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MEMBER

7 July 2015
The General Manager
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Dear Sir,

Water Sensitive Urban Design Strategy for 86 Brisbane St, Oxley Park

Proposed Development

The proposal is to demolish an existing residence on 86 Brisbane St, Oxley Park and replace the dwelling with five, brick veneer dwellings. The existing lot drains to Ropes Creek. The proposed stormwater system follow the same flow path. The soil profile is deep clay of low permeability with high salinity. The site is constrained by a lack of fall and no nearby Council assets.

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 and reduction of peak runoff via on-site detention and water reuse.
- b) Treat urban stormwater to meet water quality objectives for reuse and/or discharge to receiving waters.
 - Stormwater is treated as much as practicable given the lack of fall but the pollution treatment train does not 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 via use of an on-site detention system and water reuse tanks.
- 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 filter is hidden from view. The detention areas are incorporated into the driveway and front landscaping.
- 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 a pit filter and water reuse. 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 a pit filter and maximising the roof areas to reuse tanks.

Stormwater Quantity

During minor storms the stormwater quantity is reduced by means of:

1. Water reuse. A study in neighbouring Hawkesbury City Council showed that rainwater reuse tanks connected to multiple uses approximately limits flows up to the 63% annual exceedance probability to pre-development flows. "Quality and quantity monitoring of five rainwater tanks in Western Sydney, Australia"; Dr Marlene van der Sterren.

Details of 'MUSIC' Modelling

The proposed development was modelled using version 6 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 filters and reuse tanks 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 \$18,000 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

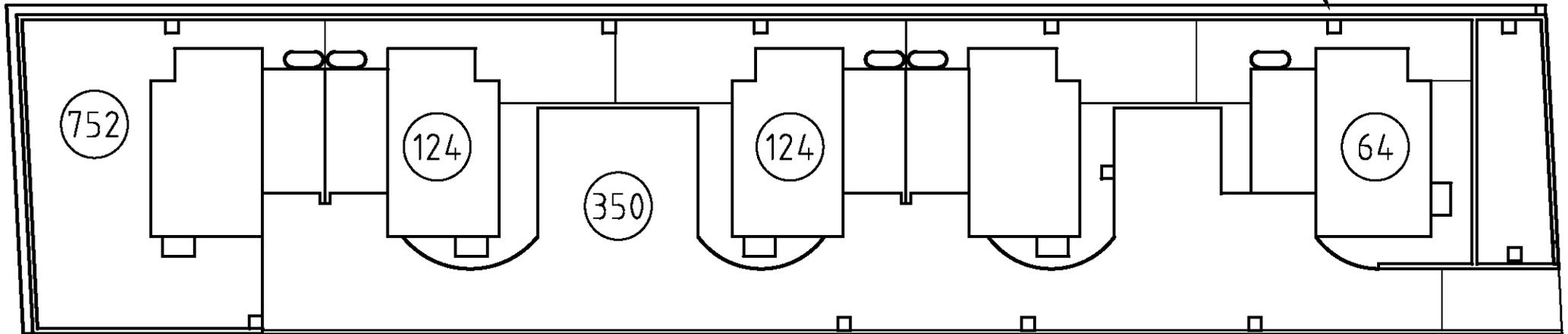


Gerard Balkin BE(Civil) CPEng

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

86 Brisbane St, Oxley Park

Filter
31 m² urban



Catchment Plan