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Flora and Fauna Assessment

20-24 Lockyer Street, Goulburn

4th April 2023

EXECUTIVE SUMMARY

Fraser Ecological Consulting has been contracted to prepare an impact assessment of the proposed development on the terrestrial ecology located at 20-24 Lockyer Street, Goulburn in the Shoalhaven Council LGA for the proposed rezoning of the site from RU5 to industrial zoning. The site is characterised by existing cleared pastureland that is likely to have been previously subjected to agricultural grazing. There are a series of dams occurring on the site. The surrounding locality is characterised by similar properties and light industrial / commercial development. The southern boundary of the lot is near the Hume Highway.

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

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

The site contains existing cleared pastureland that is dominated by introduced grass species. There is a series of dams on the property that do not contain any significant riparian vegetation. A very small number of remnant trees were recorded on-site. They occur as isolated paddock trees. They are *Eucalyptus blakelyi* (Blakely's Red gum) and only four of them occur mainly within the northern extent of the subject site (refer to Photographs 3). This species of trees provide evidence of the remnant vegetation community that once occurred prior to clearing for previous / historic agricultural/ pastoral grazing activities.

A very small number of native species occurred near the dams including the following species:

- *Juncus usiatus*
- *Vittadinia gracilis*
- *Rubus parvifolius*
- *Cynodon dactylon*

The four remnant trees belonging to a threatened ecological community listed under NSW *Biodiversity Conservation Act 2016* and Commonwealth *EPBC Act 1999* occur on-site. They are likely to form part of the remnant White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Equivalent); Listed EPBC Act,CE: White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Equivalent).

No hollow bearing trees or significant rocky habitat features are proposed for removal.

The property is not mapped on the NSW DPIE 'Sensitive Biodiversity Values Map'.

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

communities listed under the New South Wales *Biodiversity Conservation Act 2016* and Commonwealth *Environment Protection Biodiversity Conservation Act 1999.*

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

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Licensing

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

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1. Introduction

1.1. Introduction

Fraser Ecological Consulting has been contracted to prepare an impact assessment of the proposed works on the terrestrial ecology located at 20-24 Lockyer Street, Goulburn in the Goulburn-Mulwaree Council LGA.

The site is characterised by existing cleared pasture land that is likely to have been previously subjected to agricultural grazing. There are a series of dams occurring on the site. The surrounding locality is characterised by similar properties and light industrial / commercial development. The southern boundary of the lot is near the Hume Highway.

The site is currently zoned RU5 and the application is the proposed rezoning of the property to an industrial use.

The terrestrial ecological assessment:

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

Activities specifically related to the preparation of this report included:

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

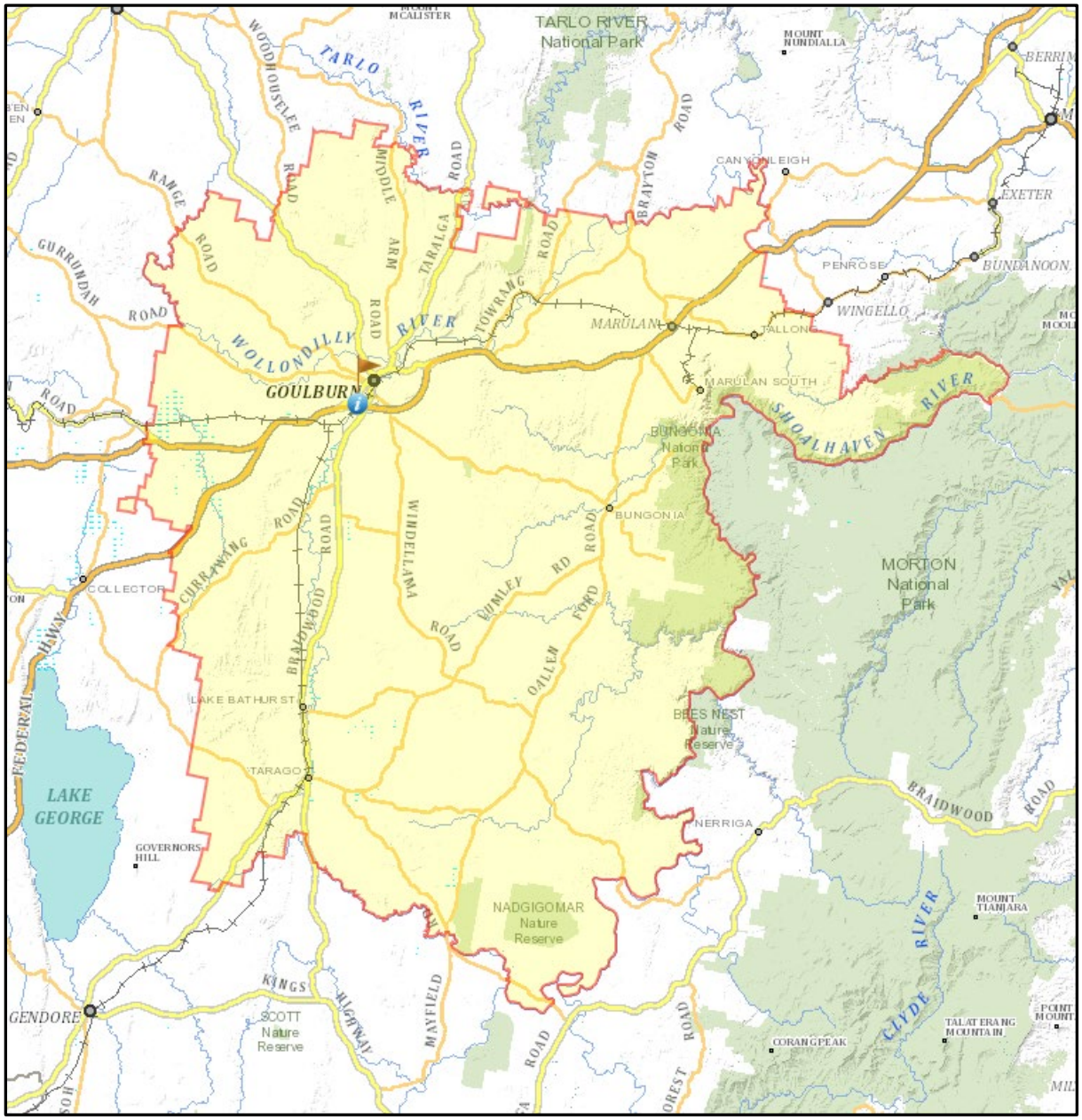


Figure 1: The study area and wider locality within the Goulburn Mulwaree Council LGA (Source: SIX maps.com)

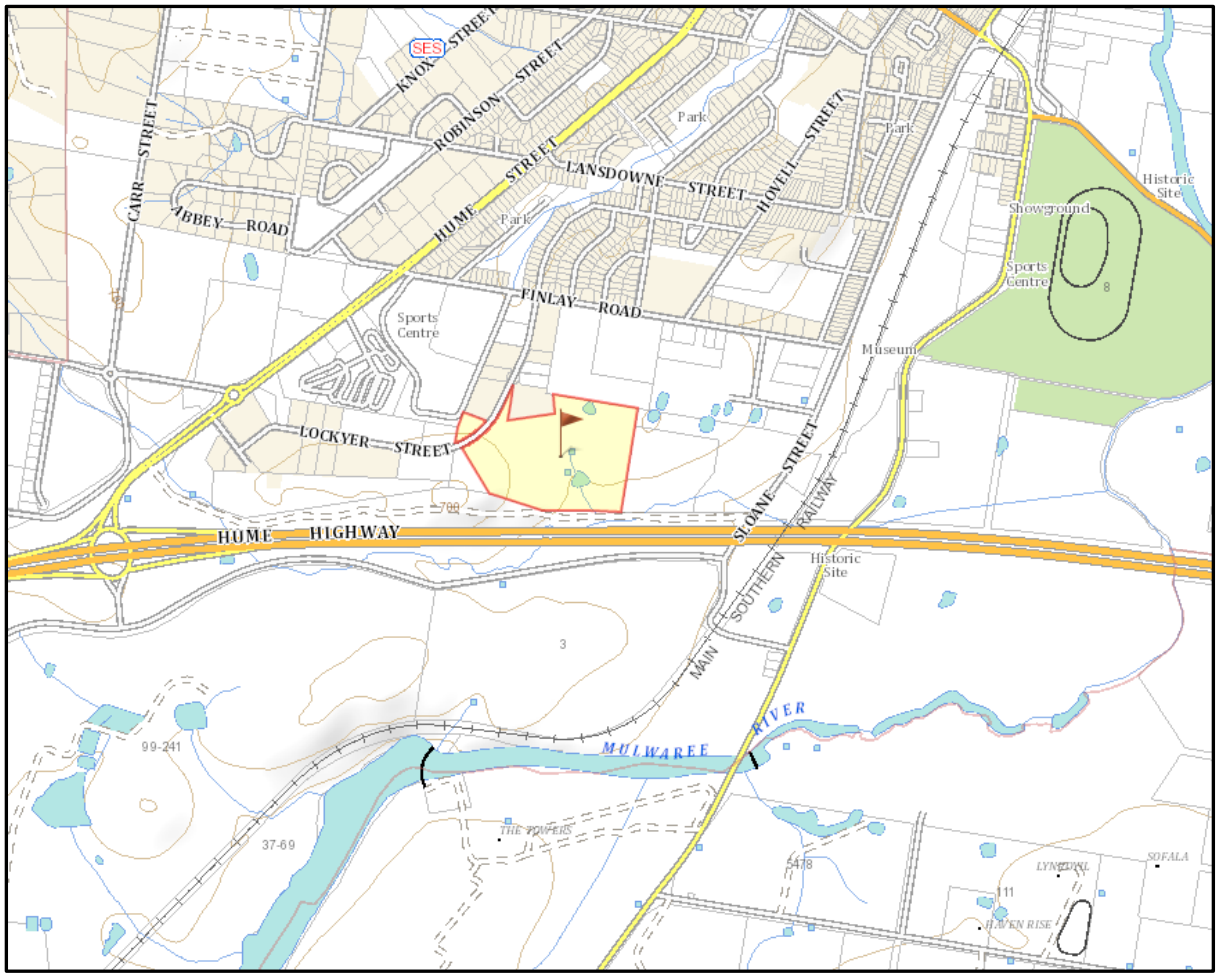


Figure 2: Cadastral map of the subject site in relation to the locality

(Source: SIX Maps.com)

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

2. Statutory Framework

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

2.1. Commonwealth

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

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

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

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

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

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

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

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

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

2.2. State

2.2.1 Local Government Act 1993

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

2.2.2 Rural Fires Amendment (Vegetation Clearing) Bill 2014

The recent Rural Fires Amendment (Vegetation Clearing) Bill 2014 gives the relevant authorities a mechanism to clear certain vegetation for the purposes of preventing a bushfire. The bill seeks to authorise vegetation clearing work to be carried out in certain areas near residential accommodation or high-risk facilities to reduce bushfire risk. This bill will give residents living in bushfire-prone areas additional powers to protect their homes and to clear trees and vegetation from around their property. The new laws will provide for people with homes in bushfire zones to clear within 10 metres of their home and to clear shrubs and other vegetation, except for trees, within 50 metres of their home. The vegetation clearing entitlement area may carry out certain vegetation clearing work on that land, despite any requirement for an approval, consent or other authorisation for the work made by other legislation.

The bill provides that the Commissioner of the NSW Rural Fire Service is to determine what land is a 10/50 vegetation clearing entitlement area and to identify this land on a map published on the NSW Rural Fire Service website. The map has yet been published. However, it is understood that by accessing a portal on the Rural Fire Service website, home owners will be able to identify easily whether their home stands within an entitlement area. It is unknown when this map will be produced, however, given the location of the dwelling it is likely that site would be contained within the mapped area.

The bill states that vegetation clearing work must be carried out in accordance with the 10/50 clearing code of practice, which is to be prepared by the commissioner and is to deal with certain matters. Those matters are listed in the bill as follows:

(a) the type of vegetation that can and cannot be cleared, including the types of trees,
(b) the circumstances in which vegetation should be pruned and not entirely removed,
(c) the use of herbicides,
(d) managing soil erosion and landslip risks,
(e) protection of riparian buffer zones,
(f) protection of Aboriginal and other cultural heritage,
(g) protection of vegetation that the owner of the land on which vegetation clearing work may be carried out is under a legal obligation to preserve by agreement or otherwise

The code of practice has not yet been prepared. The bill further states the vegetation clearing work that can be carried out is the removal, destruction (by means other than by fire) or pruning of:

- any vegetation (including trees or parts of trees) within 10 metres of an external wall of a building containing habitable rooms that comprises or is part of residential accommodation or a high-risk facility, and
- any vegetation, except for trees or parts of trees, within 50 metres of an external wall of a building containing habitable rooms that comprises or is part of residential accommodation or a high-risk facility.

Of most relevance to the development application, the bill also makes consequential amendments to the *National Parks and Wildlife Act 1974* to expand the exemptions contained in sections 118A and 118D of that Act, provided there is compliance with the 10/50 Vegetation Clearing Code of Practice.

2.2.3 Biodiversity Conservation Act 2016

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

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

It also consolidates:

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

Note: The BOS area clearing threshold in this Act is also applied within the new SEPP and LLS Act. If the amount of native vegetation clearing application is below the threshold it is optional if the applicant wants to submit a Biodiversity Assessment Report (BAR). In relation to Council DAs assessments, Part 4 local development requires application of the BAM to determine whether an offset obligation if it either:

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

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

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

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

- **The site is not mapped on the Sensitive Biodiversity Values Map (Figure 4).**

NSW GOVERNMENT

Biodiversity Values Map and Threshold Report

Results Summary

Date of Calculation	23/03/2023 7:21 PM	**BDAR Required***
Total Digitised Area	94,017.3 sqm	
Minimum Lot Size Method	Lot size	
Minimum Lot Size 10,000sqm = 1ha	10,279 sqm	
Area Clearing Threshold 10,000sqm = 1ha	5,000 sqm	
Area clearing trigger Area of native vegetation cleared	Unknown #	Unknown #
Biodiversity values map trigger Impact on biodiversity values map(not including values added within the last 90 days)?	no	no
Date of the 90 day Expiry	N/A	

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

Figure 4: NSW DPE Sensitive Biodiversity Values Map (accessed 23rd March 2023)

2.2.4 Biosecurity Act 2015

The NSW Biosecurity Act 2015 requires that "the responsibility of any person who has any dealing with weeds (biosecurity matter), whether they have an infestation on their land, are selling a potentially invasive species, dumping garden rubbish, or supplying contaminated fodder or the like must prevent, minimise or eliminate the biosecurity risk (as far as is reasonably practicable)". This report addresses the NSW Biosecurity Act 2015 by referring to the document '*Greater Sydney Regional Strategies Weed Management Plan 2017-2022*' by the Local Land Services of Greater Sydney.

The Management Plan seeks to provide guidance on the management of weeds on a local scale in order to comply with the NSW Biosecurity Act 2015. Appendix 1.1 of this Management Plan identifies 'State level determined priority weeds" and is broken up into the strategic response categories of 'Prevention', 'Eradication', 'Containment' and 'Asset Protection (Whole of State)'. Appendix 1.2 of the plan outlines the 'Regional priority weeds' and is also broken up into these same four strategic responses. Weeds in the 'prevention' category have not yet been identified in the state, but they pose a large biosecurity risk so it is expected that these are prevented from entering the state.

'Eradication' applies to weeds that are only limited in distribution and abundance, and so, these must be fully removed. 'Containment' is appropriate to weeds that have a wide distributed, hence widescale eradication is not currently possible, but these must be prevented from spreading further. 'Asset Protection' refers to Weeds of National Significance whose spread must be minimised. Appendix 2 of the plan lists "Other weeds of regional concern".

3. Methodology

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

3.1 Existing records

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

3.2. Literature review

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

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

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

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

2. ***Vegetation Mapping***

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

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

It is accessed via the following link:

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

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

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

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

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

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

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

Data Access

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

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

3.3 Desktop survey

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

- Aerial photographs (Google Maps, NearMaps & DPI Land Information)
- Survey plans prepared by survey plus dated 24/11/2022

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

Data sources include:

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

3.4 Field Surveys

A visual inspection was undertaken on the 16th March 2023 to identify and evaluate the current vegetation community occurring on the subject site, identify any threatened flora and fauna species and assess the current nature and extent of fauna habitats. Given the relatively small size of the site one day of surveying was considered an appropriate period of time to assess the native flora and fauna and values of the site.

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

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

The fauna habitat assessment criteria included:

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

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

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

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

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

3.5 Assessment of conservation value

Conservation value parameters

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

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

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

Table 1: Vegetation condition classes

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

4. Native vegetation

The site contains existing cleared pasture land that is dominated by introduced grass species (refer to Photographs 1 and 2). The site occurs on the BULLAMALITA SOIL LANDSCAPE (soil landscape report is provided on the following pages). The soil landscape influences type of native vegetation that can be present on the property.

There is a series of dams on the property that do not contain any significant riparian vegetation (refer to Photographs 3 and 4).

A very small number of remnant trees were recorded on-site. They occur as isolated paddock trees. They are *Eucalyptus blakelyi* (Blakely's Red gum) and only four of them occur mainly within the northern extent of the subject site (refer to Photographs 3). This species of trees provide evidence of the remnant vegetation community that once occurred prior to clearing for previous / historic agricultural/ pastoral grazing activities.

A very small number of native species occurred near the dams including the following species:

- *Juncus usiatus*
- *Vittadinia gracilis*
- *Rubus parvifolius*
- *Cynodon dactylon*

Reference to the New South Wales statewide PCT vegetation mapping project shows that similar vegetation in the locality is mapped as the following:

Goulburn Tableland Box-Gum Grassy Forest

Vegetation Formation: Grassy Woodlands

Vegetation Class: Southern Tableland Grassy Woodlands

PCT Name: Goulburn Tableland Box-Gum Grassy Forest

PCTID: 3373 (formerly PCT 701 and 1334)

Associated threatened ecological community: Listed BC Act,CE: White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Equivalent); Listed EPBC Act,CE: White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Equivalent).

We have prepared an assessment of significance as a precautionary measure (refer to Appendix C).

We have provided this PCT statewide vegetation mapping in Figure 4.

The New South Wales BIONET vegetation classification system identifies PCT 3373 been associated with the following PCT's under their formal numbering system:

PCT 701

The relationship between the legacy PCT and new PCTs is weak. The legacy PCT cites a single limited mapping source but is broadly defined across the entire tablelands and western slopes. The resulting very vague and generalised legacy PCT is effectively replaced by a large number of new PCTs, including 3540 Southwest Foothills Stringybark-Box Grassy Forest, 3373 Goulburn Tableland Box-Gum Grassy Forest, 3372 Dalton Hills Grassy Stringybark Forest, 3705 Western New England Hills Apple-Stringybark Forest, 3363 Western New England Blakelys Red Gum-Box Grassy Forest and 3357 Western New England Flats Apple-Box Grassy Forest (Eastern NSW PCT Classification version 1.1).

PCT 1334

The relationship between the legacy PCT and new PCTs is moderate. The legacy PCT was constructed from an interpretation of a range of classification sources, some of which may include plot-based methods. Comparison of floristic, habitat and distribution descriptions against available data suggests that the strongest associations are to new PCTs 3373 Goulburn Tableland Box-Gum Grassy Forest and 3376 Southern Tableland Grassy Box Woodland (Eastern NSW PCT Classification version 1.1).

PCT 1330

The relationship between the legacy PCT and new PCTs is weak. The new PCT with the highest proportion of legacy member plots is 3373 Goulburn Tableland Box-Gum Grassy Forest (Eastern NSW PCT Classification version 1.1). A smaller proportion of legacy member plots are resolved to other new PCTs including PCT 3376 Southern Tableland Grassy Box Woodland.

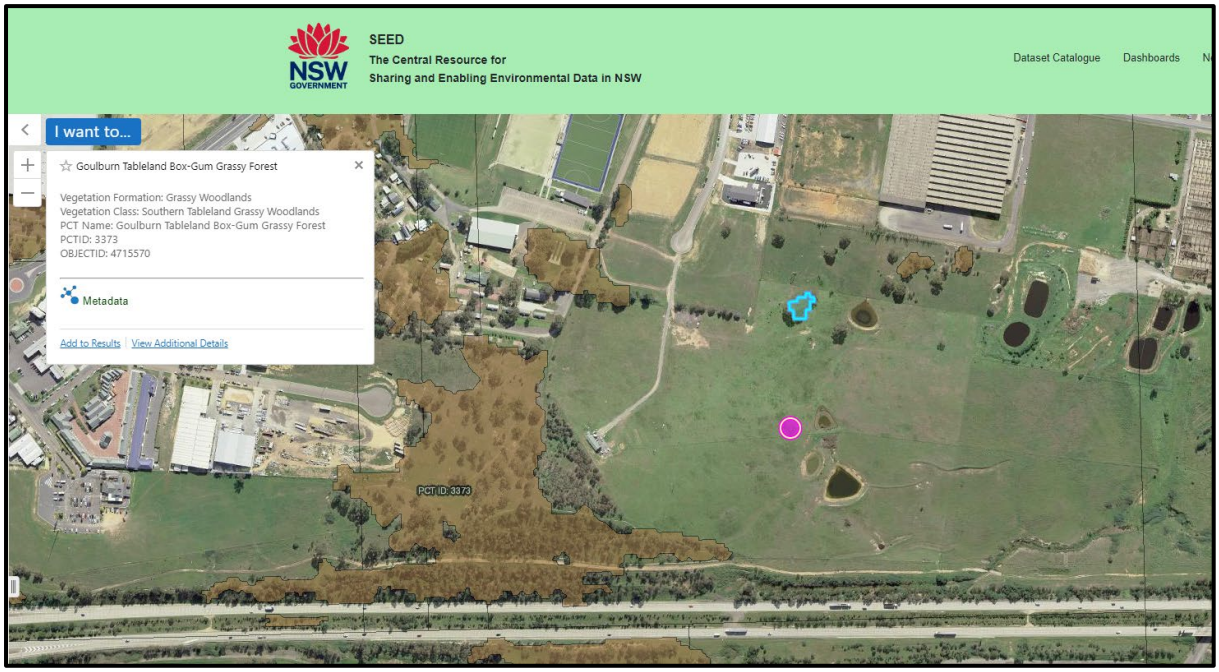


Figure 4: NSW State Vegetation Type Map adjoining the rear of the site (Source: Department of Planning and Environment 2023)

The following introduced environmental weed species were recorded on-site:

- *Axonopus fissifolius*
- *Briza maxima*
- *Cenchrus clandestinus*
- *Chloris gayana*
- *Cirsium vulgare*
- *Conyza bonariensis*
- *Cynodon dactylon*
- *Cyperus brevifolius*
- *Cyperus polystachyos*
- *Dicjelachne crinita*
- *Eragrostis curvula ssp. curvula*
- *Echium plantagineum*
- *Erigeron sumatrensis*
- *Holcus lanatus*
- *Hypochaeris radicata*
- *Lycium ferocissimum*
- *Malva spp.*
- *Modioloa caroliana*
- *Paspalum dilatatum*
- *Paspalum urvillei*
- *Phalaris aquatica*
- *Phytolacca octandra*
- *Plantago lanceolata*

- *Richardia humistrata*
- *Rumex sp*
- *Setaria gracilis*
- *Secale cerelae*
- *Sida rhombifolia*
- *Sonchus oleraceus*
- *Sporobolus fertilis*
- *Trifolium repens*
- *Verbena bonariensis*
- *Senecio madagascariensis*
- *Rubus fruticosus agg*
- *Sporobolus fertilis*

Photograph 1: Entrance to the site off Lockyer Road

Photograph 2: View east across the subject site showing that is dominated by introduced grassland

Photograph 3: One of the three dams occurring on-site also showing one of the few remnant native trees present

Photograph 4: The largest dam occurring on-site adjacent to the Hume Highway boundary of the property

SH–bl BULLAMALITA SOIL LANDSCAPE

GENERAL

An area of 160 km² near the city of Goulburn. Associated with Upper Silurian and Lower Devonian sediments wherever they occur in conjunction with footslopes and valley floors or on landform patterns with slope gradients generally <10%. More detailed information on this landscape is contained in Scown, Murphy and Johnston (1988). Commonly acid to neutral yellow duplex soils, usually with bleached A_2 horizons that set very hard on drying, occur on lower sideslopes, footslopes and drainage lines. These soils are similar to Soloths (Dy3.41, Dy3.42). However, they are more fertile than similar soils found in the Blakney Creek soil landscape. Red Podzolic Soils (Db1.21) are found on upper slopes whilst Yellow Solodic Soils (Dy3.42) and Alluvial Soils occur in some drainage lines.

ASSOCIATED SOIL LANDSCAPE: Occurs in association with the Midgee and Goulburn soil landscapes.

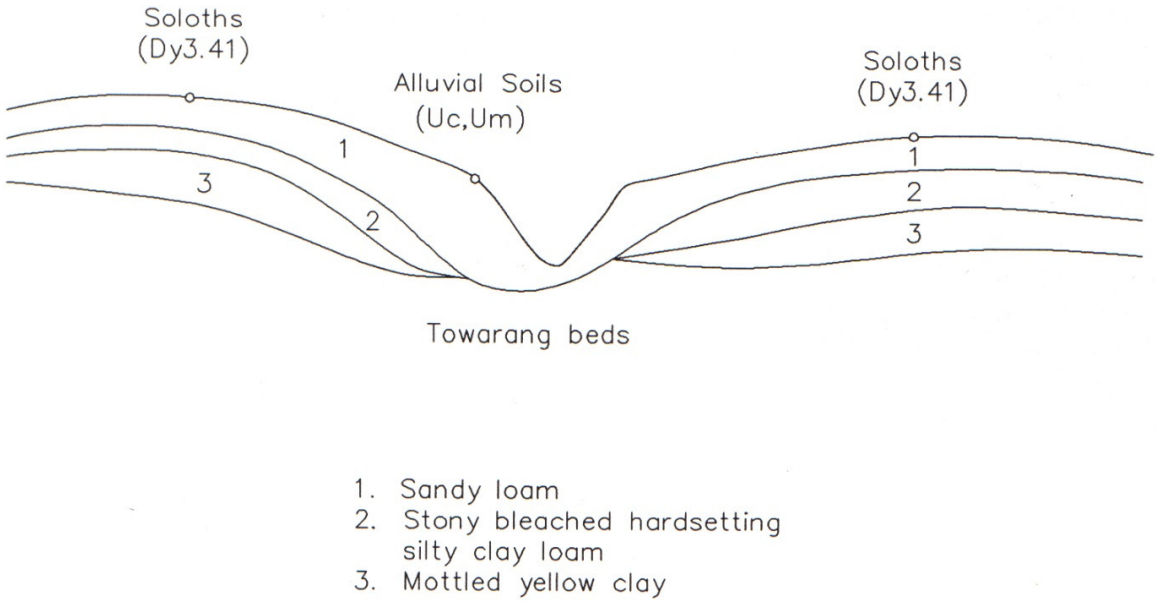
CLIMATIC ZONE: 3D

Annual Average annual rainfall for nearby Goulburn is approximately 640 mm with a summer peak. Summers are hot and winters mild to cold.

GEOLOGY

Some sequences of the Towrang Beds and Undifferentiated Silurian sediments. Includes sediments and volcanics. Soils have formed *in situ* and from alluvial-colluvial material derived from the parent rock.

SH–bl BULLAMALITA SOIL LANDSCAPE



LANDFORM

Undulating rises and valleys between low hills. Elevations vary from 650 – 800 m. Slope gradients are usually <10%. Local relief is between 10 – 50 m. Typically permanent erosional convergent integrated tributary pattern. Springs are a feature following good rains.

NATIVE VEGETATION

Savannah woodland of yellow box and red gum. Brittle gum occurs on the boundary with the Midgee soil landscape.

EXISTING LAND USE

Grazing of sheep and cattle. Urban uses near Goulburn.

SOIL EROSION

Moderate to severe gullying and moderate sheet erosion particularly in north-eastern areas. Saline areas are found, but their incidence is not as great as on the Blakney Creek soil landscape.

SH–bl BULLAMALITA SOIL LANDSCAPE	
	Soloths
Dominance	Common
Landform element	Footslopes, drainage depressions
Surface condition	Hardsetting
Drainage	Poor
Soil permeability	Slow
Watertable depth	Seasonal
Available water-holding capacity	High
Depth to bedrock	>200 cm
Flood hazard	Localised
pH (topsoil)	5.5 – 6.0
Fertility (chemical)	Low
Known nutrient deficiencies	N, P, K, S and most trace elements
Soil salinity	Evident
Erodibility (topsoil)	High
Erodibility (subsoil)	High
Erosion hazard	High
Structural degradation hazard	High
Land capability classification	IV, V
USCS (subsoil)	CL, ML
Shrink-swell potential	Low
Mass movement hazard	None

BioNet Vegetation Classification - Community Profile Report

Plant Community Type ID (PCT ID): 701

PCT Name: Blakely's Red Gum - Red Stringybark open forest on slopes and hills of the western slopes

Classification Confidence Level: 5-Very Low

Vegetation Description: Other Diagnostics Features: None; LandscapePosition: Slopes; Hills

Variation and Natural Disturbance:

Vegetation Formation: Dry Sclerophyll Forests (Shrubby sub-formation);

Vegetation Class: Southern Tableland Dry Sclerophyll Forests;

IBRA Bioregion(s): Brigalow Belt South; Nandewar; NSW South Western Slopes;

IBRA Sub-region(s): Pilliga; Liverpool Plains; Liverpool Range; Talbragar Valley; Nandewar Northern Complex; Inverell Basalts; Kaputar; Peel; Inland Slopes;

LGA: Not Assessed

Lithology: Not Assessed

Landform Pattern: Not Assessed

Landform Element: Not Assessed

Emergent species: None

Upper Stratum Species: Eucalyptus blakelyi; Callitris endlicheri; Eucalyptus macrorhyncha;

Mid Stratum Species: Acacia doratoxylon; Acacia implexa;

Ground Stratum Species:

Diagnostic Species: Not Assessed

Fire Regime:

TEC Assessed: No associated TEC

TEC List: Not Assessed

Associated TEC Comments:

PCT Percent Cleared: 95.00

PCT Definition Status: Approved

BioNet Vegetation Classification - Community Profile Report

Plant Community Type ID (PCT ID): 1330

PCT Name: Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion

Classification Confidence Level: 5-Very Low

Vegetation Description: Other Diagnostics Features: Woodland with a sparse shrub layer and dense grassy groundcover.; LandscapePosition: Occurs on loamy soils on undulating terrain between 500 and 900m on the tablelands.

Variation and Natural Disturbance:

Vegetation Formation: Grassy Woodlands;

Vegetation Class: Southern Tableland Grassy Woodlands;

IBRA Bioregion(s): NSW South Western Slopes;

IBRA Sub-region(s): Inland Slopes; Capertee Valley;

LGA: Not Assessed

Lithology: Not Assessed

Landform Pattern: Not Assessed

Landform Element: Not Assessed

Emergent species: None

Upper Stratum Species: Eucalyptus melliodora; Eucalyptus bridgesiana; Eucalyptus blakelyi; Eucalyptus dives; Eucalyptus macrorhyncha; Eucalyptus rubida subsp. rubida; Eucalyptus pauciflora; Eucalyptus mannifera; Eucalyptus viminalis;

Mid Stratum Species: Lissanthe strigosa; Melichrus urceolatus;

Ground Stratum Species: Bothriochloa macra; Gonocarpus tetragynus; Goodenia hederacea; Hydrocotyle laxiflora; Lomandra filiformis subsp. coriacea; Microlaena stipoides var. stipoides; Themeda australis;

Diagnostic Species: Not Assessed

Fire Regime:

TEC Assessed: Has associated TEC

TEC List: Listed BC Act,CE: White Box - Yellow Box - Blakely’s Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Equivalent); Listed EPBC Act,CE: White Box-Yellow Box-Blakely’s Red Gum Grassy Woodland and Derived Native Grassland (Equivalent);

Associated TEC Comments:

PCT Percent Cleared: 94.00

PCT Definition Status: Approved

BioNet Vegetation Classification - Community Profile Report

Plant Community Type ID (PCT ID): 1334

PCT Name: Yellow Box grassy woodland of the northern Monaro and Upper Shoalhaven area, South Eastern Highlands Bioregion

Classification Confidence Level: 5-Very Low

Vegetation Description: Other Diagnostics Features: Tall open woodland with a grassy groundlayer and sparse shrub and mid-storey layer; LandscapePosition: Occurs on valley flats and midslopes, and occasionally crests. Occurs in the Murrumbidgee River valley south of Royalla and the upper Shoalhaven River valley south of Bungonia; also found in the east of Queanbeyan and south of Bungendore.

Variation and Natural Disturbance:

Vegetation Formation: Grassy Woodlands;

Vegetation Class: Southern Tableland Grassy Woodlands;

IBRA Bioregion(s): South East Corner; South Eastern Highlands;

IBRA Sub-region(s): South East Coastal Ranges; Murrumbateman; Bungonia; Crookwell; Kybeyan-Gourock; Monaro;

LGA: Not Assessed

Lithology: Not Assessed

Landform Pattern: Not Assessed

Landform Element: Not Assessed

Emergent species: None

Upper Stratum Species: Eucalyptus melliodora; Eucalyptus bridgesiana; Eucalyptus pauciflora; Eucalyptus rubida;

Mid Stratum Species: Acacia dealbata; Acacia genistifolia; Acacia rubida; Cassinia spp.; Hibbertia obtusifolia; Lissanthe strigosa;

Ground Stratum Species: Austrodanthonia spp.; Austrostipa spp.; Chrysocephalum apiculatum; Hydrocotyle laxiflora; Hypericum gramineum; Plantago varia;

Diagnostic Species: Not Assessed

Fire Regime:

TEC Assessed: Has associated TEC

TEC List: Listed BC Act,CE: White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Part); Listed EPBC Act,CE: White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Part);

Associated TEC Comments:

PCT Percent Cleared: 92.00

PCT Definition Status: Decommissioned

5. Fauna habitat and species

The site offers very minimal habitat features as a result of the lack of native vegetation structure from the remnant community.

The very small number of remnant trees (4) have very limited functions as a habitat corridor for mobile species including microchiropteran bats, flying foxes and bird species.

Cleared grassland is the dominant habitat type within the study area. The cleared grassland supports a mixture of introduced grasses, forbs and weeds, the majority of which are introduced species.

The dams are essentially an open expanse of water with a limited amount of emergent aquatic vegetation. The dams support small amounts of emergent aquatic vegetation.

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

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

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

Common birds found in these woodland habitats include White-throated Treecreeper (*Cormobates leucophaea*), Buff-rumped and Yellow Thornbill *(Acanthiza reguloides* and *Acanthiza nana*), Striated Pardalote (*Pardalotus striatus*), Grey Shrike-thrush (*Colluricincla harmonica*), Willy Wagtail (*Rhipidura leucophrys*), Yellow-faced Honeyeater (*Lichenostomus chrysops*), White-naped Honeyeater (*Melithreptus lunatus*), Crimson Rosella (*Platycercus elegans*), Magpie Lark (*Grallina cyanoleuca*) and Australian Magpie (*Gymnorhina tibicen*).

Microchiropteran bats likely to forage throughout the site, however significant roosting habitat in the form of tree hollows is absent.

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

The following fauna species were observed on site:

- The Eastern Grey Kangaroo (*Macropus giganteus*) was observed
- The Grey-headed Flying-fox (*Pteropus poliocephalus*) was observed flying overhead at night time
- The Dark-flecked Garden Sun-skink (*Lampropholis delicata*) and Jacky Lizard (*Amphibolurus muricatus*) were observed during the ground debris searches

- The Brown-striped Frog and Common Eastern Froglet (*Crinia signifera*) were heard calling near the dams

Of those native species recorded, threatened species listed as vulnerable on the Schedules to the EPBC and/or BC Acts, that were recorded or have the potential to occur foraging in the subject site are as follows:

- Grey-headed Flying-fox - listed as vulnerable under the EPBC and BC Acts
- Eastern Falsistrelle (*Falsistrellus tasmaniensis)* - vulnerable under the BC Act
- Greater Broad-nosed Bat (*Scoteanax rueppellii*) - vulnerable under the BC Act
- Little Bentwing Bat (*Miniopterus australis*) - vulnerable under the BC Act
- Eastern Bentwing Bat (*Miniopterus schreibersii orianae oceanensis*) - vulnerable under
- the BC Act
- East-coast Freetail Bat (*Micronomus norfolkensis*) - vulnerable under the BC Act

We have prepared an assessment of significance as a precautionary measure (refer to Appendix C).

Table 2: Fauna habitat assessment

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

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

6. Migratory species

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

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

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

Common name	Species	Status	Preferred habitat	Likelihood of occurrence at the construction footprint
		JAMBA)	woodland and forest.	
Osprey	*Pandion haliaetus*	Vulnerable (TSC Act) Marine, Migratory (Bonn)	Estuarine areas and rivers	Unlikely
Rufus Fantail	*Rhipidura rufifrons*	Terrestrial, Migratory (Bonn)	Predominantly rainforest and forests	Low chance of occurring at forested sites throughout the corridor. These habitats form part of the much larger habitat range of the species.
Rainbow Bee-eater	*Merops ornatus*	Terrestrial, Migratory (JAMBA)	Predominantly woodland and timbered plains	Moderate, potential habitat for this species occurs in a diversity of habitats including remnant woodland and partially cleared agricultural areas provided there is a patchwork of small woodland remnants in the landscape. These habitats form part of the much larger habitat range of the species.
Painted Snipe	*Rostratula australis)*	Endangered (TSC Act and EPBC Act) Wetland, Migratory (CAMBA)	Wetlands, reedlands, marshes and swamps	Unlikely
Cattle	*Ardea ibis*	Wetland,	Grasslands, woodlands and	Moderate, this

Common name	Species	Status	Preferred habitat	Likelihood of occurrence at the construction footprint
Egret		Migratory (CAMBA, JAMBA)	wetlands, and is not common in arid areas. It also uses pastures and croplands, especially where drainage is poor. Often seen with cattle.	species may forage over all open habitat types particularly those with isolated paddock trees and small habitat patches.
Great Egret	*Ardea alba*	Wetland, Migratory (CAMBA, JAMBA)	Prefers shallow water, particularly when flowing, but may be seen on any watered area, including damp grasslands.	Moderate, potentially present in farm dams, wet meadows and riparian areas along the study area.
Fork-tailed Swift	*Apus pacificus*	Marine, Migratory (CAMBA, JAMBA, ROKAMBA)	The species breeds in Asia and migrate to Australia in the summer from which they spend their entire life-cycle on the wing, hunting, resting and sleeping.	Unlikely

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

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

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

7. Assessment of Ecological Impacts

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

7.1 Vegetation removal

Only four remnant trees belonging to a threatened ecological community listed under NSW *Biodiversity Conservation Act 2016* and Commonwealth *EPBC Act 1999* occur on-site. They are likely to form part of the remnant White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Equivalent); Listed EPBC Act,CE: White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Equivalent).

No hollow bearing trees or significant rocky habitat features are proposed for removal.

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

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

7.2 Overall loss of terrestrial flora and fauna habitat

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

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

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

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

7.3 Impacts on wildlife corridor

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

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

7.4 Impacts on migratory species

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

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

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

Significant habitat for migratory species does not exist on site.

7.5 Impacts on threatened species

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

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

7.6 Fauna of Conservation Significance

Commonwealth

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

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

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

State

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

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

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

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

7.7 Impact on relevant key threatening processes

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

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

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

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

Pathogens			
Dieback caused by the root-rot fungus (*Phytophthora cinnamomi*)/Infection of native plants by *Phytophthora cinnamomi*	EPBC Act, BC Act	No	Section 9
Weeds			
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	EPBC Act	No	Section 9
Invasion of native plant communities by exotic perennial grasses	BC Act	No	
Climate change			
Loss of terrestrial climatic habitat caused by anthropogenic emissions of greenhouse gases	EPBC Act	No	N/A
Anthropogenic climate change	BC Act	No	N/A

8. Environmental Protection Measures

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

1) Vegetation protection fencing

A protection zone is to be provided for all areas of native vegetation to be retained during construction.

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

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

2) Tree removal and protection

Removed trees should be mulched and re-used on site. The applicant has endeavoured to remain as many native trees as possible.

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

3) Erosion and Sediment Control

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

4) Sensitive excavation around critical root zones

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

5) Prevent Spread of Weed and Pathogens

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

6) General Environmental Management

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

9. Conclusion

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

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

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

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

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

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

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

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APPENDIX A: Species likelihood of occurrence

As outline in Section 7.5, the potential for each threatened species, population and/or migratory species to occur was considered and the necessity for targeted field surveys was determined. Following field surveys and review of available habitat within the subject site and study area, the potential for species to use the site and be affected directly or indirectly by the proposed action were considered as either:

• "Recent record" = species has been recorded in the study area within the past 5 years

• "High" = species has previously been recorded in the study area (>5 years ago) or in proximity to (for mobile species), and/or habitat is present that is likely to be used by a local population

• "Moderate" = suitable habitat for a species is present onsite but no evidence of a species detected and relatively high number of recent records (5-20 years) in the locality or species is highly mobile

• "Low" = suitable habitat for a species is present onsite but limited or highly degraded, no evidence of a species detected and relatively low number of recent records in the locality

• "Not present" = suitable habitat for the species is not present onsite or adequate survey has determined species does not occur in the study area

Scientific Name Common Name	Legal Status	Number of records	Closest record and date	Most recent and proximity	Likelihood of occurrence	
					Prior to field assessment	Post field assessment
KINGDOM: Animalia; CLASS: Amphibia						
Litoria aurea Green and Golden Bell Frog	BC Act: E1 EPBC Act: V	NA	NA	NA	Low	Not present
Litoria littlejohni Little John's Tree Frog	BC Act: V EPBC Act: V	NA	NA	NA	Not Present	Not present
KINGDOM: Animalia; CLASS: Aves						
Anthochaera phrygia Regent Honeyeater	BC Act: CE EPBC Act: CE	2	0.23 km (21/09/2006	0.23 km (21/09/2006	Low	Low
Artamus cyanopterus cyanopterus Dusky Woodswallow	BC Act: V	2	4.2 km (29/01/2008)	25/11/2014 (6.1 km)	Low	Low
Botaurus poiciloptilus Australasian Bittern	BC Act: E1 EPBC Act: E	NA	NA	NA	Low	Not present
Callocephalon fimbriatum Gang-gang Cockatoo	BC Act: V	11	5.2 km (08/10/2004)	12/03/2013 (8.7 km)	Low	Low
Calyptorhynchus lathami Glossy Black-Cockatoo	BC Act: V	2	7.9 km (17/11/2009)	17/11/2009 (7.9 km)	Moderate	Low
Chthonicola sagittata Speckled Warbler	BC Act: V	1	4.6 km (25/03/2013	25/03/2013 (4.6 km)	Low	Low
Daphoenositta chrysoptera Varied Sittella	BC Act: V	4	0.2 km (21/09/2016)	21/09/2016 (0.2 km)	Low	Low
Ephippiorhynchus asiaticus Black-necked Stork	BC Act: E	1	8.6 km (26/04/1998)	26/04/1998 (8.6 km)	Low	Not present
Falco subniger Black Falcon	BC Act: V	1	0.3 km (30/06/1996)	30/06/1996 (0.3 km)	Low	Low
Hieraaetus morphnoides Little Eagle	BC Act: V	3	4.0 km (29/01/2008)	05/08/2015 (8.2 km)	Low	Low

Scientific Name Common Name	Legal Status	Number of records	Closest record and date	Most recent and proximity	Likelihood of occurrence	
					Prior to field assessment	Post field assessment
Lathamus discolor Swift Parrot	EPBC Act: CE BC Act: E1	NA	NA	NA	Low	Low
Petroica boodang Scarlet Robin	BC Act: V	2	4.6 km (25/03/2013)	25/03/2013 (4.6 km)	Low	Low
Polytelis swainsonii Superb Parrot	BC Act: V EPBC Act: V	NA	NA	NA	Low	Low
KINGDOM: Animalia; CLASS: Mammalia						
Dasyurus maculatus maculatus *Spotted-tail Quoll*	BC Act: V EPBC Act: E	NA	NA	NA	Low	Low
Chalinolobus dwyeri Large-eared Pied Bat	BC Act: V EPBC Act: V	NA	NA	NA	Low	Low
Falsistrellus tasmaniensis Eastern False Pipistrelle	BC Act: V	2	1.1 km (16/11/2009)	16/11/2009 (1.1 km)	Moderate	Low
Miniopterus schreibersii oceanensis Eastern Bentwing-bat	BC Act: V	5	1.3 km (16/11/2009)	7/10/2017 (4.5 km)	Moderate	Low
Petauroides volans Greater Glider	EPBC Act: V	NA	NA	NA	Low	Low
Petrogale penicillata Brush-tailed Rock Wallaby	BC Act: E EPBC Act: V	NA	NA	NA	Low	Low
Phascolarctos cinereus Koala	BC Act: V EPBC Act: V	NA	N/A	N/A	Low	Not present
Pseudomys novaehollandiae New Holland Mouse	EPBC Act: V	NA	N/A	N/A	Low	Not present
Pteropus poliocephalus Grey-headed Flying-fox	BC Act: V EPBC Act: V	10	4.1 km (26/01/2017)	26/01/2017 (4.1 km)	Moderate	Low

Scientific Name Common Name	Legal Status	Number of records	Closest record and date	Most recent and proximity	Likelihood of occurrence	
					Prior to field assessment	Post field assessment
Saccolaimus flaviventris Yellow-bellied Sheathtail-bat	BC Act: V	1	4.1 (29/01/2008)	29/01/2008 (4.1 km)	Moderate	Low
KINGDOM: Animalia; CLASS: Reptilia						
Aprasia parapulchella Pink-tailed Worm-lizard	BC Act: V EPBC Act: V	NA	NA	NA	Low	Low
Delma impar Striped Legless Lizard	BC Act: V EPBC Act: V	1	5.2 km (21/10/1997)	21/10/1997 5.2 km	Low	Low
KINGDOM: Plantae						
Acacia bynoeana Bynoe's Wattle	BC Act: V EPBC Act: E1	NA	NA	NA	Low	Low
Caladenia tessellata Thick-lipped Spider Orchid	BC Act: E EPBC Act: V	NA	NA	NA	Low	Low
Dodonaea procumbens Trailing Hop-bush	BC Act: V EPBC Act: V	NA	NA	NA	Low	Low
Diuris aequalis Buttercup Doubletail	BC Act: E EPBC Act: V	1	5.7 km (01/01/1998)	01/01/1998 (5.7 km)	Low	Low
Eucalyptus aggregata Black Gum	BC Act: V EPBC Act: V	NA	NA	NA	Low	Low
Lepidium hyssopifolium Aromatic Peppercress	BC Act: E EPBC Act: E	NA	NA	NA	Low	Low
Leucochrysum albicans var. *tricolor* Hoary Sunray	EPBC Act: E	375	2.6 km (08/04/2009)	03/12/2016 (5.4 km)	Low	Low
Pelargonium sp. *Striatellum* Omeo Stork's-bill	BC Act: E EPBC Act: E	NA	NA	NA	Low	Low
Pomaderris delicata Delicate Pomaderris	BC Act: E EPBC Act: V	126	8.3 km (07/05/2010)	26/09/2017 (8.8 km)	Not present	Not present

Scientific Name Common Name	Legal Status	Number of records	Closest record and date	Most recent and proximity	Likelihood of occurrence	
					Prior to field assessment	Post field assessment
Prasophyllum petilum Tarengo Leek Orchid	BC Act: E EPBC Act: E	NA	N/A	N/A	Not present	Not present
Rutidosis leptorrhynchoides Button Wrinklewort	BC Act: E EPBC Act: E	20	4.7 km (03/11/2009)	03/12/2016 (4.9 km)	Not present	Not present
Swainsona recta Small Purple-pea	BC Act: E EPBC Act: E	NA	N/A	N/A	Not present	Not present
Thesium australe Austral Toadflax	BC Act: V EPBC Act: V	NA	N/A	N/A	Not present	Not present

Unless other stated, text is taken from the OEH Threatened Species (http://www.environment.nsw.gov.au/threatenedspecies/); Legal Status codes from the Atlas of NSW Wildlife: V = Vulnerable, E = Endangered, E2 = Endangered Population, C = China and Australia Migratory Bird Agreement (CAMBA), J = Japan and Australia Migratory Bird Agreement (JAMBA); K = Republic of Korea Migratory Bird Agreement (ROKAMBA), BC Act = *Biodiversity Conservation Act 2016,* EPBC Act = Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

APPENDIX B: EPBC Online Protected Matters Search Tool Results

The following report was generated on the 23rd March 2023.

EPBC Act Protected Matters Report

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

Report created: 23-Mar-2023

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	43
Listed Migratory Species:	12

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	12
Commonwealth Heritage Places:	1
Listed Marine Species:	19
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	8
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

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

Community Name	Threatened Category	Presence Text	Buffer Status
Natural Temperate Grassland of the South Eastern Highlands	Critically Endangered	Community likely to occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

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

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia			
Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus			
Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum			
Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Calyptorhynchus lathami lathami			
South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Falco hypoleucos](#)			
Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Grantiella picta](#)			
Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Hirundapus caudacutus](#)			
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Lathamus discolor](#)			
Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
[Numenius madagascariensis](#)			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Polytelis swainsonii](#)			
Superb Parrot [738]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Pycnoptilus floccosus](#)			
Pilotbird [525]	Vulnerable	Species or species habitat may occur within area	In feature area
[Rostratula australis](#)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
FISH			
[Macquaria australasica](#)			
Macquarie Perch [66632]	Endangered	Species or species habitat known to occur within area	In feature area
FROG			
[Litoria aurea](#)			
Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat may occur within area	In feature area
INSECT			
[Keyacris scurra](#)			
Key's Matchstick Grasshopper [89739]	Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Synemon plana			
Golden Sun Moth [25234]	Vulnerable	Species or species habitat likely to occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri			
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
Petauroides volans			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat may occur within area	In buffer area only
Petaurus australis australis			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Petrogale penicillata			
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
Acacia bynoeana			
Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Calotis glandulosa			
Mauve Burr-daisy [7842]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Commersonia prostrata Dwarf Kerrawang [87152]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Diuris aequalis Buttercup Doubletail [21588]	Endangered	Species or species habitat known to occur within area	In feature area
Dodonaea procumbens Trailing Hop-bush [12149]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Eucalyptus aggregata Black Gum [20890]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lepidium aschersonii Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area	In feature area
Lepidium hyssopifolium Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed [16542]	Endangered	Species or species habitat likely to occur within area	In feature area
Leucochrysum albicans subsp. tricolor Hoary Sunray, Grassland Paper-daisy [89104]	Endangered	Species or species habitat known to occur within area	In feature area
Pomaderris delicata [67208]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pomaderris pallida Pale Pomaderris [13684]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Prasophyllum petilum Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area	In feature area
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rutidosis leptorhynchoides			
Button Wrinklewort [67251]	Endangered	Species or species habitat known to occur within area	In feature area
Senecio macrocarpus			
Large-fruit Fireweed, Large-fruit Groundsel [16333]	Vulnerable	Species or species habitat may occur within area	In feature area
Swainsona recta			
Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area	In feature area
Thesium australe			
Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
REPTILE			
Aprasia parapulchella			
Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Delma impar			
Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus			
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis			
Black-faced Monarch [609]		Species or species habitat may occur within area	In feature area
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Myiagra cyanoleuca			
Satin Flycatcher [612]		Species or species habitat likely to occur within area	In feature area
Rhipidura rufifrons			
Rufous Fantail [592]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Commonwealth Bank of Australia		
Commonwealth Land - Commonwealth Bank of Australia [12499]	NSW	In buffer area only
Commonwealth Trading Bank of Australia		
Commonwealth Land - Commonwealth Trading Bank of Australia [12503]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Commonwealth Trading Bank of Australia [12498]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Postal Corporation		
Commonwealth Land - Australian Postal Commission [12500]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [12497]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Telecommunications Commission [15452]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [12496]	NSW	In buffer area only
Defence		
Commonwealth Land - Defence Service Homes Corporation [12502]	NSW	In buffer area only
Defence - GOULBURN AIR TRAINING CORP [11211]	NSW	In buffer area only
Defence - GOULBURN RESERVE DEPOT (GOULBURN TRAINING DEPOT) [10069]	NSW	In buffer area only
Defence - Defence Housing Authority		
Commonwealth Land - Director of War Service Homes [12501]	NSW	In buffer area only
Transport and Regional Services - Airservices Australia		
Commonwealth Land - Airservices Australia [12495]	NSW	In buffer area only

Commonwealth Heritage Places [Resource Information]

Name	State	Status	Buffer Status
Historic			
Goulburn Post Office	NSW	Listed place	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]		Species or species habitat may occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Mary Mount Development, Goulburn, NSW	2017/8039		Post-Approval	In buffer area only
Not controlled action				
Highland Source Project	2010/5697	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
vegetation clearance and construction of a dwelling	2003/1291	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Aerial baiting for wild dog control	2006/2713	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Southern Distribution Business Park	2006/2960	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

Please feel free to provide feedback via the Contact us page.

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

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

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

Definitions:

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

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

The species included in this assessment are as follows:

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

Commonwealth Assessment of Significance

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

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

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

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

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

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

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

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

Threatened Fauna Species

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

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

Migratory Species

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

- Black-faced Monarch (*Monarcha melanopsis*)

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

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

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

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

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

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

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

• reduce the area of occupancy of an important population;

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

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

• disrupt the breeding cycle of an important population;

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

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

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

• interfere with the recovery of the species.

The following reasons are provided:

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

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

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

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

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

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

The following reasons are provided:

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

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

CONCLUSION

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

Five part test for:

- *Pteropus poliocephalus* Grey-Headed Flying-fox (foraging)
- *Mormopterus norfolkensis* Eastern Freetail-bat (foraging)
- *Miniopterus schreibersii oceanensis* Eastern Bent-wing Bat (foraging)
- *Saccolaimus flaviventris* Yellow-bellied Sheathtail-bat (foraging)
- *Daphoenositta chrysoptera* Varied Sittella (foraging)
- *Scoteanax rueppellii* Greater Broad-nosed bat (foraging)
- *Falsistrellus tasmaniensis* Eastern False Pipistrelle (foraging)
- *Chalinolobus dwyeri* Large-eared Pied Bat (foraging)

(a) "…in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction…"

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

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

(i) ..is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii).. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction..."

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

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

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

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

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

The proposal will impact upon marginal foraging habitat that would be considered of insignificant value to this species. Vegetation removal for the future rezoning of the site will not prevent the subject species from foraging on similar habitat resources in the locality. The removal of

environmental weeds within the Study Area is unlikely to impact on the long-term survival of the subject species within the Locality or Region.

No hollow bearing trees are proposed for removal.

No threatened flora species were recorded on-site.

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

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

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

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

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

Conclusion

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

APPENDIX D: RELEVANT QUALIFICATIONS & EXPERIENCE OF THE AUTHOR

Alex Fraser (Fraser Ecological Consulting) has over 15 years experience in ecological assessment and on-ground bushland restoration management. Previous work roles include ecological consulting with Parsons Brinckerhoff (large infrastructure), NPWS (biodiversity surveys), NSW Department of Environment and Climate Change (SIS DGRs) and Hornsby Shire Council (residential and light industrial development) have focussed primarily on ecological survey, development assessment, project management and policy development for consent authorities. Alex also has practical experience in landscape construction, bushland restoration and property management. A full list of flora and fauna assessments previously undertaken can be provided upon request.

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

Relevant qualifications and training:

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

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

BAM Assessor		
Alexander Fraser		
Accreditation number	**Accreditation date (Date of issue)**	**Expiry Date of**
BAAS18156	17 October 2021	17 October 2024

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

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

LUCIAN MCELWAIN

Manager Ecosytem Programs
Department of Planning, Industry & Environment

NOTES

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

SUMMARY OF CONDITIONS UNDER SCHEME

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

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

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

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

Issued by the Department of Planning, Industry & Environment
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Alexander Fraser

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

Key skills

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

Qualifications

Bachelor Environmental Science (Honours) Southern Cross University

Certificate 3 Natural Area Restoration

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

NPWS Scientific Licence - S10445

Animal Ethics Authority - 11/4299

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

Practising member of NSW Ecological Consultants Association (ECA)

Summary

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

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

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

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

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

Key skills:

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

ECA ECOLOGICAL CONSULTANTS ASSOCIATION of NSW Inc

2023 PRACTISING MEMBER