

2.17

GENERIC PROVISIONS WATER SENSITIVE URBAN DESIGN







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Part 2 Generic Provisions

2.17 Water Sensitive Urban Design (WSUD)

Water Sensitive Urban Design (WSUD) is the sustainable management of water in urban areas through intelligent and integrated design. It takes into account all of the elements of the urban water cycle including: potable (drinking quality) water, rainwater, wastewater, stormwater and groundwater.

WSUD includes a suite of technologies such as water efficient fittings and appliances, and rainwater tanks to reduce potable water consumption and costs, as well as bio-retention systems (rain gardens), grassed swales, porous paving, wetlands, vegetated roofs and vertical gardens (green roofs and walls), to reduce the pollution from stormwater ending up in local waterways.

Why have a Water Sensitive Urban Design DCP?

A key outcome of Inner West Council's *Our Inner West 2036 Vision* is that "The community is water sensitive."

The WSUD provisions within this chapter apply to new development and redevelopment within the area and aim to:

- Reduce potable water use; and
- Treat stormwater so that the area reaches the relevant stormwater quality targets for stormwater reuse and/or stormwater entering receiving waters.

The potable water reduction targets within this chapter relate to developments that are not covered by *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004* (BASIX), while the stormwater quality controls apply to larger developments and redevelopments within the area.

A **Water Sensitive City** has a range of water sources. Water infrastructure also benefits the environment and helps the city cope with the effects of climate change. People, business, and governments work well together and support an ecologically sustainable lifestyle.

2.17.1 Objectives

- O1** To protect and enhance natural water systems (e.g. creeks and rivers) in the Inner West LGA.
- O2** To treat urban stormwater to meet water quality objectives for reuse and/or discharge to receiving waters.
- O3** To minimise wastewater generation.
- O4** To reduce the consumption of potable water through water efficient fittings and appliances, rainwater harvesting and wastewater reuse.
- O5** To use rainwater, treated urban stormwater or treated wastewater for non-potable uses where appropriate.
- O6** To implement WSUD into the public and private domain for multiple benefits, including improving microclimates, improving habitat for local fauna and maximising the visual and recreational amenity of urban development.
- O7** To shift the focus of water management from the traditional flood control approach to a sustainable stormwater management approach.

2.17.2 Development to which this Chapter Applies

Specific developments are required to meet water conservation and stormwater quality targets that have been established for land where this DCP applies. The controls for different development types and information to be submitted are outlined in Table 1.

Table 1: WSUD controls and information to be submitted for different development types

Development type	Controls		Information to be submitted with DAs s2.17.6
	Water conservation targets s2.17.4	Stormwater quality targets s2.17.5	
Residential development involving new or additional gross floor area of >700m ² and <2,000m ² .	C1	C4	C6 or C7
Residential development involving new or additional gross floor area of greater than 2,000m ² .	C1	C4 and C5	C7
Commercial, retail, and industrial development involving new or additional gross floor area of >100m ² and < 2,000m ² .	C2 and C3	C4	C6 or C7
Commercial, retail, and industrial development with a total site area greater than 2,000m ² , which results in new or increased gross floor area of greater than 50%.	C2 and C3	C4 and C5	C7
Child care centres, educational establishments, community facilities, places of public worship and recreational facilities (indoor) involving new or additional gross floor area >700sqm and <2,000sqm.	C2 and C3	C4	C6
Child care centres, educational establishments, community facilities, places of public worship and recreational facilities (indoor) involving new or additional gross floor area of greater than 2,000sqm.	C2	C4 and C5	C7
Any development which involves the construction or designation of 10 or more additional uncovered car parking spaces.	C2 and C3	C4 and C5	C7

2.17.3 Water Conservation Requirements

Potable mains water conservation seeks to reduce the demand for potable water, with the added benefit of reducing wastewater volumes. Reduced potable mains water demand is a key commitment of the NSW Government as outlined in the Metropolitan Water Plan (see <http://www.waterforlife.nsw.gov.au/>). The NSW Government's BASIX Scheme requires all new residential development to incorporate water savings measures (<http://www.basix.nsw.gov.au>). However, other development types including commercial and industrial are not addressed in the BASIX Scheme.

For all development types identified in Table 1, water conservation controls are:

- C1** All residential buildings are to demonstrate compliance with State Environmental Planning Policy - Building Sustainability Index (BASIX), as required.
- C2** All buildings not covered by the State Environmental Planning Policy - BASIX:
 - i. that are installing any water use fittings must meet minimum standards defined by the Water Efficiency Labelling and Standards (WELS) Scheme. Minimum WELS ratings are 4 star dual-flush toilets, 3 star showerheads, 4 star taps (for all taps other than bath



outlets and garden taps) and 3 star urinals. Water efficient washing machines and dishwashers are to be used wherever possible.

- ii. are to install rainwater tanks to meet all non-potable demands, including outdoor use, toilets, and laundry (for child care centres, this water is to be used for irrigation and toilet flushing only).
- iii. are to incorporate passive cooling methods that rely on improved natural ventilation to supplement or preclude mechanical cooling (refer Section 2.16.5.6).
- iv. where cooling towers are used, they are:
 - a. to be connected to a conductivity meter to ensure optimum circulation before discharge.
 - b. to include a water meter connected to a building energy and water metering system to monitor water usage.
 - c. to employ alternative water sources for cooling towers.

C3 Water use within common open space (for uses such as irrigation and water features) should be supplied from sources other than potable mains water (e.g. stormwater, greywater or wastewater) to meet 80% of the water use demand.

Refer to

- The NSW Health rainwater tanks brochure provides further advice on the use and maintenance of rainwater tanks. Visit: www.health.nsw.gov.au/public-health/ehb/water/rainwater.asp

2.17.4 Stormwater Quality

Urban development increases the pollution load entering local waterways. To address the impacts of urban development, the following pollution load reductions have been established for land where this DCP applies.

- C4** For all development types identified in Table 1, stormwater quality load reduction controls are:
- i. 90% reduction in the post development mean annual load of Gross Pollutants (greater than 5mm).
 - ii. 85% reduction in the post development mean annual load of Total Suspended Solids (TSS).
 - iii. 60% reduction in the post development mean annual load of Total Phosphorus (TP).
 - iv. 45% reduction in the post development mean annual load of Total Nitrogen (TN).
- C5** Modelling for the determination of the pollution load reductions must be undertaken in MUSIC (the Model for Urban Stormwater Improvement Conceptualisation) and in accordance with *Marrickville Council's WSUD Reference Guideline*.

Refer to

- MUSIC derives default water quality parameters for a range of pollutants generated from various land use types. The latest version of MUSIC Version 4 (2010) is available at <http://www.toolkit.net.au/music>.
- Marrickville Council has prepared a WSUD Reference Guideline to assist applicants in meeting the stormwater quality targets.

2.17.5 Information to be submitted with development applications

Developments are required to submit supporting information with their DA to detail how the water conservation and stormwater quality controls will be met for their development. For simplicity, an option of a deemed to comply solution (C6) has been identified for residential, child care centres, educational establishments, community facilities, places of public worship and recreational facilities (indoor) >700m² and <2,000m² and commercial, retail, and industrial development involving new or additional gross floor area of >100m² and < 2,000m² to meet the stormwater quality targets. All other development types, as identified in Table 1, need to submit a WSUD Strategy (C7).

- C6** Residential developments, child care centres, educational establishments, community facilities, places of public worship and recreational facilities (indoor) developments >700m² and < 2,000m² and commercial, retail, and industrial development involving new or additional gross floor area of >100m² and < 2,000m²,
- i. A report that can show compliance with the stormwater quality control (C4) by implementing the following “deemed to comply” measure. All roof water is to drain to a tank which is 3,000 litres per 100m² of roof area of the development. More than 80% of the roof is to drain to the tank. The tank is to be connected to all toilets, irrigation and laundry. For child care centres, this water is to be used for irrigation and toilet flushing only. The rainwater tank and associated details need to be documented in a report with appropriate information to show compliance with this deemed to comply solution.
 - ii. A BASIX Certificate is to be submitted for residential developments, including the residential components of mixed use developments as per the requirements of the BASIX Scheme. Details of the rainwater tank connections should be identified in the BASIX Certificate.

Refer to

- The Guideline to the BASIX SEPP produced by the Department of Planning (2006) states - *Where a provision serves some other legitimate purpose, such as a provision requiring the installation of a rainwater tank for stormwater management purposes it is not overridden by the BASIX SEPP.* See [http://www.basix.nsw.gov.au/docs/legislation/Guideline to the BASIX SEPP July 05.pdf](http://www.basix.nsw.gov.au/docs/legislation/Guideline%20to%20the%20BASIX%20SEPP%20July%2005.pdf)

- C7** All other development types are to submit a WSUD Strategy from a suitably qualified consultant. The WSUD strategy is to detail the potable water saving and stormwater quality control measures that are to be implemented on the site, and to include the following detail:
- i. Proposed development – Describe the proposed development at the site, including site boundaries, proposed land uses.
 - ii. WSUD objectives – Identify the WSUD objectives that apply to the proposed development.
 - iii. Water conservation – Demonstrate how the potable water conservation targets will be met. For residential developments this maybe in the form of a BASIX Certificate.



- iv. Stormwater quality – Demonstrate how the stormwater quality targets will be met, including the location, size and configuration of stormwater treatment measures proposed for the development.
- v. Details of MUSIC modelling, with the MUSIC parameters and assumptions outlined in an appendix to the WSUD Strategy. Parameters to be submitted include rainfall, source and treatment nodes.
- vi. Integration with the urban design – Identify how the WSUD elements will integrate with the development layout.
- vii. Costs – Identify capital and operation and maintenance procedures, resourcing and cost estimates of proposed treatment elements. Both typical annual maintenance costs and corrective maintenance or renewal/adaptation costs should be included.
- viii. Checklist – outlining the details of the WSUD strategy and reference to the location of the information.

Refer to

- Council has prepared a WSUD Reference Guideline to assist applicants in the preparation of a WSUD Strategy. <https://www.innerwest.nsw.gov.au/develop/planning/strategies-and-policies-for-development>

2.17.6 Specialist Advice

Applicants and developers are required to obtain the services of appropriately qualified and experienced practitioners for the development of appropriate WSUD plans and strategies. The benefit of using consultants with demonstrated capacity to fulfil the requirements of this Chapter will generally reflect a smoother and straight forward approval and construction process. Members of the Stormwater Industry Association provide a range of products and services.

Council is undertaking a pilot project, funded by its Stormwater Management Service Charge Fund to provide low-cost water management consultancy support for selected low income groups.