Flora and Fauna Assessment Report

80 Silverdale Road, The Oaks

Report prepared by Narla Environmental Pty Ltd

for Mr and Mrs Nocera C/- Proficient Construction Pty Ltd

April 2024

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Prepared for:	Mr and Mrs Nocera C/- Proficient Construction Pty Ltd
Prepared by:	Narla Environmental Pty Ltd
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Report Certification

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Glossary

Acronym/ Term	Definition
APZ	Asset Protection Zone
BAM	Biodiversity Assessment Method
BC Act	New South Wales Biodiversity Conservation Act 2016
Biodiversity values	The composition, structure and function of ecosystems, including threatened species, populations and ecological communities, and their habitats
CEMP	Construction Environmental Management Plan
DA	Development Application
DAFF	Department of Agriculture, Fisheries and Forestry
DCCEEW	Department of Climate Change, Energy, the Environment and Water
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 (EP&A Act 1979).
DPE	Department of Planning and the Environment
DPI	Department of Primary Industries
DPIE	Department of Planning, Industry and the Environment (now DPE)
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	A 10km x 10km cell centred on the Subject Property
m	metres
Subject Property	80 Silverdale Road, The Oaks NSW 2570 (Lot 3/-/DP 1201486)
Subject Site	The footprint of the proposed activity
Threatened species, populations and ecological communities	Species, populations and ecological communities specified in Schedules 1 and 2 of the BC Act 2016.
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
WDCP	Wollondilly Development Control Plan 2016
WLEP	Wollondilly Local Environmental Plan 2011

1. Introduction

1.1 Project Background

Narla Environmental Pty Ltd (Narla) was engaged by Proficient Constructions Pty Ltd on behalf of Mr and Mrs Nocera (the Proponent) to undertake a Flora and Fauna Assessment (FFA) as part of a rezoning proposal for 80 Silverdale Road, The Oaks (Lot 3/-/DP 1201486; the 'Subject Property'; **Figure 1**). The proposal aims to rezone the Subject Property from RU2 Rural Landscape to RU5 Large Lot Residential. The proposal also aims to establish 9 new lots within the Subject Property with the remaining areas to be left as a residual lot. All areas associated with the proposed creation of the new lots are hereafter referred to as the 'Subject Site' (**Figure 1; Appendix A**).

Narla have produced this report in order to assess any potential impacts associated with the proposed rezoning and lot creation (the Subject Site) 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).

1.2 Site Description and Location

The Subject Property is located adjacent to small, lot, urban properties to the south as well as large rural properties to the north, east and west. The Subject Property covers an area of approximately 32.19ha within the suburb of The Oaks, in the Wollondilly Local Government Area (LGA). The Subject Property consists of areas of historically cleared land used for grazing cattle as well as areas of remnant, canopy vegetation with an understory dominated by *Lantana camara*.

The Subject Site covers an area of approximately 5.41ha in the south western extent of the Subject Property and is largely comprised of exotic dominated grassland as well as sections of remnant and regenerating native vegetation. One (1) unmapped drainage line was also present dissecting the Subject Site.

1.2.1 Topography, Geology and Soil

The Subject Site is located on mostly flat terrain at the top of a crest, with elevation ranging between 284m and 275m above sea level (Google Earth 2024). The Subject Site is situated on the Blacktown and Picton soil landscapes as described in the Soil Landscapes of the Wollongong-Port Hacking 1:100,000 sheet (Hazelton and Tille 1990; **Figure 2**).

The Blacktown Soil Landscape is characterized by gently undulating rises on Wianamatta Group shales with broad rounded crests and ridges with gently inclined slopes. Local relief to 30 m with slopes usually >5%. The geology of the landscape is comprised of the Wianamatta Group—Ashfield Shale consisting of laminite and dark grey siltstone, Bringelly Shale which consists of shale with occasional calcareous claystone, laminite and infrequent coal, and Minchinbury Sandstone consisting of fine to medium-grained quartz lithic sandstone. Soils are shallow to moderately deep (>100 cm) hard setting mottled texture contrast soils, Red and Brown Podzolic Soils crests grading to Yellow Podzolic Soils on lower slopes and in drainage lines.

The Picton Landscape is characterised by mass movement and terracettes on Wianamatta Group and derived colluvial materials, usually having a southerly aspect. The geology of the landscape consists of Ashfield Shale—laminite and dark grey shale including Minchinbury Sandstone. Bringelly Shale—shale, calcareous claystone, laminite, including Razorback Sandstone member, fine- to medium-grained lithic quartz sandstone, and rare coal.

1.2.2 Hydrology

No mapped watercourses are located within the Subject Site. One (1) unmapped drainage line however was identified intersecting the Subject Site. Several mapped 1st order watercourses and dams are present however within the broader Subject Property, with one located directly north of the Subject Site (**Figure 3**). The proposed rezoning is not expected to impact on any surrounding watercourses or waterbodies.

1.3 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 New South Wales BC Act and/or the Commonwealth 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 in the Subject Site;
- Record the presence and extent of any known or potential fauna habitat features such as nests, drays, caves, crevices, culverts, pools, soaks, flowering trees, fruiting trees, hollow-bearing trees and provide recommendations for on-going management of these habitat features and any fauna present;
- Record the presence and 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 activity.

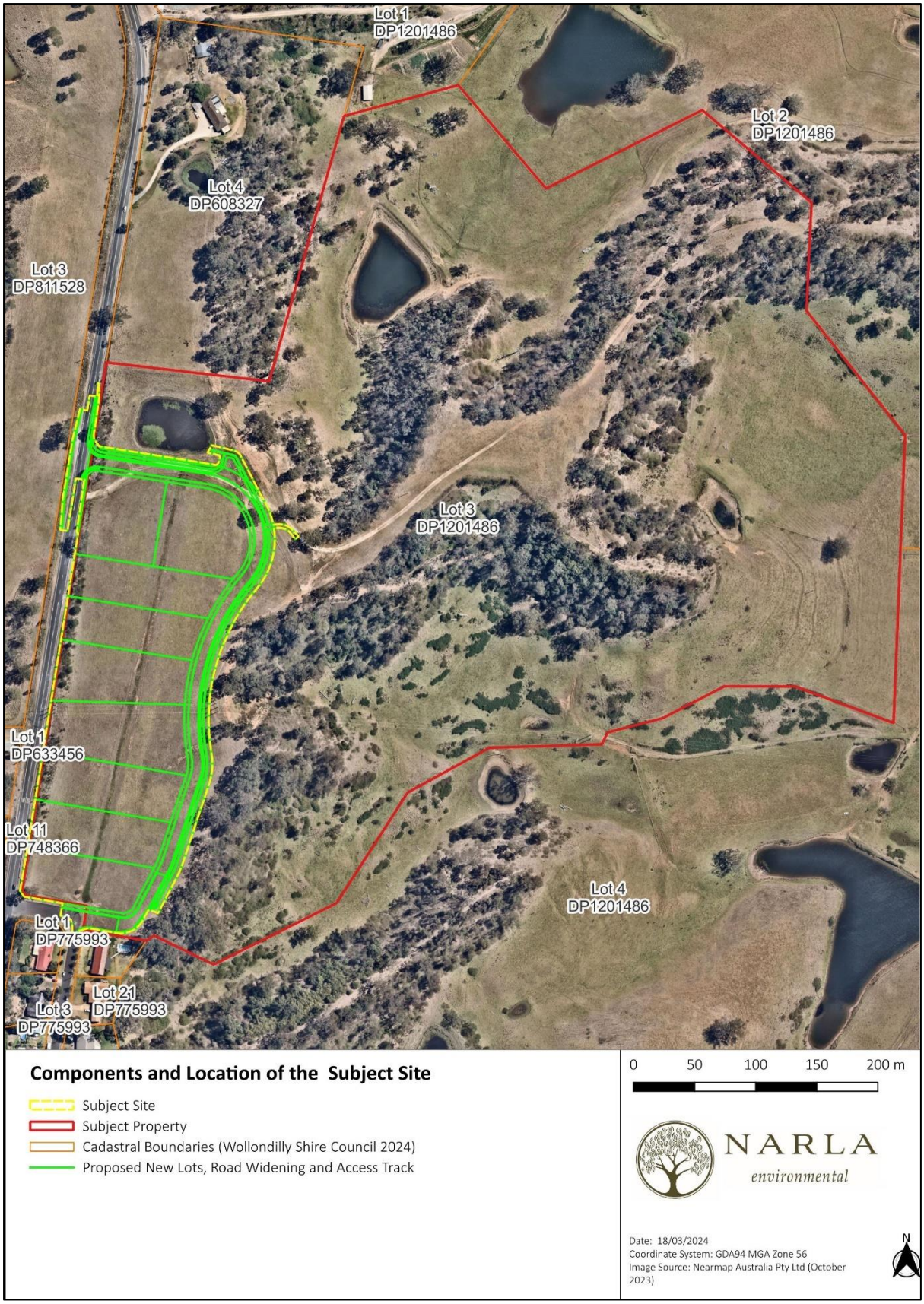

Figure 1 Components and location of the Subject Site.

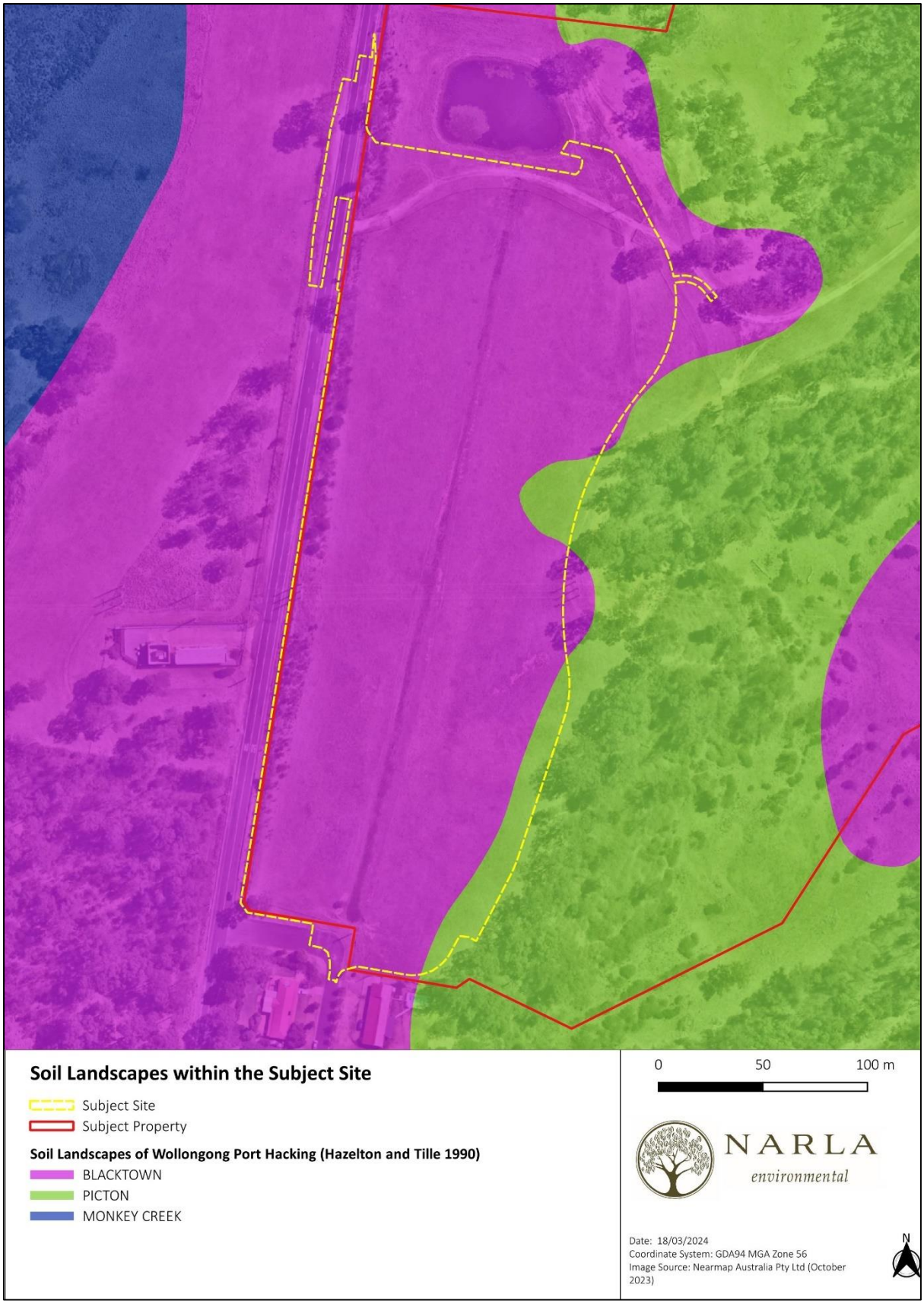

Figure 2. Soil landscapes mapped within the Subject Site.

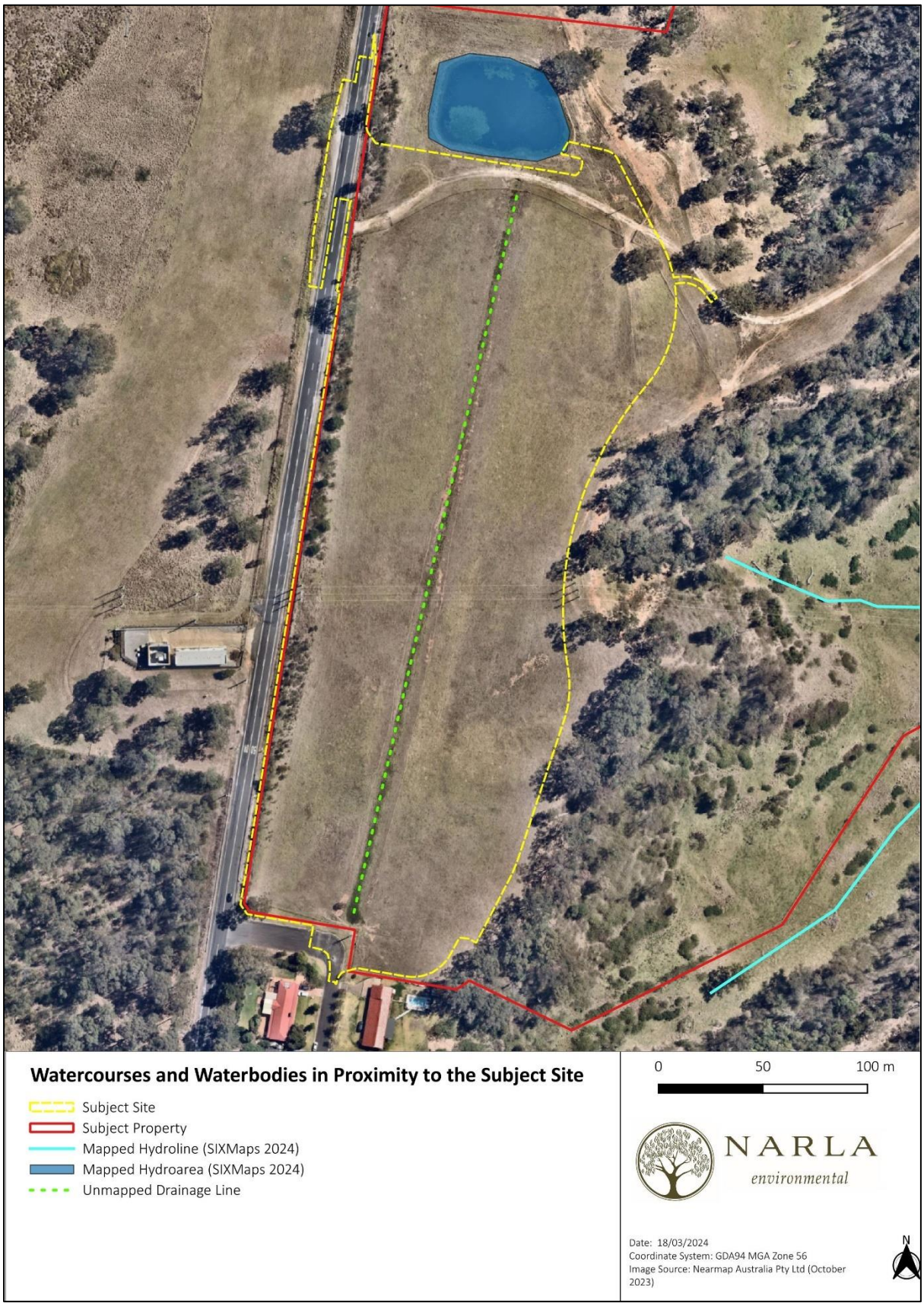

Figure 3. Watercourses and waterbodies within proximity to the Subject Site.

1.4 Relevant Legislation and Policy

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

Table 1. Relevant legislation and policy addressed.

Legislation/ Policy	Relevant Ecological Feature on Site	Triggered	Action Required
Environmental Planning and Assessment Act 1979 (EP&A Act)	All threatened species, populations and ecological communities and their habitat that occur or are likely to occur within the Subject Site during all or part of their lifecycle.	Yes	This FFA and all subsequent recommendations relevant to the planning process under 'Part 3 Planning Instruments'
New South Wales Biodiversity Conservation Act (BC Act)	One (1) BC Act listed Critically Endangered Ecological Communities (CEEC) was identified within the Subject Site: ▪ Cumberland Plain Woodland in the Sydney Basin Bioregion No BC Act threatened species were identified within the Subject Site during the site assessment however, suitable habitat for threatened species listed under the BC Act was identified.	Yes	This FFA, particularly the likelihood tables for threatened fauna and flora species occurring or potentially occurring within the Subject Site. A Test of Significance (5-part test) was undertaken in accordance with the BC Act to assess potential impacts from the proposed activity on the BC Act listed Critically Endangered Ecological Community and any potentially occurring threatened species with the potential to be impacted was conducted (**Appendix D** and **Appendix E**).
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (Commonwealth)	The native vegetation community on site was found to not meet the listing requirements for protection under the EPBC Act. No EPBC Act threatened species were identified within the Subject Site during the site assessment however, suitable habitat for threatened species listed under the EPBC Act was identified.	Yes	This FFA, particularly the likelihood tables for threatened fauna and flora species occurring or potentially occurring within the Subject Site, as well as severity of potential impacts. An Assessment of Significant Impact Criteria from the proposed activity on any potentially occurring EPBC Act listed threatened species with the potential to be impacted was conducted (**Appendix F** and **Appendix G**).
Biosecurity Act 2015	Three (3) priority weeds for the Greater Sydney area were observed within and surrounding the Subject Site: ▪ *Lantana camara* (Lantana) ▪ *Rubus fruticosus* sp. *aggregate* (Blackberry); and	Yes	Priority weeds must be managed in accordance with the Biosecurity Act.

Legislation/ Policy	Relevant Ecological Feature on Site	Triggered	Action Required
	▪ *Senecio madagascariensis* (Fireweed).		
State Environmental Planning Policy (Resilience and Hazards) (Coastal Management) 2021	The Subject Site does not contain areas mapped as 'Coastal Wetlands', 'Littoral Rainforest' or any other areas on the Coastal Management mapping.	No	None
State Environmental Planning Policy (Biodiversity and Conservation) - Koala Habitat Protection 2021	This chapter of the SEPP applies to land within the Wollondilly Shire LGA that encompasses an area larger than 1ha. As the Subject Property is greater than 1ha this chapter of the SEPP applies.	Yes	This FFA revealed that the proposed subdivision has a low likelihood of causing an adverse impact to Koalas in the locality (see section **1.8**), therefore, no further assessment should be required

1.5 Biodiversity Assessment Pathway

The requirements of the BC Act 2016 and Biodiversity Conservation Regulation 2017 are mandatory for all Development Applications (DA) submitted in the Wollondilly Shire LGA.

The BC Act and its regulations stipulate clearing 'area threshold' values 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 WLEP to the Subject Property is 40ha. To avoid triggering the Biodiversity Offset Scheme, the proponent must avoid the clearing/management of native vegetation in excess of 1ha. The proposed works associated with the planning proposal will only result in impacts to 0.79ha of regenerating, low-quality native vegetation and therefore the clearing threshold will not be exceeded.

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

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

In addition to the clearing threshold, another trigger for entry in to the Biodiversity Offset Scheme is the Biodiversity Values (BV) Map (DPE 2024a), which identifies land with high biodiversity values that are particularly sensitive to impacts from development and clearing. The map has been prepared by the Department of Planning and Environment (DPE) under Part 7 of the Biodiversity Conservation Act 2016 (BC Act). Whilst areas identified as containing Biodiversity Values are located within the broader Subject Property, these areas have been deliberately avoided and will not be impacted directly or indirectly by the proposed rezoning (**Figure 4**).

Therefore, as the works associated within the proposed rezoning will not impact on areas mapped as "Biodiversity Values' and the impacts to native vegetation are below the clearing threshold, the BOS is not triggered and a standard Flora and Fauna Assessment Report (this report) has been produced to assess the impacts.

1.6 Wollondilly Local Environmental Plan 2011 (WLEP)

1.6.1 Biodiversity Protection (Clause 7.2)

Clause 7.2 of the WLEP pertains to biodiversity protection. The objective of this clause is to maintain terrestrial and aquatic biodiversity including:

- Protecting native fauna and flora;
- Protecting the ecological processes necessary for their continued existence;
- Encouraging the recovery of native fauna and flora and their habitats; and
- Protecting water quality within drinking water catchments.

This clause applies to land identified as 'Sensitive Land' on the Natural Resources – Biodiversity Map of the WLEP. The Subject Property does not contain land mapped as Sensitive Land on the Natural Resources – Biodiversity Map. As such, this clause does not apply to the proposed development.

1.7 Wollondilly Development Control Plan 2016 (WDCP)

1.7.1 Environmental Protection (Part 9)

Part 9 of the WDCP pertains to environmental protection. The objectives of this part are:

- To improve and maintain environmental outcomes for the areas mapped as natural resources biodiversity and natural resources water under Wollondilly Local Environmental Plan, 2011;
- To improve and maintain environmental outcomes for unmapped areas of biodiversity and/or riparian value; and
- To maintain links between identified environmentally sensitive land and provide habitat and riparian corridors and appropriate buffer zones to these areas.

The following development controls apply to this part of the WDCP:

- Development carried out on areas mapped as 'sensitive land' on the Natural Resources – Biodiversity Map and the Natural Resources Water Map under Wollondilly Local Environmental Plan, 2011 shall occur so as to either avoid, minimise or mitigate any adverse impact as detailed in Clause 7.2 and 7.3 of Wollondilly Local Environmental Plan 2011;
- If a development is not able to avoid, minimise or mitigate an adverse impact on sensitive land mapped on the Natural Resources Biodiversity Map, the vegetation shall not be cleared or otherwise disturbed unless the impacts are offset through biobanking or a similar conservation arrangement;
- The consent authority shall not grant consent to any development that would result in the clearing or other disturbance of an environmental asset unless it is satisfied that any adverse impacts will be offset through bio banking or a similar environmental conservation arrangement;

- Any development application on a site that includes sensitive land mapped on the Natural Resources – Water map under Wollondilly Local Environmental Plan, 2011 with a riparian buffer distance, must include an accurate survey of riparian buffer distances to determine the exact location of the buffer which is to be measured from the top of bank of each side of the watercourse. It should be noted that the LEP maps are indicative and based on watercourse centre lines. These maps do not identify the location of the top of banks of watercourses as it is not the intent of the map to show this and the position of watercourse centre lines shown is only approximate. The map seeks to identify what buffer distance is to be applied to each watercourse and not the extent of that buffer on the ground. In circumstances where the applicant can provide evidence to the satisfaction of Council, e.g. advice from the NSW Office of Water or a Hydrological Report that the waterway is insufficiently defined this control will not apply;
- All stormwater generated from any development shall be treated to an acceptable standard to maintain water quality. In determining the "acceptable standard" the consent authority shall be mindful of the relevant guidelines of the State and Federal Governments. This treatment must be undertaken outside any areas mapped as sensitive land in the Natural Resources – Water map under Wollondilly Local Environmental Plan, 2011;
- Nothing in this section prevents minor works on environmental land for the purposes of providing infrastructure;
- Where a development is proposed on sites which do not contain areas mapped on the Natural Resources Water or Natural Resources Biodiversity maps and contain native vegetation, the development shall be located in accordance with the following (in order of preference):
    - On cleared parts of the site wherever possible;
    - In locations where the least amount of vegetation removal would be required (e.g. close to roads) if the development is not able to be located wholly in a cleared area; or
    - If the development is not able to be located wholly in a cleared area, then the development should be located on parts of the site in which the vegetation is determined as being of the least significance and recovery potential. This includes consideration of vegetation removal for any main buildings, ancillary buildings, asset protection zones, effluent disposal areas and access driveways that may be required for the development; and
- In cases where native vegetation removal is required a flora and fauna report from an appropriately qualified ecologist may be required to satisfy compliance with any of the controls listed above.

All areas to be directly impacted by the proposed rezoning have been largely located within a historically cleared section of the Subject Property. Impacts to native vegetation have been restricted to roadside vegetation, an isolated tree, native groundcovers and exotic dominated grassland. This FFA has been prepared to assess all potential impacts from the proposed rezoning on biodiversity.

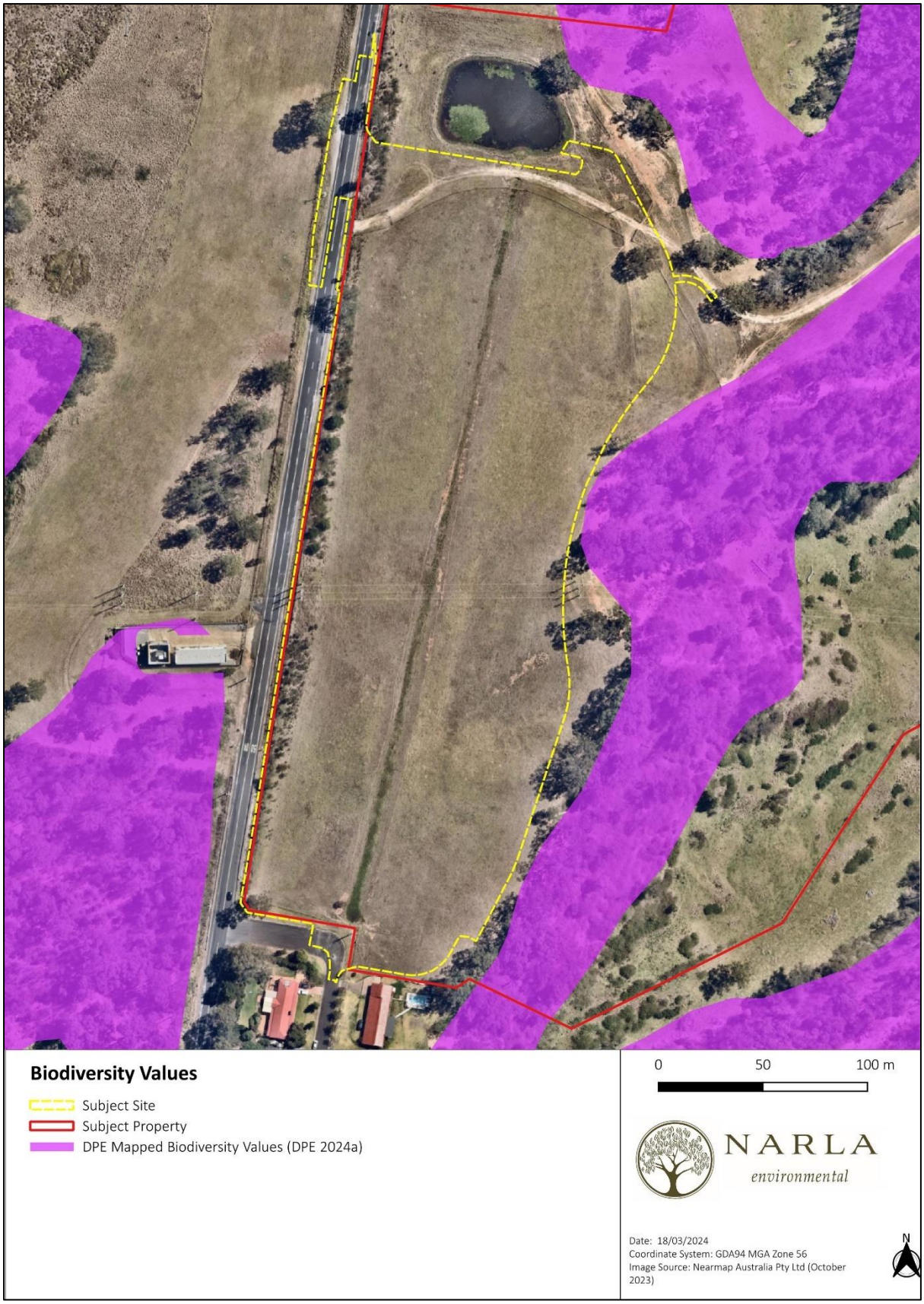

Figure 4. Areas mapped as containing Biodiversity Values in proximity to the Subject Site.

1.8 State Environmental Planning Policy (Biodiversity and Conservation) 2021 - Chapter 4 Koala Habitat Protection 2021

This Chapter aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline. As the Wollondilly Shire LGA is included in Schedule 2, this SEPP applies to the Subject Property.

This section applies to land to which this Chapter applies if the land—

- Has an area of at least 1 hectare (including adjoining land within the same ownership); and
- Does not have an approved koala plan of management applying to the land.

Before a council may grant consent to a development application for consent to carry out development on the land, the council must assess whether the development is likely to have any impact on koalas or koala habitat. If the council is satisfied that the development is likely to have low or no impact on koalas or koala habitat, the council may grant consent to the development application.

A site assessment was undertaken to determine whether the land contained core koala habitat, which is defined by the SEPP as:

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

The Subject Property contained suitable habitat (where 15% or greater of the total number of trees are the regionally relevant species of those listed in Schedule 2 of the SEPP). No signs of koalas or koala occupancy (scats, scratch marks) were observed within the Subject Site. There are no Koala records within the Subject Property nor do any occur within 2km of the Subject Property from the last 18 years. The most recent proximal record to the Subject Property is from 1998 and is located 1.3km away. Due to the lack of recent proximal records within and surrounding the Subject Property within the last 18 years, the land is considered unlikely to contain core koala habitat as defined in the SEPP, and no further assessment under the SEPP should be required.

1.9 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 Site. 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 to the Subject Site.

2. Methodology

2.1 Desktop Assessment and Literature Review

A thorough literature review of local information relevant to the Wollondilly LGA was undertaken. Searches using NSW Wildlife Atlas (BioNet; DPE 2024c) and the Commonwealth Protected Matters Search Tool (DCCEEW 2024) were conducted to identify all current threatened flora and fauna, as well as migratory fauna records within a 10km x 10km cell centred on the Subject Site. These data were used to assist in establishing the presence or likelihood of any ecological values as occurring on or adjacent to the Subject Site, and helped inform our Ecologist on what to look for during the site assessment.

Soil landscape and geological mapping was examined to gain a deeper understanding of the geology of the Subject Site that assists in determining whether any threatened flora or ecological communities may occur (Hazelton and Tille 1990).

2.2 Ecological Site Assessment

2.2.1 General Survey

A site assessment was undertaken by Narla Ecologists Chris Moore and Kayla Spithoven on Thursday the 14th of March 2024. During the site assessment, the following activities were undertaken:

- Identifying and recording the vegetation communities present within the Subject Site, with focus on identifying any threatened ecological communities (TEC);
- Recording a detailed list of flora species encountered within the Subject Site, 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 Site;
- 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 Site 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 nectarivores 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 prior to and during the general flora and fauna survey period are provided in **Table 3** (BOM 2024). These data revealed no rainfall and high temperatures leading up to the survey which is likely to have not been conducive to the emergence and flowering of threatened species that could potentially occur within the Subject Site.

Table 3. Weather conditions recorded at Campbelltown (Camden; station 068257) preceding and during the survey periods (survey date in bold).

Survey date	Day	Minimum Temp. (°C)	Maximum Temp. (°C)	Rainfall (mm)
07/03/2024	Thursday	17.3	31.5	NA
08/03/2024	Friday	19.6	31.2	0
09/03/2024	Saturday	15.1	31.3	0
10/03/2024	Sunday	14.7	31.3	0
11/03/2024	Monday	16.4	30.6	0
12/03/2024	Tuesday	13.0	35.9	0
13/03/2024	Wednesday	15.1	29.6	0
14/03/2024	**Thursday**	**15.4**	**36.4**	**0**

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:

- eSPADE v2.2 (DPE 2024b);
- Soil Landscapes of Wollongong – Port Hacking 1:100,000 sheet (Hazelton and Tille 1990); and
- State Vegetation Type Mapping (DPE 2022).

2.3 Impact Assessment

An assessment of likely occurrence was carried out for all locally occurring threatened species (**Table 8**; **Table 10**) predicted to occur within the vicinity of the Subject Site. It was then determined that the following additional impact assessments were required in accordance with the BC and EPBC Acts:

- BC Act - Tests of Significance (5-part Test) were carried out for:
    - Critically Endangered Ecological Community (CEEC), Cumberland Plain Woodland in the Sydney Basin Bioregion (**Appendix D**); and
    - All potentially occurring threatened species with the potential to be impacted by the proposed works (**Appendix E**).
- EPBC Act – Assessment of Significant Impact:
    - All potentially occurring threatened species with the potential to be impacted by the proposed works (**Appendix F** and **Appendix G**).

3. Native Vegetation

3.1 Vegetation Community

3.1.1 Historically Mapped Vegetation Communities

Four (4) vegetation communities have been historically mapped within the Subject Property by the NSW State Vegetation Type Map (DPE 2022; **Figure 5**):

- Cumberland Shale Hills Woodland;
- Cumberland Moist Shale Woodland
- Not classified Vegetation;
- Sydney Hinterland Grey Gum Transition Forest.

3.1.2 Field Validated Vegetation Communities

The field survey conducted by the Narla Ecologists identified the following vegetation communities and associated condition classes within the Subject Site (**Figure 6**):

- Cumberland Shale Hills Woodland (**Table 4**)
    - Moderate Condition (Remnant); and
    - Low Condition (Grassland).
- Native Swale Vegetation (**Table 5**); and
- Exotic Dominated Grassland (**Table 6**).

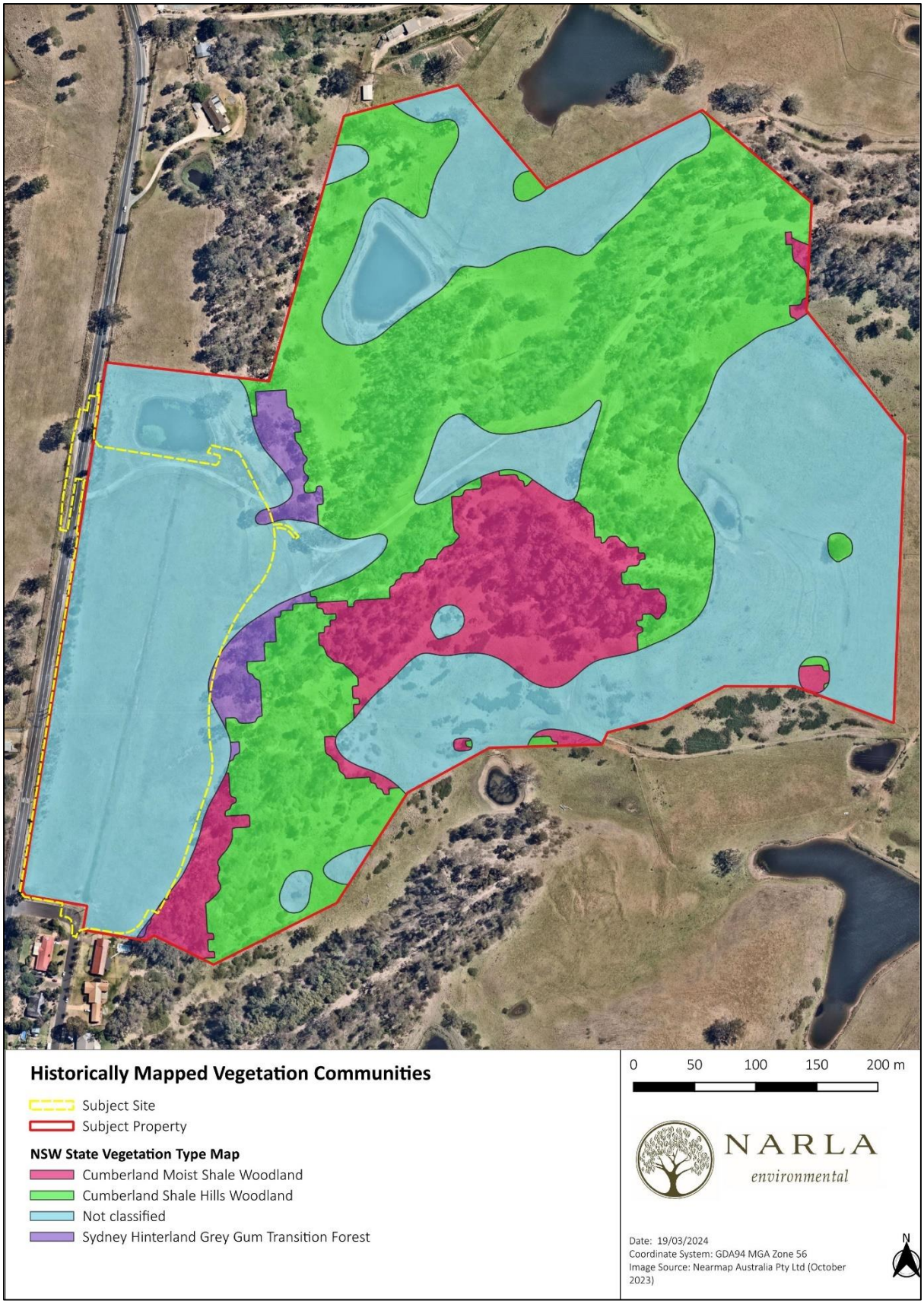

Figure 5. Historically mapped vegetation within and surrounding the Subject Site.

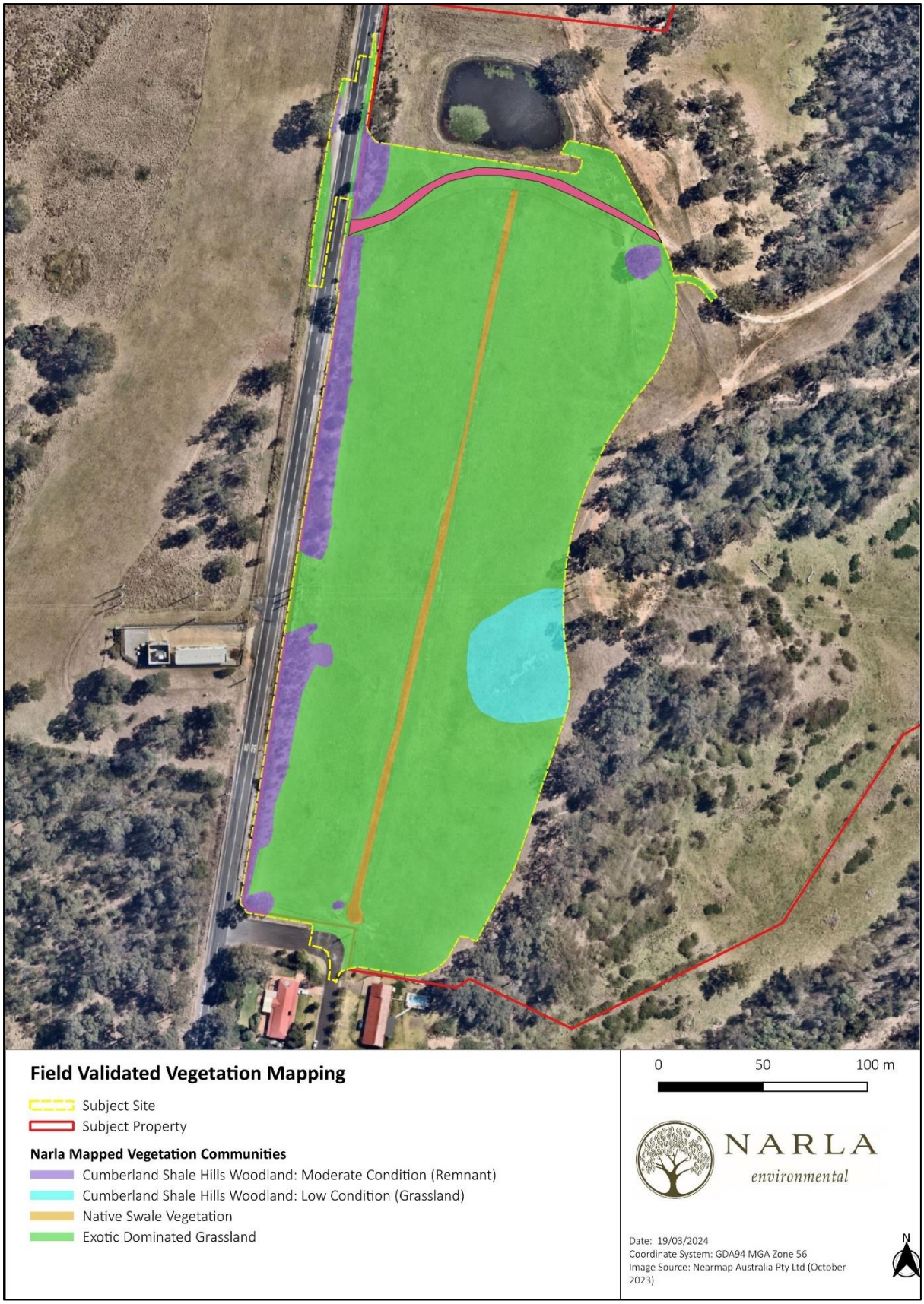

Figure 6 Narla Field-validated Vegetation Mapping within and surrounding the Subject Site.

Table 4. Description of Cumberland Shale Hills Woodland identified within the Subject Site.

Cumberland Shale Hills Woodland		
Description (DPE 2022)		
A tall to very tall sclerophyll woodland to open forest with a mid-stratum of soft-leaved shrubs and small trees with a grassy ground cover that is extensive on rises and upper slopes of hills south from Cecil Hills, in the south-western part of the Cumberland Plain to the west of Sydney. It is most extensive in Campbelltown, Camden and Wollondilly local government areas. The canopy commonly includes *Eucalyptus moluccana* and *Eucalyptus tereticornis,* with a sparse shrub to small tree layer which very frequently includes *Bursaria spinosa* and at least one species of Acacia, of which *Acacia implexa* is most frequent. The presence of *Acacia implexa* helps distinguish this PCT from PCT 3320, which has a similar assemblage and structure. The mid-dense ground layer typically includes forbs, grasses and twiners. Dichondra repens is almost always present and *Microlaena stipoides*, *Desmodium varians*, *Brunoniella australis* and *Aristida ramosa* are very frequent. This PCT typically occurs in a warm, moist climate between 90-300 metres asl. It has been heavily cleared and now occurs in small remnants with varying levels of disturbance within a rural landscape. The canopy in these remnants often comprises immature cohorts of trees that have regenerated after thinning or clearing. The distribution of this PCT overlaps with PCT 3320 between Cecil Hills and the Nepean River, in which area of overlap PCT 3319 typically occurs on higher elevation hills and ridges. This PCT grades into PCT 3318 on lower protected slopes in the more dissected hills around Cecil Hills and the Razorback Range, and into PCT 3321 near the interface with the sandstone plateaus on the edge of the Cumberland Plain. PCT 3318 includes shrubs, ferns and vines typical of sheltered habitats that are rare in this PCT. Ironbark eucalypts are very frequent and *Eucalyptus punctata* is common in the canopy of PCT 3321, and *Eucalyptus moluccana* and *Eucalyptus tereticornis* are both rare.		
Condition	Moderate Condition (Remnant)	Low Condition (Grassland)
Extent to potentially be impacted within the Subject Site (approximate)	0.41ha	0.26ha
Description of the vegetation within the Subject Site	The vegetation within this section of the Subject Site consisted of a sparse canopy comprised of species such as *Eucalyptus tereticornis, Eucalyptus crebra, Corymbia maculata* and *Angophora subvelutina*. The midstory was moderate consisting of species such as *Acacia implexa, Acacia parramattensis, Acacia floribunda* and *Bursaria spinosa.* The groundlayer consisted of a mix of native and exotic species with the native species including *Themeda triandra, Dichondra repens* and *Desmodium varians*. Exotic species in this zone consisted of species such as *Lantana camara, Chloris gayana, Cenchrus clandestinus* and *Eragrostis curvula*	The vegetation within this section of the Subject Site consisted of historically cleared land that contained a moderate density of the native grass species *Sporobolus creber* as well as low densities of the native ground cover *Centella asiatica*. Amongst these native species were large quantities of exotic grass species such as *Cenchrus clandestinus* and *Eragrostis curvula*.

Cumberland Shale Hills Woodland		
Representative Photos		
Justification of Vegetation Assignment	The determination of this community was based on the IBRA Sub-region, landscape attributes including soil landscapes and elevation, and the presence of a number of diagnostic species.	
BC Act Status	This community met the criteria for the BC Act listed Critically Endangered Ecological Community (CEEC), Cumberland Plain Shale Woodlands in the Sydney Basin Bioregion (**Section 4.1.1.1**).	This community met the criteria for the BC Act listed Critically Endangered Ecological Community (CEEC), Cumberland Plain Shale Woodlands in the Sydney Basin Bioregion (**Section 4.1.1.1**).
EPBC Act Status	This community did **NOT** meet the listing requirements for protection under the EPBC Act as the listed Critically Endangered Ecological Community (CEEC), Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (**Section 4.1.2.1**).	This community did **NOT** meet the listing requirements for protection under the EPBC Act as the listed Critically Endangered Ecological Community (CEEC), Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (**Section 4.1.2.1**).
References	Department of Planning and Environment (DPE) (2022) State Vegetation Type Mapping NSW Threatened Species Scientific Committee (2010) Cumberland Plain Woodland in the Sydney Basin Bioregion - critically endangered ecological community listing – Final Determination Threatened Species Scientific Committee (2009). Commonwealth Listing Advice on Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest.	

Table 5. Description of Native Swale Vegetation within the Subject Site.

Native Swale Vegetation	
Extent to potentially be impacted within the Subject Site (approximate)	0.12ha
Description of the vegetation within the Subject Site	The vegetation within this portion of the Subject Site was dominated by the native forbs *Persicaria decipiens* and *Persicaria hydropiper* located within a drainage line through the middle of the Subject Site.
Representative Photo	
Justification of Vegetation Assignment	The vegetation has been historically altered due to the present of a drainage line within the Subject Site. The vegetation does not conform to a locally occurring native vegetation community and has therefore been classified as 'Native Swale Vegetation'.
Associated TEC	None

Table 6. Description of Exotic-Dominated Grassland identified within the Subject Site.

Exotic-Dominated Grassland	
Extent to potentially be impacted within the Subject Site (approximate)	4.44ha
Description of the vegetation within the Subject Site	The vegetation within this portion of the Subject Site consisted of historically cleared paddocks, with little to no native species present. The area was dominated by exotic species including *Cenchrus clandestinus, Paspalum dilatatum, Sporobolus africanus* and *eragrostis curvula.*
Representative Photo	
Justification of Vegetation Assignment	The vegetation within this zone was dominated by exotic species and was highly degraded. No native canopy or mid -story species were present within the zone, with only very minor occurrences of native ground layer species. The vegetation does not conform to a locally occurring native vegetation community. It has therefore been classified as 'Exotic-Dominated Grassland'.
Associated TEC	None

4. Threatened Entities

4.1 Threatened Ecological Communities (TECs)

4.1.1 Biodiversity Conservation Act 2016

4.1.1.1 Listing under the BC Act as Cumberland Plain Woodland in the Sydney Basin Bioregion.

BC Act Status: Critically Endangered Ecological Community (CEEC).

The vegetation mapped within the Subject Site as Cumberland Shale Hills Woodland (both conditions) conforms to the BC Act listed CEEC, Cumberland Plain Woodland in the Sydney Basin Bioregion as it contains species indicative of this CEEC, occurs within the associated geology and landscape position (clay soils derived from Wianamatta Group geology, or more rarely alluvial substrates, on the Cumberland Plain, flat to undulating or hilly terrain up to about 350 m elevation) and comes in the form of the described vegetation type (open tree canopy, a near-continuous groundcover dominated by grasses and herbs, sometimes with layers of shrubs and/or small trees, and derived native grasslands). Native species listed within the final determination (NSW Scientific Committee 2010) that occur within the Subject Site include:

- *Acacia implexa;*
- *Angophora subvelutina;*
- *Bursaria spinosa;*
- *Corymbia maculata*
- *Centella asiatica;*
- *Dichondra repens;*
- *Desmodium varians;*
- *Eucalyptus tereticornis;*
- *Eucalyptus punctata;*
- *Hardenbergia violacea;*
- *Sporobolus creber;*
- *Themeda triandra*

A Biodiversity Conservation Act 2016 Test of Significance (5-part Test) has been prepared to assess the impacts of the proposed activity on BC Act Cumberland Plain Woodland in the Sydney Basin Bioregion and is presented in **Appendix D.**

4.1.2 Environment Protection and Biodiversity Conservation Act 1999

4.1.2.1 Listing under the EPBC Act as Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest

EPBC Act Status: Critically Endangered Ecological Community (CEEC).

Cumberland Shale Plains Woodland is a component of the EPBC Act listed Critically Endangered Ecological Community (CEEC), Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest. In order to be considered a CEEC under the EPBC Act, areas of the ecological community must meet:

- The key diagnostic characteristics (**Table 7**); and
- The condition thresholds.

The vegetation mapped within the Subject Site as Cumberland Shale Plains Woodland (Both Conditions), did not meet the Key Diagnostic Features for the community (**Table 7**) therefore, the vegetation within these areas of the Subject Site does not conform to the EPBC Act listed Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest.

Table 7. Key diagnostics features required to meet the EPBC Listing Status for Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (Threatened Species Scientific Committee 2009).

Key Diagnostic Attribute	Cumberland Shale Plain Woodlands (Moderate Condition)	Cumberland Shale Plain Woodlands (Low Condition)
Distribution is limited to the Sydney Basin Bioregion with most occurrences in the Cumberland Sub-region. This covers a geographic area commonly known as the Cumberland Plain, a rainshadow coastal valley in western Sydney.	Yes	Yes
Most occurrences are on clay soils derived from Wianamatta Group geology, with limited to rare occurrences on soils derived from Tertiary Alluvium, Holocene Alluvium, the Mittagong Formation, Aeolian Deposits and Hawkesbury Sandstone.	Yes	Yes
Upper tree layer species must be present with these features: ▪ The minimum projected foliage cover of canopy trees is 10% or more; and ▪ The tree canopy is typically dominated by *Eucalyptus moluccana* (Grey Box), *E. tereticornis* (Forest Red Gum) and/or *E. fibrosa* (Red Ironbark). Other canopy species may occur in association with the typical dominants and may be locally dominant at some sites.	No. This vegetation had a project foliage cover less than 10%	No. This area was a grassland and therefore had a project foliage cover less than 10%
A sparse lower tree layer may be present, typically with young eucalypts of upper tree canopy species and species of Acacia, Exocarpos and Melaleuca.	Yes	No
The understorey typically is dominated by the ground layer and shows these features: ▪ The ground layer typically comprises a variety of perennial native graminoids and forbs; ▪ Native graminoid species that are often present include: the grasses *Aristida ramosa* (Purple Wiregrass), *A. vagans* (Threeawn Speargrass), *Cymbopogon refractus* (Barbed Wire Grass), *Dichelachne micrantha* (Plumegrass), *Echinopogon caespitosus var. caespitosus* (Tufted Hedgehog Grass), *Eragrostis leptostachya* (Paddock Lovegrass), *Microlaena stipoides subsp. stipoides* (Weeping Grass), *Paspalidium distans* and *Themeda triandra* (Kangaroo Grass), and other graminoids *Carex inversa* (Knob Sedge), *Cyperus gracilis* (Slender Sedge), *Lomandra filiformis subsp. filiformis* (Wattle Mat-rush) and *L. multiflora subsp. multiflora* (Many flowered Mat-rush); ▪ Native forb and other herb species present include: *Asperula conferta* (Common Woodruff), *Brunoniella australis* (Blue Trumpet), *Cheilanthes sieberi* (Poison Rock-Fern), *Desmodium varians* (Slender Tick-trefoil), *Dianella longifolia* (Blue Flax-Lily), *Dichondra repens* (Kidney Weed), *Glycine spp.*, *Hardenbergia*	Yes	Yes

Key Diagnostic Attribute	Cumberland Shale Plain Woodlands (Moderate Condition)	Cumberland Shale Plain Woodlands (Low Condition)
violacea (Native Sarsparilla), *Opercularia diphylla* (Stinkweed), *Oxalis perennans*, *Pratia purpurascens* (Whiteroot) and *Wahlenbergia gracilis* (Australian Bluebell); and ▪ A shrub layer may be present, to variable extent, and is often dominated by *Bursaria spinosa* (Blackthorn) while other species include: *Daviesia ulicifolia* (Gorse Bitter Pea), *Dillwynia sieberi, Dodonaea viscosa subsp. cuneata* (Wedge-leaf Hop-bush), *Indigofera australis* (Native Indigo) and *Lissanthe strigosa* (Peach Heath).		

4.2 Threatened Flora

Desktop analysis revealed a range of threatened flora as occurring within a 10km x 10km cell centred on the Subject Site. These species were assessed for their potential to occur within the Subject Site (**Table 8**). Targeted surveys were undertaken throughout the Subject Site for potentially occurring threatened flora species whose DPE endorsed survey period coincided with the site assessment. No threatened flora species were found to occur within the Subject Site.

Owing to the disturbed nature of the vegetation within the Subject Site, it was considered unlikely for any threatened species to occur. Therefore, no further assessments of impacts pursuant to the BC Act (5-part Test; BDAR) and/or EPBC Act Referral to Commonwealth will be required.

Table 8. List of potential threatened flora that may occur within the Subject Site.

Species	BC Act	EPBC Act	Likelihood of occurrence within the Subject Site	Further Impact Assessment Required?
Acacia pubescens (Downy Wattle)	Vulnerable	Vulnerable	Absent. This species occurs in open woodland and forest, in a variety of plant communities, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland. Whilst potential habitat was present for this species a targeted survey was conducted with the DPE endorsed survey period for this species (all year) and no individuals were identified.	No
Eucalyptus benthamii (Camden White Gum)	Critically Endangered	Vulnerable	Absent. Requires a combination of deep alluvial sands and a flooding regime that permits seedling establishment. Appropriate geology is not mapped as occurring within the Subject Site. Furthermore, a targeted survey was conducted with the DPE endorsed survey period for this species (all year) and no individuals were identified.	No

Species	BC Act	EPBC Act	Likelihood of occurrence within the Subject Site	Further Impact Assessment Required?
Melaleuca biconvexa (Biconvex Paperbark)	Vulnerable	Vulnerable	Absent. Biconvex Paperbark generally grows in damp places, often near streams or low-lying areas on alluvial soils of low slopes or sheltered aspects. Appropriate geology is not mapped as occurring within the Subject Site. Furthermore, a targeted survey was conducted with the DPE endorsed survey period for this species (all year) and no individuals were identified.	No
Pimelea spicata (Spiked Rice Flower)	Endangered	Endangered	Absent. On the Cumberland Plain sites it is associated with Grey Box communities (particularly Cumberland Plain Woodland variants and Moist Shale Woodland) and in areas of ironbark. Whilst potential habitat was present for this species a targeted survey was conducted with the DPE endorsed survey period for this species (all year) and no individuals were identified.	No
Rhodamnia rubescens (Scrub Turpentine)	Critically Endangered	Critically Endangered	Absent. Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils. Suitable habitat was not present within the Subject Site. Furthermore, a targeted survey was conducted with the DPE endorsed survey period for this species (all year) and no individuals were identified.	No

4.3 Threatened Fauna

A suite of habitat features were present within and surrounding the Subject Site (**Table 9; Figure 6**). Desktop analysis revealed that a number of threatened fauna species have the potential to occur in the general area during part of their lifecycles (**Table 10**). No threatened fauna species were observed within the Subject Site by the Narla Ecologists during the site assessment in March 2024.

Owing to the disturbed nature of the vegetation within the Subject Site, it was considered unlikely for any threatened species to occur. Therefore, no further assessments of impacts pursuant to the BC Act (BDAR) and/or EPBC Act Referral to Commonwealth will be required.

Table 9 Fauna habitat values within and surrounding the Subject Site.

Habitat component	Site values
Coarse woody debris	Absent.
Rock outcrops and bush rock	Bush rock was present surrounding the Subject Site and will not be impacted by the proposed rezoning.
Caves, crevices and overhangs	Absent.
Bridges, mine shafts, or abandoned structures	Absent.
Nectar/lerp-bearing Trees	Present.
Nectar-bearing shrubs	Present.
Koala Feed Trees	Present.
Large stick nests	Absent. One (1) small nest was recorded outside of the Subject Site and will not be impacted by the proposed rezoning.
Sap and gum sources	Present. Native sap and gum source trees were recorded within the Subject Site
She-oak fruit (Glossy Black Cockatoo feed)	Present. *Allocasuarina littoralis* trees were identified within the Subject Site.
Seed-bearing trees and shrubs	Present.
Soft-fruit-bearing trees	Absent.
Dense shrubbery and leaf litter	Absent.
Tree hollows	Present. Only one (1) hollow-bearing tree containing two (2) medium hollows will likely require removal for the proposed rezoning.
Decorticating bark	Present.
Wetlands, soaks and streams	One (1) unmapped drainage line intersects the Subject Site.
Open water bodies	Absent. One dam is situated adjacent to the Subject Site and will be unimpacted by the proposed rezoning.
Estuarine, beach, mudflats, and rocky foreshores	Absent.

4.3.1 Migratory Fauna Species

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

- *Actitis hypoleucos* (Common Sandpiper);
- *Apus pacificus* (Fork-tailed Swift);
- *Calidris acuminata* (Sharp-tailed Sandpiper);
- *Calidris ferruginea* (Curlew Sandpiper);
- *Calidris melanotos* (Pectoral Sandpiper);
- *Gallinago hardwickii* (Latham's Snipe);
- *Hirundapus caudacutus* (White-throated Needletail);
- *Monarcha melanopsis* (Black-faced Monarch);
- *Motacilla flava* (Yellow Wagtail);
- *Myiagra cyanoleuca* (Satin Flycatcher);
- *Rhipidura rufifrons* (Rufous Fantail); and
- *Tringa nebularia* (Common Greenshank).

The proposed rezoning will have negligible impacts to potential foraging and breeding habitat for these species given their migratory nature. In the unlikely event that these species forage within the Subject Site, the proposed removal of vegetation will have minimal impacts to foraging habitat given the disturbed nature of the Subject Site and the large areas of suitable foraging habitat in the surrounding area and in their migratory range. As such, the proposed activity will have no significant impact on these species; therefore, a Referral to Commonwealth pursuant to the EPBC Act is not required.

Table 10. List of potential threatened fauna that may occupy the Subject Site at some stage of their lifecycles. Vulnerable = V, Endangered = E, Endangered Population = EP, Critically Endangered = CE.

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Site	Breeding Habitat Present Within the Subject Site	Anticipated Impact	Further Impact Assessment Required?
Artamus cyanopterus cyanopterus (Dusky Woodswallow)	V	-	Low	Often inhabit dry, open eucalypt forests and woodlands with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. Has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Potential foraging habitat is present within the Subject Site.	Nest sites vary greatly, but generally occur in shrubs or low trees, living or dead, horizontal or upright forks in branches, spouts, hollow stumps or logs, behind loose bark or in a hollow in the top of a wooden fence post. One (1) small nest of an unconfirmed species was identified outside of the Subject Site however will not be removed as a result of the proposed rezoning/.	Minimal anticipated impact to potential foraging habitat given the mobility of this species. Negligible anticipated impact to breeding habitat. This species was not identified during the March site assessment.	No
Botaurus poiciloptilus (Australasian Bittern)	E	E	Low	Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (*Typha spp.)* and spikerushes (*Eleocharis spp.*). Feeding platforms may be constructed over deeper water from reeds trampled by the bird; platforms are often littered with prey remains. No suitable habitat for this species was present within 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 such nests were present within or surrounding the Subject Site.	Negligible. No anticipated impact to foraging or breeding habitat.	No
Callocephalon fimbriatum (Gang-gang Cockatoo)	V	E	Moderate	Generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. Potential foraging habitat is present within the Subject Site.	Favours old growth forest and woodland attributes for nesting and roosting. Nests are located in hollows that are 7 cm in diameter or larger in eucalypts and 3 metres or more above the ground. Two (2)	Minimal impact to potential foraging habitat given the small area of removal and large areas continuing to exist surrounding the Subject Site and greater locality. Minor	Yes (5-Part Test and EPBC Assessment of Significant

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Site	Breeding Habitat Present Within the Subject Site	Anticipated Impact	Further Impact Assessment Required?
					suitable hollows are likely to be impacted as part of the proposed rezoning.	impact to potential breeding habitat given the removal of two (2) hollows that may provide breeding habitat for this species. Numerous suitable hollows are present and will remain immediately surrounding the Subject Site within the broader Subject Property and locality. This species was not identified during the March site assessment.	Impact Conducted)
Calyptorhynchus lathami lathami (South-eastern Glossy Black Cockatoo)	V	V	Moderate	This species feeds almost exclusively on the seeds of several species of she-oak (Casuarina and Allocasuarina species). Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of she-oak occur. Potential foraging habitat was present within the Subject Site.	Dependent on large hollow-bearing eucalypts for nest sites with hollows of at least 15cm in diameter. Two (2) suitable hollows are likely to be impacted as part of the proposed rezoning.	Minimal impact to potential foraging habitat given the small area of removal and large areas continuing to exist surrounding the Subject Site and greater locality. Minor impact to potential breeding habitat given the removal of two (2) hollows that may provide breeding habitat for this species. Numerous suitable hollows are present and will remain immediately surrounding the Subject Site within the broader Subject Property and locality. This species was not identified during the March site assessment.	Yes (5-Part Test and EPBC Assessment of Significant Impact Conducted)

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Site	Breeding Habitat Present Within the Subject Site	Anticipated Impact	Further Impact Assessment Required?
Chalinolobus dwyeri (Large-eared Pied Bd)	V	V	Low	Found in well-timbered areas containing gullies. Potential foraging habitat is present within the Subject Site.	Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (*Petrochelidon ariel*). No such habitat was present within the Subject Site.	Minimal anticipated impact to potential foraging habitat given the mobility of this species. No anticipated impact to breeding habitat.	No
Chthonicola sagittata (Speckled Warbler)	V	-	Low to moderate	Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Potential foraging habitat is present within the Subject Site.	The rounded, domed, roughly built nest of dry grass and strips of bark is located in a slight hollow in the ground or the base of a low dense plant, often among fallen branches and other litter. A side entrance allows the bird to walk directly inside. No such nests were located within the Subject Site.	Minimal anticipated impact to potential foraging habitat given the mobility of this species. Negligible anticipated impact to breeding habitat. This species was not identified during the March site assessment.	No
Climacteris picumnus victoriae (Brown Treecreeper eastern subspecies)	V	-	Low	Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range. Potential foraging habitat is present within the Subject Site.	Hollows in standing dead or live trees and tree stumps are essential for nesting. Two (2) suitable hollows are likely to be impacted as part of the proposed rezoning.	Minimal impact to potential foraging habitat given the small area of removal and large areas continuing to exist surrounding the Subject Site and greater locality. Minor impact to potential breeding habitat given the removal of two (2) hollows that may provide breeding habitat for this species. Numerous suitable hollows are present and will remain immediately surrounding the Subject Site within the broader Subject Property and locality. This	**Yes (5-Part Test a Conducted)**

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Site	Breeding Habitat Present Within the Subject Site	Anticipated Impact	Further Impact Assessment Required?
						species was not identified during the March site assessment.	
Dasyurus maculatus (Spotted-tailed Quoll)	V	E	Low	This species is recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. 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 foraging habitat is present within the Subject Site.	Quolls use hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops as den sites. Potential breeding habitat does occur within the Subject Site. Two (2) suitable hollows are likely to be impacted as part of the proposed rezoning.	Minimal impact to potential foraging habitat given the small area of removal and large areas continuing to exist surrounding the Subject Site and greater locality. Minor impact to potential breeding habitat given the removal of two (2) hollows that may provide breeding habitat for this species. Numerous suitable hollows are present and will remain immediately surrounding the Subject Site within the broader Subject Property and locality.	**Yes (5-Part Test and EPBC Assessment of Significant Impact Conducted)**
Hieraaetus morphnoides (Little Eagle)	V	-	Low	Preys on birds, reptiles and mammals, occasionally adding large insects and carrion. Potential breeding habitat is present within the Subject Site.	Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter. No suitable nests were identified within the Subject Site.	Minimal anticipated impact to potential foraging habitat given the mobility of this species. No anticipated impact to breeding habitat. This species was not identified during the March site assessment.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Site	Breeding Habitat Present Within the Subject Site	Anticipated Impact	Further Impact Assessment Required?
Hirundapus caudacutus (White-throated Needletail)	-	V	Low	This species feeds on flying insects, such as termites, ants, beetles and flies. They catch the insects in flight in their wide gaping beaks. Prey species have the potential to occur within the Subject Site.	N/A. Breeding takes place in northern Asia	Minimal anticipated impact to potential foraging habitat given the mobility of the species. No anticipated impact to breeding habitat. This species was not identified during the March site assessment.	No
Lathamus discolor (Swift Parrot)	E	CE	Low	On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Potential foraging habitat is present within the Subject Site.	N/A. This species breeds in Tasmania. Subject Site is not located within a mapped area of important habitat for this species.	Minimal anticipated impact to potential foraging habitat given the mobility of the species. No anticipated impact to breeding or important habitat.	No
Lophoictinia isura (Square-tailed Kite)	V	-	Low	Found in a variety of timbered habitats including dry woodlands and open forests with a particular preference for timbered watercourses. Is a specialist hunter of passerines, especially honeyeaters, and most particularly nestlings, and insects in the tree canopy, picking most prey items from the outer foliage. Potential prey items may occur within the Subject Site.	Breeding is from July to February, with nest sites generally located along or near watercourses, in a fork or on large horizontal limbs. No suitable nests were identified within the Subject Site.	Minimal anticipated impact to potential foraging habitat given the mobility of the species. Negligible anticipated impact to breeding habitat. This species was not identified during the March site assessment.	No
Meridolum corneovirens (Cumberland Plain Land Snail)	E	-	Low	Primarily inhabits Cumberland Plain Woodland. This community is a grassy, open woodland with occasional dense patches of	Lives under litter of bark, leaves and logs, or shelters in loose soil around grass clumps. Sub-optimal breeding habitat is present within	Minimal anticipated impact to potential sub optimal foraging and breeding habitat given the degraded nature of the Subject	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Site	Breeding Habitat Present Within the Subject Site	Anticipated Impact	Further Impact Assessment Required?
				shrubs. It is also known from Shale Gravel Transition Forests, Castlereagh Swamp Woodlands and the margins of River-flat Eucalypt Forest. Is a fungus specialist. Lives under litter of bark, leaves and logs, or shelters in loose soil around grass clumps. Sub-optimal foraging habitat is present within the Subject Site due to the high dominance of exotic groundcover species.	the Subject Site due to the dominance of exotic groundcover species.	Site. This species was not identified during the March site assessment.	
Micronomus norfolkensis (Eastern Coastal Free-tailed Bat)	V	-	Low to moderate	Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range, feeding on insects. Potential foraging habitat is present within the Subject Site.	Roost mainly in tree hollows but will also roost under bark or in man-made structures. Potential breeding habitat does occur within the Subject Site. Two (2) suitable hollows are likely to be impacted as part of the proposed rezoning.	Minimal impact to potential foraging habitat given the small area of removal and large areas continuing to exist surrounding the Subject Site and greater locality. Minor impact to potential breeding habitat given the removal of two (2) hollows that may provide breeding habitat for this species. Numerous suitable hollows are present and will remain immediately surrounding the Subject Site within the broader Subject Property and locality.	**Yes (5-Part Test Conducted)**
Miniopterus orianae oceanensis	V	-	Low	Hunt in forested areas, catching moths and other flying insects above the tree tops. Prey species	Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made	Minimal anticipated impact to potential foraging habitat given the mobility of the	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Site	Breeding Habitat Present Within the Subject Site	Anticipated Impact	Further Impact Assessment Required?
(Large Bent-winged Bat)				have the potential to occur within the Subject Site.	structures. No potential breeding habitat is present within the Subject Site.	species. No anticipated impact to breeding habitat.	
Myotis Macropus (Southern Myotis)	V	-	Moderate	This species forages over streams and pools catching insects and small fish by raking their feet across the water surface. No such habitat is present within the Subject Site however a dam is present immediately adjacent to the Subject Property which will be unimpacted by the proposed rezoning.	This species breeds close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. Two (2) suitable hollows are likely to be impacted as part of the proposed rezoning.	No anticipated impacted to potential foraging habitat. Minor impact to potential breeding habitat given the removal of two (2) hollows that may provide breeding habitat for this species. Numerous suitable hollows are present and will remain immediately surrounding the Subject Site within the broader Subject Property and locality.	**Yes (5-Part Test Conducted)**
Ninox connivens (Barking Owl)	V	-	Moderate	Preferentially hunts small arboreal mammals such as Squirrel Gliders and Common Ringtail Possums, but when loss of tree hollows decreases these prey populations the owl becomes more reliant on birds, invertebrates and terrestrial mammals such as rodents and rabbits. Can catch bats and moths on the wing, but typically hunts by sallying from a tall perch. Prey species have the potential to occur within the Subject Site.	Two or three eggs are laid in hollows of large, old trees. Living eucalypts are preferred though dead trees are also used. Two (2) suitable hollows are likely to be impacted as part of the proposed rezoning.	Minimal impact to potential foraging habitat given the small area of removal and large areas continuing to exist surrounding the Subject Site and greater locality. Minor impact to potential breeding habitat given the removal of two (2) hollows that may provide breeding habitat for this species. Numerous suitable hollows are present and will remain immediately surrounding the Subject Site within the broader Subject Property and locality.	**Yes (5-Part Test Conducted)**

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Site	Breeding Habitat Present Within the Subject Site	Anticipated Impact	Further Impact Assessment Required?
Ninox strenua (Powerful Owl)	V	-	Moderate	The main prey items are medium-sized arboreal marsupials, particularly the Flying Foxes, Greater Glider, Common Ringtail Possum and Sugar Glider. Birds also make up a component of their diet. As most prey species require hollows and a shrub layer, these are important habitat components for the owl. Prey species have the potential to occur within the Subject Site.	Powerful Owls nest in large tree hollows (at least 0.5 m deep), in large eucalypts (diameter at breast height of 80-240 cm) that are at least 150 years old. Two (2) suitable hollows are likely to be impacted as part of the proposed rezoning.	Minimal impact to potential foraging habitat given the small area of removal and large areas continuing to exist surrounding the Subject Site and greater locality. Minor impact to potential breeding habitat given the removal of two (2) hollows that may provide breeding habitat for this species. Numerous suitable hollows are present and will remain immediately surrounding the Subject Site within the broader Subject Property and locality.	**Yes (5-Part Test Conducted)**
Petauroides volans Southern Greater Glider	E	E	Moderate	Feeds exclusively on eucalypt leaves, buds, flowers and mistletoe. Potential foraging habitat is present within the Subject Site.	This species is known to occupy areas with numerous large hollows. Two (2) suitable hollows are likely to be impacted as part of the proposed rezoning.	Minimal impact to potential foraging habitat given the small area of removal and large areas continuing to exist surrounding the Subject Site and greater locality. Minor impact to potential breeding habitat given the removal of two (2) hollows that may provide breeding habitat for this species. Numerous suitable hollows are present and will remain immediately surrounding the Subject Site within the broader Subject Property and locality.	**Yes (5-Part Test and EPBC Assessment of Significant Impact Conducted)**

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Site	Breeding Habitat Present Within the Subject Site	Anticipated Impact	Further Impact Assessment Required?
Petaurus norfolcensis Squirrel Glider	V	-	Moderate	Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas. Potential foraging habitat is present within the Subject Site.	Require abundant tree hollows for refuge and nest site. Two (2) suitable hollows are likely to be impacted as part of the proposed rezoning.	Minimal impact to potential foraging habitat given the small area of removal and large areas continuing to exist surrounding the Subject Site and greater locality. Minor impact to potential breeding habitat given the removal of two (2) hollows that may provide breeding habitat for this species. Numerous suitable hollows are present and will remain immediately surrounding the Subject Site within the broader Subject Property and locality.	**Yes (5-Part Test Conducted)**
Phascolarctos cinereus (koala)	E	E	Low	Inhabit eucalypt woodlands and forests. Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. Potential feed trees were present within the Subject Site.	Inhabit eucalypt woodlands and forests. Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. Potential feed trees were present within the Subject Site.	Minimal anticipated impact to potential foraging and breeding habitat given the small area of impact and extensive habitat to remain within the broader Subject Property and locality. Due to lack of proximal records for this species no significant impact is deemed likely.	No
Pteropus poliocephalus (Grey-headed Flying-fox)	V	V	Low	Feed on the nectar and pollen of native trees, in particular *Eucalyptus, Melaleuca* and *Banksia*, and fruits of rainforest trees and vines. Potential foraging	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	Minimal anticipated impact to potential foraging habitat given the mobility of the species. No anticipated impact to breeding habitat.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Site	Breeding Habitat Present Within the Subject Site	Anticipated Impact	Further Impact Assessment Required?
				habitat is present within the Subject Site.	within or in close proximity to the Subject Site.		
Tyto novaehollandiae (Masked Owl)	V	-	Low	Lives in dry eucalypt forests and woodlands from sea level to 1100 m. Often hunts tree-dwelling and ground mammals, especially rats along the edges of forests, including roadsides. Potential foraging habitat is present within the Subject Site.	Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting. No suitably sized hollows were identified within the Subject Site at the time of the site assessment. Two (2) suitable hollows are likely to be impacted as part of the proposed rezoning.	Minimal impact to potential foraging habitat given the small area of removal and large areas continuing to exist surrounding the Subject Site and greater locality. Minor impact to potential breeding habitat given the removal of two (2) hollows that may provide breeding habitat for this species. Numerous suitable hollows are present and will remain immediately surrounding the Subject Site within the broader Subject Property and locality.	**Yes (5-Part Test Conducted)**
Varanus rosenbergi (Rosenberg's Goanna)	V	-	Low	Found in heath, open forest and woodland. Feeds on carrion, birds, eggs, reptiles and small mammals. Potential prey items may occupy the Subject Site.	This specie nests in termite mounds. No termite mounds were present within the Subject Site.	Minimal anticipated impact to potential foraging habitat. No anticipated impact to breeding habitat.	No

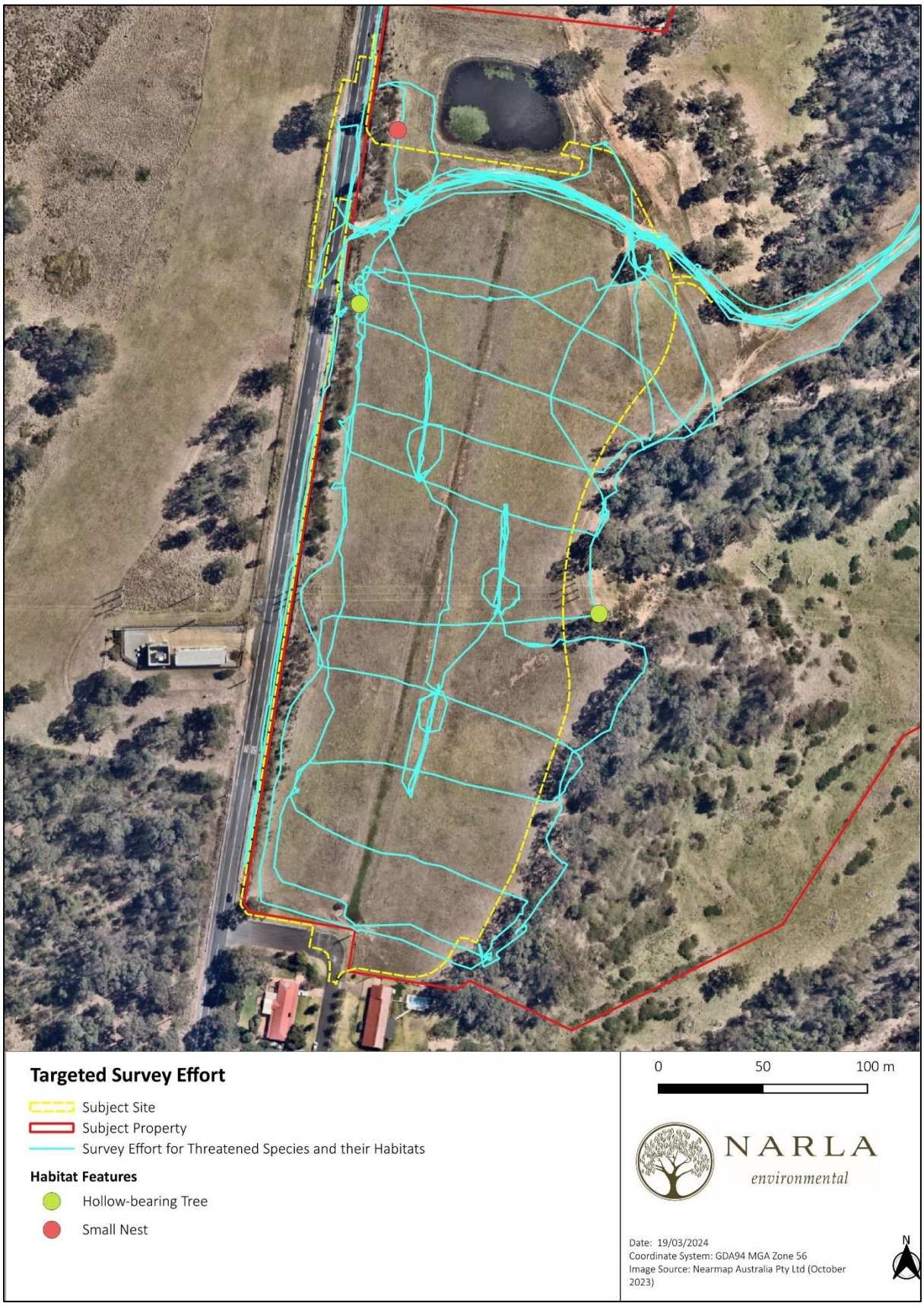

Figure 7 Targeted Survey Effort for Threatened Species and Fauna Habitat.

5. Impact Summary

5.1 Vegetation

The proposed rezoning is likely to impact 0.79ha of native vegetation across the following vegetation communities:

- 0.41ha of Cumberland Shale Hills Woodland – Moderate Condition (Remnant);
- 0.26ha of Cumberland Shale Hills Woodland – Low Condition (Grassland); and
- 0.12ha of Native Swale Vegetation.

In addition to these areas of native vegetation, approximately 4.44ha of Exotic Dominated Grassland will also likely be impacted by the proposed rezoning.

All trees to be removed will be replaced with locally sourced, nursery stock, at a ratio of 3:1, with native species within the proposed residual lot, representative of the Cumberland Plains Woodland Critically Endangered Ecological Communities to ensure a net gain in biodiversity across the Subject Property.

5.1.1 Local Occurrence Threatened Ecological Communities

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

5.1.1.1 Local Occurrence – Cumberland Plain Woodland in the Sydney Basin Bioregion

The local occurrence of the BC Act listed CEEC, Cumberland Plain Woodland in the Sydney Basin Bioregion was calculated using DPE (2022) NSW State Vegetation Type Map. This was combined with Narla field-validated vegetation mapping to determine the impact of the proposed activity on this community within the locality (**Figure 8**). The impact on the local occurrence is outlined in **Table 11**. Areas of local occurrence were restricted to the Subject Property as these areas were confirmed as containing CPW.

Table 11. Impact upon the local occurrence of Cumberland Plain Woodland in the Sydney Basin Bioregion.

Cumberland Plain Woodland in the Sydney Basin Bioregion mapped in the Subject Property	Total Area (approximate)
Local Occurrence (DPE 2022)	15.09ha
Amount likely to be impacted by the proposed rezoning.	0.67ha
Total Remaining (approximate) Post Impact	**14.42ha**
Percentage Impacted (approximate)	**4.44%**

An Assessment of Significance (5-part Test) was carried out for the Cumberland Plain Woodland in the Sydney Basin Bioregion (**Appendix D**). It was determined that the proposed activity is not expected to result in a significant impact to the local occurrence of this TEC.

5.2 Fauna Habitat

One (1) hollow bearing tree containing two (2) medium hollows is likely to be removed as part of the proposed rezoning. All hollows that are removed will be replaced at a 2:1 ratio with artificial nestboxes within the proposed residual lot in the broader Subject Property, upon receiving rezoning approval. A BC Act Assessment of Significance (5-Part Test; **Appendix E**) and EPBC Assessment of Significant Impact (**Appendix F** and **Appendix G**) were undertaken for all species with potential to utilise this habitat and it was concluded that owing to the habitat still remaining within the Subject Property and broader locality as well as the mitigation measures proposed it was unlikely that the proposed rezoning would result in a significant impact to any of these species.

Figure 8. Local Occurrence of Cumberland Plain Woodland in the Sydney Basin Bioregion.

6. Recommendations

This section of the report details recommended efforts to avoid and minimise impact on biodiversity values associated with the Subject Site. Measures to be implemented before, during and post construction to avoid and minimise the impacts of the project are detailed in **Table 12**.

Table 12. Table of measures to be implemented before, during and after construction to avoid and minimise the impacts of the project.

Action	Outcome	Timing	Responsibility
Project Location, Design and Planning	The proposed rezoning has been strategically located within an area comprised predominantly of exotic dominated grassland avoiding the large extents of native vegetation present within the broader Subject Property. The native vegetation that is likely to be impacted consists of fragmented roadside vegetation, a small patch of native grassland and a thin strip of native forbs located within an unmapped drainage line.	Pre-construction phase	Proponent
Assigning a Project Ecologist	Prior to any vegetation works, the proponent should 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. The Ecologist will be commissioned to: ▪ Undertake an extensive pre-clearing survey which includes targeted searches for threatened fauna threatened flora and Priority Weeds, and delineating habitat-bearing trees and shrubs; and ▪ Supervise the clearance of any habitat trees or shrubs identified during the pre-clearing survey (native and exotic) in order to capture, treat and/or relocate any displaced fauna.	Pre-construction phase	Proponent
Preparation of a Construction Environmental Management Plan (CEMP)	A Construction Environmental Management Plan (CEMP) may be required for the construction phase of the project, and will be prepared prior to issue of the Construction Certificate. The CEMP would include, as a minimum, industry-standard measures for the management of soil, surface water, weeds and pollutants, as well as site-specific measures, including the procedures outlined below. The proposed mitigation measures would include environmental safeguards for protection of neighbouring properties and nearby waterways in accordance with relevant policy documentation and Government guidelines. In order to address the potential impacts of the proposal on biodiversity, the mitigation and management measures outlined within this table would be implemented as part of the CEMP for the site.	Pre-construction phase	Proponent Construction Contractor

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 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. Appropriate fencing is to be erected around all retained trees to protect against potential indirect impacts from construction works.	Pre-construction phase	Proponent Arborist
Hollow Replacement	Two (2) medium hollows are likely to be removed as a result of the proposed rezoning. These hollows are to be replaced at a 2:1 ratio with nest boxes of the equivalent size, elsewhere within the Subject Property once rezoning approval is granted.	Pre-construction phase	Proponent
Tree Replacement	All trees to be removed will be replaced with locally sourced, nursery stock, at a ratio of 3:1, with native species within the proposed residual lot, representative of the Cumberland Plains Woodland Critically Endangered Ecological Communities to ensure a net gain in biodiversity across the Subject Property.	Pre-construction phase	Proponent
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 and adjacent waterways. As a minimum, such measures should comply with the relevant industry guidelines such as 'the Blue Book' (Landcom 2004).	Construction phase	Proponent Construction Contractor
Erection of permanent/temporary fencing	Temporary barriers (e.g. flagging tape) should be erected around retained native vegetation that may incur indirect impacts on biodiversity values due to the construction works. Permanent fencing should then be erected around retained native vegetation post-construction works to prevent any potential direct/indirect impacts such as increased foot traffic or trampling.	Pre-construction phase	Proponent Construction Contractor
Storage and stockpiling (soil and materials)	Allocate all storage, stockpile and laydown sites away from any native 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
Stormwater	The proposed activity is unlikely to result in significant changes to storm-water runoff so it is expected there will be no exacerbated impact on native flora and fauna.	Post-construction phase	Proponent 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.

In summary, the proposed rezoning is likely to impact 0.79ha of native vegetation across the following vegetation communities:

- 0.41ha of Cumberland Shale Hills Woodland – Moderate Condition (Remnant);
- 0.26ha of Cumberland Shale Hills Woodland – Low Condition (Grassland); and
- 0.12ha of Native Swale Vegetation.

In addition to these areas of native vegetation, approximately 4.44ha of Exotic Dominated Grassland will also likely be impacted by the proposed rezoning.

All trees to be removed will be replaced with locally sourced, nursery stock, at a ratio of 3:1, with native species within the proposed residual lot, representative of the Cumberland Plains Woodland Critically Endangered Ecological Communities to ensure a net gain in biodiversity across the Subject Property.

The impact upon 0.67ha of CSPW comprises 4.44% of the locally occurring CEEC, Cumberland Plain Woodland in the Sydney Basin Bioregion within the Subject Property.

BC Act Tests of Significance (5 part-Tests) and EPBC Assessments of Significant Impact were conducted for all potentially occurring threatened species with the potential to be impacted by the proposed activity. It was determined that the proposed activity will not have a significant impact on any potentially occurring threatened entities.

It is not anticipated that any threatened flora or fauna will be impacted by the proposed activity 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 Removal Plan (Site Plus 2024).

Appendix B. Flora species identified within and surrounding the Subject Site during the March 2024 site assessment.

Appendix C. Fauna species identified within and surrounding the Subject Site during the March 2024 site assessment.

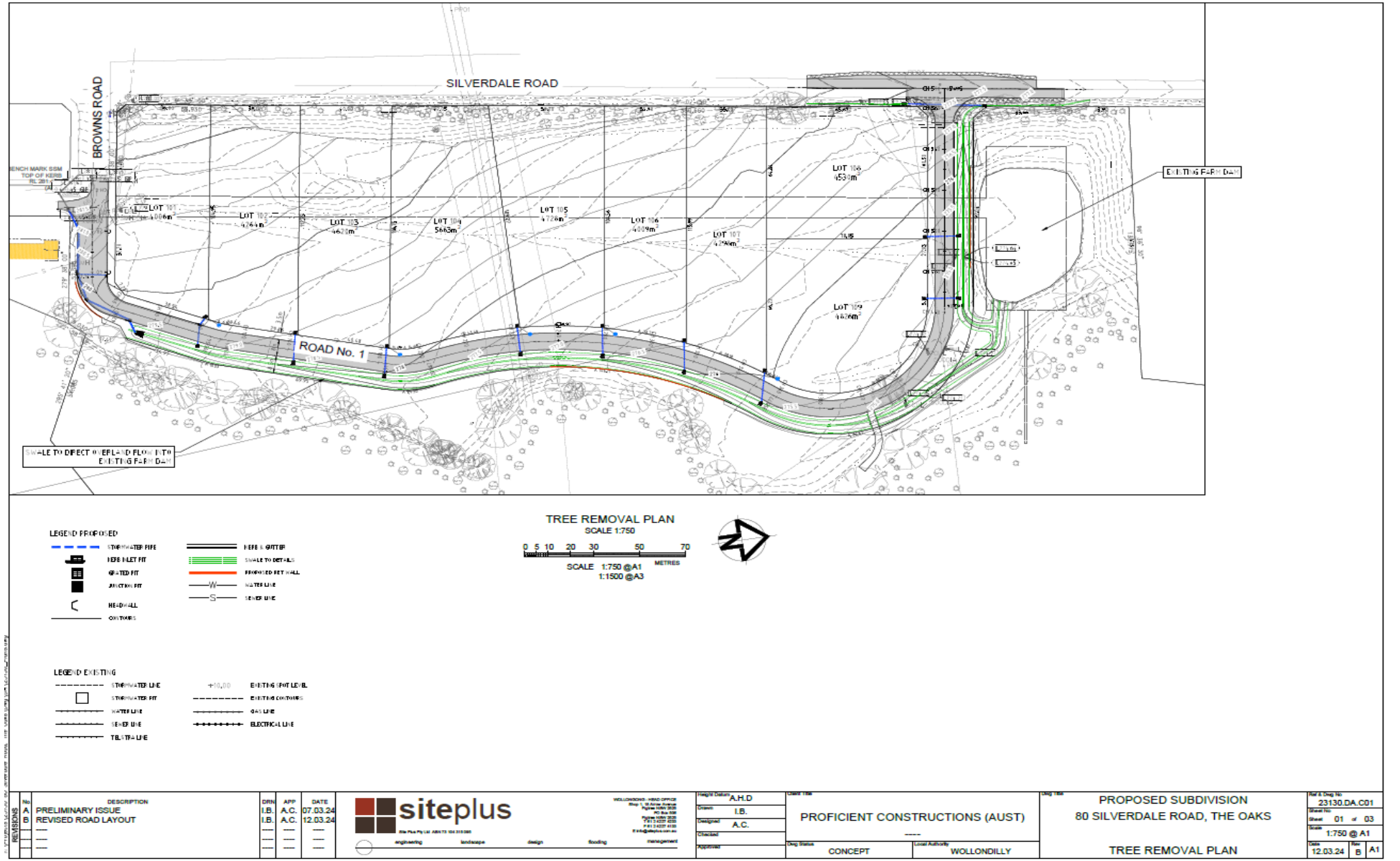
Appendix D. Biodiversity Conservation Act 2016 - Assessment of Significance (5-part Test) for Cumberland Plain Woodland in the Sydney Basin Bioregion.

Appendix E. Biodiversity Conservation Act 2016 Test of Significance (5-Part Test) for Hollow Dwelling Fauna.

Appendix F. Commonwealth Environment Protection and Biodiversity Conservation Act 1999 Assessment of Significant Impact Criteria for Endangered hollow dwelling fauna.

Appendix G. Commonwealth Environment Protection and Biodiversity Conservation Act 1999 Assessment of Significant Impact Criteria for Vulnerable hollow dwelling fauna.

Appendix A. Tree Removal Plan (Site Plus 2024).



Appendix B. Flora species identified within and surrounding the Subject Site during the March 2024 site assessment.

Scientific Name	Canopy	Midstorey	Ground
Acacia floribunda		x	
Acacia implexa		x	
Acacia parramattensis		x	
Allocasuarina littoralis		x	
Angophora subvelutina	x		
*Araujia sericifera**			x
*Axonopus fissifolius**			x
*Bidens pilosa**			x
*Briza subaristata**			x
Bursaria spinosa		x	
*Cenchrus clandestinus**			x
Centella asiatica			x
*Chloris gayana**			x
*Cirsium vulgare**			x
*Conyza bonariensis**			x
Corymbia maculata	x		
Cynodon dactylon			x
*Cyperus eragrostis**			x
Desmodium varians			x
Dichondra repens			x
*Echinochloa crus-galli**			x
*Eragrostis curvula**			x
Eucalyptus crebra	x		
Eucalyptus punctata	x		
Eucalyptus tereticornis	x		
Glycine clandestina			x
Hardenbergia violacea			x
Juncus continuus			x
Kennedia rubicunda			x
Kunzea ambigua		x	
*Lantana camara***			x
*Medicago spp.**			x
Melia azedarach		x	
*Paspalum dilatatum**			x
Persicaria decipiens			x
Persicaria hydropiper			x
*Rubus fruticosus sp. agg. **			x
*Senecio madagascariensis***			x
*Setaria parviflora**			x
*Sida rhombifolia**			x
*Sporobolus africanus**			x
Sporobolus creber			x

Scientific Name	Canopy	Midstorey	Ground
*Sporobolus fertilis**			x
*Tagetes minuta**			x
*Taraxacum officinale**			x
Themeda triandra			x
*Trifolium repens**			x
Typha orientalis			x
*Verbena bonariensis**			x

**Denotes Exotic species*

***Denotes Priority Weed*

Appendix C. Fauna species identified within and surrounding the Subject Site during the March 2024 site assessment.

Class	Scientific Name	Common Name	Status
Aves	*Acridotheres tristis*	Common Myna	Exotic
	Acanthiza pusilla	Brown Thornbill	Protected
	Alisterus scapularis	Australian King Parrot	Protected
	Aquila audax	Wedge-tailed Eagle	
	Colluricincla harmonica	Grey Shrike Thrush	
	Corvus coronoides	Australian Raven	
	Dacelo novaeguineae	Laughing Kookaburra	
	Eopsaltria australis	Eastern Yellow Robin	
	Grallina cyanoleuca	Magpie Lark	
	Gymnorhina tibicen	Australian Magpie	
	Hirundo neoxena	Welcome Swallow	
	Malurus cyaneus	Superb Fairy Wren	
	Manorina melanocephala	Noisy Miner	
	Manorina melanophrys	Bell Miner	
	Neochmia temporalis	Red-browed Finch	
	Pachycephala pectoralis	Australian Golden Whistler	
	Platycercus elegans	Crimson Rosella	
	Platycercus eximius	Eastern Rosella	
	Psophodes olivaceus	Eastern Whipbird	
	Rhipidura albiscapa	Grey Fantail	
	Rhipidura leucophrys	Willie Wagtail	
	Strepera graculina	Pied Currawong	
	Zanda funerea	Yellow-tailed Black Cockatoo	
	Zosterops lateralis	Silvereye	

Appendix D. Biodiversity Conservation Act 2016 - Assessment of Significance (5-part Test) for Cumberland Plain Woodland in the Sydney Basin Bioregion.

Biodiversity Conservation Act 2016 – Test of Significance (5-part Test) for Cumberland Plain Woodland in the Sydney Basin Bioregion (CPW)		
BC Act Status: Critically Endangered Ecological Community		
(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	Not applicable.	
(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	The proposed activity is not likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction. In total, 4.44% of the local occurrence of CPW will be impacted. The proposed activity has been strategically placed within the Subject Property as to avoid the removal of trees as much as possible with impacts largely restricted to historically cleared and roadside vegetation. Areas of CPW will remain within the broader Subject Property, with all trees to be removed to be replaced at a 3:1 ratio ensuring this community is not placed at risk of extinction.
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,	The proposed activity is not likely to substantially and adversely modify the composition of CPW such that its local occurrence is likely to be placed at risk of extinction. The proposed activity has been strategically placed within the Subject Property as to avoid the removal of trees as much as possible with impacts largely restricted to historically cleared and roadside vegetation. Areas of CPW will remain within the broader Subject Property, with all trees to be removed to be replaced at a 3:1 ratio
(c) in relation to the habitat of a threatened species or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and	In total, approximately 0.67ha of CPW is expected to be impacted by the proposed rezoning. The proposed activity has been strategically placed within the Subject Property as to avoid the removal of trees as much as possible with impacts largely restricted to historically cleared and roadside vegetation. Areas of CPW will remain within the broader Subject Property, with all trees to be removed to be replaced at a 3:1 ratio.
	(ii) whether an area of habitat is likely to become fragmented or isolated from other	The area of habitat is not likely to become fragmented or isolated from other areas of habitat as a result of the proposed activity.

Biodiversity Conservation Act 2016 – Test of Significance (5-part Test) for Cumberland Plain Woodland in the Sydney Basin Bioregion (CPW)		
BC Act Status: Critically Endangered Ecological Community		
	areas of habitat as a result of the proposed development or activity, and	The impact to 0.67ha of CPW within the Subject Site is unlikely to disconnect the CEEC from any other parts of the community. The proposed activity has been strategically placed within the Subject Property as to avoid the removal of trees as much as possible with impacts largely restricted to historically cleared and roadside vegetation that is already partially fragmented. Areas of CPW will remain within the broader Subject Property, with all trees to be removed to be replaced at a 3:1 ratio. The proposed actively will not result in further fragmentation of the TEC.
	(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,	All areas which support viable patches of CPW are important. In total 0.67ha of vegetation will be impacted consisting of historically cleared and roadside vegetation. Large extents of CPW have been strategically avoided within the Subject Property, with the majority of trees being retained resulting in minimal impacts to the TEC. As such, it is not considered important to the long-term survival if the community in the locality.
(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The proposed activity is not likely to have an adverse effect on any declared area of outstanding biodiversity value, directly or indirectly.	
(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The following Key Threatening Processes (KTPs) listed under Schedule 4 of the BC Act are relevant to the protection of potential habitat in the scope of the proposed activity within the Subject Site for this CEEC: ▪ Clearing of native vegetation. The proposed activity will see a minor increase in the impact on clearing of native vegetation.	
References NSW Government (2017) NSW Legislation: Biodiversity Conservation act 2016 No 63, Schedule 4: Key Threatening Processes https://www.legislation.nsw.gov.au/acts/2016-63.pdf NSW Scientific Committee (2009) Cumberland Plain Woodland in the Sydney Basin Bioregion - critically endangered ecological community listing – Final Determination		

Appendix E. Biodiversity Conservation Act 2016 Test of Significance (5-Part Test) for Hollow Dwelling Fauna.

Biodiversity Conservation Act 2016 – Test of Significance (5-part Test) for Gang-gang Cockatoo (*Callocephalon fimbriatum*)[2] South-eastern Glossy Black Cockatoo (*Calyptorhynchus lathami lathami*)[2] Brown Treecreeper eastern subsp. (*Climacteris picumnus victoriae*)[2] Spotted-tailed Quoll (*Dasyurus maculatus*)[2] Eastern Coastal Free-tailed Bat (*Micronomus norfolkensis*)[2] Southern Myotis (*Myotis macropus*)[2] Barking Owl (*Ninox connivens*)[2] Powerful Owl (*Ninox strenua*)[2] Southern Greater Glider (*Petauroides volans*)[1] Squirrel Glider (*Petaurus norfolcensis*)[2] Masked Owl (*Tyto novaehollandiae*)[2]		
BC Act Status: 1 – Endangered, 2 - Vulnerable		
(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	The proposed activity is not likely to have an adverse effect on the life cycle of these species such that a viable population is likely to be placed at risk of extinction. The proposed activity will likely involve the removal of two (2) medium hollows that may provide breeding habitat for these species. Given the extent of habitat that will remain within the Subject Property and the proposed mitigation measure to replace all hollows prior to clearing, the proposed works are considered to only have a minor potential impact on these species.	
(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	Not applicable.
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,	Not applicable.
(c) in relation to the habitat of a threatened species or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and	The proposed activity will involve the removal of two (2) medium hollows that may provide breeding habitat for these species.
	(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and	The area of habitat is not likely to become fragmented or isolated from other areas of habitat as a result of the proposed activity. An area of contiguous habitat will continue to exist within the Subject Property and surrounds. The proposed Activity will only occur on the edge of a large patch that has already experienced historical clearing.

Biodiversity Conservation Act 2016 – Test of Significance (5-part Test) for Gang-gang Cockatoo (*Callocephalon fimbriatum*)[2] South-eastern Glossy Black Cockatoo (*Calyptorhynchus lathami lathami*)[2] Brown Treecreeper eastern subsp. (*Climacteris picumnus victoriae*)[2] Spotted-tailed Quoll (*Dasyurus maculatus*)[2] Eastern Coastal Free-tailed Bat (*Micronomus norfolkensis*)[2] Southern Myotis (*Myotis macropus*)[2] Barking Owl (*Ninox connivens*)[2] Powerful Owl (*Ninox strenua*)[2] Southern Greater Glider (*Petauroides volans*)[1] Squirrel Glider (*Petaurus norfolcensis*)[2] Masked Owl (*Tyto novaehollandiae*)[2]		
BC Act Status: 1 – Endangered, 2 - Vulnerable		
	(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,	All areas which may support viable populations of these threatened species are important. The proposed activity will involve the removal of two (2) medium hollows that may provide breeding habitat for these species. These hollows are proposed to be replaced and vegetation clearing will occur directly adjacent to existing cleared areas and will not result in any habitat fragmentation. Given the small area of impact, the mobility of these species and the large areas of habitat that will remain both within the Subject Property and locality the impacts are considered to be minor.
(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The proposed activity is not likely to have an adverse effect on any declared area of outstanding biodiversity value, directly or indirectly.	
(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The proposed activity will contribute to the following key threatening process: ▪ Clearing of native vegetation; ▪ Loss of hollow-bearing trees.	
References NSW Government (2017) NSW Legislation: Biodiversity Conservation act 2016 No 63, Schedule 4: Key Threatening Processes https://www.legislation.nsw.gov.au/acts/2016-63.pdf		

Appendix F. Commonwealth Environment Protection and Biodiversity Conservation Act 1999 Assessment of Significant Impact Criteria for Endangered hollow dwelling fauna.

Commonwealth Environment Protection and Biodiversity Conservation Act 1999 Assessment of Significant Impact Criteria for Spotted-tailed Quoll (*Dasyurus maculatus*) Southern Greater Glider (*Petauroides volans*) Gang-gang Cockatoo (*Callocephalon fimbriatum*)	
EPBC Act Status: Endangered	
Significant impact criteria An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of a population	The proposed activity is not likely to lead to a long-term decrease in the size of a population of these species. Approximately 0.41ha of native vegetation will be impacted as a result of the proposed activity that may provide habitat for these species. The area to be impacted is considered minor in comparison to the extensive suitable potential habitat that will remain within the broader Subject Property and in the broader locality. One habitat tree is proposed to be removed containing two (2) medium hollows. The loss of these hollows will be mitigated by the installation of nest boxes within the retained vegetation of the Subject Property at a rate of 2:1 per hollow removed. Other suitable hollows will remain protected within the Subject Property throughout the proposed activity, maintaining breeding habitat for this species.
Reduce the area of occupancy of the species	The proposed activity is unlikely to adversely impact upon the occupancy of these species. The proposed activity will require the removal of 0.41ha of potential foraging and breeding habitat, including two (2) medium hollows. The area to be impacted is considered minor in comparison to the extensive suitable potential habitat that will remain within the broader Subject Property and in the connected surrounding area.
Fragment an existing population into two or more populations	All remnant bushland outside of the Subject Site is to be retained and protected. The habitat in the Subject Site will not become fragmented from other areas as the proposed activity is located on the fringe of an existing cleared area and road. Connectivity will continue to occur to adjoining areas of bushland within the Subject Property. No significant impacts to the movement of these species across the Subject Site or between the Subject Site and adjoining bushland is likely to occur.
Adversely affect habitat critical to the survival of a species	The proposed activity will not adversely affect habitat critical to the survival of these species. 0.41ha of potential foraging and breeding habitat will require

Commonwealth Environment Protection and Biodiversity Conservation Act 1999 Assessment of Significant Impact Criteria for Spotted-tailed Quoll (*Dasyurus maculatus*) Southern Greater Glider (*Petauroides volans*) Gang-gang Cockatoo (*Callocephalon fimbriatum*)	
EPBC Act Status: Endangered	
	removed to facilitate the work, including the removal of two (2) medium hollows. The area to be impacted is considered minor in comparison to the extensive suitable potential habitat that will remain within the broader Subject Property and in the connected surrounding area.
Disrupt the breeding cycle of a population	There will be no significant disruption to the breeding cycle of a population of these species. 0.41ha of potential breeding and foraging habitat will be impacted including the removal of two (2) medium hollows. The hollows proposed for removal will be replaced prior to clearing at a 2:1 ratio and suitable breeding habitat will remain within the hollows and extensive vegetation area within the broader Subject Property.
Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposed activity will not modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline. The proposed works will require impact 0.41ha of potential foraging and breeding habitat, including the removal of two (2) medium hollows. The area to be impacted is considered minor in comparison to the extensive suitable potential habitat that will remain within the broader Subject Property and in the connected surrounding area), and all hollows will be replaced at a 2:1 ratio prior to the removal of any vegetation.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	Priority and environmental weeds are already present within the Subject Site and broader Subject Property. The proposed works are not expected to significant increase this such that it effects these species.
Introduce disease that may cause the species to decline, or	It is not expected that the proposed activity would further increase the risk of disease in the area, than what would already be present within the locality.
Interfere with the recovery of the species.	With only small area of potential foraging and breeding habitat being impacted as a result of the proposed works, it is not deemed likely that this will interfere with

Commonwealth Environment Protection and Biodiversity Conservation Act 1999 Assessment of Significant Impact Criteria for Spotted-tailed Quoll (*Dasyurus maculatus*) Southern Greater Glider (*Petauroides volans*) Gang-gang Cockatoo (*Callocephalon fimbriatum*)	
EPBC Act Status: Endangered	
	the recovery of these species. Extensive suitable habitat will be retained in the broader Subject Property and in the adjoining bushland. Potential impacts are to be mitigated through the measures outlined in this report including the installation of nest boxes and the requirement for a qualified Ecologist to be present on-site during habitat tree removal to supervise works and provide assistance to any species directly impacted.

References

Department of Agriculture, Water and the Environment (DAWE) (2020) Spotted-tailed Quoll – Species Profile and Threats Database http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=75184

Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2022) Gang-gang Cockatoo– Species Profile and Threats Database https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=768

Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2022) Greater Glider– Species Profile and Threats Database

Appendix G. Commonwealth Environment Protection and Biodiversity Conservation Act 1999 Assessment of Significant Impact Criteria for Vulnerable hollow dwelling fauna.

Commonwealth Environment Protection and Biodiversity Conservation Act 1999 Assessment of Significant Impact Criteria for South-eastern Glossy Black Cockatoo (*Calyptorhynchus lathami lathami*)	
EPBC Act Status: Vulnerable	
Significant impact criteria An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of an important population of a species	The proposed activity is not likely to lead to a long-term decrease in the size of an important population of this species. Approximately 0.41ha of native vegetation will be impacted as a result of the proposed activity that may provide potential habitat for this species. The area to be impacted is considered minor in comparison to the extensive suitable potential habitat that will remain within the broader Subject Property and in the broader locality. One habitat tree is likely to require removal containing two (2) medium hollows. The loss of these hollows will be mitigated by the installation of nest boxes within the retained vegetation of the Subject Property at a rate of 2:1 per hollow removed. Other suitable hollows will remain protected within the Subject Property throughout the proposed works, maintaining breeding habitat for this species.
Reduce the area of occupancy of an important population	The proposed activity is unlikely to adversely impact upon the occupancy of an important population of this species. The proposed activity will impact of 0.41ha of potential foraging and breeding habitat, including two (2) medium hollows. The area to be impacted is considered minor in comparison to the extensive suitable potential habitat that will remain within the broader Subject Property and in the connected surrounding area.
Fragment an existing population into two or more populations	All remnant bushland outside of the Subject Site is to be retained and protected. The habitat in the Subject Site will not become fragmented from other areas as the proposed activity is located on the fringe of an existing cleared area. Connectivity will continue to occur to adjoining areas of bushland within the Subject Property. No significant impacts to the movement of these species across the Subject Site or between the Subject Site and adjoining bushland is likely to occur.
Adversely affect habitat critical to the survival of a species	The proposed activity will not adversely affect habitat critical to the survival of this species. 0.41ha of potential foraging and breeding habitat will be impacted to facilitate the work, including the removal of two (2) medium hollows. The area to be impacted is considered

Commonwealth Environment Protection and Biodiversity Conservation Act 1999 Assessment of Significant Impact Criteria for South-eastern Glossy Black Cockatoo (*Calyptorhynchus lathami lathami*)	
EPBC Act Status: Vulnerable	
	minor in comparison to the extensive suitable potential habitat that will remain within the broader Subject Property and in the connected surrounding area.
Disrupt the breeding cycle of an important population	There will be no significant disruption to the breeding cycle of an important population of this species. 0.41ha of potential foraging and breeding habitat will be impacted, including the removal of two (2) medium hollows. The hollows proposed for removal will be replaced prior to clearing at a 2:1 ratio and suitable breeding habitat will remain within the hollows and extensive vegetation area within the broader Subject Property.
Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposed activity will not modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline. The proposed works will impact approximately 0.41ha of potential foraging and breeding habitat, including the removal of two (2) medium hollows. The area to be impacted is considered minor in comparison to the extensive suitable potential habitat that will remain within the broader Subject Property and in the connected surrounding area, and all hollows will be replaced at a 2:1 ratio prior to the removal of any vegetation.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Priority and environmental weeds are already present within the Subject Site and broader Subject Property. The proposed works are not expected to significant increase this such that it effects this species.
Introduce disease that may cause the species to decline, or	It is not expected that the proposed activity would further increase the risk of disease in the area, than what would already be present within the locality.
Interfere with the recovery of the species.	With only a small area of potential foraging and breeding habitat being impacted as a result of the proposed works, it is not deemed likely that this will interfere with the recovery of this species. Extensive suitable habitat will be retained in the broader Subject Property and in the adjoining bushland. Potential impacts are to be mitigated through the measures outlined in this report including the installation of nest boxes and the requirement for a qualified Ecologist to be present on-site during habitat tree removal to

Commonwealth Environment Protection and Biodiversity Conservation Act 1999 Assessment of Significant Impact Criteria for South-eastern Glossy Black Cockatoo (*Calyptorhynchus lathami lathami*)	
EPBC Act Status: Vulnerable	
	supervise works and provide assistance to any species directly impacted.

References

Department of Climate Change, Energy, the Environment and Water (2022) South-eastern Glossy Black Cockatoo– Species Profile and Threats Database http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=67036

Department of Climate Change, Energy, the Environment and Water (2022) Yellow-bellied Glider (South-eastern)– Species Profile and Threats Database https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=87600

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