. RECOMMENDATIONS FOR ENERGY AND WATER EFFICIENCY

8.1 Energy and water efficiency

Requiring rainwater tanks is a method of conserving water that is directly linked to development and may be controlled through the planning system. There are other measures that may be implemented that are not able to be enforced through the Local Planning Scheme but are nevertheless strongly encouraged.

The following energy and water management strategies are strongly encouraged by the Shire of Jerramungup but do not constitute formal requirements on construction of a dwelling.

Greywater Reuse Systems (Approved by the Department of Health WA)

Greywater is waste water from a variety of sources including washing machines, showers, baths, wash basins and laundry tubs.

The opportunity exists for appropriately treated greywater to be reused for a variety of different end uses, such as irrigating gardens and flushing toilets. This will reduce the demand on quality ground and surface water supplies.

Reuse of greywater is supported. However, this has to be accomplished without compromising public health, causing unacceptable environmental impact, or downgrading the amenity of our residential areas. Greywater reuse systems are encouraged by the Shire of Jerramungup as a tool to conserve water.

Greywater recycling is encouraged in the Shire of Jerramungup under the following circumstances:

- Is an approved system endorsed by the Department of Health for domestic greywater reuse purposes;
- Is installed and maintained in accordance with the manufacturers recommendations by a licensed plumber and is subject to an annual inspection;
- Is used for non-potable (not drinking) purposes;
- Where it is used to reticulate outdoor areas suitable irrigation methods are recommended such as sub-surface dripper systems; and
- Is developed in accordance with the current Department of Health "Code of Practice for the Use of Greywater in WA 2010".

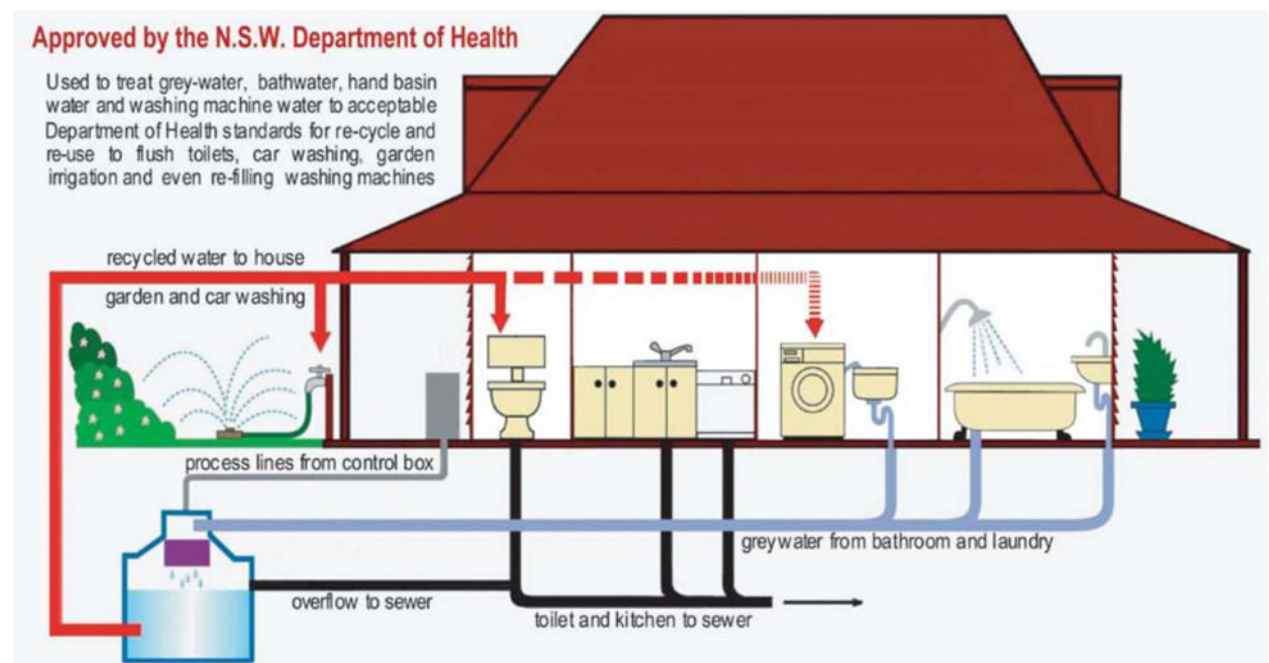


Diagram of Greywater recycling system (source - www.tankedaustralia.com.au), for explanatory purposes only

Water Management and Landscaping

The following measures will assist in the conservation of water in residential development and are encouraged:

- AAA rating of all shower heads and tap-ware;
- Lawn areas to be less than 20% of the open space area of the lot;
- Use of lawn varieties that require lower water usage;
- Use of low-flow trickle irrigation, such as drippers, mulching and soil conditioners;
- Use of indigenous plant species and other drought resistant trees and shrubs; and
- Retaining of existing vegetation on a site for the immediate provision of shading and screening to the house, habitat and the reduction in water use, provided fire safety is not compromised.

It is recommended that lots be selectively cleared to retain significant trees and shrubs and that the house be situated to reduce the need for removal of significant trees that will assist in shading the house, screening it from adjoining properties and improving the overall visual presentation of the property.

9. APPLICATION REQUIREMENTS

All development proposals shall provide the following information:

- a) Details of rainwater tank design, including the capacity/volume of the tank; and
- b) Details of what the rainwater tank will be plumbed into.

10. ADDITIONAL INFORMATION

Department of Health

The use of rainwater tanks for water supplies requires careful management and regular maintenance and upkeep (including cleaning gutters, de-sludging tanks, first flush bypass systems and mosquito control) to ensure that water quality is not affected by environmental and/or health contaminants. The Department of Health has prepared several factsheets on rainwater use including information about collection, storage and disinfection (http://www.public.health.wa.gov.au/3/659/2/rainwater_collection.pm)

Proponents are encouraged to use these resources if considering the installation of rainwater tanks for potable water supplies.

Information sheet – Urban Rainwater Collection (attached).

Code of Practice for the reuse of Greywater in Western Australia 2010
(available from the Shire front counter and Department of Health - http://www.public.health.wa.gov.au/3/667/2/greywater_.pm)

Department of Water

Information Sheet – Rainwater storage and reuse systems, June 2011 (attached)

Other useful links:

[http://www.agric.wa.gov.au/objtwr/imported_assets/content/lwe/water/eng/fn064_2004.p
df](http://www.agric.wa.gov.au/objtwr/imported_assets/content/lwe/water/eng/fn064_2004.pdf)

http://www.watercorporation.com.au/W/waterwise_plants.cfm

Rainwater from your roof can be a valuable resource as it can contribute to your yearly water needs and help conserve drinking water reserves. However, a reticulated scheme drinking water supply remains the most reliable source of drinking water in the urban environment.

The Department of Health supports the use of rainwater tanks in urban areas for all non-potable uses, such as garden watering, flushing toilets, in washing machines and car washing. Using rainwater in this way will not pose a risk to your health.

If you live in an urban area and you would like to drink rainwater, you should be aware that there might be an increased risk of pollution by airborne chemical and microbiological contamination. Also poorly maintained rainwater tanks can breed mosquitoes that can cause severe nuisance or carry human disease to you and your neighbours.

Follow the information in this guide to minimise the risk of contamination and disease to you and your family if you intend to drink your rainwater.

Is Rainwater Always Safe To Drink?

Unless adequately treated, rainwater is not reliably safe to drink. It is almost impossible to completely protect rainwater from:

- bird droppings and other debris containing micro-organisms;
- air pollution caused by:
 - light industries such as spray painters and fibreglass fabricators;
 - heavy industries such as kilns, quarries, chemical plants; and
 - emission from motor cars associated with freeways and main roads.

The level of contamination in your rainwater will depend upon:

- the amount of debris collected in your gutters and on your roof.
- your proximity to heavy traffic, incinerators, light or heavy industry.

What Is On The Roof?

Rainwater can be collected from most types of roofs, including asbestos, Colourbond™ and galvanized. It is important to find out if your roofing material or the paint used on your roof or in your gutters etc. could contaminate [rainwater](#). Tar based coatings can bind other harmful organic chemicals to the roof or gutter and be difficult to clean.

Rainwater should not be collected from parts of the roof that incorporate:

- a chimney from a wood burner;
- discharge pipes from roof mounted appliances such as evaporative air conditioners or hot water systems;
- chemically treated timbers; or
- lead based paints or flashings.

Speak to your rainwater tank supplier about identifying materials on the roof that could contaminate your rainwater.

How Do I Maintain My Rainwater System?

Regular maintenance is the key to good water quality. Installing screens, filters and first flush devices will reduce contamination.

Likely sources of micro-organisms and chemical contaminants that you can control are:

- Overhanging branches,
- Soil and leaf litter accumulated in gutters particularly if kept damp for long periods due to poor drainage,
- Faecal matter deposited by birds (resting on wires and TV antennas), lizards, mice, rats etc
- Dead animals and insects either in gutters or in the tank itself.



It is important that roofs, gutters, screens and first flush devices be inspected and cleared of leaves and other debris every three to four months.

The first flush runoff from a roof will wash contaminants such as dust, bird droppings, leaves and other airborne contaminants into your tank. First flush devices prevent the first portion of roof runoff from entering the tank.

Are Mosquitoes A Problem?

Rainwater tanks can become breeding sites for mosquitoes that can cause severe nuisance and carry serious diseases. In WA the most common mosquito found to breed in poorly maintained rainwater tanks is a proven carrier of Ross River virus.

To prevent mosquito breeding, corrosion and metal contamination, guttering and pipework should be self-draining or fitted with drainage points. Water should not be allowed to pool under the overflow outlet or tap as these can become mosquito-breeding sites.

The tank should be a sealed unit with the lid preventing sunlight from reaching the water. Sunlight encourages the growth of algae that will taint the water. Holes and spaces will allow mosquitoes to enter.

The inlet should incorporate a mesh cover and a strainer to keep leaves and to prevent the access of mosquitoes and other insects. The overflow should also be covered with an insect proof cover such as plastic insect mesh wired around the pipe. Insect mesh should be no coarser than 12 x 12 meshes/ 25mm².



To stop mosquito breeding add a teaspoon of food grade paraffin oil (in small tanks up to 1000 litre) to the water. (The amount needed will vary depending upon the surface area of the water. A sufficient quantity to produce a thin film over the water surface is all that is required).

Should I Test Rainwater?

Routine testing of rainwater is not normal practice and in most cases would not be recommended. If tested, the results should be compared with the values contained in the Australian Drinking Water Guidelines (NHMRC/ARMCANZ, 1996).

Laboratories can be found in the yellow pages telephone directory under the heading, "Analysts".

Should I Treat Rainwater?

If rainwater is to be drunk or used in cooking for any reason, eg where a reticulated scheme drinking water supply is not available, it should first be

disinfected either by bringing to a rolling boil for a few seconds (waiting for the automatic cut out on an electric kettle is sufficient) or by chlorination. Additional information on water disinfection is contained within the Environmental Health Guide, "Emergency Treatment of Drinking Water Supplies".

Can I Top Up My Tank ?

It is important to protect our reticulated scheme drinking water supply from any risk of contamination through backflow from rainwater tanks. Rainwater tanks connected to the scheme must be fitted with an approved backflow prevention device installed by a licensed plumber.

Do I Need Building Approval?

Before purchasing and installing a rainwater tank check with your local government for local building regulations that apply in your area.

What Should I Look For?

Your rainwater system should incorporate:

- A first flush device,
- Gutter guards or screen mesh to reduce the amount of debris entering the tank,
- Rainwater tank outlet points that reduce or eliminate the build up of sludge,
- Insect screens on overflow pipes and insect proof lids and inspection ports,
- Australian Standards approval marks on materials that will come into contact with rainwater such as:
 - AS 2070, Plastic materials for food contact use
 - AS/NZS 2179-1994 Specifications for rainwater goods, accessories and fasteners.
 - AS 2180 – 1986 Metal rainwater goods – selection and installation.
 - AS 3500.1 – 1992 National plumbing and drainage code. Part 1: Water supply
 - AS 3855 – 1994 Suitability of plumbing and water distribution systems products for contact with potable water.
 - AS 4020 Products for use in contact with water intended for human consumption with regard to their effect on the quality of water.

Summary

- Unless adequately treated, rainwater is not reliably safe to drink.
- In urban areas connected to scheme drinking water use rainwater for non-potable uses, such as garden watering, flushing toilets, washing machines and car washing.
- If rainwater is consumed for any reason, first disinfect by boiling or chlorination.
- Do not allow the first rainwater to enter the tank.
- Keep gutters and roofs clean, dry and in good repair.
- Ensure that the tank is sealed and the inlet and overflow screened against insects/animals.
- Cover and seal the tank to prevent the entry of sunlight, dust, insects and animals.
- Check for the appropriate Australian Standards mark.
- Rainwater tanks connected to the scheme must be fitted with an approved backflow prevention device installed by a licensed plumber.

Other Water Quality Guides Available

- Is the Water in your Rainwater Tank Safe to Drink?
- Emergency Treatment of Drinking Water Supplies
- Water Filters
- Giardia Infection
- Cryptosporidiosis

Further Information

For further information, contact an Environmental Health Officer at your local government

or

Water Quality Branch
Environmental Health Directorate
PO Box 8172
PERTH BUSINESS CENTRE WA 6849

Telephone: (08) 9388 4999

Facsimile: (08) 9388 4955

<http://www.public.health.wa.gov.au>



Urban Rainwater Collection



Some PVC pipes may contain lead so if the water is for drinking purposes use only high-grade (food) plastic pipes and fittings.



Water sensitive urban design

Rainwater storage and reuse systems

Summary

Rainwater storage systems are a simple method of capturing rainwater, traditionally from roofs, for use as an alternative water supply source and to reduce consumption of scheme water. When installed and maintained in accordance with recommended guidelines, they can provide a high quality source of water.

This brochure is part of a series that explain various aspects of water sensitive urban design. Please see *Water sensitive urban design in Western Australia* for background information on water sensitive urban design.

Main benefits

- Rainwater storage systems reduce the demand on potable water supplies.
- More rainwater is harvested when the tank is plumbed inside the house for uses such as toilet flushing. This creates a consistent drawdown on the tank supply, so there is always space to collect rainwater.
- They reduce the amount of directly connected impervious areas.
- They reduce stormwater peak flow rates and volumes.
- They reduce water supply peak flow rates and volumes.
- They can be retrofitted in houses and other buildings, including in high density urban areas.
- They can provide a water supply for (water sensitive) urban gardens and reduce the heat island effect in high density urban landscapes.

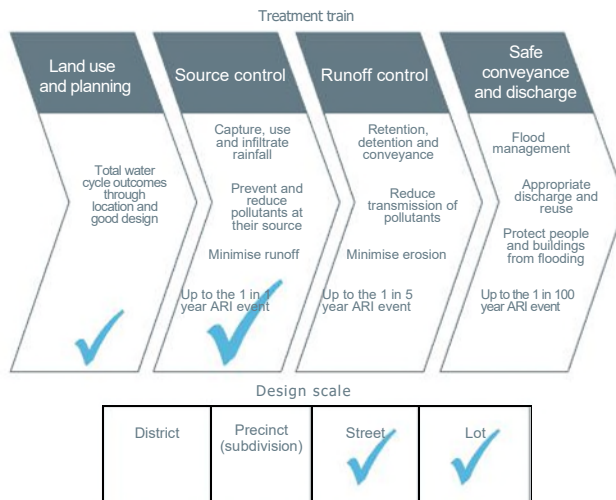
Design factors

- Put 'first flush' devices and mesh screens over all inlets and outlets to minimise maintenance requirements and preserve water quality.
- Designs for stormwater management include an air gap with trickle feed discharge level control and may include an infiltration trench or soakwell, depending on site characteristics.
- Storage can be above or below ground.
- Match storage size to collection area, end use, rainfall quantity and seasonal variability.
- Larger storage sizes are required where rainfall is unreliable and alternative supplies are not available.

Target pollutants

Rainwater storage systems are not designed to achieve direct improvements in stormwater quality.

Where they can be used in the water sensitive urban design process



Concrete underground tank



Slimline domestic rainwater tank

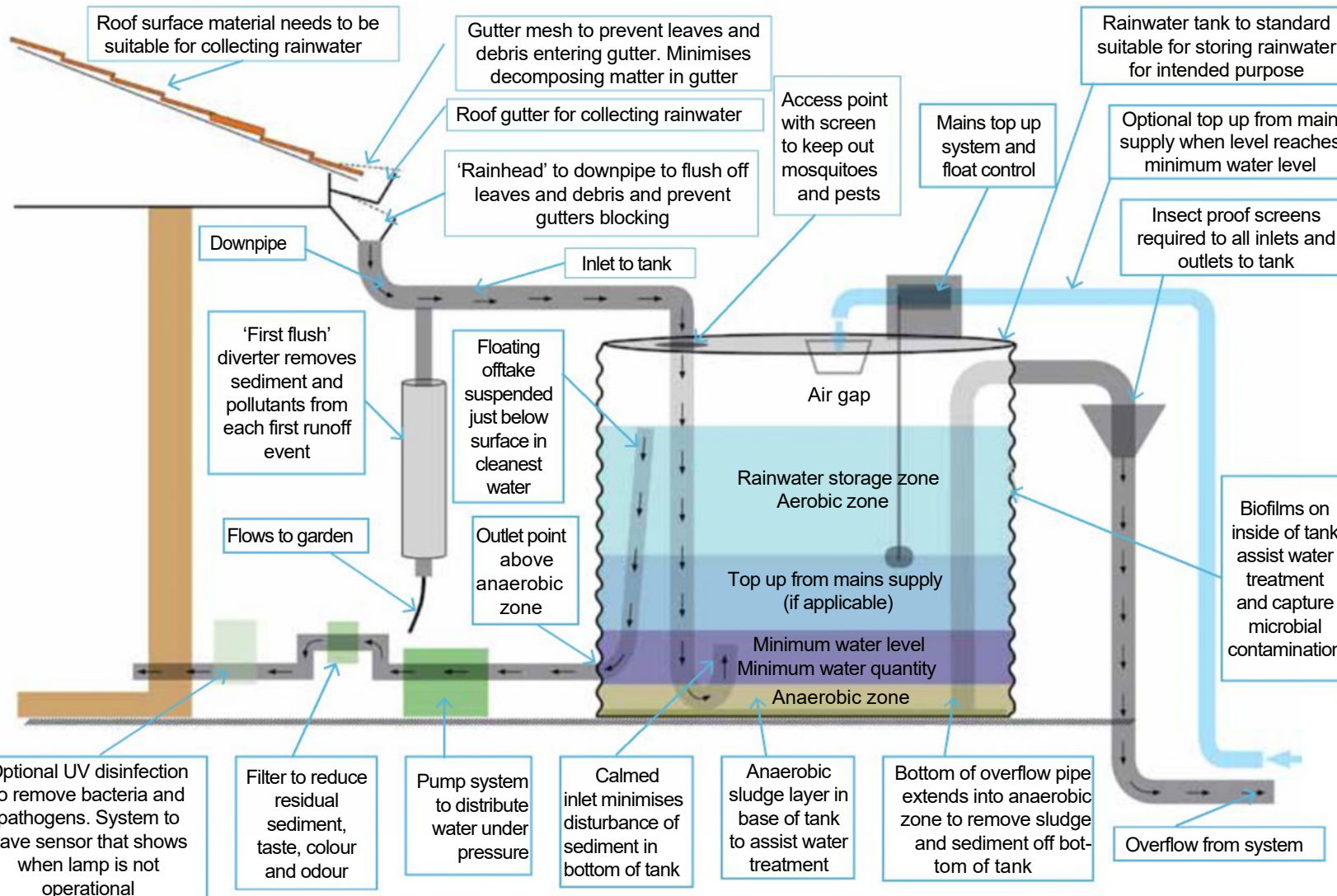


Poly domestic rainwater tanks

Water sensitive urban design

Rainwater storage and reuse systems

Example of above ground rainwater tank



(Source: Thompson McRobert Edgeloe Group 2008)

Required reading

Australian runoff quality: a guide to water sensitive urban design, 2006, Engineers Australia, available at www.arq.org.au.

Rainwater tank design and installation handbook, 2008, HB230-2008, Standards Australia.

Stormwater management manual for Western Australia, 2004-07, Department of Water, available at www.water.wa.gov.au. See Section 2.1 of Chapter 9 – Structural controls.

Testing of products for use in contact with drinking water, 2005, AS/NZS 4020:2005, Standards Australia.

Urban rainwater collection guidelines, Department of Health, Western Australia.

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