

CITY ASSETS

RAINWATER REUSE POLICY

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1. Introduction

The City of Canada Bay advocates the principles of water sensitive urban design (WSUD). It is a requirement of the Council that all developments and redevelopments incorporate a rainwater reuse system for non-potable water re-use. This Policy applies to all developments except in the following cases:

- Rainwater volume is covered by BASIX;
- The development is an Exempt Complying Development; or
- The development is exempt according to its Development Classification; see

Appendix 1: Development Type Flow Chart for further details.

The guidelines set out in this policy should be used when installing a rainwater system, for re-use.

1.1. Water Sensitive Urban Design Principles

WSUD principles help reduce the negative impacts caused by development on the natural, built and human environments. The City of Canada Bay requires that all development must recognise, appreciate and enhance the existing hydrological processes and strive to:

- Preserve existing topographic and natural features, including watercourses and wetlands.
- Protect surface water and groundwater resources.
- Integrate public open space with stormwater drainage corridors, maximizing public access, passive recreational activities and visual amenity.

Development must not adversely affect flooding of either upstream or downstream land and must not adversely affect the environmental values of the receiving waters. Natural waterway use must be maximized and incorporated into the plan.

Development must:

- Minimise impervious areas.
- Encourage infiltration (where appropriate).
- Encourage stormwater reuse.

1.2. Rainwater Reuse Systems

Objectives

Rainwater reuse systems must be installed in a manner which will yield benefits to both the owner and/or occupant of the development and the wider community in both an environmental and an economic perspective. Rainwater reuse systems should help promote natural water balance by helping maintain a balance between collection, infiltration and runoff of stormwater.

The size of the Rainwater reuse system should reflect its intended use(s), number of occupants, size of catchment area and expected precipitation rates and frequencies. The installation of the reuse system must be in the most practical manner possible with regards to plumbing requirements and connections, access for installation, maintenance and visual amenity.

Things to consider when choosing a rainwater reuse system

- Rainfall in your area.
- Roof area available for downpipe/s channeling the water.
- How much rainwater your household will use on an average day.

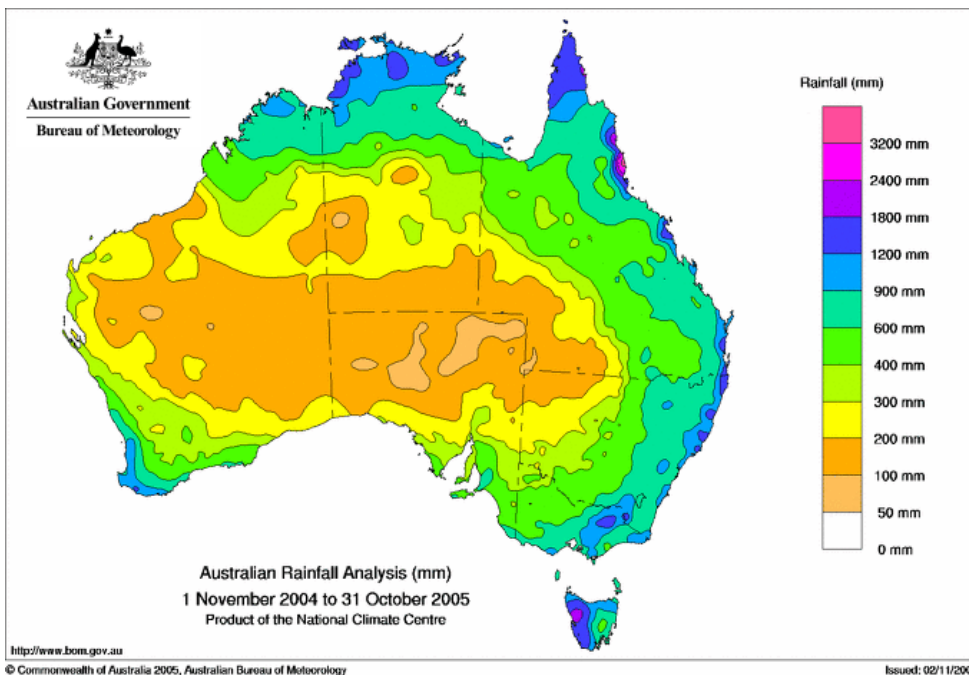


Figure 1-1. Annual Rainfall

For current rainfall information see Bureau of Meteorology:

<http://www.bom.gov.au>

Most rainwater tank suppliers should be able to assist in determining the most suitable size rainwater reuse system for your property.

Alternatively, see the Sydney Water and Urban Water websites as listed in the Further Reading section for assistance in calculating suitable rainwater reuse system size for your property.

2. Guidelines

2.1. State Environmental Planning Policy No.4 (Sepp No.4) Requirements

These requirements only apply to those installing a rainwater reuse system with no associated redevelopment of their property.

RAINWATER REUSE SYSTEMS (TANKS) THAT ARE NOT REQUIRED AS PART OF A DEVELOPMENT APPLICATION MAY BE INSTALLED WITHOUT THE NEED FOR DEVELOPMENT CONSENT, PROVIDED THAT THE FOLLOWING CONDITIONS APPLY.

For a rainwater tank to be an exempt development, it must comply with the following requirements set out in the State Environmental Planning Policy No 4 (SEPP 4):

- a. the capacity of the tank, or the combined capacity of tanks, on a lot must not exceed 10,000 litres;
- b. the tank must be designed to capture and store roof water from gutters or downpipes on a building;
- c. the tank must not collect water from a source other than gutters or downpipes on a building or a water supply service pipe;
- d. the tank must be fitted with a first-flush device, being a device that causes the initial run-off of any rain to bypass the tank to reduce pollutants entering the tank;
- e. the tank must be structurally sound;
- f. the tank must be prefabricated, or be constructed from prefabricated elements that were designed and manufactured for the purpose of the construction of a rainwater tank;

- g. the tank must be assembled and installed in accordance with the instructions of the manufacturer or designer of the tank;
- h. the tank, and any stand for the tank, must be installed and maintained in accordance with any requirements of the public authority that has responsibility for the supply of water to the premises on which the tank is installed;
- i. the installation of the tank must not involve the excavation of more than 1 metre from the existing ground level, or the filling of more than 1 metre above the existing ground level;
- j. the tank must not be installed over or immediately adjacent to a water main or a sewer main, unless it is installed in accordance with any requirements of the public authority that has responsibility for the main;
- k. the tank must not be installed over any structure or fittings used by a public authority to maintain a water or sewer main;
- l. no part of the tank or any stand for the tank may rest on a footing of any building or other structure, including a retaining wall;
- m. the tank must be located behind the front alignment to the street of the building to which the tank is connected (or, in the case of a building on a corner block, the tank must be located behind both the street front and street side alignments of the building);
- n. the tank must not exceed 2.4 metres in height above ground level, including any stand for the tank;
- o. the tank must be located at least 450 millimetres from any property boundary;
- p. a sign must be affixed to the tank clearly stating that the water in the tank is rainwater.
1. Note. See Section on 'Drinking Tank Water'
- q. any overflow from the tank must be directed into an existing stormwater system;
- r. the tank must be enclosed, and any inlet to the tank must be screened or filtered, to prevent the entry of foreign matter or creatures;
- s. the tank must be maintained at all times so as not to cause a nuisance with respect to mosquito breeding or overland flow of water;
- t. any plumbing work undertaken on or for the tank that affects a water supply service pipe or a water main must be undertaken:
 - i. with the consent of the public authority that has responsibility for the water supply service pipe or water main; and
 - ii. in accordance with any requirements by the public authority for the plumbing work; and
 - iii. by a licensed plumber in accordance with the New South Wales Code of Practice - Plumbing and Drainage produced by the Committee on Uniformity of Plumbing and Drainage Regulations in New South Wales.
- u. any motorised or electric pump used to draw water from the tank or to transfer water between tanks:
 - i. must not create an offensive noise; and
 - ii. in the case of a permanent electric pump, must be installed by a licensed electrician.
2. Despite subclause (1) (a), a rainwater tank with a capacity exceeding 10,000 litres may be considered to be an Exempt Development if another environmental planning instrument applying to the land concerned provides for such a rainwater tank to be exempt development.
3. This clause does not apply to land that is a lot within the meaning of the Strata Schemes (Freehold Development) Act 1973 or the Strata Schemes (Leasehold Development) Act 1986.

Note: Persons are advised to check that the above provisions are current with the SEPP 4. This can be found at www.legislation.nsw.gov.au.

2.2. Council's Rainwater Reuse System Minimum Requirements

These guidelines apply when:

- It is compulsory to install a rainwater reuse system as determined in Appendix 1; or
- As required by BASIX; or
- When SEPP 4 conditions are not met as outlined in Section 2.1

The minimum requirements in Council's Rainwater Reuse Policy are:

- a. The capacity of the tank or reuse system, or the combined capacity of tanks which make up the reuse system, on a lot must not exceed 10,000 litres.
- b. The reuse system must be prefabricated, or be constructed from prefabricated elements that were designed and manufactured for the purpose of storing rainwater.
- c. Tank stands must not be greater than 500mm above natural ground level.
- d. The colour of the tank or reuse system and stand must match the existing/proposed building colour, or to the approval of Council.
- e. The installation of the reuse system must not involve the excavation of more than 1 metre below the existing ground level, or the filling of more than 1 metre above the existing ground level. If this condition is not satisfied a separate Development application to Council seeking approval for excavation works is required.
- f. No part of the reuse system or any stand for the tank may rest on a footing of any building or other structure, including a retaining wall.
- g. The maximum height of the reuse system must not be greater than 900mm above the height of the nearest fence and not greater than 2.7m above natural ground level.
- h. The reuse system must be located to allow at least 900 mm emergency access along one side of the dwelling.

If any of the above constraints are not satisfied, a Development Application must be submitted for the proposed rainwater reuse system.

Regardless of whether the above constraints are met, the following guidelines apply:

- Minimum rainwater reuse system capacity required for residential developments is 3000L.
- Minimum rainwater reuse system capacity for all other developments is 5000L.
- The reuse system must be designed to collect at least 50% of the existing or new combined roof area of a building.
- The reuse system must not collect water from a source other than gutters or downpipes on a building or a water supply service pipe, (unless special consideration is sought from council).
- Underground rainwater reuse systems are to be fully sealed to prevent runoff from the ground surface entering the rainwater reuse system.
- The reuse system must be fitted with a first-flush device, being a device that causes the initial run-off of any rain to bypass the reuse system to reduce pollutants entering the reuse system.
- The reuse system must be structurally sound.
- The reuse system must be assembled and installed strictly in accordance with the instructions of the manufacturer or approved design of the reuse system.
- The reuse system must be fully supported on a sound base or approved stand in accordance with the manufacturer's specification.
- The reuse system, and any stand or base for the reuse system, must be installed and maintained in accordance with any requirements of the public authority that has responsibility for the supply of water to the premises on which the reuse system is installed.
- The reuse system must not be installed over or immediately adjacent to a water main or a sewer main, unless it is installed strictly in accordance with any requirements of the public authority that has responsibility for the main.
- The reuse system must not be installed over any structure or fittings used by Council or a public authority to maintain a water, sewer main or stormwater pipe. The reuse system must not be located within a drainage easement.
- Reuse systems must be installed in a manner which maintains visual amenity from both the street and from neighbouring properties.
- Both the reuse system and any fittings connected to it must be labelled 'RAINWATER, NOT SUITABLE FOR DRINKING'.

- Overflow from the reuse system should be directed to the stormwater drainage network, such as an on-site stormwater detention facility, or to the street.
- The reuse system must be fully sealed, and any inlet to the reuse system must be screened or filtered, to prevent the entry of foreign matter or impurities.
- The reuse system must be maintained at all times so as to not cause a nuisance with respect to insect breeding or overflows.
- Reuse systems must be designed such that they can be regularly desludged.
- Reuse systems must be connected to either the internal toilet flushing or washing machines or both and **MUST** be connected to all external fittings (excluding drinking water) as required by Council.
- Reuse systems should be connected to mains water to allow top-up during dry periods but top-up should not take place until the storage facility is 80% empty and should not be at a rate greater than 2L/minute.
- 20-25mm water meters must be replaced with an Integral Dual Check valve, 32mm and above meters must have a dual check valve installed adjacent to the meter (contact Sydney Water for details of valve requirements).
- A visible air gap must be maintained between the maximum height of water in the reuse system and the top-up outlet.
- Reuse systems should not be directly connected to any part of the main water supply.
- Any plumbing work undertaken on or for the reuse system that affects a water supply service pipe or a water main must be undertaken:
 - With the consent of the public authority that has responsibility for the water supply service pipe or water main; and
 - In accordance with any requirements by the public authority for the plumbing work; and
 - By a licensed plumber in accordance with the New South Wales Code of Practice - Plumbing and Drainage produced by the Committee on Uniformity of Plumbing and Drainage Regulations in New South Wales;
 - All plumbing must be completed by a licensed plumber in compliance with AS/NZS3500.5, any other relevant national standards and Sydney Water Requirements.
- Any motorised or electric pump used to draw water from the reuse system or to transfer water between tanks:
 - Must not be audible to neighbouring properties between 8:00pm and 7:00am Monday to Saturday and 8:00pm to 8:00am on Sundays (submersible pumps are recommended); and
 - In the case of a permanent electric pump, must be installed by a licensed electrician.
- Exceptions to any of these requirements may be sought from Council where the site lends itself to rainwater collection; other drainage sub-components are not suited to the site or under other exceptional circumstances.

2.3. Contribution of Rainwater Reuse Systems to On Site Detention Requirements

Rainwater reuse systems may be permitted to off-set the On Site Detention volume but only the minimum volume as determined by BASIX requirements.

Designs integrating rainwater reuse systems with on site detention storage would be acceptable provided the design allows functionality of both the re-use and detention system requirements.

2.4. Drinking Water

Since the City of Canada Bay Council is located near the city, close to built up and industrial areas, the use of rainwater for drinking, is not recommended in the NSW Health Department guidelines.

2.5. Reuse System Maintenance

A schedule of maintenance should be created in accordance with Appendix 2: Schedules of maintenance. The ongoing performance of the reuse system should be ensured through the application of the schedule of maintenance.

The Schedule of Maintenance should follow the manufacturer's specification for each individual proprietary item. The Schedule of maintenance found in Appendix 2 should only be used as a guide.

2.6. Rainwater Reuse System Arrangements

Examples of Rainwater Reuse Systems can be found in Appendix 3: Rainwater Reuse System Typical Arrangements.

Rainwater reuse systems should be connected for household and outdoor rainwater supply. Household supply provides water for toilet flushing and laundry, whilst outdoor supply provides water for irrigation and miscellaneous outdoor use.

3. Standards for Rainwater Tanks

- AS/NZS 2179-1994 'Specifications for Rainwater Goods Accessories and Fasteners'.
- AS2180 - 1986 'Metal Rainwater Goods - selection and installation' - A certificate of compliance from the retailer will show whether a tank complies with these standards.
- AS/NZS 3500.1.2 - 2003: 'National Plumbing and Drainage - Water supply - Acceptable solutions' - provides guidance for the design of rainwater tanks with dual supply. States that a backflow prevention device is needed to prevent reuse system water entering the mains, such as an air gap that allows separation between the mains inlet and the reuse system water.

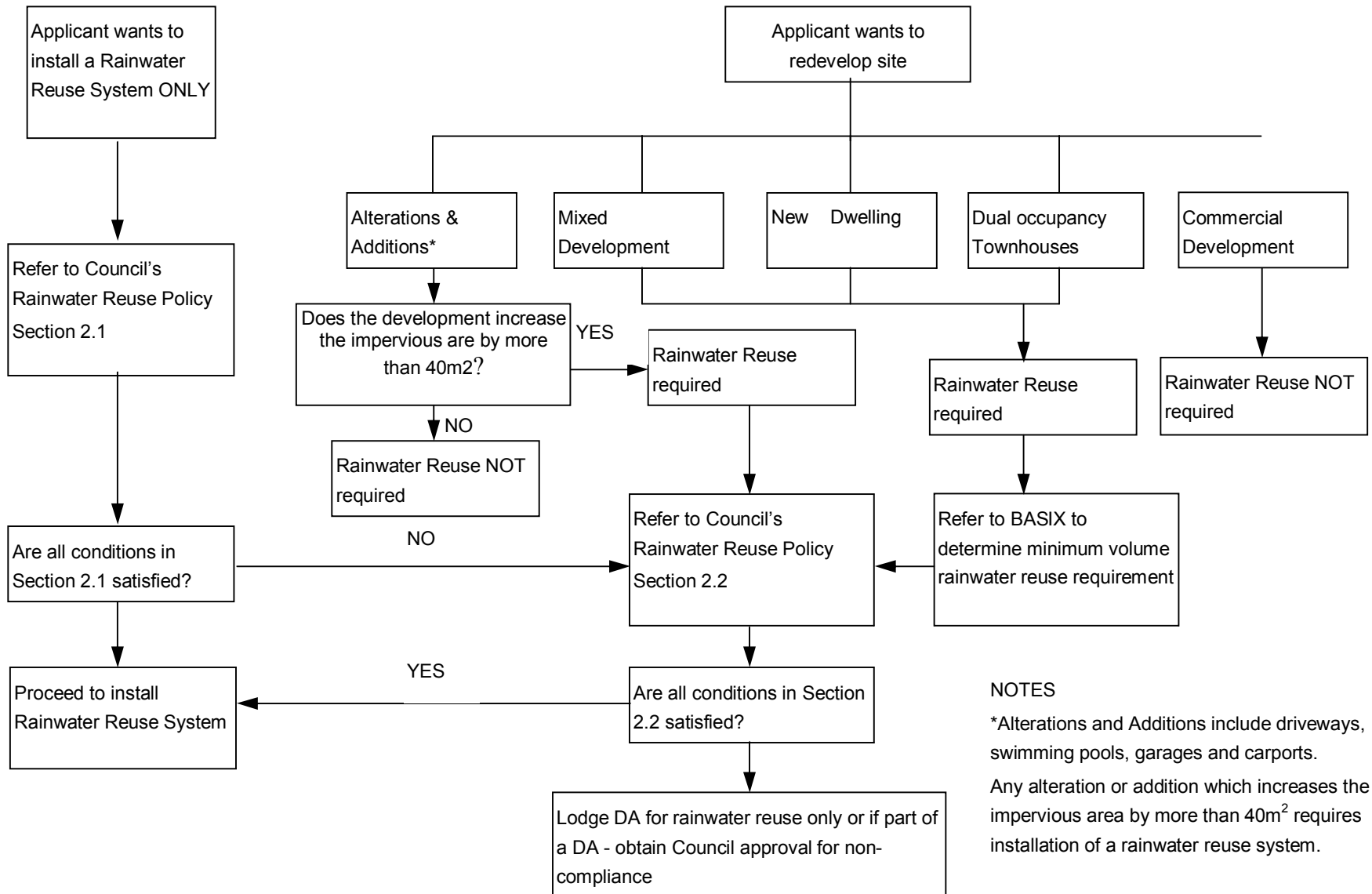
3.1 Relative Legislation

SEPP 4 Water Tanks Amendment, 2002.

Further Reading

- Committee for uniformity of Plumbing and Drainage Regulations (CUPDR) Circular 18.
- Water Sensitive Urban Design in the Sydney Region. Practice Note No. 4 - Rainwater tanks.
- Sydney Water Corporation (2003) - Plumbing requirements: guidelines for rainwater tanks on residential properties. SWC, Sydney.
- NSW Health - 'Rainwater Tanks' brochure - available on website: <http://www.health.nsw.gov.au/public-health/ehb/water/rainwater.html>.
- Sydney Water - <http://www.sydneywater.com.au/SavingWater/RainwaterTanks/>.
- Urban water website - <http://www.urbanwater.info/engineering/BuiltEnvironment/RainwaterTanks.cfm>.

Appendix 1: Development Type Flow Chart



Appendix 2: Schedules of Maintenance

All rainwater reuse system designed must be supported by an appropriate schedule of maintenance. The schedule of maintenance must address the site specific system and each subcomponent of that system.

The schedule may be applicable across multiple allotments in circumstances where a drainage sub-component is installed in this way. In these circumstances, a single Schedule of Maintenance is required but each occupant is equally responsible for the maintenance.

Maintenance of stormwater systems will usually be included on a Positive Public Covenant made in favour of the Council under Section 88B of the Conveyancing Act 1919.

Sample Schedule of Maintenance: Rainwater Reuse system of this Appendix shows an example of a Schedule of Maintenance for a typical rainwater reuse system, which collects rainwater from a roof only.

A2.1 Sample Schedule of Maintenance: Rainwater Reuse System:

This section outlines the procedures required to maintain a typical rainwater reuse system. Each aspect of the system is addressed through both a description of the maintenance required and a more specific procedure of maintenance.

NOTE: This Schedule of Maintenance is intended as a guide only. For specific instructions, refer to the manufacturer's specifications and maintenance schedule where a propriety unit is used.

All work required by this Schedule should be completed by a Suitably Qualified Practitioner. All drainage works should be undertaken by a certified plumber in accordance with AS/NZS 3500.5. Other works, including electrical work, should be completed by other certified tradesmen in accordance with the relevant standards.

CAUTION: Any maintenance works that require entry of a 'confined space' (e.g. full body entry of a stormwater pit) must be carried out by suitably qualified personnel in accordance with the Occupational Health and Safety Act 1993, 'WorkCover Authority of NSW' requirements and 'Confined Spaced' regulations.

Roof Gutters

Description:

All gutters will be fitted with leaf guards and should be inspected and cleaned to ensure leaf litter cannot enter the downpipes.

Maintenance (6 monthly):

Leaf guards should be inspected for defects and to ensure they are fully operational. Gutters should be cleaned of any debris.

First Flush Device

Description:

The 'first flush' system which collects the initial runoff volume from the roof must be inspected and cleaned to ensure it remains fully functional. The collection reservoir and small bore outlet must be free of accumulated debris. The size of the small bore outlet should be maintained.

Maintenance (6 monthly):

Open the cap of the base first flush reservoir, drain any water and remove any debris. Make sure the small bore outlet is not blocked.

Rainwater Storage Reuse system

Description:

The structural integrity of the rainwater storage tank is critical and should be inspected for faults. The inlet and outlet to the reuse system must be free of debris and fully operational. The reuse system should be desludged as required.

Maintenance (12 monthly):

The reuse system should be inspected for cracks or defects along the external lining. The lid should be opened and the reuse system visually inspected along the internal lining as well. The inlet and outlet should be inspected for defects and to ensure they are fully operational. The mains top up device, including the float switch and valves should be tested and repaired where required. The reuse system should be drained and desludged as required (sludge build-up should not exceed 50mm) by emptying the reuse system with the drain outlet and washing away the sludge with the hose on high pressure.

Water Pressure Pump

Description

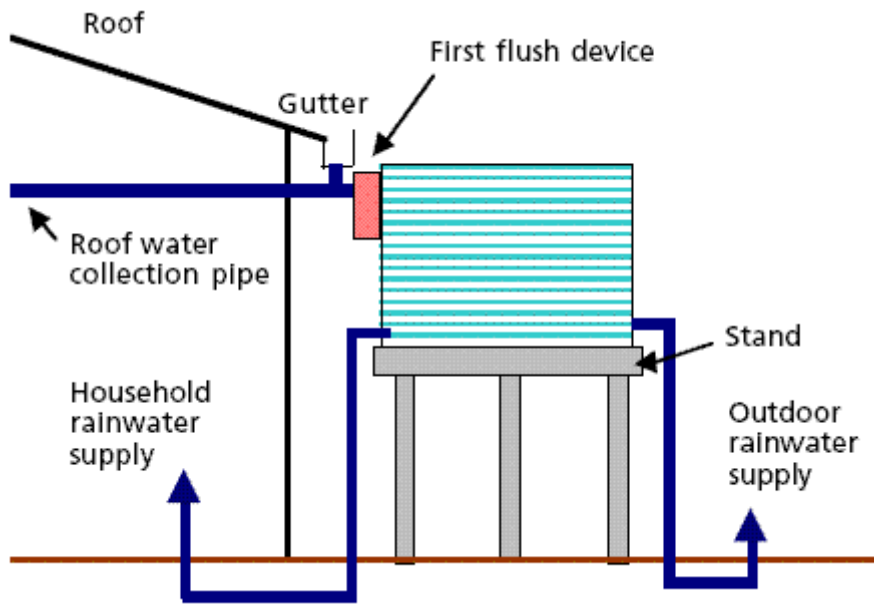
The Pressure pump supplies stored rainwater to the toilet cistern and outdoor uses. It is a mechanical unit which must be maintained and serviced in accordance with the manufacturer's specifications.

Maintenance (12 to 24 monthly):

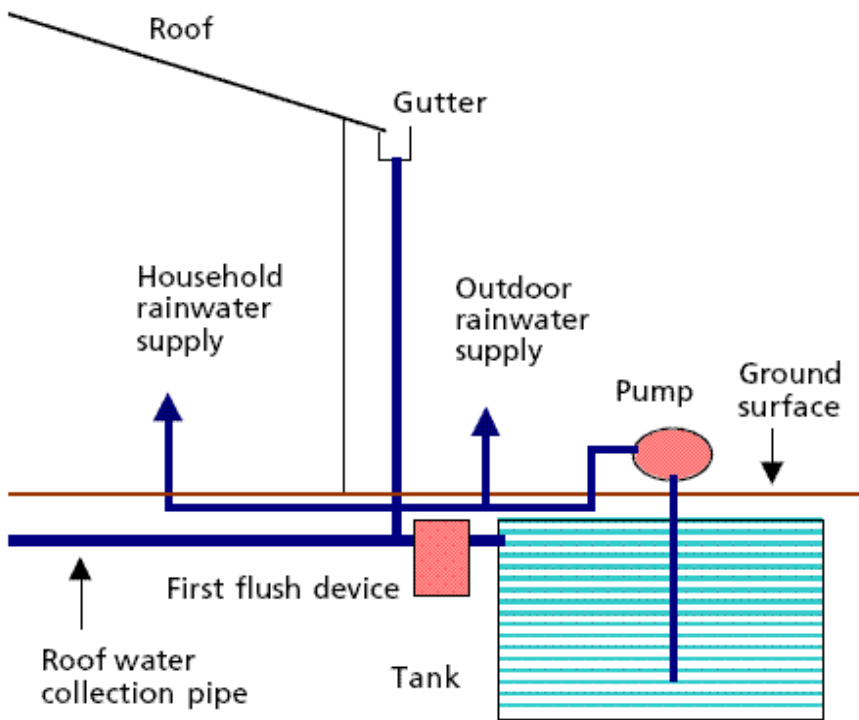
Visually inspect the pump for any leaks. Check air pressure within pressure cell and adjust as required. Check solenoid and pressure switch for correct operation. Run pump and check for excessive bearing and impeller noise and replace if necessary. Check all electrical connections for any defects and repair as necessary.

Appendix 3: Rainwater Reuse System Typical Arrangements

These arrangements are shown for example only. Each rainwater reuse system will be unique. These diagrams show the basic minimum component requirements.

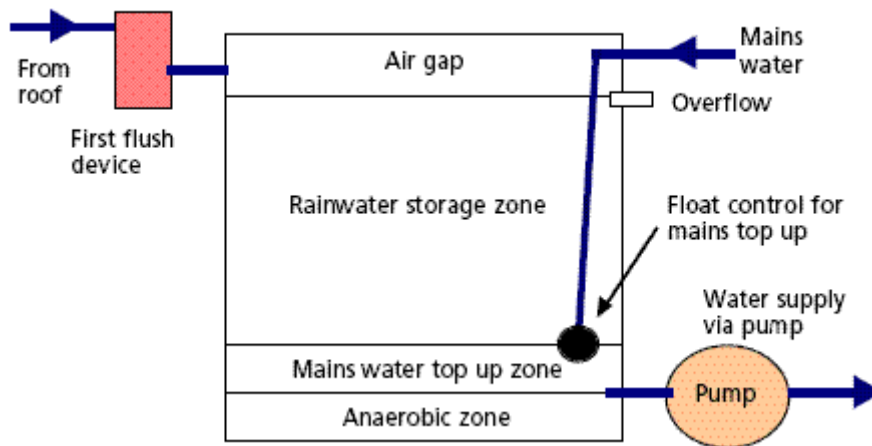


Configuration for a gravity fed system (WSUD - Practice Note 4)



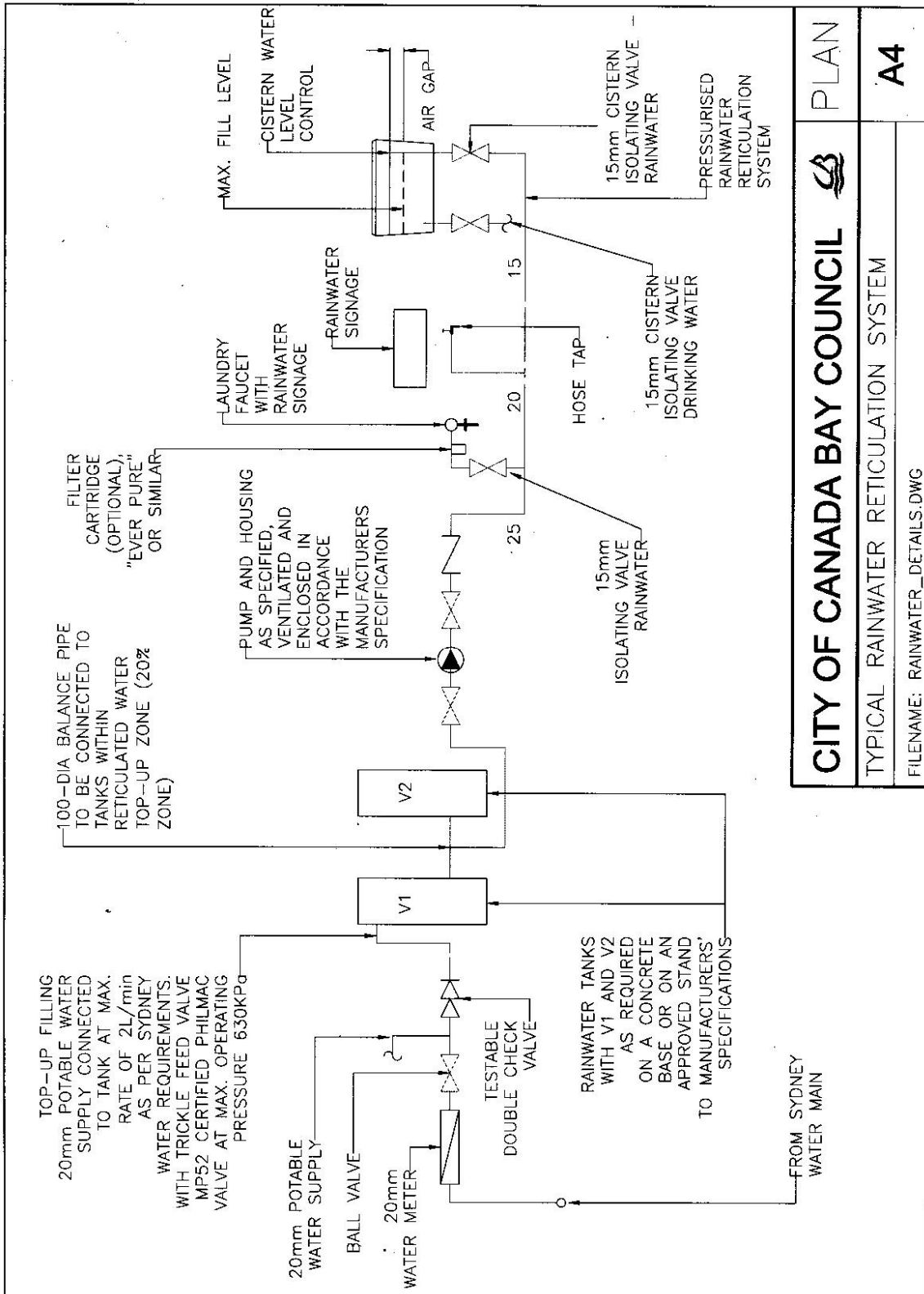
Configuration for a pressure system, underground reuse system (WSUD - Practice Note 4)

The following diagram shows the ideal storage arrangement to allow mains water top up. A further schematic diagram is included for a Typical Rainwater Reticulation System, which is applicable for single or multi tank systems.



Storage components for a dual supply (WSUD - Practice Note 4)

Typical Rainwater Reticulation System



 CITY OF CANADA BAY COUNCIL	PLAN
	TYPICAL RAINWATER RETICULATION SYSTEM
	FILENAME: RAINWATER_DETAILS.DWG

A4