Flora and Fauna Assessment Report

60 Hudson Parade, Clareville, NSW 2107

Report prepared by Narla Environmental for Brook Lane Property Group Pty Ltd

September 2023

NARLA
environmental

Report:	Flora and Fauna Assessment Report – 60 Hudson Parade, Clareville, NSW
Prepared for:	Brook Lane Property Group Pty Ltd
Prepared by:	Narla Environmental Pty Ltd
Project no:	BRLA1
Date:	September 2023
Version:	Final v1.0

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Report Certification

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Document Control

Revision	Document Name	Issue Date	Internal Document Review
Draft v1.0	Flora and Fauna Assessment Report – 60 Hudson Parade, Clareville, NSW	28/08/2023	Luke Johnson
Draft v2.0	Flora and Fauna Assessment Report – 60 Hudson Parade, Clareville, NSW	31/08/2023	Rebecca Sutton
Final v1.0	Flora and Fauna Assessment Report – 60 Hudson Parade, Clareville, NSW	01/09/2023	Rebecca Sutton

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Glossary

Acronym/ Term	Definition
BAM	Biodiversity Assessment Methodology
BC Act	New South Wales Biodiversity Conservation Act 2016
BDAR	Biodiversity Development Assessment Report
DA	Development Application
DAFF	Department of Agriculture, Fisheries and Forestry
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEH	Department of the Environment and Heritage
Development	The use of land, and the subdivision of land, and the carrying out of a work, and the demolition of a building or work, and the erection of a building, and any other act, matter or thing referred to in section 26 that is controlled by an environmental planning instrument but does not include any development of a class or description prescribed by the regulations for the purposes of this definition (Environmental Planning and Assessment Act 1979)
DPE	Department of Planning and Environment (formerly DPIE)
DPI	Department of Primary Industries
DPIE	Department of Planning, Industry and Environment (now DPE)
EEC	Endangered Ecological Community
EP&A Act	Environmental Planning & Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
FFA	Flora and Fauna Assessment
ha	Hectares
km	Kilometre
LGA	Local Government Area
Locality	The area within a 10 km radius of the Subject Property
NSW	New South Wales
OEH	Office of Environment and Heritage (now known as the DPE)
PDCP	Pittwater 21 Development Control Plan 2004
PLEP	Pittwater Local Environmental Plan 2014
PWSGF	Pittwater and Wagstaffe Spotted Gum Forest
SEPP	State Environmental Planning Policy
Subject Property	60 Hudson Parade, Clareville, NSW, 2107 (Lot56/-/DP7794)
Subject Land	The footprint of the proposed development
TEC	Threatened Ecological Community
Threatened species, populations and	Species, populations and ecological communities specified in Schedules 1 and 2 of the BC Act 2016

Acronym/ Term	Definition
ecological communities	
TPZ	Tree Protection Zone: A specified area above and below ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development
VMP	Vegetatation Management Plan
VRZ	Vegetated Riparian Zone

1. Introduction

1.1 Project Background

Narla Environmental Pty Ltd (Narla) were engaged by Brook Lane Property Group Pty Ltd ('the proponent') to undertake a Flora and Fauna Assessment (FFA) for the proposed development at 60 Hudson Parade, Clareville, NSW, 2107 (Lot56/-/DP7794), hereafter referred to as the 'Subject Property' (**Figure 1**). The proposed development involves alterations and additions to an existing dwelling, as well as the construction of a new pavilion connected to the dwelling thru a gallery, comprising bedrooms, bathrooms and a living space, a new play room, storage and garage, as well as a new pool, associated site works and landscaping.

Narla have produced this report in order to assess any potential impacts associated with the proposed development on terrestrial ecology (biodiversity), particularly threatened species, populations, and ecological communities listed under the Biodiversity Conservation Act 2016 (BC Act) and the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). The report will also recommend appropriate measures to mitigate any potential impacts in line with all relevant State Environmental Planning Policies (SEPP) and local government plans, namely the Pittwater Local Environmental Plan 2014 (PLEP) and the Pittwater 21 Development Control Plan 2004 (PDCP).

1.2 Site Description and Location

The Subject Property is located at 60 Hudson Parade within the locality of Clareville in the Northern Beaches Local Government Area (LGA). The site boundary was defined by cadastral boundaries provided on the NSW Government Land and Property Information Spatial Information Exchange map viewer (NSW SixMaps 2023) and the site plans (Bennett Murada Architects 2023) (**Appendix A**).

The Subject Property covers an area of approximately 0.125ha and contains a dwelling and carport as well as areas of hardstand and landscaping. The surrounding residential area is dominated by dwellings in a mixed urban/ bushland landscape.

1.3 Topography, Geology and Soil

The Subject Property has a west facing slope with elevation ranging from approximately 14m asl in the east, down to approximately 2m asl in the west.

The Subject Property is situated on the 'Watagan' soil landscape as described in the Soil Landscapes of the Sydney 1:100,000 sheet (Chapman et al. 2009). This soil landscape is categorised by rolling to very steep hills on fine-grained Narrabeen Group sediments. Mostly interbedded laminite and shale with quartz to lithic quartz sandstone. Minor red claystone's occur north of the Hawkesbury River. Clay pellet sandstone occurs south of the Hawkesbury River

The Subject Property is mapped as containing Acid Sulphate soils of Class 1, 3 and 5.

1.4 Hydrology

No mapped or unmapped watercourses occur within the Subject Property. The subject properties western boundary extends to the foreshore of Pittwater Harbour.

1.5 Scope of Assessment

The objectives of this FFA were to:

- Establish the likelihood of occurrence of migratory species, threatened species, endangered populations, and threatened ecological communities as listed under the BC Act and/or the EPBC Act;
- Assess any potential impacts to species and/or communities listed under the BC Act and EPBC Act;
- Identify and map the distribution of vegetation communities within the Subject Property;
- Record presence and the extent of any known or potential fauna habitat features such as nests, dreys, caves, crevices, culverts, pools, soaks, flowering trees, fruiting trees, or hollow-bearing trees and provide recommendations for on-going management of these habitat features and any fauna present;
- Record presence and the extent of any priority weeds or weed infestations and provide recommendations for on-going management; and
- Recommend any controls or additional actions to be taken to protect or improve environmental outcomes of the proposed development.

1.6 Study Limitations

This study was not intended to provide a complete inventory of all flora and fauna species with potential to occur on the Subject Property. The species list provided for the Subject Property within this report was restricted to what was observed during the site assessment by the Narla Ecologist. The timing of the survey may not have coincided with emergence times of some species of flora and fauna, such as seasonally flowering herbs, seasonal migratory fauna, or nocturnal fauna.

To account for those species that could not be identified during the field survey, detailed habitat assessments were combined with desktop research and local ecological knowledge to establish an accurate prediction of the potential for such species to occur on or adjacent the Subject Land.

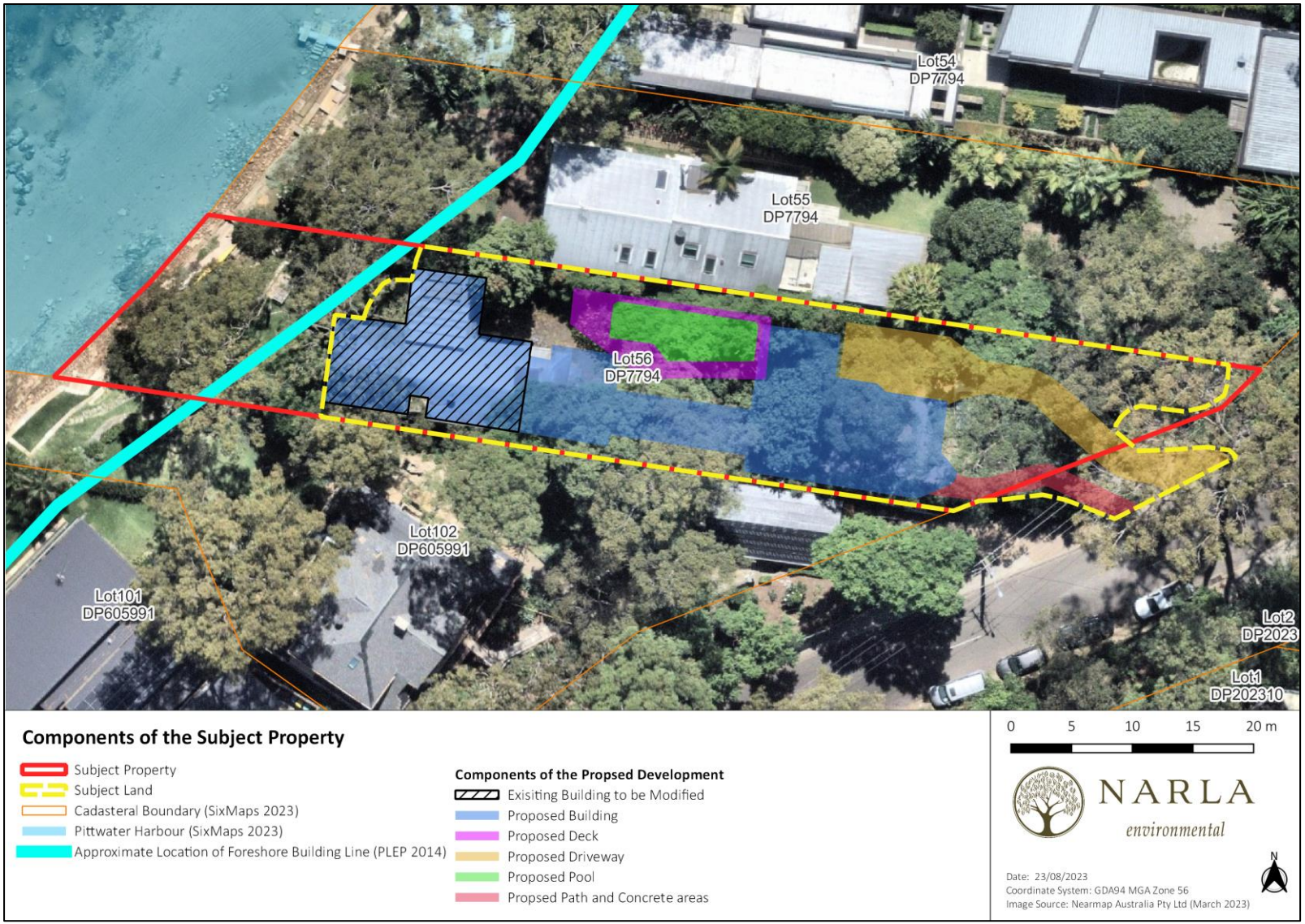

Figure 1. Components of the Subject Property

1.7 Relevant Legislation and Policy

The legislation and policy that are addressed in this report are listed in **Table 1.**

Table 1. Relevant legislation and policy addressed

Legislation/Policy	Relevant Ecological Feature on Site	Triggered	Action Required
Environmental Planning and Assessment Act 1979 (EP&A Act)	All threatened species, populations, and ecological communities and their habitat that occur or are likely to occur on the Subject Property during a part of their lifecycle.	Yes.	This Flora and Fauna Assessment and all subsequent recommendations relevant to the planning process under 'Part 4 Development assessment and consent'.
Biodiversity Conservation Act (BC Act) (New South Wales)	One (1) BC Act listed Threatened Ecological Community, was present within the Subject Property: ▪ Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion. No threatened BC Act listed flora or fauna were identified within or surrounding the Subject Site; however, suitable habitat for various threatened flora and fauna species was found	Yes.	This FFA, particularly the likelihood tables for threatened fauna and flora species occurring or potentially occurring within the Subject Land, as well as severity of potential impacts. **An assessment of significance of impact from the proposed DA on the BC Act listed Endangered Ecological Community Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion (Assessment of Significance [5-part Test]) was conducted (Appendix D).**
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (Commonwealth)	EPBC Act threatened species have the potential to occur within the Subject Property. No EPBC Act listed threatened species or ecological communities were observed within the Subject Property during the site assessment.	Yes.	This FFA, particularly the likelihood tables for threatened fauna and flora species occurring or potentially occurring within the Subject Property, as well as severity of potential impacts.
Biosecurity Act 2015 (Bio Act)	Three (3) priority weeds for the Greater Sydney region were identified within the Subject Property: ▪ Anredera cordifolia (Madeira Vine) ▪ *Cestrum parqui* (Green cestrum) ▪ *Dolichandra unguis-cati* (Cat's claw creeper)	Yes.	Priority weeds must be managed in accordance with the Biosecurity Act.
State Environmental Planning Policy (Resilience and Hazards) 2021 - Chapter 2 Coastal Management	Although the Subject Property does not contain areas mapped as 'Coastal Wetlands', 'Littoral Rainforest', or proximity to either, it does contain areas mapped as 'Coastal Environment Area' and 'Coastal Use Area'; therefore, Chapter 2 of the SEPP (Resilience and Hazards) 2021 applies.	Yes.	The applicable clauses of the SEPP have been addressed in this FFA (see **section 1.9**)

Legislation/Policy	Relevant Ecological Feature on Site	Triggered	Action Required
State Environmental Planning Policy (Biodiversity and Conservation) 2021 – Chapter 4 Koala Habitat Protection 2021	Although Chapter 4 of the Biodiversity and Conservation SEPP (2021) applies to land within the Northern Beaches LGA, the Subject Property does not encompass an area larger than 1ha; therefore, this chapter of the SEPP does not apply.	No.	None.
Water Management Act 2000	The Subject Property is within close proximity to a mapped a fourth order watercourse (Pittwater Harbour).	Yes.	A vegetation management plan may be required for the Subject Property.

1.8 Biodiversity Assessment Pathway

The requirements of the BC Act 2016 and Biodiversity Conservation Regulation 2017 are mandatory for all Development Applications (DA) assessed pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) submitted in the Northern Beaches LGA.

The BC Act and its regulations stipulate clearing 'area threshold' values (**Table 2**) that determine whether a development is required to be assessed in accordance with the 'Biodiversity Offset Scheme' (BOS). Minimum entry thresholds for vegetation clearing depend on the minimum lot size (shown in the Lot Size Maps made under the relevant Local Environmental Plan [LEP]), or actual lot size (where there is no minimum lot size provided for the relevant land under the LEP).

The minimum lot size prescribed by the PLEP to the Subject Property is 700m^2. To avoid triggering the Biodiversity Offset Scheme, the proponent must avoid the clearing/management of native vegetation in excess of 0.25ha. The entire Subject Property covers an area of approximately 0.13 ha. No areas mapped as containing Biodiversity Values are within the Subject Property. Furthermore, the threshold for clearing is greater than the entire area of the Subject Property, therefore the BOS does not apply.

Table 2. Biodiversity offset scheme entry thresholds. Bold indicates the threshold relevant to this report.

Minimum lot size associated with the property	Threshold for clearing, above which the BAM and offsets scheme apply
Less than 1ha	**0.25ha or more**
1ha to less than 40ha	0.5 ha or more
40ha to less than 1000ha	1ha or more
1000ha or more	2ha or more

1.9 State Environmental Planning Policy Resilience and Hazards) 2021 - Chapter 2 Coastal Management

1.9.1 Development on Land within the Coastal Environment Area

The Subject Property contains land mapped as 'Coastal Environment Area' (**Figure 2**). As such, development consent must not be granted unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following:

- Coastal Environment Area:
    - The integrity and resilience of the biophysical, hydrological (surface and groundwater), and ecological environment;
    - Coastal environmental values and natural coastal processes;
    - 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;
    - Marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands, and rock platforms;
    - 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;
    - Aboriginal cultural heritage, practices, and places; and
    - The use of the surf zone.

Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that:

- The development is designed, sited, and will be managed to avoid an adverse impact as outlined above;
- If that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact; or
- If that impact cannot be minimised—the development will be managed to mitigate that impact.

The development footprint is situated predominately on the site of the existing dwelling and further to the east on areas of exiting hardstand/landscaped areas. It is not deemed likely that the proposed development will have any impact on coastal processes.

1.9.2 Development on Land within the Coastal Use Area

The Subject Property contains land mapped as 'Coastal Use Area' (**Figure 2**). Development consent must not be granted to development on land that is within the coastal use area unless the consent authority

- Has considered whether the proposed development is likely to cause an adverse impact on the following:
    - Existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability;
    - Overshadowing, wind funnelling and the loss of views from public places to foreshores;
    - The visual amenity and scenic qualities of the coast, including coastal headlands;
    - Aboriginal cultural heritage, practices and places;
    - Cultural and built environment heritage; and
- Is satisfied that:
    - The development is designed, sited and will be managed to avoid an adverse impact on the factors listed above;

- If that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact; or
- If that impact cannot be minimised—the development will be managed to mitigate that impact; and

- Has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development. The proposed development will have negligible impact to the coastal environment.

The development footprint is situated predominately on the site of the existing dwelling and further to the east on areas of exiting hardstand/landscaped areas. It is not deemed likely that the proposed development will have any impact on coastal processes.

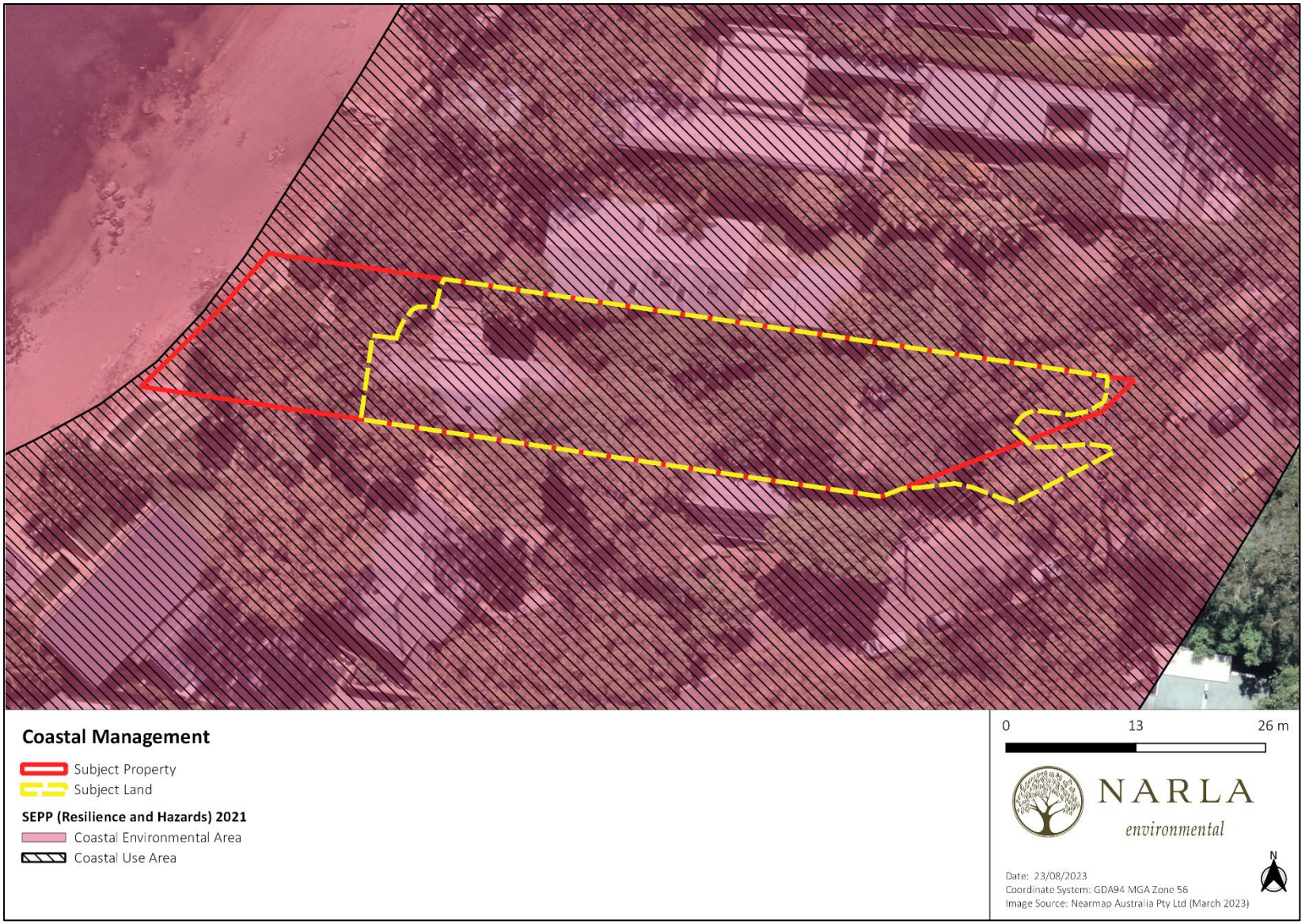

Figure 2. Coastal Use and Coastal Environmental Area within the Subject Property.

1.10 Pittwater Local Environmental Plan 2014 (PLEP)

1.10.1 Zoning

The Subject Property is zoned 'E4: Environmental Living'. The Pittwater LEP requires that the development satisfies the zone objectives which are:

- To provide for low-impact residential development in areas with special ecological, scientific or aesthetic values;
- To ensure that residential development does not have an adverse effect on those values;
- To provide for residential development of a low density and scale integrated with the landform and landscape; and
- To encourage development that retains and enhances riparian and foreshore vegetation and wildlife corridors.

The proposed development satisfies the objectives of Zone 'E4: Environmental Living' as it will not have a significant impact on ecological values present within the site. Dwelling houses are permitted with consent within this zone.

1.10.2 Biodiversity

This clause applies to land identified as 'Biodiversity' on the Terrestrial Biodiversity Map. As the Subject Property occurs within areas identified as 'Biodiversity', this clause applies to the proposed development (**Figure 3**). The objective of this clause is to maintain terrestrial biodiversity by:

- Protecting native fauna and flora;
- Protecting the ecological processes necessary for their continued existence; and
- Encouraging the conservation and recovery of native fauna and flora and their habitats.

Before determining a development application for development on land to which this clause applies, the consent authority must consider:

- Whether the development is likely to have:
    - Any adverse impact on the condition, ecological value and significance of the fauna and flora on the land; and
    - Any adverse impact on the importance of the vegetation on the land to the habitat and survival of native fauna; and
    - Any potential to fragment, disturb or diminish the biodiversity structure, function and composition of the land; and
    - Any adverse impact on the habitat elements providing connectivity on the land; and
- Any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.

Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that:

- The development is designed, sited and will be managed to avoid any significant adverse environmental impact; or
- If that impact cannot be reasonably avoided by adopting feasible alternatives—the development is designed, sited and will be managed to minimise that impact; or
- If that impact cannot be minimised—the development will be managed to mitigate that impact.

The development footprint is situated predominately on the site of the existing dwelling and further to the east on areas of exiting hardstand/landscaped areas. A total of Seventeen (17) trees and shrubs are proposed for removal to facility the development, including six (6) local native individuals (Arcadia 2023 and Martin Peacock Tree Care 2022). Many of the existing canopy trees will be maintained as possible including twelve (12) trees and shrubs and no hollow-bearing trees will be removed. The ground layer was dominated by exotic garden species with negligible biodiversity value.

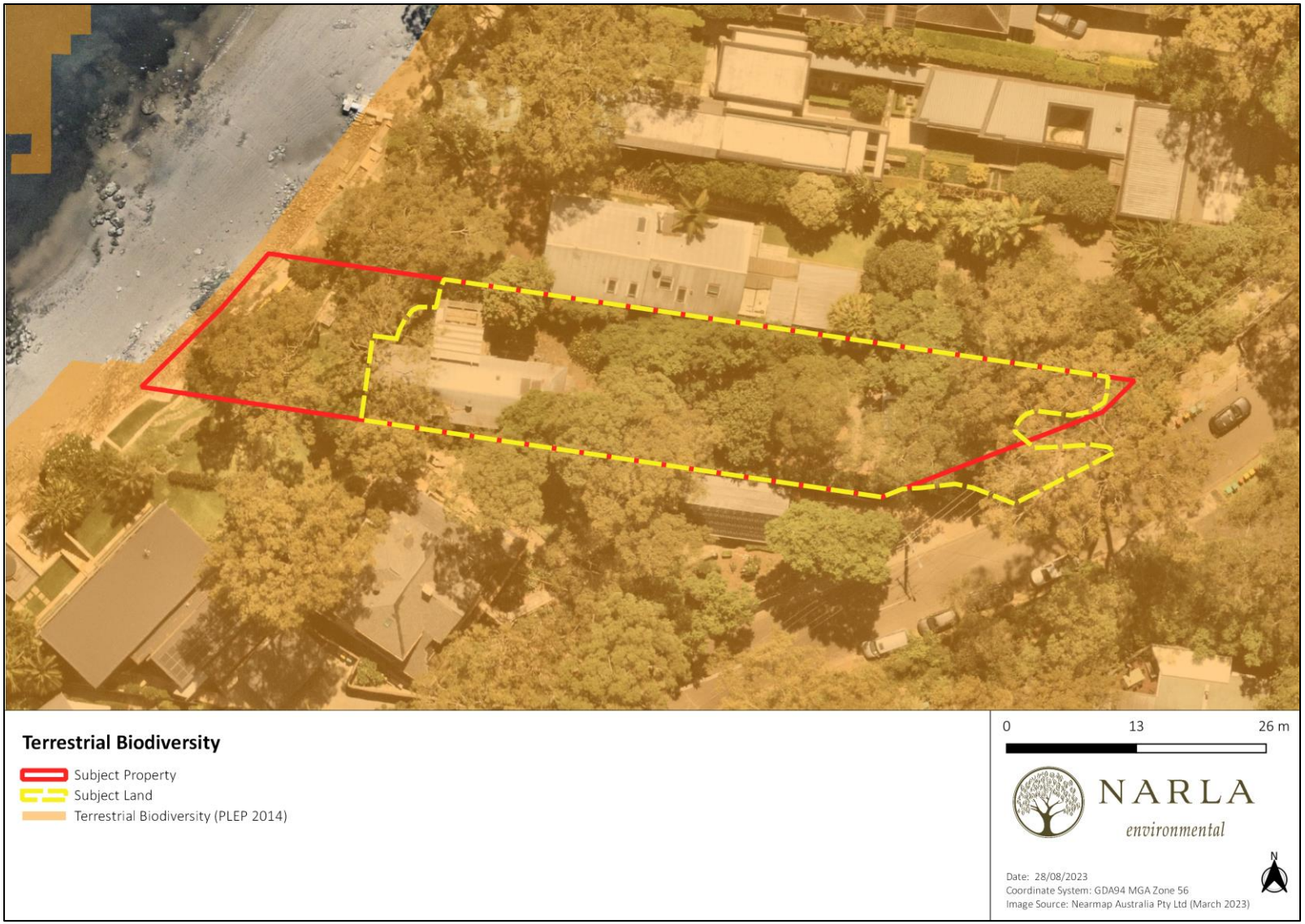

Figure 3. Terrestrial Biodiversity within the Subject Property.

1.11 Pittwater 21 Development Control Plan 2004 (PDCP)

1.11.1 Part B4.7 Pittwater Spotted Gum Forest – Endangered Ecological Community

The desired outcomes of Part B4.7 of the Pittwater DCP are:

- Conservation of intact Pittwater Spotted Gum Forest EEC;
- Regeneration and/or restoration of fragmented and/or degraded Pittwater Spotted Gum Forest EEC;
- Reinstatement of Pittwater Spotted Gum Forest to link remnants; and
- Long-term viability of locally native flora and fauna and their habitats through conservation, enhancement and/or creation of habitats and wildlife corridors.

The following controls apply to land containing or adjoining Pittwater Spotted Gum Forest:

- Development shall not have an adverse impact on Pittwater Spotted Gum Endangered Ecological Community;
- Development shall restore and/or regenerate Pittwater Spotted Gum Endangered Ecological Community and provide links between remnants;
- Development shall be in accordance with any Pittwater Spotted Gum Forest Recovery Plan;
- Development shall result in no significant onsite loss of canopy cover or a net loss in native canopy trees;
- Development shall retain and enhance habitat and wildlife corridors for locally native species, threatened species and endangered populations;
- Caretakers of domestic animals shall prevent them from entering wildlife habitat;
- Fencing shall allow the safe passage of native wildlife;
- Development shall ensure that at least 80% of any new planting incorporates native vegetation (as per species found on the site or listed in Pittwater Spotted Gum Endangered Ecological Community); and
- Development shall ensure any landscaping works are outside areas of existing Pittwater Spotted Gum Endangered Ecological Community and do not include Environmental Weeds.

In order for the proposed development to satisfy the controls of this clause it should:

- Replace any canopy trees being removed with species representative of Pittwater Spotted Gum Forest, at a ratio of 1:1. These trees must be located within the Subject Property;
- Manage environmental and priority weeds in the remaining Pittwater Spotted Gum Forest on site; and
- At least 80% of all landscaping must be native species listed in the Pittwater Spotted Gum Forest Ecological Community.

This Flora and Fauna Assessment covers all issues relating to the assessment of potential impacts to the Pittwater Spotted Gum Forest Endangered Ecological Community. A Vegetation Management Plan (VMP) may be required to appropriately manage the vegetation within the Subject Property into the future.

2. Methodology

2.1 Desktop Assessment and Literature Review

A thorough literature review of local information relevant to the Northern Beaches Council area was undertaken. Searches using NSW Wildlife Atlas (BioNet; DPE 2022b) and the Commonwealth Protected Matters Search Tool (DAWE 2022) were conducted to identify all current threatened flora and fauna, as well as migratory fauna records within a 10km x 10km cell search area centred on the Subject Property. These data were used to assist in establishing the presence or likelihood of any ecological values as occurring on or adjacent the Subject Property, and helped inform our Ecologist on what to look for during the site assessment.

Soil landscape and geological mapping was examined to gain an understanding of the environment on the Subject Property and assist in determining whether any threatened flora or ecological communities may occur there (Chapman et al. 2009).

2.2 Ecological Site Assessment

2.2.1 General Survey

A site assessment was undertaken by Narla Ecologist, Rebecca Sutton, on Tuesday the 30th of March 2023. During the site assessment, the following activities were undertaken:

- Identifying and recording the vegetation communities present within the Subject Property, with focus on identifying any threatened ecological communities (TEC);
- Recording a detailed list of flora species encountered within the Subject Property, with a focus on threatened species, species diagnostic of threatened ecological communities, and priority weeds;
- Recording opportunistic sightings of any fauna species seen or heard on or within the immediate surrounds of the Subject Property;
- Targeted surveys for threatened flora;
- Identifying and recording the locations of notable fauna habitat such as important nesting, roosting, or foraging microhabitats;
- Assessing the connectivity and quality of the vegetation within the Subject Property and surrounding area; and
- Targeting the habitat of any threatened and regionally significant fauna including:
    - Tree hollows (habitat for threatened large forest owls, parrots, and arboreal mammals);
    - Caves and crevices (habitat for threatened reptiles, small mammals, and microbats);
    - Termite mounds (habitat for threatened reptiles);
    - Soaks (habitat for threatened frogs);
    - Wetlands (habitat for threatened fish, frogs, and water birds);
    - Drainage lines (habitat for threatened fish and frogs);
    - Fruiting trees (food for threatened frugivorous birds and mammals);
    - Flowering trees (food for threatened nectarivorous birds and mammals);
    - Trees and shrubs supporting nest structures (habitat for threatened birds and arboreal mammals); and
    - Any other habitat features that may support fauna (particularly threatened) species.

2.2.2 Weather Conditions

Weather conditions recorded at the nearest weather station (Terrey Hills AWS 066059) prior to and during the site assessment are provided in **Table 3** (BOM 2023). The data revealed moderate temperatures and amounts of rainfall prior to the site assessment. Such conditions would have been conducive to the emergence and flowering of threatened species that could potentially occur within the Subject Land.

Table 3. Weather conditions recorded at Terrey Hills AWS (station 066059) preceding and during the site assessment (site assessment date in bold)

Survey date	Day	Minimum Temp. (°C)	Maximum Temp. (°C)	Rainfall (mm)
24/03/2023	Fr	16.3	23.9	2.0
25/03/2023	Sa	17.8	23.6	1.8
26/03/2023	Su	16.8	24.0	5.4
27/03/2023	Mo	18.0	23.6	5.6
28/03/2023	Tu	18.3	24.2	0.4
29/03/2023	We	18.4	25.9	8.0
30/03/2023	**Th**	**13.6**	**23.6**	**0.2**

2.2.3 Mapping and Analysis of Vegetation Communities

Narla examined local satellite imagery, geological mapping, soil landscape mapping, and topographic mapping, in addition to existing vegetation mapping (The Native Vegetation of the Sydney Metropolitan Area [OEH 2016b]) in order to stratify the Subject Property and guide the site assessment survey efforts. The following documents were also consulted during the site assessment to assist with the identification of vegetation communities present within the Subject Property:

- Chapman G.A., Murphy C.L., Tille P.J., Atkinson G. and Morse R.J. (2009) Soil Landscapes of the Sydney 1:100,000 Sheet map, Ed. 4, Department of Environment, Climate Change and Water, Sydney;
- Department of Planning and Environment (DPE) (2023d) eSPADE v2.1 https://www.environment.nsw.gov.au/eSpade2Webapp#;
- Office of Environment and Heritage (OEH) (2016a) The Native Vegetation of the Sydney Metropolitan Area. Version 3.1; and
- Office of Environment and Heritage (OEH) (2016b) The Native Vegetation of the Sydney Metropolitan Area. Volume 2: Vegetation Community Profiles. Version 3.0.
- DPE (2022) NSW State Vegetation Type Map.

2.2.4 Impact Assessment

An Assessment of Significance (5-part Test) was carried out for the BC Act listed Endangered Ecological Community, Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion. A Test of Significance (5-part Test) was undertaken in accordance with the BC Act to assess potential impacts from the proposed development on the BC Act listed threatened ecological community (**Appendix D**).

An assessment of likely occurrence was carried out for locally occurring threatened species (**Table 6** and **Table 9**) and threatened migratory species. It was then determined that a further impact assessment (5-Part Test) was not required for any locally occurring threatened species.

3. Native Vegetation

3.1 Vegetation Community

3.1.1 Historically Mapped Vegetation Communities

Historically mapped was conducted using Native Vegetation of the Sydney Metropolitan Area (OEH 2016b) over the more recent State Vegetation Mapping (DPE 2022) as it was deemed more accurate in this circumstance.

Native Vegetation of the Sydney Metropolitan Area (OEH 2016b) identified two (2) vegetation community within proximity to the Subject Property (**Figure 4**):

- Pittwater Spotted Gum (S_WSF11); and
- Seagrass Meadows (S_SW03).

3.1.2 Field-validated Vegetation Communities

The field survey conducted by Narla Ecologists identified the vegetation within the Subject Property as best conforming to two (2) vegetation communities:

- Pittwater Spotted Gum Forest (S_WSF11); and
- Urban Exotic/Native Garden.

The vegetation within these communities is detailed within **Table 4** and **Table 5**. Vegetation mapping of the Subject Property is presented in **Figure 5.**

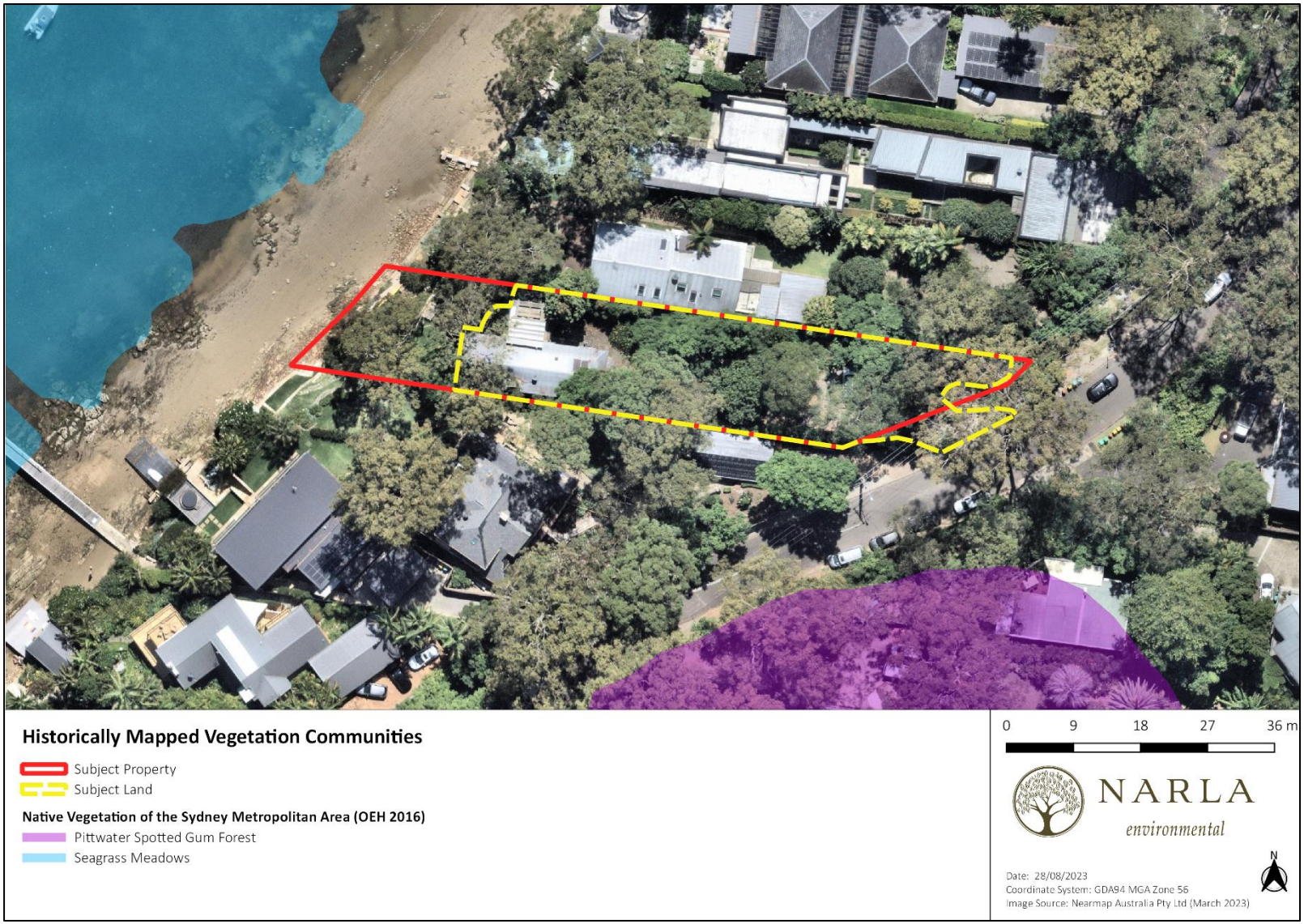

Figure 4. Historically mapped vegetation communities within the Subject Property (OEH 2016b).

Figure 5. Narla field-validated vegetation communities within the Subject Property.

Table 4. Description of Pittwater Spotted Gum Forest identified within the Subject Property

Pittwater Spotted Gum Forest	
	
Extent within Subject Property (approximate)	0.05ha
Description of the Vegetation within the Subject Property	
The vegetation within the Subject Property was comprised of scattered native canopy trees amongst a sparse mid-storey of predominately landscaped and planted species and a groundlayer that was dominated by exotics species. Native canopy trees included *Corymbia maculata, Eucalyptus paniculate, Glochidion ferdinandi* and *Allocasuarina torulosa.* Native mid-storey species included *Acacia fimbriata, Acmena smithii*, *Banksia integrifolia* subsp. *integrifolia*, *Callistemon salignus* and *Hakea gibbosa.* The groundlayer was dominated by exotic species such as *Ehrharta erecta* and *Tradescantia fluminensis*. Native groundlayer groundcover species included *Commelina cyanea*, *Dianella caerulea, Dichondra repens, Geranium homeanum* and *Imperata cylindrica*.	
Description (OEH 2016b)	
Stands of Spotted Gum (*Corymbia maculata*) mark this distinctive forest on the foreshores and escarpments of the Pittwater peninsula. These trees form a tall open forest that may also include Grey Ironbark (*Eucalyptus paniculata*) and Broad-leaved White Mahogany (*Eucalyptus umbra*). At the lower heights of the eucalypt stratum it is common to find an open cover of Forest Oak (*Allocasuarina torulosa*). The midstorey usually comprises a mixed layer of mesic and dry shrub species and occasional palms. Shrub species include Blueberry Ash (*Elaeocarpus reticulatus*), Scentless Rosewood (*Synoum glandulosum subsp. glandulosum*), Narrow-leaved Geebung (*Persoonia linearis*) and Mountain Holly (*Podolobium ilicifolium*). Like many spotted gum forests along coastal New South Wales, Burrawang (*Macrozamia communis*) can assume a prominent component of the ground	

Pittwater Spotted Gum Forest	
layer above a scatter of grasses, ferns and small vines. At times the ground layer appears very grassy, with an abundance of Blady Grass (*Imperata cylindrica var. major*) notable where there is a history of frequent fire. Pittwater Spotted Gum Forest has recently been subject to review by Bell and Stables (2012). These authors concluded that this forest has a close association with Narrabeen sediments exposed on rises, escarpments and footslopes throughout northern Pittwater LGA and Wagstaff peninsula in the Gosford LGA. The forest spans a number of aspects and topographic positions but is rarely found above 100 metres above sea level. It receives between 1150 and 1300 millimetres of mean annual rainfall. It is estimated that 75 per cent of its pre-European distribution has been cleared in the Pittwater and Gosford urban areas (Bell and Stables 2012) with some remaining stands impacted by the encroachment of urban weeds.	
Justification of Vegetation Assignment	The determination of this community was based on landscape attributes, including soil landscapes and elevation, and the presence of a number of characteristic species as listed in The Native Vegetation of the Sydney Metropolitan Area (OEH 2016b).
BC Act 2016 Status	This community is associated with the BC Act listed Endangered Ecological Community (EEC), Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion.
EPBC Act 1999 Status	Not Listed.
References	Department of Planning and Environment (DPE) (2022c) BioNet Vegetation Classification. https://www.environment.nsw.gov.au/research/Visclassification.htm Office of Environment and Heritage (OEH) (2016b) The Native Vegetation of the Sydney Metropolitan Area. Volume 2: Vegetation Community Profiles. Version 3.0

Table 5. Description of Urban Exotic/Native Vegetation identified within the Subject Property

Urban Exotic/Native Vegetation	
	
Extent within Subject Property (approximate)	0.03ha
Description of the Vegetation within the Subject Property	
The vegetation within this zone consisted of planted urban vegetation, exotic weeds and common native species. The planted exotic species included *Bauhinia forficata, Beaumontia grandiflora, Camellia sasanqua, Celtis sinensis, Jacaranda mimosifolia* and *Rhaphiolepis indica.* Native species included *Corymbia citriodora, Kennedia rubicunda*, *Macrozamia communis* and *Lomandra longifolia.* Priority weeds were also present they included *Anredera cordifolia, Cestrum parqui* and *Dolichandra unguis-cati*.	
Justification of Vegetation Assignment	The vegetation within this area consisted of common urban exotic and native species. As the vegetation in this area did not conform to the characteristic of any remnant vegetation found in the locality and has been extensively modified, it has been classified as urban exotic/native vegetation.
BC Act 2016 Status	Not Listed.
EPBC Act 1999 Status	Not Listed.

4. Threatened Entities

4.1 Threatened Ecological Communities (TECs)

4.1.1 BC Act listing: Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion EEC

The vegetation mapped as Pittwater Spotted Gum Forest within the Subject Land contained characteristic species of the Endangered Ecological Community (ECC) Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion, as indicated by the Final Determination (NSW Scientific Committee 2013). Characteristic tree species of this EEC are *Corymbia maculata* and *Eucalyptus paniculata*, associated trees include *Angophora costata, Corymbia gummifera, Eucalyptus umbra, Eucalyptus punctata, Syncarpia glomulifera*, *Eucalyptus botryoides* and *Angophora floribunda*. Of which *Corymbia maculata* and *Eucalyptus paniculata* are present withing the Subject Land.

This vegetation community occurs on shale-derived soils with high rainfall on lower hillslopes on the Narrabeen group - Newport Formation, on the Barrenjoey Peninsula and western Pittwater foreshores. The structure of the community was originally open-forest but may now exist as woodland or as remnant trees (NSW Scientific Committee 2013). The Subject Land is mapped as being on the Watagan (Chapman et al. 2009) landscape which is consistent with the soil landscapes associated with this EEC.

A Biodiversity Conservation Act 2016 Test of Significance (5-part Test) has been prepared to assess the impacts of the proposed development on Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion is presented in Appendix D.Error! Reference source not found.

This threatened Ecological Community is not listed under the EPBC Act 1999.

4.2 Threatened Flora

Desktop analysis revealed a range of threatened flora as occurring or having the potential to occur on or within a 10km x 10km cell centred on the Subject Property. Thorough targeted surveys were undertaken throughout the Subject Property for potentially occurring threatened flora. No threatened flora species were identified at the time of the site assessment. A comprehensive list of flora species identified during the site assessment is presented in Appendix B.

The following locally occurring species were assessed for their potential to occur within the Subject Property (Table 6). It was deemed unlikely that the proposed development will have a significant impact on these species. Therefore, no further assessment of impacts pursuant the BC Act (e.g. Biodiversity Development Assessment Report [BDAR]) and/or EPBC Act Referral to Commonwealth should be required.

Table 6. Assessment of likely occurrence of threatened flora species within the Subject Land.

Species	BC Act	EPBC Act	Habitat Requirements (DPE 2023b)	Likelihood of occurrence within the Subject Land	Further Impact Assessment Required?
Acacia bynoeana (Bynoe's Wattle)	E	V	Occurs in heath or dry sclerophyll forest on sandy soils. Seems to prefer open, sometimes slightly disturbed sites such as trail margins, edges of roadside spoil mounds and in recently burnt patches. Associated overstorey species include Red Bloodwood, Scribbly Gum, Parramatta Red Gum, Saw Banksia and Narrow-leaved Apple.	Absent. Potential habitat is present within the Subject Land. The site assessment in March 2023 was conducted within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.
Acacia terminalis subsp. Eastern Sydney (Sunshine wattle)	E	E	Very limited distribution, mainly in near-coastal areas from the northern shores of Sydney Harbour south to Botany Bay. Coastal scrub and dry sclerophyll woodland on sandy soils. Habitat is generally sparse and scattered. Most sites are highly modified or disturbed due to surrounding urban development.	Very low. Potential habitat is present within the Subject Land; however, the limited distribution of this species makes it unlikely that this species would be present within the Subject Property. The site assessment in March 2023 was conducted outside of the approved survey period for this species (May - July) (DPE 2023b), and did not detect this species.	No.
Asterolasia elegans	E	E	Occurs on Hawkesbury sandstone. Found in sheltered forests on mid- to lower slopes and valleys, e.g. in or adjacent to gullies which support sheltered forest. The canopy at known sites includes Turpentine (*Syncarpia glomulifera* subsp. *glomulifera*), Smooth-barked Apple (*Angophora costata*), Sydney Peppermint (*Eucalyptus piperita*), Forest Oak (*Allocasuarina torulosa*) and Christmas Bush (*Ceratopetalum gummiferum*).	Low. Appropriate habitat is not present on site. The site assessment in March 2023 was conducted outside of the approved survey period for this species (Sep - Oct) (DPE 2023b), and did not detect this species.	No.

Species	BC Act	EPBC Act	Habitat Requirements (DPE 2023b)	Likelihood of occurrence within the Subject Land	Further Impact Assessment Required?
Astrotricha crassifolia (Thick-leaf Star-hair)	V	V	Occurs in dry sclerophyll woodland on sandstone. Resprouts from root suckers or basal stem buds after fire.	Low. Potential habitat is present within the Subject Land, however the highly disturbed nature of the vegetation in the Subject Property makes it unlikely that this species would be present. The site assessment in March 2023 was conducted outside of the approved survey period for this species (July - Dec) (DPE 2023b), and did not detect this species.	No.
Boronia umbellata (Orara Boronia)	V	V	Only one collection of this species is known from the Pittwater region, with the remainder distributed within the Coffs Harbour district. This Boronia grows as an understorey shrub in and around gullies in wet open forest.	Absent. The highly disturbed nature of the vegetation in the Subject Property makes it unlikely that this species would be present. The site assessment in March 2023 was conducted within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.
Caladenia tessellata (Thick-lipped Spider-orchid)	E	V	Occurs in heath or dry sclerophyll forest on sandy soils. Seems to prefer open, sometimes slightly disturbed sites such as trail margins, edges of roadside spoil mounds and in recently burnt patches. Associated overstorey species include Red Bloodwood, Scribbly Gum, Parramatta Red Gum, Saw Banksia and Narrow-leaved Apple.	Low. Potential habitat is present within the Subject Land, however the highly disturbed nature of the vegetation in the Subject Property makes it unlikely that this species would be present. The site assessment in March 2023 was conducted outside of the approved survey period for this species (Sep - Oct) (DPE 2023b), and did not detect this species.	No.
Callistemon linearifolius (Netted Bottle Brush)	V	-	Three of the remaining populations are reserved in Ku-ring-gai Chase National Park, Lion Island Nature Reserve and Spectacle Island Nature Reserve. Grows in dry sclerophyll forest on the coast and adjacent ranges.	Low. Whilst appropriate habitat may be present within the Subject Land, the highly degraded nature of the vegetation makes it unlikely this species would be present within the Subject Land. The site assessment in March 2023 was conducted outside the approved survey period for this species (Oct - Jan) (DPE 2023b), and did not detect this species.	No.

Species	BC Act	EPBC Act	Habitat Requirements (DPE 2023b)	Likelihood of occurrence within the Subject Land	Further Impact Assessment Required?
Chamaesyce psammogeton (Sand Spurge)	E	-	Grows on fore-dunes, pebbly strandlines and exposed headlands, often with Spinifex (*Spinifex sericeus*) and Prickly Couch (*Zoysia macrantha*).	Absent. No such habitat occurs within the Subject Land. Nevertheless, a targeted survey effort was conducted in March 2023 within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.
Cryptostylis hunteriana (Leafless Tongue-orchid)	V	V	Does not appear to have well defined habitat preferences and is known from a range of communities, including swamp-heath and woodland. The larger populations typically occur in woodland dominated by *Eucalyptus sclerophylla*, *E. sieberi*, *Corymbia gummifera* and *Allocasuarina littoralis*; appears to prefer open areas in the understorey of this community.	Very low. Potential habitat within the Subject Site is considered low due the highly disturbed nature of the Subject Property. No individuals were identified during the March 2023 survey. However, this was conducted outside the approved survey period (Nov-Jan) for this species (DPE 2023c).	No.
Darwinia biflora	V	V	Occurs on the edges of weathered shale-capped ridges, where these intergrade with Hawkesbury Sandstone. Associated overstorey species include *Eucalyptus haemastoma*, *Corymbia gummifera* and/or *E. squamosa*. The vegetation structure is usually woodland, open forest or scrub-heath.	Absent. Potential habitat is present within the Subject Land, however the highly disturbed nature of the vegetation in the Subject Property makes it unlikely that this species would be present. The site assessment in March 2023 was conducted within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.
Eucalyptus camfieldii (Camfield's Stringybark)	V	V	Occurs mostly in small scattered stands near the boundary of tall coastal heaths and low open woodland of the slightly more fertile inland areas. Associated species frequently include stunted species of *E. oblonga* Narrow-leaved Stringybark, *E. capitellata* Brown Stringybark and *E. haemastoma* Scribbly Gum.	Absent. Whilst appropriate habitat may be present within the Subject Land, the site assessment in March 2023 was conducted within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.

Species	BC Act	EPBC Act	Habitat Requirements (DPE 2023b)	Likelihood of occurrence within the Subject Land	Further Impact Assessment Required?
Eucalyptus nicholii (Narrow-leaved Black Peppermint)	V	V	This species is sparsely distributed but widespread on the New England Tablelands from Nundle to north of Tenterfield, being most common in central portions of its range. Planted as urban trees, windbreaks and corridors. Typically grows in dry grassy woodland, on shallow soils of slopes and ridges. Found primarily on infertile soils derived from granite or metasedimentary rock. Tends to grow on lower slopes in the landscape.	Absent. Appropriate habitat is not present on site. The site assessment in March 2023 was conducted within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.
Genoplesium baueri (Yellow Gnat-orchid)	-	E	The species usually grows in heathland to shrubby woodland on sands or sandy loams (Riley and Banks, 2002) or open forest, shrubby forest and heathy forest on well-drained sandy and gravelly soils (Jones, 2006).	Absent. Although the Subject Property contained forest on sandy soils, the highly disturbed nature of the vegetation in the Subject Property makes it unlikely that this species would be present. The site assessment in March 2023 was conducted within the approved survey period for this species (Feb - March) (DPE 2023b), and did not detect this species.	No.
Grevillea caleyi (Caley's Grevillea)	CE	CE	This species is restricted to an 8km square area around Terrey Hills. All sites occur on the ridgetop between elevations of 170 to 240m above sea level, in association with laterite soils and a vegetation community of open forest, generally dominated by *Eucalyptus sieberi* and *E. gummifera*. Commonly found in the endangered Duffys Forest ecological community.	Absent. No such habitat occurs within the Subject Land. Nevertheless, a targeted survey effort was conducted in March 2023 within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.

Species	BC Act	EPBC Act	Habitat Requirements (DPE 2023b)	Likelihood of occurrence within the Subject Land	Further Impact Assessment Required?
Grevillea shiressii	V	V	Known from two populations near Gosford, on tributaries of the lower Hawkesbury River north of Sydney. Grows along creek banks in wet sclerophyll forest with a moist understorey in alluvial sandy or loamy soils.	Low. Potential habitat is present within the Subject Land; however, the highly disturbed nature of the vegetation in the Subject Property and the limited distribution of this species makes it unlikely that this species would be present within the Subject Property. The site assessment in March 2023 was conducted outside the approved survey period for this species (July - Dec) (DPE 2023b), and did not detect this species.	No.
Haloragodendron lucasii (Hal)	E	E	Associated with dry sclerophyll forest. Reported to grow in moist sandy loam soils in sheltered aspects, and on gentle slopes below cliff-lines near creeks in low open woodland. Associated with high soil moisture and relatively high soil-phosphorus levels.	Absent. Although the Subject Property contained forest on sandy soils, the highly disturbed nature of the vegetation in the Subject Property makes it unlikely that this species would be present. The site assessment in March 2023 was conducted within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.
Kunzea rupestris	V	V	Grows in shallow depressions on large flat sandstone rock outcrops. Characteristically found in short to tall shrubland or heathland.	Absent. No such habitat occurs within the Subject Land. Nevertheless, a targeted survey effort was conducted in March 2023 within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.

Species	BC Act	EPBC Act	Habitat Requirements (DPE 2023b)	Likelihood of occurrence within the Subject Land	Further Impact Assessment Required?
Lasiopetalum joyceae	V	V	Has a restricted range occurring on lateritic to shaley ridgetops on the Hornsby Plateau south of the Hawkesbury River. Grows in heath on sandstone.	Very low. Appropriate soil type is not present within the Subject Land and given the highly disturbed nature of the vegetation in the Subject Property and the limited distribution of this species makes it unlikely that this species would be present within the Subject Property. The site assessment in March 2023 was conducted outside the approved survey period for this species (Sep - Nov) (DPE 2023b), and did not detect this species.	No.
Macadamia integrifolia (Macadamia Nut)	-	V	This species is restricted to the north of the Richmond River in north-east NSW, extending just across the border into Queensland. Many records, particularly those further south, are thought to be propagated.	Absent. A targeted survey was conducted in March 2023 within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.
Melaleuca biconvexa (Biconvex Paperbark)	V	V	Generally, grows in damp places, often near streams or low-lying areas on alluvial soils of low slopes or sheltered aspects.	Absent. No such habitat occurs within the Subject Land. Nevertheless, a targeted survey effort was conducted in March 2023 within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.
Melaleuca deanei (Deane's Paperbark)	V	V	Deane's Paperbark occurs in two distinct areas, in the Ku-ring-gai/ Berowra and Holsworthy/ Wedderburn areas respectively. The species occurs mostly in ridgetop woodland, with only 5% of sites in heath on sandstone.	Absent. Potential habitat is present within the Subject Land; however, the highly disturbed nature of the vegetation in the Subject Property and the limited distribution of this species makes it unlikely that this species would be present within the Subject Property. The site assessment in March 2023 was conducted within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.

Species	BC Act	EPBC Act	Habitat Requirements (DPE 2023b)	Likelihood of occurrence within the Subject Land	Further Impact Assessment Required?
Microtis angusii (Angus's Onion Orchid)	E	E	All currently known records of the species are located within Northern Beaches LGA in disturbed areas, with most individuals recorded in road verges. Occurs on soils that have been modified but were originally those of the restricted ridgetop lateritic soils in the Duffys Forest - Terrey Hills - Ingleside and Belrose areas. These soils support a specific and distinct vegetation type, the Duffys Forest Vegetation Community ranges from open forest to low open forest and rarely woodland.	Very low. The Subject Property does not occur on the restricted ridgetop lateritic soils required by this species or contain the vegetation type Duffys Forest. Given the limited distribution of this species makes it unlikely that this species would be present within the Subject Property. A targeted survey conducted in March 2023 was undertaken outside the appropriate survey month (Oct) (DPE 2023b), and no individuals were identified.	No.
Persicaria elatior (Knotweed)	V	V	This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance.	Absent. No appropriate habitat is not present, nevertheless, a targeted survey effort was conducted in March 2023 within the approved survey period for this species (Dec - May) (DPE 2023b), and did not detect this species.	No.
Persoonia hirsute (Hairy Geebung)	E	E	The Hairy Geebung is found in clayey and sandy soils in dry sclerophyll open forest, woodland and heath, primarily on the Mittagong Formation and on the upper Hawkesbury Sandstone. It is usually present as isolated individuals or very small populations.	Absent. Although potential habitat may exist within the Subject Property, the site assessment in March 2023 was conducted within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.
Pimelea curviflora var. curviflora	V	V	Occurs on shaley/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes amongst woodlands.	Absent. Although appropriate soils may exist within the Subject Property, the site assessment in March 2023 was conducted within the approved survey period for this species (Oct - March) (DPE 2023b), and did not detect this species.	No.

Species	BC Act	EPBC Act	Habitat Requirements (DPE 2023b)	Likelihood of occurrence within the Subject Land	Further Impact Assessment Required?
Prostanthera densa (Villous Mintbush)	V	V	This species generally grows in sclerophyll forest and shrubland on coastal headlands and near coastal ranges, chiefly on sandstone, and rocky slopes near the sea.	Absent. Although appropriate habitat may exist within the Subject Property, the site assessment in March 2023 was conducted within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.
Prostanthera junonis (Somersby Mintbush)	E	E	The species is restricted to the Somersby Plateau. It occurs on both the Somersby and Sydney Town soil landscapes on gently undulating country over weathered Hawkesbury sandstone within open forest/low woodland/open scrub. It occurs in both disturbed and undisturbed sites.	Very low. Appropriate soil type is not present within the Subject Land and given the highly disturbed nature of the vegetation in the Subject Property and the limited distribution of this species makes it unlikely that this species would be present within the Subject Property. The site assessment in March 2023 was conducted outside the approved survey period for this species (Oct - Dec) (DPE 2023b), and did not detect this species.	No.
Rhizanthella slateri (Eastern Underground Orchid)	V	E	Habitat requirements are poorly understood and no particular vegetation type has been associated with the species, although it is known to occur in sclerophyll forest.	Very Low. Potential habitat may be present within the Subject Land; however, the highly disturbed nature of the vegetation within the Subject Property makes it unlikely that this species would be present within the Subject Property. The site assessment in March 2023 was conducted outside the approved survey period for this species (Sep - Nov) (DPE 2023b), and did not detect this species.	No.
Rhodamnia rubescens (Scrub Turpentine)	CE	CE	Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils.	Absent. Although appropriate habitat may exist within the Subject Property, the site assessment in March 2023 was conducted within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.

Species	BC Act	EPBC Act	Habitat Requirements (DPE 2023b)	Likelihood of occurrence within the Subject Land	Further Impact Assessment Required?
Rhodomyrtus psidioides (Native Guava)	CE	CE	Pioneer species found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines.	Absent. No appropriate habitat is not present, nevertheless, a targeted survey effort was conducted in March 2023 conducted within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.
Syzygium paniculatum (Magenta Lilly Pilly)	E	V	On the central coast Magenta Lilly Pilly occurs on gravels, sands, silts and clays in riverside gallery rainforests and remnant littoral rainforest communities.	Absent. No appropriate habitat is not present, nevertheless, a targeted survey effort was conducted in March 2023 within the approved survey period for this species (All Year) (DPE 2023b), and did not detect this species.	No.
Tetratheca glandulosa	v	-	Associated with shale-sandstone transition habitat where shale-cappings occur over sandstone. Topographically, the plant occupies ridgetops, upper-slopes and to a lesser extent mid-slope sandstone benches. Vegetation structure varies from heaths and scrub to woodlands/open woodlands, and open forest.	Low. Appropriate soil type is not present within the Subject Land and given the highly disturbed nature of the vegetation in the Subject Property makes it unlikely that this species would be present within the Subject Property. The site assessment in March 2023 was conducted outside the approved survey period for this species (Aug - Nov) (DPE 2023b), and did not detect this species.	No.
Thesium austral (Austral Toadflax)	V	V	Occurs in grassland. Is a root parasite that takes water and some nutrient from other plants, especially Kangaroo Grass.	Very Low. No Grasslands or Kangaroo Grass (T*hemeda trandra*) were identified within the Subject Site, during survey making it unlikely this species would be present within the Subject Site. The site assessment in March 2023 was conducted outside the approved survey period for this species (Nov - Jan) (DPE 2023b), and did not detect this species.	No.

4.2 Fauna Habitat

Details of the fauna habitat recorded within the Subject Property are included in **Table 7** and **Table 8**. Desktop analysis revealed that a number of threatened fauna species have the potential to utilise such habitat within the Subject Property during part of their lifecycles **Table 9**.

Table 7. Fauna habitat values identified within and surrounding the Subject Land.

Habitat component	Site values
Coarse woody debris	Absent.
Rock outcrops and bush rock	Absent.
Caves, crevices and overhangs	Absent.
Culverts, bridges, mine shafts, or abandoned structures	Absent.
Nectar/lerp-bearing Trees	Nectar-bearing trees were recorded within the Subject Property including *Corymbia maculata* and *Eucalyptus umbra.* These trees may provide intermittent nectar sources for nomadic nectivores such as the Grey-headed Flying-fox.
Nectar-bearing shrubs	*Callistemon salignus* and *Eucalyptus umbra* were present within the Subject Property.
Koala Feed Trees	Absent.
Large stick nests	Absent.
Sap and gum sources	A suite of sap/ gum sources were present within the Subject Property including *Eucalyptus umbra* and *Corymbia maculata.*
She-oak fruit (Glossy Black Cockatoo feed)	*Allocasuarina torulosa* was identified within the Subject Property
Seed-bearing trees and shrubs	Seed-bearing trees including *Hakea gibbosa* and *Banksia integrifolia* may provide foraging habitat for various bird species.
Soft-fruit-bearing trees	*Glochidion ferdinandi* was identified within the Subject Property and may provide foraging habitat for fructivores such as the Grey-headed Flying-fox.
Dense shrubbery and leaf litter	Present.
Tree hollows	One (1) hollow-bearing *Corymbia maculata* was present within the Subject Property, this tree is proposed to be retained (**Table 8** and **Figure 6**). An additional hollow-bearing tree was located just outside of the Subject Property.
Decorticating bark	Absent.
Wetlands, soaks, and streams	Absent.
Open water bodies	The Subject Property borders Pittwater Harbour and, as such, may provide intermittent foraging/sheltering habitat for shore bird species.
Estuarine, beach, mudflats, and rocky foreshores	The Subject Property contains a small sandy beach extending to Pittwater Harbour. This area will not be impacted by the proposed development
Nests and Possums Dreys	Absent.

Table 8. Fauna habitat values identified within and surrounding the Subject Land.

Tag #	Habitat Feature	Coordinates		Tree Species	Class of Hollow	Tree Proposed for Removal
		Latitude	Longitude			
HT1 (Outside of Subject Property)	Hollow	-33.63217222	151.31504722	*Corymbia maculata*	2 x medium hollows	No – Tree A
HT2	Hollow	-33.63207222	151.31411111	*Corymbia maculata*	1 x small hollow	No – Tree 16

4.3 Threatened Fauna

No threatened fauna species were observed during the site assessment in March, 2023 within or surrounding the Subject Property. It was deemed unlikely that the proposed works will have a significant impact such that a local viable population or occurrence of any of the threatened species will be placed at risk of extinction. Therefore, no BDAR or EPBC Act Referral to the Commonwealth should be required for the proposed development.

All native fauna species encountered were listed as 'protected' under the BC Act. The list of fauna recorded during the site visit was produced opportunistically (**Appendix C**).

4.3.1 Migratory Fauna Species

Desktop analysis revealed the following EPBC Act listed migratory terrestrial fauna species were considered to have the potential to utilise habitat within the Subject Property (e.g. foraging or passage) during part of their lifecycles:

- Actitis hypoleucos (Common Sandpiper);
- Anous stolidus (Common Noddy);
- Apus pacificus (Fork-tailed Swift);
- Ardenna carneipes (Flesh-footed Shearwater);
- Ardenna grisea (Sooty Shearwater);
- Calidris acuminata (Sharp-tailed Sandpiper);
- Calidris canutus (Red Knot, Knot);
- Calidris ferruginea (Curlew Sandpiper);
- Calidris melanotos (Pectoral Sandpiper);
- Calonectris leucomelas (Streaked Shearwater);
- Charadrius leschenaultia (Greater Sand Plover);
- Cuculus optatus (Oriental Cuckoo, Horsfield's Cuckoo);
- *Fregata ariel* (Lesser Frigatebird, Least Frigatebird);
- *Fregata minor* (Great Frigatebird, Greater Frigatebird);
- *Gallinago hardwickii* (Latham's Snipe, Japanese Snipe);
- *Hirundapus caudacutus* (White-throated Needletail);
- *Limosa lapponica* (Bar-tailed Godwit);
- *Macronectes giganteus* (Southern Giant-Petrel);
- *Macronectes halli* (Northern Giant Petrel);
- *Monarcha melanopsis* (Black-faced Monarch);
- *Motacilla flava* (Yellow Wagtail);
- *Myiagra cyanoleuca* (Satin Flycatcher);

- *Numenius madagascariensis* (Eastern Curlew);
- *Pandion haliaetus* (Osprey);
- *Phaethon lepturus* (White-tailed Tropicbird);
- *Rhipidura rufifrons* (Rufous Fantail);
- *Sternula albifrons* (Little Tern);
- *Symposiachrus trivirgatus* (Spectacled Monarch); and
- *Tringa nebularia* (Common Greenshank,).

It was deemed that the proposed works were unlikely to result in a significant impact on these species. Therefore, no EPBC Act Referral to the Commonwealth should be required.

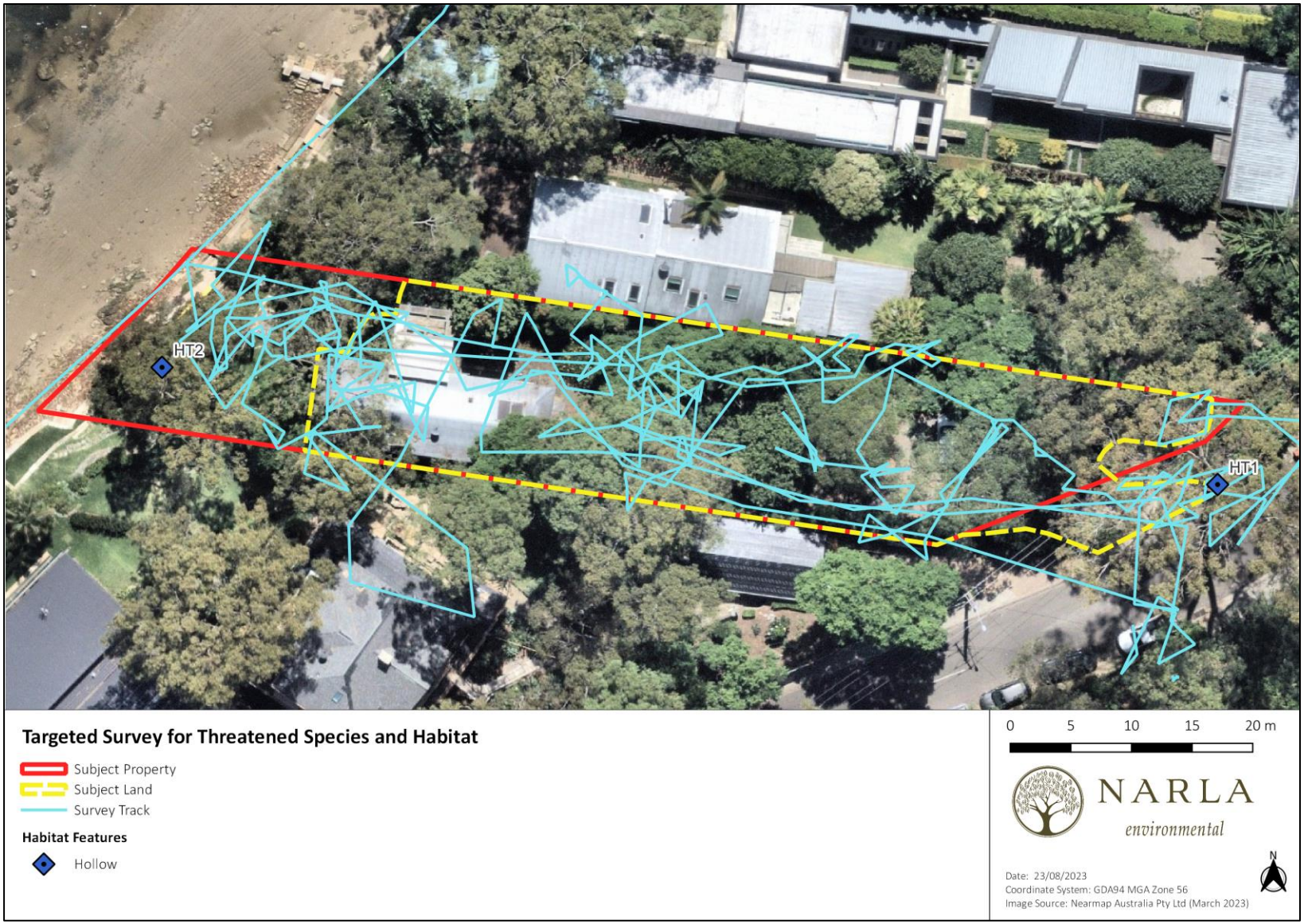

Figure 6. Targeted survey for threatened species and habitat within the Subject Property.

Table 9. List of potential threatened fauna that may occupy the Subject Property at some stage of their lifecycles. Vulnerable = V, Endangered = E, Endangered Population = EP, Critically Endangered = CE.

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Property	Breeding Habitat Present Within the Subject Property	Anticipated Impact	Further Impact Assessment Required?
Anthochaera phrygia (Regent Honeyeater)	CE	CE	Low.	The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River She oak. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. Potential foraging habitat does occur within the Subject Property.	There are three (3) known key breeding areas, two of them in NSW - Capertee Valley and Bundarra-Barraba regions which do not occur within the Subject Land. The Subject Land does not occur within the important areas map for this species.	Minimal impact to suboptimal foraging habitat given the mobility of this species. No anticipated net loss of foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Artamus cyanopterus (Dusky Wood swallow)	V	-	Low.	Often inhabit dry, open eucalypt forests and woodlands with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Potential foraging habitat was present within the Subject Property.	Nest sites vary greatly, but generally occur in shrubs or low trees, living or dead, horizontal or upright forks in branches, spouts, hollow stumps or logs, behind loose bark or in a hollow in the top of a wooden fence post. No nests were identified within the Subject Property during the time of the Site Assessment in March 2023.	Minimal impact to potential foraging habitat given the mobility of this species. Nectar producing trees will persist within the Subject Property and adjoining properties. No impacts to breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Burhinus grallarius (Bush Stone-curlew)	E	-	Low.	Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber. Potential sub-optimal foraging habitat was present within the Subject Property given the lack of fallen timber and highly disturbed nature of the site.	Nests on the ground in a scrape of small bare patch. The Subject Property provides suboptimal breeding habitat for this species, as it is located in a highly disturbed landscape.	Minimal impact to suboptimal breeding and foraging habitat given the disturbed nature of the site. Site survey conducted in March 2023 did not detect this species.	No.

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Property	Breeding Habitat Present Within the Subject Property	Anticipated Impact	Further Impact Assessment Required?
Calidris ferruginea (Curlew Sandpiper)	E	CE	Low.	It generally occupies littoral and estuarine habitats, and is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes inland. It forages in or at the edge of shallow water, occasionally on exposed algal mats or waterweed, or on banks of beach-cast seagrass or seaweed, feeding on worms, molluscs, crustaceans, insects and some seeds. Mudflats are not present within the Subject Land.	The Curlew Sandpiper breeds in Siberia and migrates to Australia.	Negligible. No anticipated loss of foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Callocephalon fimbriatum (Gang-gang Cockatoo)	V	-	Low.	The species feeds on the seeds of native flora including eucalyptus and acacia seed. The species favours box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas. Potential feed trees occur within the Subject Property.	This species favours Eucalypt tree species with hollows that are 10 cm in diameter or larger and at least 9m above the ground in eucalypts. One (1) medium hollow-bearing trees occur within the Subject Property; however this is not the appropriate size for this species.	Minimal impact to potential foraging habitat given the mobility of this species. A suite of eucalypts will remain within the Subject Property and adjoining areas. No anticipated net loss of breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Calyptorhynchus lathami (Glossy Black-Cockatoo)	V	-	Low.	This species feeds almost exclusively on the seeds of several species of she-oak (*Casuarina* and *Allocasuarina* species). Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of she-oak occur. One (1) *Allocasuarina torulosa* was identified within the Subject Property and is proposed to be removed.	Dependent on large hollow-bearing eucalypts for nest sites. One (1) medium hollow-bearing trees occur within the Subject Property; however this is not the appropriate size for this species.	Minimal impact to potential foraging habitat given the mobility of this species. No anticipated net loss of breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Property	Breeding Habitat Present Within the Subject Property	Anticipated Impact	Further Impact Assessment Required?
Cercartetus nanus (Eastern Pygmy-possum)	V	-	Low.	This species is found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred. Feeds largely on nectar and pollen collected from banksias, eucalypts and bottlebrushes, as well as insects. Suboptimal foraging habitat present within the Subject Property given the level of disturbance.	Shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Ringtail Possum dreys or thickets of vegetation, although hollows are preferred. One (1) hollow-bearing tree to be retained occurs within the Subject Property.	Minimal impact to suboptimal foraging habitat. A suite of eucalypts will remain within the Subject Property and adjoining areas. No anticipated net loss of breeding habitat.	No.
Chalinolobus dwyeri (Large-eared Pied Bat)	V	V	Low.	This species forages for small, flying insects in well-timbered areas. The open native vegetation within the Subject Property is unlikely to provide suitable foraging habitat for this species.	Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (*Petrochelidon ariel*). No such habitat was identified within the Subject Property.	Minimal impact to suboptimal foraging habitat given the mobility of this species. Potential foraging habitat will remain within the Subject Property and adjoining areas. No anticipated net loss of breeding habitat	No.
Dasyornis brachypterus (Eastern Bristlebird)	E	E	Very low.	This species requires dense, low vegetation including heath and open woodland with a heathy understorey. Potential foraging habitat is present within the Subject Property.	Nests are elliptical domes constructed on or near the ground amongst dense vegetation. No dense vegetation was present within the Subject Property.	Minimal impact to suboptimal foraging habitat given the mobility of this species. No anticipated net loss of breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Dasyurus maculatus (Spotted-tailed Quoll)	V	E	Very low.	Consumes a variety of prey, including gliders, possums, small wallabies, rats, birds, bandicoots, rabbits, reptiles and insects. Also eats carrion and takes domestic fowl. Potential prey items may exist within the Subject Property.	This species uses hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. One (1) hollow-bearing tree to be retained occurs within the Subject Property.	Negligible, no anticipated net loss of foraging or breeding habitat.	No.

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Erythrotriorchis radiatus (Red Goshawk)	CE	V	Low.	Inhabit open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water, and are often found in riparian habitats along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus Forest of coastal rivers. Potential prey items may occur within the Subject Land.	Build stick nests in a tall tree (>20 m tall) within 1 km of a watercourse or wetland. No nests were identified within the Subject Land during the site survey.	Negligible. No anticipated impact to foraging habitat given the mobility of the species and the relatively small Subject Land. No impact to breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Esacus magnirostris (Beach Stone-curlew)	CE	-	Very low.	This species forages in the intertidal zone of beaches and estuaries, on islands, flats, banks and spits of sand, mud, gravel or rock, and among mangroves. Although the Subject Property borders on Pittwater Harbour, the proposed development does not encroach on the intertidal zone of the beach. No such foraging habitat exists within the Subject Property.	This species breeds above the littoral zone; at the backs of beaches; or on sandbanks and islands. Breeding occurs amongst low vegetation of grass, scattered shrubs or low trees. Breeding may also occur amongst open mangroves. Such habitat does not occur within the Subject Property.	No foraging or breeding habitat was present within the Subject Property. Site survey conducted in March 2023 did not detect this species.	No.
Falco hypoleucos (Grey Falcon)	V	V	Low.	Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey. Preys primarily on birds, especially parrots and pigeons, using high-speed chases and stoops; reptiles and mammals are also taken. Potential prey items may occur within the Subject Land.	Utilises old nests of other birds of prey and ravens, usually high in a living eucalypt near water or a watercourse. No nests were identified within the Subject Land during the site survey.	Negligible. No anticipated impact to foraging habitat given the mobility of the species. No impact to breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.

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Falsistrellus tasmaniensis (Eastern False Pipistrelle)	V	-	Low.	Prefers moist habitats, with trees taller than 20 m. Hunts beetles, moths, weevils and other flying insects above or just below the tree canopy. Such habitat is not present within the Subject Site.	Generally, roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings. One (1) hollow-bearing tree to be retained occurs within the Subject Property.	Negligible. Minimal impact to foraging habitat given the mobility of the species and no impact breeding habitat.	No.
Glossopsitta pusilla (Little Lorikeet)	V	-	Low.	This species forages primarily in the canopy of open Eucalyptus Forest and woodland, yet also finds food in *Angophora*, *Melaleuca,* and other tree species. Mostly feeds on nectar and pollen of flowers in the open canopy of woodland trees. *Eucalyptus* species exist within the Subject Property.	Nests in proximity to feeding areas if possible, most typically selecting hollows in the limb or trunk of smooth-barked Eucalypts. Entrance is small (3cm) and usually high above the ground (2–15m). One (1) suitably sized hollow is present within the Subject Property, this tree is proposed to be retained.	Minimal impact to potential foraging habitat given the mobility of this species. A suite of eucalypts will remain within the Subject Property and adjoining areas. No anticipated net loss of breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Grantiella picta (Painted Honeyeater)	V	V	Low.	A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus Amyema. No mistletoes are present within the Subject Land at the time of the site assessment.	Nest from spring to autumn in a small, delicate nest hanging within the outer canopy of drooping eucalypts, she-oak, paperbark, or mistletoe branches. No nests were identified within the Subject Land during the site survey.	No anticipated loss of foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Haematopus fuliginosus (Sooty Oystercatcher)	V	-	Low.	This species forages on exposed rock or coral at low tide for foods such as limpets and mussels. Although the Subject Property borders on Pittwater Harbour, the proposed development does not encroach on the exposed rock below the cliff face. No such foraging habitat exists within the Subject Property.	Breeds almost exclusively on offshore islands, and occasionally on isolated promontories.	Negligible, no anticipated net loss of foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.

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Haliaeetus leucogaster (White-bellied Sea-Eagle)	V	-	Low.	Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries, and mangroves. Feed mainly on fish and freshwater turtles, but also waterbirds, reptiles, mammals and carrion. Potential prey items may occur within the Subject Property.	Breeding habitat consists of mature tall open forest, open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nests are large structures built from sticks and lined with leaves or grass. No nests were identified during the site assessment.	Minimal impact to potential foraging habitat given the mobility of the species. No loss of breeding habitat is anticipated. Site survey conducted in March 2023 did not detect this species.	No.
Heleioporus australiacus (Giant Burrowing Frog)	V	V	Low.	This species is found in heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based. It mainly eats invertebrates including ants, beetles, cockroaches, spiders, centipedes and scorpions. The Subject Property provides suboptimal foraging habitat for this species, as it is located in a disturbed landscape.	Not present, the species breeds in soaks and second order streams. No such habitat was present within the Subject property.	Minimal impact to suboptimal foraging habitat given the level of disturbance within the Subject Property. No anticipated net loss of breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Hieraaetus morphnoides (Little Eagle)	V	-	Low.	This species occupies open eucalypt forest, woodland or open woodland. Preys on birds, reptiles and mammals, occasionally adding large insects and carrion. Potential prey items may occur within the Subject Property.	Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter. No nests were identified during the site assessment.	Minimal impact to suboptimal foraging habitat given the mobility of this species. No anticipated net loss of breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.

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Hirundapus caudacutus (White-throated Needletail)	-	V	Low.	This species is mostly aerial, from heights of less than 1m to greater than 1000m above the ground. Feeds on a wide variety of insects. Prey items may occur within the Subject Property.	This species does not breed in Australia.	Minimal impact to potential foraging habitat given the mobility of this species. No anticipated net loss of breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Hoplocephalus bungaroides (Broad-headed Snake)	E	V	Low.	Moves from the sandstone rocks to shelters in crevieces or hollows in large trees within 500m of escarpments in summer. Feeds mostly on geckos and small skinks; will also eat frogs and small mammals occasionally. Caves and cliff crevices are not present within the Subject Land.	Shelters in rock crevices and under flat sandstone rocks on exposed cliff edges during autumn, winter and spring. Caves and cliff crevices not are present within the Subject Land.	Negligible, no anticipated net loss of foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Isoodon obesulus obesulus (Southern Brown Bandicoot)	E	E	Very low.	Typically found in heath or open forest with a heathy understorey on sandy or friable soils. Potential sub-optimal foraging habitat occurs within the Subject Property.	Nests may be located under Grass trees *Xanthorrhoea* spp., blackberry bushes, and other shrubs, or in rabbit burrows. Such habitat does not occur within the Subject Property.	Minimal anticipated loss of foraging given the sub-optimal habitat. No net loss of breeding habitat.	No.

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Ixobrychus flavicollis (Black Bittern)	V	-	Very low.	Inhabits both terrestrial and estuarine wetlands, generally in areas of permanent water and dense vegetation. Where permanent water is present, the species may occur in flooded grassland, forest, woodland, rainforest and mangroves. Feeds on frogs, reptiles, fish and invertebrates, including snails, dragonflies, shrimps. and crayfish, with most feeding done at dusk and at night. No such habitat was identified within the Subject Property.	Nests, built in spring, are located on a branch overhanging water and consist of a bed of sticks and reeds on a base of larger sticks. No nests were identified within the Subject Property.	Negligible, no anticipated net loss of foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Lathamus discolor (Swift Parrot)	E	CE	Low.	On the mainland, this species occurs in areas where eucalypts are flowering profusely or where there are abundant lerp infestations (from sap-sucking bugs). Favoured feed trees include winter flowering species such as *Eucalyptus robusta, Corymbia maculata, C. gummifera, E. tereticornis, E. sideroxylon, E. pilularis,* and *E. albens.* Potential feed trees were present within the Subject Property.	This species breeds in Tasmania. The Subject Property does not occur within the important areas map for this species.	Minimal impact to potential foraging habitat given the mobility of this species. *Corymbia maculata* will be retained within the Subject Property and adjoining areas. No anticipated net loss of breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Litoria aurea (Green and Golden Bell Frog)	E	V	Very low.	Species forages on insects and inhabits marshes, dams and stream sides, particularly those containing bullrushes (*Typha* spp.) or spikerushes (*Eleocharis* spp.) No such habitat was identified within the Subject Property.	The species breeds within aquatic habitats. No such habitat was identified within the Subject Property.	Negligible, no anticipated net loss of foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.

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Lophoictinia isura (Square-tailed Kite)	V	-	Low.	Found in a variety of timbered habitats including dry woodlands and open forests. The species is a specialist hunter of passerines, especially honeyeaters, and most particularly nestlings, and insects in the tree canopy. Prey species may occur within the Subject Property.	Nest sites generally located along or near watercourses, in a fork or on large horizontal limbs. Although tall trees were present within the Subject Property, it provides suboptimal breeding habitat for this species, as it is located in a highly disturbed landscape. No stick nests were present within the Subject Property.	Minimal impact to foraging habitat given the mobility of the species. No loss of breeding habitat is anticipated. Site survey conducted in March 2023 did not detect this species.	No.
Melithreptus gularis gularis (Black-chinned Honeyeater - eastern subspecies)	V		Very low.	This species typically occurs in large woodland patches, as birds forage over large home ranges of at least 5 hectares, occupying dry open forests or woodlands. Such habitat does not occur within the Subject Property.	This species typically occurs in large woodland patches, as birds forage over large home ranges of at least 5 hectares, occupying dry open forests or woodlands. Such habitat does not occur within the Subject Property.	Negligible, no anticipated net loss of foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Meridolum maryae (Maroubra Woodland Snail)	E	-	Low.	The species is found in the leaf litter of coastal vegetation communities, most commonly in heathland on foredunes also from areas of podsolised dunes/sand plains that support taller heath communities including Eastern Suburbs Banksia Scrub. Such habitat does not occur within the Subject Land.	The species is found in the leaf litter of coastal vegetation communities, most commonly in heathland on foredunes also from areas of podsolised dunes/sand plains that support taller heath communities including Eastern Suburbs Banksia Scrub. Such habitat does not occur within the Subject Land.	No anticipated net loss of foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.

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Micronomus norfolkensis (Eastern Coastal Free-tailed Bat)	V	-	Low.	Species is insectivorous and occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Potential prey items may exist within the Subject Property.	Roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges, and sometimes buildings during the day. One (1) hollow-bearing tree to be retained occurs within the Subject Property.	Minimal impact to foraging habitat given the mobility of the species. No anticipated net loss of breeding habitat.	No.
Miniopterus australis (Little Bent-winged Bat)	V	-	Low.	Found in moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub. Generally found in well-timbered areas. At night, this species forages for small insects beneath the canopy of densely vegetated habitats. Potential prey items may exist within the Subject Property.	Roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings during the day. Only five (5) nursery sites/maternity colonies are known in Australia. They require large colonies roosting together to provide the high temperatures needed to rear their young. One (1) hollow-bearing tree to be retained occurs within the Subject Property.	Minimal impact to foraging habitat given the mobility of the species. No anticipated net loss of breeding habitat.	No.
Miniopterus orianae oceanensis (Large Bent-winged Bat)	V	-	Low.	Hunt in forested areas, catching moths and other flying insects above the tree tops. Potential prey items may exist within the Subject Property.	Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. Appropriate roosting habitat is present within the Subject Site in the form of one (1) hollow-bearing tree to be retained.	Minimal impact to foraging habitat given the mobility of the species. No anticipated net loss of breeding habitat.	No.

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Mixophyes balbus (Stuttering Frog)	E	V	Low.	Found in rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range. Feed on insects and smaller frogs. Sub-optimal foraging habitat is present within the Subject Land.	Outside the breeding season adults live in deep leaf litter and thick understorey vegetation on the forest floor. Breed in streams during summer after heavy rain. Such breeding habitat does not occur within the Subject Land.	Minimal anticipated loss of foraging given the sub-optimal habitat. No net loss of breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Myotis macropus (Southern Myotis)	V	-	Low.	This species forages over streams and pools catching insects and small fish by raking their feet across the water surface. The Subject Property is adjacent to Pittwater Harbour which may be used as foraging habitat; however, the proposed development does not encroach on this area.	Generally, roost in groups of 10-15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges, and in dense foliage. One (1) hollow-bearing tree to be retained occurs within the Subject Property.	Negligible, no anticipated impact to foraging or breeding habitat.	No.
Neophema pulchella (Turquoise Parrot)	V	-	Low.	Species lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. It forges on seeds or grasses and herbaceous plants. The Subject Property provides suboptimal foraging habitat for this species, as it is located in a disturbed landscape.	Nests in tree hollows, logs or posts. One (1) hollow-bearing tree to be retained occurs within the Subject Property.	A small area of suboptimal foraging habitat will be removed to accommodate the proposed development. No anticipated loss of breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.

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Ninox connivens (Barking Owl)	V	-	Low.	Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas. Preferentially hunts small arboreal mammals such as Squirrel Gliders and Common Ringtail Possums, but also can rely on birds, invertebrates, and mammals such as rodents and rabbits. Can catch bats and moths on the wing. The Subject Property provides suboptimal foraging habitat for this species, as it is located in a disturbed landscape.	This species nests in large hollows. One (1) hollow-bearing tree to be retained occurs within the Subject Property, however this is not the appropriate size for this species.	Minimal impact to suboptimal foraging habitat given the mobility of the species. No loss of breeding habitat is anticipated. Site survey conducted in March 2023 did not detect this species.	No.
Ninox strenua (Powerful Owl)	V	-	Low.	The species breeds and hunts in open or closed sclerophyll forest or woodlands and hunts small mammals. It roosts by day in dense vegetation comprising species such as *Syncarpia glomulifera*, *Allocasuarina littoralis*, *Acacia melanoxylon*, *Angophora floribunda*, *Exocarpus cupressiformis* and a number of eucalypt species. The Subject Property provides suboptimal foraging habitat for this species, as it is located in a disturbed landscape.	This species favours hollows >20cm in diameter. One (1) hollow-bearing tree to be retained occurs within the Subject Property, however this is not the appropriate size for this species.	Minimal impact to suboptimal foraging habitat given the mobility of the species. No loss of breeding habitat is anticipated. Site survey conducted in March 2023 did not detect this species.	No.

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Notamacropus parma (Parma Wallaby)	V	V	Low.	Typically feed at night on grasses and herbs in more open eucalypt forest and the edges of nearby grassy areas. No appropriate foraging habitat is present within the Subject Land.	Preferred habitat is moist eucalypt forest with thick, shrubby understorey, often with nearby grassy areas, rainforest margins and occasionally drier eucalypt forest. During the day they shelter in dense cover. Such breeding habitat does not occur within the Subject Land.	Negligible, no anticipated impact to foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Numenius madagascariensis (Eastern Curlew)	-	CE	Very low.	This species is mainly found in intertidal mudflats and sometimes saltmarsh of sheltered coasts. It forages in or at the edge of shallow water. Although the Subject Property is adjacent to Pittwater Harbour, the proposed development does not encroach on the open water.	This species does not breed in Australia.	Negligible, no anticipated impact to foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Pandion cristatus (Eastern Osprey)	V	-	Low.	Favour coastal areas, especially the mouths of large rivers, lagoons, and lakes. Feed on fish over clear, open water. Although the Subject Property is adjacent to Pittwater Harbour, the proposed development does not encroach on the open water.	Nests are made high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea. No nests were identified within the Subject Property.	Negligible, no anticipated net loss of foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Petauroides volans (Greater Glider)	-	V	Very low.	This species is typically found in taller, montane, moist eucalypt forests within relatively old trees and abundant hollows. Suboptimal potential foraging habitat is present within the Subject Site.	This species is typically found in taller, montane, moist eucalypt forests within relatively old trees and abundant hollows. One (1) hollow-bearing tree to be retained occurs within the Subject Property.	Minimal impact to suboptimal foraging habitat given the mobility of the species. No anticipated loss to breeding habitat.	No.

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Petaurus australis australis (Yellow-bellied Glider)	V	V	Low.	Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences include mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south. Feed primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein. Suboptimal potential foraging habitat is present within the Subject Site.	Den, often in family groups, in hollows of large trees. One (1) hollow-bearing tree to be retained occurs within the Subject Property.	Minimal impact to suboptimal foraging habitat given the mobility of the species. No anticipated loss to breeding habitat.	No.
Petaurus norfolcensis (Squirrel Glider)	V	-	Very low.	The species Inhabits Blackbutt-Bloodwood Forest with heath understorey in coastal areas. The species diet consists of Acacia gum, eucalypt sap, nectar, honeydew and manna, with invertebrates and pollen providing protein. Suboptimal potential foraging habitat is present within the Subject Site.	The species requires abundant tree hollows for refuge and nest sites. One (1) hollow-bearing tree to be retained occurs within the Subject Property.	Minimal impact to suboptimal foraging habitat given the mobility of the species. No anticipated loss to breeding habitat.	No.
Petrogale penicillate (Brush-tailed Rock-wallaby)	E	V	Low.	Browse on vegetation in and adjacent to rocky areas eating grasses and forbs as well as the foliage and fruits of shrubs and trees. No appropriate foraging habitat is present within the Subject Site.	Occupy rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north. No appropriate breeding habitat was identified within the Subject Site.	No impact to foraging or breeding habitat is anticipated. Site survey conducted in March 2023 did not detect this species.	No.

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Property	Breeding Habitat Present Within the Subject Property	Anticipated Impact	Further Impact Assessment Required?
Petroica boodang (Scarlet Robin)	V	-	Very low.	The species live in dry eucalypt forests and woodlands, habitat usually contains abundant logs and fallen timber. Birds forage from low perches, fence-posts or on the ground, from where they pounce on small insects and other invertebrates which are taken from the ground. Sub-optimal foraging habitat exists within the Subject Property.	This species' nest is an open cup made of plant fibres and cobwebs and is built in the fork of tree usually more than 2 metres above the ground. No nests were identified within the Subject Property.	Minimal impact to suboptimal foraging habitat given the mobility of the species. No loss of breeding habitat is anticipated. Site survey conducted in March 2023 did not detect this species.	No.
Phascolarctos cinereus – endangered population (Koala in the Pittwater Local Government Area)	EP	-	Very low.	This species feeds on the foliage of more than 70 eucalypt species and 30 non-eucalypt species. Although potential feed trees are present within the Subject Property, it provides suboptimal foraging habitat for this species. The highly urbanised and fragmented nature of the Subject Property suggests the potential for Koala presence is extremely low.	No potential breeding habitat exists within the Subject Property. The urbanised and fragmented nature of the Subject Property makes the potential for Koala presence extremely low.	Minimal impact to suboptimal foraging habitat given the mobility of the species. No anticipated loss to breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Potorous tridactylus (Long-nosed Potoroo)	V	V	Low.	Inhabits coastal heaths and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an essential part of habitat, and may consist of grass-trees, sedges, ferns or heath, or of low shrubs of tea-trees or melaleucas. No appropriate foraging trees are present within the Subject Land.	Inhabits coastal heaths and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an essential part of habitat, and may consist of grass-trees, sedges, ferns or heath, or of low shrubs of tea-trees or melaleucas. The Subject Land provides suboptimal habitat.	Minimal impact to potential suboptimal foraging and breeding habitat.	No.
Pseudomys novaehollandiae (New Holland Mouse)	-	V	Very low.	Species is known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes. Such habitat does not occur within the Subject Property.	This species breeds in burrows. No such habitat was identified within the Subject Property.	Negligible, no anticipated net loss of foraging or breeding habitat.	No.

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Property	Breeding Habitat Present Within the Subject Property	Anticipated Impact	Further Impact Assessment Required?
Pseudophryne australis (Red-crowned Toadlet)	V	-	Very low.	Occurs in open forests, mostly on Hawkesbury and Narrabeen Sandstones. Inhabits periodically wet drainage lines below sandstone ridges that often have shale lenses or cappings. No such habitat was identified within the Subject Property.	Breeding congregations occur in dense vegetation and debris beside ephemeral creeks and gutters. No such habitat was identified within the Subject Property.	Negligible, no anticipated net loss of foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Pteropus poliocephalus (Grey-headed Flying-fox)	V	V	Moderate.	Feed on the nectar and pollen of native trees, in particular *Eucalyptus*, *Melaleuca*, and *Banksia*, and fruits of rainforest trees and vines. Foraging habitat present within the Subject Property	Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. No known roosting camps occur within or in close proximity to the Subject Site.	Minimal impact to foraging habitat given the mobility of the species. No loss of breeding habitat is anticipated. Site survey conducted in March 2023 did not detect this species.	No.
Ptilinopus regina (Rose-crowned Fruit-Dove)	V	-	Low.	Rose-crowned Fruit-doves occur mainly in sub-tropical and dry rainforest and occasionally in moist eucalypt forest and swamp forest, where fruit is plentiful. Vegetation within the Subject Property is considered sub optimal for foraging, as it is sparse and highly modified with limited fruit available.	The species nest in rainforests with dense growth vines. The nest is a frail loosely woven cup of twigs and tendrils. No nests were detected within the Subject Property.	Minimal impact to suboptimal foraging habitat given the mobility of the species. No anticipated loss to breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.
Ptilinopus superbus (Superb Fruit-dove)	V	-	Low.	Inhabits rainforest and similar closed forests where it forages high in the canopy, eating the fruits of many tree species such as figs and palms. It may also forage in eucalypt or acacia woodland where there are fruit-bearing trees. Potential feed trees occur within the Subject Property.	The nest is a structure of fine interlocked forked twigs, giving a stronger structure than its flimsy appearance would suggest, and is usually 5-30m up in rainforest and rainforest edge tree and shrub species. No such habitat exists within the Subject Property and no nests were identified.	Minimal impact to foraging habitat given the mobility of the species. No loss of breeding habitat is anticipated. Site survey conducted in March 2023 did not detect this species.	No.

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Property	Breeding Habitat Present Within the Subject Property	Anticipated Impact	Further Impact Assessment Required?
Saccolaimus flaviventris (Yellow-bellied Sheathtail-bat)	V	-	Low.	This species forages for small, flying insects. The species flies high and fast over the forest canopy, but lower in more open country. Foraging habitat is present within the Subject Property	Species roosts in trees hollows and dilapidated buildings. One (1) hollow-bearing tree to be retained occurs within the Subject Property.	Minimal impact to foraging habitat given the mobility of the species. No loss of breeding habitat is anticipated.	No.
Scoteanax rueppellii (Greater Broad-nose bat)	V	-	Low.	This species forages in most habitats across its very wide range, with and without trees. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country. Prey items may occur within the Subject Property.	This species requires tree hollows or buildings for roosting/ breeding. One (1) hollow-bearing tree to be retained occurs within the Subject Property.	Minimal impact to foraging habitat given the mobility of the species. No loss of breeding habitat is anticipated.	No.
Tyto novaehollandiae Masked Owl)	V		Low.	Lives in dry eucalypt forests and woodlands from sea level to 1100m. The species often hunts along the edges of forests, including roadsides. Its diet consists of tree-dwelling and ground mammals, especially rats. Prey items may occur within the Subject Property.	This species nests in large hollows. One (1) hollow-bearing tree to be retained occurs within the Subject Property.	Minimal impact to foraging habitat given the mobility of the species. No loss of breeding habitat is anticipated. Site survey conducted in March 2023 did not detect this species.	No.
Varanus rosenbergi (Rosenburg's Goanna)	V	-	Low.	Species is found in heath, open forest and woodland and associated with termites. The species feeds on carrion, birds, eggs, reptiles and small mammals. Potential prey items may occur within the Subject Property. However, the Subject Property is not conducive with the species habitat requirements, the Subject Property lacks termite mounds, bird nests and sheltering structures. The species is unlikely occur.	Not present. The species lays up to 14 eggs in a termite mound; the hatchlings dig themselves out of the mounds. No such habitat exists within the Subject Property.	Negligible, no anticipated impact to foraging or breeding habitat. Site survey conducted in March 2023 did not detect this species.	No.

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Property	Breeding Habitat Present Within the Subject Property	Anticipated Impact	Further Impact Assessment Required?
Vespadelus troughtoni (Eastern Cave Bat)	V	-	Very low.	Little is understood of its feeding or breeding requirements or behaviour. Species roosts in caves that is usually found in dry open forest and woodland, near cliffs or rocky overhangs; has been recorded roosting in disused mine workings, occasionally in colonies of up to 500 individuals. Some foraging habitat may occur within the Subject Property.	Not present, the species roosts in caves. No such habitat exists within the Subject property.	Minimal impact to foraging habitat given the mobility of the species. No loss of breeding habitat is anticipated.	No.

5. Impact Summary

5.2 Vegetation

Approximately 0.08ha of vegetation removal including approximately 0.05ha of native vegetation mapped as Pittwater Spotted Gum (S_WSF11, OEH 2016b) and approximately 0.03ha of vegetation mapped as Urban Exotic/ Native is proposed to be impacted in order to accommodate the proposed development. This will involve the removal seventeen (17) trees and shrubs are proposed for removal to facility the development, including six (6) local native individuals that will require removal to facilitate the construction of the dwelling extensions (Arcadia 2023 and Martin Peacock Tree Care 2022). No hollow-bearing trees will be removed.

5.2.1 Local occurrence of Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion

Local occurrence is defined as the ecological community that occurs within the study area (OEH 2018). However, the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of that ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated (OEH 2018).

Vegetation within the Subject Property and immediate surrounds was dominated by canopy species that conform to the BC Act 2016 listed EEC Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion. A combination of ground-truthing, vegetation mapping, soil mapping and aerial imagery was used to conclude that the remnant trees in close proximity to the Subject Property are likely to conform to the Pittwater and Wagstaffe Spotted Gum Forest EEC.

It was concluded that the local occurrence of Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion was likely to be greater than 175ha, considering connectivity most likely extended well beyond the local occurrence mapped in **Figure 7**. Most of the local occurrence was situated amongst a residential setting and most likely highly degraded. The removal of approximately 0.05ha of this EEC within the Subject Property will therefore impact on a maximum of 0.03% of the local occurrence.

A Test of Significance (5-part test) was undertaken in accordance with Section 7.3 of the BC Act to assess potential impacts from the proposed development on Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion (**Appendix D**). It is not expected that the removal of 0.05ha will have an impact on the persistence of Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion EEC within the wider locality.

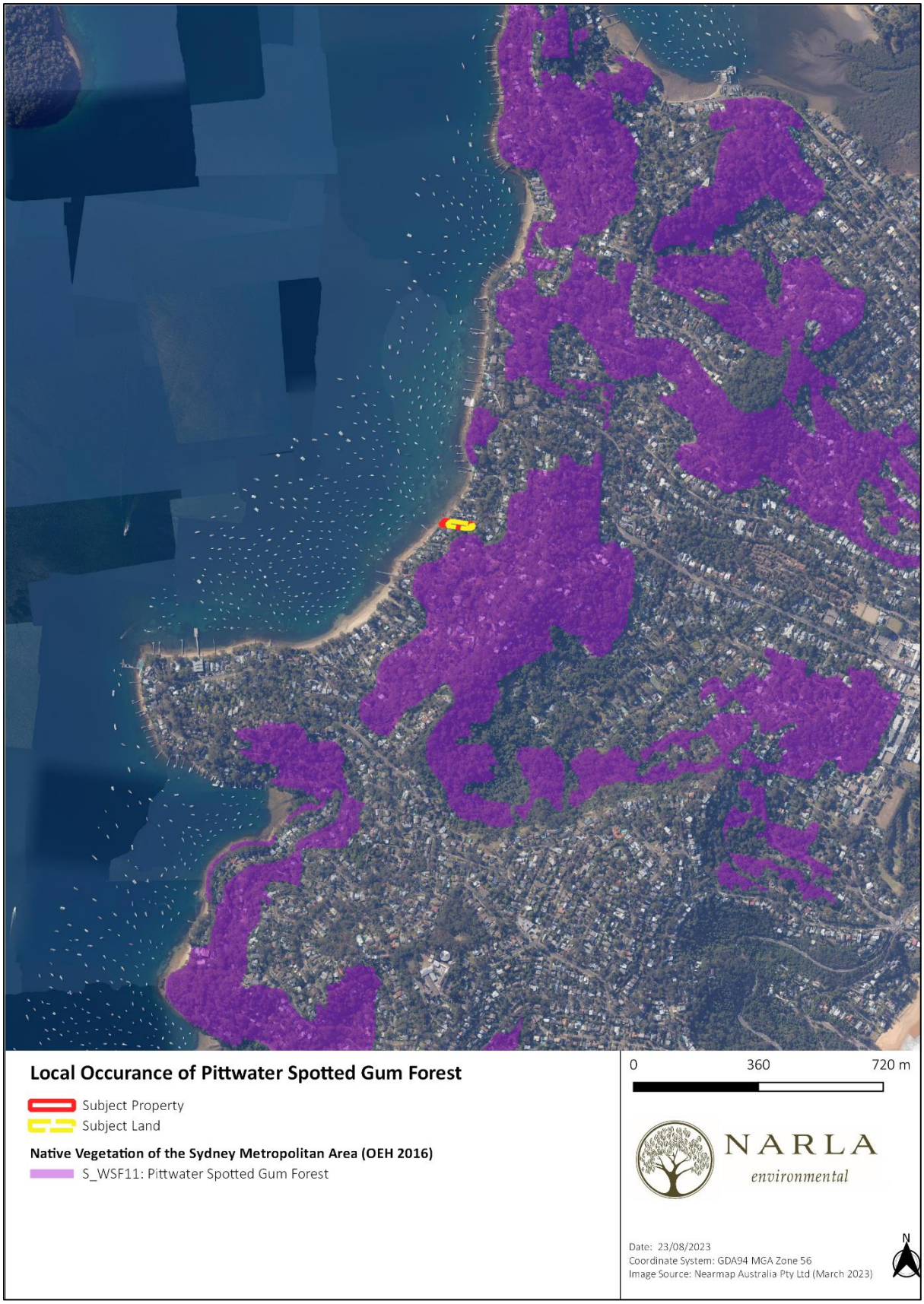

Figure 7. Local occurrence of Pittwater Spotted Gum Forest.

6. Recommendations

6.2 Impact Mitigation and Minimisation Recommendations

This section of the report details recommended efforts to avoid and minimise impacts on biodiversity values associated with the proposed development. Measures to be implemented before, during, and post construction are detailed in **Table 10.**

Table 10. Measures to be implemented before, during and after construction to avoid and minimise the impacts of the proposed development

Action	Outcome	Timing	Responsibility
Assigning a Project Ecologist	Prior to the construction phase of the development, the proponent may be required to commission the services of a qualified and experienced Ecologist with a minimum tertiary degree in Science, Conservation, Biology, Ecology, Natural Resource Management, Environmental Science or Environmental Management. The Ecologist must be licensed with a current Department of Primary Industries Animal Research Authority permit and New South Wales Scientific License issued under the BC Act. If required by Council, the Ecologist will be commissioned to: ▪ Undertake an extensive pre-clearing survey; delineating habitat-bearing trees and shrubs to be retained/removed; and ▪ Supervise the clearance of and identified habitat trees and shrubs in order to capture, treat and/or relocate any displaced fauna.	Pre-construction phase	Proponent
Vegetation Management Plan (VMP)	A Vegetation Management Plan (VMP) may be required pursuant to the Pittwater DCP that details the ongoing management of the site, specifically wildlife corridor maintenance, habitat management, weed management, and native flora plantings. This includes the replanting of tree species representative of the Pittwater Spotted Gum Forest EEC.	Pre-construction phase	Proponent Ecologist

Action	Outcome	Timing	Responsibility
Tree Protections	Australian Standard 4970 (2009) Protection of Trees on Development Sites (AS-4970) outlines that a Tree Protection Zone (TPZ) is the principal means of protecting trees on construction sites. It is an area isolated from construction disturbance so that the tree remains viable. Ideally, works should be avoided within the TPZ. A Minor Encroachment is less than 10% of the TPZ and is outside the structural root zone (SRZ). A Minor Encroachment is considered acceptable by AS-4970 when it is compensated for elsewhere and contiguous within the TPZ. A Major Encroachment is greater than 10% of the TPZ or inside the SRZ. Major Encroachments generally require root investigations undertaken by non-destructive methods or the use of tree sensitive construction methods.	Pre-construction phase	Proponent Arborist
Erosion and Sedimentation	Appropriate erosion and sediment control must be erected and maintained at all times during construction in order to avoid the potential of incurring indirect impacts on biodiversity values. As a minimum, such measures should comply with the relevant industry guidelines such as 'the Blue Book' (Landcom 2004).	Construction phase	Proponent Construction Contractor
Landscaping	Where possible, landscaping efforts within the Subject Property should incorporate locally indigenous species representative of Pittwater Spotted Gum Forest.	Construction phase	Proponent
Storage and Stockpiling (Soil and Materials)	Allocate all storage, stockpile, and laydown sites away from any vegetation that is planned to be retained. Avoid importing any soil from outside the site as this can introduce weeds and pathogens to the site in order to avoid the potential of incurring indirect impacts on biodiversity values.	Construction phase	Construction Contractors
Removal of Priority Weeds	Prior to construction all Priority weeds are to be removed from the Subject Site. Three (3) Priority Weed for the South East region was identified within the broader Subject Property: ▪ *Anredera cordifolia* (Madeira Vine) ▪ *Cestrum parqui* (Green cestrum) ▪ *Dolichandra unguis-cati* (Cat's claw creeper)	Pre-construction phase	Proponent
Stormwater	The proposed development is unlikely to result in significant changes to local storm-water runoff so it is expected there will be no exacerbated impact on native species of flora and fauna.	Post-construction phase	Proponent Construction Architect

7. Conclusion

The proposed development at 60 Hudson Parade, Clareville, involves alterations and additions to an existing dwelling, as well as the construction of a new pavilion connected to the dwelling thru a gallery, comprising bedrooms, bathrooms and a living space, a new play room, storage and garage, as well as a new pool, associated site works and landscaping. It is expected that approximately 0.05ha of native Pittwater Spotted Gum vegetation will be impacted as a result of the proposed development. A further 0.03ha of vegetation mapped as Urban Exotic/ Native will be removed. A total of seventeen (17) trees and shrubs are proposed for removal to facility the development, including six (6) local native individuals (Arcadia 2023 and Martin Peacock Tree Care 2022). No hollow-bearing trees will be removed.

In total the proposed development will impact upon approximately 0.05ha of Pittwater Spotted Gum. This comprises 0.03% of the locally occurring BC Act listed EEC, Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion. The condition of the EEC being impacted is low and a number of impact mitigation and minimisation measures, as outlined in this report, are to be implemented to reduce impacts to native vegetation and fauna where possible. A VMP may be required by Council to ensure environmentally sensitive management of the EEC, as well as detail ongoing habitat management, weed management and revegetation across the Subject Property.

It is not anticipated that any threatened flora or fauna will be significantly impacted by the proposed development as long as the impact mitigation measures outlined in this report, are to implemented to reduce impacts to native vegetation and fauna where possible.

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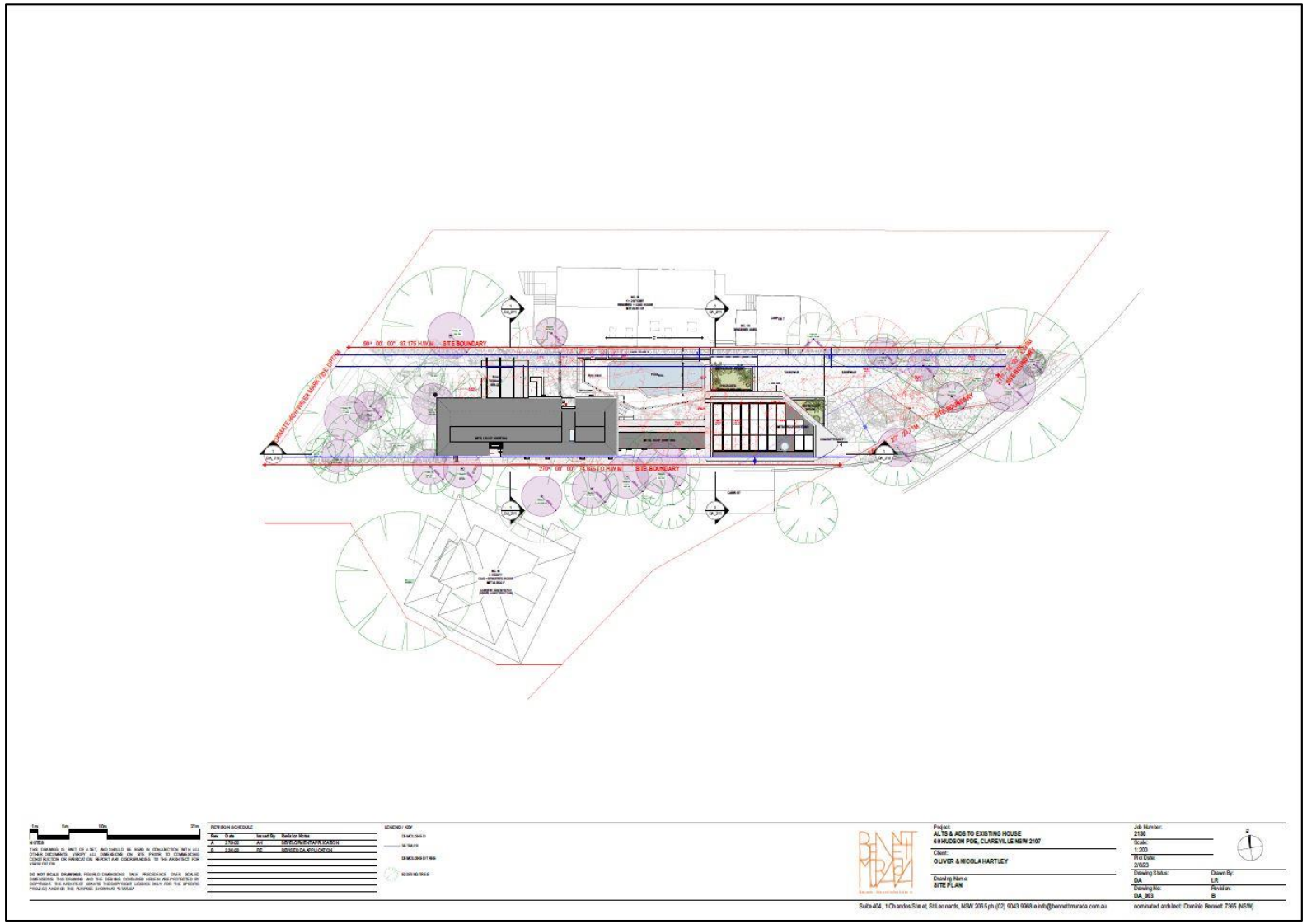
9. Appendices

Appendix A. Upper Floor Plans, 60 Hudson Parade, Clareville (Bennett Murada Architects 2023)
Appendix B. Flora species identified within the Subject Property
Appendix C. Fauna species identified within and surrounding the Subject Property
Appendix D. Biodiversity Conservation Act 2016 Test of Significance (5-part Test)

Appendix A. Upper Floor Plans, 60 Hudson Parade, Clareville (Bennett Murada Architects 2023)



Appendix B. Flora species identified within the Subject Property

Scientific Name	Canopy	Mid-Storey	Groundcover
Acacia fimbriata		x	
Acmena smithii		x	
*Aechmea fasciata**			x
*Agapanthus praecox **			x
Allocasuarina torulosa	x		
Aloe sp.*			x
*Anredera cordifolia***			x
*Atractocarpus fitzalanii **		x	
Banksia integrifolia subsp. *integrifolia*		x	
*Bauhinia forficata**		x	
*Beaumontia grandiflora **		x	
*Bidens pilosa**			x
*Bouteloua dactyloides**			
Brachychiton acerifolius	x		
*Brugmansia sp**		x	
*Bryophyllum x houghtonii**			x
Callistemon salignus		x	
*Camellia sasanqua**		x	
*Canna indica**			x
Cayratia clematidea			x
*Celtis sinensis**		x	
*Cestrum parqui***		x	
*Chlorophytum comosum**			x
Commelina cyanea			x
*Conyza bonariensis**			x
*Coreopsis lanceolata**			x
*Corymbia citriodora**		x	
Corymbia maculata	x		
*Crassula ovata**		x	
*Ctenanthe lubbersiana**			x
*Cyperus involucratus**			x
Cupressus sp.*	x		
Dianella caerulea			x
Dichondra repens			x
*Digitaria sanguinalis***			x
*Dolichandra unguis-cati**			x
*Dracaena sp.**		x	
*Ehrharta erecta**			
Glochidion ferdinandi	x		
*Epidendrum radicans**			x
*Erigeron karvinskianus**			x

Scientific Name	Canopy	Mid-Storey	Groundcover
Eucalyptus paniculata	x		
*Gazania linearis**			x
Geitonoplesium cymosum			x
Geranium homeanum			x
*Ginkgo biloba**		x	
*Gloriosa superba**			x
Hakea gibbosa		x	
*Hedera helix**			x
*Hibiscus rosa-sinensis**		x	
*Hibiscus syriacus**		x	
*Hypoestes phyllostachya**			x
Imperata cylindrica			x
*Jacaranda mimosifolia**	x		
*Jasminum officinale**			x
*Justicia brandegeeana**			x
*Kalanchoe sp.**			x
Kennedia rubicunda			x
Livistona australis			
Lomandra longifolia			x
Macrozamia communis		x	
Murraya paniculata		x	
*Musa sp.**		x	
*Nandina domestica**		x	
*Nerium oleander**			
*Ochna serrulata**		x	
Oxalis sp			x
*Pelargonium sp.**			
*Pelargonium Zonal**			x
Pittosporum undualatum		x	
Platycerium bifurcatum			
*Plectranthus saccatus**			x
*Plumeria rubra**		x	
*Potentilla indica**			x
Pteris tremula			x
*Rhaphiolepis indica**		x	
*Rumex sagittatus**			x
*Senna pendula**		x	
*Solanum nigrum**			x
*Sonchus oleraceus**			x
*Strelitzia reginae**		x	
*Tradescantia fluminensis**			x

** Denotes exotic species,*

*** Denotes priority weed*

Appendix C. Fauna species identified within and surrounding the Subject Property

Class	Scientific Name	Common Name	Status
Aves	*Cacatua galerita*	Sulphur-crested Cockatoo	Protected
	Dacelo novaeguineae	Laughing Kookaburra	
	Manorina melanocephala	Noisy Miner	
	Trichoglossus moluccanus	Rainbow Lorikeet	

Appendix D. Biodiversity Conservation Act 2016 Test of Significance (5-part Test)

Biodiversity Conservation Act 2016 – Test of Significance (5-part Test) for Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion (PWSGF)		
BC Act Status: Endangered Ecological Community		
(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	Not applicable.	
(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	The proposed development is situated amongst a largely residential setting. It is a highly degraded parcel of land containing an existing dwelling and landscaped vegetation. Few remnant trees characteristic of PWSGF occur. The vegetation within the Subject Property is connected to other larger areas of Pittwater Spotted Gum Forest through remnant canopy trees scattered amongst the residential setting. The proposed development will involve the clearing of 0.05ha of PWSGF. This area accounts for approximately 0.03% of local occurring PWSGF. This is not expected to have a significant impact on the remaining local occurrence, or the ecological community in the wider locality.
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,	The composition of the ecological community within the Subject Property has been largely altered as a result of historical disturbances. As the proposed development will result in the removal of five (5) local native trees (0.05ha) within the Subject Land, amongst an exotic dominated groundlayer, this will not substantially modify the composition of the ecological community within its local occurrence. The majority of the local occurrence of this EEC is highly degraded and situated amongst residential dwellings, and mostly represented in the canopy stratum. It is not expected that the removal of vegetation within the

Biodiversity Conservation Act 2016 – Test of Significance (5-part Test) for Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion (PWSGF)		
BC Act Status: Endangered Ecological Community		
		Subject Property will therefore alter the remaining local occurrence to such an extent that it will be placed at risk of extinction.
(c) in relation to the habitat of a threatened species or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and	The proposed development will result in the removal of 0.05ha of Pittwater PWSGF. This area accounts only for 0.03% of the locally occurring PWSGF.
	(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and	The area of habitat it not likely to become fragmented or isolated from other areas of habitat as a result of the proposed development. The Subject Property is situated in a fragmented landscape with connectivity only provided by remnant canopy trees. The removal of five (5) local native trees within the Subject Property is not expected to increase fragmentation of habitat, considering the small area of impact. Canopy trees remaining within the Subject Property will still be able to provide connectivity to other areas of PWSGF surrounding the Subject Property.
	(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,	The condition of the PWSGF in the Subject Property was highly degraded and situated amongst an urban setting. It is not expected that the removal of vegetation within the Subject Property will impact on the survival of the ecological community in the locality, considering its small area and low quality. The removal of canopy trees in the Subject Property is also not expected to significantly reduce connectivity within the locality.
(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 proposed development is not likely to have an adverse effect on any declared area of outstanding biodiversity value, directly or indirectly.	

Biodiversity Conservation Act 2016 – Test of Significance (5-part Test) for Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion (PWSGF)	
BC Act Status: Endangered Ecological Community	
(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.	The proposed development will result in the following Key Threatening Processes (KTPs) listed under Schedule 4 of the BC Act: ▪ Clearing of native vegetation. ▪ Weed invasion

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