

Flora and Fauna Assessment Report

131a Seaforth Cresent, Seaforth, NSW 2092

Report prepared by Narla Environmental for Corona Projects

October 2024



NARLA environmental

| Report: | Flora and Fauna Assessment Report – 131a Seaforth Cresent, Seaforth, NSW | | |
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| Prepared by: | Narla Environmental Pty Ltd | | |
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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 NDCCEEW) | |
| DPI | Department of Primary Industries | |
| DPIE | Department of Planning, Industry and Environment (now NDCCEEW) | |
| 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 NDCCEEW) | |
| MDCP | Manly Development Control Plan 2013 | |
| MLEP Manly Local Environmental Plan 2013 | | |
| NDCCEEW NSW Department of Climate Change, Energy, the Environment, and Water (form known as DPE) | | |
| SEPP | State Environmental Planning Policy | |
| Subject Property | 131a Seaforth Cresent, Seaforth, NSW, 2092 (Lot 2/-/DP562588) | |
| 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 |
| VRZ | Vegetated Riparian Zone |



1. Introduction

1.1 Project Background

Narla Environmental Pty Ltd (Narla) were engaged by Corona Projects ('the proponent') to undertake a Flora and Fauna Assessment (FFA) for the proposed development at 131a Seaforth Cresent, Seaforth, NSW, 2092 (Lot 2/-/DP562588), hereafter referred to as the 'Subject Property' (**Figure 1**). The proposed development involves the construction of an inclinator and additions to the existing dwelling. Five (5) trees are proposed for removal to accommodate this development (Smart Arbor Professional Consulting 2024; **Appendix A**).

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 Manly Local Environmental Plan 2013 (MLEP) and the Manly Development Control Plan 2013 (MDCP).

1.2 Site Description and Location

The Subject Property is located at 131a Seaforth Cresent within the locality of Seaforth 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 2024).

The Subject Property covers an area of approximately 0.12ha and contains an existing dwelling and one (1) small shed as well as areas of hardstand and landscaping. A water access jetty is present at the rear of the property which backs into Peach Tree Bay. 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 north west facing slope with elevation ranging from approximately 68m asl in the south east, down to approximately 2-7m asl in the north west.

The majority of the Subject Property is situated on the 'Hawkesbury' 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 rugged, rolling to very steep hills on Hawkesbury Sandstone. Narrow crests and ridges, narrow incised valleys, steep side slopes with rocky benches, broken scarps and boulders with local relief of 40-200m. Sandstones are either massive or cross-bedded sheet facies with vertical or subvertical joint sets. The combination of bedding planes and widely spaced joints gives sandstone outcrops a distinctive blocky appearance.

The eastern portion of the driveway is situated on the 'Lambert' 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 undulating to rolling rises and low hills on Hawkesbury Sandstone. Broad ridges, gently to moderately inclined slopes, wide rock benches with low broken scarps, small hanging valleys and areas of poor drainage with a local relief of 20-120m. Hawkesbury Sandstone, which consists of medium to coarse-grained quartz sandstone with minor shale and laminite lenses.



1.4 Hydrology

No mapped or unmapped watercourses occur within the Subject Property. The subject properties north-western boundary extends to the foreshore of Peach Tree Bay into Middle 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.

| 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) BC Act threatened species have the potential to occur within the Subject Property. 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. |
| Environment Protection and BiodiversityEPBC 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.This FFA, particula likelihood tables for the fauna and flora occurring or procurring within the Property, as well as su potential impacts. | | 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) | One (1) priority weed for Greater Sydney region was identified within the Subject Property: Aasparagus aethiopicus (Ground Asparagus) | 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) |
| 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 ManagementThe Subject Property is within close proximity to a mapped a fourth order watercourse (Peach Tree Bay in Middle 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 MLEP to the Subject Property is 1150m². 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 0.12ha. 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.

| 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 | |

| Table 2 | Biodiversity | v offset scheme ent | ry thresholds | Bold indicates | the threshold | relevant to this report |
|----------|--------------|---------------------|-----------------|----------------|---------------|-------------------------|
| Table 2. | Diouiversity | y onset scheme ent | i y un esnolus. | bolu mulcales | the threshold | relevant to this report |

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
- $_{\circ}$ ~ 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 a small corridor for the proposed inclinator. 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 a small corridor for the proposed inclinator. 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 Manly Local Environmental Plan 2013 (MLEP)

1.10.1 Zoning

The Subject Property is zoned 'C3: Environmental Management'. The Manly LEP requires that the development satisfies the zone objectives which are:

- To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values.
- To provide for a limited range of development that does not have an adverse effect on those values.
- To protect tree canopies and provide for low impact residential uses that does not dominate the natural scenic qualities of the foreshore.
- To ensure that development does not negatively impact on nearby foreshores, significant geological features and bushland, including loss of natural vegetation.
- To encourage revegetation and rehabilitation of the immediate foreshore, where appropriate, and minimise the impact of hard surfaces and associated pollutants in stormwater runoff on the ecological characteristics of the locality, including water quality.
- To ensure that the height and bulk of any proposed buildings or structures have regard to existing vegetation, topography and surrounding land uses.

The proposed development satisfies the objectives of Zone 'C3: Environmental Management' as it will not have a significant impact on ecological values present within the site.

1.10.2 Terrestrial 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
 - $_{\circ}$ $\,$ $\,$ 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 with a small corridor to accommodate the proposed inclinator. A total of 5 (five) tree and shrubs proposed for removal to facility the development (Smart Arbor Professional Consulting 2024). Many of the existing canopy trees will be maintained and no hollow-bearing trees will be removed. The ground layer was dominated by exotic garden species with negligible biodiversity value.

The proposed development satisfies the objectives of Zone 'C3: Environmental Management' as it will not have a significant impact on ecological values present within the site.

1.10.3 Foreshore Scenic Protection Area

•

This clause applies to land identified as 'Foreshore Scenic Protection Land' on the Foreshore Scenic Protection Map. As the Subject Property occurs within areas identified as 'Foreshore Scenic Protection Land', this clause applies to the proposed development (**Figure 4**). The objective of this clause is to protect visual aesthetic amenity and views to and from Sydney Harbour, the Pacific Ocean and the foreshore in Manly:

- Development consent must not be granted to development on land to which this clause applies unless the consent authority has considered the following matters—
 - impacts that are of detriment to the visual amenity of harbour or coastal foreshore, including overshadowing of the foreshore and any loss of views from a public place to the foreshore,
 - measures to protect and improve scenic qualities of the coastline,
 - suitability of development given its type, location and design and its relationship with and impact on the foreshore,
 - measures to reduce the potential for conflict between land-based and water-based coastal activities.

The proposed development satisfies the objectives of 'Foreshore Scenic Protection Land' as the development aims to not have an impact on aesthetic and ecological value of the foreshore.





Figure 3. Terrestrial Biodiversity within the Subject Property.





Figure 4. Foreshore Scenic Protection Area within the Subject Property.



1.11 Manly Development Control Plan 2013 (MDCP)

1.11.1 Foreshore Scenic Protection Area

Part 5, Section 5.4.1 Foreshore Scenic Protection Area states;

LEP clause 6.9 designates land in the Foreshore Scenic Protection Area as shown on the LEP Foreshore Scenic Protection Area Map to protect visual aesthetic amenity and views both to and from Sydney Harbour, the Pacific Ocean and the Manly foreshore. Development in the Foreshore Scenic Protection Area must not detrimentally effect the 'visual or aesthetic amenity of land in the foreshore scenic area nor must the development similarly effect the views of that land, including ridgelines, tree lines and other natural features viewed from the Harbour or Ocean from any road, park or land in the LEP for any open space purpose or any other public place.

Any adverse impacts considered in this paragraph will be mitigated. In accordance with these LEP objectives Council seeks to conserve and preserve tree canopies and street trees, wildlife corridors and habitat and minimise cumulative impacts on escarpment, rock shelves and other natural landscape features.

- Development consent is not required under this clause for the carrying out of works if
 - Further to matters prescribed in the LEP, the development in the Foreshore Scenic Protection Area must also:
 - Minimise the contrast between built environment and the natural environment;
 - Maintain the visual dominance of the natural environment;
 - Maximise the retention of existing vegetation including tree canopies, street trees, wildlife corridors and habitat;
 - Not cause any change, visually, structurally or otherwise, to the existing natural rocky harbour foreshore areas;
 - Locate rooflines below the tree canopy;
 - Consider any effect of the proposal when viewed from the harbour / ocean to ridgelines, tree lines and other natural features; and
 - Use building materials of a non-reflective quality and be of colours and textures that blend with the prevailing natural environment in the locality.
- Setbacks in the Foreshore Scenic Protection Area should be maximised to enable open space to dominate buildings, especially when viewed to and from Sydney Harbour, the Ocean and the foreshores in Manly. See also paragraph 4.1.4.5 of this DCP and LEP clause 6.10 in relation to Foreshore Building Lines and limited development in the Foreshore Area

The proposed development satisfies the objectives of 'Foreshore Scenic Protection Land' as the development aims to not have an impact on aesthetic and ecological value of the foreshore.

1.11.2 Threatened Species and Critical Habitat Lands

Part 5, Section 5.4.2 Threatened Species and Critical Habitat Lands;

Any development of land with known habitat for threatened species must consider the likely impacts of the development and whether further assessment needs to be undertaken by a Species Impact Statement.

See also Council's Administrative Guidelines for DA lodgement requirements.

 Any DA on land identified in Schedule 1 - Map D, being land generally to the south-east of Ashburner Street, Manly and including North Head must be accompanied by an Assessment of Significance Report ('7 Part Test') under Section 5A Environmental Planning and Assessment Act 1979. Critical habitat for the



little penguin (*Eudyptula minor*) and habitat for the long-nosed bandicoot (threatened species) is prescribed in the Threatened Species and Conservation Act 1995

The Subject Property is not on land identified in Schedule 1 - Map D and the proposed development is expected to have a minimal impact on critical habitat lands for threatened species. **Table 6** and **Table 8** assess the likelihood of the occurrence of threatened species known to occur surrounding Subject Property.

1.11.3 Riparian Land and Watercourses

Part 5, Section 5.4.4 Riparian Land and Watercourses;

This paragraph supports LEP clause 6.6 detailing more specific objective and control underlying this standard as follows:

• Objective To maintain, protect and improve the waterways and riparian land in Manly.

Development to which this paragraph applies is to protect and/or rehabilitate fully vegetated local riparian vegetation (comprising local native trees, shrubs and groundcover species) and watercourses.

New development including water treatment measures, detention basins, recreational facilities, Asset Protection Zones etc. should be generally located outside the riparian land.

The proposed development will only impacting a small portion of native bushland to install a new inclinator by removing five (5) existing native trees (Smart Arbor Professional Consulting 2024). A Vegetation Management Plan (VMP) may be required to maintain and improve the riparian land within the Subject Property.



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; NDCCEEW 2022b) and the Commonwealth Protected Matters Search Tool (NDCCEEW 2024) 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, Paul Mulligan, on Friday the 11th of October 2024. 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 Sydney (Observatory Hil) {station 066214} prior to and during the site assessment are provided in **Table 3** (BOM 2024). 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.

| Survey date | Day | Minimum Temp. (°C) | Maximum Temp. (°C) | Rainfall (mm) |
|-------------|-----|--------------------|--------------------|---------------|
| 05/10/2024 | Sa | 17.0 | 27.1 | 1.0 |
| 06/10/2024 | Su | 17.3 | 29.0 | 0 |
| 07/10/2024 | Мо | 15.3 | 29.6 | 0 |
| 08/10/2024 | Tu | 14.7 | 16.4 | 0 |
| 09/10/2024 | We | 14.3 | 17.7 | - |
| 10/10/2024 | Th | 12.2 | 23.3 | 0.8 |
| 11/10/2024 | Fri | 14.9 | 24.0 | 0 |

Table 3. Weather conditions recorded at Sydney (Observatory Hill) {station 066214} preceding and during the site assessment (site assessment date in bold)

2.2.3 Mapping and Analysis of Vegetation Communities

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

- Department of Planning and Environment (DPE) (2022) NSW State Vegetation Type Map; and
- Soil Landscapes of the Sydney 1:100,000 sheet (Chapman and Murphy 2009).

2.2.4 Impact Assessment

An assessment of likely occurrence was carried out for locally occurring threatened species (**Table 6** and **Table 8**) 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

Three (3) vegetation communities have been historically recorded within and surrounding the Subject Site (**Figure 5**):

- PCT 3039: Sydney Coastal Lilly Pilly-Palm Gallery Rainforest
- PCT 3136: Sydney Coastal Sandstone Foreshores Forest
- Unclassified Vegetation.

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:

- Sydney Coastal Sandstone Foreshores Forest; 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 6**.





Figure 5. Historically mapped vegetation communities within the Subject Property (DPE 2022).





Figure 6. Narla field-validated vegetation communities within the Subject Property.





Table 4. Description of Sydney Coastal Sandstone Foreshores Forest identified within the Subject Property



Sydney Coastal Sandstone Foreshores Forest (Remnant)

Extent within Subject 0.03ha

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 *Allocasuarina littoralis, Eucalyptus botryoides x saligna, Eucalyptus haemastoma, Ficus rubiginosa, Glochidion ferdinandi* and *Grevillea robusta*. Native mid-storey species included *Banksia integrifolia* subsp. *Integrifolia* and *Melaleuca hypericifolia*. The groundlayer was dominated by exotic species such as *Ehrharta erecta* and *Tradescantia fluminensis*. Native groundlayer groundcover species included *Entolasia stricta, Dianella caerulea* and *Dichondra repens*.

Description (NDCCEEW 2024)

A tall, occasionally very tall, sclerophyll open forest with a mixed understorey of dry shrubs and mesic small trees found along the foreshores of major waterways and coastal escarpments of Sydney. The tree canopy is very frequently dominated by *Angophora costata* with occasional local stands of *Eucalyptus botryoides* or rarely other eucalypt species. A sparse taller layer in the mid-stratum commonly includes *Banksia integrifolia* or *Allocasuarina littoralis* and occasionally *Ficus rubiginosa*.

A combination of hardy mesic small trees including *Pittosporum undulatum, Glochidion ferdinandi* and *Elaeocarpus reticulatus* are almost always present with *Notelaea longifolia* also common. In the suburban environment, the proliferation of these mesic species in the understorey at long unburnt sites has generated considerable debate, particularly as there appears to be strong correlation between time since fire and their density.

This PCT is mainly distributed within the Sydney Basin in sub-bioregions Pittwatter, Sydney Cataract and Cumberland. With increased elevation and distance from waterways this community typically grades into PCT 3592.

| 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 Bionet Vegetation Classification PCT: 3594 Sydney Coastal Sandstone Foreshores Forest (NDCCEEW 2024). |
|---|---|
| BC Act 2016 Status | Not Listed |
| EPBC Act 1999 Status | Not Listed |
| References | Department of Planning and Environment (NDCCEEW) (2024) Bionet Vegetation Classification. https://www.environment.nsw.gov.au/research/Visclassification.html |



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





Urban Exotic/Native Vegetation

Extent within Subject Property (approximate) 0.08ha

Description of the Vegetation within the Subject Property

The vegetation within this zone consisted of native and exotic urban vegetation, exotic weeds and common native species. Exotic species present included canopy *Jacaranda mimosifolia*. Exotic midstorey species included *Alpinia zerumbet, Polystichum munitum* and *Ravenala madagascariensis*. Exotic ground cover species included *Bidens Pilosa, Briza maxima, Cyclospermum leptophyllum, Malva sylvestris, Soliva sessilis* and *Sonchus tenerrimus*. Native species included *Eucalyptus haemastoma, Grevillea robusta, Lomandra longifolia, Philotheca myoporoides* and *Stephania japonica*.

Northern Beaches' priority weeds were also present. They included *Asparagus aethiopicus, Ageratina adenophora, Bryophyllum sp., Ligustrum lucidum, Ochna serrulate, Senna pendula, Solanum mauritianum* and *Tradescantia fluminensis.*

| 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 characteristics 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 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 (Vulnerable = V, Endangered = E, Endangered Population = EP, Critically Endangered = CE).

| Species | BC Act | EPBC Act | Habitat Requirements (NDCCEEW 2024b) | Likelihood of occurrence within the Subject Land | Further Impact Assessment Required? |
|--|-----------|-------------|--|---|--|
| <i>Acacia bynoeana</i> (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 in the form of Hawkesbury Sandstone soil. The site assessment in October 2024 was conducted within the approved survey period for this species (All Year) (NDCCEEW 2024b), and did not detect this species. | No |
| <i>Acacia terminalis subsp.</i> 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 October 2024 was conducted outside of the approved survey period for this species (May - July) (NDCCEEW 2024b), and did not detect this species. | No |



| Species | BC Act | EPBC Act | Habitat Requirements (NDCCEEW 2024b) | Likelihood of occurrence within the Subject Land | Further Impact Assessment Required? |
|---|-----------|-------------|--|---|--|
| <i>Allocasuarina portuensis</i> (Nielsen Park She-oak) | E | E | The original habitat is tall closed woodland. Canopy species present include <i>Ficus rubiginosa</i> , <i>Angophora costata</i> , <i>Elaeocarpus reticulatus</i> and <i>Gloichidion ferdinandi</i> with a shrub layer of <i>Pittosporum revolutum</i> , <i>Kunzea ambigua</i> and <i>Monotoca elliptica</i> . The original habitat occurs above a sandstone shelf approximately 20 m above the harbour. The shallow sandy soils are highly siliceous, coarsely textured and devoid of a soil profile. The original known habitat of the Neilsen Park She-oak is at Nielsen Park, in Woollahra local government area with propagation material has been planted successfully at Nielsen Park, Gap Bluff, Hermit Point and Vaucluse House. | Absent. Potential habitat is present within the Subject Land in the form of canopy, shrub layer species and Hawkesbury Sandstone soil. The site assessment in October 2024 was conducted within the approved survey period for this species (All Year) (NDCCEEW 2024b), and did not detect this species. | No |
| Asterolasia buxifolia | CE | CE | Rediscovered in 2000, little is known about the species. The growth rate appears to be very slow, and the flowering season short. Known from a single site associated with granite geology in the riparian zone of the Lett River. | Absent. Appropriate habitat is not present within the Subject Site. The site assessment in October 2024 was conducted outside of the approved survey period for this species (Sep - Nov) (NDCCEEW 2024b), 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 (<i>Syncarpia</i> <i>glomulifera</i> subsp. <i>glomulifera</i>), Smooth-barked Apple (<i>Angophora costata</i>), Sydney Peppermint (<i>Eucalyptus</i> <i>piperita</i>), Forest Oak (<i>Allocasuarina torulosa</i>) and Christmas Bush (<i>Ceratopetalum gummiferum</i>). | Absent. Appropriate geology is present within the Subject Site, however no appropriate associated vegetation is present. The site assessment in October 2024 was conducted within the approved survey period for this species (Sep - Oct) (NDCCEEW 2024b), and did not detect this species. | No |

| Species | BC Act | EPBC Act | Habitat Requirements (NDCCEEW 2024b) | Likelihood of occurrence within the Subject Land | Further Impact Assessment Required? |
|--|-----------|-------------|--|--|--|
| <i>Caladenia tessellata</i> (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. | 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 October 2024 was conducted within the approved survey period for this species (Sep - Oct) (NDCCEEW 2024b), and did not detect this species. | No |
| <i>Callistemon linearifolius</i> (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. | Absent. Whilst appropriate habitat may be present within the Subject Land, the Subject Land does not occur in the known localities. The site assessment in October 2024 was conducted within the approved survey period for this species (Oct - Jan) (NDCCEEW 2024b), and did not detect this species. | No |
| Chamaesyce psammogeton (Sand Spurge) | E | - | Grows on fore-dunes, pebbly strandlines and exposed headlands, often with Spinifex (<i>Spinifex sericeus</i>) and Prickly Couch (<i>Zoysia macrantha</i>). | Absent. No such habitat occurs within the Subject Land. Nevertheless, a targeted survey effort was conducted in October 2024 within the approved survey period for this species (All Year) (NDCCEEW 2024b), 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 <i>Eucalyptus</i> <i>sclerophylla, E. sieberi, Corymbia gummifera</i> and <i>Allocasuarina littoralis;</i> 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 |



| Species | BC Act | EPBC Act | Habitat Requirements (NDCCEEW 2024b) | Likelihood of occurrence within the Subject Land | Further Impact Assessment Required? |
|---|-----------|-------------|---|---|--|
| Epacris purpurascens var. purpurascens | V | - | Found in a range of habitat types, most of which have a strong shale soil influence. Recorded from Gosford in the north, to Narrabeen in the east, Silverdale in the west and Avon Dam vicinity in the South. | Absent. Geology present within the Subject Land does not have strong shale soil influence. Whilst appropriate habitat may be present within the Subject Land, the Subject Land does not occur in the known localities. The site assessment in October 2024 was conducted within the approved survey period for this species (Sep - Oct) (NDCCEEW 2024b), 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 <i>E. oblonga</i> Narrow- leaved Stringybark, <i>E. capitellata</i> (Brown Stringybark) and <i>E. haemastoma</i> Scribbly Gum. | Absent. Whilst appropriate habitat may be present within the Subject Land with associated species, the site assessment in October 2024 was conducted within the approved survey period for this species (All Year) (NDCCEEW 2024b), and did not detect this species. | No |
| <i>Eucalyptus nicholii</i> (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 and does not occur during in the known distribution range. The site assessment in October 2024 was conducted within the approved survey period for this species (All Year) (NDCCEEW 2024b), and did not detect this species. | No |



| Species | BC Act | EPBC Act | Habitat Requirements (NDCCEEW 2024b) | Likelihood of occurrence within the Subject Land | Further Impact Assessment Required? |
|--|-----------|-------------|---|---|--|
| <i>Genoplesium baueri</i> (Yellow Gnat- orchid) | - | | The species usually grows in heathland to shrubby woodland on sands or sandy loams or open forest, shrubby forest and heathy forest on well-drained sandy and gravelly soils. | Absent. Although the Subject Property contained remnant 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 October 2024 was conducted within the approved survey period for this species (Feb - October) (NDCCEEW 2024b), and did not detect this species. | No |
| <i>Grammitis stenophylla</i> (Narrow-leaf Finger Fern) | E | - | Moist places, usually near streams, on rocks in rainforest and dry and moist eucalypt forest. Is known from thirty (30) locations across New South Wales. The species is known to occur in twenty-four (24) conservations reserves. | Absent. Appropriate habitat does not occur within the Subject Land. A targeted survey effort was conducted in October 2024 within the approved survey period for this species (All Year) (NDCCEEW 2024b), and did not detect this species. | No |
| <i>Grevillea caleyi</i> (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 <i>Eucalyptus sieberi</i> and <i>E.</i> <i>gummifera</i> . Commonly found in the endangered Duffys Forest ecological community. | Absent. No such habitat occurs within the Subject Land as it occurs outside the restricted area and below known elevations. A targeted survey effort was conducted in October 2024 within the approved survey period for this species (All Year) (NDCCEEW 2024b), 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 remnant 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 October 2024 was conducted within the approved survey period for this species (All Year) (NDCCEEW 2024b), and did not detect this species. | No |

| Species | BC Act | EPBC Act | Habitat Requirements (NDCCEEW 2024b) | Likelihood of occurrence within the Subject Land | Further Impact Assessment Required? |
|--------------------|-----------|-------------|---|---|--|
| Hibbertia superans | V | V | Occurs in Riparian Scrub - e.g. <i>Tristaniopsis laurina,</i> <i>Baeckea myrtifolia</i> ; Woodland - e.g. <i>Eucalyptus</i> <i>haemastoma</i> ; and Open Forest - e.g. <i>Angophora costata,</i> <i>Leptospermum trinervium, Banksia ericifolia</i> . | Absent. No Riparian Scrub habitat occurs within the Subject Land, however associated vegetation does occur. The highly disturbed nature of the vegetation in the Subject Property makes it unlikely that this species would be present. The site assessment in October 2024 was conducted within the approved survey period for this species (Jul - Dec) (NDCCEEW 2024b), and did not detect this species. | No |
| Hygrocybe reesiae | V | - | Occurs as individuals or in groups, terrestrial rarely on wood and only if extremely rotten; substrates include soil, humus, or moss. Occurs in gallery warm temperate forests dominated by <i>Acmena smithii</i> (Lilly Pilly), <i>Backhousia myrtifolia</i> (Grey Myrtle), <i>Glochidion ferdinandi</i> (Cheese Tree) and <i>Pittosporum undulatum</i> (Sweet Pittosporum). Associated with alluvial sandy soils of the Hawkesbury Soil Landscapes with naturally low fertility and erodible. Known from type locality, Lane Cove Bushland Park, Lane Cove and other locations in the Sydney. | Low. Potential habitat within the Subject Site in the form of woody debris. Appropriate Hawkesbury Soil Landscapes does occur within the Subject Site. However, the highly disturbed nature of the vegetation in the Subject Property makes it unlikely that this species would be present. | No |



| Species | BC Act | EPBC Act | Habitat Requirements (NDCCEEW 2024b) | 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. | Absent. Appropriate soil type is present within the Subject Land, however 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 October 2024 was conducted within the approved survey period for this species (Sep - Nov) (NDCCEEW 2024b), and did not detect this species. | No |
| <i>Leucopogon exolasius</i> (Woronora Beard- heath) | V | v | This species is found along the upper Georges River area and in Heathcote National Park. The plant occurs in woodland on sandstone. | Low. While appropriate Hawkesbury Soil Landscapes does occur within the Subject Site, the Subject site is not located along the upper Georges River area and in Heathcote National Park, making this species unlikely to be present. | No |
| <i>Macadamia integrifolia</i> (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. Subject Site does not occur within the known restricted locality. A targeted survey was conducted in October 2024 within the approved survey period for this species (All Year) (NDCCEEW 2024b), and did not detect this species. | No |
| <i>Melaleuca biconvexa</i> (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. Associated geology and habitat does not occur within the Subject Land. A targeted survey effort was conducted in October 2024 within the approved survey period for this species (All Year) (NDCCEEW 2024b), and did not detect this species. | No |



| Species | BC Act | EPBC Act | Habitat Requirements (NDCCEEW 2024b) | Likelihood of occurrence within the Subject Land | Further Impact Assessment Required? |
|--|-----------|-------------|---|---|--|
| <i>Melaleuca deanei</i> (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 October 2024 was conducted within the approved survey period for this species (All Year) (NDCCEEW 2024b), and did not detect this species. | No |
| <i>Microtis angusii</i> (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. | Absent. 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 October 2024 was undertaken within the appropriate survey month (Oct) (NDCCEEW 2024b), and no individuals were identified. | No |
| <i>Persicaria elatior</i> (Knotweed) | v | v | This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance. | Low. No appropriate habitat is present in the form of a swamp forest. Disturbance is present on the site, however, in the form of exotic dominate vegetation. | No |
| <i>Persoonia hirsute</i> (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. Potential habitat may exist within the Subject Property in the form of sandy soils. The site assessment in October 2024 was conducted within the approved survey period for this species (All Year) (NDCCEEW 2024b), and did not detect this species. | No |



| Species | BC Act | EPBC Act | Habitat Requirements (NDCCEEW 2024b) | Likelihood of occurrence within the Subject Land | Further Impact Assessment Required? |
|---|-----------|-------------|---|---|--|
| 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 occur within the Subject Property, however, the highly disturbed nature of the vegetation makes it unlikely that this species would be present within the Subject Property. The site assessment in October 2024 was conducted within the approved survey period for this species (Oct) (NDCCEEW 2024b), and did not detect this species. | No |
| Prasophyllum fuscum (Slaty Leek Orchid) | CE | V | Grows in moist heath, often along seepage lines. The known population grows in moist sandy soil over sandstone amongst sedges and grasses in an area that appears to be regularly slashed by the local council. The type specimen is from "moist meadows towards the Georges River" in the Sydney area. The species is likely to be extinct from this area. | Low. No appropriate habitat is present in the form of moist heath or sedge-dominated vegetation. Furthermore, 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. | No |
| <i>Prostanthera densa</i> (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. The Subject Site does occur on sandstone geology; however, the highly disturbed nature of the vegetation makes it unlikely that this species would be present within the Subject Property. The site assessment in October 2024 was conducted within the approved survey period for this species (All Year) (NDCCEEW 2024b), 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. | Low. Appropriate Hawkesbury sandstone geology soil type is present within the Subject Land; however, does not occur on the Somersby Plateau. The site assessment in October 2024 was conducted within the approved survey period for this species (Oct - Dec) (NDCCEEW 2024b), and did not detect this species. | No |



| Species | BC Act | EPBC Act | Habitat Requirements (NDCCEEW 2024b) | Likelihood of occurrence within the Subject Land | Further Impact Assessment Required? |
|--|---|-------------|---|---|--|
| <i>Prostanthera marifolia</i> (Seaforth Mint-bush) | CE | CE | Occurs in localised patches in or in close proximity to the endangered Duffy's Forest ecological community. Located on deeply weathered clay-loam soils associated with ironstone and scattered shale lenses. This soil type only occurs on ridge tops. It is currently only known from the northern Sydney suburb of Seaforth and has a very highly restricted distribution within the Sydney Basin Bioregion. | Absent. The Subject Property does not occur in or near endangered Duffy's Forest ecological community. Subject Property does not occur on known associated geology. 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 October 2024 was undertaken within the appropriate survey month (All year) (NDCCEEW 2024b), and no individuals were identified. | 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. Remnant sclerophyll open forest is 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 October 2024 was conducted within the approved survey period for this species (Sep - Nov) (NDCCEEW 2024b), and did not detect this species. | No |
| <i>Rhodamnia rubescens</i> (Scrub Turpentine) | PubCECEFound in littoral, warm temperate and subtropical and sedimentary soils.Absent. No appropriate habitat or geology is pr within the Subject Property. The site assessme October 2024 was conducted within the app survey period for this species (All Year) (NDC) 2024b), and did not detect this species. | | Absent. No appropriate habitat or geology is present within the Subject Property. The site assessment in October 2024 was conducted within the approved survey period for this species (All Year) (NDCCEEW 2024b), and did not detect this species. | No | |



| Species | BC Act | EPBC Act | Habitat Requirements (NDCCEEW 2024b) | Likelihood of occurrence within the Subject Land | Further Impact Assessment Required? |
|---|-----------|-------------|---|--|--|
| <i>Rhodomyrtus psidioides</i> (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 as the Subject Site does not occur near a creek, subtropical rainforest. A targeted survey effort was conducted in October 2024 conducted within the approved survey period for this species (All Year) (NDCCEEW 2024b), and did not detect this species. | No |
| <i>Sarcochilus hartmannii</i> (Hartman's Sarcochilus) | V | V | Favours cliff faces on steep narrow ridges supporting eucalypt forest and clefts in volcanic rock from 500 to 1,000 m in altitude. Also found occasionally at the bases of fibrous trunks of trees, including cycads and grass- trees. From the Richmond River in northern NSW to Gympie in south-east Queensland. | Absent. Subject Site does not occur within the known locality, geology or landscape features. A targeted survey was conducted in October 2024 within the approved survey period for this species (Oct - Nov) (NDCCEEW 2024b), 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 present in the form of remnant littoral rainforest. A targeted survey effort was conducted in October 2024 within the approved survey period for this species (All Year) (NDCCEEW 2024b), 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. | Absent. 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 October 2024 was conducted within the approved survey period for this species (Aug - Nov) (NDCCEEW 2024b), and did not detect this species. | No |

| Species | BC Act | EPBC Act | Habitat Requirements (NDCCEEW 2024b) | Likelihood of occurrence within the Subject Land | Further Impact Assessment Required? |
|---|-----------|-------------|---|---|--|
| <i>Tetratheca juncea</i> (Black-eyed Susan) | V | v | It is usually found in low open forest/woodland with a mixed shrub understorey and grassy groundcover. However, it has also been recorded in heathland and moist forest. The majority of populations occur on low nutrient soils associated with the Awaba Soil Landscape. It generally prefers well-drained sites below 200m elevation and annual rainfall between 1000 - 1200mm. The preferred substrates are sandy skeletal soil on sandstone, sandy-loam soils, low nutrients; and clayey soil from conglomerates, pH neutral. | Absent. 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 October 2024 was conducted outside the approved survey period for this species (Sep - Oct) (NDCCEEW 2024b), 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 (Themeda trandra) were identified within the Subject Site, during survey making it unlikely this species would be present within the Subject Site. | No |
| <i>Triplarina imbricata</i> (Creek Triplarina) | E | E | Occurs along watercourses in low open forest with <i>Tristaniopsis laurina</i> (Water Gum) or in montane bogs, often with <i>Baekea amissa</i> . Found only in a few locations in the escarpment ranges and near Tabulam in north-east NSW. The species was previously recorded in Parramatta, near Sydney, however, the species is no longer thought to occur in this area. | Absent. No appropriate habitat is not present and Subject Site does not occur in known localities. A targeted survey effort was conducted in October 2024 conducted within the approved survey period for this species (All Year) (NDCCEEW 2024b), and did not detect this species. | |



4.2 Fauna Habitat

Details of the fauna habitat recorded within the Subject Property are included in **Table 7**. 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 8**.

| Habitat component | Site values | | |
|---|---|--|--|
| Coarse woody debris | Present in the form of wood fire piles. | | |
| Rock outcrops and bush rock | Present throughout the Subject Site. | | |
| Caves, crevices and overhangs | Overhang present. | | |
| Culverts, bridges, mine shafts, or abandoned structures | Two (2) abandoned dwellings. | | |
| Nectar/lerp-bearing Trees | Nectar-bearing trees were recorded within the Subject Property including <i>Eucalyptus botryoides x saligna, Eucalyptus haemastoma</i> and <i>Grevillea robusta.</i> These trees may provide intermittent nectar sources for nomadic nectivores such as the Grey-headed Flying-fox. | | |
| Nectar-bearing shrubs | <i>Ceratopetalum gummiferum</i> and <i>Melaleuca hypericifolia</i> 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 <i>Eucalyptus botryoides x saligna</i> and <i>Eucalyptus haemastoma</i> . | | |
| She-oak fruit (Glossy Black Cockatoo feed) | Allocasuarina littoralis was identified within the Subject Property | | |
| Seed-bearing trees and shrubs | Seed-bearing trees including <i>Banksia integrifolia</i> may provide foraging habitat for various bird species. | | |
| Soft-fruit-bearing trees | <i>Glochidion ferdinandi</i> 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 | Absent. | | |
| Decorticating bark | Absent. | | |
| Wetlands, soaks, and streams | Absent. | | |
| Open water bodies | The Subject Property borders Peach Tree Bay and, as such, may provide intermittent foraging/sheltering habitat for shorebird species. | | |
| Estuarine, beach, mudflats, and rocky foreshores | The Subject Property contains a small rocky foreshore extending to Peach Tree Bay. This area will not be impacted by the proposed development | | |
| Nests and Possums Dreys | Absent. | | |

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



4.3 Threatened Fauna

No threatened fauna species were observed during the site assessment in October 2024 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 grisea (Sooty Shearwater);
- Calidris acuminata (Sharp-tailed Sandpiper);
- *Calidris canutus* (Red Knot, Knot);
- Calidris ferruginea (Curlew Sandpiper);
- Calidris melanotos (Pectoral Sandpiper);
- Charadrius leschenaultia (Greater Sand Plover);
- Cuculus optatus (Oriental Cuckoo, Horsfield's Cuckoo);
- Diomedea antipodensis (Antipodean Albatross);
- Diomedea epomophora (Southern Royal Albatross);
- Diomedea exulans (Wandering Albatross);
- Diomedea sanfordi (Northern Royal Albatross);
- 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);
- Motacilla flava (Yellow Wagtail);
- Myiagra cyanoleuca (Satin Flycatcher);
- Numenius madagascariensis (Eastern Curlew);
- Pandion haliaetus (Osprey);
- Phaethon lepturus (White-tailed Tropicbird);
- Thalassarche bulleri (Buller's Albatross);
- Thalassarche cauta (Shy Albatross);
- Thalassarche eremita (Chatha Albatross);
- Thalassarche impavida (Campbell Albatross);
- Thalassarche melanophris (Black-browed Albatross);
- Thalassarche salvini (Salvin's Albatross);
- Thalassarche steadi (White-capped Albatross);
- 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 7. Targeted survey for threatened species and habitat within the Subject Property.



Table 8. 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 | EPB C Act | Likelihood of Occurrence | Foraging Habitat Present Within the Subject Property | Breeding Habitat Present Within the Subject Property | Anticipated Impact | Further Impact Assessment Required? |
|--|-----------|-----------------|-----------------------------|---|---|--|--|
| <i>Anthochaera phrygia</i> (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 assessment conducted in October 2024 did not detect this species. | No |
| <i>Botaurus poiciloptilus</i> (Australasian Bittern) | E | E | Low | Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (Typha spp.) and spikerushes (Eleocharis spp.). Hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails. No appropriate foraging habitat is present within of the Subject Site. | Breeding occurs in summer from October to January; nests are built in secluded places in densely- vegetated wetlands on a platform of reeds; there are usually six olive-brown eggs to a clutch. No appropriate breeding habitat is present within the Subject Site. | Negligible impact to foraging habitat or breeding habitat is expected as potential habitat is outside of the Subject Site. Site assessment in October 2024 did not detect this species. | No |



| Species | BC Act | EPB C Act | Likelihood of Occurrence | Foraging Habitat Present Within the Subject Property | Breeding Habitat Present Within the Subject Property | Anticipated Impact | Further Impact Assessment Required? |
|--|-----------|-----------------|-----------------------------|--|--|---|--|
| <i>Calidris ferruginea</i> (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 assessment conducted in October 2024 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 seeds. It favours box-gum and box- ironbark assemblages or dry forests in coastal areas and is 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. No hollow-bearing trees were identified within the Subject Property. | Minimal impact to potential foraging habitat given the mobility of this species. No anticipated net loss of breeding habitat. Site assessment conducted in October 2024 did not detect this species. | No |
| <i>Calyptorhynchus lathami lathami</i> (South-eastern Glossy Black- Cockatoo) | V | _ | Low | This species feeds almost exclusively on the seeds of several species of she-oak (<i>Casuarina</i> and <i>Allocasuarina</i> species). Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of she-oak occur. <i>Allocasuarina littoralis</i> was identified within the Subject Property. | Dependent on large hollow- bearing eucalypts for nest sites. No hollow-bearing trees were identified within the Subject Property. | Minimal impact to potential foraging habitat given the mobility of this species. No anticipated net loss of breeding habitat. Site survey conducted in October 2024 did not detect this species. | No |



| Species | BC Act | EPB C Act | Likelihood of Occurrence | Foraging Habitat Present Within the Subject Property | Breeding Habitat Present Within the Subject Property | Anticipated Impact | Further Impact Assessment Required? |
|--|-----------|-----------------|-----------------------------|--|--|---|--|
| <i>Chalinolobus dwyeri</i> (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 a 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 (<i>Petrochelidon ariel</i>). Cliff overhang and two abandoned dwellings are present 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 |
| <i>Climacteris picumnus victoriae</i> (Brown Treecreeper) | V | _ | Low | Found in eucalypt woodlands and dry open forest mainly dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species. Usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging. Potential habitat is found within the Subject Site. | This species uses hollows in standing dead or live trees and tree stumps. Potential breeding habitat is present within the Subject Site. No hollow-bearing trees were identified within the Subject Property. | Minimal impact to foraging or breeding habitat is anticipated. Site assessment in October 2024 did not detect this species. | No |
| <i>Dasyornis brachypterus</i> (Eastern Bristlebird) | E | E | Very low | This species requires dense, low vegetation including heath and open woodland with a heathy understorey. Low quality 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 or nests were identified 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 October 2024 did not detect this species. | No |



| Species | BC Act | EPB C Act | Likelihood of Occurrence | Foraging Habitat Present Within the Subject Property | Breeding Habitat Present Within the Subject Property | Anticipated Impact | Further Impact Assessment Required? |
|---|-----------|-----------------|-----------------------------|---|--|--|--|
| 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. Potential habitat was identified within the Subject Property. | Minimal impact to foraging or breeding habitat is anticipated. | No |
| <i>Erythrotriorchis radiatus</i> (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. No impact to breeding habitat. Site survey conducted in October 2024 did not detect this species. | No |
| <i>Falco hypoleucos</i> (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 October 2024 did not detect this species. | No |



| Species | BC Act | EPB C Act | Likelihood of Occurrence | Foraging Habitat Present Within the Subject Property | Breeding Habitat Present Within the Subject Property | Anticipated Impact | Further Impact Assessment Required? |
|--|-----------|-----------------|-----------------------------|---|--|--|--|
| <i>Grantiella picta</i> (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 October 2024 did not detect this species. | No |
| <i>Heleioporus australiacus</i> (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, due to its location to the coast. | 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 loss of breeding habitat. | No |
| <i>Hirundapus</i> <i>caudacutus</i> (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 loss of breeding habitat. Site survey conducted in October 2024 did not detect this species. | No. |



| Species | BC Act | EPB C Act | Likelihood of Occurrence | Foraging Habitat Present Within the Subject Property | Breeding Habitat Present Within the Subject Property | Anticipated Impact | Further Impact Assessment Required? |
|---|-----------|-----------------|-----------------------------|--|---|--|--|
| Hoplocephalus bungaroides (Broad-headed Snake) | E | v | Low | Moves from the sandstone rocks to shelters in crevices 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. Cliff crevices are present within the Subject Land but not within 500m of the escarpment. | Shelters in rock crevices and under flat sandstone rocks on exposed cliff edges during autumn, winter and spring. Cliff crevices and flat sandstone rocks are present within the Subject Land. | Minimal anticipated loss of foraging or breeding habitat due to habitat not being impacted by proposed development. Site survey conducted in October 2024 did not detect this species. | No |
| <i>Isoodon obesulus obesulus</i> (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 <i>Xanthorrhoea</i> spp., blackberry bushes, and other shrubs, or in rabbit burrows. <i>Xanthorrhoea</i> spp. occur within the Subject Property. | Minimal anticipated loss of foraging and breeding habitat. | No |
| <i>Lathamus discolor</i> (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 <i>Eucalyptus</i> <i>robusta, Corymbia maculata, C.</i> <i>gummifera, E. tereticornis, E. sideroxylon,</i> <i>E. pilularis,</i> and <i>E. albens.</i> 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 is present within the broader locality. No anticipated net loss of breeding habitat. Site survey conducted in October 2024 did not detect this species. | No |



| Species | BC Act | EPB C Act | Likelihood of Occurrence | Foraging Habitat Present Within the Subject Property | Breeding Habitat Present Within the Subject Property | Anticipated Impact | Further Impact Assessment Required? |
|--|-----------|-----------------|-----------------------------|--|---|--|--|
| <i>Litoria aurea</i> (Green and Golden Bell Frog) | E | V | Very low | Species forage on insects and inhabit marshes, dams and stream sides, particularly those containing bullrushes (<i>Typha</i> spp.) or spike rushes (<i>Eleocharis</i> 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. | No |
| <i>Melanodryas cucullata cucullata</i> (South- eastern Hooded Robin) | V | _ | Low | Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses. Often perches on low dead stumps and fallen timber or on low-hanging branches, using a perch-and-pounce method of hunting insect prey. There is a lack of shrub layer and tall native grasses present within the Subject Site. | The nest is a small, neat cup of bark and grasses bound with webs, in a tree fork or crevice, from less than 1 m to 5 m above the ground. The nest is defended by both sexes with displays of injury-feigning, tumbling across the ground. No nests were identified during site assessment in April 2024. | No impact to foraging or breeding habitat is anticipated. Site assessment in October 2024 did not detect this species. | No |
| <i>Mixophyes balbus</i> (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. No such 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. | No anticipated loss of foraging and breeding habitat. | No |



| Species | BC Act | EPB C Act | Likelihood of Occurrence | Foraging Habitat Present Within the Subject Property | Breeding Habitat Present Within the Subject Property | Anticipated Impact | Further Impact Assessment Required? |
|--|-----------|-----------------|-----------------------------|--|--|---|--|
| <i>Neophema chrysostoma</i> (Blue-winged Parrot) | V | V | Low | Inhabit coastal, sub-coastal and inland areas through semi-arid zones. Can occur in altered environments. Forage in pairs mainly near ground level for seeds from native and introduced grasses, herbs and shrubs. Foraging habitat is not present the Subject Site. | N/A. Breeding occurs in Tasmania, coastal south-eastern Southern Australia and southern Victoria. | No impact to foraging or breeding habitat is anticipated. Site assessment in April 2024 did not detect this species. | No |
| <i>Notamacropus parma</i> (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. Sub- optimal 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 occur within the Subject Land. | Minimal anticipated impact to foraging or breeding habitat. Site survey conducted in October 2024 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 Peach Tree Bay, 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 October 2024 did not detect this species. | No |



| Species | BC Act | EPB C Act | Likelihood of Occurrence | Foraging Habitat Present Within the Subject Property | Breeding Habitat Present Within the Subject Property | Anticipated Impact | Further Impact Assessment Required? |
|--|-----------|-----------------|-----------------------------|---|---|--|--|
| <i>Petauroides volans</i> (Greater Glider) | - | V | Very low | This species is typically found in taller, montane, moist eucalypt forests within relatively old trees and abundant hollows. No such 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. No hollow- bearing trees were identified within the Subject Property. | No anticipated loss to foraging and breeding habitat. | No |
| <i>Petaurus australis australis</i> (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 insects, including nectar, sap, honeydew and manna with pollen and insects providing protein. No such foraging habitat is present within the Subject Site. | Den, often in family groups, in hollows of large trees. No hollow- bearing trees were identified within the Subject Property. | No anticipated loss to foraging and breeding habitat. | 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. No potential feed trees are present within the Subject Property, which provides suboptimal foraging habitat for this species. The highly urbanised and fragmented nature of the Subject Property suggests the potential for a 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 October 2024 did not detect this species. | No |

| Species | BC Act | EPB C Act | Likelihood of Occurrence | Foraging Habitat Present Within the Subject Property | Breeding Habitat Present Within the Subject Property | Anticipated Impact | Further Impact Assessment Required? |
|--|-----------|-----------------|-----------------------------|---|---|--|--|
| <i>Pseudomys novaehollandiae</i> (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 burrows were identified within the Subject Property. | Negligible, no anticipated net loss of foraging or breeding habitat. | No |
| <i>Pteropus poliocephalus</i> (Grey-headed Flying-fox) | V | V | Moderate | Feed on the nectar and pollen of native trees, in particular <i>Eucalyptus</i> , <i>Melaleuca</i> , and <i>Banksia</i> , 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. | No |
| Pycnoptilus floccosus (Pilotbird) | _ | V | Low | Pilotbirds are strictly terrestrial, living on the ground in dense forests with heavy undergrowth. Largely sedentary, they are typically seen hopping briskly over the forest floor and foraging on damp ground or among leaf-litter. Forage mostly in pairs for insects, and occasionally eat seeds and fruits. No suitable habitat was present within the Subject Site. | Build a domed nest on or near the ground. No domed nests were identified within the Subject Site. | No impact to foraging or breeding habitat is anticipated. Site assessment in October 2024 did not detect this species. | No |



| Species | BC Act | EPB C Act | Likelihood of Occurrence | Foraging Habitat Present Within the Subject Property | Breeding Habitat Present Within the Subject Property | Anticipated Impact | Further Impact Assessment Required? |
|--|-----------|-----------------|-----------------------------|---|---|---|--|
| <i>Rostratula australis</i> (Australian Painted Snipe) | E | E | Low | This species prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Forages nocturnally on mud-flats and in shallow water. Feeds on worms, molluscs, insects and some plant-matter. No appropriate foraging habitat is present within the Subject Site. | Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds. No appropriate nesting habitat is present within the Subject Site. | No impact to foraging or breeding habitat is anticipated. The site assessment in October 2024 did not detect this species. | No |
| <i>Stagonopleura guttata</i> (Diamond Firetail) | V | - | Low | Found in grassy eucalypt woodlands. Feeds exclusively on the ground, on ripe and partly ripe grass and herb seeds and green leaves, and on insects (especially in the breeding season). Sub-optimal potential foraging habitat may occur within the Subject Site. | Nests are globular structures built either in the shrubby understorey, or higher up, especially under hawk's or raven's nests. No nests were identified within the Subject Site. | Some impact to foraging habitat will occur, however no impact to breeding habitat is anticipated as no trees are proposed to be removed. Site assessment in October 2024 did not detect this species. | No |



5.2 Vegetation

Approximately 0.01ha of Urban Exotic/Native Vegetation removal is proposed to be impacted in order to accommodate the proposed development. This will involve the removal five (5) trees are proposed for removal to facility the development (Smart Arbor Professional Consulting 2024 & Corona Project 2024). No hollow-bearing trees will be removed.



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 9**.

Table 9. Measures to be implemented before, during and after construction to avoid and minimise the impacts of the proposed development

| 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.Pre- constructionPre- constructionPre- constructionProponentAssigning a Project EcologistThe 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.Pre- construction phaseProponent | Action | Outcome | Timing | Responsibility |
|--|----------------------------------|--|-------------------------------|----------------|
| 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) | 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 |



| 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 Sydney Coastal Sandstone Foreshores 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. One (1) Priority Weed of Greater Sydney was identified within the broader Subject Property: Aasparagus aethiopicus Seven (7) Priority Weed for the Northern Beaches were identified within the broader Subject Property: Aasparagus aethiopicus Ageratina adenophora Bryophyllum sp. Ligustrum lucidum | Pre- construction phase | Proponent |



| Action | Outcome | Timing | Responsibility |
|------------|--|--------|------------------------|
| | Ochna serrulata | | |
| | Senna pendula | | |
| | Solanum mauritianum | | |
| | Tradescantia fluminensis | | |
| | The proposed development is uplikely to result in significant changes to local storm water rupoff so it is | Post- | Proponent |
| Stormwater | expected there will be no exacerbated impact on native species of flora and fauna. | | |
| | | | Construction Architect |



7. Conclusion

This assessment indicates that the relevant provisions of the Environmental Planning and Assessment Act 1979, Biodiversity Conservation Act 2016, and Environmental Protection and Biodiversity Conservation Act 1999 have been satisfied.

The proposed development at 131a Seaforth Cresent, Seaforth, involves alterations and additions to an existing dwelling, as well as the construction of an inclinator to connect the dwelling to the shore and road.

In summary, the proposed development will impact a total of 0.05ha of the following vegetation communities:

- 0.003ha Planted Native and Exotic Garden Vegetation
- 0.001ha Sydney Coastal Sandstone Forest

The majority of vegetation to be impacted will be a mixture of native and exotic garden plants. Five (5) canopy trees will be removed (Smart Arbor Professional Consulting 2024).

It is not anticipated that any threatened flora or fauna will be 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.



8. References

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9. Appendices

Appendix A. Tree Location and Impact Plan (Smart Arbor Professional Consulting 2024) Appendix B. Flora species identified within the Subject Property

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





Appendix A. Tree Location and Impact Plan (Smart Arbor Professional Consulting 2024)



Appendix B. Flora species identified within the Subject Property

| Scientific Name | Canopy | Mid-Storey | Groundcover |
|---------------------------------|--------|------------|-------------|
| Aasparagus aethiopicus** | | | X |
| Adiantum aethiopicum | | x | |
| Agave sp.* | | | X |
| Ageratina adenophora** | | | x |
| Allocasuarina littoralis | x | | |
| Aloe sp.* | | | x |
| Alpinia zerumbet* | | x | |
| Banksia integrifolia | x | | |
| Bidens pilosa* | | | x |
| Brachypodium sp.* | | | X |
| Briza maxima* | | | X |
| Bryophyllum sp.** | | | x |
| Ceratopetalum gummiferum | | x | |
| Crassula muticava* | | | x |
| Cyathea medullaris | | X | |
| Cyclospermum leptophyllum* | | | x |
| Dianella caerulea | | | X |
| Dichondra repens | | | X |
| Ehrharta erecta* | | | x |
| Entolasia stricta | | | x |
| Eucalyptus species (Ironbark) | x | | |
| Eucalyptus botryoides x saligna | x | | |
| Eucalyptus haemastoma | x | | |
| Ficus rubiginosa | x | | |
| Freesia laxa* | | | x |
| Glochidion ferdinandi | x | | |
| Grevillea robusta | x | | |
| Hedera helix* | | | x |
| Jacaranda mimosifolia* | x | | |
| Kalanchoe sp.* | | | x |
| Leptospermum sp. | | x | |
| Ligustrum lucidum** | | x | |
| Lomandra longifolia | | x | |
| Malva sylvestris* | | | x |
| Melaleuca hypericifolia | | x | |
| Monstera deliciosa* | | | X |
| Nephrolepis exaltata* | | | X |
| Ochna serrulata** | | x | |
| Oxalis sp.* | | | X |
| Pandorea jasminoides | | | X |
| Philotheca myoporoides | | x | |



| Scientific Name | Canopy | Mid-Storey | Groundcover |
|----------------------------|--------|------------|-------------|
| Phyllostachys aurea* | | X | |
| Pittosporum undulatum | X | | |
| Plantago major* | | | X |
| Polystichum munitum* | | x | |
| Ravenala madagascariensis* | | X | |
| Senna pendula** | | x | |
| Sigesbeckia orientalis | | x | |
| Solanum mauritianum** | | X | |
| Solanum nigrum* | | | X |
| Solidago sp.* | | | |
| Soliva sessilis* | | | X |
| Soncgus asper* | | | X |
| Sonchus tenerrimus* | | | X |
| Stephania japonica | | | X |
| Taraxacum sp.* | | | X |
| Tradescantia fluminensis** | | | X |
| Trifolium repens* | | | X |
| Xanthorrhoea sp. | | x | |
| * Denotes exotic species, | | | |

** Denotes priority weed



| Class | Scientific Name | ne Common Name | |
|----------|---------------------------------|--------------------------|-----------|
| | Alectura lathami | Bush Turkey | |
| | Cacatua galerita | Sulphur-crested Cockatoo | |
| | Chroicocephalus novaehollandiae | Silver Gull | |
| Aves | Dacelo novaeguineae | Laughing Kookaburra | Protected |
| | Manorina melanocephala | Noisy Miner | - |
| | Trichoglossus moluccanus | Rainbow Lorikeet | |
| Mammalia | Wallabia bicolor | Swamp Wallaby | - |

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







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