

8.2.6 Flood Hazard Overlay Code



8.2.6.1 Application

This code applies to development:

- (1) within the Flood Hazard Overlay as identified on the overlay maps contained in **Schedule 2 Mapping**; and
- (2) identified as requiring assessment against the Flood Hazard Overlay Code by the tables of assessment in **Part 5 Tables of Assessment**.

8.2.6.2 Purpose

- (1) The purpose of the Flood Hazard Overlay Code is to ensure that development in a flood hazard area is compatible with the risk of the flood hazard and protects life and property.
- (2) The purpose of the code will be achieved through the following overall outcomes:
 - (a) Development that potentially increases the exposure of people and property to flood hazards:
 - (i) avoids areas of significant flood hazard risk; or
 - (ii) where areas of flood hazard risk cannot be practicably avoided, development is designed, located and managed to ensure the risk to people and property is mitigated to an acceptable or tolerable level, during and after a flood event;
 - (b) The development siting, layout, and access responds to the risk of the flood hazard, including flood hazard category, and minimises risk to personal safety;
 - (c) The development is resilient to flood events by ensuring siting, design and materials stored on site accounts for the potential risks of flood hazards;
 - (d) The development supports, and does not unduly burden disaster management response or recovery capacity and capabilities;
 - (e) The development directly, indirectly and cumulatively does not materially increase the severity of the flood hazard and does not significantly increase the potential for damage on the site or to other properties;
 - (f) The development avoids the release of hazardous materials as a result of a flood event;
 - (g) Natural processes and the protective function of landforms and/or vegetation are maintained in *flood hazard areas*;
 - (h) Development in flood hazard areas supports and does not hinder disaster management capacity and capabilities;
 - (i) Community infrastructure is located and designed to maintain the required level of functionality during and immediately after a flood event.

Editor's Note - For this overlay, where land is located in the Investigation Area of the **Flood Hazard Overlay Map - Hazard Area OM-06-A**, a defined flood level based on the 1% AEP flood event is not available. A flood investigation undertaken by a suitably qualified person is required to determine the defined flood level.

8.2.6.3 Assessment Benchmarks

Table 8.2.6.3.1 — Flood Hazard Overlay Code - for Assessable Development

Performance Outcomes	Acceptable Outcomes
<p>PO1 Development siting, layout and access:</p> <p>(1) responds to the potential risk of flooding, including the <i>Flood Hazard Category</i> on the site;</p> <p>(2) maintains personal safety at all times; and</p> <p>(3) mitigates the risk to people and property to an acceptable or tolerable level.</p> <p><i>Note - Flood Hazard Category is shown on the Flood Hazard Overlay Map - Category Area OM-06-B.</i></p>	<p>AO1.1 A new building or extension to an existing building is not located in a high hazard category area as shown on the Flood Hazard Overlay Map - Category Area OM-06-B.</p>
	<p>AO1.2 Residential buildings:</p> <p>(1) are not located on land in a <i>flood hazard area</i>; or</p> <p>(2) where the development cannot be located on land outside the <i>flood hazard area</i>, all floor levels of habitable rooms are elevated a minimum of 500mm above the <i>defined flood level</i>.</p> <p>Non-residential buildings:</p> <p>(1) are not located on land in a <i>flood hazard area</i>; or</p> <p>(2) where development cannot be located on land outside the <i>flood hazard area</i>, all floor levels are elevated a minimum of 500mm above the <i>defined flood level</i>.</p> <p><i>Note - If part of the site is outside the flood hazard area, this is the preferred location for development.</i></p> <p><i>Note - Building work in a designated flood hazard area must meet the requirements of the relevant building assessment provisions under the Building Act 1975.</i></p> <p><i>Editor's Note - The defined flood level may be obtained from a Council property flood search where the property is located within the Defined Flood Area on Flood Hazard Overlay Map - Hazard Area OM-06-A. A site based flood study is required that investigates the impact of the development on the floodplain and demonstrates compliance with the Performance Outcome where a flood level is not available (Investigation Area).</i></p>
	<p>AO1.3 Development provides for a road and/or pathway layout that ensures residents are not physically isolated by the <i>defined flood event</i> and provides a safe and clear evacuation route by:</p> <p>(1) locating entry points into the development are located outside the <i>flood hazard area</i>;</p> <p>(2) ensuring all roads in the development are located outside the <i>flood hazard area</i>;</p> <p>(3) avoiding cul-de-sacs or other non-permeable layouts; and</p> <p>(4) providing direct and simple routes to main carriageways.</p>
	<p>AO1.4 Development ensures that all buildings have vehicle and pedestrian evacuation routes outside the <i>flood hazard area</i> to facilitate egress from the site.</p>
	<p>AO1.5</p>

Performance Outcomes	Acceptable Outcomes
	<p>Development either: (1) does not create additional lots that are located in the <i>flood hazard area</i>; or (2) creates lots that incorporate a building envelope outside the <i>flood hazard area</i>.</p> <p><i>Editor's note</i> - If part of the site is outside the Flood Hazard Area, this is the preferred location for all lots (excluding park or other relevant open space and recreation lots).</p> <p><i>Editor's Note</i> - Buildings subsequently developed on the lots created will need to comply with the relevant building assessment provisions under the Building Act 1975.</p>
	<p>AO1.6 There is no intensification of residential uses within flood affected areas on land situated below the <i>defined flood event</i>.</p> <p><i>Editor's note</i> - If part of the site is outside the Flood Hazard Area, this is the preferred location for all buildings.</p>
	<p>AO1.7 Development ensures that: (1) signage is provided on a road or pathway indicating the position and path of all safe evacuation routes off the premises; and (2) where the site contains or is within 100m of a floodable waterway, hazard warning signage and depth indicators are provided at key hazard points, such as at floodway crossings or entrances to low-lying reserves.</p>
	<p>AO1.8 Development is located to support self-evacuation of people, and ensure sufficient warning time for the nature of the use.</p>
	<p>AO1.9 Development does not: (1) shorten warning time for other uses in the floodplain; and (2) impact on the ability of traffic to use evacuation routes, or unreasonably increase traffic volumes on evacuation routes.</p>
	<p>AO1.10 Development in greenfield areas protects a <i>floodway</i> by providing an easement or reserve over the area of the premises up to the <i>defined flood event</i>.</p>
	<p>AO.11 Development allows an area within the development site at or above the flood planning level with sufficient space to accommodate the likely population of the development in safety for a relatively short time until flash flooding subsides (if applicable) or people can be evacuated.</p>

Performance Outcomes	Acceptable Outcomes
<p>PO2 Development is compatible with the level of risk associated with the flood hazard such that:</p> <p>(1) <i>Vulnerable uses</i> in the high hazard <i>Flood Hazard Category</i> are avoided;</p> <p>(2) <i>Vulnerable uses</i> in the medium or low hazard <i>Flood Hazard Category</i> area mitigates the risk to an acceptable or tolerable level.</p> <p><i>Note - Flood Hazard Category is shown on the Flood Hazard Overlay Map - Category Area OM-06-B.</i></p>	<p>AO2 Development in high hazard areas is limited to non-<i>Vulnerable uses</i>.</p>
<p>PO3 Development is resilient to flood events and supports disaster management response or recovery capacity and capabilities by ensuring design, built form and materials stored on site do not increase the potential for damage on the site or to other properties.</p>	<p>AO3.1 Materials stored on site:</p> <p>(1) are readily able to be moved in a flood event to a flood free area; and</p> <p>(2) where capable of creating a safety hazard by being shifted by floodwaters, are contained in order to minimise movement in times of flood.</p> <p><i>Note - Businesses and Animal Husbandry or Cropping uses should ensure that they have the necessary continuity plans in place to account for the potential need to relocate property prior to a flood event (e.g. allow enough time to transfer stock to the upstairs level of a building, an area not affected by flood, or off site).</i></p> <p><i>Note - Queensland Government Fact Sheet 'Repairing your house after a flood' provides information about water resilient products and building techniques.</i></p> <p>AO3.2 Non-residential buildings and structures allow for flow through of flood waters on the ground floor.</p> <p><i>Editor's Note - The relevant building assessment provisions under the Building Act 1975 apply to all building work within the Flood Hazard Area and need to take account of the flood potential within the area.</i></p>
<p>PO4 Development avoids the release of hazardous materials into floodwaters.</p>	<p>AO4 Development:</p> <p>(1) involving materials manufactured or stored on site are not hazardous or noxious, or comprise materials that may cause a detrimental effect on the environment if discharged in a flood event; or</p> <p>(2) involving the manufacture or storage of hazardous materials ensures structures are:</p> <p>(a) located above the defined flood level; or</p> <p>(b) designed to prevent the intrusion of floodwaters; or</p> <p>(3) where a defined flood level is not available, ensures hazardous materials and their manufacturing equipment are:</p> <p>(a) located on the highest part of the site to enhance flood immunity; and</p> <p>(b) designed to prevent the intrusion of</p>

Performance Outcomes	Acceptable Outcomes
	<p>floodwaters.</p> <p><i>Editor's Note - Refer to the Work Health and Safety Act 2011 and associated Regulation and Guidelines, the Environmental Protection Act 1994 and the relevant building assessment provisions under the Building Act 1975 for requirements related to the manufacture and storage of hazardous substances.</i></p>
<p>PO5 Development supports, and does not burden, disaster management response or recovery capacity and capabilities.</p>	<p>AO5 Development does not:</p> <ul style="list-style-type: none"> (1) increase the number of people calculated to be at risk from flooding; or (2) increase the number of people likely to need evacuation; or (3) shorten flood warning times; or (4) impact on the ability of traffic to use evacuation routes, or unreasonably increase traffic volumes on evacuation routes.
<p>PO6 Development involving community facilities or infrastructure:</p> <ul style="list-style-type: none"> (1) remains functional to serve community need during and immediately after a flood event; (2) is designed, sited and operated to avoid adverse impacts on the community or the environment due to the impacts of flooding on infrastructure, facilities or access and egress routes; (3) retains essential site access during a flood event; and (4) is able to remain functional even when other infrastructure or services may be compromised in a flood event. 	<p>AO6.1 Any components of infrastructure that are likely to fail to function or may result in contamination when inundated by flood, such as electrical switch gear and motors, telecommunications connections, or water supply pipeline air valves, are:</p> <ul style="list-style-type: none"> (1) located above the <i>defined flood level</i>; and (2) designed and constructed to exclude floodwater infiltration. <p>AO6.2 Infrastructure is designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation by flood.</p> <p>AO6.3 In new subdivisions and large master planned developments, arterial, sub-arterial or major collector roads are located above a suitable flood immunity level.</p>
<p>PO7 Development involving community facilities or infrastructure:</p> <ul style="list-style-type: none"> (1) remains functional to serve community need during and immediately after a flood event; (2) is designed, sited and operated to avoid adverse impacts on the community or the environment due to the impacts of flooding on infrastructure, facilities or access and egress routes; (3) retains essential site access during a flood event; and (4) is able to remain functional even when other infrastructure or services may be compromised in a flood event. 	<p>AO7.1 Development for community services activities or infrastructure is designed to have a minimum flood immunity as prescribed in Table 8.2.6.3.2.</p> <p>AO7.2 For all other development being an <i>infrastructure activity</i> not listed in Table 8.2.6.3.2, such development can function effectively during and immediately after flood events.</p> <p>AO7.3 For all other development being a <i>community services activity</i> not listed in Table 8.2.6.3.2, such development is not located on land inundated during a <i>defined flood event</i>.</p> <p>AO7.3 The following uses have direct access to low hazard evacuation routes as defined in Table 8.2.6.3.3 Low Hazard Evacuation Routes:</p> <ul style="list-style-type: none"> (1) <i>Community residence</i>;

Performance Outcomes	Acceptable Outcomes
	<ul style="list-style-type: none"> (2) <i>Emergency services;</i> (3) <i>Hospitals;</i> (4) <i>Residential care facility;</i> (5) <i>Retirement facility;</i> (6) <i>Child care centre;</i> (7) <i>Substation;</i> (8) <i>Utility installations;</i> (9) <i>Community use;</i> (10) <i>Community care centre;</i> (11) <i>Detention facility;</i> (12) <i>Educational establishment;</i> (13) <i>Tourist park;</i> (14) <i>Non-resident workforce accommodation;</i> (15) <i>Rooming accommodation;</i> (16) <i>Rural workers' accommodation; and</i> (17) <i>Relocatable home park.</i>
<p>PO8 Development directly, indirectly and cumulatively avoids any increase in water flow, velocity or flood level and does not increase the potential for damage on site or on other properties.</p>	<p>PO8.1 In non-urban areas, buildings, infrastructure and building envelopes are set back a minimum of 50 metres from Stream Order 3 and 4, and Stream Order 5 to 7 on the Environmental Significance Overlay Map - Local Watercourses OM-04-E to maintain the natural riparian corridors and their natural function of reducing velocity of flood waters.</p> <p><i>Editor's Note - Fences and irrigation infrastructure (e.g. irrigation tape) in rural areas should be managed to minimise adverse impacts that they may have on downstream properties in the event of a flood.</i></p> <p>AO8.2 Development on land in a flood hazard area either: <ul style="list-style-type: none"> (1) does not involve a net increase in filling greater than 50m³ where located in a non-urban area; or (2) does not result in any reductions of on-site flood storage capacity and contain within the subject site any changes to depth, duration and velocity of floodwaters; or (3) does not change flood characteristics outside the subject site in ways that result in: <ul style="list-style-type: none"> (a) loss of flood storage; (b) loss of/changes to flow paths; (c) acceleration or retardation of flows; and (d) any reduction in flood warning times elsewhere on the floodplain. <p><i>Note - A hydraulic and hydrology report, prepared by a suitably qualified person can be prepared to demonstrate compliance with this performance outcome.</i></p> <p>AO8.3 Where development is located in an area affected by a <i>defined flood event</i>, a hydraulic and hydrology report, prepared by a <i>suitably qualified person</i>, demonstrates that the development: <ul style="list-style-type: none"> (1) maintains the flood storage capacity on the subject site; (2) does not increase the volume, velocity, </p> </p>

Performance Outcomes	Acceptable Outcomes
	<p>concentration or flow path alignment of stormwater flow across sites upstream, downstream or in the general vicinity of the subject site; and</p> <p>(3) does not increase stormwater ponding on sites upstream, downstream or in the general vicinity of the subject site.</p>
	<p>AO8.4 Works in urban areas associated with the proposed development do not involve:</p> <p>(1) any physical alteration to a watercourse or floodway including vegetation clearing; and/or</p> <p>(2) a net increase in filling (including berms / mounds).</p> <p><i>Editor's note - Berms/mounds are considered to be an undesirable built form outcome and are not supported.</i></p>

Table 8.2.6.3.2 Minimum flood immunity standards for infrastructure

Infrastructure Type	Settlement context [^]	Floodplain context*	Minimum immunity
Transport infrastructure			
Any transport infrastructure as defined by the Regulation	All	All	No specific recommended flood level, but development proponents should ensure that the infrastructure is optimally located and designed to achieve suitable levels of service, having regard to the processes and policies of the administering government agency.
Needing to operate during and immediately after a flood event			
Hospitals and associated institutions	All	High hazard or limited warning (e.g. less than 24 hours)	Locate outside PMF or other available extreme event (such as 0.2% AEP*, at a minimum)
Emergency services facility (including police facilities)	All	High hazard and longer warning	Locate outside 0.2% AEP* OR Building floor levels above 0.2% AEP* plus freeboard.
Water cycle management infrastructure (water treatment plant)		Lower hazard and longer warning	
Facilities used as an evacuation or recovery facility in addition to their normal function (e.g. sporting facility, community centre, meeting hall)			
Involving vulnerable persons			
Retirement village	Small town/rural settlement	High hazard or limited warning (e.g. less than 24 hours)	Locate outside PMF or other available extreme event (such as 0.2% AEP, at a minimum).
Residential care facility		High hazard and longer warning	Locate outside 1% AEP.
Facility where an education and care service under the Education and Care Services National Law (Queensland) is operated or a childcare service under the <i>Child Care Act 2002</i> is conducted		Lower hazard and longer warning	Locate outside 1% AEP. OR Building floor levels above 1%AEP + freeboard.
Correctional facility	Larger urban centre	High hazard or limited warning (e.g. less than 24 hours)	Locate outside PMF or other available extreme event (such as 0.2% AEP).
Education establishment		Lower hazard or longer warning	Locate outside 1% AEP.
Needing to operate soon after a flood event			
Cemetery and crematorium	All	High hazard or	Locate outside 1% AEP.

Infrastructure Type	Settlement context [^]	Floodplain context*	Minimum immunity
Sporting facility, community centre, meeting hall (where not uses as an evacuation or recovery facility) Waste management facilities Storage and works depots and similar facilities, including administrative facilities associated with the provision or maintenance of the community infrastructure mentioned in this part.		limited warning (e.g. less than 24 hours)	Locate outside 1% AEP. OR Building floor levels above 1%AEP + freeboard.
		High hazard and longer warning	
		Lower hazard and longer warning	
Facilities with potential primarily for property loss			
Gallery, museum, library and any other similar community/cultural facility/use	All	High hazard or limited warning (e.g. less than 24 hours)	Locate outside 0.5% AEP.
		High hazard and longer warning	Locate outside 1% AEP. OR
		Lower hazard and longer warning	Building floor levels above 1%AEP + freeboard.
Other infrastructure			
Any other infrastructure as defined by the Regulation	All	All	Unless stated through other infrastructure.

*0.5% AEP for water cycle management infrastructure (water treatment plant)

Table 8.2.6.3.3 Low Hazard Evacuation Routes

Criteria	Degree of Flood Hazard			
	Low	Medium	High	Extreme
Wading ability	If necessary children and the elderly could wade. (Generally, safe wading velocity depth product is less than 0.25).	Fit adults can wade. (Generally, safe wading velocity depth product is less than 0.4).	Fit adults would have difficulty wading. (Generally, where wading velocity depth product is less than 0.6.)	Wading is not an option.
Evacuation distances	<200 metres	200-400 metres	400-600 metres	>600 metres
Maximum Flood Depths	<0.3 metres	<0.6 metres	<1.2 metres	>1.2 metres
Maximum Flood Velocity	<0.4 metres per second	<0.8 metres per second	<1.5 metres per second	>1.5 metres per second
Typical means of egress	Sedan	Sedan early, but 4WD or trucks later.	4WD or trucks only in early stages, boats or helicopters	Large trucks, boats or helicopters.