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ENVIRONMENTAL**



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FLORA AND FAUNA ASSESSMENT

**Tripoli Way
Extension**
Prepared for
Maker ENG



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- Appendix C: Fauna Species List
- Appendix D: Assessment of Significance
- Appendix E: Significant Impact Criteria

1.0 INTRODUCTION

Lodge Environmental was engaged by Thomas Campbell of Maker ENG to prepare this Flora and Fauna Assessment as part of an addendum to the existing Environmental Impact Statement (EIS) (EcoPlanning 2022) for the proposed carriageway extension and associated infrastructure along Tripoli Way, Albion Park NSW 2527 (herein referred to as the **Study Area**). This report focuses exclusively on the newly revised impact areas, with a 5-metre buffer applied (herein referred to as the **Subject Land**), and excludes areas previously assessed under EcoPlanning (2022). The revised impact areas include two stormwater drains extending from Tripoli Way to the Macquarie Rivulet (**Subject Land A & B**), and a now expanded impact area of the proposed intersection between the Tripoli Way extension and Terry Street (**Subject Land C**).

This report describes the native vegetation, potential threatened species, populations, communities and associated habitat features that were recorded within the Subject Land in the context of an impact assessment. The information documented in this report has been obtained through desktop data searches and field surveying, with the inclusion of relevant legislative context, methods and recommendations. This report will be utilised as part of an addendum to an existing EIS.

1.1 PROJECT DESCRIPTION

The Study Area includes several partial lots spanning both public and private residential land, as well as private agricultural properties. The Study Area is located within the Shellharbour City Council (SCC) Local Government Area (LGA), with the SCC being the consenting authority. As such, the proposal is to be assessed under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This report provides an assessment of the three additional areas surrounding the proposed development (**Figures 1 - 3**). These areas predominantly consist of cleared grassland, with the nearest continuous native vegetation found in the ridges and gullies south of Albion Park. The Macquarie Rivulet (a 5th-order waterway) flows eastward north of the Study Area, which intersects a portion of the Macquarie Rivulet Floodplain at its central-eastern end.

The impact assessment contained within this report is conducted for all areas within the Subject Land unless otherwise stated. Where relevant, information on adjacent areas has been gathered to further inform the impact assessment within this report.

1.2 OBJECTIVES

This report presents an assessment of possible impacts associated with the proposal at the Subject Land and is based on a field investigation, a literature review of previous studies undertaken in the region, the consultation of relevant databases and a consideration of the objectives of Part 5 of the EP&A Act, the State BC Act, the Commonwealth EPBC Act and any relevant State Environmental Planning Policies (SEPP).

The environmental impacts of the development have been assessed via the Test of Significance pursuant to Section 7.3 of the BC Act, the Matters of National Environmental Significance (MNES) under the EPBC Act, and the relevant clauses within the Shellharbour Local

Environmental Plan 2013 (SLEP) and the Shellharbour Development Control Plan 2013 (SDCP).
The direct and indirect ongoing impacts of the development are addressed in this FFA.

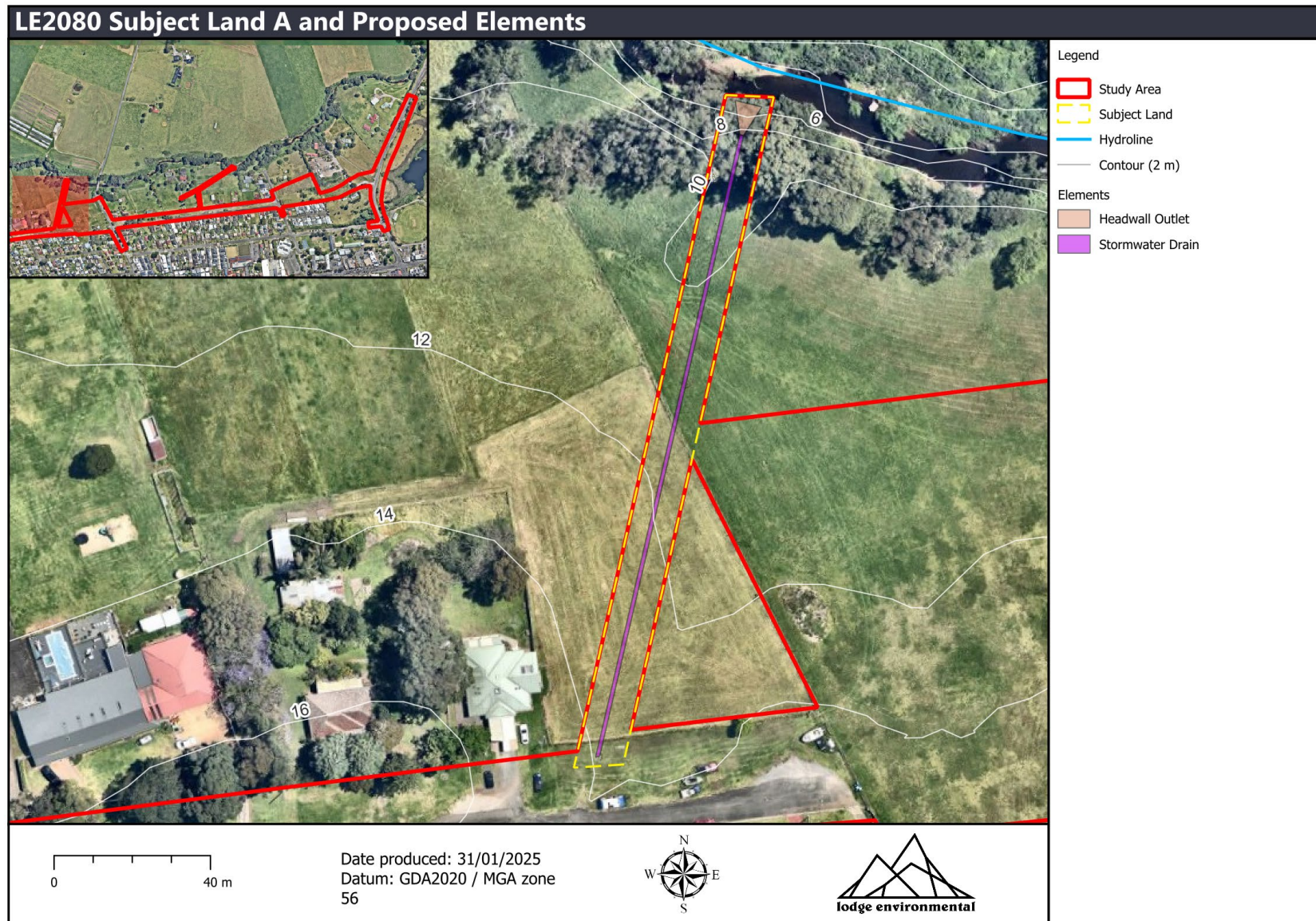


Figure 1: Subject Land A

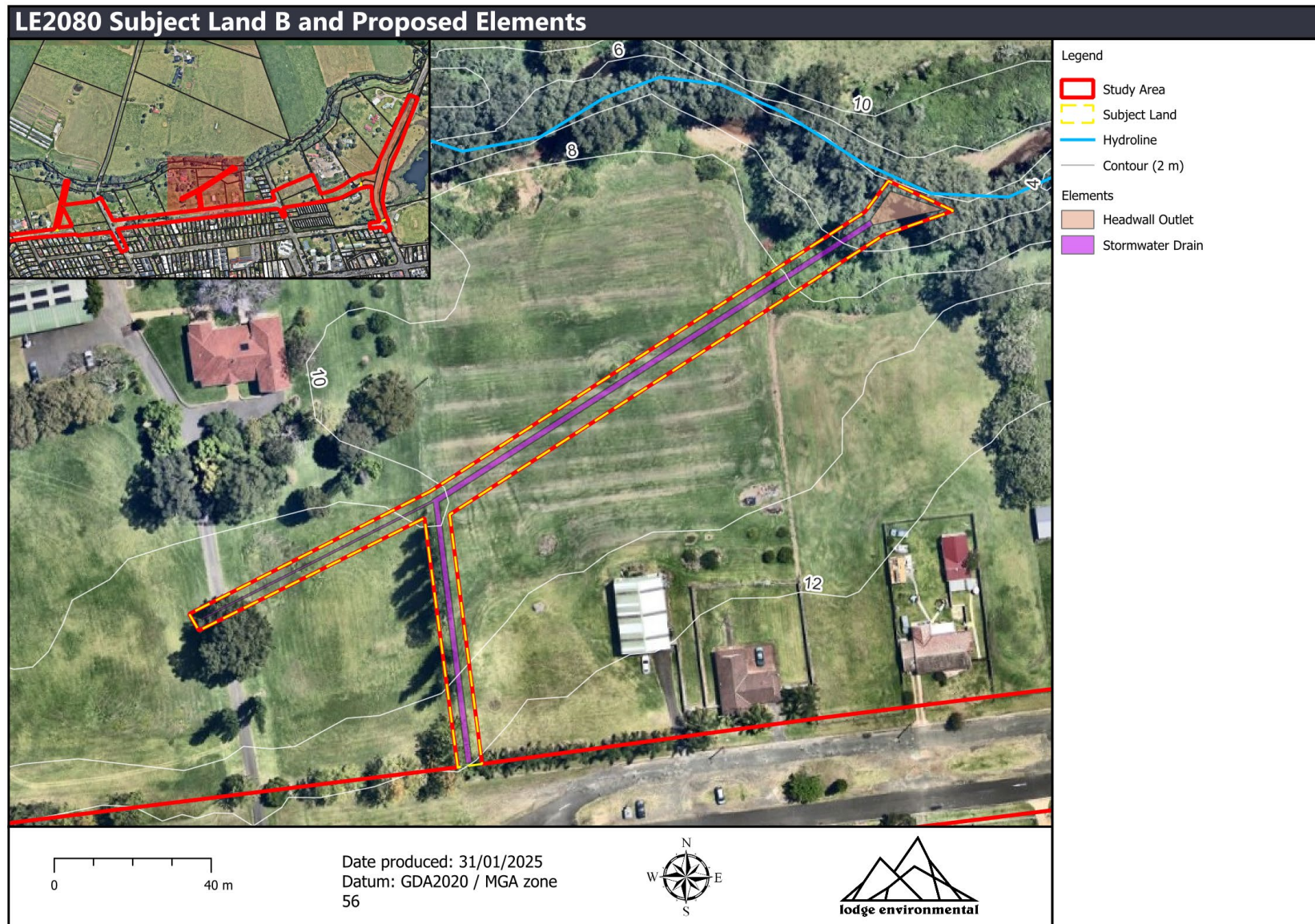


Figure 2: Subject Land B

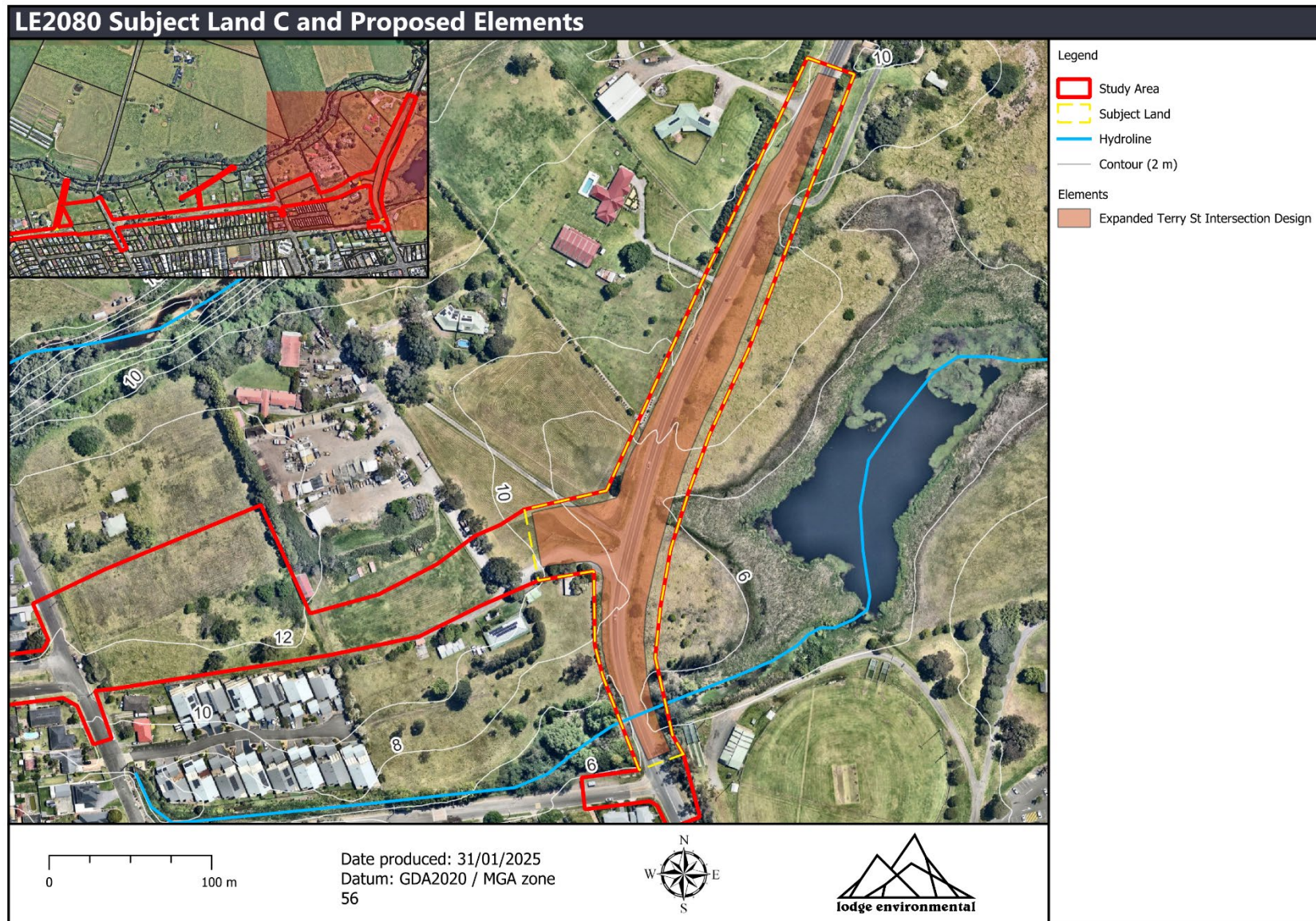


Figure 3: Subject Land C

2.0 LEGISLATIVE CONTEXT

2.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The NSW EP&A Act is the principal planning legislation for the state, providing a framework for the overall environmental planning, and development assessment process. Various legislative instruments, such as the BC Act, *NSW Water Management Act 2000* (WM Act) and *NSW Rural Fires Act 2007* (RF Act) are integrated with the EP&A Act and have been reviewed below where relevant.

2.2 BIODIVERSITY CONSERVATION ACT 2016

The NSW BC Act aims to slow the decline of threatened species, populations and communities listed under the Act. The BC Act is integrated with the EP&A Act and requires consideration of whether a development (Part 5 of the EP&A Act) is likely to significantly affect threatened species, populations and ecological communities or their habitat.

The schedules of the BC Act list species, populations and communities as endangered or vulnerable. All developments, land use changes or activities need to be assessed to determine if they will have an unacceptable impact on species, populations or communities listed on these schedules.

The potential impact of a Part 5 development on any threatened species, populations or communities is assessed through application of a Test of Significance (ToS) under Section 7.3 of the BC Act at the development application stage. If the impacts on the area are found to be 'significant', a Species Impact Statement (SIS), or Biodiversity Development Assessment Report (BDAR) would be required, as would concurrence from the Chief Executive of the NSW Environment, Energy and Sciences Group (EES) including application of the Biodiversity Assessment Methodology (BAM) and entering into the Biodiversity Offset Scheme (BOS).

2.3 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The Commonwealth EPBC Act aims to protect and encourage the recovery of threatened species, populations and communities listed under the Act. Under this Act an action will require approval from the Minister for the Environment if the action has, will have, or is likely to have, a significant impact on a MNES. MNES include listed threatened species and ecological communities, migratory species and wetlands of international importance protected under international agreements. Where applicable, the assessment criteria relevant to this Act must be drawn upon to determine whether there would be a significant impact on these species and hence whether referral to the Federal Environmental Minister is required.

2.4 LOCAL PLANNING INSTRUMENTS

2.4.1 Shellharbour Local Environment Plan 2013

The Shellharbour Local Environmental Plan (SLEP) 2013 is the principal planning instrument for the SCC LGA. The SLEP sets out the planning framework and establishes the requirements for the use and development of land in the LGA. The SLEP provides broad direction regarding what types of development are permitted within specific land use zones.

2.4.2 Shellharbour Development Control Plan 2013

The SDCP aims to make detailed local provisions for all land within Shellharbour as determined. Specifically, the DCP provides detailed construction, building and environmental controls for the types permitted land use described in the LEP. Environmental controls address issues such as biodiversity, bushfire prone land, trees and vegetation.

3.0 METHODS

3.1 DATA AND LITERATURE REVIEW

Data records and relevant literature pertaining to the ecology of the Subject Land and surrounding areas were reviewed on the 10th of January 2025. The material reviewed included:

- NSW BioNet, Atlas of NSW Wildlife database search (10 km)
- EPBC Act Protected Matter Search Tool (10 km)
- Review of the State Biodiversity Values Map
- EES threatened species profile database
- NSW State Vegetation Type Map
- Property Report
- Relevant legislative documents
- Aerial photography

Following a review of relevant databases, a list of threatened species and communities that may occur within the Subject Land was produced (**Appendix A**). Likelihood of occurrences for threatened species, endangered populations and communities in the Subject Land were then made based on location of database records, the likely presence or absence of suitable habitat on the site, and knowledge of the species' ecology. The likelihood of occurrence was stratified using a rating of "high", "moderate" or "low" likelihood, with those species considered to have a considerable likelihood of occurrence (following site validation) then identified as either potentially "affected" by the proposal and therefore requiring a significance assessment or not.

3.2 FIELD SURVEY

To address the FFA, the following survey methods were undertaken on the 14th of January 2025 by ecologist Lissabelle Giuliano and junior ecologist Will Harris. The goal of the field survey was to:

- Identify plant species and vegetation communities present within the site,
- Search for signs of threatened species, observe and record significant flora and fauna - threatened and migratory species, other incidental fauna observations,
- Observe and record current disturbance and threats (e.g. weeds, trampling, litter),
- Identifying potential habitat for threatened fauna species/populations (e.g. hollow-bearing trees (HBTs), creeks, boulders etc),
- Record presence of environmental weeds,
- Take reference photographs of the entire site.

Given the small areas of vegetation within the Subject Land, a random meander search was considered sufficient to adequately assess biodiversity within the Subject Land.

3.3 SURVEY WEATHER

The weather during the field survey is summarised in **Table 1** below.

Table 1: Weather Conditions during surveys

Survey	Date	Min Temp (°C)	Max Temp (°C)	Rain (mm)	Wind
Site Survey	14/01/2025	20.2	29.9	0.8	33 km/h ENE

Observations from the Bureau of Meteorology, Albion Park AWS (station 068241).

3.4 SURVEY LIMITATIONS

Survey was conducted during the noted time and may be outside of the optimal survey period for some flora and fauna species. It is therefore possible that some species may not have been detected due to their seasonal geographic variation. Cryptic species may not have been obvious. However, habitat assessments were conducted to further predict the likelihood of species occurrence at the site. A conservative approach was applied in the assumption of the presence of species that could potentially occur within the site area. In this regard, the survey is considered adequate for the purposes of this report.

4.0 DESKTOP REVIEW

4.1 EXISTING VEGETATION MAPPING

A review of the NSW State Vegetation Type Mapping (SVTM) that covers the Subject Land (DCCEEW, 2024) identified two mapped Plant Community Types (PCT) within the Subject Land (Figure 4). The two mapped PCTs within the Subject Land are:

- PCT 3056 - Central Eastern Ranges Riparian Dry Rainforest
- PCT 3330 - South Coast Lowland Woollybutt Grassy Forest

4.2 BIODIVERSITY MAPPING

A review of the State Biodiversity Values Map was conducted on the 20th of December 2024. Subject Lands A & B have small areas mapped as 'Biodiversity Riparian Land' along their northern boundaries, encompassing the Macquarie Rivulet and parts of the Hazelton Creek (Figure 5). As the proposed development is to be assessed under Part 5 of the EP&A Act, impact on areas designated as Biodiversity Values do not directly constitute the need for a Biodiversity Development Assessment Report.

4.3 LAND ZONING

The Subject Land includes several partial lots spanning both public infrastructure and conservation areas, as well as private residential and agricultural properties. The land zoning reflects the varied land use. The land zoning of each of the three Subject Land and their objectives is described below in Table 2 and Table 3, and is displayed in Figure 6.

Table 2: Land zoning within the Subject Land

Subject Land	Land Zoning
A	RU1 - Primary Production RU6 - Transition R2 - Low Density Residential
B	RU1 - Primary Production RU6 - Transition RE1 - Public Recreation
C	RU6 - Transition R2 - Low Density Residential SP2 - Infrastructure RE1 - Public Recreation C3 - Environmental Management

Table 3: Objectives of relevant land zones

Land Zone	Objectives
RU1 - Primary Production	- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base. - To encourage diversity in primary industry enterprises and systems appropriate for the area. - To minimise the fragmentation and alienation of resource lands. - To minimise conflict between land uses within this zone and land uses within adjoining zones.
RU6 - Transition	- To protect and maintain land that provides a transition between rural and other land uses of varying intensities or environmental sensitivities. - To minimise conflict between land uses within this zone and land uses within adjoining zones.
R2 - Low Density Residential	- To provide for the housing needs of the community within a low-density residential environment. - To enable other land uses that provide facilities or services to meet the day-to-day needs of residents.
SP2 - Infrastructure	- To provide for infrastructure and related uses. - To prevent development that is not compatible with or that may detract from the provision of infrastructure. - To provide for key transport corridors.
RE1 - Public Recreation	- To enable land to be used for public open space or recreational purposes. - To provide a range of recreational settings and activities and compatible land uses. - To protect and enhance the natural environment for recreational purposes.
C3 - Environmental Management	- To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values. - To provide for a limited range of development that does not have an adverse effect on those values. - To retain and enhance the visual and scenic qualities of the Illawarra Escarpment.

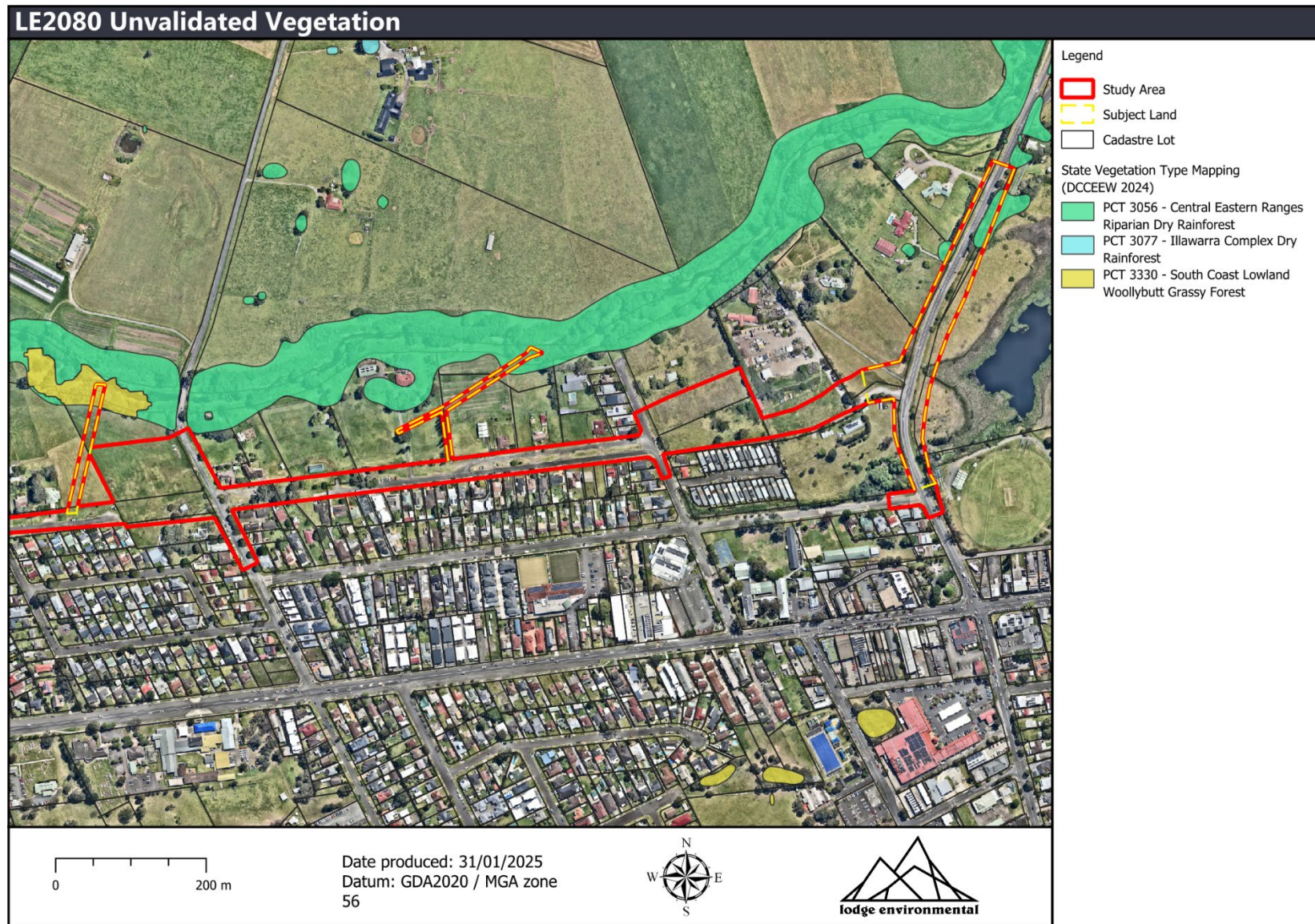


Figure 4: Unvalidated Vegetation

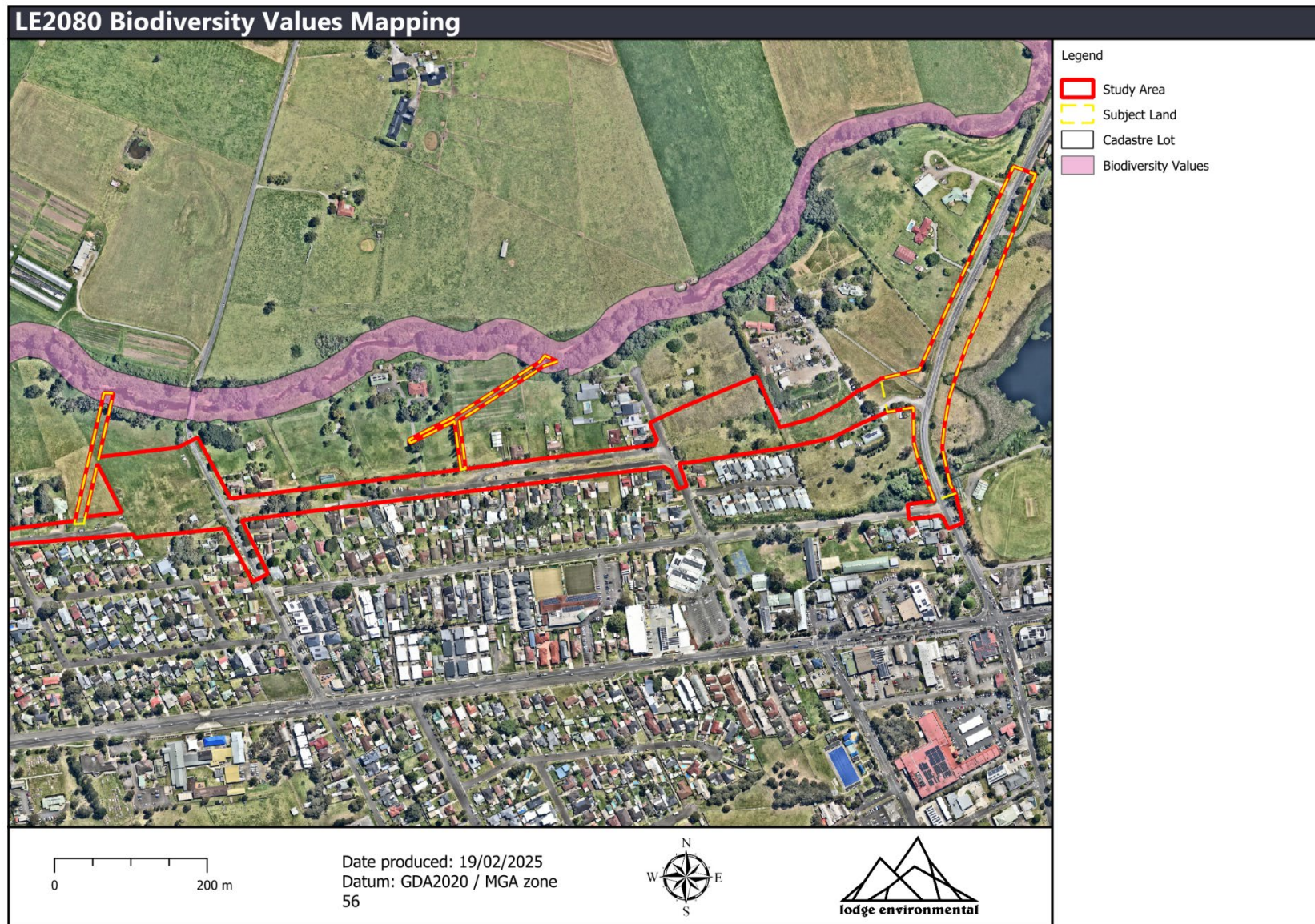


Figure 5: Biodiversity Values Mapping

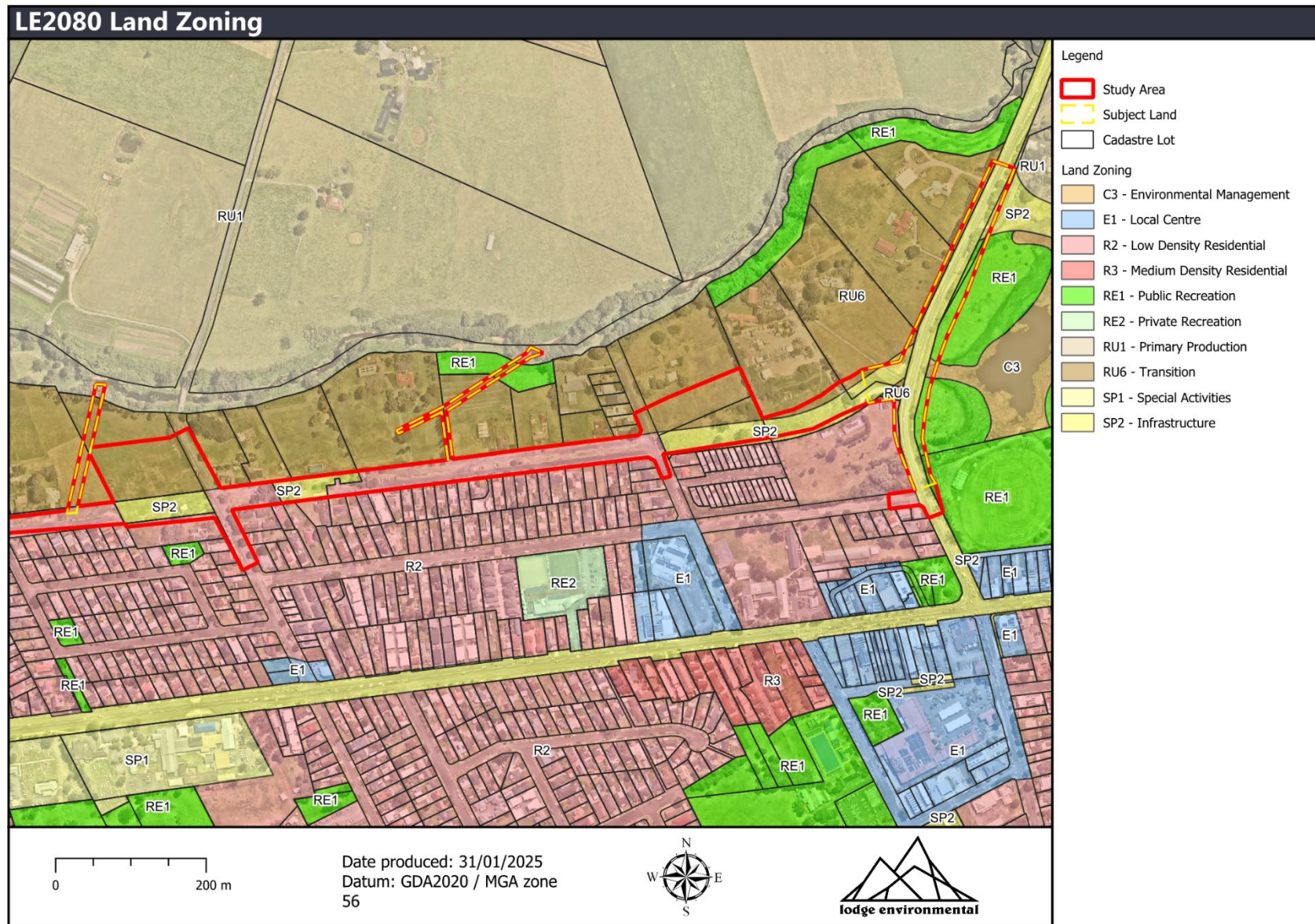


Figure 6: Land Zoning

4.4 THREATENED FLORA SPECIES

A review of BC Act and EPBC Act databases identified 10 threatened ecological communities (TEC), and 46 flora species listed under the BC Act and/or the EPBC Act that have been previously recorded, or are considered to have habitat, within 10 km of the site. Sightings of species listed under the BC Act are shown in **Figure 7**. This initial compilation of potentially occurring species informed the site survey, providing an indication of which species required consideration within the site. An assessment of the likelihood of occurrence of threatened flora species within the site is available in **Appendix A** and was used to guide the field survey methodology.

Prior to field survey, six TECs and six threatened flora species were identified as having moderate to high potential to occur within the Subject Land (**Table 4**).

Table 4: Potential threatened ecological communities and habitat for threatened flora species within the Subject Land

Scientific Name	Common Name	BC Act	EPBC Act
Community			
Freshwater wetlands on coastal floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		E	-
Illawarra lowlands grassy woodland in the Sydney basin bioregion		E	-
Illawarra and south coast lowland forest and woodland ecological community		-	CE
Lowland grassy woodland in the South East corner bioregion		E	-
Lowland rainforest in the NSW North Coast and Sydney Basin bioregions		E	-
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		E	-
Flora			
<i>Chorizema parviflorum</i>	-	E	-
<i>Cynanchum elegans</i>	White-flowered Wax Plant	E	E
<i>Gossia acmenoides</i>	-	E	-
<i>Pimelia curviflora</i> var. <i>curviflora</i>	-	V	V
<i>Solanum celatum</i>	-	E	-
<i>Zieria granulata</i>	Illawarra Zieria	E	E
Key. V=Vulnerable, E=Endangered, Ep=Endangered Population, CE=Critically Endangered, M=Migratory. Species habitat associations have been informed predominantly from EES (2025) and DotEE (2025) species profiles.			

4.5 THREATENED FAUNA SPECIES

A review of BC Act and EPBC Act databases identified 145 threatened fauna species listed under the BC Act and/or the EPBC Act that have been previously recorded, or are considered to have habitat, within 10 km of the site. Sightings of species listed under the BC Act are shown in **Figure 8**. An assessment of the likelihood of occurrence of threatened fauna species within the site is available in **Appendix A** and was used to guide the field survey methodology.

Prior to field survey, 26 threatened fauna species were identified as having moderate to high potential to occur within the Subject Land (**Table 5**).

Table 5: Potential threatened fauna within the Subject Land

Common name	Scientific name	BC Act	EPBC Act
Aves			
Regent Honeyeater	<i>Anthochaera Phrygia</i>	CE	CE
Dusky Woodswallow	<i>Artamus cyanopterus cyanopterus</i>	V	-
Australasian Bittern	<i>Botaurus poiciloptilus</i>	E	E
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	V	E
Glossy black Cockatoo	<i>Calyptorhynchus lathamii</i>	V	V
Varied Sittella	<i>Daphoenositta chrysoptera</i>	V	-
White-fronted Chat	<i>Epthianura albifrons</i>	V	-
White-throated Needletail	<i>Hirundapus caudactus</i>	V	V
Swift Parrot	<i>Lathamus discolor</i>	E	CE
Turquoise Parrot	<i>Neophema pulchella</i>	V	-
Barking Owl	<i>Ninox connivens</i>	V	-
Powerful Owl	<i>Ninox strenua</i>	V	-
Scarlet Robin	<i>Petroica boodang</i>	V	-
Flame Robin	<i>Petroica phoenicea</i>	V	-
Freckled Duck	<i>Stictonetta naevosa</i>	V	-
Masked Owl	<i>Tyto novaehollandiae</i>	V	-
Sooty Owl	<i>Tyto tenebricosa</i>	V	-
Mammals			
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	E	E
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	V	-
Eastern Coastal Free-tailed Bat	<i>Micronomus norfolkensis</i>	V	-
Little Bent-winged Bat	<i>Miniopterus australis</i>	V	-
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	V	-
Southern myotis	<i>Myotis Macropus</i>	V	-
Grey-headed Flying Fox	<i>Pteroptus poliocephalus</i>	V	V
Yellow-bellied Sheath-tail Bat	<i>Saccolaimus flaviventris</i>	V	-
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>	V	-

Key. V=Vulnerable, E=Endangered, Ep=Endangered Population, CE=Critically Endangered, M=Migratory.
Species habitat associations have been informed predominantly from EES (2025) and DotEE (2025) species profiles.

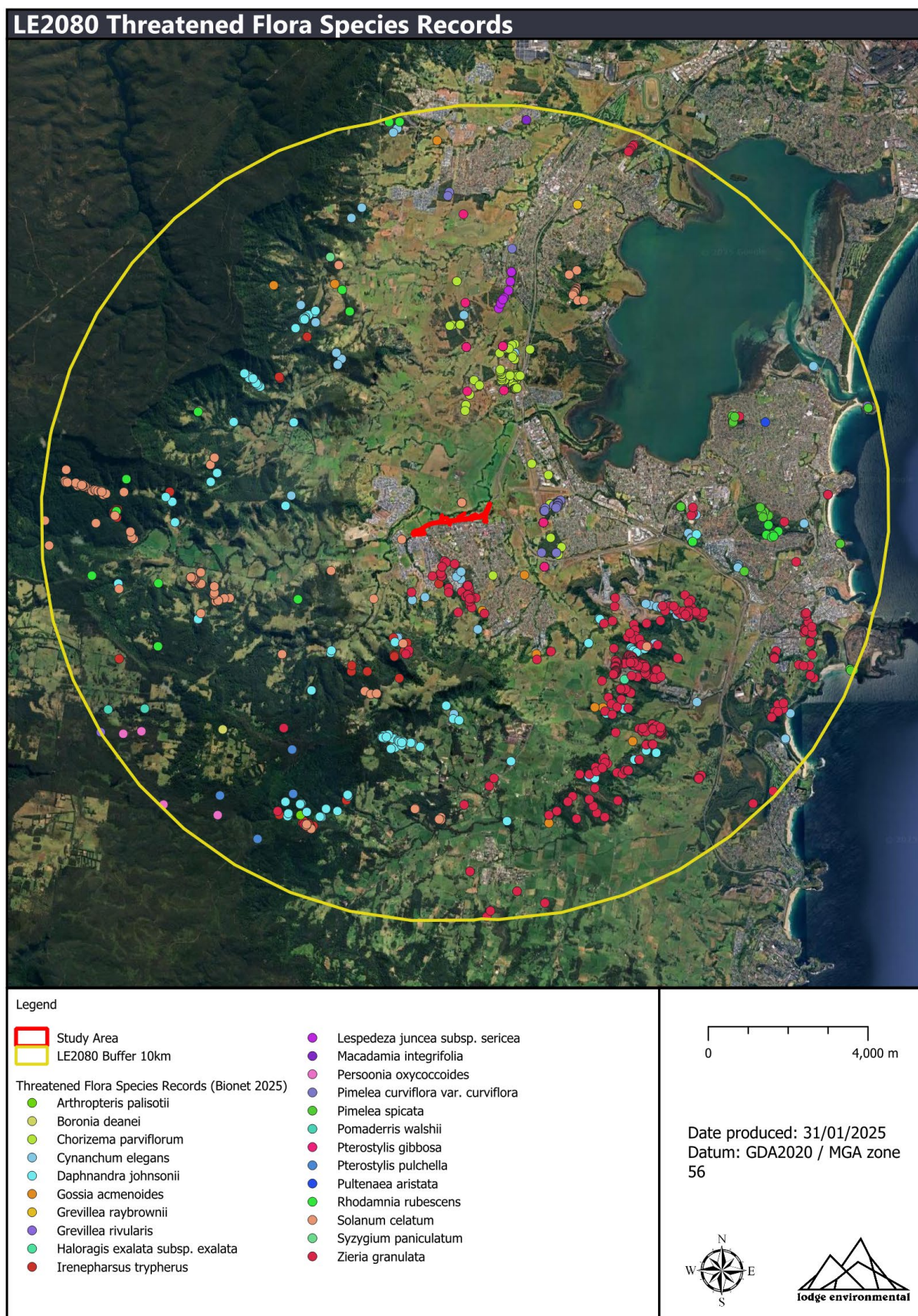


Figure 7: Threatened flora species records within 10 km of the site

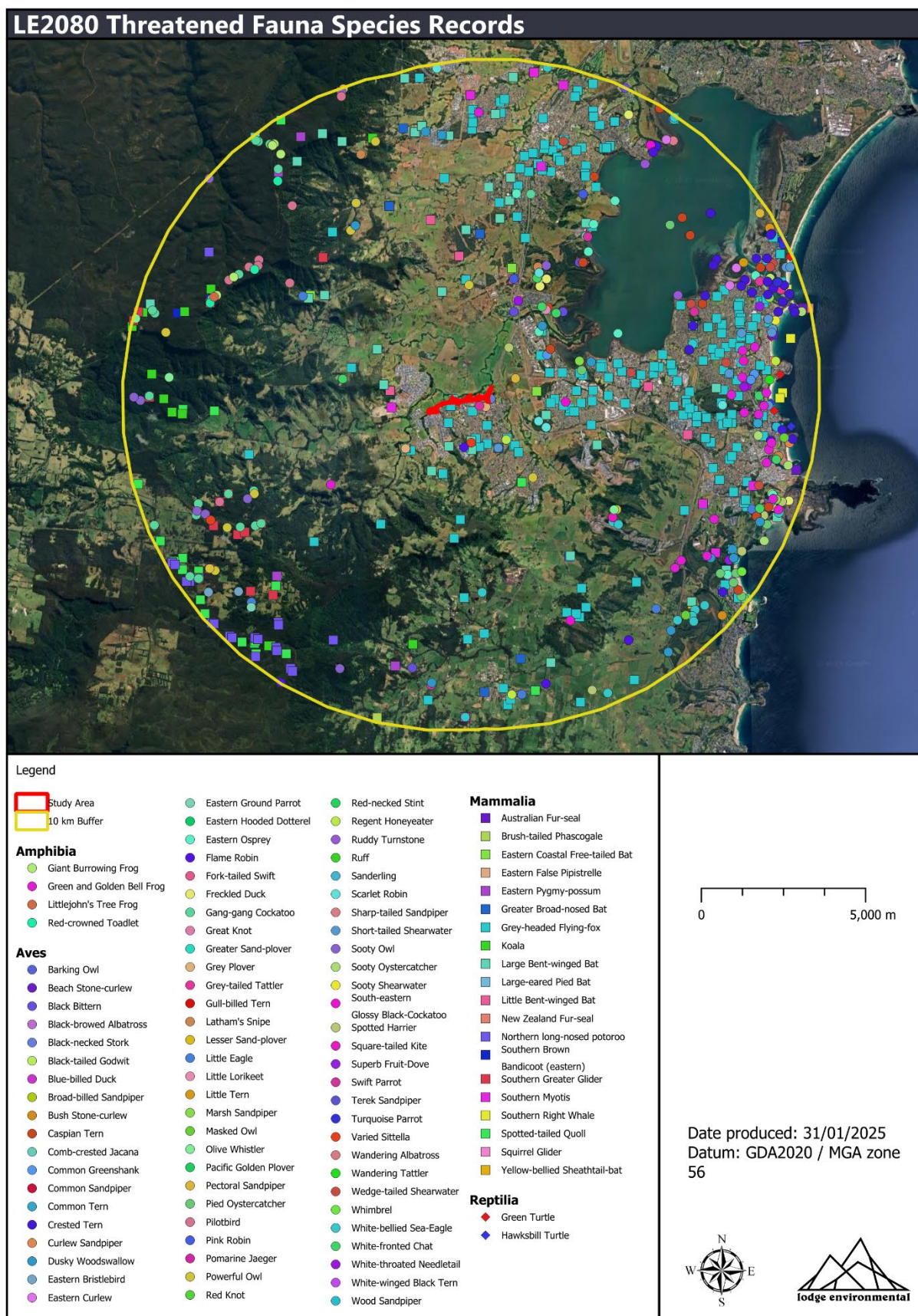


Figure 8: Threatened fauna species records within 10 km of the site

5.0 FIELD SURVEY RESULTS

5.1 EXISTING ENVIRONMENT

The Subject Land is diverse and consists of a mix of residential, commercial and agricultural land, as well as native riparian forests and wetlands. The Subject Land is split into three areas. The environment of these areas is as follows:

Subject Land A

Subject Land A encompasses lots 2/-/DP736092 and 11/-/DP1205733 and borders on the Macquarie Rivulet to the north. The land contains few human structures, with a small fence passing North-South through Subject Land A being the only example. The neighbouring properties consist of small-lot residential properties to the south, and large primary production land to the north.

The vegetation with Subject Land A (**Figure 9**) consisted of exotic pasture with a small patch of native vegetation in the northernmost extent. The southern and central extent of the Subject Land is comprised entirely of cleared residential lawns and pasture, with no upper or mid stratum present. The lawns contain a mix of exotic grass and forb species with *Bromus catharticus* (Prairie grass), *Paspalum* spp. (Crowngrass), *Axonopus fissifolius* (Narrow-leafed carpet grass), and *Plantago lanceolata* (Lamb's tongue) being common. The northern section has a well-developed native canopy with *Eucalyptus bosistiana* (Coast Grey Box) and *Casuarina cunninghamiana* (Swamp she-oak) being dominant. The mid-stratum was moderately vegetated with a mix of native species including *Acacia mearnsii* (Black wattle), *Acacia longifolia* var. *longifolia* (Sydney golden wattle), *Phyllanthus gunnii* (Scrubby sponge), and *Hibiscus heterophyllus* (Native rosella), and exotic species such as *Ligustrum sinsense* (Narrow-leaf privet) and *Solanum pseudocapsicum* (Jerusalem cherry). *Commelina cyanea* (Scurvy weed) was the dominant native species within the ground stratum, with exotics such as *Araujia sericifera* (Moth Vine), *Erharta erecta* (Panic veldtgrass), and *Cardiospermum grandiflorum* (Showy balloonvine) present.

Subject Land A intersects with the banks of the Macquarie Rivulet, which represents moderate quality riparian habitat for a variety of fauna. No habitat bearing trees, rocky outcrops or caves were identified.



Figure 9: General representation of native vegetation in the northernmost section of Subject Land A

Subject Land B

Subject Land B encompasses lot B/-/DP38838 and lots 3 & 4/-/DP605111, and borders on the Macquarie Rivulet to the north. Two fences passing North-South through the Subject Land were the only recorded human structures within Subject Land B. The neighbouring properties consist of small-lot residential properties to the south, and large primary production land to the north. The vegetation within Subject Land B (**Figure 10**) consisted of three vegetation zones. These zones included cleared lawns with planted trees, overgrown vegetation with exotic vine species, and native forest along the bank of the rivulet.

The cleared lawns have similar composition to those found in Subject Land A, with the addition of planted *Grevillia robusta* (Silky oak), and *Populus* spp. (Poplars). The overgrown exotic vegetation consisted of *Ricinus communis* (Castor oil plant) and *Cardiospermum grandiflorum* (Showy Balloon Vine) forming a dense thicket. *Araujia sericifera* (Moth vine) and *Bidens pilosa* (Cobbler's Pegs) were also recorded in this zone. The final zone had poor diversity, displaying a canopy of exclusively *Casuarina cunninghamiana* (River sheoak), overrun with *Cardiospermum grandiflorum* (Showy Balloon Vine), with scattered *Acacia longifolia* var. *longifolia* (Sydney golden wattle) and exotics *Urtica urens* (Stinging nettle), *Ricinus communis* (Castor oil plant), *Araujia sericifera* (Moth vine) and *Tagetes minuta* (Stinking rodger).

Subject Land B intersects with the banks of the Macquarie Rivulet, which represents moderate quality riparian habitat for a variety of fauna. No habitat bearing trees, significant fallen timber, or caves were identified.



Figure 10: General representation of the riparian vegetation within Subject Land B

Subject Land C

The environment of Subject Land C encompasses lots 1, 2 and 4/-/DP714125, and lots 25 and 26/-/DP1237947. The land consists of a mix of large residential lots and road infrastructure, with patches of native wetlands and forests. The majority of the land is taken up by Terry Street, which is a major road connecting Albion Park to the Princes Motorway to the north.

The vegetation within Subject Land C (**Figure 11**) consists of five zones. The first three zones comprised of exotic species, scattered natives, or planted natives. These zones are highly disturbed, bordering on Terry Street. An infestation of *Erythrina x sykesii* (Coral Tree) was observed in the north of this zone.

The other two zones are largely native. The northern zone of native vegetation consists of a reed-land, entirely dominated by *Bolboschoenus fluviatilis* (Marsh club rush), on the margins of a wetland extending further to the east and south. The southern native zone represents a gradient between taller, eucalypt dominated forest to the west and the wetland described above. This zone was dominated by *Casuarina glauca* (Swamp she-oak), with a dense ground cover of sedges including *Typha orientalis* (Oriental cattail) and *Schoenoplectus Validus* (Soft-stem Bulrush). The creek vegetation included native aquatics and weed species, predominantly

Persicaria decipiens, (Slender knotweed), *Persicaria strigose* (Spotted knotweed), *Myriophyllum aquaticum* (Parrot's feather), *Colocasia esculenta* (Taro) and *Azolla pinnata*.

The wetland riparian zone represents good aquatic habitat and likely supports a range of fauna. No habitat bearing trees, significant fallen timber, or caves were identified.



Figure 11: General representation of vegetation Subject Land C

5.2 VEGETATION COMMUNITIES

The Subject Land is diverse and consists of a mix of residential, commercial and agricultural land, as well as native riparian forests and wetlands.

Following site survey, several vegetation communities were validated within the Subject Land as outlined below in **Table 6**.

Table 6: Vegetation communities identified following field survey

Subject Land	PCT ID	PCT Name	Condition	Area of PCT (ha)
A	3330	South Coast Lowland Woollybutt Grassy Forest	Poor	0.03
	0	Exotic Vegetation	-	0.18
B	3056	Central Eastern Ranges Riparian Dry Forest	Poor	0.03
	0	Planted Native Vegetation	-	0.01
	0	Exotic Vegetation	-	0.15
C	3975	Southern Lower Floodplain Freshwater Wetland	Poor	0.02
	4009	Shoalhaven Lowland Flats Wet Swamp Forest	Poor	0.04
	0	Planted Native Vegetation	-	0.04
	0	Scattered Native Vegetation	-	0.03
	0	Exotic Vegetation	-	1.30

Detailed description and justification of PCT assignment can be found below in **Sections 5.2.1 – 5.2.7**.

The validated vegetation within the Subject Land is displayed in **Figures 12 – 14**.

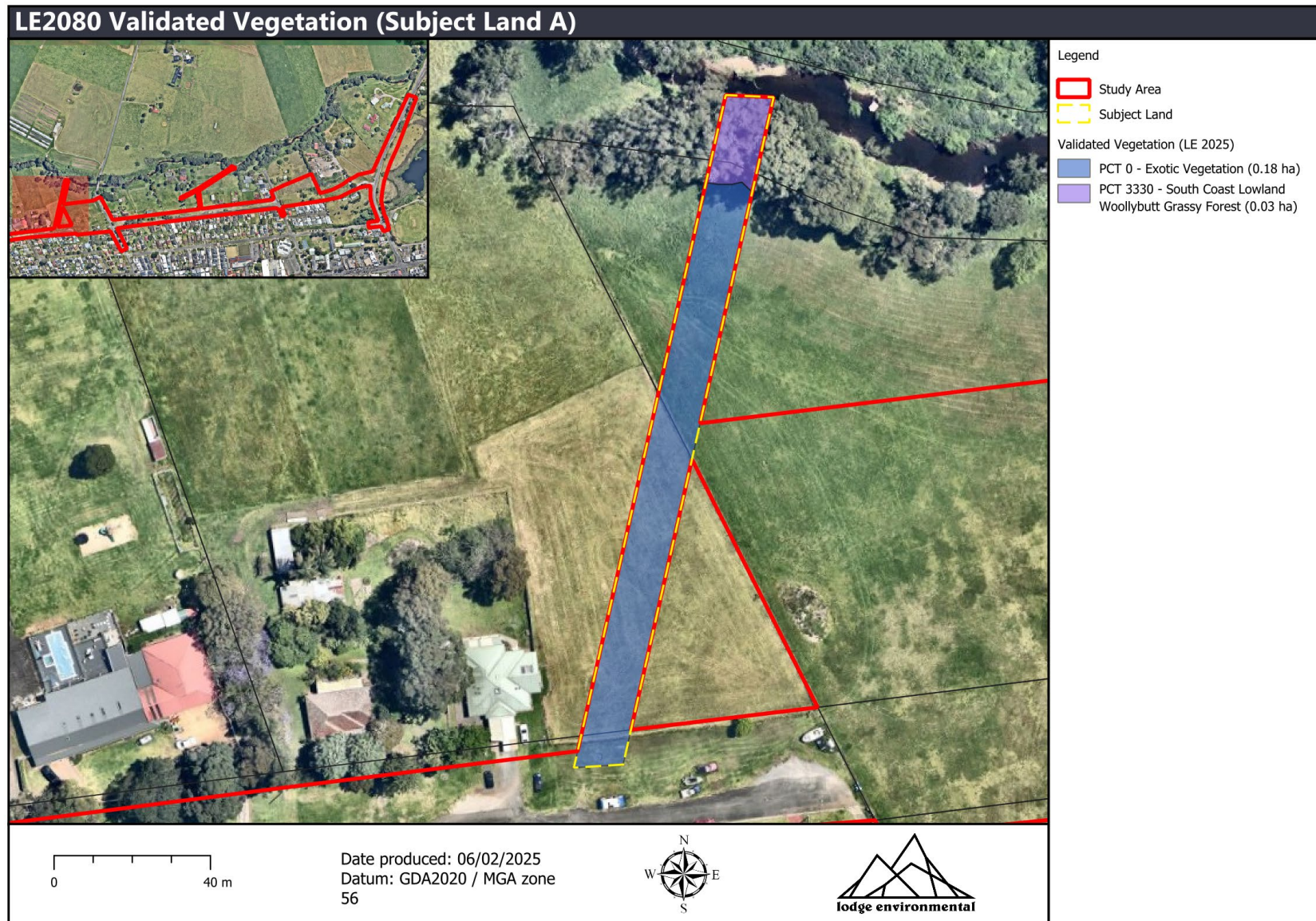


Figure 12: Validated Vegetation (Subject Land A)

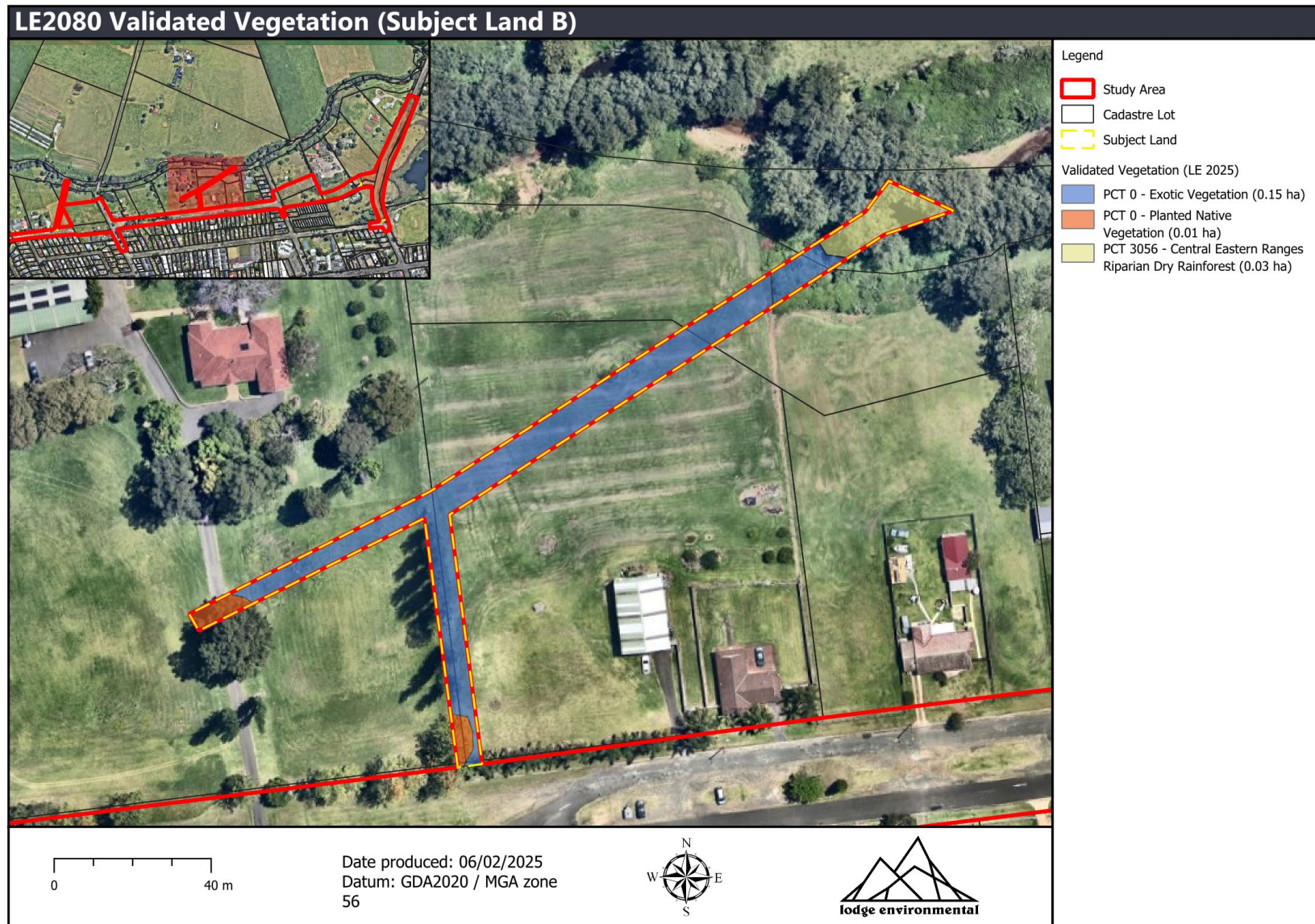


Figure 13: Validated Vegetation (Subject Land B)

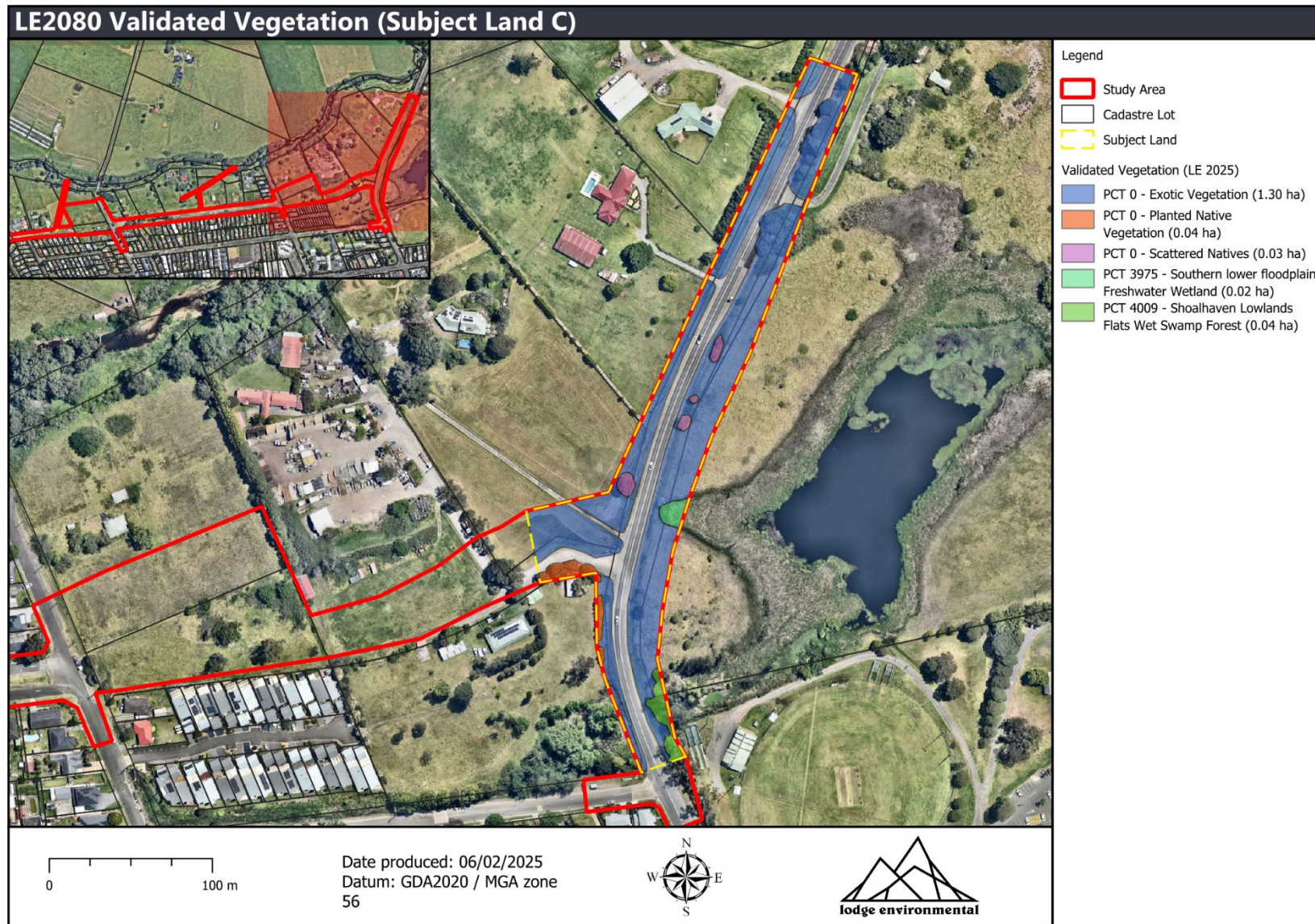


Figure 14: Validated Vegetation (Subject Land C)

5.2.1 PCT 3330 – South Coast Lowland Woollybutt Grassy Forest

Table 7: Justification of PCT 3330 Validation

PCT 3330 – South Coast Lowland Woollybutt Grassy Forest	
Vegetation Formation	Grassy Woodlands
Vegetation Class	Coastal Valley Grassy Woodlands
Percent Cleared	88.60%
TEC Association	• Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion - <i>Endangered</i> under the BC Act, • Lowland Grassy Woodland in the Southeast Corner Bioregion - <i>Endangered</i> under the BC Act, and • Illawarra and south coast lowland forest and woodland ecological community - <i>Critically Endangered</i> under the EPBC Act.
Generic PCT Description taken from BioNet	A tall sclerophyll open forest with a dense to patchy mid-stratum of <i>Melaleuca</i> and a grassy ground layer that is restricted to low-lying flats of below 70 metres asl with damp clay loam soils and partially impeded drainage on the south coast. It primarily occurs in valleys and floodplains around Lake Illawarra and in the Moruya to Congo area, with smaller occurrences near Worrigee and Kioloa. The canopy very frequently includes <i>Eucalyptus longifolia</i> and stringybark eucalypts (<i>Eucalyptus globoidea</i> or rarely <i>Eucalyptus eugenioides</i>), commonly associated with <i>Eucalyptus tereticornis</i>. Commonly, there is a distinct mid-stratum that includes a high cover of <i>Melaleuca</i>, the most frequent of which is <i>Melaleuca decora</i>. The remaining components of the mid-stratum comprise scattered small trees and shrubs and almost always include <i>Acacia</i> species of which <i>Acacia longifolia</i> and <i>Acacia binervata</i> are most frequent. The acacias are commonly accompanied by <i>Leucopogon juniperinus</i> and <i>Pittosporum undulatum</i> and occasionally by <i>Ozothamnus diosmifolius</i>. A dense ground layer is typically comprised of a diverse suite of grasses and forbs with some twiners, graminoids and a hardy fern. <i>Lobelia purpurascens</i> and <i>Glycine clandestina</i> are almost always present and <i>Entolasia stricta</i>, <i>Microlaena stipoides</i>, <i>Cymbopogon refractus</i>, <i>Echinopogon caespitosus</i>, <i>Dichondra repens</i>, <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>, <i>Eragrostis leptostachya</i>, <i>Lomandra longifolia</i> and <i>Themeda triandra</i> are very frequent. The naturally limited distribution of this PCT has been severely depleted by land clearing and it is susceptible to ongoing fragmentation and weed invasion. On the Illawarra plain, with improved drainage and reduced soil clay content it grades into PCT 3327, and at Moruya with improved drainage it grades into PCT 4052. <i>Eucalyptus tereticornis</i> is very frequent to almost always present in these PCTs.
Study Area Occurrence of PCT 3330 – South Coast Lowland Woollybutt Grassy Forest	
Vegetation Structure	The vegetation structure of the Subject Land has been heavily modified due to historical and current land use practices. The occurrence of PCT 3330 within the Subject Land had moderate canopy cover, with some native mid stratum. The ground cover was largely exotic with scattered native species.
Landscape Position	The Subject Land is at an elevation of approximately 8 m asl.
Soil	With reference to eSPADE v2.2 (DPIE 2025), the occurrence of PCT 3056 within the Subject Land is mapped as occurring on “Fairy Meadow” soils. This soil landscape consists of Alluvial soils composed of Quaternary sediments.
Upper Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	<i>Eucalyptus bosistoana</i>

Mid Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	<i>Acacia longifolia</i> , <i>Acacia mearnsii</i>	
Ground Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	<i>Commelina cyanea</i> , <i>Dichondra repens</i>	
Justification for PCT selection	PCT 3330 was selected as <i>Eucalyptus bosistoana</i> is not recorded as being present within any other suitable locally mapped PCT. The patch within the Subject Land exists between the Macquarie Rivulet and cleared residential land and has been heavily modified with reduced diversity within the ground and mid-stratum. The full extent of this patch is small and grades into the surrounding areas of PCT 3056.	
Alternative PCTs Considered	Alternative PCTs that were considered but ultimately ruled out are: - PCT 3056 - Central Eastern Ranges Riparian Dry Forest - PCT 3056 Lacks occurrence of <i>E. bosistoana</i>. - PCT 3078 - Illawarra lowland wet vine forest - The patch lacks <i>Genitonoplesium cymosum</i>, a diagnostic vine species, and lacks the rainforest conditions required for PCT 3078.	
Survey Method	Condition	Area (ha)
Random meander	Poor	0.03 ha

PCT 3330 Photograph



5.2.2 PCT 3056 – Central Eastern Ranges Riparian Dry Forest

PCT 3056 – Central Eastern Ranges Riparian Dry Forest	
Vegetation Formation	Rainforests
Vegetation Class	Dry Rainforests
Percent Cleared	11.49%
TEC Association	Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions - <i>Endangered</i> under the BC Act,
Generic PCT Description taken from BioNet	Tall to very tall, open to closed rainforest, or mid-high to tall rainforest with emergents, which occurs on flats, creek beds and banks along third and higher order streams in the escarpment ranges between south-east of Tamworth to south-east of Braidwood. The canopy composition of this PCT is variable due to its wide latitudinal range, and in addition, vegetation structure and floristics of this PCT is very patchy at a local scale because of variations in creek characteristics and periodic flooding. Tree species that occur in the canopy or mid-stratum and are sometimes locally abundant, very frequently include <i>Pittosporum undulatum</i>, <i>Melicytus dentatus</i>, <i>Backhousia myrtifolia</i> and <i>Ficus coronata</i>. <i>Casuarina cunninghamiana</i> is commonly present, either as scattered emergents or forming a denser, very tall canopy. Other trees occurring usually as emergents or sometimes forming a canopy occasionally include <i>Angophora floribunda</i> and rarely various eucalypt species. Among the vines, <i>Pandorea pandorana</i> almost always occurs and very frequently <i>Cissus antarctica</i> which sometimes forms dense thickets, especially in sites north of the Blue Mountains or at elevations below about 500 metres asl. Other tree species which usually have a low cover commonly include <i>Acmena smithii</i> and <i>Alectryon subcinereus</i>. The ground layer varies from very sparse to mid-dense, including ferns, almost always <i>Pellaea falcata</i>, and very frequently <i>Adiantum aethiopicum</i> and <i>Doodia aspera</i>. This PCT occurs on a range of lithologies and in a wide range of climatic environments, however it occurs mainly in mild to warm, wet to moderately wet locations receiving 840-1390 mm mean annual rainfall, at low to mid-elevations of 90-720 metres asl. Many areas are disturbed by grazing and there is frequently a high proportion of exotic species. This PCT occurs as part of a vegetation mosaic along creeks which varies with the stream order and gradient and width of the stream channel. For example, where the stream narrows or becomes steep, or on lower order streams, it may be replaced by one of the <i>Backhousia myrtifolia</i> dry rainforest PCTs, such as PCT 3110 in the greater Blue Mountains area. Where the stream channel is broader, it may be replaced by one of the Eastern riverine forests PCTs, such as PCT 4064.
Subject Land Occurrence of PCT 3056 – Central Eastern Ranges Riparian Dry Forest	
Vegetation Structure	The vegetation structure of the Subject Land has been heavily modified due to historical and current land use practices. The occurrence of PCT 3056 within the Subject Land had moderate canopy cover, with no native mid stratum. The ground cover was exclusively exotic.
Landscape Position	The Subject Land is at an elevation of approximately 6 m asl.
Soil	With reference to eSPADE v2.2 (DPIE 2025), the occurrence of PCT 3056 within the Subject Land is mapped as occurring on "Fairy Meadow" soils. This soil landscape consists of Alluvial soils composed of Quaternary sediments.
Upper Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	<i>Casuarina cunninghamiana</i>
Mid Stratum Species recorded that align with the PCT	-

(Boldened text denotes dominant species)		
Ground Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	-	
Justification for PCT selection	The occurrence of PCT 3056 within the Subject Land has been heavily modified and is restricted to the banks of the Macquarie Rivulet. Native species diversity is very low and much of the ground and mid-strata are dominated by exotic species. PCT 3056 is mapped by the SVTM as being widely present pre-clearance. The occurrence of PCT 3056 within the Subject Land is distinctive as it appears with a canopy of <i>Casuarina cunninghamiana</i> , which aligns with the description of PCT 3056.	
Alternative PCTs Considered	Alternative PCTs that were considered but ultimately ruled out are: • PCT 3330 – South Coast Lowland Woollybutt Grassy Forest – PCT 3330 lacks occurrence of <i>Casuarina cunninghamiana</i>. • PCT 3078 – Illawarra lowland wet vine forest – The patch lacks <i>Genitonoplesium cymosum</i>, a diagnostic vine species, and lacks the rainforest conditions required for PCT 3078.	
Survey Method	Condition	Area (ha)
Random meander	Poor	0.03 ha

PCT 3056 Photograph



5.2.3 PCT 3975 – Southern Lower Floodplain Freshwater Wetland

PCT 3975 – Southern Lower Floodplain Freshwater Wetland	
Vegetation Formation	Freshwater Wetlands
Vegetation Class	Coastal Freshwater Lagoons
Percent Cleared	92.99 %
TEC Association	Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and Southeast Corner Bioregions - <i>Endangered</i> under the BC Act
Generic PCT Description taken from BioNet	A tall to very tall freshwater sedgeland or forbland occurring in depressions on Quaternary alluvial deposits (primarily backswamps with organic-rich mud, silt or clay soils) on coastal floodplains of the Central Coast and South Coast botanical divisions. Almost all known locations occur at elevations of below 10 metres asl, however this PCT can occur at higher elevations in lagoons that have prolonged inundation, such as Ellalong Lagoon south-west of Cessnock which is just over 100 metres asl. This PCT describes non-woody freshwater wetlands on Quaternary alluvium south from the Hunter valley that are not dominated by <i>Phragmites australis</i> or <i>Eleocharis equisetina</i> and are either on low coastal floodplains or at the edges of more elevated lagoons that have prolonged inundation. Within these environmental and floristic parameters this PCT can encompass a range of sedgeland and aquatic forb assemblages. On presently available information the aquatic forb <i>Persicaria decipiens</i> is very frequently present with very sparse cover. The grasses <i>Cynodon dactylon</i> and <i>Paspalum distichum</i> and the reed <i>Typha orientalis</i> commonly occur with sparse cover, while the sedge <i>Eleocharis sphacelata</i> is occasionally present however where it does occur tends to have mid-dense cover. A diversity of other sedges, rushes and aquatic forbs are occasionally or rarely recorded, such as <i>Persicaria hydropiper</i>, <i>Cyanogeton microtuberosum</i>, <i>Ludwigia peploides</i> subsp. <i>montevidensis</i>, <i>Alternanthera denticulata</i> and species of <i>Juncus</i>. Rarely, a very sparse emergent tree layer is present, which may include <i>Casuarina glauca</i>, <i>melaleucas</i> or, very rarely, overhanging Eucalypts. Some sedges such as <i>Machaerina articulata</i>, <i>Fimbristylis velata</i>, <i>Eleocharis acuta</i> and <i>Bolboschoenus</i> species dominate individual sites, reflecting the floristic diversity of this PCT. This community often occurs in disturbed environments and may potentially include derived states. The assessment of new non-woody freshwater wetland plots against this PCT should primarily consider environmental domain. The grassy wetland PCT 4055 also occurs on alluvium on the far South Coast, however, has a much higher median elevation (known between 100 and 200 metres asl), and includes <i>Isachne globosa</i>, <i>Lachnagrostis filiformis</i>, <i>Carex gaudichaudiana</i> and <i>Cyperus sphaeroideus</i> which are all unknown or very rare in PCT 3975.
Subject Land Occurrence of PCT 3975 – Southern Lower Floodplain Freshwater Wetland	
Vegetation Structure	The vegetation structure of the Subject Land has been modified due to historical and current land use practices. The occurrence of PCT 3975 within the Subject Land consists entirely of a bed of <i>Bolboschoenus fluviatilis</i> surrounding a freshwater wetland.
Landscape Position	The Subject Land is at an elevation of approximately 6 m asl.
Soil	With reference to eSPADE v2.2 (DPIE 2025), the occurrence of PCT 3056 within the Subject Land is mapped as occurring on "Fairy Meadow" soils. This soil landscape consists of Alluvial soils composed of Quaternary sediments.
Upper Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	-

Mid Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	-	
Ground Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	<i>Bolboschoenus fluviatilis</i>	
Justification for PCT selection	The occurrence of PCT 3975 within the Subject Land has very limited diversity, consisting of a single stand of <i>Bolboschoenus fluviatilis</i> . Only three PCTs occur within the Illawarra IBRA subregion that contain this species. These PCTs are 3975, 3976 and 4050. PCT 3975 is mapped locally in limited patches to the north and east and can be dominated by <i>Bolboschoenus</i> species. The elevation, location and soil types of the Subject Land align with PCT 3975.	
Alternative PCTs Considered	Alternative PCTs that were considered but ultimately ruled out are: - PCT 3962 - Coastal Floodplain Phragmites Reedland - Subject Land lacks occurrence of <i>Phragmites australis</i>. <i>Bolboschoenus fluviatilis</i> is not present in PCT 3962. - PCT 3976 - Southern Sands Freshwater Lagoon Wetland - This PCT is a new, placeholder PCT and is not well described. <i>Bolboschoenus fluviatilis</i> is present but is described as rare - occasional. The occurrence within the Subject Land is entirely dominated by <i>B. fluviatilis</i>. - PCT 4050 - South Coast Floodplain Wetland Paperbark Scrub - Occurrence within the Subject Land lacks tree species and cannot be considered a forest as per the description of PCT 4050	
Survey Method	Condition	Area (ha)
Random meander	Poor	0.02 ha
PCT 3975 Photograph		
 		

5.2.4 PCT 4009 - Shoalhaven Lowland Flats Wet Swamp Forest

5.2.1 PCT 4009 - Shoalhaven Lowland Flats Wet Swamp Forest	
Vegetation Formation	Forested Wetlands
Vegetation Class	Coastal Swamp Forests
Percent Cleared	45.37%
TEC Association	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and Southeast Corner Bioregions - <i>Endangered</i> under the BC Act,
Generic PCT Description taken from BioNet	A mid-high to very tall swampy sclerophyll open forest with a layered mid-stratum of <i>Melaleucas</i> and dense ground cover of tall sedges found on boggy low-lying flats on the south coast between Sydney and Bodalla. The tree canopy is either dominated by <i>Eucalyptus botryoides</i> or <i>Eucalyptus robusta</i> (rarely both), occasionally with <i>Eucalyptus longifolia</i>. The mid-stratum is typically layered with a taller sparse to mid-dense cover of <i>Melaleucas</i> (mainly <i>Melaleuca ericifolia</i> and <i>Melaleuca linariifolia</i>) commonly with <i>Casuarina glauca</i>. A lower layer of dry shrubs is sparse and commonly includes species such as <i>Acacia longifolia</i> and <i>Leptospermum polygalifolium</i>. The ground layer is characterised by a high cover of sedges with the taller <i>Gahnia clarkei</i> very frequently recorded with an abundance of <i>Machaerina juncea</i>. Other sedge species are less frequently recorded along with occasional <i>Phragmites australis</i>, as well as other grasses, ferns and graminoids. This PCT occupies very low elevations of less than 20 metres asl on regularly inundated alluvial flats and often occurs in or near standing water. Mainly distributed on the south coast and is very common on the margins of Jervis Bay and St Georges Basin in the Shoalhaven. A northern spatial outlier on sandy alluvium in Pittwater, northern Sydney. This community grades into taller eucalypt forests PCTs 4021, 4019 or 3273 on better drained alluviums and swamp forest PCT 4056 on lower elevation estuarine creek flats.
Subject Land Occurrence of PCT 4009 - Shoalhaven Lowland Flats Wet Swamp Forest	
Vegetation Structure	The vegetation structure of the Subject Land has been modified due to historical and current land use practices. The occurrence of PCT 4009 within the Subject Land exists as an ecotone between a small patch of PCT 4009 to the west, opposite Terry St. and PCT 3975 to the east. The occurrence within the Subject Land lacks a tall eucalypt canopy, instead being dominated by <i>Casuarina glauca</i> with a scrubby mid storey. The ground stratum consists of a mix of exotic species intruding from the disturbed roadside and native grasses, forbs and sedges.
Landscape Position	The Subject Land is at an elevation of approximately 6 m asl.
Soil	With reference to eSPADE v2.2 (DPIE 2025), the occurrence of PCT 3056 within the Subject Land is mapped as occurring on "Fairy Meadow" soils. This soil landscape consists of Alluvial soils composed of Quaternary sediments.
Upper Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	-
Mid Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	<i>Acacia binervata</i> , <i>Casuarina glauca</i> ,
Ground Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	<i>Commelina cyanea</i>

Justification for PCT selection	The occurrence of PCT 4009 within the Subject Land has been modified with significant intrusion of exotic species from the adjacent roadside. The occurrence within the Subject Land has no <i>Eucalyptus</i> species, instead <i>Casuarina glauca</i> dominates, forming a sparse mid height canopy. <i>C. glauca</i> is recorded as the most common tree species within occurrences of PCT 4009. The elevation, location and soil types of the Subject Land align with PCT 4009.	
Alternative PCTs Considered	Alternative PCTs that were considered but ultimately ruled out are: • PCT 3056 – Central Eastern Ranges Riparian Dry Forest – PCT 3056 lacks occurrence of <i>Casuarina glauca</i>. • PCT 3077 – Illawarra Complex Dry Rainforest – PCT 3077 lacks occurrence of <i>Casuarina glauca</i>. • PCT 3078 – Illawarra lowland wet vine forest – The patch lacks <i>Genittonoplesium cymosum</i>, a diagnostic vine species, and lacks the rainforest conditions required for PCT 3078.	
Survey Method	Condition	Area (ha)
Random meander	Moderate	0.03 ha
PCT 4009 Photograph		



5.2.5 PCT 0 – Exotic Vegetation

Large portions of all three Subject Land areas are covered by a combination of maintained lawns and gardens, escaped cultivars, and patches of exotic vegetation (**Figure 15**). Most of these patches border on human residential or infrastructure development and encroach into patches of native vegetation. The most common species were cultivated lawn/pasture species such as

with *Bromus catharticus* (Prairie grass), *Paspalum* spp. (Crowngrass) and *Axonopus fissifolius* (Narrow-leaved carpet grass). Other common exotics included *Ligustrum sinsense* (Narrow-leaf privet), *Araujia sericifera* (Moth Vine), and *Cardiospermum grandiflorum* (Showy balloonvine). A notable infestation of *Erythrina x skyesii* (Coral tree) was observed in the north of Subject Land C.

No threatened species were recorded in this zone.



Figure 15: Occurrence of PCT 0 - Exotic Vegetation within the Subject Land.

5.2.6 PCT 0 – Planted Native Vegetation

Planted natives were restricted to small patches in Subject Land B & C (**Figure 16**) and consisted of a row of *Syzygium* spp. (Lilly-pilly) hedges and *Grevillia robusta* (Southern Silky Oak) trees.

No threatened species were recorded in this zone.



Figure 16: Occurrence of PCT 0 – Planted Native Vegetation within the Subject Land

5.2.7 PCT 0 – Scattered Native Vegetation

Several scattered natives were recorded along the disturbed boundary of Terry Street in Subject Land C (**Figure 17**). As these individuals are isolated and exist within a highly modified vegetation zone, no PCT could be assigned. These individuals consisted of multiple *Glochidion ferdinandi* (Cheese tree) and a single *Eucalyptus saligna* (Sydney Blue gum).

No threatened flora species were recorded within this vegetation zone.



Figure 17: Occurrence of PCT 0 – Scattered Native Vegetation within the Subject Land

5.3 THREATENED ECOLOGICAL COMMUNITIES

TECs are ecological communities that are at the risk of extinction from a number of pressures, including:

- Clearing of native vegetation
- Inappropriate fire regimes
- Exotic and/or invasive species
- Climate change
- Water diversion
- Pollution and urban development.

TECs are afforded considerable protection via their listing under both the State BC Act and Commonwealth EPBC Act. Six TECs are associated with the PCTs identified within the Subject Land, as listed below in **Table 8**.

Table 8: PCT Threatened Ecological Community Associations

PCT	Associated TEC	BC Act	EPBC Act
3056	Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	Endangered	-
3330	Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion	Endangered	-
	Lowland Grassy Woodland in the South East Corner Bioregion	Endangered	-
	Illawarra and South Coast Lowland Forest and Woodland Ecological Community	-	Critically Endangered
3975	Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Endangered	-
4009	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Endangered	-

For a PCT to meet a TEC status a range of criteria must be met. An assessment of the relevant TEC criteria and determinations is contained below. **Figures 18** and **19** show the extent of TECs within the Subject Land.

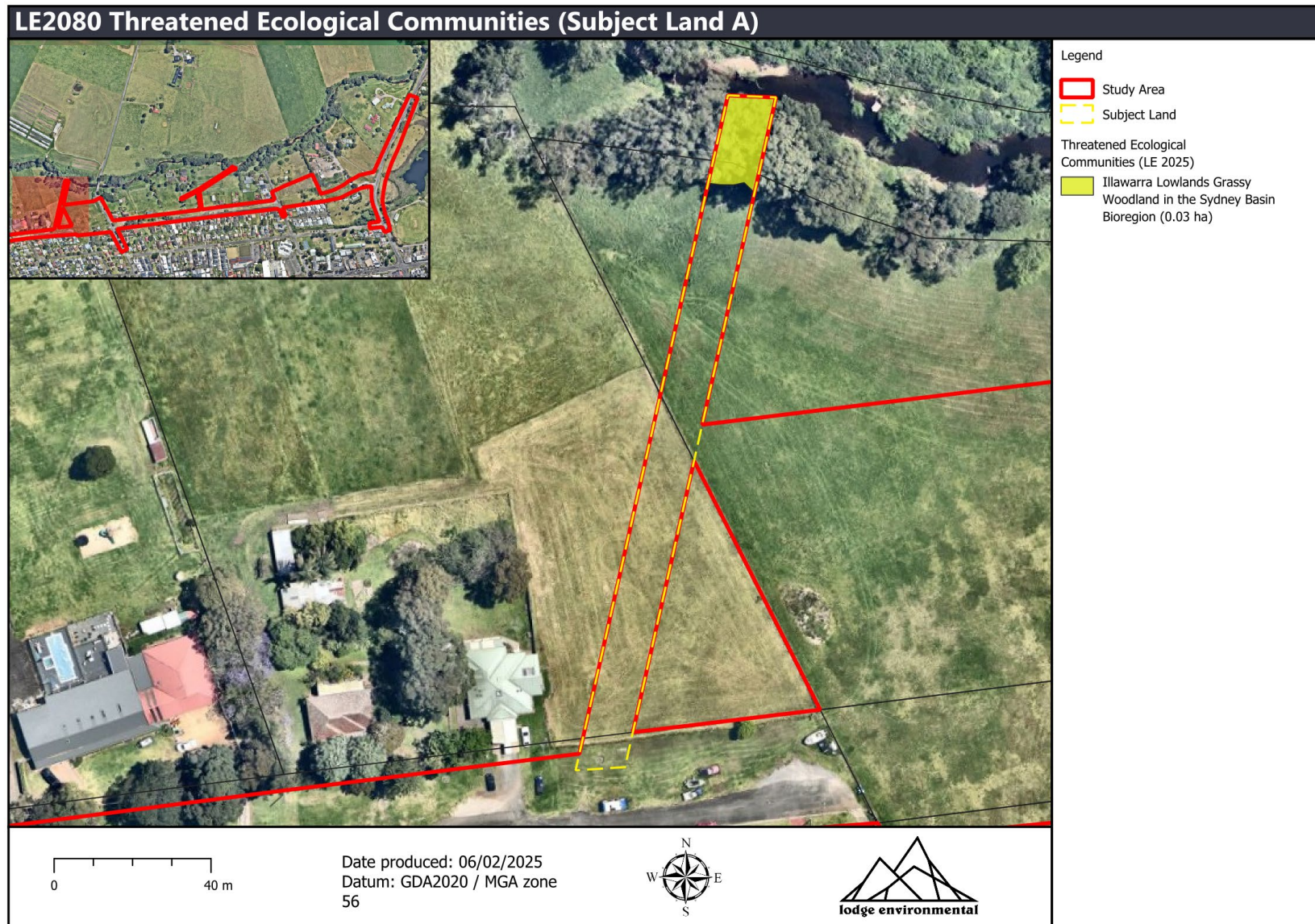


Figure 18: Threatened Ecological Communities (Subject Land A)

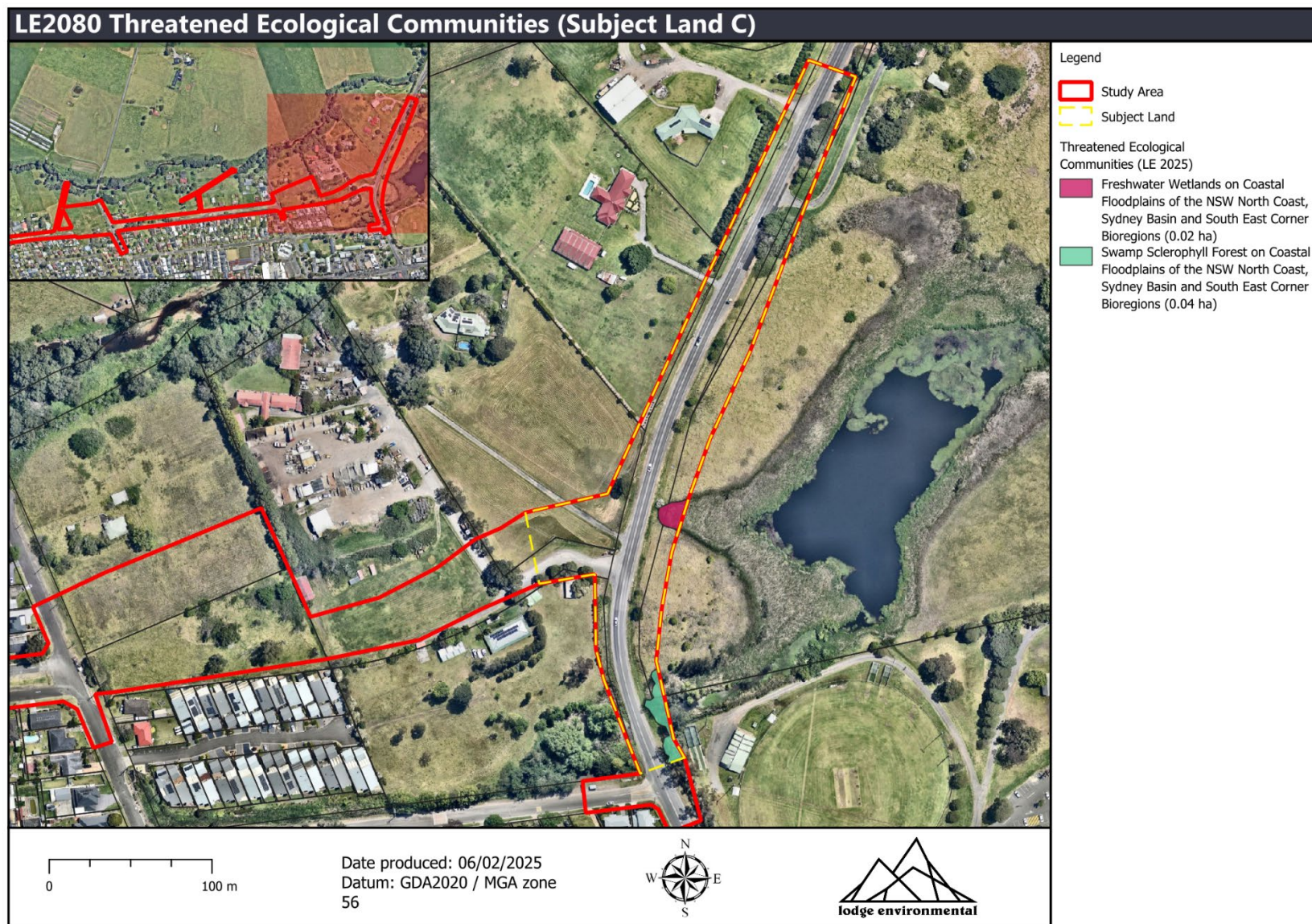


Figure 19: Threatened Ecological Communities (Subject Land C)

5.3.1 BC Act Threatened Ecological Communities Association

The NSW Scientific Committee outlines the legal definition of each BC Act TEC. This definition is used to determine if a PCT is considered to represent the associated TECs. An assessment of the relevant TEC criteria and determinations is contained below.

5.3.1.1 Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions

Lowland Rainforest in the Southeast Corner Bioregions (LRF) is an ecological community that includes subtropical rainforest and structurally complex forms of dry rainforest but excludes certain types such as Littoral Rainforest and Lowland Rainforest on Floodplains. These rainforests are typically found on high-nutrient geological substrates like basalts and fine-grained sedimentary rocks, and while their elevation ranges vary, LRF within the Sydney Basin bioregion occurs below 350m.

Since European settlement, the distribution of LRF has dramatically decreased due to extensive clearing of native vegetation. For instance, the Big Scrub lowland rainforest near Lismore, once covering around 75,000 hectares, has been reduced to a mere 300 hectares (0.07 %).

Other common threats include grazing by livestock, potential impacts of anthropogenic climate change and impacts associated with human visitation (including soil compaction, possible spread of pathogens, clearing of understorey and inappropriate collection of plant species).

A comparison of the occurrence of PCT 3056 within the Subject Land and the wider patch to which it belong, and the determining factors listed in the NSW Committee Final Determinations for LRF (TSSC 2011) is listed below in **Table 9**.

Table 9: Comparison of PCT 3056 – Central Eastern Ranges Riparian Dry Forest within the Subject Land and the Final Determinations for Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions

Key attribute	NSW Threatened Species Scientific Committee Final Determination – SHSW	PCT 3056 – Central Eastern Ranges Riparian Dry Forest within the Study Area
Location	LRF occurs across a wide range within eastern NSW. The Hawkesbury River notionally marks the southern limit of Lowland Rainforest in the NSW North Coast and Sydney Basin bioregion. South of the Sydney metropolitan area, Lowland Rainforest is replaced by Illawarra Subtropical Rainforest of the Sydney Basin Bioregion, which is listed as an Endangered Ecological Community under the Threatened Species Conservation Act.	The Subject Land is located in Albion Park, within the Shellharbour LGA. Therefore, the occurrence of PCT 3056 within the Subject Land does not align with the extent specified by the NSW TSSC Final Determinations.
Soils and landscape position	LRF may be associated with a range of high-nutrient geological substrates, notably basalts and fine-grained sedimentary rocks, on coastal plains and plateaux, foot slopes and foothills. In the Sydney Basin bioregion, it is limited to elevations below 350m	With reference to eSPADE v2.2 (DPIE 2025), the occurrence of PCT 3056 within the Subject Land is mapped as occurring on “Fairy Meadow” soils. This soil landscape consists of Alluvial soils composed of Quaternary sediments. The occurrence of PCT 3056 within the Subject Land has an elevation of approximately 6 meters.

Key attribute	NSW Threatened Species Scientific Committee Final Determination - SHSW	PCT 3056 - Central Eastern Ranges Riparian Dry Forest within the Study Area
		Therefore, the occurrence of PCT 3056 within the Subject Land aligns with the soil and landscape position specified by the NSW TSSC.
Floristic composition	LRF is characterised by the floristic assemblage species outlined in Part 2 of the LRF NSW TSSC final determination.	No species identified within the occurrence of PCT 3056 within the Subject Land are outlined in Part 2 of the LRF NSW TSSC final determination.
Characteristic tree species	The canopy of LRF is highly variable and not a diagnostic feature. Every stand of rainforest is unique in terms of its biota.	<u>N/A</u>

As the Subject Land is located south of the Hawkesbury River, and lacks any species characteristic of LRF, the occurrence of PCT 3056 within the Subject Land is not considered to represent the TEC Lowlands Rainforests in the NSW North Coast or Sydney Basin Bioregions.

5.3.1.2 Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion

Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion (ILGW) is listed as *Endangered* under the BC Act. ILGW comprises vegetation types that occupy the Illawarra coastal plain and escarpment foothills. ILGW has been recorded from the LGAs of Wollongong, Shellharbour and Kiama, and Shoalhaven. It has not recorded within formal conservation reserves, although some remnants occur in small council reserves including Blackbutt Reserve and Croome Road Reserve in Shellharbour.

Large areas of Illawarra Lowlands Grassy Woodland have been cleared. Most remnants are small and fragmented, and their long-term viability is threatened. Some remnants consist of regrowth after clearing or other disturbances. Identified threats include further clearing, grazing, weed invasion, selective logging, rubbish dumping, housing and hobby farm developments and physical damage from recreational activities.

A comparison of the occurrence of PCT 3330 within the Subject Land and the wider patch to which it belong, and the determining factors listed in the NSW Committee Final Determinations for ILGW (TSSC 2011) is listed below in **Table 10**.

Table 10: Comparison of PCT 3330 - South Coast Lowland Woollybutt Grassy Forest within the Subject Land and the Final Determinations for Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion

Key attribute	NSW Threatened Species Scientific Committee Final Determination - 3330	PCT 3330 - South Coast Lowland Woollybutt Grassy Forest within the Study Area
Location	ILGW has been recorded from the LGAs of Wollongong, Shellharbour and Kiama, and Shoalhaven	The Subject Land is located in Albion Park, within the Shellharbour LGA. Therefore, the occurrence of PCT 3330 within <u>the Subject Land aligns with the extent</u> specified by the NSW TSSC Final Determinations.

Key attribute	NSW Threatened Species Scientific Committee Final Determination - 3330	PCT 3330 - South Coast Lowland Woollybutt Grassy Forest within the Study Area
Soils and landscape position	ILGW can be found on Floodplains, Ridges and Slopes and the lower escarpment. ILGW occurs on relatively gently sloping to undulating lands less than about 200 m elevation on Berry Siltstone, Budgong Sandstone and Quaternary alluvium.	With reference to eSPADE v2.2 (DPIE 2025), the occurrence of PCT 3330 within the Subject Land is mapped as occurring on "Fairy Meadow" soils. This soil landscape consists of Alluvial soils composed of Quaternary sediments. The occurrence of PCT 3330 within the Subject Land has an elevation of approximately 8 meters. Therefore, the occurrence of PCT 3330 within the <u>Subject Land aligns with the soil and landscape position</u> specified by the NSW TSSC.
Floristic composition	ILGW is characterised by the floristic assemblage species outlined in Part 2 of the ILGW NSW TSSC Final Determination.	Of the 87 characteristic species listed, four of the six native species recorded within the Subject Land are listed in Part 2 of the ILGW NSW TSSC Final Determination.
Characteristic tree species	Typical trees include <i>Eucalyptus tereticornis</i> , <i>E. eugenioides</i> , <i>E. longifolia</i> , <i>E. bosistoana</i> , and <i>Melaleuca decora</i> .	<i>E. bosistoana</i> is the dominant canopy species.

While the quality of vegetation within the Subject Land is low, the final determinations for ILGW does not consider the vegetation condition. By taking a conservative approach and given the Subject Land is located within the Shellharbour LGA, is mapped as occurring on alluvial quaternary sediment soil and has *Eucalyptus bosistoana* (Coast Grey Box) present in the upper stratum, the occurrence of PCT 3330 within the Subject Land is considered to represent the TEC Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion under the BC Act.

5.3.1.3 Lowland Grassy Woodland in the South East Corner Bioregion

Lowland Grassy Woodland in the South East Corner Bioregion (LGW) is listed as *Endangered* under the BC Act. Lowland Grassy Woodland occurs exclusively within the South East Corner Bioregion and thus the occurrence of PCT 3330 within the Subject Land is not considered to represent the TEC Lowland Grassy Woodland in the South East Corner Bioregion.

5.3.1.4 Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (FWCF) is listed as *Endangered* under the BC Act. FWCF is associated with periodic or semi-permanent inundation by freshwater, although there may be minor saline influence in some wetlands.

FWCF forms part of a complex of forested wetland and treeless wetland communities found throughout the coastal floodplains of NSW. They typically occur on silts, muds or humic loams in depressions, flats, drainage lines, backswamps, lagoons and lakes associated with coastal floodplains. The structure of the community may vary from sedgelands and reedlands to

herbfields, and woody species of plants are generally scarce. Typically, these wetlands form mosaics with other floodplain communities, and often they include or are associated with ephemeral or semi-permanent standing water.

FWCF has been extensively cleared and modified. Large areas that formerly supported this community are occupied by exotic pastures grazed by cattle, market gardens, other cropping enterprises (e.g. sorghum, corn, poplars, etc.). A small minority of the remaining area occurs on public land with most occurring on productive agricultural land or in close proximity to rural centres. The remaining stands are severely fragmented by past clearing and are further threatened by continuing fragmentation and degradation, flood mitigation and drainage works, filling associated with urban and industrial development, pollution and eutrophication from urban and agricultural runoff, weed invasion, overgrazing, trampling by livestock, soil disturbance by pigs, activation of 'acid sulfate soils' and rubbish dumping.

A comparison of the occurrence of PCT 3975 within the Subject Land and the wider patch to which it belong, and the determining factors listed in the NSW Committee Final Determinations for FWCF (TSSC 2011) is listed below in **Table 11**.

Table 11: Comparison of PCT 3975 – Southern Lower Floodplain Freshwater Wetland within the Subject Land and the Final Determinations for Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

Key attribute	NSW Threatened Species Scientific Committee Final Determination – FWCF	PCT 3975 – Southern Lower Floodplain Freshwater Wetland within the Study Area
Location	FWCF is found throughout eastern NSW. Relevantly, FWCF can occur in Illawarra in the Wollongong, Shellharbour, Kiama and Shoalhaven LGAs.	The Subject Land is located in Albion Park, within the Shellharbour LGA. Therefore, the occurrence of PCT 3975 within the <u>Subject Land aligns with the extent</u> specified by the NSW TSSC Final Determinations.
Soils and landscape position	FWCF is found throughout eastern NSW and can occur across a wide range of soil landscapes. FWCF occurs on silts, muds or humic loams in depressions, flats drainage lines, backswamp, lagoons and lake associated with coastal floodplains. FWCF generally occur below 20 m elevation.	The occurrence of PCT 3975 within the Subject Land has an elevation of approximately 6 m and is found on the margins of a freshwater lagoon in a coastal floodplain between Albion Park and Lake Illawarra. Therefore, the occurrence of PCT 3975 within the <u>Subject Land aligns with the soil and landscape position</u> specified by the NSW TSSC Final Determinations.
Floristic composition	FWCF is characterised by the floristic assemblage species outlined in Part 2 of the FWCF NSW TSSC Final Determination.	Of the 66 characteristic species listed, one species recorded within the Subject Land is listed in Part 2 of the FWCF NSW TSSC Final Determination. This species, <i>Bolboschoenus fluviatilis</i> dominated the occurrence of PCT 3975, and it was the only species recorded in this zone.
Characteristic tree species	Woody plant species are generally scarce within FWCF, and no tree species are listed as characteristic.	No tree species were recorded within the extent PCT 3975 in the Subject Land. Therefore, the occurrence of PCT 3975 aligns with the characteristic tree species

Key attribute	NSW Threatened Species Scientific Committee Final Determination - FWCF	PCT 3975 - Southern Lower Floodplain Freshwater Wetland within the Study Area
		specified by the NSW TSSC Final Determinations.

While the diversity of flora species within the occurrence of PCT 3975 is low, FWCF can occur with low species richness, especially in heavily distributed environments, such as those found within the Subject Land. By taking a conservative approach and given the Subject Land is located within the Shellharbour LGA and the occurrence of PCT 3975 is located within a freshwater lagoon on a coastal floodplain and is dominated by a listed characteristic species (*Bolboschoenus fluviatilis*), the occurrence of PCT 3975 within the Subject Land is considered to represent the TEC Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions under the BC Act.

5.3.1.5 Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (SSFCF) is listed as *Endangered* under the BC Act. The structure of the community is typically open forest, although partial clearing may have reduced the canopy to scattered trees. In some areas the tree stratum is low and dense, so that the community takes on the structure of scrub. The community also includes some areas of fernland and tall reedland or sedgeland, where trees are very sparse or absent. Typically, these forests, scrubs, fernlands, reedlands and sedgelands form mosaics with other floodplain forest communities and treeless wetlands, and often they fringe treeless floodplain lagoons or wetlands with semi-permanent standing water.

SSFCF is associated with humic clay and sandy loam soils on waterlogged or periodically flooded areas. These soils are generally deposited during flood events and occur on the flats, drainage lines and river terraces of the Coastal Floodplain. The community is usually found below 20m in elevation although sometimes up to 50 m elevation on small floodplains or where the larger floodplains adjoin rocky substrates or coastal sand plains.

Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions has been extensively cleared and modified. Large areas that formerly supported this community are occupied by exotic pastures grazed by cattle, market gardens, other cropping enterprises. The remaining stands are severely fragmented by past clearing and further threatened by continuing fragmentation and degradation, flood mitigation and drainage works, landfilling and earthworks associated with urban and industrial development, pollution from urban and agricultural runoff, weed invasion, overgrazing, trampling and other soil disturbance by domestic livestock and feral animals including pigs, activation of 'acid sulfate soils', removal of dead wood and rubbish dumping.

A comparison of the occurrence of PCT 4009 within the Subject Land and the wider patch to which it belong, and the determining factors listed in the NSW Committee Final Determinations for SSFCF (TSSC 2011) is listed below in **Table 12**.

Table 12: Comparison of PCT 4009 – Shoalhaven Lowland Flats Wet Swamp Forest within the Subject Land and the Final Determinations for Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

Key attribute	NSW Threatened Species Scientific Committee Final Determination – SSFCF	PCT 4009 – Shoalhaven Lowland Flats Wet Swamp Forest within the Study Area
Location	SSFCF is found throughout the North Coast, Sydney Basin and South East Corner Bioregions. Relevantly, SSFCF is known to occur within the Shellharbour LGA.	The Subject Land is located in Albion Park, within the Shellharbour LGA. Therefore, the occurrence of PCT 4009 within the <u>Subject Land aligns with the extent</u> specified by the NSW TSSC Final Determinations.
Soils and landscape position	SSFCF generally occupies small alluvial flats and peripheral parts of floodplains where they adjoin lithic substrates or coastal sandplains. The soils are usually waterlogged, stained black or dark grey with humus, and show little influence of saline ground water.	The occurrence of PCT 4009 is located on the boundary of a freshwater lagoon on a coastal floodplain at approximately 6 m and grades into higher elevation coastal sandplains. With reference to eSPADE v2.2 (DPIE 2025), the occurrence of PCT 3330 within the Subject Land is mapped as occurring on “Fairy Meadow” soils. This soil landscape consists of Alluvial soils composed of Quaternary sediments. Therefore, the occurrence of PCT 4009 within the <u>Subject Land aligns with the soil and landscape position</u> specified by the NSW TSSC Final Determinations.
Floristic composition	SSFCF is characterised by the floristic assemblage species outlined in Part 2 of the SSFCF NSW TSSC Final Determination.	Of the 59 characteristic species listed, one species recorded within the Subject Land (<i>Casuarina glauca</i>) is listed in Part 2 of the FWCF NSW TSSC Final Determination.
Characteristic tree species	Characteristic tree species include <i>Melaleuca ericifolia</i> , <i>Eucalyptus robusta</i> , <i>Melaleuca quinquenervia</i> , <i>Eucalyptus botryoides</i> , and <i>Eucalyptus longifolia</i> . <i>Callistemon salignus</i> , <i>Casuarina glauca</i> , <i>Eucalyptus resinifera</i> subsp. <i>hemilampra</i> , <i>Livistona australis</i> , and <i>Lophostemon suaveolens</i> are also common.	<i>Casuarina glauca</i> is the dominant canopy species.

While the diversity of flora species within the occurrence of PCT 4009 is low, SSFCF can occur with low species richness, especially in heavily distributed environments, such as those found within the Subject Land. By taking a conservative approach and given the Subject Land is located within the Shellharbour LGA and the occurrence of PCT 4009 is located adjacent to a freshwater lagoon on a coastal floodplain and is dominated by a listed characteristic species (*Casuarina glauca*), the occurrence of PCT 4009 within the Subject Land is considered to represent the TEC Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions.

5.3.2 EPBC Act Threatened Ecological Communities Association

Commonwealth threatened status and listings focus legal protection on patches of threatened ecological communities that are most functional, have a high abundance of native species and

in comparatively good condition. Condition thresholds and key diagnostic characteristics assist in identifying if the EPBC Act is to apply to a patch of native vegetation.

5.3.2.1 Illawarra and South Coast Lowland Forest and Woodland Ecological Community

Illawarra and South Coast Lowland Forest and Woodland Ecological Community (ISCLFW) is listed as *Critically Endangered* under the EPBC Act. For the native vegetation to be considered as ISCLFW under the EPBC Act, areas of the ecological community must meet:

- The key diagnostic characteristics, and
- At least the minimum condition thresholds for moderate condition.

Key Diagnostic Characteristics

A comparison of the occurrence of PCT 4009 within the Subject Land to the Approved Conservation Advice prepared by the Department of Environment (2016) for ISCLFW is detailed below in **Table 13**.

Table 13: Comparison of PCT 4009 – Shoalhaven Lowland Flats Wet Swamp Forest within the Subject Land within the Subject Land and the listing advice for Illawarra and South Coast Lowland Forest and Woodland Ecological Community

Key Diagnostic Characteristic	Approved Conservation Advice for ISCLFW	PCT 4009 – Shoalhaven Lowland Flats Wet Swamp Forest within the Subject Land
Location	The ecological community occurs within the state of New South Wales in the Jervis, Ettrema and Illawarra subregions of the Sydney Basin Bioregion and the Bateman subregion of the South East Corner Bioregion.	The Subject Land is located in Albion Park, within the Shellharbour LGA. Therefore, the occurrence of PCT 4009 within the <u>Subject Land aligns with the extent</u> specified by the Approved Conservation Advice.
Landscape position and soil	The ecological community occurs below approximately 350 m ASL, on the coastal plain or foothills between the immediate coastal strip and the escarpment	The occurrence of PCT 4009 is located on the boundary of a freshwater lagoon on a coastal floodplain at approximately 6 m and grades into higher elevation coastal sandplains. With reference to eSPADE v2.2 (DPIE 2025), the occurrence of PCT 3330 within the Subject Land is mapped as occurring on "Fairy Meadow" soils. This soil landscape consists of Alluvial soils composed of Quaternary sediments. Therefore, the occurrence of PCT 4009 within the <u>Subject Land aligns with the soil and landscape position</u> specified by the NSW TSSC Final Determinations.
Vegetation Cover	The ecological community is a forest or woodland with at least 10% foliage cover.	The occurrence of PCT 4009 had a foliage cover of >10%.
Characteristic tree species	<i>Eucalyptus tereticornis</i> (forest red gum) or <i>E. longifolia</i> (woollybutt) is typically present and often dominant in the mature tree canopy. One or more of the following canopy species may also be dominant: <i>Angophora floribunda</i> (rough-barked apple); <i>E. bosistoana</i> (coast	<i>Casuarina glauca</i> was the only recorded tree species.

	grey box); <i>E. eugenioides</i> (thin-leaved stringybark); <i>E. globoidea</i> (white stringybark).	
Floristic composition	The ecological community is characterised by the plant species described in Appendix A of the Approved Conservation Advice for ISCLFW.	All of the species recorded within the occurrence of PCT 4009 within the Study Area are listed in Appendix A of the Approved Conservation Advice for ISCLFW.

The occurrence of PCT 4009 within the Subject Land is located within the Sydney Basin Bioregion, is located on suitable soils, is within the correct altitude range, and is at a suitable landscape position to match the key diagnostic criteria of ISCLFW. However, due to the lack of specified dominant canopy species the occurrence of PCT 4009 does not meet the key diagnostic criteria and thus cannot be considered to belong to the Illawarra and South Coast Lowland Forest and Woodland Ecological Community.

The minimum condition thresholds (**Table 14**) for ISCLFW requires a minimum patch size of 0.5 ha and at least 30% of the understorey must consist of perennial natives. As the occurrence of PCT 4009 within and surrounding the Subject Land is less than 0.5 ha, it does not meet the minimum condition requirements for ISCLFW.

Table 14: Minimum condition thresholds for Illawarra and South Coast Lowland Forest and Woodland Ecological Community.

Category and rationale	Patch size thresholds	Biotic thresholds		
A. High condition class <i>A larger patch with good quality native understorey and/or many very large trees</i>	The patch is at least 2 ha.	50% of its total understorey vegetation cover* is comprised of native species (exotic annuals are excluded from this assessment)		
		and		
		At least 6 native plant species per 0.5 ha in the ground layer	OR	the patch has at least ten trees that are either very large (at least 60cm diameter at breast height dbh) or have hollows.
B. High condition class <i>A patch with very good quality native understorey with a species rich ground layer</i>	The patch is at least 0.5 ha.	At least 70% of the understorey vegetation cover* is comprised of native species (exotic annuals are excluded from this assessment)		
		and		
		with at least 10 native plant species per 0.5 ha in the ground layer		
C. Moderate condition class <i>A patch with good quality native understorey</i>	The patch is at least 0.5 ha.	At least 50% of its total understorey vegetation cover* is comprised of native species (exotic annuals are excluded from this assessment)		
		and		
		with at least 6 native plant species per 0.5 ha in the ground layer		
D. Moderate condition class <i>A patch that makes other important ecological contributions</i>	The patch is at least 0.5 ha.	At least 30% of total perennial understorey vegetative cover* is comprised of native species		
		and		
		the patch is contiguous** with another patch of native vegetation *** (at least 1 ha in area)	OR	the patch has at least one large locally indigenous tree (at least 50 cm diameter at breast height (dbh)), or at least one tree with hollows
*Understorey vegetation cover includes vascular plant species of both the ground layer and the shrub layer (where present). The ground layer includes herbs (graminoids and forbs) and low (≤ 0.5 m) shrubs, but does not include cryptogams, leaf litter or exposed soil. **Contiguous with another patch of native vegetation means the patch is continuous with or in close proximity (within 100 m) to another area of native vegetation. ***'Native vegetation' refers to areas where $\geq 50\%$ of the perennial vegetation cover is comprised of native plant species.				

5.4 FLORA

A total of 75 species were recorded during the site inspection (25 natives and 50 exotic). A species list is provided in **Appendix B**.

5.4.1 Priority Weeds

Weeds that create the highest level of risk and have the feasibility of being controlled are called priority weeds. Priority weeds identified within the Subject Land are detailed below in **Table 15**.

Weeds of National Significance list the most problematic plant species in Australia as determined by the Australian Weeds Strategy 2017 – 2027 (DAFF, 2017). The species on this list have been identified by their severe invasiveness, potential for spread, and environmental, social and economic impacts.

Within NSW, all pest plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable (DPI, 2024).

State priority weeds have been assessed by NSW Department of Primary Industries as posing a high to medium biosecurity risk to the entire state of NSW. Regional priority weeds are those considered to pose a key risk to the region. Both State and Priority weeds are listed in the South-East Regional Strategic Weed Management Plan 2023-2027 (Local Land Services, 2022).

Table 15: Priority Weeds within the Study Area.

Scientific Name	Common Name	Weeds of National Significance	NSW General Biosecurity Duty	State Priority Weed	South-East Regional Priority Weed
Subject Land A					
<i>Araujia sericifera</i>	Moth Vine	-	X	-	-
<i>Cardiospermum grandiflorum</i>	Balloon Vine	-	X	-	-
<i>Conyza bonariensis</i>	Fleabane	-	X	-	-
<i>Cyperus</i> spp.	Nutsegdes	-	X	-	-
<i>Ligustrum sinense</i>	Small-leaf Privet	-	X	-	-
<i>Senecio madagascariensis</i>	Fireweed	X	X	X	-
<i>Solanum mauritianum</i>	Tabacco Bush	-	X	-	-
Subject Land B					
<i>Araujia sericifera</i>	Moth Vine	-	X	-	-
<i>Asparagus densiflorus</i>	Foxtail fern	-	X	X	X
<i>Cyperus</i> spp.	Nutsegdes	-	X	-	-
<i>Ricinus communis</i>	Castor Oil Plant	-	X	-	-

Scientific Name	Common Name	Weeds of National Significance	NSW General Biosecurity Duty	State Priority Weed	South-East Regional Priority Weed
<i>Senecio madagascariensis</i>	Fireweed	X	X	X	-
Subject Land C					
<i>Araujia sericifera</i>	Moth Vine	-	X	-	-
<i>Eragrostis curvula</i>	African Lovegrass	-	X	-	-
<i>Erythrina x sykesii</i>	Common Coral Tree	-	X	-	-
<i>Lantana camara</i>	Lantana	X	X	X	X
<i>Ligustrum lucidum</i>	Broad-leaf Privet	-	X	-	-
<i>Ligustrum sinense</i>	Small-leaf Privet	-	X	-	-
<i>Myriophyllum aquaticum</i>	Parrot's feather	-	X	-	-
<i>Zantedeschia</i>	Arum Lily	-	X	-	-

5.4.2 Threatened Flora Species

No targeted surveys were conducted for threatened flora species. However, given the size of the Subject Land, the survey effort is considered comprehensive in assessing the potential presence of threatened flora species and their habitat identified in **Section 4.4**. Based on these findings, no further consideration of threatened flora species is required.

5.5 FAUNA

A total of 22 fauna species were observed within the Subject Land. A species list is included in **Appendix C**. Targeted fauna surveys were not conducted as part of this assessment.

5.5.1 Threatened Fauna Species

No threatened fauna species were identified during field surveys.

The habitat potential of the Subject Land is considered poor to moderate. The Subject Land represents a highly modified habitat, with poor connectivity to surrounding vegetation. The vegetation present provides limited foraging habitat for native species. The following observations were noted:

- No habitat bearing trees were recorded,
- Native species are limited, with ground and mid-stratum often dominated by exotic species,
- The Macquarie Rivulet and freshwater lagoons offer good riparian habitat, and
- Juvenile recruitment of tree and shrubs is minimal.

Following field surveys, it was determined that due to the presence of good riparian habitat, some connectivity to surrounding vegetation, and native canopy, that highly mobile threatened species may utilise the Subject Land.

Following the site survey and with a greater understanding of the habitat attributes of the Subject Land the threatened species listed in (**Table 16**) have the potential to utilise the habitat attributes within the Subject Land.

Table 16: Threatened fauna species with a potential to utilise the Subject Land

Common name	Scientific name	BC Act	EPBC Act
Aves			
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	V	E
Glossy black Cockatoo	<i>Calyptorhynchus lathami</i>	V	V
Barking Owl	<i>Ninox connivens</i>	V	-
Powerful Owl	<i>Ninox strenua</i>	V	-
Masked Owl	<i>Tyto novaehollandiae</i>	V	-
Sooty Owl	<i>Tyto tenebricosa</i>	V	-
Mammals			
Southern myotis	<i>Myotis macropus</i>	V	-
Grey-headed Flying Fox	<i>Pteropus poliocephalus</i>	V	V
Yellow-bellied Sheath-tail Bat	<i>Saccolaimus flaviventris</i>	V	-
Key. V=Vulnerable, E=Endangered, Ep=Endangered Population, CE=Critically Endangered, M=Migratory. Species habitat associations have been informed predominantly from EES (2025) and DotEE (2025) species profiles.			

6.0 IMPACT ASSESSMENT

6.1 SUMMARY OF IMPACTS

Figure 20 - 22 depict the Subject Land and the associated impacts to native vegetation assessed within this report. It is assumed that the proposed development will require the total clearance of the development footprint area within all three Subject Land areas. The construction of two stormwater drains in Subject Land A and B will require the removal of several native trees and will impact on other native vegetation along the banks of the Macquarie Rivulet. The construction of the Terry Street intersection within Subject Land C will require the removal of two small patches of native vegetation on the margins of a freshwater lagoon, as well as multiple scattered natives.

6.1.1 Direct Impacts

The direct impact imposed by the proposal on native vegetation will result from the clearance of a multiple patches of native vegetation across the three Subject Land areas. A total maximum clearance of 0.06 ha of native vegetation is proposed.

The total area of impacted native vegetation and the associated PCTs is detailed in **Table 17**.

Table 17 Total direct impact to native vegetation

Subject Land	PCT ID	PCT Name	Condition	Area of PCT (ha)
A	3330	South Coast Lowland Woollybutt Grassy Forest	Moderate	0.005
B	3056	Central Eastern Ranges Riparian Dry Forest	Poor	0.01
C	3975	Southern Lower Floodplain Freshwater Wetland	Poor	0.009
	4009	Shoalhaven Lowland Flats Wet Swamp Forest	Moderate	0.008
	0	Scattered Native Vegetation	-	0.03
Total Impact Area				0.06 ha

No threatened flora is to be impacted by the proposal.

No habitat bearing trees or other important habitat features are to be removed.

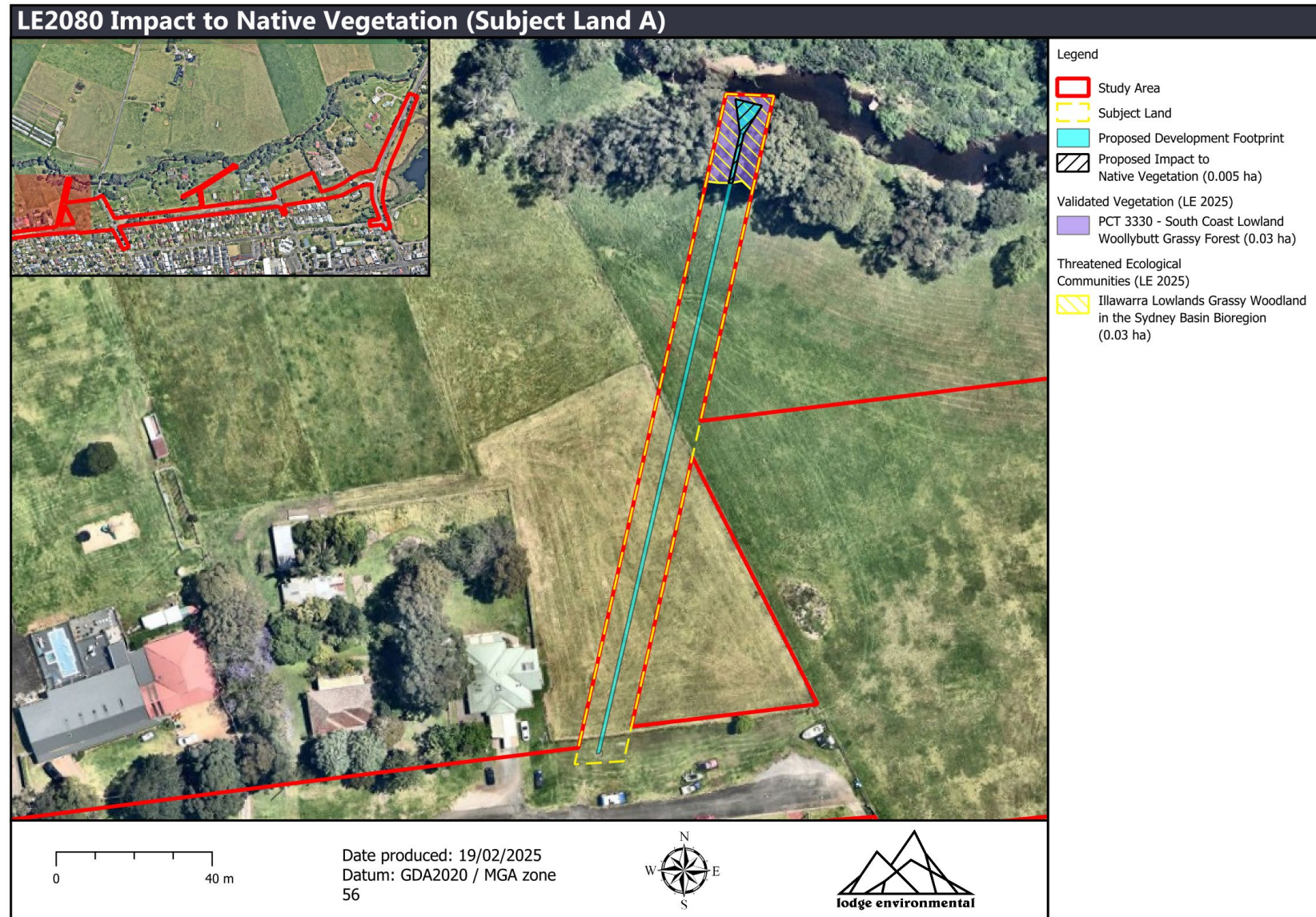


Figure 20: Impact to native vegetation (Subject Land A)

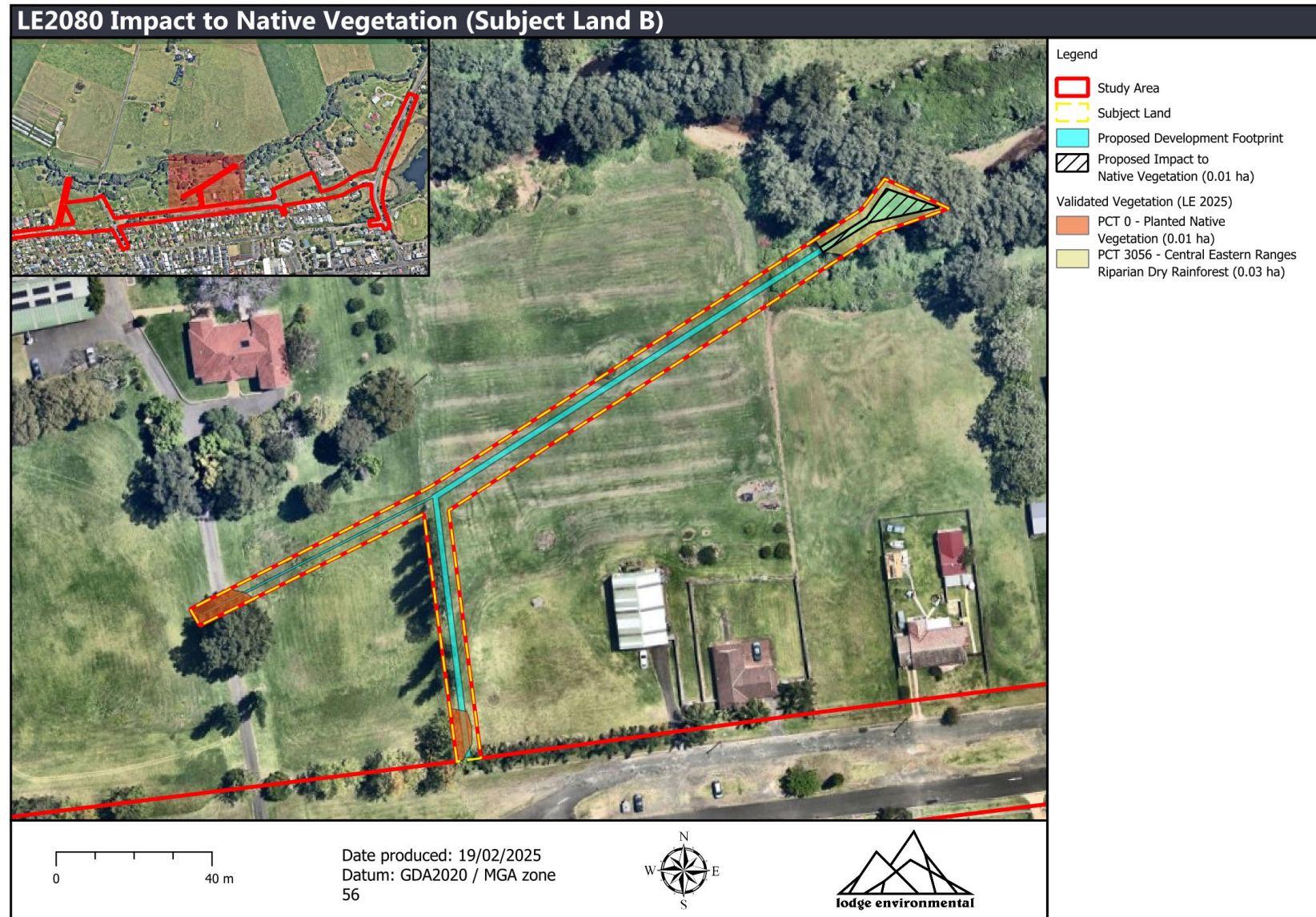


Figure 21: Impact to native vegetation (Subject Land B)

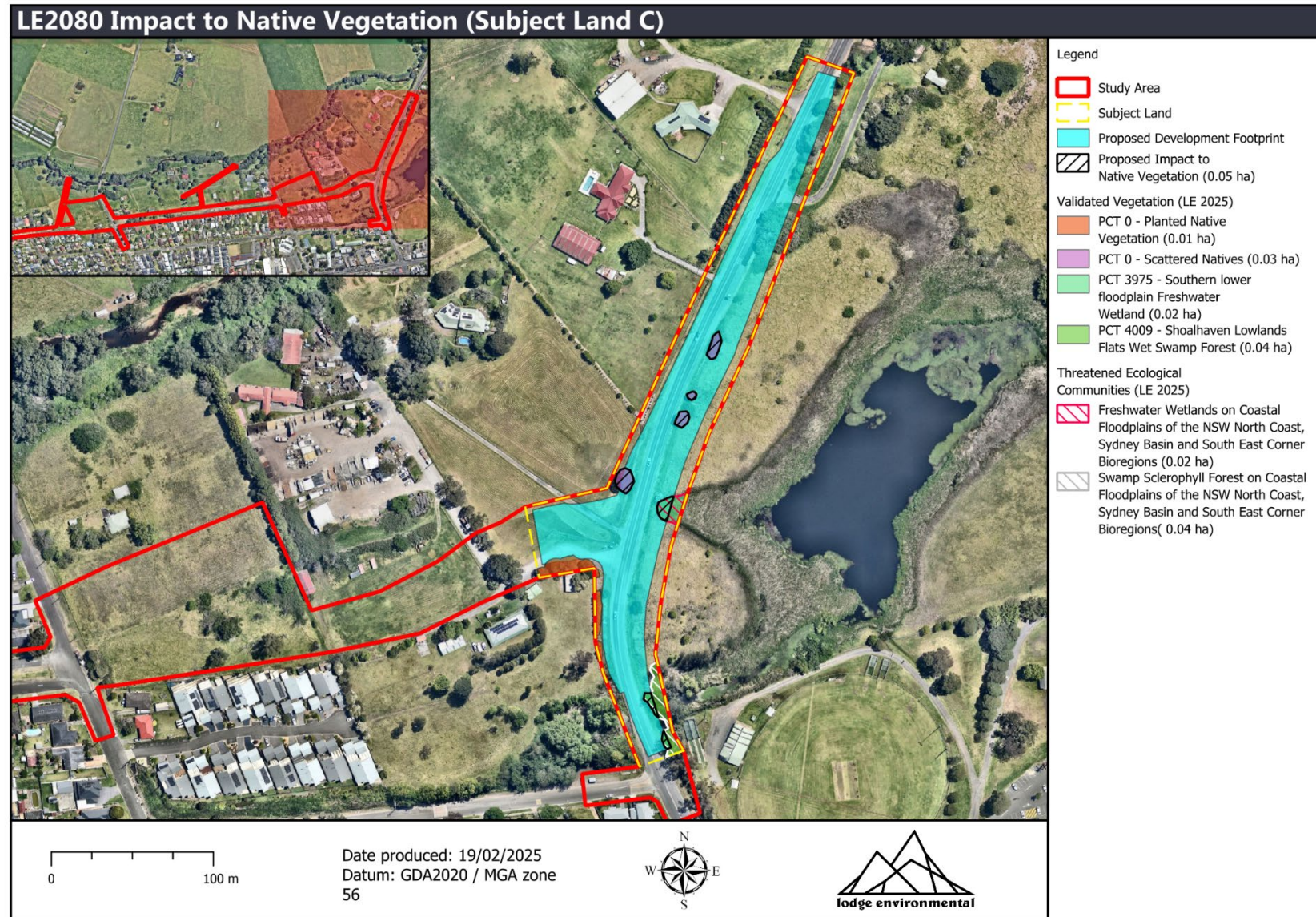


Figure 22: Impact to native vegetation (Subject Land C)

6.1.2 Indirect Impacts

The proposal is not considered to introduce any significant additional indirect impacts on important vegetation or fauna habitat. The proposal will impact a relatively small area of native vegetation, which is located along the boundary of a highly modified and fragmented landscape where considerable indirect impacts already exist, such as weed incursion, rubbish dumping, native fauna vehicle strikes, etc. The proposed development will not fragment any biodiversity linkages. **Table 18** details the indirect impacts relevant to the proposal and any measures that are to be implemented to avoid or minimise the impact.

Table 18: Indirect Impacts and recommended avoidance and minimisation measures

Indirect Impact	Assessment of impact	Avoidance and Minimisation Measures
Non-native vegetation	Several species observed within the Subject Land are considered priority or local environmental weeds. Weed species are detailed in Section 5.4.1 . Works increase the potential for weed spread and invasion into adjacent vegetation.	All weed species should be controlled and disposed of appropriately. A Construction Environmental Management Plan (CEMP) is to be prepared by suitably qualified personnel prior to the release of a construction certificate. The CEMP is to address how to manage the spread and invasion of exotic species into adjacent native vegetation.
Construction works	There is the potential for additional impact to native vegetation due to construction works including: • Soil erosion • Nutrient runoff into riparian areas • Direct impact or trampling by vehicles and personnel • Pollution/contamination	Adequate measures should be taken to minimise soil erosion for the duration of works within the site. Special consideration should be made to prevent soil and surface runoff from entering the adjacent riparian zones. An Erosion and Sediment Control Plan will be detailed in the CEMP. Adequate Tree Protection Zones should be established surrounding all trees adjacent to the proposed development.
Increased water flow from stormwater drains	Two additional stormwater drains are proposed to drain from the new Tripoli Way extension into the Macquarie Rivulet. Increased flow can negatively impact the health of the waterway by increasing erosion.	Appropriately constructed headwalls at the stormwater outlet should slow water flow and minimise flow speed and reduce erosion.
Vehicle strikes	An existing driveway and access road is present within the Study Area. Increased use during and following works, as well as increased use of the servicing road, will result in increased potential for vehicle strikes.	Residential speed limits will apply.
Light Pollution	Artificial lighting may disturb and disorientate fauna, particularly nocturnal fauna with light sensitive vision that may be present within the adjacent reserve.	Natural darkness should be preserved, and lighting should only be installed where needed, following best practice design principles such as using timers, sensors, low

Indirect Impact	Assessment of impact	Avoidance and Minimisation Measures
		intensity lighting and avoiding light spill by directing or shielding lights.

6.2 SHELLHARBOUR LEP (2013)

Small portions of the northern extent of the Subject Land A & B are covered by the Shellharbour Terrestrial Biodiversity clause (7.5), as well as the wetland and Hazelton Creek in Subject Land C (**Figure 23**). The proposed development should consider the objectives of this clause, which are to maintain terrestrial biodiversity by–

- (a) protecting native fauna and flora, and
- (b) protecting the ecological processes necessary for their continued existence, and
- (c) encouraging the conservation and recovery of native fauna and flora and their habitats.

As per part 3 of the Terrestrial Biodiversity Clause (7.5.3), before determining a development application for development on land to which this clause applies, the consent authority must consider any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development as well as whether the development is likely to have:

- any adverse impact on the condition, ecological value and significance of the fauna and flora on the land, and
- any adverse impact on the importance of the vegetation on the land to the habitat and survival of native fauna, and
- any potential to fragment, disturb or diminish the biodiversity structure, function and composition of the land, and
- any adverse impact on the habitat elements providing connectivity on the land

While the proposed development will result in an additional 0.06 ha of impact area to native vegetation, only 0.02 ha of native vegetation is covered by the Terrestrial Biodiversity Clause. This represents a very small area of impact within the wider landscape, furthermore, the proposed impact areas are highly disturbed. As such, the proposed development is unlikely to adversely affect the condition or importance of the vegetation within the Subject Land, nor will it significantly impact on the habitat or survival of native fauna. The stormwater outflow and headwalls proposed to be constructed within the areas covered by the Terrestrial Biodiversity clause do not represent significant obstacles to the movement of terrestrial or aquatic species. Therefore, the proposed development is unlikely to further fragment, nor reduce the connectivity of fauna habitat within the Subject Land.

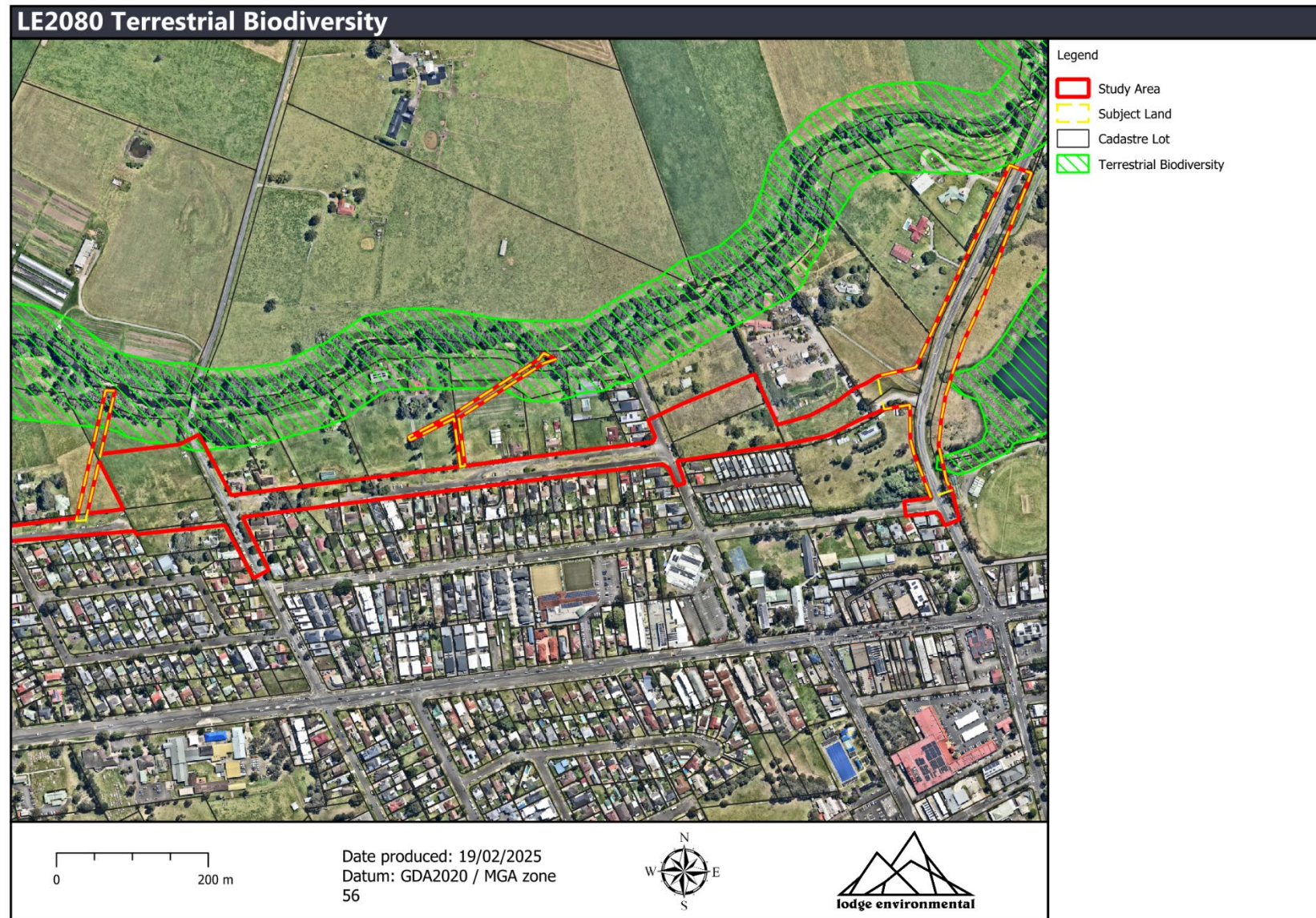


Figure 23: Terrestrial Biodiversity Mapping

6.3 WATER MANAGEMENT ACT 2000 & FISHERIES MANAGEMENT ACT 1994

Much of the Subject Land is within 'waterfront land' under the WM Act (i.e. 40 m of the top of bank of the drainage line) and would typically require controlled activity approval. However, as a public authority, SCC does not need to obtain a controlled activity approval for any controlled activity that it carries out in, on, or under waterfront land (NRAR 2018). A Vegetation Management Plan (VMP) is typically required as part of a controlled activity approval, however SCC are exempt from the requirements of this Act. The small area of PCT 3975 – Southern Lower Floodplain Freshwater Wetland, within Subject Land C, is encompassed within the VMP prepared by EcoPlanning (2020) for other areas of the Study Area.

Macquarie Rivulet and Hazleton Creek are considered Key Fish Habitat (KFH) under the FM Act 1994. Consequently, it is essential that appropriate Erosion and Sediment Control Plan is placed during works. The sedimentation plan should aim to minimise erosion, which may enter Macquarie Rivulet during and post works. Additionally, appropriately constructed headwalls at the stormwater outlet should slow water flow and minimise flow speed, reducing erosion.

6.4 BIODIVERSITY AND CONSERVATION SEPP (2021)

Chapter 4 (Koala Habitat Protection 2021) of the *State Environmental Planning Policy (Biodiversity and Conservation) 2021* (SEPP) aims to encourage the conservation and management of areas of natural vegetation that provide habitat for Koalas to support a permanent free-living population over their present range and reverse the current trend of Koala population decline.

Part 4.1(4.4) of the SEPP identifies that the proposal lies on land on which Chapter 4 of the SEPP is applicable, however the proposal does not require development consent from Council as it will be assessed in accordance with Part 5 of the EP&A Act 1979 and therefore Part 4.2 of the SEPP is not applicable. However, Koala habitat has been adequately considered below.

The SEPP 2021 defines Core Koala Habitat as:

- An area of land which has been assessed by a suitably qualified and experienced person as being highly suitable koala habitat and where koalas are recorded as being present at the time of assessment, or
- An area of land which has been assessed by a suitably qualified and experienced person as being highly suitable koala habitat and where koalas have been recorded as being present in the previous 18 years.

The nearest Koala sighting was recorded in 2014, and its location is listed as "Suburb only: Albion Park", with no precise coordinates. Given the age of this record and that the vegetation within the Subject Land is poorly connected and poor quality, the vegetation within the Subject Land is not considered to be highly suitable Koala habitat. Furthermore, due to the potential for harm from vehicle strikes, dog attack etc., Koala inhabitation of the Subject Land should not be encouraged.

Therefore, further consideration of Chapter 4 of the SEPP (Biodiversity and Conservation) is not required.

6.5 BIODIVERSITY OFFSET SCHEME ENTRANCE

The potential impact of the development on any threatened species, populations or communities is assessed through application of a Test of Significance under Section 7.3 of the BC Act at the development application stage. Assessments of Significance (AoS) were applied where necessary. The AoS are discussed below in **Section 6.6**.

The proposed development is not considered to create significant additional impact to threatened communities, flora or fauna. Therefore, an SIS or BDAR and entrance into the Biodiversity Offset Scheme is not required.

6.6 SIGNIFICANCE ASSESSMENTS

6.6.1 Assessment of Significance under the EP&A Act and BC Act

Assessments using the criteria provided under the EP&A Act must be considered by consent or determining authorities when considering a development proposal or development application. This enables a decision to be made as to whether there is likely to be a significant impact on the species and hence if entry into the BOS required.

The results of the field survey have been used to inform whether significance assessments are required and for any listed species and communities. Significance assessments have been undertaken (**Appendix D**) for the species listed in **Table 19**.

Table 19: Entities to which the BC Act Assessment of Significance has been applied

Common name	Scientific name	BC Act
Community		
Freshwater wetlands on coastal floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		E
Illawarra lowlands grassy woodland in the Sydney basin bioregion		E
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		E
Aves		
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	V
Glossy black Cockatoo	<i>Calyptorhynchus lathami</i>	V
Barking Owl	<i>Ninox connivens</i>	V
Powerful Owl	<i>Ninox strenua</i>	V
Masked Owl	<i>Tyto novaehollandiae</i>	V
Sooty Owl	<i>Tyto tenebricosa</i>	V
Mammals		
Southern Myotis	<i>Myotis macropus</i>	V
Grey-headed Flying Fox	<i>Pteroptus poliocephalus</i>	V
Yellow-bellied Sheathtail Bat	<i>Saccolaimus flaviventris</i>	V
Species habitat associations have been informed predominantly from EES (2025) and DotEE (2025) species profiles. Key. V=Vulnerable, E=Endangered, Ep=Endangered Population, CE=Critically Endangered, M=Migratory.		

After undertaking the AoS for the above listed entities, under its current layout, the proposal was not considered to have any significant impact on any of the above entities.

6.6.2 EPBC Act Significant Impact Guidelines

The EPBC Act establishes a process for assessing the environmental impact of activities and developments where MNES may be affected. The process includes the application of Significant Impact Criteria for listed threatened species and ecological communities that represent a MNES that will be impacted because of the proposed action. Significant impact guidelines that outline several criteria have been developed by the Commonwealth, to aid in conducting the assessment and help decide whether a referral to the Commonwealth is required. Consideration of the SIC was undertaken for the species listed in **Table 20**.

Table 20: Entities to which the EPBC Significant Impact Criteria has been applied

Common name	Scientific name	EPBC Act
Aves		
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	E
Glossy black Cockatoo	<i>Calyptorhynchus lathami</i>	V
Mammalia		
Grey-headed Flying Fox	<i>Pteroptus poliocephalus</i>	V
Key. V=Vulnerable, E=Endangered, Ep=Endangered Population, CE=Critically Endangered, M=Migratory. Species habitat associations have been informed predominantly from EES (2025) and DotEE (2025) species profiles.		

On application of the SIC, it is determined that the proposed development is unlikely to result in a significant impact to MNES (threatened and migratory species).

6.7 MINOR ADDITIONAL IMPACTS

In addition to the above impacts, an area of cut and fill works is proposed surrounding the proposed stormwater drain within Subject Land B. Subject Land B has been expanded to include this additional area (**Figure 24**). These works are required to regrade the land to allow better drainage of the surrounding lots into the Macquarie Rivulet. The area to be stripped, regraded and revegetated will only include the removal of surface grass, which is restricted to exotic lawn. All trees within the cut and fill area are to be retained, with earthworks adjusted to ensure no impact to Structural Root Zones. These works will not create any additional impact to native vegetation, and furthermore, the revegetation of areas of exotic vegetation provides an opportunity to improve the ecological value of the area. As such, no further consideration of impacts are required for the expanded cut and fill area depicted in Subject Land B.

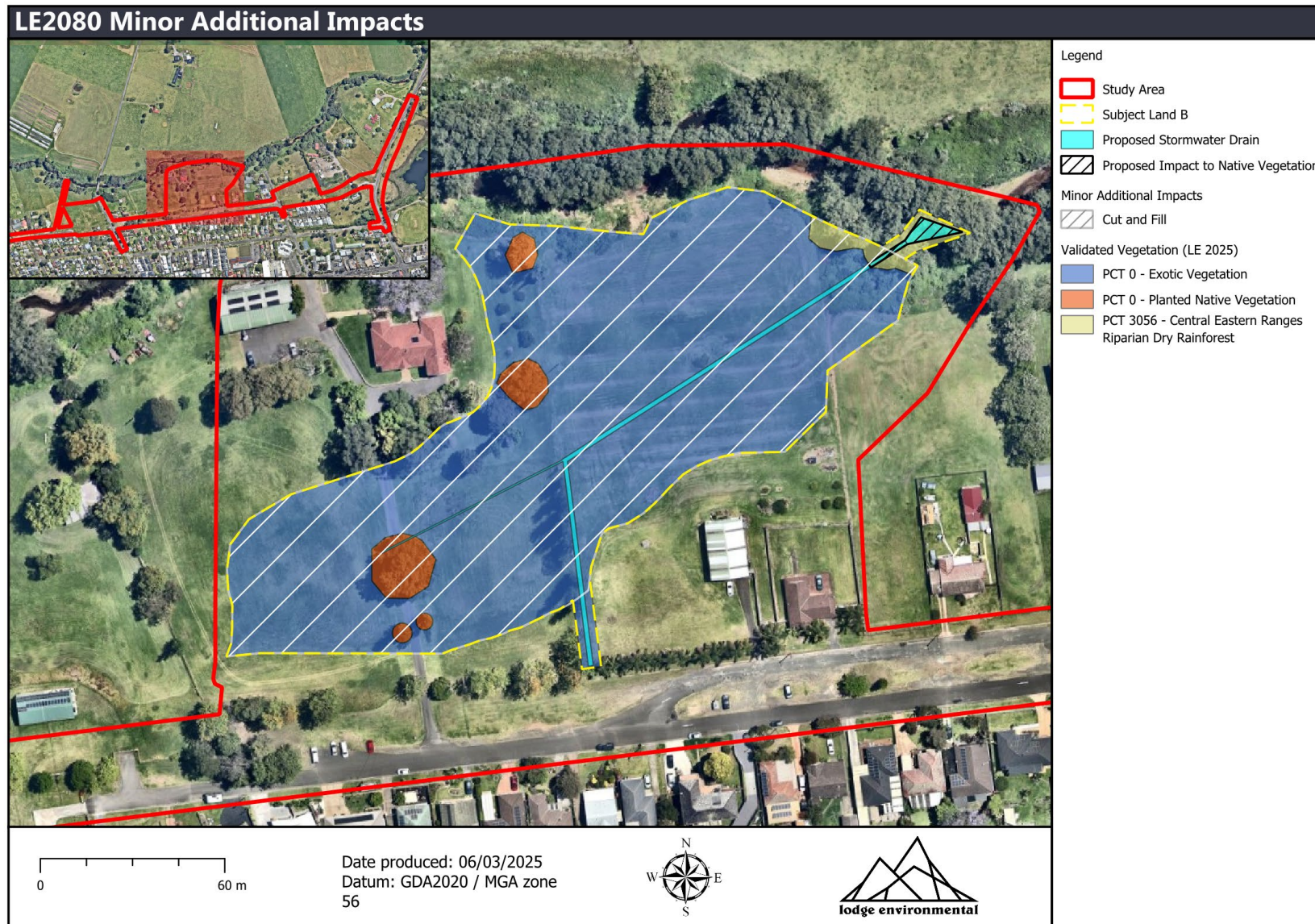


Figure 24: Minor Additional Impacts to Subject Land B

7.0 RECOMMENDATIONS

This report takes a conservative approach, in assessing the maximum potential vegetation removal under the impact of the proposal. This includes assuming the removal of 0.06 ha of native vegetation across multiple PCTs, within the Subject Land. The following recommendations are provided to minimise potential impacts to threatened and non-threatened vegetation communities, flora and fauna that could result from the proposed action:

- Care must be taken when moving equipment near vegetation to be retained. If works appear to encroach on retained vegetation, advice from a qualified Arborist should be gained to infer appropriate tree protection measures. Generally, the Tree Protection Zone (TPZ) is a hypothetical estimation of the area required to protect a tree from adverse construction and development activities. It is calculated for each tree by multiplying diameter at breast height (DBH) by 12 and is a radius measured in metres from the centre of trunk. It is understood that encroachments into the TPZ can occur for 10% of the zone in accordance with AS4970-2009 Protection of trees on development sites.
- "No Go-Zones" should be erected around retained native vegetation outside the Subject Land, to exclude people and machinery, and will be clearly delineated
- Where temporary fencing is required, it should be fauna-friendly, to prevent injury and allow fauna to escape
- Adequate erosion and sediment control measures should always be in place during construction, in accordance with best practice guidelines (Landcom 2004), including:
 - sediment fencing
 - vehicle and machinery movement confined to designated work areas
 - consideration given to weather, with works stopped if the onset of heavy rain is deemed likely to cause soil erosion or soil structure damage
 - Freshwater lagoon systems are typically very sensitive to environmental changes, thus it is critical that sediment and water runoff into the lagoon to the east of Subject Land C be avoided entirely if possible.
- All weed species should be controlled. A Construction Environmental Management Plan (CEMP) is to be prepared by suitably qualified personnel prior to the release of a construction certificate. The CEMP is to address how to manage the spread and invasion of exotic species into adjacent native vegetation.
 - Weed material must be disposed of appropriately, at a waste disposal centre, where the composting process will destroy all plant pathogens and seeds.
- Where landscaping is proposed, it should be representative of the surrounding native PCTs
- To minimise the impact of light pollution on nocturnal fauna, natural darkness should be preserved where possible, and lighting should only be installed where needed, following

best practice design principles such as using timers, sensors, low intensity lighting and avoiding light spill by directing or shielding lights.

8.0 CONCLUSION

Through the completion of the surveys conducted as part of this report, no threatened flora or fauna were recorded within the Subject Land that will be significantly impacted by the development.

A range of suitable recommendations have been made to improve the environmental outcome of the proposal. These include use of native landscaping, Tree Protection Zones and 'No-Go Zones' for retained vegetation, and weed control.

Assessments of Significance were undertaken where necessary. It was determined that the proposal will not constitute a significant impact on the listed entities.

This Flora and Fauna Assessment has adequately considered threatened species and communities in the context of the proposed development in the Subject Land by:

- Conducting a field survey and targeted flora surveys.
- adopting the precautionary principle in the assessment of threatened species; and
- designating appropriate recommendations to minimise potential impacts to threatened species that may transiently occur on the site as well as any other fauna.

The assessments contained within this report have determined that the proposed development is unlikely to have a significant effect on any listed communities or species or their habitat in accordance with the EP&A Act, BC Act and EPBC Act provided the recommendations contained in this report are adhered to. There will not be an impact on any active and mapped areas of Biodiversity Value, nor will there be an impact on native vegetation above the relevant impact threshold.

Therefore, the preparation and submission of a BDAR or referral to the Commonwealth is not required.

9.0 REFERENCES

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- Standards Australia. (2010). AS 4970-2009 Protection of trees on development sites

10.0 LIMITATIONS

This report and the associated services performed by Lodge Environmental are in accordance with the scope of services set out in the contract between Lodge Environmental and the Client. The scope of services was defined by the requests of the Client, by the time and budgetary constraints imposed by the Client, and by the availability of access to Site.

Lodge Environmental derived the data in this report primarily from visual inspections, and limited survey and analysis made on the dates indicated. In preparing this report, Lodge Environmental has relied upon, and presumed accurate, certain information provided by government authorities, the Client and others identified herein. The report has been prepared on the basis that while Lodge Environmental believes all the information in it is deemed reliable and accurate at the time of preparing the report, it does not warrant its accuracy or completeness and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by the Client arising from or in connection with the supply or use of the whole or any part of the information in the report through any cause whatsoever.

The data, findings, observations, conclusions and recommendations in the report are based solely upon the state of the Site at the time of the investigation. The passage of time, manifestation of latent conditions or impacts of future events (e.g. changes in legislation, scientific knowledge, land uses, etc) may render the report inaccurate. In those circumstances, Lodge Environmental shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of the report.

This report has been prepared on behalf of and for the exclusive use of the Client and is subject to and issued in connection with the provisions of the agreement between Lodge Environmental and the Client. Lodge Environmental accepts no liability or responsibility whatsoever and expressly disclaims any responsibility for or in respect of any use of or reliance upon this report by any third party or parties.

It is the responsibility of the Client to accept if the Client so chooses any recommendations contained within and implement them in an appropriate, suitable and timely manner.

APPENDICES

Appendix A: Threatened flora and fauna likelihood table

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
Community						
Coastal Swamp Oak (<i>Casuarina glauca</i>) Forest of New South Wales and South East Queensland ecological community	-	E	Associated with grey-black clay-loams and sandy loams, where the groundwater is saline or sub-saline, on waterlogged or periodically inundated flats, drainage lines, lake margins and estuarine fringes associated with coastal floodplains. The structure of the community may vary from open forests to low woodlands, scrubs or reedlands with scattered trees. Known from parts of the Local Government Areas of Wollongong.	Low	No – No associated PCTs present	
Coastal Upland Swamps in the Sydney Basin Bioregion	E	E	This community occurs primarily on poorly permeable sandstone plateaux in the low relief headwater valleys of streams and on sandstone benches with abundant seepage moisture. Includes open graminiod heath, sedgeland and tall scrub associated with periodically waterlogged soils on the Hawkesbury sandstone plateaux.	Low	No – No associated PCTs present	
Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin, and South East Corner Bioregion	E	-	This community forms part of a complex of forested wetland and treeless wetland communities found throughout the coastal floodplains of NSW. They typically occur on silts, muds or humic loams in depressions, flats, drainage lines, backswamps, lagoons and lakes associated with coastal floodplains. The structure of the community may vary from sedgelands and reedlands to herbfields, and woody species of plants are generally scarce. Typically, these wetlands form mosaics with other floodplain communities, and often they include or are associated with ephemeral or semi-permanent standing water.	Moderate	Yes	
Illawarra and south coast lowland forest and woodland ecological community	-	CE	This community comprises vegetation types that occupy the Illawarra coastal plain and escarpment foothills. Characteristic tree species include Forest Red Gum (<i>Eucalyptus tereticornis</i>), Thin-leaved Stringybark (<i>Eucalyptus eugenioides</i>), Woollybutt	Low	No – No associated PCTs present	

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				(<i>Eucalyptus longifolia</i>), Coast Grey Box (<i>Eucalyptus bosistoana</i>) and White Feather Honey-myrtle (<i>Melaleuca decora</i>).		
Illawarra-Shoalhaven Subtropical Rainforest of the Sydney Basin Bioregion		-	CE	Illawarra Subtropical Rainforest (ISR) is a rainforest community that occupies high nutrient soils in the Illawarra region, south of Sydney. Characteristic tree species include <i>Baloghia inophylla</i> (Brush Bloodwood), <i>Brachychiton acerifolius</i> (Flame Tree), <i>Dendrocnide excelsa</i> (Giant Stinging Tree), <i>Diploglottis australis</i> (Native Tamarind), <i>Ficus</i> spp., <i>Pennantia cunninghamii</i> (Brown Beech), and <i>Toona ciliata</i> (Red Cedar). Species of <i>Eucalyptus</i> , <i>Syncarpia</i> and <i>Acacia</i> may also be present as emergents or incorporated into the dense canopy. While rainforest canopies are generally closed, in highly disturbed stands the canopy of ISR may be irregular and open. The height of the canopy varies considerably, and structurally some stands of ISR are scrub.	Low	No - No associated PCTs present
Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion		E	-	This community comprises vegetation types that occupy the Illawarra coastal plain and escarpment foothills. It has been recorded from the LGAs of Wollongong, Shellharbour and Kiama, and Shoalhaven. It has not recorded within formal conservation reserves, although some remnants occur in small council reserves including Blackbutt Reserve and Croome Road Reserve in Shellharbour.	Moderate	Yes
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia		E	CE	Littoral Rainforest is generally a closed forest, the structure and composition of which is strongly influenced by its proximity to the ocean. The plant species of this community are predominantly rainforest species. Several species have compound leaves, and vines may be a major component of the canopy. These features differentiate littoral rainforest from forest or scrub, but while the canopy is dominated by rainforest species, scattered emergent individuals of sclerophyll species, such as <i>Angophora costata</i> , <i>Banksia integrifolia</i> , <i>Eucalyptus botryoides</i> and <i>Eucalyptus tereticornis</i> occur in many stands.	Low	No - No associated PCTs present
Lowland Grassy Woodland in the South-East Corner Bioregion		E	-	This community associated with rainshadow areas of the south coast and hinterland of New South Wales. These rainshadow areas receive less rainfall than	Low	No - Outside of typical range

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				more elevated terrain that partially surrounds them, with mean annual rainfall typically in the range of 700-1100 mm. The community typically occurs in undulating terrain up to 500 m elevation on granitic substrates (e.g. adamellites, granites, granodiorites, gabbros, etc.) but may also occur on locally steep sites and on acid volcanic, alluvial and fine-grained sedimentary substrates.		
Lowland Rainforest in the New South Wales North Coast, and Sydney Basin Bioregions		E	-	This community includes subtropical rainforest and structurally complex forms of dry rainforest, but excludes certain types such as Littoral Rainforest and Lowland Rainforest on Floodplains. These rainforests are typically found on high-nutrient geological substrates like basalts and fine-grained sedimentary rocks, and while their elevation ranges vary, LRF within the Sydney Basin bioregion occurs below 350m.	Low	No - No associated PCTs present
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria		E	CE	The composition of the tree stratum varies considerably, the most widespread and abundant dominant trees include <i>Eucalyptus tereticornis</i> (forest red gum), <i>E. amplifolia</i> (cabbage gum), <i>Angophora floribunda</i> (rough-barked apple) and <i>A. subvelutina</i> (broad-leaved apple). <i>Eucalyptus baueriana</i> (blue box), <i>E. botryoides</i> (bangalay) and <i>E. elata</i> (river peppermint) may be common south from Sydney, <i>E. ovata</i> (swamp gum) occurs on the far south coast, <i>E. saligna</i> (Sydney blue gum) and <i>E. grandis</i> (flooded gum) may occur north of Sydney, while <i>E. benthamii</i> is restricted to the Hawkesbury floodplain.	Low	No - No associated PCTs present
Robertson Rainforest in the Sydney Basin Bioregion		E	CE	Occurs almost exclusively on highly fertile soils derived from basalt and basanite. It occurs on the gently undulating Robertson Plateau in the eastern parts of the Southern Highlands, at altitudes of between 500 to 700 metres. Appears to be restricted to the Robertson Basalt; no observations of the community have been recorded on the surrounding Wianamatta Shale.	Low	No - No associated PCTs present
Southern Highlands Shale Forest and Woodland in the Sydney Basin Bioregion		E	CE	It occurs on clay soils on Wianamatta Shale in the Southern Highlands. south of Colo Vale, extending from west of Mittagong, eastwards to the Illawarra Escarpment, south to Bundanoon and south-west to	Low	No - No associated PCTs present

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				Canyonleigh. Elevation ranges from about 600 m to about 800 m. Rainfall ranges from 1400 mm in the east to 900 mm per annum in the west.		
Subtropical and Temperate Coastal Saltmarsh		-	V	Coastal Saltmarsh occurs in the intertidal zone on the shores of estuaries and lagoons that are permanently or intermittently open to the sea. It is frequently found as a zone on the landward side of mangrove stands.	Low	No – No associated PCTs present
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin, and South East Corner Bioregions		E	-	The structure of the community is typically open forest, although partial clearing may have reduced the canopy to scattered trees. In some areas the tree stratum is low and dense, so that the community takes on the structure of scrub. The community also includes some areas of fernland and tall reedland or sedgeland, where trees are very sparse or absent. Typically, these forests, scrubs, fernlands, reedlands and sedgelands form mosaics with other floodplain forest communities and treeless wetlands, and often they fringe treeless floodplain lagoons or wetlands with semi-permanent standing water.	Moderate	Yes
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion		-	E	Includes the Mt Gibraltar Forest in the Sydney Basin Bioregion and Robertson Basalt Tall Open Forest in the Sydney Basin Bioregion. Generally tall open eucalypt forests found on igneous rock (predominately Tertiary basalt and microsyenite) in, or adjacent to, the Sydney Basin Bioregion. The ecological community occurs in areas of high rainfall, generally ranging from 950 to 1600 mm/year, typically at elevations between 650 and 1050 m above sea level.	Low	No – No associated PCTs present
Flora						
-	<i>Acacia baueri</i> subsp. <i>aspera</i>	V	-	Chiefly in the Blue Mountains, but also near Mount Keira and reported from Royal National Park; rare. Grows in low heath, often on exposed sandstone ridges.	Low	No – No individuals identified during site survey.
Bynoe's Wattle	<i>Acacia bynoeana</i>	E	V	Bynoe's wattle is found in central eastern NSW, from the Hunter District (Morisset) south to the Southern Highlands and west to the Blue Mountains. Occurs in heath or dry sclerophyll forest on sandy soils. Seems to prefer open, sometimes slightly disturbed sites	Low	No – No individuals identified during site survey.

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				such as trail margins, edges of roadside spoil mounds and in recently burnt patches.		
-	<i>Allocasuarina glaireicola</i>	E	E	Grows in Castlereagh woodland on lateritic soil. Found in open woodland with <i>Eucalyptus parramattensis</i> , <i>Eucalyptus fibrosa</i> , <i>Angophora bakeri</i> , <i>Eucalyptus sclerophylla</i> and <i>Melaleuca decora</i> .	Low	No - No individuals identified during site survey.
Lesser Creeping Fern	<i>Arthropteris palisotii</i>	E	-	The Lesser Creeping Fern occurs in rainforest and grows mainly on trees. Occurs in rainforest, mainly on tree trunks. Located on the Illawarra Escarpment, North-eastern NSW and also in Queensland.	Low	No - No individuals identified during site survey.
Deane's Boronia	<i>Boronia deanei</i>	V	V	Grows in wet heath, often at the margins of open forest adjoining swamps or along streams. Also found in drier open forest on poorly drained peat soils over granite or sandstone.	Low	No - No individuals identified during site survey.
Thick Lip Spider Orchid	<i>Caladenia tessellata</i>	E	V	Generally found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil. Also open heathland habitat. Flowers September to November.	Low	No - No individuals identified during site survey.
Pretty Beard Orchid	<i>Calochilus pulchellus</i>	E	-	The life cycle of <i>C. pulchellus</i> is typical for temperate zone members of the genus, with the leaf emerging from a subterranean tuber in mid-winter, and flowering occurring from late October to late November, with only one or two flowers open at a time and each flower lasting only 2-4 days. The plant dies back to tubers in later summer.	Low	No - No individuals identified during site survey.
Chorizema parviflorum Benth. in the Wollongong and Shellharbour Local Government Areas	<i>Chorizema parviflorum</i>	E	-	This endangered population has been recorded from between Austinmer and Albion Park in the local government areas of Wollongong and Shellharbour. All known sites (excluding the site at Austinmer) occupy woodland or forest dominated by Forest Red Gum (<i>Eucalyptus tereticornis</i>) and/or Woollybutt (<i>E. longifolia</i>). Flowering period is August to January, with seeds maturing from November.	Low	No - No individuals identified during site survey.
Leafless Tongue Orchid	<i>Cryptostylis hunteriana</i>	V	V	Occurs in a range of communities, including swamp-heath and woodland. Larger populations typically occur in woodland dominated by Scribbly Gum (<i>Eucalyptus sclerophylla</i>), Silvertop Ash (<i>E. sieberi</i>), Red Bloodwood (<i>Corymbia gummifera</i>) and Black	Low	No - No individuals identified during site survey.

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
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				She-Oak (<i>Allocasuarina littoralis</i>). Flowers November to February.		
White-flowered Wax Plant	<i>Cynanchum elegans</i>	E	E	Restricted to eastern NSW, from Brunswick Heads on the north coast to Gerroa in the Illawarra region, and as far west as Merriwa in the upper Hunter River valley. Dry woodland; littoral woodland; <i>Leptospermum laevigatum</i> - <i>Banksia integrifolia</i> subsp. <i>integrifolia</i> (Coastal Tea-tree- Coastal Banksia) coastal scrub; <i>Eucalyptus tereticornis</i> (Forest Red Gum) or <i>Corymbia maculata</i> (Spotted Gum) open forest and woodland; and <i>Melaleuca armillaris</i> (Bracelet Honey Myrtle) scrub.	Low	No - No individuals identified during site survey.
Illawarra Socketwood	<i>Daphnandra johnsonii</i>	E	E	Restricted to the Illawarra region where it has been recorded from the local government areas of Shoalhaven, Kiama, Shellharbour and Wollongong. Occupies the rocky hillsides and gullies of the Illawarra lowlands, occasionally extending onto the upper escarpment slopes. Flowers briefly in September and early October with fruits taking 10 to 12 months to mature.	Low	No - No individuals identified during site survey.
Bauer's Midge Orchid	<i>Genoplesium baueri</i>	E	E	Grows in dry sclerophyll forest and moss gardens over sandstone.	Low	No - No individuals identified during site survey.
Gossia acmenoides population in the Sydney Basin Bioregion south of the Georges River	<i>Gossia acmenoides</i>	E	-	Known from Shellharbour, Wollongong and Kiama LGAs and encompasses all occurrences south of the Georges River. Found in subtropical and dry rainforest on the ranges and coastal plain of eastern Australia	Low	No - No individuals identified during site survey.
-	<i>Grevillea raybrownii</i>	V	-	Generally, occurs on ridgetops and, less often, slopes and benches of Hawkesbury Sandstone and Mittagong Formation. It occurs in Eucalyptus open forest and woodland with a shrubby understorey	Low	No - No individuals identified during site survey.
Carrington Falls Grevillea	<i>Grevillea rivularis</i>	CE	E	The Carrington Falls Grevillea is found mainly on moist creek-sides on sandstone in open heath or eucalypt woodland. It is confined to the Carrington Falls area on the upper Kangaroo River west of Kiama, within Budderoo National Park.	Low	No - No individuals identified during site survey.
Square Raspwort	<i>Haloragis exalata</i> subsp. <i>exalata</i>	V	V	Square Raspwort appears to require protected and shaded damp situations in riparian habitats. Occurs in	Low	No - No individuals

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				4 widely scattered localities in eastern NSW. It is disjunct distributed in the Central Coast, South Coast and North Western Slopes botanical subdivisions of NSW.		identified during site survey.
-	<i>Hibbertia acaulothrix</i>	-	-	<i>Hibbertia acaulothrix</i> is found on rocky outcrops and has been recorded growing in <i>Eucalyptus sieberi</i> woodland or in association with <i>Allocasuarina littoralis</i> (black she-oak), <i>Corymbia gummifera</i> (red bloodwood), and <i>Leptospermum trinervium</i> (flaky-barked tea-tree)	Low	No - No individuals identified during site survey.
Illawarra Irene	<i>Irenepharsus trypherus</i>	E	E	The species has been recorded from 18 sites within the local government areas of Kiama, Shellharbour, Shoalhaven, Tallaganda, Wingecarribee, and Wollongong. Typically inhabits steep rocky slopes near cliff lines and ridge tops. The species is less typically found growing out of rock crevices or on narrow benches along cliff lines.	Low	No - No individuals identified during site survey.
Lespedeza juncea subsp. sericea in the Wollongong Local Government Area	<i>Lespedeza juncea subsp. sericea</i>	E	-	This endangered population occurs south of Dapto in the Wollongong local government area	Low	No - No individuals identified during site survey.
Woronora Beard-heath	<i>Leucopogon exolasius</i>	V	V	The plant occurs in woodland on sandstone and is found along the upper Georges River area in Heathcote National Park	Low	No - No individuals identified during site survey.
Macadamia Nut	<i>Macadamia integrifolia</i>	-	V	Not known to occur naturally in the wild in NSW.	Low	No - No individuals identified during site survey.
Biconvex Paperbark	<i>Melaleuca biconvexa</i>	V	V	Biconvex Paperbark generally grows in damp places, often near streams or low-lying areas on alluvial soils of low slopes or sheltered aspects.	Low	No - No individuals identified during site survey.
Tall Knotweed	<i>Persicaria elatior</i>	V	V	Tall Knotweed has been recorded in south-eastern NSW (Mt Dromedary (an old record), Moruya State Forest near Turlinjah, the Upper Avon River catchment north of Robertson, Bermagui, and Picton Lakes. This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance.	Low	No - No individuals identified during site survey.

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Hairy Geebung	<i>Persoonia hirsuta</i>	E	E	The Hairy Geebung is found in sandy soils in dry sclerophyll open forest, woodland and heath on sandstone. It has a scattered distribution around Sydney. The species is distributed from Singleton in the north, along the east coast to Bargo in the south and the Blue Mountains to the west.	Low	No – No individuals identified during site survey.
-	<i>Persoonia oxycoccoides</i>	E	-	in montane heath to dry sclerophyll forest, on sandstone; an area bounded by Mittagong, Jamberoo Pass and Tallong	Low	No – No individuals identified during site survey.
-	<i>Pimelea curviflora</i> var. <i>curviflora</i>	V	V	Confined to the coastal area of the Sydney and Illawarra regions. Occurs on shaley/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes amongst woodlands. Also recorded in Illawarra Lowland Grassy Woodland habitat at Albion Park on the Illawarra coastal plain.	Low	No – No individuals identified during site survey.
Spiked Rice-flower	<i>Pimelea spicata</i>	E	E	In both the Cumberland Plain and Illawarra environments this species is found on well-structured clay soils. In the coastal Illawarra it occurs commonly in Coast Banksia open woodland with a better developed shrub and grass understorey. Coastal headlands and hilltops are the favoured sites.	Low	No – No individuals identified during site survey.
Brown Pomaderris	<i>Pomaderris brunnea</i>	E	V	The species grows across a range of habitats and topography. In NSW, it occurs on ridgetops and plateaux in relatively dry habitats, and also in moist woodland or forest on clay and alluvial soils of flood plains and creek lines in relatively damp habitats.	Low	No – No individuals identified during site survey.
Cotoneaster Pomaderris	<i>Pomaderris cotoneaster</i>	E	E	Cotoneaster Pomaderris has been recorded in a range of habitats in predominantly forested country. The habitats include forest with deep, friable soil, amongst rock beside a creek, on rocky forested slopes and in steep gullies between sandstone cliffs.	Low	No – No individuals identified during site survey.
Carrington Falls Pomaderris	<i>Pomaderris walshii</i>	CE	-	<i>Pomaderris walshii</i> has been recorded in riparian habitat varying from shrubland to open grassy forest. Some more recent new records have found the species approximately 100 m from riparian habitat. <i>Pomaderris walshii</i> has a very highly restricted distribution. It is currently known only from the upper catchment of the Kangaroo River, above the	Low	No – No individuals identified during site survey.

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
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				escarpment near Robertson within the Sydney Basin Bioregion.		
Jervis Bay Leek Orchid	<i>Prasophyllum affine</i>	E	E	Jervis Bay Leek Orchid is currently known from three areas south-east of Nowra on South Coast. These are Kinghorne Point, Wowly Gully near the town of Callala Bay, and near the township of Vincentia. Grows on poorly drained grey clay soils that support low heathland and sedgeland communities.	Low	No – No individuals identified during site survey.
Villous Mint-bush	<i>Prostanthera densa</i>	V	V	<i>Prostanthera densa</i> generally grows in sclerophyll forest and shrubland on coastal headlands and near coastal ranges, chiefly on sandstone, and rocky slopes near the sea. Plants regenerate from rootstock after fire and flower within the first year or two.	Low	No – No individuals identified during site survey.
Illawarra Greenhood	<i>Pterostylis gibbosa</i>	E	E	All known populations grow in open forest or woodland, on flat or gently sloping land with poor drainage. In the Illawarra region, the species grows in woodland dominated by Forest Red Gum (<i>Eucalyptus tereticornis</i>), Woollybutt (<i>E. longifolia</i>) and White Feather Honey-myrtle (<i>Melaleuca decora</i>). Near Nowra, the species grows in an open forest of Spotted Gum (<i>Corymbia maculata</i>), Forest Red Gum and Grey Ironbark (<i>E. paniculata</i>). In the Hunter region, the species grows in open woodland dominated by Narrow-leaved Ironbark (<i>E. crebra</i>), Forest Red Gum and Black Cypress Pine (<i>Callitris endlicheri</i>).	Low	No – No individuals identified during site survey.
Waterfall Greenhood	<i>Pterostylis pulchella</i>	V	V	The Waterfall Greenhood is found only at Fitzroy Falls, Belmore Falls, upper Bundanoon Creek (Meryla) and Minnamurra Falls	Low	No – No individuals identified during site survey.
Sydney Plains Greenhood	<i>Pterostylis saxicola</i>	E	E	Found growing in small pockets of shallow soil in depressions on sandstone rock shelves above cliff lines. The vegetation communities above the shelves where <i>Pterostylis saxicola</i> occurs are sclerophyll forest or woodland on shale/sandstone transition soils or shale soils.	Low	No – No individuals identified during site survey.
Prickly Bush-pea	<i>Pultenaea aristata</i>	V	V	Prickly Bush-pea is restricted to the Woronora Plateau, a small area between Helensburgh, south of Sydney, and Mt Kiera above Wollongong.	Low	No – No individuals identified during site survey.

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Eastern Australian Underground Orchid	<i>Rhizanthella slateri</i>	V	E	Habitat requirements are poorly understood and no particular vegetation type has been associated with the species, although it is known to occur in sclerophyll forest. Highly cryptic given that it grows almost completely below the soil surface, with flowers being the only part of the plant that can occur above ground. Therefore usually located only when the soil is disturbed.	Low	No - No individuals identified during site survey.
Scrub Turpentine	<i>Rhodamnia rubescens</i>	CE	CE	Shrub to small tree, Scrub turpentine occurs in coastal districts north from Batemans bay, NSW to inland of Bundaberg in Queensland. Littoral, warm temperate and subtropical rainforest on volcanic and sedimentary soils	Low	No - No individuals identified during site survey.
Native Guava	<i>Rhodomyrtus psidioides</i>	CE	CE	Occurs from Broken Bay, approximately 90 km north of Sydney, New South Wales, to Maryborough in Queensland. Populations are typically restricted to coastal and sub-coastal areas of low elevation. Pioneer species found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines.	Low	No - No individuals identified during site survey.
	<i>Solanum celatum</i>	E	-	Restricted to an area from Wollongong to just south of Nowra, and west to Bungonia. Grows in rainforest clearings, or in wet sclerophyll forests. Flowers August to October and produces fruit December to January.	Low	No - No individuals identified during site survey.
Magenta Lilly Pilly	<i>Syzygium paniculatum</i>	E	V	On the south coast the Magenta Lilly Pilly occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral (coastal) rainforest.	Low	No - No individuals identified during site survey.
Kangaloon Sun Orchid	<i>Thelymitra kangaloonica</i>	CE	CE	Only known from the southern tablelands of NSW in the Moss Vale / Kangaloon / Fitzroy Falls area where it occurs in swamps in sedgeland. Late October and early November.	Low	No - No individuals identified during site survey.
Austral Toadflax	<i>Thesium australe</i>	V	V	Austral Toad-flax is found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass (<i>Themeda australis</i>).	Low	No - No individuals identified during site survey.

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		BC Act	EPBC Act			
Swamp Everlasting	<i>Xerochrysum palustre</i>	-	V	Grows in wetlands including sedge-swamps and shallow freshwater marshes, often on heavy black clay soils.	Low	No - No individuals identified during site survey.
Illawarra Zieria	<i>Zieria granulata</i>	E	E	The typical habitat is dry ridge tops and rocky outcrops on shallow volcanic soils, usually on Bumbo Latite. Less frequently found on the moist slopes of the Illawarra escarpment and in low-lying areas on Quaternary sediments. Restricted to the Illawarra region where it is recorded from a number of sites. The species primarily occupies the coastal lowlands between Oak Flats and Toolijooa, in the local government areas of Shellharbour and Kiama.	Low	No - No individuals identified during site survey.
Aves						
Common Sandpiper	<i>Actitis hypoleucos</i>	M	M	In Australia, the Common Sandpiper is found in coastal or inland wetlands, both saline and fresh. This species is found mainly on muddy edges or rocky shores. During the breeding season in the northern hemisphere, it prefers freshwater lakes and shallow rivers.	Low	No - No suitable habitat present
Regent Honeyeater	<i>Anthochaera phrygia</i>	CE	CE	Mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes.	Moderate	No - No suitable habitat present
Fork-tailed Swift	<i>Apus pacificus</i>	M	M	Migratory marine species.	Low	No - No suitable habitat present
Sooty Shearwater	<i>Ardenna grisea</i>	M	J	Migratory marine species.	Low	No - No suitable habitat present
Wedge-tailed Shearwater	<i>Ardenna pacifica</i>	M	J	Usually, shearwaters only visit land to breed. return from the North Pacific to their burrows on islands off the coast of NSW.	Low	No - No suitable habitat present
Short-tailed Shearwater	<i>Ardenna tenuirostris</i>	M	M	Usually, shearwaters only visit land to breed. They establish colonies on remote islands, capes or coastal mountains in places where take-offs are helped by winds and there are few land predators.	Low	No - No suitable habitat present
Ruddy Turnstone	<i>Arenaria interpres</i>	M	M	Found in estuaries, rocky coasts, mudflats and mixed pebble and sand beaches.	Low	No - No suitable habitat present
Dusky Woodswallow	<i>Artamus cyanopterus cyanopterus</i>	V	-	The species occurs throughout most of New South Wales, but is sparsely scattered in, or largely absent	Moderate	No - No suitable habitat present

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				from, much of the upper western region. Most breeding activity occurs on the western slopes of the Great Dividing Range. Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and groundcover of grasses or sedges and fallen woody debris		
Australasian Bittern	<i>Botaurus poiciloptilus</i>	E	E	Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha</i> spp.) and spikerushes (<i>Eleocharis</i> spp.).	Moderate	No - No suitable habitat present
Bush Stone-curlew	<i>Burhinus grallarius</i>	E	-	Inhabits open forests and woodlands with a sparse grassy ground layer and fallen timber.	Low	No - No suitable habitat present
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	M	M	The Sharp-tailed Sandpiper prefers the grassy edges of shallow inland freshwater wetlands.	Low	No - No suitable habitat present
Sanderling	<i>Calidris alba</i>	V	M	Sanderlings are found on open sandy beaches at the edge of the waves, on sandbars and spits	Low	No - No suitable habitat present
Red Knot	<i>Calidris canutus</i>	M	E, M	In NSW the Red Knot mainly occurs in small numbers on intertidal mudflats, estuaries, bays, inlets, lagoons, harbours and sandflats and sandy beaches of sheltered coasts. It is occasionally found on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms and is a rare visitor to terrestrial saline wetlands and freshwater swamps.	Low	No - No suitable habitat present
Curlew Sandpiper	<i>Calidris ferruginea</i>	E	CE, C, J, K	It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts.	Low	No - No suitable habitat present
Pectoral Sandpiper	<i>Calidris melanotos</i>	M	M	Migratory marine species.	Low	No - No suitable habitat present
Red-necked Stint	<i>Calidris ruficollis</i>	M	M	Migratory marine species.	Low	No - No suitable habitat present
Great Knot	<i>Calidris tenuirostris</i>	V	CE, M	Occurs within sheltered, coastal habitats containing large, intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons. Often recorded on sandy beaches with mudflats nearby, sandy spits and islets and sometimes on exposed reefs or rock platforms.	Low	No - No suitable habitat present
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	V	E	In New South Wales, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and	Moderate	Yes

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				south-west slopes. The Gang-gang Cockatoo prefers tall montane forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests during summer, these being at higher altitudes. In winter, this species occurs at lower altitudes in drier, more open eucalypt forests and woodlands, or in dry forest in coastal areas.		
South-eastern Glossy Black-Cockatoo	<i>Calyptrorhynchus lathamii lathamii</i>	V	V	In NSW, widespread along coast and inland to the southern tablelands and central western plains, with a small population in the Riverina. Open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur.	Moderate	Yes
Greater Sand-plover	<i>Charadrius leschenaultii</i>	V	V, M	Migratory wetlands species.	Low	No - No suitable habitat present
Lesser Sand-plover	<i>Charadrius mongolus</i>	V	E, M	Almost entirely coastal in NSW, favouring the beaches of sheltered bays, harbours and estuaries with large intertidal sandflats or mudflats; occasionally occurs on sandy beaches, coral reefs and rock platforms.	Low	No - No suitable habitat present
White-winged Black Tern	<i>Chlidonias leucopterus</i>	M	M	Migratory marine species.	Low	No - No suitable habitat present
Spotted Harrier	<i>Circus assimilis</i>	V	-	The Spotted Harrier occurs throughout the Australian mainland, with individuals dispersing widely in NSW and comprise of a single population. This species occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands.	Low	No - No suitable habitat present
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>	V	-	Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and River Red Gum (<i>Eucalyptus camaldulensis</i>) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen	Low	No - No suitable habitat present

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				timber is an important habitat component for foraging; also recorded, though less commonly, in similar woodland habitats on the coastal ranges and plains.		
Varied Sittella	<i>Daphoenositta chrysoptera</i>	V	-	Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland. Feeds on arthropods gleaned from crevices in rough or decorticated bark, dead branches, standing dead trees and small branches and twigs in the tree canopy.	Moderate	No - No suitable habitat present
Eastern Bristlebird	<i>Dasyornis brachypterus</i>	E	E	The distribution of the Eastern Bristlebird has contracted to three disjunct areas of south-eastern Australia. There are three main populations: Northern (southern Queensland/ northern NSW), Central (1600 birds) - Barren Ground NR, Budderoo NR, Woronora Plateau, Jervis Bay NP, Booderee NP and Beecroft Peninsula) and Southern (Nadgee NR and Croajingalong NP in the vicinity of the NSW/Victorian border).	Low	No - No suitable habitat present
Antipodean Albatross	<i>Diomedea antipodensis</i>	V	V	The Antipodean Albatross is marine, pelagic and aerial.	Low	No - No suitable habitat present
Gibson's Albatross	<i>Diomedea antipodensis gibsoni</i>	-	M	Gibson's albatross breeds only in the subantarctic Auckland Islands archipelago of New Zealand. Breeding females feed mainly in the Tasman Sea, while the males forage further south in the sub-Australian or mid Pacific sectors of the Southern Ocean	Low	No - No suitable habitat present
Southern Royal Albatross	<i>Diomedea epomophora</i>	-	M	range along the southern oceans concentrating on the west and east coast of southern South America, and also in the waters surrounding New Zealand.	Low	No - No suitable habitat present
Wandering Albatross	<i>Diomedea exulans</i>	E	E	The Wandering Albatross is marine, pelagic and aerial. It occurs where water surface temperatures range from -2° to 24°C.	Low	No - No suitable habitat present
Northern Royal Albatross	<i>Diomedea sanfordi</i>	-	M	Northern royal albatrosses nest on the Chatham Islands (Forty-fours Island, Big Sister Island, and Little Sister Island), Enderby Island in the Auckland Islands, and Taiaroa Head on the Otago Peninsula of New Zealand.	Low	No - No suitable habitat present

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	E	-	The species <i>Ephippiorhynchus asiaticus</i> comprises two subspecies, <i>E. a. asiaticus</i> in India and south-east Asia, and <i>E. a. australis</i> in Australia and New Guinea. In Australia, Black-necked Storks are widespread in coastal and subcoastal northern and eastern Australia, as far south as central NSW (although vagrants may occur further south or inland, well away from breeding areas). In NSW, the species becomes increasingly uncommon south of the Clarence Valley, and rarely occurs south of Sydney. Since 1995, breeding has been recorded as far south as Buladelah.	Low	No – No suitable habitat present
White-fronted Chat	<i>Epthianura albifrons</i>	E	-	The White-fronted Chat is found across the southern half of Australia, from southernmost Queensland to southern Tasmania, and across to Western Australia as far north as Carnarvon. Nests in the Sydney region have also been seen in low isolated mangroves. Nests are usually built about 23 cm above the ground (but have been found up to 2.5 m above the ground).	Moderate	No – No suitable habitat present
Beach Stone-curlew	<i>Esacus magnirostris</i>	CE	-	Beach Stone-curlews are found exclusively along the coast, on a wide range of beaches, islands, reefs and in estuaries, and may often be seen at the edges of or near mangroves. They forage in the intertidal zone of beaches and estuaries, on islands, flats, banks and spits of sand, mud, gravel or rock, and among mangroves. Beach Stone-curlews breed above the littoral zone, at the backs of beaches, or on sandbanks and islands, among low vegetation of grass, scattered shrubs or low trees; also, among open mangroves.	Low	No – No suitable habitat present
Grey Falcon	<i>Falco hypoleucos</i>	V	V	The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey.	Low	No – No suitable habitat present
White-Bellied Storm-Petrel	<i>Fregetta grallaria grallaria</i>	-	M	The white-bellied storm petrel has a widespread range throughout the oceans of the Southern Hemisphere including the Pacific, Atlantic, and Indian	Low	No – No suitable habitat present

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				Oceans, although little detail is known of its pelagic distribution.		
Latham's Snipe	<i>Gallinago hardwickii</i>	M	M	Occurs in permanent and ephemeral wetlands up to 2000 m above sea-level. Migratory Wetlands Species.	Low	No - No suitable habitat present
Gull-billed Tern	<i>Gelochelidon nilotica</i>	M	M	Migratory Marine Species	Low	No - No suitable habitat present
Little Lorikeet	<i>Glossopsitta pusilla</i>	V	-	The Little Lorikeet is distributed widely across the coastal and Great Divide regions of eastern Australia from Cape York to South Australia. NSW provides a large portion of the species' core habitat with lorikeets found westward as far as Dubbo and Albury. Forages primarily in the canopy of open Eucalyptus Forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Additionally, isolated flowering trees in open country, (paddocks, roadside remnants and urban trees) also help sustain viable populations of the species.	Low	No - No historical records nearby
Painted Honeyeater	<i>Grantiella picta</i>	V	V	The Painted Honeyeater is nomadic and occurs at low densities throughout its range. The greatest concentrations of the bird and almost all breeding occurs on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland. During the winter it is more likely to be found in the north of its distribution. Inhabits Boree/ Weeping Myall (<i>Acacia pendula</i>), Brigalow (<i>A. harpophylla</i>) and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus <i>Amyema</i> .	Low	No - No suitable habitat present
Sooty Oystercatcher	<i>Haematopus fuliginosus</i>	V		Favours rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries. Forages on exposed rock or coral at low tide for foods such as limpets and mussels.	Low	No - No suitable habitat present
Pied Oystercatcher	<i>Haematopus longirostris</i>	E	-	Favours intertidal flats of inlets and bays, open beaches and sandbanks. Forages on exposed sand, mud and rock at low tide, for molluscs, worms, crabs and small fish. The chisel-like bill is used to pry open or break into shells of oysters and other shellfish.	Low	No - No suitable habitat present

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	V	-	The White-bellied Sea-Eagle is widespread along the east coast of NSW. This species occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. The habitat of this species is characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Additionally, their terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest).	Low	No – No suitable habitat present
Little Eagle	<i>Hieraaetus morphnoides</i>	V	-	The Little Eagle is found throughout the Australian mainland apart from the most densely forested areas of the Dividing Range escarpment. It occurs as a single population throughout NSW. The species occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used.	Low	No – No suitable habitat present
White-throated Needletail	<i>Hirundapus caudacutus</i>	M	V, M	Almost exclusively aerial. Takes insects on wing over a range of habitat types. Recorded most often above wooded areas, including open forest and rainforest. Migratory Terrestrial Species.	Moderate	No – No suitable habitat present
Caspian Tern	<i>Hydroprogne caspia</i>	M	M	In NSW, this species is widespread east of the Great Divide, mainly in coastal regions, and also in the Riverina and Lower and Upper Western Regions, with occasional records elsewhere. The Caspian Tern is mostly found in sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas) and those with sandy or muddy margins are preferred.	Low	No – No suitable habitat present
Comb-crested Jacana	<i>Irediparra gallinacea</i>	V	-	The Comb-crested Jacana occurs on freshwater wetlands in northern and eastern Australia, mainly in coastal and subcoastal regions, from the north-eastern Kimberley Division of Western Australia to Cape York Peninsula then south along the east coast to the Hunter region of NSW, with stragglers recorded in south-eastern NSW (possibly in response to unfavourable conditions further north).	Low	No – No suitable habitat present
Black Bittern	<i>Ixobrychus flavicollis</i>	V	-	Inhabits both terrestrial and estuarine wetlands, generally in areas of permanent water and dense	Low	No – No suitable habitat present

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				vegetation. Where permanent water is present, the species may occur in flooded grassland, forest, woodland, rainforest and mangroves.		
Swift Parrot	<i>Lathamus discolor</i>	E	CE	The Swift Parrot migrates to the Australian south-east mainland between February and October. In NSW the species is generally found on the coast and southwest slopes. Favoured feed trees include winter flowering species such as Eucalyptus robusta (Swamp Mahogany), Corymbia maculata (Spotted Gum), C. gummifera (Red Bloodwood), E. tereticornis (Forest Red Gum), E. sideroxylon Mugga Ironbark) and E. albens (White Box).	No	No – No suitable habitat present
Broad-billed Sandpiper	<i>Limicola falcinellus</i>	V	M		Low	No – No suitable habitat present
Bar-tailed Godwit	<i>Limosa lapponica</i>	M	M	The Bar-tailed Godwit is found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It is found often around beds of seagrass and, sometimes, in nearby saltmarsh.	Low	No – No suitable habitat present
Bar-tailed Godwit (baueri)	<i>Limosa lapponica baueri</i>	M	V, M	The bar-tailed godwit is a non-breeding migrant in Australia and New Zealand.	Low	No – No suitable habitat present
Square-tailed Kite	<i>Lophoictinia isura</i>	V	-	The Square-tailed Kite ranges along coastal and subcoastal areas from south-western to northern Australia. In NSW, scattered records of the species throughout the state indicate that the species is a regular resident in the north, north-east and along the major west-flowing river systems. It is a summer breeding migrant to the south-east, including the NSW south coast, arriving in September and leaving by March.	Low	No – No suitable habitat present
Southern Giant Petrel	<i>Macronectes giganteus</i>	E	E	Migratory Marine Birds. The Southern Giant Petrel has a circumpolar pelagic range from Antarctica to approximately 20° S and is a common visitor off the coast of NSW.	Low	No – No suitable habitat present
Northern Giant-Petrel	<i>Macronectes halli</i>	V	V	Migratory Marine Birds. The Northern Giant-Petrel has a circumpolar pelagic distribution, usually between 40-64°S in open oceans. Their range extends into subtropical waters (to 28°S) in winter and early spring, and they are a common visitor in NSW	Low	No – No suitable habitat present

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				waters, predominantly along the south-east coast during winter and autumn.		
Hooded Robin (south-eastern form)	<i>Melanodryas cucullata cucullata</i>	E	E	The Hooded Robin is widespread, found across Australia, except for the driest deserts and the wetter coastal areas (northern and eastern coastal QLD and TAS), rarely found on the coast. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses.	Low	No – No suitable habitat present
Orange-bellied Parrot	<i>Neophema chrysogaster</i>	CE	CE	The orange-bellied parrot is a small ground-feeding bird that migrates between distinct breeding and non-breeding ranges. Breeding occurs in south-west Tasmania in summer, and the birds overwinter on the coast of south-east mainland Australia. Non-breeding birds are usually found along the coast of South Australia and Victoria. The non-breeding range also includes NSW however sightings in that state are now very with the most recent sightings being two reports of single birds in 2003.	Low	No – No suitable habitat present
Blue-winged Parrot	<i>Neophema chrysostoma</i>	V	V	The Blue-winged Parrot inhabits a range of habitats from coastal, sub-coastal and inland areas, right through to semi-arid zones. Throughout their range, they favour grasslands and grassy woodlands. They are often found near wetlands both near the coast and in semi-arid zones. Blue-winged Parrots can also be seen in altered environments such as airfields, golf courses and paddocks.	Low	No – No suitable habitat present
Turquoise Parrot	<i>Neophema pulchella</i>	V	-	Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland.	Moderate	No – No suitable habitat present
Barking Owl	<i>Ninox connivens</i>	V	-	Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas.	Moderate	Yes
Powerful Owl	<i>Ninox strenua</i>	V	-	Large tracts of open or closed sclerophyll forest or woodlands but can occur in fragmented landscapes as well. Gullies consisting of wet to dry sclerophyll forest with a dense understorey.	Moderate	Yes

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
Eastern Curlew	<i>Numenius madagascariensis</i>	CE, M	CE, M	The eastern curlew takes an annual migratory flight to Russia and north-eastern China to breed, arriving back home to Australia in August to feed on crabs and molluscs in intertidal mudflats. It generally occupies coastal lakes, inlets, bays and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats and sometimes saltmarsh of sheltered coasts. Migratory Wetlands Species	Low	No – No suitable habitat present
Whimbrel	<i>Numenius phaeopus</i>	M	M	Migratory wetland species.	Low	No – No suitable habitat present
Blue-billed Duck	<i>Oxyura australis</i>	V	-	The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover. It will fly if disturbed but prefers to dive if approached.	Low	No – No suitable habitat present
Olive Whistler	<i>Pachycephala olivacea</i>	V	-	The Olive Whistler inhabits the wet forests on the ranges of the east coast. It has a disjunct distribution in NSW chiefly occupying the beech forests around Barrington Tops and the MacPherson Ranges in the north and wet forests from Illawarra south to Victoria. Mostly inhabit wet forests above about 500m. During the winter months they may move to lower altitudes.	Low	No – No suitable habitat present
Fairy Prion	<i>Pachyptila turtur subantarctica</i>	M	V, M	The species has a circumpolar distribution, and probably frequents subtropical waters during the non-breeding period. It has been recorded breeding on subantarctic and cool temperate islands in the Southern Hemisphere	Low	No – No suitable habitat present
Eastern Osprey	<i>Pandion cristatus</i>	V	-	Favour coastal areas, especially the mouths of large rivers, lagoons and lakes. Feed on fish over clear, open water.	Low	No – No suitable habitat present
Scarlet Robin	<i>Petroica boodang</i>	V	-	Lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. Its habitat usually contains abundant logs and fallen timber: these are important components of its habitat.	Moderate	No – No suitable habitat present
Flame Robin	<i>Petroica phoenicea</i>	V	-	Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys. The ground layer of the breeding habitat is dominated by	Moderate	No – No suitable habitat present

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				native grasses and the shrub layer may be either sparse or dense.		
Eastern Ground Parrot	<i>Pezoporus wallicus wallicus</i>	V	-	The Ground Parrot occurs in high rainfall coastal and near coastal low heathlands and sedgeland, generally below one metre in height and very dense (up to 90% projected foliage cover). The eastern subspecies (wallicus) inhabits south-eastern Australia from southern Queensland through NSW to western Victoria. There are also large populations on the NSW south coast, particularly Barren Grounds NR, Budderoo NP, the Jervis Bay area and Nadgee NR.	Low	No - No suitable habitat present
Ruff	<i>Philomachus pugnax</i>	M	M	Migratory Marine Species	Low	No - No suitable habitat present
Sooty Albatross	<i>Phoebastria fusca</i>	V	V	Migratory Marine Species	Low	No - No suitable habitat present
Pacific Golden Plover	<i>Pluvialis fulva</i>	M	M	In NSW, the species or species habitat is dotted along the NSW coastline. Likely to occur near Shoalhaven heads (inlet) to Culburra Beach and Lake Wolumboola) and extends inland along the Shoalhaven River west of Nowra (Burrier).	Low	No - No suitable habitat present
Grey Plover	<i>Pluvialis squatarola</i>	M	V, M	During the austral summer non-breeding season, the grey plover is a regular migrant to Australia. The species has been recorded throughout all states around Australia but is primarily found along the west and south coasts.	Low	No - No suitable habitat present
Gould's Petrel	<i>Pterodroma leucoptera leucoptera</i>	V	E	Breeds on both Cabbage Tree Island, 1.4 km offshore from Port Stephens and on nearby Boondelbah island. The range and feeding areas of non-breeding petrels are unknown.	Low	No - No suitable habitat present
Kermadec Petrel (west Pacific subspecies)	<i>Pterodroma neglecta neglecta</i>	V	V	Ranges over subtropical and tropical waters of the South Pacific. Balls Pyramid (near Lord Howe Island) and Phillip Island (near Norfolk Island) are the only known breeding sites in Australian waters.	Low	No - No suitable habitat present
Superb Fruit-Dove	<i>Ptilinopus superbus</i>	V	-	Inhabits rainforest and similar closed forests where it forages high in the canopy, eating the fruits of many tree species such as figs and palms. It may also forage in eucalypt or acacia woodland where there are fruit-bearing trees.	Low	No - No suitable habitat present
Pilotbird	<i>Pycnoptilus floccosus</i>	V	V	Pilotbirds are endemic to south-east Australia. Upland Pilotbirds occur above 600 m in the	Low	No - No suitable habitat present

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				Brindabella Ranges in the Australian Capital Territory, and in the Snowy Mountains in New South Wales and north-east Victoria. Lowland Pilotbirds occur in forests from the Blue Mountains west of Newcastle, around the wetter forests of eastern Australia, to Dandenong near Melbourne		
Australian Painted Snipe	<i>Rostratula australis</i>	E	E	Generally, inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans.	Low	No - No suitable habitat present
Diamond Firetail	<i>Stagonopleura guttata</i>	V	V	The Diamond Firetail is endemic to south-eastern Australia, extending from central Queensland to the Eyre Peninsula in South Australia. It is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Central and Southwestern Slopes and the Northwest Plains and Riverina. Not commonly found in coastal districts, though there are records from near Sydney, the Hunter Valley and the Bega Valley. This species has a scattered distribution over the rest of NSW, though is very rare west of the Darling River.	Low	No - No suitable habitat present
Arctic Jaeger	<i>Stercorarius parasiticus</i>	M	M	Migratory Marine Species	Low	No - No suitable habitat present
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	M	M	Migratory Marine Species	Low	No - No suitable habitat present
Common Tern	<i>Sterna hirundo</i>	M	M	Migratory Marine Species	Low	No - No suitable habitat present
Little Tern	<i>Sternula albifrons</i>	E	M	Migratory Marine Species	Low	No - No suitable habitat present
Fairy Tern	<i>Sternula nereis nereis</i>	-	V	Within Australia, the Fairy Tern occurs along the coasts of Victoria, Tasmania, South Australia and Western Australia; occurring as far north as the Dampier Archipelago near Karratha.	Low	No - No suitable habitat present
Freckled Duck	<i>Stictonetta naevosa</i>	V	-	The Freckled Duck is found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. It breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina.	Moderate	No - No suitable habitat present

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
Buller's Albatross	<i>Thalassarche bulleri</i>	M	V	The Pacific Albatross is a marine, pelagic species. It occurs in subtropical and subantarctic waters of the South Pacific Ocean. Habitat preferences are poorly known.	Low	No - No suitable habitat present
Northern Buller's Albatross	<i>Thalassarche bulleri platei</i>	-	V, M	Breeds Chatham Islands, also (very small numbers) Three Kings Islands, off the North Island of New Zealand; ranges at sea across the southern South Pacific (southern Australia to South America)	Low	No - No suitable habitat present
Indian Yellow-Nosed Albatross	<i>Thalassarche carteri</i>	-	M	When feeding during incubation, birds will forage up to 1,500 km (930 mi) from the colony. At sea it ranges from South Africa to the Pacific Ocean just beyond New Zealand, ranging from 30° S to 50° S.	Low	No - No suitable habitat present
Shy Albatross	<i>Thalassarche cauta</i>	E	E	Migratory Marine species	Low	No - No suitable habitat present
Chatham Albatross	<i>Thalassarche eremita</i>	-	-	Migratory Marine species	Low	No - No suitable habitat present
Campbell Albatross	<i>Thalassarche impavida</i>	M	V	Migratory Marine species	Low	No - No suitable habitat present
Black-browed Albatross	<i>Thalassarche melanophris</i>	V	V	Migratory Marine species	Low	No - No suitable habitat present
Salvin's Albatross	<i>Thalassarche salvini</i>	M	V	Migratory Marine species	Low	No - No suitable habitat present
Crested Tern	<i>Thalasseus bergii</i>	M	M	The species inhabits tropical and subtropical coastlines, foraging in the shallow waters of lagoons, reefs estuaries, bays, harbours and inlets along sandy and muddy shores.	Low	No - No suitable habitat present
Eastern Hooded Plover	<i>Thinornis cucullatus cucullatus</i>	CE	V	The Hooded Plover is endemic to southern Australia and is nowadays found mainly along the coast from south of Jervis Bay, NSW, south through Victoria and Tasmania to the western side of the Eyre Peninsula (South Australia). In south-west Western Australia the Hooded Plover is not restricted to the coast and can also live and breed around inland salt lakes. The range of the Hooded Plover has declined in eastern Australia since European settlement.	Low	No - No suitable habitat present
Grey-tailed Tattler	<i>Tringa brevipes</i>	M	M	Migratory Marine species	Low	No - No suitable habitat present
Wood Sandpiper	<i>Tringa glareola</i>	M	M	Migratory Marine species	Low	No - No suitable habitat present

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
Wandering Tattler	<i>Tringa incana</i>	M	M	Migratory Marine species	Low	No – No suitable habitat present
Common Greenshank	<i>Tringa nebularia</i>	M	M	Migratory Marine species	Low	No – No suitable habitat present
Marsh Sandpiper	<i>Tringa stagnatilis</i>	M	M	Migratory Marine species	Low	No – No suitable habitat present
Masked Owl	<i>Tyto novaehollandiae</i>	V	-	The masked owl records fall within approximately 90% of NSW, excluding the most arid north-western corner. This species lives in dry eucalypt forests and woodlands (with a sparse mid-storey layer, but with patches of dense low ground cover) from sea level to 1100 m.	Moderate	Yes
Sooty Owl	<i>Tyto tenebricosa</i>	V	-	Occurs in woodland, including dry woodland, subtropical and warm temperate woodland, as well as moist eucalypt forests. Roosts by day in the hollow of a tall forest tree or in heavy vegetation; hunts by night for small ground mammals or tree-dwelling mammals such as the Common Ringtail Possum (<i>Pseudocheirus peregrinus</i>) or Sugar Glider (<i>Petaurus breviceps</i>). Nests in very large tree-hollows.	Moderate	Yes
Terek Sandpiper	<i>Xenus cinereus</i>	V	M	In Australia, has been recorded on coastal mudflats, lagoons, creeks and estuaries. Favours mudbanks and sandbanks located near mangroves, but may also be observed on rocky pools and reefs, and occasionally up to 10km inland around brackish pools.	Low	No
Mammalia						
Eastern Pygmy-possum	<i>Cercartetus nanus</i>	V	-	Broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred. Shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Ringtail Possum (<i>Pseudocheirus peregrinus</i>) dreys or thickets of vegetation.	Low	No – No historical records within 5 km
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	V	V	Cave-roosting bat that forages in timbered woodland and dry sclerophyll forest.	Moderate	No – No suitable habitat present

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	V	E	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	Low	No - No historical records within 5 km
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	V	-	Prefers moist habitats with trees larger than 20m. Generally, roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings.	Moderate	No - No suitable habitat present
Southern Brown Bandicoot (eastern)	<i>Isodon obesulus obesulus</i>	E	E	Southern Brown Bandicoots are largely crepuscular (active mainly after dusk and/or before dawn). They are generally only found in heath or open forest with a healthy understorey on sandy or friable soils.	Low	No - No historical records within 5 km
Eastern Coastal Free-tailed Bat	<i>Micronomus norfolkensis</i>	V	-	Occurs in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Roost mainly in tree hollows but will also roost under bark or in man-made structures. Usually solitary but also recorded roosting communally, probably insectivorous.	Moderate	No - No suitable habitat present
Little Bent-winged Bat	<i>Miniopterus australis</i>	V	-	East coast and ranges of Australia from Cape York in Queensland to Wollongong in NSW. Moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub. Generally found in well-timbered areas.	Moderate	No - No suitable habitat present
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	V	-	Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young. Maternity caves have very specific temperature and humidity regimes.	Moderate	No - No suitable habitat present
Southern Myotis	<i>Myotis macropus</i>	V	-	Generally, roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.	Moderate	Yes
Parma Wallaby	<i>Notamacropus parma</i>	V	V	Preferred habitat is moist eucalypt forest with thick, shrubby understorey, often with nearby grassy areas, rainforest margins and occasionally drier eucalypt forest. Typically feed at night on grasses and herbs in	Low	No - no suitable habitat present

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				more open eucalypt forest and the edges of nearby grassy areas.		
Southern Greater Glider	<i>Petauroides volans</i>	E	E	It is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows. The greater glider favours forests with a diversity of eucalypt species, due to seasonal variation in its preferred tree species.	Low	No - No historical records within 5 km
Yellow-bellied Glider	<i>Petaurus australis australis</i>	V	V	Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south.	Low	No - No suitable habitat present
Squirrel Glider	<i>Petaurus norfolcensis</i>	V	-	Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum Forest west of the Great Dividing Range and Blackbutt-Bloodwood Forest with heath understorey in coastal areas.	Low	No - No suitable habitat present
Brush-tailed Rock-wallaby	<i>Petrogale penicillata</i>	E	V	Occupy rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north.	Low	No - No suitable habitat present
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	V	-	Prefer dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter. Also inhabit heath, swamps, rainforest and wet sclerophyll forest.	Low	No - No suitable habitat present
Koala	<i>Phascolarctos cinereus</i>	E	E	Open eucalypt forest and woodland, containing a variety of 'preferred' feed trees	Low	No - No recent local records
Long-nosed Potoroo	<i>Potorous tridactylus trisulcatus</i>		V	It occurs between the Great Dividing Range, generally up to 800 m above sea level, and the coastal plains. The species is restricted to habitats receiving an annual rainfall greater than 760 mm. The most northern records of occurrence are at Barren Grounds Nature Reserve and Budderoo National Park in New South Wales. The subspecies occurs in isolated habitat patches along the coastal plains of southern New South Wales and Victoria and inland to the slopes and foothills of the Great Dividing Range.	Low	No - No suitable habitat present
New Holland Mouse	<i>Pseudomys novaehollandiae</i>	M	V	Open heathland, open woodland with a heathland understorey and vegetated sand dunes.	Low	No - No suitable habitat present
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	V	V	Occur in subtropical and temperate rainforests, tall sclerophyll forests.	Moderate	Yes

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
Yellow-bellied Sheathtail-bat	<i>Saccolaimus flaviventris</i>	V	-	The Yellow-bellied Sheathtail-bat is a wide-ranging species found across northern and eastern Australia. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows.	Moderate	Yes
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>	V	-	Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest. Roosts in tree hollows and buildings.	Moderate	No - No suitable habitat present
Amphibia						
Giant Burrowing Frog	<i>Heleioporus australiacus</i>	V	V	The Giant Burrowing Frog is distributed in south eastern NSW and Victoria, and appears to exist as two distinct populations: a northern population largely confined to the sandstone geology of the Sydney Basin and extending as far south as Ulladulla, and a southern population occurring from north of Narooma through to Walhalla, Victoria. Found in heath, woodland and open dry sclerophyll forest on a variety of soil types (excluding clay-based soils).	Low	No
Green and Golden Bell Frog	<i>Litoria aurea</i>	E	V	Since 1990, recorded from ~50 scattered sites within its former range in NSW, from the north coast near Brunswick Heads, south along the coast to Victoria. Records exist west to Bathurst, Tumut and the ACT region. Marshes, dams and stream-sides. Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (<i>Typha</i> spp.) or spikerushes (<i>Eleocharis</i> spp.). Optimum habitat includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (<i>Gambusia holbrooki</i>), have a grassy area nearby and diurnal sheltering sites available.	Low	No -No historical records within 5 km
Littlejohn's Tree Frog	<i>Litoria littlejohni</i>	E	E	This species breeds in the upper reaches of permanent streams and in perched swamps. Non-breeding habitat is heath based forests and woodlands where it shelters under leaf litter and low vegetation, and hunts for invertebrate prey either in shrubs or on the ground.	Low	No - No suitable habitat present

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
Watson's Tree Frog	<i>Litoria watsoni</i>	E	E	Littlejohn's Tree Frog is known to inhabit forest, coastal woodland and heath from 100 to 950 m above sea level but the species is not associated with any specific vegetation type.	Low	No - No suitable habitat present
Stuttering Frog	<i>Mixophyes balbus</i>	E	V	Found in rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range. Outside the breeding season adults live in deep leaf litter and thick understorey vegetation on the forest floor.	Low	No - No suitable habitat present
Red-crowned Toadlet	<i>Pseudophryne australis</i>	V	-	Inhabits periodically wet drainage lines below sandstone ridges that often have shale lenses or cappings.	Low	No - No suitable habitat present
Reptilia						
Broad-headed Snake	<i>Hoplocephalus bungaroides</i>	E	V	The Broad-headed Snake is largely confined to Triassic and Permian sandstones, including the Hawkesbury, Narrabeen and Shoalhaven groups, within the coast and ranges in an area within approximately 250 km of Sydney. This species shelters in rock crevices and under flat sandstone rocks on exposed cliff edges (autumn, winter & spring) moving to hollows in large trees within 500m of escarpments in summer.	Low	No -No historical records within 5 km
Key. V=Vulnerable, E=Endangered, Ep=Endangered Population, CE=Critically Endangered, M=Migratory. Species habitat associations have been informed predominantly from EES (2025) and DotEE (2025) species profiles.						

Appendix B: Subject Land Flora Species List

Scientific name	Common name	Native	Exotic
Subject Land A			
<i>Acacia longifolia</i> var. <i>longifolia</i>	Sydney golden wattle	X	
<i>Acacia mearnsii</i>	Black wattle	X	
<i>Araujia sericifera</i>	Moth vine		X
<i>Axonopus fissifolius</i>	Narrow-leafed carpet grass		X
<i>Bidens pilosa</i>	Black-jack		X
<i>Bromus catharticus</i>	Prarie grass		X
<i>Cardiospermum grandiflorum</i>	Showy balloonvine		X
<i>Casuarina cunninghamiana</i>	River sheoak	X	
<i>Commelina cyanea</i>	Scurvy weed	X	
<i>Cyperus</i> spp.	Nutsedges		X
<i>Dicondra repens</i>	Kidneyweed	X	
<i>Einadia trigonos</i>	Fishweed	X	
<i>Erharta erecta</i>	Panic veldtgrass		X
<i>Conyza bonariensis</i>	Fleabane		X
<i>Eucalyptus bosistiana</i>	Coast grey box	X	
<i>Eucalyptus microcorys</i>	Tallowwood	X	
<i>Foeniculum vulgare</i>	Fennel		X
<i>Hibiscus heterophyllus</i>	Native rosella	X	
<i>Ligustrum sinense</i>	Narrow-leaf privet		X
<i>Paspalum</i> spp.	Crowngrass		X
<i>Passiflora herbertiana</i>	Bamboo		X
<i>Phyllanthus gunnii</i>	Scrubby sponge	X	
<i>Plantago lanceolata</i>	Lamb's Tongue		X
<i>Rumex crispus</i>	Curly dock		X
<i>Senecio madagascariensis</i>	Fireweed		X
<i>Sida rhombifolia</i>	Paddy Lucerne		X
<i>Solanum mauritianum</i>	Tabacco bush		X
<i>Solanum pseudocapsicum</i>	Jerusalem cherry		X
<i>Taraxacum officinale</i>	Common dandelion		X
<i>Verbena bonariensis</i>	Purpletop vervain		X
<i>Verbena litoralis</i>	Seashore vervain		X
Subject Land B			
<i>Grevillia robusta</i>	Silky oak	X	

<i>Asparagus densiflorus</i>	Foxtail fern		X
<i>Populus spp.</i>	Poplars		X
<i>Persicaria decipiens</i>	Slender knotweed	X	
<i>Urtica urens</i>	Stinging nettle		X
<i>Ricinus communis</i>	Castor oil plant		X
<i>Tagetes minuta</i>	Stinking roger		X
<i>Acacia longifolia var longifolia</i>	Sydney golden wattle	X	
<i>Casuarina cunninghamiana</i>	River sheoak	X	
<i>Senecio madagascariensis</i>	Fireweed		X
<i>Cyperus spp.</i>	Nutsedges		X
<i>Araujia sericifera</i>	Moth Vine		X
<i>Bidens pilosa</i>	Cobblers Pegs		X
Subject Land B			
<i>Acacia binervata</i>	Two-veined hickory	X	
<i>Agapanthus spp.</i>	Agapanthus		X
<i>Araujia sericifera</i>	Moth vine		X
<i>Azolla pinnata</i>	-	X	
<i>Bidens pilosa</i>	Cobblers pegs		X
<i>Bolboschoenus fluviatilis</i>	Marsh club rush	X	
<i>Callistemon spp.</i>	-	X	
<i>Callistris spp.</i>	Cypress pines		X
<i>Casuarina glauca</i>	-	X	
<i>Chloris gayana</i>	Rhodes grass		X
<i>Colocasia esculenta</i>	Taro		X
<i>Commelina cyanea</i>	-	X	
<i>Conyza spp.</i>	Fleabane		X
<i>Cyperus spp.</i>	-	X	
<i>Doryanthes excelsa</i>	Gynea lily	X	
<i>Eragrostis curvula</i>	African lovegrass		X
<i>Erythrina x skyesii</i>	Coral tree		X
<i>Eucalyptus saligna</i>	Sydney blue gum	X	
<i>Glochidion ferdinandi</i>	Cheese tree	X	
<i>Gomphocarpus physocarpus</i>	Hairy balls		X
<i>Grevillea robusta</i>	Silky oak	X	
<i>Iponema spp.</i>	-		X
<i>Lantana camara</i>	Lantana		X
<i>Ligustrum lucidum</i>	Broad-leaf privet		X
<i>Ligustrum sinense</i>	Small-leaf privet		X
<i>Ludwigia peploides</i>	Floating Primrose-Willow		
<i>Melilotus spp.</i>	Sweet clovers		X

<i>Mentha suaveolens</i>	Apple mint		X
<i>Myriophyllum aquaticum</i>	Parrot's feather		X
<i>Onopordum acanthium</i>	Scotch thistle		X
<i>Paspalum spp.</i>	-		X
<i>Persicaria decipiens</i>	Slender knotweed	X	
<i>Persicaria strigosa</i>	Spotted knotweed		X
<i>Phebalium squamulosum</i>	Scaly phebalium	X	
<i>Pinus radiata</i>	Radiata pine		X
<i>Plantago lanceolata</i>	-		X
<i>Rudbeckia hirta</i>	Black-eyed susan		X
<i>Rumex crispus</i>	Curled dock		X
<i>Schoenoplectus validus</i>	Soft-stem Bulrush	X	
<i>Sida rhombifolia</i>	Paddy Lucerne		X
<i>Syzygium spp.</i>	-	X	
<i>Tecoma capensis</i>	Cape honeysuckle		X
<i>Trifolium spp.</i>	Clovers		X
<i>Typha orientalis</i>	Oriental cattail	X	
<i>Verbena bonariensis</i>	Purple top		X
<i>Zantedeschia aethiopica</i>	Arum lily		X

Appendix C: Fauna Species List

Class Name	Scientific Name	Common Name	Exotic
Aves	<i>Acanthiza pusilla</i>	Brown thornbill	
	<i>Acridotheres tristis</i>	Common mynah	X
	<i>Anthochaera chrysoptera</i>	Little wattlebird	
	<i>Cacatua galerita</i>	Sulfur-crested cockatoo	
	<i>Corvus spp.</i>	Raven	
	<i>Egretta novaehollandiae</i>	White-faced heron	
	<i>Eolophus roseicapilla</i>	Galah	
	<i>Eudynamys orientalis</i>	Pacific koel	
	<i>Eurystomus orientalis</i>	Oriental dollarbird	
	<i>Geopelia humeralis</i>	Bar-shouldered dove	
	<i>Grallina cyanoleuca</i>	Magpie-lark	
	<i>Gymnorhina tibicen</i>	Australian magpie	
	<i>Malurus cyaneus</i>	Superb fairy wren	
	<i>Manorina melanocephala</i>	Noisy mynah	
	<i>Platycercus elegans</i>	Crimson rosella	
	<i>Platycercus eximius</i>	Eastern rosella	
	<i>Psophodes olivaceus</i>	Eastern whipbird	
	<i>Ptilonorhynchus violaceus</i>	Satin bowerbird	
	<i>Rhipidura albiscapa</i>	Grey fantail	
	<i>Scythrops novaehollandiae</i>	Channel-billed cuckoo	
	<i>Threskiornis moluccus</i>	Australian white ibis	
	<i>Trichoglossus moluccanus</i>	Rainbow lorikeet	

Appendix D: Assessment of Significance

Threatened Ecological Communities

Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin, and South East Corner Bioregion (FWCF)

This community forms part of a complex of forested wetland and treeless wetland communities found throughout the coastal floodplains of NSW. They typically occur on silts, muds or humic loams in depressions, flats, drainage lines, backswamps, lagoons and lakes associated with coastal floodplains. The structure of the community may vary from sedgeland and reedlands to herbfields, and woody species of plants are generally scarce. Typically, these wetlands form mosaics with other floodplain communities, and often they include or are associated with ephemeral or semi-permanent standing water.

Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion (ILGW)

This community comprises vegetation types that occupy the Illawarra coastal plain and escarpment foothills. It has been recorded from the LGAs of Wollongong, Shellharbour and Kiama, and Shoalhaven. It has not recorded within formal conservation reserves, although some remnants occur in small council reserves including Blackbutt Reserve and Croome Road Reserve in Shellharbour.

Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin, and South East Corner Bioregions (SWFCF)

The structure of the community is typically open forest, although partial clearing may have reduced the canopy to scattered trees. In some areas the tree stratum is low and dense, so that the community takes on the structure of scrub. The community also includes some areas of fernland and tall reedland or sedgeland, where trees are very sparse or absent. Typically, these forests, scrubs, fernlands, reedlands and sedgelands form mosaics with other floodplain forest communities and treeless wetlands, and often they fringe treeless floodplain lagoons or wetlands with semi-permanent standing water.

A. In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Not application - not an threatened species

B. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

The proposed development will result in the removal of 0.009, 0.005, and 0.008 ha of FWFC, ILGW, and SWFCF respectively. This vegetation exists in poor condition, having been highly disturbed due to its location adjacent to cleared land and infrastructure. Native species diversity is low, and weed incursion is high within the listed TECs. As all three TECs are mapped within the broader environment, and the proposed removal is very small. It is unlikely

that that proposed development will have an adverse effect on the listed TECs such they are placed at risk of local extinction.

ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

The structure and diversity of the listed TECs has already been modified extensively due to disturbance from development, clearance and weed incursion. The proposed development is unlikely to cause further modification to the composition of these TECs and may provide an opportunity to improve these communities through a VMP, weed control and planting.

C. In relation to the habitat of a threatened species or ecological community:

i. The extent to which habitat is likely to be removed or modified because of the proposed development or activity, and

The proposed development will result in the removal of 0.009, 0.005, and 0.008 ha of FWFC, ILGW, and SWFCF respectively.

ii. Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

This vegetation exists in poor condition, having been highly disturbed due to its location adjacent to cleared land and infrastructure. Connectivity between the areas of TEC is already minimal. The proposed development will not cause further fragmentation these TECs and may provide an opportunity to improve these communities through weed control and planting.

iii. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality

This vegetation exists in poor condition, having been highly disturbed due to its location adjacent to cleared land and infrastructure and all three TECs are mapped within the broader environment, with higher quality patches present within 5 kms. Furthermore, the proposed vegetation removal is very small. Thus, the vegetation to be removal is not critical to the long-term survival of the listed TECs in the locality.

D. Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding value (either directly or indirectly)

There are no Areas of Outstanding Biodiversity Value within the Subject Land with reference to the Areas of Outstanding Biodiversity Value register.

E. Whether the proposed development or activity is part of a key threatening process or is likely to increase the impact of a key threatened process.

Key threatening processes, as listed in Schedule 4 of the BC Act of relevance to the proposed vegetation and habitat clearance:

- Clearing of native vegetation
- Invasion of native plant communities by exotic perennial grasses
- Removal of dead wood and dead trees

The removal of removal of 0.009, 0.005, and 0.008 ha of FWFC, ILGW, and SWFCF respectively of vegetation is considered a small disturbance, particularly in relation to the poor condition and presence of the TECs within the surrounding landscape. Therefore, it is considered unlikely that the proposed vegetation removal would exacerbate any key threatening processes to such an extent that they would place any local populations of the listed TECs at risk of extinction.

Conclusion

The proposal will directly affect a maximum area The proposed development will result in the removal of 0.009, 0.005, and 0.008 ha of FWFC, ILGW, and SWFCF respectively. The occurrence of these TECs within the Subject

Land are in poor condition and have been highly modified due to human development. The proposed vegetation removal is very small.

As such, a Species Impact Statement or BDAR is not recommended with respect to the above listed species.

Threatened Birds

Gang-gang Cockatoo (*Callocephalon fimbriatum*) - Vulnerable (BC Act)

In New South Wales, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. The Gang-gang Cockatoo prefers tall montane forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests during summer, these being at higher altitudes. In winter, this species occurs at lower altitudes in drier, more open eucalypt forests and woodlands, or in dry forest in coastal areas.

Glossy-black Cockatoo (*Calyptorhynchus lathamii*) - Vulnerable (BC Act)

In NSW, widespread along coast and inland to the southern tablelands and central western plains, with a small population in the Riverina. Open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur.

Barking Owl (*Ninox connivens*) - Vulnerable (BC Act)

Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas.

Powerful Owl (*Ninox strenua*) - Vulnerable (BC Act)

Large tracts of open or closed sclerophyll forest or woodlands but can occur in fragmented landscapes as well. Gullies consisting of wet to dry sclerophyll forest with a dense understorey.

Masked Owl (*Tyto novaehollandiae*) - Vulnerable (BC Act)

The masked owl records fall within approximately 90% of NSW, excluding the most arid north-western corner. This species lives in dry eucalypt forests and woodlands (with a sparse mid-storey layer, but with patches of dense low ground cover) from sea level to 1100 m.

Sooty Owl (*Tyto tenebricosa*) - Vulnerable (BC Act)

Occurs in woodland, including dry woodland, subtropical and warm temperate woodland, as well as moist eucalypt forests. Roosts by day in the hollow of a tall forest tree or in heavy vegetation; hunts by night for small ground mammals or tree-dwelling mammals such as the Common Ringtail Possum (*Pseudocheirus peregrinus*) or Sugar Glider (*Petaurus breviceps*). Nests in very large tree-hollows.

A. In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

The proposed development would result in the removal of a maximum of 0.06 ha of habitat. This vegetation contains no habitat bearing trees and is considered marginal habitat only.

The vegetation within the Subject Land is not considered preferential due to disturbance from residential occupation of the land. As the above listed bird species range widely, and the occurrence of these species within the Subject Land is likely limited to marginal seasonal foraging and roosting. The removal of 0.06 ha of vegetation will not break reduce habitat connectivity and individuals within the proposed impact area will be able to readily relocate to adjacent habitat. Therefore, the proposal is not considered to have an adverse effect on the life cycle of the above listed bird species such that a viable population of the species is likely to be placed at risk of extinction.

B. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

- i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

Not applicable – not an endangered ecological community.

- ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable – not an endangered ecological community.

C. In relation to the habitat of a threatened species or ecological community:

- i. The extent to which habitat is likely to be removed or modified because of the proposed development or activity, and

Total maximum clearance of 0.06 ha of vegetation is proposed.

- ii. Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

This vegetation exists in poor condition, having been highly disturbed due to its location adjacent to cleared land and infrastructure. Connectivity between the area's vegetation is already minimal. The proposed development will not cause further habitat fragmentation. As the proposed clearance is very small and is unlikely to significantly alter the vegetation present, and the listed species are highly mobile; it is highly unlikely the proposed development with further fragment the existing habitat.

- iii. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality

The proposed development will remove a very small area of native vegetation which contains marginal sheltering and foraging habitat for the above species. This habitat is not preferential habitat due to disturbance from residential occupation of the land. Due to the above reasons and the highly mobile nature of the listed species, the vegetation proposed for removal is not important to the long-term survival of the listed species in the locality.

D. Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding value (either directly or indirectly)

There are no Areas of Outstanding Biodiversity Value within the Subject Land with reference to the Areas of Outstanding Biodiversity Value register.

E. Whether the proposed development or activity is part of a key threatening process or is likely to increase the impact of a key threatened process.

Key threatening processes, as listed in Schedule 4 of the BC Act of relevance to the proposed vegetation and habitat clearance:

- Clearing of native vegetation
- Removal of dead wood and dead trees

The removal of 0.06 ha of potential habitat is considered a small disturbance, particularly in relation to the surrounding habitat and high mobility of these species. Therefore, it is considered unlikely that the proposed vegetation and habitat removal would exacerbate any key threatening processes to such an extent that they would place any local populations of the species at risk of extinction.

Conclusion

The proposal will directly affect a maximum area of 0.06 ha of potential habitat. If the listed bird species did utilise the trees for intermittent or seasonal use, the localised nature of the vegetation removal and the presence of other suitable sheltering and foraging resources in the broader landscape, indicate that the proposed action is unlikely

to have a significant impact on the listed bird species such that it would put a local population of any of the species at risk of extinction or substantially isolate any areas of potential habitat

As such, a Species Impact Statement or BDAR is not recommended with respect to the above listed species.

Threatened Microbats

Southern Myotis (*Myotis macropus*) - Vulnerable (BC Act)

Generally, roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.

Yellow-bellied Sheathtail Bat (*Saccolaimus flaviventris*) - Vulnerable (BC Act)

The Yellow-bellied Sheathtail-bat is a wide-ranging species found across northern and eastern Australia. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows.

A. In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

The above listed microbat species inhabit a wide range of forest habitat and may shelter in rocky outcrops, caves, tree hollows and bark fissures. No suitable hollows are present within the Subject Land. No rocky outcrops, caves or suitable culverts or bridges are present. The habitat within the Subject Land is not considered preferential due to disturbance from residential occupation of the land. As the above listed bat species range widely, and the occurrence of these species within the subject site is likely limited to marginal foraging and roosting. The removal of 0.06 ha of vegetation will not break reduce habitat connectivity and individuals within the proposed impact area will be able to readily relocate to adjacent habitat. Therefore, the proposal is not considered to have an adverse effect on the life cycle of the above listed microbat species such that a viable population of the species is likely to be placed at risk of extinction.

Southern Myotis (*Myotis macropus*) utilises open dams and waterways to forage and often roosts in bridges or culverts. No suitable bridges or culverts were noted inside the Subject Land. The proposed vegetation removal will not hinder the ability of *M. macropus* to forage within the Subject Land.

Therefore, it is unlikely that the removal of vegetation within the Subject Land will have an adverse effect on the life cycle of the listed microbat species such that it is likely to be placed at risk of extinction.

B. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

Not applicable - not an endangered ecological community.

ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable - not an endangered ecological community.

C. In relation to the habitat of a threatened species or ecological community:

i. The extent to which habitat is likely to be removed or modified because of the proposed development or activity, and

Total maximum clearance of 0.06 ha of vegetation is proposed.

ii. Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

This vegetation exists in poor condition, having been highly disturbed due to its location adjacent to cleared land and infrastructure. Connectivity between the area's vegetation is already minimal. The proposed development will not cause further habitat fragmentation. As the proposed clearance is very small and is unlikely to significantly alter

the vegetation present, and the listed species are highly mobile; it is highly unlikely the proposed development with further fragment the existing habitat.

iii. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality

The proposed development will remove a very small area of native vegetation which contains marginal foraging habitat for the above species. No habitat bearing trees, rocky outcrops or caves are to be impacted. This habitat is not preferential habitat due to disturbance from residential occupation of the land. Due to the above reasons and the highly mobile nature of the listed species, the vegetation proposed for removal is not important to the long-term survival of the listed species in the locality.

D. Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding value (either directly or indirectly)

There are no Areas of Outstanding Biodiversity Value within the Subject Land with reference to the Areas of Outstanding Biodiversity Value register.

E. Whether the proposed development or activity is part of a key threatening process or is likely to increase the impact of a key threatened process.

Key threatening processes, as listed in Schedule 4 of the BC Act of relevance to the proposed vegetation and habitat clearance:

- Clearing of native vegetation
- Removal of dead wood and dead trees

The removal of 0.06 ha of potential habitat is considered a small disturbance, particularly in relation to the surrounding habitat. Due to the proximity to human activity and the presence of more preferential habitat nearby, it is not considered important habitat. Therefore, it is considered unlikely that the proposed vegetation and habitat removal would exacerbate any key threatening processes to such an extent that they would place any local populations of the listed microbat species at risk of extinction.

Conclusion

The proposal will directly affect a maximum area of 0.06 ha of potential habitat. The localised nature of the vegetation removal and the presence of abundant suitable sheltering and foraging resources in the broader landscape, indicate that the proposed action is unlikely to have a significant impact on the listed microbat species such that it would put a local population of any of the species at risk of extinction or substantially isolate any areas of potential habitat

As such, a Species Impact Statement or BDAR is not recommended with respect to the above listed species.

Threatened Megabats

Grey-headed Flying Fox

Grey-headed Flying-fox is listed as a vulnerable species under the BC Act. It is generally found within 200 km of the east coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. It occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops and has been recorded as travelling long distances on feeding forays (up to 50 km). Fruits and flowering plants of a wide variety of species are the main food source.

The species roosts in large 'camps' of up to 200,000 individuals. Camps are usually formed within 20 km of a regular food source and are generally close to water and along gullies. However, the species has been known to form camps in urban areas. Key threats to the species are loss of roosting and foraging sites, electrocution on powerlines, entanglement in netting and on barbed-wire, heat stress, and conflict with humans.

The nearest GHFF camp was recorded approximately 7 km East of the Subject Land at Blackbutt Forest Reserve (517). The camp was recorded as being population category 1 (1 - 499 individuals) for GHFF in 2021.

A. In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

The GHFF inhabit a wide range of forest habitat and may shelter in large colonies. The nearest colony is approximately 7 km from the Subject Land. The development would result in the removal of 0.06 ha of occasional foraging habitat only. No evidence of GHFF roosting was observed. The proposed development will not create sound or light pollution that would disturb a GHFF camp.

Therefore, it is unlikely that the removal of vegetation within the Subject Land will have an adverse effect on the life cycle of the GHFF such that it is likely to be placed at risk of extinction.

B. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

Not applicable - not an endangered ecological community.

ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable - not an endangered ecological community.

C. In relation to the habitat of a threatened species or ecological community:

i. The extent to which habitat is likely to be removed or modified because of the proposed development or activity, and

Total maximum clearance of 0.06 ha of vegetation is proposed.

ii. Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

This vegetation exists in poor condition, having been highly disturbed due to its location adjacent to cleared land and infrastructure. Connectivity between the area's vegetation is already minimal. The proposed development will not cause further habitat fragmentation. As the proposed clearance is very small and is unlikely to significantly alter the vegetation present, and the GHFF are highly mobile; it is highly unlikely the proposed development with further fragment the existing habitat.

iii. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality

The proposed development will remove a very small area of native vegetation which contains marginal foraging habitat for the above species. No habitat bearing trees, rocky outcrops or caves are to be impacted. This habitat is not preferential habitat due to disturbance from residential occupation of the land. The proposed development will create sound or light pollution that would disturb a GHFF camp. Due to the above reasons and the highly mobile nature of the GHFF, which forages on a wide range of native and exotic species, the vegetation proposed for removal is not important to the long-term survival of the listed species in the locality.

D. Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding value (either directly or indirectly)

There are no Areas of Outstanding Biodiversity Value within the Subject Land with reference to the Areas of Outstanding Biodiversity Value register.

E. Whether the proposed development or activity is part of a key threatening process or is likely to increase the impact of a key threatened process.

Key threatening processes, as listed in Schedule 4 of the BC Act of relevance to the proposed vegetation and habitat clearance:

- Clearing of native vegetation
- Removal of dead wood and dead trees

The removal of 0.06 ha of potential habitat is considered a small disturbance, particularly in relation to the surrounding habitat. Due to the proximity to human activity and the presence of more preferential habitat nearby, it is not considered important habitat. The proposed development will not create sound or light pollution that would disturb a GHFF camp. Therefore, it is considered unlikely that the proposed vegetation and habitat removal would exacerbate any key threatening processes to such an extent that they would place any local populations of the listed microbat species at risk of extinction.

Conclusion

The proposal will directly affect a maximum area of 0.06 ha of potential habitat. The localised nature of the vegetation removal and the presence of abundant suitable sheltering and foraging resources in the broader landscape, indicate that the proposed action is unlikely to have a significant impact on the GHFF such that it would put a local population of any of the species at risk of extinction or substantially isolate any areas of potential habitat. As such, a Species Impact Statement or BDAR is not recommended with respect to the above listed species.

Appendix E: Significant Impact Criteria

Threatened Birds

Gang-gang Cockatoo (*Callocephalon fimbriatum*) - Endangered (EPBC Act)

In New South Wales, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. The Gang-gang Cockatoo prefers tall montane forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests during summer, these being at higher altitudes. In winter, this species occurs at lower altitudes in drier, more open eucalypt forests and woodlands, or in dry forest in coastal areas.

Glossy-black Cockatoo (*Calyptorhynchus lathamii*) - Vulnerable (EPBC Act)

In NSW, widespread along coast and inland to the southern tablelands and central western plains, with a small population in the Riverina. Open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur.

An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:

Criterion a: lead to a long-term decrease in the size of an important population of a species

The proposed development would result in the removal of a maximum of 0.06 ha of habitat. This vegetation contains no habitat bearing trees and foraging resources considered marginal habitat only.

The vegetation within the Subject Land is not considered preferential due to disturbance from residential occupation of the land. As the above listed bird species range widely, and the occurrence of these species within the Subject Land is likely limited to marginal seasonal foraging. The removal of 0.06 ha of vegetation will not break reduce habitat connectivity and individuals within the proposed impact area will be able to readily relocate to adjacent habitat. Therefore, the proposal is not likely to lead to a long-term decrease in the size of an important population of the above listed bird species.

Criterion b: reduce the area of occupancy of an important population

As the above listed bird species range widely, and the occurrence of these species within the Subject Land is likely limited to marginal seasonal foraging. The removal of 0.06 ha of vegetation will not break reduce habitat connectivity and individuals within the proposed impact area will be able to readily relocate to adjacent habitat. Therefore, the proposed development is unlikely to reduce the area of occupancy of an important population of the above listed bird species.

Criterion c: fragment an existing important population into two or more populations

This vegetation exists in poor condition, having been highly disturbed due to its location adjacent to cleared land and infrastructure. Connectivity between the area's vegetation is already minimal. The proposed development will not cause further habitat fragmentation. As the proposed clearance is very small and is unlikely to significantly alter the vegetation present, and the listed bird species are highly mobile; it is highly unlikely the proposed development will further fragment the existing habitat.

Criterion d: adversely affect habitat critical to the survival of a species

The proposed development will remove a very small area of native vegetation which contains marginal foraging habitat for the above species. This habitat is not preferential habitat due to disturbance from residential occupation of the land. Due to the above reasons the proposed development will not adversely affect habitat critical to the survival of the listed bird species.

Criterion e: disrupt the breeding cycle of an important population

As the Subject Land contains no habitat bearing trees and the proposed development will only impact on a very small area of vegetation, it is unlikely that the development will disrupt the breeding cycle of the above listed bird species.

Criterion f: Adversely affect habitat critical to the survival of a species; modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;

The proposed development will remove a very small area of native vegetation which contains marginal foraging habitat for the above species. This habitat is not preferential habitat due to disturbance from residential occupation of the land. Due to the above reasons the proposed development will not adversely affect habitat critical to the survival of the listed bird species.

Criterion g: Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat;

As the Subject Land is already highly disturbed, with large amounts of weed incursion into native vegetation, it is unlikely that the proposed development will introduce invasive species that are harmful to the listed bird species.

Criterion h: Introduce disease that may cause the species to decline;

The proposal will not result in the introduction of any diseases.

Criterion i: Interfere substantially with the recovery of the species;

The proposal is not considered to interfere with any recovery or conservation efforts that are targeted towards the above listed bird species.

Conclusion

The proposed action is not considered to constitute a significant impact on the above-listed bird species. As such, a referral to the Commonwealth is not recommended.

Threatened Megabats

Grey-headed Flying Fox (*Pteropus poliocephalus*) – Vulnerable (EPBC Act)

Grey-headed Flying-fox is listed as a vulnerable species under the EPBC Act. It is generally found within 200 km of the east coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. It occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops and has been recorded as travelling long distances on feeding forays (up to 50 km). Fruits and flowering plants of a wide variety of species are the main food source.

The species roosts in large 'camps' of up to 200,000 individuals. Camps are usually formed within 20 km of a regular food source and are generally close to water and along gullies. However, the species has been known to form camps in urban areas. Key threats to the species are loss of roosting and foraging sites, electrocution on powerlines, entanglement in netting and on barbed-wire, heat stress, and conflict with humans.

The EPBC Act Policy Statement *Referral Guideline for Management actions in grey-headed and spectacled flying-fox camps* (DoE 2015) (Referral Guideline) defines a nationally important GHFF camp as one that has been occupied by:

- ≥ 10,000 GHFF in more than one year in the last 10 years; or
- > 2,500 GHFF permanently or seasonally every year for the last 10 years.

The nearest GHFF camp was recorded approximately 7 km East of the Subject Land at Blackbutt Forest Reserve (517). The camp was recorded as being population category 1 (1 – 499 individuals) for GHFF in 2021.

An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:

Criterion a: lead to a long-term decrease in the size of an important population of a species

The GHFF inhabit a wide range of forest habitat and may shelter in large colonies. The nearest colony is approximately 7 km from the Subject Land. The development would result in the removal of 0.06 ha of occasional foraging habitat only. No evidence of GHFF roosting was observed. The proposed development will not create sound or light pollution that would disturb a GHFF camp. Due to the above reasons, it is unlikely that the proposed development will lead to a long-term decrease in the size of an important population of GHFF.

Criterion b: reduce the area of occupancy of an important population

The vegetation within the Subject Land represents marginal GHFF foraging habitat only. The trees present, if utilised at all, would represent a tiny portion of a nights foraging route. Human disturbance would further dissuade GHFF from utilising the vegetation within the Subject Land. Due to the above reasons, it is unlikely that the proposed development will reduce the area of occupancy of the GHFF.

Criterion c: fragment an existing important population into two or more populations

This vegetation exists in poor condition, having been highly disturbed due to its location adjacent to cleared land and infrastructure. Connectivity between the area's vegetation is already minimal. The proposed development will not cause further habitat fragmentation. As the proposed clearance is very small and is unlikely to significantly alter the vegetation present, and the GHFF are highly mobile; it is highly unlikely the proposed development will further fragment the existing habitat.

Criterion d: adversely affect habitat critical to the survival of a species

The proposed development will remove a very small area of native vegetation which contains marginal foraging habitat for the above species. This habitat is not preferential habitat due to disturbance from residential occupation of the land. Furthermore, the Subject Land lies over 7 km West of the nearest recorded GHFF camp. Due to the above reasons the proposed development will not adversely affect habitat critical to the survival of the GHFF.

Criterion e: disrupt the breeding cycle of an important population

As the Subject Land is over 7 km from the nearest GHFF camp, the proposed development will not cause sound, light or other disturbance that would disrupt the breeding cycle of the GHFF.

Criterion f: Adversely affect habitat critical to the survival of a species; modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;

The proposed development will remove a very small area of native vegetation which contains marginal foraging habitat for the above species. This habitat is not preferential habitat due to disturbance from residential occupation of the land. Furthermore, the Subject Land lies over 7 km West of the nearest recorded GHFF camp. Due to the above reasons the proposed development will not adversely affect habitat critical to the survival of the GHFF.

Criterion g: Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat;

As the Subject Land is already highly disturbed, with large amounts of weed incursion into native vegetation and the GHFF utilises well-established tree species, it is unlikely that the proposed development will introduce invasive species that are harmful to the GHFF.

Criterion h: Introduce disease that may cause the species to decline;

The proposal will not result in the introduction of any diseases.

Criterion i: Interfere substantially with the recovery of the species;

The proposal is not considered to interfere with any recovery or conservation efforts that are targeted towards GHFF.

Conclusion

The proposed action is not considered to constitute a significant impact on the GHFF. As such, a referral to the Commonwealth is not recommended.