Chapter 6 **Bioretention basins**

Bioretention basin in Richmond, Victoria.

6.1 Introduction

Bioretention basins use ponding above a bioretention surface to maximise the volume of runoff treated through the **filtration media**. Their operation for treatment is in the same way as for **bioretention swales**, but typically they convey above design flows through overflow pits or bypass paths, and are not required to convey flood flows over the filtration surface. This has the advantage for the bioretention basins of not being subjected to high velocities that can dislodge collected pollutants or scour vegetation.

Bioretention basins can be installed at various scales, for example, in planter boxes, in retarding basins or in streetscapes integrated with traffic calming measures. In larger applications, it is considered good practice to have pretreatment measures upstream of the basin to reduce the maintenance frequency of the bioretention basin. For small systems this is not required.

Bioretention basins operate by passing runoff through prescribed filtration media, commonly planted with vegetation that provides treatment through fine filtration, **extended detention** and some **biological uptake**. They also provide flow retardation and are particularly efficient at removing nutrients.

Figure 6.1 shows an example of a basin integrated into a local streetscape and a car park.

They can be designed to either encourage infiltration (where reducing volumes of **stormwater** runoff is important) or as conveyance systems that do not allow infiltration (where soils are not suitable for infiltration or are close to surrounding structures).