# CODE

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| **Code name** | Eurobodalla Coastal Hazard Code |
| **Responsible manager(s)** | Director, Planning and Sustainability Services |
| **Contact officer(s)** | Coastal and Flood Management Planner |
| **Directorate** | Planning and Sustainability Services |
| **Approval date** | 13th December 2022 |
| **Amended** | 13th March 2023 |
| **Community Strategic Plan Objective** | Respond to our changing climate and natural hazards |
| **Delivery Program link** | Manage coastal hazards by implementing coastal |
| **Operational Plan link** | Finalise and seek certification of the Eurobodalla Coastal Management Plan |

**Purpose**

Eurobodalla Shire Council, as a coastal local government authority, needs to recognise and manage exposure of our Shire to coastal hazards and the potential impacts of climate change (including sea level rise). The challenge is to develop long term planning strategies that reduce our exposure to risk while recognising and maintaining the social, economic and environmental value of our built and natural environments including our beaches.

Planning for coastal hazards requires long term management solutions. The current approach to managing the coastline in NSW is the development of comprehensive Coastal Management Programs that draw upon extensive consultation with the local community, Government agencies and experts in the field of identifying and managing coastal hazards. In this regard, Council, in partnership with the State Government, has prepared the Eurobodalla Open Coast Coastal Management Program (2022).

This Code has been prepared as an outcome of the Open Coast Coastal Management Program (2022). Reference is made herein to the hazard maps contained within the Open Coast Coastal Management Program (2022).

Council will also be preparing Coastal Management Programs for estuaries within the Local Government Area. This Code may need to be reviewed upon completion of these additional Coastal Management Programs.

This Code aims to:

- Facilitate economic and residential use of the coast and foreshore over the maximum period possible under conditions of sea level rise
- Provide a precautionary risk-based approach to managing the impacts of coastal hazards
- Provide strategic options for response to coastal hazards
- Promote appropriate development within Coastal Management Areas in accord with the *NSW Coastal Management Act 2016* and the State Environmental Planning Policy (Resilience and Hazards) 2021
- Apply coastal hazard planning guidelines for merit-based assessment of development applications.

**Code criteria (relevant considerations for decision-making)**

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| **1** | **Application of this Code**<br>This Code applies to the Eurobodalla Shire Council local government area, and all decisions by Eurobodalla Shire Council in relation to lands or relevant matters described in this Code. |
| **2** | **Lands to which this Code applies**<br>This Code will apply to lands within the coastal zone or areas identified by Council as potentially at risk from coastal hazards out to a maximum planning period ending at the 2100 coastal hazard projections identified in the *Eurobodalla Open Coast Coastal Management Program (2022)*. The Coastal Vulnerability Area (CVA) is the relevant map in this regard. |
| **3** | **Legislation**<br>This Code will be applied with full consideration of the following New South WalesState legislation, Policies and Guidelines, including:<br>• Local Government Act 1993<br>• Environmental Planning & Assessment Act 1979<br>• Coastal Management Act 2016<br>• Marine Estate Management Act 2014<br>• Conveyancing Act 1919<br>• Crown Land Management Act 2016<br>• State Environmental Planning Policy (Resilience and Hazards) 2021<br>• NSW Flood Prone Land Policy 2022<br>• NSW Coastal Design Guidelines 2003 (or as updated)<br>• Coastal Management Manual 2018. |
| **4** | **Coastal Vulnerability Area**<br>Development proposed within the Coastal Vulnerability Area will be assessed against hazards associated with:<br>• Beach erosion<br>• Shoreline recession<br>• Coastal inundation<br>• Tidal inundation.<br>Note, the following hazards are not subject to this code:<br>• Coastal lake or watercourse entrance instability<br>• Erosion and inundation of foreshores caused by tidal waters and the action of waves, including the interaction of those waters with catchment floodwaters<br>• Coastal cliff or slope instability.<br>Mapping of the coastal vulnerability area is available in the *Eurobodalla Open Coast Coastal Management Program (Stage 2 Report 2021)*. |

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| **5** | **Procedures for development within coastal areas**<br><br>It is recommended a proponent of development in the coastal vulnerability area identifies the relevant coastal hazards affecting the property prior to commencing the drafting of plans to accompany any development application.<br><br>Mapping identifying the extent of the immediate, 2050, 2065 and 2100 coastal hazards is available for most areas in the *Eurobodalla Open Coast Coastal Management Program (2022).*<br><br>Proponents of development within the coastal vulnerability area can take advantage of Council's pre-lodgement services to identify matters for consideration prior to preparing their application.<br><br>The basic steps for development procedures within the coastal area are:<br><br>• Identify relevant coastal hazard (i.e. erosion or inundation)<br>• If necessary, investigate appropriate solutions to manage potential risk from coastal hazards (see Section 9 below)<br>• Adopt preferred solution.<br>Note: After lodgement of a development application, some solutions may require consideration and general terms of approval by other authorities prior to proceeding to the final stage of development assessment by Council. |
| **6** | **Planning levels for coastal inundation**<br><br>Coastal planning levels will vary throughout the Shire according to the location of a property in relation to the coast or tidal area. All properties will need to account for coastal inundation in the 100 Year ARI design event plus a freeboard (see below) and an allowance for sea level rise, when determining planning levels.<br><br>Council can assist by providing a planning level for areas where available information can inform the application of appropriate development controls (i.e. those locations within the CVA). These areas are identified under Schedule 1 attached to this Code. Indicative 2100 planning levels are provided for these locations, however, planning levels specific to the development location and type should be obtained from Council.<br><br>For areas not listed under Schedule 1, a proponent may be required to prepare a study that considers the impacts of inundation.<br><br>All coastal planning levels will include an additional freeboard above the projected inundation level. The following freeboard will apply:<br><br>• 500mm residential use<br>• 300mm other types of use.<br><br>Freeboard is an additional allowance above the projected coastal inundation level that adds a factor of safety to account for unknowns.<br><br>Wave run up affects some locations in excess of the coastal inundation level, this should either be accounted for within the planning level, or appropriate wave mitigation be |

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| | implemented to protect the proposed development (e.g. wave return barriers).<br>Notwithstanding the provision of a coastal planning level, it will be the responsibility of the proponent to demonstrate a suitable design response for those areas identified as at risk from coastal hazards. |
| **7** | **Application of this Code**<br>Implementing this Code will ensure Council considers and incorporates coastal hazards and the projected effects of climate change (such as sea level rise) into:<br>• assessment and management of coastal hazards<br>• assessing and determining development applications<br>• determining location and design life of essential assets and infrastructure<br>• land use planning strategies to minimise the risk of coastal hazards on new and existing developments<br>• planning and design of mitigation works to manage coastal hazards<br>• management of natural assets such as coastal and estuarine habitats, lake entrances, beaches and dunes. |
| **8** | **Options for Development in Coastal Vulnerability Areas**<br>There are a range of potential approaches to development that will reduce, manage or eliminate the risk from coastal hazards. Options can generally be summarised into two categories:<br>1. Avoidance<br>2. Mitigation.<br>Avoidance is the preferred option, but it is limited to sites where hazard free areas are available on the subject lot. Application of this option would require placing development outside areas at risk (both existing and projected future risk) from coastal hazards.<br>Mitigation includes a range of design, built or engineered responses such as resilient building design and/or engineered coastal protection works. Engineered works can also include other supplementary works such as sand nourishment. Mitigation can be used with partial avoidance where development is set as landward of the coast on the subject lot as possible. |
| **9** | **Mitigation - Engineered Coastal Protection Works**<br>The owners of existing or proposed private developments identified as at risk from coastal hazards may seek to investigate engineered coastal protection works.<br>Property owners investigating this option need to consider:<br>• Any works on private lands will be subject to approval under the Environmental Planning & Assessment Act 1979 |

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| | • NSW Coastal Management Act 2016<br>• State Environmental Planning Policy (Resilience and Hazards) 2021<br>• Protection works must not be carried out or impact on public lands or public access without appropriate approval and permits<br>• Engineered coastal protections works on private lands will be at the property owner's expense<br>• Property owners must maintain the structure to an appropriate engineering standard for the life of the asset<br>Council will not accept any costs or responsibility for the construction, maintenance or renewal of private coastal protection works.<br>Works to protect private property from coastal hazards and climate change will only be considered if the owner can demonstrate compliance with State policy and legislation and that the development will not adversely affect:<br>• coastal processes and significant ecosystems<br>• adjoining properties<br>• the local built and natural environment<br>• amenity and values of adjoining beaches and foreshores and<br>• immediate and long-term public access to beaches and foreshores.<br>If the works are found to adversely affect the adjoining beach or diminish public access to the beach, property owners must at their own expense maintain the beach through beach nourishment. |
| **10** | **Development Controls**<br>i. General<br>a. All building components set below the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period) shall be constructed from inundation compatible materials<br>b. All development must be designed and constructed so that it will have a low risk of damage and instability due to wave action (if applicable) and/or coastal inundation hazards.<br>c. All development and/or activities must be designed and constructed so that they will not adversely impact on surrounding properties, coastal processes or the amenity of public foreshore lands.<br>d. All uncontaminated dune sand excavated during construction operations shall be returned to the active beach zone as approved and as directed by Council.<br>e. Wherever present, remnant foredune systems shall be appropriately rehabilitated and maintained for the life of the development to stabilise an adequate supply of sand (as determined by a coastal engineer) that is available to buffer erosion processes and/or minimise the likelihood of oceanic inundation. |

f. All vegetated dunes, whether existing or created as part of coastal protection measures shall be managed and maintained so as to protect the dune system from damage both during construction of the development and as a result of subsequent use during the life of the development.
g. All electrical equipment, wiring, fuel lines or any other service pipes and connections must be waterproofed to the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period).
h. The storage of toxic or potentially polluting goods, materials or other products, which may be hazardous or pollute waters during property inundation, will not be permitted below the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period).
i. Where land is also subject to catchment flooding, the higher of the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period) and Flood Planning Level shall apply.

ii. Coastal Protection Works

Hazard mitigation and coastal protection works that modify the coastal inundation within the development site, may be permitted subject to a Coastal Risk Management Report that demonstrates the following:

a. The works do not have an adverse impact on any surrounding properties or coastal processes.
b. A Section 88B notation under the Conveyancing Act 1919 is to be placed on the title describing the location and the type of mitigation works with a requirement for their retention and maintenance.
c. Hazard mitigation works will result in the protection of the proposed development from coastal processes.
d. Where coastal protection structures such as rock revetments or boulder seawalls already exist within the beach compartment, the position of such structures has been used to determine the location and alignment for any new terminal revetment or coastal protection works for the land on which development is proposed.
e. In the case of an existing protection structure, a suitably qualified professional/s with appropriate expertise in the applicable areas of engineering has certified the structural integrity and competency of the works for their intended purpose and for the design storm event.

iii. Coastal Erosion

a. New development and major additions to existing development must be sited on the landward side of the 2100 100 Year ARI Coastal Erosion Line

iv. All floor levels shall be at or above the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period) plus freeboard.

v. Floor levels – additions

a. The floor levels of the addition must be at or above the 100 Year ARI Coastal Inundation Level including SLR for appropriate planning period & freeboard.
b. If the floor level of the existing dwelling is to be retained and is below the Coastline Planning Level, the existing dwelling must be satisfactorily inundation-proofed (either wet or dry) to the 100 Year ARI Coastal Inundation

Level including SLR for appropriate planning period & freeboard.

c. The addition must be designed and constructed such that it does not preclude the raising of the existing structure to the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period) at a future date or when further additions are proposed, e.g. through the provision of a construction joint.

d. A second storey addition to the dwelling requires the floor level of the second storey to be at a height that allows for the internal ground floor of the existing dwelling to be either at or raised to the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period) whilst maintaining minimum floor to ceiling height requirements.

vi. Floor levels – carparking facilities

a. New enclosed garages: floor level shall be at or above the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period) plus a freeboard.

b. Covered basement (i.e. below natural ground level) or covered bunded carparking facilities must have all access, ventilation and any other potential water entry points above the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period) plus freeboard, and a clearly signposted inundation free pedestrian evacuation route from the basement or bunded area separate to the vehicular access ramps.

c. Open carpark areas and carports (i.e. at least one side is open): permissible at the existing ground level.

vii. Land Subdivision

a. Subdivision of land will not be permitted where new allotments that have a building entitlement will be created on the seaward side of the 2100 100 Year ARI Coastal Erosion Line.

b. Subdivision of land will not be permitted where the building platforms of residential allotments will be created below the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period).

viii. Variations

a. Minor Additions to Existing Development: Additions to existing dwellings may be permitted between the Existing and 2100 100 Year ARI Coastal Erosion Line provided that the addition is not located forward of the existing dwelling, and that the combined additional GFA (Gross Floor Area) to the dwelling forward of the 2100 100 Year ARI Coastal Erosion Line does not exceed a maximum total area of $30m^2$ effective from the date of adoption of this Code. A one-off extension up to $30m^2$ may be done at the same floor level of the existing building and must not include replacing one type of material for another (e.g. clad timber frame with brick) unless the materials are of a lighter weight construction than original building (e.g. clad timber frame/timber floor renovation of existing masonry building).

b. Floor Levels - Carparking Facilities: New enclosed garages: consideration may be given to a floor level for carparking facilities at a lower level where it can be demonstrated that providing the floor level at the 100 Year ARI Coastal

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| | Inundation Level (including sea level rise for appropriate planning period) is not practical and that the enclosed garage is used for car parking only.<br>c. Ancillary Structures: Relocatable or sacrificial, ancillary, non-habitable, detached, light weight structures associated with landscaping, storage or outdoor living areas may be permitted seaward of the 2100 100 Year ARI Coastal Erosion Line where their destruction by coastal processes is unlikely to exacerbate property damage during a storm event.<br>d. Business, Light Industrial and Other Development (not applicable to residential component): Where constructing the floor level at the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period) or raising the floor level of the existing development to the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period) may be difficult to achieve due to site and access constraints, consideration may be given to all floor levels for additions being at the existing floor level. This is subject to demonstration, through a Coastal Risk Management Report, that in respect of the development type proposed the assessed risk is acceptable. The whole of the development below the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period) must be satisfactorily flood proofed (either wet or dry) to the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period). |
| **11** | **Coastal Risk Management Report**<br>A Coastal Risk Management Report is to be submitted for all development on land that is affected by coastal processes and has floor levels and/or carparking levels below the nominated development criteria. This report is to be prepared by suitably qualified coastal engineering and structural engineering consultants and must consider and address the following:<br>a) 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period) and other relevant information.<br>b) 2100 100 Year ARI Coastal Erosion Line.<br>c) Proposed floor levels (and existing floor levels where these are proposed to be retained) of habitable and non-habitable structures, and where basement or enclosed parking is proposed, include levels of access, ventilation and any other potential water entry points.<br>d) Constraints due to coastline impacts on the land, including an assessment of the degree of inundation, hazard level, impacts of waterborne debris, buoyancy effects, evacuation and other emergency issues during the design storm event (2100 100 ARI event).<br>e) Compliance with the Controls.<br>f) Recommendations for the structural design and construction of the total development, including foundation design, protection measures and any existing structures to be retained (where existing structures to be retained include coastline protection structures, these must be certified as fit for purpose for the design storm event).<br>g) Recommendations on the monitoring and maintenance of all coastal protection and hazard mitigation measures proposed for the total development (including any existing structures to be retained) for the life of the development (taken to be 100 years unless |

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| | specified otherwise and justified).<br>h) Recommendations on all measures and precautions to minimise risk to personal safety of occupants and the risk of property damage for the total development (including any existing structures to be retained) to address the impacts on the site for the design storm event (100 ARI event) for the life of the development (taken to be 100 years unless specified otherwise and justified). These precautions shall include but are not limited to the following:<br>a. Types of materials to be used, up to the 100 Year ARI Coastal Inundation Level (including sea level rise for appropriate planning period) to ensure the structural integrity for immersion and impact.<br>b. Waterproofing methods, including but not limited to electrical equipment, wiring, fuel lines or any other service pipes and connections.<br>c. Warning signs/depth indicators for areas that may be inundated, such as open carparking areas.<br>d. An evacuation strategy to minimise harm; a point of assembly within a place of low risk; and a suitable method of transporting people to a place of low risk away from the effects of coastline hazards.<br>i) Specify architectural/engineering plans on which the assessment is based<br>j) Specify date/s of inspection.<br>k) Specify professional qualifications and experience of the authors. |
| **12** | **Areas of Critical Utility**<br>The following areas will be assessed on merit due to protection from coastal erosionby current mitigation measures:<br>The areas of Beach Road, Batemans Bay identified in Map (1) and Clause 11 will apply to any development proposals provided Exemption under this Clause. Alternatively, a proponent may choose to accept the Flood Planning levels provided by Council (Schedule 1). |
| **13** | **Special Circumstances**<br>Special consideration will be extended to development of infrastructure associatedwith Surf Life Saving and other recognised emergency service providers. Clause 11 will apply to any development proposals granted Special Circumstances consideration under this Clause. |

**Map (1): Areas of Critical Community Utility – Batemans Bay**

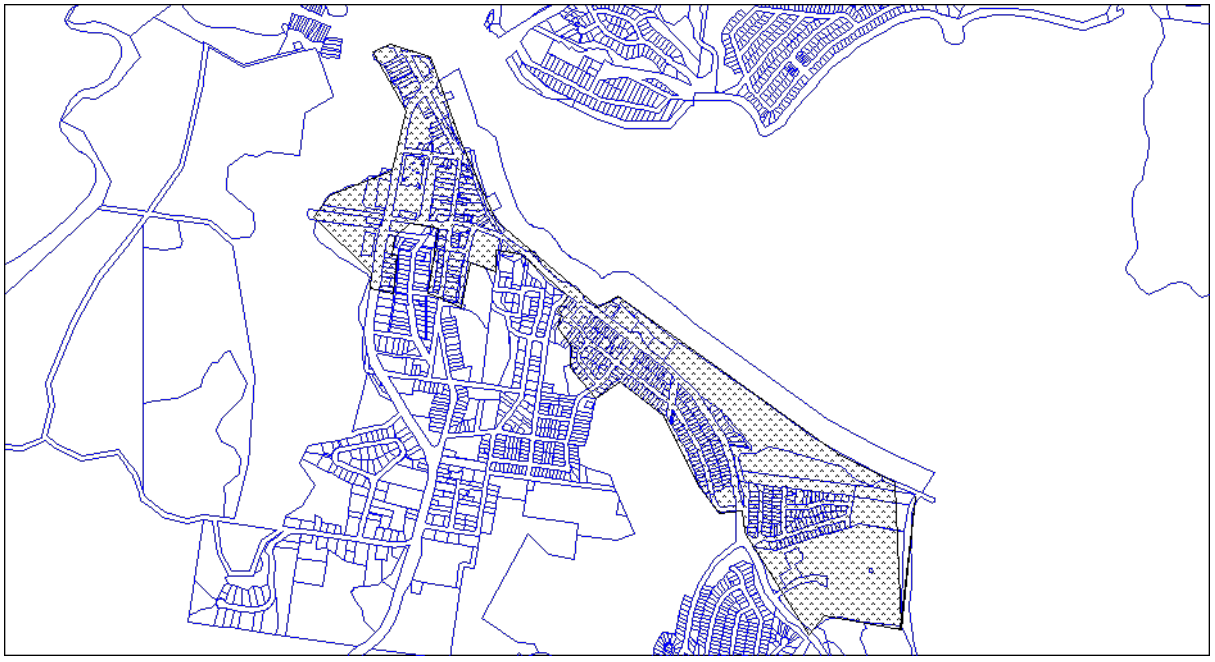

**Table 3: Related external references**

| Department / Author | Publication |
|---|---|
| Office of Environment and Heritage (now Department of Planning and Environment), 2018 | *Coastal Management Manual* |
| Department of Infrastructure, Planning & Natural Resources, 2005 | *NSW Floodplain Development Manual – the management of flood liable land*. ISBN 0 7347 5476 0. |
| Rhelm, 2022 (on behalf of ESC) | *Eurobodalla Open Coast Coastal Management Program* |
| Rhelm, 2021 (on behalf of ESC) | *Eurobodalla Open Coast Coastal Management Program – Stage 2 Coastal Hazards Report* |
| Whitehead & Associates, 2014 (on behalf of ESC) | *South Coast Regional Sea Level Rise Policy and Planning Framework. Report prepared for Eurobodalla Shire and Shoalhaven City Councils, Final, October.* |
| ACT Geotechnical Engineers Pty Ltd, 2012 (on behalf of ESC) | *Geotechnical Slope Instability Risk Assessment.* |

**Table 4: Definitions**

| Word/Term | Definition |
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| **100 Year ARI Coastal Inundation Level** | Water levels selected for planning purposes as determined for the coastline based on the 100 year ARI elevated water level due to astronomical tide, storm surge (barometric setup and open coast wind setup), local wind setup, sea level rise, wave setup, plus a freeboard, generally 500mm unless specified otherwise and justified. |
| **100 Year ARI Coastal Erosion Line** | The extent to which a beach may erode as a result of a design storm event, taking into consideration the following factors:<br>any shoreline recession due to sediment loss<br>shoreline recession due to sea level rise over the designated planning period<br>beach erosion due to design storm demand<br>slope adjustment. |
| **Average Recurrence Interval (ARI)** | The long-term average number of years between the occurrence of a storm event as big as, or larger than, the design storm event. For the purposes of this Code a 100 year ARI event has been adopted and 50 year and 100 year planning periods have been selected. In relation to risk during the life of a development, there is a 39% probability of experiencing a 100 year ARI storm event, or larger event, in a 50 year planning period and a 63% probability of occurrence in a 100 year planning period. |
| **Coastal Hazard** | Coastal hazards are defined in the CM Act 2018 as:<br>Beach erosion<br>Shoreline recession<br>Coastal lake or watercourse entrance instability<br>Coastal inundation<br>Coastal cliff or slope instability<br>Tidal inundation<br>Erosion and inundation or foreshores caused by tidal waters and the action of waves, including the interaction of those waters with catchment floodwaters. |
| **Coastal Engineer** | A specialist engineer who is a registered professional engineer with chartered professional status (CP Eng) and with coastal engineering as a core competency and has an appropriate level of professional indemnity insurance. |
| **Coastal Processes** | Coastal processes are the set of mechanisms that operate at the land-water interface. These processes incorporate sediment transport and are governed by factors such as tide, wave and wind energy. |
| **Flood Proofing – DRY** | Protecting a building by sealing its exterior walls to prevent inundation. |
| **Flood Proofing – WET** | A combination of measures incorporated in the design, construction and alteration of individual buildings, structures and surrounds, to mitigate potential damages due to inundation. |

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| **Freeboard** | The factor of safety usually expressed as a height above the design water level. Freeboard tends to compensate for some uncertainty in estimating the components that make up the design water level. |
| **Minor Development and/or Alterations** | This includes minor internal alterations and may include minor additions, with a value of less than $20,000 or as determined by Council from time to time. There can only be one minor development and/or alteration to a property in any five year period for consideration under this category. |
| **Wave Run-Up** | The vertical distance above mean water level reached by the uprush of water from waves across a beach or up a structure. |

*Internal use*

| Responsible officer | | Director, Planning & Sustainability Services | | Approved by | Council |
|---|---|---|---|---|---|
| Min no | | Report no | | Effective date | |
| File No | | Review date | | Pages | |

Schedule (1) –2100 100 Year ARI Coastal Inundation and Maximum Wave Run-up Levels

| Area | 2100 100 Year ARI Coastal Inundation Level (m AHD) | 2100 100 Year ARI Maximum Wave Run-up Level (mAHD) |
|---|---|---|
| Durras Beach (south) | 3.67 | 5.9 |
| Cookies Beach | 3.05 | 6 |
| Maloneys Beach | 2.84 | 7.4 |
| Long Beach | 2.85 | 5.6 |
| Cullendulla Beach | 2.86 | 4.7 |
| Surfside | 3.06 | 5.4 |
| Wharf Road | 2.61 | 5.9 |
| Central Business District | 2.85 | 5.7 |
| Beach Road | 2.93 | 7.4 |
| Corrigans Beach | 2.94 | 6.1 |
| Joes Creek | 2.94 | 6.1 |
| Caseys Beach | 2.47 | 7.0 |
| Malua Bay | 3.64 | 6.6 |
| Guerilla Bay | 3.24 | 6.7 |
| Barlings Beach | 2.83 | 5.7 |
| Broulee | 2.91 | 4.9 |

Notes:

Coastal Planning Levels will be comprised of the inundation level at the subject property, consideration of wave run up (if in the wave affected zone), and a freeboard of 0.5m.

Coastal Planning Levels will vary within each location and may need to also apply additional consideration for exposure to wave run-up

Proponents will need to contact Council for the relevant coastal planning level