Waitakere City Council
Te Taiao o Waitakere

V E R S I O N 1 . 0

Stormwater Solutions for Residential Sites

Section 3 – How to Use the Stormwater Solutions Document

Prepared for

EcoWater Solutions

A Department of Waitakere City Council
113 Central Park Drive
Henderson
WAITAKERE CITY

November 2004

How to Use the Stormwater Solutions Document

SECTION 3

3.1 Introduction

The design information provided in this document has been developed to provide the flexibility to select various stormwater management options and combination of options that are most appropriate for the site. The document provides flexibility to implement combinations of methods to be used to achieve the key objectives listed in Section 1.3.

3.2 What to do

Step 1 – Identify what amount of impervious area is being added to the site.

Step 2 – Obtain service plans for the site from Council and identify where stormwater from new impervious areas is to be discharged.

Step 3 – Confirm the location of any overland flow paths on or adjacent to the site. Assess the layout of the proposed development in relation to overland flow paths.

Step 4 – Identify the design approach applies based on Section 2-1, review the relevant Comprehensive Catchment Management Plan and discuss proposal with Council.

Step 5 – Identify what stormwater management methods are appropriate taking into account site constraints and landowner/developer preferences. Typical combinations of appropriate stormwater management options are outlined in Section 3.3.

Step 4 – Design the stormwater management devices using the appropriate techniques described in this document.

Step 5 – Fill in Checklists from Appendix A.

3.3 Combined Methods

This section outlines some possible combinations of stormwater management techniques to provide on-site stormwater management. They are listed in order of preference from higher to lower.

1. Reduce Impervious Area

   For new buildings consider minimising impervious surface by constructing a double-storey building, using permeable pavers or perhaps replacing concrete areas adjacent to the house with decking.

2. Roof Tank and Retrofit of Paved Areas

   Provide a roof tank to offset the increase in runoff from the roof area and replace hardstand areas with either open slat decking or pervious paving. The retrofitting option may be important for sites where rain gardens or planters are not practical due to site constraints. Consider a situation where additional

hardstand area is required to access a new garage or provide additional parking. The removal of an existing hardstand area that is completely impervious could be replaced by a larger area of pervious paving, without increasing the extent of the effective impervious area. The roof tank would be sized based on Section 5. The pervious paving would be assessed based on Section 7.

3. Retrofitting of Permeable Paving or Roof Tanks

   A roof tank could be added to the existing house as a means to not increase the total effective impervious area in conjunction with retrofit of hardstand to a more permeable surface.

4. Multiple Devices

   Consider the construction of more than one device e.g. provide roof tanks or rain gardens for both the house and garage.

3.4 General Design Principles

General principles that should be applied include:

- Stormwater disposal should mimic, to the extent possible, the natural drainage processes of an area;
- Maintain sufficient overland flow paths capable of safely conveying the 1% AEP;
- Stormwater should not be discharged directly into streams from a piped system unless there is no other option;
- Impervious areas should not exceed 60% of the property area or 15% of the property area if there is no authorized drainage connection; and
- Appropriate methods to hold stormwater back (detention) before dispersal into waterways should be employed.
- If the site is going to be lowered below natural ground levels, then stormwater disposal must take this into account.

3.5 What to do Next?

To enable Council to assess your application in terms of effects on stormwater you must clearly and accurately provide the information set out in the checklists provided in Appendix A of this document. Your application must clearly present the existing site conditions and the proposed development and its potential effects on stormwater.

It is important that you present this information clearly, as this will assist with the assessment of your application. You are advised to use the services of a consulting engineer to assist in the preparation of your application.