

CHAPTER 3.2 COASTAL HAZARD MANAGEMENT

PART A: GENERAL

3.2.1 INTRODUCTION

This Chapter addresses coastal processes, risks and hazard management along the open Pacific Ocean coastline of the Central Coast, between Budgewoi Beach in the North and Patonga Beach in the South. These processes are evidenced within the Coastal Vulnerability Area (CVA), as defined by *State Environmental Planning Policy (Resilience and Hazards) 2021 Chapter 2 Coastal Management*. Development is permitted within the CVA in accordance with the *Central Coast Local Environmental Plan, 2022 (CCLEP 2022)*, but will need to satisfy the development controls for coastal management areas set out in *State Environmental Planning Policy (Resilience and Hazards) 2021 Chapter 2 Coastal Management*, as well as the further requirements detailed within this Chapter.

This Chapter is based upon existing Coastal Zone Management Plans, certified under the *Coastal Protection Act, 1979*. As the former Wyong and Gosford Councils had adopted different methodology for the mapping of hazard zones and the treatment of risk, this Chapter is structured in the following manner:

- Part A: General
- Part B: Northern Area (Former Wyong LGA); and
- Part C: Southern Area (Former Gosford LGA).

It is intended that a consolidated and consistent approach will be developed in a revision of this Chapter, following certification by the Minister for the Environment of the Central Coast Council Coastal Management Program (CCCMP), in accordance with the *Coastal Management Act 2016*.

3.2.1.1 Aims

To provide guidelines for development of land having regard to minimising coastal hazard risks to development.

To minimise risk to life and property from coastal hazards associated with building on land within the Coastal Vulnerability Area.

To maintain and improve public access to public land potentially affected by coastal hazards.

To identify relevant assessment considerations for various types of developments within the Coastal Vulnerability Area including minor ancillary structures, new development and community infrastructure.

3.2.1.2 Hazard and Risk

This Chapter provides a risk-based planning and assessment tool, with provisions scaled to match the hazard level.

A **hazard** is a situation which poses a level of threat to life, health, property or environment. Most hazards are dormant or potential, with only a theoretical risk of harm; however, once a hazard becomes “active”, it can create an emergency situation. Hazard and possibility interact together to create risk.

A **risk** is the potential of losing something of value, which may be avoided through pre-emptive action. Risk is the probability of something happening, multiplied by the cost or benefit if it does.

3.2.1.3 How To Use This Chapter

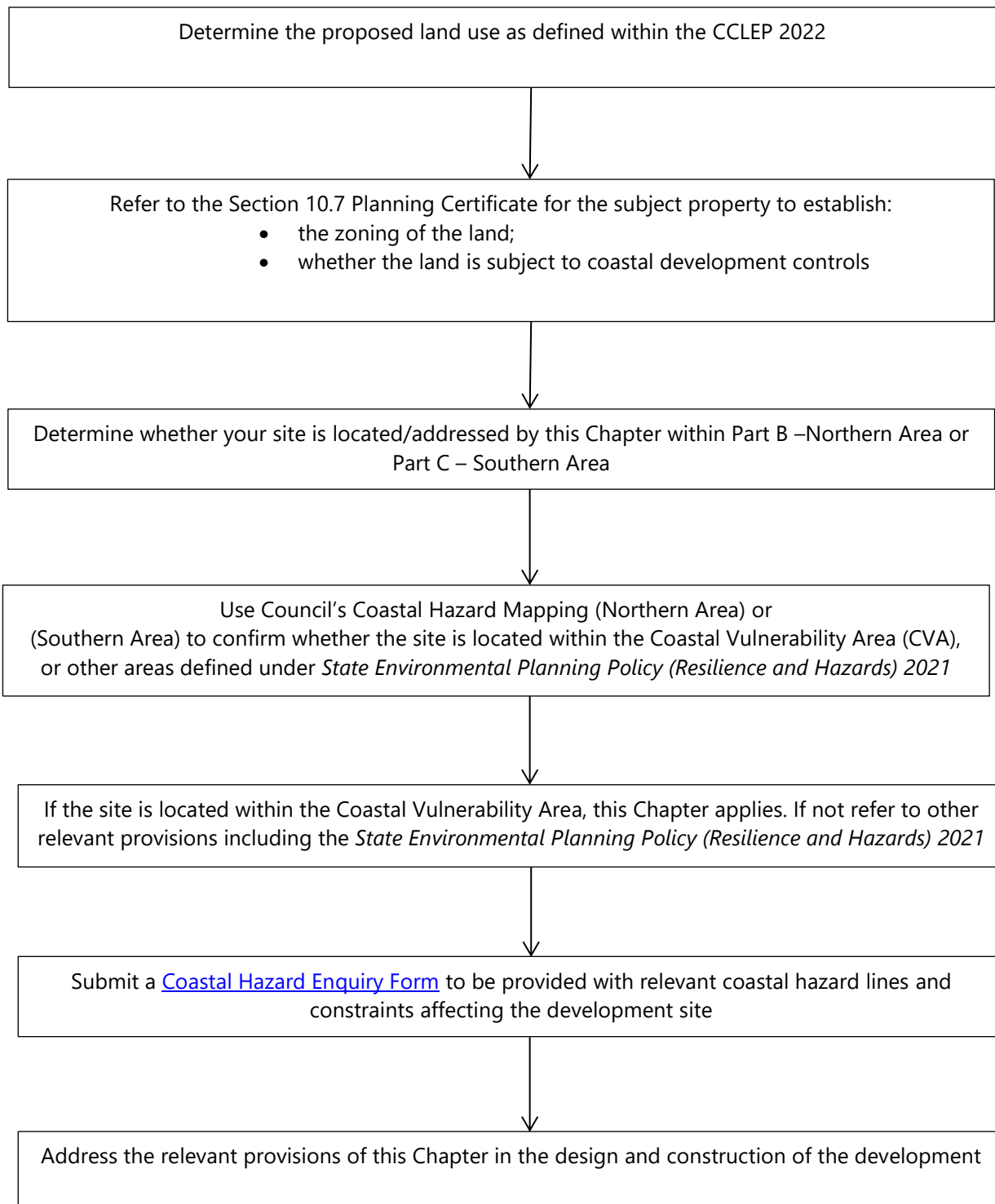


Figure 1: How to Use this Chapter

3.2.1.4 Objectives of this Chapter

- To complement and reinforce the objectives and requirements of the *Coastal Management Act 2016*
- To reduce the impact of coastal hazards on individual owners and occupiers of land within the Coastal Vulnerability Area
- To manage development along the coastline through a risk-based, adaptive management approach
- To protect beach amenity and public safety
- To avoid impacts on adjoining land, resources or assets
- To consider practical opportunities for minor ancillary development

3.2.1.5 Exempt and Complying Development

Under the NSW planning system, certain low impact or routine development can be classified as Exempt or Complying development and not require development consent. However, the operation of this system is limited according to the location, development type, and compliance with certain standards.

Generally, Complying Development may not be carried out on lands within the Coastal Vulnerability Area (CVA) on the basis of the 'sensitivity' of the land. Therefore, proposals for development within the CVA which are not identified as Exempt Development, require the submission to Council and approval of a Development Application. Applicants should confirm with Council staff the requirements applying to the subject land before undertaking any development.

3.2.1.6 Relationship to other Chapters and Policies

This chapter is to be read in conjunction with the CCLEP 2022, other relevant Chapters of this Development Control Plan and the applicable policy documents of Council, related to the proposed development type. Applicants may also refer to applicable State Environmental Planning Policies (SEPPs).

The provision of public facilities and infrastructure on any land, by Council or other Government Agencies, is enabled through *State Environmental Planning Policy (Transport and Infrastructure) 2021*.

In the event of any inconsistency between the provisions of *State Environmental Planning Policy (Resilience and Hazards) 2021* and any other environmental planning instrument, the provisions of *State Environmental Planning Policy (Resilience and Hazards) 2021* prevail. Development consent must not be granted to development on land to which this Chapter applies unless Council is satisfied that the proposed development complies with the provisions of Clause 2.9 of the *State Environmental Planning Policy (Resilience and Hazards) 2021*.

3.2.1.7 Background

3.2.1.7.1 Coastal Erosion Risk

Coastal erosion is a natural phenomenon for beaches. Beaches respond to environmental factors such as:

- Variations in sand supply;
- Changes in season and prevailing wave regime;
- Changes in weather – especially prevailing winds;
- Severe storm events.

As environmental conditions change the beach profile changes, as sand is moved offshore and returned to shore.

The problems associated with coastal erosion occur once shoreline recession threatens property. Urban development within coastal areas is expected to continue to be a major activity and needs to be carefully managed to minimise risks to development and to protect public coastline assets.

Damage to public and private assets and infrastructure occurs in several ways, such as:

Undermined and eroded private property including fences, swimming pools, decks, and houses; public and private steps, ramps, pathways and viewing platforms; surf club buildings and associated facilities; sea walls; roads; drainage, water, sewerage or other major community infrastructure; promenades and boardwalks. Wave cut (storm bite) may be followed by slope adjustment and slumping as sediments are redistributed.

Land slip and rock fall caused by saturated soils, high waves or following tree throw.

Wind-blown sand being deposited across road ways, park land and residential or commercial development sites.

Inundation of low lying land by wave overtopping of dunes or set up of estuary and lake waters.

3.2.1.7.2 Geotechnical Hazards

Processes that affect the stability and rate of recession by weathering and erosion of coastal cliffs and bluffs are often referred to as geotechnical processes, and are heavily dependent on the geology (stratigraphy, geochemistry and structure) of the underlying bedrock.

The Coastal Hazard Planning Lines for Geotechnical Hazards have been determined based on the Immediate Risk, High Risk and Low Risk Hazard lines. Geotechnical Hazard Zones are also identified, where further detailed investigations and study are required prior to the lodgement and assessment by Council of development proposals.

3.2.1.7.3 Combined Bluff, Beach and Dune Zones

The geotechnical or slope instability hazard areas refer to rocky terrain – the headlands and bluffs that separate coastal beach compartments. In some cases, weathering bedrock lies beneath a variable mantle of beach or dune sand and may be exposed at the surface in the future. The hazard is therefore a combination of landslip and soil/sand erosion.

In these areas where there are potential complex interactions of coastal erosion and geotechnical hazards, further investigations are required to provide certainty about the nature and extent of future hazards (for the High Risk and Low Risk planning horizons).

3.2.1.7.4 Wave Run-up

Despite the identification of the Coastal Hazard Building Line or Zone, there are circumstances when development may also be affected by wave run-up. Wave run-up is the vertical distance that a wave will reach above the level of the tide and storm surge during a storm event. While these higher levels are infrequent and last for short time periods, they have the potential to exacerbate any storm damage along the foreshore. For these reasons, the identification of the wave run-up is an important planning tool during the design phase of development in this zone. To reduce the impact of wave run-up, it is essential to identify minimum floor levels for development. Minimum floor levels for habitable rooms must not be less than the Immediate Wave Run-Up Height.

PART B: NORTHERN AREA (FORMER WYONG LGA)

3.2.2 INTRODUCTION

This Part applies to the lands within the CVA from Budgewoi Beach in the North to Yumbool Point in the South (within the former Wyong Shire). The CVA is defined as including lands seaward of the former Low Risk Coastal Hazard Planning Line, and also including the landward extent of the identified Geotechnical Hazard Zones and the Combined Bluff, Beach and Dune Zones.

Note: Applicants for development on these lands should lodge a Coastal Hazard Enquiry Form with Council so that Council can provide the accurate position of the hazard line from the GIS versions of the maps.

Development proposals for new development, modifications or extensions to existing developments will be subject to controls and may be restricted within the identified hazard areas and zones. All applications will need to:

- investigate and address the potential hazard(s);
- not contribute any increased level of risk to other lands; and
- demonstrate the suitability of the proposed development within the zone.

3.2.2.1 Identification of Coastal Hazards

This Part is based on the *Wyong Shire Coastal Zone Management Plan, 2011 (WSCZMP)*. The two supporting reports for this plan, available on Council's website, are:

Wyong Coastal Hazard Study, SMEC Australia, October 2010;

Report on the Geotechnical Issues associated with the Coastline Hazard Management Study, Shirley Consulting Engineers, Pty Ltd, May 2010.

These reports recognise the distinction between hazards associated with sand dunes (erosion risk), and those associated with cliffs, bluffs and rock formations (geotechnical hazards). It should also be noted that some lands are affected by both.

Development on land within the Coastal Zone which is landward of the CVA, whilst covered by other controls detailed within the *State Environmental Planning Policy (Resilience and Hazards) 2021* and the *CCLEP 2022*, are not constrained by coastal process issues and there are no specific coastal hazard management requirements.

3.2.2.1.1 Coastal Erosion Risk

Coastal erosion hazard studies have not been completed for the entire length of some beaches. Council and The NSW Office of Environment and Heritage (OEH) identified key locations for which hazard studies would be prepared, at the outset of the WSCZMP 2011 project. Generally, these locations correspond with areas of residential development or locations of community infrastructure. Based on the assessment recommended by OEH, Council's coastal hazard mapping shows areas, outside and including the recognised "hotspots" (or "Authorised Locations"), which are considered to be subject to Immediate Risk Coastal Erosion Hazard along the coast. Severe coastal erosion could occur in these areas at any time. Having defined the Immediate Risk Hazard Line, the High Risk Hazard and Low Risk Hazard lines and zones have been predicted.

3.2.2.1.2 Geotechnical Risk

Geotechnical assessments have been conducted of cliffs and bluffs along the former Wyong Shire Council coastline where geotechnical processes are likely to affect residential development, public or private

infrastructure or recreational access. These locations are also represented on Council's coastal hazard mapping.

3.2.2.1.3 Wave Run-Up Risk

Wave run-up analysis for the design storm (26 May 1974) has indicated that wave run-up level along the former Wyong Shire coastline is generally around 6m to 7m AHD, with higher values for North Entrance where the run-up level can reach up to around 8.1m AHD. Specific values for each beach are included in Table 4 within the *Wyong Coastal Hazard Study*, SMEC Australia, October 2010.

This analysis indicates that some overtopping may occur at Blue Lagoon Caravan Park at Bateau Bay, at the southern end of Blue Bay, at South Entrance swimming pool, along Curtis Parade at North Entrance and along Hargreaves Beach. However, the impact to houses and roads would be limited, owing to the dissipation of wave run-up by the dune system.

3.2.2.1.4 Other Areas

Where a development is proposed on a site(s) where incomplete information is currently available, Council requires that a Coastal Hazard Definition Study (which may include a Geotechnical Report) be prepared by a Coastal Engineer, before an application prepared by a Civil Engineer can be considered.

The following requirements shall be addressed with the application:

- a identification of the location of the Coastal Hazard Planning Lines and Stability Zones for Immediate Risk, High Risk and Low Risk hazard lines on the site, addressing:
 - i general stability of the site and locality in respect to the effect of the proposal on adjacent structures and land;
 - ii stability of the site and locality in a severe storm event. Reference should be made to the reports identified above. The following factors are to be considered:
 - oceanic inundation as a result of elevated sea levels, wave setup & run-up;
 - beach scour levels and dune scarp stability; and
 - the effect of the proposal on adjacent structures.
 - iii stormwater disposal from buildings with the objective being to prevent water concentration and bank scouring;
- b all options, including locating the proposal some distance from the identified High Risk Coastal Hazard Planning Line or Geotechnical Hazard Zone, must be examined. Development should be located landward of these areas unless it can be demonstrated that there is no other suitable option.

3.2.2.2 Coastal Hazard Planning Lines

Council will use the planning system to reduce the exposure of development to coastal processes over time within the CVA (refer Figure 2 below for general principles) and to thereby reduce the associated risk.

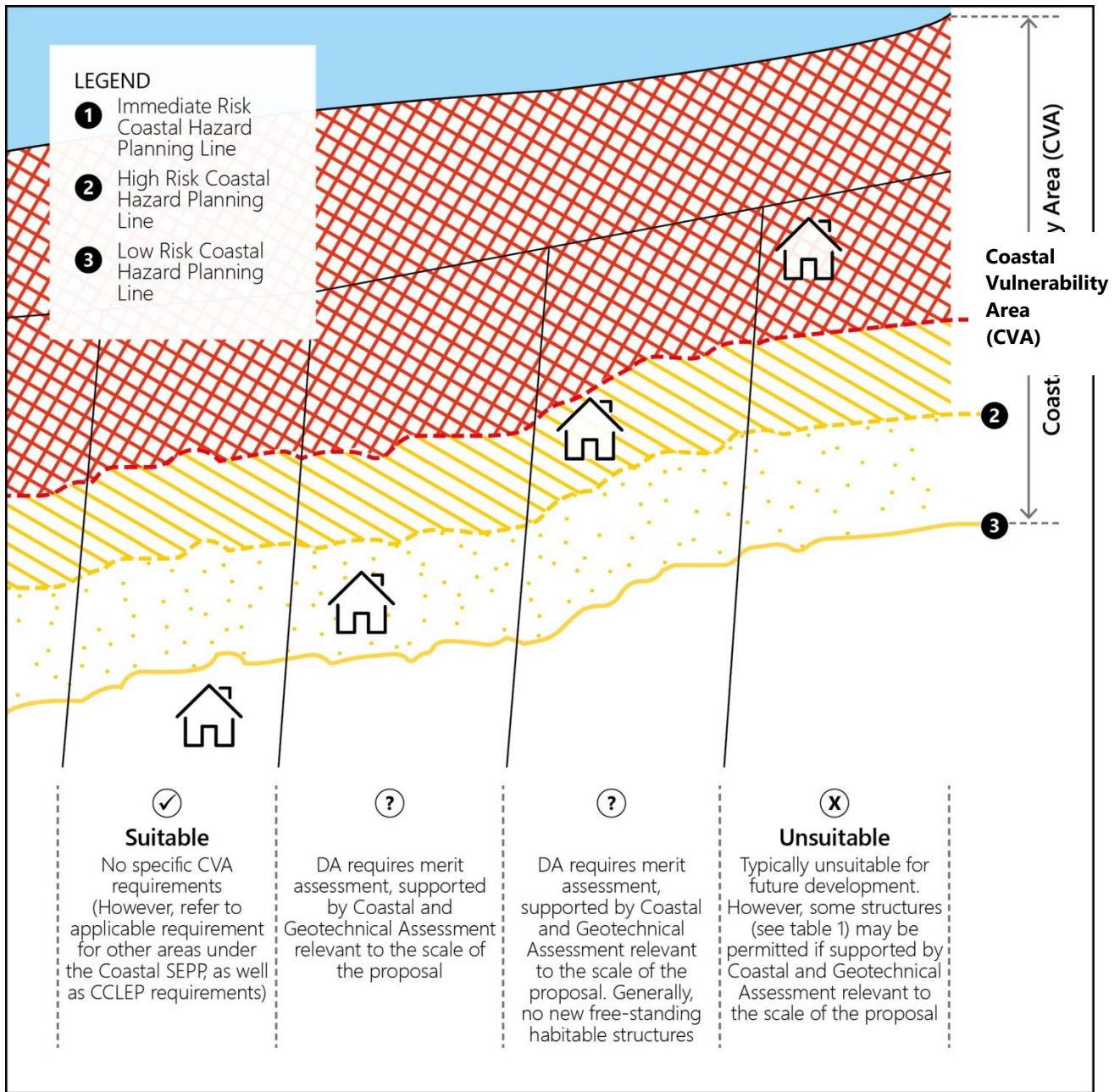


Figure 2: Coastal Hazard Planning Lines – General Principles

Diagram adapted from NSW Department of Planning 2010

The following **Table 1** indicates development types (non-exhaustive) which may be considered on merit within the Risk Zones of the CVA, via the Development Assessment process. The Risk Zone lies seaward of the relevant Risk Planning Line.

← Coastal Vulnerability Area →

Outside Coastal Hazard Planning Area	Low Risk Coastal Hazard Planning Zone	High Risk Coastal Hazard Planning Zone	Immediate Risk Coastal Hazard Planning Zone
<p>Merit Assessment as per Land Use Tables for the relevant Zone within CCLEP, 2022, together with compliance with provisions relating to Coastal Management Areas within <i>State Environmental Planning Policy (Resilience and Hazards) 2021</i> & the Coastal Management Act 2016.</p> <p>Note: The Act and SEPP define the following CMAreas in order of hierarchy of controls (highest to lowest):</p> <ul style="list-style-type: none"> • Coastal Wetlands and Littoral Rainforests Area; • Coastal Vulnerability Area; • Coastal Environment Area; and • Coastal Use Area. 	<ul style="list-style-type: none"> • New single dwellings • Maintenance work to existing dwellings / developments • Works to make existing developments relocatable • New ancillary residential development - sheds, garages, swimming pools, timber gazebos, timber decks & viewing platforms • New commercial developments • Tourist development • Caravan parks (tourist sites) • Recreation facilities • Landscaping structures, paving or drainage works 	<ul style="list-style-type: none"> • Removal of an existing dwelling and replacement with a new single dwelling within, and/or landward of, the pre-existing dwelling footprint. • Additions and alterations within, or landward of, the pre-existing dwelling footprint. • Maintenance work to existing dwellings / developments, e.g., re-cladding • Works to make existing developments relocatable • Timber decks & viewing platforms (max. 20m², max. 1m from ground) • Timber gazebos (max. 20m²) • Sheds, garages, swimming pools and ancillary development no further seaward, or closer to the hazard, than the principal dwelling. • Tourist development • Caravan parks (tourist sites) • Recreation facilities • Coastal Protection Works – groynes, seawalls, break-walls, beach nourishment • Access Pathways – boardwalks / tracks • Timber & wire fencing & railings • Landscaping structures, paving, drainage works • Community facilities (such as surf club buildings) 	<ul style="list-style-type: none"> • Removal of an existing dwelling and replacement with a new single dwelling within, and/or landward of, the pre-existing dwelling footprint. • Additions and alterations within, or landward of, the pre-existing dwelling footprint. • Maintenance work to existing dwellings / developments, e.g., re-cladding • Works to make existing developments relocatable • Timber decks & viewing platforms (max. 20m², max 1m from ground) • Timber gazebos (max. 20m²) • Sheds, garages, swimming pools and ancillary development no further seaward, or closer to the hazard, than the principal dwelling. • Coastal Protection Works – groynes, seawalls, break-walls, beach nourishment • Access Pathways – boardwalks / tracks • Timber & wire fencing & railings • Landscaping structures, paving or drainage works • Community facilities (such as surf club buildings)

Table 1: Development Type by Risk Zone

The following **Table 2** indicates the circumstances in which documentation is required to support applications for the development types within Table 1, particularly where a variation to the adopted Planning Lines is sought. Such proposals will be considered on merit, via the Development Assessment process.



Outside Coastal Hazard Planning Area	Low Risk Coastal Hazard Planning Zone	High Risk Coastal Hazard Planning Zone	Immediate Risk Coastal Hazard Planning Zone
Assessment as appropriate to site conditions.	Coastal and Geotechnical Assessment is required addressing the location, type of coastal hazard and scale of development. Lightweight structures, supported by existing structures or new pad footings, will not require a Geotechnical Report.	Coastal and Geotechnical Assessment suitable to the scale of the proposal is required for new buildings and major additions and alterations requiring continuous footings, slab (including pools) and or masonry construction. Lightweight structures, supported by existing structures or new pad footings, will not require a Geotechnical Report.	Coastal and Geotechnical Assessment suitable to the scale of the proposal is required for new buildings and for major additions and alterations requiring continuous footings, slab (including pools) and or masonry construction.

Table 2: Submission Requirements

OBJECTIVES

- To manage development in Coastal Vulnerability Areas using precautionary planning tools to reduce coastal hazard risks
- To protect against or manage coastal hazards on sites where this is feasible, affordable and without adversely impacting the locality or the broader environment
- To complement and reinforce the objectives and requirements of Clause 2.9 of *State Environmental Planning Policy (Resilience and Hazards) 2021*
- To protect beach amenity and public safety

REQUIREMENTS

3.2.2.2.1 Coastal Erosion Hazard (A)

Selected development may be considered with appropriate coastal/geotechnical assessment within the various Coastal Hazard Risk Zones (refer to Table 1 as a guide) within the CVA. The principles to be applied for sites subject to erosion hazard include:

- a Generally, no new freestanding development, other than works for erosion control and controlled beach access, will be considered seaward (or closer to the hazard) of existing development within the Immediate Risk Coastal Hazard Planning Zone, which extends from the Pacific Ocean Mean High Water Mark to the Immediate Risk Coastal Hazard Planning Line (red).

- b Generally, no new habitable development will be considered within the Immediate or High Risk Coastal Hazard Planning Zones, which extend from the Pacific Ocean Mean High Water Mark to the High Risk Coastal Hazard Planning Line (amber), unless supported by Coastal and Geotechnical Assessments which establish that adequate protection or adaptation measures can be designed and implemented (approved by either Council or the NSW OEH);
- c Where the removal and replacement of a dwelling within the pre-existing dwelling footprint is proposed, a supporting Coastal and Geotechnical Assessment Statement suitable to the scale of the proposal will be required. (Note: This is not a significant Coastal Engineering Study, it is a Statement from an appropriately qualified professional);
- d Proposals for new freestanding structures requiring continuous footings, slab (including pools) and or masonry construction within the High Risk Coastal Hazard Planning Zone, which extends from the Immediate Risk Coastal Hazard Planning Line (red) to the High Risk Coastal Hazard Planning Line (amber), will require a supporting Coastal and Geotechnical Assessment Statement suitable to the scale of the proposal. Lightweight structures, supported by existing structures or new pad footings, will not require a Geotechnical Report;
- e Floor levels for new development seaward of the High Risk Coastal Hazard Planning Line (amber) must consider the 1% AEP storm wave run-up level for each beach (refer Sections 1.4.4 and 2.1.3, and Table 4 within the *Wyong Coastal Hazard Study*, SMEC Australia, October 2010);
- f Geotechnical Assessments suitable to the scale of the proposal may also be required for new structures within the Low Risk Coastal Hazard Planning Zone, which extends from the High Risk Coastal Hazard Planning Line (amber) to the Low Risk Coastal Hazard Planning Line (yellow), e.g., for major structures requiring continuous footings, slab (including pools) and or masonry construction;
- g Council will not approve new subdivisions, vulnerable development (including child care centres, nursing homes and hospitals) or other development that intensifies land use seaward (or closer to the hazard) of the Low Risk Coastal Erosion Hazard Planning Line (yellow); and
- h Construction and maintenance of sea walls to protect existing private assets affected by coastal recession will be considered on a merit basis, and will be referred for consideration by relevant NSW government agencies as required by the *Coastal Management Act, 2016* (e.g., OEH).

3.2.2.2 Geotechnical Hazard (B)

As identified above, selected development may be considered with appropriate coastal/geotechnical assessment within the various Coastal Hazard Risk Zones (refer to Table 1 as a guide) within the CVA. The following additional controls apply to areas mapped as being subject to Geotechnical Hazards:

- a Generally, no new development, other than stabilisation works and controlled access works, will be considered seaward (or closer to the hazard) of existing development within the Immediate Risk Coastal Hazard Planning Zone, which extends from the Pacific Ocean Mean High Water Mark to the (red) Immediate Risk Coastal Hazard Planning Line. Where a minor freestanding structure is proposed, a supporting Coastal and Geotechnical Assessment Statement suitable to the scale of the proposal will be required. (Note This is not a significant Coastal Engineering Study, it is a Statement from an appropriately qualified professional)
- b Generally, no new dwellings will be approved seaward (or closer to the hazard) of the High Risk Coastal Hazard Planning Line (amber). Where the removal and replacement of a dwelling requiring

continuous footings, slab (including pools) and or masonry construction within the pre-existing dwelling footprint is proposed, a supporting Coastal and Geotechnical Assessment Statement suitable to the scale of the proposal will be required. (Note: This is not a significant Coastal Engineering Study, it is a Statement from an appropriately qualified professional);

- c Any proposal for other new habitable development requiring continuous footings, slab (including pools) and or masonry construction within the area bounded by the Immediate Risk Coastal Hazard Planning Line (red) and the Low Risk Coastal Hazard Planning Line (yellow) shall be accompanied by appropriate Coastal and Geotechnical assessments of the subject site and a Structural Engineer's Design for the proposed development that addresses the identified geotechnical hazards.
- d Any proposal for new development requiring continuous footings, slab (including pools) and or masonry construction within an identified Geotechnical Hazard Zone (green hatching) shall be accompanied by appropriate geotechnical assessments of the subject site and a Structural Engineer's Design for the proposed development that addresses the identified geotechnical hazards. Lightweight structures, supported by existing structures or new pad footings, will not require a Geotechnical Report
- e Council will not approve new subdivisions, vulnerable development (including child care centres, nursing homes and hospitals) or other development that intensifies land use between the High Risk Coastal Hazard Planning Line (amber) and the Low Risk Coastal Hazard Planning Line (yellow); and
- f Construction and maintenance of sea walls to protect existing private assets affected by coastal recession hazards will be considered on a merit basis.

3.2.2.2.3 Combined Bluff, Beach and Dune Zone Hazard (C)

The following additional control applies to areas mapped as being Bluff, Beach and Dune Zones:

- a Any proposal for new development requiring continuous footings, slab (including pools) and or masonry construction within an identified Bluff, Beach and Dune Hazard Zone, hatched blue on Council's coastal hazard mapping, shall be accompanied by appropriate geotechnical assessments of the subject site and a Structural Engineer's Design for the proposed development.

3.2.2.3 Requirements for Geotechnical Assessment Reports

- a The following matters are required to be addressed in any Geotechnical report submitted with an application to Council:
 - i Professional assessment on the suitability of the proposed development considering surficial soil instability problems, land stability issues, future bluff recession hazards and the design life of the proposed structure.
 - ii Description of the geotechnical assessment process adopted and the work undertaken to provide the assessment, considering:
 - study of geological and topographic maps of the area;
 - consideration of the information made available by the client about the site and its surrounding area, (including previous instability, building distress, and drainage problems) and the development proposals;

- visual appraisal of the site and the surrounding areas, including signs of instability, soil and rock exposures, seepage and vegetation;
 - collection of basic topographic and geological measurements at the site, (viz: slope angles, substrata, bedrock type & depth, etc.); and
 - production of a documented sketch geological model of the site.
- iii A site description, including vegetation, bedrock outcrops, site seepage & groundwater, existing development, etc.
- iv Description of site substrata and identification of the geological formations present in accordance with standard geological practice (e.g. Tuggerah Formation (Rnu) or Patonga Claystone (Rnp) etc.)
- v The depth to weathered bedrock over the site generally and within the building area in particular.
- vi The site slopes observed (expressed in degrees) and maximum site slope. Delineation of the site into areas of common slope and measured slope angles in the various areas.
- vii A "Risk Assessment" of the various parts of the land in accordance with the Australian Geomechanics Society *Guidelines – "Landslide Risk Management" (2007)* or as subsequently amended. Delineation of the land into areas where different degrees of risk are determined, together with a site classification in accordance with *AS 2870 - 2011* (or latest amended edition).
- viii A statement of the effect of the proposed site development on the site, and adjoining land, stability.
- ix An assessment of the stability of the land immediately surrounding and above/below the site and possible effects of instability (e.g. a rock fall) on the adjoining/nearby land on the site.
- x Sufficient detailed information and recommendations for a structural engineer and/or civil engineer to provide a design for the development to accommodate any instability, or potential instability, considered to affect the land and/or related land.
- b For areas affected by high or immediate hazard, Council also requires the following:
- i A site plan indicating relevant geological features & location of proposed development on the land relative to those features (preferably at a scale of 1:200);
 - ii At least one geological section through the site and proposed development (preferably at a scale of 1:200); and
 - iii Logs of boreholes put down to determine depth of soil/weathered rock strata. The borehole to penetrate the site strata to bedrock and at least one borehole to be within the building area of the site

- c Geotechnical reports are to be prepared by a “Geotechnical Engineer”, meaning any geotechnical engineer and/or engineering geologist who is listed on the National Professional Engineer’s Register, Level 3 (NPER-3), or a current Member or Fellow of the Australian Institute of Geoscientists. The Geotechnical Engineer must have a minimum of five years practice as a geotechnical engineer, or engineering geologist, with appropriate experience in assessing geotechnical hazards in coastal environments and in advising on building works in regions underlain by Terrigal Formation, Patonga Claystone, Tuggerah Formation and Munmorah conglomerate geological strata, or who is able to demonstrate considerable relevant experience with similar geology. The geotechnical engineer should be familiar with the Engineers Australia Code of Ethics, Sustainability Charter, legal responsibilities and duty of care. The Geotechnical Engineer shall also be covered by appropriate professional indemnity insurance with a cover of at least \$2,000,000 and provide the Council with proof of the currency of such insurance policy(s) with the geotechnical report.
- d Council’s current climate change considerations and sea level rise projections at the time of application.

PART C: SOUTHERN AREA (FORMER GOSFORD LGA)

3.2.3 INTRODUCTION

This Part applies to lands affected by coastal processes, risks and hazard management along the open Pacific Ocean coastline of the Central Coast, from Wamberal Beach in the North to Patonga Beach in the South (within the former Gosford LGA). These processes are evidenced within the Coastal Vulnerability Area (CVA), as defined by *State Environmental Planning Policy (Resilience and Hazards) 2021*. Development is permitted within the CVA in accordance with the Central Coast Local Environmental Plan, 2022 (CCLEP, 2022), but will need to satisfy the development controls for coastal management areas set out in *State Environmental Planning Policy (Resilience and Hazards) 2021*, particularly Clause 2.9, as well as the further requirements detailed within this Part.

Note: Applicants for development on these lands should lodge a Coastal Hazard Enquiry Form with Council so that Council can provide the accurate position of the hazard line from the GIS versions of the maps.

3.2.3.1 Relationship to other documents

The provisions of this Part are based on and are to be read in conjunction with:

Cliffline Hazard Definition Study for Tudibaring Headland, 1996

NSW Coastal Policy, 1997

Avoca Beach Storm Wave Inundation Study, 2007

State Environmental Planning Policy (Exempt & Complying Development) 2008

NSW Sea Level Rise Planning Guidelines: Adapting to Sea Level Rise, 2010

Guidelines for Preparing Coastal Zone Management Plans, 2013

Open Coast and Broken Bay Beaches Coastal Processes & Hazard Definition Study, 2014

Gosford Landslip Risk Mapping, 2015

NSW Coastal Management Act, 2016

State Environmental Planning Policy (Resilience and Hazards) 2021

Gosford Beaches Coastal Zone Management Plan, 2 June 2017

3.2.3.2 Terminology used in this Part

'Coastal Building Line' has been defined based on which of the following are in the most landward position:

- 2050 Zone of Slope Adjustment or
- General allowable setback from the seaward cadastral boundary for beachfront property being 6m for single storey dwellings and 10m for multi storey structures; or
- Previously adopted (existing) building lines.

'Coastal Hazard Areas' comprise lands subject to coastal inundation and/or where piling is required into 2100 stable foundation zone and/or the medium to high risk cliff stability areas. These areas are identified within the Cliffline Hazard Definition Study for Tudibaring Headland. Inundation levels are defined in the Open Coast & Broken Bay Beaches Coastal Processes and Hazard Definition Study. For properties adjacent to Avoca Lagoon entrance inundation information is based on the Avoca Beach Storm Wave Inundation Study.

'Design storm event' an event with an average recurrence interval (ARI) of approximately 100 years.

'Developable land area' is that part of the land which is landward of the Coastal Building Line.

'Severely impacted land parcel' is land where the developable land area is less than 250m² (excluding setbacks) landward of the coastal building line.

'Specialist coastal engineering report' is prepared by a suitably qualified chartered practicing engineer able to demonstrate coastal engineering experience. This report is to be prepared in accordance with the Engineers Australia Code of Ethics and Sustainability Charter.

3.2.3.3 Coastal Building Line

The coastal building line applies to coastal frontage areas in order to minimise coastal hazard impacts, including erosion, inundation and wave run-up, on property and development. The coastal building line applies an acceptable level of risk and a reasonable balance of a range of factors including:

- The increased coastal hazard risk over time due to the projected impacts of climate change. The building and infrastructure asset life needs to be considered in this context.
- The potential for piled foundations to increase hazards on neighbouring properties (which may not be piled).
- Public safety and access issues on all lands.
- Beach amenity, landscape character and view sharing considerations.
- Coastal risks of storm surge, coastal erosion and gradual sea level rise are excluded by many general insurance policies in Australia. Any impacts on neighbours would also not be covered.
- Provision of access and services to properties.
- Geotechnical qualities.
- Challenges in property remediation following an erosion event.

OBJECTIVES

- To manage development in Coastal Vulnerability Areas using precautionary planning tools to reduce coastal hazard risks
- To protect against or manage coastal hazards on sites where this is feasible, affordable and without adversely impacting the locality or the broader environment
- To provide for equity in redevelopment of coastal frontage properties by applying consistent setbacks for new developments in Coastal Vulnerability Areas
- To complement and reinforce the objectives and requirements of Clause 2.9 of *State Environmental Planning Policy (Resilience and Hazards) 2021*
- To protect beach amenity and public safety

REQUIREMENTS

- a All new development must be constructed landward of the coastal building line;
- b Where new development is to be protected by an existing approved seawall or terminal revetment, then standard setbacks will apply for areas landward of that seawall once the seawall has been constructed.

3.2.3.3.1 Subdivision and Lot intensification

OBJECTIVES

- To manage development in Coastal Vulnerability Areas using precautionary planning tools to reduce coastal hazard risks
- To protect against or manage coastal hazards on sites where this is feasible, affordable and without adversely impacting the locality or the broader environment

REQUIREMENTS

- a Council will not permit the subdivision of land that creates any allotment entirely seaward of the Coastal Hazard Line (excluding access handles).
- b Any subdivision proposal that creates an allotment of land where part of the site is seaward of the Coastal Hazard Line must demonstrate that buildings are able to be accommodated on the site landward of the Coastal Hazard Line.
- c Newly created allotments of land shall not create 'severely affected lots' (see s. 3.1.3).
- d Council will not permit intensification (increased density), either through development or change of use of existing buildings that are seaward of the Coastal Hazard Line.

Note: Intensification is the creation of additional dwellings on the lot.

3.2.3.3.2 All Development

OBJECTIVES

- To manage development in Coastal Vulnerability Areas using precautionary planning tools to reduce coastal hazard risks
- To protect against or manage coastal hazards on sites where this is feasible, affordable and without adversely impacting the locality or the broader environment
- To provide for equity in redevelopment of coastal frontage properties by applying consistent setbacks for new developments in Coastal Vulnerability Areas
- To complement and reinforce the objectives and requirements of Clause 2.9 *State Environmental Planning Policy (Resilience and Hazards) 2021*
- To protect beach amenity and public safety

REQUIREMENTS

- a Council will not permit new buildings or any built structures to be constructed on, over or below the land which has been identified seaward of the coastal building line (except where provided by s.3.2.3.4).
- b All structures constructed within a designated Coastal Hazard Area shall:
 - i be compatible with the coastal hazards identified;
 - ii be founded landward of the coastal building line;
 - iii not give rise to any increased coastal hazard;
 - iv be designed to not be damaged by the designated hazard;
 - v give consideration to the effects of larger events than the designated hazard;
 - vi be constructed in a manner which overcomes any problem from the coastal hazards of run-up and inundation; and
 - vii be set back as far landward as practicable.
- c Council will not permit the redevelopment of existing buildings within the Coastal Hazard Area unless the foundation design is demonstrated to have been constructed to withstand designated coastal processes and is certified by a coastal and structural engineer.
- d Council may permit renovations to existing buildings seaward of the coastal building line if it can be demonstrated that proposed works will not increase the level of coastal hazard to the existing and neighbouring properties, and the work can be fully located within the pre-existing footprint. If the proposed works include major works, e.g., continuous footings, slab, and masonry construction, a supporting Coastal Assessment Statement suitable to the scale of the proposal will be required.
- e Council will permit cantilevering and engineered design seaward of the coastal building line provided the following is satisfied:
 - i Building footings must be entirely founded landward of the coastal building line.

- ii The structure must not project seaward of a line drawn from the closest corner of the closest neighbouring dwellings either side of the subject lot; the aim being to align with existing buildings' setbacks to provide equity and consistency;
- f In areas subject to coastal inundation within a Coastal Hazard Area, minimum building floor levels shall be designed to overcome flooding and storm inundation by including an additional freeboard of 0.5m above the 1% AEP maximum wave inundation level.
- g Maintenance of existing buildings is permitted, provided that the maintenance work does not change the size, scale, or the building footprint of the structure.
- h Structural design of buildings and foundations shall take into account storms greater than the design storm event, and that erosion/run-up/inundation may exceed the design storm event.
- i Building footings including strip-footings and/or isolated pier construction are to be designed to ensure safe bearing below or beyond the calculated zone of reduced foundation capacity;
- j Where structural consideration of coastal forces is required the engineer shall take into account the forces generated by coastal processes, possible dune slumping, loss of support, slope readjustment, changing water table as well as the normal structural and foundation considerations. Foundation design shall extend beyond the reduced foundation capacity zone of influence.
- k In areas of high or moderate cliff instability risk within a Coastal Hazard Area, a geotechnical engineer site assessment will need to demonstrate that the position of the building on the site and its design has taken into account any expected foundation impediments (Refer Cliffline Hazard Definition Study for Tudibaring Headland).
- l Any sand excavated during building works should, where possible, remain within the same embayment, and requires approval by Council to be reused in other beach locations. It should be demonstrated to Council that the sand is clean and free of deleterious matter.

3.2.3.3.3 Severely Impacted Land Parcels

OBJECTIVE

- To improve the development potential of lots severely impacted by coastal hazards

REQUIREMENTS

- a To improve the development potential of lots severely impacted by coastal hazards, Council may consider variations to street and side boundary setbacks.
- b The eligibility of severely impacted land parcels and the potential application of setback relaxations is identified in Table 3.
- c The proponent is required to provide a surveyors certificate to Council in support of any development application to determine and confirm eligibility.

Land Area behind Coastal Building Line	Road setback (Ground floor)	Road setback (1st floor)	Side setbacks	
			One Storey	Two Storey
<150m ²	0m	0m	1 x 0.9m	0.9m / 0.9m
150-175m ²	0m	1.5m	1 x 0.9m	0.9m / 0.9m
175-200m ²	0m	3.0m	0.9m / 0.9m	0.9m / 1.25m
200-225m ²	0m	6.0m	0.9m / 0.9m	0.9m / 1.25m
225-250m ²	0m	6.0m	0.9m / 0.9m	1.25m / 1.25m

Table 3: Application of relaxed setbacks for properties defined as severely impacted land parcels.

3.2.3.4 Exemptions to the Coastal Building Line

REQUIREMENTS

Exemptions to the coastal building line may only be considered where in the first instance, the applicant has demonstrated that a building cannot be founded landward of the coastal building line. Where this can be demonstrated the following exemptions may be considered.

- a Development may be founded seaward of the coastal building line where geotechnical engineering advice demonstrates reduced recession/future erosion potential on the subject site and the ability to safely construct the structure in line with the provisions of this Part.
- b Existing buildings which have been identified as being seaward of the coastal building line will be allowed to be redeveloped on the same footings only where foundation design is known to have been previously constructed to withstand designated coastal processes and is certified by a coastal and structural engineer as being able to support the proposed structure. Any development application must also provide evidence that the proposed development will not give rise to any increased hazard.
- c Where the coastal building line is not perpendicular to the side property boundary of the proposed development, the beachfront foundation alignment may be adjusted provided that the alignment does not move seaward (on average) from the position of the mapped coastal building line.
- d Ancillary structures may be permitted forward of the coastal building line where the applicant demonstrates that the ancillary structure will not give rise to coastal erosion or increase the risk to property and life.

3.2.3.5 Information to be submitted with a Development Application

REQUIREMENTS

The following information is to be supplied to Council upon application for development approval in Coastal Hazard Areas:

- a For proposed development within designated Coastal Hazard Areas:

- i a specialist coastal engineering report that details considerations in line with the provisions of this Part. For properties on Wamberal Beach the report must apply and consider the Alternate Empirical Approach (Watson, 2006). This report is to be prepared in accordance with the Engineers Australia Code of Ethics and Sustainability Charter;
 - ii a geotechnical report indicating the sub-strata at the coastal building line alignment, landward extent of footings and the type of foundations required. If geotechnical engineering advice is being used to demonstrate reduced recession/future erosion potential on the subject site then substrata must also be described at the seaward portion of the subject land parcel. In areas of moderate or high risk cliff instability the geotechnical report must detail the nature of the risks and how they can be mitigated;
 - iii a structural engineering report addressing the coastal hazards up to the 1 in 100 year event and events of greater magnitude. Structural engineering reports shall detail materials of construction, principal dimensions of the main structural elements, top and bottom levels of foundations, floor levels and footing location relative to surrounding land;
 - iv plans showing the location of the coastal building line on the site;
 - v proponents will generally be required to facilitate the registration of a dealing on the title of land in a form required by Council (such as a 'positive covenant', 'restriction on use' and/or indemnity) prior to the commencement of works or a use. This will be prepared by Council's solicitor at the cost of the registered proprietor;
 - vi for areas that have been identified as being subject to coastal inundation, the coastal and structural engineering reports shall give consideration to run-up levels and minimum floor levels of the buildings to overcome flooding and storm inundation within the economic lifespan of the development (considering Councils current sea level rise projections and climate change considerations at the time of application).
- b For proposed development on parcels mapped as being severely affected, the following additional information is required:
- i a surveyors certificate confirming the developable land area (landward of the coastal building line) to determine application of relaxations as shown in Table 3.
 - ii clear definition of the proposed foundation alignment against the coastal building line to ensure the design does not move seaward (on average) from the position of the mapped coastal building line.