

Guideline: State Development Assessment Provisions

State Code 8: Coastal development and tidal works

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Version	Effective date	Description of changes
1.00	03/07/2018	
2.00	01/03/2019	Private marine development information is clarified. Departmental names are updated, Policy Register number and format added. Description of Category C vegetation updated to reflect VMA changes.
3.00	18/2/2022	Significant changes across much of the document to reflect new writing styles and POs in SDAP v3.0. Main changes are to PO1, PO7-PO11, PO15, PO16, PO22 and PO24. Cat C and Cat R PO has been deleted. There are new definitions and some definitions have been amended.

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1.0 Overview

Purpose

This guideline provides guidance to address **State Code 8: Coastal development and tidal works code** (the code) in the [State Development Assessment Provisions](https://planning.statedevelopment.qld.gov.au/planning-framework/state-assessment-and-referral-agency/state-development-assessment-provisions-sdap) (https://planning.statedevelopment.qld.gov.au/planning-framework/state-assessment-and-referral-agency/state-development-assessment-provisions-sdap).

This document is not a statutory document. This guideline is advice only and applies to coastal development and tidal works assessable under the Planning Regulation 2017. Applicants must refer and respond to the code.

Structure of this guideline

Section 2 provides background information and key concepts relevant for coastal processes and resources and coastal protection and management applicable to complying with the code.

Section 3 provides the context for and information on how to respond to particular performance outcomes (PO) and specific information requirements. It should be noted that, for this section, if the PO has no relevance to the proposed development a response of “Not Applicable” and a statement as to why it is not relevant is required.

Section 4 provides information regarding the content of supporting documents that may be required to assess a development application against the code.

Section 5 provides a glossary of terms used in this guideline.

2.0 Background information

The following concepts are important in understanding the requirement of the code and relate to the State’s interests in protecting the coastal environment and protecting people and property from coastal hazards.

Coastal management district

The coastal management district (CMD) is declared under the *Coastal Protection and Management Act 1995* (Coastal Act) as coastal areas that require protection or management, especially with respect to the area’s vulnerability to erosion, value in maintaining or enhancing coastal resources, or for planning and development of the area. The CMD considers the impact of climate change sea level rise and may include lots projected to be permanently inundated by tidal water or exposed to greater coastal erosion from sea level rise.

The CMD defines an area where the State assesses certain developments listed under the Planning Regulation 2017.

Coastal resources

Coastal resources consist of the natural and cultural resources of the coastal zone and include physical features, processes, places or objects that have ecological, economic or social value. Coastal resources of Queensland include:

- beaches and dune systems;
- coastal processes especially the movement of sand along the coast and the natural fluctuations of the coast;
- rocky foreshores and headlands;
- habitat, plant and animal diversity;
- coastal waterways, wetlands and heathlands;
- coral reefs;
- cultural resources and sites; and
- quarry material such as sand or gravel.

Coastal resources have significant natural resource and ecosystem service values that support the State’s economic and social prosperity (e.g. scenic amenity, recreation and tourism, cultural and social significance, food production, medicines and construction material). Expansion of urban and industrial development can create significant pressures on these resources.

Coastal processes

Coastal processes are the natural processes occurring on the coast and in tidal water including:

- wind, waves, tides and currents which transfer energy to the coast and drive other processes;

- sediment transport to and along the coast;
- sediment accumulation or erosion onshore and offshore which builds or destroys landforms including foreshores, beaches, dunes, delta plains;
- the growth and spread of plants and succession of plant communities, especially where plants have a specific role in trapping sediment and building landforms (mangrove and dune colonising grasses) and stabilising sediments against erosion;
- water and nutrient movement, accumulation or loss which affects ecological or other processes including the growth and spread of plants and nutrient filtering; and
- changes in sea-level both temporary and permanent from weather events and climate change.

Coastal compartment

A coastal compartment is a section of the coast that is relatively uniform with respect to the landform type, sediment type and coastal processes including sediment transport and exposure to wave and wind conditions. Typically coastal compartments extend from a sediment source to a point where the sediment flow from the source is changed (e.g. a river mouth or headland) or along an uninterrupted coast, where changes in wind and wave exposure identifiably change the landform (beach ridges to shore parallel dunes to parabolic dunes).

Coastal compartments may be identified at the primary level (large section of coastline influenced major landforms and processes) secondary level (series of beaches between two significant coastal landforms) or tertiary level (a single beach).

Active beach system

An active beach system is the area where sand can move across and along the shore over a long time period under the influence of waves, tides and wind. It includes frontal dune systems, the beach and offshore sand deposits which periodically move onshore and offshore. An active beach system can include terminal sand deposits where sand is accumulating in the present day but is moved on only under rare circumstances (river flood tide deposits, large sand spits).

Sediment transport processes

Sediment transport is an important complex of coastal processes where sediments are moved down rivers to the coast and then along the coast by flood flows, wave action and tidal currents. In the long-term this process has built the extensive coastal plains (river deltas, beach ridges and dune-fields) where many settlements are located today. In the shorter term, sediments are transferred onshore and offshore in cyclical fluctuations associated with variations in waves and water levels during storms. This is observed as beach and dune erosion and dune rebuilding after storms.

The disruption of sediment transport processes such as halting sand flows due to constructing works or extracting material risks triggering erosion and loss in adjacent areas. The consequence of this can be:

- the loss of beaches for recreation;
- loss of dunes which protect communities from coastal hazards;
- direct erosion threats to development requiring costly protection or remediation works;
- economic loss through its effect on tourism; and
- degradation of coastal amenity which affects community enjoyment of the coast.

Accretion is the natural build-up of coastal landforms with sediment supplied by wave, tidal flow or wind processes, usually assisted by vegetation trapping the sediment. A typical example of accretion is dune build-up with sand blown up from the beach and sand spit growth.

Performance outcomes in the code are intended to ensure coastal processes are maintained to preserve beaches, which are highly valued recreational and aesthetic assets, and prevent new erosion threats which can be caused by removing sediment, or disrupting its transport along the coast and impacting on existing development.

Natural coastal landforms, physical coastal processes and natural ecosystems and habitats are interdependent and provide essential ecosystem services. Coastal vegetation (e.g. dunes, freshwater, estuarine and marine wetlands) stabilises sediment and processes nutrients which promotes healthy groundwater and surface water processes and water quality. Dunes have highly permeable soils functioning as aquifers, by holding groundwater in the intergranular voids between sand grains. Dunes regulate the hydrology of freshwater wetlands and perform an important role in water quality polishing and groundwater movement along the shoreline between freshwater wetlands, land and sea.

Coastal landforms

Coastal landforms are those areas built from sediments supplied to the coast and exposed to or shaped by coastal processes. The landforms built by coastal processes reflect the type of sediment supplied to the coast and the

wave and wind energy conditions at the locality. Coastal landforms include beaches, dunes, beach-ridges, river deltas, mangrove plains, headlands and land adjacent to tidal waterways and estuaries. Coastal landforms are often temporary as they are a store of sediment that may at some point in the future be eroded away and redeposited at another location.

Where long-term supply of sediment to the coast exceeds the capacity of waves and tides to move it away, landforms gradually build over time and the sediments are permanently isolated from modern day coastal processes. This can be clearly seen in the extensive dune fields and beach ridge plains and river delta plains on the Queensland coast. Most of these landforms are isolated from present day coastal processes but those parts near the coast and part of the active coastal processes system are mapped as the erosion prone area.

The role of vegetation

The role of coastal vegetation must be considered as an important ecological element in building and maintaining sediment-based coastal landforms. Dunes are built due to the ability of plants to continuously trap and bind windblown sand. Similarly, mangroves trap waterborne sediment and build extensive coastal plains. Therefore, retention of native coastal vegetation is important for the recovery and rebuilding of dunes and other coastal landforms after erosion events and in preventing dune degradation from wind erosion.

Coastal vegetation and dune systems are significant environmental infrastructure as they provide the first line of storm protection and buffering, water filtering and habitat to support biodiversity.

Coastal erosion

Coastal erosion is a part of the natural fluctuations of the coast, but it can become a permanent feature when triggered by development. Typical causes of permanent erosion include where:

- longshore transport out of a beach compartment is greater than the incoming longshore transport due to interruption of the sediment flow by works which block the sand flow (groynes, waterway entrance training);
- sand is removed from the active beach system by dredging, or 'locked up' behind seawalls or other development;
- there is a landward loss of sediment by windborne transport where dune vegetation is damaged or removed; and
- the flow of water in a waterway is changed (increased volume or velocity) and the channels respond to the new conditions by channel widening (erosion).

Coastal erosion can have serious consequences for development and the community. The worst case is the complete loss of the development and the economic value it provides (such as tourism). What also must be considered is the consequences of protecting the development, with regards to both the direct cost of the works and the impact on the natural system such as the loss of the beach and its aesthetic, recreational and economic values.

Areas at risk from coastal erosion have been defined and declared as erosion prone areas under the Coastal Act. Erosion prone areas are areas that are vulnerable to erosion or permanent inundation from tidal waters within a 100-year planning period.

Ideally areas within erosion prone areas should be retained in their natural state where they can act as a buffer between land uses and the coast to allow the natural fluctuations of the coast to occur, without the need for intervention to protect human life and property. In the past, development has occurred within areas vulnerable to erosion and in many cases this development amounts to substantial private and public investment. Protection works for the built environment in these areas can result in adverse impacts to coastal resources and their values. Such protection works need to be managed to minimise their impacts.

In areas under constant threat of erosion, a strategy of retreat from erosion prone areas is the preferred option. However, where an area has been developed to a scale and intensity that retreat is not achievable, property protection works may be needed to defend development and infrastructure from coastal processes. In such circumstances, any further building or infrastructure, including extensions to existing buildings or the location of services (including water, power and sewerage), should not extend any further seaward than the alignment of nearby buildings.

The erosion prone area is indicatively mapped by the State in the Development Assessment Mapping System (DAMS) which is located on the website of the Department of State Development, Infrastructure, Local Government and Planning (DSDILGP). The statutory erosion prone area is described by plans located at <https://www.qld.gov.au/environment/coasts-waterways/plans/hazards/erosion-prone-areas>. Development applications that involve development near or in the erosion prone area may need to survey the statutory erosion prone area to determine its actual extent. See the [Coastal hazard technical guide](https://www.qld.gov.au/___data/assets/pdf_file/0025/67462/hazards-guideline.pdf) (https://www.qld.gov.au/___data/assets/pdf_file/0025/67462/hazards-guideline.pdf) for information on mapping erosion prone areas.

Shoreline erosion management plans

The Department of Environment and Science's (DES) preferred method for managing shoreline erosion, including estuaries and tidal reaches of rivers, is by preparing and implementing a Shoreline Erosion Management Plan (SEMP). A SEMP is used to investigate the causes and expected future impacts of erosion; analyse management options; and recommend a solution, with consideration to social, economic and environmental issues. A SEMP can also include information about related policy requirements that may impact how erosion is managed, for example fish habitat area policies regulated under the *Fisheries Act 1994*. Further information about how to prepare a SEMP is available from the Queensland Government website at <https://www.qld.gov.au/environment/coasts-waterways/plans/coastal-management/about-coastal-management>.

SEMPs are commonly undertaken by local government either for council-controlled land or on behalf of a community. However, individuals or groups may also prepare a SEMP. SEMP may form part of a broader strategic management or adaptation framework for a local government area or region which also considers land use, dune management, recreational opportunity and commercial activities.

Beach nourishment

Beach nourishment is the process of replacing sand on a beach lost through coastal erosion with new sand from outside the active beach system. Beach nourishment generally doesn't change the underlying cause of coastal erosion and as such is usually planned as a management strategy involving multiple campaigns. Beach nourishment can also be used in conjunction with other coastal defence strategies, such as restoring and vegetating coastal dunes, or to help offset erosion brought about by the changes in sediment transport due to modification of the foreshore by the construction of seawalls or groynes.

Beach nourishment can be required where there is a sand supply deficit to the coast, meaning more sand is moved out of a coastal compartment from longshore transport than enters the coastal compartment. The sand deficit often only becomes obvious after severe weather events when beaches erode during a storm and do not rebuild due to an inadequate supply of sediment being transported into the area. In most situations importing sand to reinstate the beach profile and maintain the existing dune structure is preferred over installing erosion control structures so as to retain the values of the coastline, particular beaches.

Sand used for beach nourishment should generally be sourced from an inactive terminal deposit within the same coastal compartment as the intended nourishment location, or from outside of the active beach system (i.e. offshore or onshore sand deposits). If sand is simply moved from one location to another within the active beach system, the coastal process can quickly move the sand back to the source to restore equilibrium, therefore there is no enduring benefit.

The sand used should also be of a similar size and type to the receiving environment because different sand characteristics can lead to the sediment responding differently to wave action, resulting in a different rate of erosion or beach slope compared to the existing beach system. A coarser sand may be considered to increase the longevity of the placed sand, but this may change the character of the beach if the sand grading is significantly different to the natural beach sand.

The final slope of the nourished beach should be stable and generally match adjacent beach sections. Sand that is incorrectly placed in the beach zone (unstable slope or uneven placement along the foreshore) can result in rapid erosion of the imported sand, reducing the effectiveness of the nourishment project or adversely impacting adjacent coasts.

Tidal prism volume

The tidal prism volume is the volume of water between the high tide mark and the low tide mark within a waterway or estuary. The tidal prism volume is generally the amount of water entering or leaving the waterway or estuary during a tidal cycle at spring tide.

Works that change the tidal prism volume, such as artificial tidal lakes, dry-land marinas or canals, can increase the volume of water flowing through a waterway, increasing the velocity or level. This can increase the risk or severity of erosion along the banks of the estuary, and also result in degraded water quality due to the system's inability to adequately flush, resulting in pollutants from surface water runoff being maintained for longer periods within the system.

3.0 Responding to the assessment criteria

The following section provides contextual information and information requirements specific to each PO of the code. Table references, headings and POs (boxed text) align with those in the code.

Table 8.2.1: All development

Development in the erosion prone area

PO1 Development is only permitted in the **erosion prone area** where it:

1. is one of the following types of development:
 - a. **coastal-dependent development**; or
 - b. **temporary, readily relocatable or able to be abandoned**; or
 - c. **essential community infrastructure**; or
 - d. **redevelopment** of an existing permanent building or structure that cannot be relocated or abandoned; and
2. cannot feasibly be located elsewhere; or
3. is located landward of:
 - a. a **fit for purpose revetment**; or
 - b. a proposed revetment that is consistent with:
 - i. an **agreement with a local government**; or
 - ii. the alignment of adjacent lawful revetments; or
4. is on a lot less than 2000m² where a **coastal building line** is present.

Context

Erosion prone areas are areas along the coast and tidal waterways identified by the State and considered at risk from coastal erosion or permanent inundation by the sea. Development is generally not supported within the erosion prone area in the CMD to ensure that this area is retained in its natural state to allow coastal processes to naturally occur and to avoid increasing the risk to people and development. However, certain development types must be located in an erosion prone area where they require access to tidal water, they are essential for community purposes, or the area is protected by a revetment or it is agreed a revetment can be constructed.

Development considerations

Applications relevant to this PO should demonstrate:

For PO1(1), that the development is of a type listed in PO1(1)(a)-(d); and

For PO1(1)(b), structures that are temporary, readily relocatable or able to be abandoned must be of low economic value, i.e. the structure is not a 'significant building or infrastructure' as defined in this guideline. Structures of low economic value generally consist of small-scale works, such as playgrounds or picnic shelters, where loss to erosion is of low consequence. This is particularly relevant for structures that are 'able to be abandoned' because it acknowledges that the structure is at risk and that its potential loss to erosion is accepted by the owner of the structure.

For PO1(1)(d), redevelopment is intended to allow for minor extensions or replacing buildings that have been damaged or destroyed. Applications for redevelopment will have to demonstrate that it is to extend or replace permanent built structures of value. The application should also demonstrate for any replacement building that it cannot be moved further landward to reduce erosion risk. Examples of redevelopment under this PO include:

- replacing a structure with a structure that is substantially the same; or
- adding less than 50m² of the existing building footprint to a structure; or
- adding another storey to a single storey building.

Applications that propose to substantially change the size, monetary value or intensity of use are not redevelopment for the purposes of this PO.

For PO1(2):

1. why the development must be located within the erosion prone area, for example to meet an essential use requirement such as facilities in a coastal park or on a small lot there is no option to reposition development; or
2. if it is not essential to be located in the erosion prone area, why it cannot be located outside of the erosion prone area or as far landward as practicable on the lot, for example on a large lot where there is adequate land outside of the erosion prone, why the development footprint cannot be repositioned.

For PO1(3):

1. development must be landward of a fit purpose revetment, noting that evidence will be required to confirm this; or
2. where there is no existing revetment, the development must be landward of a proposed revetment, that is included in the application, and
 - a. the alignment of the revetment must be consistent with a written agreement between DES and the local government, such as an endorsed Shoreline Erosion Management Plan (SEMP) or on an agreed alignment set in a Planning Scheme (e.g. Gold Coast A-line); or
 - b. the revetment is considered infill where there are lawful revetments on adjacent lots.

Parts 1 and 2 recognise that an appropriately designed revetment can significantly reduce the erosion risk at a site and the full width erosion prone area does not need to be considered where the threat is from only sea erosion. A site may also be exposed to inundation by sea level rise and a revetment may not provide protection against that event, so this erosion threat will need to be addressed in the development application. Also note that revetments are still vulnerable to slumping during an erosion event and a minimum 10m corridor is recommended between the revetment and development for future maintenance of the revetment.

Some old revetments may not have a tidal works development approval but may still be lawful. A structure is considered to be lawful if it:

- has an approval for operational work that is tidal works, or works were lawfully constructed under another approval; or
- did not need a tidal works approval at the time. For example, s86 Harbours Act approvals were not required for works undertaken by the State or for revetments associated with land development which received Governor in Council approval through a different process, especially on the Gold Coast. It can be very difficult to trace back these histories, but it needs to be considered that an approval may not have been required rather than assume it is an unapproved work. The next dot point helps to resolve this as it assumes for State and local government works that those entities would have complied with the development approval requirements of the day; or
- is development that:
 - is owned or managed by the State or local government; and
 - was constructed prior to January 1974 as demonstrated by dated design drawings, survey plans or aerial photography (excluding stormwater infrastructure); and
 - is in a safe condition, complies with relevant current standards (e.g. Australian standards and prescribed tidal works code) and is of a design intended to achieve its purpose.

Work lawfully constructed under another Act includes work sanctioned by Governor in Council under s86 of the *Harbours Act 1955* or as continued under s236 of the *Transport Infrastructure Act 1994* prior to 20 October 2003. Information to conduct a search for historical tidal works approvals can be found at the following link: <https://www.qld.gov.au/environment/coasts-waterways/plans/development/tidal-works/approvals-search>.

Historical aerial imagery pre-2005 provides evidence that large parcels of land were reclaimed and protected with revetments prior to subdivision and residential development on the land. This occurred mostly in Southeast Queensland. These revetments form a uniform alignment and are of the same design for the full extent of the works. At the time, these revetments were the subject of a different approval pathway and are lawful even though they don't have a s86 approval. This does not extend to include modifications to the original design (e.g. rock toe protection), which would be subject to a new development approval for tidal works.

For PO1(3)(b)(i), the agreement between DES and a local government confirms that a process has been undertaken to understand site specific erosion risks and circumstances and coastal management outcomes have been reviewed and agreed upon prior to the development assessment process.

The agreement may relate to a proposed new seawall or management of an existing revetment that may have been constructed many decades ago and where formalisation of the works is required. In the latter case the existence of, or alignment of, a revetment may not meet best practice, but this is balanced with community views and achievable coastal management outcomes and an agreement has been reached that a revetment solution is appropriate for that location.

For PO1(4):

1. when a coastal building line intersects a lot of less than 2000m², development is considered to meet this specific PO because the land has been allocated for residential development. Erosion risk in these areas is specifically addressed in PO6. Where a lot is over 2000m², consideration of further development setback is required to reduce risk to new development. These are rare cases as coastal building lines were only intended for small urban lots.

PO2 Development (other than coastal protection work) in the erosion prone area:

1. does not adversely impact **coastal processes**; and
2. ensures that the protective function of landforms and vegetation is maintained.

Note: In considering reconfiguring a lot applications, the State may require land in the **erosion prone area** to be surrendered to the State for coastal management purposes under the *Coastal Protection and Management Act 1995*.

Where the planning chief executive receives a copy of a land surrender requirement or proposed land surrender notice under the *Coastal Protection and Management Act 1995*, this must be considered in assessing the application.

Context

The long-term stability of beaches, dunes and other coastal landforms depend on maintaining coastal processes including the movement of sediment along the coast and the cyclical storage and release of sediment in dunes, spits and other landforms. Vegetation plays a crucial role in trapping sediment and building landforms.

The disruption of sediment transport processes along the coast due to the construction of works or the loss of sand volume through dredging and extractive industries or becoming locked out of these processes because of development on the land risks triggering erosion at adjacent sites. This leads to loss of recreational beaches and coastal amenity, erosion threats to development requiring costly protection works, remediation works and economic loss through its effect on tourism.

Human-induced changes to dune systems and degradation of dune vegetation can reduce the protection provided to inland development from coastal hazards, cause wind erosion problems, and trigger erosion in adjacent areas.

To achieve this PO development should not be located in the active beach system. This includes the erosion prone area and nearshore areas out to as deep as 15m in some high wave energy areas. Where possible erosion prone areas should be managed to provide and maintain an undeveloped buffer zone between permanent development and the foreshore to allow natural fluctuations of the coast to continue uninterrupted. The key issue is whether development will actually impact on coastal processes. In some situations, the development may have an insignificant impact, for example:

- on a small residential lot with residential development in the vicinity;
- where significant development exists seaward of the lot and which is very likely to be protected;
- in the default erosion prone area (40m on HAT) where it is clear that the erosion risk has been overstated by the default value. That is, the site lacks erosion drivers including exposure to wave energy, tidal flows and flood flows likely to drive erosion;
- in areas subject to only sea level rise and where this is well away from present day coastal processes. In this case filling may be an appropriate response;
- where the development is temporary or able to be relocated, so that it can be withdrawn from the erosion prone area if threatened by erosion, or of low value so the loss is acceptable.

Note that PO3 addresses the risk to development from coastal processes.

High value and long-term developments including the subdivision of land and the intensification of use in the erosion prone area should not be considered if they impact coastal processes. This has been a longstanding tenet of coastal policy in Queensland and has resulted in the creation of extensive development free buffer zones along the coast.

One option to ensure coastal processes are not adversely impacted and the protective function of landforms and vegetation is maintained is by returning freehold or leasehold land within an erosion prone area that cannot be developed, to the State and placing it in a tenure that preserves these values in perpetuity. The State will accept the surrender of freehold land and dedicate the land as a Reserve for Beach Protection and Coastal Management, where it considers this will benefit coastal management and the land can be appropriately managed. For leasehold land this may involve partial relinquishment of the lease.

The Coastal Act provides two ways to surrender land to the State as part of the development application for reconfiguring a lot:

- the voluntary surrender of land (s115A); or
- the State imposing a land surrender requirement on the lot proposed to be reconfigured during the development assessment process. This compels the land owner to surrender the land in an erosion prone area to the State (s110).

For more information on Land surrender under the Coastal Act refer to the Department of Environment and Science guideline: [Land surrender for coastal management](https://environment.des.qld.gov.au/coastal/development/pdf/gl-cd-land-surrender.pdf) (https://environment.des.qld.gov.au/coastal/development/pdf/gl-cd-land-surrender.pdf).

Where full withdrawal of development from the erosion prone area cannot be achieved then the setting back of development as far landward as possible is required to maximise the area for coastal processes to continue. In developed areas this may be behind the general alignment of adjacent development especially where this development may be protected in the future.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development:

For PO2(1):

1. has identified coastal processes operating at the site and indicated how these will be maintained, or how impacts will be mitigated (e.g. locating development as far landward as possible, design of the structure, fencing sensitive dune areas); and
2. avoids intensifying the use of the premises by not expanding seaward of built structures in the erosion prone area within a CMD.

For PO2(2):

1. maintains native vegetation on coastal landforms where its removal or damage may:
 - a. destabilise the area and increase the potential for erosion; or
 - b. interrupt natural sediment trapping processes or dunes, beach or land building processes; or
 - c. encourage weed invasion or the displacement of native coastal vegetation; or
 - d. expose inland vegetation to the damaging effects of marine conditions including salt spray and wind damage; and
2. maintains sediment volumes of dunes or near-shore coastal landforms. Where a reduction in sediment volumes cannot be avoided, increased risks to development from coastal erosion are mitigated by location or design; and
3. does not reduce dune crest heights, for example by levelling; and
4. rehabilitates degraded areas and prevents new damage to vegetation by pedestrian control or similar works.

PO3 Development is sited, designed and constructed to limit the risk of impacts of **coastal erosion** to an acceptable level by:

1. locating development outside the **erosion prone area**; or
2. mitigating or otherwise accommodating the risks posed by **coastal erosion**.

Context

Coastal erosion can present a serious threat to life and property by the rapid loss of land due to wave action and tidal currents causing damage to or loss of buildings and infrastructure. The risks associated with coastal erosion, including the projected impacts of climate change, should be avoided or mitigated to protect people and property and enhance the community's resilience to natural hazards.

It should be noted that this PO is intended to remove or reduce the threat to development from coastal processes and is different from PO2 which seeks to avoid development interfering with natural coastal processes. For example, a development of a small waterfront lot in an intensively developed urban area or an area subject to sea level rise inundation within a developed urban area may have no impact on local coastal processes. However, the new development may be at substantial risk of damage or loss.

The area of erosion threat is defined by the declared erosion prone area. Ideally development, other than coastal-dependent development, should be located outside the erosion prone area. However, this is not always practicable, particularly in developed urban areas. Where there is a justified case for development in the erosion prone area the

risk to life and property should not be permitted to increase and wherever possible reduced further by locating development further landward, protecting development with works, such as beach nourishment or revetments, or design of development to increase resilience to the threat.

The location and design of the development should consider the preferred order of mitigation options listed below in order to meet this performance outcome.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development, in order of preference:

For PO3(1):

1. is located outside of the erosion prone area.

For PO3(2) in order of priority:

1. is consistent with an endorsed Shoreline Erosion Management Plan for the area or planning scheme provisions for location and construction of erosion control structures; or
2. is located as far landward as practicable, or if this cannot be met;
3. is located landward of the alignment of adjacent permanent development such as existing houses; and
4. has an adequate setback on the lot to allow for the construction of coastal protection work wholly on the lot in the future; or
5. includes in the development an erosion control structure as close as practical to the development, where there is an imminent threat to the development or there is an increase in the risk to life and property by the development (for example by redeveloping a single dwelling to a multiple dwelling complex.
6. is designed to withstand the impacts of coastal erosion without requiring the construction of coastal protection works either now or in the future.

PO4 Development in the **erosion prone area** does not significantly increase the risk or impacts to people and property from **coastal erosion**.

Context

Applications should ensure development avoids increasing the exposure of people and property to coastal erosion, or where this cannot be avoided, for example by relocating the development further landward, the risk is assessed and the development includes measures to ensure the risk is removed or not increased.

An increase in risk results from any of the following in an erosion prone area:

- an increase to the number of premises or dwellings on the development site, or an increase in the number of habitable rooms on the site; or
- an increase to the number of persons living or working on site; or
- an increase to the value of assets (monetary or market) on the development site other than redevelopment.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development:

1. is located outside of the erosion prone area or as far landward as practicable, or where this is not possible the risk of erosion is mitigated through design of the development or the installation of coastal protection structures; or
2. does not result in an intensification of use in the erosion prone area (such as creating additional lots or a material change of use), or where the intensification is unavoidable, the threat of coastal hazards is mitigated through location, design of the building or through adding on-site erosion control structures.

PO5 Development (other than **coastal protection work**) in the **erosion prone area** does not directly or indirectly increase the severity of **coastal erosion** either on or off the site.

Context

Beach compartments and coastal/tidal landforms will remain stable in the long term (without net erosion or build-up) where the sediment volume in the active beach system is not reduced and there is a balance between the

sediment entering and leaving the coastal compartment. However, where there is a disruption in the rates of longshore transport, usually by the blocking of the sediment supply to or from an area, or sediments that would normally be part of coastal processes are removed or isolated from coastal processes, coastal erosion can occur.

Development that disrupts coastal processes, such as river entrance training which blocks sand transport, or development on dunes, which locks up sand that would naturally erode to rebuild beaches can trigger erosion of adjacent properties in the locality.

Therefore, development needs to consider adverse impacts in the whole coastal compartment to ensure development is designed and managed to prevent or minimise the severity of new erosion at adjacent areas.

Erosion can also be increased in tidal rivers and waterways by development that increases the tidal prism of the waterway (artificial tidal canals and lakes, dry-land marinas) and therefore increases tidal flow volume and velocity. Waterways can respond to this by channel-widening which causes bank erosion on downstream properties.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development:

1. does not adversely impact coastal processes in the locality; and
2. does not impact adjacent areas by accelerating erosion (localised scour, temporary coastal realignment, long term chronic erosion); and
3. incorporates measures that will compensate for a reduced sand volume in an area (e.g. adding sand to the beach system), or manages the rate of sand transport along the coast (e.g. by using a system where sand bypasses the development) to ensure the beach compartment maintains its sediment balance; and
4. avoids changes to tidal flow volume and velocity that may cause new erosion or sediment deposition or change sediment transport rates in the waterway.

PO6 In **erosion prone areas** where a **coastal building line** is present, building work is located landward of the **coastal building line** unless **coastal protection work** has been constructed to protect the development.

Context

Coastal building lines are declared in those areas that are already developed for urban purposes and are highly vulnerable to coastal erosion. The intent of the coastal building line is to:

- provide a common alignment for building work;
- set back development from the coastline which reduces the erosion risk to people and property;
- provide space on the lot seaward of the development for construction of future erosion control structures wholly on the lot and not on State land.

Generally, no building work, including houses, sheds or swimming pools, would be permitted seaward of a coastal building line. Only works for the protection of existing buildings from sea erosion, such as seawalls, would be permitted seaward of a coastal building line. Where an erosion control structure has been constructed, building works in behind is deemed not at risk and no development constraints need to be applied.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development is located landward of the coastal building line; or

1. justify why the proposed development should be permitted seaward of a coastal building line, for example, the erosion risk has been reassessed and the area is no longer vulnerable to erosion or the building is designed to withstand coastal erosion; or
2. demonstrate how development seaward of the coastal building line can be or is protected from coastal erosion both now and in the future.

Artificial waterways

PO7 Development of **artificial waterways**, canals and **dry-land marinas** conserves **coastal resources** by:

1. ensuring changes to water flows, water levels and sediment movement do not adversely impact the natural waterway to which it is connected;
2. demonstrating appropriate storage, treatment and disposal of **dredged material** for the life of the development.

Context

The construction of canals, dry-land marinas and artificial waterways can have significant and permanent adverse environmental impacts on natural waterways which must be managed to protect coastal resources. Environmental impacts can be caused by changing the tidal prism volume of the waterway or changing the timing or concentration of tidal and other water flows. The tidal prism volume of a waterway is the volume of water between the highest and lowest tide levels. As the volume changes the volume of water leaving a section of a waterway during the tidal cycle also changes. New artificial waterways can therefore increase the tidal prism volume through widening a section of river or excavating new areas of tidal water from land and the consequential impacts of this must be considered. This can trigger:

- changes in sediment transportation rates along the waterway;
- bank erosion, especially downstream as channels widen to accommodate the increased flow affecting other property owners and coastal resources;
- localised scour from water entering or discharging from a development which can decrease bed level of the waterway;
- changes in sedimentation patterns in the waterway which, for example, cause new shoal formations that could affect navigation and coastal resources;
- changes to the level or duration of tidal inundation of ecosystems along the waterway which can adversely affect their vegetation and functioning; or
- adverse impacts to water quality caused by changes in the exchange or flushing regime of the waterway (see PO13).

Approaches for addressing this issue include limiting the exchange of water between the artificial waterway and the adjoining natural waterway or balancing filling and excavation of land to ensure minimal net change in tidal prism volume. The coastal resources of the natural waterway are considered to be adequately conserved if it can be demonstrated that the development will not result in adverse impacts as listed above.

1. New capital and maintenance dredging requirement and the need to dispose of this dredged material.

Artificial waterways generally require large initial capital dredging or excavation of material from land, and on-going maintenance dredging for the life of the project to ensure vessel accessibility. Maintenance dredging can result in a significant amount of material that requires disposal. Therefore storage, treatment, and disposal of dredged material for the construction phase and for the life of the project needs to be identified as part of the development application to ensure it can be adequately dealt with and will not adversely impact on the marine environment. Disposal of dredged material to tidal water from an artificial waterway is generally not supported except where it is for a beneficial reuse purpose.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development:

For PO7(1):

1. does not adversely impact coastal resources due to changes in water flows or water levels of the natural waterway it is connected to, either in normal or under flood or high rainfall event conditions; and
2. does not result in increased water flows or water level changes that cause adverse erosion or sediment deposition impacts either on or off the site.

For PO7(2):

1. ensures that all capital and maintenance dredging required for the construction of and continued use of the artificial waterway is determined, and for maintenance dredging a plan for the life of the development is provided, including the storage, rehandling, treatment and disposal of the dredged material to land. This may include dedicated on-land areas for drying, storage and rehandling of dredged material and in-water storage of

sediment entering the development. In the latter case raising the bed level can be accepted where sufficient depth of the artificial waterway is provided for at the construction stage to store this accumulation onsite and not limit the intended use of the artificial waterway over the design life of the development.

Supporting references

Guideline: [Development involving an artificial waterway](https://www.qld.gov.au/__data/assets/pdf_file/0017/107243/gl-cd-development-artificial-waterway.pdf)
(https://www.qld.gov.au/__data/assets/pdf_file/0017/107243/gl-cd-development-artificial-waterway.pdf)

Guideline: [Dredging and allocation of quarry material](https://environment.des.qld.gov.au/__data/assets/pdf_file/0035/87389/cpm-gl-dredging.pdf)
(https://environment.des.qld.gov.au/__data/assets/pdf_file/0035/87389/cpm-gl-dredging.pdf)

Coastal protection work

PO8 Works for beach nourishment minimises adverse impacts on coastal processes.

Context

Beach nourishment is a solution to shoreline erosion that seeks to maintain existing coastal processes and natural landforms by importing sand to an area to balance the sand lost from an eroding coast. This is preferred to using erosion control structures such as seawalls or groynes which can cause the permanent loss of the beach, transfer erosion to adjacent areas and affect beach amenity. However, it is noted that where a beach system is experiencing a long-term loss of sand, the nourishment sand will only be of temporal benefit. Repeat nourishment campaigns may be required in the future.

Beach nourishment must add sand volume to the active beach system. Sand for beach nourishment should preferably come from outside of the active beach system (offshore, land based quarries) or if this is not viable, from inactive deposits within the beach system, such as terminal lobes of spits infilling estuaries, updrift sides of tidal deltas and accreting salient). In the latter case, evidence is required that these are inactive deposits and the sand cannot be re-entrained into movement of sand along the coast within, say, a 50-to-100-year timeframe. Historical aerial imagery analysis will often provide this evidence. Sand taken from deposition areas in beach compartments experiencing beach rotation can also be considered where the take area is expected to retreat back to a long-term stable alignment. In summary, the sand taken from inactive deposits should not adversely change the normal transport of sand along or across the coast.

Sand is to be of a type and size that generally matches that of the receiving beach system. Sand of different characteristics can be used but the consequences need to be carefully examined first. Of particular concern is:

- the use of a coarser sand that may reduce sand supply to the downdrift coast, causing erosion or
- the use of finer sand that may result in sand movement offshore as a new flatter equilibrium profile is formed, potentially smothering nearshore benthic communities, or it will be quickly transported away from the site with little long-term benefit
- the sand contains gravel or other coarse or unwanted material that may affect the amenity and behaviour of the beach system.

These impacts may be mitigated to some extent by the design of the nourishment works.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development:

For PO8:

1. sources sand from outside the active beach system (offshore deposits, onshore sand) where possible; or
2. where the sand is sourced from a part of the beach system, the sand is confirmed as an inactive deposit such as a terminal deposit (spit end or waterway delta) and its use will not adversely affect coastal processes;
3. bases sand volume requirements on a technical analysis of the sand deficit or historical loss at the site; and
4. uses sediment that is of a type and size which is similar to that of the native sediment found at the placement location;
5. where imported sand grading is different from the native sand, expert opinion demonstrates that the material will provide a benefit (e.g. finer material will not be rapidly eroded away) or adverse effects can be mitigated (e.g. using an increased volume of a finer material to balance increased losses);
6. ensures the imported sand does not contain unsuitable material such as gravel;

7. ensures the placement of the material does not disrupt coastal processes at the location and does not interfere with long-term use of the locality or environmental values of the site.

PO9 Works for beach nourishment do not increase the severity of erosion on adjacent land.

Context

PO9 is similar to PO8, the difference being that the actual nourishment sand placement may trigger coastal erosion on adjacent land.

There are 2 key considerations:

- design placement of the sand and whether this will reduce normal sand transport to the adjacent coast and potentially trigger erosion; and
- whether the physical properties of the sand will change the sand transport rate to the adjacent coast.

Placement of sand should not change the normal alignment of the coast, either by placement onshore or as offshore sand bars as it may disrupt sediment transport for a time and trigger erosion downdrift. For large projects sand transport modelling of the pre and post nourishment cases may be needed to confirm the design is acceptable, or for smaller nourishment works, ensuring sand placement achieves a smooth transition to adjacent areas.

Where coarser sand is used, the alongshore transport rate may be reduced, starving the downdrift coast of sand and triggering erosion. So, consideration will need to be given to mitigating this, e.g. by tapering the sand placement alongshore or providing some nourishment sand to the adjacent coast as well.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development has considered potential erosion impact to adjacent coasts and mitigated this risk through design considerations.

PO10 Erosion control structures (excluding revetments) are only constructed where there is an **imminent threat to significant buildings or infrastructure**, and there is no feasible option for either:

1. **beach nourishment**; or
2. relocation or abandonment of structures.

Context

Erosion control structures are a subset of coastal protection work commonly called 'hard works' that may provide a permanent solution to defending land from sea erosion, usually by permanently altering sediment transport processes. They include revetments (e.g. seawalls), artificial reefs, groynes and breakwaters, usually built from rock, concrete, geotextile bags or gabions. Erosion control structures do not include periodic work such as beach nourishment or sand pushing, nor do they include structures such as river training walls, which are designed to reduce sediment deposition in entrance channels and are not intended to protect land from erosion.

This PO specifically excludes revetments because they are subject to specific provisions in PO11.

Preventing erosion with hard structures can adversely affect coastal processes by locking up sediments behind and on the updrift side of the structure and changing the character of waves on the coast. This can accelerate erosion downdrift of the site or at adjacent areas. Erosion control structures can also significantly degrade the amenity of the coast. These impacts can be minimised by only constructing erosion control structures when there is no other option available, such as retreat or beach nourishment, and by not constructing erosion control structures unless there is an imminent threat to significant buildings or infrastructure.

The term 'significant buildings or infrastructure' is defined in this guideline and intended to identify development that is of a size and value that warrants protection. A simple test for the term 'high economic value' in the definition of 'significant buildings or infrastructure' is that there is a demonstrated relative economic benefit in constructing erosion control works, i.e. the value of the building or infrastructure being protected is greater than the cost of the protection works. This would typically be the case for occupied houses or commercial buildings, but dilapidated buildings, park shelters, small sheds, fences, unformed roads or minor infrastructure, such as a telephone line on posts, would be considered of lower value than a seawall. It also demonstrates that the primary purpose of the

erosion control structure is to protect the building or infrastructure as an economic benefit is gained.

Foundations are not considered when deciding whether a structure can be readily dismantled and relocated. This ensures that structures like sheds can be relocated further landward, even if they were founded on a concrete slab. It is expected that the foundations would be abandoned or, if threatened by erosion, removed.

For areas that are under imminent threat of erosion, a strategy of retreat from the erosion prone area is the preferred option. Where erosion control structures must be constructed their adverse impacts must be minimised by their design or by using beach nourishment to compensate for erosion triggered by the works.

Where there is an **agreement with a local government** such as a Shoreline Erosion Management Plan, the recommendations of that plan are the preferred approach for deciding the location and design of coastal protection works.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development:

Is required due to an imminent erosion threat to a significant building or infrastructure; and

For PO10(1):

1. cannot feasibly use beach nourishment as a coastal protection method in this location.

Imminent threat from erosion, for the purposes of assessment, is the area potentially affected by erosion from a one in 100-year Average Recurrence Interval design storm event. A design storm event is a combination of a water level and wave height that is only likely to occur once in 100 years and these conditions occur only during cyclone or extreme weather events. The zone of imminent threat is the short-term erosion component of the calculated erosion prone area distance for an open coast and further information on this can be found in the Coastal Hazard Technical Guide. A specific determination will need to be made for riverine, estuarine and protected coasts based on local erosion drivers.

For PO10(2):

1. is consistent with the recommendations in an agreement with a local government, typically a Shoreline Erosion Management Plan; and
2. is required to protect structures that cannot be relocated (excluding foundations) or abandoned due to the size and value of the existing building or infrastructure; or
3. is required to protect essential community infrastructure which requires it to remain in its current location.

Supporting references

See [Coastal hazard technical guide, Determining coastal hazard areas](https://www.qld.gov.au/__data/assets/pdf_file/0025/67462/hazards-guideline.pdf) section on the short-term component of erosion prone areas (https://www.qld.gov.au/__data/assets/pdf_file/0025/67462/hazards-guideline.pdf).

PO11 Erosion control structures (revetments only) are only constructed where:

1. there is an **imminent threat to significant buildings or infrastructure**, and there is no feasible option for either:
 - a. **beach nourishment**; or
 - b. relocation or abandonment of structures; or
2. the development:
 - a. is in a consistent alignment with adjacent lawful revetments; or
 - b. is consistent with an **agreement with a local government** that a revetment is appropriate in the proposed location.

Context

Revetments differ to other erosion control structures in that they are designed to protect a specific part of land, often defined by lot boundaries and provide a very high certainty of protection. A smooth alignment of revetments along a coastline and riverine system is important to ensure the impact on coastal processes is minimised. The preferred hierarchy of responses to erosion risk applies to revetments just as it does for other erosion control structures. That is, relocation of structures and then beach nourishment is preferred before construction of a revetment. However, there are often cases where this hierarchal approach is not required and a revetment may be proposed without justifying why alternative options are not appropriate. This may be because the coastal

management strategy for a section of coast has already been determined due to a history of local revetment construction or a specific shoreline erosion management approach has been adopted by the local government.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development:

For PO11(1):

1. is required due to an imminent erosion threat to a significant building or infrastructure;
2. cannot be relocated further landward. Relocation could be considered if the building was near the end of its design life or major repairs or replacement were under consideration or was designed to be relocated or relocation was agreed in the event of an erosion threat;
3. cannot feasibly use beach nourishment as a coastal protection method in this location. Beach nourishment is generally only feasible where there is an agreed approach for a coastal compartment rather than an individual lot;
4. is required to protect essential community infrastructure that must remain in its current location.

For PO11(2), a building or infrastructure may not be at imminent threat of erosion, however a revetment may still be appropriate if it is:

1. considered infill where there are lawful revetments on adjacent lots; or
2. consistent with the recommendations in an agreement with a local government such as a Shoreline Erosion Management Plan or with a local government Planning Scheme requirement;

See development considerations for PO1(3) for more detail on revetments and agreements with a local government.

PO12 Erosion control structures minimise interference with **coastal processes** and reduce the severity of erosion on adjacent land.

Context

Erosion control structures can have a range of adverse impacts on the coast including interfering with sand transport along a coast and locking up sand in behind and preventing this sand from contributing to local coastal processes, such as cross shore transport during erosion events and longshore transport. These impacts may trigger erosion at nearby areas in the coastal compartment and they need to be identified and mitigated by the design and location of the works.

For revetments this is generally achieved by locating the works as far landward as practical or for most types importing sand into the system to balance accelerated erosion, e.g. on the terminal ends of a seawall, or to fill the expected sand trapping capacity of a new groyne. Design of the works can also assist, such as for revetments, by providing a slope and roughness of the works which dissipates rather than reflects wave energy.

When revetments are constructed individually over time, they may have differing alignments and designs. To avoid this type of piecemeal approach, it is desirable that adjoining erosion control structures along a coastal sector (usually owned by the individual lot owner) are constructed with a continuous crest alignment and common design standard. Where a council has endorsed a Shoreline Erosion Management Plan (SEMP) that has been supported by DES, the recommendations of that plan are the preferred approach for deciding the location and design of coastal protection works. Where a SEMF has not been prepared, the alignment of the erosion control structure should be established in [pre-lodgement discussions](#) with DSDILGP's State Assessment and Referral Agency (SARA), DES and the local government.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development:

1. locates the proposed erosion control structure as close as practicable to the building works or infrastructure it is intended to protect unless otherwise directed by an agreement with a local government. This will most commonly be an endorsed Shoreline Erosion Management Plan; and
2. only extends along the coast for a sufficient length to protect such development;
3. identifies increased erosion as a result of the development and either imports sand, or takes other measures, to mitigate this erosion seaward of the site or at neighbouring sites
4. has design characteristics to minimise interference with coastal processes including slope and wave energy dissipation characteristics (roughness).

Water quality

PO13 Development:

1. maintains or enhances **environmental values** of receiving waters;
2. achieves the **water quality objectives** of Queensland waters;
3. avoids the release of **prescribed water contaminants** to **tidal waters**.

Context

Water quality may be impacted by development through surface water and stormwater run-off and directly releasing contaminants to waters.

Environmental values describe what a particular waterway is used for, such as drinking, farming, or aquatic ecosystems. Water quality objectives are numerical measures (e.g. concentrations) or descriptive statements that are to be achieved by development, for example, through stormwater treatment, to protect the value.

Whether development must maintain or enhance water quality objectives depends on the quality of water and objectives being sought. For example, in areas with high ecological values, those values are to be maintained. In disturbed areas, water quality is to be improved to achieve the defined water quality objectives.

Environmental values and water quality objectives for particular areas are identified in the Environmental Protection (Water and Wetland Biodiversity) Policy 2019. The *Queensland Water Quality Guidelines 2009* provides environmental values and water quality objectives for waters where no catchment-specific values have been established.

Prescribed water contaminants are identified under Schedule 9 of the Environmental Protection Regulation 2019. They include organic material, industry waste, hard rubbish and acidic material (such as acid sulfate soil).

Development considerations

Applications relevant to this PO should demonstrate that the proposed development:

For PO13(1):

1. is located, designed and managed to avoid impacting the environmental values of the receiving waters as determined by the Environmental Protection (Water and Wetland Biodiversity) Policy 2019.

For PO13(2):

1. identifies the water quality objectives of the receiving waters as determined by the Environmental Protection (Water and Wetland Biodiversity) Policy 2019; and
2. incorporates measures as part of the siting and design of the development to maintain or enhance water quality released to tidal waters to achieve the water quality objectives outlined in the Environmental Protection (Water and Wetland Biodiversity) Policy 2019.

For PO13(3):

1. does not release a prescribed water contaminant to tidal waters by:
 - a. ensuring all prescribed water contaminants are contained on the site or filtered from the water released from the site through adequate storage or water treatment methods (e.g. stormwater treatment, erosion and sediment controls); and
 - b. monitoring all intended releases to ensure they do not contain a prescribed water contaminant and provide operational responses to incidents where the water quality does not meet the required standard as defined by the Environmental Protection (Water and Wetland Biodiversity) Policy 2019.

An Erosion and Sediment Control Plan (ESCP) will be required to ensure that the construction phase will be in compliance with the *Earthworks - AS3798 (Guidelines on Earthworks)* and Erosion & Sediment Control – Best Practice documents as specified by the International Erosion Control Association (Australasia).

Development may also be required to develop a site based stormwater management plan in accordance with the latest edition of the Queensland Urban Drainage Manual.

Supporting references

[Queensland Water Quality Guidelines 2009](https://environment.des.qld.gov.au/__data/assets/pdf_file/0020/95150/water-quality-guidelines.pdf)

(https://environment.des.qld.gov.au/__data/assets/pdf_file/0020/95150/water-quality-guidelines.pdf)

[Monitoring and Sampling Manual 2018](https://environment.des.qld.gov.au/__data/assets/pdf_file/0031/89914/monitoring-sampling-manual-2018.pdf)

(https://environment.des.qld.gov.au/__data/assets/pdf_file/0031/89914/monitoring-sampling-manual-2018.pdf)

For determining the relevant environmental values and water quality objectives for your site see [Environmental Protection \(Water and Wetland Biodiversity\) Policy 2019](#)

(<https://www.legislation.qld.gov.au/view/pdf/inforce/current/sl-2019-0156>).

[Queensland Urban Drainage Manual](https://www.business.qld.gov.au/industries/mining-energy-water/water/industry-infrastructure/supply-planning/urban-stormwater-drainage)

(<https://www.business.qld.gov.au/industries/mining-energy-water/water/industry-infrastructure/supply-planning/urban-stormwater-drainage>)

Public use of and access to State coastal land

PO14 Development maintains or enhances public use of and access to and along **State coastal land** (except where this is contrary to the protection of **coastal resources** or public safety).

Context

Public access and use of the coast should be maintained or enhanced for current and future generations.

For State coastal land, including beaches and tidal waterways, displacement of public access by private use such as for marine access structures, particularly those connected to State land, is not supported except to enable access to navigable water from private land that directly abuts tidal water. However, where private land directly abuts tidal water, any marine access structure should minimise the use of State land including tidal land, or impact on the public use of State land. The requirements for this are expanded in PO15 below.

For new development on the coast, consideration needs to be given to whether there is an expectation of access to or along the coast, how new public access can be provided and how this can be achieved without impacting on coastal resources.

There may be instances where access to State coastal land may not be desirable, such as for public safety due to operational reasons or security. This includes facilities such as airports, ports, boat harbours and marinas, mining and gas terminals and jetties.

Establishing public access through sensitive areas such as dunes may degrade or destabilise these areas, especially by damaging vegetation which can lead to wind erosion and dune blow-outs. Access must be located, designed, constructed and maintained to avoid these adverse impacts and should consider solutions appropriate to the level of use and risk from providing the access.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development:

1. is located, designed and operated to, in order of preference;
 - a. maintain existing access to, and along, the foreshore, unless restriction is necessary for the safe and secure operation of the development or to protect the public or coastal resources; or
 - b. minimise any loss of access to, and along, the foreshore; and
 - c. offset any loss of access to, and along, the foreshore by providing for an alternative access in the general location.
2. has considered the expectation of new access to the coast, for example, from a new facility or residential development, and how that access can be provided in an environmentally sensitive way.
3. that is adjacent to State coastal land, including land under tidal water, is located and designed to allow safe and unimpeded access to, over, under or around built structures located on the foreshore.

PO15 Private marine development does not reduce public use of and access to State coastal land and ensures that works:

1. are used for **marine access purposes** only;
2. minimise the use of **State coastal land**;
3. are designed to accommodate the berthing of one vessel only per waterfront residence;
4. do not interfere with access between **navigable waterways** and adjacent properties.

Note: Erosion control structures should not be assessed against this PO as they are specifically designed to protect land from erosion and are adequately assessed in PO11, PO12 and PO16.

Context

Where private land abuts tidal water, it is generally accepted that the property owner may access navigable water from the land and that private marine development such as jetties, pontoons and boat ramps are accepted to facilitate access by a vessel. This is similar to a driveway across a public footpath to a road.

Tidal land abutting private land is generally owned by the State (State coastal land) and is available for use by the public. Private marine development over State coastal land can displace or restrict public use and can also interfere with coastal processes and environmental values in tidal water. The intent of the State in managing its land is to:

- allow private marine development on State coastal land for a marine access purpose only (private marine development for recreational or commercial purposes, such as decks, boardwalks and storage facilities, are not supported unless tenure over the land has been obtained);
- minimise private use of State coastal land so as to allow public use to continue to the greatest extent possible (this includes access to land required for waterway management purposes);
- ensure that each waterfront residence has no more than one private marine development of its type constructed on State coastal land;
- ensure that the size of any berthing structure is the minimum size required to berth a single vessel only; and
- not allow private marine development to impede access along a navigable waterway or between a navigable waterway and any other waterfront lot.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development:

For PO15(1):

- a. ensures any private marine development on State coastal land is for a marine access purpose only.

Private marine development that has a marine access purpose includes jetties, pontoons and boat ramps. Structures such as decks, boardwalks and erosion control structures are not considered to have a marine access purpose as its primary use because they are not specifically designed to facilitate vessel access for people between land and a navigable waterway.

For PO15(2):

1. is located and designed to minimise the use of State coastal land by ensuring:
 - a. the private marine development is located only where private land directly adjoins tidal water (e.g. there is no State land, such as Road, Esplanade or Reserve between a lot and tidal water); and
 - b. it is located in a [water allocation area](#); and
 - c. it is the minimum size required for a marine access purpose; and
 - d. the deck of a jetty is not wider than 3m; and
 - e. a pontoon flotation unit is not wider than 3.5m, unless a Registered Professional Engineer of Queensland can justify the requirement for the extra width (e.g. environmental factors or a site-specific exceptional case) and there are no possible design solutions that can meet the State mandated limits; and
 - f. the structure is not to be roofed or otherwise covered; and
 - g. redundant structures are removed from State coastal land.

Where private marine development does not attach to residential land (e.g. school rowing pontoons attached to leased Council-owned land) alternative design requirements may be considered to achieve the specific marine access purpose, however this must be justified, noting that PO15(3) does not apply in this case. Although the

private marine development is used for a different purpose (e.g. multiple canoes and students vs a single vessel used by one family) the tidal water is still State coastal land and the size and number of structures must be minimised. More than one private marine development of its type is generally not supported and, in these cases, applicants should consider acquiring tenure over tidal water to justify additional structures on State coastal land for a private purpose.

Note that 'Owner's consent' from DES will be required for private marine development on unallocated State land (<https://www.qld.gov.au/environment/coasts-waterways/plans/development/tidal-works>). Issues relating to size and location of private marine development should be addressed at the owner's consent stage.

For PO15(3):

1. is the minimum size required to accommodate the berthing of one vessel only by ensuring:
 - a. only one private marine development **of its type** is established on State coastal land per waterfront residence;
 - b. a pontoon or jetty is the minimum length required to safely berth one vessel only per waterfront residence.

The single berthing requirement is not specific to wet berthing or dry berthing, rather it is about the structure being the minimum size required to berth a single vessel. DES does not regulate the berthing of additional vessels, however, private marine development must not be increased in size for the sole purpose of accommodating an additional berth. Development plans should clearly illustrate the primary berthing location and how the structure has been designed to achieve this over the smallest footprint. For example, if a 3.5m x 10m pontoon is the minimum size required to safely wet berth a vessel and the pontoon could also include a dry berth without increasing the size, then this may be supported. However, if the pontoon was proposed to be 15m in length to allow for a jetski dry berth as well, then the application would not be supported.

The single berthing requirement applies to a waterfront residence, regardless of whether the residence is contained within a single lot or spans multiple lots. Where common property exists under a Community Titles Scheme (CTS), the waterfront residence is the dwelling(s) directly landward of the common property that abuts tidal waters. A CTS is generally comprised of jointly administered lots (scheme land) including common property, administered by a community management statement (see the *Body Corporate and Community Management Act 1997*).

Each of the residences within a multi-level apartment building would be considered a waterfront residence, but if a duplex property included a detached front and rear dwelling, only a single berthing structure would be supported because only the front dwelling would be considered a waterfront residence.

In the case of private marinas that adjoin multi-residential developments the number of berthing opportunities will also be limited by the size of the [water allocation area](#). In most cases a body corporate will be the adjoining owner of the structure and will need to decide which residences will have exclusive or shared access.

For PO15(4):

1. does not impede access to or from a navigable waterway for any adjacent properties (this is generally assumed to be an access corridor of a minimum of 3m in width from the lot to a navigable waterway).

Supporting references

The application form for owner's consent is available from the [Queensland Government webpage](https://www.qld.gov.au/environment/coasts-waterways/plans/resources) (<https://www.qld.gov.au/environment/coasts-waterways/plans/resources>).

Guideline: [Preparing a water allocation area for tidal works in natural waterways](https://www.qld.gov.au/__data/assets/pdf_file/0018/107244/preparing-water-allocation-area-tidal-works.pdf) (https://www.qld.gov.au/__data/assets/pdf_file/0018/107244/preparing-water-allocation-area-tidal-works.pdf) provides information on preparing a water allocation area plan.

PO16 Development does not reduce public use of and access to **State coastal land** and ensures that **erosion control structures**, intended to protect a freehold or leasehold (not State land) premises, are wholly located within the lot:

1. except where impeded by **significant buildings or infrastructure** that cannot be removed or relocated;
or
2. for revetments the development is:
 - a. in a consistent alignment with adjacent lawful revetments; or
 - b. consistent with an **agreement with a local government** that a revetment is appropriate in the proposed location.

Context

Placing erosion control structures on State land to protect private properties can displace or prevent public use of State land. The use of public land for private purposes (property protection) is not supported.

In some instances placing erosion control structures on public land may be the only option, such as where there are engineering constraints (e.g. building foundation stability) or no available area on the freehold land. There may also be an agreement with a local government, such as an endorsed Shoreline Erosion Management Plan, which directs the alignment of the erosion control structure elsewhere. For existing development this can be problematic and negotiations will be required to be able to use State land and to obtain an appropriate tenure.

New development on land must consider the future need to locate erosion control structures wholly on the premises and set aside sufficient area on the seaward side of the development to ensure structures can be built on the premises now or at a later date if required.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development, in order of priority:

1. locates the erosion control structure as per an agreement with a local government, (e.g. Shoreline Erosion Management Plan); or
2. for revetments, is located in a consistent alignment with adjacent lawful revetments; or
3. locates the erosion control structure within the same lot as the building it is intended to protect; or
4. justifies why the structure cannot be placed in the same lot as the development it is intended to protect; and demonstrate that there is no feasible alternative.

Note that permission from the State (Department of Resources) and the land manager (e.g. Council if they are the trustee of a Reserve or the land is a road or esplanade) will be required for structures proposed partially or wholly on State coastal land. If the erosion control structure includes work below the high-water mark then owner's consent will be required from the Department of Resources prior to lodging a development application for tidal works (<https://www.qld.gov.au/environment/land/state/owner-consent/>).

Supporting references

The application form for owner's consent is available from the Queensland Government webpage at <https://www.qld.gov.au/environment/land/state/owner-consent>.

Matters of state environmental significance

PO17 Development is designed and sited to:

1. avoid impacts on **matters of state environmental significance**; or
2. minimise and mitigate impacts on **matters of state environmental significance** after demonstrating avoidance is not reasonably possible; and
3. provide an **offset** if, after demonstrating all reasonable avoidance, minimisation and mitigation measures are undertaken, the development results in an acceptable **significant residual impact** on a **matter of state environmental significance**.

Statutory note: For Brisbane core port land, an offset may only be applied to development on land identified as E1 Conservation/Buffer, E2 Open Space or Buffer/Investigation in the Brisbane Port LUP precinct plan.

Context

Matters of state environmental significance (MSES) are protected by the 'avoid, minimise, offset' policy hierarchy.

If development within an area containing MSES has demonstrated that it cannot avoid adverse impacts, then it should be demonstrated how impacts are minimised and mitigated. Significant residual impacts are to be offset. As SARA places an emphasis on the avoidance of detrimental impacts on MSES, it should not be assumed that offsets will be automatically supported.

If offsetting is being considered, a pre-application meeting with SARA is recommended to determine whether offsetting is a feasible option.

Development considerations

Proposals will need to include detailed plans drawn to scale and clearly identifying the extent of on-site MSES and the location of proposed development.

To determine the extent of MSES on site, refer to:

- the [SPP Interactive Mapping System](#) on the DSDILGP website; or
- [Environmental Reports Online \(MSES\)](#) from the Queensland Government website: (<https://www.qld.gov.au/environment/pollution/management/environmental-reports-online>).

Note that MSES mapping is indicative and does not map the extent of MSES marine plants and fish passage waterways. Specific survey and mapping is recommended to confirm the extent of MSES on-site.

Submission of an ecological assessment prepared to the standards specified in the State Planning Policy guideline - *Integrating State Interests in a Planning Scheme* is required if:

- development is located within MSES on-site or adjoins MSES (on or off the site) and may cause an impact on MSES.
- site survey confirms the development site is at a location where the extent or description of on-site MSES differs from the current MSES mapping;
- site survey reveals that the site is located in areas with marine plants or traversed by waterways allowing fish passage (for further information relating to waterways or managing impacts to fish passage from waterway barriers please contact the Department of Agriculture and Fisheries (<https://www.daf.qld.gov.au/contact>));

Development which does not avoid or minimise impacts on MSES may not be approved if applications cannot demonstrate how development avoids and minimises impacts on MSES.

To assist assessment of PO17 of development within MSES, it is recommended that ecological assessments address the 'avoid, minimise and mitigate' framework, in particular, how the development proposal reduces impacts on MSES through location and design measures.

If there is an impact on MSES, submit a report which determines whether there is a significant residual impact (SRI) in accordance with the DSDILGP *Significant Residual Impact Guideline*.

SARA will advise in writing whether a SRI on MSES is unacceptable. If the impact is acceptable and significant, and an offset is a suitable outcome (refer to the *Queensland Environmental Offsets Policy – General Guide (2021)*), SARA will condition the authority to provide an offset in accordance with the in accordance with the *Environmental Offset Act 2014*. Refer to the Queensland Government website – [Environmental Offsets](#).

Supporting documents

[Environmental Offsets Regulation 2014](#) (Qld)

[Waterway spatial layer](https://www.daf.qld.gov.au/business-priorities/fisheries/habitats/policies-guidelines/factsheets/what-is-a-waterway) (<https://www.daf.qld.gov.au/business-priorities/fisheries/habitats/policies-guidelines/factsheets/what-is-a-waterway>)

[Method for mapping Matters of state environmental significance for use in land use planning and development assessment, Department of Environment and Heritage Protection](#)
(https://environment.des.qld.gov.au/__data/assets/pdf_file/0037/88687/mses-methodology.pdf)

[Queensland Environmental Offsets Policy – General Guide \(2021\)](#)
(https://environment.des.qld.gov.au/__data/assets/pdf_file/0018/90180/offsets-policy-general-guide.pdf)

[Significant Residual Impact Guideline – For matters of state environmental significance and prescribed activities assessable under the Sustainable Planning Act 2009, Department of State Development, Infrastructure and Planning, 2014](#) (<https://dsdmipprd.blob.core.windows.net/general/dsdip-significant-residual-impact-guideline.pdf>)

[Integrating State Interests in a Planning Scheme](#) (2021) Department of State Development, Infrastructure, Local Government and Planning (<https://dsdmipprd.blob.core.windows.net/general/integrating-state-interests-in-planning-schemes-guidance-for-local-government.pdf>)

Table 8.2.2: All operational work

Private marine development

PO18 Private marine development is designed and constructed to maintain existing waterway banks in their natural state and not require:

1. **coastal protection work**;
2. shoreline or riverbank hardening;
3. **dredging for marine access purposes**.

Context

Private marine access structures are located on the bed and bank of tidal waterways and therefore can have adverse impacts on the coastal processes, environmental values and landforms. Where private use occurs on State land and in the adjacent tidal water, the development must be located and designed to limit impacts on coastal resources and coastal processes.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development is located and designed to:

For PO18(1):

1. maintain existing waterway banks in their natural state without the need for erosion control structures.

For PO18(2):

1. not disrupt water flow and the natural transport of sediment past the site which could trigger erosion of the bed and bank.

For PO18(3):

1. rely on the natural channel depth and bed level of the waterway without the need for dredging for navigable access.

Disposal of solid waste or dredged material from artificial waterways

PO19 Solid waste from land and **dredged material from artificial waterways** is not disposed of in **tidal water** unless it is for **beneficial reuse**.

Context

Material that has been excavated from land is a waste product, and disposal of waste material from land into tidal waters is not supported unless it is for a beneficial use. This includes material excavated to construct artificial waterways (e.g. lakes and canals) or material dredged out of the artificial waterway to maintain the development over time. Although capital dredging to establish an artificial waterway creates new tidal water, the material on the bed of the waterway is still considered solid waste from land for the purpose of this assessment.

It is important to recognise the potential value of dredged material as a resource. Possible beneficial reuses include engineered uses (land reclamation, beach nourishment, filling and capping material), agriculture uses, construction material and environmental enhancement (e.g. maintaining coastal processes, restoration and establishment of wetlands, nesting islands, artificial reefs). Some of these uses include placing material in tidal water and in such cases the material is not considered a waste.

Development applications need to provide a whole of life strategy to ensure that all capital and maintenance dredging required for the construction of and continued use of the artificial waterway is determined, including the storage, rehandling, treatment and disposal of the dredged material to land.

Development considerations

Proposals that require the dispose of solid waste from land or dredged material from artificial waterways, now or in the future, must demonstrate that:

1. material from excavation or ongoing maintenance of an artificial waterway will not be disposed of to tidal water unless there is a beneficial purpose. This can be achieved by providing a whole-of-life dredged material disposal plan, including an analysis of future dredging volumes and the characteristics of the material; and
2. the dredged material is only returned to tidal water where there is a benefit to coastal processes such as for beach nourishment or to reinstate the natural transport of sand along the coast or environmental enhancements (refer PO20 for context); and
3. the dredged material has suitable physical properties for the proposed beneficial purpose and it is not expected to cause environmental harm, and evidence is provided as to how this can occur (noting that future approvals may be required) (refer PO21 for context).

Disposal of dredged material other than from artificial waterways

PO20 Dredged material is returned to **tidal water** where the material is needed to maintain **coastal processes** and sediment volume.

Context

Dredging is often required for the construction or maintenance of tidal works including navigation access channels, harbour swing basins, berth pockets, and berth approach or departure paths in port areas. Removing this material reduces the amount of sediment within the natural system and can alter coastal processes resulting in changes to tidal waterways and erosion of adjacent coasts. Dredged material can also have value as a resource, such as clean sand, which has value for construction use and can be sold for this purpose. Returning dredged material to an area that supports the coastal processes is considered the highest priority and best use of that material. This can include use for beach nourishment or be returned to the nearby coastal sedimentary environment to maintain coastal processes.

Retaining uncontaminated dredged material in the coastal system to ensure coastal processes are maintained is to be examined first and implemented where feasible prior to it being used or disposed of by any other method.

Note that dredging undertaken in the context of extractive industry—where the primary purpose for removing material from below tidal water is for the commercial use of the quarry material—is not subject to the provisions contained in this policy. Extractive industry is an environmentally relevant activity which is managed in accordance with the provisions of the *Environmental Protection Act 1994*. Allocations that grant access to the resource for commercial purposes is managed in accordance with the provisions of the Coastal Act.

Development considerations

Proposals to dispose of dredged material removed during construction of a tidal work must determine if:

1. the material to be dredged is part of a natural sediment transport process; and
2. removal could adversely impact on the coast, including erosion of nearby banks of waterways or beaches; and
3. the material can be safely returned to the sediment transport pathway in the vicinity of the works without adverse impacts on coastal resources, including the smothering of seagrass or coral reefs; and
4. the material can be used for remediation of a beach erosion problem adjacent to, or in the general locality of, the dredging operation by increasing sediment volume in the active beach system; and
5. physical and chemical properties of the material are suitable for beach nourishment at the intended site; and
6. the material is safe for return back to tidal water with regards to conserving coastal resources (complies with PO22).

Supporting references

[National Assessment Guidelines for Dredging 2009, Department of the Environment, Water, Heritage and the Arts, 2009](https://www.environment.gov.au/system/files/resources/8776675b-4d5b-4ce7-b81e-1959649203a6/files/guidelines09.pdf) (https://www.environment.gov.au/system/files/resources/8776675b-4d5b-4ce7-b81e-1959649203a6/files/guidelines09.pdf)

PO21 Where the **dredged material** is not needed to maintain **coastal processes** and sediment volume, the quantity of **dredged material** disposed to **tidal water** is minimised through **beneficial reuse** or disposal on land.

Context

Disposal of dredged material to tidal water (other than to benefit coastal processes) must be minimised wherever possible to avoid adverse impacts on the coastal environment. This can either occur by disposal to land as a waste material to an approved waste facility, or for beneficial reuse.

Beneficial reuse can include engineered uses (e.g. land reclamation, filling and capping material), agriculture uses, construction material and environmental enhancement (e.g. maintaining coastal processes, restoration and establishment of wetlands, nesting islands, artificial reefs). Some of these uses include returning the material to tidal water and this may require further assessment as a tidal work.

Development considerations

Proposals to dispose of dredged material into tidal water must demonstrate:

1. potential beneficial reuse options for the dredged material have been identified and investigated; or
2. that material is to be disposed of to an approved waste management facility unless it can be demonstrated that this is not feasible. For example, disposal of dredged material from offshore navigation channels may not be feasible if suitable onshore facilities to receive the type and volume of waste are not available or rehandling facilities for transfer to land are not available.

The National Assessment Guidelines for Dredging (2009) provides guidance on disposal alternatives and waste minimisation assessment.

Supporting references

[National Assessment Guidelines for Dredging 2009, Department of the Environment, Water, Heritage and the Arts, 2009](https://www.environment.gov.au/system/files/resources/8776675b-4d5b-4ce7-b81e-1959649203a6/files/guidelines09.pdf) (<https://www.environment.gov.au/system/files/resources/8776675b-4d5b-4ce7-b81e-1959649203a6/files/guidelines09.pdf>)

All dredging and any disposal of dredged material in tidal water

PO22 Dredging or disposal of **dredged material** in tidal waters does not adversely impact on **coastal processes** and **coastal resources**.

Context

Dredging and disposing of dredged material in tidal water can result in adverse impacts on coastal resources and their values including:

- increased turbidity and reduced light availability to reef and seagrass communities;
- smothering of benthic communities by sediments;
- contaminant release including from acid sulfate material;
- degradation of water quality;
- modifications to physical and habitat processes resulting from changes to bed topography (depth, channel profiles), hydrodynamics (current, wave action);
- changes to habitat features and processes upon which fisheries depend;
- direct (harm) and indirect (e.g. behavioural) impacts on other aquatic fauna, including migratory species and protected species; and
- changing the rate and type of sediment transport along a coast which may result in erosion or sediment accumulation in adjacent areas.

Capital dredging in tidal areas close to the coast in particular can interrupt sediment transport pathways and deplete sand supply to downdrift areas resulting in erosion. The impact on coastal processes must therefore be understood and, adverse impacts considered in the design, such as dredged material being placed in nearby tidal areas to counterbalance the sediment loss.

The disposal of dredged material in tidal waters can also decrease water depth and affect the wave climate of an area. This may change sediment transport along the adjacent coast causing accumulation in some areas and erosion in others. Wave and sediment transport modelling may be required to understand the impacts on adjacent coasts, noting that not all impacts will be negative. Dredging or disposal of dredged material in tidal waters can also have significant impacts on water quality and marine fauna and flora if not managed appropriately. The National Assessment Guidelines for Dredging set out the framework for the environmental impact assessment requirements for disposing of dredged material into tidal water to prevent marine pollution and preserve marine ecosystems.

Other approvals may also be required for dredging activities. These are listed in *Guideline: Dredging and allocation of quarry material*.

Development considerations

Applications relevant to this PO should demonstrate that:

1. increased turbidity does not adversely impact reef and seagrass communities;
2. benthic communities will not be smothered by sediments;
3. benthic habitats are not adversely impacted by changes to bed topography and hydrodynamics;
4. proposed contaminant release limits do not exceed the levels set in the National Assessment Guidelines for Dredging (2009);
5. the proposal to dispose dredged material to the marine environment has been investigated in accordance with the requirements of the National Assessment Guidelines for Dredging (2009) and is determined to be acceptable.
6. changes to the bed profile of a waterway, either from dredging or disposal of dredge material, do not adversely impact coastal processes for example by interfering with sediment transport rates or pathways.

A dredge management plan must be submitted that demonstrates how the performance outcome is met. This can be achieved by demonstrating compliance with the National Assessment Guidelines for Dredging 2009, Department of the Environment, Water, Heritage and the Arts, 2009.

Supporting references

Guideline: [Dredging and Allocation of Quarry Material](https://environment.des.qld.gov.au/assets/documents/regulation/cpm-gl-dredging.pdf)

(<https://environment.des.qld.gov.au/assets/documents/regulation/cpm-gl-dredging.pdf>).

[National Assessment Guidelines for Dredging 2009, Department of the Environment, Water, Heritage and the Arts, 2009](https://www.environment.gov.au/system/files/resources/8776675b-4d5b-4ce7-b81e-1959649203a6/files/guidelines09.pdf) (<https://www.environment.gov.au/system/files/resources/8776675b-4d5b-4ce7-b81e-1959649203a6/files/guidelines09.pdf>).

Reclamation

PO23 Development does not involve **reclamation** of land below **tidal water**, other than for the purposes of:

1. **coastal-dependent development, public marine development or essential community infrastructure**; or
2. strategic ports, priority ports, boat harbours or strategic airports and aviation facilities, in accordance with a statutory land use plan or master plan; or
3. **coastal protection work** or work necessary to protect **coastal resources** or **coastal processes**.

Context

Reclamation results in degradation and permanent loss of intertidal and tidal coastal wetlands, landforms and ecosystems. It can lead to impacts on species, reducing their numbers directly or indirectly by reducing habitat and food sources and increasing marine traffic and boat strikes on species such as turtles and dugongs.

It can displace marine ecosystems and interfere with coastal processes including changing water flows and increasing erosion. The process of reclamation causes short term impacts to water quality including increasing turbidity and sediments, and potentially releasing contaminants.

Because of the significant associated environmental impacts that can result from reclamation, it may only occur to support specific development activities listed in PO23(1) – PO23(3). Reclamation for non-coastal dependant development is not supported.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development:

For PO23(1):

1. is one of the development types listed in PO23(1).

For PO23(2):

1. is supported by a relevant land use plan or master plan, where there is a demonstrated net benefit for the State or region and no feasible alternative exists.

For PO23(3):

1. is required on the landward side of an erosion control structure (e.g. seawall or revetment) where the work is required to follow a smooth alignment along the shore based on an endorsed plan for the works (including a planning scheme provision or a shoreline erosion management plan) and the filling is required to support the erosion control structure or connect it to land; or
2. is required to protect coastal resources or coastal processes that have significant value to the community from erosion or exposure to the sea, including filling breaches through dunes which flood wetland areas in behind with seawater or replacing sand lost to erosion to protect trees or places with cultural heritage value.

Supporting references

The application form for owner's consent is available from the Queensland Government website at <https://www.qld.gov.au/environment/land/state/owner-consent>.

Table 8.2.3: Operational work for tidal works which is not assessed by local government

PO24 Tidal works are sited and designed to operate safely during and following a **defined storm tide event**.

AO24.1 Tidal work is designed and located in accordance with the [Guideline: Building and engineering standards for tidal works](#), Department of Environment and Heritage Protection, 2017.

Context

Severe storms and tropical cyclones are often accompanied by a storm tide which locally elevates water levels and presents a hazard to life and property. Development must consider and address the risks from storm tide.

Development applications requiring assessment against this PO are tidal works other than prescribed tidal works, where the local government is not the assessment manager. The *Operational Policy: Building and engineering standards for tidal works* provides technical requirements for such works.

Development considerations

Applications relevant to this PO should demonstrate that the proposed development:

1. does not increase the risk to people or property exposed to a defined storm tide event as a result of either:
 - a. an increase to the number of premises on the development site; or
 - b. an increase to the number of persons working on site; or
 - c. an increase to the value of assets (monetary or market) on the development site; or
2. is located and designed to withstand the level of inundation expected from a defined storm tide event.

Applications should demonstrate that development meets the minimum building and engineering criteria for tidal works under the *Operational policy: Building and engineering standards for tidal works*.

Supporting references

[Storm tide inundation information](https://www.qld.gov.au/environment/coasts-waterways/plans/hazards/about) (<https://www.qld.gov.au/environment/coasts-waterways/plans/hazards/about>)

[Operational Policy: Building and engineering standards for tidal works](https://www.qld.gov.au/__data/assets/pdf_file/0014/107240/op-cd-building-engineering-standards-tidal-works.pdf)
(https://www.qld.gov.au/__data/assets/pdf_file/0014/107240/op-cd-building-engineering-standards-tidal-works.pdf)

4.0 Supporting documents

The supporting documents listed below describe the level of detail required in reports, plans or other documentation to suitably assess the certain development types. These supporting documents are generally required to justify the responses to the relevant POs, however some small scale applications sometimes do not warrant the indicated level of supporting justification. Depending on the nature of the development and site characteristics, further documentation may be required to address the POs in the code.

Description of the Land and Proposed Development

All applications should include a description of the proposed development and a description of the existing site conditions of the proposed development location.

Description of the land intended to be developed should detail:

- the property address, tenure and real property description of the land, or the location of the land in relation to the nearest real property boundary;
- existing levels of the land (including tidal planes where relevant);
- location of the coastal building line in relation to the area of work;
- location of the CMD in relation to the area of work;
- location of the erosion prone area and storm tide inundation;
- location of areas of ecological significance on the land;
- description of existing vegetation on the land; and
- area to be cleared and/or requiring rehabilitation after the works are completed the land to be developed.

Description of the development should include:

- location of all built structures, or structures to be modified or demolished, as a result of the proposed development;
- description of any operational works occurring on site including expected timeframes;
- any machinery to be used or stored on the site and
- staging of the development if applicable.

Coastal Hazard Assessment Report

A coastal hazard assessment report identifies the existing coastal hazards within a site and examines how these hazards will adjust to and interact with the proposed development. This will commonly respond to issues regarding erosion prone areas but should also consider storm tide inundation concerns for reports responding to PO24. A coastal hazard report should be written by, or reviewed and endorsed by, an appropriately qualified person.

A coastal hazard assessment report is to:

- describe nature of the coastal hazard at the site;
- describe the impacts of coastal hazards on the site;
- describe all proposed mitigation measures including location, siting, design, construction, and operation procedures;
- describe any residual risks likely to be experienced on site or created by the development external to the site;
- demonstrate that a development will not increase risk to people and property from coastal hazards; and
- demonstrate that a development will not create an adverse coastal hazard impact including an impact on the ongoing operation of development in coastal hazard areas.

Artificial Waterways

Engineering Report

Artificial waterways are a substantial type of development that has significant, long term impacts on the coastal processes and environmental values. Due to the scale of development and the various impacts to be considered the required submission details for engineered drawings and development description is increased. The following details should be included in the certified plans or engineering report of the development in addition to the information detailed within *Description of the Land and Proposed Development* and the *Coastal Hazard Assessment Report*.

Description and certified drawings of the proposed artificial waterway should include:

- general design;
- staging proposals, including the layout and access of any proposed structures;
- surface level changes;
- a typical cross section across land to be reclaimed showing the proposed finished levels and method of protecting the seaward boundary of the reclamation from erosion by the sea in relation to Australian Height Datum;
- proposed maximum surface area and depth of the artificial waterway;
- the impact of the artificial waterway on the tidal prism;
- intended purpose of the artificial waterway and purpose of the land around the artificial waterway;
- the property address, tenure and real property description of the land, or the location of the land in relation to the nearest real property boundary, descriptions of the boundaries of the site and of the proposed waterway, in relation to the existing boundaries of the parcels of land adjoining the site;
- spot levels or contour lines based on the Australian Height Datum, sufficiently spaced to clearly indicate the topographical features of the land as at the application date;
- the location of test bores taken of the soil at the site;
- logs of test bores taken to a depth of at least one metre below the bottom of the proposed waterway detailing the distribution and classification of soil types at the site;
- adjacent lots with inundated land and leasehold lots identified;
- a recent coloured vertical aerial photograph of the site to a scale of not more than 1:12 000 showing the boundaries mentioned above;
- information on water quality and stormwater monitoring plans, release limit values and operational responses for breaches of those limits.

Water Quality Monitoring Plan

A water quality monitoring plan should be submitted for any development that will involve an intended release to tidal waters, or any development that significantly alters the land use which would change surface water and stormwater runoff quality (e.g. establishing a shopping centre and parking lot over a previously vegetated site). All water quality monitoring plans should reflect the intended environmental outcomes for the location as determined by the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*.

For information regarding water quality management plan requirements please see

[Application requirements for activities with impacts to water](#)

https://environment.des.qld.gov.au/__data/assets/pdf_file/0029/87851/era-gl-water-impacts.pdf.

For determining the relevant environmental values and water quality objectives for your site see [Environmental Protection \(Water and Wetland Biodiversity\) Policy 2019](#)

<https://legislation.govnet.qld.gov.au/view/pdf/inforce/current/sl-2019-0156>.

5.0 Glossary of terms

Agreement with a local government is an agreement between the Department of Environment and Science (DES) and a local government in regard to a specified location, alignment and conceptual design of an **erosion control structure**, being:

1. an agreement between the two parties in writing; or
2. the endorsement by DES of a document provided by a local government (including a Shoreline Erosion Management Plan, or a planning scheme that integrates the natural hazards, risk and resilience state interest in the State Planning Policy 2017);

supporting a proposed **erosion control structure** at a location, with or without qualifications.

Artificial waterway - see section 8 of the *Coastal Protection and Management Act 1995*.

Note: Artificial waterway means an artificial channel, lake or other body of water. An artificial waterway includes:

1. an access channel;
2. an artificial channel that is formed because land has been reclaimed from **tidal water** and is intended to allow boating access to allotments on subdivided land;
3. other artificial channels subject to the ebb and flow of the tide;
4. any additions or alterations to an **artificial waterway**.

However, an artificial waterway does not include the following:

1. a swimming pool;
2. an ornamental pond of no more than 5 000 square metres in area;
3. a pond for aquaculture or for treating effluent;
4. a freshwater storage reservoir for domestic water supply;
5. a water storage facility situated on a natural watercourse and used for irrigation or other agricultural purposes;
6. a part of a river, creek or stream in which water flows in a natural channel, whether artificially improved or not;
7. a drain for carrying stormwater or other material;
8. any of the following used for accessing port infrastructure if constructed in the area of a port for which a port authority or port operator is responsible:
 - a. a navigation channel;
 - b. a harbour swing basin;
 - c. a berth pocket;
 - d. a berth approach or departure path.

Beach nourishment means the replenishment of a beach system using imported sediment to balance erosion losses or to re-establish a wider beach and dune system. It does not include the creation of a new beach.

Beneficial reuse means using **dredged material** for a purpose that provides social, economic or environmental benefits (or a combination of these). It includes **beach nourishment, reclamation**, environmental restoration purposes (such as restoring wetlands or nesting islands) and use on land for fill or construction purposes.

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

Note: Coastal building line means a line declared as a coastal building line under the Coastal Protection and Management Act 1995.

Coastal-dependent development:

1. means development that in order to function must be located in **tidal waters** or be able to access **tidal water**; and
2. may include, but is not limited to:
 - a. industrial and commercial facilities such as ports, harbours and navigation channels and facilities, aquaculture involving marine species, desalination plants, tidal generators, **coastal protection works, erosion control structures, public marine development and beach nourishment**;
 - b. tourism facilities for marine (boating) purposes;
 - c. community facilities and sporting facilities which require access to **tidal water** in order to function, such as surf clubs, marine rescue, rowing and sailing clubs; or
 - d. co-located residential and tourist uses that are part of an integrated development proposal (e.g. mixed use development) incorporating a marina, if these uses are located directly landward of the marina and appropriately protected from natural hazards; but
3. does not include:
 - a. residential development, including canal development, as the primary use;
 - b. waste management facilities, such as landfills, sewerage treatment plants; or

- c. transport infrastructure, other than for access to the coast.

Coastal erosion means the loss of land or the removal of beach or dune sediments by wave action, wind action, tidal currents or water flows or by permanent inundation due to sea level rise.

Coastal hazard see the *Coastal Protection and Management Act 1995*

Note: Coastal hazard means erosion of the foreshore or tidal inundation.

Coastal management district see the *Planning Regulation 2017*.

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

Coastal processes means the natural processes of the coast, including:

1. sediment transport to and along the coast;
2. wind, waves, tides and currents which transfer energy to the coast and drive sediment transport;
3. fluctuations in the location and form of landforms and the foreshore and associated ecosystems from sediment transport (erosion and land building); and
4. changes in sea level; ecological processes (including growth and spread of native plants); and the natural water cycle (for example coastal wetlands' role in filtration and flood mitigation).

Coastal protection work means any permanent or periodic work undertaken primarily to manage the impacts of coastal erosion or storm tide inundation, including the use of erosion control structures and altering coastal processes such as sediment transport.

Coastal resources means the natural resources of the coastal zone. It includes natural and physical features and landforms, coastal processes, vegetation, wildlife, the marine environment, quarry material, soil, water and air.

DA mapping system means the mapping system containing the Geographic Information System mapping layers kept, prepared or sourced by the State that relate to development assessment and matters of interest to the State in assessing development applications.

Note: The DA mapping system is available on the Department of State Development, Infrastructure, Local Government and Planning website.

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. The DSTE is equivalent to a one in 100-year average recurrence interval storm event incorporating:

1. sea level rise; and
2. an increase in cyclone intensity by 10 percent relative to maximum potential intensity.

Note: Where storm tide inundation levels have not been determined by a local study, the defined storm tide event level can be determined by reference to default storm tide inundation area mapping, as depicted in the DA mapping system. In these mapping layers, storm tide inundation is based on default values of 1.5 metres above highest astronomical tide (HAT) for South East Queensland and 2.0 metres above HAT for the remainder of the state. Where required, the storm tide level can be related back to Australian Height Datum by reference to the Queensland Tide Tables.

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

Dredged material means mud, sand, coral, shingle, gravel, clay, earth and other material removed by dredging from the bed in tidal water. Dredged material includes dredge spoil, quarry material where it is removed from tidal water as a commercial product and sand dredged for beach nourishment.

Dredging means the mechanical removal of dredged material from below tidal water. It excludes minor adjustments to the bed surface to level troughs and peaks and where bed material is only redistributed locally (bed levelling).

Dry-berth pontoon means a pontoon or floating structure that allows for a vessel to be winched or manoeuvred onto the structure and moored out of the water. It does not include a structure that:

- raises the vessel more than 1 metre from the surface of the water at any time; or
- includes a crane or mechanical lifting device.

Note: a dry-berth pontoon is equivalent to a conventional pontoon and the guideline only allows for one private marine development of its type fronting the waterfront residence. Construction of a second pontoon at a site will not be supported.

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

Environmental value see the *Environmental Protection Act 1994*.

Note: **Environmental value** means:

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.

The Environmental Protection (Water and Wetland Biodiversity) Policy 2019 states the **environmental values** of waters.

Erosion control structure means a structure designed to protect land or to permanently alter sediment transport processes and includes structures such as revetments (including seawalls), groynes, artificial reefs or breakwaters.

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.

Note: The **erosion prone area** is indicatively shown on the [DA mapping system](#).

Erosion prone areas are identified in accordance with the methodology set out in the Coastal Hazard Technical Guide, Department of Environment and Heritage Protection, 2013 and use the following factors to account for the projected impacts of climate change by the year 2100:

1. a **sea level rise** factor of 0.8 metres;
2. an increase in the maximum cyclone intensity by 10 percent.

Essential community infrastructure is:

1. emergency services infrastructure;
2. emergency shelters;
3. police facilities;
4. hospitals and associated facilities;
5. stores of valuable records or heritage items;
6. infrastructure forming part of the electricity transmission grid or supply network;
7. communications facilities;
8. sewerage treatment plants;
9. water treatment plants.

Fit for purpose revetment means a revetment that:

1. is lawfully constructed;
2. is designed to protect against coastal erosion conditions at the site or can meet required design standards (e.g. Australian Standards);
3. has been maintained to the approved design.

Imminent threat from erosion means an area potentially affected by erosion from a one in 100-year annual recurrence interval (ARI) design storm event.

Marine access purpose means a structure in **tidal water** used to facilitate vessel access for people between land and a **navigable waterway**. This includes jetties, pontoons and boat ramps but excludes decks and boardwalks.

Matters of state environmental significance see schedule 2 of the Environmental Offsets Regulation 2014.

Note: **Matters of state environmental significance** are **prescribed environmental matters** under the Environmental Offsets Regulation 2014 that require an offset when a prescribed activity will have a **significant residual impact** on the matter. A **matter of state environmental significance** is any of the following matters:

1. regional ecosystems under the Vegetation Management Act 1999 that:
 - a. are endangered regional ecosystems;
 - b. are of concern regional ecosystems;
 - c. intersect with a wetland shown on the vegetation management wetlands map;
 - d. contain areas of essential habitat shown on the essential habitat map for an animal that is endangered wildlife or vulnerable wildlife or a plant that is endangered wildlife or vulnerable wildlife;
 - e. are located within the defined distances stated in the Environmental Offsets Policy 2014 from the defining banks of a relevant watercourse or drainage feature as shown on the vegetation management watercourse and drainage feature map;
 - f. contain remnant vegetation and are areas of land determined to be required for ecosystem functioning ('connectivity areas').
2. wetlands in a wetland protection area or wetlands of high ecological significance shown on the Map of referable wetlands under the Environmental Protection Regulation 2019.
3. wetlands and watercourses in high ecological value waters as defined in schedule 2 of the Environmental Protection (Water

and Wetland Biodiversity) Policy 2019.

4. designated precincts in strategic environmental areas under the Regional Planning Interests Regulation 2014.
5. threatened wildlife under the Nature Conservation Act 1992 and special least concern animals under the Nature Conservation (Wildlife) Regulation 2006.
6. protected areas under the Nature Conservation Act 1992 excluding coordinated conservation areas.
7. highly protected zones of state marine parks under the Marine Parks Act 2004.
8. declared fish habitat areas under the Fisheries Act 1994.
9. waterways that provide for fish passage under the Fisheries Act 1994 if the construction, installation or modification of waterway barrier works carried will limit the passage of fish along the waterway.
10. marine plants under the Fisheries Act 1994.
11. legally secured offset areas.

Navigable waterway means waters with a sufficient depth and width to allow safe passage by all vessel sizes and types that frequently use the area. This includes areas seaward of a **quay line** or **navigation corridor** determined by a managing authority.

Offset means environmental **offset** under the *Environmental Offsets Act 2014*.

*Note: Environmental offset means an activity undertaken to counterbalance a **significant residual impact** of a prescribed activity on a **prescribed environmental matter**, delivered in accordance with the Environmental offsets framework. The **prescribed environmental matters** assessed under the SDAP are **matters of state environmental significance**.*

Pontoon see the Coastal Protection and Management Regulation 2017.

*Note: **pontoon** means a structure consisting of the following components—*

- (a) a flotation unit;
- (b) an access walkway for the flotation unit;
- (c) a system for mooring the flotation unit and access walkway, including, for example, by way of piles or anchored cables;
- (d) an abutment for the access walkway.

Prescribed environmental matters see the Environmental Offsets Regulation 2014.

*Note: A **prescribed environmental matter** is any species, ecosystem or other similar matter protected under Queensland legislation for which an environmental offset may be provided. A **prescribed environmental matter** may be a matter of national, state or local environmental significance, however, assessment criteria in the SDAP only relate to **matters of state environmental significance**. Each of the **prescribed environmental matters** are listed under the Environmental Offsets Regulation 2014.*

Prescribed water contaminants see the *Environmental Protection Act 1994*.

Note: See schedule 9 of the Environmental Protection Regulation 2019 for a list of prescribed water contaminants.

Private marine development means a work for a non-commercial purpose attached to private land and extending over abutting **tidal water**.

Private marine development, type means structures that have a similar function. There are two types—

1. for the launching or retrieving of a vessel on to land (e.g. boat ramp); or
2. for the berthing of a single vessel to facilitate the loading and unloading of passengers and goods (e.g. a jetty, **pontoon**, wharf, mooring pile arrangement).

For example— a boat ramp and a **pontoon** are considered different types of **private marine development** as they serve a different function.

Public marine development means development for public use that requires location in or adjacent to **tidal water** to function.

Reclamation see the *Coastal Protection and Management Act 1995*.

*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.*

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.

Sea level rise means an increase in sea level caused by global warming due to climate change. Sea level rise is projected to be 0.8 metres from the present day to 2100.

*Note: **Sea level rise** projections based on the best available science are prepared by the Intergovernmental Panel on Climate Change.*

Significant buildings or infrastructure means a building or infrastructure:

1. in good condition and repair;

2. used for residential, commercial or infrastructure purposes;
3. of a design which cannot be readily dismantled and relocated (excluding foundations);
4. of high economic value.

Significant residual impact see the *Environmental Offsets Act 2014*.

Note: Significant residual impact is an impact, whether direct or indirect, of a prescribed activity on all or part of a **prescribed environmental matter** that:

1. remains, or will or is likely to remain, (whether temporarily or permanently) despite on-site mitigation measures for the prescribed activity;
2. is, or will or is likely to be, significant.

Guidance for determining if a prescribed activity will have a **significant residual impact** on a **matter of state environmental significance** is provided in the *Significant Residual Impact Guideline, Department State Development, Infrastructure and Planning, 2014*.

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

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 coastal land includes land that is, or is at any time, covered by **tidal water**.

State tidal land see the *Coastal Protection and Management Act 1995*, Schedule

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

Temporary, readily relocatable or able to be abandoned means a structure that, if threatened by **coastal erosion**, will be relocated, removed or allowed to be lost rather than protected from the impacts because it is:

1. of low economic value; and
2. is capable of being disassembled, is easily removed, or loss by erosion is of low consequence; and
3. is not an intrinsic part of infrastructure or will have high social value or need; or
4. intended to remain in place for only a short period and then removed, whether or not it is threatened by **coastal erosion**.

Tidal water see the *Coastal Protection and Management Act 1995*.

Note: Tidal water means:

1. the sea and any part of a harbour or watercourse ordinarily within the ebb and flow of the tide at spring tides; or
2. the water downstream from a downstream limit as defined under the *Water Act 2000*.

Water quality objectives means the numerical concentration limits, mass or volume limits per unit of time or narrative statements of indicators established for waters to enhance or protection the **environmental values** for those waters set out in:

1. schedule 1 of the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*, for water mentioned in the policy; or
2. otherwise, the *Queensland Water Quality Guidelines 2009*.