Fraser Ecological Consulting

abn 797 637 40114

665 Scenic Road

Macmasters Beach NSW 2257

telephone 042323 8193

Flora and Fauna Assessment

5 Villiers Road Padstow Heights

13th April 2024

EXECUTIVE SUMMARY

Fraser Ecological Consulting has been contracted to prepare an impact assessment of the proposed development on the terrestrial ecology located at 5 Villiers Road Padstow Heights in the Georges River Council LGA.

Commonwealth legislation (*Environment Protection and Biodiversity Conservation (EPBC) Act 1999*) requires that actions judged to significantly impact upon matters of National Environmental Significance are to be assessed via a formal referral 12process. This assessment report determines whether a referral to be made to the Department of the Environment, Water, Heritage and the Arts for further assessment is required.

State legislation (*Environmental Planning and Assessment Act 1979*) requires that actions judged to significantly impact upon threatened species, populations or ecological communities, or their habitats listed under the *Biodiversity Conservation Act (2016)* trigger the preparation of a Biodiversity Assessment Area.

The proposed development will predominantly occur within an existing cleared area, however, will require the removal of 2 x locally native *Angophora costata* trees and 1 x *Livistona australis* for the proposed addition works the existing dwelling. The trees do not contain habitat hollows. There is room for replacement planting on the site.

The NSW State Vegetation Type Map – SVTM (Department of Planning and Environment 2022 – Figure 8) maps the vegetation occurring adjacent to the site as containing PCT 3592 'Sydney Coastal Enriched Sandstone Forest. The SVTM vegetation mapping does not cover the site, however, the Angophora costata and Eucalyptus piperita are indicative locally mapped PCT 3592.

Areas below the proposed development that will not be impacted by the proposal including Coastal Mangrove Forest along Salt Pan Creek.

he site contains an existing dwelling with a landscaped backyard comprising of existing hard surfaces (sandstone bedrock) and paved pathway interspersed with small garden plantings, weed species and locally native tree species from the remnant vegetation community (Photographs 1-4).

Native canopy species recorded on-site included:

- *Angophora costata*
- *Eucalyptus piperita*
- *Livistona australis*
- *Pittosporum undulatum*
- *Pteridium esculentum (fern groundcover)*

Introduced species recorded on-site included:

- *Ligustrum lucidum*
- *Syagrus romanzoffiana*
- *Asparagus aethiopicus*
- *Lantana camara*
- *Ehrarta erecta*
- *Monsteria deliciosa*

- *Agave spp.*
- *Erythrina x sykesii*
- *Senna pendula var. glabrata*
- *Dolichandra unguis-cati*
- *Ligustrum sinense*
- *Erhrarta erecta*
- *Bidens pilosa*
- *Yucca spp.*
- *Nephrolepis cordifolia*
- *Solanum nigrum*
- *Tradescantia flumiensis*

The vegetation occurring on site is locally common and not consistent with a threatened ecological community listed under NSW *Biodiversity Conservation Act 2016* and Commonwealth *EPBC Act 1999*.

The proposed development impact area is below the 0.25ha Biodiversity Offsets Scheme (BOS). The property is not mapped on the NSW DPIE 'Sensitive Biodiversity Values Map'.

Assessments of significance ('5 part test') were undertaken in accordance with Section 7.3 of the *Biodiversity Conservation Act 2016* (BC Act) and Section 5.7 of the *Environmental Planning and Assessment Act 1979 (EP&A Act)*. It was concluded that the proposal is unlikely to have a significant impact on species, populations and communities listed under the New South Wales *Biodiversity Conservation Act 2016* and Commonwealth *Environment Protection Biodiversity Conservation Act 1999.*

State Environmental Planning Policy (Resilience and Hazards) 2021 has been considered in Section 8.8.

The major conclusion arising from this Flora and Fauna Impact Assessment is that the proposed works are unlikely to result in a significant impact on any listed species or communities providing that the applicant actively implements the recommendations from this assessment. Therefore, in accordance with the EPA Act (1979) and BC Act (2016), a Biodiversity Assessment Area is not required.

Disclaimer

This document may only be used for the purposes for which it was commissioned.

Fraser Ecological Consulting accepts no liability or responsibility in respect of any use or reliance upon this report by any third party.

Unauthorised use of this report in any form is prohibited.

Licensing

When conducting flora and fauna surveys, consultants are required to possess licences to ensure that works are completed in an appropriate manner. Fraser Ecological Consulting is licensed under s.132c and s.91 of the NSW National Parks and Wildlife Act (1974) from the NSW NPWS. This allows Alex Fraser to undertake scientific investigations, collect specimens of protected flora and fauna across NSW in service and non-service areas and undertake bushland restoration works in EECs. This licence requires that all survey results are reported to the NSW NPWS for inclusion into the Atlas of NSW Wildlife).

Table of Contents

1. Introduction

1.1. Introduction

Fraser Ecological Consulting has been contracted to prepare an impact assessment of the proposed works on the terrestrial ecology located at 5 Villiers Road Padstow Heights in the Canterbury-Bankstown Council LGA.

The terrestrial ecological assessment:

- Identifies key flora and fauna habitats within the subject site;
- Reviews literature and databases relevant to the subject site;
- Describes the methodology and results of the survey;
- Addresses potential impacts on flora and fauna and their habitats resulting from the proposed development;
- Proposes appropriate mitigation measures; and
- Provides an assessment of the likelihood of significant impacts on threatened species and populations, and endangered ecological communities, according to Section 5A of the NSW EPA Act, BC ACT, Commonwealth EPBC Act. This was done to determine the need for an SIS or an application under the EPBC Act.

Activities specifically related to the preparation of this report included:

- Identification of weed and indigenous native species recorded from the subject site
- Assessment of impacts of the proposed development
- Outlining the applicant's responsibilities including weed control and environmental safeguards before, during and post construction.

1.2 Site characteristics and proposed development

The study site is located approximately 15 km south-west of the Sydney CBD situated in the Canterbury - Bankstown Council LGA (Figure 1). The surrounding neighbourhood is characterised by residential development and remnant bushland fronting Salt Pan Creek.

The subject site is legally identified as Lot 3 DP 313526 and is known respectively as 5 Villiers Road Padstow Heights (Figures 1 – 5).

The site is an irregular shape and is occupied by a dwelling house and ancillary structures. The site has an area of 1254m^2. The land slopes away from the street to the rear boundary, which adjoins Salt pan Creek.

The proposed development comprises of construction of addition and alteration works to the existing dwelling and the construction of a boat shed.

The proposed development will predominantly occur within an existing cleared area, however, will require the removal of 2 x locally native *Angophora costata* trees for the proposed addition works the existing dwelling.

The proposed plans are provided on the following pages.

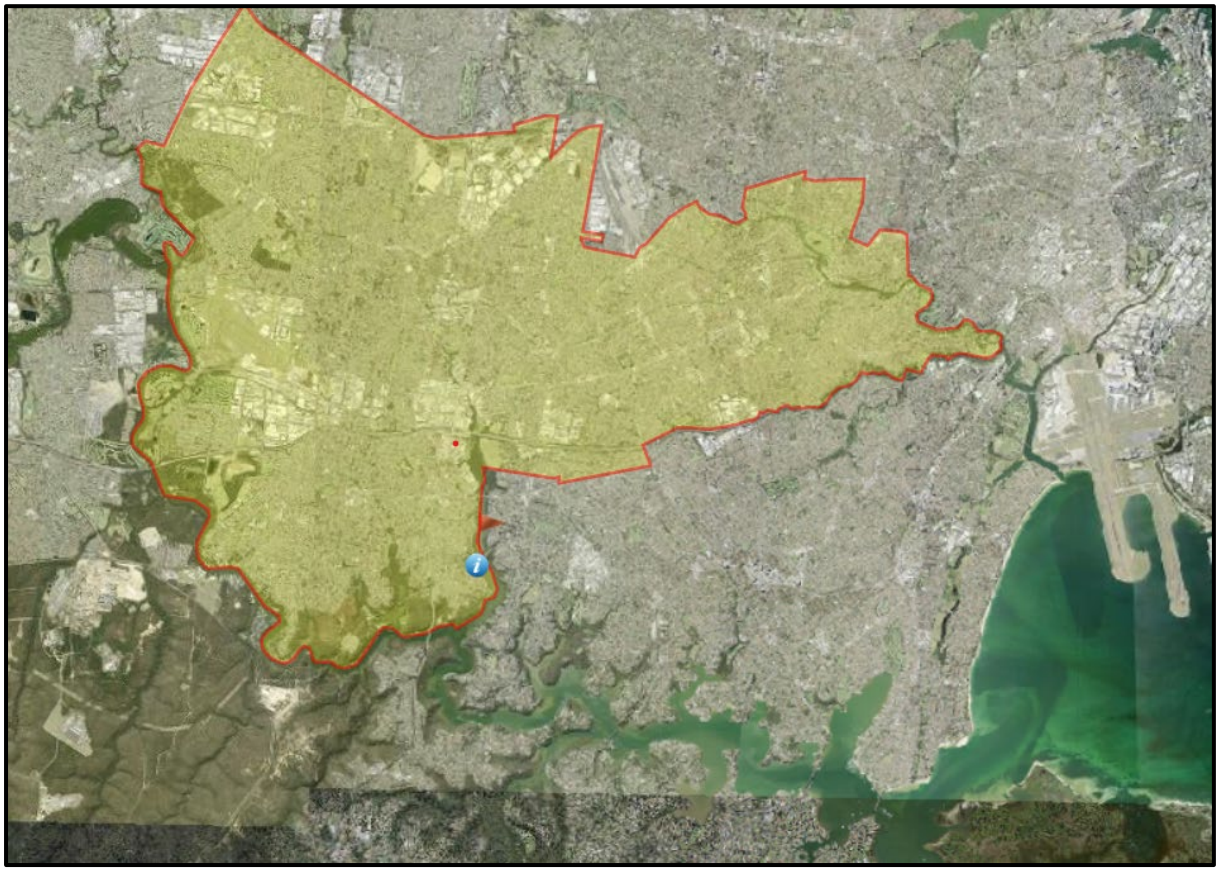


Figure 1: The study area and wider locality within the Canterbury-Bankstown Council LGA (Source: SIX maps.com)

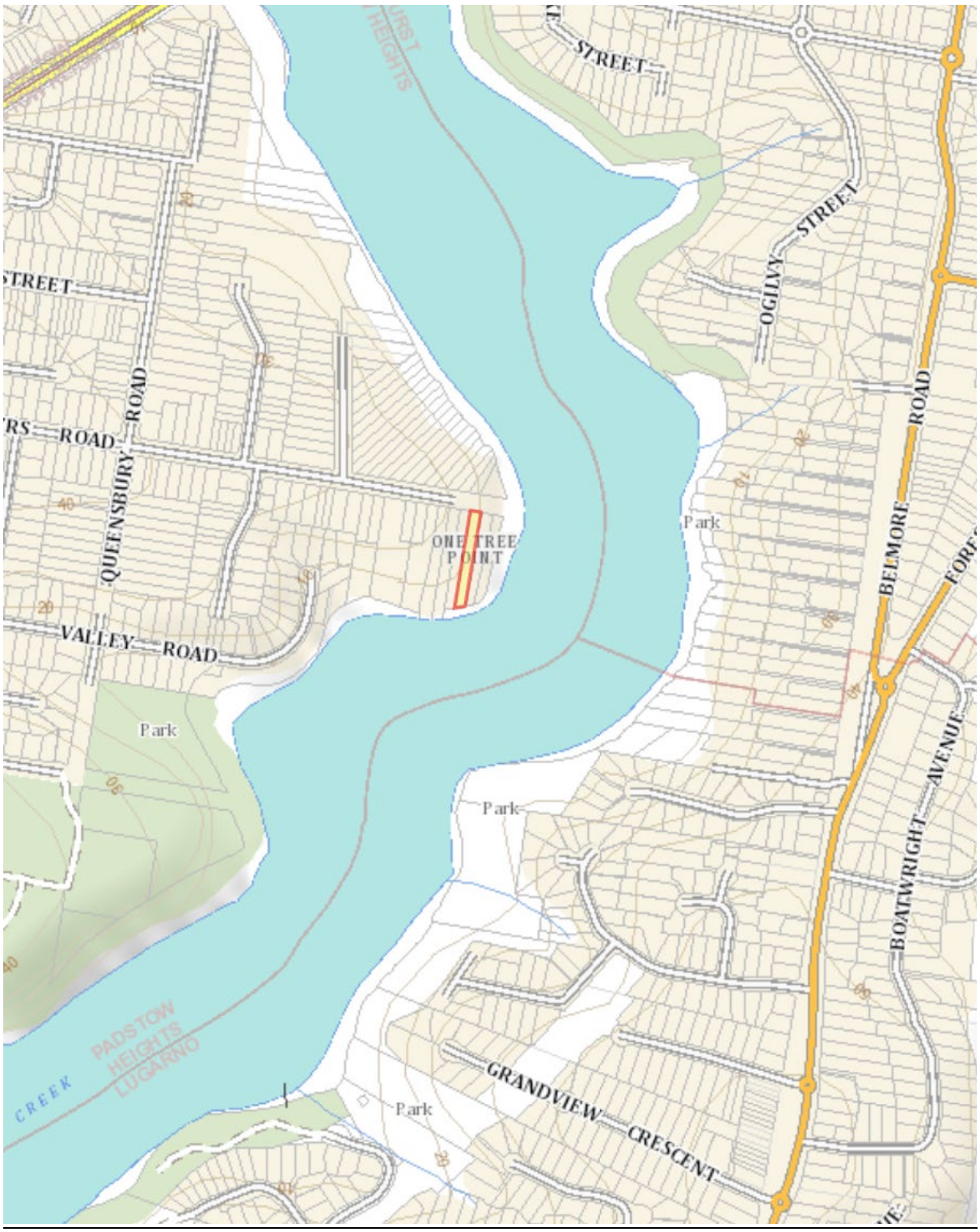


Figure 2 Cadastral map of the subject site in relation to Salt Pan Creek

Figure 3 The subject site shown on aerial imagery (Source: Nearmap.com)

Figure 4 The subject site shown on aerial imagery (Source: Nearmap.com)

Figure 5 The subject site shown on recent aerial imagery

DEVELOPMENT APPLICATION

DRAWING SCHEDULE

ISSUE DETAILS

A	24.12.2024	ISSUED FOR DEVELOPMENT APPLICATION

ADDITIONAL INFORMATION

A01	OWNER'S CONSENT FORM
A02	SURVEY PLAN
A03	STORMWATER SYSTEM REPORT
A04	BASIX & NATHERS CERTIFICATION
A05	STORMWATER PLAN
A06	CLAUSE 4.6 VARIATION
A07	LANDSCAPE PLAN
A08	ARBORICULTURAL IMPACT ASSESSMENT AND TREE MANAGEMENT PLAN
A09	COST SUMMARY REPORT
A10	STATEMENT OF ENVIRONMENTAL EFFECTS
A11	WASTE MANAGEMENT PLAN

ALTERATIONS AND ADDITIONS

5 VILLIERS ROAD,
HEIGHTS NSW 2211

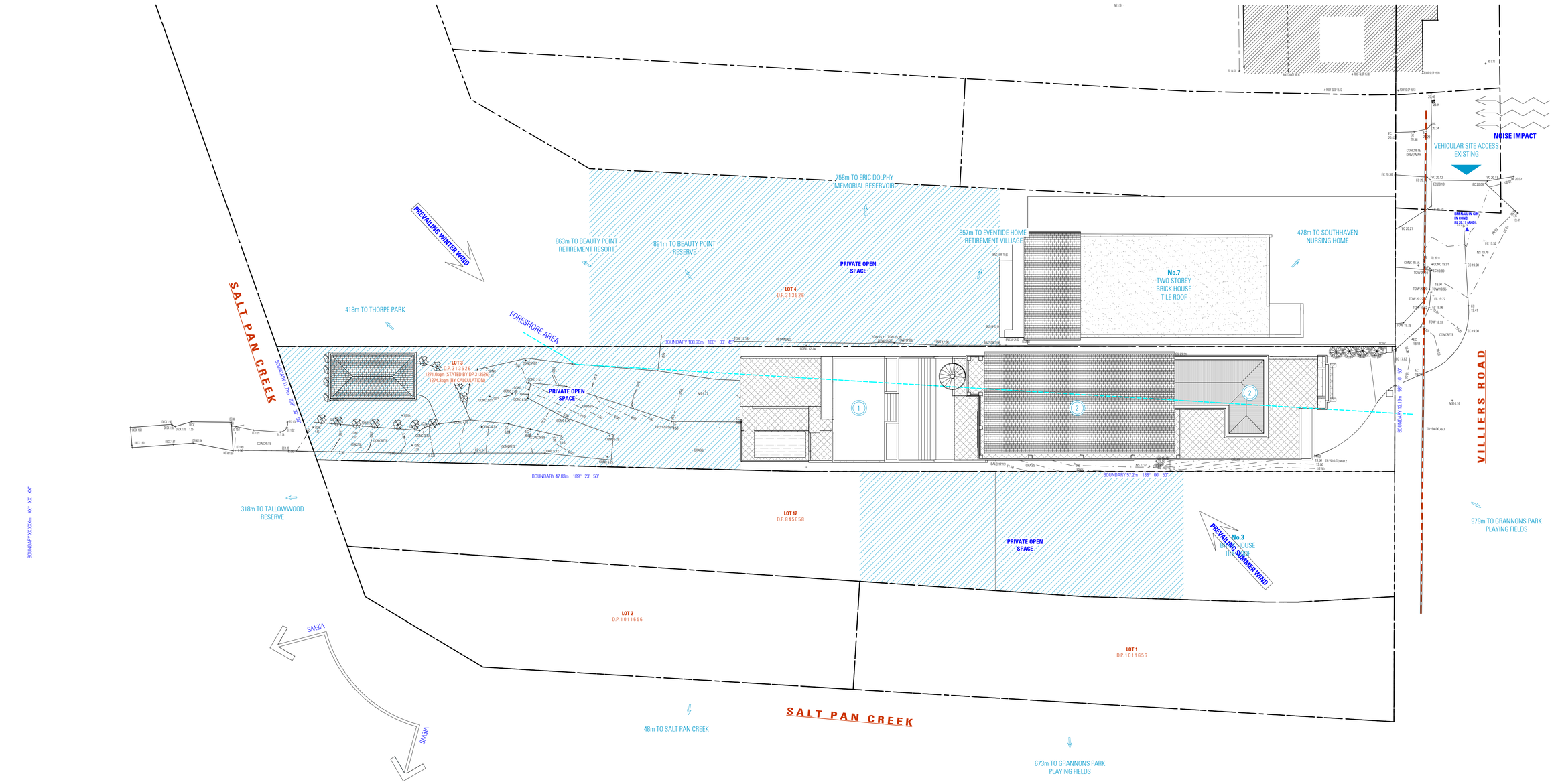
SAM KHOURY

bdaa
ACCREDITED
BUILDING DESIGNER

deeign
es.au

KEY	ITEM	SYMBOL
	NUMBER OF STOREYS	
	POSSIBLE OVERLOOKING	
	PRIVATE OPEN SPACE	
	REDUCED LEVELS	
	SITE	

SITE DETAILS	
SITE LENGTH (APPROX.)	108.96 m
SITE WIDTH (APPROX.)	12.19 m
SITE AREA	1274.3 m²



SITE ANALYSIS PLAN

NOT FOR CONSTRUCTION

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETERS
2. VERIFY ALL DIMENSIONS ON SITE
3. DO NOT SCALE. USE FIGURED DIMENSIONS ONLY
4. VERIFY ALL DISCREPANCIES WITH THE DESIGNER
5. ALL WORKS TO COMPLY WITH THE NATIONAL CONSTRUCTION CODE (B.C.A) & AUSTRALIAN STANDARDS

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ALTERATIONS AND ADDITIONS
5 VILLIERS ROAD, HEIGHTS NSW 2211

DESIGN BENITA ZEAITER
DRAFTED FARAH KAYAL SAM KHOURY

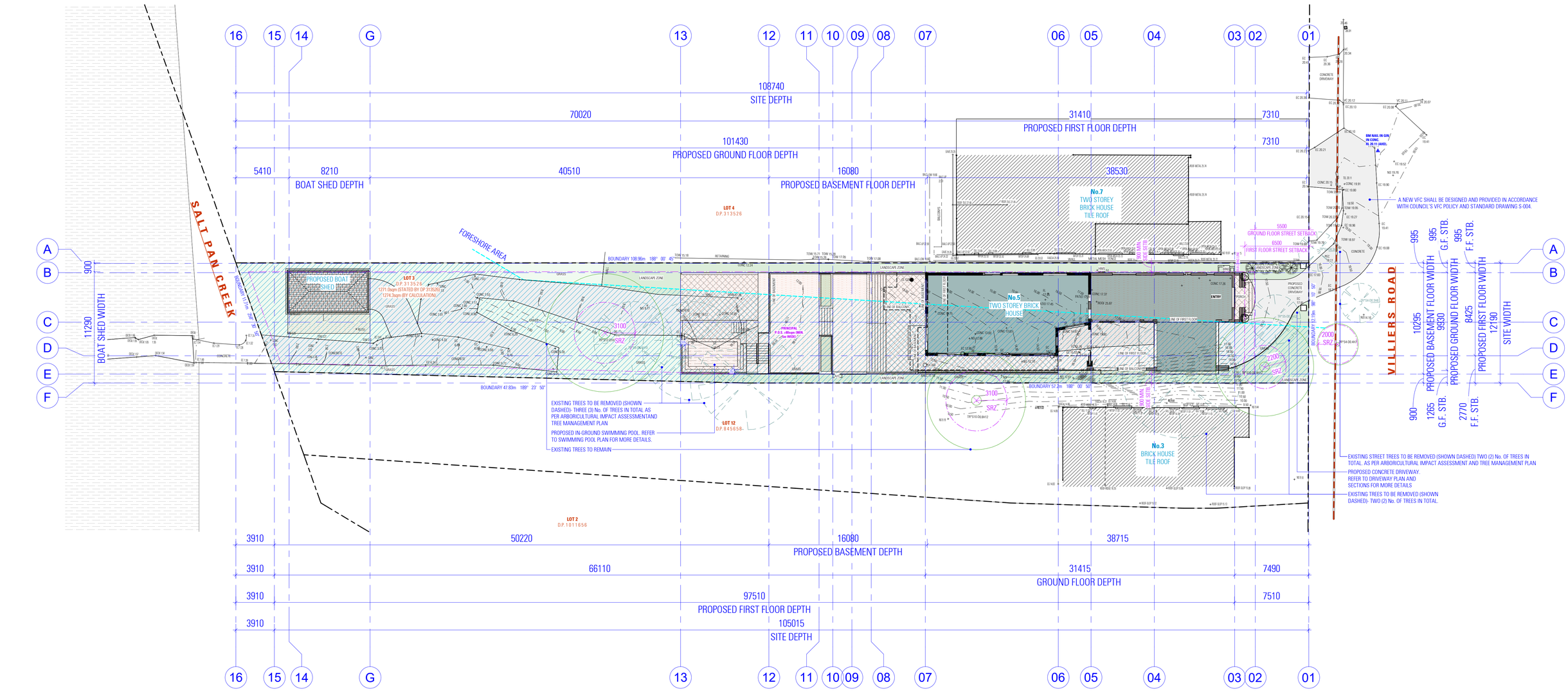
DRAWING SITE ANALYSIS PLAN
SCALE 1 : 200 / A1
ISSUE A 24.12.2024
DWG No. 24103 - 01

NOTES:

- REFER TO STORMWATER PLAN FOR STORMWATER DETAILS / SEDIMENT AND EROSION CONTROL PLAN
- REFER TO STRUCTURAL PLAN FOR RETAINING WALL DETAILS
- REFER TO STORMWATER PLAN AND BASIX REPORT FOR RAINWATER TANK DETAILS
- ALL BOUNDARY FENCING TO BE MAINTAINED OR CONSTRUCTED AT A HEIGHT OF 1800mm ABOVE NGL

SITE CALCULATION

ITEM		REQUIREMENT	EXISTING	PROPOSED
TOTAL SITE AREA				1274.3sqm
LOWER GROUND FLOOR AREA			- sqm	149.87sqm
GROUND FLOOR AREA			103.55sqm	213.02sqm
FIRST FLOOR AREA			124.44sqm	164.34sqm
BOAT SHED AREA			- sqm	28.72 sqm
TOTAL GROSS FLOOR AREA		<637.15 sqm	227.99sqm	555.95sqm
FLOOR SPACE RATIO		<0.5:1.0		0.43:1.0
LANDSCAPE AREA (SITE)				452.74sqm
LANDSCAPE AREA (FORWARD BUILDING LINE)		>41.87 sqm		46.70sqm
LANDSCAPE AREA (BEHIND BUILDING LINE)				413.00sqm
IMPREVIOUS AREA		< 75% (955.72 m²)		866.87 m²
PRIVATE OPEN SPACE	(MIN. 5.0m WIDE)	>80.00 sqm		>80.00 sqm
HARDSTAND SPACE	2883W x 6000L	ONE SPACE		TWO SPACES



PROPOSED SITE PLAN

LEGEND

ITEM	SYMBOL
GROUND FLOOR AREA	
LINE OF FIRST FLOOR	
NEW WORKS	
SITE BOUNDARY	
COMPLIANCE LINE	
COMPLIANCE DIMENSION	
NEIGHBOURING BUILDINGS	
GRASS ZONE	
LANDSCAPING ZONE	

NOT FOR CONSTRUCTION

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ALTERATIONS AND ADDITIONS

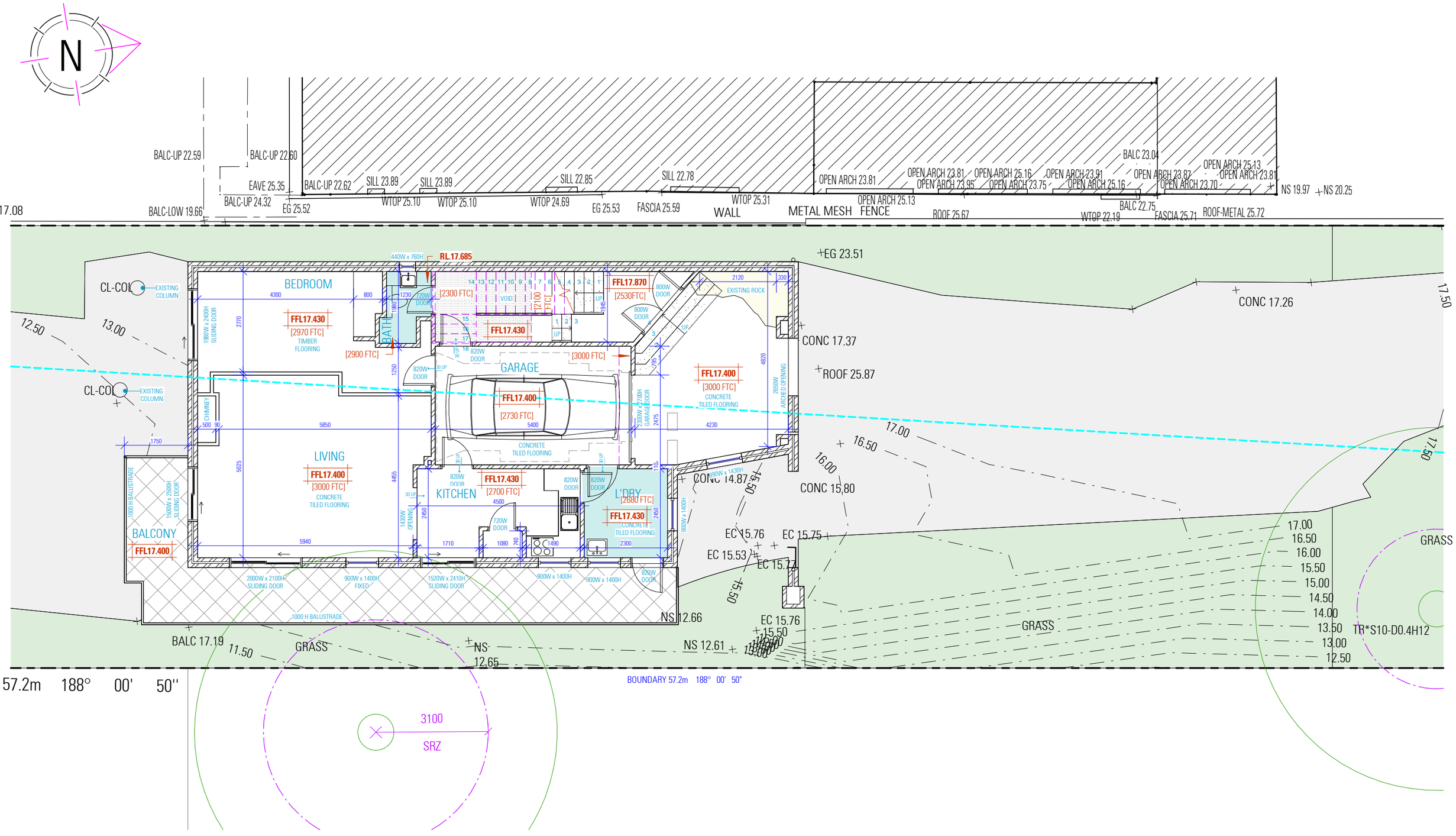
5 VILLIERS ROAD, HEIGHTS NSW 2211

DESIGN BENITA ZEAITER
DRAFTED FARAH KAYAL SAM KHOURY

DRAWING PROPOSED SITE PLAN

SCALE 1 : 200 / A1
ISSUE A 24.12.2024

DWG No. 24103 - 02



EXISTING GROUND FLOOR PLAN

NOT FOR CONSTRUCTION

NOTES:

- SMOKE ALARMS AND EVACUATION LIGHTING ARE TO COMPLY WITH BCA 2022 H3D6
- PROVISION OF VENTILATION IS TO COMPLY WITH BCA 2022 H4D7

NOTES

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ACCREDITED BUILDING DESIGNER

ALTERATIONS AND ADDITIONS

5 VILLIERS ROAD
HEIGHTS NSW 2211

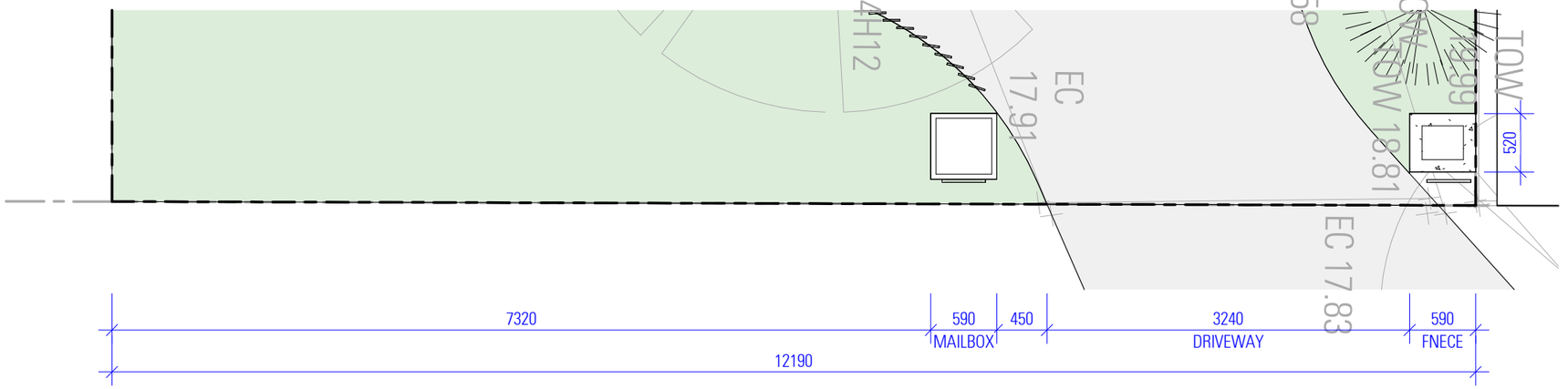
DESIGN	BENITA ZEAITER	
DRAFTED	FARAH KAYAL	SAM KHOURY

DRAWING
EXISTING GROUND FLOOR PLAN

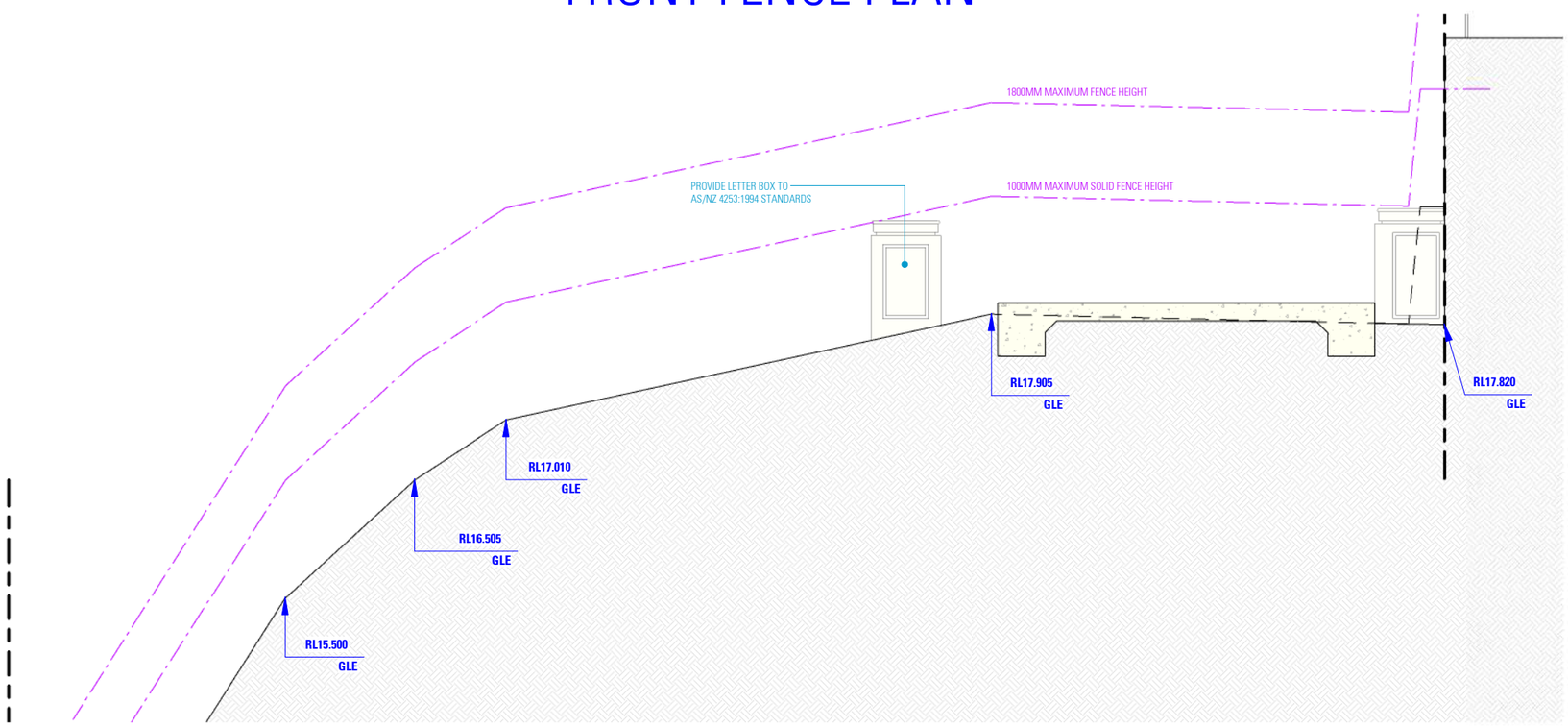
SCALE 1 : 100 / A3
ISSUE A 24.12.2024

DWG No. 24103 - 03

FRONT FENCE DETAILS



FRONT FENCE PLAN



FRONT FENCE ELEVATION

AS SEEN FROM VILLIERS ROAD

NOT FOR CONSTRUCTION

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ACCREDITED BUILDING DESIGNER

ALTERATIONS AND ADDITIONS

5 VILLIERS ROAD
HEIGHTS NSW 2211

DESIGN BENITA ZEAITER
DRAFTED FARAH KAYAL
SAM KHOURY

DRAWING FRONT FENCE DETAILS

SCALE 1 : 50 / A3
ISSUE A 24.12.2024

DWG No. 24103 - 16

1.3 Soils and Geology

Soil Landscapes of the Sydney 1: 100 000 sheet (Soil Conservation Service of NSW) undertaken by Chapman and Murphy (1994) describe the site as occurring within the Hawkesbury soil landscapes also shown in Figure 6 (below). The soil landscapes influences type of native vegetation occurring on-site.

	Name	Description
mc	Mangrove Creek	Estuarine, based on mangrove dominated tidal flats. The soils are typically steep, saturated, siliceous sands. The subsoils are potentially acid sulfate producing if drained.
ha	Hawkesbury	Consists of rugged, rolling to very steep hills on Hawkesbury Sandstone. The valley sides have numerous rock benches, broken scarps and outcrops. Surface soil is typically a thick layer of coarse quartz sand. The lack of cohesion and the steep slopes mean that there is a risk of extreme erosion. Subsoils range from sandy clay loams to light clays. These are highly susceptible to erosion from concentrated flow down the steep slopes. Gully erosion is limited by eventual exposure of underlying rock. The vegetation ranges from open woodland on exposed slopes to small areas of rainforest in sheltered gullies such as that to the immediate south of Mulga Road.
gy	Gymea	Found on the slopes of the valley upslope of the Hawkesbury Soil Landscapes. The Gymea Soil Landscape is typically on undulating to low rises some sandstone outcrops are evident. Most of this soil landscape has been cleared for urbanisation, and there is only a thin band remaining within the reserve. The vegetation is typically open forest-woodlands.
lh	Lucas Heights	Typically found on gently undulating crests and ridges on plateau surfaces of the Mittagong Formation (alternating bands of shale and fine-grained sandstones. Stony soil with rock outcrops absent. Slope gradient less than 10% with low soil fertility and low available water capacity. Supports dry sclerophyll low forest and woodland.

Source: Chapman and Murphy, 1989

Table 1A: Local soil landscapes

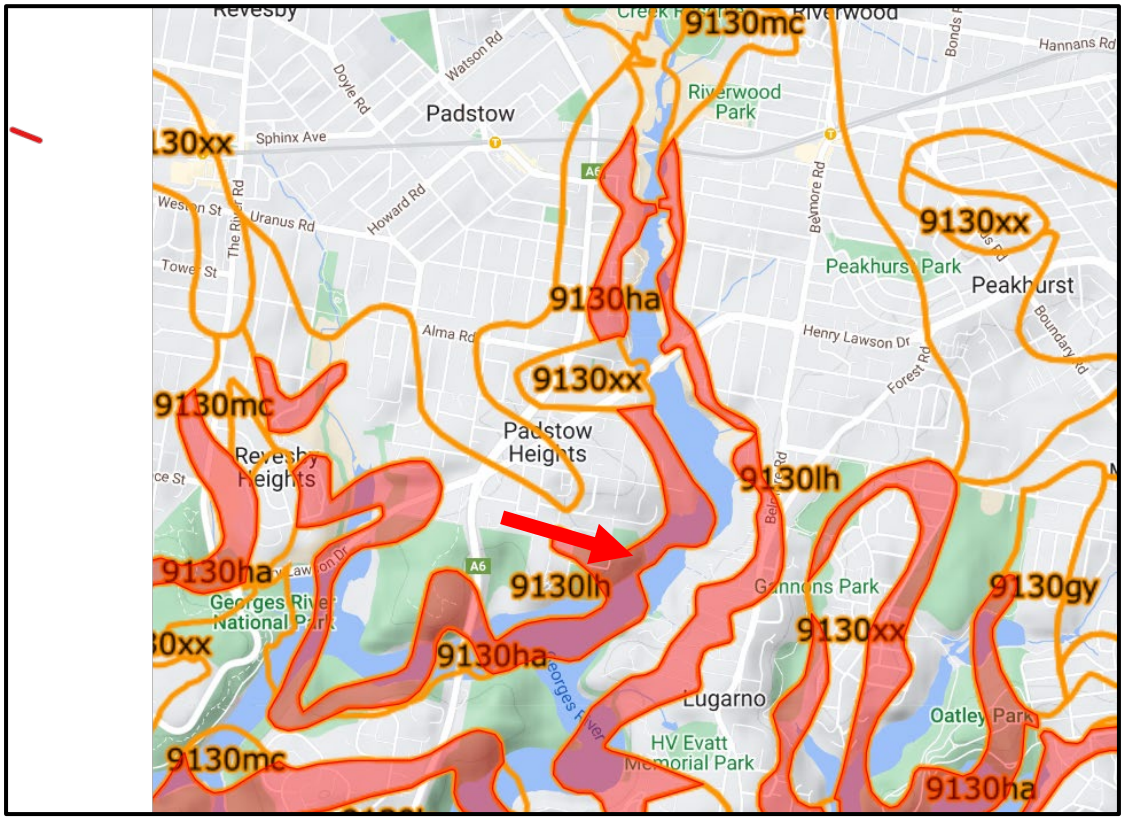


Figure 6 Soil Landscape mapping (Soil Conservation Service of NSW) undertaken by Chapman and Murphy (1994) accessed via EPSADE V.2

2. Statutory Framework

The criteria used to assess likely impacts upon threatened species, populations or endangered ecological communities vary between Commonwealth and State jurisdictions. The following describes the legislative requirements for each level.

2.1. Commonwealth

The *Environment Protection and Biodiversity Conservation Act (1999)* (EPBC Act) is a nationally applicable Act that is administered by the Department of the Environment, Water, Heritage and the Arts. This Act requires approval for actions that are likely to have a significant impact on matters of National Environmental Significance (NES).

There are seven matters of NES that are triggers for Commonwealth assessment and approval. These are:

1. World Heritage properties;
2. National Heritage places;
3. Ramsar wetlands of international importance;
4. Nationally threatened species and communities;
5. Migratory species;
6. Nuclear actions; and
7. Commonwealth marine environment.

Threatened species and ecological communities are listed under Part 13, Division 1, Subdivision A of the EPBC Act 1999. Migratory species are listed under part 13, Division2, Subdivision A of the Act.

The Department of the Environment and Water Resources identifies the following:

"*Under the EPBC Act a person must not take an action that has, will have or is likely to have significant impact on any of these matter of NES without approval from the Commonwealth Environment Minister. There are penalties for taking such an action without approval.*

In general, an action that may need approval under the Act will involve some physical interaction with the environment, such as clearing native vegetation, building a new road, discharging pollutants into the environment, or offshore seismic survey.

If, following a referral, it is determined that that an action is likely to have a significant impact, and approval is therefore required, the action is called a 'controlled action'. The proposal will then undergo a formal assessment and approval process, and cannot proceed unless approval is granted.

If it is determined that an action is not likely to have a significant impact, then the action is not a controlled action. Approval under the EPBC Act is not required and the action may proceed, subject to obtaining any other necessary permits or approvals."

2.2. State

2.2.1 Local Government Act 1993

The Act sets out the responsibilities of Councils including public land management, activity approvals, corporate and operation planning, orders and enforcement powers, setting rates and charges (LGSA 2009). Section 7(e) of the Act requires Councils, Councillors and Council employees to have regard to the principles of ecologically sustainable development in carrying out their responsibilities. The Charter (Section 8) also requires Councils to properly manage, develop, protect, restore, enhance and conserve the environment of the area for which it is responsible, in a manner that is consistent with and promotes the principles of ecologically sustainable development. Under this Act, Councils are required to have Plans of Management for all Council owned land.

2.2.3 Biodiversity Conservation Act 2016

Proponents should be aware that transitional arrangements under the new Scheme have not been fully developed and, in some cases, NSW Office of Environment and Heritage (**OEH**) should be approached directly for further information. The BC Act sets out the biodiversity assessment requirement for any development or activity that requires assessment or approval under the EP&A Act. The main elements of the Act:

- Biodiversity Offsets Scheme (BOS)
- Assessment methodology - Biodiversity Assessment Method (BAM)
- Establishment of a Biodiversity Conservation Fund (collects and directs spending of offset monies throughout the state)
- Expansion of Biodiversity Certification for large rezoning proposal and masterplan 'green field' type developments (streamlined assessment at strategic planning stage)

It also consolidates:

- existing wildlife licensing requirements
- nominations of areas of outstanding biodiversity values
- updated criteria for listing threatened species and communities
- biodiversity offsets scheme
- Biocertification (large scale master planning development)
- Biodiversity stewardship agreements (where offset credits are created)

Note: The BOS area clearing threshold in this Act is also applied within the new SEPP and LLS Act. If the amount of native vegetation clearing application is below the threshold it is optional if the applicant wants to submit a Biodiversity Assessment Report (BAR). In relation to Council DAs assessments, Part

4 local development requires application of the BAM to determine whether an offset obligation if it either:

1) Exceeds the BOS threshold (also referred to as 'area trigger')
2) Located in an area of '*Sensitive Biodiversity Values*'

The Act sets outs the Biodiversity Assessment Methodology (BAM) which directs the methodology to be undertaken by accredited assessors (consultants) to produce a Biodiversity Assessment Report (BAR) submitted with a development application. The BAM sets out a detailed, complex and quantitative assessment methodology for producing the assessment report (BAR).

The methodology sets a framework for decision makers (Council assessment officers) to determine whether or not the proposal will have **'Serious and Irreversible Impact (SAII)**' for certain threatened species and communities (referred to as 'candidate entities').

For local developments, the new regulations make the new Offset Scheme **mandatory** for applications assessed under part of the Act that exceed the BOS thresholds. Under the Act, and offsets calculator will be used by accredited and appropriately trained assessors.

- The proposed development is below the 0.25ha area clearing threshold.
- The site is not mapped on the Sensitive Biodiversity Values Map (Figure 7).

Therefore, the Biodiversity Offsets Scheme is not triggered for this development application.

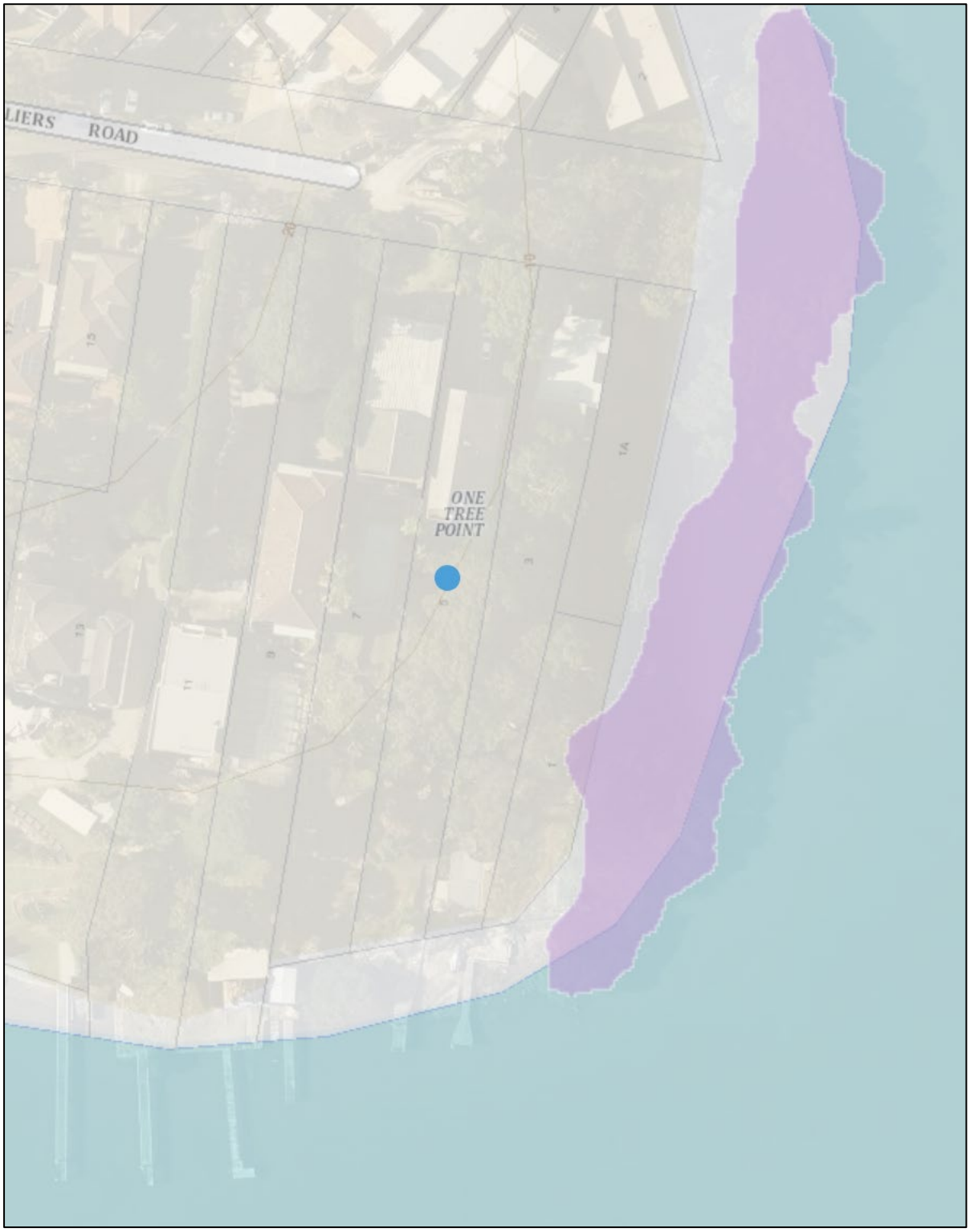


Figure 7 DPIE Sensitive Biodiversity Values Map (accessed 11th April 2025)

APPENDIX A: THREATENED SPECIES PREVIOUSLY RECORDED WITHIN 10KM OF THE SITE

Table A-1: Threatened plants previously recorded within 10km of the subject site (BIONET Atlas of Wildlife and EPBC Protected Matters Database)

Scientific Name (Common Name)	BC Act[1]	EPBC Act[2]	ROTAP[3]	Habitat
Acacia bynoeana (Bynoe's Wattle)	E1	V	3V	Occurs south of Dora Creek-Morisset area to Berrima and the Illawarra region and west to the Blue Mountains. It grows mainly in heath and dry sclerophyll forest on sandy soils (Harden 2002). Seems to prefer open, sometimes disturbed sites such as trail margins and recently burnt areas. Typically occurs in association with Corymbia gummifera, Eucalyptus haemastoma, E. gummifera, E. parramattensis, E. sclerophylla, Banksia serrata and Angophora bakeri (NSW National Parks and Wildlife Service, 1999).
Callistemon linearifolius (Netted Bottle Brush)	V		2Ri	Occurs chiefly from Georges to the Hawkesbury River where it grows in dry sclerophyll forest, open forest, scrubland or woodland on sandstone. Found in damp places, usually in gullies (Robinson, 1994, Fairley 2002 and Harden 2002). Within the Sydney region, recent records are limited to the Hornsby Plateau area near the Hawkesbury River (NSW Scientific Committee 1999).
Eucalyptus camfieldii (Heart-leaved Stringybark)	V	V	2Vi	Occurs from Tomago to the Royal National Park where it grows in coastal shrub heath in sandy soils on sandstone (Harden 2002).
Melaleuca deanei	V	V	3R	Occurs in coastal districts, including western Sydney (e.g. Baulkham Hills, Liverpool shires) from Berowra to Nowra where it grows in wet heath on sandstone and shallow/skeletal soils near streams or perched swamps (James 1997 and Harden 2002).
Syzygium paniculatum	V	V	3Ri	Occurs between Buladelah and St Georges Basin where it grows in subtropical and littoral rainforest on sandy soils or stabilized dunes near the sea (Harden, 2002).

Scientific Name (Common Name)	BC Act[1]	EPBC Act[2]	ROTAP[3]	Habitat
(Magenta Lilly Pilly)				
Woronora Beard Heath *Leucopogon exolasius*	V	V		Woronora Beard-heath is found along the upper Georges River area and in Heathcote National Park. The plant occurs in woodland on sandstone. Flowering occurs in August and September.
Allocasuarina diminuta subsp. mimica L.A.S.Johnson population in the Sutherland and Liverpool local government areas	Endangered Population			The endangered population occurs along sandstone ridges and upper hillsides in the region northwest from Heathcote, towards Menai and Holsworthy, in heathy and low open woodland communities. It is restricted to the Local Government Areas listed in this instance (Sutherland and Liverpool). Other occurrences in the Blue Mountains and Southern Highlands (Blackheath to Bundanoon and Taralga), and also in the coastal communities from Kingsford to Little Bay) are not included in the Endangered population listing. Habitat and ecology- Heathy woodland, Heathlands and Low open woodlands.
Hibbertia puberula	E1			Hibbertia puberula is found in the central coast botanical subdivision in sandy soil often associated with sandstone. Early records are from the Hawkesbury River area and Frenchs Forest in northern Sydney, South Coogee in eastern Sydney, the Hacking River area in southern Sydney, and the Blue Mountains. Hibbertia puberula has not been collected for over 40 years.
Acacia baueri subsp. aspera	V			Occurs in low, damp heathlands, often on exposed rocky outcrops over a wide range of climatic and topographical conditions. Appears to prefer open conditions; rarely observed where there is any shrub or tree canopy development; and many of the observations of this species have been made following fire, suggesting the species prefers early successional habitats.

Scientific Name (Common Name)	BC Act[1]	EPBC Act[2]	ROTAP[3]	Habitat
				Peak flowering occurs December to March. Pods have been observed to remain on the plants for several months, maturing October to December. Fire response is unknown, however, the frequency and intensity of fire is likely to play an important role in the persistence of populations.
Maundia triglochinoides	V			Restricted to coastal NSW and extending into southern Queensland. The current southern limit is Wyong; former sites around Sydney are now extinct Grows in swamps, lagoons, dams, channels, creeks or shallow freshwater 30 - 60 cm deep on heavy clay, low nutrients. Flowering occurs during warmer months. Associated with wetland species e.g. Triglochin procerum. Probably wind pollinated. Diaspore is the seed and root tubers, which are probably dispersed by water. Spreads vegetatively, with tufts of leaves arising along rhizome. Populations expand following flood events and contract to more permanent wetlands in times of low rainfall. Flowers November-January.
Prostanthera densa	V	V		This species has been recorded from the Currarong area in Jervis Bay, Royal National Park, Cronulla, Garie Beach and Port Stephens (Gan Gan Hill, Nelson Bay). The Sydney and Royal National Park populations were thought possibly extinct, but the species is now known to occur at Bass and Flinders Point in Cronulla. Villous Mintbush is 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.
Caladenia tessellata	E1	V		The Thick Lip Spider Orchid is known from the Sydney area (old records), Wyong, Ulladulla and Braidwood in NSW. Populations in Kiama and Queanbeyan are presumed extinct. It was also recorded in the Huskisson area in the 1930s. The species occurs on the coast in Victoria from east of Melbourne to almost the NSW border. Generally found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil. The single leaf regrows each year. Flowers appear between September and November (but apparently generally late September or early October in extant southern populations).

Scientific Name (Common Name)	BC Act[1]	EPBC Act[2]	ROTAP[3]	Habitat
Cryptostylis hunteriana	V	V		The Leafless Tongue-orchid has been reported to occur in a wide variety of habitats including heathlands, heathy woodlands, sedgelands, Xanthorrheoa spp. plains, dry sclerophyll forests (shrub/grass sub-formation and shrubby sub-formation), forested wetlands, freshwater wetlands, grasslands, grassy woodlands, rainforests and wet sclerophyll forests (grassy sub-formation) (Backhouse & Jeanes 1995; Bell 2001; DECC 2005a; Jones 2006; Riley & Banks 2002). Soils are generally considered to be moist and sandy, however, this species is also known to grow in dry or peaty soils (Backhouse & Jeanes 1995; Bell 2001; Brown 2007; Jones 2006; Riley & Banks 2002).
Genoplesium baueri	E1	E		The species has been recorded from locations between Ulladulla and Port Stephens. About half the records were made before 1960 with most of the older records being from Sydney suburbs including Asquith, Cowan, Gladesville, Longueville and Wahroonga. No collections have been made from those sites in recent years. Currently the species is known from just over 200 plants across 13 sites. The species has been recorded at locations now likely to be within the following conservation reserves: Berowra Valley Regional Park, Royal National Park and Lane Cove National Park. May occur in the Woronora, O'Hares, Metropolitan and Warragamba Catchments. Habitat and ecology: Grows in dry sclerophyll forest and moss gardens over sandstone. Flowers February to March.

1: V= Vulnerable, E1= Endangered, E4 = Presumed extinct (*BC Act 2016*)

2: V= Vulnerable, E1= Endangered, X = Presumed extinct (*EPBC Act 1999*)

3: Plant distribution: 2=Restricted distribution - range extending over less than 100km, 3=Range more than 100km but in small populations. Conservation Status: X=Presumed extinct - not collected for 50 years or the only known populations destroyed, E Endangered = at serious risk in the short term (one or two decades) ,V Vulnerable= at risk over a longer period (20-50 years), R Rare but with no current identifiable threat, K Poorly known species suspected of being at risk. Reservation Status: C= Species is known to occur within a proclaimed reserve, a= Species is considered to be adequately reserved. 1000 or more plants occur within a proclaimed reserve. i= Species is considered to be inadequately reserved. Less than 1000 plants occur within a proclaimed reserve.

Table A-2: Threatened fauna previously recorded within 10km of the subject site (BIONET Atlas of Wildlife and EPBC Protected Matters Database)

Scientific Name	Common Name	BC Act	EPBC Act	Habitat
Pseudophryne australis	Red-crowned Toadlet	V	V	This species occurs in open forests, mostly on Hawkesbury and Narrabeen Sandstones and inhabits periodically wet drainage lines below sandstone ridges that often have shale lenses or cappings. It shelters under rocks and amongst masses of dense vegetation or thick piles of leaf litter. Breeding congregations occur in dense vegetation and debris beside ephemeral creeks and gutters.
Heleioporus australiacus	Giant Burrowing Frog	V	V	Found in heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based. Spends more than 95 % of its time in non-breeding habitat in areas up to 300 m from breeding sites. Whilst in non-breeding habitat it burrows below the soil surface or in the leaf litter. Individual frogs occupy a series of burrow sites, some of which are used repeatedly. The home ranges of both sexes appear to be non-overlapping suggesting exclusivity of non-breeding habitat. Home ranges are approximately 0.04 ha in size.
Litoria aurea	Green and Golden Bell Frog	E	V	Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (Typha spp.) or spikerushes (Eleocharis spp.). Optimum habitat includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (Gambusia holbrooki), have a grassy area nearby and diurnal sheltering sites available. Some sites, particularly in the Greater Sydney region occur in highly disturbed areas. The species is active by day and usually breeds in summer when conditions are warm and wet. Males call while floating in water and females produce a raft of eggs that initially float before settling to the bottom, often amongst vegetation. Tadpoles feed on algae and other plant-matter; adults eat mainly insects, but also other frogs. Preyed upon by various wading birds and snakes.
Callocephalon fimbriatum	Gang-gang Cockatoo	V		Occurs in wetter forests and woodland from sea level to an altitude over 2000 metres, timbered foothills and valleys, coastal scrubs, farmlands and suburban gardens (Pizzey 1997).
Calyptorhynchus lathami	Glossy Black-Cockatoo	V		Occurs in eucalypt woodland and forest with Casuarina/Allocasuarina spp. Characteristically inhabits forests on sites with low soil nutrient status, reflecting the distribution of key Allocasuarina species. The drier forest types with intact and less rugged landscapes are preferred by the species. Nests in tree hollows (Garnett 2000; NSW National Parks and Wildlife Service 1999).
Lathamus discolor	Swift Parrot	E1	EM	Breeding occurs in Tasmania, majority migrates to mainland Australia in autumn, over-wintering, particularly in Victoria and central and eastern NSW, but also south-eastern Queensland as far north as Duaringa. New evidence indicates that the forests on the coastal plains from southern to northern NSW are also extremely important. In

Scientific Name	Common Name	BC Act	EPBC Act	Habitat
				mainland Australia is semi-nomadic, foraging in flowering eucalypts in eucalypt associations, particularly box-ironbark forests and woodlands. Preference for sites with highly fertile soils where large trees have high nectar production, including along drainage lines and isolated rural or urban remnants, and for sites with flowering Acacia pycnantha, is indicated. Sites used vary from year to year (Garnett 2000; Swift Parrot Recovery Team 2001).
Glossopsitta pusilla	Little Lorikeet	V		Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophoras, Melaleucas and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species. Feeds mostly on nectar and pollen, occasionally on native fruits such as mistletoe, and only rarely in orchards. Roosts in treetops, often distant from feeding areas. Nests in proximity to feeding areas if possible, most typically selecting hollows in the limb or trunk of smooth-barked Eucalypts. Entrance is small (3 cm) and usually high above the ground (2–15 m). These nest sites are often used repeatedly for decades, suggesting that preferred sites are limited. Riparian trees often chosen, including species like Allocasuarina.
Daphoenositta chrysoptera	Varied Sittella	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 decorticating bark, dead branches, standing dead trees and small branches and twigs in the tree canopy. Builds a cup-shaped nest of plant fibres and cobwebs in an upright tree fork high in the living tree canopy, and often re-uses the same fork or tree in successive years.
Pyrrholaemus saggitatus	Speckled Warbler	V		The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area.
Melanodryas cucullata	Hooded Robin	V		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. Often perches on low dead stumps and fallen timber or on low-hanging branches, using a perch-and-pounce method of hunting insect prey. Territories range from around 10 ha during the breeding season, to 30 ha in the non-breeding season.
Lophoictinia isura	Square-tailed Kite	V	M	This species hunts primarily over open forest, woodland and mallee communities as well as over adjacent heaths and other low scrubby habitats in wooded towns. It feeds on small birds, their eggs and nestlings as well as insects. Seems to prefer structurally diverse landscapes (Garnett 2000).
Neophema pulchella	Turquoise Parrot	V		Occurs in the foothills of the great dividing range in eucalypt woodlands and forests with a grassy or sparsely shrubby understorey. Nests in hollows in trees, stumps or even fence posts. It feeds on seeds of both native and introduced grass and herb species (Garnett, 2000).

Scientific Name	Common Name	BC Act	EPBC Act	Habitat
Ninox connivens	Barking Owl	V		Occurs in dry sclerophyll woodland. In the south west it is often associated with riparian vegetation while in the south east it generally occurs on forest edges. It nests in large hollows in live eucalypts, often near open country. It feeds on insects in the non-breeding season and on birds and mammals in the breeding season (Garnett 2000).
NInox strenua	Powerful Owl	V		The subject site contains foraging habitat for this species and suitable prey items detected on site include Oryctolagus cuniculus Rabbit and Trichosurus vulpecula Common Brushtail Possum. Although this species prefers dense forest and feeds on other forest fauna, it has adapted to fragmented habitat in an urbanised landscape. There are a large number of records of this species across NSW and the forest types in which it has been recorded are common across the bioregion and in local reserves. This species has very large home ranges (up to 1,000 hectares) and the area to be affected by the proposal is relatively small in comparison.
Ptilinopus magnificus	Wompoo Fruit-Dove	V		Occurs in rainforests, monsoon forests, adjacent eucalypt forests, fruiting trees on scrubby creeks or in open country (Garnett 2000).
Ptilinopus superbus	Superb Fruit-Dove	V		Occurs in rainforests and fringes, scrubs, mangroves and wooded stream-margins, lantana thickets, isolated figs, pittosporums, lilly pillies and blackberries (Pizzey 1997).
Tyto tenebricosa	Sooty Owl	V		Occurs in wet eucalypt forest and rainforest on fertile soils with tall emergent trees. Typically found in old growth forest with a dense understorey but also occurs in younger forests if nesting trees are present nearby. It nests in large hollows within eucalypts and occasionally caves. It hunts in open and closed forest for a range of arboreal and terrestrial mammals including introduced species and sometimes birds (Garnett 2000).
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V		Usually roosts in tree hollows in higher rainfall forests. Sometimes found in caves (Jenolan area) and abandoned buildings. Forages within the canopy of dry sclerophyll forest. It prefers wet habitats where trees are more than 20 metres high (Churchill 1998).
Chalinolobus dwyeri	Large-eared Pied Bat			Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (Hirundo ariel), frequenting low to mid-elevation dry open forest and woodland close to these features. Females have been recorded raising young in maternity roosts (c. 20-40 females) from November through to January in roof domes in sandstone caves. They remain loyal to the same cave over many years. Found in well-timbered areas containing gullies. The relatively short, broad wing combined with the low weight per unit area of wing indicates manoeuvrable flight. This species probably forages for small, flying insects below the forest canopy.
Miniopterus schreibersii	Eastern Bent-wing Bat	V	C	Usually found in well timbered valleys where it forages on small insects above the canopy. Roosts in caves, old mines, stormwater channels and sometimes buildings and often return to a particular nursery cave each year (Churchill 1998).
Mormopterus norfolkensis	Eastern Freetail-bat	V		Thought to live in sclerophyll forest and woodland. Small colonies have been found in tree hollows or under loose

Scientific Name	Common Name	BC Act	EPBC Act	Habitat
				bark. It feeds on insects above the forest canopy or in clearings at the forest edge (Churchill 1998).
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps. Urban gardens and cultivated fruit crops also provide habitat for this species. Feeds on the flowers and nectar of eucalypts and native fruits including lilly pillies. It roosts in the branches of large trees in forests or mangroves (NSW National Parks and Wildlife Service 2001; Churchill 1998).
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat	V		Occurs in eucalypt forest where it feeds above the canopy and in mallee or open country where it feeds closer to the ground. Generally a solitary species but sometimes found in colonies of up to 10. It roosts in tree hollows. Thought to be a migratory species (Churchill, 1998).
Varanus rosenbergi	Rosenberg's Goanna			Found in heath, open forest and woodland. Associated with termites, the mounds of which this species nests in; termite mounds are a critical habitat component. Individuals require large areas of habitat. Feeds on carrion, birds, eggs, reptiles and small mammals. Shelters in hollow logs, rock crevices and in burrows, which they may dig for themselves, or they may use other species' burrows, such as rabbit warrens. Runs along the ground when pursued (as opposed to the Lace Monitor, which climbs trees). Lays up to 14 eggs in a termite mound; the hatchlings dig themselves out of the mounds.

1: V= Vulnerable, E1= Endangered, E4 = Presumed extinct (*BC Act 2016*)

2: V= Vulnerable, E1= Endangered, X = Presumed extinct (*EPBC Act 1999*)

3. Methodology

This chapter presents the methods used in conducting the ecological survey and assessment of the conservation importance of the study area.

3.1 Existing records

Records of threatened flora and fauna species and populations, listed in the schedule of the BC and EPBC Acts, were obtained and reviewed to document known locations threatened and regionally significant fauna within the locality. The source of these records was the National Parks and Wildlife Services' Atlas of Wildlife (Bionet) and the Department of Environment, Water, Heritage and the Arts online Protected Matters Search Tool database (Appendix B) for an area covering approximately 10km radius of the subject site.

3.2. Literature review

A literature review was carried out. Of particular importance were those containing records of species, populations and communities of conservation significance. This background information informed the impact assessment.

The following information was relied upon in regard to local conservation and planning issues for this study.

1. ***Soil landscapes of the Sydney 1: 100 000 Sheet (Hazelton and Tile 1990)***

The soils are moderately fertile, derived from Wianamatta Shales. The soils are part of the Gymea Soil Landscape (Chapman et 1989).

2. ***Vegetation Mapping***

NSW State Vegetation Type Map (Department of Planning and Environment 2022)

The State Vegetation Type Map (SVTM) is a regional-scale map of NSW Plant Community Types. This map represents the current extent of each Plant Community Type, Vegetation Class and Vegetation Formation, across all tenures in NSW. Further, a SVTM map of pre-clearing is also available separately here. This map is updated periodically as part of the Integrated BioNet Vegetation Data program to improve quality and alignment to the NSW vegetation classification hierarchy.

It is accessed via the following link:

https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map

This release represents the first state-wide vegetation coverage using the NSW vegetation classification hierarchy, including the revised eastern NSW PCT classification C1.1. The "M1" in the

version release number (C1.1.M1), represents the first map release against PCT master list version C1.1

This coverage supersedes pre-release versions (v1.1 and v1.1.1) and 7 individual prior regional coverages including: Sydney Metropolitan Area Mapping, SVTM Border Rivers Gwydir – Namoi, SVTM Central West – Lachlan, SVTM Riverina – Murray, SVTM Western, SVTM Central Tablelands, and SVTM Upper Hunter.

Limitations on Use: This mapping data may be used as a guide to the occurrence and distribution of Plant Community Types, Vegetation Classes, and Vegetation Formations, before and after clearing.

Users of these maps should note the following issues which will be address in future SVTM versions:

- PCT attribution errors – corrected as better information becomes available Spatial errors or omissions (eg, gaps and slithers or mapping linework inaccuracies)
- Eastern NSW PCT classification topologies differ from central and western NSW classification topologies
- Some PCTs mapped as part of earlier regional coverages have since been discontinued
- Some PCTs approved in BioNet have not been mapped due to technical issues
- Spatial and data gaps and discontinuities may occur at the edges of former regional coverages.
- Pre-clearing coverage for central NSW is not currently available

Data Access

Map data may be downloaded, viewed within the SEED Map Viewer, or accessed via the underlying ArcGIS REST Services or WMS for integration in GIS or business applications.

The Trees Near Me NSW app provides quick access to view the map using a mobile device or desktop. Download the app from Google Play or the App Store, or access the web site at https://treesnearme.app.

3.3 Desktop survey

A desktop survey was performed to ensure all relevant documentation is considered when preparing the plan. Documents and other information resources utilised include:

- Aerial photographs (Google Maps, NearMaps & DPI Land Information)
- Proposed site plans prepared by Anthony Saouma dated 10/3/23

In addition, an updated review of government databases and GIS layers was undertaken to identify potential threatened species, populations and ecological communities within a 10 kilometre radius of the study area.

Data sources include:

- Vegetation types database [Biometric] (OEH 2013a). http://mapdata.environment.nsw.gov.au/geonetwork/srv/en/main.home.
- Threatened species database, NSW Office of Environment and Heritage (OEH 2013b). http://www.environment.nsw.gov.au/threatenedspecies/
- Native vegetation of south-east NSW: a revised classification and map for the coast and eastern tablelands (Tozer et al. 2010).
- BIONET Database
- EPBC Act Protected Matters Search Tool

3.4 Field Surveys

A visual inspection was undertaken on the 7th April 2025 to identify and evaluate the current vegetation community occurring on the subject site, identify any threatened flora and fauna species and assess the current nature and extent of fauna habitats. Given the relatively small size of the site one day of surveying was considered an appropriate period of time to assess the native flora and fauna and values of the site.

Features of the vegetation including floristics, structure, extent, type and projective foliage cover, presence of weed species and other significant features were noted and recorded). All flora recorded were predominantly identified to family, genus and species level with confirmation according to *Field Guide to the Native Plants of Sydney* (Robinson, 2003), *Weeds of the south-east: an identification guide for Australia* (Richardson, 2006*), Tree & Shrubs in Rainforest of New South Wales and Southern QLD* (Williams et al 1984), *Native Plants of the Sydney District* (Fairly and Moore 2000) and the Botanic Gardens Trust (2009) *PlantNET* flora database.

It was not possible to determine with certainty all the fauna that utilise habitats in the subject site. This is because of the likely seasonal occurrences of some fauna species, the occasional occurrence of vagrant species, and because some species are difficult to detect because of their timid or cryptic behaviour. Therefore, fauna investigations comprised an assessment of fauna habitats present on site and an indication of their potential to support native wildlife populations and, in particular, threatened species.

The fauna habitat assessment criteria included:

Mammals: extent of ground cover, shrub layer and tree canopy, hollow-bearing trees, substrate type (for burrowing etc), evidence such as droppings, diggings, footprints, scratches on trees, nests, burrow paths and runways.

Birds: structural; features such as the extent and nature of the canopy, understorey and ground strata and flowering character

Reptiles and amphibians: cover shelter, suitable substrate, basking and breeding site availability, reptiles and frogs sough in likely sheltering places

Invertebrates: logs and other debris, leaf and bark accumulations around base of trees, grass clumps, loose soil for burrowing

Wildlife corridor values: Importance of the creek systems and riparian vegetation as movement corridors for fauna, especially birds, aquatic fauna, mammals (e.g. microchiropteran bats) & amphibians

3.5 Assessment of conservation value

Conservation value parameters

The conservation value of flora and fauna habitats on the subject site was determined by reference to the following criteria:

- Representativeness - whether the vegetation communities of the site are unique, typical or common in the bioregion. In addition the criteria takes into account whether or not such vegetation units are presently held in conservation reserves;
- the presence of threatened or regionally significant species on the site;
- the extent of human influence on the natural environment of the site and the condition of habitats (e.g. the presence of weeds, fire frequency, etc.);
- the uniqueness of the natural values of the site;
- the amount of native vegetation to be cleared or modified by the proposed development in relation to what remnant vegetation will remain in the locality; and
- the relative importance of the site as a corridor for the movement of wildlife.

Vegetation condition was broadly assessed within each of the vegetation communities, based on the degree of modification and disturbance observed in these areas. A basic scale was established to quantify the condition of each patch of native vegetation. The scale for vegetation condition is defined in Table 1.

Table 1: Vegetation condition classes

Condition class	Description	Criteria			
		Native flora diversity	Canopy cover	Mid-storey	Weed abundance
High	Vegetation still retains the majority of native species and structural characteristics of the pre-European equivalent. Such vegetation is usually ina near-natural state and displays resilience to weed	High	Intact	Intact	Low

Condition class	Description	Criteria			
		Native flora diversity	**Canopy cover**	**Mid-storey**	**Weed abundance**
	invasion due to intactground cover, shrub and canopy layers and lack of soil disturbance. Some limited weed cover is present in edge habitats.				
Moderate	Vegetation generally still retains most ofits structural integrity but has been partially disturbed and has lost some component of its original species complement. Weed invasion varies fromslight to high.	Moderate	Intact	Partial-Intact	Moderate - High
Low	Modified areas where most of the nativediversity and vegetation structure has been lost. Typically includes thin strips of roadside vegetation, areas of derived grassland and shrubby vegetation in power easement. Environmental weedsare often co-dominant with the original indigenous species	Low- moderate	Partial	Absent	High-Moderate
Very Low	Includes cleared paddock areas and roadside clearings dominated by exotic species including noxious weeds. Someregenerating shrubs and native groundcovers may be present in low abundance. Some of these areas support planted trees and shrubs including native and exotic species.	Low	None	Absent-Sparse	High

4. Native vegetation

The site contains an existing dwelling with a landscaped backyard comprising of existing hard surfaces (sandstone bedrock) and paved pathway interspersed with small garden plantings, weed species and locally native tree species from the remnant vegetation community (Photographs 1-4).

Native canopy species recorded on-site included:

- *Angophora costata*
- *Eucalyptus piperita*
- *Livistona australis*
- *Pittosporum undulatum*
- *Pteridium esculentum* (fern groundcover)

Introduced species recorded on-site included:

- *Ligustrum lucidum*
- *Syagrus romanzoffiana*
- *Asparagus aethiopicus*
- *Lantana camara*
- *Ehrarta erecta*
- *Monsteria deliciosa*
- *Agave spp.*
- *Erythrina x sykesii*
- *Senna pendula var. glabrata*
- *Dolichandra unguis-cati*
- *Ligustrum sinense*
- *Erhrarta erecta*
- *Bidens pilosa*
- *Yucca spp.*
- *Nephrolepis cordifolia*
- *Solanum nigrum*
- *Tradescantia flumiensis*

No threatened flora species were recorded on-site.

One Grey Mangrove tree (*Avicennia marina*) was recorded on the Salt Pan Creek foreshore.

The NSW State Vegetation Type Map – SVTM (Department of Planning and Environment 2022 – Figure 8) maps the vegetation occurring adjacent to the site as containing PCT 3592 'Sydney Coastal Enriched Sandstone Forest. The SVTM vegetation mapping does not cover the site, however, the *Angophora costata* and *Eucalyptus piperita* are indicative locally mapped PCT 3592.

PCT 3592 community is typically a tall to very tall shrubby sclerophyll open forest found on slightly enriched Hawkesbury Sandstone soils on sheltered slopes and occasionally crests on the Sydney coastal sandstone plateaus. The tree canopy very frequently includes a high cover of Angophora costata commonly in combination with Corymbia gummifera and Eucalyptus piperita, with Eucalyptus pilularis occasionally locally abundant. A taller mid-stratum is characterised by very frequent however sparse cover of Pittosporum undulatum and Allocasuarina littoralis or Allocasuarina torulosa. A mid-dense lower shrub layer is comprised of dry sclerophyll species that commonly include Leptospermum trinervium, Persoonia levis, Lomatia silaifolia, Acacia ulicifolia and Dodonaea triquetra, with Banksia serrata and Banksia spinulosa recorded occasionally. The ground layer is typically a sparse cover of graminoids that almost always includes Dianella caerulea and Lomandra longifolia with the grass Entolasia stricta and fern Pteridium esculentum, with frequent occurrences of climbers such as Smilax australis. This PCT is primarily distributed at elevations of less than 200 metres asl downslope of shale soils on the north shore of Sydney and Sutherland and on the Narrabeen sandstone escarpment along the Pittwater Peninsular. It grades into a heathy forest PCT 3595 on rocky Hawkesbury Sandstone gullies or moist shrub and fern forest PCT 3176 with increased shelter in deeper gullies.

- Overall, the vegetation for the proposed development area to be in poor condition and of low ecological value. It has low native resilience ability to regenerate from the native soil seedbank.
- The vegetation occurring on site is locally common and not consistent with a threatened ecological community listed under NSW *Biodiversity Conservation Act 2016* and Commonwealth *EPBC Act 1999*.
- The one Grey Mangrove tree (*Avicennia marina*) was recorded on the Salt Pan Creek foreshoreand is indicative of locally mapped PCT 4091 - Grey Mangrove-River Mangrove Forest. The tree is proposed for retention.

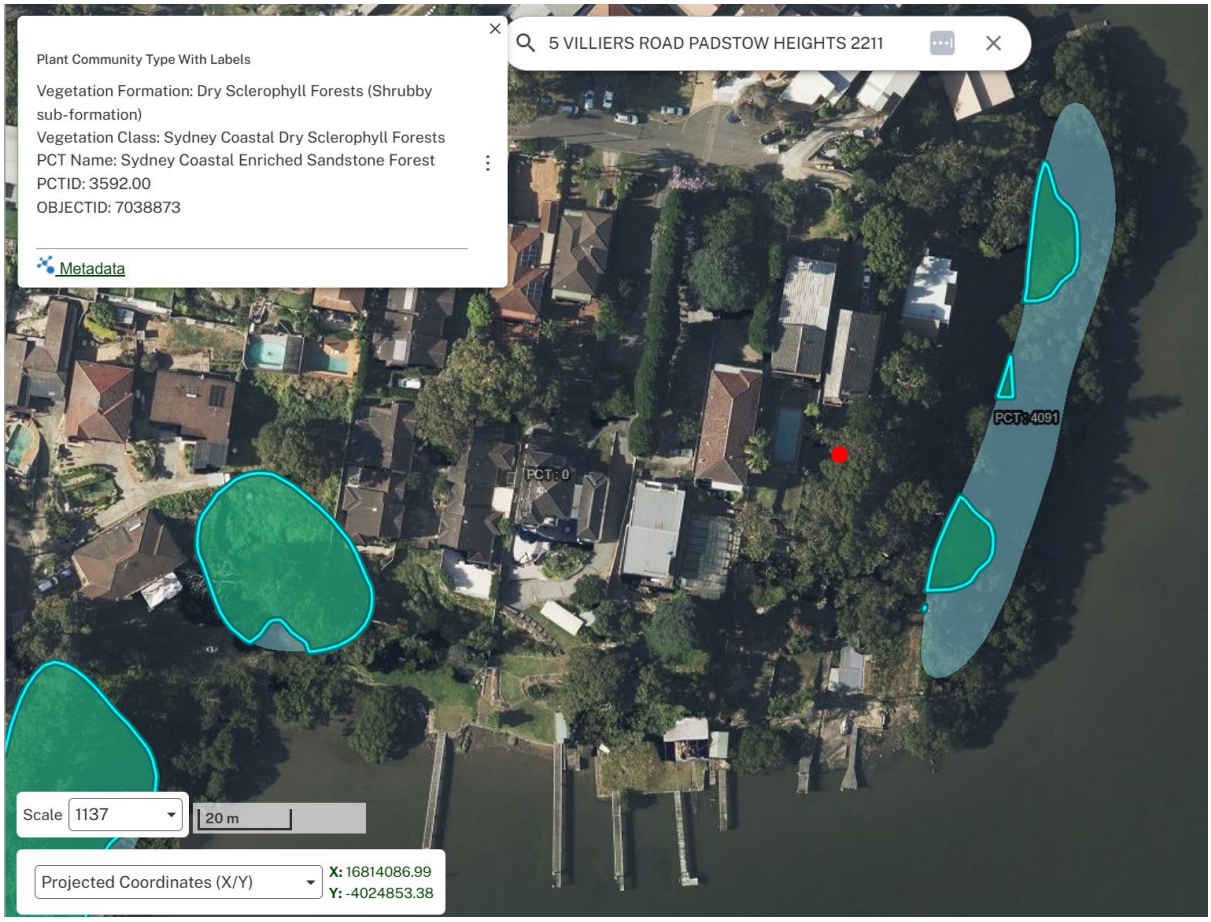
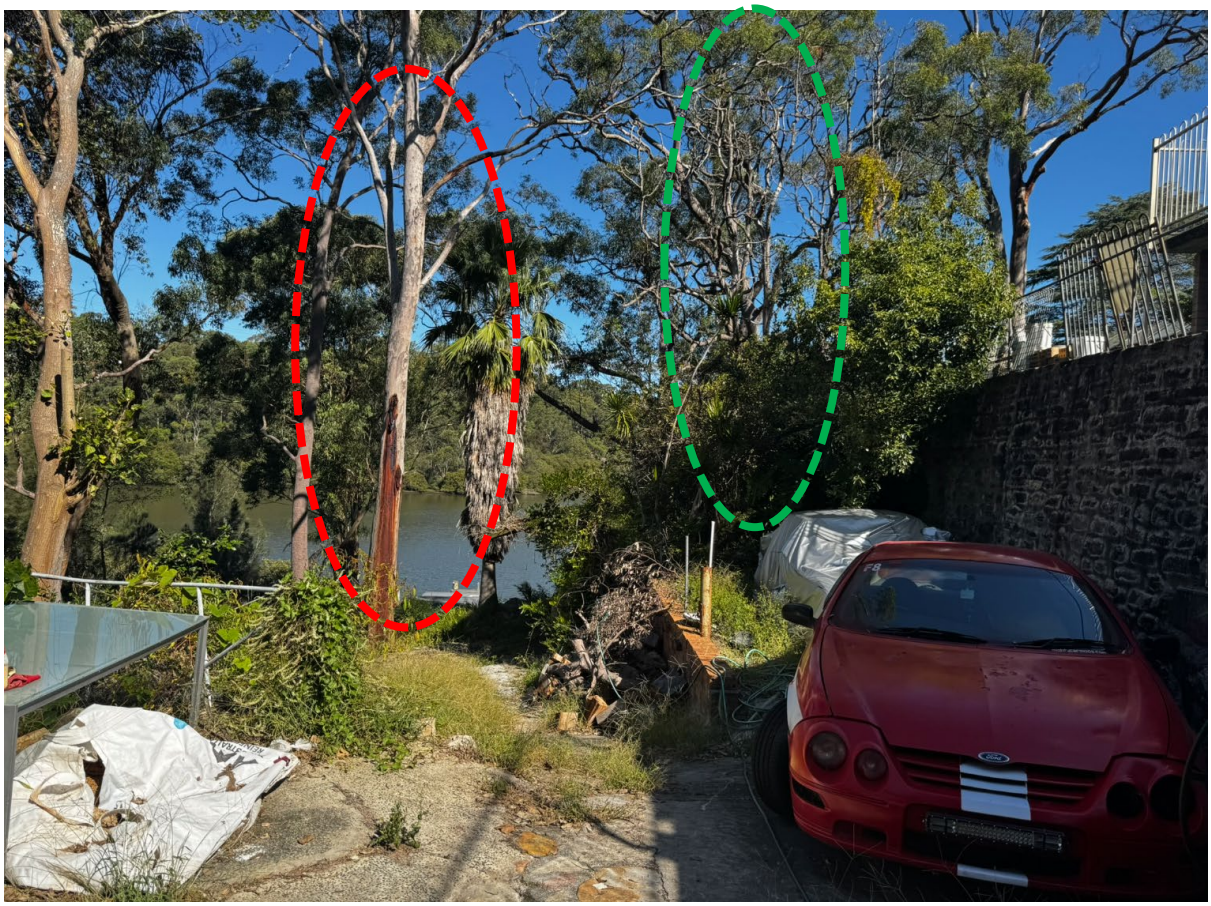


Figure 8 NSW State Vegetation Type Map adjoining the rear of the site (Source: Department of Planning and Environment 2023)

Photograph 1: View north across the proposed development site showing the 2 native A*ngophora costata* trees and one *Livistona australis* tree proposed for removal (red circle) and native Eucalyptus piperita proposed for retention (green circle)

Photograph 2: View north across the proposed development site showing existing cleared areas



Photograph 3: View south across the proposed development site showing the 2 native A*ngophora costata* trees and one *Livistona australis* tree proposed for removal (red circle) and native Eucalyptus piperita proposed for retention (green circle)

Photograph 4: View downslope/ south towards Salt Pan Creek where the proposed boat shed located (red arrow)

Photograph 4: View west along the foreshore of Salt Pan Creek where the Grey Mangrove proposed for retention occurs (downslope of the boat shed)

Photograph 5: View north across the proposed development site

5. Fauna habitat and species

The area for the proposed development (immediate impact area) comprises of a relatively small lawn terrace that does not provide significant fauna habitat.

The remnant trees below the site function as a habitat corridor for mobile species including microchiropteran bats, flying foxes, variety of bird species and arboreal marsupials (possums).

The dry sclerophyll forest surrounding the subject site contains the following fauna habitat characteristics:

- Sandstone rock outcrops
- Nectar sources from trees
- Groundcover layer

Each of the above habitat elements have been described in detail below:

4.3.1 Groundcover layer

The accumulation of leaf litter which is likely to provide refuge and foraging habitat for herpetofauna and small mammals outside the proposed development impact area.

4.3.2 Hollow-bearing trees

The subject site for the construction envelope does not comprise of hollow-bearing trees. One *Eucalyptus piperita* on the western boundary contains a small spot with a hollow that is proposed for retention.

4.3.3 Nectar sources from trees

The Myrtataceace group of trees occurring downslope of the site provide nectar through flowering blossoms and direct extraction from the trunk for a variety of fauna including Grey-headed Flying Fox, birds and gliders.

There are a variety of nectar feeding species that utilise flowering blossoms are transient through the site and generally rely upon the flowering times.

The vegetation surrounding the site provides foraging and sheltering habitat for woodland bird species and generalist birds of agricultural habitats, although the smaller size of the remnants and general lack of connectivity may influence the suite of species.

Common birds found in these woodland habitats include White-throated Treecreeper (*Cormobates leucophaea*), Buff-rumped and Yellow Thornbill *(Acanthiza reguloides* and *Acanthiza nana*), Striated Pardalote (*Pardalotus striatus*), Grey Shrike-thrush (*Colluricincla harmonica*), Willy Wagtail (*Rhipidura*

leucophrys), Yellow-faced Honeyeater (*Lichenostomus chrysops*), White-naped Honeyeater (*Melithreptus lunatus*), Crimson Rosella (*Platycercus elegans*), Magpie Lark (*Grallina cyanoleuca*) and Australian Magpie (*Gymnorhina tibicen*).

4.3.4 Other habitat features

Other structural habitat features that occurred on site included:

- Decorticating and/or rough bark used as a source of insects for birds including common White-throated Tree Creeper
- Inter-connecting upper strata of canopy provides temporary roosting habitat in the forest
- Sparse shrub layer and regenerating saplings provides a minor source of refuge and foraging habitat for small birds and mammals.
- Microchiropteran bats likely to forage throughout the site

The site contains suitable foraging habitat for the following threatened fauna species (Table 2):

- *Pteropus poliocephalus* Grey-Headed Flying-fox (foraging)
- Large Forest Owls (*Ninox connivens* and *Ninox strenua*) (foraging)

Table 2: Fauna habitat assessment

TOPOGRAPHY				
Flat ✓	Gentle ✓	Moderate ✓	Steep	Drop-offs
VEGETATION STRUCTURE				
Closed Forest	Open Forest ✓	Woodland	Heath	Grassland ✓
DISTURBANCE HISTORY				
Fire	Under-scrubbing ✓		Cut and fill works - Drainage culvert✓	
Tree clearing	Grazing			
SOIL LANDSCAPE				
DEPTH:	Deep	Moderate ✓	Shallow	Skeletal
TYPE:	Clay ✓	Loam ✓	Sand	Organic
VALUE:	Surface foraging	Sub-surface foraging	Denning/burrowing	
WATER RETENTION:	Well Drained ✓	Damp / Moist ✓	Water logged	Swamp / Soak
ROCK HABITAT				
CAVES:	Large	Small	Deep	Shallow ✓
CREVICES:	Large	Small	Deep	Shallow
ESCARPMENTS:	Winter / late sunny aspects ✓		Shaded winter / late aspects	
OUTCROPS:	High Surface Area Hides	Med. Surface Area Hides	Low Surface Area Hides	
SCATTERED / ISOLATED:	High Surface Area Hides	Med. Surface Area Hides	Low Surface Area Hides	
FEED RESOURCES				
FLOWERING TREES:	Eucalypts ✓	Corymbias	Melaleucas	
	Banksias	Acacias		
SEEDING TREES:	Allocasuarinas ✓	Conifers		
WINTER FLOWERING EUCALYPTS:	*C. maculata*	*E. crebra*	*E. globoidea*	*E. sideroxylon*
	E. squamosa	*E. grandis*	*E. multicaulis*	*E. scias*
	E. robusta	*E. tereticornis*	*E. agglomerata*	*E. siderophloia*
FLOWERING PERIODS:	Autumn	Winter	Spring	Summer
OTHER:	Mistletoe	Figs / Fruit	Sap / Manna	Termites
FOLIAGE PROTECTION				
UPPER STRATA:	Dense	Moderate	Sparse ✓	
MID STRATA:	Dense	Moderate	Sparse	
PLANT / SHRUB LAYER:	Dense	Moderate	Sparse	
GROUNDCOVERS:	Dense	Moderate	Sparse	
HOLLOWS / LOGS				
TREE HOLLOWS:	Large	Medium	Small	
TREE HOLLOW TYPES	Spouts / branch	Trunk	Broken Trunk	Basal Cavities	Stags
GROUND HOLLOWS:	Large	Medium	Small	
VEGETATION DEBRIS				
FALLEN TREES:	Large	Medium	Small	
FALLEN BRANCHES:	Large	Medium	Small	
LITTER:	Deep	Moderate	Shallow	
HUMUS:	Deep	Moderate	Shallow	
DRAINAGE CATCHMENT				
WATER BODIES	Wetland(s)	Soak(s)	Dam(s)	Drainage line(s)	Creek(s)	River(s) ✓
RATE OF FLOW:	Still	Slow	Rapid	
CONSISTENCY:	Permanent ✓	Perennial	Ephemeral	
RUNOFF SOURCE:	Urban / Industrial ✓	Parkland	Grazing	Natural ✓
RIPARIAN HABITAT:	High quality	Moderate quality ✓	Low quality	Poor quality

ARTIFICIAL HABITAT			
STRUCTURES:	Sheds	Infrastructure	Equipment
SUB-SURFACE	Pipe / culvert(s)	Tunnel(s)	Shaft(s)
FOREIGN MATERIALS:	Sheet	Pile / refuse	

6. Koala habitat assessment

The quality of forest and woodland communities as habitat for koalas is influenced by a range of factors (Reed et al. 1990), such as:

- species and size of trees present
- structural diversity of the vegetation
- soil nutrients
- climate and rainfall
- size and disturbance history of the habitat patch.

Arguably the most important factor influencing koala occurrence is the suite of tree species available. In any one area, koalas rely primarily on regionally specific primary and/or secondary food tree species. If primary food tree species are not present or occur in low density, koalas will rely on secondary food tree species, but the carrying capacity of the habitat (i.e. number of animals per hectare) is inevitably lower. Adequate floristic diversity is also important. Although primary and secondary food trees provide the bulk of a Koala's diet, leaves from other species, including Grey Gum which has been recorded on site (Strahan 1995).

The subject site was assessed for activity by Koalas using the following methods:

i. A search of the BioNet Atlas of NSW Wildlife (NSW DPIE 2020) was undertaken to identify records of Koalas in the area;
ii. The site was surveyed on foot with any species of Koala food trees being inspected for signs of Koala usage. Trees were inspected and identified for presence of Koalas, scratch and claw marks on the trunk and scats around the base of each tree. The proportion of any trees showing signs of Koala use was calculated for the whole of the site. Additionally the location and density of droppings if found were documented;
iii. Identification and assessment of the density of tree species listed as Koala food trees in State Environmental Planning Policy 2020 - Koala Habitat Protection was undertaken (refer to figures below).
iv. We considered relevant Koala literature including 'A review of koala tree use across New South Wales' (Office of Environment and Heritage, 2018) and potential feed tree species listed for the local Koala Management Area (that the site forms part of).

The survey also consisted of a 50 metre x 20 metre plot to collect data of tree species in the canopy in proportion to the total canopy cover. Survey techniques were based on the Interim Koala referral advice (DSEWPaC, 2012) and included the recording of habitat attributes such as:

- The canopy tree species composition **(1 species recorded on-site)**
- The percentage of the canopy cover **(20% recorded on-site)**
- The vegetative ground cover - % of the ground area **(average 80% recorded on-site)**

- The leaf litter cover - % of the ground area **(approximately 20% recorded on-site)**
- The bare ground - % of the ground area **(greater than 20% of site)**
- The area of surface water - % of the ground area **(nil recorded on-site).**
- The distance to surface water **(100m to nearest waterway).**
- Evidence of dogs in the area **(highly likely).**

In accordance with Appendix C of the Koala Habitat Protection Guideline (NSW Department of Planning, Industry and Environment 2019) we undertook searches for scats following (Phillips and Callaghan 2011) the Scat Assessment Technique (SAT) at a maximum grid spacing of 250m.

In accordance with Appendix C of the Koala Habitat Protection Guideline - if the fauna survey shows that there isn't evidence of koala presence, then a survey must be undertaken to determine if the site has highly suitable habitat and records of koala presence (see below).

i) Presence of highly suitable koala habitat

The native vegetation of the site area must be mapped into Plant Community Types (PCTs) based on a full floristic survey following Sivertsen, 2009, Native Vegetation Interim Type Standard. Each PCT then must be sampled individually for the presence of koala use trees listed for the relevant Koala Management Area (KMA) in Schedule 2 of the SEPP.

A suitable sampling method must be used to enable the tree species composition of each PCT (on average) to be calculated. A number of methods can be used dependent on size of the site area, tree density and uniformity of vegetation.

These are:

a. Quadrats can be selected within each PCT either randomly or along a selected transect. Quadrats need to be of sufficient size to enable a minimum of at least 20 trees to be counted (at least 20 x 20 metres) and of sufficient number to allow a robust statistical determination of the percentage of tree species present in the lower, mid and upper stratum. The number and size of quadrats chosen will depend on the size of the site and the vegetation present and must be justified in the koala assessment report.
b. Transects can be randomly selected through each vegetation unit, identifying and counting all trees within a selected distance either side of the transect line (usually 20 either side). Transects need to be of sufficient length to sample enough trees to allow a statistical determination of the percentage of tree species present, with a minimum of 100 trees if present. The number and length of transects chosen will depend on the size of the site area and the vegetation present and must be justified in the koala assessment report.

Results of the sampling within each PCT must be shown separately and not summed for the overall site. Where 15% or greater of the total number of trees within any PCT are the regionally relevant

species of those listed in Schedule 2 (see Appendix A), t**he site meets the definition of highly suitable koala habitat.**

If highly suitable koala habitat has been established (via the above survey), the presence or past records of koalas must also be established.

Notes about the vegetation survey:

- A "tree" is taken to be a plant with a diameter at breast height over bark (DBHOB) of 10 cm or greater.
- Appendix A of the Guidelines provides a list of the tree species as per Schedule 2 of the SEPP.
- Only the trees listed for the relevant region must be surveyed for.
- The calculation of the percentage of tree species must be completed within each vegetation community present on the site area and not averaged or totalled across the site. A result of 15% or greater in any individual vegetation community meets the definition of highly suitable koala habitat.

In accordance with the Koala Habitat Protection Guidelines (NSW Department of Planning, Industry and Environment 2019) in addition to site surveys, there must also be a consideration of existing records spanning the previous 18 years (3 koala generations).

In NSW, home ranges can vary greatly; some ranges have been recorded as low as 1-1.5 ha (AMBS, 2012), while others over 100 ha (McAlpine et al., 2006). Koalas studied in south-east Queensland moved on average 3.5km (and up to 10.6km) in their first breeding season (Dique et al., 2003), and male koalas translocated to sites across Western Victoria travelled up to 120km (as the crow flies) from where they were released over a six-month period (McIlwee, 2003).

No Koalas were observed during the fauna survey and no evidence of Koala habitation, such as scats, claw and scratch marks, were located on the site. Therefore, the subject site is considered to not form core koala habitat.

The area is highly urbanised and there is no known local population of Koalas.

7. Migratory species

A total of 13 migratory fauna species were identified in the EPBC Act Protected Matters Search Tool report as potentially occurring in the broader study area. Six species have a moderate potential to occur. The remaining species have either a low or unlikely potential to occur. These migratory species, along with their preferred habitat requirements and a preliminary assessment of their likely presence in the study area, are listed in Table 3.

Table 3: Potential occurrence of migratory species (EPBC Act)

Common name	Species	Status	Preferred habitat	Likelihood of occurrence at the construction footprint
Swift Parrot	*Lathamus discolour*	Endangered (TSC Act and EPBC Act) Terrestrial	On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany Eucalyptus robusta, Spotted Gum Corymbia maculata, Red Bloodwood C. gummifera, Mugga Ironbark E. sideroxylon, and White Box E. albens.	Low chance of occurring at forested sites throughout the study area. These habitats form part of the much larger habitat range
Black-faced Monarch	*Monarcha melanopsis*	Terrestrial, Migratory (Bonn)	Rainforests, eucalypt forests and coastal scrubs	Low chance of occurring at forested sites throughout the study area. These habitats form part of the much larger habitat range of the species.
White-bellied Sea Eagle	*Haliaeetus leucogaster*	Terrestrial, Migratory (CAMBA)	Predominantly ocean shores and estuaries, occasionally inland rivers and streams.	Low
White-throated Needletail	*Hirundapus caudacutus*	Terrestrial, Migratory (CAMBA, JAMBA)	An aerial foraging species which occupies a range of habitats from open modified landscapes to woodland and forest.	Low
Osprey	*Pandion haliaetus*	Vulnerable (TSC Act)	Estuarine areas and rivers	Unlikely

Common name	Species	Status	Preferred habitat	Likelihood of occurrence at the construction footprint
		Marine, Migratory (Bonn)		
Rufus Fantail	*Rhipidura rufifrons*	Terrestrial, Migratory (Bonn)	Predominantly rainforest and forests	Low chance of occurring at forested sites throughout the corridor. These habitats form part of the much larger habitat range of the species.
Rainbow Bee-eater	*Merops ornatus*	Terrestrial, Migratory (JAMBA)	Predominantly woodland and timbered plains	Moderate, potential habitat for this species occurs in a diversity of habitats including remnant woodland and partially cleared agricultural areas provided there is a patchwork of small woodland remnants in the landscape. These habitats form part of the much larger habitat range of the species.
Painted Snipe	*Rostratula australis)*	Endangered (TSC Act and EPBC Act) Wetland, Migratory (CAMBA)	Wetlands, reedlands, marshes and swamps	Unlikely
Cattle Egret	*Ardea ibis*	Wetland, Migratory (CAMBA, JAMBA)	Grasslands, woodlands and wetlands, and is not common in arid areas. It also uses pastures and croplands, especially where	Moderate, this species may forage over all open habitat

Common name	Species	Status	Preferred habitat	Likelihood of occurrence at the construction footprint
			drainage is poor. Often seen with cattle.	types particularly those with isolated paddock trees and small habitat patches.
Great Egret	*Ardea alba*	Wetland, Migratory (CAMBA, JAMBA)	Prefers shallow water, particularly when flowing, but may be seen on any watered area, including damp grasslands.	Moderate, potentially present in farm dams, wet meadows and riparian areas along the study area.
Fork-tailed Swift	*Apus pacificus*	Marine, Migratory (CAMBA, JAMBA, ROKAMBA)	The species breeds in Asia and migrate to Australia in the summer from which they spend their entire life-cycle on the wing, hunting, resting and sleeping.	Unlikely

As indicated in the significant impact guidelines (1.1 in DEWHA 2009), an action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:

- Substantially modify (including by fragmenting, altering fire regimes and nutrient cycles or; altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species;
- Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or
- Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

Given the lack of identified significant migratory bird habitat and the lack of large populations using the study location, it is considered that there will not be a significant impact on migratory species from the proposal.

8. Assessment of Ecological Impacts

This chapter evaluates if the proposed development will significantly impact on ecological processes and the conservation value of the subject site and neighbouring bushland areas, especially with respect to threatened biota and migratory fauna species, and their habitats, and on the ecological integrity of the landscape. It also recommends ways in which impacts can be minimised or avoided.

8.1 Vegetation removal

The proposed development will predominantly occur within an existing cleared area, however, will require the removal of 2 x locally native *Angophora costata* trees and 1 x *Livistona australis* for the proposed addition works the existing dwelling. The trees do not contain habitat hollows. There is room for replacement planting on the site.

An assessment of significance ('5 part test') was undertaken in accordance with Section 7.3 of the *Biodiversity Conservation Act 2016* (BC Act) and Section 5.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The major conclusion arising from this Flora and Fauna Impact Assessment is that the proposed works are unlikely to result in a significant impact on any listed species or communities providing that the applicant actively implements the recommendations from this assessment. Therefore, in accordance with the EPA Act (1979) and BC Act (2016), a Biodiversity Assessment Report is not required.

Figure 9 2 x Native Angophora costata trees (red circle) proposed for removal

8.2 Overall loss of terrestrial flora and fauna habitat

Biodiversity is the diversity and richness of living things. This includes the variety of plant communities and animal habitats, and the number of different species. Most natural areas support a complex mixture of different species and plant communities. Biodiversity in disturbed areas is generally lower than in more pristine areas. An awareness on native biodiversity emphasis the conservation of the variety of native life, rather just rare or threatened species.

There are three important principles associated with ESD. These are:

- maintenance of native biodiversity
- erring on the side of caution when assessing and taking risks with the biological environment; and
- passing on to future generations a natural environment that is at least as good and enjoyable as our own.
- many species of forest flora and fauna are threatened both nationally and within NSW. This is largely a result of the clearing of this native habitat.

The proposed development is unlikely to result in the loss of biodiversity at a local, regional, state or national level. This is because of the small area of bushland to be removed from the site, the highly degraded or modified habitat area to be developed, the unlikelihood of the status of threatened or regionally significant species being significantly placed at risk, and the broader distribution of other fauna and flora species.

8.3 Impacts on wildlife corridor

The native vegetation present on the subject site is likely to function as a stepping stone for the movement of mobile fauna such as birds, microchiropteran bats and megachiropteran bats, through the presence of inter connecting canopy connectivity of trees present within local residential backyards.

The proposal will not interrupt upper canopy connectivity nor would it significantly impact upon the movement of wildlife and genetic exchange and dispersal of plant pollen in the local ecosystem.

8.4 Impacts on migratory species

Under the EPBC Act, a migratory species is significantly impacted on if a proposal will or is likely to:

- substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycle), destroy or isolate an area of important habitat of the migratory species; or
- result in invasive species that are harmful to the migratory species becoming established in an area of important habitat of the migratory species; or

- seriously disrupt the life cycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of the species.

Significant habitat for migratory species does not exist on site.

8.5 Impacts on threatened species

No species listed under the NSW *Biodiversity Conservation Act 2016* and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* were recorded on site. Threatened flora and fauna previous recorded within 10km of the site and have the potential to occur site have been considered in the table provided in Appendix A.

Assessments of Significance (known as 'five part tests') were undertaken for threatened species that may occasionally use the site as marginal foraging or roosting habitat, and may be indirectly impacted by the proposal (Appendix C). The assessments concluded the proposal would **not** have a significant impact upon the local population of threatened species.

8.6 Fauna of Conservation Significance

Commonwealth

Results from the Protected Matters Search Tool and the Atlas of NSW Wildlife database searches revealed a number of EPBC Act (1999) listed species that require consideration as part of this assessment (see Appendix A and B).

Of those species, the following have potential habitat within the subject site:

1. *Pteropus poliocephalus* Grey-Headed Flying-fox

State

The results of the Atlas of NSW Wildlife (NSW NPWS 2008) database search indicated that a number of threatened fauna species and population were recorded within 10 kilometres of the subject site (see Appendix A).

Of those species, the following have realised or potential habitat within the subject site:

1. *Parvipsitta pusilla* Little Lorikeet (foraging)
2. *Pteropus poliocephalus* Grey-Headed Flying-fox (foraging)
3. *Mormopterus norfolkensis* Eastern Freetail-bat (foraging)
4. *Miniopterus schreibersii oceanensis* Eastern Bent-wing Bat (foraging)
5. *Saccolaimus flaviventris* Yellow-bellied Sheathtail-bat (foraging)
6. *Daphoenositta chrysoptera* Varied Sittella (foraging)
7. *Scoteanax rueppellii* Greater Broad-nosed bat (foraging)
8. *Falsistrellus tasmaniensis* Eastern False Pipistrelle (foraging)
9. *Chalinolobus dwyeri* Large-eared Pied Bat (foraging)
10. *Calyptorhynchus lathami* Glossy Black Cockatoo (foraging)

Five part tests have been completed for these listed species as a precautionary measure (Appendix C).

8.7 Impact on relevant key threatening processes

Key threatening processes listed under the BC Act, FM Act and EPBC Act and considered likely to be increased by the upgrade are listed in Table 3.

Key threatening processes identified as being impacted by the upgrade comprise those associated with habitat degradation including vegetation clearing, and fallen timber. Mitigation measures would be implemented to minimise the extent of vegetation clearing and habitat disturbance (refer to Section 9), and relocate important fauna habitats.

There is also potential for other key threatening processes to be increased e.g. weed invasion or introduction of pests and diseases.

Threatening process	Relevant legislation	Increased by the proposal?	Proposed mitigation
Habitat degradation			
Bushrock removal	BC Act	No	Section 9
Land clearance/Clearing of native vegetation	EPBC Act, BC Act	Yes	
Loss of hollow-bearing trees	BC Act	No	
Removal of dead wood and dead trees	BC Act	No	
Feral invertebrate fauna			
Competition from feral honey bees (*Apis mellifera*)	BC Act	No	Section 9
Feral vertebrate fauna			
Competition and land degradation by rabbits / Competition and grazing by the feral European rabbit (*Oryctolagus cuniculus*)	EPBC Act, BC Act	No	Section 9
Hydrology and riparian zones			
Alteration to the natural flow regimes of rivers and streamsand their floodplains and wetlands	BC Act	No	Section 9
The degradation of native riparian vegetation along NSW	FM Act	No	Section 9
Threatening process	Relevant legislation	Increased by the proposal?	Proposed mitigation
water courses			
Removal of large woody debris from NSW rivers and streams	FM Act	No	Section 9

Installation and operation of in-stream structures and other mechanisms that alter natural flow regimes of rivers and streams	FM Act	No	Section 9
Pathogens			
Dieback caused by the root-rot fungus (*Phytophthora cinnamomi*)/Infection of native plants by *Phytophthora cinnamomi*	EPBC Act, BC Act	No	Section 9
Weeds			
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	EPBC Act	No	Section 9
Invasion of native plant communities by exotic perennial grasses	BC Act	No	
Climate change			
Loss of terrestrial climatic habitat caused by anthropogenic emissions of greenhouse gases	EPBC Act	No	N/A
Anthropogenic climate change	BC Act	No	N/A

8.8 State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 2 Part 2.2Division

Section 2.8 Development on land in proximity to coastal wetlands or littoral rainforest

Note—

The Coastal Wetlands and Littoral Rainforests Area Map identifies certain land that is inside the coastal wetlands and littoral rainforests area as "proximity area for coastal wetlands" or "proximity area for littoral rainforest" or both.

(1) Development consent must not be granted to development on land identified as "proximity area for coastal wetlands" or "proximity area for littoral rainforest" on the Coastal Wetlands and Littoral Rainforests Area Map unless the consent authority is satisfied that the proposed development will not significantly impact on—

(a) the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest, or

(b) the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest.

(2) This section does not apply to land that is identified as "coastal wetlands" or "littoral rainforest" on the Coastal Wetlands and Littoral Rainforests Area Map.

Comment:

The proposed stormwater plans include level spreaders that will prevent any erosion to any areas downslope of the existing mapped coastal wetland. The water quality will be stormwater that does not contain nutrients. It will not increase weed growth or negatively impact the local waterway and ecosystem. The proposed development satisfies this Section of the SEPP.

Section 2.10 Development on land within the coastal environment area

(1) Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following—

(a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,

(b) coastal environmental values and natural coastal processes,

(c) the water quality of the marine estate (within the meaning of the Marine Estate Management Act 2014), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,

(d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,

(e) existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,

(f) Aboriginal cultural heritage, practices and places,

(g) the use of the surf zone.

(2) Development consent must not be granted to development on land to which this section applies unless the consent authority is satisfied that—

(a) the development is designed, sited and will be managed to avoid an adverse impact referred to in subsection (1), or

(b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or

(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

(3) This section does not apply to land within the Foreshores and Waterways Area within the meaning of State Environmental Planning Policy (Biodiversity and Conservation) 2021, Chapter 6.

Comment:

The proposed stormwater plans include level spreaders that will prevent any erosion to any areas downslope of the existing mapped coastal wetland. The water quality will be stormwater that does not contain nutrients. It will not increase weed growth or negatively impact the local waterway and ecosystem. The proposed development satisfies this Section of the SEPP.

Section 2.11 Development on land within the coastal use area

(1) Development consent must not be granted to development on land that is within the coastal use area unless the consent authority—

(a) has considered whether the proposed development is likely to cause an adverse impact on the following—

(i) existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,

(ii) overshadowing, wind funnelling and the loss of views from public places to foreshores,

(iii) the visual amenity and scenic qualities of the coast, including coastal headlands,

(iv) Aboriginal cultural heritage, practices and places,

(v) cultural and built environment heritage, and

(b) is satisfied that—

(i) the development is designed, sited and will be managed to avoid an adverse impact referred to in paragraph (a), or

(ii) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or

(iii) if that impact cannot be minimised—the development will be managed to mitigate that impact, and

(c) has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development.

(2) This section does not apply to land within the Foreshores and Waterways Area within the meaning of State Environmental Planning Policy (Biodiversity and Conservation) 2021, Chapter 6.

Comment:

The proposed stormwater plans include level spreaders that will prevent any erosion to any areas downslope of the existing mapped coastal wetland. The water quality will be stormwater that does not contain nutrients. It will not increase weed growth or negatively impact the local waterway and ecosystem. The proposed development satisfies this Section of the SEPP.

9. Environmental Protection Measures

The current proposal is to be carried out in accordance with all policies, operational procedures and guidelines in place as part of consent conditions issued by Council LGA relating to environmental management.

1) Tree protection zone fencing

During construction, a tree protection zone fence is to be established for retention of other trees proposed for retention.

The following activities shall not be conducted outside the construction footprint area:

- Ripping, cultivation, trenching or mechanical removal of vegetation or earth
- The placement of fill
- Movement, stockpiling or storage of plant, materials, waste, equipment or vehicles
- Any activity likely to damage the trunk, crown or root system of the protected vegetation

All works (including driveways and retaining walls) within the tree protection zone of any trees required to be retained (whether or not on the land the subject of this consent), must be carried out under the supervision of an 'AQF Level 5 Arborist' or equivalent and a certificate submitted to the principal certifying authority detailing the method(s) used to preserve the tree(s). No excavation, filling or stockpiling of building materials is to occur within the tree protection zone of any tree to be retained.

2) Erosion and Sediment Control

All erosion and sediment controls (i.e. geotextile sediment fence and straw bales) shall be in place before any works begin. Techniques used for erosion and sediment control on building sites are to be adequately maintained at all times and must be installed in accordance with Council and EPA/OEH guidelines. All techniques shall remain in proper operation until all development activities have been completed and the site fully stabilised. This condition must be complied with during building work.

3) Sensitive excavation around critical root zones

Any construction for essential stormwater/ sewerage infrastructure shall be undertaken under the supervision of an 'AQF Level 5 Arborist' or equivalent to minimise damage of critical root zones of trees proposed for retention.

4) Prevent Spread of Weed and Pathogens

To prevent the spread of weeds and fungal pathogens such as Cinnamon Fungus (*Phytophthora cinnamomi*) and Chytrid Fungus (*Batrachochytrium dendrobatidis*), all machinery shall be cleaned of soil and debris before entering the subject site.

5) General Environmental Management

The site must be managed in accordance with the *Protection of the Environment Operations Act 1997* by way of implementing appropriate measures to prevent sediment run-off, excessive dust, noise or odour emanating from the site during the construction of the development.

10. Conclusion

Based on the detailed field survey and information provided in this report it is concluded that:

(a) No threatened flora or fauna species listed within the *BC Act (2016)* or the *EPBC Act (1999)* were observed during surveys;

(b) The impact on threatened species including Koala are considered minimal.

(c) No migratory species listed within the EPBC Act (1999), were observed within the subject site.

(d) Assessments of significance ('5 part test') were undertaken in accordance with Section 7.3 of the Biodiversity Conservation Act 2016 (BC Act) and Section 5.7 of the Environmental Planning and Assessment Act 1979 (EP&A Act). It was concluded that the proposal is unlikely to have a significant impact on species, populations and communities listed under the New South Wales Biodiversity Conservation Act 2016 and Commonwealth Environment Protection Biodiversity Conservation Act 1999.

(e) A referral to the Australian Government Department of the Environment is not likely to be required as it was determined that the proposal would not have a significant impact on nationally listed threatened or migratory species listed under the EPBC Act (1999).

(f) A Biodiversity Assessment Area is not required for the proposed development. The proposed development is not likely to have a significant effect on threatened species, populations or ecological communities or their habitats listed under the BC Act (2016).

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APPENDIX A: Threatened species previously recorded within 10km of the site

APPENDIX A: THREATENED SPECIES PREVIOUSLY RECORDED WITHIN 10KM OF THE SITE

Table A-1: Threatened plants previously recorded within 10km of the subject site (BIONET Atlas of Wildlife and EPBC Protected Matters Database)

Scientific Name (Common Name)	BC Act[1]	EPBC Act[2]	ROTAP[3]	Habitat
Acacia bynoeana (Bynoe's Wattle)	E1	V	3V	Occurs south of Dora Creek-Morisset area to Berrima and the Illawarra region and west to the Blue Mountains. It grows mainly in heath and dry sclerophyll forest on sandy soils (Harden 2002). Seems to prefer open, sometimes disturbed sites such as trail margins and recently burnt areas. Typically occurs in association with Corymbia gummifera, Eucalyptus haemastoma, E. gummifera, E. parramattensis, E. sclerophylla, Banksia serrata and Angophora bakeri (NSW National Parks and Wildlife Service, 1999).
Callistemon linearifolius (Netted Bottle Brush)	V		2Ri	Occurs chiefly from Georges to the Hawkesbury River where it grows in dry sclerophyll forest, open forest, scrubland or woodland on sandstone. Found in damp places, usually in gullies (Robinson, 1994, Fairley 2002 and Harden 2002). Within the Sydney region, recent records are limited to the Hornsby Plateau area near the Hawkesbury River (NSW Scientific Committee 1999).
Eucalyptus camfieldii (Heart-leaved Stringybark)	V	V	2Vi	Occurs from Tomago to the Royal National Park where it grows in coastal shrub heath in sandy soils on sandstone (Harden 2002).
Melaleuca deanei	V	V	3R	Occurs in coastal districts, including western Sydney (e.g. Baulkham Hills, Liverpool shires) from Berowra to Nowra where it grows in wet heath on sandstone and shallow/skeletal soils near streams or perched swamps (James 1997 and Harden 2002).
Syzygium paniculatum	V	V	3Ri	Occurs between Buladelah and St Georges Basin where it grows in subtropical and littoral rainforest on sandy soils or stabilized dunes near the sea (Harden, 2002).

Scientific Name (Common Name)	BC Act[1]	EPBC Act[2]	ROTAP[3]	Habitat
(Magenta Lilly Pilly)				
Woronora Beard Heath *Leucopogon exolasius*	V	V		Woronora Beard-heath is found along the upper Georges River area and in Heathcote National Park. The plant occurs in woodland on sandstone. Flowering occurs in August and September.
Allocasuarina diminuta subsp. mimica L.A.S.Johnson population in the Sutherland and Liverpool local government areas	Endangered Population			The endangered population occurs along sandstone ridges and upper hillsides in the region northwest from Heathcote, towards Menai and Holsworthy, in heathy and low open woodland communities. It is restricted to the Local Government Areas listed in this instance (Sutherland and Liverpool). Other occurrences in the Blue Mountains and Southern Highlands (Blackheath to Bundanoon and Taralga), and also in the coastal communities from Kingsford to Little Bay) are not included in the Endangered population listing. Habitat and ecology- Heathy woodland, Heathlands and Low open woodlands.
Hibbertia puberula	E1			Hibbertia puberula is found in the central coast botanical subdivision in sandy soil often associated with sandstone. Early records are from the Hawkesbury River area and Frenchs Forest in northern Sydney, South Coogee in eastern Sydney, the Hacking River area in southern Sydney, and the Blue Mountains. Hibbertia puberula has not been collected for over 40 years.
Acacia baueri subsp. aspera	V			Occurs in low, damp heathlands, often on exposed rocky outcrops over a wide range of climatic and topographical conditions. Appears to prefer open conditions; rarely observed where there is any shrub or tree canopy development; and many of the observations of this species have been made following fire, suggesting the species prefers early successional habitats.

Scientific Name (Common Name)	BC Act[1]	EPBC Act[2]	ROTAP[3]	Habitat
				Peak flowering occurs December to March. Pods have been observed to remain on the plants for several months, maturing October to December. Fire response is unknown, however, the frequency and intensity of fire is likely to play an important role in the persistence of populations.
Maundia triglochinoides	V			Restricted to coastal NSW and extending into southern Queensland. The current southern limit is Wyong; former sites around Sydney are now extinct Grows in swamps, lagoons, dams, channels, creeks or shallow freshwater 30 - 60 cm deep on heavy clay, low nutrients. Flowering occurs during warmer months. Associated with wetland species e.g. Triglochin procerum. Probably wind pollinated. Diaspore is the seed and root tubers, which are probably dispersed by water. Spreads vegetatively, with tufts of leaves arising along rhizome. Populations expand following flood events and contract to more permanent wetlands in times of low rainfall. Flowers November-January.
Prostanthera densa	V	V		This species has been recorded from the Currarong area in Jervis Bay, Royal National Park, Cronulla, Garie Beach and Port Stephens (Gan Gan Hill, Nelson Bay). The Sydney and Royal National Park populations were thought possibly extinct, but the species is now known to occur at Bass and Flinders Point in Cronulla. Villous Mintbush is 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.
Caladenia tessellata	E1	V		The Thick Lip Spider Orchid is known from the Sydney area (old records), Wyong, Ulladulla and Braidwood in NSW. Populations in Kiama and Queanbeyan are presumed extinct. It was also recorded in the Huskisson area in the 1930s. The species occurs on the coast in Victoria from east of Melbourne to almost the NSW border. Generally found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil. The single leaf regrows each year. Flowers appear between September and November (but apparently generally late September or early October in extant southern populations).

Scientific Name (Common Name)	BC Act[1]	EPBC Act[2]	ROTAP[3]	Habitat
Cryptostylis hunteriana	V	V		The Leafless Tongue-orchid has been reported to occur in a wide variety of habitats including heathlands, heathy woodlands, sedgelands, Xanthorrheoa spp. plains, dry sclerophyll forests (shrub/grass sub-formation and shrubby sub-formation), forested wetlands, freshwater wetlands, grasslands, grassy woodlands, rainforests and wet sclerophyll forests (grassy sub-formation) (Backhouse & Jeanes 1995; Bell 2001; DECC 2005a; Jones 2006; Riley & Banks 2002). Soils are generally considered to be moist and sandy, however, this species is also known to grow in dry or peaty soils (Backhouse & Jeanes 1995; Bell 2001; Brown 2007; Jones 2006; Riley & Banks 2002).
Genoplesium baueri	E1	E		The species has been recorded from locations between Ulladulla and Port Stephens. About half the records were made before 1960 with most of the older records being from Sydney suburbs including Asquith, Cowan, Gladesville, Longueville and Wahroonga. No collections have been made from those sites in recent years. Currently the species is known from just over 200 plants across 13 sites. The species has been recorded at locations now likely to be within the following conservation reserves: Berowra Valley Regional Park, Royal National Park and Lane Cove National Park. May occur in the Woronora, O'Hares, Metropolitan and Warragamba Catchments. Habitat and ecology: Grows in dry sclerophyll forest and moss gardens over sandstone. Flowers February to March.

1: V= Vulnerable, E1= Endangered, E4 = Presumed extinct (*BC Act 2016*)

2: V= Vulnerable, E1= Endangered, X = Presumed extinct (*EPBC Act 1999*)

3: Plant distribution: 2=Restricted distribution - range extending over less than 100km, 3=Range more than 100km but in small populations. Conservation Status: X=Presumed extinct - not collected for 50 years or the only known populations destroyed, E Endangered = at serious risk in the short term (one or two decades) ,V Vulnerable= at risk over a longer period (20-50 years), R Rare but with no current identifiable threat, K Poorly known species suspected of being at risk. Reservation Status: C= Species is known to occur within a proclaimed reserve, a= Species is considered to be adequately reserved. 1000 or more plants occur within a proclaimed reserve. i= Species is considered to be inadequately reserved. Less than 1000 plants occur within a proclaimed reserve.

Table A-2: Threatened fauna previously recorded within 10km of the subject site (BIONET Atlas of Wildlife and EPBC Protected Matters Database)

Scientific Name	Common Name	BC Act	EPBC Act	Habitat
Pseudophryne australis	Red-crowned Toadlet	V	V	This species occurs in open forests, mostly on Hawkesbury and Narrabeen Sandstones and inhabits periodically wet drainage lines below sandstone ridges that often have shale lenses or cappings. It shelters under rocks and amongst masses of dense vegetation or thick piles of leaf litter. Breeding congregations occur in dense vegetation and debris beside ephemeral creeks and gutters.
Heleioporus australiacus	Giant Burrowing Frog	V	V	Found in heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based. Spends more than 95 % of its time in non-breeding habitat in areas up to 300 m from breeding sites. Whilst in non-breeding habitat it burrows below the soil surface or in the leaf litter. Individual frogs occupy a series of burrow sites, some of which are used repeatedly. The home ranges of both sexes appear to be non-overlapping suggesting exclusivity of non-breeding habitat. Home ranges are approximately 0.04 ha in size.
Litoria aurea	Green and Golden Bell Frog	E	V	Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (Typha spp.) or spikerushes (Eleocharis spp.). Optimum habitat includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (Gambusia holbrooki), have a grassy area nearby and diurnal sheltering sites available. Some sites, particularly in the Greater Sydney region occur in highly disturbed areas. The species is active by day and usually breeds in summer when conditions are warm and wet. Males call while floating in water and females produce a raft of eggs that initially float before settling to the bottom, often amongst vegetation. Tadpoles feed on algae and other plant-matter; adults eat mainly insects, but also other frogs. Preyed upon by various wading birds and snakes.
Callocephalon fimbriatum	Gang-gang Cockatoo	V		Occurs in wetter forests and woodland from sea level to an altitude over 2000 metres, timbered foothills and valleys, coastal scrubs, farmlands and suburban gardens (Pizzey 1997).
Calyptorhynchus lathami	Glossy Black-Cockatoo	V		Occurs in eucalypt woodland and forest with Casuarina/Allocasuarina spp. Characteristically inhabits forests on sites with low soil nutrient status, reflecting the distribution of key Allocasuarina species. The drier forest types with intact and less rugged landscapes are preferred by the species. Nests in tree hollows (Garnett 2000; NSW National Parks and Wildlife Service 1999).
Lathamus discolor	Swift Parrot	E1	EM	Breeding occurs in Tasmania, majority migrates to mainland Australia in autumn, over-wintering, particularly in Victoria and central and eastern NSW, but also south-eastern Queensland as far north as Duaringa. New evidence indicates that the forests on the coastal plains from southern to northern NSW are also extremely important. In

Scientific Name	Common Name	BC Act	EPBC Act	Habitat
				mainland Australia is semi-nomadic, foraging in flowering eucalypts in eucalypt associations, particularly box-ironbark forests and woodlands. Preference for sites with highly fertile soils where large trees have high nectar production, including along drainage lines and isolated rural or urban remnants, and for sites with flowering Acacia pycnantha, is indicated. Sites used vary from year to year (Garnett 2000; Swift Parrot Recovery Team 2001).
Glossopsitta pusilla	Little Lorikeet	V		Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophoras, Melaleucas and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species. Feeds mostly on nectar and pollen, occasionally on native fruits such as mistletoe, and only rarely in orchards. Roosts in treetops, often distant from feeding areas. Nests in proximity to feeding areas if possible, most typically selecting hollows in the limb or trunk of smooth-barked Eucalypts. Entrance is small (3 cm) and usually high above the ground (2–15 m). These nest sites are often used repeatedly for decades, suggesting that preferred sites are limited. Riparian trees often chosen, including species like Allocasuarina.
Daphoenositta chrysoptera	Varied Sittella	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 decorticating bark, dead branches, standing dead trees and small branches and twigs in the tree canopy. Builds a cup-shaped nest of plant fibres and cobwebs in an upright tree fork high in the living tree canopy, and often re-uses the same fork or tree in successive years.
Pyrrholaemus saggitatus	Speckled Warbler	V		The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area.
Melanodryas cucullata	Hooded Robin	V		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. Often perches on low dead stumps and fallen timber or on low-hanging branches, using a perch-and-pounce method of hunting insect prey. Territories range from around 10 ha during the breeding season, to 30 ha in the non-breeding season.
Lophoictinia isura	Square-tailed Kite	V	M	This species hunts primarily over open forest, woodland and mallee communities as well as over adjacent heaths and other low scrubby habitats in wooded towns. It feeds on small birds, their eggs and nestlings as well as insects. Seems to prefer structurally diverse landscapes (Garnett 2000).
Neophema pulchella	Turquoise Parrot	V		Occurs in the foothills of the great dividing range in eucalypt woodlands and forests with a grassy or sparsely shrubby understorey. Nests in hollows in trees, stumps or even fence posts. It feeds on seeds of both native and introduced grass and herb species (Garnett, 2000).

Scientific Name	Common Name	BC Act	EPBC Act	Habitat
Ninox connivens	Barking Owl	V		Occurs in dry sclerophyll woodland. In the south west it is often associated with riparian vegetation while in the south east it generally occurs on forest edges. It nests in large hollows in live eucalypts, often near open country. It feeds on insects in the non-breeding season and on birds and mammals in the breeding season (Garnett 2000).
NInox strenua	Powerful Owl	V		The subject site contains foraging habitat for this species and suitable prey items detected on site include Oryctolagus cuniculus Rabbit and Trichosurus vulpecula Common Brushtail Possum. Although this species prefers dense forest and feeds on other forest fauna, it has adapted to fragmented habitat in an urbanised landscape. There are a large number of records of this species across NSW and the forest types in which it has been recorded are common across the bioregion and in local reserves. This species has very large home ranges (up to 1,000 hectares) and the area to be affected by the proposal is relatively small in comparison.
Ptilinopus magnificus	Wompoo Fruit-Dove	V		Occurs in rainforests, monsoon forests, adjacent eucalypt forests, fruiting trees on scrubby creeks or in open country (Garnett 2000).
Ptilinopus superbus	Superb Fruit-Dove	V		Occurs in rainforests and fringes, scrubs, mangroves and wooded stream-margins, lantana thickets, isolated figs, pittosporums, lilly pillies and blackberries (Pizzey 1997).
Tyto tenebricosa	Sooty Owl	V		Occurs in wet eucalypt forest and rainforest on fertile soils with tall emergent trees. Typically found in old growth forest with a dense understorey but also occurs in younger forests if nesting trees are present nearby. It nests in large hollows within eucalypts and occasionally caves. It hunts in open and closed forest for a range of arboreal and terrestrial mammals including introduced species and sometimes birds (Garnett 2000).
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V		Usually roosts in tree hollows in higher rainfall forests. Sometimes found in caves (Jenolan area) and abandoned buildings. Forages within the canopy of dry sclerophyll forest. It prefers wet habitats where trees are more than 20 metres high (Churchill 1998).
Chalinolobus dwyeri	Large-eared Pied Bat			Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (Hirundo ariel), frequenting low to mid-elevation dry open forest and woodland close to these features. Females have been recorded raising young in maternity roosts (c. 20-40 females) from November through to January in roof domes in sandstone caves. They remain loyal to the same cave over many years. Found in well-timbered areas containing gullies. The relatively short, broad wing combined with the low weight per unit area of wing indicates manoeuvrable flight. This species probably forages for small, flying insects below the forest canopy.
Miniopterus schreibersii	Eastern Bent-wing Bat	V	C	Usually found in well timbered valleys where it forages on small insects above the canopy. Roosts in caves, old mines, stormwater channels and sometimes buildings and often return to a particular nursery cave each year (Churchill 1998).
Mormopterus norfolkensis	Eastern Freetail-bat	V		Thought to live in sclerophyll forest and woodland. Small colonies have been found in tree hollows or under loose

Scientific Name	Common Name	BC Act	EPBC Act	Habitat
				bark. It feeds on insects above the forest canopy or in clearings at the forest edge (Churchill 1998).
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps. Urban gardens and cultivated fruit crops also provide habitat for this species. Feeds on the flowers and nectar of eucalypts and native fruits including lilly pillies. It roosts in the branches of large trees in forests or mangroves (NSW National Parks and Wildlife Service 2001; Churchill 1998).
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat	V		Occurs in eucalypt forest where it feeds above the canopy and in mallee or open country where it feeds closer to the ground. Generally a solitary species but sometimes found in colonies of up to 10. It roosts in tree hollows. Thought to be a migratory species (Churchill, 1998).
Varanus rosenbergi	Rosenberg's Goanna			Found in heath, open forest and woodland. Associated with termites, the mounds of which this species nests in; termite mounds are a critical habitat component. Individuals require large areas of habitat. Feeds on carrion, birds, eggs, reptiles and small mammals. Shelters in hollow logs, rock crevices and in burrows, which they may dig for themselves, or they may use other species' burrows, such as rabbit warrens. Runs along the ground when pursued (as opposed to the Lace Monitor, which climbs trees). Lays up to 14 eggs in a termite mound; the hatchlings dig themselves out of the mounds.

1: V= Vulnerable, E1= Endangered, E4 = Presumed extinct (*BC Act 2016*)

2: V= Vulnerable, E1= Endangered, X = Presumed extinct (*EPBC Act 1999*)

APPENDIX B: EPBC Online Protected Matters Search Tool Results

The following report was generated on the 11th April 2025

Australian Government
Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 01-Jul-2022

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	2
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	15
Listed Threatened Species:	106
Listed Migratory Species:	79

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	233
Commonwealth Heritage Places:	2
Listed Marine Species:	102
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	7
Regional Forest Agreements:	None
Nationally Important Wetlands:	4
EPBC Act Referrals:	50
Key Ecological Features (Marine):	None
Biologically Important Areas:	2
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places			[Resource Information]
Name	State	Legal Status	Buffer Status
Historic			
Kamay Botany Bay: botanical collection sites	NSW	Listed place	In buffer area only
Natural			
Royal National Park and Garawarra State Conservation Area	NSW	Listed place	In buffer area only

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Towra point nature reserve	Within Ramsar site	In feature area

Listed Threatened Ecological Communities			[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion	Endangered	Community likely to occur within area	In feature area
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community likely to occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community known to occur within area	In feature area
Coastal Upland Swamps in the Sydney Basin Bioregion	Endangered	Community likely to occur within area	In feature area
Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area	In buffer area only
Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest	Critically Endangered	Community likely to occur within area	In buffer area only
Eastern Suburbs Banksia Scrub of the Sydney Region	Critically Endangered	Community may occur within area	In buffer area only
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered	Community likely to occur within area	In buffer area only

Community Name	Threatened Category	Presence Text	Buffer Status
Posidonia australis seagrass meadows of the Manning-Hawkesbury ecoregion	Endangered	Community likely to occur within area	In buffer area only
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community likely to occur within area	In feature area
Shale Sandstone Transition Forest of the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area	In feature area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In buffer area only
Turpentine-Ironbark Forest of the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area	In buffer area only
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion	Endangered	Community may occur within area	In feature area
Western Sydney Dry Rainforest and Moist Woodland on Shale	Critically Endangered	Community may occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat likely to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Fregetta grallaria grallaria White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pterodroma neglecta neglecta Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In buffer area only
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat known to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Thalassarche melanophris](#) Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
[Thalassarche salvini](#) Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
[Thalassarche steadi](#) White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
FISH			
[Epinephelus daemelii](#) Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Hippocampus whitei](#) White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Macquaria australasica](#) Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
[Prototroctes maraena](#) Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Seriolella brama](#) Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In buffer area only
[Thunnus maccoyii](#) Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area
FROG			
[Heleioporus australiacus](#) Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Litoria aurea			
Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat known to occur within area	In feature area
Litoria littlejohni			
Littlejohn's Tree Frog, Heath Frog [64733]	Endangered	Species or species habitat may occur within area	In buffer area only
Mixophyes balbus			
Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
INSECT			
Austrocordulia leonardi			
Sydney Hawk Dragonfly [84741]	Endangered	Species or species habitat known to occur within area	In buffer area only
MAMMAL			
Balaenoptera musculus			
Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
Chalinolobus dwyeri			
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
Eubalaena australis			
Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In buffer area only
Isoodon obesulus obesulus			
Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Petauroides volans			
Greater Glider [254]	Vulnerable	Species or species habitat known to occur within area	In feature area
Petaurus australis australis			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Tringa incana as Heteroscelus incanus Wandering Tattler [831]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area
Xenus cinereus Terek Sandpiper [59300]		Foraging, feeding or related behaviour known to occur within area overfly marine area	In buffer area only
Fish			
Acentronura tentaculata Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area	In buffer area only
Festucalex cinctus Girdled Pipefish [66214]		Species or species habitat may occur within area	In buffer area only
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area	In buffer area only
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area	In buffer area only
Hippocampus abdominalis Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233]		Species or species habitat may occur within area	In buffer area only
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat known to occur within area	In buffer area only
Histiogamphelus briggsii Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242]		Species or species habitat may occur within area	In buffer area only
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area	In buffer area only
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In buffer area only
Solegnathus spinosissimus Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area	In buffer area only
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area	In buffer area only
Solenostomus paradoxus Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In buffer area only
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area	In buffer area only
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area	In buffer area only
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
Mammal			
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In buffer area only
Arctocephalus pusillus Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In buffer area only
Dugong dugon Dugong [28]		Species or species habitat may occur within area	In buffer area only
Reptile			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area	In buffer area only

Whales and Other Cetaceans			[Resource Information]
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area	In buffer area only
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat likely to occur within area	In buffer area only
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Gandangara	State Conservation Area	NSW	In buffer area only
Georges River	National Park	NSW	In buffer area only
Royal	National Park	NSW	In buffer area only
Shiprock	Aquatic Reserve	NSW	In buffer area only
Towra Point	Nature Reserve	NSW	In buffer area only
Towra Point	Aquatic Reserve	NSW	In buffer area only
Wolli Creek	Regional Park	NSW	In buffer area only

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
Eve St. Marsh, Arncliffe	NSW	In buffer area only

Wetland Name	State	Buffer Status
Liverpool Military Training Area	NSW	In buffer area only
Towra Point Estuarine Wetlands	NSW	In buffer area only
Voyager Point	NSW	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Construction and operation of the Westconnex New M5, Sydney, NSW	2015/7520	Controlled Action	Post-Approval	In buffer area only
Cook Cove Southern Precinct development, Sydney, NSW	2016/7767	Controlled Action	Post-Approval	In buffer area only
Cooks Cove Development Project	2006/2685	Controlled Action	Post-Approval	In buffer area only
Lyn Parade Extension	2004/1392	Controlled Action	Post-Approval	In buffer area only
Sand Reclamation to Towra Beach	2003/1085	Controlled Action	Post-Approval	In feature area
Widening three roads and construction of an access road to Bankstown Business Estate development	2016/7719	Controlled Action	Completed	In buffer area only
Not controlled action				
2A and 2B Mavis Street, Revesby	2020/8665	Not Controlled Action	Completed	In buffer area only
construct access road and install underground water main	2005/2299	Not Controlled Action	Completed	In buffer area only
construction of a road linking Newbridge Road and Nuwarra Road	2004/1843	Not Controlled Action	Completed	In buffer area only
Construction Of Two New Fuel Processing Plants On Existing Site	2003/1243	Not Controlled Action	Completed	In buffer area only
Cox's Creek Reserve	2001/409	Not Controlled Action	Completed	In buffer area only
Demolition and replacement of footbridge	2002/643	Not Controlled Action	Completed	In buffer area only
Development of an Intermodal Terminal for containerised freight at the former En	2002/622	Not Controlled Action	Completed	In buffer area only
Development of Surplus Land at the Potts Hill Reservoirs Site for Residential an	2009/4962	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Enfield Industrial Subdivision	2007/3727	Not Controlled Action	Completed	In buffer area only
Environmental Works	2001/396	Not Controlled Action	Completed	In buffer area only
Extension to Lucas Heights production building	2003/1114	Not Controlled Action	Completed	In buffer area only
Georges River Program 2	2003/999	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Industrial Subdivision	2004/1859	Not Controlled Action	Completed	In buffer area only
Industrial Subdivision, 262-276 Captain Cook Drive	2004/1899	Not Controlled Action	Completed	In buffer area only
Installation of viewing platform	2005/2138	Not Controlled Action	Completed	In buffer area only
Install Window Air-Conditioning Unit to Building 2, 361 Milperra Rd, Bankstown, NSW	2013/7107	Not Controlled Action	Completed	In buffer area only
Noxious weed removal and controlled burn	2003/1272	Not Controlled Action	Completed	In buffer area only
Placement of fill excavated from the site for the Replacement Research Reactor	2001/405	Not Controlled Action	Completed	In buffer area only
Rabbit Control Anzac Rifle Range	2005/1940	Not Controlled Action	Completed	In buffer area only
Redevelopment of the Cronulla Sharks Leagues Club	2011/5889	Not Controlled Action	Completed	In buffer area only
Residential sub-division on Lot 3041, Monash Road, Menai, NSW	2012/6441	Not Controlled Action	Completed	In buffer area only
Shipment of Spent Nuclear Fuel to USA	2007/3672	Not Controlled Action	Completed	In feature area
Staged Revelopment of Riverlands Golf Club Site	2008/4464	Not Controlled Action	Completed	In buffer area only
subdivision and development on the Rhodes Peninsula for residential and commerci	2003/1249	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Sydney Desalination Plant	2005/2331	Not Controlled Action	Completed	In buffer area only
Sydney Primary Loop Gas Pipeline	2006/2622	Not Controlled Action	Completed	In buffer area only
Undertake a controlled burn of the Eastern Suburbs Banksia Scrub at Byrne Cresce	2004/1728	Not Controlled Action	Completed	In buffer area only
Upgrade of Captain Cook Drive	2012/6286	Not Controlled Action	Completed	In buffer area only
Upgrade Of Nuclear Production Equipment	2006/2740	Not Controlled Action	Completed	In buffer area only
Widening of the M5 Southwest Motorway	2010/5665	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Bangor Bypass	2002/756	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Extension and upgrade waste management facilities, Lucas Heights, NSW	2016/7733	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Kareela, Garnet Road Rezoning	2020/8841	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Kareela Flying-fox Camp and Camellia Gardens Dispersal 2017	2017/7920	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Moorebank Units Relocation Project, Holsworthy Training Area, NSW	2012/6462	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Return of Australian Intermediate Level Radioactive Waste from the UK	2021/8998	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Transport of OPAL Spent Fuel to France in 2018 and 2025	2016/7841	Not Controlled Action (Particular	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
		Manner)		
Trial dispersal of Kareela Flying-fox camp, Bates Drive, Kareela, NSW	2015/7474	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Veg removal to increase buffer betwn Kareela GHFF camp & residences & school, Kareela, NSW	2014/7222	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				
Breeding program for Grey Nurse Sharks	2007/3245	Referral Decision	Completed	In buffer area only
Relocation of Grey-Headed Flying-Fox Colony	2008/4568	Referral Decision	Completed	In buffer area only

Biologically Important Areas			
Scientific Name	Behaviour	Presence	Buffer Status
Dolphins			
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Likely to occur	In buffer area only
Sharks			
Carcharias taurus			
Grey Nurse Shark [64469]	Foraging	Known to occur	In buffer area only

Bioregional Assessments			
SubRegion	BioRegion	Website	Buffer Status
Sydney	Sydney Basin	BA website	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

APPENDIX C: Assessments of Significance – 'Five Part Test'

Section 5A subsection 1 of the *Environmental Planning and Assessment Act 1979* states that **each** of the factors in subsection 2 must be taken into account in deciding whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats, and any **assessment guidelines**.

Biodiversity Assessment Area (SIS) is required if an activity is on land that is, or is part of critical habitat; or there is likely to be a significant effect as determined under s.5A of the EP&A Act, the five part assessment of significance.

Definitions:

- *Critical habitat: the whole or any part or parts of the area or areas of land comprising the habitat of an endangered species, population or ecological community that is critical to the survival of the species, population or ecological community.*
- *Significant impact: if the Assessment of Significance determines that a there will be a significant effect on threatened species, populations or ecological communities, or their habitats a SIS will be required.*
- *Assessment guidelines means assessment guidelines issued and in force under section 94A of the Biodiversity Conservation Act 2016 or, subject to section 5C, section 220ZZA of the Fisheries Management Act 1994.*

Each five-part Test of Significance considers the impact of the proposed development.

The species included in this assessment are as follows:

- *Pteropus poliocephalus* Grey-Headed Flying-fox (foraging)
- Large Forest Owls (*Ninox connivens* and *Ninox strenua*) (foraging)

Commonwealth Assessment of Significance

The *Environment Protection and Biodiversity Conservation Act, (1999)* requires that Commonwealth approval be obtained for certain actions. The Act provides an assessment and approvals systems for actions that have a significant impact on matters of National Environment Significance (NES). These may include:-

- Wetlands protected by international treaty (the Ramsar Convention);
- Nationally listed threatened species and ecological communities;
- Nationally listed migratory species.

Actions are projects, developments, undertakings, activities, series of activities or alteration of any of these. An action that needs Commonwealth approval is known as a controlled action. A controlled action needs approval where the Commonwealth decides the action would have a significant effect on a NES matter.

Where a proposed activity is located in an area identified to be of NES, or such that it is likely to significantly affect threatened species, ecological communities, migratory species or their habitats, the matter needs to be referred to the Australian Government Department of the Environment (AGDE).

The following assessment in accordance with the EP&BC Act Policy Statement 1.1 *Significant Impact Guideline* is provided:

i. Are there any Matters of National Environmental Significance located in the area of the proposed action?

A search of the Protected Matters Search Tool was conducted for EPBC Listed threatened and migratory species recorded within 10 km of the subject site (Appendix A).

Suitable habitat is present for the following nationally listed threatened species recorded from the Protected Matters Search which occur or which may occur within 10 km of the subject site:

Threatened Fauna Species

- *Pteropus poliocephalus* Grey-Headed Flying-fox (foraging)

Suitable habitat is present for the following nationally listed migratory species recorded from the Protected Matters Search which occur or which may occur within 5 km of the subject site:

Migratory Species

- White-throated Needletail (*Hirundapus caudacutus*)
- Fork-tailed Swift (*Apus pacificus*)
- Rufous Fantail (*Rhipidura rufifrons*)
- Satin Flycatcher *(Myiagra cyanoleuca*)

- Black-faced Monarch (*Monarcha melanopsis*)

ii. Considering the proposed action at its broadest scope, is there potential for impacts on Matters of National Environmental Significance?

The proposal will require the removal of a relatively small area of suitable habitat for nationally listed locally occurring threatened and migratory species which are highly mobile species.

iii. Are there any proposed measures to avoid or reduce impacts on Matters of National Environmental Significance?

No, as no matters of national environmental significance were observed during surveys.

iv. Are any impacts of the proposed action on Matters of National Environmental Significance likely to be significant impacts?

With regard to nationally listed threatened species it is considered that the proposal is not likely to:

• lead to a long-term decrease in the size of an important population of a species;

• reduce the area of occupancy of an important population;

• fragment an existing important population into two or more populations;

• adversely affect habitat critical to the survival of a species;

• disrupt the breeding cycle of an important population;

• modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;

• result in invasive species that are harmful to a threatened species becoming established in the threatened species' habitat;

• introduce disease that may cause a species to decline; or

• interfere with the recovery of the species.

The following reasons are provided:

• There are larger areas of higher quality habitat for locally occurring nationally listed threatened and migratory species present within the locality, including lands reserved for conservation; and

• No nationally listed threatened species were observed within the subject site during surveys.

With regard to nationally listed migratory species it is considered that the proposal is not likely to:

• substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species;

• result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or

• seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

The following reasons are provided:

• The subject site has not been identified as containing important habitat for a nationally listed migratory species; and

• No nationally listed migratory species have been recorded within the subject site during surveys.

CONCLUSION

It is considered that the proposed action is not likely to have a significant impact on nationally listed threatened or migratory species and endangered ecological communities.

Five part test for:

- *Pteropus poliocephalus* Grey-Headed Flying-fox (foraging)
- Large Forest Owls (*Ninox connivens* and *Ninox strenua*) (foraging)

(a) "…in the case of a threatened species, whether the action proposed 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…"

No nesting or maternity sites were observed on site. It is not anticipated that any hollow-bearing trees (and therefore nesting sites) will be removed making the proposal unlikely to place the species at risk of extinction.

(b) "…in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(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

(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..."

An Endangered Ecological Community means a threatened ecological community specified in B*C Act*. Therefore, not applicable to threatened species.

(c) "…in relation to the habitat of a threatened species, population or ecological community:

(i)... the extent to which habitat is likely to be removed or modified as a result of the action proposed…", and

(ii) … whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action…, and

(iii)…the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality…

The proposal will impact upon marginal foraging habitat that would be considered of insignificant value to this species. Vegetation removal for the future construction of the dwellings on the site will not prevent the subject species from foraging on similar habitat resources in the locality. The removal of environmental weeds within the Study Area is unlikely to impact on the long-term survival of the subject species within the Locality or Region.

No hollow bearing trees are proposed for removal.

Non-native trees occur along the boundaries.

Areas below the proposed development that will not be impacted by the proposal include a combination of native bushland integrating into coastal mangrove forest.

No threatened flora species were recorded on-site.

Overall, the vegetation for the proposed development area to be in poor condition and of low ecological value. It has low native resilience ability to regenerate from the native soil seedbank.

(d) "whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),"

The Study Area is not listed as an area of outstanding biodiversity value.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process."

"Clearing of Native Vegetation" is a Key Threatening Process listed in Schedule 3 of the *Biodiversity Conservation Act 2016*. However, given this species is highly mobile/migratory, and the area to be cleared is considered to be of relative small, and large areas of foraging habitat is still available in the locality it is considered that the proposal would not significantly exacerbate this KTP.

Conclusion

It is not considered that the proposal would have a significant impact on the subject species, their populations or habitats. Therefore, the preparation of a Biodiversity Assessment Area is NOT REQUIRED.

APPENDIX D: RELEVANT QUALIFICATIONS & EXPERIENCE OF THE AUTHOR

Alex Fraser (Fraser Ecological Consulting) has over 20 years experience in ecological assessment and on-ground bushland restoration management. Previous work roles include ecological consulting with Parsons Brinckerhoff (large infrastructure), NPWS (biodiversity surveys), NSW Department of Environment and Climate Change (SIS DGRs) and Hornsby Shire Council (residential and light industrial development) have focussed primarily on ecological survey, development assessment, project management and policy development for consent authorities. Alex also has practical experience in landscape construction, bushland restoration and property management. A full list of flora and fauna assessments previously undertaken can be provided upon request.

Professional Affiliations include the Australian Association of Bush Regenerators, Ecological Society of Australia, Royal Zoological Society of NSW, Birds Australia, Australasian Bat Society, Urban Feral Animal Action Control Group (Sydney North Councils), Surfrider Foundation & Fred Hollows Foundation.

Relevant qualifications and training:

- Bachelor of Applied Science – Coastal Resource Management (Honours)
- Certificate 3 Natural Area Restoration (Ryde Horticultural College)
- Chemcert (Department of Natural Resources)
- Chainsaw Cross Cutting Techniques (Ryde Horticultural College)
- Certificate 3 Vertebrate Animal Pest Control (NSW DPI, Orange)
- OH&S General Induction for Construction Work (Work Cover NSW)
- Senior First Aid (St. Johns Ambulance Australia)
- Project Management 'the hard and soft skills' (NPWS- 2004)
- Frog, Bat and Reptile: species identification and survey skills (Forests NSW)
- Certificate 3&4 Japanese language proficiency (The Japan Foundation)
- Advanced Open Water SCUBA diver (PADI Australia)
- State Rail Contractor Safety Awareness (State Rail Authority)
- NPWS Scientific Licence - S10445 (Department of Environment Climate Change and Water)
- Accredited under the Biodiversity Assessment Methodology - BAM (Accreditation No. BAAS18156)

Alexander Fraser

alohafraser@gmail.com | 0423238193 | 665 The Scenic Rd Macmasters Beach, NSW 2251

Key skills

- 12+ years private ecological consulting (Fraser Ecological Consulting)
- 15 + years local government ecological assessment for DAs (Hornsby Shire Council – current employer)
- 10 + years Land & Environment Court expert witness experience
- 2 years state government ecological assessment (NSW OEH)
- High level botanical field identification skills, plot surveys and project management
- Fauna survey and field assistant experience
- Biodiversity Assessment Reporting (BDAR) preparation and Stewardship Site (BSAR) under the NSW BOS Credit Scheme

Qualifications

Bachelor Environmental Science (Honours) Southern Cross University

Certificate 3 Natural Area Restoration

Certificate 3 Vertebrate Animal Pest Control (NSW DPI, Orange)

NPWS Scientific Licence - S10445

Animal Ethics Authority - 11/4299

Accredited under the Biodiversity Assessment Methodology - BAM (Accreditation No. BAAS18156)

Practising member of NSW Ecological Consultants Association (ECA)

Summary

Alex Fraser (Principal Ecologist, Fraser Ecological) has extensive experience in DA related ecological assessment as both an assessor (Hornsby Shire Council) and private consultancy (Fraser Ecological) which actively and currently involve a wide array projects. Fraser Ecological is based locally on the Central Coast, however, project experience extends to South Coast, Blue Mountains, Mid-north Coast and mainly in the Sydney Basin Bioregion.

Previous work roles include ecological consulting for Parsons Brinckerhoff (large infrastructure), NPWS threatened species unit (biodiversity surveys), former NSW Department of Climate Change/ OEH (SIS DGRs and major projects assessment) and Hornsby Shire Council (DA assessment officer) have focussed primarily on ecological survey, development assessment, project management and policy development for consent authorities.

Alex offers high level botanical ID and field survey skills which includes targeted surveys and BAM plot surveys. Fraser Ecological has extensive experience in the preparation of over 15 BDARs under the new BC Act 2016 BOS credit trading scheme. Alex has experience dealing with consent authorities including Council, Crown Lands, Metropolitan Land Council, RFS, Biodiversity Conservation Trust and Department of Planning for major projects including SSDI proposals.

Fraser Ecological has established a wide network of ecological specialists including the Royal Botanic Gardens and Australian Museum as well academic institutions for expert advice when required. Alex is a current member of the North Sydney Regional Land Managers Group that includes staff from Central Coast Council, Northern Beaches, Ku-ring-gai Council, Hornsby Council (HSC), NPWS and Crown Lands) as project manager developing the Natural Area Recreation Strategy for HSC. Current main role at Council is development assessment and review of Flora and Fauna Reports and Biodiversity Assessment Reports.

Fraser Ecological has been engaged by various Councils (Central Coast, Ku-ring-gai, Liverpool City, Blacktown City Council, Hornsby Shire Council and Hawkesbury City Council) to undertake biodiversity assessments for major civil works projects. He is continuously providing biodiversity assessments for private clients for a range od development proposals across coastal and western NSW. We have also undertaken threatened flora and fauna species survey and monitoring for the NSW OEH Save our Species grants.

Key skills:

- Targeted flora and fauna surveys
- BAM plots in accordance with the BAM
- Ecological monitoring & Opportunity and Constraints mapping
- Preparation of BDARs, BAM calculator and credit reporting
- Retirement of credits for approved projects via BCT and brokers
- Establishment of stewardship sites and other offset packages
- Expert witness reporting and attendance in the LAEC
- Compliance investigations and auditing
- Preparation of Vegetation Management Plans
- Preparation of Nestbox Monitoring Plans

CERTIFICATE OF ACCREDITATION AS A BIODIVERSITY ASSESSMENT METHOD ASSESSOR under the *Biodiversity Conservation Act 2016* (NSW)

BAM Assessor		
Alex FRASER		
Accreditation number	**Accreditation date (Date of issue)**	**Expiry Date of**
BAAS18156	October 18, 2024	October 17, 2027

The person named above is accredited under section 6.10 of the *Biodiversity Conservation Act 2016* (NSW) (**BC Act**) as a Biodiversity Assessment Method Assessor to apply the Biodiversity Assessment Method in connection with the preparation of biodiversity stewardship site assessment reports, biodiversity development assessment reports and biodiversity certification assessment reports pursuant to Part 6 of the BC Act.

The accreditation is in force until and including the Expiry Date. The accreditation is subject to the conditions set out in the *Accreditation Scheme for the Application of the Biodiversity Assessment Method*, under the BC Act, and the conditions specified on the reverse of this certificate.

STEEN GYRN

Senior Team Leader, Accreditation and Training
Biodiversity and Conservation Division | Department of Climate Change, Energy, the Environment and Water

NOTES

- DCCEEW maintains a register of Accredited Biodiversity Assessment Method (BAM) Assessors accessible from the DCCEEW website.
- The BAM Assessor's accreditation expires on the Expiry Date unless renewed in accordance with the *Accreditation Scheme for the Application of the Biodiversity Assessment Method*. It is the BAM Assessor's responsibility to monitor the Expiry Date of their accreditation, and apply for any renewal with sufficient time for the application to be processed prior to the Expiry Date.
- Words and expressions used in this accreditation instrument and which are also used in the Act have the same meaning.

SUMMARY OF CONDITIONS UNDER SCHEME

The following are conditions of all accreditations granted under the Scheme:

1. an accredited person must prepare Biodiversity Assessment Reports (and conduct surveys and other activities in connection with the preparation of such reports) in accordance with:
   a. the Biodiversity Assessment Method Manual,
   b. the Credit Calculator Operational Manual,
   c. Accredited Person Code of Conduct.
   d. this Scheme,
   e. any guidance materials published by the Department of Climate Change, Energy, the Environment and Water in connection with preparation of Biodiversity Assessment Reports or the application of the BAM
   f. any accreditation requirements notified by the Department of Climate Change, Energy, the Environment and Water to the accredited assessor from time to time.
2. an accredited person must maintain a detailed and up to date working knowledge of, and comply with, all relevant legislation.
3. an accredited person must maintain records of surveys and assessments, including field data sheets and targeted flora and fauna surveys, undertaken and used as part of the preparation of a Biodiversity Assessment Report, for at least ten years after certification of the relevant Biodiversity Assessment Report.
4. all records required to be kept by an accredited person must be in legible form, or in a form that can be readily reduced to a legible form.
5. an accredited person must provide to the Department of Climate Change, Energy, the Environment and Water any information related to biodiversity assessment reports required to be provided by all accredited persons, or by a group of accredited persons, by way of a notice specified on a website maintained by it, in the form and within the time frames required in that notice.
6. an accredited person must comply with any scientific licence conditions relating to survey records.
7. an accredited person must possess, or operate under, an appropriate scientific licence as required for the type work, they are completing in the Biodiversity Offsets Scheme.

Note. Information that the Environment Agency Head (EAH) may require to be provided may include information collected during the application of the BAM such as site specific survey data.

Note. In addition to the conditions above, accredited persons must comply with obligations under the BC Act and regulations, including Part 6 Division 3 of the BC Act. Failure to comply with any of the conditions above may result in the EAH exercising the power to vary, suspend or cancel that accreditation under Part 5 of this Scheme.

ADDITIONAL CONDITIONS TO WHICH THIS ACCREDITATION IS SUBJECT

Nil

Issued by the Department of Climate Change, Energy, the Environment and Water
4 Parramatta Square,12 Darcy Street | Locked Bag 5022, Parramatta NSW 2124
Email: info@environment.nsw.gov.au Website: dcceew.nsw.gov.au

ECA

ECOLOGICAL

CONSULTANTS

ASSOCIATION

of NSW Inc

This is to certify that

Alex Fraser

Is a Practising Ecological Consultant Member
of the

ECOLOGICAL CONSULTANTS
ASSOCIATION
OF
NEW SOUTH WALES INC.

FOR THE CALENDAR YEAR OF 2025