

APICAL BUSHFIRE PLANNING

Flora and Fauna Assessment Report



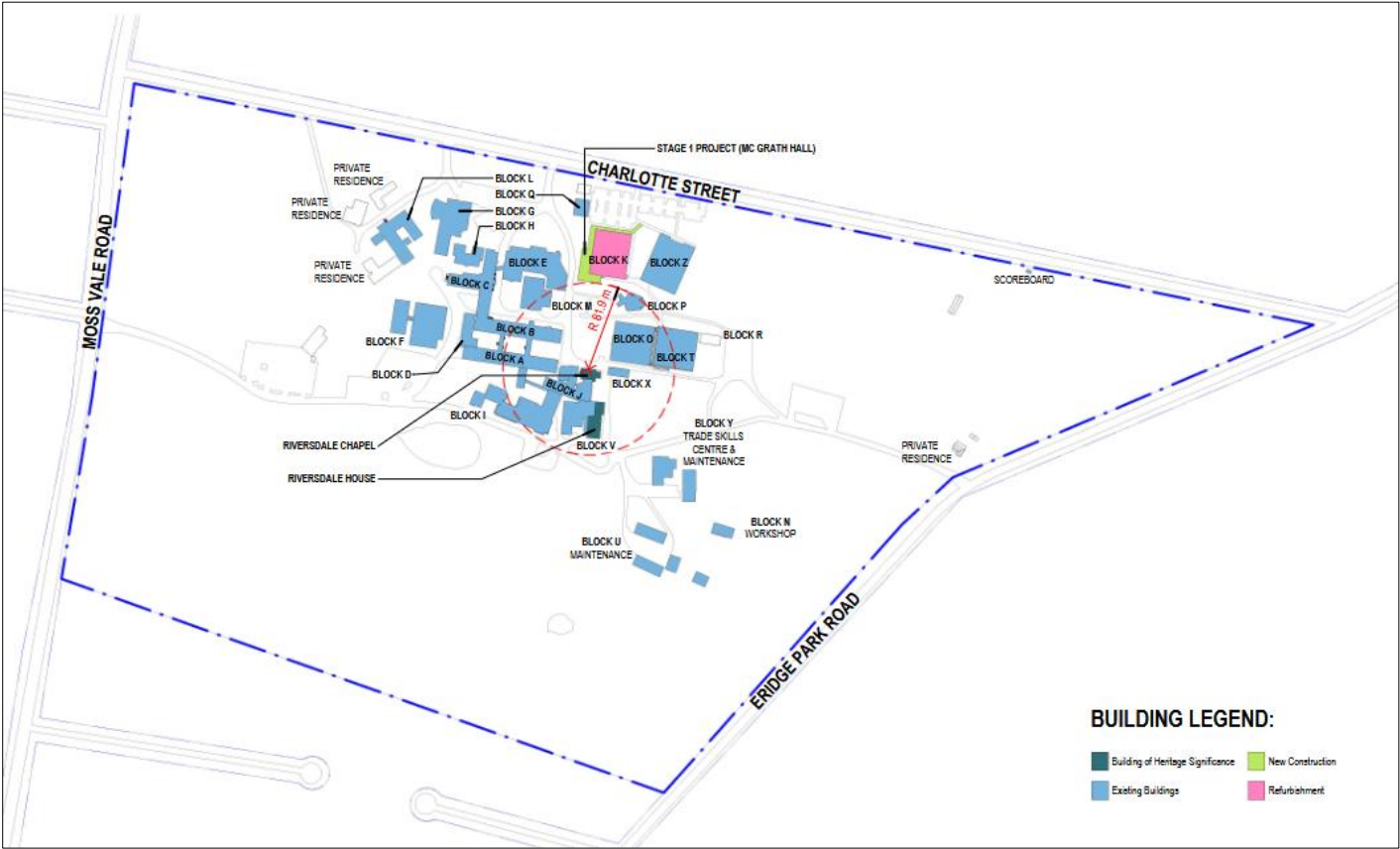
Client: 11 Charlotte St, Burradoo 2576
Address: Chevalier College Stage 1 Hospitality
Precinct

APICAL BUSHFIRE PLANNING P/L
Office: 30 Cedar Ridge Road Kiama, NSW 2533
ABN: 656 420 10 400

This document is and shall remain the property of the authors and should not be reproduced without written permissions.
Unauthorised use of this document in any form is prohibited.

Prepared For: Maddison Property Pty Ltd
Presented by: Daniel Anderson
MEnvSc, GDip NRM Science

Report Compilation and Review	Name and Position	Document Version	Date
Author	Marco Perry Ecologist	V1	13/03/2025
Author	Daniel Anderson	V2	18/03/2025
Final Draft	Daniel Anderson Principal Ecologist	Final Version	24/03/2024
Client Review	Landholder	Final Version	



Consulted Reports and Referenced Documents

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)
Commonwealth Department of the Environment (DotE) (2013). Matters of National Environmental Significance: Significant impact guidelines 1.1. Commonwealth of Australia.
Significant Impact Guidelines – Matters of National Environmental Significance https://www.dcceew.gov.au/environment/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance
EPBC Act Protected Matter Search Tool http://www.environment.gov.au/epbc/pmst/index.html
Environmental Planning and Assessment Act 1979
Biodiversity Conservation Act 2016 (BC Act)
NSW Biodiversity Assessment Method (BAM) NSW Biodiversity Regulation 2017
NSW Department of Planning and Environment (DPE) (2022c). Biodiversity Values Map and threshold tool. Accessed at: https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap .
SEPP (Biodiversity & Conservation) 2020
SEPP (Vegetation in Non-Rural Areas) 2017
Fisheries Management Act
NSW Water Management Act 2000
Biosecurity Act 2015
Wingecarribee Development Control Plan
Wingecarribee Local Environment Plan
NSW Planning Portal – NSW Department of Planning
NSW Department of Planning and Environment (DPE) (2022a). NSW Planning Viewer Beta. Accessed at: https://maps.planningportal.nsw.gov.au/Terms .
Sharing and Enabling Environmental Data (SEED) NSW Government
NSW BIONET/ATLAS OF AUSTRALIA http://www.bionet.nsw.gov.au/
NSW Government Office of Environment & Heritage. (2017) BioNet Atlas of NSW Wildlife, Office of Environment and Heritage, NSW. Available from: http://www.environment.nsw.gov.au/atlaspublicapp/UI_Modules/ATLAS_/atlasreport.aspx NSW National Parks & Wildlife Service (2002) Identification guidelines for Endangered Ecological Communities NSW National Parks and Wildlife Service, Hurstville, NSW
NSW Department of Planning and Environment (DPE) (2022b). BioNet Atlas of NSW Wildlife. Accessed at: http://www.environment.nsw.gov.au/atlaspublicapp/UI_Modules/ATLAS_/AtlasSearch.aspx .
NSW Department of Planning and Environment (DPE) (2022d). BioNet Vegetation Classification. Accessed at: https://www.environment.nsw.gov.au/NSWVCA20PRapp/LoginPR.aspx .
NSW Threatened species profiles. https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species
NSW Threatened Species http://www.environment.nsw.gov.au/threatenedspecies/
NSW Office of Environment & Heritage “Threatened Species Survey and Assessment Guidelines”
NSW Threatened Species http://www.environment.nsw.gov.au/threatenedspecies/
Tozer MG, Turner K, Keith DA, Tindall D, Pennay C, Simpson C, MacKenzie B, Beukers P, and Cox S. 2010. Native vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands. <i>Cunninghamia</i> (2010) 11(3): 359-406
Keith, D. 2003; Ocean Shores to Desert Dunes – The Native Vegetation of NSW and the ACT
Leon Fuller - Native Trees of Central Illawarra

Author Accreditation

Scientific Licence: SL 102408 – ecological surveys and site restoration (EEC Areas)

Qualifications / Accreditations:

- 2018 *Graduate Certificate Planning for Bushfire Protection: University Western Sydney*
- 2022 *Biodiversity Assessment Methodology Training NSW Office Environment & Heritage (Greencap 2022-23)*
- 2017 *Development Assessment: University Technology Sydney*
- 2013 *Master Environmental Science: University of Wollongong*
- 2011 *Graduate Certificate Environmental Science: Australian National University.*
- 2008 *Diploma Conservation and Land Management: NSW Department of Primary Industries TOCAL*
- 2003 *Certificate III Environmental Practices (TAFE NSW).*
- 2001 *Trade Certificate Horticulture - Parks & Gardens (TAFE NSW)*

Insurances:

Class of Policy: Prof Indemnity

Insurer: Lloyds Of London
LLOYDS BLDG, LONDON ENGLAND
ABN:

The Insured: Apical Bushfire Planning Pty Ltd

Class of Policy: BUSINESS PACKAGE

Insurer: Insurance Australia Limited T/As CGU Insurance
Lvl 2/243-249 Crown St, WOLLONGONG NSW 2500
ABN: 11 000 016 722

The Insured: Apical Bushfire Planning Pty Ltd

Table of Contents

Executive Summary	9
Report Recommendations/Requirements.....	10
Biodiversity Values Map	10
Clearing Threshold	10
Impact to Threatened flora, fauna or plant community	10
Legislation Summary	11
Introduction.....	13
Report Methodology	14
Desktop Analysis	14
Precautionary Principle	14
Field Survey	15
Survey Limitations	16
Landform Values and Landscape Context	16
Human Landscape	16
IBRA Bioregions and Subregions: Sydney Basin/Moss Vale	18
IBRA Bioregion Location and Landforms: Sydney Basin	18
IBRA Climate	19
IBRA Soils and Geology	19
IBRA Vegetation	20
VCA	20
MITCHELL LANDSCAPES: Moss Vale Highlands	21
Aquatic & Fluvial Landscape (Rivers, streams, estuaries, and wetlands)	22
Terrestrial Biological Landscape (Connectivity & BV)	23
Geological Landscape (Geological features of significance & Soil hazard features)	25
PCT and TEC Vegetation Types (Native Vegetation Cover)	25
Clearing and Connectivity.....	25
Summary	25
Development Exotic and Native Abundance	25
PCT Confirmation	25
TEC Confirmation	25
Threatened Species	26
Assessment of Threatened Flora Impacts and Issue	26
Flora Database Search Results	26
Threatened Flora Site Results	26
Fauna Database Search Results	27
Threatened Fauna Site Results	27
Legislation Requirements	29
Federal Government (EPBC Act): Matters of National Environmental Significance	29
State Government (BC Act): Biodiversity Offset Scheme (BOSET)	30
Biodiversity Values Map and Threshold Report	31

Trigger 1 Biodiversity Values Map	32
Trigger 2 Area Clearing threshold.	33
5-Part Test of Significance.....	34
State Government (SEPP (B&C) 2021): Chapter 4 Koala Habitat Protection 2021	37
Appendix A: Site Maps & Plans.....	39
Appendix B: Fauna and Flora Impact Tables.....	46
Appendix C: Site Data	64
Appendix D: Native Planting Species	69

Figures: Maps	
Map no.	Title
1	Subject Site (11 Charlotte St, Burradoo 2576) and surrounding lots.
2	Location of IBRA Bioregion: Sydney Bason IBRA Region
3	Contour Map (10m) for the subject site.
4	Location of IBRA Subregion: Moss Vale IBRA Subregion
5	Mitchell Landscape within the subject site and adjacent areas
6	RIPARIAN LAND AND WATERCOURSES MAP showing areas of riparian land (land within 40m of a watercourse) adjacent and on the subject site (11 Charlotte St, Burradoo 2576).
7	HABITAT CONECTIVITY MAP showing areas of connected habitat (land linked by vegetation) within 1500m of site (11 Charlotte St, Burradoo 2576).
8	BV MAP showing areas of biodiversity value (mapped as purple land) adjacent and on the subject site (11 Charlotte St, Burradoo 2576).
9	BIODIVERSITY VALUES MAP showing areas of Biodiversity Value adjacent and on the subject site (ADDRESS).
10	Landscape Context (PCT) Map showing PCTs expected to be on the subject site and adjacent properties.
11	Landscape Context (PCT) Map showing PCTs expected to be in the development footprint and adjacent area.
12	Site Context – proposed development location
13	Landscape Context (Vegetation Condition) Map showing the conditions and boundaries of PCTs and other vegetated areas within the development footprint.
14	Plot & Environmental Features Map: Map showing Plot locations and features of ecological importance identified onsite
15	EXISTING PLAN – GROUND FLOOR
16	Site Plan for PROPOSED PLAN -GROUND FLOOR
17	Bionet Map showing post-2000 sightings of threatened avian species within a 10km x 10km area centred on the subject site.
18	Bionet Map showing post-2000 sightings of threatened avian species within a 10km x 10km area centred on the subject site.
19	Bionet Map showing post-2000 sightings of threatened avian species within a 10km x 10km area centred on the subject site.
20	Bionet Map showing post-2000 sightings of threatened mammal species within a 10km x 10km area centred on the subject site.
21	Bionet Map showing post-2000 sightings of threatened mammal species within a 10km x 10km area centred on the subject site.
22	Bionet Map showing post-2000 sightings of threatened mammal species within a 10km x 10km area centred on the subject site.

Figures: Tables	
Table no.	Title
1	IBRA Bioregions/Subregions present on the subject site.
2	Climate of relevant IBRA Region.
3	There is no VCA present within this area as there is no plant community type present.
4	Table showing BV that Intersect the Assessment Area
5	Threatened Flora Species Surveyed for Onsite (Red Species associated with PCTs within the development area).
6	Observed Habitat present within and adjacent to development area.
7	Biodiversity Values Map Trigger (Date of enquiry 14/09/2023)
8	Clearing Impacts
9	Shows all Threatened flora, fauna and communities that have had a 5-Part Test of Significance carried out with a significant effect determined to occur.
10	Test of Significance
11	Development Assessment Process for Sites with no approved Koala Plan of Management
12	Bionet Avian Species - Table 1
13	Bionet Avian Species - Table 2

14	Bionet Avian Species - Table 3
15	Protected Matters Avian Species (Only Species not in Bionet Search)
16	Protected Matters Fish Species (Only Species not in Bionet Search)
17	Protected Matters Amphibian Species (Only Species not in Bionet Search)
18	Bionet Mammalian Species – Table 1
19	Bionet Mammalian Species – Table 2
20	Bionet Mammalian Species – Table 3
21	Protected Matters Mammalian Species (Only Species not in Bionet Search)
22	Protected Matters Reptilian Species (Only Species not in Bionet Search)
23	Bionet Flora Species
24	Protected Matters Flora Species (Only Species not in Bionet Search)
25	Plot 1 (Garden Bed) - Structural Habitat
26	Plot 1 – Vegetation Identification (Native Species Highlighted)
27	Plot 2 - Structural Habitat
28	Plot 2 – Vegetation Identification (Native Species Highlighted)
29	Fauna Species Observations
30	Flora Species Observations
31	Native Planting Species

Definitions	
APZ	Asset Protection Zone
NSW BAM	Biodiversity Assessment Method
NSW BOSET	Biodiversity Offset Scheme Entry Test
BDAR	Biodiversity Development Assessment Report
W-DCP	Wingecarribee Development Control Plan
Assessment Area	All land within the boundaries of the subject lot
AOBV	Area of Outstanding Biodiversity
DA	Development Application
Development Footprint	The area of land that is directly impacted by the proposal
DTDB	Digital topographic databases
GIS	Geographic Information System
IBRA	Interim Biogeographic Regionalisation of Australia
MNES	Matters of National Environmental Significance protected by a provision of Part 3 of the EPBC Act
PCT	Plant Community Type
SAII	Serious and Irreversible Impact
SEPP	NSW State Environmental Planning Policy
Study Area	The subject site and any additional areas which are likely to be affected by the proposal, either directly or indirectly
Subject Site	Area likely to be directly affected by the proposal
TEC	Threatened Ecological Community

Executive Summary

The subject site is an educational institution Chevalier College a secondary school that is located at 11 Charlotte St, Burradoo 2576. The zoning of the development site is R5 Zoning under the Wingecarribee Local Environmental Plan (LEP).

The project is described by the Stage 1 Hospitality Precinct Redevelopment of McGrath Hall as part of the overall master plan for the college campus.

The development footprint is situated adjacent to existing school Block K which will also be refurbished under the development proposal.

The development footprint for the McGrath Hall redevelopment will involve clearing vegetation at the precinct to facilitate the expansion of the Block K footprint.

The requirement to clear vegetation will impose upon 0.12 Ha (1,200m²) of both vegetated garden areas and non-vegetated areas that are formed of paths, raised garden beds, exotic amenity trees and lawns.

The major percentage of native vegetation comprised within the development footprint occurs within the defined landscaped areas formed by turf lawns and small amenity shrubs.

Other areas within the subject site containing higher quality habitats formed by native vegetation reminiscent of remnant woodland vegetation are not contained within the development footprint; with the nearest patch of native vegetation surveyed to occur approx. 75m away from the development footprint.

Remnant Vegetation

The site is located within the Moss Vale IBRA Subregion within the Sydney Basin IBRA Bioregion.

The development footprint is situated within a novel patch of vegetation formed from planted garden beds comprised by exotic landscape specimens and maintained lawns.

Native Vegetation species is predominantly represented by native herbs and forbes.

Some native grass species are located within the lawn areas and co-habit areas planted of exotic shrub specimens. The area represented of this form of vegetation complex is expected to represent up to 10% of the vegetated areas within the development area.

Exotic Vegetation predominantly represented by exotic garden species and common lawn grass and weeds species covers up to 90% of the vegetated areas of the development location.

Due to a lack of environmental features representing biotic and a-biotic habitat observed to the development area, no threatened fauna species were identified as being impacted by the removal of vegetation upon the subject site.

Due to the lack of native flora species recoded as present within the survey; no threatened ecological communities were identified within the development area.

Threatened flora species known to the general site location were surveyed for onsite.

No Threatened flora was identified within the development area.

Under this report it is determined that the NSW Biodiversity Offset Scheme is not triggered, as the project does not contribute to a serious or irreversible impact to an item of key biodiversity value and the project scope does not exceed the known thresholds which trigger a significant impact definition in the NSW BC Regulation.

Report Recommendations/Requirements

Development Impacts

Assessment and approval pathways for biodiversity impacts will depend upon the purpose, nature, location and extent of the vegetation clearing presented by the development proposal.

The application of the test of significance methodology under section 7.3 of the Biodiversity Conservation Act 2016 and this assessment provided direct evidence that the proposal does not trigger the offset scheme threshold.

This report states that a BDAR is not required for determination of project impact offsetting requirements.

Biodiversity Values Map

While there is land marked as Biodiversity Values on the subject lot, (providing a mapping reference to the location of remnant shale woodland bushland area upon the college precinct) these areas do not occur within the development footprints and are not located in any proximity to the subject site.

The project footprint does not impose upon areas of mapped biodiversity values upon the subject site.

Vegetation Clearing Threshold

Only 100m² of native vegetation is to be cleared by the development proposal this area is below the clearing threshold of 2,500m² allocated under the NSW Biodiversity Offset Entry Tool for developments upon this land zoning type.

Due to this it does not trigger the requirements for a BDAR.

Impact to Threatened flora, fauna or plant community.

No impact to any threatened biodiversity values such as flora, fauna or endangered plant community type is to result from this development proposal.

The project is not deemed to impose a serious and irreversible impacts in accordance with the principles prescribed in section 6.7 of the BC Regulation. The concept of serious and irreversible impacts (SAII) is a central component of the NSW biodiversity offsets scheme. It is fundamentally about protecting threatened species¹ and threatened ecological communities that are most at risk of extinction from potential development impacts or activities.

Recommendations: Offsetting – Replacement of lost vegetation cover

It is recommended that vegetation impacted by the development that occur currently in garden beds are replaced with suitable offset vegetation plantings demonstrated by the project landscape plan and include species which are representative of the local plant community type: Southern Highlands Shale-Basalt Dry Forest (PCT 3302).

A2.2.8 of the Wingecarribee DCP Bowral and Burradoo requires projects to demonstrate the principals of Ecologically sustainable Development ESD, incorporation of replacement native vegetation species as an impact offset measure will demonstrate conservation of biological diversity and ecological integrity - new development must ensure that there is no loss of biological diversity or ecological integrity.

Council aims also to 'Encourage on-site tree plantings which enhance the environment and provide additional wildlife habitat and connectivity of habitat.

The activity of revegetation offsetting by the proposal would support local wildlife by increasing the local seed bank and available feed. A list of suitable common plants which can guide landscaping under the project is provided in Appendix D: Native Planting Species (within).

Legislation Summary for the Assessment

Federal Government (Commonwealth)		
Considerations	Applicable Land/Triggering Event	
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)		
Matters of National Environmental Significance	An action will require approval from the Minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance. Matter of national environmental significance IS NOT triggered.	
State Government (New South Wales State Government)		
Considerations	Applicable Land/Triggering Event	Response
Biodiversity Conservation Act 2016 (BC Act)		
Part 7	Part 7 of the BC Act provides the environmental assessment requirements for activities being assessed under Parts 4 and 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and defines whether a development or an activity is 'likely to have a significant effect on threatened species.	
	Part 7 of the BC Act is triggered, under three criteria:	
	Trigger	Response
	Clearing within the Biodiversity Values Map.	IS NOT TRIGGERED
	Clearing Threshold Exceeded	IS NOT TRIGGERED
	Impact to Threatened flora, fauna or vulnerable or endangered plant community (As analysed by application of the 5-Part Test)	IS NOT TRIGGERED
Biodiversity Conservation Act 2016 (BC Act) IS NOT triggered.		
Environmental Planning and Assessment Act 1979		
Sections 4.14	Consultation and development consent—certain bush fire prone land	
Section 4.15	Section 4.15 of the EP&A Act outlines the matters that a consent authority must take into consideration when determining development applications. These matters could be summarised as: the provisions of environmental planning instruments (including draft instruments), development control plans, planning agreements, and the EP&A Regulations. the impacts of the project, the suitability of the site; any submissions; and the public interest.	
SEPP (Biodiversity & Conservation) 2020		
Chapter 4 Koala Habitat Protection 2021	Chapter applies to any land that is not RU1, RU2 or RU3 and is greater than 1 Ha in size. Subject Site DOES NOT meet the definition of core koala habitat. This site DOES NOT require a Koala Management Plan due to the absence of Core Koala Habitat to the location.	
Fisheries Management Act		
Part 1.3 Objectives of the Act	Act applies to land determined to be key fish habitat. Subject site IS NOT classified as key fish habitat. No development will occur within this area Fisheries Management Act does not apply.	
NSW Water Management Act 2000		
	A controlled activity approval is required for any land within the bed of any river, lake or	

	estuary, and the land within 40 metres of the riverbanks, lake shore or estuary mean high water mark. Subject Site does have waterfront land on it. <table border="1" data-bbox="384 237 1455 752"> <thead> <tr> <th data-bbox="384 237 959 288">Trigger</th><th data-bbox="959 237 1455 288">Response</th></tr> </thead> <tbody> <tr> <td data-bbox="384 288 959 416">The erection of a building or the carrying out of a work (within the meaning of the EP&A Act)</td><td data-bbox="959 288 1455 416">No Impact</td></tr> <tr> <td data-bbox="384 416 959 501">The removal of material (whether or not extractive material) or vegetation from land</td><td data-bbox="959 416 1455 501">No Impact</td></tr> <tr> <td data-bbox="384 501 959 624">The deposition of material (whether or not extractive material) on land, whether by way of landfill operations or otherwise</td><td data-bbox="959 501 1455 624">No Impact</td></tr> <tr> <td data-bbox="384 624 959 752">The carrying out of any other activity that affects the quantity or flow of water in a water source</td><td data-bbox="959 624 1455 752">No Impact</td></tr> </tbody> </table> No development will occur within this area NSW Water Management Act 2000 DOES NOT apply.	Trigger	Response	The erection of a building or the carrying out of a work (within the meaning of the EP&A Act)	No Impact	The removal of material (whether or not extractive material) or vegetation from land	No Impact	The deposition of material (whether or not extractive material) on land, whether by way of landfill operations or otherwise	No Impact	The carrying out of any other activity that affects the quantity or flow of water in a water source	No Impact
Trigger	Response										
The erection of a building or the carrying out of a work (within the meaning of the EP&A Act)	No Impact										
The removal of material (whether or not extractive material) or vegetation from land	No Impact										
The deposition of material (whether or not extractive material) on land, whether by way of landfill operations or otherwise	No Impact										
The carrying out of any other activity that affects the quantity or flow of water in a water source	No Impact										
Biosecurity Act 2015											
<i>Part 1.3 Objectives of the Act</i>	The prevention, elimination, minimisation, and management of the biosecurity risk posed or likely to be posed by weeds. Subject site DOES NOT have weed species presenting a biosecurity risks present. Biosecurity Act 2015 does not apply.										
Local Government (Wingecarribee)											
Considerations	Applicable Land/Triggering Event										
Development Control Plan											
BOWRAL TOWNSHIP DEVELOPMENT CONTROL PLAN PART A – ALL LAND SECTION 3 BIODIVERSITY	Will directly or indirectly impact on native vegetation by clearing, runoff, waste-water irrigation, Bushfire Asset Protection Contain natural features that sustain native species; • may directly or indirectly have a significant impact on native vegetation or sensitive environmental areas that may contain habitat for threatened species, populations or ecological communities; and/or is likely to have a significant impact on matters of national environmental significance under the (Commonwealth) Environment Protection and Biodiversity Conservation Act 1999. The Proposal DOES NOT directly or indirectly impact native vegetation by clearing.										
Local Environment Plan											
7.4 Natural resources sensitivity—biodiversity	This clause applies to land identified as “Regional Wildlife Habitat Corridor” on the Natural Resources Sensitivity Map. No development will occur within an area identified as “Regional Wildlife Habitat Corridor” as such section 7.4 of the LEP DOES NOT apply.										
7.5 Natural resources sensitivity—water	This clause applies to riparian land or land identified as “Natural Waterbodies” on the Natural Resources Sensitivity Map. No development will occur within an area identified as “Natural Waterbodies” as such section 7.5 of the LEP DOES NOT apply.										

Introduction

This report has been prepared by our field ecologists in accordance with the provision of the Wingecarribee Development Control Plan and the NSW BC Act 2016 and BC Regulations 2017.

The flora and fauna assessment report are to be considered via the application of Section 4.15 of the EPA Act and containing matters that must be considered in assessing a development application.

Our assessment will assess the nature and extent of development impacts by the proposal regarding native vegetation, habitats and biodiversity

The aim of the assessment is to identify native vegetation communities (vegetation assemblage and condition), threatened species Flora & Fauna, and associated habitat values within the subject area and impact footprints of the development proposal prior to development activity being granted consent by the authority.

By Determining a baseline inventory of biodiversity values for the subject location derived from literature reviews of relevant datasets and databases our work will then assess the impacts that the proposed development may impose on such ecological features like native vegetation and habitat structure.

The following legislation was considered under this report:

- Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)
- Environmental Planning and Assessment Act 1979
- Biodiversity Conservation Act 2016 (BC Act)
- *SEPP (Biodiversity & Conservation) 2020*
- *NSW SEPP Koala Habitat Protection 2021*
- *Fisheries Management Act*
- NSW Water Management Act 2000
- Biosecurity Act 2015
- Wingecarribee Development Control Plan 2010 amended 2014.
- Wingecarribee Local Environment Plan 2010

A Flora and Fauna Assessment to determine onsite vegetation assets may be applied for local developments (development applications submitted to councils) where specific areas of high biodiversity value are affected and / or when biodiversity impacts affect large spatial areas and when the habitat and survival of threatened species populations are at risk a Biodiversity Development Assessment Report (BDAR) under the NSW Biodiversity Offset Strategy Entry Tool (BOSET) will be required to support the development proposal.

Location

The site is known as Chevalier College, 11 Charlotte Street, Burradoo, NSW, 2576, and is legally described as Lot 12 in Deposited Plan 748370. The site is approximately 42 hectares in total area, though the development footprint or subject area of our assessment is contained by 0.12Ha of the site described by the hospitality precinct within the school and McGraths Hall.

As an educational facility, the proposal is permissible with consent in the R5 zone of the site.

Report Methodology

Desktop Analysis

An integrated remote sensing and Government database search was conducted to identify the historic native vegetation community composition, geological formation for the subject location and to define boundaries of the proposed development area – referred by the development footprint.

The subject area Landscape Form and Bioregion is described by the literature and database reviews:

- IBRA Bioregion/subregion,
- Mitchell Landscape Type
- Legislation Impacting the Site

An accompanying Bionet Atlas and Protected Matters Search was conducted assessing the recorded presence of all known threatened plant species occurring within an applied 5km spatial buffer for Bionet Atlas and 1km for Protected Matters Search (Matters of National Environmental Significance (MNES) from the subject site.

Flora species that occur closer to the site location, in greater recorded numbers and records that are more time relevant (temporal recency) are prioritized by the search for inclusion to the test of significance if species are recorded.

Species which are known to occur across similar habitats or in areas with similar habitat features are also selected for assessment under application of the precautionary principle, to determine potential presence to larger sites whereby site surveys are more complicated to complete.

A site-specific literature and database review process was undertaken prior to field survey at the location and report preparation.

This included desktop analysis of aerial photography and regional scale information from the following sources:

- NSW Planning Viewer (DPE 2022a)
- BioNet Atlas (DPE 2022b)
- NSW Plant Community Type Vegetation Map, VIS_ID 3900
- Biodiversity Values Map and threshold tool (DPE 2022c)

Threatened species, populations and migratory species recorded within 100km² area centered on the study area in a search of the BioNet Atlas (DPE 2022b) were consolidated and their likelihood of occurrence was assessed by:

- review of location and date of recent (post 2000) records
- review of available habitat in the study area and surrounding areas
- review of the scientific literature pertaining to each species and population
- applying expert knowledge of each species

The literature review method aims to assist in compiling the species lists for the site, in lieu or absence of applied intensive ground survey methods. Where available literature reviews of research and publications are consulted to develop knowledge of the site & surrounds and are listed in this report (Appendix B: Fauna and Flora Impact Tables).

Precautionary Principle

Field assessment by our ecologists included a review of the vegetation area affected by the development footprint to determine species affected by clearing, habitat quality and habitat structures to determine the overall potential for fauna populations to frequent the site for life function activities, habitat value comprised of biotic and abiotic attributes along with reliable species records from the data bases were recorded to apply the precautionary principle of fauna presence to the location and field surveys for fauna populations were not undertaken in the scope of the work.

With the principle applied to our findings, where insufficient records are present, to our subject area threatened species have been assumed as having potential to occur if suitable habitat features exist and the site reflects the habitat structure and condition for the species to occur a location.

Any threatened biodiversity likely to occur within the study area based on the presence of suitable habitat and

recent records is assumed to be present unless there is sufficient evidence to the contrary. Sufficient evidence of species presence is determined by physical sightings, markings, scratching's, scats, tracks and required landscape features required to support the species requirements – such as permanent water, tree hollows and food sources.

A determination of the likelihood of threatened species presence at the subject site was prepared through an assessment of a threatened species habitat criteria, recording both observed feed and structural habitat including vegetation formation, tree hollows, terrestrial animal burrows, stags, dreys, bird nests, bush rock, caves, and natural crevices, fallen logs and rock shelters, riparian corridors, and substantial water bodies.

Field Survey

An inspection of the study area was conducted on the 06/03/2025, by a team of three (3) staff members field ecologist staff.

Assessment in accordance with the NSW BAM simplified method for survey data plot analysis was undertaken by our field team and presented here as results to support overall determination of site native vegetation Plant Community Type (PCT) and floristic species assemblage observed.

In addition to assess for fauna use of the site 'Threatened Species Survey and Assessment Guidelines' (NSW Office of Environmental & Heritage - April 2009) were applied to the subject location to determine habitat, breeding and foraging values provided by vegetation within the development footprint.

The inspection included the completion of the following:

- Establishment of overall site biodiversity value with regard to observed habitat features, physical and biophysical site attributes and to support development of suitable impact hierarchy of controls for development upon the site:
- Identifying individual tree and shrub species.
- Assessing the likely effects of the development upon on flora and fauna at the site with regard to threatened species, populations or ecological communities, or their habitats,
- Looking for presence of threatened flora to occur within development zones.
- Identifying key habitat requirements for known threatened fauna species
- Identifying opportunities to avoid, minimise or mitigate impacts,
- Ensure that the project is designed in accordance with hierarchy of controls to minimise impacts.
- Developing appropriate offsets,
- Prepare protection areas and conservation offset areas if applicable.
- Ensuring that the development results in no loss of biological diversity or ecological integrity
- Preparing Assessments of Significance as required for threatened species impact analysis - The test of significance is set out in s. 7.3 of the Biodiversity Conservation Act 2016

Existing vegetation within the development site was detailed through survey observations and recording of current flora plant species and species assemblages presented as plot data.

Our assessment determined native tree populations and species related to the subject site, native plant species occurring in context to the subject development area.

During the site botanical surveys, an observed habitat impact analysis was completed through the process of field data collection and surveying of the development footprint to assess habitat features (Biotic and Abiotic), habitat condition and observable presence of biodiversity features such as food sources, water sources and nesting – roosting viability within the subject area.

Observations were targeted to identify flora species that reflect expected threatened plants that may be present to the general geographical area across the survey areas.

A targeted threatened species area search for ground orchids and other localised threatened flora species (Trees, shrubs, herbs, orchids) was also conducted during the site visit.

Survey Limitations

The conducted field survey aimed to provide a base line record of potential fauna use and actual flora present within the confines of the subject site and identify the occurrence of threatened species habitat present within the direct disturbance areas of the development.

A full fauna survey following Threatened Species Survey and Assessment Guidelines (OEH 2013) was not undertaken by the applied method as sufficient detail to determine the likelihood of occurrence of threatened and migratory species for the purpose of this report was achieved through habitat assessment and review of the relevant recorded species databases such as Bionet and PMS search tools.

Habitat value (Qualitative) and searches (Applied) for evidence of occupation of the site by localised fauna species were used as surrogate determination measures to validate the potential for species identified within the threatened species and wildlife atlas searches (NSW OEH) to be present (permanently or temporarily) at the subject site.

The site was visited during the day – between the hours of 8am and 3pm, hollows were viewed to ascertain whether they were actively being occupied by any fauna activity, stick nests were also observed – though they were not occupied at the time of assessment.

Arboreal mammals and bats being predominantly nocturnal were not expected under our observations, though suitable habitat and permanent water sources from the dams are present therefore it is expected that arboreal mammal species and micro bat species will occur to the subject area.

The site is also considered heavily impacted by disturbance which will contribute influentially to the quality of habitat derived by the subject site.

Landform Values and Landscape Context

In accordance with Chapter 4 of the BAM, a range of landscape features must be identified where they occur on the Subject Land. These features may contain biodiversity values that are important for the site context of the Subject Land, or for informing the likely habitat suitability of the Subject Land.

Landscape features such as Interim Biogeographic Regionalisation Australia (IBRA) regions, landscape regions (Mitchell Landscapes) and other features such as rivers, streams, wetlands, habitat connectivity, karst topography and areas of outstanding biodiversity value that have been identified under the BC Act.

Human Landscape

The subject site is located at 11 Charlotte St Burradoo, NSW 2576. It is formed of an education development (school) with classrooms, offices and halls with gardens in between.

The entire site is zoned R5 - Large Lot Residential.

The assessment area includes the subject development footprint and a 1500m surrounding adjacent buffer.

Site location – Aerial imagery (eplanning)

IBRA Bioregions and Subregions: Sydney Basin/Moss Vale

IBRA regions is a nationally endorsed classification system for mapping large, geographically distinct bioregions based on the following aspects: climate, geology, landform, native vegetation, and species information.

IBRA regions are further split into Sub-regions which further define the expected geology, characteristic landforms, soil structure and vegetation.

Table 1. IBRA Bioregions/Subregions present on the subject site.

Bioregions	Subregions	Subregion Code
<i>Sydney Basin</i>	Moss Vale	SYB

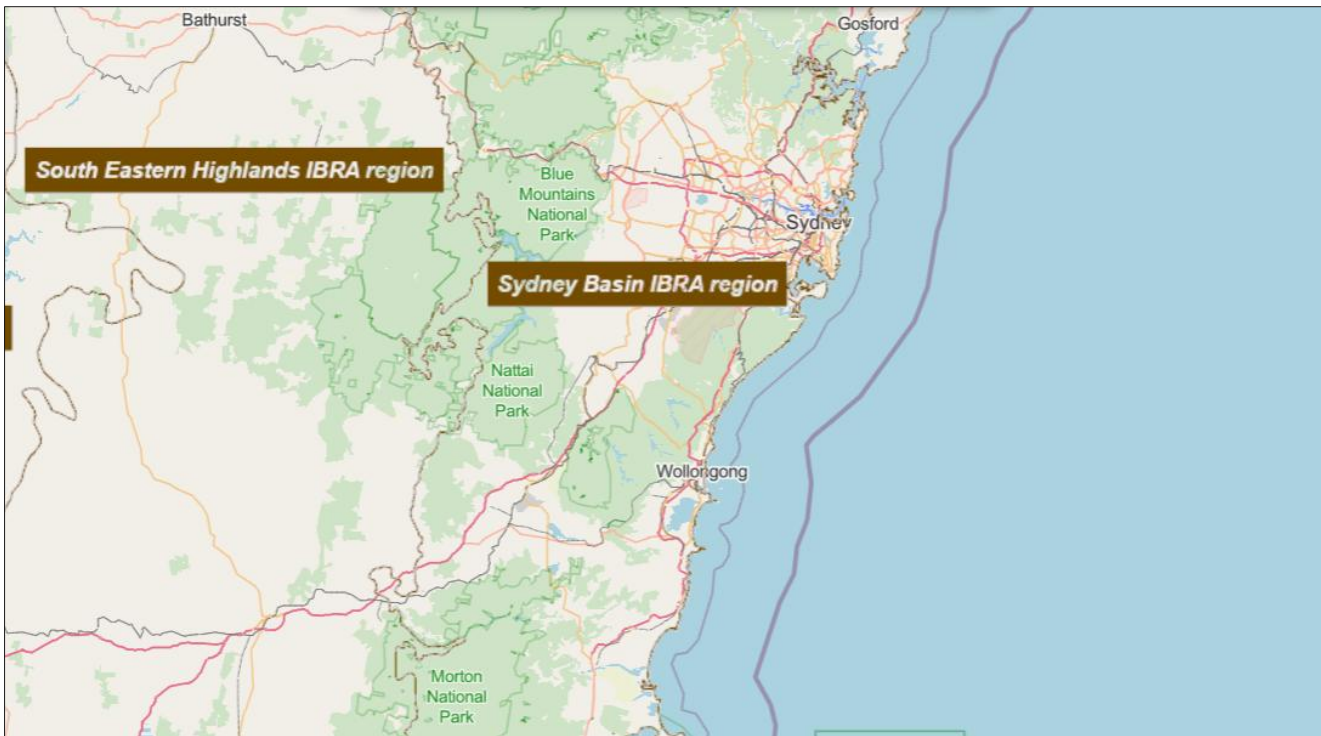
IBRA Bioregion Location and Landforms: Sydney Basin

The subject land occurs within the Sydney Basin IBRA bioregion.

The Sydney Basin Bioregion lies on the central east coast of NSW and covers an area of approximately 3,624,008 ha (IBRA 5.1). It occupies about 4.53% of NSW and is one of two bioregions contained wholly within the state. The bioregion extends from just north of Batemans Bay to Nelson Bay on the central coast, and almost as far west as Mudgee. The bioregion is bordered to the north by the North Coast and Brigalow Belt South bioregions, to the south by the South East Corner Bioregion and to the west by the South Eastern Highlands and South Western Slopes bioregions.

The Sydney Basin Bioregion lies on the east coast and covers a large part of the catchments of the Hawkesbury-Nepean, Hunter and Shoalhaven river systems. It consists of a geological basin filled with near horizontal sandstones and shales of Permian to Triassic age that overlie older basement rocks of the Lachlan Fold Belt. The sedimentary rocks have been subject to uplift with gentle folding and minor faulting during the formation of the Great Dividing Range. Erosion by coastal streams has created a landscape of deep cliffed gorges and remnant plateaus across which an east-west rainfall gradient and differences in soil control the vegetation of eucalypt forests, woodlands and heaths. The Sydney Basin Bioregion includes coastal landscapes of cliffs, beaches and estuaries

Map 2. Location of IBRA Bioregion: Sydney Bason IBRA Region



IBRA Climate

The Sydney Basin Bioregion is dominated by a temperate climate characterised by warm summers with no dry season. A sub-humid climate occurs across significant areas in the northeast of the bioregion. A small area in the west of the bioregion around the Blue Mountains falls in a montane climate zone. Snow can occasionally occur in this area of higher elevation. Rainfall can occur throughout the year but varies across the bioregion in relation to altitude and distance from the coast, with wetter areas being closer to the coast or in higher altitudes. Temperature varies across the bioregion, with areas of higher temperature occurring along the coast and in the Hunter valley and areas of lower temperature on the higher plateaux and western edge.

Table 2. Climate of relevant IBRA Region.

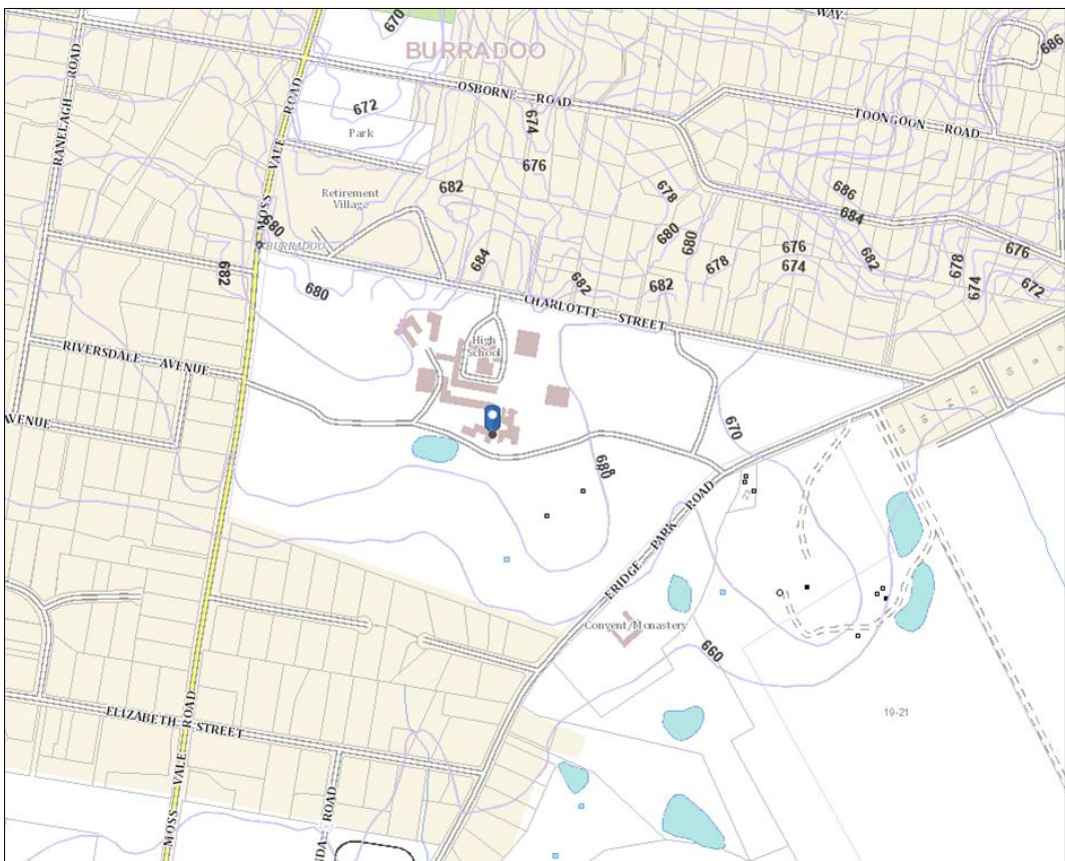
Mean Annual Temperature (C)	Minimum Average Monthly Temperature (C)	Maximum Average Monthly Temperature (C)	Mean Annual Rainfall (mm)	Minimum Average Monthly Rainfall (mm)	Maximum Average Monthly Rainfall (mm)
10 – 17°C	-1.4 – 8.1°C	22.4 – 31.9°C	522 – 2395mm	26 – 101mm	69 – 245mm

IBRA Soils and Geology

The Sydney-Bowen Basin was formed when the earth’s crust expanded, subsided and filled with sediment between the late Carboniferous and Triassic. Early stages of development were as a continental rift that filled with marine volcanic sediments, but deposition shifted to river and swamp environments in a cold climate in the early Permian. Coal deposits accumulated and the upper parts of the basin were covered in quartz sandstone by extremely large braided rivers whose headwaters lay hundreds or even thousands of kilometres away and flowed in from the south and the northwest to deposit the Hawkesbury Sandstone. Shallow marine sediments and later more river sediments continued to accumulate in the basin during the Jurassic but all of these younger rocks have been eroded, leaving only a thin cap of shale over the resistant sandstones.

A significant feature of the bioregion includes the contour-patterned vegetation communities on alternating sandstones and shale plateau that occur within Moss Vale.

Map 3. Contour Map (10m) for the subject site.



IBRA Vegetation

The Sydney Basin Bioregion is one of the most species diverse in Australia. This is a result of the variety of rock types, topography and climates in the bioregion.

IBRA Subregion Location and Landforms

The subject land occurs within the Moss Vale IBRA Subregion.

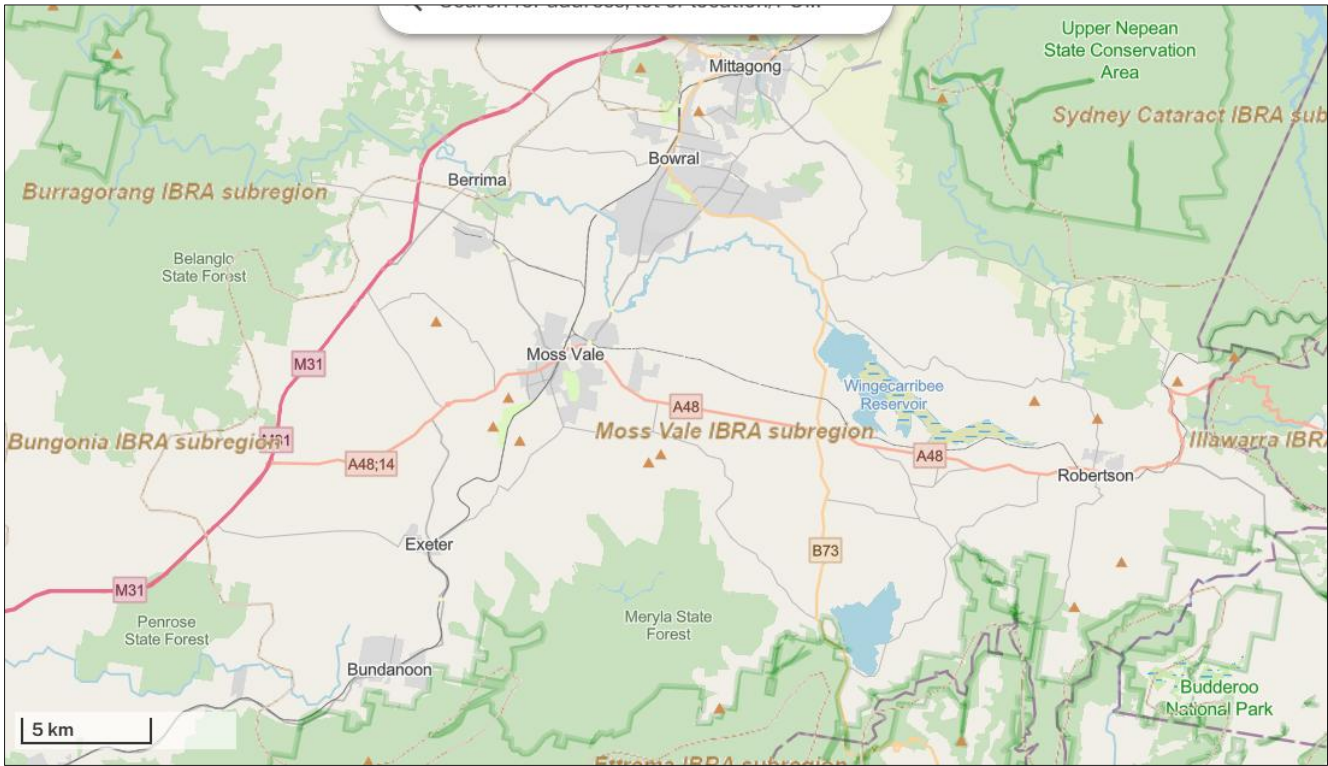
Underlying geology in the sub-region is formed of Jurassic Wianamatta Group shales, Tertiary basalts and trachyte intrusions, large Quaternary peat swamp.

The sub-region is formed from the Shale and basalt plateau with rolling hills and shallow valleys. An area near Wingecarribee has formed very large peat swamps.

Vegetation is formed from tall forest of narrow-leaved peppermint, Sydney peppermint, monkey gum, black ash, messmate, coastal white box, and brown barrel on shale and basalts.

Extensive sedgeland and hanging swamps on sandstone. Wingecarribee raised sphagnum bog. Sydney peppermint, narrow-leaved peppermint, and gully ash on trachyte domes,

Map 4. Location of IBRA Subregion: Moss Vale IBRA Subregion.



VCA

Table 3. There is no VCA present within this area as there is no plant community type present.

VCA Name	VCA Code
N/A	N/A – No Native Vegetation Structure

MITCHELL LANDSCAPES: Moss Vale Highlands

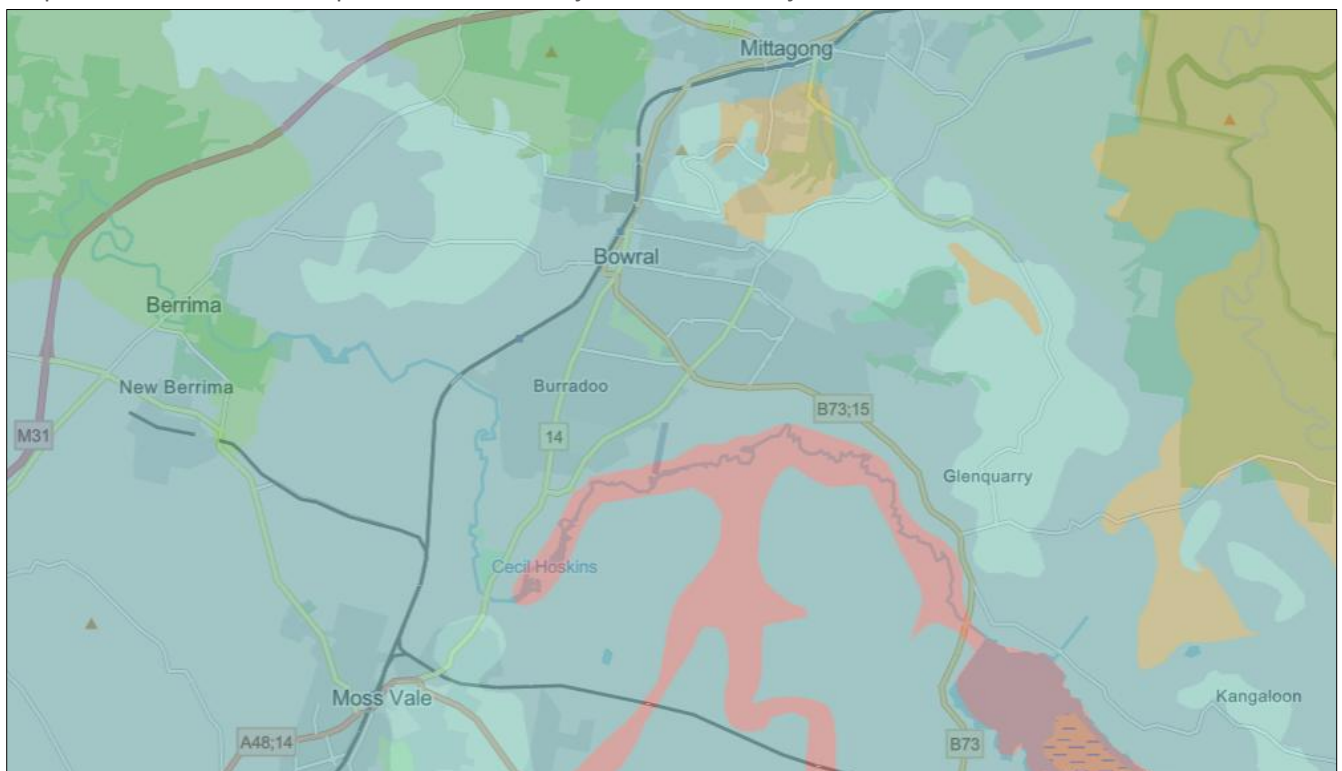
Mitchell Landscapes are areas of land with relatively homogenous geomorphology, soils, and broad vegetation. The subject land occurs on the Moss Vale Highlands Mitchell Landscape (Mitchell 2002).

Rolling hills and rounded peaks with deep channel incision on horizontal Triassic alternating quartz sandstone and shale, general elevation 700 to 850m, local relief 80m. Widespread yellow and grey texture-contrast soils, deep yellow earth on friable sandstone often with concretionary ironstone and accumulations of clan quartz sand in valleys.

Woodland of silvertop ash (*Eucalyptus sieberi*), Sydney peppermint (*Eucalyptus piperita*), smooth-barked apple (*Angophora costata*), blue-leaved stringybark (*Eucalyptus agglomerata*) and scribbly gum (*Eucalyptus haemostoma*) on sheltered sites. Open forest in gullies at the head of rivers below the plateau; gully gum (*Eucalyptus smithii*), river peppermint (*Eucalyptus elata*), mountain grey gum (*Eucalyptus cypellocarpa*). Woodland of; mountain grey gum, coastal white box (*Eucalyptus quadrangulata*), white stringybark (*Eucalyptus globoides*), swamp gum (*Eucalyptus ovata*), and cabbage gum (*Eucalyptus amplifolia*) on shale and poorly drained sites.

Large areas of wet heath with; prickly broom heath (*Monotoca scoparia*), coral heath (*Epacris microphylla*), Christmas bells (*Blandfordia nobilis*) and button grass (*Gymnoschoenus sphaerocephalus*) with patches of; stunted silvertop ash, red bloodwood (*Corymbia gummifera*), and scrub she-oak (*Allocasuarina paludosa*).

Map 5. Mitchell Landscape within the subject site and adjacent areas.



Aquatic & Fluvial Landscape (Rivers, streams, estuaries, and wetlands)

The subject site has no Fluvial landscape present onsite.

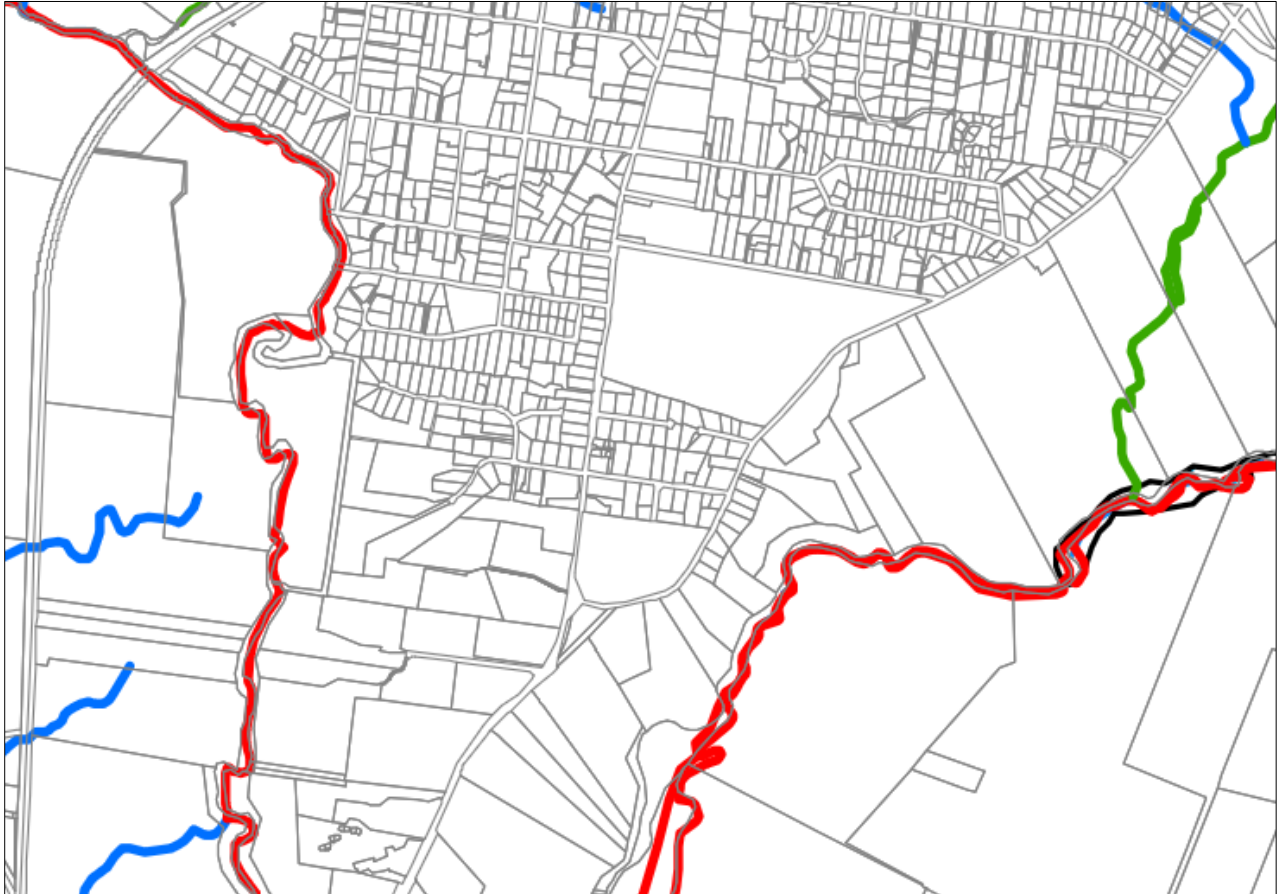
Due to the lack of a mapped watercourse and riparian land state and local council legislation applies including:

- State Government (Water Management Act 2000, Fisheries Management Act, 1994)
- Local Government (LEP): 7.5 Natural resources sensitivity—water

No wetlands from the Directory of Important Wetlands or RAMSAR Wetlands are present onsite or are to be affected by the development.

No mapped areas of Ground Water vulnerability were identified onsite.

Map 6. RIPARIAN LAND AND WATERCOURSES MAP showing areas of riparian land (land within 40m of a watercourse) adjacent and on the subject site (11 Charlotte St, Burradoo 2576).



Terrestrial Biological Landscape (Connectivity & Biodiversity Values)

The subject site is not present on the Wingecarribee biodiversity planning layer (7.4 Natural resources sensitivity—biodiversity).

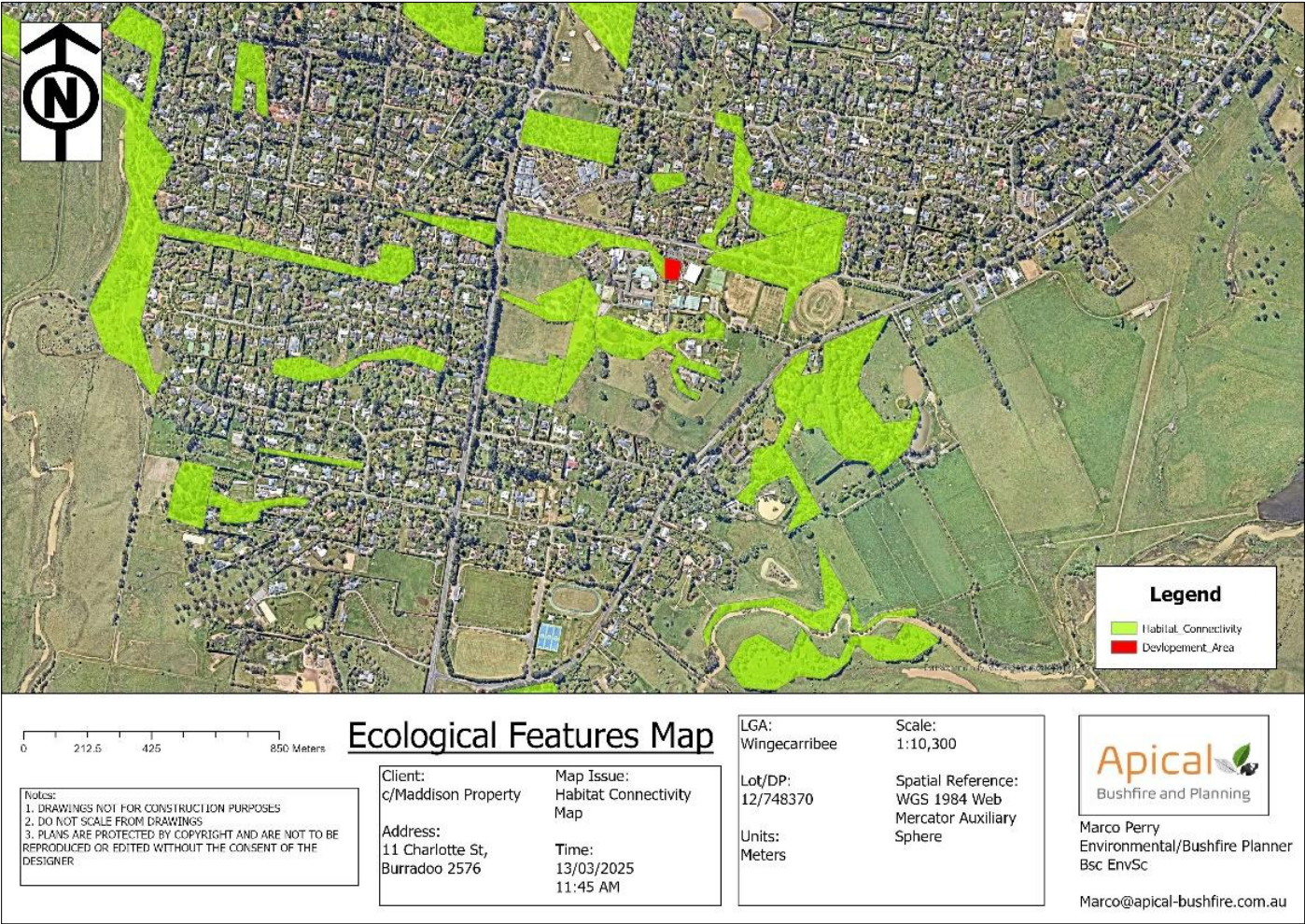
It is however occurring on the NSW Biodiversity Values Map, the priority habitat mapped areas are not included within the development area and the vegetation within the development area does not represent the local vegetation complexes, TECs or other sensitive biodiverse land.

The patch of vegetation located to the development footprint is represented by exotic landscape tree specimens and exotic garden shrubs, grasses and herbs and does provide some cover in the form of general roosting/nesting habitat but is not formed of any habitat species known to support any known local threatened fauna species. In addition, this vegetation does not form part of a corridor of vegetation for local wildlife.

Table 4. Table showing BV that Intersect the Assessment Area

BV that Intersects the Assessment Area	Impact Yes/No
Threatened species or communities with potential for serious and irreversible impacts Added Mar 29, 2023, 11:00 AM Area_GEO 1.55	No, outside of the development area (200m separation is provided by the development footprint and this landscape value)
Threatened species or communities with potential for serious and irreversible impacts Added Mar 29, 2023, 11:00 AM Area_GEO 2.21	No, outside of the development area (250m separation is provided by the development footprint and this landscape value))
Threatened species or communities with potential for serious and irreversible impacts Added Mar 29, 2023, 11:00 AM Area_GEO 0.54	No, outside of the development area (200m separation is provided by the development footprint and this landscape value))
Threatened species or communities with potential for serious and irreversible impacts Added Mar 29, 2023, 11:00 AM Area_GEO 0.09	No, outside of the development area (170m separation is provided by the development footprint and this landscape value))
Threatened species or communities with potential for serious and irreversible impacts Added Mar 29, 2023, 11:00 AM Area_GEO 0.06	No, outside of the development area (170m separation is provided by the development footprint and this landscape value)

Map 7. HABITAT CONECTIVITY MAP showing areas of connected habitat (land linked by vegetation) within 1500m of site (11 Charlotte St, Burradoo 2576).



Map 8. BV MAP showing areas of biodiversity value (mapped as purple land) adjacent and on the subject site (11 Charlotte St, Burradoo 2576).



Geological Landscape (Geological features of significance & Soil hazard features)

Subject site is formed of low hills with shallow valleys, that are formed within a bend in the Wingecarribee flood plain.

Soil is expected to be similar to that associated with this subregion/Mitchell landscape.

There are no known areas of krast topography of geologically sensitive land within the development area.

PCT and TEC Vegetation Types (Native Vegetation Cover)

PCT Identification

There are no mapped areas of a remnant Plant Community Types identified within the development footprint.

The existing vegetation surveyed are presented by formed exotic garden beds and manufactured lawns.

Limited native plant species were identified at the survey plot and present specimens were either planted landscaping specimens (*Callistemon* sp. and *Lomandra* sp.) or herbaceous plants growing within the lawn (*Dichondra repens* ect.).

The nearest located mapped Plant Community type is Southern Highlands Shale-Basalt Dry Forest (PCT 3302) which in its expected form is a wet sclerophyll forest.

This structure of vegetation was determined not to be present in a natural or derived form within the development footprint or adjoining gardens.

Clearing and Connectivity

The site has a high level of vegetative connectivity to the adjacent areas of vegetation which is enhanced by surrounding buildings and undercover areas.

Surrounding native vegetation is mostly classified as wet sclerophyll forest that is formed in patches to the west, south and east of the development footprint connective vegetation to these areas are formed from both exotic and native garden plantings (which are outside of the development area).

Summary

Development Exotic and Native Abundance

Dominance of the vegetation surveyed represent exotic – nonnative species.

The survey identified five (5) native plant species within the development footprint of these only two (2) species present were considered endemic to the local environment (*Dichondra repens* and *Viola Hederacea*) both ground herb species which may have been planted or occurred naturally to the garden areas.

PCT Confirmation

While there are species representative of the local PCT it was determined that there was not enough native vegetation species correlation by the development footprint to declare the vegetation representative of Southern Highlands Shale-Basalt Dry Forest (PCT 3302).

TEC Confirmation

No TEC was confirmed to be within the development footprint as there was not enough native vegetation present to meet the minimum diagnostic threshold for local plant community types.

Threatened Species

Assessment of Threatened Flora Impacts and Issue

Flora Database Search Results

The Database search process identified nineteen (19) threatened flora species, of which eleven (11) species were specifically surveyed for due to their typically small growth habit, larger flora species were assumed to be observable due to the small scale of the development area.

Table 5. Threatened Flora Species Surveyed for Onsite (Red Species associated with PCTs within the development area).

Common Name	Scientific Name	Source	Growth Form	Presence/Absence
Cobbler's Pegs	<i>Brachyscome mitchelliana</i>	Bionet	Forbes	Absent
Purple Cudweed	<i>Helichrysum calvertianum</i>	Bionet	Forbes	Absent
Eastern Underground Orchid	<i>Rhizanthella slateri</i>	MATTERS	Orchid	Absent
Yellow Gnat-orchid	<i>Genoplesium baueri</i>	MATTERS	Orchid	Absent
Kangaloon Sun Orchid	<i>Thelymitra kangaloonica</i>	MATTERS	Orchid	Absent
Leafless Tongue-orchid	<i>Cryptostylis hunteriana</i>	MATTERS	Orchid	Absent
White-flowered Wax Plant	<i>Cynanchum elegans</i>	MATTERS	Forbes	Absent
Austral Toadflax	<i>Thesium australe</i>	MATTERS	Forbes	Absent
Swamp Everlasting	<i>Xerochrysum palustre</i>	MATTERS	Forbes	Absent
Dwarf Kerrawang	<i>Commersonia prostrata</i>	MATTERS	Forbes	Absent
	<i>Persoonia mollis subsp. revoluta</i>	MATTERS	Forbes	Absent

Threatened Flora Site Results

The site floristic survey findings positively identified Zero (0) of threatened flora species identified from the analysis of the OEH Bionet atlas and protected matters databases.

The vegetation clearing for the area will occur in the marked development zone, whereby site inspections did observe any floristic listed threatened species (See Appendix A: Site Maps).

Assessment of Threatened Flora Impacts and Issues

Fauna Database Search Results

The Database search process identified forty-two (42) threatened fauna species as either having a low, medium, or high possibility to use the site species that have no chance of utilising the site due to been marine/fully aquatic or having a known limited range were excluded from this list.

From the OEH Bionet searches that were known to occur in within the local environment and were associated with the same habitat parameters presented by the subject site.

The OEH Bionet Search identified:

- Thirteen (13) threatened species of avian of which zero (0), were identified as species with a moderate or high likelihood to utilise the site.
- Eleven (11) threatened species of mammal of which zero (0), were identified as species with a moderate or high likelihood to utilise the site.

The Protected Matter Search (PMS) search identified:

- Ten (10) threatened species of avian of which zero (0), were identified as species with a moderate or high likelihood to utilise the site.
- One (1) threatened species of fish of which zero (0), were identified as species with a moderate or high likelihood to utilise the site.
- One (1), threatened species of amphibian of which zero (0), were identified as species with a moderate or high likelihood to utilise the site.
- Four (4) threatened species of mammal of which zero (0), were identified as species with a moderate or high likelihood to utilise the site.
- Two (2) threatened species of reptiles of which zero (0), were identified as species with a moderate or high likelihood to utilise the site.

(Species recorded in the Bionet records were excluded)

These species were nominated to have limited or insignificant impacts (direct or indirect) imposed by the scale, scope and activities identified by the development.

Additional species may be recorded during a longer survey over various seasons. However, the techniques used in this investigation are heavily reliant on database and literature review and site observation during noted site survey attendances.

Fauna survey assessment is considered adequate to gather the data necessary to validate the potential likelihood of occurrence of any threatened fauna species being impacted from the activities of this development due to limited scale of perceived impact.

Sufficient detail to determine the likelihood of occurrence of threatened and migratory species was achieved through habitat assessment during the field survey and is included in Appendix B (Species Presence and Impact Table). A summary of observed habitat onsite is provided within table 6.

Threatened Fauna Site Results

With the data collected from the site visit a list of fauna species with a high likelihood to be impacted by the development was generated. The threatened species that have a high likelihood of been present included no species.

Table 6. Observed Habitat present within and adjacent to development area.

Overall Vegetation/Habitat Description of Site and Adjacent Area	Development Site is reminiscent of a highly modified environment with less than 10% coverage of native vegetation within the development area.
Emergent Layer Structure	Emergency Layer is formed from two large exotic garden trees.
Canopy Structure	Canopy is formed of shorter exotic garden trees.
Understory Structure	Understory layer is not present.
Shrub Layer Structure	Shrub layer is formed of hedges and exotic landscaping specimens
Ground Layer Structure	Ground layer is formed of raised garden beds (Plot 1 & 2) and an area of lawn (See Plot 3).
Rocky Structural Habitat	No Rocky Structural Habitat Present
Aquatic Habitat	No Aquatic Habitat Present

Legislation Requirements

Federal Government (EPBC Act): Matters of National Environmental Significance

Under the EPBC Act an action will require approval from the minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance.

What is a significant impact?

A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment, which is impacted, and upon the intensity, duration, magnitude, and geographic extent of the impacts. You should consider all these factors when determining whether an action is likely to have a significant impact on matters of national environmental significance.

- | |
|---|
| 1. Are there any matters of national environmental significance located in the proposed action (noting that 'the area of the proposed action' is broader than the immediate location where the action is undertaken; consider also whether there are any matters of national environmental significance adjacent to or downstream from the immediate location that may potentially be impacted)? |
| No |

- | |
|---|
| 2. Considering the proposed action at its broadest scope (that is, considering all stages and components of the action, and all related activities and infrastructure), is there potential for impacts, including indirect impacts, on matters of national environmental significance? |
| No |

- | |
|---|
| 3. Are there any proposed measures to avoid or reduce impacts on matters of national environmental significance (and if so, is the effectiveness of these measures certain enough to reduce the level of impact below the 'significant impact' threshold)? |
| No |

- | |
|---|
| 4. Are any impacts of the proposed action on matters of national environmental significance likely to be significant impacts (important, notable, or of consequence, having regard to their context or intensity)? |
| No |

State Government (BC Act): Biodiversity Offset Scheme (BOSET)

Apical bushfire Planning has been engaged by the project proponents to undertake a project feasibility and impact assessment regarding the project proposal and derived impacts to present flora, fauna, threatened species and overall biodiversity values identified in relation to the subject site.

The planning pathway for assessment of project biodiversity impacts is currently derived under the NSW Biodiversity Regulation 2017 and involves the application of the Biodiversity Offsets Scheme (BOS) Entry Test (BOSET) to determine the assessment and consent pathway requirement for a proposal, depending on whether the NSW BOS scheme is activated by the proposal, or the proposal is determined exempt from the scheme.

The BOSET instrument is a test used to determine when it is necessary to engage an Accredited Assessor Ecologist Consultant to apply the Biodiversity Assessment Method (the BAM) to assess the impacts of a proposal and measure the level of project impact to determine offset measures for the proposal which are factored by the NSW Biodiversity Offset Scheme.

Project impact determinations are used for local developments (development applications submitted to councils) and clearing that does not require development consent in urban areas and areas zoned for environmental conservation (under the State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017).

Impacts on threatened species, populations, and ecological communities under 'developments' impacts to overall biodiversity is assessed under Part 4 of the Environmental Planning and Assessment Act 1979. the Biodiversity Conservation Regulation 2017 sets out threshold levels for when the Biodiversity Offsets Scheme will be triggered. This threshold has three main elements:

- Whether the amount of native vegetation being impacted exceeds a threshold area set out – presented within as Trigger Test 1.
- Whether the impacts occur on an area mapped by the Biodiversity Values Map published by the Minister for the Environment – presented within as Trigger Test 2.
- Whether development impacts impose a serious or irreversible impact to a known threatened flora or fauna species. The determination of impact to a threatened species is provided by the 'test of significance (under s.7.3) which determines whether the proposed activity is likely to significantly affect threatened species or ecological communities, or their habitats.

If the activity is likely to have a significant impact or will be carried out in a declared Area of Outstanding Biodiversity Value (AOBV), the proponent must either apply the Biodiversity Offsets Scheme (BOS) or prepare a species impact statement (SIS) to support the efficacy of the project with regard to the conservation of threatened biota species.

The environmental impact of activities that will not have a significant impact on threatened species will continue to be assessed under s.111 of the Environmental Planning and Assessment Act 1979 and not the NSW Biodiversity Regulation and applied Biodiversity offset Scheme (BOS).

Biodiversity Values Map and Threshold Report

A Biodiversity Values Map and Threshold Report (BMAT) was generated for the development proposal. This report is provided using the Biodiversity Values Map and Threshold (BMAT) tool.

The report provides results for the proposed development footprint area identified by the user and displayed within the blue boundary on the map (See Appendix 1 Maps and Plans). There are two pathways for determining whether a BDAR is required for the proposed development Clearing Triggers (Biodiversity Values Map & Clearing Threshold) represented on the BMAT Report and Species Impact Triggers (5-Part Test of Significance).

Extract 1. Biodiversity Values and Threshold Report



Department of Planning and Environment

Biodiversity Values Map and Threshold Report

This report is generated using the Biodiversity Values Map and Threshold (BMAT) tool. The BMAT tool is used by proponents to supply evidence to your local council to determine whether or not a Biodiversity Development Assessment Report (BDAR) is required under [the Biodiversity Conservation Regulation 2017 \(Cl. 7.2 & 7.3\)](#).

The report provides results for the proposed development footprint area identified by the user and displayed within the blue boundary on the map.

There are two pathways for determining whether a BDAR is required for the proposed development:

1. Is there Biodiversity Values Mapping?
2. Is the 'clearing of native vegetation area threshold' exceeded?

Biodiversity Values Map and Threshold Report

Date of Report Generation		13/03/2025 11:58 AM
1. Biodiversity Values (BV) Map - Results Summary (Biodiversity Conservation Regulation Section 7.3)		
1.1	Does the development Footprint intersect with BV mapping?	yes
1.2	Was ALL BV Mapping within the development footprint added in the last 90 days? (dark purple mapping only, no light purple mapping present)	no
1.3	Date of expiry of dark purple 90 day mapping	N/A
1.4	Is the Biodiversity Values Map threshold exceeded?	yes
2. Area Clearing Threshold - Results Summary (Biodiversity Conservation Regulation Section 7.2)		
2.1	Size of the development or clearing footprint	423,377.8 sqm
2.2	Native Vegetation Area Clearing Estimate (NVACE) (within development/clearing footprint)	147,643.3 sqm
2.3	Method for determining Minimum Lot Size	Lot size
2.4	Minimum Lot Size (10,000sqm = 1ha)	109 sqm
2.5	Area Clearing Threshold (10,000sqm = 1ha)	2,500 sqm
2.6	Does the estimate exceed the Area Clearing Threshold? (NVACE results are an estimate and can be reviewed using the Guidance)	yes
REPORT RESULT: Is the Biodiversity Offset Scheme (BOS) Threshold exceeded for the proposed development footprint area? (Your local council will determine if a BDAR is required)		yes

These triggers are calculated utilising the following procedure:

Trigger 1 Biodiversity Values Map

The Biodiversity Values Map identifies land with high biodiversity value, as defined by clause 7.3(3) of the Biodiversity Conservation Regulation 2017. The Biodiversity Offsets Scheme applies to any clearing of native vegetation on land mapped as sensitive (see Appendix for further information).

The development is contained within the allowable area- shown as white upon the map.

The development as presented will not encroach upon the mapped biodiversity values located within the region.

Map 9. BIODIVERSITY VALUES MAP showing areas of Biodiversity Value adjacent and on the subject site (ADDRESS).

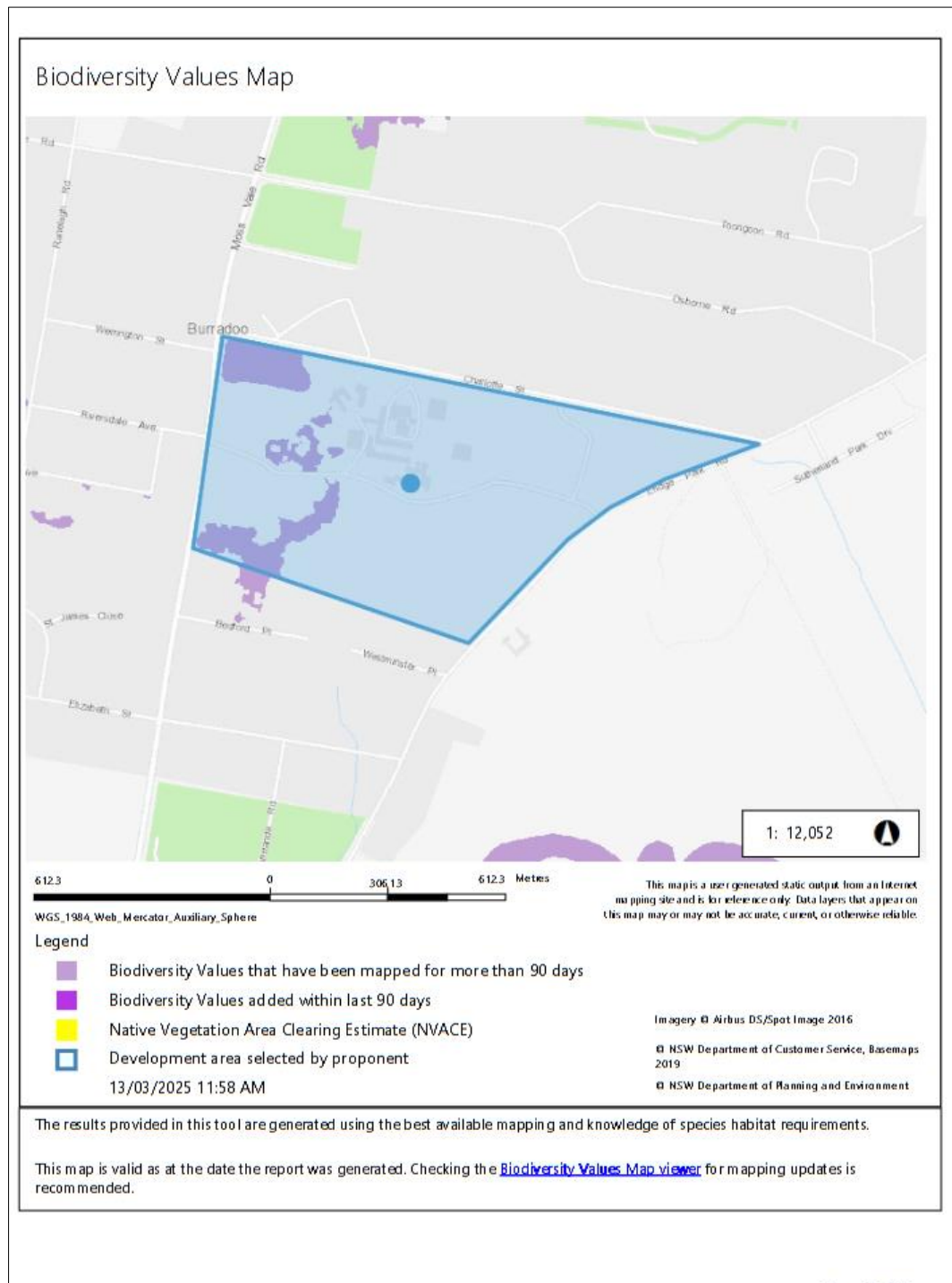


Table 7. Biodiversity Values Map Trigger (Date of enquiry 14/09/2023)

Biodiversity Values Map	BDAR Triggered
Trigger Impact on Biodiversity Values Map (not including values added in last 90 days)?	NO Development area is not recorded to the NSW BV Map.
The proposed development or activity IS NOT mapped as 'Sensitive' on the Biodiversity Values Map (Ref. Map Two - Biodiversity Values Map) Continue with assessment (Threshold Two) 'Clearing threshold' to ascertain if the proposed development or activity exceeds the permissible clearing threshold.	

Trigger 2 Area Clearing threshold.

The area clearing threshold varies depending on the minimum lot size shown on the lot size maps in the Local Environmental Plan (LEP) (ref. Biodiversity values map threshold tool & table – (Bega Valley LEP).

The area threshold applies to all proposed native vegetation clearing associated with the development.

The development total estimated for the development was provided via GIS drafting and polygon spatial calculation. Development Area Total (DAT) was accounted at approx. 0.45 Ha, half of this calculated impact area is derived by non-native vegetation dominant zones.

Direct impacts include vegetation clearing calculated from the area of proposed lot boundaries, roads, and easements for service infrastructure.

Direct impacts arising from the project include:

Table 8. Clearing Impacts

Project Clearing Impacts		Clearing (Ha)	Clearing (m2)
Native Clearing		0.01 Ha	100m2
Exotic Clearing and non-vegetated areas		0.12 Ha	1,200m2
Total Clearing Impact:		0.01 Ha	100m2
Property lot size	Minimum lot size associated with the property	Threshold for clearing, above which the Biodiversity Assessment Method (BAM) and offsets scheme apply	Proposed Native Clearing (Ha)
42.94 ha	109m2	2,500m2	0.01 Ha
The proposed development or activity does not exceed the total clearing threshold of 0.25 hectare based of a minimum lot size 120 Ha. Removal of native vegetation that exceeds the biodiversity offsets scheme thresholds must have approval from the Native Vegetation Panel in accordance with Part 4 of the Vegetation SEPP. The biodiversity offsets scheme thresholds are described in section 7.1 of the Biodiversity Conservation Regulation 2017. Continue with assessment (Threshold Three) 'Test of significance' to ascertain if the proposed development or activity is likely to have a significant impact on threatened species, ecological communities, or their habitats.			

5-Part Test of Significance

A threatened species impact assessment has been composed in accordance with objectives. 1.3 of the Environmental Planning and Assessment Act 1979 (EP&A Act) (Appendix E), to address the predicted or known occurrence of threatened species, populations and ecological communities and species habitat within the proposed action site.

This constitutes an evaluation of potential direct and indirect impacts, resultant of the proposed development actions and likelihood of impact to threatened species, populations and ecological communities and their habitat.

The Test of significance is followed as determined by Section 94 of the Threatened Species Conservation Act 1995 (TSC Act) and s. 220ZZA Fisheries Management Act 1994 (FM Act), prepared by the Department of Environment and Climate Change NSW (2007).

This report has assessed the likely impacts of the proposed development on the threatened species, populations and ecological communities known or likely to occur within the Study Area. Threatened fauna species whose habitat type was consistent with that of the subject site and were present on either the Bionet or protected matters database searches have had a comprehensive AoS including impacts and potential threatening processes derived by the proposal.

If any species are high likelihood of presence and are impacted by the development, then the **Biodiversity Assessment Method (BAM) and offsets scheme will apply.**

Table 9. Shows all Threatened flora, fauna and communities that have had a 5-Part Test of Significance carried out with a significant effect determined to occur.

Threatened flora, fauna Communities Significantly Effectuated
N/A no threatened species effectuated.
The test of significance indicates that a significant effect on threatened species or ecological communities or their habitat is UNLIKELY and the biodiversity off sets scheme threshold has not been exceeded. The Threshold 3 Biodiversity Offsets Scheme Trigger 3 does NOT apply.

Table 10. Test of Significance

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.	
Threatened Species	likelihood of Local Population of Threatened Species placed at risk of extinction
N/A	No threatened fauna or fauna species habitat or species found within development area. Unlikely that the development will place a Local Population of Threatened Species at risk of extinction
B) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity [BC Act section 7(1)(b)]:	
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	
Threatened Community	likelihood of Local Threatened Community will be placed at risk of extinction
N/A	No threatened community found within development area. Unlikely that the development will place a Local Threatened Community will be placed at risk of extinction.
OR	
ii) is likely to modify the composition of the ecological community substantially and adversely such that its local occurrence is likely to be placed at risk of extinction,	
Threatened Community	likelihood of Local Threatened Community been modified such that its local occurrence is likely placed at risk of extinction.
N/A	No threatened community found within development area. Unlikely that the development will place a Local Threatened Community will be placed at risk of extinction.
C) in relation to the habitat of a threatened species or ecological community [BC Act section 7(1)(c)]:	
i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity;	
Threatened Species/Community	Extent to which species/community habitat will be removed or modified under this development.
N/A	No threatened fauna or fauna species habitat or threatened ecological community to be removed or modified under the development.
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 development or activity,	
Threatened Species/Community	Likelihood of habitat fragmentation/isolation due to development
N/A	No threatened fauna or fauna species habitat or threatened ecological community to be fragmented or isolated under the development.
AND	

iii) the importance of the habitat to be removed, modified, fragmented, or isolated to the long-term survival of the species or ecological community in the locality.		
Threatened Species/Community	Importance of the habitat to be removed fragmented or isolated to the long-term survival of the species/community.	
N/A	No threatened fauna or fauna species habitat or threatened ecological community found within development area.	
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) [BC Act section 7(1)(d)].		
Areas that were previously declared as ‘critical habitat’ under the TSC Act have been deemed to be areas of outstanding biodiversity value by clause 8 of the BC (S&T) Regulation. A search of the current Register of Declared Areas of Outstanding Biodiversity Value has found that the subject site is NOT part of a Declared area of Outstanding Biodiversity		
No area of Outstanding Biodiversity Value will be impacted.		
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.		
Key Threatening Process	Impact	Species Impacted
No Key threatening process is to occur.		

State Government (SEPP (B&C) 2021): Chapter 4 Koala Habitat Protection 2021

Koala habitat protection 2021 provides development control to areas that may be utilised as koala habitat. A Koala Assessment Report for development, means a report prepared by a suitably qualified and experienced person about the likely and potential impacts of the development on koalas or koala habitat and the proposed management of those impacts.

SEPP Koala Habitat Protection 2021 reinstates the policy framework of SEPP Koala Habitat Protection 2019 to 83 Local Government Areas (LGA) in NSW. These LGAs are outlined in Schedule 2 of the Biodiversity and Conservation SEPP of these Wingecarribee is included.

The subject site does not have a Koala Plan of Management so must follow section 4.9 of Part 4.2 Development Control of Koala Habitat.

A koala management plan will be required due to the presence of Core Koala Habitat on the Site.

Extract 2. Koala Feed Tree Species within Central and Southern Tablelands Management Area

Central and Southern Tablelands koala management area

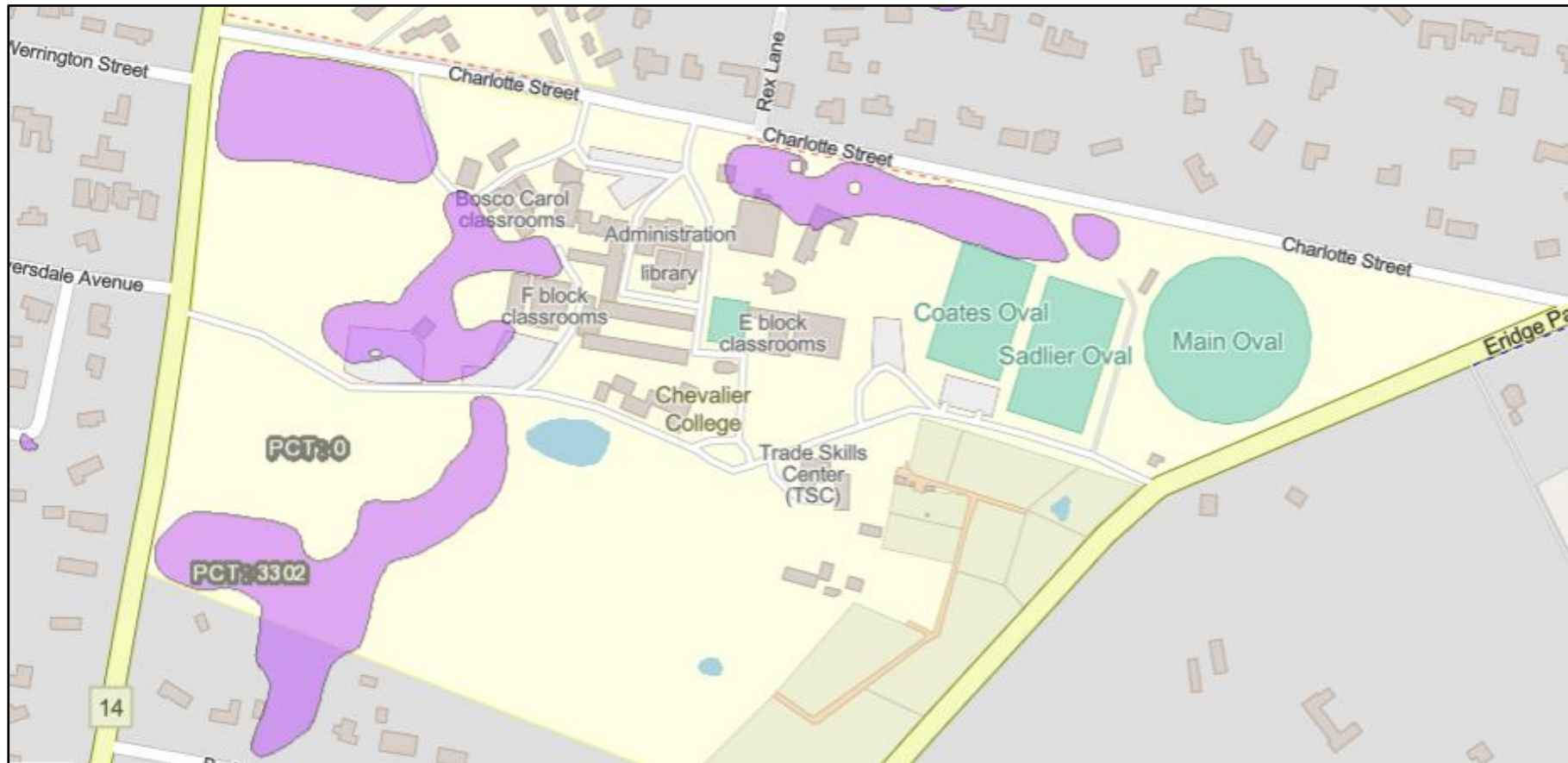
Scientific name	Common name(s)		
<i>Eucalyptus agglomerata</i>	Blue-leaved Stringybark	<i>Eucalyptus microcarpa</i>	Western Grey Box
<i>Eucalyptus albens</i>	White Box	<i>Eucalyptus nortonii</i>	Large-flowered Bundy
<i>Eucalyptus amplifolia</i>	Cabbage Gum	<i>Eucalyptus obliqua</i>	Messmate
<i>Eucalyptus blakelyi</i>	Blakely's Red Gum	<i>Eucalyptus oblonga</i>	Stringybark
<i>Eucalyptus bosistoana</i>	Coast Grey Box	<i>Eucalyptus paniculata</i>	Grey Ironbark
<i>Eucalyptus bridgesiana</i>	Apple Box	<i>Eucalyptus pauciflora</i>	White Sally, Snow Gum
<i>Eucalyptus camaldulensis</i>	River Red Gum	<i>Eucalyptus piperita</i>	Sydney Peppermint
<i>Eucalyptus conica</i>	Fuzzy Box	<i>Eucalyptus polyanthemus</i>	Red Box
<i>Eucalyptus cypsellocarpa</i>	Monkey Gum	<i>Eucalyptus punctata</i>	Grey Gum
<i>Eucalyptus dalrympleana</i>	Mountain Gum	<i>Eucalyptus quadrangulata</i>	White-topped Box
<i>Eucalyptus dealbata</i>	Tumbledown Red Gum	<i>Eucalyptus radiata</i>	Narrow leaved Peppermint
<i>Eucalyptus dives</i>	Broad-leaved Peppermint	<i>Eucalyptus rossii</i>	Inland Scribbly Gum
<i>Eucalyptus elata</i>	River Peppermint	<i>Eucalyptus rubida</i>	Candlebark
<i>Eucalyptus eugenoides</i>	Narrow-leaved Stringybark	<i>Eucalyptus sclerophylla</i>	Hard-leaved Scribbly Gum
<i>Eucalyptus fibrosa</i>	Broad-leaved Red Ironbark	<i>Eucalyptus sideroxylon</i>	Mugga Ironbark
<i>Eucalyptus globoides</i>	White Stringybark	<i>Eucalyptus sieberi</i>	Silvertop Ash
<i>Eucalyptus goniocalyx</i>	Bundy	<i>Eucalyptus tereticornis</i>	Forest Red Gum
<i>Eucalyptus macrorhyncha</i>	Red Stringybark	<i>Eucalyptus viminalis</i>	Ribbon Gum
<i>Eucalyptus maidenii</i>	Maiden's Blue Gum		
<i>Eucalyptus mannifera</i>	Brittle Gum		
<i>Eucalyptus melliodora</i>	Yellow Box		

Table 11. Development Assessment Process for Sites with no approved Koala Plan of Management

Development Assessment Process for Sites with no approved Koala Plan of Management	
Site is not classified RU1, RU2 & RU4 Zoning	Yes
Site is greater than 1Ha in Size	Yes
Before a council may grant consent to a development application for consent to carry out development on the land, the council must assess whether the development is likely to have any impact on koalas or koala habitat.	
Is the Development likely to have any impact on koalas or koala habitat.	No
(3) If the council is satisfied that the development is likely to have low or no impact on koalas or koala habitat, the council may grant consent to the development application.	
(4) If the council is satisfied that the development is likely to have a higher level of impact on koalas or koala habitat, the council must, in deciding whether to grant consent to the development application, take into account a koala assessment report for the development.	
(5) However, despite subsections (3) and (4), the council may grant development consent if the applicant provides to the council—	
(a) information, prepared by a suitably qualified and experienced person who the council is satisfied demonstrates that the land subject of the development application—	
does not include any trees belonging to the koala use tree species listed in Schedule 3 for the relevant koala management area, or	Yes
Is not core koala habitat, defined as:	We have determined that the site IS NOT core koala habitat.
An area of land which has been assessed by a suitably qualified and experienced person as being highly suitable koala habitat and where koalas are recorded as being present at the time of assessment of the land as highly suitable koala habitat, or	.No
An area of land which has been assessed by a suitably qualified and experienced person as being highly suitable koala habitat and where koalas have been recorded as being present in the previous 18 years.	No
(b) information the council is satisfied demonstrates that the land subject of the development application—	
i) does not include any trees with a diameter at breast height over bark of more than 10 centimetres, or	N/A
ii) includes only horticultural or agricultural plantations.	N/A
This site DOES NOT require a Koala Management Plan due to the presence of Core Koala Habitat.	

Appendix A: Site Maps & Plans

Map 10. Landscape Context (PCT) Map showing PCTs expected to be on the subject site and adjacent properties.



Map 11. Landscape Context (PCT) Map showing PCTs expected to be in the development footprint and adjacent area.



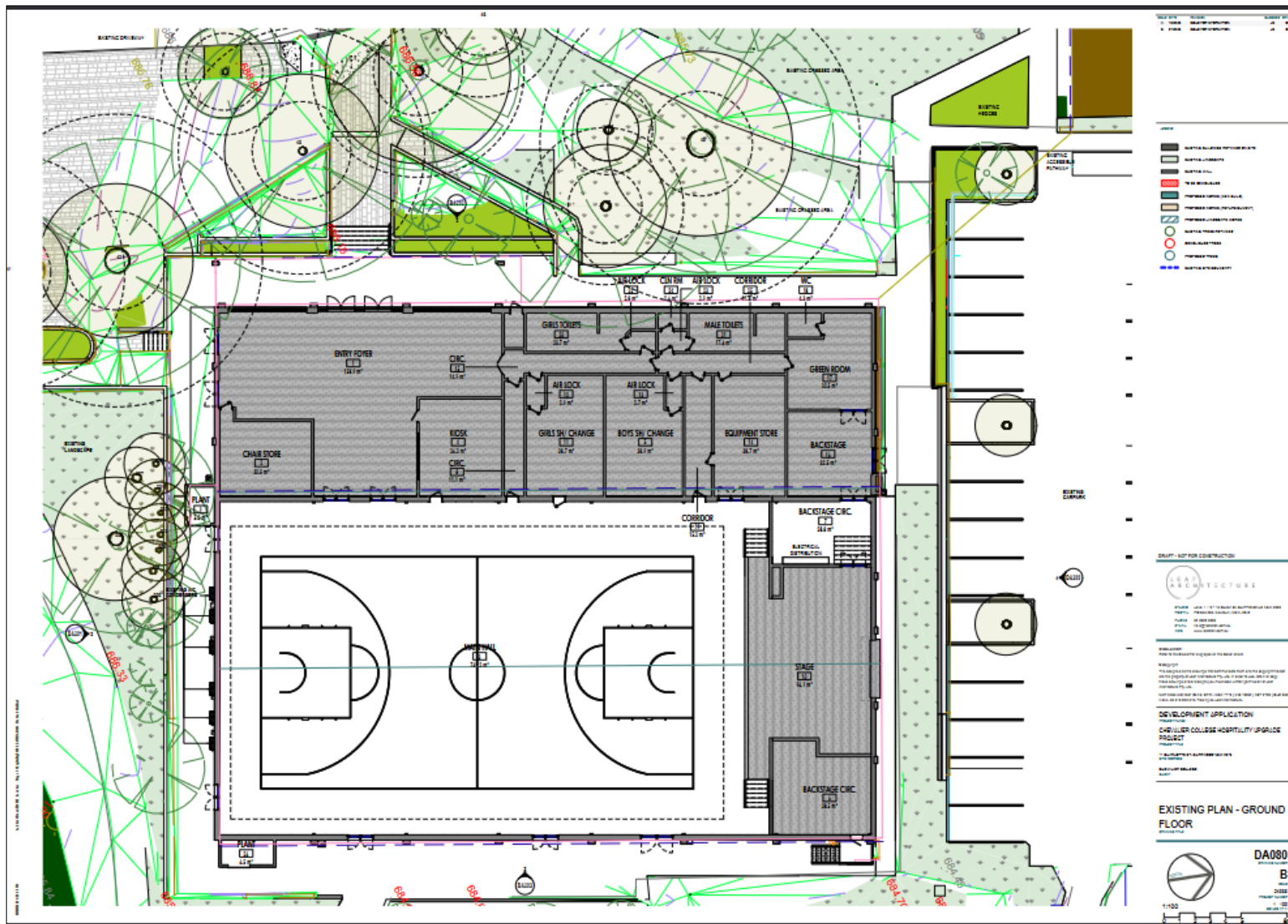
Map 13. Landscape Context (Vegetation Condition) Map showing the conditions and boundaries of PCTs and other vegetated areas within the development footprint.



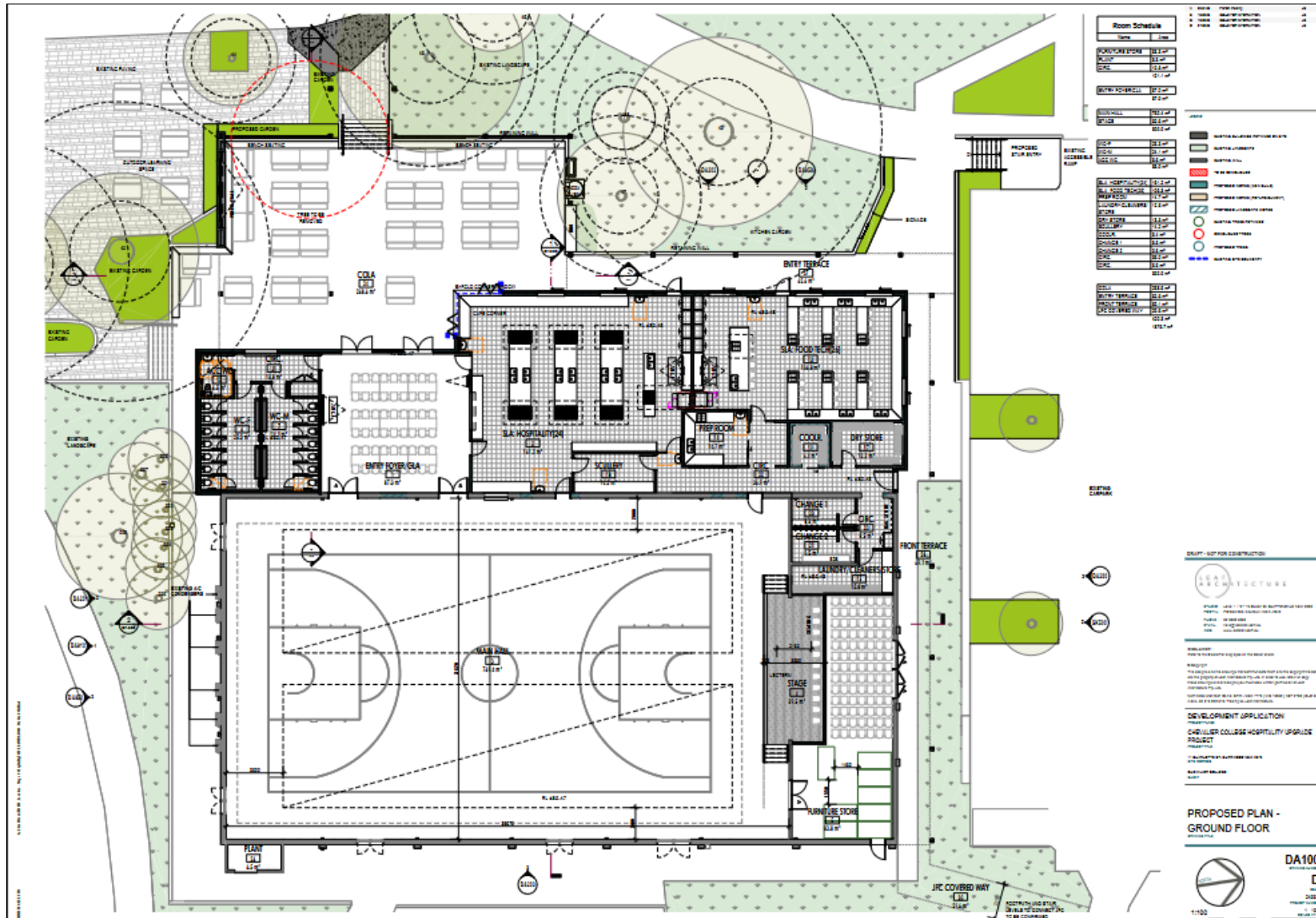
Map 14. Plot & Environmental Features Map: Map showing Plot locations and features of ecological importance identified onsite



Map 15. EXISTING PLAN – GROUND FLOOR



Map 16. Site Plan for PROPOSED PLAN -GROUND FLOOR



Appendix B: Fauna and Flora Impact Tables

Aves

Map 17. Bionet Map showing post-2000 sightings of threatened avian species within a 10km x 10km area centred on the subject site.

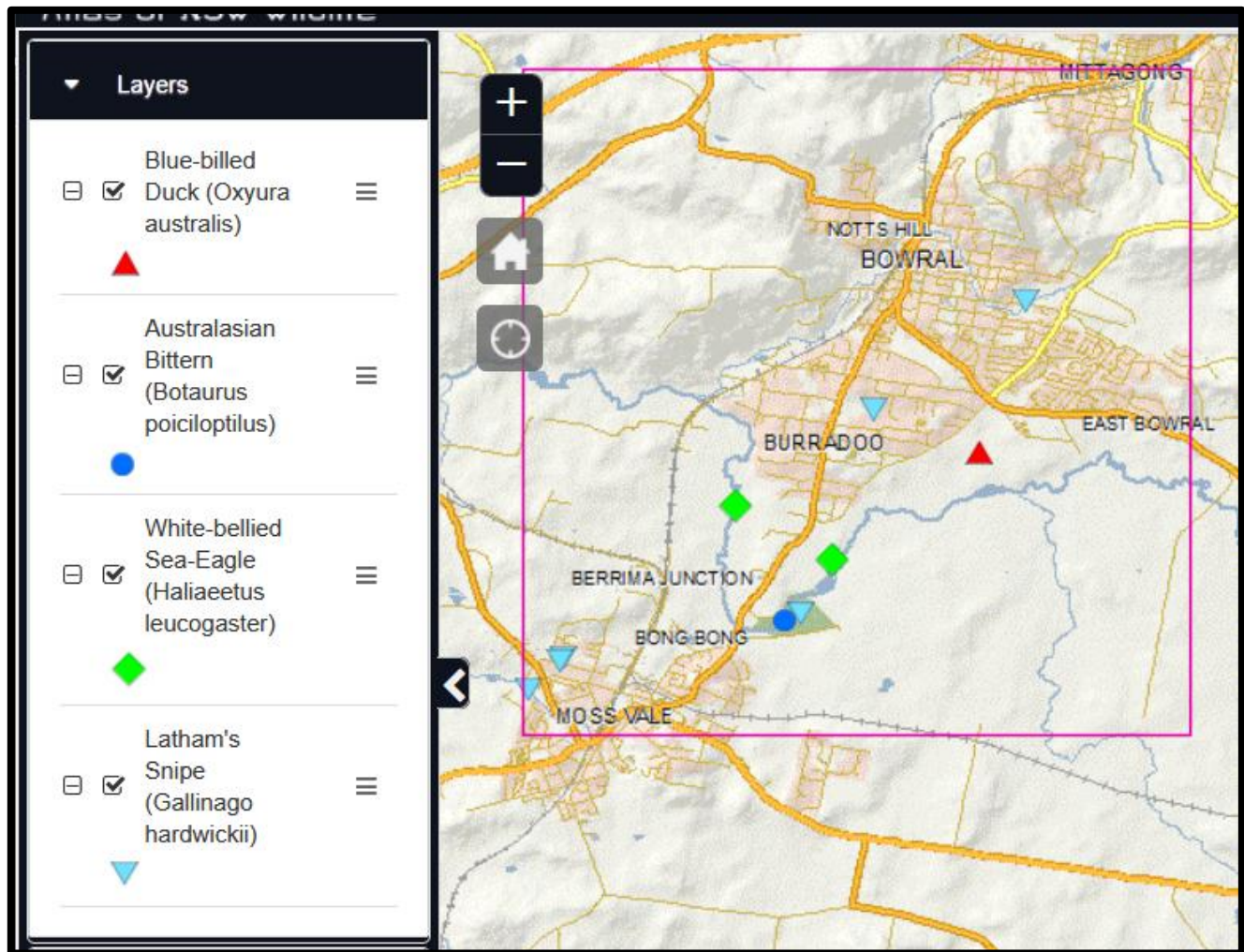


Table 12. Bionet Avian Species - Table 1

Common Name Scientific Name	Conservation Status (NSW/Com)	Species Habitat	Impact (Yes/No) Likelihood (Low/Medium/High)
Blue-billed Duck <i>Oxyura australis</i>	V/NA	Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic. Breed in Wetlands where they create nests in trampled vegetation. Species feeds far from the shore, particularly if dense cover is available in the central parts of the wetland. They feed on the bottom of swamps eating seeds, buds, stems, leaves, fruit and small aquatic insects such as the	No Impact No habitat presents within development area.

		larvae of midges, caddisflies and dragonflies.	
Australasian Bittern <i>Botaurus poiciloptilus</i>	E/E	Australasian Bittern favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha</i> spp.) and spikerushes (<i>Eleocharis</i> spp.). Breeding occurs in secluded densely wooded wetlands. Species feeds on frogs, fish, yabbies aquatic invertebrates and snails. Feeding occurs amongst dense vegetation.	No Impact No habitat presents within development area.
White-bellied Sea Eagle <i>Haliaeetus leucogaster</i>	V/NA	White-bellied Sea Eagle are found near areas of large open water. Breeding habitat often includes mature forest or woodland with an emergent layer. Adjacent emergent and dead trees are utilised as guard roosts. Species hunts fish and freshwater turtles as its primary prey but have been known to hunt waterbirds reptiles and carrion.	No Impact No habitat presents within development area.
Lantham's Snipe		Latham's snipe is a non-breeding visitor to south-eastern Australia and is a passage migrant through northern Australia. Species roosts singly and in aggregations. They shelter during the day in wetlands including urban water bodies, saltmarshes, as well as creek edges, where there is adequate shallow flooded or inundated substrate. They also use crops and pasture. They mostly are found among dense cover comprising common feed plants. The bird tends to disperse after dusk to forage over larger areas feeding in soft mudflats or shallow water typically at night, early morning, or evening. The species is omnivorous and feeds on seeds and other plant material (mainly from species in families such as Cyperaceae, Poaceae, Juncaceae, Polygonaceae, Ranunculaceae and Fabaceae), and on invertebrates including insects (mainly flies and beetles), earthworms, spiders, and occasionally molluscs, isopods, and centipedes.	No Impact No habitat presents within development area.

Map 18. Bionet Map showing post-2000 sightings of threatened avian species within a 10km x 10km area centred on the subject site.

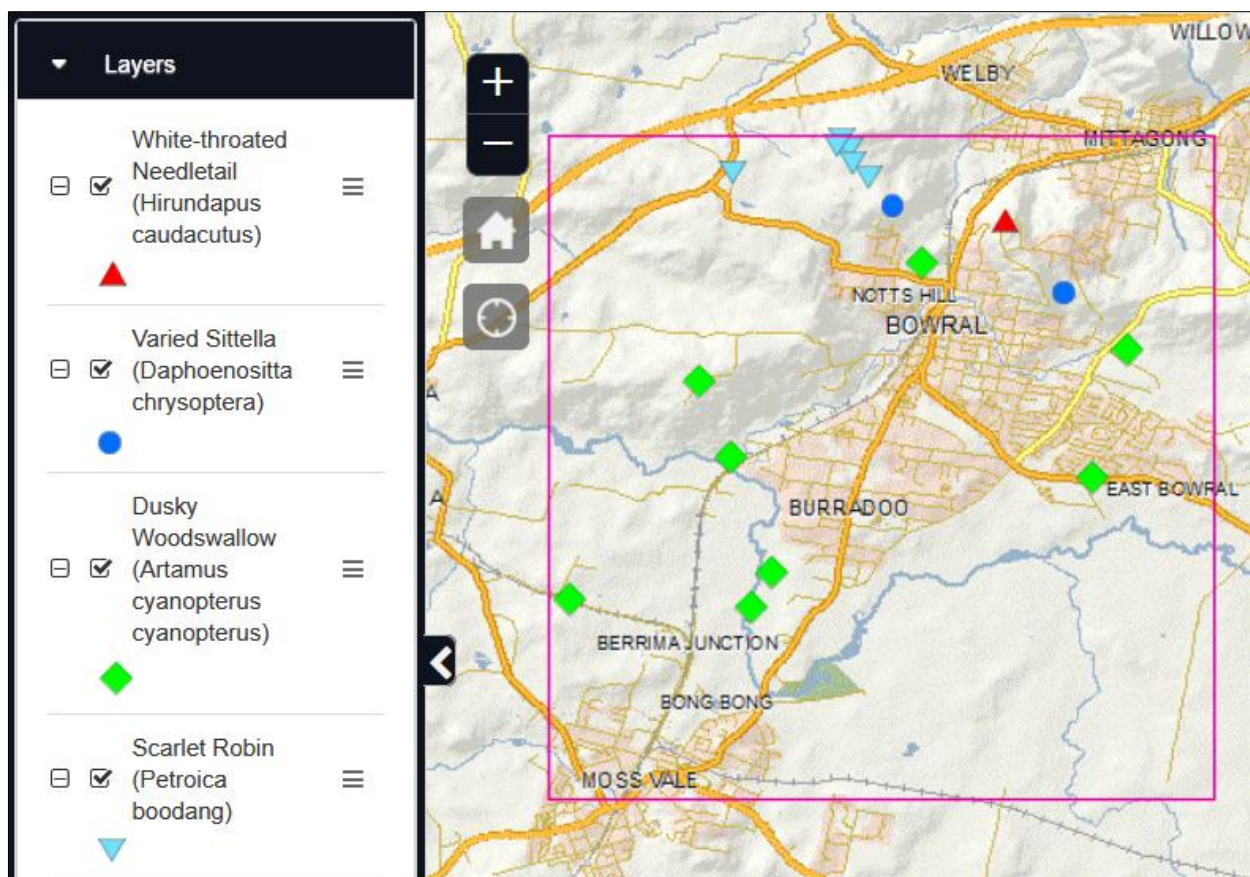


Table 13. Bionet Avian Species - Table 2

Common Name Scientific Name	Conservation Status (NSW/Com)	Species Habitat	Impact (Yes/No) Likelihood (Low/Medium/High)
White throated Needletail <i>Hirundapus caudacutus</i>	NA/V	Species is found to be highly mobile and arial found of a variety of habitats. Species is a non-breeding migrant species. Species feeds on flying insects, such as termites, ants, beetles and flies. It catches the insects in flight in their wide beaks. Birds usually feed in rising thermal currents associated with storm fronts and bushfires and they are commonly seen moving with wind fronts.	No Impact No habitat presents within development area.
Varied Sittella <i>Daphoenositta chrysoptera</i>	V,P/NA	Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland. Feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees and small branches and twigs in the tree canopy.	No Impact No habitat presents within development area.

Dusky Woodswallow <i>Artamus cyanopterus cyanopterus</i>	V/NA	Dusky Woodswallow occur in dry open eucalypt forest and woodlands including mallee associations. Habitat must have an open or sparse understory. Species can nest in a variety of places, within living or dead trees. Species primarily eats insects, but can consume nectar fruit and seeds.	No Impact No habitat presents within development area.
Scarlet Robin <i>Petroica boodang</i>	V/NA	Scarlet Robin can be found in dry open eucalypt forest and woodlands. Habitat must have an open or sparse understory. The ground layer must have a high degree of logs and fallen timber. Species breed habitat includes ridges, hills and foothills. They build an set within either a dead or living tree fork more then 2m above the ground. Birds forage from low perches, fence-posts or on the ground, from where they pounce on small insects and other invertebrates which are taken from the ground, or off tree trunks and logs; they sometimes forage in the shrub or canopy layer.	No Impact No habitat presents within development area.

Map 19. Bionet Map showing post-2000 sightings of threatened avian species within a 10km x 10km area centred on the subject site.

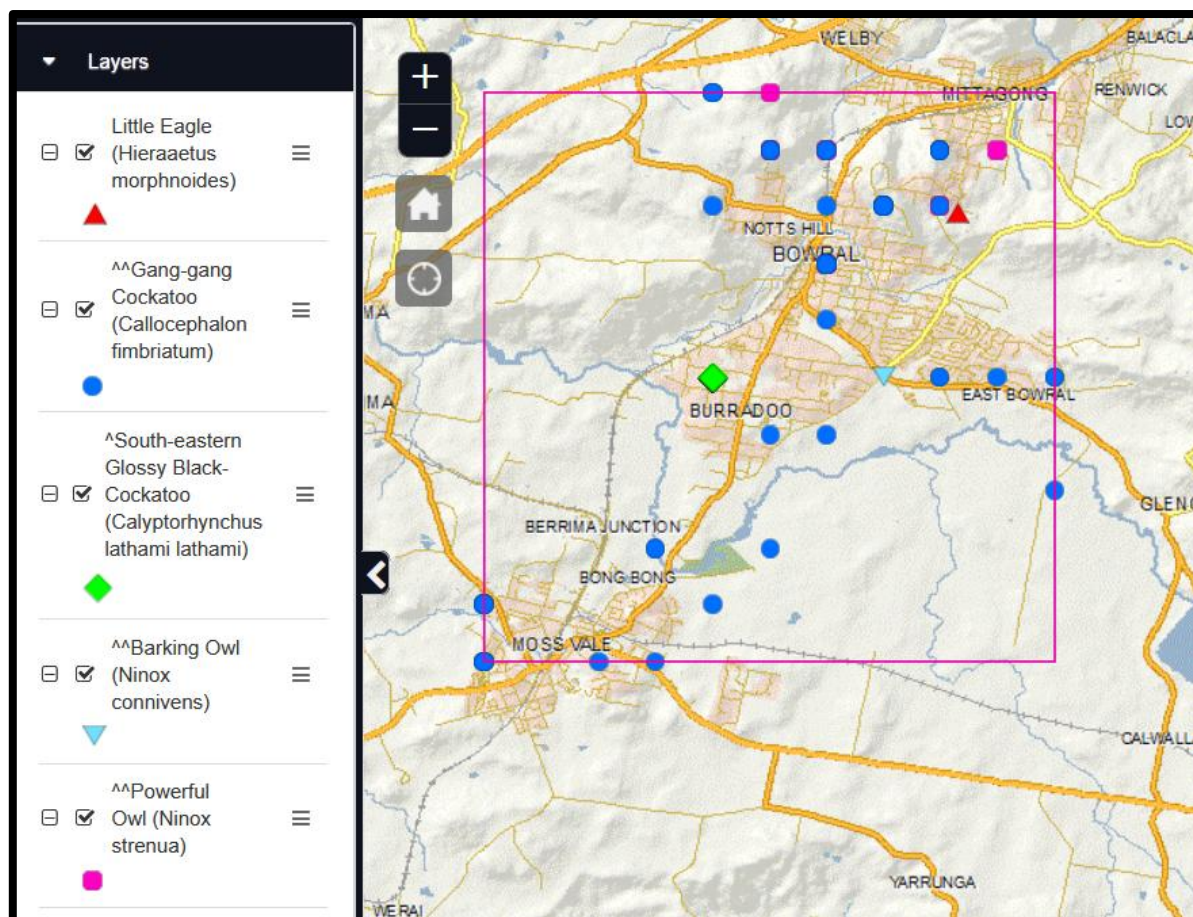


Table 14. Bionet Avian Species - Table 3

Common Name Scientific Name	Conservation Status (NSW/Com)	Species Habitat	Impact (Yes/No) Likelihood (Low/Medium/High)
Little Eagle <i>Hieraetus morphnoides</i>	V/NA	Little Eagle lives within open forest and woodland with predominantly eucalyptus tree cover. Within the interior they have been known to utilise casuarina/allocasurina woodlands or acacia scrub. Breeding habitat includes mature forests and woodlands building the nest in a tall living tree. Species hunts birds, reptiles and mammals primarily juvenile rabbits implying species lacks native prey abundance.	No Impact No habitat presents within development area.
Gang Gang Cockatoo <i>Callocephalon fimbriatum</i>	V/E	Gang Gang Cockatoo can be found in drier open eucalypt forests and woodlands with either a box-gum or box-ironbark assemblages. Habitat is often within the interior. Species breeds within old growth forests and woodlands as they require a eucalypt hollow measuring 7cm in diameter or larger at least 3m above the ground.	No Impact No habitat presents within development area.

		Species feeds on wattle and eucalypt seeds, but supplements diet with gall and sawfly larvae.	
Glossy Black Cockatoo <i>Callocephalon lathami</i>	V/V	Species can be found along the coast and within the great dividing range where open forest and woodland occur. There forests must contain stands of allocasurina or casuarina. Species breeds in large eucalypt hollows. Species feeds on the seeds of allocasurina and casuarina species.	No Impact No habitat presents within development area.
Barking Owl <i>Ninox connivens</i>	V/NA	Barking Owl is found within open forests and woodlands and is versatile in its habitat use. Can use heavily timbered water courses in areas with high clearing. Species requires habitat to contain dense vegetation or hollows for day roosts. Species breeds in large eucalypt hollow. Species hunts for small arboreal mammals but can hunt birds, invertebrates and terrestrial mammals.	No Impact No habitat presents within development area.
Powerful Owl <i>Ninox strenua</i>	V/NA	Powerful Owl inhabits a range of vegetation types including woodland, open forest, wet forest and rainforest. Species requires habitat to contain dense vegetation or hollows for day roosts. Species requires a large hollow for breed habitat with a depth of 0.5m and a breast height of 80-240cm. These can only occur in trees at least 150 years old. Species has a large hunting range with primary prey been Greater Glider, Common Ringtail Possum and Sugar Glider. Secondary Prey includes Flying Foses and Birds.	No Impact No habitat presents within development area.

Table 15. Protected Matters Avian Species (Only Species not in Bionet Search)

Common Name Scientific Name	Conservation Status (NSW/Com)	Species Habitat	Impact (Yes/No) Likelihood (Low/Medium/High)
Regent Honey Eater <i>Anthochaera phrygia</i>	CE/CE	Regent Honey Eater is a migratory species that inhabits dry forest and woodland particularly Box-Ironbark woodland or riparian casuarina cunninghamiana forests. Species requires large number of flowering mature trees with high canopy cover and abundance of native mistletoe species. Species only has two known breed habitat in NSW - Capertee Valley and Bundarra-Barraba regions. Species is a generalist nectivore but feeds on high nectar volume trees including:	No Impact No habitat presents within development area.

		• Mugga Ironbark <i>E. sideroxylon</i>, • Yellow Box <i>E. melliodora</i>. • White Box <i>E. albens</i>. • Swamp Mahogany <i>Eucalyptus robusta</i> In addition, mistletoe species including <i>Amyema miquelii</i>, <i>A. pendula</i> and <i>A. cabbagei</i> are also utilised along with insects which are important for nestlings.	
Southern Whiteface <i>Aphelocephala leucopsis</i>		Southern Whiteface live in a wide range of open woodland and shrublands where there is a grassy or shrubby understory. These habitats are either dominated by acacias or eucalypts. Species breed habitat includes hollows, cracks or shrubs that provide a high degree of shelter. Species feeds in habitats with low tree densities and a herbaceous understory that provides leaf litter. Species feeds on insects, arachnids or seeds.	No Impact No habitat presents within development area.
Brown Treecreeper <i>Climacteris picum</i>	V/NA	Brown Tree Creeper occur in eucalypt forests and woodlands of the inland plains. Habitat is dominated by rough barked eucalypts with an open grassy understory with some shrubs. Species also be found in forests bordering wetlands with a similar understory structure. Hollows in standing dead or live trees and tree stumps are essential for nesting Species forages in leaf litter, tussocks and fallen timber, and along trunks and lateral branches for ants which make up 80% of its diet. The remaining 20% includes other insects, ironbark and paper bark nectar and small reptiles.	No Impact No habitat presents within development area.
Grey Falcon <i>Falco hypoleucos</i>	V/V	Grey Falcon is restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions. Species utilises old nests of other birds of prey. Preys primarily on birds, especially parrots and pigeons, using high-speed chases and stoops; reptiles and mammals are also taken.	No Impact No habitat presents within development area.
Painted Honey Eater <i>Grantiella picta</i>	V/V	Species is found in Boree/ Weeping Myall (<i>Acacia pendula</i>), Brigalow (<i>A. harpophylla</i>) and Box-Gum Woodlands and Box-Ironbark Forests. Breeding Habitat often includes outer canopy of drooping eucalypts, sheoak, paperbark or mistole branches. Species is a specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus <i>Amyema</i>. Insects and nectar from mistletoe or eucalypts are occasionally eaten	No Impact No habitat presents within development area.
Swift Parrot <i>Lathamus discolor</i>	E/CE	Swift Parrot is a migratory species, on the mainland they are found in areas with abundant eucalypt flowers or larp infestations. Swift Parrots feed on winter feed tree species	No Impact No habitat presents

		while on the mainland these include: Swamp Mahogany <i>Eucalyptus robusta</i> Bloodwood <i>Corymbia maculata</i> & <i>Corymbia gummifera</i> Forest Red Gum <i>E. tereticornis</i>, Mugga Ironbark <i>E. sideroxylon</i>, Boxes <i>E. albens.</i> & <i>E. melliodora</i>. Species also includes Lerp Infested Trees commonly: Grey Box <i>E. macrocarpa</i> Grey Box <i>E. moluccana</i> Blacktutt <i>E. pilularis</i>	within development area.
South-eastern Hooded Robin, Hooded Robin (south-eastern) <i>Melanodryas cucullata cucullata</i>	V/NA	Hooded Robin prefer lightly wooded open eucalypt woodland or acacia scrub or mallee. Habitat must be structurally diverse featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses. Species breeds in trees with a tree fork or crevice from 1 to 5m. Hunting area features a perch of low branches, dead stumps or fallen timber where they pounce on insects.	No Impact No habitat presents within development area.
Blue Winged Parrot <i>Neophema chrysostoma</i>	V/V	Blue Winged Parrot is a migratory species that inhabits coastal, subcoastal and inland areas through to semi-arid zones. Favoured habitat includes grasslands, grassy woodlands and wetlands. Species is a non-breeding migrant species. Species feeds on native grasses, herbs and shrubs. Species has an association with Orange-bellied Parrots.	No Impact No habitat presents within development area.
Pilotbird <i>Pycnoptilus floccosus</i>	V/NA	Pilotbird are strictly terrestrial and require dense forest with heavy undergrowth. Breeding takes place in domed nests on or near the ground. Species feeds on insects but can eat seeds and fruits. There is a known association with Superb Lyrebirds which are utilised as a source of disturbance to make finding prey easier.	No Impact No habitat presents within development area.
Diamond Firetail <i>Stagonopleura guttata</i>	V/NA	Dimond Firetail are found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum <i>Eucalyptus pauciflora</i> Woodlands. Riparian areas are often observed. Species roosts in dense shrubs and smaller nests. Feeds exclusively on the ground, on ripe and partly-ripe grass and herb seeds and green leaves, and on insects (especially in the breeding season).	No Impact No habitat presents within development area.

Fish

Table 16. Protected Matters Fish Species (Only Species not in Bionet Search)

Common Name Scientific Name	Conservation Status (NSW/Com)	Species Habitat	Impact (Yes/No) Likelihood (Low/Medium/High)
Macquarie Perch <i>Macquaria australasica</i>	E	Found in the east coast drainage systems, native to the Hawkesbury/Nepean, Georges and Shoalhaven rivers in New South Wales. Spawn from October to December at sites located at the downstream end of pools, with eggs then drifting downstream to lodge amongst gravel and cobble in riffles	No Impact No habitat presents within development area.

Amphibia

Table 17. Protected Matters Amphibian Species (Only Species not in Bionet Search)

Common Name Scientific Name	Conservation Status (NSW/Com)	Species Habitat	Impact (Yes/No) Likelihood (Low/Medium/High)
Southern Heath Frog, Watson's Tree <i>Litoria watsoni</i>	E/E	This species breeds in the upper reaches of permanent streams and in perched swamps. Non-breeding habitat is heath based forests and woodlands where it shelters under leaf litter and low vegetation, and hunts for invertebrate prey either in shrubs or on the ground.	No Impact No habitat presents within development area.

Mammalia

Map 20. Bionet Map showing post-2000 sightings of threatened mammal species within a 10km x 10km area centred on the subject site.

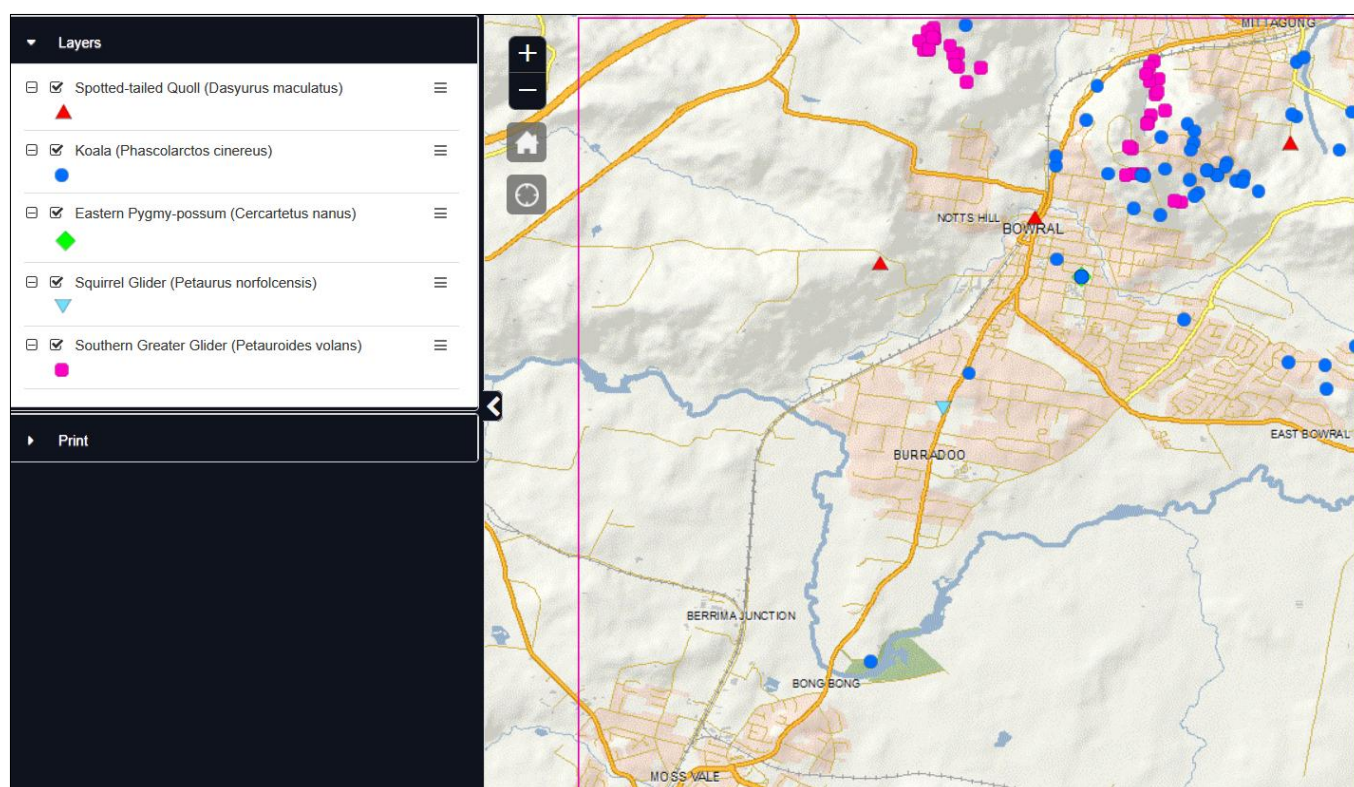


Table 18. Bionet Mammalian Species – Table 1

Common Name Scientific Name	Conservation Status (NSW/Com)	Species Habitat	Impact (Yes/No) Likelihood (Low/Medium/High)
Tiger Quoll <i>Dasyurus maculatus</i>	V/E	Tiger quolls live in various environments, including forests, woodlands, coastal heathlands and rainforests. They are sometimes seen in open country or on grazed areas and rocky outcrops. They will make their dens in rock shelters, small caves, hollow logs and tree hollows. They use these dens for shelter and to raise young. Species hunt a variety of prey including gliders, possums, small wallabies, rats, birds, bandicoots, rabbits, insects and reptiles. They also scavenge on carrion and may take domestic fowl.	No Impact No habitat presents within development area.
Koala <i>Phascolarctos cinereus</i>	E/E	Species can be found in areas with eucalypt woodlands and forests. Breeding Habitat often is made of a large male territory with several overlapping female territories. Species feeds on a variety of eucalypt species, for greater detail see Exert X	No Impact No habitat presents within development area.
Eastern Pygmy-possum <i>Cercartetus nanus</i>	V/NA	Species lives across wide range of timbered habitats, often with a shrubby understory but have been known to live within grassland habitats with scattered eucalypts. Breeding habitat includes tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Possum dreys or thickets of vegetation, (e.g. grass-tree skirts) in which a female will build a nest. In areas lacking this structural habitat they can be found underbark. Species feeds on the pollen of eucalypts, banksias and bottlebrushes.	No Impact No habitat presents within development area.
Squirrel Glider <i>Petaurus norfolcensis</i>	V,P/NA	Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas. Require abundant tree hollows for refuge and nest sites. Diet varies seasonally and consists of Acacia gum, eucalypt sap, nectar, honeydew and manna, with invertebrates and pollen providing protein.	No Impact No habitat presents within development area.
Greater Glider <i>Petauroides volans</i>	E/E	Greater Glider inhabits open eucalyptus forest and woodlands. They occupy relatively small ranges.	No Impact No habitat presents within development

		Breed habitat includes a hollows in eucalypts Species forage includes eucalypt leaves, buds, flowers and mistletoe	area.
--	--	---	-------

Map 21. Bionet Map showing post-2000 sightings of threatened mammal species within a 10km x 10km area centred on the subject site.

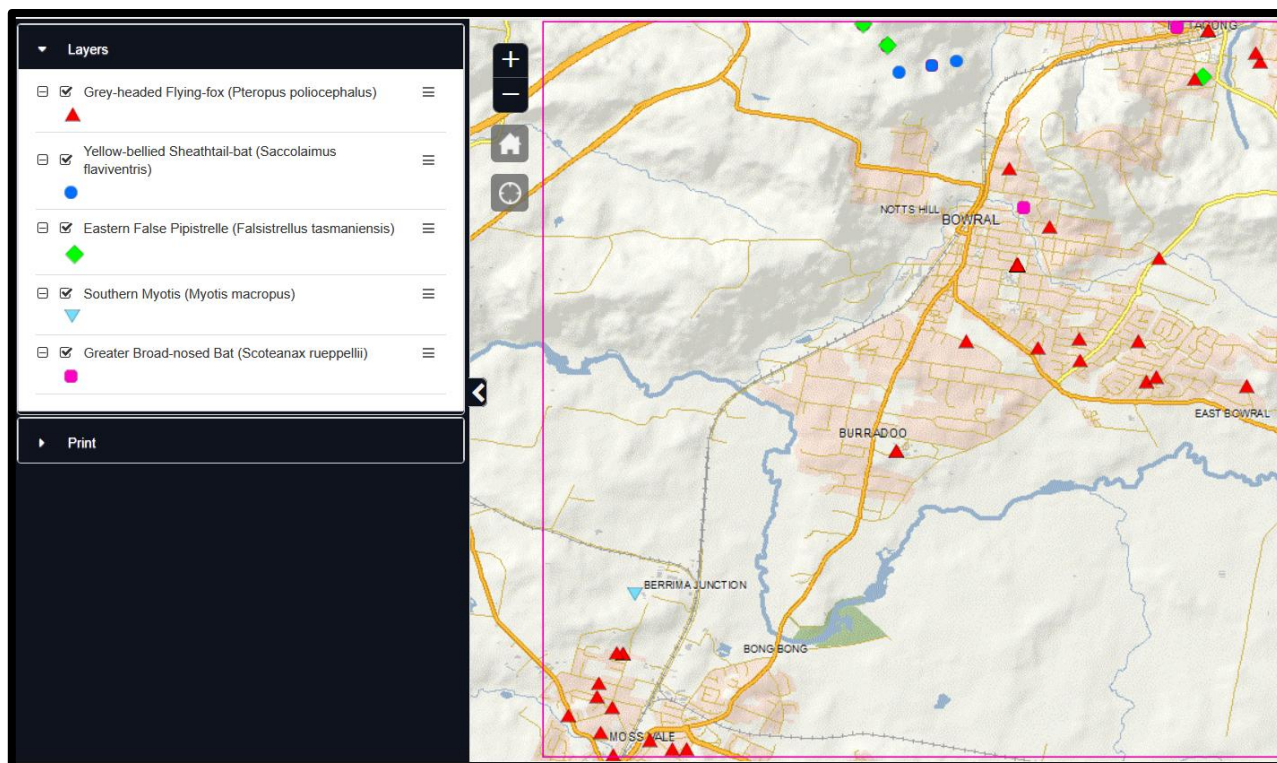


Table 19. Bionet Mammalian Species – Table 2

Common Name Scientific Name	Conservation Status (NSW/Com)	Species Habitat	Impact (Yes/No) Likelihood (Low/Medium/High)
Grey Headed Flying Fox <i>Pteropus poliocephalus</i>	V/V	Species can be found in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Subject site is dry rainforest and therefore suitable. Breeding Habitat is made of large roosting camps that are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Species feeds on both fruit and nectar from a wide variety of tree species. Including Sweet Pittosporum, and rough barked apple, spotted gum.	No Impact No habitat presents within development area.

Yellow-bellied Sheath tail-bat <i>Saccolaimus flaviventris</i>	V,P/NA	This species occupies most wooded habitats, including both wet and dry sclerophyll forest, mallee and Acacia shrubland, desert, and open woodland. They are a hollow-roosting species, so tend to be found in proximity of adequate old-growth trees Yellow-bellied Sheath tail Bats feed on flying insects, including beetles. They fly quickly but are not good at twisting and turning when chasing their prey. However, they also feed on insects living in open forests and open grasslands.	No Impact No habitat presents within development area.
Eastern False Pipistrelle <i>Falsistrellus tasmaniensis</i>	V,P/NA	Eastern False Pipistrelle live in moist habitats with trees taller than 20m. Generally roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings. Feeds on beetles, moths, weevils and other flying insects.	No Impact No habitat presents within development area.
Southern Myotis <i>Myotis Macropus</i>	V/NA	The Southern Myotis is found in the coastal band from the north-west of Australia, across the top-end and south to western Victoria. It is rarely found more than 100 km inland, except along major rivers. Generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. Forage over streams and pools catching insects and small fish by raking their feet across the water surface.	No Impact No habitat presents within development area.
Greater Broad nosed Bat	V/NA	The Greater Broad-nosed Bat is found mainly in the gullies and river systems that drain the Great Dividing Range, however does not occur at altitudes above 500 m. It is most common in tall wet forest but has been observed in woodland through to rainforest. Females congregate at maternity sites located in suitable trees. Forages after sunset, flying slowly and directly along creek and river corridors at an altitude of 3 - 6 m.	No Impact No habitat presents within development area.

Map 22. Bionet Map showing post-2000 sightings of threatened mammal species within a 10km x 10km area centred on the subject site.

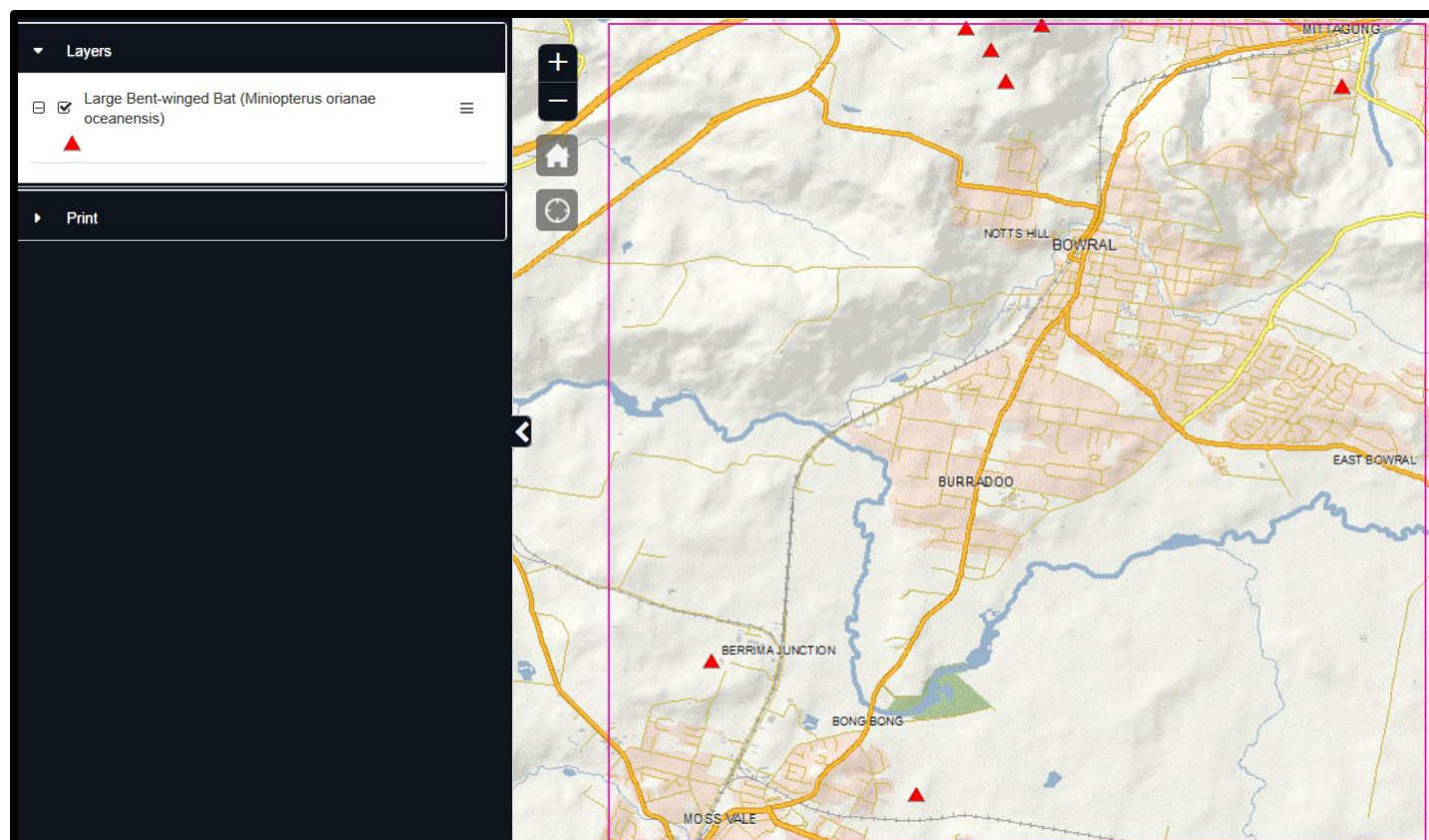


Table 20. Bionet Mammalian Species – Table 3

Common Name Scientific Name	Conservation Status (NSW/Com)	Species Habitat	Impact (Yes/No) Likelihood (Low/Medium/High)
Large Bent-winged Bat <i>Miniopterus orianae oceanensis</i>	V/NA	Species can be found in areas around suitable roosting areas/breeding habitat that are in proximity to forests but have also been seen in wetlands and coastal vegetation. Breeding Habitat for this species discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young. They are often in caves or abandoned mines. Species feeds in forested areas, catching moths and other flying insects above the tree tops.	No Impact No habitat presents within development area.

Table 21. Protected Matters Mammalian Species (Only Species not in Bionet Search)

Common Name Scientific Name	Conservation Status (NSW/Com)	Species Habitat	Impact (Yes/No) Likelihood (Low/Medium/High)
Large Pied Bat <i>Chalinolobus dwyeri</i>	V/V	Large Pied Bat requires areas of canopied habitat that are located near their temporary roost sites which can include cliffs, mines, escarpment, cracks, or rocky outcrops. Maternity Roost sites are specific requiring caves that have indentations in the roof and are high and deep enough for juvenile bats to learn to fly inside. Species forages in areas of vegetation that are canopied.	No Impact No habitat presents within development area.
Southern Brown Bandicoot <i>Isoodon obesulus</i>	E/E	Southern Brown Bandicoot inhabits areas of dense vegetation including wetland fringes and heathlands. They are generally only found in heath or open forest with a heathy understorey on sandy or friable soils. Species nests under thickets of plants, or in the burrow of a different species. The species is omnivorous and forages for food in areas of leaf litter and soil. Species is known to feed on insects, fungi, plant roots and bulbs.	No Impact No habitat presents within development area.
Yellow-bellied Glider <i>Petaurus australis</i>	V/V	Species occurs in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. However, forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south. Species requires hollows for nest. Breed habitat is a den in a large hollow, in which enough space for the family group of two to six individuals. Feed habitat is primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein. Species is mobile able to utilise a territory of 20 to 85 ha.	No Impact No habitat presents within development area.
Pookila <i>Pseudomys novaehollandiae</i>	NA/V	Species is known to inhabit open heath and woodlands with a heathland understorey. This includes areas of vegetated sand dunes. Species shelters in burrows underground. Species feeds on seeds accessible from the ground.	No Impact No habitat presents within development area.

Reptilia

Table 22. Protected Matters Reptilian Species (Only Species not in Bionet Search)

Common Name Scientific Name	Conservation Status (NSW/Com)	Species Habitat	Impact (Yes/No) Likelihood (Low/Medium/High)
Broad-headed Snake <i>Hoplocephalus bungaroides</i>	E/V	Species habitat is limited to woodland and forests within 1km of an exposed sandstone ridge, escarpment, outcrop, slope or bluff. Specific structural habitat includes both dead and live hollow bearing trees, with shrubs and logs providing ground based cover. Species utilises most forms of rocky shelters depending on the season including narrow close fit gaps, deep crevasses and honey comb formations. Primary Prey species is lizards with zigzag velvet gecko been of high importance This species occupies deteriorating trees where it preys on insects and bushrock where it hides during the day.	No Impact No habitat presents within development area.
Pink-tailed Worm-lizard, Pink-tailed Legless Lizard <i>Aprasia parapulchella</i>	V/NA	Prefers well-drained sites with rocky outcrops or scattered, partially-buried rocks. Inhabits sloping open woodland areas that are dominated by a native grassy groundlayer, especially Kangaroo grass (<i>Themeda australis</i>). Feeds on the larvae and eggs of ants.	No Impact No habitat presents within development area.

Flora

Table 23. Bionet Flora Species

Common Name Scientific Name	Conservation Status (NSW/Com)	Species Habitat	Impact (Yes/No) Likelihood (Low/Medium/High)
Cobbler's Pegs <i>Brachyscome mittagongensis</i>	E	No Habitat Present	No Impact Not Identified
Purple Cudweed <i>Helichrysum calvertianum</i>	V/V	No Habitat Present	No Impact Not Identified
Black Gum <i>Eucalyptus aggregata</i>	V/V	No Habitat Present	No Impact Not Identified
Paddys River Box, Camden Woollybutt <i>Eucalyptus macarthurii</i>	E/E	No Habitat Present	No Impact Not Identified
Mittagong Geebung <i>Persoonia glaucescens</i>	V/V	No Habitat Present	No Impact Not Identified

Table 24. Protected Matters Flora Species (Only Species not in Bionet Search)

Common Name Scientific Name	Conservation Status (NSW/Com)	Species Habitat	Impact (Yes/No) Likelihood (Low/Medium/High)
Bynoe's Wattle <i>Acacia bynoeana</i>	/V	No Habitat Present	No Impact Not Identified
Dwarf Kerrawang <i>Commersonia prostrata</i>	/E	No Habitat Present	No Impact Not Identified
Leafless Tongue- orchid <i>Cryptostylis</i>	/V	No Habitat Present	No Impact Not Identified

hunteriana			
Yellow Gnat-orchid Genoplesium bauri	/E	No Habitat Present	No Impact Not Identified
Woronora Beard-heath Leucopogon exolasius	/V	No Habitat Present	No Impact Not Identified
Knotweed Persicaria elatior	/V	No Habitat Present	No Impact Not Identified
Persoonia mollis subsp. revoluta	/V	No Habitat Present	No Impact Not Identified
Persoonia oxycoccoides	/E	No Habitat Present	No Impact Not Identified
Rufous Pomaderris Pomaderris brunnea	/V	No Habitat Present	No Impact Not Identified
Cotoneaster Pomaderris Pomaderris cotoneaster	/E	No Habitat Present	No Impact Not Identified
Eastern Underground orchid Rhizanthella slateri	/E	No Habitat Present	No Impact Not Identified
Kangaloon Sun Orchid Thelymitra kangaloonica	/CE	No Habitat Present	No Impact Not Identified
Austral Toadflax Thesium australe	/V	No Habitat Present	No Impact Not Identified
Swamp Everlasting Xerochrysum palustre	/V	No Habitat Present	No Impact Not Identified

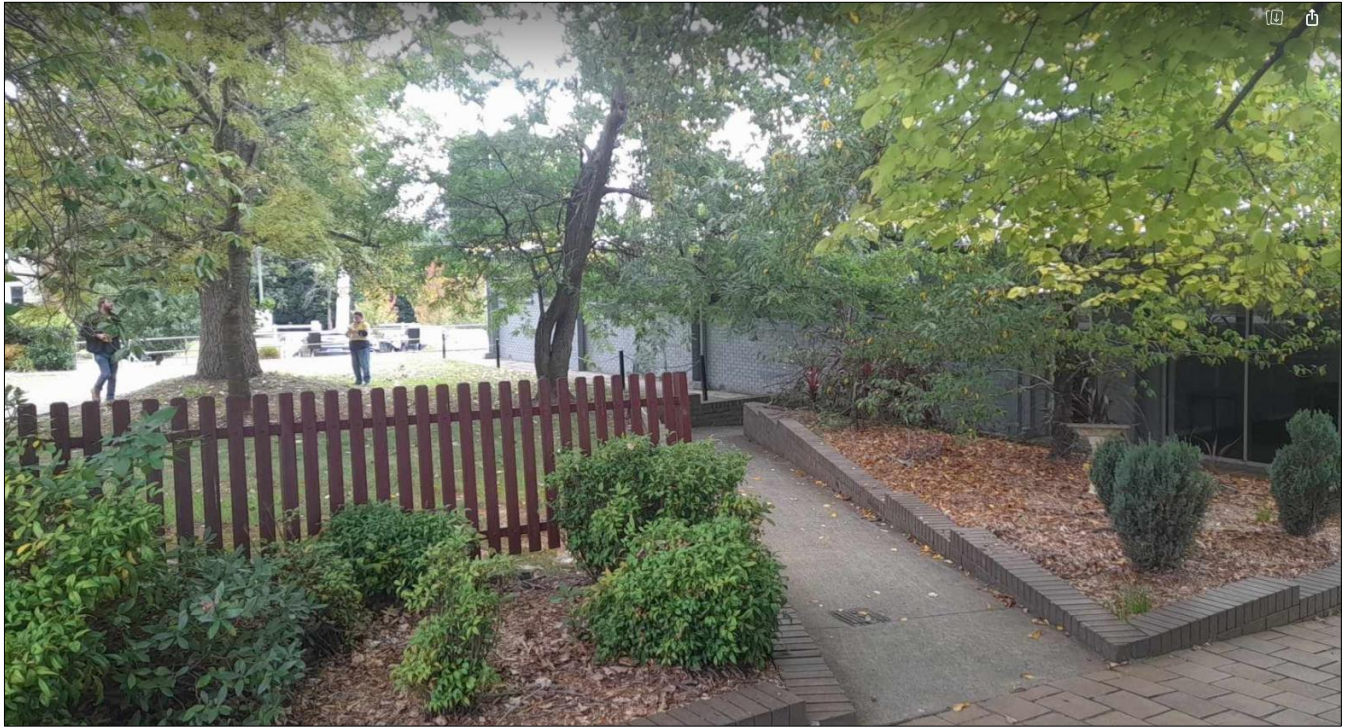
Appendix C: Site Data

Plot 1 (10m x 10m)

Description

Plot 1 is made up of several maintained, primarily exotic, ornamental garden beds not associated with any local PCTs. Three large, exotic trees make up the canopy (90% cover). A brick and concrete path separates the garden beds. The mulch layer appears as a consistent layer of fallen leaves.

Site image. Vegetation plot 1



Site image. Plot 1.



Table 25. Plot 1 (Garden Bed) - Structural Habitat

Plot 1 Habitat Structure	
Overall Vegetation/Habitat Description of Site and Adjacent Area	Plot 1 is a primarily exotic, ornamental garden bed not associated with any local PCTs. The plot consist of two garden beds with a brick and concrete path between.
Emergent Layer Structure	
Canopy Structure	90% canopy cover Liquidambar, Ulmus Spp. & Acer Spp
Shrub Layer Structure	Approximate 40% cover. Exotic, ornamental plantings.
Ground Layer Structure	Maintained garden bed with 100% leaf litter. Scattered Ivy and Violets.
Rocky Structural Habitat	None
Aquatic Habitat	None

Table 26. Plot 1 – Vegetation Identification (Native Species Highlighted)

Plot 1 Vegetation Identification				
Common Name Scientific Name	Growth Form	Indigenous Species (Found in onsite PCTs)	Diagnostic species for PCTs Studied	Associated TECs Onsite/Threatened Status
Sweet Gum <i>Liquidambar</i>	Tree	X	X	X
<i>Acer spp.</i>	Tree	X	X	X
<i>Ulmus spp.</i>	Tree	X	X	X
Crab Apple <i>Malus spp.</i>	Tree	X	X	X
Red Cabbage Palm <i>Cordyline fruticosa</i>	Shrub	X	X	X
Nandina <i>Nandina domestica</i>	Shrub	X	X	X
Chinese Juniper <i>Juniperus chinensis</i>	Shrub	X	X	X
Queen Charlotte <i>Eriocapitella hupehensis</i>	Shrub	X	X	X
Winter Daphe <i>Daphne odora</i>	Shrub	X	X	X
Native Violet <i>Viola Hederacea</i>	Ground cover	Yes	Yes	Yes
Lilly bulbs	Forb	X	X	X
Onion Weed	Grass	X	X	X
English Ivy	Vine	X	X	X

Plot 2 (10m x 10m)

Description

Plot 2 is primarily made up of exotic grasses and forbs. One Carolina Poplar sits within the open grass area.

Site image. Plot 2.



Site image. Plot 2.



Table 27. Plot 2 - Structural Habitat

Plot 1 Structure	
Overall Vegetation/Habitat Description of Site and Adjacent Area	Primarily exotic grassed area with an exotic tree.
Canopy Structure	1 x exotic tree within plot covers 10%.
Shrub Layer Structure	None
Ground Layer Structure	Made up of primarily exotic grasses and forbs
Rocky Structural Habitat	None
Aquatic Habitat	None

Table 28. Plot 2 – Vegetation Identification (Native Species Highlighted)

Plot 2 Vegetation Identification				
Common Name Scientific Name	Growth Form	Indigenous Species (Found in onsite PCTs)	Diagnostic species for PCTs Studied	Associated TECs Onsite/Threatened Status
Carolina Poplar <i>Populus canadensis</i>	Tree	X	X	X
Buffalo Grass <i>Bouteloua dactyloides</i>	Grass	X	X	X
Zoysia sp. (Carpet Grass)	Grass	X	X	X
Dallis Grass <i>Paspalum dilatatum</i>	Grass	X	X	X
Bermuda Grass <i>Cynodon dactylon</i>	Grass	X	X	X
Catsear <i>Hypochaeris radicata</i>	Forb	X	X	X
Dandelion <i>Taraxacum spp.</i>	Forb	X	X	X
Clover <i>Trifolium spp.</i>	Forb	X	X	X
Exotic Sorrel <i>Oxalis</i>	Forb	X	X	X
English Ivy <i>Hedera helix</i>	Vine	X	X	X
Goosegrass <i>Galium murale</i>	Grass	X	X	X
American Mallow <i>Modiola caroliniana</i>	Forb	X	X	X
Kidney Weed <i>Dichondra repens</i>	Forb	Yes	Yes	Yes

Species Observations

Flora species that were present within the development footprint but not identified within any plots, and any fauna observed during the site visit.

Table 29. Fauna Species Observations

Fauna Species	
Common Name	Observation
Sulphur Crested Cockatoo	Seen roosting in nearby trees.
Raven	Seen feeding in bins

Table 30. Flora Species Observations

Flora Species	
Common Name Scientific Name	Observation
Weeping Bottlebrush Callistemon Viminalis	Single tree regrowing from cut stump
Black Tea Tree Melaleuca bracteata	Small hedge formed at top of retaining wall
Lomandra sp	Used as an amenity planting

Appendix D:

Table 31. Native Planting Species

Trees	Shrubs	Forbes
Eucalyptus cypellocarpa	Acacia mearnsii	Dichondra repens
Eucalyptus globoidea	Rubus parvifolius	Veronica plebeia
Eucalyptus elata	Leucopogon lanceolatus	Oxalis perennans
Eucalyptus obliqua	Olearia viscidula	Stellaria pungens
Angophora floribunda	Podolobium ilicifolium	Asperula conferta
Eucalyptus fastigata	Solanum aviculare	Hypericum gramineum
Eucalyptus piperita	Bursaria spinosa	Viola betonicifolia
Eucalyptus punctata	Cassinia aculeata	Acaena novae-zelandiae
Eucalyptus sieberi	Exocarpos cupressiformis	Hydrocotyle laxiflora
Eucalyptus tereticornis	Indigofera australis	Desmodium gunnii
Eucalyptus viminalis	Acacia longifolia	Gonocarpus tetragynus
Acacia parramattensis	Acacia stricta	Opercularia diphylla
Allocasuarina littoralis	Daviesia latifolia	Geranium solanderi
Eucalyptus amplifolia	Hibbertia empetrifolia subsp. empetrifolia	Poranthera microphylla
Eucalyptus dalrympleana	Persoonia linearis	Viola hederacea
Eucalyptus macarthurii	Polyscias sambucifolia	Wahlenbergia gracilis
Eucalyptus ovata	Acacia floribunda	Dianella caerulea
Eucalyptus pauciflora	Cassinia quinquefaria	Einadia nutans
Eucalyptus quadrangulata	Cassinia uncata	Hydrocotyle sibthorpioides
Eucalyptus smithii	Coprosma quadrifida	Lobelia purpurascens
Notelaea longifolia	Daviesia corymbosa	Plantago varia
Ferns	Daviesia ulicifolia	Dianella longifolia
Pteridium esculentum	Exocarpos strictus	Euchiton involucratus
Adiantum aethiopicum	Hibbertia obtusifolia	Geranium potentilloides
Lindsaea linearis	Leptospermum polygalifolium	Ranunculus lappaceus
Doodia aspera	Notelaea venosa	Senecio prenanthoides
Pellaea falcata	Olearia erubescens	Coronidium scorpioides
Pyrrosia rupestris	Phyllanthus hirtellus	Einadia trigonos
Grass	Pimelea linifolia	Galium leiocarpum
Lomandra longifolia	Pittosporum undulatum	Goodenia hederacea
Lomandra multiflora		Oreomyrrhis eriopoda
Poa sieberiana		Rumex brownii
Poa labillardierei var. labillardierei		Senecio linearifolius

