Government of Western Australia
Department of Water

Looking after all our water needs

Water sensitive urban design

Soakwells

Summary

Soakwells are a commonly used small-scale method of increasing infiltration into the ground as a way of managing stormwater. They generally consist of a vertical perforated cylinder and an open or perforated base, which provides maximum infiltration area.

This brochure is part of a series that explain various aspects of water sensitive urban design. Please see *Water sensitive urban design in Western Australia* for background information on water sensitive urban design.

Main benefits

- Soakwells are very effective in sandy soils.
- They are easy to construct.
- They allow runoff to soak into the ground in the same area it would have prior to urban development, rather than being conveyed away.
- They can be installed after an urban development has been established.

Design factors

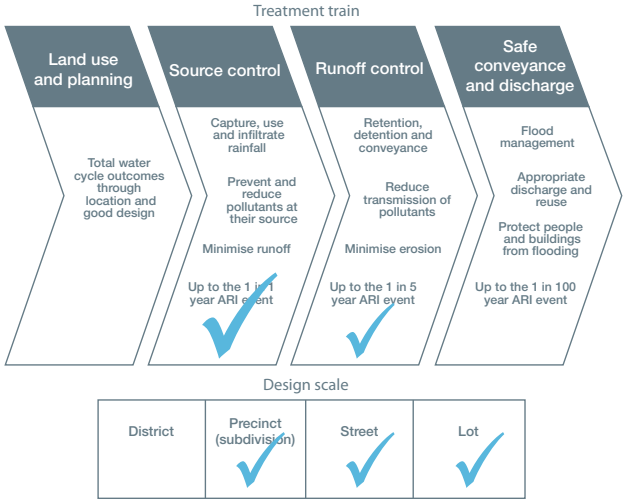
- The soakwell size will depend on the soil type, particularly its infiltration capacity.
- Groundwater levels need to be considered when determining the depth and design of the system. The base must be above maximum or controlled groundwater level.
- Installation will be more difficult if rock or other hard material is present.
- Prevent mosquito breeding by adequate design – no water ponding after 96 hours between November and May in the south-west of Western Australia and throughout the year in the north.
- Sediment control is recommended, particularly during road and lot development, to prevent blockage.
- Specially selected soil filter media could be used to increase nutrient removal capacity.

Target pollutants

- litter
- coarse sediment
- suspended solids
- heavy metals

Completion, Boronia Ridge, Walpole

Where they can be used in the water sensitive urban design process



Installation, Boronia Ridge, Walpole

Installation, Boronia Ridge, Walpole

Completion, Boronia Ridge, Walpole

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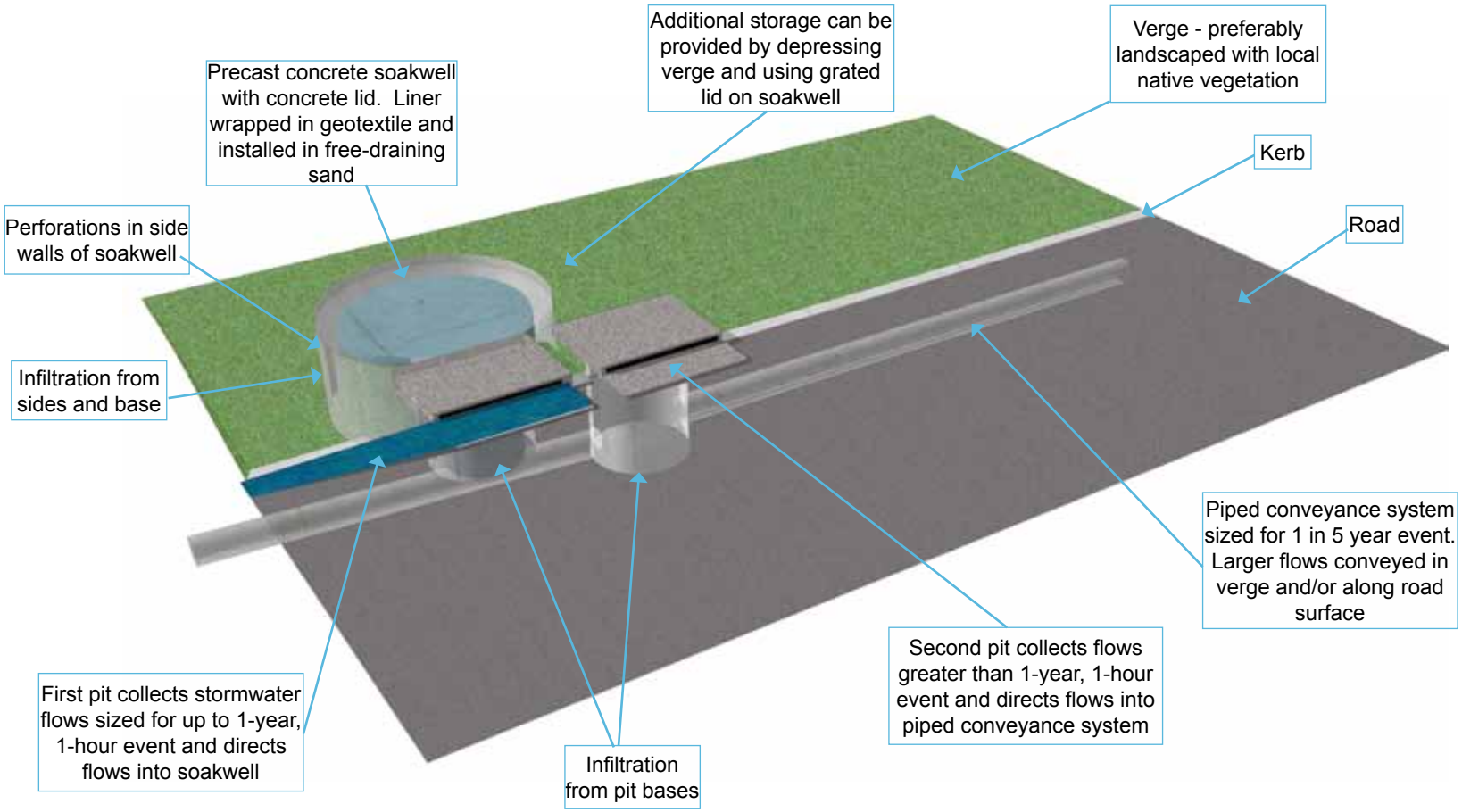
Example of a soakwell in a road system



(Source: Thompson McRobert Edgeloe Group 2008)

Required reading

Australian rainfall and runoff: a guide to flood estimation, 2001, Engineers Australia.

Australian runoff quality: a guide to water sensitive urban design, 2006, Engineers Australia, available at <www.arq.org.au>.

Stormwater management manual for Western Australia, 2004–07, Department of Water, available at <www.water.wa.gov.au>. See Section 3.2 of Chapter 9 – Structural controls.

Water sensitive urban design: basic procedures for 'source control' of stormwater – a handbook for Australian practice, 2004, Argue, JR (Editor), University of South Australia.

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The department acknowledges the past project contributions of the Leschenault Catchment Council.

June 2011 21592_100_06/11