

## Module 10. Coastal protection

### 10.1 Tidal works, or development in a coastal management district state code

#### 10.1.1 Purpose

The purpose of this code is to ensure development in coastal areas:

- (1) is managed to protect and conserve environmental, social and economic coastal resources
- (2) enhances the resilience of coastal communities to coastal hazards.

#### 10.1.2 Criteria for assessment tables

Development mentioned in column 1 below must be assessed against the assessment criteria in the table mentioned in column 2.

| Column 1            | Column 2     |
|---------------------|--------------|
| All development     | Table 10.1.1 |
| Operational work    | Table 10.1.2 |
| Reconfiguring a lot | Table 10.1.3 |

**Table 10.1.1: All development**

| Performance outcomes   | Acceptable outcomes   |
|--|---|
| <b>PO1</b> Development in a <u>coastal hazard area</u> is compatible with the level of severity of the <u>coastal hazard</u> .   | <p><b>AO1.1</b> Development is located outside a <u>high coastal hazard area</u> unless it is:</p> <ol style="list-style-type: none"> <li>(1) <u>coastal-dependent development</u>, or</li> <li>(2) <u>temporary, readily relocatable, or able to be abandoned</u>, or</li> <li>(3) <u>essential community service infrastructure</u>, or</li> <li>(4) <u>small- to medium-scale tourist development</u>, or</li> <li>(5) development that is compatible with temporary inundation due to its nature or function, or</li> <li>(6) within an existing built-up urban area, or is <u>redevelopment</u> of built structures that cannot be relocated or abandoned.</li> </ol> <p>AND</p> <p><b>AO1.2</b> Development referred to in AO1.1(6) avoids being located within a <u>high coastal hazard area</u>, or where this is not practicable, minimises the exposure of people and permanent structures to <u>coastal hazard impacts</u> and mitigates residual impacts where it is not practicable to locate the development outside a <u>high coastal hazard area</u>.</p> |
| <b>PO2</b> Development siting, layout and access in a <u>coastal hazard area</u> responds to a potential <u>coastal hazard</u> and minimises risk to personal safety and property. | <p><b>AO2.1</b> Development within a <u>coastal hazard area</u> is located, designed, constructed and operated to maintain or enhance the community's resilience to <u>defined storm tide events</u> and <u>coastal erosion</u> by limiting the exposure of people and structures to <u>coastal hazard impacts</u> and ensuring:</p> <ol style="list-style-type: none"> <li>(1) <u>habitable rooms</u> of built structures are located above the <u>defined storm tide event</u> level and any additional freeboard level that would ordinarily apply in a flood prone area under a relevant planning scheme standard,</li> </ol>   |

| Performance outcomes  | Acceptable outcomes   |
|---|---|
|   | <p>or</p> <p>(2) a safe refuge is available for people within the premises during a <u>defined storm tide event</u>, or</p> <p>(3) at least one evacuation route remains passable for emergency evacuations during a <u>defined storm tide event</u>, including consideration of the capacity of the route to support the evacuation of the entire local population within a reasonably short time frame (for example, 12 hours).</p> <p>AND</p> <p><b>AO2.2</b> Development within a <u>coastal hazard area</u> is located, designed and constructed to ensure exposed structures can sustain flooding from a <u>defined storm tide event</u>.</p> <p>AND</p> <p><b>AO2.3</b> <u>Essential community service</u> infrastructure is:</p> <p>(4) located so that it is not inundated by a <u>recommended storm tide event</u> specified for that infrastructure, or</p> <p>(5) located and designed to ensure any components of the infrastructure that are likely to fail to function or may result in contamination when inundated by a storm tide (for example, electrical switch gear and motors, water supply pipeline air valves) are:</p> <p>(a) located above the peak water level for a <u>recommended storm tide event</u>, or</p> <p>(b) designed and constructed to exclude storm tide intrusion or infiltration (including by being located in the ground), or</p> <p>(c) able to temporarily stop functioning during a <u>recommended storm tide event</u> without causing significant adverse impacts to the infrastructure or the community.</p> <p>AND</p> <p><b>AO2.4</b> Emergency services infrastructure and emergency shelters, police facilities, and hospitals and associated facilities have an emergency rescue area above the peak water level for a <u>recommended storm tide event</u>.</p> <p>AND</p> <p><b>AO2.5</b> <u>Redevelopment</u> of existing built structures avoids increasing the exposure of people and permanent structures to adverse <u>coastal hazard impacts</u> (including impacts on the development's ongoing operation).</p> |
| <p><b>PO3</b> Development directly, indirectly and cumulatively avoids an unacceptable increase in the severity of the <u>coastal hazard</u>, and does not significantly increase the potential for damage on the premises or to other premises.</p>  | <p><b>AO3.1</b> Development avoids increasing the number of premises from which people would need to be evacuated to prevent death or injury from a <u>defined storm tide event</u>.</p>  |
| <p><b>PO4</b> Development avoids the release of hazardous materials as a result of a natural hazard event.</p> <p>Editor's note: Applications should:</p> <p>(1) assess the risk of <u>storm tide inundation</u> releasing or otherwise exposing hazardous materials, including appropriate emergency</p> | <p><b>AO4.1</b> Development that involves the manufacture or storage of hazardous materials in bulk are designed to:</p> <p>(1) prevent the intrusion of waters from a <u>defined storm tide event</u> into structures or facilities containing the hazardous materials, or</p> <p>(2) ensure hazardous materials remain secured despite inundation, including secure from the effects of <u>hydrodynamic forcing</u> associated with wave action or flowing water.</p>   |

| Performance outcomes  | Acceptable outcomes  |
|---|--|
| <p>planning and contingency measures.</p> <p>(2) applications are to be supported by a report certified by a Registered Professional Engineer of Queensland (RPEQ) that demonstrates this performance outcome will be achieved.</p>   |  |
| <p><b>PO5</b> Natural processes and the protective function of landforms and vegetation are maintained in <u>coastal hazard areas</u>.</p> <p>Editor's note: Applications should be supported by a report certified by an RPEQ that demonstrates this performance outcome will be achieved.</p> | <p><b>AO5.1</b> Development in an <u>erosion prone area</u> within the <u>coastal management district</u>:</p> <ol style="list-style-type: none"> <li>(1) maintains vegetation on coastal landforms where its removal or damage may:               <ol style="list-style-type: none"> <li>(a) destabilise the area and increase the potential for erosion, or</li> <li>(b) interrupt natural sediment trapping processes or dune or land building processes</li> </ol> </li> <li>(2) maintains sediment volumes of dunes and near-shore coastal landforms, or where a reduction in sediment volumes cannot be avoided, increased risks to development from <u>coastal erosion</u> are mitigated by location, design, construction and operating standards</li> <li>(3) <u>maintains physical coastal processes</u> outside the development footprint for the development, including longshore transport of sediment along the coast</li> <li>(4) reduces the risk of shoreline erosion for areas adjacent to the development footprint unless the development is an <u>erosion control structure</u></li> <li>(5) reduces the risk of shoreline erosion for areas adjacent to the development footprint to the maximum extent feasible in the case of <u>erosion control structures</u>.</li> </ol> <p>AND</p> <p><b>AO5.2</b> Development in a <u>storm tide inundation area</u> is located, designed, constructed and operated to:</p> <ol style="list-style-type: none"> <li>(1) maintain dune crest heights, or where a reduction in crest heights cannot be avoided, mitigate risks to development from wave overtopping and storm surge inundation</li> <li>(2) maintain or enhance coastal ecosystems and natural features, such as mangroves and coastal wetlands, between the development and <u>tidal waters</u>, where the coastal ecosystems and natural features protect or buffer communities and infrastructure from sea level rise and impacts from <u>storm tide inundation</u>.</li> </ol> <p>AND</p> <p><b>AO5.3</b> <u>Redevelopment</u> of built structures in the <u>erosion prone area</u> within a <u>coastal management district</u>:</p> <ol style="list-style-type: none"> <li>(1) avoids intensifying the use of the premises, or</li> <li>(2) demonstrates that any intensification of use will not result in a significant increase in <u>foreshore</u> or bank hardening due to:               <ol style="list-style-type: none"> <li>(c) the presence of existing <u>erosion control structures</u> on or adjacent to the property, or</li> <li>(d) the existing necessity to install <u>erosion control structures</u> to defend built structures on the property from an imminent threat of <u>coastal erosion</u>.</li> </ol> </li> </ol> |

| Performance outcomes  | Acceptable outcomes   |
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|   | <p>AND</p> <p><b>AO5.4</b> Development that is <u>coastal protection work</u> involves:</p> <ol style="list-style-type: none"> <li>(1) <u>beach nourishment</u> undertaken in accordance with a program of beach nourishment works that source sediment of a suitable quality and of a type and size which match that of the native sediment usually found at the location, or</li> <li>(2) the construction of an <u>erosion control structure</u>, where it is demonstrated that installing an <u>erosion control structure</u> is the only feasible option for protecting permanent structures from <u>coastal erosion</u> at those structures cannot be abandoned or relocated in the event of <u>coastal erosion</u> occurring.</li> </ol> <p>Editor’s note: Applications for <u>coastal protection work</u> should be supported by a report certified by an RPEQ that demonstrates how the engineering solution sought by the work will be achieved.</p> <p>Editor’s note: Applications for <u>erosion control structures</u> should demonstrate the consideration of <u>beach nourishment</u> techniques, and include a statement of why nourishment (in whole or part) has not been adopted as the preferred means of controlling the erosion risk.</p> <p>AND</p> <p><b>AO5.5</b> Development involving <u>reclamation</u>:</p> <ol style="list-style-type: none"> <li>(1) does not alter, or otherwise minimises impacts on, the physical characteristics of dune systems, including dune crest height and sand volume</li> <li>(2) does not alter, or otherwise minimises impacts on, the physical characteristics of a waterway or the seabed near the <u>reclamation</u>, including flow regimes, <u>hydrodynamic forces</u>, tidal water and riverbank stability</li> <li>(3) is located outside the active sediment transport area, or otherwise maintains sediment transport processes as close as possible to their natural state</li> <li>(4) ensures activities associated with the operation of the development maintain the structure and condition of vegetation communities and avoid wind and water run-off erosion.</li> </ol> |
| <p><b>PO6</b> <u>Erosion prone areas</u> in a <u>coastal management district</u> are maintained as development free buffers, or where permanent buildings or structures exist, <u>coastal erosion</u> risks are avoided or mitigated.</p> | <p><b>AO6.1</b> Development locates built structures outside the part of the <u>coastal management district</u> that is the <u>erosion prone area</u> unless the development:</p> <ol style="list-style-type: none"> <li>(1) is <u>coastal-dependent development</u>, or</li> <li>(2) is <u>temporary</u>, readily relocatable, or able to be abandoned, or</li> <li>(3) is essential community service infrastructure, or</li> <li>(4) is located landward of an applicable <u>coastal building line</u>, or</li> <li>(5) is located landward of the alignment of adjacent habitable buildings if there is no <u>coastal building line</u>, and on a lot that is less than 2000 square metres in size, or</li> <li>(6) is <u>redevelopment</u> of existing built structures, or</li> <li>(7) is <u>coastal protection work</u>, or</li> <li>(8) locates built structures landward of other permanent built structures</li> </ol>   |

| Performance outcomes | Acceptable outcomes  |
|----------------------|--|
|                      | <p>that are likely to be defended from coastal erosion, if it is demonstrated the development cannot reasonably be located outside the <u>erosion prone area</u>.</p> <p>AND</p> <p><b>A06.2</b> Development referred to in A06.1(4), (5) or (8) above ensures sufficient space is provided seaward of the development within the premises to allow for the construction of <u>erosion control structures</u> (such as a seawall).</p> <p>AND</p> <p><b>A06.3</b> Coastal-dependent development:</p> <ol style="list-style-type: none"> <li>(1) locates, designs and constructs relevant buildings or structures to withstand <u>coastal erosion</u> impacts, including by use of appropriate foundations</li> <li>or</li> <li>(2) installs and maintains <u>coastal protection works</u> to mitigate adverse impacts to people and permanent structures from <u>coastal erosion</u> at the location.</li> </ol> <p>AND</p> <p><b>A06.4</b> Development that is <u>temporary, readily relocatable, able to be abandoned, or essential community service infrastructure</u>:</p> <ol style="list-style-type: none"> <li>(1) locates built structures landward of an applicable <u>coastal building line</u></li> <li>(2) where there is no <u>coastal building line</u>, locates habitable built structures landward of the alignment of adjacent habitable buildings</li> <li>(3) locates lifesaver towers or beach access infrastructure to minimise its impacts on <u>physical coastal processes</u></li> <li>or</li> <li>(4) where it is demonstrated that (1) or (2) is not reasonable and (3) does not apply: <ol style="list-style-type: none"> <li>(a) locates built structures as far landward as practicable</li> <li>(b) uses layout design to minimise the footprint of the development that remains within the <u>erosion prone area</u>.</li> </ol> </li> </ol> <p>AND</p> <p><b>A06.5</b> <u>Redevelopment</u> of existing built structures not referred to in A06.4, and excluding <u>marine development</u>:</p> <ol style="list-style-type: none"> <li>(1) relocates built structures outside that part of the <u>erosion prone area</u> that is within the <u>coastal management district</u>, or</li> <li>(2) relocates built structures as far landward as practicable, and landward of an applicable <u>coastal building line</u>, or</li> <li>(3) where there is no <u>coastal building line</u>, relocates built structures landward of the alignment of adjacent habitable buildings, or</li> <li>(4) uses layout design to minimise the footprint of the development that remains within the <u>erosion prone area</u>, or</li> <li>(5) provides sufficient space seaward of the development within the premises to allow for the construction of <u>erosion control structures</u>.</li> </ol> <p>AND</p> <p><b>A06.6</b> <u>Redevelopment</u> of built structures in the <u>erosion prone area</u> within a <u>coastal management district</u>, which results in an intensification of use,</p> |

| Performance outcomes   | Acceptable outcomes  |
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|  | <p>mitigates the erosion threat to the development, having regard to:</p> <ol style="list-style-type: none"> <li>(1) use of appropriate foundations for the building or structure, given the practical design life of the development</li> <li>(2) installing and maintaining on-site <u>erosion control structures</u> if the development is not intended to be temporary.</li> </ol> <p>AND</p> <p><b>A06.7</b> Development that is <u>coastal protection work</u>:</p> <ol style="list-style-type: none"> <li>(1) is in the form of <u>beach nourishment</u> that maintains the natural characteristics and landform of the beach or <u>foreshore</u> or</li> <li>(2) is in the form of an <u>erosion control structure</u> where <u>beach nourishment</u> is not feasible for addressing the risk of <u>coastal erosion</u>, and the <u>erosion control structure</u> is located on private land to the maximum extent feasible.</li> </ol>  |
| <p><b>PO7</b> Development avoids or minimises adverse impacts on coastal resources and their values, to the maximum extent reasonable.</p> | <p><b>A07.1</b> <u>Coastal protection work</u> that is in the form of <u>beach nourishment</u> uses methods of placement suitable for the location that do not interfere with the long-term use of the locality of, or natural values within or neighbouring, the proposed placement site.</p> <p>AND</p> <p><b>A07.2</b> <u>Marine development</u> is located and designed to expand on or redevelop existing marine infrastructure unless it is demonstrated that it is not practicable to co-locate the development with existing marine infrastructure.</p> <p>AND</p> <p><b>A07.3</b> <u>Marine development</u>:</p> <ol style="list-style-type: none"> <li>(1) relies on a natural channel of a depth adequate for the intended vessels, or</li> <li>(2) where there are no feasible alternative location for the facility in the local area that do not require dredging for navigation channel purposes: <ol style="list-style-type: none"> <li>(c) involves capital <u>dredging</u> for new navigation channel purposes</li> <li>(d) is located, designed and operated to minimise the need for capital and subsequent maintenance <u>dredging</u> for navigation channel purposes.</li> </ol> </li> </ol> <p>AND</p> <p><b>A07.4</b> Development minimises capital <u>dredging</u> or the disposal of material in <u>coastal waters</u> during key biological events (such as fish aggregations or spawning) for species found in the area.</p> <p>AND</p> <p><b>A07.5</b> Measures are to be incorporated as part of siting and design of the development to protect and retain identified ecological values and underlying ecosystem processes within or adjacent to the development site to the greatest extent practicable. This includes:</p> <ol style="list-style-type: none"> <li>(1) maintaining or restoring vegetated buffers between development and <u>coastal waters</u> to the extent practicable, unless the development is within ports or airports, or is <u>marine development</u></li> <li>(2) maintaining or enhancing the connectivity of ecosystems in</li> </ol> |

| Performance outcomes  | Acceptable outcomes  |
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|   | <p>consideration of the cumulative effect of the development in addition to existing developed areas</p> <p>(3) retaining coastal wetlands, seagrass beds and other locally important feeding, nesting or breeding sites for native wildlife.</p> <p>AND</p> <p><b>A07.6</b> Measures are incorporated as part of siting and design of the development to maintain or enhance water quality to achieve the <u>environmental values</u> and water quality objectives outlined in the <i>Environmental Protection (Water) Policy 2009</i>.</p> <p>AND</p> <p><b>A07.7</b> Development avoids the disturbance of acid sulphate soils, or where it is demonstrated that this is not possible, the disturbance of acid sulphate soils is carefully managed to minimise and mitigate the adverse effects of the disturbance on coastal resources.</p>  |
| <p><b>PO8</b> <u>Coastal protection work</u> is undertaken only as a last resort where erosion presents an imminent threat to public safety or permanent structures.</p> <p>Editor's note: Applications for <u>coastal protection work</u> must be supported by a report certified by an RPEQ that demonstrates how the engineering solution sought by the work will be achieved.</p> | <p><b>A08.1</b> <u>Coastal protection work</u> is only undertaken to protect existing permanent structures from imminent adverse <u>coastal erosion</u> impacts, and the structures cannot reasonably be relocated or abandoned.</p> <p>AND</p> <p><b>A08.2</b> <u>Coastal protection work</u> is undertaken on private land to the maximum extent reasonable.</p> <p>AND</p> <p><b>A08.3</b> <u>Coastal protection work</u> does not increase the <u>coastal hazard</u> risk for adjacent areas or properties.</p>  |
| <p><b>PO9</b> Development avoids adverse impacts on <u>matters of state environmental significance</u>, or where this is not reasonably possible, impacts are minimised and residual impacts are offset.</p>  | <p><b>A09.1</b> Development:</p> <p>(1) is set back from <u>matters of state environmental significance</u></p> <p>(2) avoids interrupting, interfering or otherwise adversely impacting underlying natural ecosystem components or processes and interactions that affect or maintain the <u>matters of state environmental significance</u>, such as water quality, hydrology, geomorphology and biological processes, or</p> <p>(3) incorporates measures as part of its location and design to protect and retain <u>matters of state environmental significance</u> and underlying ecosystem processes within and adjacent to the development site to the greatest extent practicable.</p> <p>Editor's note: Applications for development should identify any threatened species or their habitats, or threatened ecosystems, that may be affected by the proposal. In particular, applications should identify and describe how the development avoids adverse impacts on any critical life stage ecological processes within or adjacent to the development area.</p> <p>AND</p> <p><b>A09.2</b> An <u>environmental offset</u> is provided for any unavoidable significant residual impact on <u>matters of state environmental significance</u> caused by the development.</p> <p>Editor's note: Applications for development should identify anticipated losses, and outline what actions are proposed to be undertaken to offset the loss in accordance with the relevant <i>Queensland Government Environmental Offset Policy</i> available from</p> |

| Performance outcomes   | Acceptable outcomes   |
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|  | the Department of Environment and Heritage Protection library catalogue.  |
| <p><b>PO10</b> Development maintains or enhances general public access to or along the <u>foreshore</u>, unless this is contrary to the protection of coastal resources or public safety.</p>  | <p><b>AO10.1</b> Development adjacent to <u>state coastal land</u> or tidal water:</p> <ol style="list-style-type: none"> <li>(1) demonstrates that restrictions to public access are necessary for:               <ol style="list-style-type: none"> <li>(a) the safe or secure operation of development, or</li> <li>(b) the maintenance of coastal landforms and coastal habitat</li> </ol> </li> <li>(2) separates residential, tourist and retail development from tidal water with public areas or public access facilities, or</li> <li>(3) maintains existing public access (including public access infrastructure that has been approved by the local government or relevant authority) through the site to the <u>foreshore</u> for:               <ol style="list-style-type: none"> <li>(a) pedestrians, via access points including approved walking tracks, boardwalks and viewing platforms, or</li> <li>(b) vehicles, via access points including approved roads or tracks.</li> </ol> </li> </ol> <p>AND</p> <p><b>AO10.2</b> Development adjacent to <u>state coastal land</u>, including land under tidal water:</p> <ol style="list-style-type: none"> <li>(1) is located and designed to:               <ol style="list-style-type: none"> <li>(a) allow safe and unimpeded access to, over, under or around built structures located on, over or along the <u>foreshore</u></li> <li>(b) ensure emergency vehicles can access the area near the development, or</li> </ol> </li> <li>(2) minimises and offsets any loss of access to and along the <u>foreshore</u> within two kilometres of the existing access points, and the access is located and designed to be consistent with (1)(a) and (b).</li> </ol> <p>AND</p> <p><b>AO10.3</b> Any parts of <u>private marine development</u> that extend over tidal water are to be designed, constructed and used for marine access purposes only.</p> |
| <p><b>PO11</b> Development avoids structures attaching to, or extending across, non-tidal <u>state coastal land</u> abutting <u>tidal waters</u>.</p>  | <p><b>AO11.1</b> <u>Private marine development</u> and other structures such as decks or boardwalks for private use do not attach to, or extend across <u>state coastal land</u> that is situated above the high water mark.</p> <p>Editor's note: For occupation permits or allocations of State land, refer to the <i>Land Act 1994</i>.</p>  |
| <p><b>PO12</b> Further development of <u>canals</u>, <u>dry land marinas</u> and <u>artificial waterways</u> avoids or minimises adverse impacts on coastal resources and their values, and does not contribute to:</p> <ol style="list-style-type: none"> <li>(1) degradation of water quality</li> <li>(2) an increase in the risk of flooding</li> <li>(3) degradation and loss of <u>matters of state environmental significance</u> (including, but not limited to, coastal wetlands, fish habitat areas and migratory species habitat).</li> </ol> | <p><b>AO12.1</b> The design, construction and operation of artificial tidal waterways maintains the <u>tidal prism volume</u> of the natural waterway to which it is connected.</p> <p>AND</p> <p><b>AO12.2</b> The design, construction and operation of artificial tidal waterways does not increase the number of premises vulnerable to flooding from a <u>defined storm tide event</u>.</p> <p>AND</p> <p><b>AO12.3</b> The location of <u>artificial waterways</u> avoids <u>matters of state environmental significance</u>, or does not result in any significant adverse effect on <u>matters of state environmental significance</u>.</p>   |

| Performance outcomes   | Acceptable outcomes                         |
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| <p><b>PO13</b> Development does not involve <u>reclamation</u> of land below the <u>highest astronomical tide</u>, other than for the purposes of:</p> <ol style="list-style-type: none"> <li>(1) <u>coastal-dependent development</u>, public <u>marine development</u> or community infrastructure</li> <li>(2) strategic ports, boat harbours or strategic airports and aviation facilities, in accordance with a statutory land use plan, where there is a demonstrated net benefit for the state or region and no feasible alternative exists</li> <li>(3) <u>coastal protection work</u> or work necessary to protect coastal resources or <u>physical coastal processes</u>.</li> </ol> | <p>No acceptable outcome is prescribed.</p> |

**Table 10.1.2: Operational work**

| Performance outcomes  | Acceptable outcomes   |
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| <p><b>PO1</b> Tidal works that is <u>private marine development</u> does not result in adverse impacts to tidal land.</p> <p>Editor's note: In addressing this performance outcome, the applicant should also have regard to requirements for <u>private marine development</u> in the prescribed tidal works code in the Coastal Protection and Management Regulation 2003.</p> <p>Editor's note; Applications should be supported by a report certified by an RPEQ to demonstrate compliance with this performance outcome.</p> | <p><b>AO1.1</b> The location and design of tidal works that is <u>private marine development</u>:</p> <ol style="list-style-type: none"> <li>(1) is on private land abutting <u>state tidal land</u> and used for property access purposes</li> <li>(2) occupies the minimum area reasonably required for its designed purpose</li> <li>(3) is not to be roofed or otherwise covered</li> <li>(4) does not require the construction of <u>coastal protection works</u>, riverbank hardening or <u>dredging</u> for marine access</li> <li>(5) does not adversely impact on public safety or public access and use of the <u>foreshore</u>.</li> </ol> |
| <p><b>PO2</b> Development does not result in the disposal of material dredged from an <u>artificial waterway</u> into <u>coastal waters</u>, with the exception of:</p> <ol style="list-style-type: none"> <li>(1) <u>reclamation</u> works, or</li> <li>(2) <u>coastal protection works</u>, or</li> <li>(3) the maintenance of an existing <u>artificial waterway</u> and the at-sea disposal of material that has previously been approved for the waterway.</li> </ol>  | <p>No acceptable outcome prescribed.</p>  |
| <p><b>PO3</b> Development includes and complies with a dredge management plan that demonstrates how environmental impacts will be managed and mitigated, and how the requirements of the <i>National Assessment Guidelines for Dredging</i>,</p>  | <p><b>AO3.1</b> A dredge management plan for the development:</p> <ol style="list-style-type: none"> <li>(1) directs the operation of the development</li> <li>(2) identifies disposal methods and disposal sites for the removed material for the construction and operational phases of the development</li> </ol>  |

| Performance outcomes  | Acceptable outcomes   |
|---|---|
| Australia Government Department of the Environment, Water, Heritage and the Arts, 2009 will be met. | <p>(3) outlines how any adverse effects from extraction activities on sediment transport processes and/or adjacent coastal landforms will be mitigated or otherwise remediated by suitably planned and implemented <u>beach nourishment</u> and rehabilitation works.</p> <p>Editor's note: The development must comply with the <i>National assessment guidelines for dredging</i>, Australian Government Department of Environment, Water, Heritage and the Arts, 2009</p> <p>AND</p> <p><b>AO3.2</b> For land based disposal of <u>dredged material</u>, any area used for storing, dewatering, drying or rehandling dredge material as outlined in the dredge management plan is:</p> <ol style="list-style-type: none"> <li>(1) of sufficient size for the projected volume of dredged material from relevant capital or maintenance <u>dredging</u></li> <li>(2) protected from future development that would compromise the use of the area for its intended purpose of spoil dewatering.</li> </ol> <p>AND</p> <p><b>AO3.3</b> For at-sea disposal of suitable <u>dredged material</u>, the dredge management plan specifies that material is placed at a dredged material disposal site only if it is demonstrated that it is not feasible to:</p> <ol style="list-style-type: none"> <li>(1) dispose of the material above the high water mark, if the material is from maintenance works for an existing <u>artificial waterway</u> for which at-sea disposal was previously approved, or</li> <li>(2) keep the <u>dredged material</u> within the active sediment transport system for the locality, or</li> <li>(3) use the material for <u>beach nourishment</u> or another beneficial purpose.</li> </ol> <p>AND</p> <p><b>AO3.4</b> For at-sea disposal of <u>dredged material</u> where the marine spoil disposal site is a retentive (i.e. non-dispersive) site, the disposal site identified in the dredge management plan has the capacity to hold and retain the material within its boundaries during construction and operation of the development.</p> <p>Editor's note: The use of dredged material for a beneficial purpose uses of <u>dredged material</u> could include development of port or other marine facilities, use for construction or industrial purposes, or use to create or modify land or waters for an approved environmental outcome (such as creation of a bird roosting site). Further information about beneficial uses is contained in the <i>National assessment guidelines for dredging</i>, Australian Government Department of Environment, Water, Heritage and the Arts, 2009.</p> |
| <b>Within a wild river area: riparian and wildlife corridor functions</b>                           |   |
| <b>PO4</b> The clearing of native marine plants within a wild river area is minimised.              | <b>AO4.1</b> Clearing of marine plants within a wild river area can only occur to the extent of the works, plus the prescribed area around the development to allow for maintenance.  |
| <b>PO5</b> Development within a wild river area does not impact fish passage.                       | No acceptable outcome is prescribed.  |
| <b>PO6</b> There is no net loss in marine plants  | <b>AO6.1</b> Any marine plant damaged during construction in a wild river area is   |

| Performance outcomes  | Acceptable outcomes  |
|---|--|
| beyond the extent of the works in a wild river area.  | replaced at the completion of the development with the same species of plant in the disturbed area outside the footprint of the development.   |
| <b>PO7</b> Works within a wild river area does not impact on fish habitat values.   | <b>AO7.1</b> Works located in tidal waters within a wild river area are designed and constructed using materials, and located to ensure that the activities do not impact on fish habitat values and function.   |
| <b>Within a wild river area: hydrological processes</b>   |  |
| <b>PO8</b> Development within a wild river area does not impound natural drainage lines or flow paths, during both construction and operation.  | No acceptable outcome is prescribed.   |
| <b>Within a wild river area: geomorphic processes</b>   |  |
| <b>PO9</b> Excavation and filling for prescribed tidal work within a wild river area is carried out only to the extent necessary for the development.                                       | No acceptable outcome is prescribed.   |
| <b>PO10</b> Works in a tidal area within a wild river area are designed and constructed in a way to ensure they do not adversely affect the stability of the bed and banks of any waterway. | <b>AO10.1</b> Where it is necessary to remove a marine plant, the root system must be left in the substrate to minimise disturbance to bed and banks.<br>AND<br><b>AO10.2</b> When the works are completed, any tidal lands disturbed by activities beyond the footprint of the works are restored to pre-disturbance condition to promote natural restoration of marine plants and fish habitats. |
| <b>Within a wild river area: water quality</b>  |  |
| <b>PO11</b> No pollutants are released from the activity.   | No acceptable outcome is prescribed.   |

**Table 10.1.3: Reconfiguring a lot**

| Performance outcomes   | Acceptable outcomes   |
|--|---|
| <b>PO1</b> <u>Erosion prone areas</u> in a <u>coastal management district</u> are maintained as development free buffers, or where permanent buildings or structures exist, <u>coastal erosion</u> risks are avoided or mitigated. | <b>AO1.1</b> Where reconfiguring a lot is proposed within the <u>coastal management district</u> , the <u>erosion prone area</u> within the lot, or land within 40 metres of the <u>foreshore</u> (whichever is greater), is surrendered to the State for public use unless: <ol style="list-style-type: none"> <li>(1) the development is in a port or is for <u>coastal-dependent development</u> or</li> <li>(2) the surrender of the land will not enhance coastal management outcomes, for example, because there is already substantial development seaward of the lot.</li> </ol> Editor's note: Land surrendered to the State for public use under AO1.1 is to be: <ol style="list-style-type: none"> <li>(1) placed in a State land reserve for beach protection and coastal management purposes under the <i>Land Act 1994</i>, with local government as trustee, or</li> <li>(2) managed for beach protection and coastal management purposes under another management regime to the satisfaction of the chief executive administering the <i>Coastal Protection and Management Act 1995</i> and <i>Land Act 1994</i>, if it is demonstrated that AO1.2(1) cannot be reasonably achieved.</li> </ol> |
| <b>PO2</b> Development maintains or enhances general public access to or along the <u>foreshore</u> ,  | <b>AO2.1</b> Reconfiguring a lot that abuts the <u>foreshore</u> or tidal waters involves the creation of 10 or more lots or the opening of a new road, unless it is for  |

| Performance outcomes   | Acceptable outcomes                   |
|--|---------------------------------------|
| unless this is contrary to the protection of coastal resources or public safety. | <u>coastal-dependent development.</u> |

## 10.2 Reference documents

Department of Environment and Heritage [Certification \(statutory declaration\): Design of tidal works](#)

Department of Environment and Heritage 2013 [Building and engineering standards for tidal works](#)

Department of Environment and Heritage [Removal or interfering with coastal dunes in an erosion prone area on land other than State coastal land](#)

Department of Environment and Heritage 2013 [Guideline: Approval requirements for local government works in coastal management district](#)

Department of Environment and Heritage 2013 [Guideline: Building work seaward of a coastal building line](#)

Department of Environment and Heritage 2012 [Guideline: Constructing tidal works](#)

Department of Environment and Heritage 2013 [Guideline: Operational work on State coastal land](#)

Department of Environment and Heritage 2013 [Guideline: Preparing a water allocation area for tidal works](#)

Australian Government Department of Environment, Water Heritage and the Arts 2009 [National assessment guidelines for dredging](#)

Queensland Government [Environmental Offsets website](#)

## 10.3 Glossary of terms

**Annual exceedance probability** means the likelihood of occurrence of a flood of a given size or larger in any one year, usually expressed as a percentage.

**Artificial waterway**—means an artificial channel, lake or other body of water.

Note: This definition was sourced from the *Coastal Protection and Management Act 1995*.

**Beach nourishment** means the replenishment of a beach system using imported sediment to balance erosion losses or to re-establish a wider dunal buffer zone.

**Canal** see the *Coastal Protection and Management Act 1995*, schedule

**Editor's note:** Canal means an artificial waterway:

- (1) connected, or intended to be connected, to tidal water
- (2) from which boating access to the tidal water is not hindered by a lock, weir or similar structure.

**Coastal building line** see the *Coastal Protection and Management Act 1995*, schedule.

Editor's note: Coastal building line means a line declared as a coastal building line under the *Coastal Protection and Management Act 1995*.

**Coastal-dependent development** means development that requires land adjoining the foreshore and access to tidal water to function and includes:

- (1) industrial and commercial facilities such as ports, harbours and navigation channels and facilities, aquaculture involving marine species, desalination plants, tidal generators, erosion control structures and beach nourishment
- (2) tourism facilities for marine (boating) purposes or that are part of an integrated development proposal incorporating a marina.

The term does not include residential development, waste management facilities (landfills, sewerage treatment plants) or transport infrastructure (other than for access to the coast).

**Coastal erosion** means the wearing away of land or the removal of beach or dune sediments by wave or wind action, tidal currents and water flows.

**Coastal hazard** see the *Coastal Protection and Management Act 1995*, schedule.

Editor's note: Coastal hazard means erosion of the foreshore or tidal inundation.

**Coastal hazard area** means a storm tide inundation area or an erosion prone area.

**Coastal hazard impact** means the impact resulting from one or more of the following:

- (1) coastal erosion within an erosion prone area that is also within the coastal management district
- (2) a defined storm tide event
- (3) the permanent inundation of land due to a sea-level rise of 0.8 metres by the year 2100.

**Coastal management district** see the *Sustainable Planning Act 2009*

Editor's note: Coastal management district means a coastal management district under the *Coastal Protection and Management Act 1995*, other than an area declared as a coastal management district under section 54(2) of that Act.

**Coastal protection work** means any permanent or periodic work undertaken primarily to manage the impacts of coastal hazards, including altering physical coastal processes such as sediment transport.

**Coastal waters** see the *Coastal Protection and Management Act 1995*, section 13.

Editor's note: Coastal waters means Queensland waters to the limit of the highest astronomical tide.

**Defined storm tide event (DSTE)** means the event, measured in terms of likelihood of reoccurrence, and associated inundation level adopted to manage the development of a particular area.

Except in the case of redevelopment, the DSTE is equivalent to a one in 100 year average recurrence interval storm event incorporating:

- (1) a projected sea level rise of 0.8 metres by the year 2100
- (2) an increase in cyclone intensity by 10 per cent relative to maximum potential intensity.

In the case of redevelopment, the DSTE is equivalent to a one in 100 year average recurrence interval storm event incorporating:

- (1) an increase in cyclone intensity by 10 per cent relative to maximum potential intensity, and
- (2) a projected sea level rise of the amount outlined in table 10.3.1 based on the year of end of design life for the design life outlined for development in table 10.3.2.

**Table 10.3.1: Projected sea-level rise for the year of the end of design life as per table 10.3.2**

| Year of end of design life | Projected sea level rise |
|----------------------------|--------------------------|
| Year 2050                  | 0.3 metres               |
| Year 2060                  | 0.4 metres               |
| Year 2070                  | 0.5 metres               |
| Year 2080                  | 0.6 metres               |
| Year 2090                  | 0.7 metres               |
| Year 2100                  | 0.8 metres               |

**Table 10.3.2. Design life for redevelopment**

| Type of development   | Design life |
|---|-------------|
| Commercial buildings<br>Industrial buildings<br>Short-term tourist accommodation<br>Residential dwellings including multi-storey unit blocks of 10 dwellings or less.   | 40 years    |
| Multi-storey residential buildings of more than 10 dwellings.<br>Reconfiguring a lot for urban purposes that involves the provision of new public infrastructure such as roads, water connections or sewage connections.<br>Permanent community infrastructure such as sewage treatment plants. | 90 years +  |

**Defined storm tide event level** means the peak water level reached during a defined storm tide event.

**Dredged material** means mud, sand, coral, ballast, shingle, gravel, clay, earth and other material removed by dredging from the bed of tidal waters.

**Dredging** means the mechanical removal of dredged material from below tidal water.

**Dry land marina** means a marina created by the excavation of land above high water mark.

**Environmental offset** see the *Sustainable Planning Act 2009*, section 346A.

Editor's note: Environmental offset means works or activities undertaken to counterbalance the impacts of a development on the natural environment.

**Environmental value** see the *Environmental Protection Act 1994*, section 9.

Editor's note: The *Environmental Protection (Water) Policy 2009* states the environmental values of waters.

Editor's note: Environmental value is:

- (1) a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or
- (2) another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.

**Erosion prone area** see the *Coastal Protection and Management Act 1995*, schedule.

Editor's note: Erosion prone area means an area declared to be an erosion prone area under section 70(1) of the *Coastal Protection and Management Act 1995*.

**Erosion control structure** means a structure designed to protect land or to permanently alter sediment transport processes and includes a structure such as a seawall or revetment (rock walls), groyne, artificial reef, or breakwater.

**Essential community service infrastructure** includes:

- (1) emergency services infrastructure;
- (2) emergency shelters;
- (3) police facilities;
- (4) hospitals and associated facilities;
- (5) stores of valuable records or heritage items;
- (6) power stations and substations;
- (7) major switch yards;
- (8) communications facilities;
- (9) sewerage treatment plants;
- (10) water treatment plants.

**Fish habitat** see the *Fisheries Act 1994*.

Editor's note: Fish habitat includes land, waters and plants associated with the life cycle of fish, and includes land and water occupied by fisheries resources.

**Foreshore** see the *Coastal Protection and Management Act 1995*, schedule.

Editor's note: Foreshore means the land lying between the high water mark and low water mark as is ordinarily covered and uncovered by the flow and ebb of the tide at spring tides.

**Habitable Room** see the Building Code of Australia.

Editor's note: Habitable room means a room used for normal domestic activities, and includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room, home theatre and sunroom but excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes-drying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods.

**High coastal hazard area** means:

- (1) the part of the erosion prone area that is within the coastal management district
- (2) land that is projected to be permanently inundated due to 0.8 metre sea-level rise by the year 2100
- (3) the part of the storm tide inundation area that is projected to be temporarily inundated to a depth of one metre or more during a defined storm-tide event.

**Highest astronomical tide (HAT)** means the highest tide level that can be predicted to occur under average meteorological conditions and any combination of astronomical conditions. This level will not be reached every year, and is less than the extreme levels that can be caused by storm tides.

**Hydrodynamic forcing** means the force exerted on its surroundings by a moving body of water (for example, force exerted on a structure by waves).

**Marine development** means maritime infrastructure that is related to navigation, shipping and boating.

**Matters of state environmental significance** means the following natural values and areas protected under state environmental legislation:

- (1) protected area estates (including all classes of protected area except nature refuges and coordinated conservation areas) under the *Nature Conservation Act 1992*
- (2) marine parks (including 'marine national park', 'marine conservation park', 'scientific research', 'preservation' and 'buffer' zones) under the *Marine Parks Act 2004*
- (3) fish habitat areas A and B under the *Fisheries Act 1994*
- (4) threatened species (including plants, animals and animal breeding places) under the *Nature Conservation Act 1992*
- (5) regulated vegetation under the *Vegetation Management Act 2009* including:
  - (a) regional ecosystems identified as 'endangered', 'of concern', 'connectivity areas', 'critically limited', 'threshold', 'wetland'
  - (b) 'high value regrowth' areas containing 'endangered' or 'of concern' regional ecosystems
  - (c) regional ecosystems identified as 'watercourse'
- (6) high preservation areas of wild river areas under the *Wild Rivers Act 2005*
- (7) high conservation value wetlands under the *Environment Protection Act 1994* including:
  - (a) wetlands assessed as containing 'high' or 'very high' values via a conservation assessment, or
  - (b) where a conservation assessment has not yet been completed; wetlands that intersect with areas shown in the 'Directory of Important Wetlands' and high ecological value wetlands and waterways declared under the *Environmental Protection (Water) Policy 2009*
- (8) legally secured offset areas.

**Physical coastal processes** means the natural processes of the coast including sediment transport; fluctuations in the location and form of the foreshore, dune systems and associated ecosystems; tides; changes in sea level and coastal hazards (for example, storm-tide), ecological processes (for example, migration of plant and animal species) and the natural water cycle (for example, coastal wetlands' role in nutrient filtration and flood mitigation).

**Private marine development** means marine development constructed to provide private access to private land from tidal water for non-commercial purposes, including jetties, ramps, floating docks, fixed piers and gangways.

**Reclamation** of land under tidal water see the *Coastal Protection and Management Act 1995*, schedule.

Editor's note: Reclamation of land under tidal water means raising the land above the high water mark, whether gradually and imperceptibly or otherwise, by carrying out works, including dredging and the depositing of solid material.

**Recommended storm tide event (RSTE)** means the recommended storm tide event level in table 10.3.3, column 2 for the infrastructure mentioned in table 10.3.3, column 1.

**Table 10.3.3: Recommended storm tide event levels for essential community service infrastructure**

| Type of Infrastructure   | Recommended storm tide event level (annual exceedance probability). |
|--|---|
| Hospitals and associated facilities<br>Emergency service facilities*<br>Power stations   | 0.2%  |
| Major switch yards and substations*<br>Police facilities*<br>School facilities<br>Stores of valuable records or items of historic or cultural significance (e.g. galleries and libraries)<br>Water treatment plants* | 0.5%  |
| * The RSTE level applies only to electrical and other equipment that, if damaged by floodwater or debris, would prevent the infrastructure from functioning.   |   |

**Redevelopment** means development that affects permanent built structures on an already developed site. Redevelopment includes the expansion of a building footprint or addition of a structure, reconstruction or remodelling an exterior, demolition and replacement of existing structures, or the establishment of an alternative type of use and associated land disturbing activities.

**Small to medium-scale tourist development** means development catering for short-term accommodation for tourist activity that contains no more than 300 persons and any associated ancillary facilities.

**State coastal land** see the *Coastal Protection and Management Act 1995*, section 17.

Editor's note: State coastal land—means land in a coastal management district other than land that is:

- (1) freehold land, or land contracted to be granted in fee simple by the state; or
- (2) a state forest or timber reserve under the *Forestry Act 1959*; or
- (3) in a watercourse or lake as defined under the *Water Act 2000*; or
- (4) subject to a lease or licence issued by the state.

**State tidal land** the *Coastal Protection and Management Act 1995*, schedule.

Editor's note: State tidal land means land in the coastal zone other than the following:

- (1) land for which a lease under the *Land Act 1994* is granted
- (2) land for which a permit to occupy is issued under the *Land Act 1994*
- (3) freehold land, including inundated land
- (4) a reserve under the *Land Act 1994*

- (5) land on the landward side of a tidal boundary or right line tidal boundary.

**Storm tide inundation** means temporary inundation of land by abnormally high ocean levels caused by cyclones and severe storms.

**Storm tide inundation area** means the area of land determined to be inundated during a storm tide event that is defined by applying the following factors:

- (1) For redevelopment, the factors outlined in Table 10.3.4, column 1
- (2) For any other development, the factors outlined in Table 10.3.5, column 2.

**Table 10.3.4 Factors for defining a storm tide event to determine the storm tide inundation area**

| Column 1   | Column 2  |
|--|---|
| <b>Redevelopment</b>   | <b>All other development</b>  |
| Planning period equivalent to the design life of the development, as outlined in Table 10.3.2<br>Projected sea level rise of the amount outlined in Table 10.3.6, based on expected year of end of design life<br>Adoption of the 1 in 100 year average recurrence interval storm event or water level<br>Increase in cyclone intensity by 10% (relative to maximum potential intensity) | Planning period of 90+ years<br>Projected sea level rise of 0.8 metres by the year 2100<br>Adoption of the 1 in 100 year average recurrence interval storm event or water level<br>Increase in cyclone intensity by 10% (relative to maximum potential intensity) |

**Table 10.3.5 Design life for redevelopment**

| Type of development  | Design life |
|--|-------------|
| Commercial buildings<br>Industrial buildings<br>Short-term tourist accommodation<br>Residential dwellings, including multi-storey unit blocks of 10 dwellings or less  | 40 years    |
| Multi-storey residential buildings of more than 10 dwellings<br>Reconfiguring a lot for urban purposes that involves the provision of new public infrastructure such as roads, water connections or sewage connections<br>Permanent community infrastructure such as sewage treatment plants | 90 years +  |

**Table 10.3.6 Projected sea level rise for the year of the end of design life as per Table 10.3.5**

| Year of end of design life | Projected sea level rise |
|----------------------------|--------------------------|
| Year 2050                  | 0.3 metres               |
| Year 2060                  | 0.4 metres               |
| Year 2070                  | 0.5 metres               |
| Year 2080                  | 0.6 metres               |
| Year 2090                  | 0.7 metres               |
| Year 2100                  | 0.8 metres               |

**Temporary, readily relocatable or able to be abandoned** development—means a land use or structure that, if threatened by adverse coastal hazard impacts, will be relocated, or discontinued and removed rather than protected from the impacts because:

- (1) it is not anticipated to remain in place for more than 10 years and/or is capable of being disassembled and/or easily removed
- (2) there will be negligible adverse economic or social consequences associated with its relocation, or from it being discontinued or removed.

**Tidal prism volume** means the volume of water in an estuary or inlet between mean high tide and mean low tide, or the volume of water leaving an estuary at ebb tide.

### Abbreviations:

AEP – Annual Exceedance Probability

DSTE – Defined Storm Tide Event

RSTE – Recommended Storm Tide Event