



26 April 2019
The General Manager
Penrith City Council
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Dear Sir,

Water Sensitive Urban Design Strategy for 9-11 Gibson St, Werrington

Proposed Development

The proposal is to demolish two existing residences on 9-11 Princess St, Werrington and replace the dwellings with thirteen, brick veneer dwellings. The existing lot drains to Werrington Creek. The proposed stormwater system drains to Werrington Creek. The soil profile is deep clay of low permeability with high salinity.

Water Sensitive Urban Design Objectives

The objectives of the stormwater design for the development follows the objectives stated in Penrith City Councils' Water Sensitive Urban Design Policy:

- a) Protect and enhance natural water systems such as creeks and rivers in the Penrith LGA.
Reduction of pollution is achieved through water reuse, a filtration system and pit filters.
- b) Treat urban stormwater to meet water quality objectives for reuse and/or discharge to receiving waters.
Stormwater is treated by water reuse, cartridge filters and pit filters to meet the targets of Penrith City Council's WSUD policy.
- c) Match the natural water runoff regime as closely as possible.
Peak runoff is reduced for via rainwater reuse.
- d) Reduce potable water demand through water efficient fittings and appliances, rainwater harvesting and water reuse.
Potable water is reduced to meet BASIX targets.
- e) Minimise wastewater generation and treatment of wastewater to a standard suitable for effluent reuse opportunities.
Wastewater is reduced by means of water efficient fixtures to meet BASIX requirements.
- f) Integrate stormwater management into the landscape so as to maximise the visual and recreational amenity of urban development.
The pit filters are hidden from view. The cartridge filters are in an underground tank at the rear of the site.
- g) Provide objectives and controls for specific water sensitive urban design elements including water conservation, stormwater quality and waterway stability management.
Water conservation is achieved via the BASIX requirements. Stormwater quality control is improved via water reuse, cartridge and pit filters. Waterway stability management is improved through reduced peak runoff.

Water Conservation

Water conservation measures are outlined in the BASIX certificate prepared by others.

Stormwater Quality

Stormwater quality is improved by water reuse and the cartridge and pit filters.

Stormwater Quantity

Stormwater quantity is reduced via water reuse.

Details of 'MUSIC' Modelling

The proposed development was modelled using version 6.2 of 'MUSIC'. The areas modelled can be found on the Catchment Plan.

All other parameters were taken from the Penrith City Council Publication “Water Sensitive Urban Design Technical Guidelines”.

The results for the Treatment Train Effectiveness can be found in the MUSIC-link report.

Costs

The cost of the installation of the cartridge filters and pit filter will be borne by the developer. The cost of maintenance and upkeep will be borne by the body corporate. The writer estimates the life cycle cost of the treatment train is \$80,000 for a 50 year life span.

Check List

The check list found in “Water Sensitive Urban Design Technical Guidelines” is attached to this document.

Regards

A handwritten signature in black ink, appearing to be 'G. Balkin', with a long horizontal stroke extending to the right.

Gerard Balkin BE(Civil) CPEng

This advice shall not be construed as relieving any other party of their legal responsibilities or contractual obligations.