

## **6.4 Stormwater Quality Management**

### ***Applies to***

This sub-section applies to the following development applications.

- a) Residential development greater than 2,000m<sup>2</sup>;
- b) Commercial, retail, industrial, and / or mixed use development involving new or additional gross floor area of greater than 100m<sup>2</sup>; and
- c) Any development which involves the construction or designation of 10 or more additional uncovered car parking spaces.

Single dwelling houses and dual occupancy housing on lot area of less than 2,000m<sup>2</sup> are exempt from these requirements.

### ***Background***

The Liverpool Local Government Area (LGA) is traversed by two major river systems, the Georges River and the Nepean River, and many of their tributary creeks and waterways systems. Waterways are under pressure from past and ongoing developments, catchment disturbance and hydrological modification, land use transformation and large-scale vegetation changes. Stormwater runoff has the potential to mobilise significant quantities of gross pollutants and sediments as well as nutrients from a development site and dispose into the local waterways. These pollutants will have significant adverse impact on the aesthetics and ecological health of waterways and the riparian corridor.

In June 2016, Council adopted the Water Management Policy that aims to integrate and coordinate Council's water management initiatives to achieve its strategic target to improve ecological health of all waterways within the LGA. The Policy seeks to provide a proactive response to the development pressures and aims to protect the aquatic ecosystems, the water resources and minimise the impacts of urban development to the urban water cycle through the necessary improvements to the quality of stormwater discharged to the waterways.

The Policy requires the design and construction of water quality improvement devices considering a sequence of water quality treatment train to effectively improve water quality to desirable level while also offering substantial short and long-term ecological, environmental, and economic benefits. The water quality treatment train generally comprises of gross pollutant traps (GPT), bio retention basins, bio swales and raingardens.

The GPTs provide the primary treatment to stormwater runoff that use physical processes to capture and retain gross pollutants such as litter and coarse sediment from stormwater runoff. The fine sediments are removed and chemical pollutants are treated through the provisions of bio swales, raingardens and bio retention basins.

### ***Objectives***

The objectives of the stormwater quality management DCP provision is to provide necessary control to set standards for post development stormwater runoff in a way that:

- a) Ensures a holistic and coordinated catchment based approach across all areas of council in managing water;

- b) Enables achievement of council's water quality targets for its major creeks and rivers;
- c) Ensures that stormwater runoff is of suitable quality to protect the aquatic ecosystems of receiving waterbodies and downstream catchments;
- d) Maintains and enhances freshwater and estuarine ecosystems, including biodiversity, relative abundance and ecological processes; and
- e) Promotes community participation to encourage source control to reduce pollutants reaching its major creeks and rivers.

## **Controls**

1. The post development stormwater runoff quality shall be improved to achieve the following reduction targets when compared to pre development levels:
  - 45% reduction in the baseline annual pollutant load of total nitrogen (TN);
  - 65% reduction in the baseline annual pollutant load of total phosphorus (TP);
  - 85% reduction in the baseline annual pollutant load of total suspended solids (TSS);
  - and
  - 90% reduction in the baseline annual pollutant load of litter and vegetation larger than 5mm, through provision of GPT.
2. Developments that this subsection applies to, including residential development of land area greater than 2,000m<sup>2</sup>, are to submit a stormwater quality management assessment demonstrating that necessary water quality improvement targets are achieved.

The stormwater quality management assessment is to be prepared by suitably qualified professionals with experience in water sensitive urban design (WSUD). Water quality modelling is to be undertaken with the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) model in accordance with the Liverpool City Council WSUD Technical Guideline.

The documentation required to be submitted include:

- a) Details of MUSIC modelling, with the MUSIC parameters and assumptions.
- b) Copy of the MUSIC model used for the assessment
- c) Plans showing details of the water quality treatment devices including gross pollutant traps (GPT), bio-retention basins, bio swales and rain gardens.
- d) Analysis showing the least present value cost option is considered through the lifecycle cost assessment of all possible alternative options. The lifecycle cost assessment shall consider capital cost and ongoing operation and maintenance cost of the treatment system for minimum of 20 years.