Townsville City Council

creektocoral
our waterways – our responsibility

Improving Stormwater Quality Management

Dry Tropics Water Sensitive Urban Design

TOWNSVILLE CITY COUNCIL

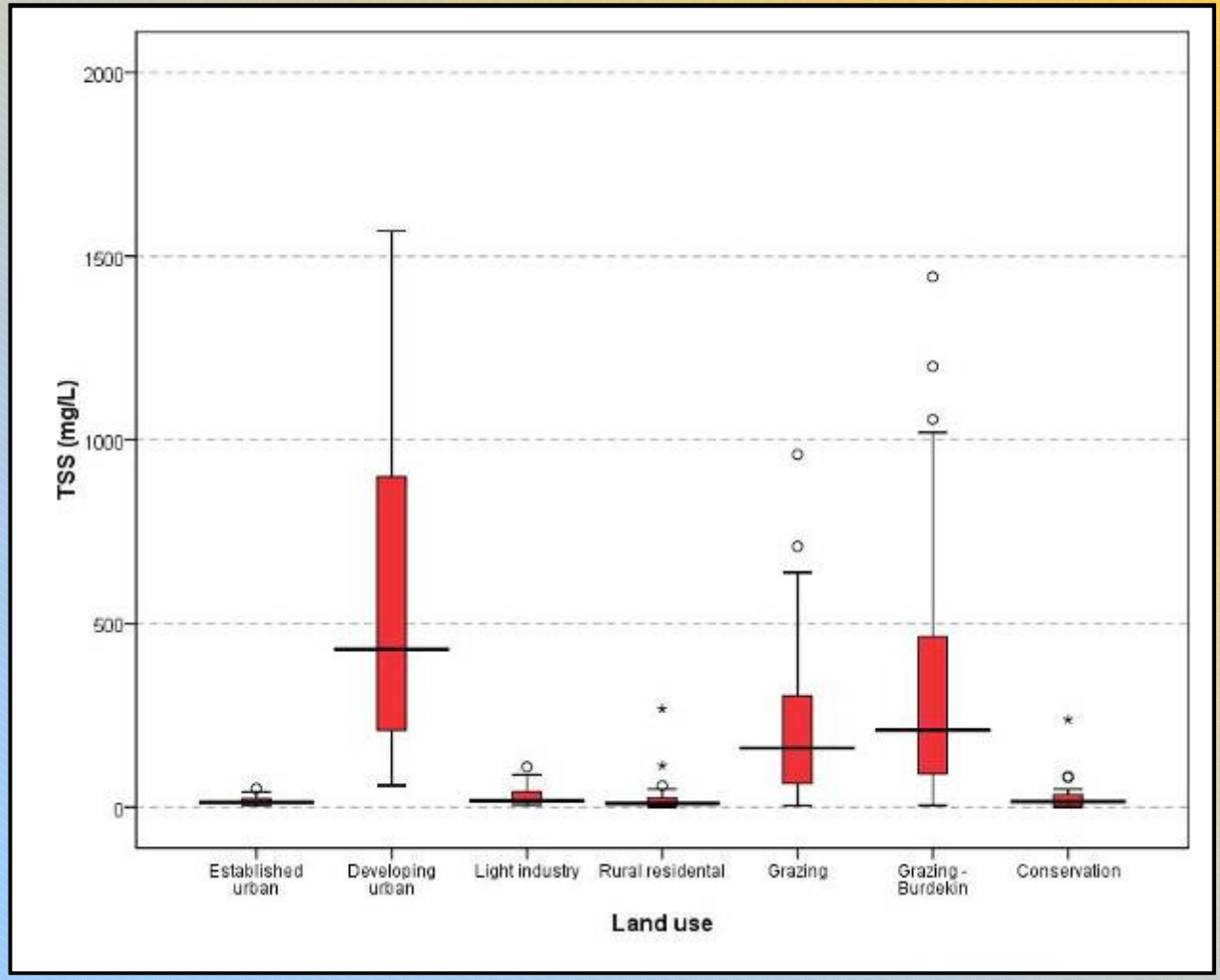
arrangements?

Prevention better than cure…

cheaper!

Event based water quality results

Source: 2006/07 and 2007/08 data (ACTFR)



Water Sensitive Urban Design: Stormwater

Background

- **Initiative of the former CoT and TCC, in partnership with DERM**
  - Managed through the C2C partnership with representation from Council Planners, Engineers, Landscape architects and Environmental officers
- **Developed regionally specific/appropriate WSUD guidelines for the Dry Tropics region of Townsville**
  - Accounts for our unique rainfall patterns and intensity, soil types, vegetation types etc…
- **Response to the development of the State Planning Policy for Healthy Waters**

Stormwater quality management

Water Sensitive Urban Design

Dry Tropics WSUD package

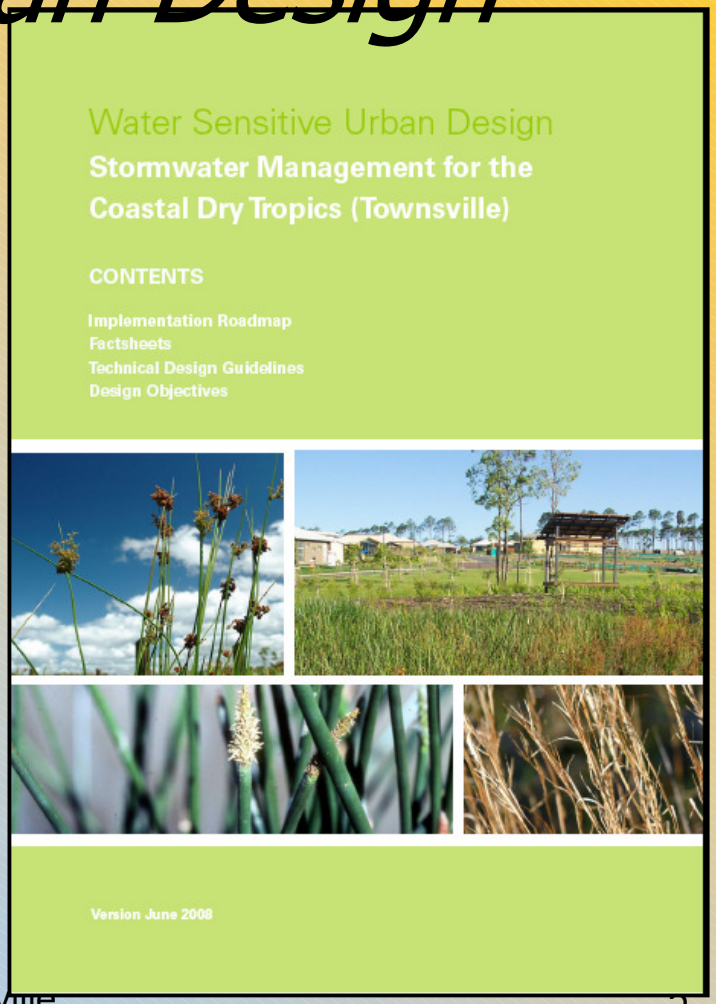
1. **Draft Technical Design Guidelines**
2. **Draft Design Objectives**
3. **Draft Implementation Roadmap**
4. **Draft Factsheet series**

• Developed by EDAW/Ecological Engineering

A selection of related documents

1. **Concept Design Guidelines**
2. **Construction and Establishment Guidelines**

• Developed by Water by Design (SEQ HW partnership)



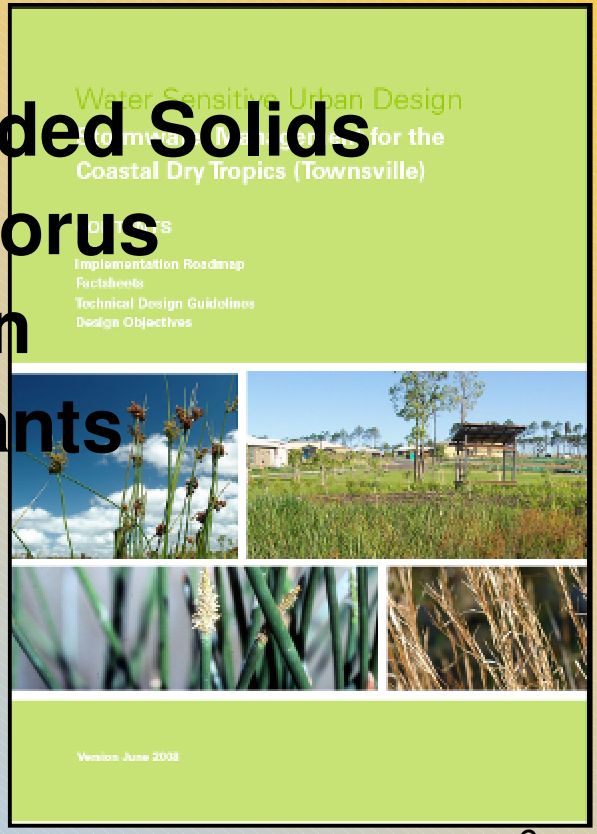
Stormwater quality management

Water Sensitive Urban Design

Proposed stormwater quality design objectives (mean annual load reductions):

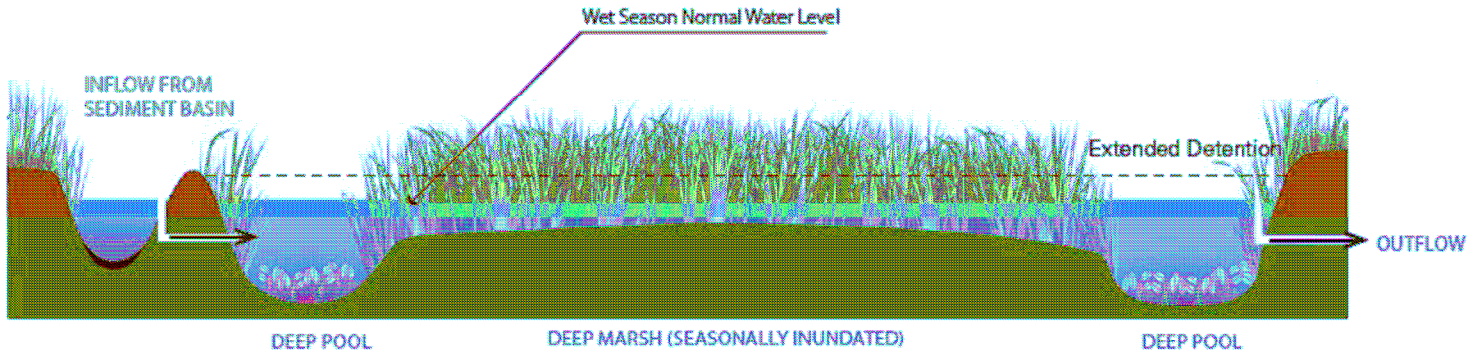
- **>80% reduction in Total Suspended Solids**
- **>65% reduction in Total Phosphorus**
- **>40% reduction in Total Nitrogen**
- **>90% reduction in Gross Pollutants**

Design Objectives	Performance Measure/Target
Stormwater Quality	Stormwater discharged from development areas to be treated in accordance with best practice for each climatic region.
Waterway Stability	Limit the post-development peak one-year Average Recurrence Interval (ARI) event discharge to the receiving waterway to the pre-development peak one-year Average Recurrence Interval (ARI) event discharge.
Frequent Flow	Capture and manage the following design runoff capture depth (mm/day) from all impervious areas such that the frequency of surface runoff is the same as pre-development conditions: • Developments with a total fraction impervious <40%: Design runoff capture depth = 10mm/day • Developments with a total fraction impervious ≥40%: Design runoff capture depth = 15mm/day Note, Runoff capture capacity needs to be replenished within 24 hours of the runoff event.



Proposed constructed wetlands design…

The deep marsh zone is the main treatment area in the wetland. Contact with the emergent macrophytes growing in this seasonally inundated area provides important stormwater treatment. This area is designed to dry out periodically, but not more than 60-70 days

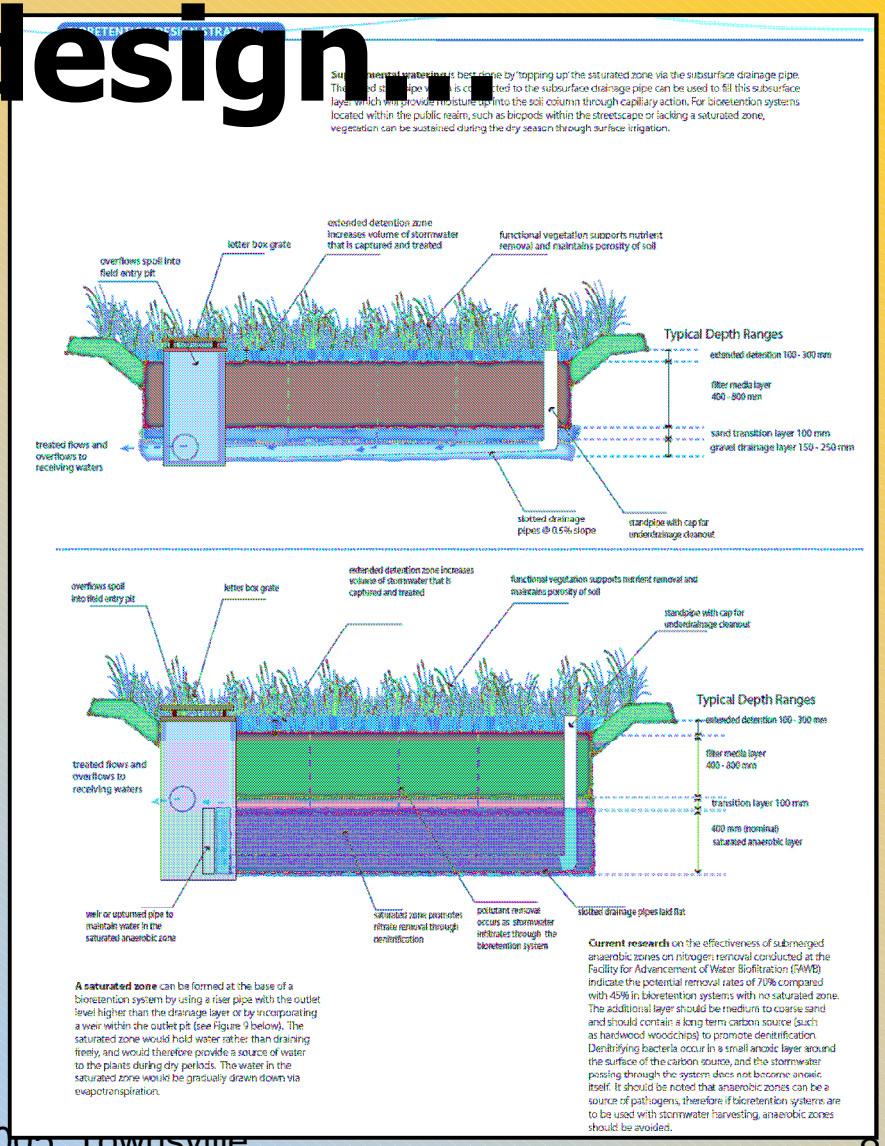


Wet Season Condition

Dry Season Condition

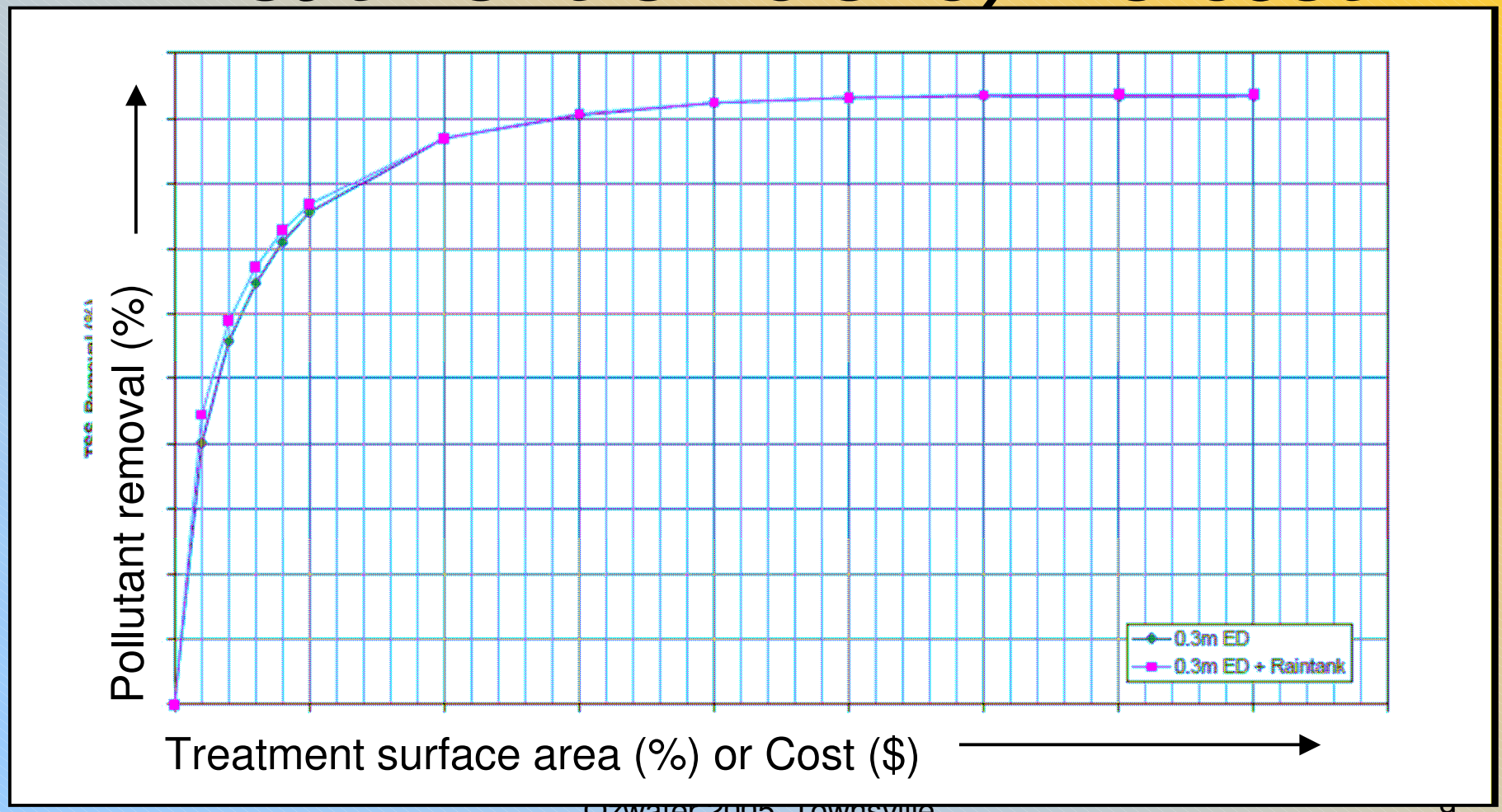
Not to Scale

Proposed bio-retention basin design...



WSUD performance curves (TSV data)

Treatment efficiency v's cost



Implementation considerations

- Affordable and cost effective (over life cycle)
- Practical and effective (over life cycle)
- Maintainable (balancing costs, capacity & effectiveness)
- Involving, integrating and collaborative
- Transferable and replicable
- Supported

>> Simple, effective & practical ON-GROUND ACTIONS

… integrating technology, infrastructure, ecology & people

Public consultation

Industry opportunities and/or involvement

- Targeted consultation with major industry groups in TSV
- Consult period until end of Dec 09
- Draft materials on TCC website in early/mid Nov 09

Other potential opportunities:

Thanks for listening…

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City of Townsville

creektocoral
our waterways – our responsibility

Australian Government

Queensland Government
Environmental Protection Agency

What about uncertainty and complexity?

- Population growth rate
- Climate change and variability
- WSUD efficacy in the Dry Tropics
- Peri-urban ‘Best Practice’
- Community expectations
- Behaviour ‘drivers’ – various audiences
- Government policy and political will
- Funding and budget allocation uncertainty

Creek to Coral partnership

Townsville City Council initiative (with DERM)

- Protecting our local freshwater and downstream marine environment from the effects of land based activities… using a Total Water Cycle Management approach:
  - Achievable local government actions:
    - Infrastructure based approach
    - Improved urban planning and regulatory mechanisms
  - Involving the community:
    - Supporting community based
- [illegible]tion of waterwa[illegible]
across Council, Gove[illegible]
community
- Manage catchment management and water

creek to coral
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