New WAter Ways

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Water sensitive urban design

Industrial and commercial water management

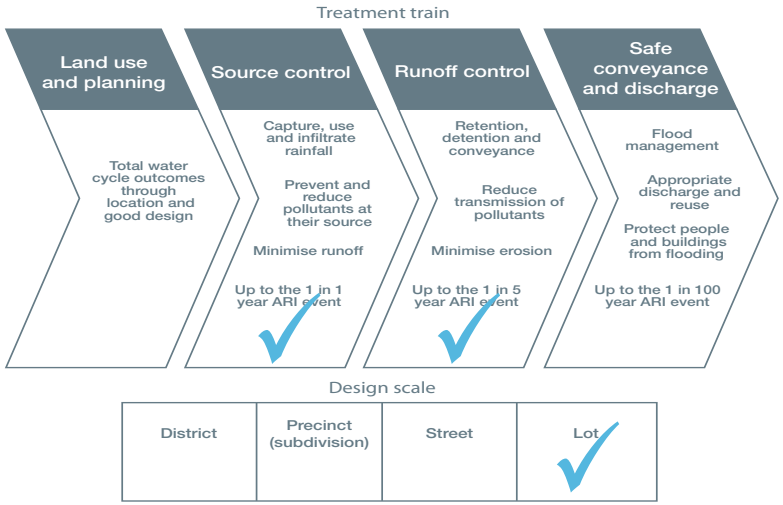
Summary

Light industrial and commercial areas have the potential to significantly impact on the water quality of receiving environments, such as waterways, wetlands, oceans and groundwater, through inadequate management practices.

Industrial and commercial areas provide good opportunities for harvesting and reuse of stormwater from roofs and paved surfaces. The use of permeable pavements and vegetated areas facilitates increased retention/detention and treatment of stormwater, whilst improving the amenity of industrial and commercial areas through green infrastructure and reduced urban heat.

Main benefits

- Reduced direct entry of gross pollutants and contaminants into stormwater systems.
- Optimised reuse of rainwater from large roof areas.
- Maximised opportunities for stormwater harvesting from large paved areas.
- Reduced discharge of pollutants such as fuels and litter into local waterbodies and other surrounding environments.
- Minimised algal blooms.
- Reduced noxious odours.
- A healthier and safer environment for surrounding ecosystems and the community.



Design factors

- Keep uncontaminated stormwater from roofs, paths and the landscape separate to process and washdown wastewater, stored chemicals or stormwater runoff from areas susceptible to chemical spills.
- Treat stormwater prior to discharge off site.
- Maximise the use of pervious pavement for footpaths, car parks and driveways.
- Provide water sensitive landscaping and road layouts which disconnect stormwater flows and incorporate water quality treatment. For example, include kerb openings/ flush kerbs, tree pits and vegetated swales within carparks and along driveway edges.
- Bund chemical and fuel storage areas.
- Ensure washdown bay pad is appropriately bunded and of sufficient size to prevent over-spray.
- Drain internal hardstand areas to oil and grease trap or discharge to sewer system after appropriate treatment. Consider need for oil/ water separators.
- Consider large-scale rainwater collection systems for use in buildings and washdown bays.
- Use water saving devices internally.

Target pollutants

- Litter
- Heavy metals
- Fine particulates including dust and sediment
- Organic solvents, detergents and degreasers
- Paint and dye
- Pesticides
- Oil, fats or grease
- Hydrocarbons (petrol/diesel)
- Sewage
- Nutrients
- Any other material as listed in Schedule 1 of the Environmental Protection (Unauthorised Discharges) Regulations 2004

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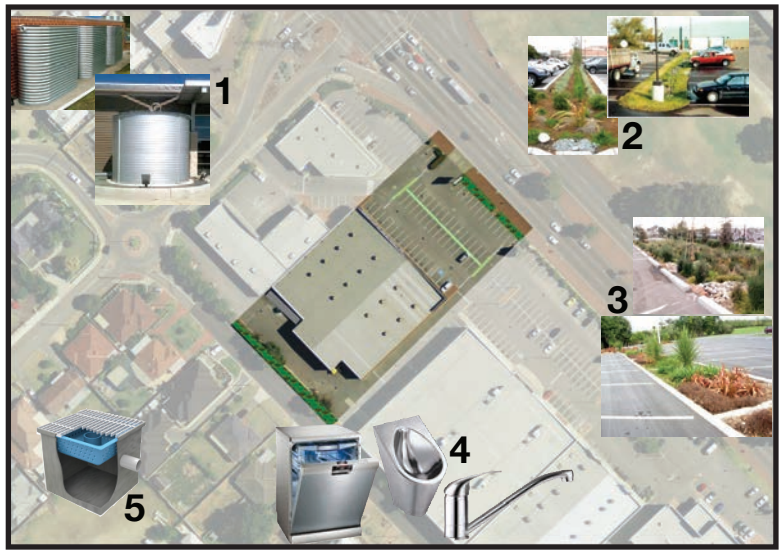
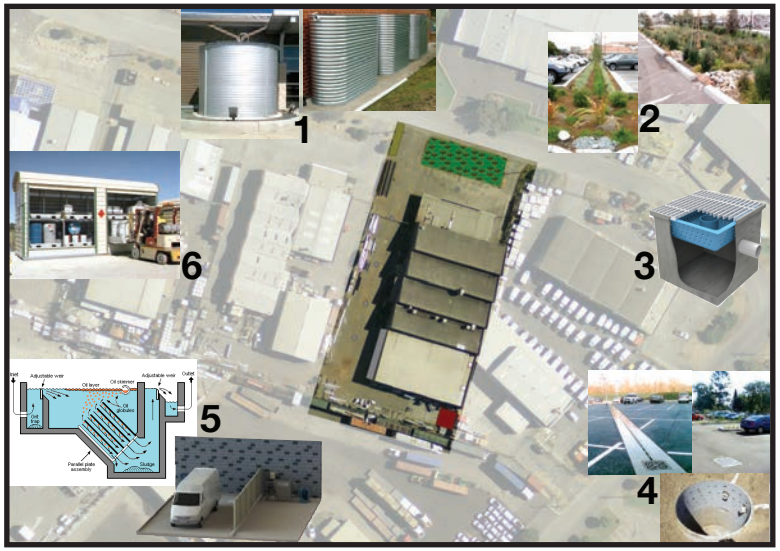


Commercial lots - site strategy

1. Rainwater can be collected from roofs in rainwater tanks and used for toilet flushing or washdown. During prolonged or heavy rainfall events the rainwater tank can overflow into an infiltration device or garden.
2. Rainwater from driveways and parking areas can be directed towards vegetated areas at the front and rear of the property.
3. Car parks to contain vegetated areas including trees for shade. Plants should be local native species and selected for drought tolerance. Consider use of pervious material for carpark surfaces.
4. Water efficient fixtures and fittings should be used internally.
5. Gross pollutant traps should be provided for any drainage discharges from sites that produce litter.



Industrial lots - site strategy

1. Rainwater should be collected from roofs in rainwater tanks and used for toilet flushing or washdown in properly bunded areas. During prolonged or heavy rainfall events, the rainwater tank can overflow into an infiltration device or garden.
2. Rainwater from driveways and parking areas and airconditiong outfalls can be directed towards vegetated areas planted with local native species selected for their drought tolerance.
3. Gross pollutant traps should be provided for any drainage discharges from hardstand areas that produce litter.
4. Runoff from paved areas can be directed to infiltration areas, subject to soil and groundwater suitability.
5. Covered washdown bays, other processing areas, airconditioning wastewater and fire sprinkler system discharge drain to wastewater treatment system or discharge to sewer system after appropriate treatment. Permits may be required for some types of discharges.
6. Appropriately covered bunded chemical and fuel storage areas must be provided.

Required reading

- Department of Water, *Stormwater Management Manual for WA:* http://www.water.wa.gov.au/urban-water/urban-development/stormwater/stormwater-management-manual
- Perth Region NRM, *Guidelines for Industrial Development,* 2010: http://www.perthregionnrm.com/media/7955/guidelines%20for%20industrial%20development%20prnrm.pdf
- Swan River Trust, *Stormwater Management Policy:* http://www.swanrivertrust.wa.gov.au/docs/policies-and-guidelines/srt-d4-stormwater-management.pdf
- Department of Water, *WQPN 52 Stormwater management at industrial sites:* https://www.water.wa.gov.au/__data/assets/pdf_file/0019/5284/93700.pdf
- Department of Environment Regulation, *Light Industry Program:* https://www.der.wa.gov.au/our-work/programs/310-light-industry-program
- For a list of approved wastewater systems visit the Department of Health Website: http://www.public.health.wa.gov.au/2/642/2/wastewater_management.pm

Australian Government

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