

Rainwater Tanks

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How do Rainwater Tanks Assist in Stormwater Management?

Over recent years there has been greater interest in the use of rainwater tanks in both rural and urban areas. This is the result of a recognition of the various benefits that rainwater harvesting has for the environment and the property owner.

With respect to the management of stormwater effects, rainwater tanks are primarily used to manage stormwater quantity by retaining water and discharging it at a controlled rate. In addition the rainwater tanks can supply water for non-potable use such as toilets, laundry and gardening.

Non-potable water use is estimated at 65% of total household water demand. This controlled discharge and use reduces the rate and volume of stormwater that discharges into the receiving environment, thus minimising peak stormwater flows and the amount of water discharged, thereby reducing the potential for accelerated stream channel erosion, flooding and the discharge of roof-generated contaminants.

The storage and re-use of rainwater can reduce demand on the municipal water supply; assist in reducing sanitary sewer overflows and can reduce water use and wastewater disposal costs for home owners.

Whilst not a stand-alone method for stormwater management, rainwater tanks are important 'at source' devices for controlling stormwater discharges and are an important part of an integrated stormwater management approach for urban and **rural catchments**.



Key Components of a Rainwater Tank When Used for Stormwater Management

The rainwater tank can control the runoff from a roof catchment area of an individual property. The rainwater is temporarily stored and the water that is not used onsite is released at a reduced rate, controlled by the size of the outlet orifice. The Auckland Regional Council and Local Authorities can provide design tables that determine tank size, percentage runoff capture and percentage water supplied for a roof catchment area.

Rainwater tanks generally provide stormwater control for individual roofs, but can be sized to accommodate additional impervious surfaces on the property up to 120m².

Where rainwater tanks are used as part of a larger development, “water quality credits” can be obtained for the use of rainwater for non-portable use, allowing the developer to reduce the size of other water quality devices.

Airborne sediments that become deposited on roofs are particularly small and do not settle out within the rain tank. However, when the water from the rain tank is used for non-portable purposes any potential roof contaminants are redirected to the sanitary sewer or planted areas, thus reducing the contaminant load entering our streams.

For full water reuse, tanks should be fitted with a first flush device to divert the first portion of rainfall that carries the highest contaminant load, including dirt and debris, into the main stormwater system. Primary screening devices can also be put in place to prevent debris (such as leaf litter) from entering the tank. It is important to ensure that your rain tank meets the criteria set by the Ministry of Health.

Rainwater tanks should be considered in the conceptual stage of a development project to minimise visual intrusion, utilise space and reduce the scale and cost of other stormwater management devices. Rainwater tanks are designed in a variety of sizes and shapes to suit the available space and volume requirements. They can be fitted below ground or above ground and can be wall mounted.

Operation and Maintenance of a Rainwater Tank

Regular rainwater tank maintenance is required to achieve operational objectives. Inspections are recommended at least on an annual basis to clean out any accumulation of sediment, which may build up within the tank. The orifice outlet, pipe work, filters, roof gutters and downspouts can require cleaning and necessary repairs should be undertaken as soon as identified. A certified inspector should be contacted to maintain water supply pumps and associated electrical work.

For More Information

Call the Auckland Regional Council on (09) 366 2000 or refer to ARC TP10 Stormwater Management Devices: Design Guide Manual Chapter: 11.