



Water sensitive urban design

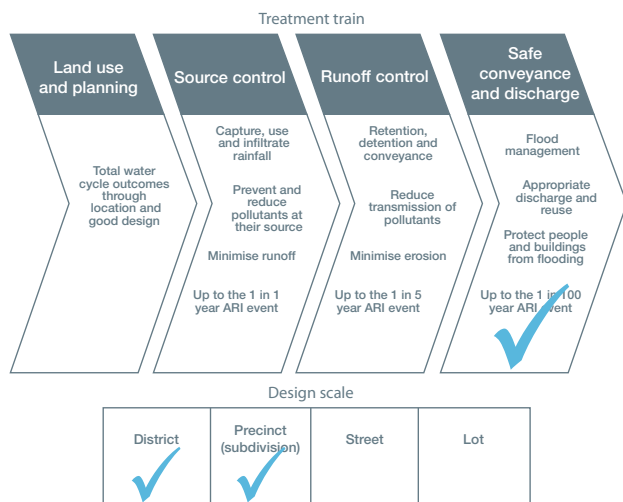
Constructed wetlands for stormwater management

Summary

Constructed wetlands are extensively vegetated water bodies that use sedimentation, filtration and biological uptake processes to remove pollutants from stormwater. They are generally not suitable where contaminated or nutrient-rich groundwater is intercepted. Significant land area is usually required to accommodate large detention volumes.

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.

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



Main benefits

- Constructed wetlands are effective at removing soluble pollutants.
- They create diverse habitats and restore the environmental characteristics of urban areas.
- They provide an attractive landscape feature.
- They can be designed to reduce peak flows from large storms.

Design factors

- Generally, make the area of the constructed wetland about 1 to 2% of the total catchment area.
- Base the size and design on the type, amount and form of the pollutant inputs.
- Mosquitoes and chironomid midges will need to be managed.
- Make sure the wetland is separated from groundwater and is in suitable soil conditions.
- Make sure that potential or actual acid sulfate soils are considered in the design process.
- Make sure hydrodynamic conditions are considered in the design process.

Target pollutants

- coarse sediment
- suspended solids
- phosphorus
- nitrogen
- heavy metals



Point Fraser constructed wetland, East Perth

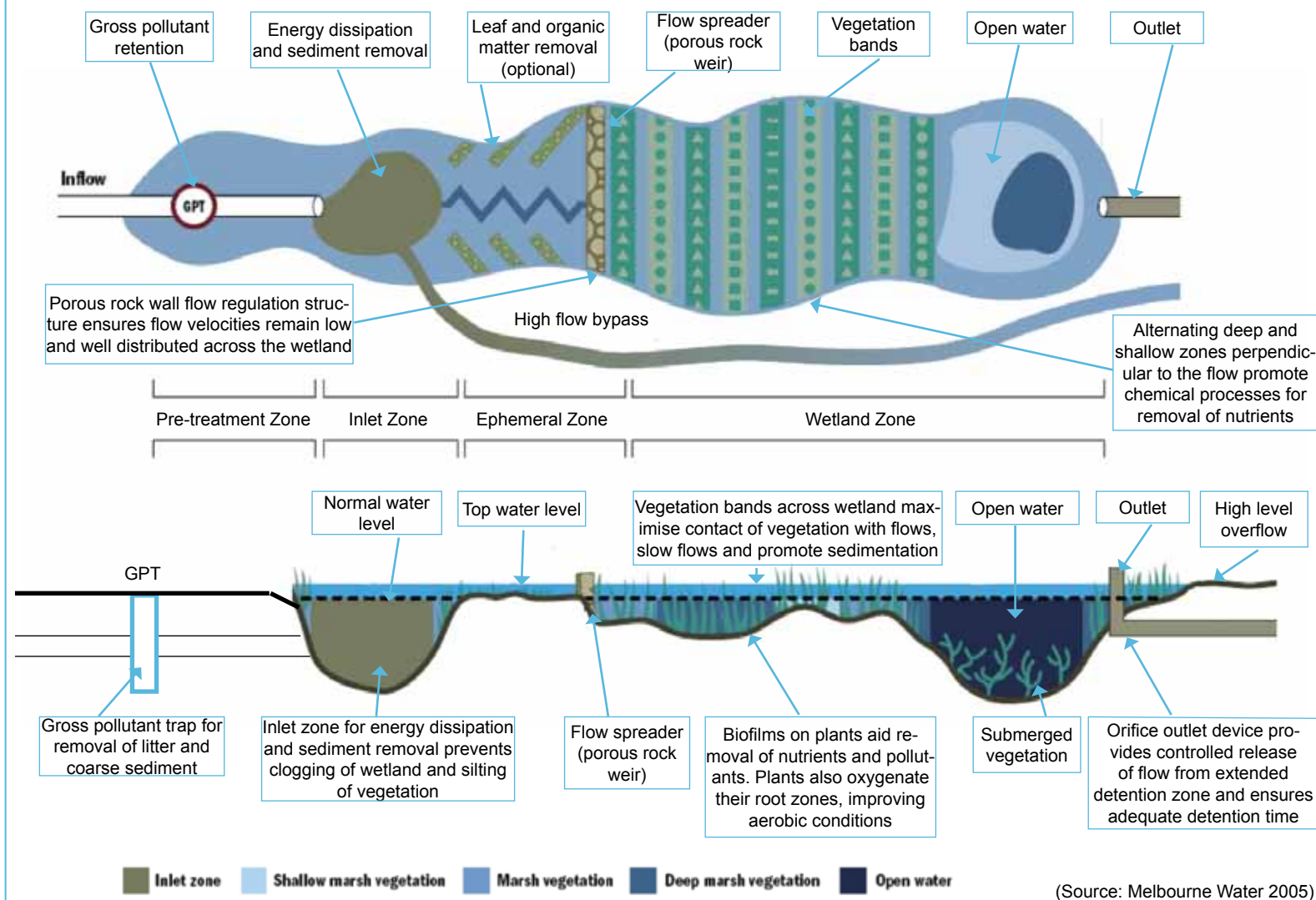


Liege Street constructed wetland, Cannington

Water sensitive urban design

Constructed wetlands for stormwater management

Wetland schematic plan



(Source: Melbourne Water 2005)

Required reading

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

Constructed wetland systems - design guidelines for developers, 2005, Melbourne Water, Victoria.

Stormwater management manual for Western Australia, 2004–07, Department of Water, available at <www.water.wa.gov.au>. See Section 5.2 of Chapter 9 – Structural controls.

Department of Water

168 St Georges Terrace
Perth Western Australia

PO Box K822 Perth
Western Australia 6842

Ph: 08 6364 7600 • Fax: 08 6364 7601

www.water.wa.gov.au

