WATER SENSITIVE SA

SA's online stormwater assessment tool for small-scale development

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MLR Planners Group
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Program Partners

WATER SENSITIVE SA

Natural Resources
Adelaide and Mt Lofty Ranges

LOCAL GOVERNMENT RESEARCH & DEVELOPMENT SCHEME

Water Sensitive SA - established to build the capacity of all organisations with a role in the planning, design, approval, construction or maintenance of new developments and infrastructure to implement best practice water sensitive urban design (WSUD)

What we do

- WSUD policy development and implementation pathways
- networking opportunities and peer-to-peer learning on strategic, policy and technical matters
- specialist training to address key knowledge and skills gaps
- more accessible WSUD research for practitioners
- resource development, including guidelines and tools
- information sharing through our website, e-newsletter, blog articles and forums.

Living Adelaide – 30 Year Plan for GA

20% increase in canopy cover across metropolitan Adelaide by 2045

Alexandra Ave, Rose Park Source: news.com.au,

Living Adelaide – 30 Year Plan for GA

P114	WSUD in new developments for water quality, water efficiency and to support public stormwater systems
P116	Provision of stormwater infrastructure to manage & reduce impacts of: (i) run-off from infill (ii) flooding and (iii) pollution

Source: A.King

Source: A.King

Living Adelaide – 30 Year Plan for GA

85% new housing stock from infill development

East Parkway, Northgate, Lightsview

Bowden Urban Village

Business as usual will deliver this…..

Business as usual …..
Underperforming Asphalt

Source: AKing

Our priority projects:

PP1 - The case for water sensitive urban design – cost-benefit analysis

PP2 – life cycle cost analysis

PP3 – Deemed to comply guideline

PP4 – Online stormwater assessment tool for small-scale development

PP5 - MUSIC Guidelines for SA

PP6 – Review & update of WSUD technical manual

Angas Street, Adelaide adjacent SAPOL
Photo: Water Sensitive SA

Project Objective

User friendly tool to assess the performance of the proposed WSUD elements of a development against the SA WSUD Policy to:

- increase the efficiency of development application and approval processes
- achieve better outcomes for flood risk, stormwater quality, amenity and microclimate (where possible).

Definition of small-scale development

Residential developments, including

- additions over 50m^2
- single dwellings
- dual occupancies
- unit/townhouse developments excluding those that incorporate the creation of a public road
- apartment blocks

Commercial, industrial and institutional developments of up to 5,000m^2

Source: A.King

SA WSUD Policy

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Stormwater runoff quality

45%
retention of typical annual urban load of total nitrogen.

60%
retention of typical annual urban load of total phosphorus.

80%
retention of typical annual urban load of suspended solids.

Caltex, 734 Marion Rd, Marion Source: Baden Myers

Cooke Reserve, Royal Park. Source: City of Charles Sturt

SA WSUD Policy

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Stormwater runoff quantity and flood management

capacity of the existing drainage system is not exceeded.	no increase in the 5 year ARI peak flow compared to existing conditions.	no increase in flood risk for the 100 year ARI peak flow, compared to existing conditions.

Compare current Council detention policies.
Seek best fit

Bowden Urban Village

Source: Water Sensitive SA

Kirkcaldy Avenue, Grange

Source: Baden Myers

Future policy for SA?....

"To reintegrate urban water into the landscape to facilitate a range of benefits including microclimate cooling, local habitat and provision of attractive spaces for community use and wellbeing".

City of Port Phillip (Vic) Planning scheme.

Randolph Ave, Fullarton – raingarden and stormwater wells

WSUD elements able to be assessed

- onsite detention
- onsite retention and reuse of rainwater and stormwater on site
  - rainwater tanks
  - rain gardens
  - vegetated swales and buffer strips
  - direction of flow from impervious ground surfaces to landscaped areas.
- reduced impervious areas
  - site coverage (up versus out)
  - permeable paving
  - green roofs

Christie Walk, Green roof

Tool features

- Spatial references
- Water use demand
- Retention and/or detention storage to meet Council requirements
- Total water use and tank overflows
- Stormwater quality improvement of proposed measures
- Pollution reduction relative to targets

Refer to
http://www.organicaengineering.com.au/storm/

Deliverables

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Stage 1 **Comparison of current Council engineering requirements**

Consultation with stakeholders

WE ARE HERE

Stage 2 **Stormwater assessment tool and Guideline for Greater Adelaide**

Deemed to comply guideline

Stage 3 **Online interface for Stormwater Assessment tool & user manual**

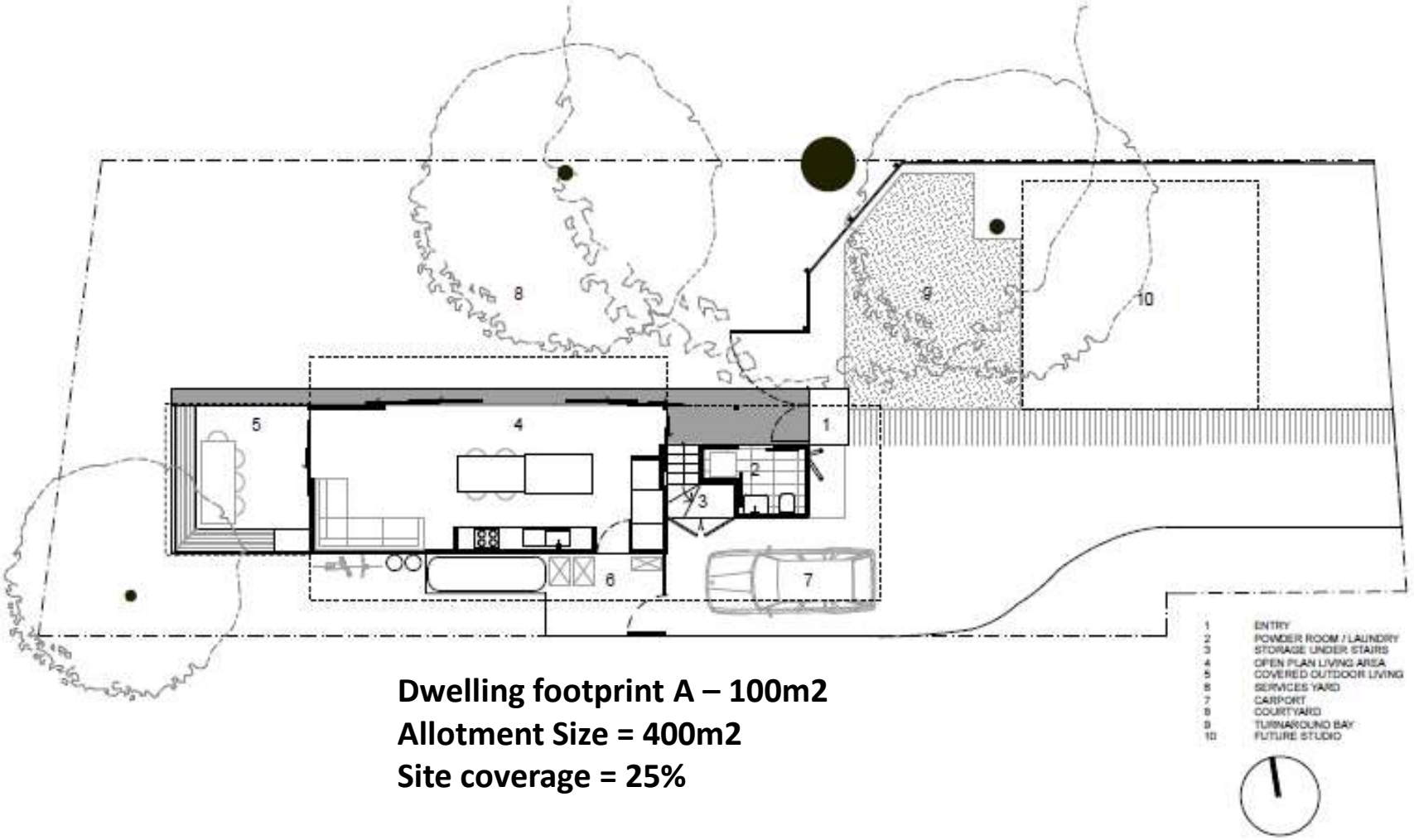
The Gen Y Demonstration Housing Project

Designed by David Barr Architect, Image: Robert Frith

The Gen Y Demonstration Housing Project

Image: Robert Frith

The 100m2 house



Dwelling footprint A – 100m2
Allotment Size = 400m2
Site coverage = 25%

Source: Levesque & Derrick Architects, lada.com.au

Source: Levesque & Derrick Architects, lada.com.au

5,000L rainwater tank for:

- Toilet flushing
- Laundry
- garden

The 100m2 house

Source: Levesque & Derrick Architects, lada.com.au

Permeable pavements

Source: www.marshalls.co.uk

Source: Baden Myers

Minimise impervious surface areas by:

Source: www.hdsustainablelandscapes.com

Source: www.houzz.com

Source: www.shedforce.com

Source: www.staceroofing.co.uk

WSUD on small-allotments

Source: galleryliving.com.au

Source: maxiplas.com

E SA

Source: tightspottanks.com.au

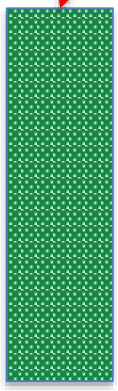
Source: galleryliving.com.au

Source: maxiplas.com

Source: tightspottanks.com.au

Source: galleryliving.com.au

Source: maxiplas.com



Source: tightspottanks.com.au

Source: galleryliving.com.au

Rainwater harvesting – function or feature?

Source: A.King

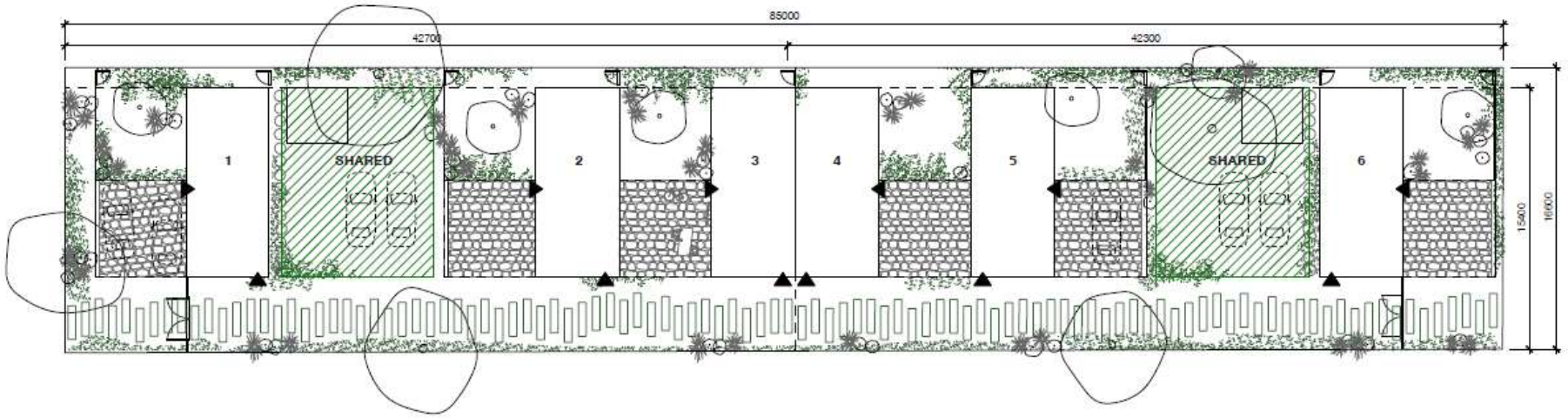
WSUD on commercial sites

Source: A.King

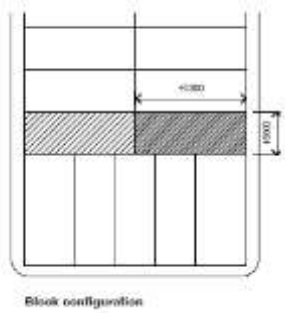
WSUD on commercial sites

Source: A.King

Upcoming Seminar:
Sustainable & affordable infill development



Single Lot Model Essendon **Site Layout**



Block configuration

Source: Monash University, Infill Opportunities Design Research Report Design Case Studies

Your needs from the tool

Q1 – Are you happy with the current scope of the tool? e.g. developments of up to 5,000m2 or do you have a more preferable scale of development for the online too to be deemed acceptable for use?

Q2 – Who/what sector should we focus on for capacity building for the tool? Mum and dad developers, surveyors, draftsman, civil engineer?

Q3 – For a deemed to satisfy guide. What scenarios would you like us to focus upon?

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