Appendix E LEP and DCP Recommendations Relevant to the Wyong CZMP 2017

E.1 Overview

Planning controls are an important mechanism for managing sensitive environmental land within the coastal zone and coastal hazard risks associated with future development. Planning controls should seek to avoid development of unsuitable land, but not sterilise land unnecessarily (e.g. prior to a coastal hazard impact occurring). Planning controls are appropriate for new- and re-development, but not existing development. The level of impact from coastal hazards on development can vary, depending on both the type of development (community infrastructure versus minor ancillary structures, for example) and the type of coastal hazard (i.e. erosion impacts are permanent, whereas coastal inundation impacts from storm surge and wave runup processes is temporary). Controls should therefore be designed to be appropriate to the type of development and likely hazard over the lifetime of the building/structure.

The Wyong Local Environment Plan 2013 (Wyong LEP 2013) and Wyong Development Control Plan 2013 (Wyong DCP) commenced in December 2013. The Wyong DCP 2013 provides detailed planning and design guidelines to support planning controls within the LEP. Both plans apply to all land within the former Wyong LGA. The Wyong DCP comprises six parts, with Environmental Controls outlined under Part 3 of the DCP. Chapter 3.5 Coastal Hazard and Chapter 3.10 Wetland Management outline development controls which apply specifically to management of the Wyong coastal zone (see attached to the end of this Appendix).

A review of the Coastal Hazard and Wetland Management DCP chapters was undertaken as part of this CZMP review. A number of provisions within these chapters currently exist to reduce the impact of development on sensitive environmental land and manage the coastal hazard risk profile of land exposed to coastal processes. Updated recommendations for the LEP and DCP are outlined in the CZMP Implementation Table (see Section 3.5) and detailed below.

E.2 LEP and DCP Actions within this Wyong CZMP 2017

Wave Overtopping

Action 16 specifies to update Wyong DCP Coastal Hazard Chapter to include controls that limit the risk of wave overtopping on future development. The action states:

Action 16: Update Draft Chapter 3.5 Coastal Hazards to include controls for wave overtopping, including consideration of sea level rise for proposed new or modifications to existing coastal structures (e.g. seawalls) by June 2017.

Coastal inundation from wave overtopping occurs adjacent to the shoreline where wave runup heights (typically from storm waves) overtop the crest elevation of a dune or structure (e.g. seawall). The risk of wave overtopping at present and future is relevant to the upkeep and replacement of existing coastal protection structures, and the construction of new coastal structures. As these hard shorelines would be expected to exist into the future, managing the future risks from wave overtopping including sea level rise is required in DCP Chapter 3.5, to apply to protection structure development applications. The Australian Standards AS 4997-2005 *Guidelines for Design of Maritime Structures* states that maritime structures should be designed to cater for increased water level due to sea level rise, with the sea level rise allowance dependant on the design life of the structure. For seawalls, a 50-year design life would be expected.

Guidance on the risk of wave overtopping to human life and infrastructure is provided in the EurOtop Manual (Ven Der Meer et al., 2016) for example. Future development applications that are at risk of overtopping should be supported by an appropriate Coastal Assessment that considers overtopping risk under sea level rise conditions expected over the lifetime of the development.

Coastal Hazard DCP Implementation and Ongoing Updates

Action 17 specifies to continue implementation of the Coastal Hazard DCP Chapter and ensure the DCP is regularly reviewed and updated to reflect new information that becomes available and industry best practice. The action states:

Action 17: Continue to implement Wyong DCP 2013 Chapter 3.5 Coastal Hazards; update the DCP as new planning approaches and / or new coastal risk information arises (approximately by June 2021); Insert the revised (2017) hazard maps and remove reference to the 'combined bluff, beach and dunes zones.

DCP Chapter 3.5 details controls for managing development in coastal hazards areas. The DCP Chapter should be updated to reflect the revised coastal hazard mapping and therefore the section of 'Combined Bluff, Beach and Dune Zone' should be removed from this chapter. Specific hazard types and extents have now been defined for the areas previously mapped under the previous 'Combined Bluff, Beach and Dune Zone', which no longer exists.

Council should also continue to be update the DCP Chapter as new planning approaches for coastal hazards are developed and new coastal hazard / risk information arises.

Section 149 Planning Certificate Notifications

Action 18 specifies for Council to liaise with the NSW Department of Planning (DPE) regarding Section 149 Planning Certificate Notifications. The action states:

Undertake negotiations with NSW Department of Planning and Environment to develop appropriate notification of coastal hazard on Section 149 Planning Certificates by June 2018.

Appropriate wording for Section 149 notifications of coastal hazard is still under discussion within the Department of Planning and Environment (DPE). The action should be progressed via negotiations with DPE on appropriate wording. Note also that the areas affected by Coastal Hazards will be delineated by the latest Coastal Hazards maps given in the CZMP, and denoted as "immediate, high and low risk" areas.

Geotechnical Hazard Updates: LEP and DCP

Action 19 specifies for amendment to be made to the Wyong LEP 2013 and DCP 2013 to address geotechnical coastal hazard risks. The action states:

Update the LEP and / or DCP to include appropriate provisions for managing geotechnical hazards by June 2018.

The DCP controls require urgent review and update to reflect controls for geotechnical hazard, either within DCP Chapter 3.5 or as a separate Geotechnical Hazard Chapter in the DCP. If required, there are also separate LEP optional clauses available for geotechnical hazards.

At present, the geotechnical hazard areas are included in DCP Chapter 3.5 Coastal Hazards, however the controls specified for these hazard areas are the same as that for coastal hazards. Such controls may not be applicable, especially in areas subject to geotechnical risk not driven by coastal processes.

The new hazard maps in this WCZMP 2017 identify areas subject to "geotechnical hazard" due to coastal processes and driven by other processes separate to coastal processes. In addition the geotechnical hazard areas are not able to be delineated as "immediate, high, and low".

Planning controls specific to geotechnical hazard should be consistent with the *Australian GeoGuides,* published by the Australian Geomechanics Society. The *Landslide Hazard Handbook (Second Edition)* published by the Australian Building Codes Board will also provide useful information to guide the LEP and DCP updates.

Wetland Sea Level Rise Migration Buffers

Action 22 specifies to make an amendment to the Wetland Management DCP Chapter to provide controls that will improve the resilience and adaptive capacity of coastal wetlands to ongoing sea level rise. The action states:

Update DCP (e.g. Chapter 3.10 Wetlands Management) to include consideration of migration buffers for sea level rise for wetland communities by June 2021.

Given that in general there is limited land in public ownership that is not already appropriately zoned for use as a retreat buffer, it is recommended that this action focus on including / developing new DCP provisions to provide buffers around wetlands and other coastal ecological communities for sea level rise migration, as part of new developments (including infill and re-developments).

Note the DCP Chapter 3.4 Conservation Areas for Northern Wyong Shire provides for the maintenance or improvement of green corridors, conservation links and habitat networks in Northern Wyong Shire, when developments are proposed in such areas as specified on a map accompanying the DCP.

DCP Chapter 3.10 Wetlands Management requires an assessment for any proposed development of the wetland buffer, and any proposed mitigation measures to retain and preserve that environment.

Council Works in the Coastal Zone

Action 23 specifies for preparation of an internal check list to guide Council development and works within the coastal zone, to ensure that development occurs in a manner that is consisted with the risk profile of the land with which it occurs. The action states:

Prepare a checklist or Council guideline outlining development controls for coastal hazards to apply to all Council works (developments, infrastructure etc.) in the coastal zone by June 2017.

The checklist / policy should capture Part 5 developments, strategic planning for major infrastructure (roads, stormwater, sewer etc), and other works not requiring development consent by Council in the coastal zone. The check list should augment the self-assessment (REF) processes.

The checklist shall identify:

- Where to access coastal hazard information;
- Other officers/departments in Council to be consulted, particularly Design and Investigations who manage the coastal management program;
- Other agencies required to give concurrent consent (e.g. Crown Lands, MEMA, NPWS); and
- Controls / measures to reduce coastal risk to the new construction.

The measures should consider the lifespan of the proposed structure and apply coastal risk controls accordingly, such as:

- assets that have an intended lifespan of 50-100 years, and /or are extremely costly (e.g. stormwater assets) should be located outside of the coastal risk planning area wherever possible;
- assets that have an intended lifespan of 10-20 years, and / or that are relatively inexpensive (such as beach viewing platforms or picnic tables) may be permitted within the immediate hazard area. Council should flag the asset as temporary or sacrificial (in the Asset Management Plan), to be removed and replaced landward once a hazard impact has occurred.
- The recommended controls / measures should replicate those in the proposed Coastal Risk Planning Area section of the DCP (see Amend the DCP to Include Controls for Coastal Risks).

The controls may be similar to, or guided by the controls detailed in the DCP Chapter 3.5 Coastal Hazards and the geotechnical development controls (to be developed through Action 19). Recommended controls/measures may also include:

- assets constructed to be readily relocated, either prior to a storm (e.g. lifeguard towers), when an impact occurs (e.g. stormwater outlets progressively shortened as beach erosion occurs); or at a specified 'trigger point';
- assets designed with foundations to provide bearing capacity below the zone of reduced foundation capacity, or otherwise designed to withstand erosion impacts; or
- in the case of essential services where there is no viable alternative location, coastal protection works may be appropriate. The structures must be designed by a suitably qualified coastal engineer, include measures to reduce or ameliorate adverse impacts to adjacent public or private land caused by the structure; and provide for public access and amenity wherever possible.

References

EurOtop, 2016. *Manual on wave overtopping of sea defences and related structures. An overtopping manual largely based on European research, but for worldwide application*. Van der Meer, J.W., Allsop, N.W.H., Bruce, T., De Rouck, J., Kortenhaus, A., Pullen, T., Schüttrumpf, H., Troch, P. and Zanuttigh, B., www.overtopping-manual.com.

Standards Australia, 2009. *Guidelines for the Design of Maritime Structures*, AS 4997-2004.

E.3 Coastal Hazards and Wetland Management DCP Chapters

The Coastal Hazards DCP Chapter 3.5 and Wetland Management DCP Chapter 3.10 are reproduced below in their current form. Note the coastal hazard mapping referenced in the DCP Chapter 3.5 below is now outdated and will be replaced as per Action 17 of this WCZMP 2017 with the revised coastal hazard mapping completed for the Review of the Wyong Coastal Hazard Study (BMT WBM, 2017; see Appendix B).

CHAPTER 3.5 COASTAL HAZARDS

1.0 INTRODUCTION

1.0.1 Aims

- To provide guidelines for development of land having regard to minimising coastal hazard risks to development.
- To identify relevant assessment considerations in regard to lands within the coastal zone (as defined by the WLEP, 2013), and referred to as the Coastal Hazard Planning Area.
- To minimise risk to life and property from coastal hazards associated with building on land within the Coastal Hazard Planning Area.
- To maintain and improve public access to public land affected by potential coastal hazards.
- To identify relevant assessment considerations for various types of developments including minor ancillary structures, new development and community infrastructure.

1.0.2 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.

1.1 Objectives of this Chapter

- To complement and reinforce the objectives and requirements of Clause 5.5 of the WLEP 2013
- To reduce the impact of coastal hazards on individual owners and occupiers of coastal lands within Wyong Shire
- To manage development along Wyong's coastline through a risk-based, adaptive management approach
- To protect beach amenity and public safety
- To consider practical opportunities for minor ancillary development

1.2 Land to which this Chapter Applies

This Chapter applies to the lands identified within Clauses 5.5 and 5.7 of the WLEP 2013, as being within the defined Coastal Hazard Planning Area (CHPA). **The CHPA includes** the lands located seaward of the Low Risk Coastal Hazard Planning Line, also including the landward extent of the identified Geotechnical Hazard Zones and the Combined Bluff, Beach and Dune Zones, as shown on Figures 1 – 12 (Section 2.1).

The Chapter outlines the controls and application requirements applying to development proposals, infrastructure and improvements on the land, seaward of the relevant Planning Line.

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.

1.2.1 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 CHPA on the basis of the 'sensitivity' of the land.

Therefore, proposals for development within the CHPA 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.

1.3 Relationship to other Chapters and Policies

This chapter is to be read in conjunction with other relevant Chapters of this Development Control Plan and policy documents of Council, related to the proposed development type.

The provision of public facilities and infrastructure on any land, by Council or other Government Agencies, is enabled through State Environmental Planning Policy (Infrastructure), 2007.

1.4 Background

This Chapter 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.

This Chapter recognises the distinction in these studies between hazards associated with sand dunes (erosion risk) and those associated with cliffs, bluffs and rock formations (geotechnical hazards). It should be noted that some areas are affected by both. Development landward of the CHPA is not constrained by coastal process issues and there are no specific coastal hazard management requirements.

1.4.1 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 lake waters.

Coastal erosion hazard studies have not been completed for the entire length of beaches in Wyong Shire. 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 CZMP project. Generally, these locations correspond with areas of residential development or locations of community infrastructure. Based on the assessment

recommended by OEH, Figures 1 - 12 show areas, outside and including the recognised "hotspots" (or "Authorised Locations"), which are considered to be subject to Immediate Risk Coastal Erosion Hazard along the Wyong 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.

1.4.2 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.

Geotechnical assessments have been conducted of cliffs and bluffs along the Wyong coastline where geotechnical processes are likely to affect residential development, public or private infrastructure or recreational access. These locations include:

- Jenny Dixon Beach and Noraville
- Cabbage Tree Harbour
- Norah Head
- Soldiers Point
- Blue Bay and The Entrance Headland
- Toowoon Bay and Bateau Bay
- Yumbool Point and Crackneck Point

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.

1.4.3 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).

1.4.4 Wave Run-up

Despite the identification of the Hazard Line or Zone on the maps in Section 2.1, 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.

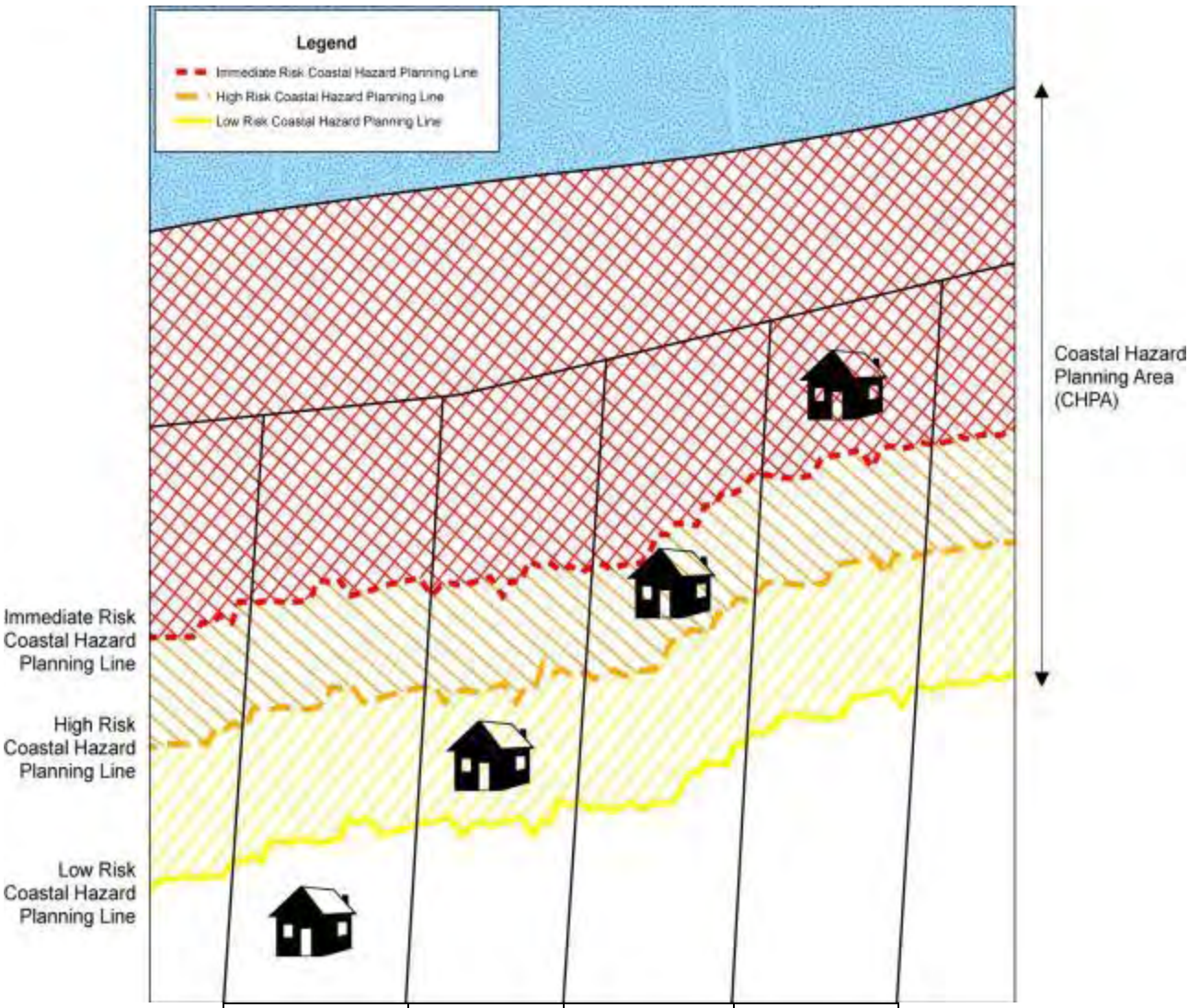
To reduce the impact of wave run-up, it is essential to identify minimum floor levels for development. Minimum floor levels for habitable rooms must not be less than the Immediate Wave Run-Up Height.

Wave run-up analysis for the design storm (1974) has indicated that wave run-up level along the 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.

2.0 COASTAL HAZARD PLANNING LINES

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



✓	?	?	X
Suitable, No specific coastal management requirements	DA requires merit assessment, supported by Coastal and Geotechnical Assessment relevant to the scale of the proposal	DA requires merit assessment, supported by Coastal and Geotechnical Assessment relevant to the scale of the proposal. Generally, no new free-standing, habitable structures	Typically unsuitable for future development. However, some structures (see Table 1) may be permitted if supported by Coastal and Geotechnical Assessment relevant to the scale of the proposal

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 CHPA, via the Development Assessment process. The Risk Zone lies seaward of the relevant Risk Planning Line.

Note: For identification of the position of the Lines, and therefore definition of the Zones, refer to the Coastal Hazard Maps - Figures 1 – 12, within Section.2.1.

Outside Coastal Hazard Planning Area	**Low Risk Coastal Hazard Planning Zone**	**High Risk Coastal Hazard Planning Zone**	**Immediate Risk Coastal Hazard Planning Zone**
Merit Assessment as per Land Use Tables for the relevant Zone within WLEP, 2013, & other legislation.	• 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	• Removal of an existing dwelling and replacement with a new single dwelling within, and/or landward of, the pre-existing dwelling footprint. • Landward additions and alterations within the existing building footprint • Maintenance work to existing dwellings / developments, e.g., re-cladding • Works to make existing developments relocatable • Timber decks & viewing platforms (max. $20m^2$, max. 1m from ground) • Timber gazebos (max. $20m^2$) • 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)	• Removal of an existing dwelling and replacement with a new single dwelling within, and/or landward of, the pre-existing dwelling footprint. • Landward additions and alterations behind the existing building footprint • Maintenance work to existing dwellings / developments, e.g., re-cladding • Works to make existing developments relocatable • Timber decks & viewing platforms (max. $20m^2$, max 1m from ground) • Timber gazebos (max. $20m^2$) • 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 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 5.5 of the WLEP 2013
- To protect beach amenity and public safety

REQUIREMENTS

2.0.1 Coastal Erosion Hazard (A)

Selected development may be considered with appropriate coastal/geotechnical assessment within the Coastal Hazard Risk Zones (refer to Table 1 as a guide). 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 Section 1.4.4, Figures 1 – 12 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 the NSW OEH.

2.0.2 Geotechnical Hazard (B)

As identified above, selected development may be considered with appropriate coastal/geotechnical assessment within the Coastal Hazard Risk Zones (refer to Table 1 as a guide). 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.

2.0.3 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 Figures 1- 12 (SMEC Area of Advice), shall be accompanied by appropriate geotechnical assessments of the subject site and a Structural Engineer's Design for the proposed development.

2.0.4 Requirements for Geotechnical Assessments

a For development in areas affected by geotechnical hazards, 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- 1996 (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.

2.1 Coastal Hazard Maps: Figures 1 - 12

Figures 1 – 12 show the Wyong LGA coastline from North to South, indicating the identified coastal hazards which must be taken into account in the design of development proposals.

The maps indicate the extent of the Immediate, High and Low Risk Hazard areas. The mapping also shows areas of geotechnical hazard or Bluff, Beach and Dune zones.

The Assessment Method required is also identified (A, B or C), having regard to the coastal hazard. These maps are available online or directly from Council's Customer Contact Centre.

Figure 1 – Budgewoi Beach to Lakes Beach: Figure 1 identifies Coastal Erosion Hazard Planning Lines, where Assessment Method A is applicable.

Figure 2 – Jewfish Point to Hargraves Beach: Figure 2 identifies Coastal Erosion Hazard Planning Lines, where Assessment Method A is applicable at Hargraves Beach. An area identifying Geotechnical Hazard Planning Lines, where Assessment Method B applies, is located along the cliffs heading south toward Jenny Dixon Beach.

Figure 3 – Hargraves Beach to Jenny Dixon Beach Noraville: Figure 3 identifies Geotechnical Hazard Planning Lines, where Assessment Method B applies, located along the cliffs heading south toward Cabbage Tree Harbour. Geotechnical Hazard Zones are also identified adjacent to Jenny Dixon Beach and Cabbage Tree Harbour.

Figure 4 – Cabbage Tree Harbour to Soldiers Point: Figure 4 identifies the continuation of Geotechnical Hazard Planning Lines, where Assessment Method B applies, located along the cliffs heading south from Cabbage Tree Harbour and Norah Head to Soldiers Headland. Combined Bluff, Beach and Dune Zones, where Assessment Method C applies, are also identified adjacent to Cabbage Tree Harbour and Pebbly Beach.

Figure 5 – Soldiers Beach to Pelican Beach: Figure 5 predominantly identifies Coastal Erosion Hazard Planning Lines, where Assessment Method A is applicable.

Figure 6 – Magenta Beach: Figure 6 identifies Coastal Erosion Hazard Planning Lines, where Assessment Method A is applicable.

Figure 7 – Magenta Beach to North Entrance Beach: Figure 7 identifies Coastal Erosion Hazard Planning Lines, where Assessment Method A is applicable.

Figure 8 – North Entrance Beach: Figure 8 identifies Coastal Erosion Hazard Planning Lines, where Assessment Method A is applicable.

Figure 9 – North Entrance Beach to South Entrance Beach: Figure 9 identifies Coastal Erosion Hazard Planning Lines, where Assessment Method A is applicable at North Entrance and Blue Bay Beaches. Geotechnical Hazard Planning Lines, where Assessment Method B applies, are identified located along the rocky coastline to the south from South Entrance Beach. An identified Geotechnical Hazard Zone, where Assessment Method B applies, is located landward of Blue Bay Beach.

Figure 10 - Blue Bay to Little Bay: Figure 10 identifies Coastal Erosion Hazard Planning Lines, where Assessment Method A is applicable at Blue Bay, Toowoon Bay and North Shelly Beaches. Geotechnical Hazard Planning Lines, where Assessment Method B applies, are identified located along the rocky coastline to the south from Toowoon Bay and Little Bay Beaches to North Shelly. An identified Geotechnical Hazard Zone, where Assessment Method B applies, is located landward of Blue Bay and Toowoon Bay Beaches.

Figure 11 – North Shelly Beach to Blue Lagoon Beach: Figure 11 predominantly identifies Coastal Erosion Hazard Planning Lines, where Assessment Method A is applicable. Geotechnical Hazard Planning Lines, where Assessment Method B applies, are identified located along the rocky coastline to the south from Blue Lagoon Beach. An identified Geotechnical Hazard Zone, where Assessment Method B applies, is located landward of Blue Lagoon and Bateau Bay Beaches.

Figure 12 – Bateau Bay Beach to Yumbool Point: Figure 12 identifies Geotechnical Hazard Planning Lines where Assessment Method B applies, located along the rocky coastline to the south from Bateau Bay Beach. An identified Geotechnical Hazard Zone, where Assessment Method B applies, is located landward of Bateau Bay Beach and extends along the coast, south to the boundary of the LGA.

2.1 Coastal Hazard Maps: Figures 1 - 12

Figure 1 Budgewoi Beach to Lakes Beach

Figure 2 Jewfish Point to Hargraves Beach

Figure 3 Hargraves Beach to Jenny Dixon Beach Noraville

Figure 4 Cabbage Tree Harbour to Soldiers Point

Figure 5 Soldiers Beach to Pelican Beach

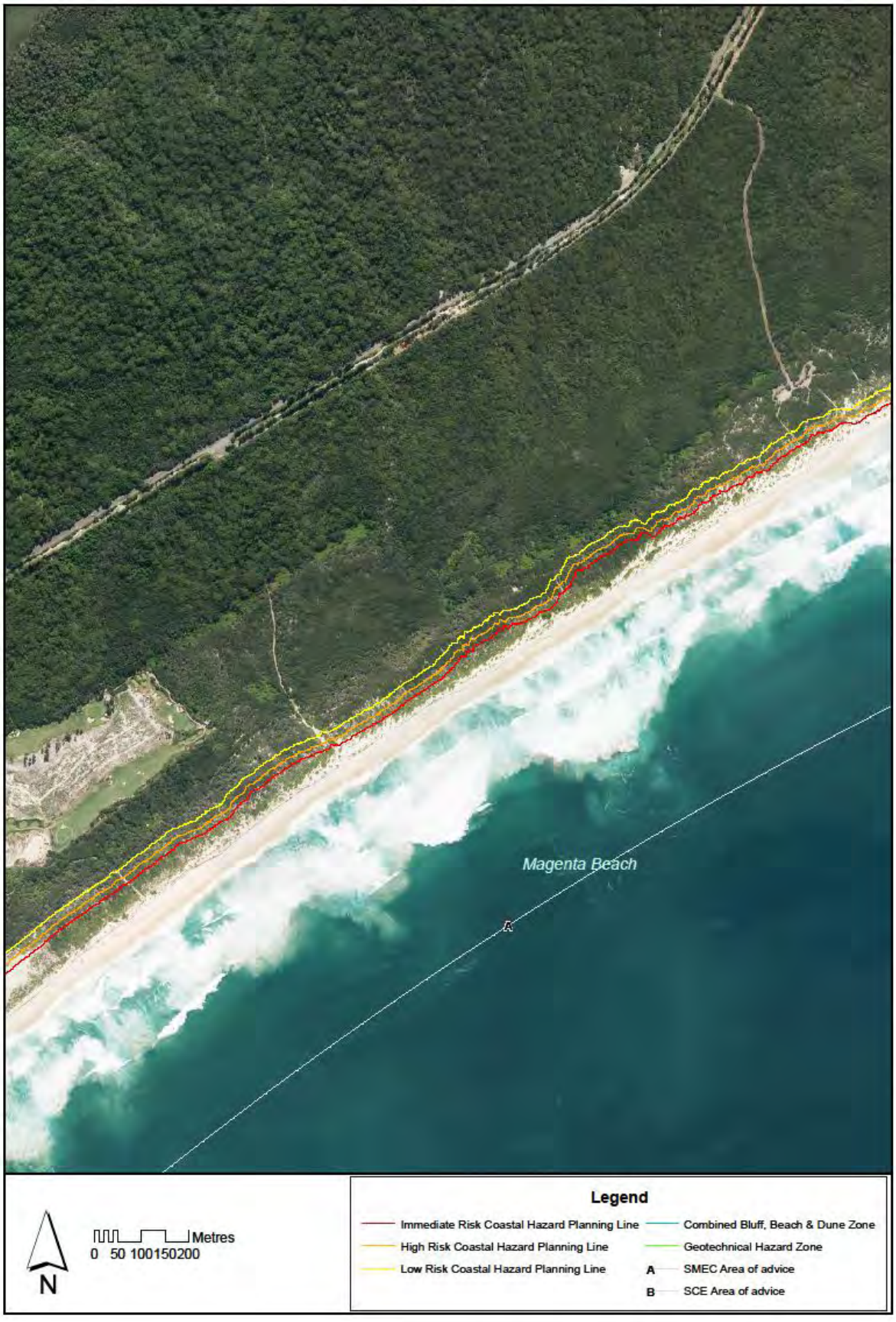


Figure 6 Magenta Beach

Figure 7 Magenta Beach to North Entrance Beach

Figure 8 North Entrance Beach

Figure 9 North Entrance Beach to South Entrance Beach

Figure 10 Blue Bay to Little Bay

Figure 11 North Shelly Beach to Blue Lagoon Beach

Figure 12 Bateau Bay Beach to Yumbool Point

2.2 Other Areas

Where a development is proposed in a coastal area not addressed by this Chapter, 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 in Section 1.4 of this Chapter. 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.

CHAPTER 3.10 WETLANDS MANAGEMENT

1.0 INTRODUCTION

1.1 Objectives of this Chapter

The aim of this Chapter is to protect Wyong's natural wetland areas and facilitate the ecological functioning of all wetlands and maintain the significant conservation values of these environments for the benefit of present and future generations. The objectives of this plan are:

- To protect important wetland habitat and discourage development proposals that have the potential to fragment, pollute, disturb wetlands or diminish the environmental values of such areas
- To maintain the functions of low lying lands for the purpose of improving downstream water quality for the benefit of the Tuggerah Lakes and Lake Macquarie systems
- To encourage land use practices and environmental design measures that enhance the sustainability of wetland functions and values

1.2 Glossary

Note: Generally, the terms used in this Chapter have the same meaning as those terms are defined within the WLEP 2013. Where a term is defined within the WLEP 2013, it is not repeated here. The following additional terms are relevant to this Chapter:

clearing of native vegetation means directly or indirectly:

- killing, destroying or burning native vegetation; or
- removing vegetation; or
- injuring or substantially damaging vegetation in any other way.

dominated by wetland plant species means that 50% or more of the total foliage cover of the tallest stratum of vegetation comprises wetland plant species.

draining, also defined as **drainage** (LEP), which means any activity which alters the hydrological regime of any locality by facilitating the removal of surface or ground water. It includes the construction, deepening, extending, opening, installation or laying of any canal, drain or pipe, either in a locality or in such a manner as to encourage drainage of an adjoining locality.

ecotone means the gradational band of vegetation where wetland plants intermix with dryland plant species.

filling means changing the existing ground level by disposal of soil, dredging, refuse dumping or by any landfill method. This includes, but is not limited to activities which require the addition of fill to enable the construction or erection of buildings or structures, public utilities, pylons and roads.

foliage cover means the proportion of the sample site occupied by the vertical projection of foliage and branches of trees, shrubs or herbs.

map means the map marked "Development Control Plan - Wetlands (Map)".

tallest stratum means the tallest growth form of vegetation present that has an average foliage cover of 20% or greater.

underscrubbing means the cutting down of native trees (with a trunk diameter less than 75mm, measured 1.4 metres above the ground), saplings, shrubs or other understorey vegetation (except a cycad or mangrove) which is less than 3 metres high.

wetland means swamps, marshes, wooded wetlands and ponds which are subject to inundation for a long period of time. These areas may be freshwater or estuarine, where the frequency and level of inundation determines the type and productivity of the soils and the plant and animal communities. These environments must be readily identifiable as being dominated by wetland plant species.

2.0 GENERAL MATTERS FOR CONSIDERATION

2.1 Development within Wetland Management Areas

When assessing an application in an area covered by this DCP Chapter, Council will consider how well the proposal complies with the following objectives and requirements.

OBJECTIVE

- To protect the environmental values and functions of wetlands from the potential impacts of adjoining land uses

REQUIREMENTS

a Where development is proposed near a wetland, bands of natural vegetation, known as buffers, should be kept between the development and wetland. A diagram showing a buffer zone of non-wetland vegetation separating development from the wetland edge is shown at Figure 1. Buffers provide supplementary fauna habitat and vegetatively linked buffers may potentially facilitate the movement of fauna between areas, thus maintaining ecosystem function and genetic diversity. The width of the buffer zone depends on factors such as the existing vegetation type, surrounding land use, slope, potential for weed invasion and potential for nutrient impacts on the wetland. Specialist advice from suitably qualified people should be sought on the width and management of wetland buffers for development adjoining wetland sites.

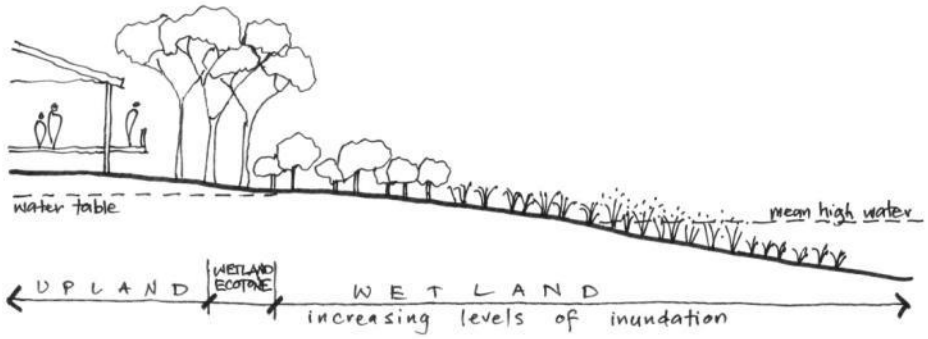


Figure 1 Buffer Zone of non-wetland vegetation separating development from the wetland edge

b Separate wetlands from development edges by the construction of a road or cycleway. This provides a hard management edge and firebreak to the wetland. Refer to the Urban Interface Area provisions within Clause 3.9 of Part 4 – Subdivision.

c Discourage the clearing of wetland boundaries and minimise disturbance to ecotones. Clearing and disturbance will only result in pushing the disturbed area further into previously undisturbed wetland vegetation, thus further impacting the wetland ecosystem.

d If grazing is to be conducted on land adjoining wetland areas, owners should be encouraged to fence the wetland and native vegetation to prevent intrusion by stock.

e Avoid separation of wetland habitat and retain existing wildlife corridors to increase habitat values. Where corridors are not linked, fencing of areas and/or supplementary planting of endemic vegetation is recommended to increase the long-term viability of the corridor.

f The development interface must be carefully managed in locations which border wetland communities. Berms, stilling ponds, filter strip and nutrient control facilities (WSUD elements) shall be developed downstream of urban areas to reduce nutrient and weed transport into downstream wetlands. Figure 2 shows a catch drain to direct surface runoff from urban areas to dispersion points. This reduces the potential for weed invasion and adverse hydrological changes to the wetland.

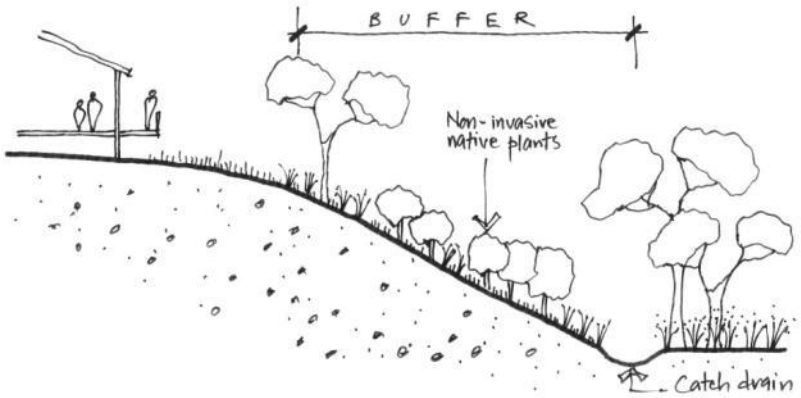


Figure 2 Catch drain to direct surface runoff from urban areas to dispersed points

2.1.1 Hydrology

Water is the major feature of wetlands. Changes to catchment hydrology can, in turn, change the frequency, timing and depth of inundation, resulting in changes to the characteristics of wetlands and ultimately changes to adjoining lands or those lands elsewhere in the catchment.

The encroachment of urban and rural areas into natural catchments areas has the potential to modify downstream surface and groundwater flows. This can be to the detriment of a number of water tolerant species which rely on groundwater flows, such as those that occur in swamp forest wetland types. The loss of these groundwater flows leads to the loss of swamp forests and ultimately favours dryland terrestrial plant species.

Unmitigated development can result in excessive stormwater runoff and reduced water quality which can significantly impact on downstream wetlands. Development in wetland catchments reduces groundwater infiltration and water quality, and increases the permanency and frequency of hydration. This can weaken the root structure of wetland trees, resulting in dieback. A diagrammatic representation of the effects of development in the wetland catchment is shown in Figure 3.

OBJECTIVE

- To maintain or restore the physical, chemical and biological processes existing in wetlands by minimising existing impacts on or exacerbating changes to hydrology from land uses in catchments

REQUIREMENTS

a When development proposals are being considered upstream of wetland ecosystems, proponents are to ensure that all likely changes in surface runoff and groundwater flows are adequately investigated and assessed. A catchment based approach to the management of stormwater runoff, is required in order to mimic as far as practicable pre-development hydrological conditions.

b Requirements may also exist under the Water Management Act 2000. Applicants may need to consult with the NSW Office of Water to9 obtain relevant approvals or licences.

c The type, employment and location of culverts, drains, and paved surfaces should be carefully considered, to ensure the maintenance of appropriate water flow regimes to downstream wetlands. Where possible, the use of natural drainage structures are preferred.

d Drainage works without appropriate environmental safeguards should be avoided, due to the potential impacts of falling or rising water tables. In some cases, falling water tables will cause the exposure of acid sulphate soils. This may cause water quality management problems or the formation of acid scalds which can kill vegetation and cause increased sediment runoff.

e Developments which are likely to have a significant impact on the hydrology of significant wetlands shall prepare a wetland management plan. This plan is to provide a comprehensive framework for managing environmental impacts including mitigation measures. The management plan should incorporate an environmental monitoring program encompassing relevant biological, physical and chemical parameters to detect any adverse changes in the health of the wetland ecosystem.

f In the event that mitigation measures do not work satisfactorily, the management plan needs to clearly indicate the commitments given by the proponent to rectify the problem. The commitments should contain the following elements:

i Who will deal with the issue?

ii How will they deal with it?

iii In what timeframe will they deal with it?

iv Who will they report these actions to?

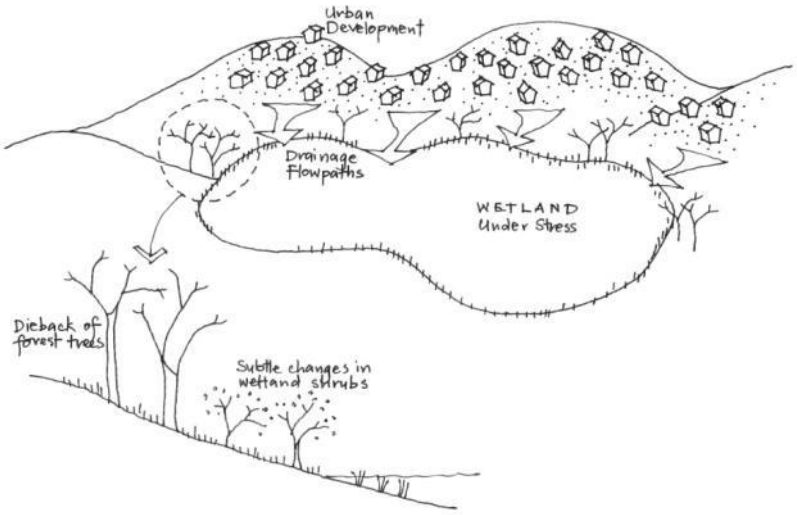


Figure 3 Effects of unmitigated development in the wetland catchment

2.1.2 Water Quality

Stormwater pollution can lead to the nutrification of habitat for wetland dependent flora and fauna which rely on the healthy functioning of wetlands for their survival. The most at risk are wetlands within catchment areas which are subject to development pressures. Discharge of sediment is the greatest concern during the urban development construction phase, whilst discharge of nutrients are of a greater concern after the land has been developed.

OBJECTIVE

- To ensure water entering into natural wetlands is of sufficient quality so that wetland conservation values and functions are not compromised

REQUIREMENTS

a Drain construction and utility provision shall avoid excavation through wetlands.

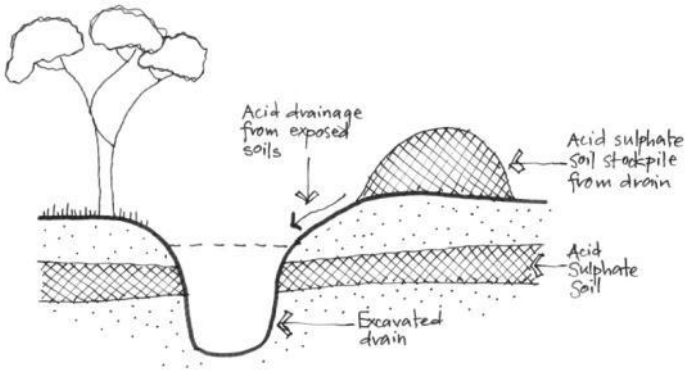


Figure 4 Impacts of exposing acid sulphate soils

b Acid sulphate soils (ASS) are often present within low lying wetland areas. Works that are likely to expose acid sulphate soils, should be carried out with extreme caution, as excavated acid sulphate soils can leach highly acidic drainage waters which scald soils, which are then difficult to revegetate (as shown in Figure 4 above). The Department of Planning and Infrastructure have provided data to Council identifying (ASS) Risk classes, which should be used to determine the likelihood of ASS. If ASS are present on site, a detailed and site specific ASS management plan should be prepared. Applicants should have regard to Clause 7.1 of the WLEP 2013 and the Acid Sulfate Soils Map.

c A dispersed discharge of stormwater into a wetland is preferable to a concentrated flow regime. Create sheet flow conditions to avoid concentrated discharge into a wetland. Figure 5 below shows how stormwater from a surface drain can be dispersed using embankments.

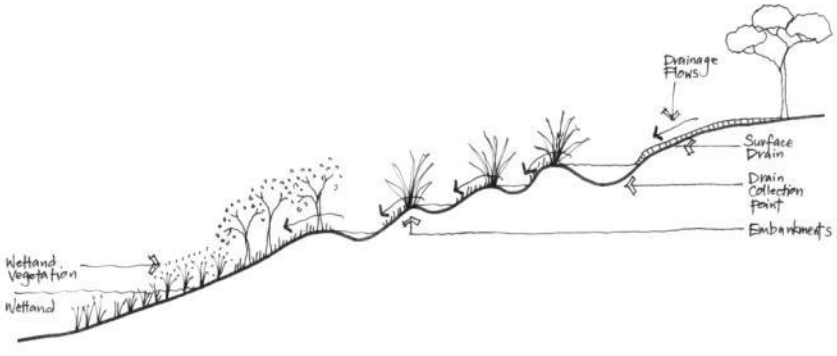


Figure 5 Embankments are used to disperse stormwater from a surface drain

2.1.3 Bushfire Hazard Reduction

Whilst fire has the potential to be used in wetland management to reduce the build up of combustible material its use as a management tool should not be considered without detailed knowledge of the environmental effects of fire on fire sensitive wetland flora and fauna.

OBJECTIVE

- To conserve biological diversity and ecological processes by giving consideration to appropriate fire management regimes and permanent hazard reduction techniques in wetland environments

REQUIREMENTS

a The use of permanent fuel hazard reduction measures, such as building setbacks, fuel hazard radiation zones and fire trails shall be favoured as a hazard reduction technique in areas adjoining urban development rather than broad area burning for the purpose of reducing fuel loads.

b All wetland areas should not be subject to broad area burning, with a mosaic burning approach adopted. Areas left unburnt (habitat refuges) should be provided if an area is to be subjected to hazard reduction burning.

c Burning of wetland areas shall have regard to the sensitivity of wetland plant and animal communities and the natural frequencies and intensities of fires in such environments at different times of the year.

d Owners of wetland areas will not be permitted to carry out burning activities without obtaining appropriate authorisation and should consider relevant provisions of Bushfire Management Plans which have been prepared for Wyong Shire pursuant to Section 41A of the Rural Fires Act, 1997.

e Any proposal for bushfire hazard reduction should have regard to those management plans pertaining to that particular wetland area. In those areas where hazard reduction is considered as an appropriate management option, the hazard reduction should be conducted in accordance with the prescriptions identified in the management plan.

2.1.4 Visual, Social and Cultural Values

Many wetlands possess scenic qualities which contribute to the landscape character of the area and provide social and recreational values important to local communities.

OBJECTIVE

- To preserve the aesthetic, social and economic values of wetland areas

REQUIREMENTS

a The impact of disturbance on wetlands has the potential to reduce the values and long-term viability of wetlands. Types of disturbances on wetlands include: direct (i.e. clearing, infilling, etc) or indirect: (i.e. inappropriate location of development in the vicinity of wetlands). In the latter, careful placement of development using landscape screening measures, sympathetic building placement, natural colour schemes and non-reflective materials can be implemented to reduce the impacts on wetlands.

b Maintain floodways and high hazard flood liable lands, and functions of low lying lands for nutrient cycling and sediment filtering by restricting development.

3.0 WETLAND MANAGEMENT AREAS

Some wetland areas are subject to protection by State Environmental Planning Policy No 14 - Coastal Wetlands (SEPP 14). Developments in or near wetlands protected by this Policy may be defined as "Designated Development" by SEPP 14, or by the Environmental Planning and Assessment Regulation 2000. Many other significant wetland areas in Wyong Shire are also protected by the E2 – Environmental Protection Zone under the WLEP 2013. In this Chapter, these lands are identified as Wetland Management Areas.

3.1 Development within a State Environmental Planning Policy No 14 Wetland Area

Certain development within SEPP 14 areas (clearing, filling, draining or the construction of levees) are defined as "Designated Development" and applications are required to be accompanied by an Environmental Impact Statement (EIS). Applicants are advised to refer to the details of this policy and to seek and address the requirements specified by the Director-General of the Department of Planning and Infrastructure.

The maps attached to this Chapter show the approximate coverage of State Environmental Planning Policy No 14 - Coastal Wetland areas in Wyong Shire. Information regarding the location of State Environmental Planning Policy No 14 boundaries should be obtained from the 1:25,000 map series held by the Department.

3.2 Wetland Management Areas

The accompanying Maps identify Wetland Management Areas, covering a range of low lying and wetland buffer areas which maintain water quality in downstream environments and maintain the ecological integrity of wetland, river and lake systems in Wyong Shire. Proper consideration of development within Wetland Management Areas relies on an understanding of the functions and values that the site performs within the landscape.

An evaluation chart (Appendix A) has been prepared to assist in the identification of conservation values and functions performed within different parts of the landscape which are identified as Wetland Management Areas. These matters should be addressed by applicants who are undertaking development within any area identified on the Wetland Management Area Maps.

3.3 Application For Development Within Wetland Management Areas

a All Development Applications for works within Wetland Management Areas must be accompanied by a Statement of Environmental Effects (SEE). The Statement of Environmental Effects shall provide:

i an assessment of the sites geomorphologic characteristics and established wetland conservation values and functions the land may perform or contribute having considered the Evaluation Chart contained in Appendix A to this Chapter;

ii the developments relationship with the Wetland Management objectives provided in Section 2 of this Chapter;

iii a detailed description of the development including any environmental safeguards and mitigation measures;

iv a vegetation survey and map (defining the wetland boundaries);

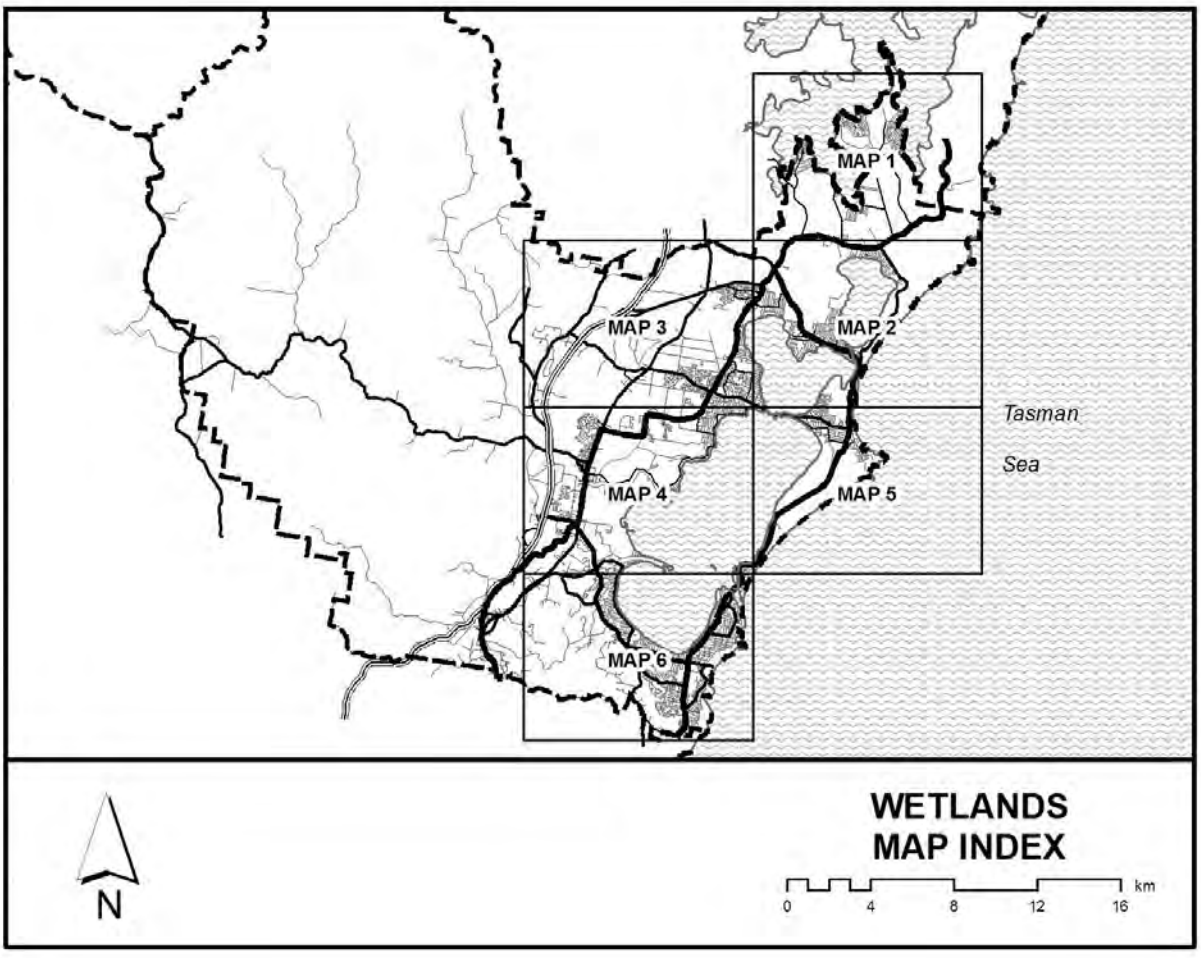
v the environmental effects of the proposed development including, (but not limited to), the effect of the proposed development on:

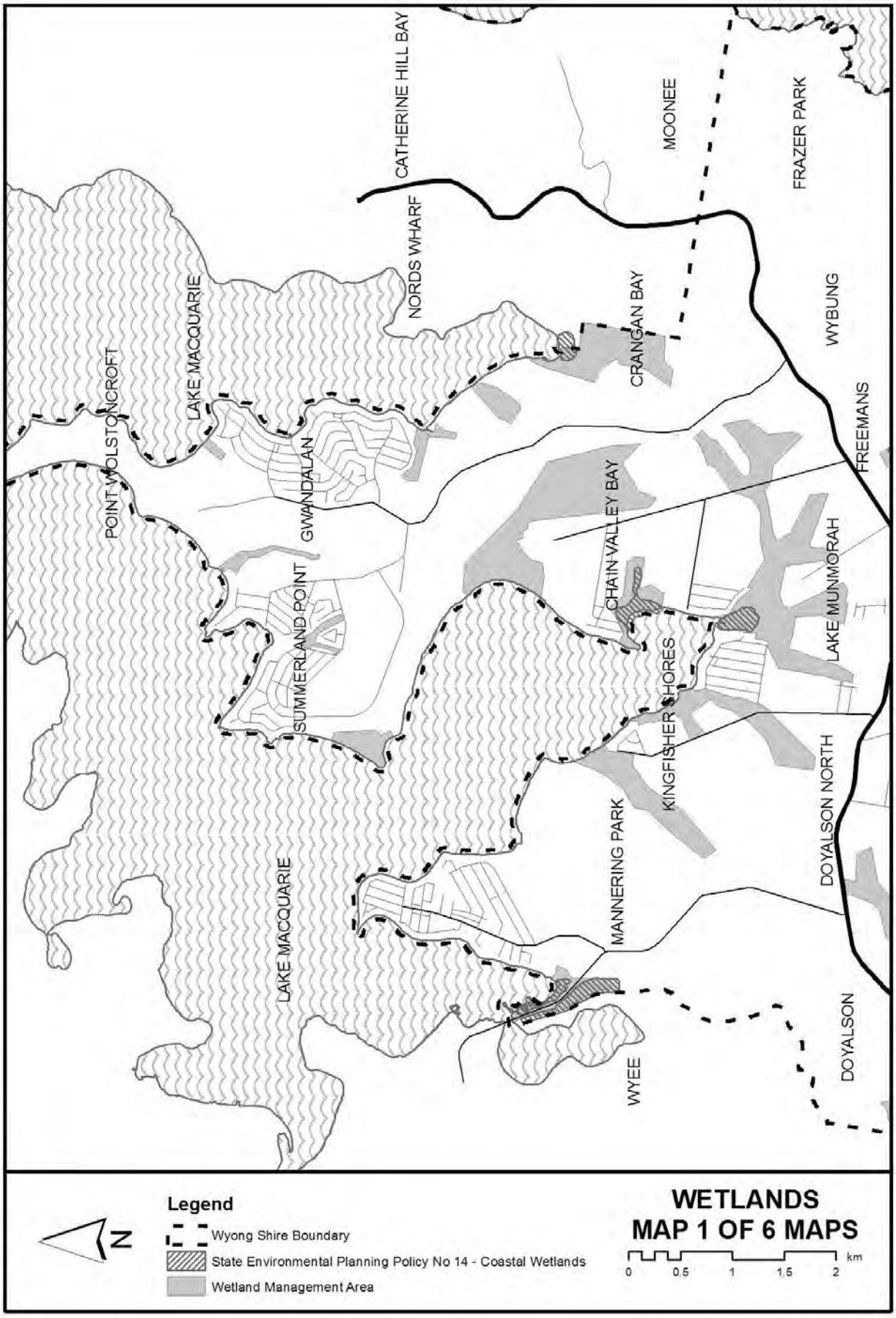
- the growth of native plant communities;
- the survival of native wildlife populations;
- the scenic value of the area;
- the surface and groundwater characteristics of the site on which the development is proposed and of the surrounding area, including water quality; and

vi cumulative impacts resulting from a number of activities with similar impacts interacting with the environment in the same catchment;

vii the on-going environmental management commitments to the site, including any monitoring program and environmental management plan.

3.4 Wyong Shire Wetland Maps

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MOONEE
FRAZER PARK
NORDS WHARF
CRANGAN BAY
WYBUNG
POINT WOLSTONCROFT
LAKE MACQUARIE
GWANDALAN
FREEMANS
CHAIN VALLEY BAY
SUMMERLAND POINT
LAKE MUNMORAH
KINGFISHER SHORES
DOYALSON NORTH
MANNERING PARK
LAKE MACQUARIE
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Wyong Shire Boundary
State Environmental Planning Policy No 14 - Coastal Wetlands
Wetland Management Area
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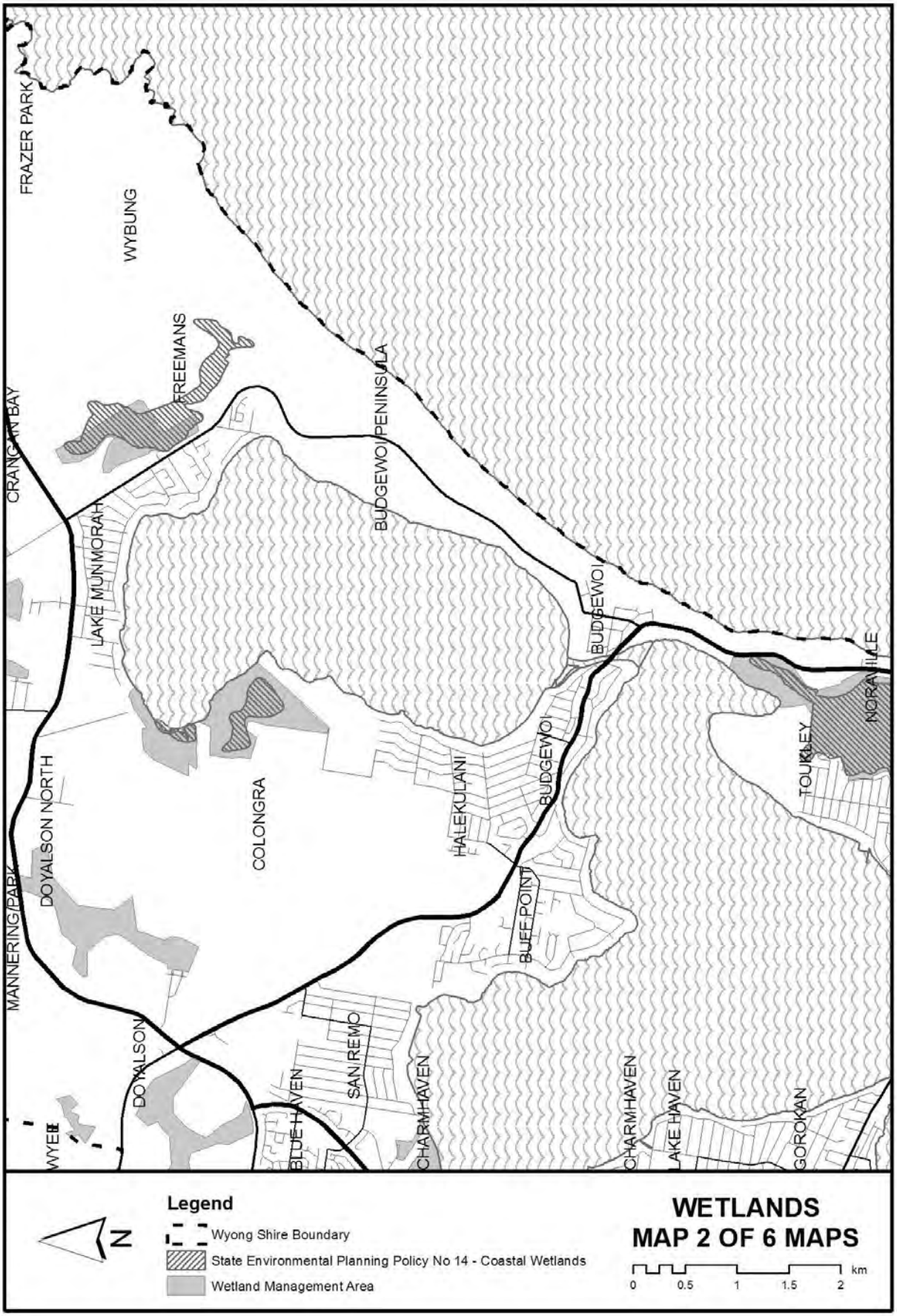
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FREEMANS
CRANGAN BAY
LAKE MUNMORAH
BUDGEWOI PENINSULA
BUDGEWOI
NORAVILLE
TOUKLEY
COLONGRA
DOYALSON NORTH
HALEKULANI
BUDGEWOI
BUFF POINT
MANNERING PARK
DOYALSON
SAN REMO
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CHARMHAVEN
CHARMHAVEN
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State Environmental Planning Policy No 14 - Coastal Wetlands
Wetland Management Area
WETLANDS
MAP 2 OF 6 MAPS
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BLUE HAVEN
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CHARMHAVEN
LAKE HAVEN
GOROKAN
KANWAL
BUSHELLS RIDGE
WOONGARRAH
HAMLYN TERRACE
WALLARAH
KIAR
HALLORAN
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MAP 3 OF 6 MAPS
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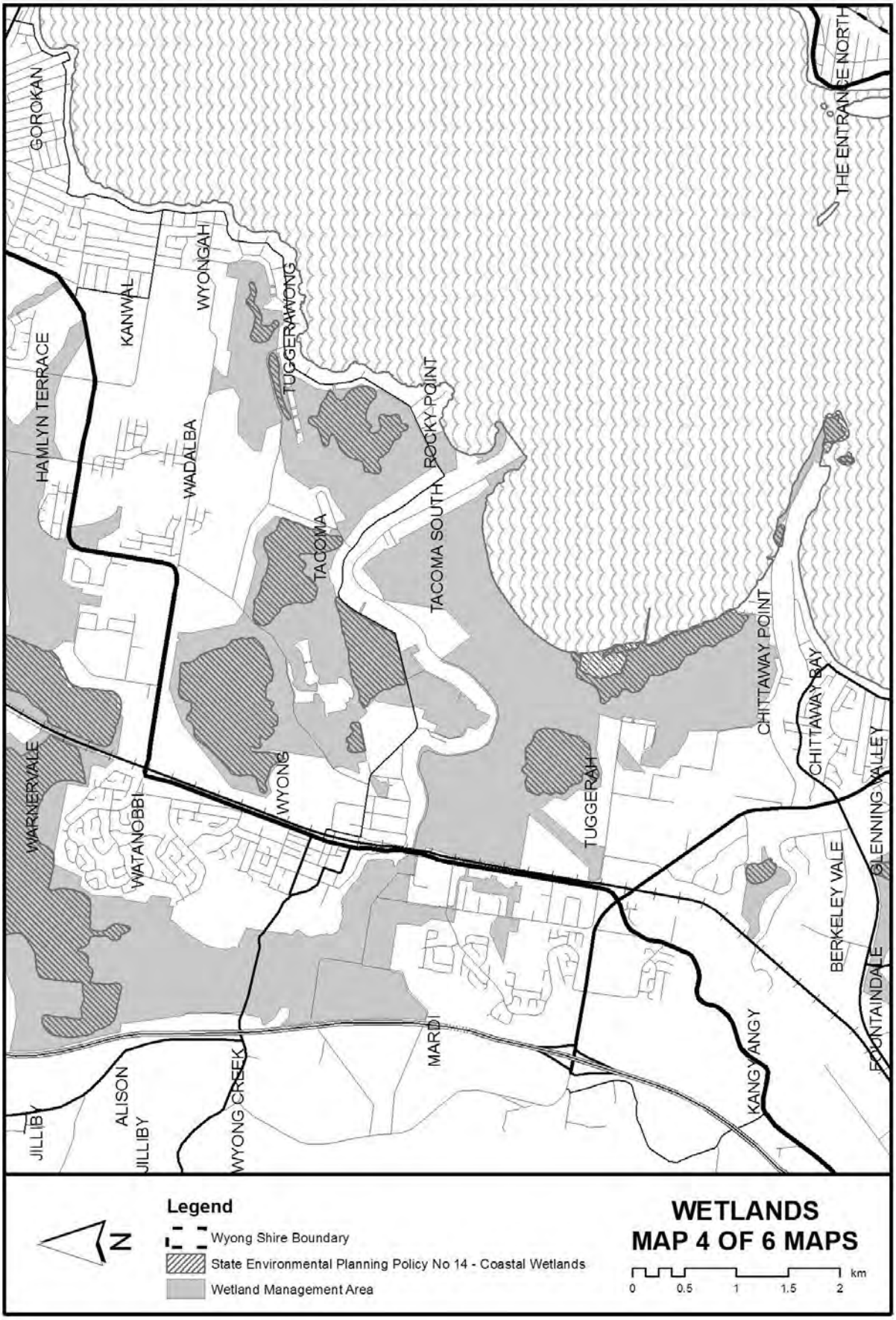
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KANWAL
WYONGAH
TUGGERAWONG
HAMLYN TERRACE
WADALBA
ROCKY POINT
TACOMA
TACOMA SOUTH
THE ENTRANCE NORTH
CHITTAWAY POINT
CHITTAWAY BAY
GLENNING VALLEY
WARNERVALE
WATANOBBI
WYONG
TUGGERAH
BERKELEY VALE
FOUNTAINDALE
MARDI
KANGY ANGY
JILLIBY
ALISON
JILLIBY
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MAP 4 OF 6 MAPS
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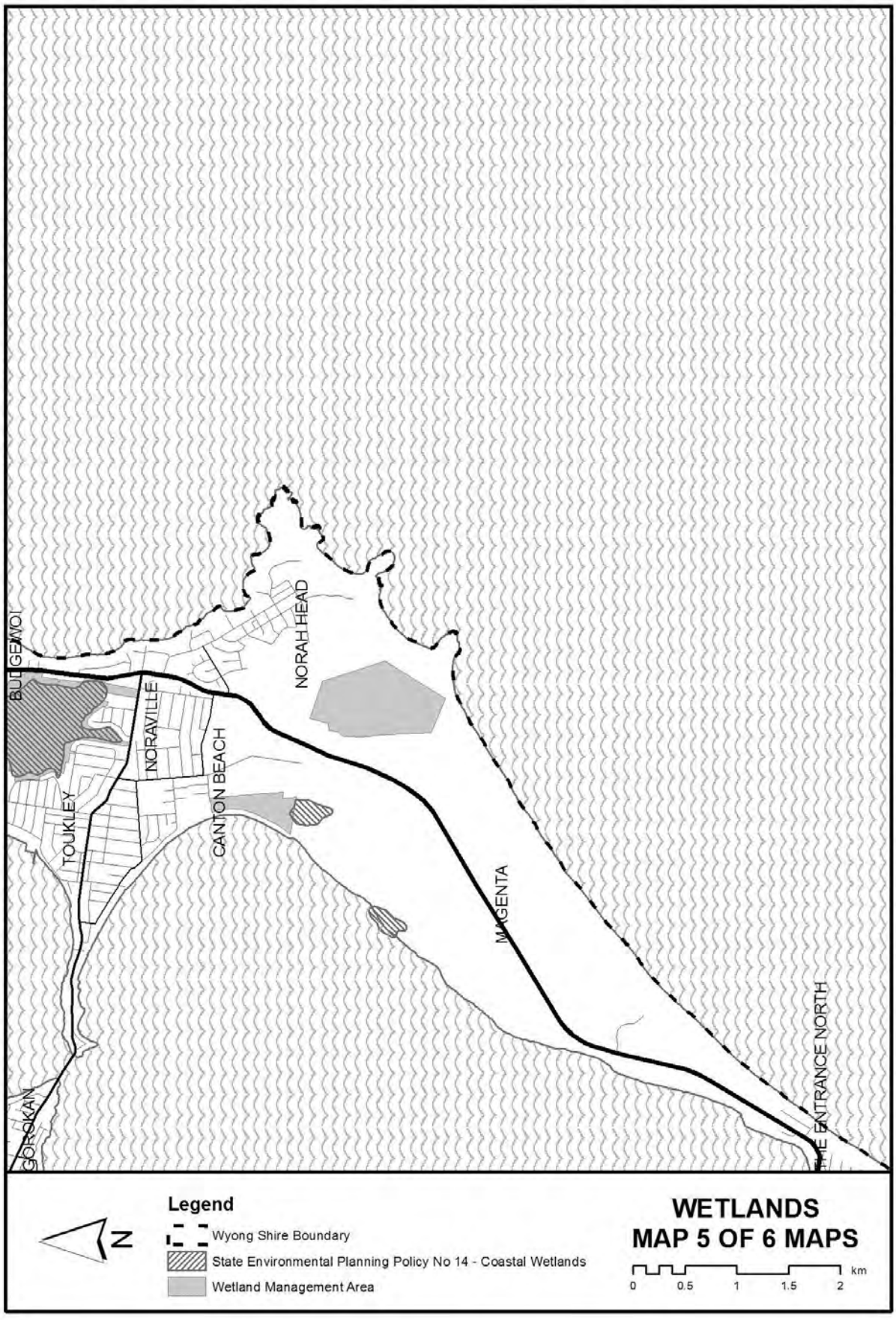
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CANTON BEACH
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Wetland Management Area
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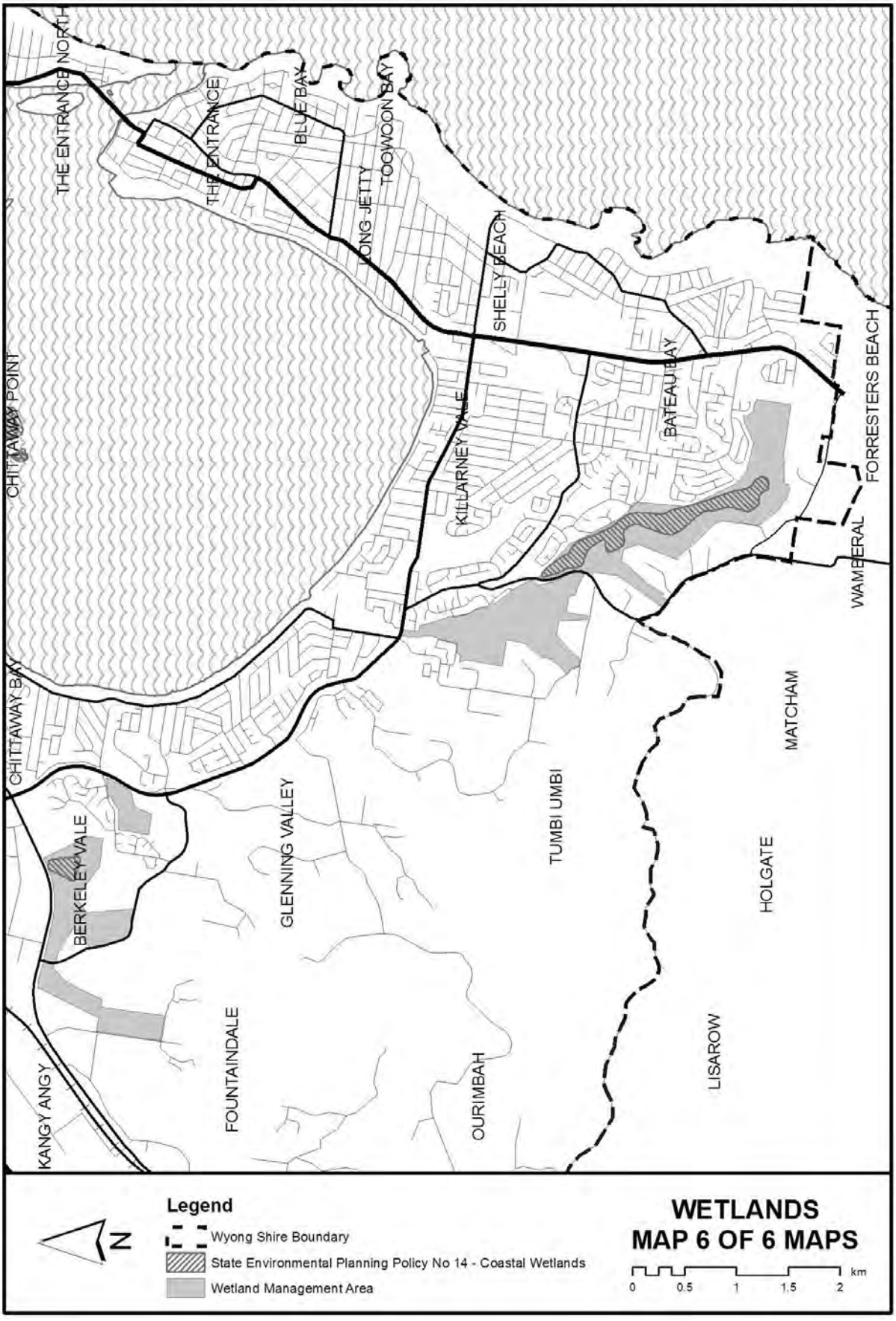
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LONG JETTY
SHELLY BEACH
KILLARNEY VALE
BATEAU BAY
FORRESTERS BEACH
WAMBERAL
CHITTAWAY POINT
CHITTAWAY BAY
BERKELEY VALE
GLENNING VALLEY
TUMBI UMBI
MATCHAM
HOLGATE
LISAROW
OURIMBAH
FOUNTAINDALE
KANGY ANGY
Legend
Wyong Shire Boundary
State Environmental Planning Policy No 14 - Coastal Wetlands
Wetland Management Area
N
WETLANDS
MAP 6 OF 6 MAPS
0 0.5 1 1.5 2 km

APPENDIX A WETLAND EVALUATION CHART

Values and Functions	Attributes	Element Assessment
Nutrient Cycling and Sediment Filtering	**Surface and vegetation roughness** is an influential factor in floodwater velocity, as increasing amounts of sediment (nutrients attached to soil particles) are deposited under low velocity conditions.	▪ Woody vegetation with shrub understorey has the highest value for sediment removal, however, reedlands/rushlands have a higher biochemical capacity to treat nutrients (higher value). ▪ Woody vegetation with grassy understorey (moderate value). ▪ Pasture/grasslands (lower value).
	Flooding - extent, regularity and depth of flooding are important factors which influence the nutrient cycling and sediment filtering value of land.	Floodways and floodplains which are regularly inundated by low velocity floodwaters have higher values than areas which are inundated less frequently and have high velocity floodwaters.
	Land slope and shape are important factors .	▪ Drainage depressions, for example ancient riverflow paths and billabongs - highest value. ▪ Landslope less than 2% frequently contain waterlogged soils and wetland plant communities. These areas also occur on drainage lines and floodplains. Silt deposition occurs freely on such floodplains and areas immediately adjacent to floodways where water velocities decrease or mix with stored water. ▪ Landslope between 2-4% (moderate importance). ▪ Slopes greater than 4% have less importance as they create higher velocity flows and have a lower capability to collect silt and nutrients (low value).
	Relationship of the area to land use.	Wetland Management Areas which are located downstream of land uses which have the potential to generate higher pollutant loads are likely to provide a more substantive role than lands which are located in catchments with low pollutant generation characteristics (eg. natural bushland).

Values and Functions	Attributes	Element Assessment
Wetland Buffers	Lands identified by the wetland management area often play an important role in buffering wetlands or smaller wetland remnants.	A diversity of wetland buffer issues and considerations exist within wetland management areas, some of these functions are outlined below: ▪ The wetland areas contain non-wetland vegetation in areas adjacent to core wetland habitat. The management of these areas is often crucial in maintaining conservation values within core wetland areas. ▪ The width of the buffer zone depends on a number of factors, such as vegetation type, intensity of surrounding land uses, potential for weed invasion, slope and management strategies. ▪ Low lying areas, such as remnant areas of wetland vegetation in drainage depressions often provide important buffering functions for downstream areas.
Core wetland areas are generally zoned E2 – Environmental Protection and some areas are also affected by State Environmental Planning Policy No 14 – Coastal Wetlands. A number of other smaller wetland types or modified ecosystems have important conservation values.	Some of the wetland types which occur within the wetland management areas are: ▪ Large areas of wetland habitat ▪ Remnant wetlands ▪ Drainage lines ▪ Wet meadows ▪ Drainage depressions	**Large Areas of Wetland Habitat** These areas are protected by the E2 – Environmental Protection Zone under WLEP 2011. **Remnant Wetlands** Wetland vegetation which is less than one (1) hectare in size generally occur in wetland management areas. These small wetlands also possess a number of conservation values which must be considered in the development process. **Drainage Lines** Wyong Shire's floodplains often contain drainage channels which contain narrow bands of wetland or riparian vegetation. These bands of vegetation often play an important role in providing habitat linkages between isolated areas of wetland vegetation. **Wet Meadows** Wet meadows resemble pastures and are characterised by the presence of poorly drained soils. These areas may have contained wetland vegetation which has been converted to pasture by historic agricultural pursuits. Extensive areas of wet meadow are included within the Wetland Management Areas. These areas frequently occupy low lying positions in floodplains and provide important feeding areas for wetland birds. **Drainage Depressions** Wyong's floodplains contain channel-form remnants of past flow paths or temporary lagoons. These lands often contain small wetlands which provide habitat for amphibians and have some value for wetland birds.

Values and Functions	Attributes	Element Assessment
Conservation Values	Some of the attributes which are important in defining the conservation value of lands within the wetland management area include: ▪ Alteration ▪ Special features ▪ Representativeness ▪ Biological diversity and habitat importance	**Alteration** The conservation value of a wetland can be reduced by human modifications such as clearing, grazing, excessive nutrient or sediment input. These types of disturbance should be identified in order to provide information on the degree that the wetland has been altered. **Special Features** ▪ Habitat or likely habitat of endangered or threatened plants and animals ▪ Whether the wetland is classified as an Endangered Ecological Community ▪ Presence of animal or plant communities which are regionally or locally uncommon ▪ The wetland plays a role in filtering runoff flows from the catchment before entering environmentally sensitive areas **Representativeness** The extent to which the particular wetland community occurs locally and its conservation status. **Biological Diversity and Habitat Importance** The biological value of the wetland depends on many factors such as the size of the wetland, length to width ratio, proximity to other areas of vegetation, diversity of flora and fauna.