Due Diligence Flora and Fauna Assessment Report

1364-1396 Pacific Highway and 1, 1A, 3 and 3A Kissing Point Road, Turramurra

Report prepared by Narla Environmental Pty Ltd

For Rebel Property Group

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NARLA
environmental

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Glossary

Acronym/ Term	Definition
BAM	Biodiversity Assessment Method
BC Act	New South Wales Biodiversity Conservation Act 2016
BDAR	Biodiversity Development Assessment Report
BGHF	Blue Gum High Forest in the Sydney Basin Bioregion, a Critically Endangered Ecological Community
CEEC	Critically Endangered Ecological Community
DA	Development Application
DAWE	Department of Agriculture, Water and the Environment
DDFFA	Due Diligence Flora and Fauna Assessment
DEC	Department of Environment and Conservation
DEC	Department of Environment and Conservation
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
DPI	Department of Primary Industries
DPIE	Department of Planning, Industry and Environment (now known as 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 Report
ha	Hectares
KDCP	Ku-ring-gai Development Control Plan
KLEP	Ku-ring-gai Local Environmental Plan
km	Kilometre
LGA	Local Government Area
Locality	A 10km x 10km area centred on the Subject Site
m	metres
NSW	New South Wales

Acronym/ Term	Definition
OEH	Office of Environment and Heritage (now known as DPE)
SEPP	State Environmental Planning Policy
Subject Site	Turramurra Village: 1364-1396 Pacific Highway and 1, 1A, 3 and 3A Kissing Point Road, Turramurra (Lot 1/ DP 629520; Lot 2/ DP 16463; Lot 1/ DP 550866; Lot 101/ DP 714988; Lot 1 & Lot 2/ DP 500077; Lot 1/ DP 656233; Lot 2/ DP 502388; Lot 1 & Lot 2/ DP 500761; Lot B/ DP 35272; and Lot A DP 391538)
TEC	Threatened Ecological Community
Threatened species, populations and ecological communities	Species, populations and ecological communities specified in Schedules 1 and 2 of the BC Act 2016
VMP	Vegetation Management Plan

1. Introduction

1.1 Project Background

Narla was engaged by Rebel Property Group ('the proponent') to prepare a Due Diligence Flora and Fauna Assessment (DDFFA) for a planning proposal to amend the Floor Space Ratio and Building Height at Turramurra Village: 1364-1396 Pacific Highway and 1, 1A, 3 and 3A Kissing Point Road, Turramurra (Lot 1/ DP 629520; Lot 2/ DP 16463; Lot 1/ DP 550866; Lot 101/ DP 714988; Lot 1 & Lot 2/ DP 500077; Lot 1/ DP 656233; Lot 2/ DP 502388; Lot 1 & Lot 2/ DP 500761; Lot B/ DP 35272; Lot A DP 391538; individually referred to as the Subject Property and collectively as the Subject Site; **Figure 1**). The Planning Proposal seeks to amend the Ku-ring-gai Local Environmental Plan 2015 (KLEP 2015) to create Turramurra Village which incorporates a mixed-use development outcome for the site. The proposed LEP amendments for the site are as follows:

- Amend the maximum Height of Buildings development standard applicable to the site from 17.5m (approximately 5 storeys) to 34.5m (approximately 9 storeys);
- Amend the maximum Floor Space Ratio (FSR) development standard applicable to the site from 2:1 to 4.2:1; and
- Remove the existing maximum commercial FSR of 1.2:1.

Narla have produced this report in order to assess the ecological constraints associated with the planning proposal and any future development application, particularly in regards to threatened species, populations and ecological communities listed under the Biodiversity Conservation Act 2016 (BC Act) and Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

1.2 Site Description and Location

The Subject Site encompasses approximately 0.84 ha on the corner of the Pacific Highway and Kissing Point Road, Turramurra, situated within the Ku-ring-gai Local Government Area (LGA). The Subject Site incorporates the following uses and buildings:

- 1390-1396 Pacific Highway: contains a two-storey retail/commercial building which forms part of a larger building (1390-1396 Pacific Highway). Along the western edge is Stonex Lane, a pedestrian link, which connects the Pacific Highway and the cul-de-sac to the rear;
- 1380-1388 Pacific Highway: contains Turramurra Plaza which is a two-storey building with an IGA and various speciality retail and food and beverage shops;
- 1364 and 1370-1378 Pacific Highway: contains a single storey building which is comprised of retail shops;
- 1A, 3 and 3A Kissing Point Road: comprises of a car parking area for the commercial, retail and food and beverage uses which front Pacific Highway. The car parking area is partially covered and accessible via Kissing Point Road and Duff Street and is owned by Council; and
- 1 Kissing Point Road: contains a single storey medical centre which has two vehicle access points along Kissing Point Road.

These buildings and carparking areas make up the majority of the Subject Site. Some small garden beds comprising both native and exotic vegetation are dispersed amongst the Subject Site, with the largest stand situated on the southern boundary of Lot 2/ DP 500077 and Lot B/ DP 35272. This stand comprises mature Eucalypt species amongst a native/exotic shrub and groundlayer. The remaining vegetation with the site is predominately exotic gardens within the carpark and medical centre.

Figure 1. Components of the Subject Site.

1.3 Topography, Geology and Soil

The Subject Site is situated amongst an undulating terrain, with an elevation of approximately 178-183m above sea level. The Subject Site is predominately situated on the Glenorie soil landscape, with a small section in the south-eastern corner located on the West Pennant Hills soil landscape.

The Glenorie soil landscape consists of undulating to rolling low hills on Wianamatta Group shales. Local relief is 50–80m and slopes are 5–20%, comprising narrow ridges, hillcrests and valleys. This soil landscape includes extensively cleared tall open-forest (wet sclerophyll forests). Soils are shallow to moderately deep (<100 cm) Red Podzolic Soils on crests; moderately deep (70–150 cm) Red and Brown Podzolic Soils on upper slopes; and deep (>200 cm) Yellow Podzolic Soils and Gleyed Podzolic Soils along drainage lines (Chapman et al. 2009).

The West Pennant Hills soil landscape comprises rolling to steep sideslopes on Wianamatta Group shales and shale colluvium. Local relief is 40–100 m and slopes are >20%. This soil landscape contains partially cleared tall, open-forest (wet sclerophyll forests). Soils are deep (>200 cm) Red and Brown Podzolic on upper and midslopes; Yellow and Brown Podzolic Soils on colluvial benches; and Yellow Podzolic Soils and Gleyed Podzolic Soils in drainage lines and poorly drained areas.

1.4 Hydrology

No mapped or unmapped watercourses were identified within the Subject Site. One (1) unmapped drainage line was located in close proximity to the Subject Site, within Granny Springs Reserve.

1.5 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 within the Subject Property during a part of their lifecycle.	Yes	This ecological 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)	The following threatened entities listed under the BC Act were identified within the Subject Site: ▪ Blue Gum High Forest in the Sydney Basin Bioregion; and ▪ *Syzygium paniculatum* (Magenta Lilly Pilly). In addition, a number of BC Act threatened fauna species have the potential to occur within the Subject Site.	Yes	Any future DA may need to be accompanied by a Flora and Fauna Assessment (FFA) or Biodiversity Development Assessment Report (BDAR) if native vegetation is proposed for removal.
Environment Protection and Biodiversity	The following threatened entities listed under the EPBC Act were identified within the Subject Site:	Yes	Any future DA may need to be accompanied by a Flora and Fauna Assessment (FFA)

Legislation/ Policy	Relevant Ecological Feature on Site	Triggered	Action Required
Conservation Act 1999 (EPBC Act) (Commonwealth)	▪ Blue Gum High Forest of the Sydney Basin Bioregion; and ▪ *Syzygium paniculatum* (Magenta Lilly Pilly). In addition, a number of EPBC Act threatened fauna species have the potential to occur within the Subject Site.		or Biodiversity Development Assessment Report (BDAR) if native vegetation is proposed for removal.
Biosecurity Act 2015 (Bio Act)	One (1) Priority Weed for the Greater Sydney region was identified within the Subject Site: ▪ *Asparagus aethiopicus* (Ground Asparagus).	Yes	Priority weeds must be managed in accordance with the Biosecurity Act: ▪ Prohibition on dealings – Must not be imported into the State or sold.
State Environmental Planning Policy (Koala Habitat Protection) 2021	The Subject Site occurs within the Ku-ring-gai LGA which is listed in Schedule 1 of the Koala Habitat Protection SEPP 2021; however, the combined Subject Properties do not have an area greater than 1ha. Therefore, this SEPP does not apply to the Subject Site.	No	None.
State Environmental Planning Policy (Coastal Management) 2018	The Subject Site does not contain areas mapped as 'Coastal Wetlands', 'Littoral Rainforest' or any other areas on the Coastal Management mapping.	No	None.
State Environmental Planning Policy No 19—Bushland in Urban Areas	The Subject Site is situated within an area specified in Schedule 1 of the SEPP; however, is not located on or adjoining land reserved for public open space purposes.	No	None.
Water Management Act 2000	The Subject Site does not occur on waterfront land; therefore, the Water Management Act 2000 does not apply.	No	None.

1.6 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 Ku-ring-gai 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). If the land on which the proposed development is located has different minimum lot sizes (or actual lot sizes), the smaller or smallest of those minimum lot sizes is used to determine the area clearing threshold.

As no minimum lot size is prescribed by Ku-ring-gai Council, the actual lot size of the smallest lot will be used to determine the area clearing threshold. As the smallest lot is less than 1ha, to avoid triggered the Biodiversity Offset Scheme the proposed development must avoid the clearing/management of 0.25ha of native vegetation. As only 0.06ha of vegetation is present within the Subject Site, the minimum clearing threshold cannot be exceeded.

Table 2. Biodiversity Offset Scheme entry thresholds.

Minimum lot size associated with the property	Threshold for clearing, above which the BAM and offsets scheme apply
Less than 1 ha	0.25 ha or more
1 ha to less than 40 ha	0.50 ha or more
40 ha to less than 1000 ha	1 ha or more
1000 ha or more	2 ha or more

The Biodiversity Values (BV) Map (DPIE 2022a) identifies land with high biodiversity values that are particularly sensitive to impacts from development and clearing. The map is another of the Biodiversity Offsets Scheme Entry Thresholds which is a trigger for determining whether the Biodiversity Offset Scheme (BOS) applies to a clearing or development proposal. The map has been prepared by the Department of Planning and Environment (DPE) under Part 7 of the Biodiversity Conservation Act 2016 (BC Act).

Areas mapped as containing 'Biodiversity Values' on the Biodiversity Values (BV) Map are present within the Subject Site (DPIE 2022a,**Figure 2**). Any future DA's that require the clearing of native vegetation within areas mapped as 'Biodiversity Values' on the BV Map will trigger the BOS.

Figure 2. Biodiversity Values Mapping within the Subject Site.

1.7 Ku-ring-gai Local Environmental Plan 2012 (2015)

1.7.1 Zoning

The Subject Site is zoned 'B2: Local Centre.

The KLEP requires that any development proposal satisfies the zone objectives of clause which are:

- To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area;
- To encourage employment opportunities in accessible locations;
- To maximise public transport patronage and encourage walking and cycling;
- To provide for residential housing close to public transport, services and employment opportunities; and
- To encourage mixed use buildings that effectively integrate suitable commercial, permitted residential development and other development.

1.7.2 Biodiversity Protection

The Subject Site contains land identified as 'Biodiversity' on the KLEP 'Terrestrial Biodiversity Map' (**Figure 3**). As such, the following objectives of clause 6.3 'Biodiversity Protection' apply:

- Protecting biological diversity of native fauna and flora;
- Protecting the ecological processes necessary for their continued existence;
- Encouraging the recovery of threatened species, communities, populations and their habitats; and
- Protecting, restoring and enhancing biodiversity corridors.

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

- The impact of the proposed development on the following:
    - Any native vegetation community;
    - The habitat of any threatened species, population or ecological community;
    - Any regionally significant species of plant, animal or habitat;
    - Any biodiversity corridor;
    - Any wetland;
    - The biodiversity values within any reserve; and
    - The stability of the land;
- Any proposed measure to be undertaken to ameliorate any potential adverse environmental impact; and
- Any opportunity to restore or enhance remnant vegetation, habitat and biodiversity corridors.

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 consistent with the objectives of this clause; and
- Is designed, and will be sited and managed, to avoid any potentially adverse environmental impact or, if a potentially adverse environmental impact cannot be avoided:
    - The development minimises disturbance and adverse impacts on remnant vegetation communities, habitat and threatened species and populations;
    - Measures have been considered to maintain native vegetation and habitat in parcels of a size, condition and configuration that will facilitate biodiversity protection and native flora and fauna movement through biodiversity corridors;

- The development avoids clearing steep slopes and facilitates the stability of the land; and
- Measures have been considered to achieve no net loss of significant vegetation or habitat.

1.7.3 Riparian land and adjoining waterways

The Subject Site contains land identified as 'Riparian Land Category 2' on the KLEP 'Riparian Lands and Watercourses Map' (**Figure 4**). As such, the following objectives of clause 6.4 'Riparian land and adjoining waterways' apply:

- To protect or improve:
    - Water quality within waterways;
    - The stability of the bed and banks of waterways;
    - Aquatic and riparian species, communities, populations and habitats;
    - Ecological processes within waterways and riparian lands; and
    - Scenic and cultural heritage values of waterways and riparian lands.
- Where practicable, to provide for the rehabilitation of existing piped or channelised waterways to a near natural state.

In deciding whether to grant development consent for development on land to which this clause applies, the consent authority must consider:

- Whether the development is likely to have an adverse impact on the following:
    - The water quality in any waterway;
    - The natural flow regime, including groundwater flows to any waterway;
    - Aquatic and riparian species, populations, communities, habitats and ecosystems;
    - The stability of the bed, shore and banks of any waterway;
    - The free passage of native aquatic and terrestrial organisms within or along any waterway and riparian land; and
    - Public access to, and use of, any public waterway and its foreshores.
- Any opportunities for rehabilitation or re-creation of any waterway and its riparian areas,
- 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 consistent with the objectives of this clause;
- Integrates riparian, stormwater and flooding measures;
- Is designed, sited and will be managed to avoid any potential adverse environmental impacts; and
- If a potential adverse environmental impact cannot be avoided by adopting feasible alternatives—the development minimises or mitigates any such impact to a satisfactory extent.

1.8 Ku-ring-gai Development Control Plan 2021 (KDCP)

1.8.1 Part 14.B – Turramurra Local Centre

The Subject Site is mapped as occurring within the Turramurra local centre on the KDCP Turramurra Local Centre Precinct Plan. All development within the Turramurra local centre is to be designed to support and enhance the planned future character of the centre. As per Part 14B.3, future development within the Subject Site is to include (**Figure 5**):

- A new public street connecting Kissing Point Road and Duff Street with two way traffic, on–street parking (one side) and footpaths (both sides). The land is to be dedicated to Council as part of redevelopment. The road will be a minimum of 15m wide and will function as an Asset Protection Zone (APZ). In addition, the new street will be designed to aid firefighting and incorporate access specifications identified in Planning for Bushfire Protection 2019, designed to minimise impact on adjoining Blue Gum High Forest; and
- Construction and embellishment of a new urban park within the southern extent of the Subject Site.

Any future development must comply with the controls pertaining to the Turramurra Local Centre.

1.8.2 Part 17 – Riparian Lands

The Subject Site contains land identified as 'Category 2 Riparian Land' on the KLEP 'Riparian Lands and Watercourses Map' (**Figure 4**). As such, Part 17 of the KDCP is applicable:

- Part 17.1 'General' of the DCP lists the general controls for development within all riparian land. Any proposed development within the Subject Site will need to satisfy the provisions of Part 17.1 of the DCP; and
- Part 17.3 'Category 2 – Terrestrial and Aquatic Habitat' of the DCP lists the controls for Category 2 Riparian Lands. Any proposed development within the Subject Site will need to satisfy the provisions of Part 17.3 of the DCP.

If the riparian land is to be disturbed or degraded as a result of any proposed development, a Vegetation Management Plan (VMP) may be required to outline appropriate riparian vegetation revegetation or rehabilitation for the site.

1.8.3 Part 18 – Biodiversity

The Subject Site contains land identified as 'Biodiversity' on the KLEP 'Terrestrial Biodiversity Map'. This includes the following Greenweb categories (**Figure 3**):

- Support for Core Biodiversity Lands;
- Landscape Remnant;
- Biodiversity Corridors and Buffer Areas; and
- Canopy Remnant.

As such, Part 18 of the KDCP is applicable:

- Part 18.1 'All Greenweb Categories' of the DCP lists the controls for development within all Greenweb categories. Any proposed development within the Subject Site will need to satisfy the provisions of Part 18.1 of the DCP;
- Part 18.3 'Category – Support for Core Biodiversity Lands' of the DCP lists the controls for development within 'Support for Core Biodiversity Lands'. Any proposed development within the Subject Site will need to satisfy the provisions of Part 18.3 of the DCP;
- Part 18.4 'Category – Landscape Remnant' of the DCP lists the controls for development within 'Landscape Remnant'. Any proposed development within the Subject Site will need to satisfy the provisions of Part 18.4 of the DCP;
- Part 18.5 'Category – Biodiversity Corridors and Buffer Areas' of the DCP lists the controls for development within 'Biodiversity Corridors and Buffer Areas'. Any proposed development within the Subject Site will need to satisfy the provisions of Part 18.5 of the DCP;
- Part 18.6 'Category – Canopy Remnant' of the DCP lists the controls for development within 'Canopy Remnant'. Any proposed development within the Subject Site will need to satisfy the provisions of Part 18.6 of the DCP; and

- Part 18.7 'No Net Loss of Biodiversity' of the DCP provides for no net loss of biodiversity and outlines mechanisms to achieve this. Any proposed development within the Subject Site will need to satisfy the provisions of Part 18.7 of the DCP.

Any application for works within the Greenweb must be accompanied by a proposal to protect, enhance or create habitat on or off site, where it either requires the removal of native vegetation; will negatively affect actual or potential habitat of fauna or flora; or is likely to cause degradation to vegetation or habitat.

Furthermore, the preparation of a VMP is required if works are to impact on land identified as Support for Core Biodiversity Land and/or Landscape Remnant This plan must be prepared by a suitably qualified person and must identify ongoing initiatives to preserve, protect and promote the environmental values of the land.

1.9 Scope of Assessment

The objectives of this DDFFA were to assess the ecological constraints associated with the planning proposal and any future development application pursuant to Part 4 of the Environmental Planning & Assessment Act 1979 (EP&A Act), the BC Act, the EPBC Act and the local planning provisions of Ku-ring-gai Council, including to:

- Establish the likelihood of occurrence of migratory species, threatened species, endangered populations and threatened ecological communities as listed under the BC Act, EPBC Act and FM Act;
- Identify and map the distribution of vegetation communities within the Subject Site;
- 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;
- Record presence and the extent of any Priority Weed infestations that require management by law; and
- Determine potential ecological constraints associated with the planning proposal or any future development applications.

Figure 3. Ku-ring-gai Terrestrial Biodiversity and Greenweb Mapping within the Subject Site.

Figure 4. Ku-ring-gai Riparian Lands and Watercourses within the Subject Site.

Figure 5. Turramurra Local Centre Mapping within the Subject Site.

2. Methodology

2.1 Desktop Assessment and Literature Review

A thorough literature review of local information relevant to the Ku-ring-gai LGA 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 search area centred on the Subject Property. This data was used to assist in establishing the presence or likelihood of any ecological values as occurring on or adjacent to the Subject Property and helped inform our Ecologists 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 Site 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 experienced Narla Ecologist, Sarah Cardenzana, on the 10th March 2022. During the site assessments, the following activities were undertaken:

- Identifying and recording the vegetation communities present on the Subject Site, with a focus on identifying any Threatened Ecological Communities (TEC);
- Recording a detailed list of flora species encountered on the Subject Site, with a focus on threatened species, species diagnostic of TECs and Priority Weeds;
- Recording opportunistic sightings of any fauna species seen or heard on or within the immediate surrounds of the Subject Site;
- 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 Site and surrounding area;
- Any other habitat features that may support fauna (particularly threatened) species; and
- Targeting the habitat of any threatened and regionally significant fauna including:
    - Tree hollows (habitat for threatened large forest owls, parrots, cockatoos 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 nectivorous mammals and birds);
    - Trees and shrubs supporting nest structures (habitat for threatened birds and arboreal mammals);
    - Logs, bark and artificial debris (habitat for threatened frogs, reptiles and snails.

2.2.2 Weather Conditions

Weather conditions recorded at the nearest weather station (Terrey Hills AWS, NSW) prior to and during the general flora and fauna survey period are provided in **Table 3** (BOM 2022). The data reveals significant rainfall and mild temperatures in the lead up to the survey. These weather conditions may be conducive to the emergence of annual herbs, ensuring maximum species diversity was observed on the day of the survey. Recent rainfall would also fill smaller soaks (if present) to aid in their identification and assessment.

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

Survey date	Day	Minimum Temp. (°C)	Maximum Temp. (°C)	Rainfall (mm)
3/03/2022	Thursday	18.9	22.8	70.6
4/03/2022	Friday	20.1	23.8	32.4
5/03/2022	Saturday	18.7	25.6	10.6
6/03/2022	Sunday	18.6	23.6	36.4
7/03/2022	Monday	20.1	24.5	55.6
8/03/2022	Tuesday	20.2	21.5	96.2
9/03/2022	Wednesday	16.6	22.8	125
10/03/2022	**Thursday**	**14.4**	**21.3**	**0**

2.2.3 Mapping and Analysis of Vegetation Communities

Narla examined high-quality satellite imagery, geological mapping, soil landscape mapping and topographic mapping in addition to existing vegetation mapping in order to stratify the Subject Site and guide the site assessment survey efforts. The following documents were consulted during the assessment to assist with the identification of vegetation communities present within the Subject Site:

- Soil Landscapes of the Sydney 1:100,000 Sheet map (Chapman et al. 2009);
- Soil Landscapes of the Sydney 1:100,000 Sheet report (Chapman & Murphy 1989);
- Department of Planning and Environment: eSPADE v2.0 (DPE 2022e); and
- The Native Vegetation of the Sydney Metropolitan Area. Version 3.1. VIS_ID 4489 (OEH 2016a).

3. Native Vegetation

3.1 Vegetation Community

3.1.1 Historically Mapped Vegetation Communities

Historical vegetation mapping (OEH 2016) identified the following vegetation communities within the Subject Site (**Figure 6**):

- Blue Gum High Forest; and
- Urban Exotic/Native.

3.1.2 Field Validated Vegetation Communities

As a result of the site assessment two vegetation communities were identified within the Subject Property (**Figure 7**):

- Zone 1: Blue Gum High Forest (**Table 4**); and
- Zone 2: Urban Exotic/Native (**Table 5**).

Figure 6. Historically mapped vegetation communities within the Subject Site.

Figure 7. Narla field-validated vegetation communities within the Subject Site. Any vegetation overhanging existing hardstand areas were not categorised within vegetation zones.

Table 4. Description of Blue Gum High Forest within the Subject Site (Zone 1).

Zone 1: Blue Gum High Forest	
	
Extent within Subject Site (approximate)	178m^2
Description of the Vegetation within the Subject Site	
The vegetation within this zone was highly degraded with minimal native species diversity. A canopy of *Eucalyptus saligna* (Sydney Blue Gum) was present, with a shrub layer comprising *Acmena smithii* (Lilly Pilly), *Elaeocarpus reticulatus* (Blueberry Ash) and *Pittosporum undulatum* (Sweet Pittosporum). The groundlayer was dominated by exotic species, including *Asparagus aethiopicus* (Asparagus Fern), *Ehrharta erecta* (Panic Veldtgrass), *Sonchus oleraceus* (Common Sowthistle), *Tradescantia fluminensis* (Trad) and *Vinca major* (Greater Periwinkle). A small patch of *Lomandra longifolia* (Spiny-headed Mat-rush) was however present amongst the groundlayer.	
Description from OEH 2016	
Blue Gum High Forest is a tall wet sclerophyll forest found on fertile shale soils in the high rainfall districts of Sydney's north shore. It is dominated by *Eucalyptus saligna* (Sydney Blue Gum), *E. pilularis* (Blackbutt) and *Syncarpia glomulifera* (Turpentine) with a number of other eucalypts occurring patchily. A sparse to open cover of small trees is found at most sites and includes a variety of sclerophyllous and mesophyllous species. The ground layer is variable in both composition and cover. It may be ferny, grassy or herbaceous depending on topographic situation and disturbance history. At some sites vines and climbers are prolific.	

<table>
<tr><th colspan="3">Zone 1: Blue Gum High Forest</th></tr>
<tr><td colspan="3">Blue Gum High Forest is found on a range of shale or shale-influenced substrates in areas receiving between 900 and 1300mm of mean annual rainfall. This includes elevated gullies, ridgelines, crests and slopes underlain by Wianamatta shales as well as small gully heads where downslope movement of shale soil lies above sandstone bedrock. In these latter situations sandstone outcrops may be present, although occupying only a minor component of the site. Typically, the community occurs at altitudes above 117m above sea level although it is known to occur as low as 30m and as high as 185m. It is most common across the ridgelines between Castle Hill and St Ives with small areas occurring in Ryde, Lane Cove and Willoughby where it is found at lower elevations.</td></tr>
<tr><td rowspan="2">Justification of Vegetation Assignment</td><td>Characteristic Flora Species</td><td>Geology and Geography</td></tr>
<tr><td>This vegetation within this zone contained one (1) canopy species that is characteristic of Blue Gum High Forest: Eucalyptus saligna (Sydney Blue Gum). Other characteristic species that were present within the zone included Acmena smithii (Lilly Pilly), Elaeocarpus reticulatus (Blueberry Ash), Lomandra longifolia (Spiny-headed mat-rush) and Pittosporum undulatum (Sweet Pittosporum).</td><td>This vegetation zone is predominately situated on the Glenorie soil landscape, which is underlain by Wianamatta shale. In addition, the vegetation zone is situated at an elevation of approximately 180m asl.</td></tr>
<tr><td>BC Act Status</td><td colspan="2">Blue Gum High Forest in the Sydney Basin Bioregion, a Critically Endangered Ecological Community (CEEC).</td></tr>
<tr><td>EPBC Act Status</td><td colspan="2">Blue Gum High Forest of the Sydney Basin Bioregion, a Critically Endangered Ecological Community (CEEC).</td></tr>
<tr><td>References</td><td colspan="2">Office of Environment and Heritage (OEH) (2016a) The Native Vegetation of the Sydney Metropolitan Area. Version 3.1. VIS_ID 4489

Office of Environment and Heritage (OEH) (2016b) The Native Vegetation of the Sydney Metropolitan Area. Volume 2: Vegetation Community Profiles. Version 3.0. NSW Office of Environment and Heritage, Sydney</td></tr>
</table>

Table 5. Description of Urban Exotic/Native within the Subject Site (Zone 2).

Zone 2: Urban Exotic/Native	
	
Extent within Subject Site (approximate)	464m^2
Description of the Vegetation within the Subject Site	
The vegetation within this zone was highly degraded with minimal native species diversity, mostly comprising planted native and exotic species. The canopy was dominated by *Eucalyptus microcorys* (Tallowwood), with no locally occurring native species present. The mid-storey and shrub layer was mostly exotic, comprising *Acer negundo* (Box Elder), *Jacaranda mimosifolia* (Jacaranda), *Cinnamomum camphora* (Camphor Laurel) and *Murraya paniculata* (Murraya). Minor occurrences of *Brachychiton acerifolius* (Illawarra Flame Tree) and *Callistemon viminalis* (Weeping Bottlebrush) were also present. The groundlayer was dominated by planted and invasive exotic species such as *Agapanthus* sp. (Lily of the Nile), *Araujia sericifera* (Moth Vine), *Cardiospermum grandiflorum* (Balloon Vine), *Dietes iridioides* (African Iris), *Ehrharta erecta* (Panic Veldtgrass), *Liriope muscari* (Blue Lily Turf), *Solanum nigrum* (Black-berry Nightshade), *Sonchus oleraceus* (Common Sowthistle), *Tradescantia fluminensis* (Trad) and *Vinca major* (Greater Periwinkle). Some native groundlayer species were present, including *Commelina cyanea.*	
Justification of Vegetation Assignment	The vegetation within this zone was dominated by planted native and exotic species, as well as invasive exotic species. No locally occurring native canopy species were present within the zone, and only minor occurrences of native shrub and groundlayer species were present. The vegetation does not conform to a locally

Zone 2: Urban Exotic/Native	
	occurring native vegetation community and as such has been classified as 'Urban Exotic/Native'.

3.1.3 Threatened Ecological Communities

3.1.3.1 Biodiversity Conservation Act 2016

The vegetation within Zone 1 conforms to the BC Act listed CEEC, Blue Gum High Forest in the Sydney Basin Bioregion (BGHF; Figure 7). This was determined by a comprehensive desktop assessment that identified the typical BGHF landscape attributes within the Subject Land, in conjunction with a site visit that found a suite of characteristic species: *Acmena smithii* (Lilly Pilly), *Elaeocarpus reticulatus* (Blueberry Ash), *Eucalyptus saligna* (Sydney Blue Gum), *Lomandra longifolia* (Spiny-headed mat-rush) and *Pittosporum undulatum* (Sweet Pittosporum).

3.1.3.2 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The vegetation within Zone 1 conforms to the EPBC Act listed CEEC, Blue Gum High Forest of the Sydney Basin Bioregion (Figure 7) as it meets several diagnostic features and condition thresholds as outlined in the Listing Advice (Threatened Species Scientific Committee 2005; Table 6). The Subject Site is located at an altitude >100m asl, and occurs on deep soils derived from Wianamatta Shale. The canopy within Vegetation Zone 1 is dominated by Sydney Blue Gum (*Eucalyptus saligna*). Other species present in the site as listed in the Listing Advice include *Elaeocarpus reticulatus* (Blueberry Ash), *Lomandra longifolia* (Spiny-headed mat-rush) and *Pittosporum undulatum* (Sweet Pittosporum).

Table 6. Condition Threshold for patches that meet the description for Blue Gum High Forest (Threatened Species Scientific Committee 2005).

Threshold	Zone 1 vegetation within the Subject Land
Patch with a canopy cover greater than 10% and a size greater than 1ha.	Meets listing. Vegetation directly connecting to Vegetation Zone 1 comprising BGHF exceeds 1ha. Canopy cover is greater than 10%.
OR	
Patch with canopy cover less than 10% and exceeds 1ha and occur in areas of native vegetation in excess of 5ha.	N/A

4. Threatened Species

4.1 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 Site. Thorough targeted surveys were undertaken throughout the Subject Property for potentially occurring threatened flora. One (1) threatened species, *Syzygium paniculatum* (Magenta Lilly Pilly) was located within the Subject Site (**Figure 7**). This species has most likely been historically planted as the Subject Site does not occur within the natural distribution of this species (riverside gallery rainforests and remnant littoral rainforest communities).

The following locally occurring species were assessed for their potential to occur on the Subject Site (**Table 7**). It is not anticipated that any future development will significantly impact on any locally occurring threatened flora species.

Table 7. Likelihood of occurrence of threatened flora species within the Subject Property.

Species	BC Act	EPBC Act	Likelihood of Occurrence within the Subject Site.
Acacia bynoeana (Bynoe's Wattle)	Endangered	Vulnerable	Absent. This species occurs in heath or dry sclerophyll forest on sandy soils. Such habitat does not occur within the Subject Site and a targeted survey during the appropriate DPE survey period did not identify this species.
Acacia pubescens (Downy Wattle)	Vulnerable	Vulnerable	Absent. This species occurs in open woodland and forest, in a variety of plant communities, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland. Although potential habitat occurs within the Subject Site (albeit highly degraded), a targeted survey during the appropriate DPE survey period did not identify this species.
Callistemon linearifolius (Netted Bottle Brush)	Vulnerable	-	Absent. This species grows in dry sclerophyll forest. Such habitat does not occur within the Subject Site and a targeted survey did not identify this species.
Cryptostylis hunteriana (Leafless Tongue Orchid)	Vulnerable	Vulnerable	Very low. This species grows in swamp-heath on sandy soils, chiefly in coastal districts. Such habitat does not occur within the Subject Site.
Darwinia biflora	Vulnerable	Vulnerable	Absent. This species occurs on the edges of weathered shale-capped ridges, where these intergrade with Hawkesbury Sandstone. Associated overstorey species include Euc*alyptus haemastoma, Corymbia gummifera* and/or *E. squamosa.* Such habitat does not occur within the Subject Site and a targeted survey during the appropriate DPE survey period did not identify this species.

Species	BC Act	EPBC Act	Likelihood of Occurrence within the Subject Site.
Darwinia peduncularis	Vulnerable	-	Absent. This species usually grows on or near rocky outcrops on sandy, well drained, low nutrient soil over sandstone. Such habitat does not occur within the Subject Site and a targeted survey during the appropriate DPE survey period did not identify this species.
Deyeuxia appressa	Endangered	Endangered	Very low. This species hasn't been observed in over 60 years, and no records exist of this species in a 10km x 10km area since 1941.
Epacris purpurascens var. *purpurascens*	Vulnerable	-	Absent. The highly degraded nature of the Subject Site makes the occurrence of this species very unlikely. Although targeted surveys were undertaken outside of the appropriate DPE survey period (September – October), no *Epacris* spp. were observed within the Subject Site.
Eucalyptus camfieldii (Camfield's Stringybark)	Vulnerable	Vulnerable	Absent. This species grows in poor coastal country in shallow sandy soils overlying Hawkesbury sandstone. Such habitat does not occur within the Subject Site and a targeted survey during the appropriate DPE survey period did not identify this species.
Eucalyptus nicholii (Narrow-leaved Black Peppermint)	Vulnerable	Vulnerable	Absent. This species is geographically restricted to the New England Tablelands, however is commonly planted as urban trees within the Sydney region. A targeted survey during the appropriate DPE survey period did not identify this species.
Galium australe (Tangled Bedstraw)	Endangered	-	Absent. The highly degraded nature of the Subject Site makes the occurrence of this species very unlikely. Although targeted surveys were undertaken outside of the appropriate DPE survey period (September – October), no *Galium* spp. were observed within the Subject Site.
Genoplesium baueri (Bauer's Midge Orchid)	Endangered	Endangered	Absent. This species grows in dry sclerophyll forest and moss gardens over sandstone. Such habitat does not occur within the Subject Site and a targeted survey during the appropriate DPE survey period did not identify this species.
Genoplesium plumosum (Tallong Midge Orchid)	Critically Endangered	Endangered	Absent. This species is geographically restricted to near the village of Tallong and its immediate surrounds, and a site in Morton National Park approximately 8.5km south-east of Wingello. The Subject Site does not occur within this distribution and a targeted survey during the appropriate DPE survey period did not identify this species.
Grammitis stenophylla (Narrow-leaf Finger Fern)	Endangered	-	Absent. This species grows in moist places, usually near streams, on rocks or in trees, in rainforest and moist eucalypt forest. Suitable habitat was not

Species	BC Act	EPBC Act	Likelihood of Occurrence within the Subject Site.
			present within the Subject Site and a targeted survey during the appropriate DPE survey period did not identify this species.
Grevillea caleyi (Caley's Grevillea)	Critically Endangered	Critically Endangered	Absent. This species grows in association with laterite soils and a vegetation community of open forest, generally dominated by *Eucalyptus sieberi* and *Corymbia gummifera*. Such habitat does not occur within the Subject Site and a targeted survey during the appropriate DPE survey period did not identify this species.
Grevillea juniperina subsp. *juniperina* (Juniper-leaved Grevillea)	Vulnerable	-	Absent. This species has been recorded in Cumberland Plain Woodland, Castlereagh Ironbark Woodland, Castlereagh Scribbly Gum Woodland and Shale/Gravel Transition Forest. Such habitat does not occur within the Subject Site and a targeted survey during the appropriate DPE survey period did not identify this species.
Haloragodendron lucasii	Endangered	Endangered	Absent. This species is associated with dry sclerophyll forest. Such habitat does not occur within the Subject Site and a targeted survey during the appropriate DPE survey period did not identify this species.
Hibbertia spanantha (Julian's Hibbertia)	Critically Endangered	Critically Endangered	Very low. This species is known to occur on light clay soils occurring on a shale sandstone soil transition. Such habitat does not occur within the Subject Site.
Lasiopetalum joyceae	Vulnerable	Vulnerable	Absent. This species grows in heath on sandstone. Such habitat does not occur within the Subject Site and a targeted survey did not identify any *Lasiopetalum* spp.
Leptospermum deanei	Vulnerable	Vulnerable	Absent. This species grows on sandy alluvial soil or sand over sandstone. Such habitat does not occur within the Subject Site and a targeted survey did not identify any *Leptospermum* spp.
Macadamia integrifolia (Macadamia Nut)	-	Vulnerable	Absent. This species is not known to occur naturally in the wild in NSW, and a targeted survey during the appropriate DPE survey period did not identify this species.
Melaleuca deanei (Deane's Paperbark)	Vulnerable	Vulnerable	Absent. The species mostly occurs in ridgetop woodland. Such habitat does not occur within the Subject Site and a targeted survey during the appropriate DPE survey period did not identify this species.
Persoonia hirsuta (Hairy Geebung)	Endangered	Endangered	Absent. This species is found in sandy soils in dry sclerophyll open forest, woodland and heath on sandstone. Such habitat does not occur within the Subject Site and a targeted survey during the

Species	BC Act	EPBC Act	Likelihood of Occurrence within the Subject Site.
			appropriate DPE survey period did not identify this species.
Persoonia mollis subsp. *maxima*	Endangered	Endangered	Absent. This species occurs in sheltered aspects of deep gullies or on the steep upper hillsides of narrow gullies on Hawkesbury Sandstone. These habitats support relatively moist, tall forest vegetation communities, often with warm temperate rainforest influences. Such habitat does not occur within the Subject Site and a targeted survey during the appropriate DPE survey period did not identify this species.
Pimelea curviflora var. *curviflora*	Vulnerable	Vulnerable	Absent. This species occurs on shaley/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes amongst woodlands. Such habitat does not occur within the Subject Site and a targeted survey during the appropriate DPE survey period did not identify this species.
Rhizanthella slateri (Eastern Australian Underground Orchid)	Vulnerable	Endangered	Very low. This species 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. The occurrence of this species within the Subject Site is highly unlikely, considering the Subject Site is highly degraded and only one (1) historical record occurs within a 10km x 10km area surrounding the Subject Site.
Rhodamnia rubescens (Scrub Turpentine)	Critically Endangered	Critically Endangered	Absent. This species is found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils. Although potential habitat for this species is present within the Subject Site, a targeted survey during the appropriate DPE survey period did not identify this species.
Syzygium paniculatum (Magenta Lilly Pilly)	Endangered	Vulnerable	Present. Three (3) individuals were located during targeted surveys within the Subject Site. This species is known to naturally occur in subtropical and littoral rainforest on sandy soils or stabilised dunes near the seas, as well as riverside gallery rainforest. As such habitat does not occur within the Subject Site, it is considered this species has been historically planted.
Tetratheca glandulosa	Vulnerable	-	Absent. This species is associated with shale-sandstone transition habitat where shale cappings occur over sandstone. Such habitat does not occur within the Subject Site and a targeted survey did not identify any *Tetratheca* spp.

Species	BC Act	EPBC Act	Likelihood of Occurrence within the Subject Site.
Thelymitra atronitida (Black-hooded Sun Orchid)	Critically Endangered	-	Absent. In New South Wales, The Black-hooded Sun Orchid is known from two localities, Cape Solander in Botany Bay National Park in southern Sydney, and Bago State Forest south of Tumut. The Subject Site does not occur within these areas.

4.2 Threatened Fauna

Native fauna species were identified within and surrounding the Subject Property during the site assessment. All fauna species encountered are presented in **Appendix B**.

Details of the fauna habitat recorded in the Subject Property are included in **Table 8**. No threatened fauna species were observed within the Subject Site by the Narla Ecologist during the site assessment. It is not anticipated that any future development will significantly impact on any locally occurring threatened fauna species.

Table 8. Fauna habitat values identified within the Subject Property.

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 such as *Eucalyptus* spp. were recorded within the Subject Site. These trees may provide intermittent nectar and/or lerp sources for nomadic nectivores such as: ▪ *Anthochaera phrygia* (Regent Honeyeater); ▪ *Glossopsitta pusilla* (Little Lorikeet); ▪ *Lathamus discolor* (Swift Parrot); and ▪ *Pteropus poliocephalus* (Grey-headed Flying-fox).
Nectar-bearing shrubs	Nectar-bearing shrubs were present within the Subject Site which may provide intermittent nectar and/or lerp sources for similar nectivores.
Koala Feed Trees	Present.
Large stick nests	Absent.
Sap and gum sources	Native sap and gum source trees were recorded within the Subject Site including *Eucalyptus microcorys* and *E. saligna*. These trees may provide intermittent nectar and/or lerp sources for various fauna species
She-oak fruit (Glossy Black Cockatoo feed)	Absent.
Seed-bearing trees and shrubs	Seed-bearing trees such as *Eucalyptus spp.* and *Callistemon* spp. may provide foraging habitat for *Callocephalon fimbriatum* (Gang-gang Cockatoo).
Soft-fruit-bearing trees	Soft-fruit-bearing trees such as *Pittosporum undulatum* may provide foraging habitat for frugivores.

Habitat component	Site values
Dense shrubbery and leaf litter	Absent.
Tree hollows	Absent.
Decorticating bark	Absent.
Wetlands, soaks and streams	Absent.
Open water bodies	Absent.
Estuarine, beach, mudflats, and rocky foreshores	Absent.

4.3 Migratory Fauna Species

The following EPBC Act listed migratory fauna species were considered to potentially utilise habitat within or around the Subject Site for foraging or passage**:**

- *Cuculus optatus* (Oriental Cuckoo);
- *Hirundapus caudacutus* (White-throated Needletail);
- *Monarcha melanopsis* (Black-faced Monarch);
- *Motacilla flava* (Yellow Wagtail);
- *Myiagra cyanoleuca* (Satin Flycatcher);
- *Rhipidura rufifrons* (Rufous Fantail); and
- *Symposiachrus trivirgatus* (Spectacled Monarch).

It is deemed that any potential occurrence of these species would be purely sporadic fly-ins. It is not deemed likely that future development within the Subject Site would result in a significant impact to any of these species.

5. Biodiversity Constraints Mapping

Narla has mapped the Subject Site into three (3) levels of 'Ecological Constraints'. The interpretation and justification of each zone is detailed in **Table 9**. The ecological constraints map (**Figure 8**) was produced using information gathered from the desktop and site assessment completed by the Narla Ecologists.

Table 9. Ecological constraints mapping key.

Zone	Components	Description
Low Constraints Area - Green	This zone encompasses: ▪ Urban Exotic/Native Vegetation outside of BV mapped area; and ▪ Existing hardstand and buildings	This zone is deemed to have high potential for future development with accompaniment of the appropriate environmental assessments and implementation of appropriate restrictions and guidelines.
Moderate Constraints Area - Orange	This zone encompasses: ▪ Areas mapped by Narla as Urban Exotic/Native Vegetation and overlapping the 'Biodiversity Values' map; ▪ Biodiversity Corridors and Buffer Areas, and Canopy Remnant on the Greenweb Map; ▪ Category 2 Riparian Land on the KLEP Riparian Lands and Watercourses Map; ▪ Areas mapped by Narla as Blue Gum High Forest (CEEC) that intersect with the KDCP Turramurra Local Centre Precinct Plan; and ▪ Support for Core Biodiversity Lands and Landscape Remnant on the Greenweb map that intersect with the KDCP Turramurra Local Centre Precinct Plan.	This zone is deemed to have a moderate potential for future development with accompaniment of the appropriate environmental assessments (BDAR or FFA), as well as potential impact mitigation strategies (such as project ecologist services). A VMP may be required if any proposed works are located within this zone. The KDCP states that development is to be avoided on lands identified as Support for Core Biodiversity Lands and Landscape Remnant on the Greenweb map. However, lands mapped under the KDCP Turramurra Local Centre Precinct Plan have specific development controls in place which would require specific development in these areas.
High Constraints Area – Red	This zone encompasses: ▪ Areas mapped by Narla as Blue Gum High Forest (CEEC). ▪ Support for Core Biodiversity Lands and Landscape Remnant on the Greenweb map.	Any works proposed in these areas will yield the highest potential ecological impact. All proposed works should aim to avoid these areas if possible. The KDCP states that development is to be avoided on lands identified as Support for Core Biodiversity Lands and Landscape Remnant on the Greenweb map. Future development applications will require the accompaniment of the appropriate

Zone	Components	Description
		environmental assessments (BDAR or FFA), as well as potential impact mitigation strategies (such as project ecologist services). Biodiversity offsets may be required to offset the biodiversity impacts of any proposed development within this area. In addition, a VMP may be required if any proposed works are located within this zone.

Figure 8. Ecological constraints mapped within the Subject Site.

6. Conclusion

This DDFFA has assessed the ecological constraints associated with the planning proposal and any future development applications relating to the Subject Site. The assessment revealed two (2) vegetation communities were present within the Subject Site: Blue Gum High Forest and Urban Exotic/Native Vegetation. The Blue Gum High Forest vegetation within the Subject Site conforms to the BC Act listed CEEC Blue Gum High Forest in the Sydney Basin Bioregion and the EPBC Act listed CEEC Blue Gum High Forest of the Sydney Basin Bioregion.

The site assessment revealed one (1) threatened flora species, *Syzygium paniculatum* (Magenta Lilly Pilly) was located within the Subject Site. This species has been historically planted as it is occurring outside of its natural distribution. No other threatened flora species were present or likely to occur within the Subject Site. It is not anticipated that any future development will significantly impact on any locally occurring threatened flora species.

Furthermore, minimal fauna habitat features were identified within the Subject Site during the site assessment. The site did not contain any significant habitat features such as hollow-bearing trees; caves, crevices or overhangs; coarse woody debris; or large stick-nests. The Subject Site may provide sporadic foraging habitat for threatened fauna species; however, it is not anticipated that any future development will significantly impact on any locally occurring threatened fauna species.

The majority of the Subject Site is considered to have low ecological constraints, mostly comprising existing hardstand and buildings. Other areas of low ecological constraints were areas of Urban Exotic/Native Vegetation outside of BV mapped areas. These areas had the lowest ecological values, including minimal habitat values.

Areas mapped as moderate ecological constraints comprised of Urban Exotic/Native Vegetation within BV mapped areas; Biodiversity Corridors and Buffer Areas, and Canopy Remnant on the Greenweb Map; and Category 2 Riparian Land on the KLEP Riparian Lands and Watercourses Map. Additionally, this comprises Blue Gum High Forest vegetation and Greenweb mapping components that intersect the KDCP Turramurra Local Centre Precinct Plan. The removal of any native vegetation within these areas has the potential to trigger the BOS. In addition, a VMP may be required if any proposed works are located within this zone.

Areas identified as high ecological constraints include those areas mapped by Narla as comprising Blue Gum High Forest; and Support for Core Biodiversity Lands and Landscape Remnant on the Greenweb map. The removal of any native vegetation within these areas has the potential to trigger the BOS. Future development applications will require the accompaniment of the appropriate environmental assessments (BDAR or FFA). If the BOS is triggered, biodiversity offsets may be required to offset the biodiversity impacts of any proposed development within this area. In addition, a VMP may be required if any proposed works are located within this zone.

Overall, it is deemed that the planning proposal to amend the Floor Space Ratio and Building Height will not impact biodiversity in its current form. Any future development applications will require appropriate environmental assessments (FFA or BDAR), as well as the implementation of number of impact mitigation strategies (such as a VMP) depending on the extent and scope of the development.

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8. Appendices

Appendix A. Flora species identified within and surrounding the Subject Site.

Appendix B. Fauna species identified within and surrounding the Subject Site.

Appendix A. Flora species identified within and surrounding the Subject Site.

Name	Canopy	Mid-storey/ Shrub	Ground
*Acer negundo**		x	
Acmena smithii		x	
Agapanthus sp. *			x
*Araujia sericifera**			x
*Asparagus aethiopicus***			x
Brachychiton acerifolius		x	
Callistemon viminalis		x	
Camellia sp.*		x	
*Cardiospermum grandiflorum**			x
*Cinnamomum camphora**		x	
Commelina cyanea			x
*Dietes iridioides**			x
*Digitaria sanguinalis**			x
*Ehrharta erecta**			x
Elaeocarpus reticulatus		x	
*Eleusine indica**			x
Eucalyptus microcorys	x		
Eucalyptus saligna	x		
*Euphorbia peplus**			x
*Jacaranda mimosifolia**		x	
*Ligustrum lucidum**		x	
*Linnaea × grandiflora**		x	
*Liriope muscari**			x
Lomandra longifolia			x
*Murraya paniculata**		x	
*Nandina domestica**		x	
Pittosporum undulatum		x	
*Sida rhombifolia**			x
*Solanum mauritianum**			x
*Solanum nigrum**			x
*Sonchus oleraceus**			x
*Strelitzia nicolai**		x	
*Syzygium paniculatum^*		x	
*Tradescantia fluminensis**			x
*Vinca major**			x

** Denotes exotic species*

***Denotes priority weed*

^Denotes threatened species listed under the BC Act 2016 & EPBC Act 1999.

Appendix B. Fauna species identified within and surrounding the Subject Site.

Class	Species Name	Common Name	Status
Aves	*Alisterus scapularis*	Australian King-Parrot	Protected
	Cacatua galerita	Sulphur-crested Cockatoo	
	Cracticus torquatus	Grey Butcherbird	
	Manorina melanocephala	Noisy Miner	
	Trichoglossus haematodus	Rainbow Lorikeet	
Reptilia	*Lampropholis guichenoti*	Garden Skink	

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