PENRITH CITY COUNCIL

POLICY DOCUMENT

POLICY NAME
Waste Water Urban Design (WSUD) Policy

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EH 003

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4506964

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Council

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December 2017

RESPONSIBLE DEPARTMENT
Environmental Health

RELATED DOCUMENTS
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Purpose

The aim of this policy is to provide developers and Council with a framework to facilitate Water Sensitive Urban Design (WSUD) into new development and redevelopment within the City of Penrith.

Policy Statement

The policy has been prepared to respond to growth and improve water conservation, quality and quantity in both new development and some redevelopments. The policy seeks to clarify which developments need to achieve the targets for water conservation, quality and quantity. The policy also compliments on the controls within Council's 2006 and 2010 Development Control Plans (DCPs).

Scope

This policy applies to all staff, councillors, contractors and residents.

POLICY:

The policy commences on the next page.

Penrith City Council

WATER SENSITIVE URBAN DESIGN (WSUD) POLICY

December 2013

PENRITH CITY COUNCIL

Administrative Information

Policy Number	
Document Status	
Version Number	Version 1 – December 2013
Amendment History	
Prepared By	Environmental Health
Approved By	EHM
Adopted by Penrith City Council	
Review Period	Every 3 years or after legislative changes
Next Review Date	December 2016

FORWARD

The aim of this policy is to provide developers and Council with a framework to facilitate Water Sensitive Urban Design (WSUD) into new development and redevelopment within the City of Penrith.

The policy has been prepared to respond to growth and improve water conservation, quality and quantity in both new development and some redevelopments. The policy seeks to clarify which developments need to achieve the targets for water conservation, quality and quantity. The policy also compliments on the controls within Council's 2006 and 2010 Development Control Plans (DCPs).

The policy and WSUD Technical Guidelines provide guidance to engineers, designers, architects and developers to ensure developments are designed to mitigate their stormwater impacts on the natural environment, and that stormwater systems are designed in a holistic manner integrated into the development.

The policy should be read in conjunction with the following documents:

- State and Regional Environmental Planning Policies
- Local Environmental Plans and Development Control Plans
- NSW Office of Water's Guidelines for controlled activities and the Water Management Act, 2000
- NSW Floodplain Development Manual
- Latest version of Australian Rainfall & Runoff Guidelines
- Penrith City Council's Design and Construction Guidelines
- Penrith City Council's Engineering Construction Specification for Civil Works (Working Draft)
- Penrith City Council's Design Guidelines for Engineering Works for Subdivision and Developments
- Stormwater Drainage for Building Developments (Working Draft)
- NSW Housing's Managing Urban Stormwater – Soils and Construction
- AS3500.3
- Building Code of Australia, and
- Draft NSW MUSIC Modelling Guidelines

This policy may be incorporated into a Development Control Plan in the future.

The associated Technical Guidelines will be periodically reviewed and updated to reflect changes in industry best practice.

Contents

1. INTRODUCTION

Urban development results in significant modification to soils, catchment imperviousness and vegetation. As a result surface runoff volumes and pollutant concentrations from urbanised catchments are typically higher than natural conditions, with elevated pollutant loads conveyed to receiving waters. Urban development also has the potential to significantly increase surface runoff flow rates and volumes leading to impacts on stream stability, receiving water ecology and flooding.

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 technologies such as water efficient fittings and appliances, rainwater tanks to reduce potable water consumption and costs, bioretention systems (raingardens), swales, wetlands, proprietary devices and other approved site-specific measures to reduce pollution from stormwater entering local waterways.

This Policy is consistent with Council's Community Strategic Plan 2031, which identifies "healthy waterways and protected natural areas" as a priority. The key water related objectives of the Community Strategic Plan include:

- Ensuring our natural habitats are healthy
- Ensuring the wise use of resources and taking responsibility for our level of consumption, with both Council and the community seeking to reduce their ecological footprint

This Policy complements the programs of Council, including those funded by the Stormwater Management Service Charge, in sustainably managing water in the urban environment by improving stormwater quality, reducing potable water consumption and creating a more natural water cycle.

The purpose of this Policy is to clarify the requirements for landowners and developers with regards to the design principles to incorporate WSUD within development in the Penrith LGA. The potable water reduction targets within this policy relate to developments that are not covered by State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 (BASIX), while the stormwater quality and quantity controls apply to larger developments and redevelopments within the LGA.

This Policy requires the use of the associated WSUD Technical Guidelines when undertaking certain developments within the City. The guidelines outline the information to be submitted with Development Applications and Construction Certificates, in order to demonstrate compliance with the objectives and performance criteria outlined in the Policy. The WSUD Technical Guidelines will be periodically reviewed and updated to reflect changes in industry best practice.

Nothing in this Policy is to be construed as limiting, in any way, Council's right to impose differing conditions when approving development proposals, or limiting the discretion of Council's nominated representative to vary any necessary requirements in respect of a particular development or Council project, having regard to potential site restrictions and best practice.

1.1. Goals and Objectives of this Policy

This Policy defines the goals Council is promoting to protect water resources and dependent ecosystems throughout the City. The key water management objectives include:

a. Protect and enhance natural water systems such as creeks and rivers in the Penrith LGA

b. Treat urban stormwater to meet water quality objectives for reuse and/or discharge to receiving waters

c. Match the natural water runoff regime as closely as possible (where appropriate)

d. Reduce potable water demand through water efficient fittings and appliances, rainwater harvesting and water reuse

e. Minimise wastewater generation and treatment of wastewater to a standard suitable for effluent reuse opportunities

f. Integrate stormwater management into the landscape so as to maximise the visual and recreational amenity of urban development

g. Provide objectives and controls for specific WSUD elements including water conservation, stormwater quality and waterway stability management

2. DEVELOPMENTS TO WHICH THIS POLICY APPLIES

The development types identified in Table 1 below are required to meet water conservation, stormwater quality and stormwater quantity targets.

Development types that are required to meet water conservation, stormwater quality and quantity targets must submit a Water Sensitive Urban Design Strategy with a development application. A Water Sensitive Urban Design Strategy is a written report detailing potable water savings and stormwater quality and quantity control measures to be implemented as part of a development. The required content of the Strategy is outlined in the associated WSUD Technical Guidelines.

Table 1: Water Sensitive Urban Design Requirements

Landuse	Development Type	Water Conservation (Section 3.1)	Water Quality (Section 3.2)	Water Quantity - Flow (Section 3.3)
Residential	Alterations and Additions, Dual Occupancy, detached dwellings and residential land uses not addressed below	√ - **BASIX**	**No**	**No**
	New single dwellings and dual occupancy	√ - **BASIX**	**No**	**No**
	Existing Residential villas, flats and townhouses with additional impervious area greater than 250m^2.	√ - **BASIX**	**No**	**No**
	Residential development of 5 or more dwellings including multi dwelling housing, residential housing residential flat buildings and mixed use development.	√ - **BASIX**	√	√
Commercial & Industrial	All new commercial, retail, mixed use and industrial development greater than 2,500m^2 total site area.	√ - **WELS**	√	√
	Alterations and additions where the increase in the roofed and impervious area* is equal to or greater than 250m^2.	√ - **WELS**	√	√
	Commercial, retail, mixed use and industrial development not addressed above.	√ - **WELS**	**No**	**No**
Subdivision (where new road and or carriageway works are involved)	Residential (5 or more lots) or commercial and industrial subdivision	**N/A**	√	√
Other development not listed above	Any development which results in an increase of the existing impervious area by greater than 250m^2. Development includes but not limited to additional roads, driveways, vehicle parking areas, manoeuvring areas, loading and storage areas.	√ - **WELS (as required)**	√	√

Note: √ means performance criteria detailed in section 3 apply * Additional impervious area includes building footprint (including roof area), vehicle access ways and parking spaces.

3. WSUD DEVELOPMENT CONTROLS

3.1. Water Conservation

Water conservation seeks to reduce the demand for potable water. 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). There are, however, no such requirements for other development types (e.g. commercial, industrial), which are addressed by these controls.

Objectives

- To reduce consumption of potable water for all development types within the City
- To use harvested rainwater, treated urban stormwater or treated wastewater for non-potable substitution where appropriate

Performance Criteria

Water conservation requirements for development types identified in Table 1 are:

- All residential buildings are to demonstrate compliance with State Environmental Planning Policy - Building Sustainability Index (BASIX), as required
- All buildings not covered by the State Environmental Planning Policy - BASIX:
    a. that are installing any water use fittings must demonstrate 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.
    b. to install rainwater tanks to meet 80% of non-potable demand including outdoor use, toilets, and laundry.
    c. to incorporate passive cooling methods that rely on improved natural ventilation to supplement or preclude mechanical cooling
- 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 where practical and in accordance with the Public Health Act and NSW Health Guidelines
- Water use within public open space (for uses such as irrigation, pools, water features etc) should be supplied from sources other than potable mains water (e.g. treated stormwater or greywater) to meet 80% water use demand

3.2. Stormwater Quality

Urban development increases the pollution load entering receiving environments. Stormwater quality controls have been derived through the modelling of numerous combinations of WSUD elements for a range of urban development types. They reflect a cost-effective level of stormwater treatment considered to be technically feasible in terms of land-take (or footprint) of stormwater and WSUD measures. Stormwater quality elements are to be sized using MUSIC modelling (the Model for Urban Stormwater Improvement Conceptualisation, or equivalent) utilising Penrith data, which is available in the associated WSUD Technical Guidelines.

Objectives

- To safeguard the environment by improving the quality of stormwater run-off entering receiving waters

Performance Criteria

Stormwater quality requirements for all development types identified in Table 1 are:

- Pollution load reductions:
    a. 90% reduction in the post development mean annual load of total gross pollutant (greater than 5 mm)
    b. 85% reduction in the post development mean annual load of Total Suspended Solids (TSS)
    c. 60% reduction in the post development mean annual load of Total Phosphorus (TP)
    d. 45% reduction in the post development mean annual load of Total Nitrogen (TN)
- Modelling for the determination of the mean annual loads of landuses must be undertaken in MUSIC and in accordance with the associated WSUD Technical Guidelines
- Any changes to the flow rate and flow duration within the receiving watercourses as a result of the development shall be limited as far as practicable. Natural flow paths, discharge point and runoff volumes from the site should also be retained and maintained as far as practicable
- Impervious areas directly connected to the stormwater system shall be minimised. Runoff from impervious areas such as roofs, driveways and rainwater tank overflows shall be directed onto grass and other landscaped areas designed to accept such flows

3.3. Stormwater Quantity – Stream Forming Flows

Urban Development has the potential to significantly increase surface runoff flow rates and volumes leading to impacts on stream stability, receiving water ecology and flooding in receiving waters.

Objectives

- To manage the volume and duration of stormwater flows entering local waterways so as to protect the geomorphic values of those waterways

Performance Criteria

Stormwater quantity requirements for all development types identified in Table 1 are:

- The post development duration of stream forming flows shall be no greater than 3.5 times the pre developed duration of stream forming flows. The comparison of post development and pre development stream forming flows is commonly referred to as the Stream Erosion Index (SEI). The approach to evaluating the SEI is outlined in the associated WSUD Technical Guidelines

4. COUNCIL APPROVAL REQUIREMENTS FOR WSUD SYSTEMS

Council has developed associated WSUD Technical Guidelines which must be used to prepare and submit supporting information for Development Applications and Construction Certificates.

The Guidelines should be read in conjunction with a number of referenced industry best practice guidelines documents including the following:

- Draft NSW Music Modelling Guidelines (prepared for the Sydney Metropolitan CMA)
- WSUD Conceptual Design Information (prepared by Water by Design)
- WSUD Technical Design Guidelines (prepared by Water by Design)
- Typical Drawings (prepared for the Sydney Metropolitan CMA)

The Guidelines provide guidance on the following:

- Council's requirements for the location, ownership and ongoing maintenance responsibilities of WSUD measures
- What is to be submitted with a Development Application or Construction Certificate application
- What is required to be included in a WSUD Strategy
- Parameters to be used in MUSIC modelling
- Where to get further information on the design, construction, operation and maintenance of stormwater treatment measures, and
- Council's expectations in relation to proposed WSUD measures.

The WSUD Technical Guidelines will be periodically reviewed and updated to reflect changes in industry best practice.

4.1. General Requirements

When preparing supporting documentation for a Development Application or Construction Certificate application, Council requires applicants and developers to engage appropriately qualified and experienced practitioners for the development of appropriate WSUD designs and strategies.

4.2. Pre- Application Consultation

Discussion with Council is encouraged at an early stage of a development proposal to agree on a general design approach before a detailed WSUD Strategy is prepared.

4.3. Handover of WSUD / Stormwater Treatment Assets to Council

Council's prefers WSUD measures to be located on private land under the maintenance of the owner or occupier. If there is a need to hand assets over to Council, arrangements will be made prior to the approval of a Development Application.