AEP

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NEWCASTLE SYDNEY

Ecological Assessment Report

Proposed Function Centre and Bar/Restaurant at 29, 33 & 35 Grey Street, Clarence Town 2321 NSW

Prepared for: WRS Investments

4 November 2024

AEP Ref: 3145

Revision: 02

Newcastle | Sydney

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Document Control

Document Name	Ecological Assessment Report for Proposed Function Centre and Bar/Restaurant at 29, 33 & 35 Grey Street Clarence Town 2321 NSW
Project Number	3145
Client Name	Williams River Steel
AEP Project Team	Kelly Drysdale Alissa Rodgers Simon Purcell Natalie Black Jeremy Burrill Liam Parry Callum Reedman Catherine Scobie

Revision

Revision	Date	Author	Reviewed	Approved
01	6th October 2023	Kelly Drysdale	Simon Purcell	Natalie Black
02	4th November 2024	Liam Parry	Kelly Drysdale	Simon Purcell

Distribution

Revision	Date	Name	Organisation
01	6th October 2023	Graham Bates	Perception Planning
02	4th November 2024	Kris Webb	Williams River Steel

EXECUTIVE SUMMARY

Anderson Environment and Planning (AEP) was commissioned by Williams River Steel (WRS) (the proponent) to undertake an Ecological Assessment Report (EAR) for a Proposed Function centre and Bar/Restaurant Development at 29, 33 & 35 Grey Street, Clarence Town, NSW 2321 which includes Lots 1/3 DP 758250, 3/3/DP758250 and 20/3/DP758250 respectively.

This report is specifically intended to indicate the likelihood of the proposed development and future development of the land to have a significant impact on potentially occurring threatened species or ecological communities. In this regard, the report aims to recognise the relevant requirements of the *Environmental Planning & Assessment Act 1979*, *the Biodiversity Conservation Act 2016* (NSW) (BC Act) and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Subject Site, which totals approximately 0.58ha, is comprised of three (3) lots that gradually slope from north to south. The two lots in the north include patches of degraded native vegetation with large canopy trees. Mid-storey is mostly absent apart from the unmaintained storm water drainage line that runs east - west through the Subject Site which contains a disturbed understorey. The remainder of the Subject Site is highly disturbed and heavily managed, consisting of a managed exotic dominated grass lawn surrounding an existing business dwelling.

Ground-truthing of the vegetation within the Subject Site confirmed the presence of cleared Non-Native Vegetation (0.38ha) and a smaller section (0.21ha) of two Plant Community Types (PCT's);

- PCT 3975 - *Southern Lower Floodplain Freshwater Wetland* (0.065ha) which is associated with a threatened ecological community (TEC); *Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*; and
- PCT 3433 - *Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest* (0.14ha) which is associated with a threatened ecological community (TEC); of *Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions.*

Further assessment within the 5-part test was made for both associated TECs and it was confirmed that both were not commensurate with the above mentioned TEC's.

Fauna and flora species recorded were typical of those expected in this locality and in this type of degraded remnant habitat with minimal existing connection to larger patches of habitat offsite. No threatened fauna or flora species were recorded within the Study Area.

Assessment under the 5-part test determined that no significant impacts upon threatened entities listed under the BC Act are likely to occur if mitigation measures are implemented, and consideration of the EPBC Act revealed that impacts on Matters of National Environmental Significance are unlikely occur, and a referral to the Commonwealth is not required.

Assessments under the *Biodiversity Conservation Act 2016* (BC Act), *Environmental Protection Biodiversity Conservation Act 1999* (EPBC Act)*, State Environmental Planning Policy (Biodiversity and Conservation) 2021* (BC SEPP) and *State Environmental Planning Policy (Resilience and Hazards) 2021* (R&H SEPP) revealed that impacts on Threatened Species and Matters of National Environmental Significance are considered unlikely to occur from the proposed development, associated infrastructure. Consideration is provided in relation to Flood Planning and Dungog LEP.

General recommendations and mitigation measures have been included in the report to minimise environmental impacts of the proposal. These measures should provide adequate protection during the construction phase for native flora and fauna in the locality, and ongoing, following potential future construction.

Study Certification and Licensing

The project work was undertaken by staff identified as below. This report was written by Liam Parry, reviewed by Kelly Drysdale and certified by Simon Purcell of Anderson Environment & Planning (AEP).

Staff	Title/Qualification	Tasks
Simon Purcell	Senior Ecologist BAppSc (Wildlife Science) Cert III Animal Care and Management	Report reviewer and certifier
Natalie Black	Senior Environmental Manager BSc (Hons), MPL & Cert IV TAE & MSc BAAS No. 19076	Report certifier on previous reiterations
Kelly Drysdale	Ecology Project Manager Ass Dip App Sc, Grad Cert BA, TAE	Project Management, Report author and reviewer
Alissa Rodgers	Ecologist BPrkMgt	Habitat assessment, BAM plot and RDP, Flora and Fauna searches, incidentals
Jeremy Burrill	Ecologist B.Env,Sc (MS)	GIS mapping
Liam Parry	Ecologist Dip. Cons & Lnd Mgmt	Habitat assessment, BAM plots, Flora and Fauna searches, HBT survey, incidentals, report author
Callum Reedman	Ecologist/Botanist Cert III Dip Cons & Land Mgt	Habitat assessment, BAM plots, Flora and Fauna searches, incidentals
Catherine Scobie	Ecologist GIS Dip Spat. Sci.	GIS mapping

Research was conducted under the following licences:

- NSW National Parks and Wildlife Service Scientific Investigation Licence SL101313;
- Animal Research Authority (Trim File No: 14/600(2)) issued by NSW Agriculture; and
- Animal Research Establishment Accreditation Number 53724.

Certification:

As the principal certifier, I, Simon Purcell, make the following certification:

The results presented in the report are, in the opinion of the principal author and certifier, a true and accurate account of the species recorded, or considered likely to occur within the Survey Area.

Commonwealth, state and local government policies and guidelines formed the basis of project surveying methodology, unless specified departures from industry standard guidelines are justified for scientific and/or animal ethics reasons; and

All research workers have complied with relevant laws and codes relating to the conduct of flora and fauna research, including the Animal Research Act 1995, National Parks and Wildlife Act 1974 and the Australian Code of Practice for the Care and Use of Animals for Scientific Purposes.

Principal Certifier:

Simon Purcell
Senior Ecologist
Anderson Environment & Planning
4 November 2024

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1.0 Introduction

At the request of Williams River Steel (WRS) (the proponent), Anderson Environment & Planning (AEP) have undertaken the necessary investigations to inform the production of an Ecological Assessment Report (EAR) for 29, 33 & 35 Grey Street, Clarence Town, NSW 2321. The report is for a proposed Function Centre & Bar/Restaurant and associated infrastructure. The land proposed for development is located at the following respective Lots; 1/3 DP 758250, 3/3/DP758250 and 20/3/DP758250. All Lots are zoned as E1 – Local Centre and within the Dungog Local Government Area (LGA).

This report is specifically intended to indicate the likelihood of the proposed development and future development of the land to have a significant impact on potentially occurring threatened species or ecological communities. In this regard, the report aims to recognise the relevant requirements of the *Environmental Planning & Assessment Act 1979*, the *Biodiversity Conservation Act, 2016* (NSW) (BC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act).

The purpose of this report is to:

- Describe the ecological values of the Subject Site;
- Explore the potential for threatened species to utilise the area; and
- Assess ecological impacts associated with the proposal against relevant legislation.

Potential ecological impacts on native species in general are also considered, as are recommendations for minimising any impacts within the scope of the development.

For the purposes of referencing, this document should be referred to as:

> Anderson Environment & Planning (2024). *Ecological Assessment Report for the proposed Function Centre & Bar/Restaurant at 29, 33 & 35 Grey Street, Clarence Town NSW*. Unpublished report for WRS Investments, November 2024.

2.0 Site Particulars

Detailed summary of the site characteristics and surrounding land uses are provided in **Table 1**.

Table 1 – Site Particulars

Detail	Comments
Client	Williams River Steel
Address	29, 33 & 35 Grey Street Clarence Town NSW, 2321
Title(s)	The land identified for the proposed development is located within Lots 1/3/DP758250, 3/3/DP758250 and 20/3/DP758250 respectively .
LGA	Dungog
Zoning	As per Dungog Local Environmental Plan 2014 (pub. 30-5-2014) Zoning: E1- Local Centre: (pub.24-2-2023)
Subject Site	The Subject Site comprises the land proposed for development at Lots 1/3/DP758250, 3/3/DP758250 and 20/3/DP758250, approximately 0.58ha in total. The site is comprised of three adjacent Lots. The two lots in the north contain remnant canopy trees with a mostly degraded understory. One patch of vegetation in the north east within the stormwater drainage line contains native understory in a highly degraded condition. The remainder of the site is highly disturbed and heavily managed and consists of a managed exotic lawn surrounding an existing building. Ground-truthing of the vegetation present within the Subject Site partially confirmed the STVM (2023) in the following three zones; • **PCT 3433** - *Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest* and is associated with a threatened ecological community (TEC); of *Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions.* Native degraded vegetation patches of mostly canopy trees in the northern two lots make up approximately 0.14ha. • **PCT 3975** - *Southern Lower Floodplain Freshwater Wetland* and is associated with a threatened ecological community (TEC); *Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*. This area encompasses the current stormwater drainage area of 0.065ha, and is present in a highly degraded condition • The remainder of the site is Cleared / Managed / Non-native / infrastructure and comprises approximately 0.38ha of the Subject Site.
Storm water management Drain	The allotment slopes down to a wet area drainage line in the eastern half of the Subject Site, flowing in a north south direction. The storm water drainage line commences in the north on Prince Street and flows downhill where it flows through to Queen Street. A small patch of dense native vegetation marks this location in the north east of the Subject Site. This stormwater management drain provides potential habitat for aquatic fauna and is in close proximity to other watercourses. It is one block away from a managed wetland conservation area, protecting first and second order streams to the Williams River. The allotment has been modelled as being in a flood prone area. The development plans will ensure design that includes an appropriate stormwater management plan.

Detail	Comments
Current Land Use	The site consists of a business dwelling currently operating as a beauty salon in the south, surrounded by a managed exotic dominate grass lawn with a stormwater management drain. The northern portion of the Subject Site consists of patches of native canopy trees with managed exotic understorey. The presence of introduced pasture grasses and forbs and minimal native vegetation is indicative of an area potentially used for historic grazing and prior land clearing.
Surrounding Land Use	The Subject Site is centrally located within Clarence Town with surrounding allotments to the east zoned E1- Local Centre. The allotments to the west are zoned R1 – General Residential. The Study Area includes the road reserve and adjacent stormwater management drain.

Figure 1 depicts the extent of the Subject Site overlain on an aerial photograph of the locality.

3.0 Proposed Development

The proposed development is for a Function Centre & Bar/Restaurant and associated infrastructure incorporating the existing building. The land proposed for development is located at Lots 1/3/DP758250, 3/3/DP758250 and 20/3/DP758250 all zoned as E1 – Local Centre and within the Dungog LGA. The proposed development site of 0.58ha will require the removal of 0.065ha of PCT 3975 *Southern Lower Floodplain Freshwater Wetland* and 0.14ha of PCT 3433 - *Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest*.

Figure 2 depicts the proposed development plan within the Subject Site.

Legend

Study Area | Cadastre

Address: 29 Grey Street, Clarence Town NSW Client: Williams River Steel Pty Ltd | AEP Ref: 3145 | Date: October 2024	Imagery: SixMaps Spatial Reference: GDA2020 MGA Zone 56	0 10 20 m Scale: 1:1,000 N W E S

Figure 1 - Site Location

AEP

Note:
1. Boundaries are not survey accurate
2. Do not scale off this plan

The WILLIAMS RIVER STEEL GROUP OF COMPANIES

There is a Difference

PROJECT	PROPOSED BAR, DINING & FUNCTION CENTRE
CLIENT	WRS INVESTMENTS
LOCATION	29 GREY STREET CLARENCE TOWN , NSW
STATUS	PRE DEVELOPMENT APPLICATION
DATE	31.07.24
DRAWN BY	CW

DRAWING SCHEDULE		
DWG No.	DESCRIPTION	REV
A00	TITLEPAGE	3
A02	CULVERT RE-DIRECTION	2
A03	SITE PLAN	3
A04	CONCEPT FLOOR PLAN	3
A06	MEZZANINE AND ROOF PLAN	2
A07	ELEVATIONS	2
A11	STREET AND PARKING ANALYSIS	2
A13	FLOODING INFORMATION	2
A15	PARKING DETAILS - SHEET 1	3
A16	PARKING DETAILS - SHEET 2	3
A17	ACCESS DRIVEWAY DETAILS	3

APPS

APPS AUSTRALIAN PRECAST PANEL SYSTEMS

HEAD OFFICE: 25 OLD PUNT ROAD, TOMAGO NSW 2322
PH: (02) 4985 2000 FAX: (02) 4985 2099
EMAIL: wrsteel@wrsteel.com.au WEB:
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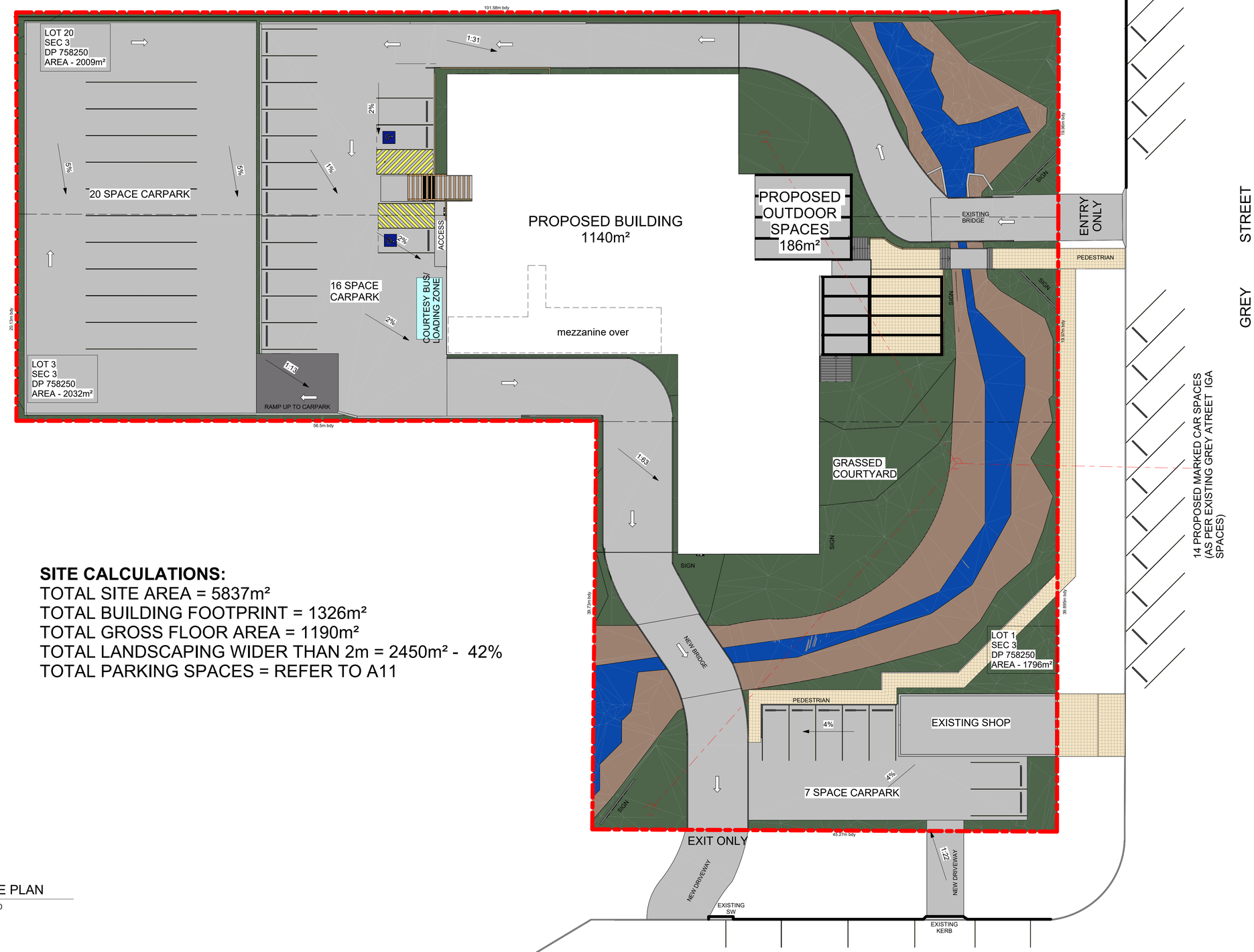
WRS



SITE CALCULATIONS:

TOTAL SITE AREA = 5837m²
TOTAL BUILDING FOOTPRINT = 1326m²
TOTAL GROSS FLOOR AREA = 1190m²
TOTAL LANDSCAPING WIDER THAN 2m = 2450m² - 42%
TOTAL PARKING SPACES = REFER TO A11

SITE PLAN
1 : 200

Issue	Description	Date
3	PARKING UPDATES	12.08.24
2	PRE DA MEETING	31.07.24

Graphic Scale 1 : 100 on A1 Sheet

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Project :
PROPOSED BAR, DINING & FUNCTION CENTRE

Address :
29 GREY STREET
CLARENCE TOWN , NSW

Client :
WRS INVESTMENTS

Drawing Title:
SITE PLAN

Status :
PRE DEVELOPMENT APPLICATION

Scale :	Drawn :	Checked :	Job No:
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Date :	Sheets in set :	Page Size :	Drawing No. : Issue :
31.07.24		A1	A03 3

INDUSTRIAL • COMMERCIAL • PRE - CAST PANEL

GROUND FLOOR PLAN
1 : 100

Issue	Description	Date
3	PARKING UPDATES	12.08.24
2	PRE DA MEETING	31.07.24

0 1 2 3 4 5 10 m
Graphic Scale 1 : 100 on A1 Sheet

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Project :
PROPOSED BAR, DINING & FUNCTION CENTRE

Address :
29 GREY STREET
CLARENCE TOWN , NSW

Client :
WRS INVESTMENTS

Drawing Title:
CONCEPT FLOOR PLAN

Status :
PRE DEVELOPMENT APPLICATION

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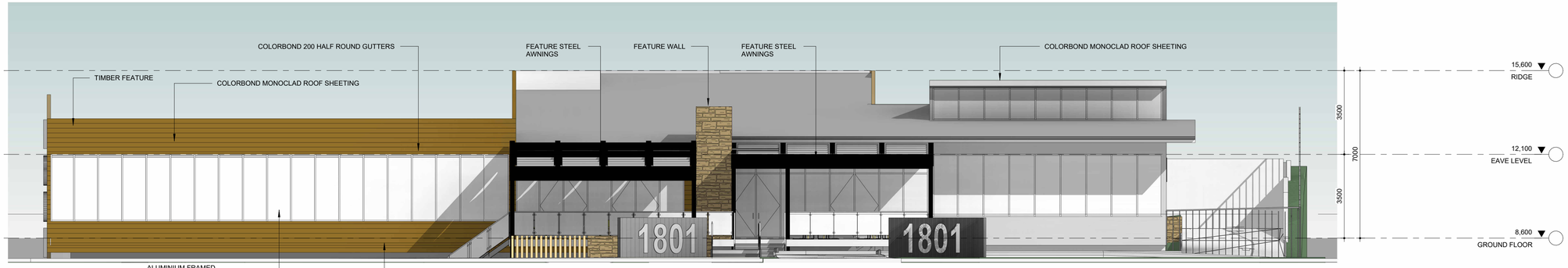
INDUSTRIAL • COMMERCIAL • PRE - CAST PANEL



North East Elevation

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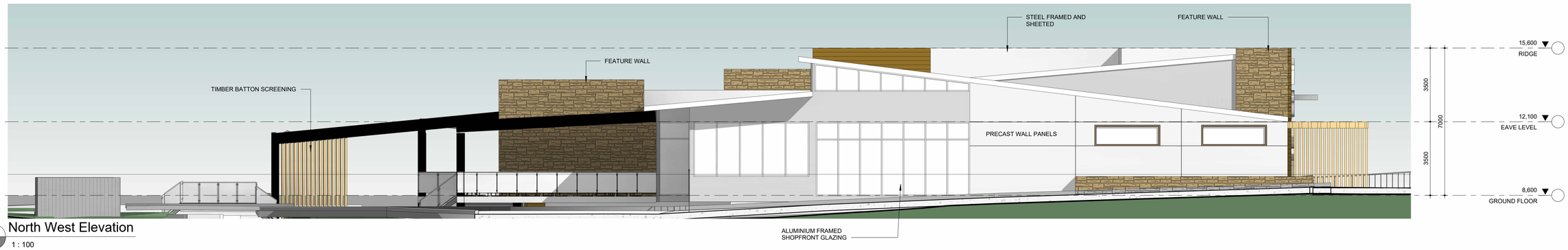

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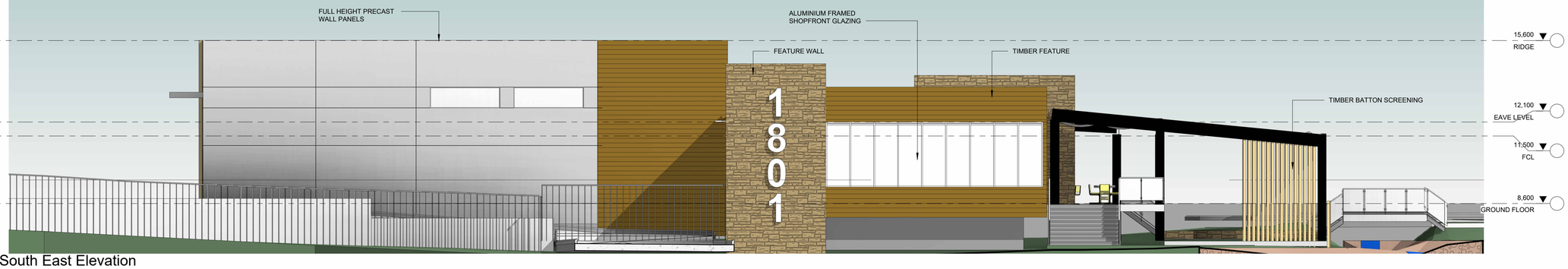

South East Elevation

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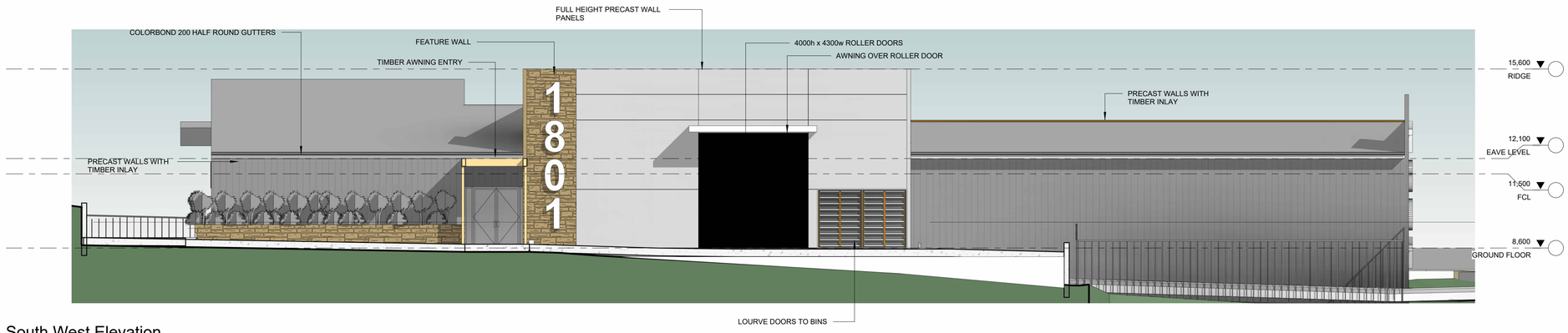

South West Elevation

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Issue	Description	Date
2	PRE DA MEETING	31.07.24

Graphic Scale 1 : 100 on A1 Sheet (0 1 2 3 4 5 10 m)

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Project :

PROPOSED BAR, DINING & FUNCTION CENTRE

Address :

29 GREY STREET
CLARENCE TOWN , NSW

Client :

WRS INVESTMENTS

Drawing Title:

ELEVATIONS

Status :

PRE DEVELOPMENT APPLICATION

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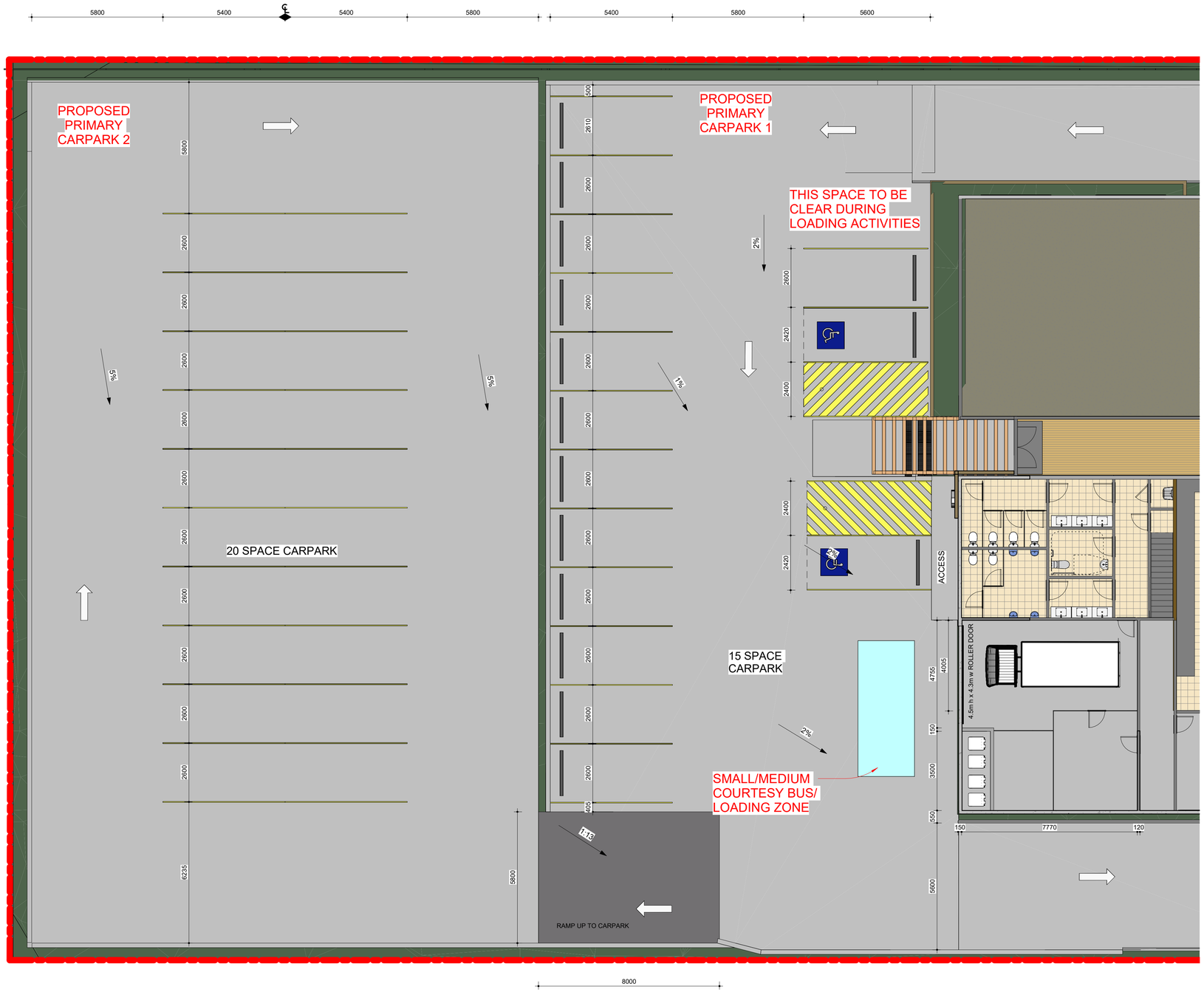
INDUSTRIAL • COMMERCIAL • PRE - CAST PANEL



PARKING AREAS - PRIMARY 1 AND 2

1 : 100

Issue	Description	Date
3	PARKING UPDATES	12.08.24

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Project :

PROPOSED BAR, DINING & FUNCTION CENTRE

Address :

29 GREY STREET
CLARENCE TOWN , NSW

Client :

WRS INVESTMENTS

Drawing Title:

PARKING DETAILS - SHEET 1

Status :

PRE DEVELOPMENT APPLICATION

Scale :	Drawn :	Checked :	Job No:
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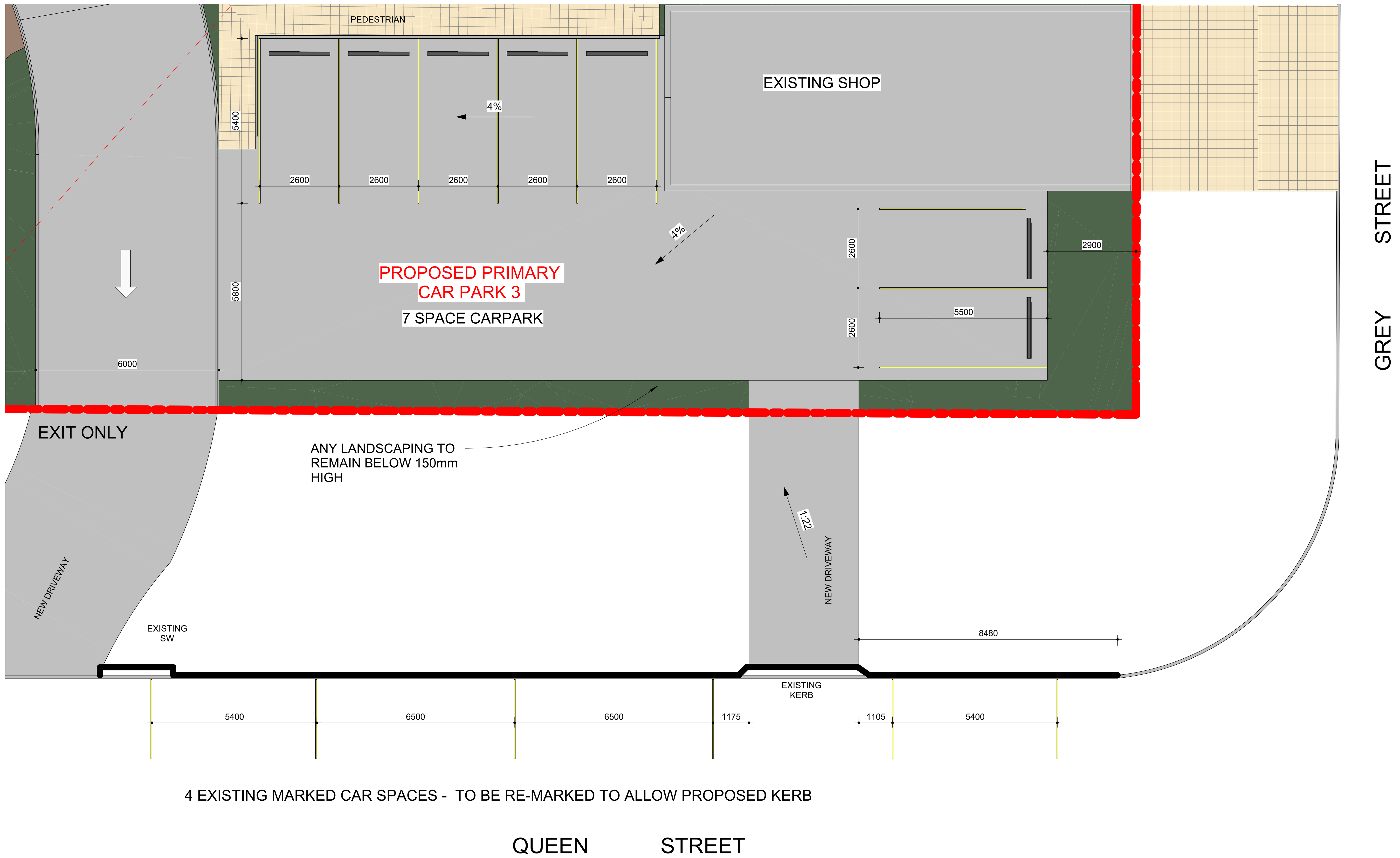

PARKING AREAS - PRIMARY 3 AND QUEEN STREET

1 : 100

Issue	Description	Date
3	PARKING UPDATES	12.08.24

Graphic Scale 1 : 100 on A1 Sheet

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Project : PROPOSED BAR, DINING & FUNCTION CENTRE

Address : 29 GREY STREET, CLARENCE TOWN , NSW

Client : WRS INVESTMENTS

Drawing Title: PARKING DETAILS - SHEET 2

Status : PRE DEVELOPMENT APPLICATION

Scale :	Drawn :	Checked :	Job No:
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Date :	Sheets in set :	Page Size :	Drawing No. : / Issue :
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ACCESS DRIVEWAY DETAILS

1 : 200

Issue	Description	Date
3	PARKING UPDATES	12.08.24

Graphic Scale 1 : 100 on A1 Sheet

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Project :
PROPOSED BAR, DINING & FUNCTION CENTRE

Address :
29 GREY STREET
CLARENCE TOWN , NSW

Client :
WRS INVESTMENTS

Drawing Title:
ACCESS DRIVEWAY DETAILS

Status :
PRE DEVELOPMENT APPLICATION

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4.0 Scope and Purpose

Investigations were carried out at the site and via literature / database searches to gather information required to adequately address the requirements of the *Environmental Planning & Assessment Act 1979*, the *Biodiversity Conservation Regulation 2017* (BCR), as well as *Section 7.3* of the BC Act (known as the "5-part test").

Also afforded consideration were the Commonwealth EPBC Act, and relevant State Environmental Planning Policies (SEPPs).

The assessment approach was tailored to ensure that legislative requirements were met relating to threatened species and native species in general for the proposed specific development. This was achieved by background research and literature review, database searches, consultation, targeted ecological fieldwork and mapping, detailed habitat assessment, and ultimately impact assessment consideration against the type and form of development proposed.

Impact assessment was undertaken with due reference to the "*Threatened Species Assessment Guidelines*" (OEH, 2018).

Specifically, the scope of this study is to:

- Identify vascular plant species occurring within the site, including any threatened species listed under the BC Act or EPBC Act;
- Identify and map the extent of vegetation communities within the site, including any Endangered Ecological Communities (EECs) listed under the BC Act or EPBC Act;
- Identify any fauna species, including threatened and migratory species, and populations or their habitats, which occur within the site and are known to occur in the wider locality;
- Assess the potential of the proposed development to have a significant impact on any threatened species, populations or ecological communities (or their habitats) identified from the site; and
- Describe measures to be implemented to avoid, minimise, manage or monitor potential impacts of the proposal.

In addition to the survey work conducted within the site boundary and its immediate surrounds, consideration has been afforded to the wider locality, via database searches within 10km of the site and via appreciation of habitat areas that may be linked ecologically to the site.

5.0 Methodology

The field surveys for the site have been prepared and performed with due recognition of the State survey guidelines (DEC 2004; DECC 2009; DPIE 2020, OEH 2018).

The size of the site, the type of native vegetation and habitats remaining, the status of existing and proposed surrounding land use, and the level and type of habitat linkages to proximate bushland areas and coastal areas were considered in formulating the methodology employed and described below.

The assessment approach was tailored to undertake sufficient works to ensure that legislative requirements were met relating to threatened species and native species in general for the proposed specific development.

5.1 Information Sources

Information and spatial data provided within this EAR has been compiled from various sources including:

- Aerial Photograph Interpretation (API) of the site and surrounding locality;

- NSW Biodiversity Values Map (accessed October 2024);
- Review of regional mapping via the State Vegetation Mapping (SVTM) 2023.
- State survey guidelines (DEC 2004, DECC 2009, OEH 2016, DPIE 2020);
- Federal survey guidelines (DSEWPC 2011);
- OEH Threatened Species, Populations and Ecological Communities website (*https://www.environment.nsw.gov.au/AtlasApp/UI_Modules/TSM_/Default.aspx?a=1*) (accessed October 2024); and
- Collective knowledge gained from previous ecological survey and assessment in the Hunter regions over the past 25 years.

In addition, database searches were carried out, namely:

- Review of flora and fauna records held by the NSW Department of Environment (DPE) Office BioNet Atlas of NSW Wildlife within a 10km radius of the Subject Site (October 2024); and
- Review of flora and fauna records held by the Commonwealth Department of Climate Change, Energy, the Environment and Water (CDCCEEW) Protected Matters Search within a 5km radius of the Subject Site (October 2024).

5.2 Considerations of Biodiversity Offsets Scheme

There are three criteria that require assessment under the Biodiversity Offsets Scheme (BOS) to determine whether or not an accredited assessor is required to assess the impacts of the proposal. The three criteria include;

- Assessing whether or not the site contains Biodiversity Values Mapped land;
- Whether or not it exceeds the Area Clearing Threshold applicable to the minimum lot size; and / or
- Whether or not a 5-part Test of Significance determines that a significant impact on threatened biodiversity is likely to occur.

The criteria are addressed below.

5.2.1 Biodiversity Values Map

The Biodiversity Values Map (BV Map) identifies land with high biodiversity value, as defined by the Biodiversity Conservation Regulation 2017. The BOS applies to all local developments, major projects or the clearing of native vegetation where the SEPP (Vegetation in Non-Rural Areas) 2017 applies. Any of these will require entry into the BOS if they occur on land mapped on the BV Map. Exempt and complying development or private native forestry are not subject to the Biodiversity Offsets Scheme.

The Subject Site does not contain BV Mapped land (refer **Appendix A**). As such impact to BV mapped land will not occur as part of this development, entry into the BOS will not be triggered by impacting BV Mapped Land nor the requirement for a Biodiversity Development Assessment Report (BDAR) under these criteria.

5.2.2 Area Clearing Threshold

"The area threshold varies depending on the minimum lot size (shown in the Lot Size Maps made under the relevant Local Environmental Plan (LEP)), or actual lot size (where there is no minimum lot size provided for the relevant land under the LEP). The area threshold applies to all proposed native vegetation clearing associated with a development proposal".

Table 2 – Area Clearing Thresholds (BC Act)

Minimum Lot Size	Threshold for clearing, above which the BAM and offsets scheme apply
< 1ha	**>0.25ha**
1ha to <40ha	>0.5ha.
40ha to <1000ha	>1.0ha
>1000ha	>2ha

In this case, no minimum lot size has been specified in the LEP and therefore the actual lot size of the smallest allotment and therefore approx. 0.18ha is applicable, which falls within the minimum lot size category of **<1ha** and consequently the area clearing threshold of **>0.25ha** applies (refer **Table 2**). The removal of 0.21ha of native vegetation is under the 0.25ha clearing threshold, and therefore, the BOS is not triggered under this criterion and as such the preparation of a BDAR is not required based on the clearing threshold.

5.2.3 Test of Significance

Following the above assessments, it is a requirement to determine whether or not the development is likely to significantly affect threatened species or ecological communities or their habitats using a Test of Significance. The Test of Significance is used to undertake qualitative analysis of the likely impacts and determine whether further assessment is required in association with the development. As part of this Ecological Assessment Report, a Five-part Test of Significance has been undertaken in Section 10.

5.3 Field Survey

The field surveys for the site have been prepared and performed with due recognition of the State survey guidelines (DEC 2014 & DPIE 2020).

The size of the site, the type of native vegetation and habitats remaining, the status of existing and proposed surrounding land use and the level and type of habitat linkages to proximate bushland areas were considered in formulating the methodology employed and described below.

The assessment approach was tailored to undertake sufficient works to ensure that legislative requirements were met relating to threatened species and native species in general for the proposed specific development. Where any potential doubt remained over species impact, presence within the site was assumed to ensure that a conservative approach was employed.

All fieldwork was conducted within the Subject Site as shown in **Figure 5.**

5.3.1 Vegetation Communities

Vegetation was surveyed utilising a variety of methods, as outlined below.

- Review of regional mapping via the State Vegetation Mapping (SVTM) 2023;
- Aerial Photo interpretation (API) to identify any notable variations within the site;
- Consultation of 1:25,000 topographic map series for the area;
- Inspection of the site to ground truth the unit(s) identified; and
- Identification of the vegetation map unit occurred via identification of required dominant species in community structural layers.

The final derived vegetation map was based on dominant species present in the canopy, shrub and ground layers, if present. The dominant species composition, structural and physical attributes were all considered when assigning the best fit ecological communities.

Consideration was given to the potential for the derived vegetation communities to constitute EECs as listed under the BC Act and/or EPBC Act. The floristic composition, geomorphological characteristics and geographical extent were important considerations in this process. The type and location of the relevant vegetation communities can be seen in **Figure 3.**

5.3.2 Flora

A flora survey was undertaken to produce a flora species list for the Subject Site and Study Area (**Appendix B**), to search specifically for threatened flora species known from the wider locality, and to gather data necessary to both derive vegetation community type(s) and to meet relevant survey guidelines. Such works included:

- Identification of all vascular plant species encountered during fieldwork;
- Four (4) Biodiversity Assessment Method (BAM) plots and one (1) Rapid Data Point (RDP) were undertaken in accordance with BAM 2020 by AEP;
- Survey also involved systematic coverage of the Subject Site. The Random Meander Technique (Cropper 1993) was utilised to maximise species encountered. All vascular plant species encountered during fieldwork were recorded;
- A systematic approach to target threatened plant species at the site as per DPIE guidelines (2020).

5.3.3 Habitat

An assessment of the relative habitat values present within the Subject Site was carried out. This assessment focused primarily on the identification of specific habitat types and resources within the Subject Site favoured by known threatened species from the region. The assessment also considered the potential value of the Subject Site and immediate surrounding areas for all major guilds of native flora and fauna. This combined area is described as the Study Area.

The assessment was based on the specific habitat requirements of each threatened fauna species in regards to home range, feeding, roosting, breeding, movement patterns and corridor requirements. Consideration was given to contributing factors including topography, soil, light and hydrology for threatened flora and assemblages. In particular, focus was put on documenting the presence of key habitat features such as potential nesting and roosting habitat.

5.3.4 Fauna

Fauna surveys have been carried out utilising techniques as outlined below**.** Fauna survey work was undertaken with reference to relevant guidelines and to add further information to the generated Observed Fauna Species List (**Appendix C**).

Avifauna Surveys

The presence of avifauna within the site was assessed via incidental observations during all phases of fieldwork.

Mammals

The occurrence of mammals within the site was assessed by utilising habitat assessment as an analogue for presence in combination with diurnal survey. Habitat assessment included survey for foraging resources (blossom, herbaceous, prey etc), hollows and roosting opportunity, connectivity and presence of water.

Incidental Observations & Secondary Indications

Incidental records of any fauna species observed during fieldwork were noted. This included opportunistic sightings of secondary indications (scratches, scats, diggings, tracks etc.) of any resident or migratory species. Searches were also conducted for whitewash, regurgitation pellets and prey remains from Owls, chewed *(Allo) Casuarina* cones from Black-Cockatoos, chewed fruit remains from frugivorous birds etc.

5.3.5 Field Surveys

A summary of the survey effort is below in **Table 3** and **Figure 5**.

Table 3 – Field Survey Periods

Date	Time	Field Activity	No. of Persons on Site
19/12/2022	9:30 – 12:15	General botanical survey using the random meander method of Subject Site and Study Area; One (1) BAM Plot and one (1) RDP to determine vegetation community and condition; Assessment of impacts on threatened species; Habitat assessment for threatened species; and Incidental flora and fauna observations.	1
18/09/2024	10:45 – 15:30	Random meander undertaken in order to determine vegetation zones; Three (3) BAM plots were undertaken to determine vegetation community and condition; HBT Survey undertaken with three (3) HBTs recorded; Assessment of impacts on threatened species; Habitat assessment for threatened species; and Incidental flora and fauna observations.	2

The above survey methodology is considered to provide sufficient understanding of the biodiversity of the Subject Site.

In addition, by applying rigorous habitat assessment to more mobile species identified in BioNet Atlas records within the locality, it was ensured that all possible use of the Subject Site by notable species was considered, and accommodated within subsequent ecological assessment and management recommendations.

AEP has deemed the survey effort undertaken for the Subject Site sufficient given the disturbed and managed nature of the site, the limited amount of habitat features and resources therein, the very small area of low-quality vegetation proposed for removal and the large areas of high-quality vegetation present off site.

6.0 Results

6.1 Regional Vegetation Mapping

The regional vegetation mapping utilised; State Vegetation Mapping (STVM 2023) which broadly maps the Subject Site and surrounding region with a floristic assessment. Regional vegetation mapping shows the majority of the Subject Site as being mapped as “Not Native Vegetation” with two PCT’s

being mapped within the Subject Site; 3975- *Southern Lower Floodplains* Freshwater *Wetland* and 3433 - *Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest.*

The communities mapped within the site for the dataset is provided in **Table 4** below. Refer to **Figure 3** Regional Vegetation Mapping.

Table 4 - Regional Vegetation Mapping Results

Vegetation Community	State Vegetation Mapping 2023
3975- Southern Lower Floodplains Freshwater Wetland	0.02ha
3433 - *Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest.*	0.23ha
Not native vegetation	0.33ha
Total	**0.58ha**

Legend

- Study Area
- Cadastre

State Vegetation Type Mapping (DPE 2023)

- PCT 3433 - Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest
- PCT 3975 - Southern Lower Floodplain Freshwater Wetland
- Not classified

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Imagery: SixMaps
Spatial Reference: GDA2020 MGA Zone 56

0 10 20 m
Scale: 1:1,000

N W E S

Figure 3 - Regional Vegetation Mapping

AEP

Note:
1. Boundaries are not survey accurate
2. Do not scale off this plan

6.2 Vegetation Communities

The Subject Site is comprised of three lots that gradually slope from north to south. The two lots in the north include patches of degraded native vegetation with large canopy trees. Mid-storey is mostly absent apart from the storm water drainage line in the north east which contains a disturbed understorey. The remainder of the Subject Site is highly disturbed and heavily managed, consisting of a managed exotic dominated grass lawn surrounding an existing business dwelling. The allotment slopes down to stormwater management drain running east-west through the Subject Site that has not been maintained

Field surveys carried out by AEP in December 2022 and September 2024 identified that the majority of the Subject Site is as regionally mapped as 'Cleared Non-Native Vegetation'.

Ground-truthing confirmed the presence of two Plant Community Types (PCTs); 3975 - *Southern Lower Floodplain Freshwater Wetland* and 3433 - *Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest* within the Subject Site (refer to **Figure 4**). These communities are associated with two threatened ecological communities (TECs) respectively. *Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* and *Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions.*

Review of floristic data concluded that plots and PCTs were associated as follows;

- PCT 3975 - *Southern Lower Floodplain Freshwater Wetland* in one (1) condition;
    - Severely Degraded RDP 1 (refer **Plate 1**);
- PCT 3433 - *Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest* in one (1) condition;
    - Highly Degraded BAM Plots 2 and 4 (refer **Plate 2** and **3**);
- Cleared Non-Native Vegetation;
    - BAM Plots 1 and 3 (refer **Plate 4** and **5**).

PCT 3433 (BAM Plots 2 & 4) contained only three diagnostic species characteristic of its associated TEC. *Microlaena stipoides* (Weeping Grass), *Glycine clandestina* (Twining Glycine) and *Dichelachne micrantha* (Shorthair Plumegrass). These species are all common native ground cover species that are common and can be associated with areas of disturbance. The native canopy present on site is dominated by *Eucalyptus tereticornis,* a species not associated with the associated TEC and therefore as key diagnostic species are not present, it is unlikely to be associated with a TEC. The patches of native vegetation within the Subject Site are isolated and have no connectivity to surrounding larger vegetation patches. Therefore, it has been determined that the community present within the Subject Site is not commensurate with EEC *Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions.* However, taking the precautionary principal, this area will be subject to the 5 Part Test.

PCT 3975 (RDP 1) contained only three diagnostic species commensurate with its associated TEC; *Baumea articulata* (Jointed Twig-Rush), *Cynodon dactylon* (Common Couch) and *Typha orientalis* (Cumbungi), that can also be commonly associated with other wetland PCT's, were identified within the Subject Site. Due to the lack of key diagnostic species and high levels of disturbance, it has been determined that the community present within the Subject Site is not commensurate with EEC *Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions.* However, taking the precautionary principal, this area will be subject to the 5 Part Test.

A total of 101 flora species were noted within the Study Area with 74 of those consisting of exotic species. Some native species noted; *Eucalyptus tereticornis, Glochidion ferdinandi*, *Acacia fimbriata, Pseudognaphalium luteoalbum, Baumea articulata, Oxalis spp., Cynodon dactylon, Persicaria decipiens* (Slender Knotweed), *Rumex brownie* (Swamp Dock)*, Ranunculus spp.* and *Typha orientalis*.

Several High Threat Exotics (HTE) were present; *Senecio madagascariensis* (Fireweed), *Tradescantia fluminensis* (Wandering Jew), *Cyperus eragrostis* (Umbrella Sedge), *Senna pendula var. glabrata, Cenchrus clandestinum* (Kikuyu), *Paspalum dilatatum* (Paspalum), *Ranunculus repens* (Creeping Buttercup) and *Asparagus asparagoides* (Bridal Creeper).

In the north of the site patches of native canopy are present with *Eucalyptus tereticornis* identified as the dominant species. *Glochidion ferdinandi* and *Ficus macrophylla* are present with a small coverage. The patch in the north east of the Subject Site contains a sparse mid-storey containing species *Acacia fimbriata* and *Acacia implexa,*

Appendix B contains a list of flora species occurring within the Subject Site.

Plates 1-5 indicate site conditions.

Further Site photos are located in **Appendix D**

Plate 1 – RDP in storm water management area, view east, identified as PCT 3975

Plate 2 – Start of BAM Plot 2 identified as PCT 3433 (above)

Plate 3 – Start of BAM Plot 4 identified as PCT 3433 (below)

Plate 4 – Start of BAM plot 1 identified as non-native vegetation (above)

Plate 5 – Start of BAM plot 3 identified as non-native vegetation (below)

Legend

Study Area

Cadastre

Ground Truthed Vegetation

Exotic/Infrastructure

PCT 3433 - Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest - Degraded

PCT 3975 - Southern Lower Floodplain Freshwater Wetland - Highly Degraded

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Imagery: SixMaps
Spatial Reference: GDA2020 MGA Zone 56

0 10 20 m
Scale: 1:1,000

N W E S

Figure 4 - Ground Truthed Vegetation

AEP

Note:
1. Boundaries are not survey accurate
2. Do not scale off this plan

6.3 Threatened Species

No threatened fauna or fauna species were recorded within the Subject Site.

Surveys identified that vegetation within the Subject Site may provide marginal foraging habitat for a range of species but due to the highly degraded nature of the site including fragmentation and isolation of vegetation patches the site is only likely to support highly mobile species.

6.4 Habitat Assessment

Table 5 provides the results from the detailed habitat assessment within the Subject Site.

Table 5 – Habitat Assessment

Habitat Features	Assessment
Native vegetation	The Subject Site of 0.58ha comprises 0.065ha of native vegetation present as PCT 3975 - *Southern Lower Floodplain Freshwater Wetland* in a severely degraded condition and 0.14ha of PCT 3433 - *Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest* in degraded condition. As such, it would not provide significant ecological value or wildlife habitat in the context of the locality, Small patches of native canopy are present with understorey species observed to be dominated by exotic managed lawn areas.
Hollow-bearing trees	Three (3) HBTs were recorded within the Subject Site with three (3) medium three (3) small and six (6) extra small hollows recorded (refer **Table 6**). These canopy trees provide marginal habitat for a range of species, however, the site is fragmented within an urban environment.
Water features	A man-made drainage line runs through the Subject Site in a north south direction. This may provide habitat for opportunistic, mobile aquatic fauna.
Patch size / connectivity	The Subject Site has little to no connectivity in the fragmented landscape of a highly urbanised development and lack of native vegetation on site. Connectivity in the area is maintained along the Williams River located approximately 353m south of the Subject Site. Wallaroo National Park is located in the south east and Columbey National Park to the west, both >1.5kms from the Subject Site.
Other habitat features	There are no caves, crevices or rocky outcrops present within the Subject Site. One small stick nest was observed in one of the HBTs in the north of the Subject Site and one Magpie Lark mud nest was observed in the north east of the Subject Site.

6.5 Fauna

Eight (8) fauna species were identified within the Subject Site at the time of inspection comprising, six (6) bird, one (1) reptile and one (1) mammal species. The lack of large hollows, abundance of exotic species and fragmented nature of the Subject Site indicates it is not an area of high value habitat. It is not expected that the Subject Site would be utilised by threatened fauna species to a significant degree in an urban environment.

As mentioned above, native vegetation in the northern allotments contains marginal potential foraging habitat and nesting habitat primarily for bats and birds, considered to potentially utilise the site on an intermittent basis as part of a larger home range.

A list of fauna species present onsite has been generated for the site and is included within the Observed Fauna List in **Appendix C**. **Figure 5** - depicts survey effort undertaken.

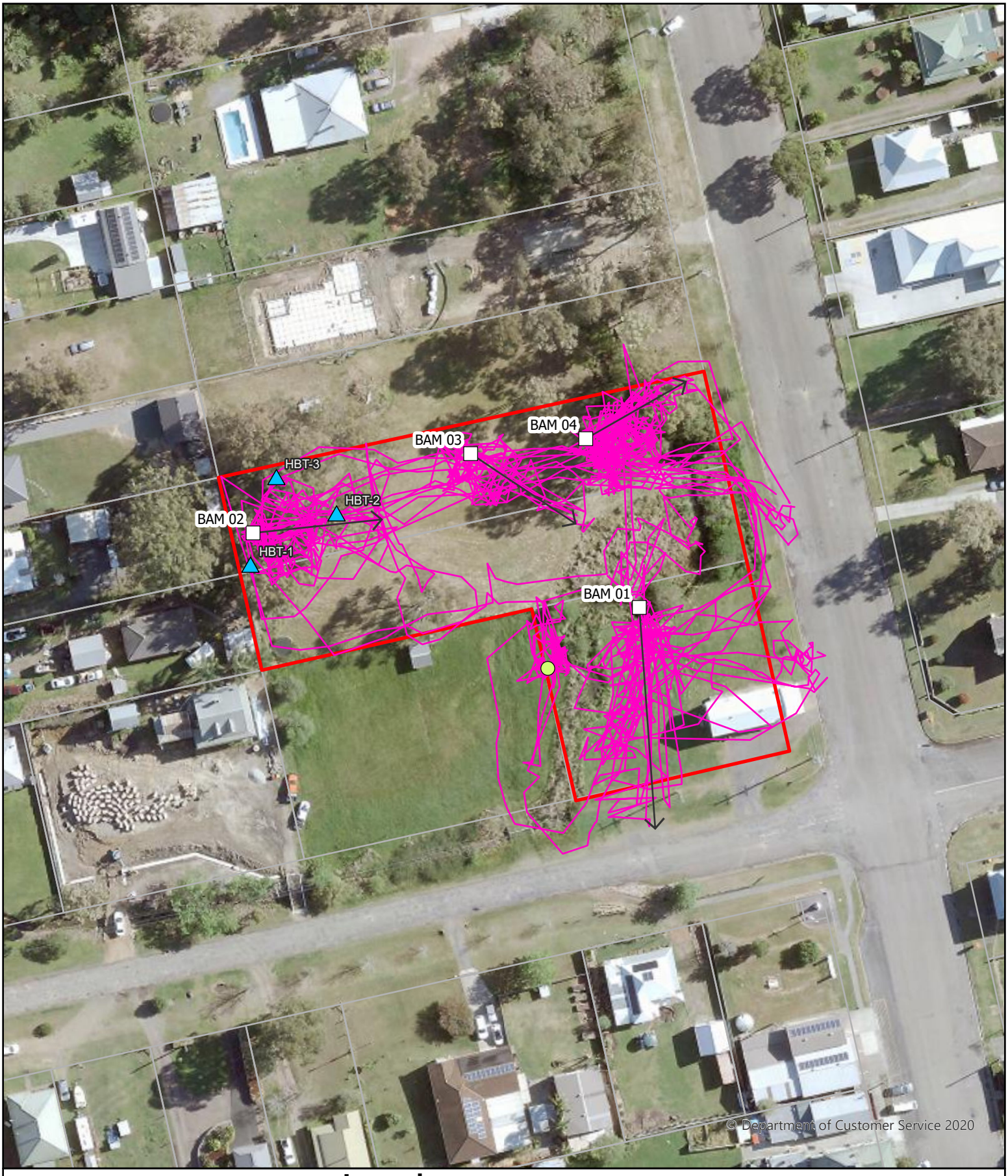
6.5.1 Habitat Trees

A total of three (3) habitat trees containing an assumed total of 12 hollows were identified within the Subject Site. Surveys undertaken by AEP in September 2024 confirmed hollow locations and numbers, species and DBH, which is provided in **Table 6** and as shown in **Figure 5**.

Table 6 - Habitat Tree Detail

GPS Point ID	Scientific Name	DBH	XS	S	M	L	XL	Other Habitat Features	Retained
1	*Eucalyptus tereticornis*	76	2		2				N
2	*Eucalyptus tereticornis*	97	1	2					N
3	*Eucalyptus tereticornis*	157	3	1					N
Total Hollows:			**6**	**3**	**2**	**0**	**0**	**Total HBTs removed:**	**3**

Notes for hollow size: XS <5cm, S 5-10cm, M 10-15cm, L 15-20cm, XL>20cm, DBH diameter at breast height



Legend

Study Area
Cadastre
Rapid Data Point
Hollow Bearing Tree
BAM Point
BAM Transect
Survey Effort

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Client: Williams River Steel Pty Ltd | AEP Ref: 3145 | Date: October 2024

Imagery: SixMaps
Spatial Reference: GDA2020 MGA Zone 56

0 10 20 m
Scale: 1:1,000

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W E
S

Figure 5 - Survey Effort

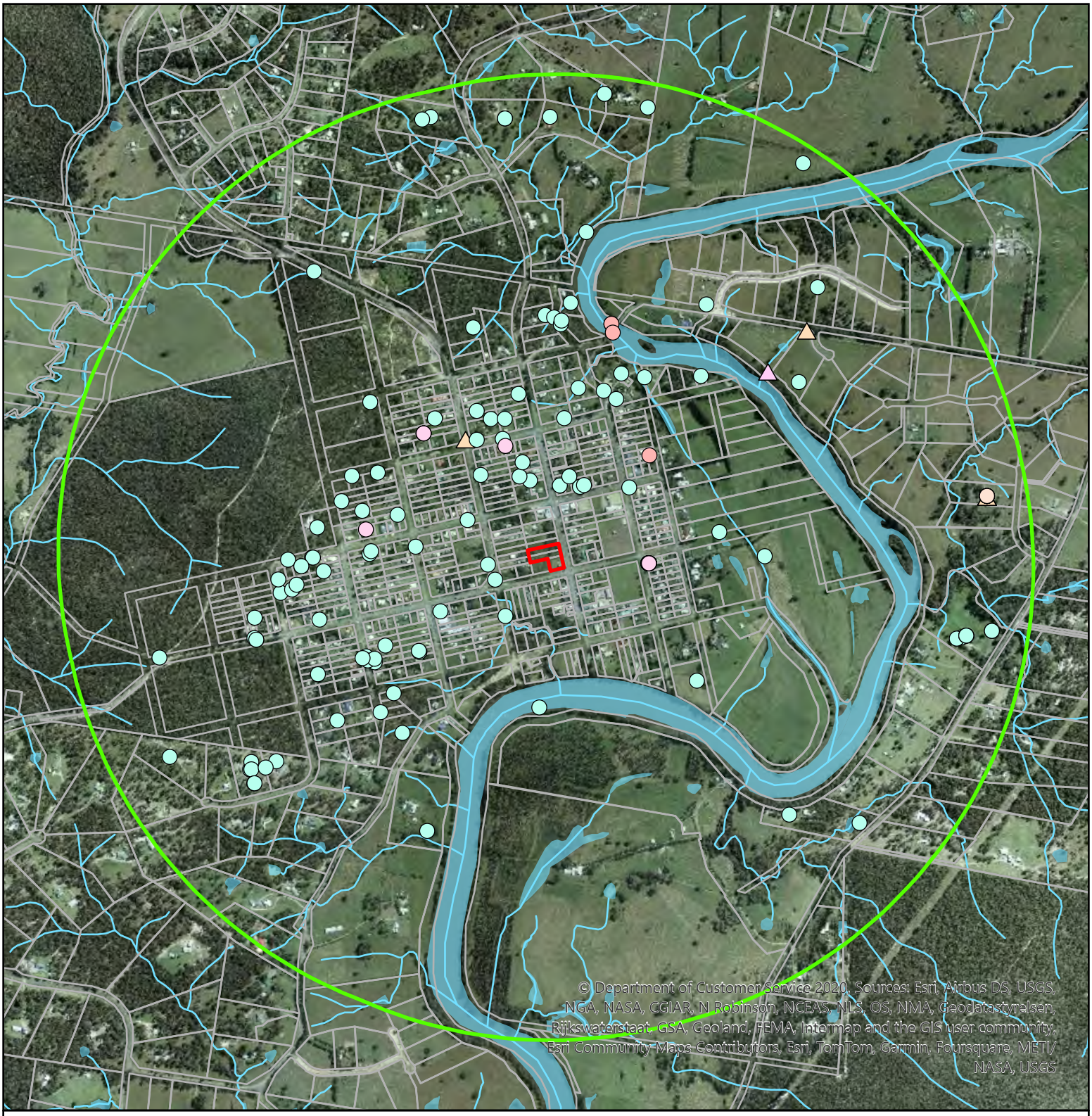
AEP

Note:
1. Boundaries are not survey accurate
2. Do not scale off this plan

6.6 Database Searches

Searches were undertaken of databases within a 5km radius of the Subject Site for BC Act listings and EPBC Act listings. Note that any records considered erroneous, or obviously of no relevance to the site in regards to habitat were omitted(Refer **Figure 6**).

The potential for listed threatened species to occur within the site is considered in **Table 7** and selection for subject species in **Table 8** below. Detailed ecological profiles of threatened species can be found at: https://www.environment.nsw.gov.au/threatenedspeciesapp/



Legend

- 1500m Assessment Buffer
- Study Area
- Cadastre
- NSW HydroArea
- NSW Hydroline

Bionet Atlas Records

Mammalia

- Micronomus norfolkensis
- Miniopterus orianae oceanensis
- Myotis macropus
- Petaurus norfolcensis
- Phascogale tapoatafa
- Phascolarctos cinereus
- Pteropus poliocephalus
- Scoteanax rueppellii

Aves

- Artamus cyanopterus cyanopterus
- Daphoenositta chrysoptera
- Hirundapus caudacutus
- Pomatostomus temporalis temporalis

Address: 29 Grey Street, Clarence Town NSW
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Imagery: SixMaps
Spatial Reference: GDA2020 MGA Zone 56

0 180 350 m
Scale: 1:17,000

N W E S

Figure 6 - Bionet Atlas Records

AEP

Note:
1. Boundaries are not survey accurate
2. Do not scale off this plan

Table 7 - Threatened Species Appraisal

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
Flora							
Callistemon linearifolius	Netted Bottle Brush	V		1	The species was more widespread in the past, and there are currently only 5-6 populations remaining from the 22 populations historically recorded in the Sydney area. Three of the remaining populations are reserved in Ku-ring-gai Chase National Park, Lion Island Nature Reserve and Spectacle Island Nature Reserve. The species has also been recorded from Yengo National Park. Grows in dry sclerophyll forest on the coast and adjacent ranges. Flowers spring – summer.	A single BioNet record from 2021 was noted in Columbey National Park approx. 4kms from the Subject Site. Not observed on site and minimal vegetation to be impacted by the proposed development. Species unlikely to be impacted.	N
Eucalyptus glaucina	Slaty Red Gum	V	V	4	Found in separate districts along the eastern seaboard of NSW, from near Casino, to Taree, south to Broke, and recently discovered on the eastern side of the Blue Mountains National Park near Warragamba Dam. Grows in grassy woodland and dry eucalypt forest. Grows on deep, moderately fertile and well-watered soils.	Most Recent record is from 2023 approx. 4 kms from the Subject Site. All Eucalypt species on site were identified as *Eucalyptus tereticornis.* Species was not observed on site. Species unlikely to be impacted.	N
Rhodamnia rubescens	Scrub Turpentine	E	CE	2	Occurs in coastal districts north from Batemans Bay in New South Wales, approximately 280 km south of Sydney, to areas inland of Bundaberg in Queensland. Populations of R. rubescens typically occur in coastal regions and occasionally extend inland onto escarpments up to 600 m a.s.l. in areas	The most recent BioNet record is from 2015 and located approximately 2.5kms north east of the Subject Site. Not observed on site and minimal suitable vegetation to be impacted by	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					with rainfall of 1,000-1,600 mm. Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils. This species is characterised as highly to extremely susceptible to infection by Myrtle Rust. Myrtle Rust affects all plant parts.	the proposed development. Species unlikely to be impacted	
Rhodomyrtus psidioides	Native Guava	E	CE	1	Occurs from Broken Bay, approximately 90 km north of Sydney, New South Wales, to Maryborough in Queensland. Populations are typically restricted to coastal and sub-coastal areas of low elevation however the species does occur up to c. 120 km inland in the Hunter and Clarence River catchments and along the Border Ranges in NSW. Pioneer species found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines. This species is characterised being extremely susceptible to infection by Myrtle Rust. Myrtle Rust affects all plant parts.	A single BioNet record from 1936 exists approx. 1.5km from the Subject Site. Species was not observed on site during surveys. Vegetation to be impacted is unsuitable habitat for this species. Species unlikely to be impacted by proposed development.	N
^Pterostylis chaetophora		V		24	Recorded in Queensland and NSW. In NSW it is currently known from 18 scattered locations in a relatively small area between Taree and Kurri Kurri, extending to the south-east towards Tea Gardens and west into the Upper Hunter, with additional records near Denman and Wingen. The species occurs in two conservation reserves, Columbey National Park and Wingen Maid Nature Reserve.	The closest BioNet record from 2018 is located approximately 975m south of the Subject Site, with all other records within Columbey National Park. Not observed on site and minimal vegetation to be impacted by the proposed development. Species unlikely to be impacted	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					The preferred habitat is seasonally moist, dry sclerophyll forest with a grass and shrub understorey. The most commonly observed habitat is vegetation characterised by grassy open forests or derived native grasslands of *Eucalyptus amplifolia* and *Eucalyptus moluccana* on gentle flats, or that are dominated by *Corymbia maculata* with any of *Eucalyptus fibrosa*, *Eucalyptus sideroploia* or *Eucalyptus crebra*. Flowers from September to November.		
Grevillea parviflora subsp. parviflora	Small-flower Grevillea	V	V	1	Sporadically distributed throughout the Sydney Basin with sizeable populations around Picton, Appin and Bargo (and possibly further south to the Moss Vale area) and in the Hunter at in the Cessnock - Kurri Kurri area (particularly Werakata NP). Separate populations are also known from Putty to Wyong and Lake Macquarie on the Central Coast. Grows in sandy or light clay soils usually over thin shales and in the Hunter in Kurri Sand Swamp Woodland. *G. parviflora subsp. parviflora* has been recorded growing with several other threatened species including *Acacia bynoeana* (Heddon Greta), *Dillwynia tenuifolia* (Kemps Creek) and *Persoonia bargoensis* (S. of Appin and at Bargo). Found over a range of altitudes from flat, low-lying areas to upper slopes and ridge crests. Hunter occurrences are usually 30-70m ASL, while	A single BioNet record from 2008 is located approximately 2.5kms east of the Subject Site No Grevillea's were identified within the Subject Site and the proposed development is not likely to impact required habitat for this species. Species unlikely to be impacted.	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					the southern Sydney occurrences are typically at 100-300m ASL. Flowering has been recorded between July to December as well as April-May		
Fauna							
Aves							
Ptilinopus magnificus	Wompoo Fruit-Dove	V		4	Distribution: Occurs along the coast and coastal ranges from the Hunter River in NSW to Cape York Peninsula. It is rare south of Coffs Harbour. Three subspecies are recognised, with the most southerly in NSW and south-eastern Queensland. It used to occur in the Illawarra, though there are no recent records. Habitat and ecology: Occurs in, or near rainforest, low elevation moist eucalypt forest and brush box forests. Feeds on a diverse range of tree and vine fruits and is locally nomadic - following ripening fruit. Thought to be an effective medium to long-distance vector for seed dispersal. Feeds alone, or in loose flocks at any height in the canopy. Despite its plumage, can be remarkably cryptic as it feeds, with the call and falling fruit being an indication of its presence. The nest is a typical pigeon nest - a flimsy platform of sticks on a thin branch or a palm frond, often over water, usually 3 - 10 m above the ground. Breeds in spring and early summer; a single white egg is	Four BioNet records available, three located more than 2.5kms from the Subject Site and the closest recorded from a vehicle strike. Associated with low elevation moist eucalypt forest and brush box forests. Nesting often occurs in palms over water. No suitable vegetation occurs within the Subject Site. Not observed on site during surveys and no suitable nests found. This species is unlikely to be impacted by the proposed development.	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					laid. Most often seen in mature forests, but also found in remnant and regenerating rainforest. Aspects of its behaviour such as social behaviour and structure, movements and breeding biology have not been well-studied.		
Haliaeetus leucogaster	White-bellied Sea-Eagle	V		4	Terrestrial habitat includes coastal dunes, tidal flats, grassland, heathland, woodland and forest. Requires large emergent eucalypts for nesting. Living or dead mature trees within suitable vegetation within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines.	Strongest BioNet record association of sighting close to Williams River with the closet record from 2020 approx. 1.3kms south west from the Subject Site. Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. No large stick nests or sightings were recorded during field surveys and preferred habitat does not occur on site The species is unlikely to be impacted by the proposed development.	N
Hieraaetus morphnoides	Little Eagle	V		1	The Little Eagle is found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. It occurs as a single population throughout NSW. Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter. Lays two or three	One record was taken in 1993 Approx. 4km from the Subject Site. This species predominantly occupies remnant open woodland and Riparian woodland. Vegetation on site is degraded and urbanised with poor connectivity and no large stick nests were observed. This species is	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					eggs during spring, and young fledge in early summer. Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.	unlikely to be impacted by the proposed development.	
Burhinus grallarius	Bush Stone-curlew	E		1	The Bush Stone-curlew is found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania. Only in northern Australia is it still common however and in the south-east it is either rare or extinct throughout its former range. Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber. Largely nocturnal, being especially active on moonlit nights. Feed on insects and small vertebrates, such as frogs, lizards and snakes. Nest on the ground in a scrape or small bare patch. Two eggs are laid in spring and early summer.	A single record was taken within remnant bushland in Wallaroo National Park approximately 4.5kms south of the Subject Site in 2006. Species prefers open forest and woodlands. Preferred habitat not present on site and species not sighted during surveys. This species is unlikely to be impacted by the proposed development.	N
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	V	4	The species inhabits open forest and woodlands of the coast where stands of She-oak occur. The species is dependent on large hollow-bearing eucalypts for nest sites.	Four records have been recorded on BioNet with three of these in 1993 approx. 1.5km from the Subject Site. This species feeds almost exclusively on *Casuarina* and *Allocasuarina* seeds. Neither of these genus of flora were located during surveys. This species is also dependent on large to extra-large hollows for nesting. No large or extra-large hollows were	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
						observed during habitat surveys. This species is unlikely to be impacted.	
Glossopsitta pusilla	Little Lorikeet	V		4	The Little Lorikeet is distributed widely across the coastal and Great Divide regions of eastern Australia from Cape York to South Australia. NSW provides a large portion of the species' core habitat, with lorikeets found westward as far as Dubbo and Albury. Nomadic movements are common, influenced by season and food availability, although some areas retain residents for much of the year and 'locally nomadic' movements are suspected of breeding pairs. Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species. Feeds mostly on nectar and pollen, occasionally on native fruits such as mistletoe, and only rarely in orchards.	The closest BioNet record from 2008 and is considered outdated. The record is located approximately 1.5kms south east of the Subject Site. The Subject Site contains trees with small and extra small hollows that are suitable for nesting. Removal of the large Eucalypts on site will remove viable foraging and nesting habitat suitable for this species. Although, due to poor connectivity to remnant habitat and the last BioNet record being over 17 years old it is unlikely the proposed development with impact this species.	N
Lathamus discolor	Swift Parrot	E	CE	5	In NSW mostly occurs on the coast and south west slopes. Migrates to the Australian south-east mainland between February and October. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant	The cluster of BioNet records from 2012 are located almost 5kms south from the Subject Site. The Subject Site is not Important Areas Mapped for Swift Parrot. Preferred habitat not	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany *Eucalyptus robusta*, Spotted Gum *Corymbia maculata*, Red Bloodwood *C. gummifera*, Forest Red Gum *E. tereticornis*, Mugga Ironbark *E. sideroxylon*, and White Box *E. albens*. Commonly used lerp infested trees include Inland Grey Box *E. microcarpa*, Grey Box *E. moluccana*, Blackbutt *E. pilularis*, and Yellow Box *E. melliodora*..	present on site and species not sighted during surveys. This species is unlikely to be impacted by the proposed development.	
Ninox connivens	Barking Owl	V		3	Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. Roosts in shaded portions of tree canopies. Requires large old trees with hollows for nesting. Barking Owl are a dual credit species. Foraging habitat is considered an ecosystem credit and breeding is considered a species credit.	There are three (3) BioNet records with the most recent being from 1999 and located approximately 3.5kms south west of the Subject Site. Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. No individuals or suitable hollows found during field surveys. This species may utilise Subject Site for opportunistic foraging but it is unlikely this species will be impacted by the proposed development.	N
Ninox strenua	Powerful Owl	V		7	The species inhabits a range of vegetation types from woodland and open sclerophyll forest to tall open wet forest and rainforest. Requires large tree hollows (≥0.5m deep) in large eucalypts (DBH 80-	The most recent BioNet record is from 2013 and is located approximately 4.5kms west of the Subject Site within Columbey National Park. Prefers	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					240cm) that are at least 150 years old. Powerful Owl are a dual credit species. Foraging habitat is considered an ecosystem credit and breeding is considered a species credit.	woodland, open sclerophyll forest or rainforest. No individuals or suitable owl hollows located during field surveys. Unlikely species will be impacted by the proposed development.	
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V	V	2	The Brown Treecreeper is endemic to eastern Australia and often found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and River Red Gum (*Eucalyptus camaldulensis*) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging; also recorded, though less commonly, in similar woodland habitats on the coastal ranges and plains.	Two records on BioNet are both located approx. 4km south west from the Subject Site. The most recent recorded is from 1999 and considered outdated at 25 years old. Due to unsuitable habitat and no current records, it is unlikely the proposed development will impact this species.	N
Chthonicola sagittata	Speckled Warbler	V		3	The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered	Three BioNet records from 2005, 2008 and 2009 approx. >2km of the Subject Site. Study Area subject to high level of disturbance and unlikely that	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area. The diet consists of seeds and insects, with most foraging taking place on the ground around tussocks and under bushes and trees.	breeding occurs. No individuals sighted during surveys. Unlikely the proposed development will impact the species.	
Epthianura albifrons	White-fronted Chat	V		1	In NSW, it occurs mostly in the southern half of the state, in damp open habitats along the coast, and near waterways in the western part of the state. Gregarious species, usually found foraging on bare or grassy ground in wetland areas, singly or in pairs. They are insectivorous, feeding mainly on flies and beetles caught from or close to the ground. Have been observed breeding from late July through to early March, with 'open-cup' nests built in low vegetation.	One BioNet record from 1993 approx. 4km south west from the Subject Site has been taken. This record is 31 years old and not considered current. No suitable habitat for this species exists on site. It is unlikely this species will be impacted.	N
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V		8	In NSW, the eastern sub-species occurs on the western slopes of the Great Dividing Range, and on the western plains reaching as far as Louth and Balranald. It also occurs in woodlands in the Hunter Valley and in several locations on the north coast of NSW. Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains. Woodlands on fertile soils in coastal regions. Flight is laborious so birds prefer to hop to the top of a tree and glide down to	Most recent record is from 2010 and located approx. 1.3kms south from the Subject Site. Vegetation on site is degraded with minimal midstorey. Vegetation on site may be utilised for opportunistic foraging. No individuals sighted during surveys. Species unlikely to occur within the Subject Site or be impacted by the proposed development.	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					the next one. Birds are generally unable to cross large open areas.		
Daphoenositta chrysoptera	Varied Sittella	V		6	Distribution in NSW is nearly continuous from the coast to the far west. 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.	Most recent BioNet records are from 2018 and 2019 located approx. 2.5km south west from the Subject Site. This species prefers rough-barked species of tree or dead branches for foraging. No rough-barked tree species were located during surveys. No individuals sited during surveys. Species unlikely to be occur within the Subject Site or be impacted by the proposed development.	N
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V		4	Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland. Primarily eats invertebrates, mainly insects, which are captured whilst hovering or sallying above the canopy or over water. Also frequently hovers, sallies and pounces under the canopy, primarily over leaf litter and dead timber.	There are four BioNet records within a 5km radius of the Subject Site. The most recent being recorded 24 years ago in 2000. This species inhabits open woodland with a sparce understorey of shrubs and ground cover. The Subject Site is degraded and contains minimal understorey suitable for this species. No current records of this species have been recorded on BioNet. Species was not observed during surveys. It is unlikely the proposed development with impact this species.	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
Petroica boodang	Scarlet Robin	V		2	In NSW, it occurs from the coast to the inland slopes. After breeding, some Scarlet Robins disperse to the lower valleys and plains of the tablelands and slopes. Some birds may appear as far west as the eastern edges of the inland plains in autumn and winter. The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. Scarlet Robin habitat usually contains abundant logs and fallen timber: these are important components of its habitat.	Two BioNet records of this species from 1999 and 1993, approx. 5km south west from the Subject Site. Lives in dry eucalypt forests and woodlands. Preferred habitat not found on site and no individuals sighted during surveys. Species unlikely to occur within the Subject Site or be impacted by the proposed development.	N
Amphibians							
Litoria aurea	Green and Golden Bell Frog	E	V	1	Since 1990 there have been approximately 50 recorded locations in NSW, most of which are small, coastal, or near coastal populations. These locations occur over the species' former range, however they are widely separated and isolated. Large populations in NSW are located around the metropolitan areas of Sydney, Shoalhaven and mid north coast (one an island population). There is only one known population on the NSW Southern Tablelands. Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (Typha spp.) or spikerushes (Eleocharis spp.).	One outdated BioNet record from 1985 is located approx. 4km to the south west of the Subject Site. There no suitable habitat within the Subject Site for this species. Species was not identified during surveys. It is unlikely this species will be impacted by the proposed development.	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					Optimum habitat includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (Gambusia holbrooki), have a grassy area nearby and diurnal sheltering sites available.		
Mammals							
Dasyurus maculatus	Spotted-tailed Quoll	V	E	7	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Quolls use hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops as den sites. Mostly nocturnal, although will hunt during the day; spend most of the time on the ground, although also an excellent climber and will hunt possums and gliders in tree hollows and prey on roosting birds.	The two most recent BioNet records >3kms from the Subject Site both from 2006 in the National Parks. Habitat unsuitable, species unlikely to occur within the Subject Site or be impacted by the proposed development.	N
Phascogale tapoatafa	Brush-tailed Phascogale	V		16	In NSW it is mainly found east of the Great Dividing Range although there are occasional records west of the divide. Prefer dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter. Also inhabit heath, swamps, rainforest and wet sclerophyll forest. Agile climber foraging preferentially in rough barked trees of 25 cm DBH or greater. Feeds mostly on arthropods but will also eat other invertebrates, nectar and sometimes small vertebrates. Nest and shelter in tree hollows	The closest BioNet record of this species is from 2020 approx. 300m away from the Subject Site. Small and Extra small hollows were located during HBT surveys. Although connectivity to surrounding bushland is considered poor the recent record of this species in such close proximity and the presence of suitable hollows suggests it may occur within the Subject Site. The proposed	Y

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					with entrances 2.5 - 4 cm wide and use many different hollows over a short time span.	development would require the removal of the large trees with habitat suitable for the species. Therefore, the proposed development may impact this species.	
Phascolarctos cinereus	Koala	E	E	268	Inhabit eucalypt woodlands and forests. Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. Inactive for most of the day, feeding and moving mostly at night. Spend most of their time in trees, but will descend and traverse open ground to move between trees. Home range size varies with quality of habitat, ranging from less than two ha to several hundred hectares in size. Generally solitary, but have complex social hierarchies based on a dominant male with a territory overlapping several females and sub-ordinate males on the periphery.	An assessment of BioNet showed 268 records within 10km from the Subject Site. The closest record is located approx. 150m west of the Subject Site from 2023, with two other records located approximately 200m north from 2024. Four Large *Eucalyptus tereticornis* were identified within the Subject Site. These Eucalypts are a known Koala feed tree for the locality. The proposed development would require their removal. Therefore, it is likely the species could be impacted by the proposed development and is further considered in the 5-part test.	Y
Petaurus norfolcensis	Squirrel Glider	V		7	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. Prefers mixed species stands with a shrub or Acacia midstorey. Live in family groups of a single adult male one or more adult females and offspring.	The closest recent BioNet record from 2010 occurs approx. 2.5kms west of the Subject Site. Three small hollows were located within the Subject Site that would be suitable for Squirrel Glider roosts. Inhabits mature or old growth Box, Box-Ironbark woodlands	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					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.	and River Red Gum Forest west of the Great Dividing Range and Blackbutt-Bloodwood Forest with heath understory in coastal areas. Prefers mixed species stands with a shrub or Acacia midstory. Although there are suitable hollows for this species within the Subject Site the connectivity to surrounding bushland is poor and there are no recent records in close proximity. This species is unlikely to occur as suitable habitat is not present, therefore impacts to this species are considered unlikely.	
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	18	Grey-headed Flying-foxes are generally found within 200 km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. In times of natural resource shortages, they may be found in unusual locations. Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Feed on the nectar and pollen of native trees, in particular Eucalyptus,	The closest recent BioNet record from 2011 occurs approx. 240m east of the Subject Site. This species was not observed during field surveys. This species may utilise tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. No roost camps are present. Subject Site may constitute marginal foraging for this species but with minimal clearing, impacts to this species is considered unlikely.	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					Melaleuca and Banksia, and fruits of rainforest trees and vines. Also forage in cultivated gardens and fruit crops.		
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	V		3	The Eastern Freetail-bat is found along the east coast from south Queensland to southern NSW. Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Roost mainly in tree hollows but will also roost under bark or in man-made structures. Usually solitary but also recorded roosting communally, probably insectivorous.	The most recent BioNet record is from 2022 occurs approx. 2kms west of the Subject Site. Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. There are small and extra small hollows within the Subject Site these may be suitable habitat for this species. The proposed development will impact these possible roosting hollows. This is a subject species.	Y
Myotis macropus	Southern Myotis	V		13	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, wharves, bridges and in dense foliage. Forage over streams and pools catching insects and small fish by raking their feet across the water surface.	The closest recent BioNet record from 2022 and occurs approx. 300m east of the Subject Site. The Subject Site contains a concrete bridge and multiple suitable roosting hollows. The proposed development will impact these possible roosting hollows. Due to the close proximity and recent record, this is considered as a subject specie	Y

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
Phoniscus papuensis	Golden-tipped Bat	V		1	Found in rainforest and adjacent wet and dry sclerophyll forest up to 1000m. Also recorded in tall open forest, Casuarina-dominated riparian forest and coastal Melaleuca forests. Bats will fly up to two kilometres from roosts to forage in rainforest and sclerophyll forest on mid and upper-slopes. Roost mainly in rainforest gullies on small first- and second-order streams in usually abandoned hanging Yellow-throated Scrubwren and Brown Gerygone nests modified with an access hole on the underside. Bats may also roost under thick moss on tree trunks, in tree hollows, dense foliage and epiphytes.	There is one BioNet record from 1999 located approx. 4km south west from site. No suitable habitat is present within the Subject Site for this species. This species is unlikely to be impacted by the proposed development.	
Scoteanax rueppellii	Greater Broad-nosed Bat	V		2	Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Although this species usually roosts in tree hollows, it has also been found in buildings. Forages after sunset, flying slowly and directly along creek and river corridors at an altitude of 3 - 6 m. Open woodland habitat and dry open forest suits the direct flight of this species as it searches for beetles and other large, slow-flying insects; this species has been known to eat other bat species.	The closest BioNet record from 2007 occurs approx. 1.5kms east of the Subject Site. Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Due to the presence of suitable hollows within the Subject Site and the proposed development impacting suitable hollows. This is a subject species.	Y
Miniopterus australis	Little Bent-winged Bat	V		5	Moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub. Generally	The single BioNet record from 2018 occurs approx. 1.5kms west of the Subject Site. There are no known	Y

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					found in well-timbered areas. Little Bentwing-bats roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings during the day, and at night forage for small insects beneath the canopy of densely vegetated habitats.	maternity caves on site or nearby. This species may roost in tree hollows, caves or man-made structures. Multiple suitable hollows were recorded on site and the proposed development will impact these possible roosting hollows. This further considered as a subject species	
Miniopterus orianae oceanensis	Large Bent-winged Bat	V		8	Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young. Maternity caves have very specific temperature and humidity regimes. At other times of the year, populations disperse within about 300 km range of maternity caves. Cold caves are used for hibernation in southern Australia. Breeding or roosting colonies can number from 100 to 150,000 individuals. Hunt in forested areas, catching moths and other flying insects above the tree tops.	The Two most recent BioNet records are from 2007 and 2014 occur >1.6kms from the Subject Site There are no known maternity caves on site or nearby. This species may roost in man-made structures such as bridge culverts. This species is unlikely to be impacted by the proposed development.	N
Pseudomys novaehollandiae	New Holland Mouse	V		2	Known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes. It is a social animal, living predominantly in burrows shared with other individuals Distribution is patchy in time and space,	Two outdated BioNet records from 1993 were taken 4.5km south west of the Subject Site. Due to unsuitable habitat and no current records close to the Subject Site. It is unlikely the	N

Scientific Name	Common Name	NSW status	EPBC Act	BioNet Records (10km x 10km)	Likelihood of Occurrence		Subject Species (Y/N)
					Species Description	Assessment	
					with peaks in abundance during early to mid stages of vegetation succession typically induced by fire	proposed development will impact this species.	

Table Key - Status (BC Act & EPBC Act): CE: Critically Endangered, E: Endangered, EP: Endangered Populations V: Vulnerable (#) – Indicates number of Atlas Records within 5km of the Subject Site.

From **Table 7** above, the species listed in **Table 8** are considered key subject or indicator species for the Subject Site due to being recorded on site, or having potential to forage and roost or nest on the site. The site potentially forms an important part of a local home range for resident species and some potential habitat will be removed by the proposal. It is noted as a precautionary principle the TECs associated with the PCTs on site have been assessed, even though it has been determined that the vegetation on site is not commensurate with the TECs.

Table 8 – Subject Species

Scientific Name	Common Name	BC Act listing	EPBC Act listing
Flora			
Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions.		E	
Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions.		E	
Mammals			
Phascolarctos cinereus	Koala	E	E
Phascogale tapoatafa	Brush-tailed Phascogale	V	
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	V	
Myotis macropus	Southern Myotis	V	
Scoteanax rueppellii	Greater Broad-nosed Bat	V	
Miniopterus australis	Little Bent-winged Bat	V	

Table Key - Status (BC Act & EPBC Act):
E: Endangered, V: Vulnerable

From **Table 8**, it has been considered that there are potential Subject Species utilising the Subject Site for foraging, nesting and/or roosting and it has been further considered within the 5-part test despite the degraded site conditions.

7.0 Key Species Considerations

The species identified for further consideration have been categorised into guilds in **Table 9**. By considering these species and their lifecycle needs, many other species are also inadvertently considered. The analysis below considers key lifecycle features for each guild of species in more detail, and assists in informing the subsequent 5-part test assessment.

Table 9 - Key Species Analysis

Guild/Species	Reason for inclusion	Comment
EEC		
Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Potential TEC	Severely degraded condition with few diagnostic species
Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions.	Potential TEC	Severely degraded condition with few diagnostic species
Mammals		
Koala	Proximity and abundance of local records	Koala feed trees are present within the Subject Site.
Brush-tailed Phascogale	Proximity and abundance of local records, suitable hollows	Site provides marginal foraging habitat and potential breeding habitat for the species.
Eastern Coastal Free-tailed Bat	Suitable hollows	Site provides marginal foraging habitat and potential breeding habitat for the species.
Southern Myotis	Suitable hollows	Site provides marginal foraging habitat and potential breeding habitat for the species.
Greater Broad-nosed Bat	Suitable hollows	Site provides marginal foraging habitat and potential breeding habitat for the species.
Little Bent-winged Bat	Suitable hollows	Site provides marginal foraging habitat and potential roosting habitat for the species.

8.0 Five-Part Test Assessment

Section 7.3 of the BC Act lists five factors that must be taken into account in determining the significance of potential impacts of proposed activities on threatened species, populations, ecological communities and/or their habitats as listed within the *BC Act.*

The 5-part test is used to determine whether there is likely to be a significant impact, and thus whether the Biodiversity Offsets Scheme (BOS) is triggered or a Species Impact Statement (SIS) is required (refer **Table 10**).

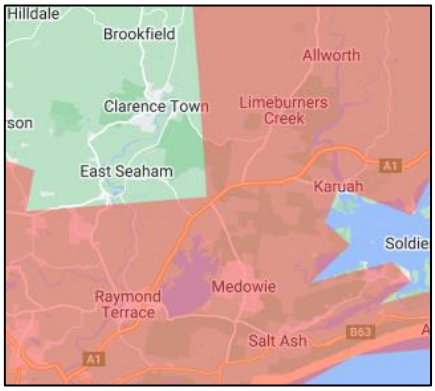
The site at 29 Grey Street, Clarence Town consists of a business dwelling currently operating as a beauty salon in the south, surrounded by a managed exotic dominant grass lawn with a stormwater management drain. The northern portion of the Subject Site at 33 & 35 Grey Street, consists of patches of native canopy trees with managed exotic understorey. The presence of introduced pasture grasses and forbs and minimal native vegetation is conducive of an area used for historic grazing and land clearing, centrally located within an urban environment within the township.

Three (3) Hollow Bearing Trees (HBTs) were recorded within the Subject Site with only three (3) hollows and three (3) small and six (6) extra-small hollows. These canopy trees provide marginal potential habitat for a range of species; however, it is fragmented within an urban environment.

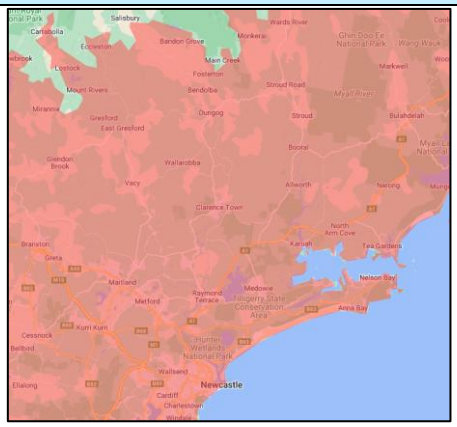
Table 10 – 5-Part Test

Section of BC Act 7.3	Requirement	Assessment
a)	*In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.* **Koala** *(Phascolarctos cinerea)* **Brush-tailed Phascogale** *(Phascogale tapoatafa)* **Threatened Microbats-** - **Eastern Coastal Free-tailed Bat** *(Micronomus norfolkensis)* - **Southern Myotis** *(Myotis Macropus)* - **Greater Broad-nosed Bat** *(Scoteanax rueppellii)* - **Little Bent-winged Bat** *(Miniopterus australis)*	The proposed development footprint will disturb approximately 0.21ha of native vegetation. Koala feed trees, three HBTs were recorded, two small nests but no roosts or breeding sites were observed within the Subject Site. The site contains marginal foraging habitat for more mobile threatened species that may live and breed in the vegetation within the greater locality towards Williams River and Wallaroo National Park to the south east or further west within Uffington State Forest and Columbey National Park. Considering the small amount of highly modified urbanised habitat to be removed, and presence of large areas of retained vegetation within the greater locality, it is not anticipated that the proposal will have significant impacts to these species that will adversely affect the life cycle of a species. **<u>Koala</u>** There are an abundance of BioNet records (268) records within 10km from the Subject Site. The closest record is located approx. 150m west from the Subject Site from 2023, with two other records located approximately 200m north from 2024. Four large *Eucalyptus tereticornis* were identified within the Subject Site. These Eucalypts are a known primary Koala feed tree

Section of BC Act 7.3	Requirement	Assessment
		for the locality. The proposed development would require their removal. As the Subject Site is not greater than 1ha and does not have an approved Koala Plan of Management, the SEPP does not apply, and no additional assessments are required to satisfy the Development Assessment process. Whilst these Eucalypts are a potential feed tree for Koalas, given they are fragmented within an urban environment, Koala use is unlikely. Due to large swathes of protected and higher quality vegetation that are present within the surrounds, it is not anticipated that the proposal will have significant impacts to this species that will adversely affect the life cycle of a species. **Brush-tailed Phascogale** Of the 16 BioNet records, the closest record of this species is from 2020 and located approx. 300m away from the Subject Site. Small and extra small hollows were located during HBT surveys. Connectivity to surrounding bushland is considered poor and this species usually prefers foraging in rough barked trees. With the *E. tereticornis*, as a smooth barked species and lack of native ground stratum species and leaf litter for foraging, site suitability would be considered marginal for this species. Due to large swathes of protected and higher quality vegetation that are present within the surrounds, it is not anticipated that the proposal will have significant impacts to this species that will adversely affect the life cycle of a species. **Microbats** For cave dwelling species; caves or suitable artificial structures are absent, although the installation of bridges may be utilised in the future. Little Bent-winged Bat would not utilise the site for breeding, whilst the hollow dependant species; Eastern Coastal Free-tailed Bat, Southern Myotis and Greater Broad-nosed Bat, the site could be considered as potential habitat. Microbats are more likely to utilise the interface between forested and open grassland habitat for foraging as this provides an ideal mix of shelter habitat, forage species and open flyways. Given the location of vegetated areas along Williams River and Wallaroo National Park to the

Section of BC Act 7.3	Requirement	Assessment
		south east or further west within Uffington State Forest and Columbey National that represent significant foraging habitat for these species and the very limited amount of habitat on site, it is unlikely that the proposal will have a significant impact on any microbat species such that the local population of these highly mobile species are put at risk of extinction.
b)	in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or Including: *Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions;* and *Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions.*	A precautionary approach has been adopted to consider the communities on site to be associated with the listed Threatened Ecological Community (TEC). Both PCT's on site are severely degraded and in a highly modified and managed landscape, that has been subject to continual and historical management within an urban environment. The proposed development will result in the removal or modification of approximately 0.21ha native vegetation and 0.38ha non-native vegetation. PCT 3975 - *Southern Lower Floodplain Freshwater Wetland* is associated with the BC Act TEC ***Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions.*** Approximately 0.065ha of PCT 3975 will be impacted. The TEC is associated with coastal areas subject to periodic flooding and in which standing fresh water persists for at least part of the year in most years. Known in the Hunter Sub IBRA but not in the Clarence Town region as per the OEH NSW Government mapping below:  Additionally, those that lack standing water most of the time are usually dominated by dense grassland or sedgeland vegetation, often forming

Section of BC Act 7.3	Requirement	Assessment
		a turf less than 0.5 metre tall and dominated by amphibious plants including *Paspalum* distichum (water couch), Leersia *hexandra* (swamp rice-grass), *Pseudoraphis spinescens* (mud grass) and *Carex appressa* (tussock sedge). None of these species were noted within the Subject Site. Where they are subject to regular inundation and drying (as you would expect from a stormwater management drain area) the vegetation may include large emergent sedges over 1 metre tall, such as *Baumea articulata*, *Eleocharis equisetina* and *Lepironia articulata*, as well as emergent or floating herbs such as *Hydrocharis dubia* (frogbit), *Philydrum lanuginosum* (frogsmouth), *Ludwigia peploides* subsp. *montevidensis* (water primrose), *Marsilea mutica* (nardoo) and *Myriophyllum* spp. (milfoils). *Baumea articulata* was the only species found within the Subject Site that could be associated with this EEC and it is commonly found across many PCT's. Only three diagnostic species within the Subject Site were commensurate with the associated TEC; *Baumea articulata* (Jointed Twig-Rush), *Cynodon dactylon* (Common Couch) and *Typha orientalis* (Cumbungi), that can also be commonly associated with other wetland PCT's, were identified within the Subject Site Therefore, vegetation present within the Subject Site does not constitute a TEC and impacts to this TEC are not expected as part of this proposal. No EEC vegetation will be directly affected by the proposal. PCT 3433 - *Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest* (0.14ha) is associated with a threatened ecological community (TEC); ***Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions.*** Occurs principally on Permian geology in the central to lower Hunter Valley. Known in the Hunter Sub IBRA and in the Clarence Town region as per the OEH NSW Government mapping below

Section of BC Act 7.3	Requirement	Assessment
		 The TEC is restricted to a range of approximately 65 km by 35 km centred on the Cessnock - Beresfield area in the Central and Lower Hunter Valley. Within this range, the community was once widespread. A fragmented core of the community still occurs between Cessnock and Beresfield. Remnants occur within the Local Government Areas of Cessnock, Maitland, Singleton, Lake Macquarie, Newcastle and Port Stephens but may also occur elsewhere within the bioregion. Outliers are also present on the eastern escarpment of Pokolbin and Corrabare State Forests on Narrabeen Sandstone. The site contained only three diagnostic species characteristic of its associated TEC. *Microlaena stipoides* (Weeping Grass), *Glycine clandestina* (Twining Glycine) and *Dichelachne micrantha* (Shorthair Plumegrass) and the dominant canopy species on site of *Eucalyptus tereticornis* is not a diagnostic species for this TEC. Therefore, vegetation present within the Subject Site does not constitute a TEC and impacts to this TEC are not expected as part of this proposal. No EEC vegetation will be directly affected by the proposal. Removal of 0.21ha of native vegetation in a highly modified state is considered low and it is unlikely that removal of this vegetation will have an adverse effect on the extent of any EEC if was present, such that its local occurrence is likely to be placed at risk of extinction.
c)	In relation to the habitat of a threatened species or ecological community the extent to which habitat is likely to be removed or	No threatened species or TEC will be impacted by this proposal to remove 0.21ha of severely degraded native vegetation. No significant

Section of BC Act 7.3	Requirement	Assessment
	modified as a result of the proposed development or activity, and	impacts to threatened species or ecological communities are expected.
	Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and	The Subject Site is centrally located within the Clarence Town township surrounded by cleared and developed areas in all directions. Land in the northern blocks contain some good quality canopy native vegetation. Therefore, it is considered the proposal to remove 0.21ha of native vegetation is not likely to result in the area of habitat becoming fragmented or isolated from other areas of habitat any more than what is currently present on site.
	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	Habitat on site consists of isolated and managed vegetation amongst residential and business properties within a township. There is limited connectivity to neighbouring vegetation and the removal of a small amount of highly modified vegetation is unlikely to impact the long-term survival of a species or ecological community nor result in fragmentation or isolation of habitat.
d)	Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly)	The site does not contain, nor is adjacent to, any areas of outstanding biodiversity value. Consequently, no adverse impacts are anticipated as part of this development.
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 (KTP)	The development has potential to contribute to the following KTPs: **Clearing of native vegetation** The proposal will remove a small amount of exotic vegetation (0.38ha) and severely degraded native vegetation (0.21ha). Removal of this vegetation is not considered a significant contribution to this KTP. **Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae** Controls including the disinfection of equipment before entering site should be undertaken to minimise any risks of infection. Provided such processes are implemented, it is not expected that earthworks undertaken during the construction phase would contribute significantly to this KTP. **Infection of native plants by Phytophthora cinnamomic**

Section of BC Act 7.3	Requirement	Assessment
		Controls including the disinfection of equipment before entering site should be undertaken to further minimise any risks of infection. Therefore, provided that appropriate hygiene measures are in place, the works undertaken during the proposed development are not considered as likely to contribute to this KTP. **Invasion and establishment of aggressive weed species and exotic perennial grasses** The proposed development is not expected to amplify the existing presence of exotic weed species, as vegetation clearance will be minimal, Weed species and exotic grasses were recorded at the Subject Site. However, the proposed development will not contribute to this KTP, and may reduce the establishment of aggressive weed species by maintaining the vegetation within the proposed development. **Anthropogenic Climate Change** While the proposed development will have minimal direct contribution towards anthropogenic climate change, cumulative impacts should be considered. It is recommended that all construction processes and designs adopt relevant guidelines for the reduction and minimisation of actions contributing to climate change.

9.0 EPBC Act Assessment

A Protected Matters Search of an area of 5km radius of the Subject Site was conducted in October 2024 for Matters of National Environmental Significance as relevant to the Environment Protection & Biodiversity Conservation Act 1999 (EPBC Act). The following Matters of National Significance are considered in this assessment.

World Heritage Properties:

The site is not a World Heritage area and is not in close proximity to any such area.

National Heritage Places:

The site is not a National Heritage place, and it is not in close proximity to any such place.

Wetlands of International Significance (declared Ramsar wetlands):

The site has the Internationally or Nationally important Wetlands of the Hunter estuary wetlands as the Subject Site is within proximity 10-20kms upstream from this Ramsar site.

Great Barrier Reef Marine Park:

The site is not part of, or within close proximity to, the Great Barrier Reef Marine Park.

Commonwealth Marine Areas:

The site is not part of, or within close proximity to, any Commonwealth Marine Area.

Threatened Ecological Communities:

From a search of the EPBC Protected Matters website (13/12/2022), five (5) listed Threatened Ecological Communities (TECs) were considered likely to occur within a 5km radius of the Subject Site.

Two (2) Critically Endangered Ecological Communities;

- *Central Hunter Valley eucalypt forest and woodland; and*
- *Lowland Rainforest of Subtropical Australia.*

Three (3) Endangered Ecological Communities:

- *Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community;*
- *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions; and*
- *Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland.*

The vegetation on site is not commensurate with any of the listed Commonwealth listed TECs.

Ground truthing of vegetation on site identified PCT 3975 - *Southern Lower Floodplain Freshwater Wetland* is associated with the BC Act TEC *Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*.

PCT 3433 - *Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest* is associated with the BC Act TEC *Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions.*

Vegetation within the Subject Site is not commensurate with either of the State listed TEC's as listed above as discussed within the 5-part Test of Significance.

Threatened Species:

No threatened fauna or flora species listed under the EPBC Act were recorded within Subject Site. Therefore, given that only a very small amount of seasonal foraging habitat is being removed, this development is unlikely to impact significantly on EPBC listed threatened fauna species.

Migratory Species:

There is potential for some of the migratory terrestrial species listed in the EPBC Act to visit the site on an irregular basis. However, it is considered that the proposal is unlikely to significantly affect the availability of potential habitat for such mobile species, or disrupt migratory patterns.

EPBC Act Assessment Conclusion:

Consideration of the EPBC Act revealed that it is unlikely that significant impacts on Matters of National Environmental Significance will occur as a result of the proposal. As such a referral is not considered likely to be necessary.

10.0 State Environmental Planning Policy (Biodiversity and Conservation) 2021

State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BC SEPP) commenced on the 1st March 2022, under the Environmental Planning and Assessment Act 1979, and repealing the previous State Environmental Planning Policy (Koala Habitat Protection) 2020 and State Environmental Planning Policy (Koala Habitat Protection) 2021. The aims of Chapter 4 – Koala Protection 2021 are to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline.

The land which comprises the Subject Site does not have an approved koala plan of management. According to the BC SEPP 2021, the policy applies if:

4.9 Development assessment process—no approved koala plan of management for land

(1) This clause applies to land to which this Chapter applies if the land—

(a) has an area of at least 1 hectare (including adjoining land within the same ownership), and

(b) does not have an approved koala plan of management applying to the land.

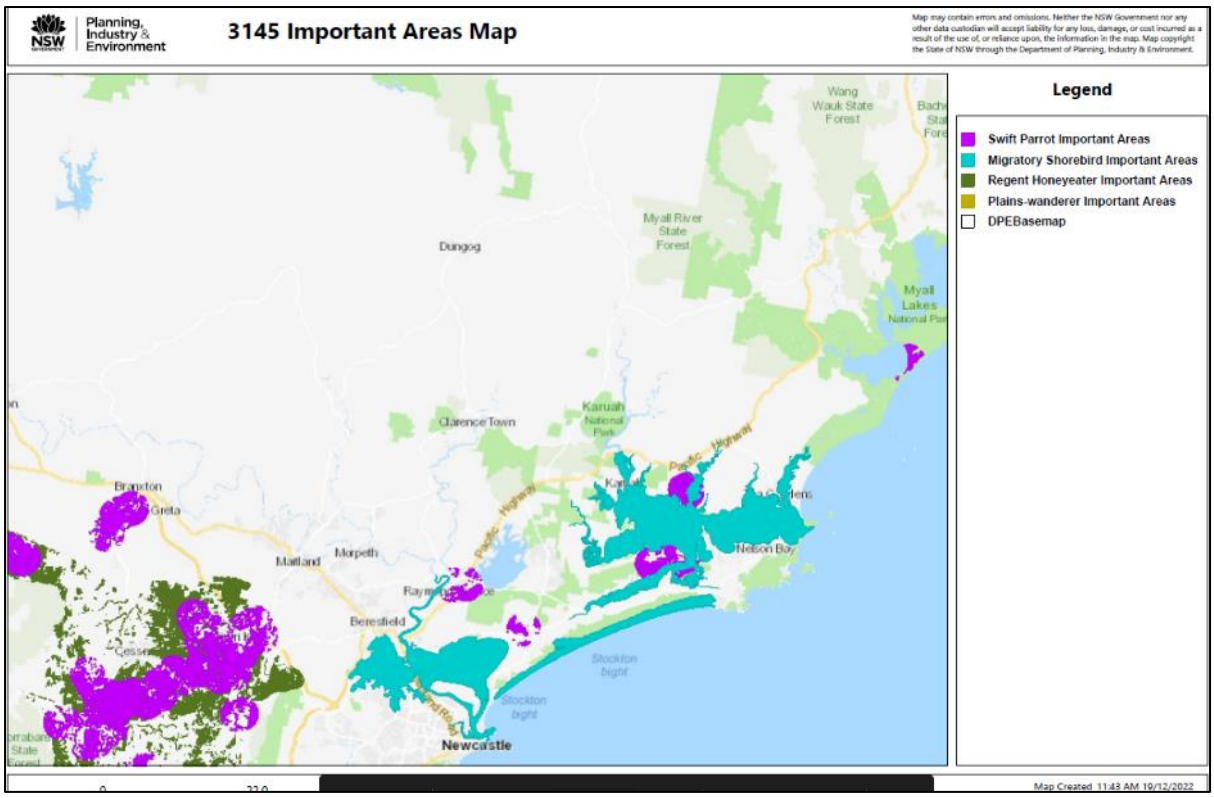
Review of the information identified that the entirety of Lot 1/3 DP 758250, 3/3/DP758250 and 20/3/DP758250 located at 29, 33 & 35 Grey Street, Clarence Town NSW 2321 is not greater than 1ha and does not have an approved Koala plan of management. Therefore, the SEPP does not apply. As a result, no additional assessments were required to satisfy the Development Assessment process.

11.0 Important Area Map Assessment

No sections of the Subject Site or any area in close proximity to Clarence Town have been mapped as “Swift Parrot Important Areas”, “Regent Honey Eater Important Areas”, or “Migratory Species Important Areas” as defined by the Biodiversity Assessment Method Calculator Important Area Map (DPIE 2021) refer **Table 11.**

As such it is not considered that the development would have any major adverse impacts upon these species or species groups.

Table 11 - Important Area Map



12.0 State Environmental Planning Policy (Resilience and Hazards) 2021

Investigations in accordance with the State Environmental Planning Policy (Resilience and Hazards) 2021 (R&H SEPP) found that the Subject Site does not fall within the Proximity to Coastal Wetlands and Littoral Rainforest Area, Coastal Environment Area or Coastal Use Area Mapping. As such, no further assessment is required. It is likely that the proposed development will have minimal to no impact on the catchment area following the installation of appropriate water sensitive urban design (WSUD), sediment and erosion control and stormwater management.

13.0 Water Management Act 2000

The DPE (Water) administers the WM Act and is required to assess activities carried out on waterfront land. Waterfront land includes the bed and bank of any river, lake or estuary and all land within 40 meters of the highest bank of the river, lake or estuary. Certain activities within this land are defined as a ‘controlled activity’ and requires approval from the Office of Water.

No mapped hydrolines or artificial dams were recorded within the project area and no further assessment was required.

Due to the presence of a stormwater management drain and flood mapping within this area, there is a high requirement to ensure that the development design includes an appropriate stormwater management plan.

14.0 Dungog Local Environmental Plan 2014

Aims of Plan

(1) This Plan aims to make local environmental planning provisions for land in Dungog in accordance with the relevant standard environmental planning instrument under section 33A of the Act.

(2) The particular aims of this Plan are as follows:

(a) to protect rural lands, natural resources, and items and areas of heritage significance,

(b) to manage development to benefit the community,

(c) to promote the principles of ecologically sustainable development and sustainable water management, and to recognise the cumulative impacts of climate change,

(d) to protect, enhance and provide for biological diversity, including native threatened species, populations and ecological communities, by long term management and by identifying and protecting habitat corridors and links throughout Dungog,

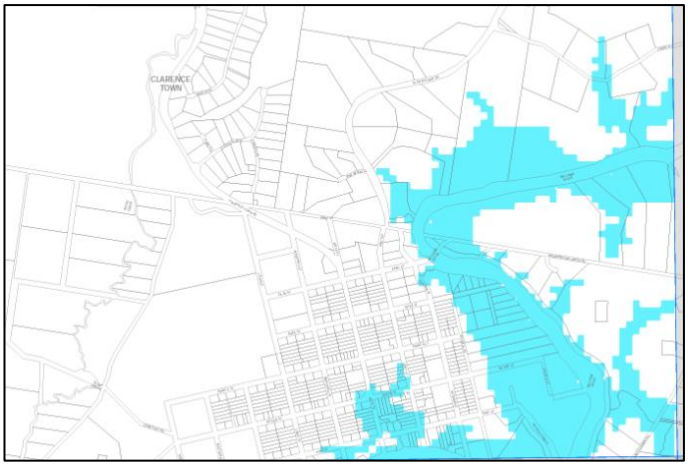
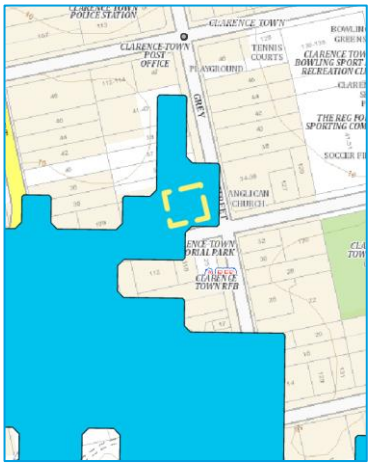
(e) to encourage a mix of housing to meet the needs of the community,

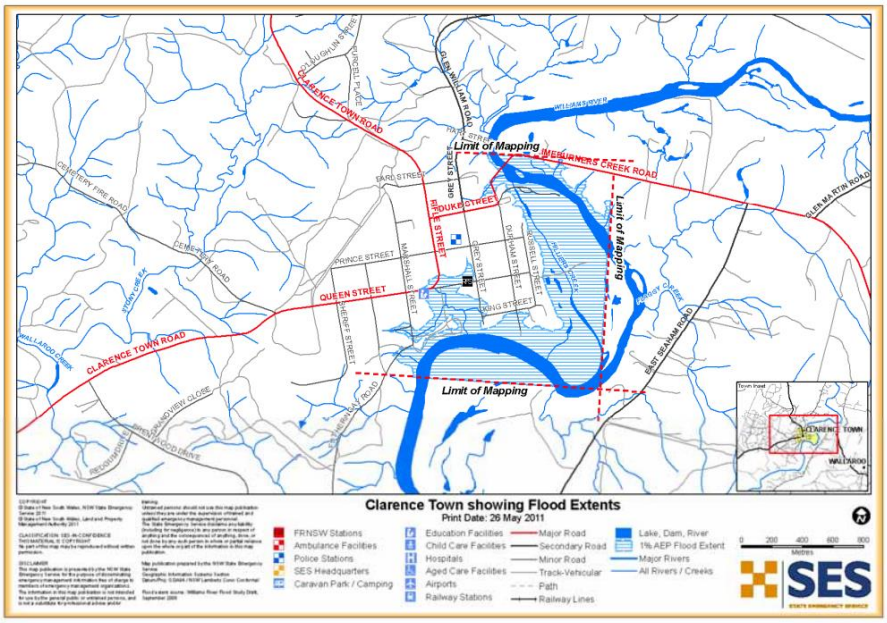
(f) to protect agricultural lands by preventing adverse impacts from non-agricultural land uses,

(g) to strengthen retail, agricultural and tourism opportunities.

Table 12 - LEP Assessment

Dungog Local Environmental Plan 2014	
Part 6 Additional local provisions	**AEP Assessment**
6.3 Flood planning	
(1) The objectives of this clause are as follows:	
(a) to minimise the flood risk to life and property associated with the use of land,	Addressed in SEE
(b) to allow development on land that is compatible with the land's flood hazard, taking into account projected changes as a result of climate change,	Addressed in SEE
(c) to avoid significant adverse impacts on flood behaviour and the environment.	Addressed in SEE
(2) This clause applies to:	
(a) land identified as "Flood planning area" on the Flood Planning Map, and	Refer to the below references in reference to impacts on Subject Site

Dungog Local Environmental Plan 2014	
Part 6 Additional local provisions	**AEP Assessment**
	Flood Planning Map ex Dungog Local Environmental Plan 2014 references
	Flood Planning Map ex ePlanning Spatial Viewer
	Flood Planning check Ex Dungog Shire Council mapping

Dungog Local Environmental Plan 2014	
Part 6 Additional local provisions	**AEP Assessment**
Figure 7-24 Dungog Local Flood Plan – Flood Extent Mapping for Clarence Town 	Flood Extent Mapping for Clarence Town *Clarence Town Floodplain Risk Management Study and Plan* BMT WBM Reference: R.N20044.001.00.docx Date: October 2014
(b) other land at or below the flood planning level.	Addressed in SEE
(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development:	
(a) is compatible with the flood hazard of the land, and	Addressed in SEE
(b) will not significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and	Addressed in SEE
(c) incorporates appropriate measures to manage risk to life from flood, and	Addressed in SEE
(d) will not significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and	Addressed in SEE
(e) is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding.	Addressed in SEE
(4) A word or expression used in this clause has the same meaning as it has in the *Floodplain Development Manual (*ISBN 0 7347 5476 0*)* published by the NSW Government in April 2005, unless it is otherwise defined in this clause.	
(5) In this clause, ***flood planning level*** means the level of a 1:100 ARI (average recurrent interval) flood event plus 0.5 metre freeboard.	

15.0 Recommendations

Impacts from the proposed development have been considered though the 5-Part test and other relevant legislative instruments. As the development only requires the removal of a small area of non-native (0.38ha) and native vegetation (0.21ha), and majority of the site currently contains managed lawns and existing infrastructure, the development is unlikely to have a significant impact of any threatened entities. General recommendations are made for consideration to mitigate potential impacts on local biodiversity as a result of the development of the site.

Water Quality and Hydrology

- Due to the presence of a stormwater management drain and flood mapping within this area, there is a requirement to ensure that the development design includes an appropriate stormwater management plan.
- An Erosion and Sedimentation Control Plan (ESCP) should be prepared for the proposal following guidelines from the “Blue Book” (Landcom, 2004);
- Best practice erosion and sedimentation controls should be put in place to limit any movement of materials into the adjacent vegetation; and
- Erosion and sedimentation controls should be checked and maintained in working order especially after rain events.

Protection and Management of Vegetation

- Fencing to be installed around the proposed development as required;
- Establish and maintain appropriate erosion and sediment controls during construction and thereafter;
- Prior to clearing of any vegetation, an ecologist is to inspect the area for any signs of resident fauna requiring attention, and in particular nesting birds or unidentified Hollow Bearing Tree’s (HBTs). Where such is identified, appropriate strategies are to be developed and instigated to minimise impacts. Pre-clearance surveys to include diurnal surveys, stag watching and nocturnal surveys;
- Clearing should occur in a direction from previously disturbed lands towards existing vegetated lands;
- Vegetation clearing is to be timed to avoid cold weather periods where overnight temperatures are forecast. Cold weather is likely to make it difficult for resident hollow dependent fauna to successfully relocate. This is particularly relevant for low body-weight species;
- A staged approach to clearing is to be undertaken to provide fauna the opportunity to disperse outside the area of impact. Staging to include Phase 1 Clearing: Underscrubbing, Phase 2 Clearing: Removal of non-habitat trees, and Phase 3 Clearing: Removal of habitat and connecting trees;
- All clearing works are to be attended by a suitable equipped and experienced ecologist to deal appropriately with any displaced fauna species;
- All clearing works (Stage 1, 2 and 3) are to be undertaken under the supervision of the Project Ecologist;
- Implement clearing protocols, including pre-clearance surveys to identify habitat and vegetation to be retained;
- All hollow-bearing features will be sectionally lowered by tree climbers (where safe to do so);

- Any fauna rescued during vegetation clearing is to be assessed for injuries, and subsequently released to a suitable nearby location; this may require holding fauna until dusk for release in accordance with relevant animal ethics licencing and standards;
- If any fauna is injured during vegetation clearing, they are to be taken promptly to a nearby veterinarian or suitable wildlife carer contact;
- Any suitable hollows recovered during clearing works should be reconditioned into suitable hollows and installed in council approved retained lands if none available within the Subject Site, in addition to the manufactured nest boxes at a ratio of 2:1 if required;
- Civil Construction staff are to be inducted into pre-clearing and clearing protocols, and to identify environmental features for protection;
- Equipment should be cleaned thoroughly and disinfected before entering and exiting site to prevent weed and disease introduction such as *Phytophthora cinnamomi* (Root-rot fungus), *Puccinia psidii* (Myrtle Rust) and others; and
- Landscaping should incorporate species that are endemic to the area.

Fencing

- No barb wire is to be used within the Subject Site. All fencing within the Subject Site must allow for movement of fauna with a focus on the potential movement of Koala and Squirrel Glider through the site.
- Appropriate fencing to be installed to demarcate development works and if required appropriate tree protection fencing to be provided on trees proposed for retention.

Further recommendations;

- Landscaping is to utilise native species endemic to the nearby plant community types, and is to be managed ongoing as a buffer against edge effects and offsite disturbances;
- Undertake ongoing weed management within landscaped area;
- Construction measures should be will be implemented for the proposed development, in accordance with best practice guidelines, such as minimising dust emissions during construction, wet down areas if required; and
- Equipment should be cleaned thoroughly and disinfected before entering and exiting site to prevent weed and disease introduction such as *Phytophthora cinnamomi* (Root-rot fungus), *Puccinia psidii* (Myrtle Rust) and others.

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Appendix A – BOSET 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		03/10/2024 12:54 PM
1. Biodiversity Values (BV) Map - Results Summary (Biodiversity Conservation Regulation Section 7.3)		
1.1	**Does the development Footprint intersect with BV mapping?**	no
1.2	Was ALL BV Mapping within the development footprinted 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?**	no
2. Area Clearing Threshold - Results Summary (Biodiversity Conservation Regulation Section 7.2)		
2.1	**Size of the development or clearing footprint**	33,418.2 sqm
2.2	**Native Vegetation Area Clearing Estimate (NVACE)** (within development/clearing footprint)	9,621.6 sqm
2.3	**Method for determining Minimum Lot Size**	Lot size
2.4	**Minimum Lot Size** (10,000sqm = 1ha)	1,788 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**

What do I do with this report?

• If the result above indicates the BOS Threshold has been exceeded, your local council may require a Biodiversity Development Assessment Report with your development application. Seek further advice from Council. An accredited assessor can apply the Biodiversity Assessment Method and prepare a BDAR for you. For a list of accredited assessors go to: https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor.

• If the result above indicates the BOS Threshold has not been exceeded, you may not require a Biodiversity Development Assessment Report. This BMAT report can be provided to Council to support your development application. Council can advise how the area clearing threshold results should be considered. Council will review these results and make a determination if a BDAR is required. Council may ask you to review the area clearing threshold results. You may also be required to assess whether the development is '"likely to significantly affect threatened species" as determined under the test in Section 7.3 of the *Biodiversity Conservation Act 2016*.

• If a BDAR is not required by Council, you may still require a permit to clear vegetation from your local council.

• If all Biodiversity Values mapping within your development footprint was less than 90 days old, i.e. areas are displayed as dark purple on the BV map, a BDAR may not be required if your Development Application is submitted within that 90 day period. Any BV mapping less than 90 days old on this report will expire on the date provided in Line item 1.3 above.

For more detailed advice about actions required, refer to the Interpreting the evaluation report section of the Biodiversity Values Map Threshold Tool User Guide .

Review Options:

• If you believe the Biodiversity Values mapping is incorrect please refer to our BV Map Review webpage for further information.

• If you or Council disagree with the area clearing threshold estimate results from the NVACE in Line Item 2.6 above (i.e. area of Native Vegetation within the Development footprint proposed to be cleared), review the results using the Guide for reviewing area clearing threshold results from the BMAT Tool.

Acknowledgement

I, as the applicant for this development, submit that I have correctly depicted the area that will be impacted or likely to be impacted as a result of the proposed development.

Signature: _____ Date: _____

(Typing your name in the signature field will be considered as your signature for the purposes of this form)

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Biodiversity Values Map and Threshold Tool

The Biodiversity Values (BV) Map and Threshold Tool identifies land with high biodiversity value, particularly sensitive to impacts from development and clearing.

The BV map forms part of the Biodiversity Offsets Scheme threshold, which is one of the factors for determining whether the Scheme applies to a clearing or development proposal. You have used the Threshold Tool in the map viewer to generate this BV Threshold Report for your nominated area. This report calculates results for your proposed development footprint and indicates whether Council may require you to engage an accredited assessor to prepare a Biodiversity Development Assessment Report (BDAR) for your development.

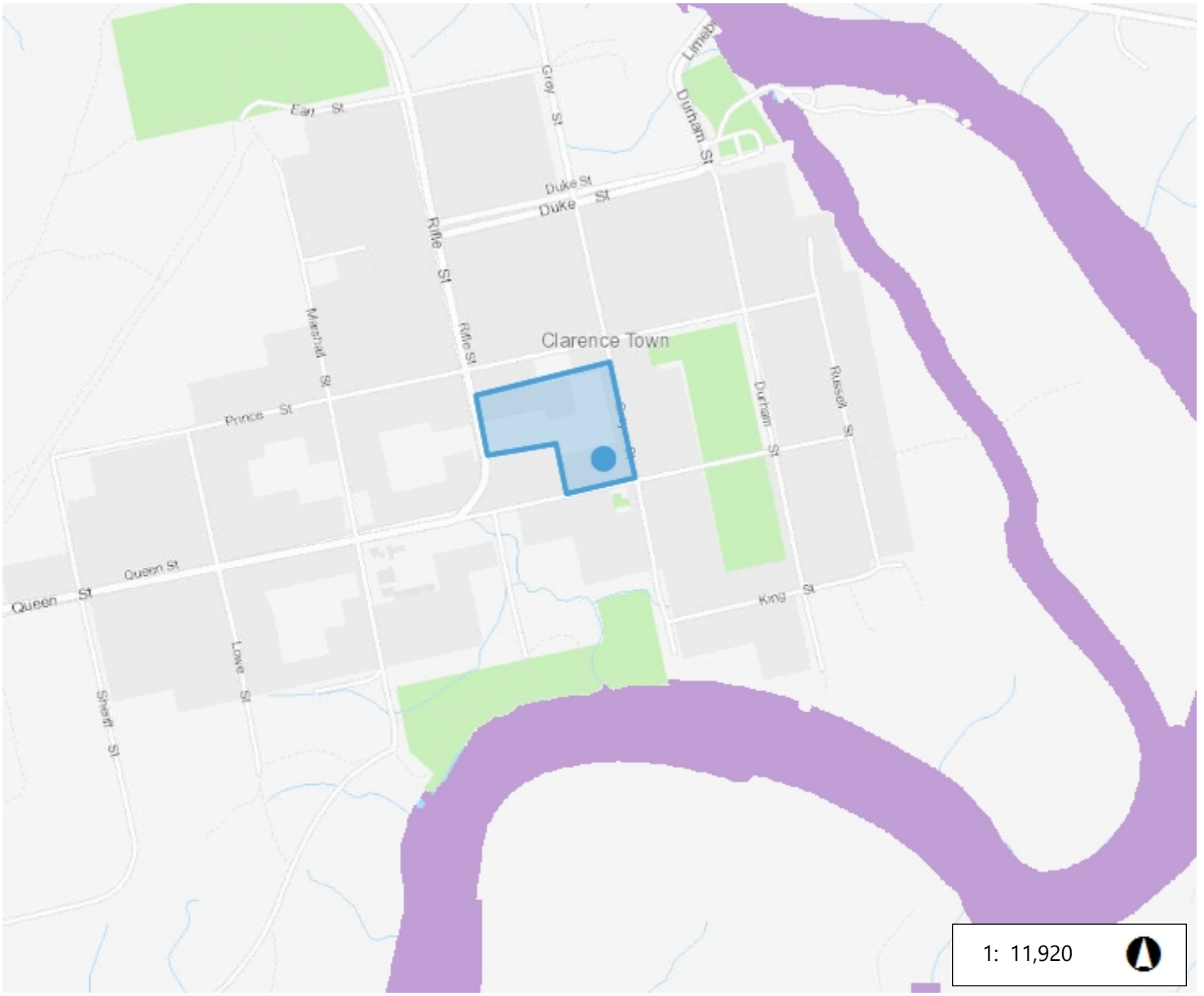
This report may be used as evidence for development applications submitted to councils. You may also use this report when considering native vegetation clearing under the State Environmental Planning Policy (Biodiversity and Conservation) 2021 - Chapter 2 vegetation in non-rural areas.

What's new? For more information about the latest updates to the Biodiversity Values Map and Threshold Tool go to the updates section on the Biodiversity Values Map webpage.

Map Review: Landholders can request a review of the BV Map where they consider there is an error in the mapping on their property. For more information about the map review process and an application form for a review go to the Biodiversity Values Map Review webpage.

If you need help using this map tool see our Biodiversity Values Map and Threshold Tool User Guide or contact the Map Review Team at map.review@environment.nsw.gov.au or on 1800 001 490.

Biodiversity Values Map



605.5 0 302.77 605.5 Metres

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

Legend

- Biodiversity Values that have been mapped for more than 90 days
- Biodiversity Values added within last 90 days
- Native Vegetation Area Clearing Estimate (NVACE)
- Development area selected by proponent

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The results provided in this tool are generated using the best available mapping and knowledge of species habitat requirements.

This map is valid as at the date the report was generated. Checking the Biodiversity Values Map viewer for mapping updates is recommended.

Appendix B – Flora Species List

FLORA SPECIES LIST

The following list includes all species of vascular plants observed on site during fieldwork. It should be noted that such a list cannot be considered comprehensive, but rather indicative of the flora present on the site. It can take many years of flora surveys to record all of the plant species occurring within any area, especially plant species that are only apparent in some seasons such as Orchids.

A number of species cannot always be accurately identified during a brief survey, generally due to a lack of suitable flowering and/or fruiting material. Any such species are identified as accurately as possible, and are indicated in the list as thus:

- specimens that could only be identified to genus level are indicated by the generic name followed by the abbreviation “sp.”, indicating an unidentified species of that genus;
- specimens for which identification of the genus was uncertain are indicated by a question mark (“?”) placed in front of the generic, which is followed by the abbreviation “sp.” and;
- specimens that could be accurately identified to genus level, but could be identified to species level with only a degree of certainty are indicated by a (“?”) placed in front of the epithet.

Authorities for the scientific names are not provided in the list. These follow the references outlined below.

- Harden, G. (ed) (2000). *Flora of New South Wales, Volume 1*. Revised edition. UNSW, Kensington, NSW.
- Harden, G. (ed) (2002). *Flora of New South Wales, Volume 2*. Revised edition. UNSW, Kensington, NSW.
- Harden, G. (ed) (1992). *Flora of New South Wales, Volume 3.* UNSW, Kensington, NSW.
- Harden, G. (ed) (1993). *Flora of New South Wales, Volume 4*. UNSW, Kensington, NSW.

Names of families and higher taxa follow a modified Cronquist System (1981).

Threatened species listed under the BC Act or the EPBC Act are indicated in **bold font** (none observed)**.**

Family	Scientific Name	Common Name
Alliaceae	*Nothoscordum gracile*	
Amaranthaceae	*Alternanthera denticulata*	Lesser Joyweed
Apiaceae	*Cyclospermum leptophyllum*	Slender Celery
Asparagaceae	*Asparagus asparagoides*	Bridal Creeper
Asteraceae	*Aster subulatus*	Wild Aster
Asteraceae	*Asteraceae indeterminate*	Daisies
Asteraceae	*Bidens pilosa*	Cobbler's Pegs
Asteraceae	*Conyza bonariensis*	Flaxleaf Fleabane
Asteraceae	*Conyza sumatrensis*	Tall fleabane
Asteraceae	*Crassocephalum crepidioides*	Thickhead
Asteraceae	*Gamochaeta coarctata*	Spiked Cudweed
Asteraceae	*Hypochaeris radicata*	Catsear
Asteraceae	*Lactuca serriola*	Prickly Lettuce
Asteraceae	*Senecio madagascariensis*	Fireweed
Asteraceae	*Soliva sessilis*	Bindyi
Asteraceae	*Sonchus oleraceus*	Common Sowthistle
Asteraceae	*Taraxacum officinale*	Dandelion
Asteraceae	*Onopordum acanthium subsp. Acanthium*	Scotch Thistle
Asteraceae	*Pseudognaphalium luteoalbum*	Cudweed
Brassicaceae	*Cardamine hirsuta*	Common Bittercress
Campanulaceae	*Lobelia purpurascens*	whiteroot
Caryophyllaceae	*Cerastium glomeratum*	Mouse-ear Chickweed
Caryophyllaceae	*Paronychia brasiliana*	Chilean Whitlow Wort, Brazilian Whitlow
Caryophyllaceae	*Stellaria media*	Common Chickweed
Chenopodiaceae	*Einadia nutans*	Climbing Saltbush
Commelinaceae	*Commelina cyanea*	Native Wandering Jew
Commelinaceae	*Tradescantia fluminensis*	Wandering Jew
Convolvulaceae	*Dichondra repens*	Kidney Weed
Cyperaceae	*Cyperus brevifolius*	Mullumbimby Couch
Cyperaceae	*Cyperus eragrostis*	Umbrella Sedge
Cyperaceae	*Baumea articulata*	Jointed Twig-Rush
Fabaceae	*Erythrina spp.*	
Fabaceae	*Senna pendula var. glabrata*	

Family	Scientific Name	Common Name
Fabaceae (Faboideae)	*Glycine clandestina*	Twining glycine
Fabaceae (Faboideae)	*Glycine microphylla*	Small-leaf Glycine
Fabaceae (Faboideae)	*Lotus subbiflorus*	Hairy Birds-foot Trefoil
Fabaceae (Faboideae)	*Medicago polymorpha*	Burr Medic
Fabaceae (Faboideae)	*Trifolium dubium*	Yellow Suckling Clover
Fabaceae (Faboideae)	*Trifolium repens*	White Clover
Fabaceae (Mimosoideae)	*Acacia fimbriata*	Fringed Wattle
Fabaceae (Mimosoideae)	*Acacia implexa*	Hickory Wattle
Gentianaceae	*Centaurium tenuiflorum**	Branched Centaury, Slender centaury
Geraniaceae	*Erodium spp.*	Crowfoot
Hamamelidaceae	*Liquidambar styraciflua*	Sweetgum
Iridaceae	*Crocosmia x crocosmiiflora*	Montbretia
Juncaceae	*Juncus cognatus*	
Juncaceae	*Juncus spp.*	
Juncaceae	*Juncus usitatus*	Common Rush
Lamiaceae	*Stachys arvensis*	Stagger Weed
Malaceae	*Rhaphiolepis indica*	Indian Hawthorn
Malvaceae	*Modiola caroliniana*	Red-flowered Mallow
Malvaceae	*Pavonia hastata*	Spearlef Swampmallow
Malvaceae	*Sida rhombifolia*	Paddy's Lucerne
Moraceae	*Ficus macrophylla*	Moreton Bay fig
Myrtaceae	*Eucalyptus tereticornis*	Forest Red Gum
Oleaceae	*Ligustrum sinense*	Small-leaved Privet
Oxalidaceae	*Oxalis brasiliensis*	Brazillian woodsorrel
Phyllanthaceae	*Glochidion ferdinandi*	Cheese Tree
Plantaginaceae	*Plantago gaudichaudii*	Narrow Plantain
Plantaginaceae	*Plantago lanceolata*	Lamb's Tongues
Poaceae	*Axonopus fissifolius*	Narrow-leafed Carpet Grass
Poaceae	*Briza maxima*	Quaking Grass
Poaceae	*Briza minor*	Shivery Grass
Poaceae	*Briza subaristata*	Chilean Quaking Grass
Poaceae	*Bromus racemosus*	Smooth Brome
Poaceae	*Cenchrus clandestinus*	Kikuyu Grass
Poaceae	*Cynodon dactylon*	Common Couch

Family	Scientific Name	Common Name
Poaceae	*Dichelachne micrantha*	Shorthair Plumegrass
Poaceae	*Ehrharta erecta*	Panic Veldtgrass
Poaceae	*Lolium perenne*	Perennial Ryegrass
Poaceae	*Microlaena stipoides*	Weeping Grass
Poaceae	*Oplismenus aemulus*	Creeping Beard Grass
Poaceae	*Paspalum dilatatum*	Paspalum
Poaceae	*Poa annua*	Winter Grass
Poaceae	*Poaceae indeterminate*	Grasses, reeds and bamboos
Poaceae	*Setaria parviflora*	Marsh Bristlegrass
Poaceae	*Setaria sphacelata*	South African Pigeon Grass
Poaceae	*Sporobolus creber*	Slender Rat's Tail Grass
Poaceae	*Bromus cartharticus*	Prairie Grass
Poaceae	*Bromus coloratus*	
Polygonaceae	*Persicaria hydropiper*	Water Pepper
Polygonaceae	*Rumex crispus*	Curled Dock
Polygonaceae	*Persicaria decipiens*	Slender Knotweed
Polygonaceae	*Rumex brownii*	Swamp Dock
Primulaceae	*Lysimachia arvensis*	Scarlet Pimpernel
Proteaceae	*Grevillea robusta*	Silky Oak
Pteridaceae	*Adiantum aethiopicum*	Common Maidenhair
Ranunculaceae	*Ranunculus lappaceus*	Common Buttercup
Ranunculaceae	*Ranunculus repens*	Creeping Buttercup
Ranunculaceae	*Ranunculus spp.*	
Rosaceae	*Rubus fruticosus sp. agg.*	Blackberry complex
Rosaceae	*Prunus spp.*	Cherry Blossom Tree
Rubiaceae	*Galium aparine*	Goosegrass
Sapindaceae	*Acer negundo*	Box Elder
Solanaceae	*Lycopersicon esculentum*	Tomato
Solanaceae	*Solanum seaforthianum*	Climbing Nightshade
Solanaceae	*Solanum erianthum**	Wild Tobacco
Typhaceae	*Typha orientalis*	Cumbungi
Verbenaceae	*Lantana camara*	Lantana
Verbenaceae	*Verbena bonariensis*	Purpletop

Appendix C – Observed Fauna Species List

OBSERVED FAUNA SPECIES LIST

The following list includes fauna species that could be reasonably expected to occur on the Subject Site at some point, given site attributes and location.

Threatened species listed under the BC Act or the EPBC Act are indicated.

V: Vulnerable; E: Endangered; CE: Critically Endangered.

- **Observations:** Observed (O), Heard (W), Scat (P), Misc. (M), Track/scratching (F), Nest (E), Burrow (FB)
- **Bat Records:** Observed (O), Definitely (D), Possible or within Species Group (P), Likely (L)
- **Survey equipment:** Anabat (A), Songmeter (SM), Camera Trap (CT)
- **Bolded Species:** Are listed threatened species in bold

Scientific Name	Common Name	NSW status	Comm. status	BioNet Atlas Records	Surveyed Observations
Reptilia					
Chelodina longicollis	Eastern Snake-necked Turtle	P		14	O
Aves					
Vanellus miles	Masked Lapwing	P		67	O
Cacatua sanguinea	Little Corella	P		23	O
Grallina cyanoleuca	Magpie-lark	P		81	O, E
Trichoglossus haematodus	Rainbow Lorikeet	P		117	O
Malurus cyaneus	Superb Fairy-Wren	P		180	O
Trichoglossus chlorolepidotus	Scaly-breasted Lorikeet	P		24	O
Mammalia					
Trichosurus vulpecula	Common Brushtail Possum	P		462	P

Appendix D – Site Photographs

ABOVE: Superb Fairy Wren observed within Subject Site

BELOW: *Baumea articulata*, *Typha orientalis* and *Rumex brownii in storm water management drain*

ABOVE: Current business dwelling operating as a Beauty Salon

BELOW: Exotic dominant managed lawns

ABOVE: Grey Street Road reserve, view north

BELOW: View north from Lot 1/3 DP 758250

***Eucalyptus tereticornis* Hollow bearing trees**

ABOVE: View east toward Grey Street

BELOW: View west across Subject Site from storm water infrastructure

ABOVE: : View west over managed non-native lawn at 29 Grey Rd and PCT 3975 and PCT 3433 canopy trees in background

BELOW: View south west towards Queens Street over managed non-native lawn and PCT 3975

Appendix E – CV’s

ALISSA ROGERS
Ecologist

Profile Summary

Alissa works with AEP in the role of Ecologist. She completed a Bachelor of Park Management and holds a Certificate III Conservation and Land Management. She has extensive experience in bush regeneration, including planning, leading field staff, mapping and report writing.

Her background in project management and park management combined with her ecological knowledge is utilized in a diverse array of applications in her current role.

Academic Qualifications

- Certificate III in Conservation & Land Management – TAFE, 2021
- Bachelor of Park Management – Deakin University, 2001

Training, Licences and Professional Memberships

- NSW Class C Driver's Licence
- WHS NSW Construction Induction White Card
- Provide First Aid HLTAID011
- Operate and maintain chainsaws (AHCMOM213)
- Chemcert

Professional Experience

Ecologist — 2022 – Present
Anderson Environment & Planning
Newcastle NSW

Land Service Officer — 2019 – 2022
Hunter Local Land Services
Regional NSW

Ranger - Site Supervisor — 2016 - 2019
Belmont Wetlands State Park,
Belmont NSW

Relevant Project Experience

Ecological Surveys

- Camera trapping surveys for ground and arboreal species, including deployment, collection, servicing, and analysis.
- Diurnal bird surveys.
- Habitat surveys, including tree hollow identification.
- Microbat surveys by Anabat deployment, collection, and servicing.
- Nocturnal survey for forest owls, including Powerful Owl, Barking Owl, Masked Owl, and Sooty Owl, using stag watching, spotlighting, quiet listening, and call playback.
- Songmeter survey for frogs, forest owls, and birds, including deployment, collection, servicing, and analysis.
- Biodiversity assessment methodology (BAM) plots under supervision.
- Threatened orchid and ground cover surveys via 5m transects. Threatened tree and shrub surveys via 10m transects.
- Elliot and pitfall trapping installation and inspections.

Ecological Assessment

- Plant Community Type Identification
- Spatial analysis using QGIS and MapInfo
- Report Writing
- Data collection and analysis for Bushfire Threat Assessments and Biodiversity Management Plans

Ecological Monitoring

- Biodiversity Management Plan monitoring including nestbox inspections, botanical surveys, mapping and annual reports.
- Coordination of community Australian Bittern monitoring surveys (2023)
- Stewardship site monitoring and reporting

CALLUM REEDMAN

Ecologist

Profile Summary

Callum works with AEP in the role of Ecologist. Callum has over 6 years of experience in the environmental industry, having previously worked within the Natural Area Restoration field as a Bush Regenerator, participating in a variety of environmental restoration projects across multiple LGAs, coupled with a history of community environmental volunteering.

Due to Callum's proficiency in flora recognition and identification ascertained from the Natural Area Restoration field as a Bush Regenerator, Callum's primary focus is the undertaking of Biodiversity Assessment Method (BAM) Flora Plots, BMP and VMP required Flora and Baseline Monitoring Plots and Targeted Flora Surveys for Listed State and Federal flora species and threatened ecosystems. Callum is also proficient in the data interpretation required by the BAM, including PCT Determination, Description and TEC Assessment at the State and Federal levels for EAR, SBDAR, BDAR, BMP and VMP reporting requirements.

Academic Qualifications

- Diploma of Conservation & Land Management - TAFE NSW (2022)
- Certificate III in Conservation & Land Management - Hunter TAFE (2016)

Training, Licences and Professional Memberships

- NSW Class C Driver's Licence
- WHS NSW Construction Induction White Card
- Prepare to work safely in the construction industry (CPCWHS1001)
- First Aid
- Provide CPR (HLTAID009)
- Provide basic emergency life support (HLTAID010)
- Provide First Aid (HLTAID011)
- AQF3 CHEMCert Chemical Application Certificate
- Transport and store chemicals (AHCCHM304)
- Manual fumigation for vertebrate and invertebrate pests (AHCCHM305A)
- Prepare and apply chemicals to control pest, weeds and diseases (AHCCHM307)
- Chainsaw Operation Certificate
- Operate and maintain chainsaws (AHCMOM213)
- Fell small trees (AHCPCM203)
- 4wd Certificate
- Operate four wheel drive vehicle on unsealed roads (FWPCOT3325)
- Robson Civil Projects Annual Project Induction
- MetroMix Quarry – Able Concrete Site Induction
- Code of Conduct Certificate

Professional Experience

Ecologist Anderson Environment & Planning Newcastle NSW	2022 – Present
Casual Bushcare Supervisor Complete Staff Solutions Newcastle NSW	2022 - Present
Casual Bush Regenerator Trees In Newcastle Newcastle NSW	2021 - 2021
Casual Ecologist Anderson Environment & Planning Newcastle NSW	2021 - 2022
Bush Regenerator Australian Facilities Landscapes Sydney NSW	2020 - 2021
Casual Bushcare Supervisor Lane Cove Council Sydney NSW	2020 - Present
Bush Regenerator Lake Macquarie City Council Lake Macquarie NSW	2017 - 2020
Green Army Participant Conservation Volunteers Australia Australia	2014 - 2015

Relevant Project Experience

Ecological Survey Experience:

- Targeted Flora Surveys, Infrastructure, Hunter Gas Pipeline, Various locations (Newcastle LGA – Narrabri LGA), March 2023 – Present:
  - *Delmar impar* – Striped Legless Lizard
  - *Cymbidium canaliculatum* – Tiger Orchid
  - *Eucalyptus camaldulensis* – River Red Gum
  - *Digitaria porrecta* – Finger Panic Grass

- *Dichanthium setosum* – Blue grass
- *Rutidosis heterogama* – Heath Wrinklewort
- *Acacia pendula* – Weeping Myall Wattle
- *Eucalyptus glaucina* – Slaty Redgum

- Equipment Deployment - ScoutGuard BolyTrail Cameras and Wildlife Acoustics Song Meter Minis for the Hunter Gas Pipeline, Various locations (Newcastle LGA – Narrabri LGA) March 2023 – Present
- Preclearance Surveys, Waterford, Chisholm, March 2021
- Equipment Deployment – ScoutGuard BolyTrail Cameras and Wildlife Acoustics Song Meter SM4 Acoustic Recorder -, Seaspray Circuit, Wallabi Point, BDAR, 2021
- Koala Spot Assessment Technique (SATs) Hunter Gas Pipeline, Various locations (Newcastle LGA – Narrabri LGA) March 2023 – Present
- Koala Call Playback, Residential Subdivision, Seaspray Circuit, Wallabi Point, BDAR, 2021
- *Rhizanthella slateri* Targeted Flora Surveys, Industrial Subdivision, Pile Road, Somersby, BDAR, September 2023
- Equipment Deployment – Titley Scientific Anabat Express and Anabat Swift, Residential Development, Bruce Cresent, Wallarah, SBDAR, December 2023.
- Targeted Fauna Surveys, Frogs, Quarry Expansion, MetroMix Quarries Pty Ltd., Teralba, BDAR, February 2024
- Targeted Flora Surveys, *Corybas dowlingii* – Fleet Street, Salamander Bay, BDAR, June 2021
- Diurnal bird surveys for the Glossy Black-Cockatoo, *Calyptorhynchus lathami*, Residential Subdivision, Blueys Beach, BDAR August 2023

Ecological Assessment Experience:

- Biodiversity Assessment Method (BAM) Flora Plots, Residential Subdivision, Cessnock Road, Gillieston Heights SBDAR, July 2022
- Biodiversity Assessment Method (BAM) Flora Plots, Infrastructure, Hunter Gas Pipeline, Various locations Newcastle LGA – Narrabri LGA, March 2023 – Present
- Biodiversity Assessment Method (BAM) Flora Plots, Jarrett Street, Kilaben Bay, SBDAR, 2023
- Biodiversity Assessment Method (BAM) Flora Plots, Rixs Creek Service Centre, Rixs Creek, Preliminary Ecological Advice, May 2024
- Biodiversity Assessment Method (BAM) Flora Plots, Bruce Cresent, Wallarah, July 2023
- Biodiversity Assessment Method (BAM) Flora Plots Residential Subdivision, BDAR, Freemans Drive, Cooranbong, October 2022
- Biodiversity Assessment Method (BAM) Flora Plots, Mountain Road, Halloran, BDAR, July 2022
- Biodiversity Assessment Method (BAM) Flora Plots Bruce Cresent, Wallarah, July 2023
- Biodiversity Assessment Method (BAM) Flora Plots, Sparks Road, Halloran, October-November 2022
- Biodiversity Assessment Method (BAM) Flora Plots, Thompson Vale Road, Doyalson, BCAR & Eco Constraints Advice March 2023
- Biodiversity Assessment Method (BAM) Flora Plots, Eden Estates, Elemore Vale & Wallsend, BDAR, March 2021

- Biodiversity Assessment Method (BAM) Flora Plots, Pile Road, Somersby, BDAR, September 2023
- Biodiversity Assessment Method (BAM) Flora Plots, Myoora Road, Somersby, SBDAR, April 2024
- Biodiversity Assessment Method (BAM) Flora Plots, Bryant Drive, Tuggerah, EAR & SBDAR, July 2022, April 2024
- Biodiversity Assessment Method (BAM) Flora Plots, The Lakes Way, Charlotte Bay, Plots, BDAR, August 2023; March 2024

Ecological Monitoring Experience:

- Baseline BAM Flora Monitoring Plots, North Head for the Sydney Harbour Federation Trust, January 2024.
- Baseline Flora Monitoring Plots, Waterford Chisholm BMP Lands, April 2023
- Baseline Flora Monitoring Plots, Hakone Road, Woongarrah, 2023
- Biodiversity Assessment Method (BAM) Flora Plots, Northams Road, Ellalong, BSSAR 2021
- Biodiversity Assessment Method (BAM) Flora Plots, Lovedale Road, Allandale, BSSAR, 2022

Publications:

Balkenhol, N., Beranek, C., Clulow, J., Hayward M. W., King J-P., Mahony, M., Meyer, N, F. V., Reedman, C., (2021) *Large area used by squirrel gliders in an urban area, uncovered using GPS telemetry*. Ecology and Evolution 11(12): 7147–7153, June 2021.

CATHERINE SCOBIE

GIS Officer

Profile Summary

Cat has worked in the role of GIS Officer at Anderson Environment and Planning since 2023. They conduct geospatial analysis and output maps using coding languages such as SQL and Python and GIS software such as ArcPro, QGIS and MapInfo. These GIS skills are utilised across a wide-reaching diversity of ecological assessments and reports including BDAR, SBDAR, BMP, EA, RAR, BDA, and EAR. Cat's role in providing accurate and visually legible mapping output is essential in providing team members, clients and councils with accessible and legally scrupulous data.

Cat is a current student of the Graduate Diploma of Spatial Science at the University of Newcastle. They have extensive experience in visual information systems such as graphic design, web design, information interface design and this is utilised in their use of semiotics for mapping legibility. They have a background in research and project management through their studies and work with LoginLab which they apply in their management of GIS analysis and mapping output. They continue to develop a sound understanding of ecological and spatial information and legislation relevant to the environment and planning industry through their work with AEP.

Academic Qualifications

- Graduate Diploma of Spatial Science, currently studying (University of Newcastle)
- Master of Communication Design (RMIT)
- Bachelor of Visual Arts (Southern Cross University)
- Cert IV Theatre Performance and Practices (TAFE)

Training, Licences and Professional Memberships

- NSW Class C, R and MR Driver’s Licence
- WHS NSW Construction Induction White Card
- First Aid Certificate Including CPR (Provide First Aid HLTAID011)
- Working With Children Check
- Australasian Conservation Dog Network member

Professional Experience

GIS Officer Anderson Environment & Planning Newcastle NSW	August 2022 - Present
Graphic Designer Cat Scobie Design, Freelance Newcastle NSW	March 2011 - Present
Site Manager The Spiegeltent, Strut n Fret Newcastle NSW	March 2023 - Present
Mentor HunterWise, University of Newcastle Newcastle NSW	July 2023 - Present
Research Assistant LoginLab, University of Newcastle Newcastle NSW	July 2021 - December 2021
Education Access Worker William Angliss Institute	June 2026 - December 2020

Relevant Project Experience

Mapping and Geospatial Analysis

- Perform geospatial analysis according to guidelines and legislation and output mapping for various reports such as Ecological Assessment, Biodiversity Management Plans, Riparian and Aquatic Assessment, Bushfire Assessment, Biodiversity Stewardship Site Assessment and Biodiversity Development Assessment.
- Perform style guide and system software optimisation for standardised visual output.
- Use coding languages such as SQL and Python to perform geospatial analysis and streamline working processes.
- Network with team members to ensure accurate and applicable data analysis.

Research and Project Management

- Conduct research and critical analysis to assist in accurate mapping and assessment report output.
- Optimise timeline and workflow processes to assist in management of project deliverables.
- Utilise efficient data management processes to assist with streamlining project collaboration.

KELLY DRYSDALE

Ecology Project Manager

Profile Summary

Kelly works with AEP in the role of Ecology Project Manager. She has extensive experience in various land management and restoration operations in several regions, with both small and large enterprises, in Australia and internationally. Her strong environmental stewardship knowledge, lateral thinking, project and change management, business development, strategic planning and human resource management skills are adding value to the AEP team. Kelly manages multiple multifaceted complex projects, field and reporting teams, fee proposals/tenders and high-level stakeholder engagements.

Academic Qualifications

- Certificate IV in Training and Assessment TAE40110, TAFE Hunter Institute, NSW 2016
- Graduate Certificate in Business Administration (with honours), Newcastle University, Newcastle, NSW 2013
- Associate Diploma of Applied Science (Viticulture), Charles Sturt University, Wagga Wagga, NSW 1992

Training, Licences and Professional Memberships

- NSW Class C Driver's Licence, Defensive Driving, FL & experienced 4WD operator
- WHS NSW Construction Induction White Card
- First Aid (Provide First Aid HLTAID011)
- Australian Rural Leadership Foundation Program, Fellow 2011
- Farm Chemical User Accreditation Certificate III (ChemCert Australia)
- Negotiation skills (Rogen International), Crucial conversations (ME Consulting), Myers-Briggs Type Indicator (Progress HR Solutions) & Media Training (Doyle Media Services)
- Various WHS management training, legislation and compliance courses, RSA, manual handling, EEO, cultural competency and diversity in the workplace
- Workplace Trainer and Workplace Assessor
- Open Water PADI Dive Certificate

Professional Experience

Ecology Project Manager Anderson Environment & Planning Newcastle NSW	2023 – Present
Ecologist Anderson Environment & Planning Newcastle NSW	2021 – 2023
Business Development Manager RLF National AUS	2019 - 2021
Viticultural & Trade Resource Manager Hope Estate, Pokolbin, NSW	2015 - 2019
Casual teacher in Viticulture & Wine Kurri Kurri Tafe NSW	2017 - 2019
Wine Selectors & Winemakers Choice NSW	2014 - 2015
Viticultural Manager Casella Family Brands Yenda NSW	2010-2004
Viticulturist Brown Brothers, Penfolds/Southcorp, Nepenthe, Pertaringa, Flagstone Wines, Willamette Valley Vineyards, Murphy-Goode Estate Winery Victoria, South Australia, South Africa, Oregon, California	2004 - 1993

Relevant Project Experience

Ecological Surveys

- Field assessment including: Biodiversity Assessment Method plots, vegetation mapping and habitat assessments
- Targeted flora surveys for threatened species, transects and grid methods
- Hollow bearing trees surveys and aboricultural surveys, Koala Spot Assessment Technique (SAT) surveys and tree surveys
- Camera trapping surveys for ground and arboreal species, including deployment, collection, servicing, and analysis
- Songmeter survey for Koala, frogs, forest owls, birds and incidentals
- Diurnal bird surveys
- Frog surveys for threatened species, nocturnal/diurnal survey, call play back and dip netting
- Microbat surveys by observation and Anabat deployment, collection, and servicing.

- Nocturnal survey for forest owls, including Powerful Owl, Barking Owl, and Sooty Owl, using stag watching, spotlighting, quiet listening, and call playback, survey for other arboreal threatened species including Eastern Pygmy Possum, Squirrel Glider, Greater Glider, Koala etc.
- Pitfall trapping and snake funnels
- Watercourse Assessment with the NRAR Waterfront Land Tool
- Bushfire vegetation inspection and site assessment in accordance with PBP 2019
- Clearance supervision and relocation of fauna

Ecological Assessment & Reporting

- Contributing author and contributing reviewer on multiple reports within several LGA's on Biodiversity Development Assessment Reports, Biodiversity Certification Assessment Reports, Fauna and Flora Assessment Reports, Bushfire Threat Assessment Reports, Vegetation/Biodiversity Management Plans, Biodiversity and Bushfire Due Diligence Reports, Riparian Assessment Reports and Biodiversity Stewardship Feasibility Analyses.
- Assessment of development proposals against the provisions of the EPBC Act, Matters of Environmental Significance and referrals, Biodiversity and Conservation SEPP and Koala Habitat Protection, Koala Plans of Management, Resilience and Hazards SEPP - Coastal Management, and other associated legislative requirements including local Flora and Fauna Guidelines, DCPs, LEPs and Plans of Management etc;
- Ecological field survey, covering terrestrial flora and fauna, to inform the production of Ecological Reports within NSW;
- Assistance in Bushfire Threat Assessment analysis and reporting for Subdivision, State Significant Development (SSD), Infill, General residential, Special Fire Protection Purpose and Planning Proposal developments;
- Assistance in the production of Arborist Assessment reports

Ecological offsets and Monitoring

- Ongoing benchmark management of Biodiversity Stewardship sites and retirement of credits
- Vegetation/Biodiversity Management Plan Annual Monitoring and reporting and design of methodology and scope for ongoing wildlife management plans
- Nest Box camera inspections

LIAM PARRY

Ecologist

Profile Summary

Liam has been with AEP since January 2024 as an Ecologist. He has over 5 years industry experience including Land Management/ Bush regeneration and Plant Biosecurity with the DPIE. Liam has special interests in botany and is proficient with plant identification, vegetation mapping and PCT determination including TEC assessments.

Academic Qualifications

- Diploma of Conservation & Land Management – TAFE, currently enrolled
- Certificate III light vehicle automotive – TAFE, 2016

Training, Licences and Professional Memberships

- NSW Class C Driver's Licence
- WHS NSW Construction Induction White Card
- First Aid (Provide First Aid HLTAID011)
- Operate and maintain chainsaws (AHCMOM213)
- Chemcert AQF-3
- NSW Class C Drivers Licence. Experienced 4WD operator

Professional Experience

Ecologist Anderson Environment & Planning Newcastle NSW	2024 – Present
Field Crew / Team Leader Department of Primary Industries Tocal NSW	2023 - 2024
Supervisor Toolijooa Environmental Restoration Thornton NSW	2020 - 2023
Crew Member Toolijooa Environmental Restoration Thornton NSW	2019 - 2020
Builders Labourer Glen Parry Builder Lake Cathine NSW	2017 - 2019
Mechanic Muras Automotive Port Macquarie	2013 - 2017

Relevant Project Experience

Ecological Survey Examples

- Targeted surveys for Genoplesium branwhiteorum in the Central Coast;
- Targeted surveys for Digitaria porrecta in the New England region;
- Targeted Surveys for Eucalyptus glaucina in the Hunter region;
- Targeted surveys for Acacia pendula in the Hunter region;
- Songmeter survey for frogs, forest owls and birds including deployment, collection, servicing (Various Sites, January 2024 to Present).
- Nocturnal survey for forest owls, (including Powerful Owl, Barking Owl and Masked Owl) including, spotlighting, quiet listening and call playback (Various Sites, January 2024 to present).
- Diurnal bird surveys (Various Sites, January 2024 to Present).
- Habitat surveys including tree hollow identification. (Various Sites, January 2024 to Present).

Ecological Assessment

- Biodiversity assessment methodology (BAM) plots under supervision of BAM accredited assessors Natalie Black (January 2024 – Present)

Ecological Monitoring

- Vegetation Monitoring Plots for VMP's (Various Sites, January 2024 to present)

SIMON PURCELL
Senior Ecologist

Profile Summary

Simon works with AEP in the role of Senior Ecologist. Simon has over 20 years of professional experience managing projects in the fields of terrestrial ecology, animal care and husbandry, mining and mine rehabilitation and environmental management.

Simon's background in terrestrial ecology developed whilst living in Weipa Far North Queensland, where he successfully managed and implemented numerous projects focussing on threatened species (Palm Cockatoo, red Goshawk, Northern Quoll and Black-footed Tree-rat) within the Cape York Peninsula Bioregion. Additional to the threatened species program, Simon managed and was involved in mine pre-clearance and rehabilitation works.

In recent years Simon has drawn his experience into Project Management of a wide range of projects within New South Wales from small to large scale biodiversity, stewardship and ecological assessments, bushfire threat assessments, riparian assessments, vegetation and biodiversity management plans and other ecological management plans, provision of design advice and involvement in preparing expert witness documentation associated with Section 34 and Land and Environment Court Proceedings.

Academic Qualifications

- Bachelor of Applied Science, Major Wildlife Science – University of Queensland Gatton, 2013
- Certificate III in Animal Care and Management – Companion Animal Services 2008

Training, Licences and Professional Memberships

NSW Class C Driver's Licence
First Aid (Provide First Aid HLTAID011)
Rehabilitation / Fauna Spotter Catcher Permit (QLD)
Fauna and Venomous Snake Handling
Apply Risk Management
Construction White Card

Professional Experience

Senior Ecologist — 2020 – Present
Anderson Environment & Planning
Newcastle NSW

Manger / Team Leader / Ecologist — 2014 - 2019
Ecotone Flora Fauna Consultants
Weipa QLD

Field Technician / Ecologist — 2013 - 2014
Ecotone Flora Fauna Consultants
Weipa QLD

Mine Operator and Trainer Rio Tinto Weipa QLD	2010 - 2012
Parks and Garden Maintainer Spotless Group Weipa QLD	2009 – 2010
Vet Nurse Tableland Veterinary Service Weipa QLD	2009 - 2009
Manager The Pet Centre Sydney NSW	2003 - 2009
Sales Assistant The Pet Centre Sydney NSW	2001 - 2003

Relevant Project Experience

Ecological Surveys

- Kincumber Biodiversity Field Surveys (NSW) 2022 - 2024
- Eden Biodiversity Field Surveys (NSW) 2020 - 2024
- Pokolbin Biodiversity Field Surveys (NSW) 2022 - 2024
- Waterford Preclearing Surveys (NSW) 2022 - 2024
- Halloran Biodiversity Field Surveys (NSW) 2020 - 2024
- Mardi Biodiversity Field Surveys (NSW) 2020 - 2024
- Order of Magnitude and Prefeasibility Studies (Nth QLD) 2015 – 2019
- Pre clear flora and fauna surveys - Mining and drilling programs (Nth QLD) 2014 - 2019
- Various annual EVNT bird nest searches, habitat surveys and monitoring programs - Palm Cockatoo, Red Goshawk, Rufous Owl (Nth QLD) 2014-2019.
- Various EVNT research programs Northern Quoll, Black-footed Tree Rat, Chestnut Dunnart (Nth QLD) 2017 – 2019.
- Various annual EVNT bird trapping and tracking programs (Nth QLD) 2017 – 2019.
- Artificial bird nesting hollow program - Palm Cockatoo (Nth QLD) 2018 – 2019.
- Various mammal camera surveys and trapping programs (Nth QLD) 2012 - 2019.
- Preclearing Flora and fauna survey road alignment (Nth QLD).
- Hydrological monitoring (Nth QLD) 2014-2015.
- Frigatebird Counts and Roost Tree Mapping (Nth QLD) 2014.
- Microbat House Evictions – Various (Nth QLD) 2014-2015.
- Annual rehabilitation surveys (Nth QLD) 2019.
- Rehabilitation field trials and annual rehabilitation surveys (Nth QLD) 2014-2016.
- Rehabilitation fauna Surveys (Nth QLD) 2013-2015.

- Baseline fauna surveys (Nth QLD) 2013.

Ecological Assessment

- Old Maitland Road, Mardi, Residential Subdivision and Services Alignment (BDAR, BMP, AIA, BTA, AAR)
- Avoca Drive, Kincumber, Residential Subdivision (BDAR, BMP, AIA)
- Sparks Road, Halloran, Industrial Subdivision and Sewer Alignment (BDAR, BMP, BTA, AIA)
- Kings Avenue, Terrigal, Residential Developments (BDAR, AIA, BMP)
- Tennant Street, Bell Bird, Residential Subdivision (BDAR)
- Carrs Road, Neath, Caravan Park (BDAR)
- Orient Road, Greendale, Industrial Development (BDAR)
- Eleventh Avenue, Austral, Residential Subdivision (BDAR, BTA, Bio certification)
- Croatia Ave, Edmondson Park, Multi-storey Residential (BDAR, BTA, Bio certification)
- Main Road / Cessnock Road, Gillieston Heights, Residential Subdivision (BDAR, BMP)
- West Wilton Growth Centre (Planning Proposal Cumberland Plain Conservation Plan Compliance Report, BTA, RAR)
- Ampol Service Centres Re-development, Pheasants Nest (BDAR, BMP, AIA)
- Ampol Service Centres Re-development, Eastern Creek (EAR, BMP, AIA)
- Ampol Service Centres (Services Alignment), Wyong (EAR, AIA)
- Macleay Ave, Woy Woy, Planning Proposal / Residential Subdivision (EAR, AIA, BMP, BTA)
- The Vintage, Pokolbin, Residential Subdivisions (EAR, BDAR, BMP, AIA)
- Weed Management Plan Fieldwork and Reporting (Nth QLD) 2018.
- Migratory Bird Species Review for Terrestrial Management Plan (Nth QLD) 2015.
- Seed processing and management (Nth QLD) 2013-2015
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Ecological Monitoring

- Species Response Plan Preparation (Nth QLD) 2018-2019
- Internal bird nest camera monitoring program - Palm Cockatoo and Red Goshawk (Nth QLD) 2018 – 2019.
- EVNT Orchid offset program (Nth QLD) 2016 – 2019.
- Fauna Spotter / Field Assistant, Humble Bee Films (NSW) (2012).
- Biodiversity Stewardship Site Agreements Mardi