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SUSTAINABLE WATER
STORMWATER & RUNOFF
STREAMS & WATERWAYS
CIVIL & INFRASTRUCTURE

Dear Mr Kabir

RE: Wangara Road Netball Courts: WSUD Assessment

Storm Consulting (Storm) was engaged to prepare a stormwater quality assessment of the carpark for the proposed Wangara Road Netball Centre development. Water Sensitive Urban Design (WSUD) is to be implemented to achieve best practice targets for pollutant reduction.

There are opportunities to install raingardens in some landscape areas of the carpark. These raingardens intercept runoff from the roads, carpark and footpaths which carry pollutants from the surface such as litter, sediment, nutrients and hydrocarbons (oils). The raingardens remove these pollutants either on the surface of the raingarden or through the filter media before draining into the stormwater system.

A total of seven (7) raingardens have been adopted as shown in Figure 1. Each raingarden has a filter area of 12m² except the northern raingarden which is 6m². The footprint of the raingardens are significantly less than the available landscaped area and therefore can be readily accommodated.

The size of the raingardens were modelled in the software package MUSIC. This is an acronym for Model for Urban Stormwater Improvement Conceptualisation and is the industry standard model for designing WSUD. The Melbourne city rainfall data for 1952-1961 period with 6 minutes intervals was used for the modelling.

The best practice pollutant reduction targets are shown in Table 1 below.

Table 1: Pollutant reduction targets

Pollutant	Reduction Target (%)
Total Suspended Solids	80
Total Phosphorus	45
Total Nitrogen	45

The MUSIC model was set up to include all the contributing catchments to the raingardens. The model layout is presented in Figure 1 below:

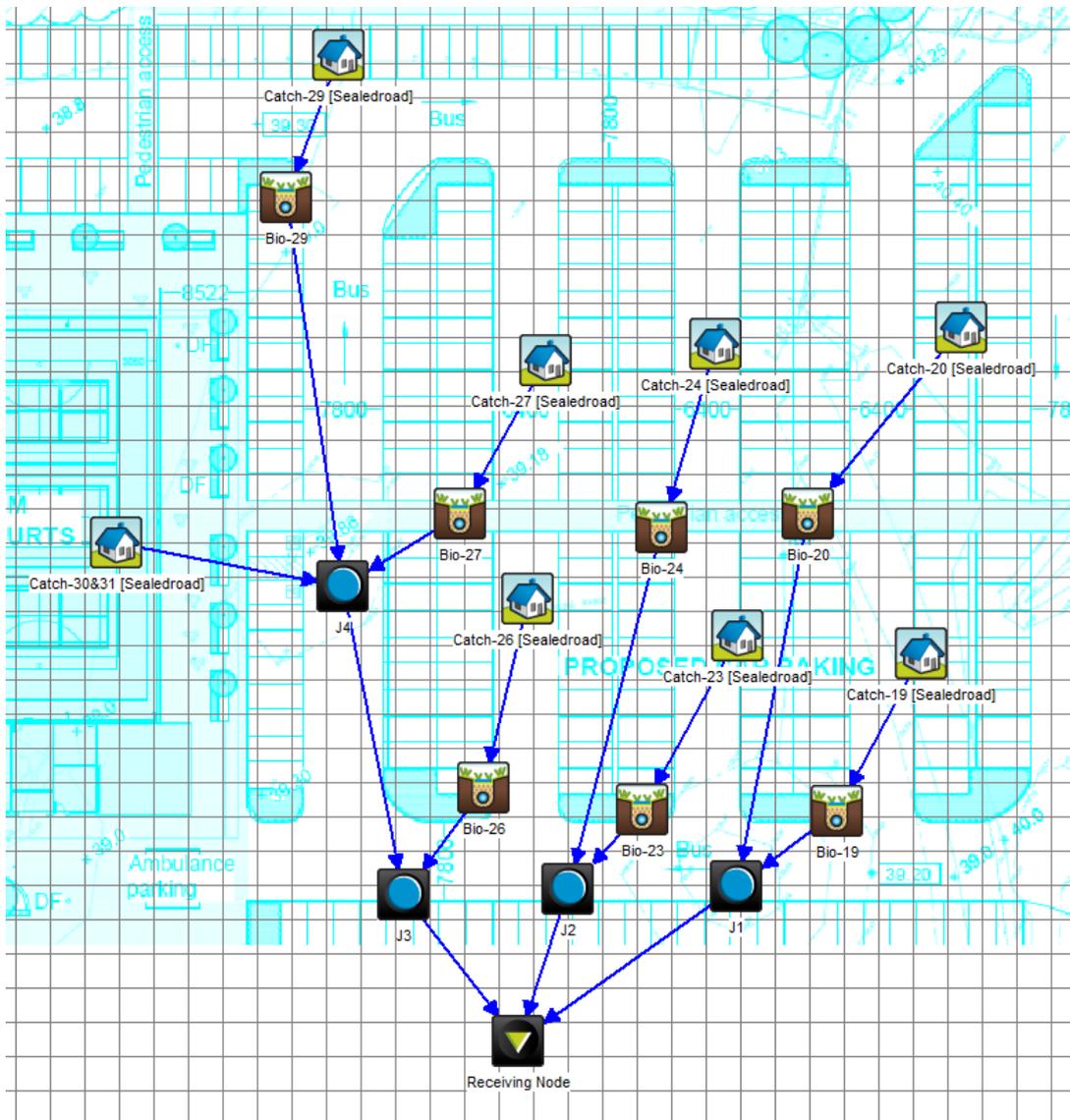


Figure 1: MUSIC model layout

The results of the MUSIC modelling are provided in Figure 2.

	Sources	Residual Load	% Reduction
Flow (ML/yr)	5.52	5.39	2.5
Total Suspended Solids (kg/yr)	1920	360	81.2
Total Phosphorus (kg/yr)	3.22	1.29	59.9
Total Nitrogen (kg/yr)	13.2	7.24	45.3
Gross Pollutants (kg/yr)	202	26.5	86.9

Figure 2: Results of the MUSIC model

The modelling shows that the best practice treatment targets have been achieved. It should be noted that the treated water then drains to the underground detention tank where further removal of pollutants are likely to occur. This has not been considered in the above assessment as the targets have already been achieved.

Yours sincerely

Farshad Lotfiazad

Water Resources Engineer

Storm Consulting (A division of Craig & Rhodes Pty. Ltd.)