

Stormwater Management Code

1 Application

This Code will apply in assessing:

- material change of use where:
 - not contained entirely under the roofline of an existing building, or
 - involving land disturbing development, or
 - involving an increase in floor area located on floodable land, or
 - liquid or solid waste will be discharged to land or water
- reconfiguring a lot where:
 - involving land disturbing development, or
 - located on floodable land
- operational works or building works where:
 - involving land disturbing development, or
 - involving the creation of additional impervious surfaces, or
 - located on floodable land, or
 - liquid or solid waste will be discharged to land or water.

2 Using this Code

In using this Code reference should also be made to Section 1.1—How to use the Codes, at the front of this Chapter.

This Code is only ever called up as a 'secondary' Code by some other Code. This Code is to read as part of that other Code.

Glossary

Detention/retention storage basin: a storage pond, basin or tank used to reduce and attenuate the peak discharge within a drainage system.

Environmental values: the actual or potential function carried out by the water body. For more information on environmental values, refer to the Management of Urban Stormwater Quality Planning Scheme Policy or the Environmental Protection (Water) Policy 1997.

Floodable land: Land affected by one of the following flood sources:

- Brisbane River
- creeks or waterways
- localised overland flow paths

- designed open channels
- localised flooding
- storm surge (land below 2.5m AHD elevation).

Land disturbing development: any carrying out of building work, plumbing or drainage work, operational work or subdivision where there is potential for accelerated erosion from wind or water and/or the discharge of sediment to drains or waterways.

Localised flooding: includes localised overland flow paths and localised ponding.

Localised overland flow paths are drainage lines that convey stormwater runoff, from any storm, before it enters a creek or waterway network. Overland flow paths, in general, are not part of river, creek or waterway flooding and by nature are dry except during storm events.

Localised ponding occurs in naturally low-lying areas where overland flows from localised storms (of any frequency) collect and create a temporary detention storage. Water from these ponded areas then slowly drains through stormwater drainage pipes or other waterway networks. These ponded areas are usually dry except during and immediately after storm events.

Major drainage system: part of a drainage system in a catchment which is designed to convey major design storms, e.g. 50 year ARI and 100 year ARI events. The system may comprise open space, floodway channels, road reserves, pavement expanses, overland flow paths, detention basins and lagoons.

Minor drainage system: part of a drainage system in a catchment that controls flows from the minor design storm, e.g. 2 year ARI and 10 year ARI events. The system usually comprises kerbs and channels, roadside channels, gully inlet pits, underground pipes, junction pits, manholes and outlets.

Natural channel design: the basic principles of natural channel design (NCD) are to maintain the hydraulic conveyance requirements of engineered or natural channels, while improving environmental values.

Receiving waters: a body of water (including a wetland) within or downstream of the development that has environmental values. This does not include structures provided for the purpose of stormwater management that have no other secondary functions (e.g. recreation).

Site Based Stormwater Management Plan (SBSMP): a SBSMP identifies potential on and off site (upstream, downstream and adjacent properties) impacts associated with stormwater for a proposal. The SBSMP also identifies the range of stormwater management strategies and actions for water quality and environmental issues.

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Stormwater quality best management practices: a range of stormwater management measures that aim to reduce the amount of stormwater run-off and export of pollutants. These practices include source controls, run-off reduction, infiltration controls and pollution interception.

Water quality objectives: measurable long term goals for the quality of receiving waters. For more information on water quality objectives, refer to the **Management of Urban Stormwater Quality Planning Scheme Policy** or the *Environmental Protection (Water) Policy 1997*.

Water sensitive urban design (WSUD): provides a strategy for the conservation and management of water resources through better management of stormwater, for example:

- storage rather than conveyance of stormwater
- maintenance and enhancement of water quality
- water conserving landscaping
- conservation of water related environments
- use of vegetation for stormwater treatment
- localised water supply for irrigation
- use of rainwater tanks for stormwater re-use.

3 Purpose

The purpose of this Code is to:

- integrate planning, design and implementation of the two distinct components of stormwater management, i.e. water quantity and water quality
- prevent or minimise adverse social and environmental impacts on the City's waterways, overland flowpaths, constructed drainage network, Brisbane River and Moreton Bay from stormwater run-off originating from, or passing through development

- achieve acceptable levels of stormwater run-off quality and quantity by applying water sensitive urban design principles in development proposals to maintain and/or enhance the environmental values of the City's waterways and catchments
- ensure that stormwater run-off originating from development is of such quality that environmental values of receiving waters are protected or enhanced
- provide an efficient and cost effective stormwater run-off management system, i.e. a drainage network and detention/retention storage that adequately protects people and the natural and built environments from an unacceptable level of flooding risk.

4 Performance Criteria and Acceptable solutions

This Code identifies many issues that will require detailed design of systems to mitigate the impacts of development on flooding, water quality and drainage. At the initial application stage it is not intended that detailed design information will be required. However it is crucial to ensure that flooding, water quality and drainage management have been taken into account in development design such that they can be accommodated in the final detailed design.

A Site Based Stormwater Management Plan (SBSMP) is intended to provide adequate information on how these matters are to be dealt with for a particular site. The "notes" contained within each section of the Code outline what information can be provided to demonstrate compliance. The detailed design of the drainage network and stormwater quality best management practices will normally not be required in a SBSMP. Detailed design will usually be required as a subsequent application for operational works or as a condition of approval.

4.1 General

Performance Criteria	Acceptable Solutions
<p>P1 The planning of the stormwater management system must provide for the integrated management of stormwater in order to:</p> <ul style="list-style-type: none"> • minimise flooding • protect and enhance environmental values of receiving waters • maximise the use of water sensitive urban design principles • maximise the use of natural waterway corridors and natural channel design principles • maximise community benefit • minimise safety risk to all persons 	<p>A1.1 The proposal complies with the Subdivision and Development Guidelines</p> <p>A1.2 A Site Based Stormwater Management Plan (SBSMP) is prepared for all major and minor stormwater management measures. The SBSMP must provide for the following where applicable:</p> <ul style="list-style-type: none"> • an underground and/or open drain/overland flowpath network maximising the use of natural channel design and water sensitive urban design principles • make provision for detention/retention storage basins

Performance Criteria	Acceptable Solutions
	<ul style="list-style-type: none"> • an Erosion and Sediment Control (ESC) Program where required by Council's Erosion and Sediment Control Standard • retention of natural waterway corridors • safety of all persons and risk management measures • an acceptable level of flood immunity <p>A1.3 The proposal complies with any Stormwater Management Plan (SMP), Local Stormwater Management Plan (LSMP) or Waterways Management Plan (WMP) prepared by Council</p> <p><i>Note: the Subdivision and Development Guidelines provide guidance on the level of information required for different development types</i></p>

4.2 Flooding

Performance Criteria	Acceptable Solutions
<p>P1 The proposed stormwater management system or site works must not adversely impact on flooding or drainage of properties that are upstream, downstream or adjacent to the subject site</p>	<p>A1 The proposal meets the requirements of Council's Subdivision and Development Guidelines and does not result in an increase in flood level or flood duration on upstream, downstream or adjacent properties</p> <p><i>Note: compliance with this acceptable solution can be demonstrated by the submission of a hydraulic and hydrology report (as part of a SBSMP) identifying potential flooding impacts on upstream, downstream or adjacent properties</i></p>
<p>P2 The drainage network must provide capacity to safely convey stormwater run-off resulting from relevant design storm events taking into account increased run-off from roof drainage</p>	<p>A2.1 The design demonstrates that a drainage network will be provided that will comply with Council's Subdivision and Development Guidelines</p> <p><i>Note: compliance with this acceptable solution can be demonstrated by identifying the conceptual drainage requirements for the proposal in a SBSMP</i></p> <p>A2.2 The design allows sufficient area to provide for a drainage network that will comply with Council's Subdivision and Development Guidelines</p> <p><i>Note: compliance with this acceptable solution can be demonstrated by the submission of a hydraulic and hydrology report (as part of a SBSMP) identifying the area required to accommodate the drainage network</i></p>

Performance Criteria	Acceptable Solutions
<p>P3 Development design (including any carparking areas) must reduce property damage, provide flood immune access to the property and, where applicable, ensure the safety of all persons by ensuring that the development levels are set above the relevant design flood level or storm surge level</p>	<p>A3.1 All development (including ancillary structures and carparking areas) is located above minimum flood immunity levels in accordance with Council's Subdivision and Development Guidelines</p> <p><i>Note: compliance with this acceptable solution can be demonstrated by the submission of a hydraulic and hydrology report identifying flood levels and development design levels (as part of a SBSMP)</i></p> <p>A3.2 Road access is provided in accordance with the flood immunity levels identified in Council's Subdivision and Development Guidelines</p> <p><i>Note: compliance with this acceptable solution can be demonstrated by the submission of a hydraulic and hydrology report identifying flood levels and development design levels</i></p>
<p>P4 Any channel works that are part of the development, major drainage works or flood mitigation works must maintain and/or enhance the environmental values of the waterway corridor or drainage corridor</p>	<p>A4 Design and construction of channel works incorporate water sensitive urban design and natural channel design features which will comply with:</p> <ul style="list-style-type: none"> • Council's Subdivision and Development Guidelines, and • where applicable any SMP, LSMP or WMP prepared by Council <p><i>Note: compliance with this acceptable solution can be demonstrated by the provision of conceptual details of any channel works (as part of a SBSMP)</i></p>
<p>P5 Erosion treatment works along waterway banks and associated drainage structures must maintain or enhance the environmental values of waterways</p>	<p>A5 Design and construction of erosion treatment features incorporate natural channel design features which will comply with:</p> <ul style="list-style-type: none"> • Council's Subdivision and Development Guidelines, and • Council's Urban Creek Erosion—Guidelines for Selecting Remedial Works <p><i>Note: compliance with this acceptable solution can be demonstrated by the provision of conceptual details of any erosion treatment works (as part of a SBSMP)</i></p>
<p>P6 Bridges and culverts provided for flood immunity to minimise traffic disruption must improve the safety of all people and allow for fauna movement and recreation corridors where these needs are identified</p>	<p>A6 The design complies with Council's Subdivision and Development Guidelines</p> <p><i>Note: compliance with this acceptable solution can be demonstrated by the provision of conceptual details of any bridge or culvert works (as part of a SBSMP)</i></p>

Performance Criteria	Acceptable Solutions
<p>P7 The design and construction of detention and retention storage features must:</p> <ul style="list-style-type: none"> • achieve acceptable impacts on environmental values • provide for recreational use where possible • achieve acceptable risk to all persons' safety and property 	<p>A7 The design complies with Council's Subdivision and Development Guidelines and where applicable any SMP, LSMP or WMP prepared by Council</p> <p><i>Note: compliance with this acceptable solution can be demonstrated by the provision of conceptual details of any detention and retention storage features (as part of a SBSMP)</i></p>

4.3 Water Quality and drainage

For this section:

Low Risk Development is any development other than that identified as high risk development.

High Risk Development is any of the following:

- development in a waterway corridor or a wetland as identified on the Planning Scheme Maps

- multi-unit dwellings or commercial uses with an impermeable surface area (not including roof area) in excess of 2,500m²
- subdivision where at least 6 lots are involved
- industry that have at least 1,000m² in uncovered storage/working space
- industry listed in Industrial Areas—Schedule 2
- uncovered carparks with at least 100 spaces.

Performance Criteria	Acceptable Solutions
Low risk development	
<p>P1 Water quality impacts must be minimised using best practice techniques</p>	<p>A1.1 The design provides for stormwater quality best management practices that are sufficient to treat the target pollutants and will comply with the Council's Subdivision and Development Guidelines</p> <p><i>Note: compliance with this acceptable solution can be demonstrated by indicating the areas that are to be set aside for water quality best management practices. For most development this can be achieved by determining pollutant loads using hand calculations as set out in Council's Guidelines for Pollutant Export Modelling in Brisbane and identifying the type and size of stormwater quality best management practices based on their efficiencies identified in Council's Subdivision and Development Guidelines</i></p> <p>A1.2 Stormwater quality best management practices are designed, constructed and maintained in accordance with Council's Subdivision and Development Guidelines</p> <p><i>Note: compliance with this acceptable solution can be demonstrated by providing conceptual detail of how stormwater quality will be managed (as part of a SBSMP)</i></p>

Performance Criteria		Acceptable Solutions	
P2	Release of sediment laden stormwater is minimised	A2	<p>All development complies with Council's Erosion and Sediment Control Standard</p> <p><i>Note: compliance with this acceptable solution can be demonstrated by providing conceptual details of how the requirements of Council's Erosion and Sediment Control Standard will be met (conceptual SBSMP). This will generally be conditioned and may require the submission of a subsequent detailed SBSMP for operational works</i></p>
High risk development			
P3	Environmental values and water quality objectives of receiving waters within or downstream of the proposal are protected or enhanced	A3.1	<p>Relevant water quality objectives for receiving waters are identified and site specific discharge standards met</p> <p><i>Note: compliance with this acceptable solution may be demonstrated by following the process outlined in the Management of Urban Stormwater Quality Planning Scheme Policy. This can be documented in a SBSMP</i></p>
		A3.2	<p>The design provides for stormwater quality best management practices that are sufficient to treat the target pollutants and will comply with the Council's Subdivision and Development Guidelines</p>
		A3.3	<p>Stormwater quality best management practices are designed, constructed and maintained in accordance with Council's Subdivision and Development Guidelines</p> <p><i>Note: compliance with this acceptable solution can be demonstrated by providing conceptual detail of how stormwater quality will be managed (as part of a SBSMP)</i></p>
P4	Release of sediment laden stormwater is minimised	A4	<p>All development complies with Council's Erosion and Sediment Control Standard</p> <p><i>Note: compliance with this Performance Criteria/Acceptable Solution can be demonstrated by providing conceptual details of how the requirements of Council's Erosion and Sediment Control Standard will be met (conceptual SBSMP). This will generally be conditioned and may require the submission of a subsequent detailed SBSMP for operational works</i></p>