



Robert
Bird
Group

Water Sensitive Urban Design:
Operation and Maintenance Schedule
High Street, Penrith

Issue: E – Development Application

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REVIEWER:

[Signature]

Reviewer of Issue / Amendment
Signing for and on behalf of
Robert Bird Group Pty Ltd

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1.0 Draft operation and maintenance Schedule

The following Schedule is presented in draft format for review and comment ahead of finalisation for the CC stage of the works.

1.1 Introduction and Site Access

The development proposes three types of treatment:

1. 12 x 690mm StormFilter Cartridges installed in an OSD Tank.
2. 3 Bioretention Rain Gardens located prior to the Union Road and High Street intersections.
3. 3 Enviropods are to be placed in pits adjacent to and on Union Road.

Access to the treatment systems is available from Union Road with vehicles also expected to park and have direct access with minor local traffic control.

1.2 Pollutant types, sources and estimated loads

The site consists of an urban roadway, paved pedestrian paths, landscaping, podium landscaping and roof areas.

Typical pollutants from a mixed use urban area are expected in the form of dissolved Nitrogen and Phosphorus, suspended Nitrogen and Phosphorus, Gross pollutants and litter, oil and grease.

The site is expected to produce approximately 85kg of Gross Pollutants (Annually).

1.3 Maintenance Responsibility

The future roadway is expected to become a council asset and thus all treatment systems within the road reserve are expected to be maintained by Penrith City. The Filter Cartridges within the OSD tank are proposed to be maintained by Toga.

1.4 Maintenance Inspection Methods and Frequency

The maintenance program for the Filter Cartridges is to be confirmed with the final supplier. However a typical Filter Cartridge maintenance routine will consist of the following;

- Inspection/Minor maintenance program; Consists of a visual inspection as well as a cleanup of vegetation and debris noticed within the chamber. This is expected to occur at least twice a year as well as after all major storm events.
- Major Maintenance Program; This will involve “recharging” or replacing the Filter Cartridges. Typically this will occur at least once a year.

Filter baskets are to be inspected and cleaned in accordance with Penrith City’s maintenance schedule.

The Rain Gardens are to be inspected generally on a 3-monthly basis after rain with the following checked and actioned:

- Sediment deposit removed.
- Infill any holes in filter media.
- Inspect surface layer for permeability. Repair minor accumulation.



- Remove organic and inorganic litter.
- Assess plants for disease, pest infection or stunted growth. Replace as required.
- Identify weeds and remove.
- Ensure perforated pipes are not blocked (6 monthly).
- Ensure inflow region is clear of litter and debris.

1.5 Costs

Costs for the filter cartridges (purchase and installation) are expected to be in the range of \$40,000, however require confirmation of supplier. 10%-15% per annum maintenance cost is expected for the cartridges post installation.

The Rain Garden Maintenance Costs are approximately estimated at approximately \$4,800 per annum. Total simplistically estimated from a total of \$2,400 labour cost and \$2,400 media and planting costs.

2.0 Conclusion

This report outlines the operations and maintenance schedule required throughout the life cycle of the proposed development. This schedule will be necessary to meet Penrith City Council's water quality targets. This report also provides costs associated with the relevant operation and maintenance actions.

During the concept planning for the Development Application due consideration has been given to the relevant Council requirements, best practice principles, and guidelines.



Robert
Bird
Group

Sydney Office

Robert Bird Group Pty Ltd
ABN 67 010 580 248 ACN 010 580 248

Level 11, 151 Castlereagh Street
Sydney NSW 2000
PO Box A2309
Sydney South NSW 1235
Australia

P: +61 (0) 2 8246 3200
F: +61 (0) 2 8246 3201