Government of Western Australia
Department of Water

Looking after all our water needs

Water sensitive urban design

Swales and buffer strips

Summary

Swales are grassed or vegetated broad, shallow channels used to collect and convey stormwater flows, promote infiltration, reduce stormwater peak flow rates and discharge volumes, and remove sediments. Swales use a combination of physical and biochemical processes to treat stormwater.

Buffer strips are vegetated areas that reduce sediment loads from water flowing through them. Buffer strips are aligned perpendicular to the water flow. They are commonly used in conjunction with swales, living streams and constructed wetlands.

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

- Lower capital costs than conventional piped systems.
- Reduces impervious areas and disconnects runoff from receiving water bodies.
- Simple to integrate into the treatment train.
- Swales vegetated with local native plants increase biodiversity and create habitats in urban areas.

Design factors

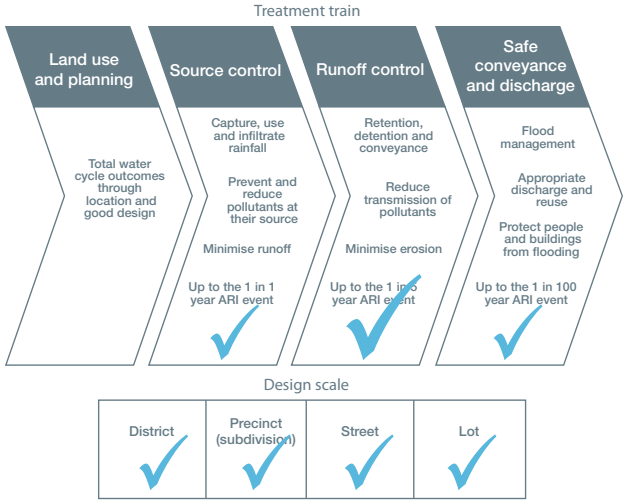
- Select longitudinal slope to avoid scouring, protect public safety and prevent stagnant water.
- Select vegetation type, considering height and cover, ability to convey expected flows, aesthetics, pollutant removal and driver visibility (when used in road reserves).
- Integrate into landscape design.
- Give attention to road crossovers.
- Consider location relative to underground services.

Target pollutants

- litter
- coarse sediment
- suspended solids

Vegetated median swale, Byford

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



Vegetated carpark swale, Point Fraser, East Perth

Grassed swale, Allinton Park, Ballajura

Vegetated median swale, Bunbury CBD

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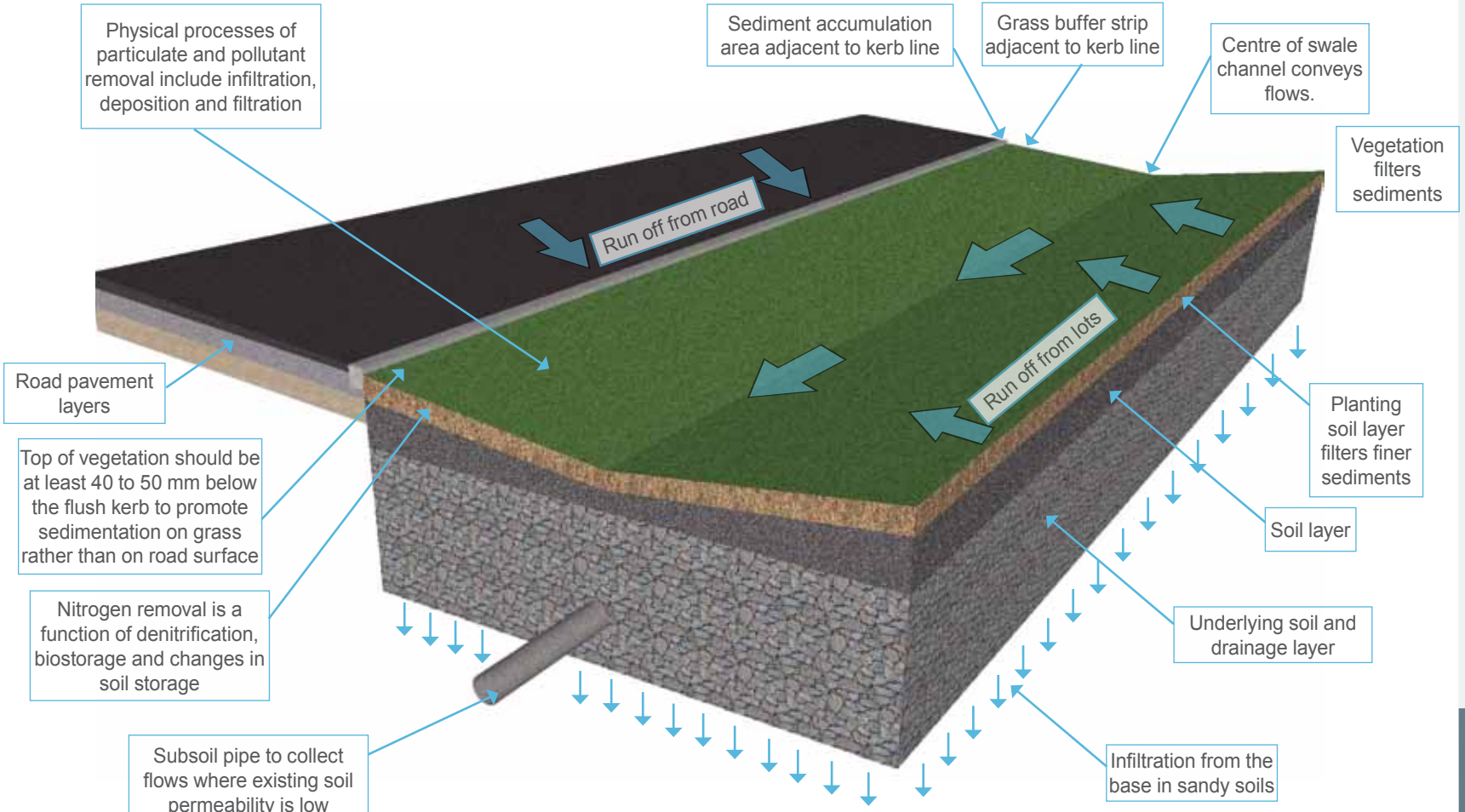

(Source: Thompson McRobert Edgeloe Group 2008)

Required reading

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, 2004-2007, Department of Water, available at <www.water.wa.gov.au>. See Section 4.1 of Chapter 9 – Structural controls.

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

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June 2011
21592_100_06/11