

Appendix E.1 Biodiversity Development Assessment Report

Prepared for Flow Power (Utilacor Pty Ltd)

**Biodiversity Development Assessment
Report – streamlined small area
Corowa Battery Energy Storage System**

Federation LGA, Corowa, NSW

January 2026

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Document verification

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Final V1.0	16/01/2026	Rachel Ivory Maddie Robertson	Julie Gooding (BAAS18074)	Julie Gooding (BAAS18074)

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Executive summary

Background

Flow Power (Utilacor Pty Ltd) are proposing the development of the Corowa Battery Energy Storage System (the Project). The Project would involve the construction, operation and decommissioning of a Battery Energy Storage System (BESS) with a capacity of up to 100 Megawatts (MW) / 200 MWh (2 hours). The Project would be located within the Federation Local Government Area (LGA), approximately three kilometres (km) north from the township of Corowa, New South Wales (NSW). The site address is 275 Whitehead Street, Corowa, NSW 2642.

The Project is considered a State Significant Development (SSD) and will be assessed under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). SSDs are subject to the requirements of Biodiversity Offsets Scheme (BOS), and an assessment is required in accordance with the NSW *Biodiversity Assessment Method 2020* (BAM) and the *Biodiversity Conservation Act 2016* (BC Act).

The proposed clearing of native vegetation is less than 1 ha, thus the ‘small area’ streamlined assessment methodology has been applied to this BDAR in accordance with Appendix C of the BAM 2020 along with the streamlined assessment module for planted native vegetation.

Site Biodiversity

One Plant Community Type (PCT) was identified within the Subject Land:

- PCT 76 *Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions*.

PCT 76 was classified into four condition zones across the Subject Land.

- **Woodland:** This zone occurs as mid to tall woodland, comprised of remnant Grey Box (*Eucalyptus microcarpa*) along Whitehead Street. Shrub layer is absent and understory is heavily disturbed and dominated by exotic species. There is minimal understory regeneration.
- **Planted:** This zone occurs as mid to tall woodland, dominated by Grey Box both remnant and planted. The understory is heavily disturbed and dominated by exotic species. There is some regeneration of the canopy species.
- **Derived Grassland (DG) Substation:** This zone occurs as a low condition grassland surrounding the substation. There is an absence of canopy species. There is a low diversity and cover of native understory species subject to frequent mowing.
- **DG Roadside:** This zone occurs as a low condition grassland along Whitehead Street. There is an absence of canopy species. There is a low diversity of native understory species and very low cover of native species.

Two zones of PCT 76 (Woodland and Planted) were identified as meeting the criteria for the NSW *Biodiversity Conservation Act 2016* (BC Act) listed Threatened Ecological Community (TEC) known as *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions*. The vegetation zones did not meet the condition thresholds for the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* TEC.

In addition to the PCT present, planted native vegetation is also present within the Subject Land. Assessment under Appendix D of the BAM was undertaken to determine if any of the patches could align with a PCT or provide threatened species habitat.

Two threatened species were recorded during targeted surveys being:

- Large Bent-winged Bat (*Miniopterus orianae oceanensis*)

- Southern Myotis (*Myotis macropus*).

Avoid and minimise

Impacts have been avoided, minimised or offset through the following:

- Site selection of the proposed BESS location, which has historically been cleared for cropping, and comprised of exotic vegetation. Through selecting this site, any biodiversity loss has been minimised, thereby reducing potential impacts on native ecosystems
- Site selection for the access road and subsequent road upgrades being located at the intersection of Honour Avenue and Bullecourt Road which contains no remnant native vegetation or hollow bearing trees (HBTs)
- Avoiding all woodland and planted patches of PCT 76 in the Subject Land
- Avoiding all areas of *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Penepplain, Nandewar and Brigalow Belt South Bioregions* TEC within the Subject Land.
- Avoiding all HBTs in the Subject Land

Impact summary

Where impacts could not be avoided, the Proposal involves the removal of approximately 0.62 hectares (ha) of PCT 76 *Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions* in a low condition derived grassland form as well as 0.76 ha of planted native vegetation that is not part of a PCT. Due to the low condition of this grassland, no ecosystem credit obligation is required (refer to Table E1). Additionally, no species credit obligation is required due to the avoidance of suitable habitat for the detected species.

Table E1 Impacts that require an offset - ecosystem credits

Vegetation zone ID	PCT and Vegetation Zone	TEC/EC	Impact area (ha)	Vegetation integrity score	Number of ecosystem credits required
3	PCT 76_Derived Grassland_Substation	n/a	0.53	12.7	0
4	PCT 76_Derived Grassland_Roadside	n/a	0.09	7.3	0

Mitigation of residual impacts

Summary of mitigation measures for direct impacts include:

- A trained wildlife handler or fauna spotter catcher (FSC) to be on-site during clearing to mitigate potential impacts to displacement, injury, or death of resident fauna.
- Installation of temporary frog exclusion fencing prior to construction to exclude Sloane's Froglet from the construction site

Summary of mitigations for indirect impacts include:

- Inadvertent impacts of adjacent habitat or vegetation can be mitigated through clear physical demarcation of the boundary between areas to be retained and areas slated for clearing.

- Increased risk of noise and light pollution can be mitigated by limiting noise-producing operational work to standard working hours
- Movement of weeds and pathogens can be mitigated by a basic vehicle and machinery hygiene protocol in alignment with NSW DPHI guidelines
- Impacts of Rubbish dumping can be mitigated by high quality construction practices
- Mobilisation of sediments can be mitigated through application of standard erosion and sediment control practices.
- Increased risk of fire can be mitigated through hazard reduction planning.

Summary of mitigations for prescribed impacts include:

- Site access driveway final designs from Whitehead Road into the site to include formed culvert for safe amphibian passage to prevent any loss of connectivity along Whitehead Road
- Implementation of sediment and erosion controls to mitigate impacts of the development on water quality, water bodies and hydrological processes.
- Enforcement of vehicle speed limits across the site during construction and operation to minimise vehicle strikes on threatened fauna, or fauna part of a TEC

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Acronyms and Abbreviations

AOBV	Areas of Outstanding Biodiversity Value
AoS	Assessment of Significance (Cth)
APZ	Asset Protection Zone
ASL	Above sea level
BAM	Biodiversity Assessment Method 2020
BAM-C	BAM Calculator
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BC Regulation	<i>Biodiversity Conservation Regulation 2017 (NSW)</i>
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
Biosecurity Act	<i>Biosecurity Act 2015 (NSW)</i>
BMP	Biodiversity Management Plan
BOS	Biodiversity Offset Scheme
BV	Biodiversity Values
CE	Critically Endangered
CEEC	Critically Endangered Ecological Community
CPHR	Conservation Programs, Heritage and Regulation
Cth	Commonwealth
Cth DCCEEW	Cth Department of Climate Change, Energy, the Environment and Water
DBH	Diameter at Breast Height (1.3m) over bark
DG	Derived Grassland
DP	Deposited Plan
E	Endangered
EIS	Environmental Impact Statement
EMS	Environmental Management Strategy

EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
Flow Power Pty Ltd	Flow Power
FM Act	<i>Fisheries Management Act 1994 (NSW)</i>
FSC	Fauna Sotter Catcher
GDA	Geographic Datum of Australia
GIS	Geographic Information System
GPS	Geographical Positioning System
ha	hectares
HBT	Hollow bearing tree
HV	High Voltage
IBRA	Interim Biogeographic Regionalisation for Australia
KFH	Key Fish Habitat
km	kilometres
LCA	Land Categorisation Assessment
LFP	Lithium Iron Phosphate
LGA	Local Government Area
m	metres
MNES	Matters of National Environmental Significance
MVPS	Medium Voltage Power Station
MW	Megawatt
MWh	Megawatt-hours
NSW	New South Wales
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
NVR Map	Native Vegetation Regulatory Map (Draft)
PCS	Power Conversion Systems
PCT	Plant Community Type

PMST	Protected Matters Search Tool
RAP	Rapid Assessment Point
SAII	Serious and Irreversible Impact
SAT	Spot Assessment Technique
SEARs	Secretary's Environmental Assessment Requirements
Sp/spp	Species/multiple species
SSD	State Significant Development
SVTM	State Vegetation Type Mapping
TBDC	Threatened Biodiversity Data Collection
TEC	Threatened Ecological Community – a general term given to both Commonwealth and NSW listed ecological communities
TPZ	Tree Protection Zone
V	Vulnerable
VI	Vegetation Integrity
VZ	Vegetation Zone

Accredited assessor declaration

Certification under clause 6.15 Biodiversity Conservation Act 2016

I certify that this report has been prepared on the basis of the requirements of, and information provided under the Biodiversity Assessment Method and s6.15 of the BC Act. It has been assessed in accordance with BAM 2020. A full list of staff qualifications and experience can be found in Appendix H of this report.

In preparing this assessment I have acted in accordance with the Accredited BAM Assessor Code of Conduct.

I declare that I have considered the circumstances and there is no actual, perceived or potential conflict of interest.

Signature: 

Name: Julie Gooding

Date: 16/01/2026

BAM Assessor Accreditation No.: BAAS18074

The associated development case 00060769/BAAS18074/25/00062212 within the BAM Calculator has been finalised as of 16/01/2026, with the associated credit report reflected in Revision 2. Please notify NGH when you submit the report and we will submit the BAM-C case to the appropriate regulator .

Details and experience of author/s and contributors

Name	BAM assessor accreditation No. (if relevant)	Position/role	Tasks performed	Relevant qualifications
Julie Gooding	BAAS18074	BAM accredited assessor	Oversee fieldwork Oversee project direction Oversee reporting BAM-C data entry and analysis BDAR Review and approval Targeted threatened flora surveys	Bachelor of Science (Biology)

Name	BAM assessor accreditation No. (if relevant)	Position/role	Tasks performed	Relevant qualifications
			Targeted threatened fauna surveys Fieldwork – VI plots, PCT mapping	
Maddie Robertson	N/A	Ecologist	Report author Targeted threatened fauna surveys Targeted threatened flora surveys Fieldwork – VI plots, PCT mapping	Bachelor of Science (Biodiversity and Conservation), Bachelor of Environment
Rachel Ivory	N/A	Ecologist	Primary report author Mapping	Bachelor of Environmental Science and Management (Ecosystems and Biodiversity)
Ellen Darby	N/A	Ecologist	Targeted threatened fauna surveys	Bachelor of Biodiversity and Conservation
Isabelle Andary-Geslin	N/A	Ecologist	Targeted threatened fauna surveys Targeted threatened flora surveys	Bachelor of Environmental Science

Conflict of interest

I declare that I have considered the circumstances and there is no actual, perceived or potential conflict of interest

Signature:  Date: 16/01/2026 BAM Assessor Accreditation No.: BAAS18074
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Stage 1: Biodiversity assessment

1. Introduction

The proposed Corowa Battery Energy Storage System (BESS) is classified as a State Significant Development (SSD), requiring consent under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Biodiversity Offsets Scheme (BOS) applies to all SSDs as per the New South Wales (NSW) *Biodiversity Conservation Act 2016* (BC Act), requiring preparation of a Biodiversity Development Assessment Report (BDAR) to support the Environmental Impact Statement (EIS).

This BDAR assesses the impacts of the proposed Corowa BESS (the Project) according to the NSW Biodiversity Assessment Methodology 2020 (BAM) as required by the Secretary's Environmental Assessment Requirements (SEARs) for the Project.

The minimum lot size for the Involved Lots is 250 hectares (ha) under the Corowa Local Environmental Plan (Corowa Local Environmental Plan, 2012) as shown in Appendix C of this BDAR. Under the BAM, a streamlined (small area) BDAR can be used if the maximum clearing limit of native vegetation in a lot of this size does not exceed 3 ha. The Project does not exceed this threshold and therefore qualifies for a streamlined small area assessment in accordance with Appendix C – Streamlined assessment module of the BAM (DPIE, 2020). This BDAR also assesses planted native vegetation using the streamlined assessment module for planted native vegetation in accordance with Appendix D of the BAM (DPIE, 2020).

NGH Environmental has prepared this streamlined BDAR for Flow Power (Utilacor Pty Ltd) on behalf of Corowa Energy Pty Ltd as trustee for the Corowa Energy Project Trust (The Applicant). This BDAR has been prepared in accordance with Appendix C and Appendix D of the BAM and as per the SEARs, issued for SSD-87041214 on 23 July 2025.

Report terminology

The following terms are used in this document:

- a) **The Project** – The Corowa Battery Energy Storage System (BESS) including associated infrastructure, access tracks and road upgrades.
- b) **Development Footprint** – all areas of land which may be directly impacted by the proposal, either during construction, operation or decommissioning. The Development Footprint represents the total potential area of impact ('worst case' scenario) and includes the following:
 - Overall location being investigated for the BESS siting
 - Substation for connection, however the substation itself will not be subject to development
 - Site access road upgrades on Whitehead Street
 - Intersection upgrade at Honour Avenue and Bullecourt Road

Development Footprint areas are used in the BAM Calculator (BAM-C) to generate ecosystem and species credits where relevant. The Development Footprint covers an area of 10.34 ha which includes the BESS site (approximately 9 ha), the Corowa substation and road upgrades (approximately 1.34 ha). The final location of the BESS will be determined during the detailed design phase of the Project.

- c) **Subject Land** – The land proposed for development. The Subject Land is the study area where Stage 1 of the BAM has been applied, and where vegetation surveys and targeted threatened species surveys have been undertaken. It covers all areas that may or may potentially be used for the Project but is larger than the Development Footprint to allow for avoidance of biodiversity constraints through project design. The Subject Land covers an area of 12.29 ha.

- d) **Assessment Area** – the assessment area includes the Subject Land plus the area of land within the 1500 m buffer zone surrounding the proposed BESS site, and 500 m buffer zone around the roadside (linear feature). The assessment area is used to consider landscape features and biodiversity values in the locality, and covers an area of approximately 1,458 ha.
- e) **Involved Lots** – all lots that are affected by the Project

1.1. Proposed development

1.1.1. Development overview

Flow Power Pty Ltd (Flow Power) are proposing the development of the Corowa BESS at 275 Whitehead Street, Corowa, NSW 2646. The Project would involve the construction, operation and decommissioning of a BESS, with a capacity of up to 100 Megawatts (MW) / 200 MWh (2 hours). It would include temporary construction areas, battery storage units, inverters, transformers, access roads, underground and above ground cables, on-site substation, associated operational facilities and all auxiliary works.

1.1.2. Location

The Project would be located within the Federation Local Government Area (LGA), approximately three kilometres (km) north from the township of Corowa, NSW. The site address is 275 Whitehead Street, Corowa, NSW 2642. The BESS site itself is proposed to be located within land that is primarily used for agricultural purposes and zoned RU1 – Primary Production, with access road upgrades being proposed to be undertaken along existing roads including Honour Avenue, Bullecourt Road and Whitehead Street. Essential Energy's Corowa substation is located within the southeastern corner of the Subject Land. The Project intersects with two lots within the Development Footprint as well as road reserves as shown in Figure 1-1:

- Lot 12, DP1115583 ('Yanina' private property)
- Lot 11, DP1115583 (Corowa substation)

1.1.3. Subject Land

The Subject Land has been subjected to extensive clearing in the past for agricultural use. The Subject Land consists mostly of non-native pastures used for stock grazing and hay bailing. Several single rows of planted vegetation – non-native and native are present throughout the Subject Land for windbreaks and aesthetic purposes. Small patches of remnant Grey Box Woodland occur alongside Whitehead Street with exotic dominated grassland also present along Whitehead Street and surrounding the Corowa Substation. The intersection of Honour Avenue and Bullecourt Road is comprised of ornamental streetscape and planted native and non-native vegetation. Non-native vegetation also occurs as roads, access tracks, substation, residential dwellings and ancillary buildings. One farm dam is present within the Subject Land, however this dam was dry at the time of the field surveys.

Key features of the Subject Land include:

- Remnant and planted Inland Grey Box (*Eucalyptus macrocarpa*) woodland
- Partially native grasslands
- One farm dam
- Corowa substation

1.1.4. Proposal details

Key features of the project would include:

- Permanent electrical infrastructure:
 - A BESS with a capacity of up to 100 MW / 200 MWh:
 - The battery storage units will be comprised of Lithium Iron Phosphate (LFP) cells, enclosed in 60 containers (approx. 5,000 cells per container)
 - Switch room, power inverters, High Voltage (HV) transformers and HV switchgear
 - 30 x Medium Voltage Power Station (MVPS) Power Conversion Systems (PCS)
 - Harmonic filter
 - Above ground, below ground (or a combination of both) transmission connection from the proposed BESS to the neighbouring existing 132 / 22 kV Essential Energy Corowa Substation site
- Permanent ancillary infrastructure:
 - Operation and maintenance facility including site office
 - A Battery Management System to monitor individual battery cell health and integrated fire monitoring and control systems
 - Internal vehicle access tracks and parking
 - Security fencing, lighting, signage and lightning protection
 - Water tanks
 - Parking / garage
 - Security fencing
 - Access off Whitehead Street for:
 - Dedicated access to the host landholder's property and dwelling
 - Dedicated access to the BESS facility.
- Temporary construction facilities including:
 - Construction compound and laydown areas
 - Temporary vehicle access tracks and parking.
- Environmental management provisions
 - Screening vegetation
 - A noise wall and amenity (solid) screening fence.



Figure 1-1 Site Location

1.2. Biodiversity Offsets Scheme entry

The Project has been classified as a State Significant Development (SSD), therefore assessment under the Biodiversity Offset Scheme (BOS) automatically applies. As the clearing of native vegetation is less than 1 ha, the ‘small area’ streamlined assessment methodology has been applied to the assessment in accordance with Appendix C of the BAM (2020) along with the streamlined assessment for planted native vegetation.

1.2.1. Study aims

The aim of this BDAR is to assess the native vegetation and threatened flora and fauna habitats within the Subject Land and Development Footprint. This assessment is then utilised to make recommendations to avoid and minimise impacts to native and threatened flora, fauna and habitat within the Project design.

Additionally, throughout this document the BDAR addresses biodiversity matters identified in the SEARs (DPHI, 2025). This includes assessment of biodiversity values and impacts, likely impacts on aquatic biodiversity, cumulative impact assessment on biodiversity values and offset obligations. Where avoid and minimise mitigation measures cannot be implemented, the BDAR describes offset impacts under the BC Act.

1.3. Excluded impacts

The Draft Native Vegetation Regulatory Map (NVR Map) shows the Subject Land primarily contains Category 1 – exempt land, with some areas of Category 2 – regulated land (DPE, 2025). Clause 6.8(3) of the BC Act states that prescribed impacts (as defined in clause 6.1 of the *Biodiversity Conservation Regulation 2017* (BC Regulation)) are still required to be assessed on Category 1 - exempt land. While this mapping is in Draft form, Accredited Assessors must make their own conclusions of land categorisation with supporting evidence.

Areas mapped as Category 1 - exempt land in the NVR Map contained agricultural crops during NGH's field inspections. No Land Categorisation Assessment (LCA) has been undertaken. Instead, these have been included in the BDAR as exotic vegetation. All land within the Subject Land was included for assessment under the BOS. Therefore, there are no excluded impacts for this Project.

1.4. Matters of national environmental significance

This BDAR also includes an assessment of impacts to protected matters listed under the federal *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). This assessment includes use of the Protected Matters Search Tool (PMST) to determine potential species and communities occurring within the locality, and targeted surveys across the site to detect the presence of these entities or their habitats. Entities known or considered likely to occur have been included in the impact assessment. A habitat evaluation table was completed for EPBC Act entities and did not identify any entities that would be potentially impacted by the Project. As a result, no Assessments of Significance have been prepared. An EPBC Act referral is not deemed necessary for this Project. Refer to Appendix D for a summary of Matters of National Environmental Significance (MNES) details throughout this BDAR.

1.5. Information sources

Table 1-1 Information sources used in the preparation of this report

Information	Source
Australia's Interim Biogeographic Regionalisation for Australia (IBRA) bioregions and subregions (DAWE, 2020)	www.environment.gov.au/land/nrs/science/ibra/australias-bioregions-maps
Mitchell Landscapes (DECCW, 2002)	Department of Environment and Climate Change NSW (DECC, 2002). Descriptions for NSW (Mitchell) Landscapes, Version 3
NSW Biodiversity Assessment Method (BAM) calculator (BAM-C)	DPIE, NSW Biodiversity Accredited Assessor System (https://customer.lmbc.nsw.gov.au/assessment/s/userlogin?startURL=%2Fassessment%2Fs%2F)
NSW BioNet Threatened Biodiversity Database Collection NSW BioNet Atlas NSW BioNet Vegetation Classification	NSW Government 2025 Accessed online via login at www.bionet.nsw.gov.au
BioNet vegetation classification database (OEH, 2021)	Accessed online via login at: www.environment.nsw.gov.au/NSWVCA20PRapp/default.aspx
Biodiversity Assessment Method 2020 (DPIE, 2020)	Biodiversity Assessment Method 2020 Environment and Heritage
Department of Primary Industries (DPI) profiles of threatened species, populations, ecological communities and key threatening processes (DPI, n.d.)	www.dpi.nsw.gov.au/fishing/threatened-species/what-current
Directory of Important Wetlands (Cth DCCEEW, 2021)	www.environment.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands

Information	Source
Transitional Native Vegetation Regulatory Mapping	https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=NVRMap
NSW Biodiversity Values Map and Threshold Tool (NSW Gov, n.d.)	www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap
NSW Flora Online (PlantNET, n.d.)	https://plantnet.rbgsyd.nsw.gov.au
NSW SEED Mapping Portal (SEED, 2025)	https://geo.seed.nsw.gov.au/Public_View/index.html?viewer=Public_View&locale=en-AU
NSW Soil and Land Information (eSpade, n.d.)	www.environment.nsw.gov.au/eSpade2WebApp#
NSW State Vegetation Type Mapping (SVTM) (DPIE, 2025)	https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map
NSW Threatened Species Profiles (NSW Government) (OEH, 2025a)	https://www.environment.nsw.gov.au/threatenedSpeciesApp/
NSW Threatened Species Scientific Committee final determinations (DPE, n.d.)	www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations/nsw-threatened-species-scientific-committee-final-determinations
NSW Woody Vegetation Extent (SEED, 2025)	https://datasets.seed.nsw.gov.au/dataset/nsw-woody-vegetation-extent-2011c0569
Protected Matters Search Tool (Commonwealth Government) (Cth DCCEEW, 2025a)	www.environment.gov.au/epbc/protected-matters-search-tool
Species Profiles and Threats (SPRAT) Database (Commonwealth Government) (Cth DCCEEW, 2025b)	http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl
Aerial imagery of historical land use	Sourced from Google Earth and NSW Spatial Services Delivery

2. Methods

2.1. Site context methods

2.1.1. Landscape features

Landscape features within the Assessment Area were identified and evaluated by desktop assessment of aerial imagery, information sources identified in Section 0, available Geographic Information Systems (GIS) layers, and field surveys. Field surveys were undertaken in September 2025 to conduct an initial site inspection, within the Subject Land and Assessment Area and any landscape features were identified.

2.1.2. Native vegetation cover

Native vegetation cover was calculated using a 1500 metre (m) radius surrounding the proposed BESS site and the intersection at Honour Avenue and Bullecourt Road.

A combination of desktop assessment and field surveys were utilised to classify areas within the Subject Land and Assessment Area as native or non-native vegetation. In defining potential native vegetation, an initial analysis of the following datasets were undertaken:

- State Vegetation Type Mapping (SVTM) (SEED, 2025)
- NSW Woody Vegetation Extent 2011 - published 2015 (SEED, 2025). This dataset is used to identify areas of extant remnant vegetation and cleared lands/non-woody vegetation.
- Aerial Imagery from a variety of sources, referenced above in Table 1-1.

Within the Assessment Area, native vegetation cover was determined using NSW SVTM with adjustments made for local observations during field work within and adjacent to the Subject Land. Preliminary mapping of vegetation community boundaries was undertaken through the analysis of the above datasets. Analysis of aerial imagery was used to identify areas of disturbance (e.g. infrastructure, roads, dams, access tracks) and vegetation structure to determine whether areas are assigned as native or exotic. Areas within the Assessment Area that were unable to be accessed during field surveys were mapped conservatively as native if there was no evidence to prove otherwise (i.e. cropped paddocks, infrastructure). Satellite imagery was used to map paddock trees as native vegetation. Native vegetation cover calculations were determined using GIS processing tools.

2.2. Native vegetation, threatened ecological communities and vegetation integrity methods

2.2.1. Existing information

A desktop investigation was conducted to gather information on existing native vegetation within the Subject Land, and potential Threatened Ecological Communities (TECs). The following searches were undertaken using a variety of tools and databases:

- BioNet species sightings records of threatened flora, fauna and ecological communities listed under the BC Act (OEH, 2025b). The search was conducted on 27 August 2025 within a 10 km radius surrounding the Subject Land .

- Biodiversity Values Mapping and areas of outstanding biodiversity value. The search was conducted on 7 August 2025.
- Protected Matters Search Tool (PMST) for threatened species and populations listed under the EPBC Act (Cth DCCEEW, 2025a). The search was conducted on 3 September 2025 within a 10 km radius surrounding the Subject Land.

Following field surveys, the following sources were utilised to assist with Plant Community Type (PCT) classification:

- NSW Sharing and Enabling Environmental Data (SEED) Mapping Portal (SEED, 2025)
- BioNet Vegetation Classification Tool (BioNet) (OEH, 2025c)
- NSW State Vegetation Type Map (SVTM) (SEED, 2025).

2.2.2. Mapping native vegetation extent

Within the Subject Land, the following sources were included to map native vegetation extent:

- NSW State Vegetation Type Mapping (SVTM) (SEED, 2025)
- BioNet vegetation classification database (OEH, 2025c)
- Vegetation data collected during the initial field survey.

Initial vegetation surveys were undertaken by a BAM Accredited Assessor and an Ecologist in September 2025. The purpose of this field survey was to ground-truth native vegetation extent within the Subject Land using Rapid Assessment Points (RAPs), PCT polygons and Vegetation Integrity (VI) Plots. This data was captured to obtain initial data on flora species and vegetation structure, to inform likely PCTs present and their condition, within the Subject Land. During this survey, 17 RAPs were captured and one VI plot (20 m x 50 m in accordance with the BAM) was undertaken.

Across the Subject Land, RAPs and PCT polygons captured vegetation condition and identified the areas of native and exotic vegetation. Each RAP and PCT polygon location was recorded on a Geographical Positioning System (GPS) enabled Apple iPhone using data collection software. The following information was collected for RAPs (based on observing a 100 m radius around the point):

- The three most dominant flora species in the upper, middle and lower stratum of vegetation (where present).
- The percent native cover of all endemic species (%) for each vegetation stratum was also estimated.
- Landscape features such as landform and soil type were also observed and recorded.
- A photo was taken of each RAP site to provide a visual representation of the data recorded at each point.

PCT polygon data included capturing the dominant species in the canopy, midstorey and understorey. It was noted whether the vegetation was planted or remnant. During this field survey 26 polygons were captured to describe observed vegetation.

Following this initial field survey, vegetation mapping was refined to include confirmation of areas categorised as native vegetation and PCTs present within the Subject Land to produce accurate mapping. Field data was then assessed to determine preliminary vegetation condition classes, and the presence of any TECs.

PCT identification was based on:

- Vegetation formation and Class (Keith, 2004),
- Most dominant native species present inside 20 x 20 m floristics plots or surrounding landscape,
- Canopy species observed in similar and adjoining landforms to the Subject Land (where absent in plots),

- Landform elements and soil types,
- Location in the Interim Biogeographic Regionalisation for Australia (IBRA) subregion and distribution using the BioNet Vegetation Classification Database.

Once PCTs were identified, they were then stratified into different condition states based on vegetation structure, native/exotic composition, land management and VI scores generated by the BAM Calculator (BAM-C). Woody vegetation within the Subject Land was classified as native, unless otherwise indicated through field survey data (e.g. exotic Ash Tree, Pine Tree plantings). Further information on PCT justification is provided in Section 4.2.

2.2.3. Plot-based vegetation survey

Additional field verification (ground-truthing) of the preliminary vegetation mapping was completed through a combination of random meanders and VI plots to confirm PCTs, their condition and the presence of any TECs. Ground-truthing involved confirming the vegetation structure, dominant canopy species, native diversity and condition of different vegetation communities. VI plot locations were chosen in areas that were representative of each vegetation community that may occur within the Subject Land. These locations were chosen by taking into consideration landform features (i.e. slopes or plains), dominant canopy species and vegetation formations (i.e. grassy woodland). VI plots and random meanders were conducted by an ecologist and a BAM-accredited ecologist in October 2025. The aim of this field work was to assess the vegetation visually and conduct an acceptable number of VI plots in the representative PCTs observed onsite in accordance with BAM 2020 (DPE, 2020).

Most of the VI plots were conducted over a 20m x 50m area to assess vegetation function which included a 20m x 20m plot for assessing composition and structure, in accordance with the BAM (DPE, 2020). Each VI plot also included five analysis plots (1m x 1m quadrat area) for percentage cover of litter, bare ground, rocks and cryptograms. Three plots were adapted due to area constraints:

- Plot 2 included a 10 m x 100 m area with two right angle bends to fit within the linear vegetation zone that assessed vegetation structure, and a 10 m x 40 m plot to assess vegetation composition and structure
- Plot 5 included a 10 x 50 m area, which was the entire area of the vegetation zone. 1m² quadrats were undertaken at 5 m intervals within this area. Vegetation composition and structure were undertaken within a 10m x 40m plots.
- Plot 6 included a 10 m x 100 m area that assessed vegetation function, and a 10 m x 40 m plot to assess vegetation composition and structure.

Modified VI plots 2 and 6 captured the same survey area as the standard VI plots and adequately captured the required data under the BAM. Plot 5 had a smaller vegetation function survey area (500m² as opposed to 1000m²) as this was the entire size of the vegetation zone. However there was no fallen timber, tree stems or regeneration occurring outside this area and thus, the landscape function of this vegetation zone was adequately captured. Vegetation composition/structure and litter cover plots covered the same area as a standard VI plot for BAM plot 5.

Data was collected in accordance with the BAM by an accredited BAM assessor and the details of the personnel involved in field surveys is provided in Appendix H.

2.2.4. Vegetation integrity survey

Vegetation integrity plots were used to further delineate PCTs into specific zones based on condition, which was determined using the vegetation integrity score (VI score) calculated in the BAM-C and extrapolated out in combination with on-site vegetation stratification, land management and aerial imagery.

The number of VI plots undertaken per zone was based on Table 3 & Section 4.3.4 of the BAM (2020). As VI plots were used to inform planning to avoid and minimise impacts, VI plots undertaken by NGH meet the minimum required by the BAM in all zones.

2.3. Threatened flora survey methods

2.3.1. Review of existing information

Searches for threatened flora species records were undertaken using BioNet (OEH, 2025b) and the PMST (Cth DCCEEW, 2025a) within a 10 km radius of the Subject Land to determine previous or potential occurrences within or near the Subject Land. Background searches for threatened species were conducted on 7 August 2025 and 3 September 2025 respectively.

2.3.2. Habitat constraints assessment

In conjunction with VI plots and other targeted threatened species surveys, a habitat constraints assessment was undertaken across the Subject Land to identify habitat features which may provide potential habitat for any threatened flora species.

2.3.3. Field surveys

Parallel transects were conducted on foot in accordance with the *Surveying threatened plants and their habitats* guidelines under the BAM (NSW DPIE, 2020). This involved walking parallel transects spaced 10 metres apart, with each traverse assuming at least 5 metres of visual coverage on either side of the walked line. Cropped areas that had no native vegetation (mapped as exotic) or in planted ornamental vegetation, were not surveyed for targeted flora as they were considered unlikely to support threatened flora species.

Targeted surveys for the Slender Darling Pea (*Swainsona murrayana*) and Silky Swainson-pea (*Swainsona sericea*) were conducted on 23 September 2025 by two NGH ecologists. Surveys were undertaken prior to the refinement of the Development Footprint (refer to Section 7), therefore survey locations included the Subject Land as well as the woodland areas adjacent to the Riverina Highway to the north. Further targeted surveys for *Austrostipa wakoolica* were conducted by two NGH Ecologists on 15 October 2025. Tracks for both survey efforts were recorded on a Garmin GPS unit and are shown in Figure 5-1 to Figure 5-4. Weather conditions during the field surveys are shown in Table 2-1.

2.4. Threatened fauna survey methods

2.4.1. Review of existing information

Searches for threatened fauna species records were undertaken using BioNet (OEH, 2025b) and the PMST (Cth DCCEEW, 2025a) within a 10 km radius of the Subject Land to determine previous or potential occurrences within or near the Subject Land. Background searches for threatened species were conducted on 7 August 2025 and 3 September 2025 respectively.

2.4.2. Habitat constraints assessment

In conjunction with targeted threatened species surveys and VI plots, a habitat constraints assessment was undertaken across the Subject Land to identify habitat features which may provide potential habitat for

threatened fauna species. Habitat features such as hollow bearing trees (HBTs), fallen logs, waterways/dams and nest trees were recorded to indicate the potential presence of specific threatened fauna.

2.4.3. Field surveys

Targeted fauna surveys were completed between 26-29 August 2025 for the Sloane's Froglet (*Crinia sloanei*) by two NGH ecologists.

Targeted surveys for the following species were completed between the 15-16 October 2025 by two NGH ecologists:

- White-bellied Sea-Eagle (*Haliaeetus leucogaster*)
- Little Eagle (*Hieraaetus morphnoides*)
- Square-tailed Kite (*Lophoictinia isura*)
- Pink Cockatoo (*Lophochroa leadbeateri*)
- Superb Parrot (*Polytelis swainsonii*)

Targeted surveys for Southern Myotis (*Myotis macropus*) were completed between 15-20 October 2025 and targeted surveys for Koala (*Phascolarctos cinereus*) were completed on 21 October 2025.

Methods adopted for targeted fauna surveys differed depending on the species, as described below. Tracks for both survey efforts were recorded on a Garmin GPS unit and points for the different surveys undertaken were mapped on an Apple iPhone. Tracks and survey locations are shown in Figure 5-5 to Figure 5-8. Weather conditions during the field surveys are shown in Table 2-1.

Sloane's Froglet

Call-playback surveys for Sloane's Froglet were undertaken by two NGH ecologists over four nights, from the 26-29 August 2025. Call-playback surveys were conducted in conjunction with spotlighting. Surveys were conducted between 6-9:30pm at multiple locations containing suitable aquatic habitat. Surveys were undertaken prior to the refinement of the Development Footprint (refer to Section 7) therefore survey locations included one dam and two vegetated depressions adjacent to the Riverina Highway to the north, all of which have since been avoided by the Project. On the 29 August 2025, a reference site (Whitehead Street Wetland) with BioNet records was surveyed as an additional location outside the Subject Land to confirm the seasonal conditions have been suitable for surveying. At each site, the following call playback methodology was utilised, consistent with recommended survey guidelines:

1. Five minutes of active listening.
2. Pre-recorded calls were broadcast for two minutes.
3. Two minutes of active listening.
4. At the end of the call playback sequence, five minutes of active searching of vegetation and water edges using spotlights was undertaken.

Calls were recorded and submitted to FrogID for confirmation during both active listening periods. Surveys were repeated every 50 m along transects around dams and depressions to maximise coverage. Transects ended when one lap of the dam had been completed, or when 500 m of a transect was reached.

Southern Myotis

Southern Myotis was surveyed using an Anabat ultrasonic recording device. This methodology follows the passive acoustic detection method, where the microphone of the Anabat is directed over pools of water along creeks, rivers or other waterbodies, in areas of potential habitat (DPIE, 2021). One dam was accessible within 200 m of the Subject Land and contained water, providing potential habitat for Southern Myotis. This

dam was located adjacent to the residential house located at 275 Whitehead Street, Corowa NSW 2646. A total of one device was deployed for a total of six nights, totalling 60 hours of survey effort.

Raptors

White-bellied Sea-Eagle, Little Eagle and Square-tailed Kite were surveyed by two NGH ecologists in October 2025 which consisted of stick nest searches in areas of potential suitable habitat. Potential habitat included areas with large trees, both in patches of native and non-native vegetation. When a stick nest was located, it was marked on a GPS enabled device. Stick nest watches were then conducted for a period of 30 minutes. Two trees containing a total of four stick nests were recorded and surveyed, one from 6 am to 6:30 am and the other from 8:30 am to 9 am. Both trees were surveyed two consecutive days on the 15th and 16th of October.

Hollow-dependant Birds

Pink Cockatoo and Superb Parrot were surveyed by two NGH ecologists in October 2025 which consisted of random meander (area searches) in areas of potential suitable habitat. Potential habitat included areas of woodland vegetation and where hollow-bearing trees were present. Surveys involved visual observations and listening for calls. Searches were undertaken across a two-hour period from 6:30am to 8:30am around the substation and Whitehead Street. The area search was repeated on two consecutive days.

Koala

In accordance with the BAM survey guidelines for the Koala (DPE, 2022), two separate survey methods are required to be undertaken. Only the Spot Assessment Technique (SAT) was undertaken across the Subject Land. This was due to surveys commencing prior to the refinement of the Development Footprint and the Project being assessed as a Small Area under Appendix C of the BAM.

The SAT technique is an indirect survey methodology, assessing the presence of koala scat within a prescribed search area. The following methodology is listed within the BAM guidelines for the koala (DPE, 2022):

1. Locate the start SAT tree and identified as the centre tree.
2. The next nearest 29 trees to the centre tree are to be searched.
3. A radial search for koala scat is to be undertaken beneath each of the 30 identified trees, extending one metre from the base of each tree.
4. Searches to begin with a brief inspection of undisturbed litter and grass within the one metre search area. Disturbance by hand of the litter is to be completed where scats were not detected.
5. Searches at each tree are to conclude when the search time of two minutes has ceased with no koala scat detected, or when a koala scat is detected.

Only 18 koala use trees are present within the Subject Land, all of which were surveyed adhering to the above methodology.

2.5. Weather conditions

Table 2-1 Environmental conditions during threatened species surveys

Survey undertaken (e.g. method / targeted species)	Date	Time	Temp (°C)		Max Wind Gust (km/h)	Rainfall (mm)	Other conditions relevant to the species
			Min	Max			
Sloane's Froglet – Call Playback, Spotlighting	26/08/2 025	6-9pm	6.8	17.5	44 NNW	0	N/A
Sloane's Froglet – Call Playback, Spotlighting	27/08/2 025	6-8pm	8.7	13.5	52 N	9.6 (Prior to surveys)	Rain is favourable to the species survey.
Sloane's Froglet – Call Playback, Spotlighting	28/08/2 025	6-8pm	5.5	13.6	43 W	0.4 (Prior to surveys)	Rain is favourable to the species survey.
Sloane's Froglet – Call Playback, Spotlighting	29/08/2 025	6-9:30pm	5.5	14.4	72 W	4.4 (Prior to surveys)	Rain is favourable to the species survey.
Silky Swainson-pea, Slender Darling Pea – 10 m parallel flora transects VI Plots, PCT mapping	23/09/2 025	9am – 4pm	-0.5	16.1	30 WSW	0	N/A
<i>Austrostipa wakoolica</i> – 10m parallel flora transects Pink Cockatoo, Superb Parrot – area searches Square-tailed Kite, White-bellied Sea- Eagle, Little Eagle – stick nest watches Southern Myotis – Anabat passive acoustic recording	15/10/2 025	6am – 2:30pm 8pm-6am (Southern Myotis)	0.6	26	28 WSW	0	N/A

Survey undertaken (e.g. method / targeted species)	Date	Time	Temp (°C)		Max Wind Gust (km/h)	Rainfall (mm)	Other conditions relevant to the species
			Min	Max			
Pink Cockatoo, Superb Parrot – area searches Square-tailed Kite, White-bellied Sea- Eagle, Little Eagle – stick nest watches Southern Myotis – Anabat passive acoustic recording	16/10/2 025	6- 11:30am 8pm-6am (Southern Myotis)	2.1	30.5	31 WSW	0	N/A
Southern Myotis – Anabat passive acoustic recording	17/10/2 025	8pm-6am	13.6	24.6	61 WSW	0	N/A
Southern Myotis – Anabat passive acoustic recording	18/10/2 025	8pm-6am	3.5	23.1	33 WSW	0	N/A
Southern Myotis – Anabat passive acoustic recording	19/10/2 025	8pm-6am	3.2	27.7	33 ENE	0	N/A
Southern Myotis – Anabat passive acoustic recording	20/10/2 025	8pm-6am	13.6	30.3	54 SW	0	N/A
VI Plots Koala - SATs	21/10/2 025	9am – 4pm	9.7	22.0	26 ENE	0	N/A

Weather information was accessed from Rutherglen VIC weather station (082039), as Corowa weather station (074034) did not capture any weather information for the required periods (Bureau of Meteorology, 2025). Rutherglen weather station is located approximately 17 km from Corowa.

2.6. Limitations

Although sufficient survey methods and effort were undertaken to identify all HBTs within the Subject Land, it is possible that some hollows in the canopy of large trees may not have been detected. Ground surveys for HBTs are inherently limited as close-up inspections of hollows are often unable to be conducted. Research shows that rapid ground surveys are likely to underestimate hollow frequency compared to climbing surveys (Harper, McCarthy, van der Ree, & Fox, 2004). However, this research also confirmed that ground surveys

do provide an efficient and relatively reliable method for assessing hollow abundance (Harper, McCarthy, van der Ree, & Fox, 2004).

Low condition native vegetation areas within the Subject Land have been highly modified and subjected to past clearing with current land use management including regular mowing. This has resulted in the presence of the groundcover stratum only, with an absence of trees and shrubs. As key indicator species in the upper stratum are required for classifying the PCT, notes were taken in the field of adjoining tree species to assist in PCT assignment.

Groundcover assessment floristics can vary greatly depending on climatic influences and season at time of survey. Paddocks inspected were subject to cropping at the time of the field surveys, with a few native species scattered throughout. The abundance of these native species could change over time following harvesting of the crops and variation in climate.

One farm dam within the Corowa substation was dry during the field surveys. Surveys for Sloane's Froglet were unable to be undertaken in this waterbody. However, the dam has been dry for a long period of time, evidenced by lack of damp soil or wetland vegetation. Otherwise local conditions were considered optimal for the flora and fauna detectability at the time of field surveys by NGH. Despite this, there is potential for inconspicuous or geophytic species to be missed during surveys, given their low detectability.

3. Site context

3.1. Assessment area

The Assessment Area is defined as the area of land within the 1500 m buffer zone surrounding the Subject Land for site-based developments, or 500 m for linear developments. The Corowa BESS is a site-based development and the Assessment Area has been calculated by buffering the BESS site and intersection by 1500 m. The Assessment Area includes a total area of approximately 1,458 ha (Figure 3-1).

3.2. Landscape features

Landscape features identified within the Subject Land and Assessment Area are shown on Figure 3-1 and Figure 3-2 respectively. A discussion of relevant landscape features is provided below.

The Subject Land occurs within the Federation Local Government Area (LGA). The Subject Land is dominated by cropping, as is the immediate surrounding land use. The surrounding landscape is characterised by rural farmlands and agricultural fields, with scattered remnant paddock trees and roadside remnant woodlands. Topography is flat, with an elevation of 140 m above sea level (ASL). Multiple farm dams in various conditions occur across the Assessment Area, with one occurring within the Subject Land although this was determined to be dry during the field survey. No streams or creeks occur within the Subject Land. One Strahler stream occurs within the southern part of the Assessment Area, being the Murray River - a 9th Order stream.

3.2.1. IBRA bioregions and IBRA subregions

Interim Biogeographical Regionalisation for Australia (IBRA) bioregions are geographically distinct bioregions based on common climates, geology, landforms and native vegetation (Thackway & Cresswell, 1995). There are 89 bioregions within Australia. The Subject Land falls across one IBRA Bioregions. This is:

- Riverina

The Riverina Bioregion is an extensive area of 9,576,964 ha which occurs within southwest NSW, extending into central-north Victoria. Approximately 74% of the Riverina Bioregion (7,090,008 ha) occurs within NSW. *“The Riverina Bioregion is dominated by river channels, floodplains, backplains, swamps, lakes and lunettes that are all of Quaternary age. The Murray and Murrumbidgee Rivers and their major tributaries, the Lachlan and Goulburn Rivers, flow from the highlands in the east, westward across the Riverina plain.”* The topography of the Riverina is dominated by overlapping, low gradient alluvial fans within the upper catchment of the Lachlan, Murrumbidgee, and Murray Rivers. The lower catchment consists of floodplain with seasonal overflow lakes. The landscape, including the soil and vegetation which characterise the lower tracts of the Riverina bioregion were primarily determined by past and present patterns of sediment deposition by local river systems (NPWS, 2003). *“Vegetation consists of river red gum and black box forests, box woodlands, saltbush shrublands, extensive grasslands and swamp communities”* (Environment Australia, 2000).

The Subject Land falls within the Murray Fans IBRA subregion and this was entered into the BAM Calculator (BAM-C).

“Murray Fans subregion consists of Quaternary alluvial sediments. Clay and sand with source bordering dunes, lakes and swamps also occur. Landforms consist of a relatively confined alluvial fan constrained by sediments from northern Victorian rivers, the Murrumbidgee fan and the Cadell fault. Meandering channels, floodplains, source bordering dunes, overflow lakes and swamps are also present. Red brown earths, grey

clays and deep sands are typical” soil types. Vegetation communities occupying suitable landscapes include (SEED, 2024):

- Extensive River Red Gum forests with river cooba on channels and low floodplains
- Yellow Box and black box with saltbush on high floodplains and terraces
- White cypress pines on dunes, sandy levees and lunettes
- Common reed, cumbungi and grasses in swamps.

IBRA regions and bioregions are displayed in Figure 3-1.

3.2.2. Rivers, streams, estuaries and wetlands

The aquatic environment within the Subject Land is sparse. The closest watercourse is the Murray River, occurring approximately 300 m south-east of the southern roadside intersection to be upgraded.

The Murray River is surrounded by Floodplain Wetlands in the NSW Wetlands layer (SEED, 2025). Nulla Nulla Swamp, another Floodplain Wetland in the NSW Wetlands layer (SEED, 2025), occurs to the north-west of the Assessment Area, with a small part intersecting the Assessment Area about 1.2km north-west of the Subject Land. Whitehead Street Wetland occurs approximately 300 m west of the southern roadside intersection. This is not mapped as a significant wetland in the NSW significant Wetlands layer however is known to provide habitat for a population of Sloane’s Froglet (*Crinia sloanei*) listed as Endangered under the BC Act and EPBC Act.

EPBC Act protected matters search was completed on 3 September 2025 and did not identify any Ramsar Wetlands that may be impacted by the Project. The closest Ramsar Wetlands are Barmah Forest and NSW Central Murray State Forests, both of which are located approximately 90 km west of the Subject Land.

The Murray River is the only Strahler order stream present within the Assessment Area. The Murray River is a 9th Order Stream and also mapped as Key Fish Habitat (KFH) under the NSW *Fisheries Management Act 1994* (FM Act) and classified as Biodiversity Values (BV), as biodiverse riparian land (SEED, 2025).

One dam occurs within the Subject Land, adjacent to the Corowa substation; however this dam was dry during the site visit in August 2025 (Photograph 3-1). One farm dam occurs approximately 50 m west of the Subject Land, which is characterised by vegetated banks with some trees and dense emergent vegetation. Another farm dam occurs approximately 10 m east of the Subject Land and has limited fringing or emergent native vegetation present. Multiple other farm dams occur within the Assessment Area.

Waterbodies within the Assessment Area are shown in Figure 3-2.



Photograph 3-1 Dry dam within the Development Footprint



Photograph 3-2 Dam to the west of the Subject Land



Photograph 3-3 Dam to the east of the Subject Land

3.2.3. Habitat connectivity

Existing habitat connectivity within the Assessment Area is highly fragmented due to past clearance and associated agricultural land use activities. The Murray River occurs within the southern portion of the Assessment Area which provides both terrestrial connectivity through riparian River Red Gum woodlands and floodplains, as well as aquatic connectivity.

The patch of woodland to the north of the Subject Land is isolated from other areas of native vegetation, whilst the patch of woodland in the south of the Subject Land provides some connectivity. This patch joins as 'stepping stone' connectivity with the trees along Whitehead Street and the west of Bullecourt Road. The SVTM and satellite imagery show linear tree corridors in the Assessment Area mainly along roadsides, with these patches eventually joining to the vegetation along the Murray River. However, given the highly disturbed nature of the surrounding landscape and the large gaps between some of these patches, they are not considered to contribute substantially to significant habitat connectivity in the state or region. These patches are considered to provide 'stepping stone' connectivity for highly mobile arboreal species such as birds.

3.2.4. Karst, caves, crevices, cliffs, rocks or other features of geological significance

There are no karsts, caves, crevices, cliffs, rocks or other features of geological significance within or adjacent to the Subject Land. This was determined through site visits in 2025 in conjunction with aerial imagery.

3.2.5. Areas of outstanding biodiversity value

Areas of Outstanding Biodiversity Value (AOBVs) are important areas identified as having irreplaceable biodiversity value of critical importance to the state of NSW, Australia or internationally (NSW DCCEEW, 2024). AOBVs are declared by the Minister of the Environment and listed on the AOBV public register.

AOBVs sites currently listed on the public register include:

- Gould's Petrel – critical habitat declaration
- Little Penguin population in Sydney's North Harbour – critical habitat declaration
- Mitchell's Rainforest Snail in Stotts Island Nature Reserve – critical habitat declaration
- Wollemi Pine – critical habitat declaration.

None of these declared areas occur within the Subject Land.

3.2.6. NSW (Mitchell) landscapes

The Subject Land falls across two Mitchell Landscapes (Figure 3-1). These are:

- Murray Scalded Plains
- Murray Source-bordering Dunes

Descriptions of these Mitchell Landscapes are described below, extracted from *Descriptions for NSW (Mitchell) Landscapes* (Mitchell, 2002);

The Murray Scalded Plains are described as “*quaternary alluvial plains with extensive scalding interpreted as relic floodplains, terraces or part of the Cadell tilt block*”. Soil colour is “*red brown texture-contrast soils with extensive scalds. Prior stream channels of deep coarse sands with sandy levees and grey, brown and red cracking clays in depressions are also present. The local relief is between 5m to 15m*”. The landscape is mostly cleared and used for cropping and/or grazing. The native vegetation formerly consisted of “*open woodland and grasslands of White Cypress Pine (Callitris glaucophylla), Grey Box (Eucalyptus microcarpa), Bull Oak (Allocasuarina luehmannii), and Weeping Myall (Acacia pendula) with annual grasses and herbs*”.

The Murray Source-bordering Dunes are characterised as “*sandy rises adjacent to river channels or prior streambeds*”. The soils are generally deep red and brown sands and loams, with a local relief of between 3m to 12m. The landscape is often heavily grazed and subject to wind erosion. Vegetation generally consists of “*White Cypress Pine (Callitris glaucophylla), Needlewood (Hakea leucomyxa), Hooked Needlewood (Hakea tephrosperma), Wilga (Geijera parviflora), Bull Oak (Allocasuarina luehmannii), Emu Bush (Eremophila longifolia), Miljee (Acacia oswaldii), Yarran (Acacia homalophylla), Native Quince (Petalostigma pubescens), and Narrow Leaf Hopbush (Dodonaea attenuata) with sparse grasses.*”

The dominant Mitchell Landscape within the Subject Land is the Murray Scalded Plains. This was entered into the BAM-C.

3.2.7. Additional landscape features identified in SEARs

No additional landscape features were identified within the SEARs.

3.2.8. Soil hazard features

The *NSW Acid Sulphate Soils Risk* mapping (eSpade, 2025), *Environmental Protection Authority contaminated lands records* (eSpade, 2025), and *Environmental Planning Instrument – Salinity* mapping (eSpade, 2025) were reviewed, and no mapped areas or records were identified within the Subject Land.

3.3. Native vegetation cover

The first step in calculating native vegetation cover was to use GIS processing tools to buffer a 1500m radius around the Subject Land. Native vegetation cover inside the Subject Land was determined through vegetation stratification and field survey. Native vegetation outside the Subject Land was determined using NSW State Native Vegetation mapping (SEED, 2025) with adjustments made for local observations during field work.

The native vegetation cover within the Assessment Area was estimated to be 336 ha out of a total area of 1,458 ha, Table 3-1 summaries the extent of native vegetation cover within the Assessment Area. This equates to approximately 23% native vegetation coverage and this number was entered into the BAM-C for this assessment. Native vegetation extent is mapped in Figure 3-3 and summary of the extent of native vegetation is provided in Table 3-1

Table 3-1 Native vegetation cover in the Assessment Area

Assessment area (ha)	1,458 ha
Total area of native vegetation cover (ha)	336
Percentage of native vegetation cover (%)	23.05%
Class (0-10, >10-30, >30-70 or >70%)	>10-30

3.4. Additional site context components

The existing Corowa substation is located in the southern portion of the Subject Land. The substation infrastructure (excluding roads) has an area of approximately 0.54 ha and is surrounded by low condition derived grasslands which are subject to frequent mowing.

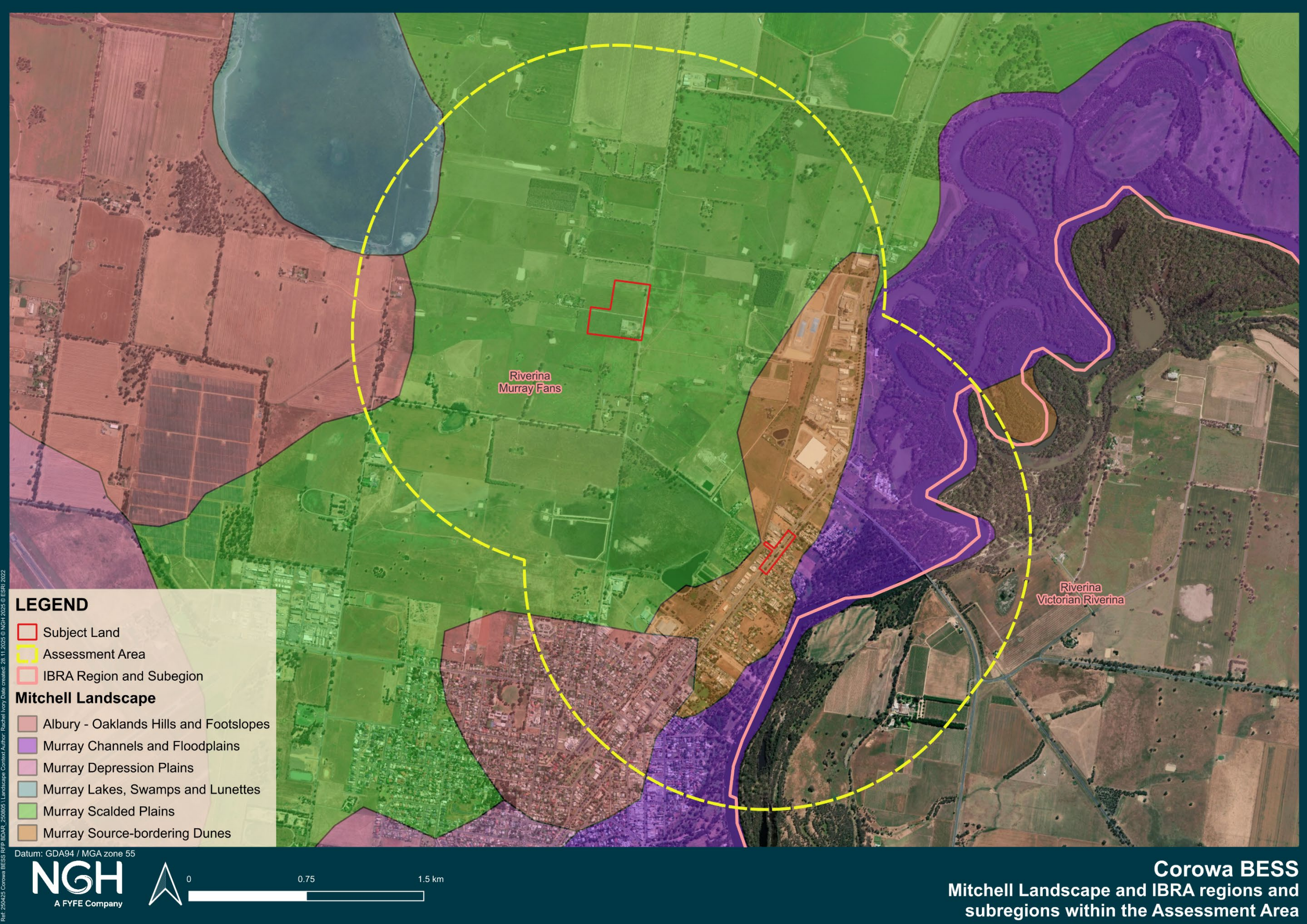


Figure 3-1 Mitchell Landscapes and IBRA regions and subregions within the Assessment Area (note: Mitchell Landscape is only NSW and therefore no landscape in Victoria is mapped)

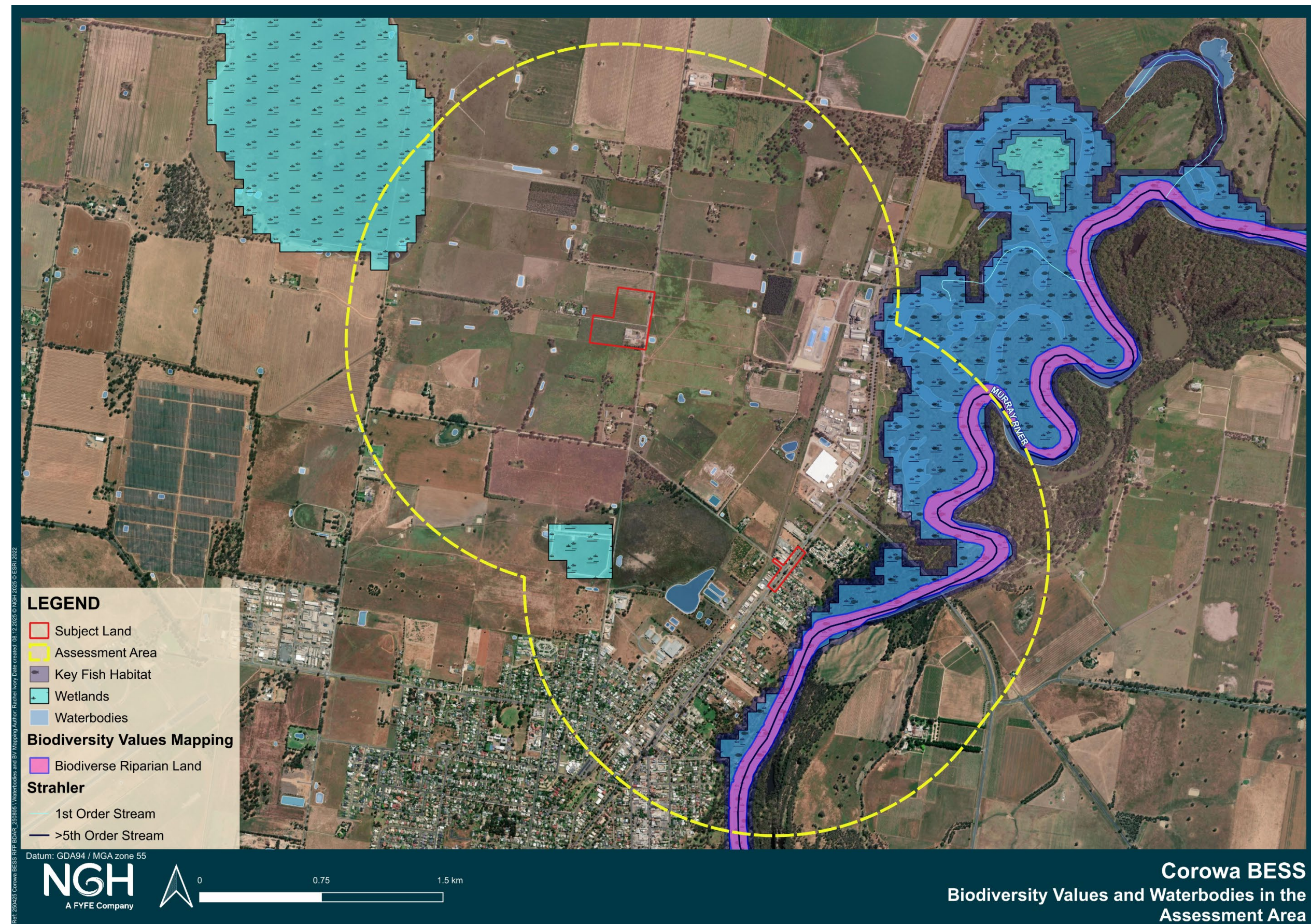


Figure 3-2 Biodiversity values and waterbodies within the Assessment Area

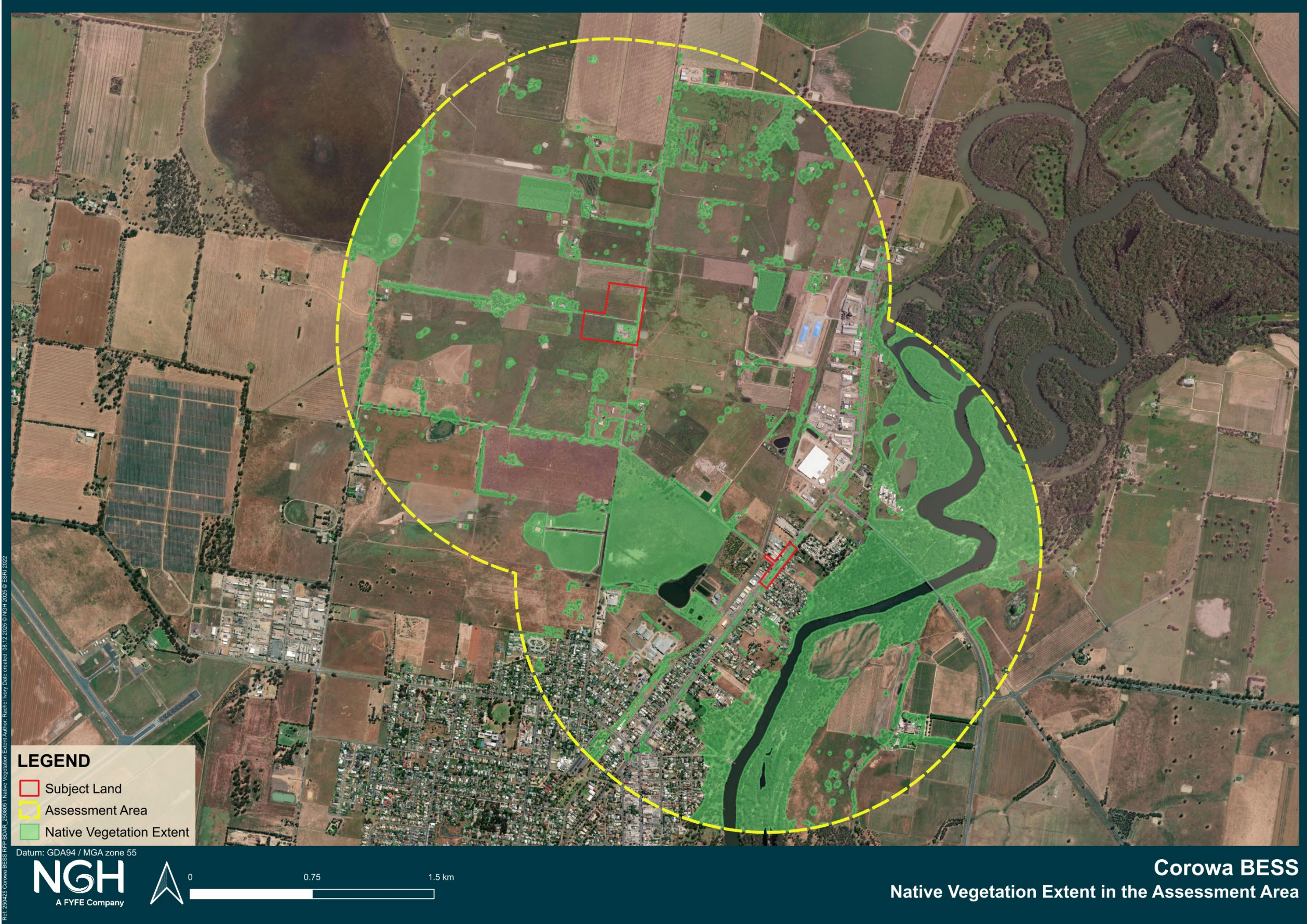


Figure 3-3 Native Vegetation Extent within the Assessment Area

4. Native vegetation

4.1. Native vegetation extent

Native vegetation extent refers to areas of vegetation assessed under the BAM. The Subject Land has been predominantly cleared for agricultural use including cropping and livestock production. Some native vegetation in the form of remnant woodland and planted native vegetation occur within the Subject Land. The remnant woodland occurs alongside Whitehead Street. Derived native grasslands are also present along the road reserve adjacent to Whitehead Street and surrounding the Corowa substation. Planted native vegetation occurs inside the Corowa substation lot, along paddock fence lines, along the internal access track at 275 Whitehead Street, and along Honour Avenue and Bullecourt Road intersection. Aerial imagery and site visits conducted by NGH ecologists determined that there is 2.35 ha of native vegetation across the Subject Land.

4.1.1. Changes to the existing native vegetation mapping

A search was undertaken of the NSW DCCEEW BioNet Vegetation Classification Tool database and the NSW SEED Mapping Portal to assess existing vegetation mapping information within the Subject Land.

Prior to field surveys, NSW SVTM (SEED, 2025) showed PCT 76 *Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions* as occurring within the Subject Land to the south of the Corowa substation. This area was mapped at 0.3 ha.

Field inspections confirmed PCT 76 as present within the Subject Land, however minor vegetation mapping changes were made. Within the SVTM patch of PCT 76, the eastern most trees were all identified as Pine Trees (*Pinus sp.*) with no native understory. These trees have been mapped as Exotic Planted Vegetation instead of PCT 76. Additionally, the vegetation surrounding the substation is mapped as 'PCT 0 – Not classified' in the SVTM. Field surveys confirmed this vegetation to be a derived grassland (DG) form of PCT 76 and has been mapped accordingly. Two trees are visible on aerial imagery towards the north of the Subject Land that are mapped as 'PCT 0 – Not classified' in the SVTM. Field surveys confirmed these trees to be Grey Box (*Eucalyptus microcarpa*) and have been mapped as PCT 76 as a result. The vegetation along the roadside of Whitehead Street was also confirmed to be a derived grassland form of PCT 76 during field surveys and has been mapped accordingly.

Planted native vegetation was observed during field surveys within the substation, along paddock fence lines, along the internal access track at 275 Whitehead Street, and along Honour Avenue and Bullecourt Rd intersection. These areas are mapped as 'PCT 0 – Not classified' in the SVTM, however have been mapped as Planted Native Vegetation in this BDAR. All areas of planted vegetation were assessed as per Appendix D of the BAM (Streamlined assessment module – planted native vegetation). Refer to Section 4.1.3 for more information and Appendix F for the assessments.

4.1.2. Areas that are not native vegetation

Areas that are not native vegetation include areas that contained exotic vegetation (both planted and cropped), roads (dirt and sealed), infrastructure (existing substation, sheds, driveways), and ornamental landscaping along Honour Avenue. The Subject Land being investigated for the BESS siting is mostly exotic, dominated by sown and cultivated pastures of Ryegrass (*Lolium sp.*) used for grazing and cropping (hay). Access was limited to these areas due to grazing and cropping. One VI plot (Plot3) was undertaken within the ryegrass pasture to confirm its composition was exotic (Appendix E.2).

Additionally, planted exotic vegetation consisting of Pine Trees (*Pinus sp.*) and Ash Trees (*Fraxinus sp.*) are present within the Subject Land, as well as non-native lawns and gardens along the road verges of Honour Avenue and Bullecourt Road. All of these areas were excluded from native vegetation mapping. The areas of non-native vegetation comprise 9.92 ha within the Subject Land.



Photograph 4-1 Non-native vegetation (sown and harvested ryegrass pasture) in the northern part of the Subject Land



Photograph 4-2 Non-native vegetation (sown and grazed ryegrass pasture) in the southern part of the Subject Land



Photograph 4-3 Non-native vegetation (Pine Trees) in the southern part of the substation lot



Photograph 4-4 Non-native vegetation at the corner of Bullecourt Road and Honour Avenue

4.1.3. Planted Vegetation

Areas of planted vegetation were observed and recorded during field surveys. Overall, eleven patches of planted vegetation were mapped across the Subject Land. Patches were grouped together based on their structure and the species present. All of these patches were assessed using the streamlined assessment module for planted native vegetation outlined in Appendix D of the BAM (DPIE, 2020) to determine if these patches could be assigned to a PCT. Only one of these patches was able to be assigned to a PCT, being PCT 76. All other patches were assigned as either planted native, planted exotic or ornamental streetscape depending on the species that were identified. The decision-making process for these patches is outlined in Appendix F and locations of planted vegetation are shown in Figure 4-1.

The patch of planted vegetation assigned to PCT 76 has been assessed under the BAM and described in Section 4.2 and this BDAR as Vegetation Zone 2: PCT 76_Planted.

The patches assigned as planted native vegetation, planted exotic vegetation and ornamental streetscape were assessed for their suitability for threatened species, such as the presence of hollow bearing trees, stick nests etc. and observed for evidence of threatened species, such as incidental sightings or scat searches. Threatened species surveys undertaken within planted vegetation are discussed in Section 5.

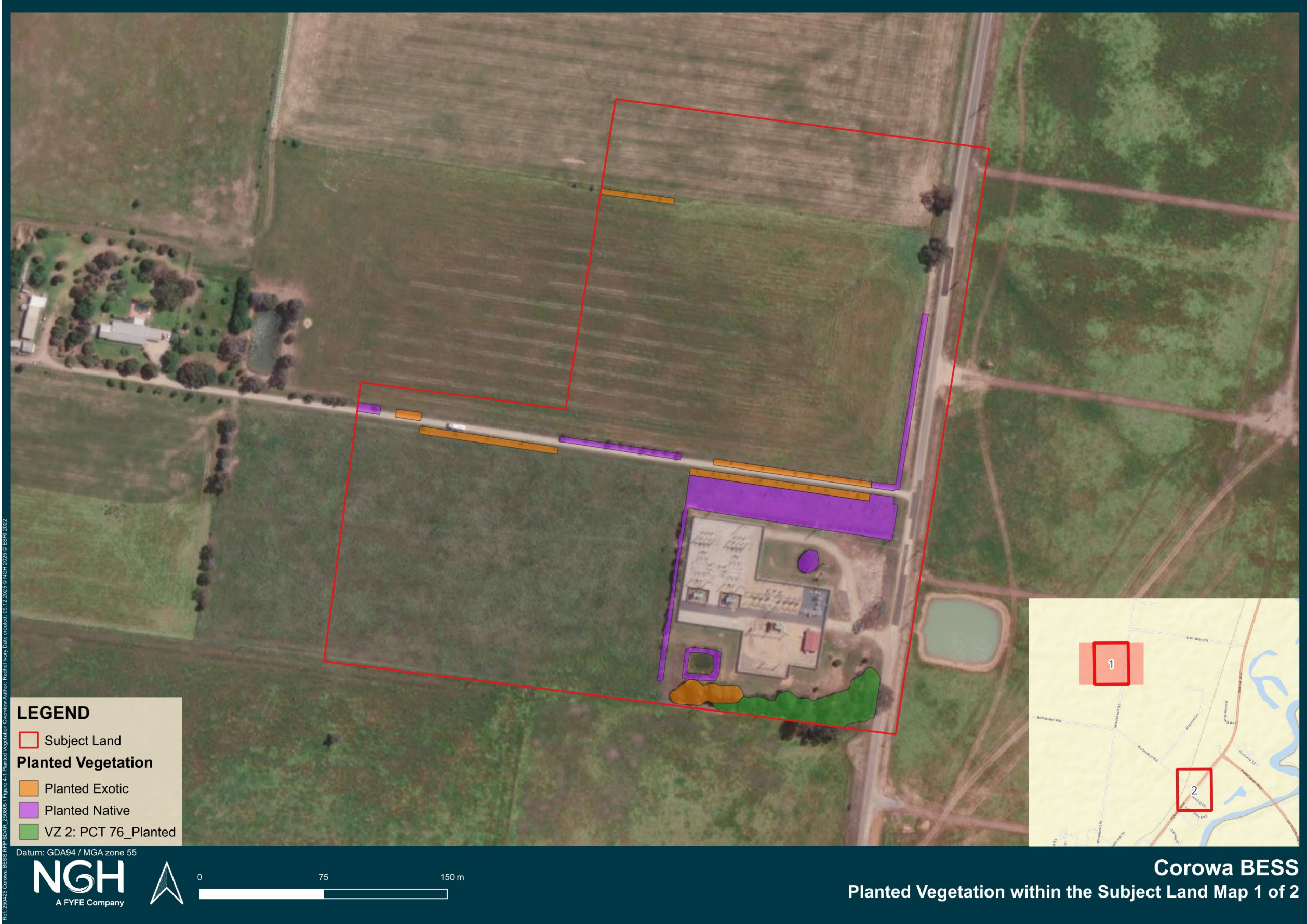


Figure 4-1 Planted vegetation within the Subject Land Map 1 of 2



Figure 4-2 Planted vegetation within the Subject Land Map 2 of 2



Photograph 4-5 Planted Ash Trees along driveway



Photograph 4-6 Planted Eucalyptus trees along property boundary



Photograph 4-7 Planted native vegetation along Honour Avenue



Photograph 4-8 Row of planted Kurrajong alongside substation

4.2. Plant community types (PCTs)

4.2.1. PCT overview

One PCT was identified within the Subject Land. Vegetation within the Subject Land has been assessed as aligning with the BioNet Vegetation Classification database (OEH, 2025c) PCT identified in Table 4-1 and the extent is shown in Figure 4-3 and Figure 4-4. A detailed description of this PCT is provided in Section 4.2.1 below.

Table 4-1 PCTs identified within the Subject Land

PCT ID	PCT name	Subject Land area (ha)	Development Footprint area (ha)
76	Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	1.20	0.62
Total Area		1.20	0.62

4.2.2. PCT 76

Overview

Table 4-2 PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions

PCT ID	76
PCT name	PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Vegetation formation	Grassy Woodlands
Vegetation class	Floodplain Transition Woodlands
Per cent cleared value (%)	92
Extent within Subject Land (ha)	1.20

This community typically consists of tall woodland (up to 25 m high), dominated by Grey Box (*Eucalyptus microcarpa*). It is often the sole tree species, occupying 90% of the canopy cover, however; other trees present may include Yellow Box (*Eucalyptus melliodora*), White Cypress Pine (*Callitris glaucophylla*) and minor Buloke. Shrubs are absent or sparse and include *Dodonaea viscosa* subsp. *cuneata*, *Acacia buxifolia*, *Acacia acinacea*, *Acacia hakeoides*, *Bursaria spinosa*. Grazing has eliminated shrubs in many places where this PCT occurs. A mid-dense or dense grass ground cover is typically composed of *Austrodanthonia caespitosa*, *Austrodanthonia setacea*, *Austrostipa scabra* subsp. *falcata*, *Paspalidium constrictum*, *Themeda australis*, *Austrostipa aristiglumis*, *Aristida behriana* and *Elymus scaber* var. *scaber* along with introduced grass species such as *Bromus* spp., *Vulpia* spp. and *Hordeum leporinum*. The small scrambler *Einadia nutans* subsp. *nutans* is usually present. Native forbs typically include *Sida corrugata*, *Wahlenbergia gracilis*, *Vittadinia gracilis*, *Dianella porracea*, *Oxalis perennans* and *Chamaesyce drummondii* (OEH, 2025c).

Within the Subject Land, this PCT comprised of one remnant canopy tree species being Grey Box (*Eucalyptus microcarpa*) along Whitehead Street. Planted Mugga Ironbark (*Eucalyptus sideroxylon*) and Kurrajong (*Brachychiton populneus*) are present around the substation. Native ground cover species within PCT 76 in the Subject Land are comprised of Common Couch (*Cynodon dactylon*), Windmill Grass (*Chloris truncata*), Red Grass (*Bothriochloa macra*), Climbing Saltbush (*Einadia nutans*), Corrugated Sida (*Sida corrugata*), Knob Sedge (*Carex inversa*), *Walwhalleya proluta*, *Oxalis perennans*, Australian Stonecrop

(*Crassula sieberiana*), *Lomandra* sp. and *Juncus* sp. Introduced ground cover species include, but are not limited to, Ryegrass (*Lolium perenne*), Soft Brome (*Bromus hordeaceus*), Onion Grass (*Romulea rosea* var. *australis*), Barrel Medic (*Medicago truncatula*), Catsear (*Hypochaeris radicata*) and Wild Oats (*Avena fatua*).

Condition states

Within the Subject Land, this PCT occurred in four conditions:

PCT 76 Planted: This zone occurs as mid to tall woodland, dominated by Grey Box (*Eucalyptus microcarpa*) both remnant and planted. The mid-stratum is sparse comprising of one species, with an exotic-dominant understorey. The native ground cover is approximately 1.8%.

PCT 76 Woodland: This zone occurs as mid to tall woodland, comprised of two remnant Grey Box (*Eucalyptus microcarpa*) individuals. The mid-stratum is absent, with an exotic-dominant understorey. The native ground cover is approximately 3.4%, comprised mostly of Common Couch (*Cynodon dactylon*).

PCT 76 Derived Grassland (DG) Substation: This zone occurs as a low condition grassland surrounding the substation and subject to regular mowing and herbicide spraying. This zone contains a native ground cover of approximately 15.7%, with Red Grass (*Bothriochloa macra*) comprising 15% of this. Two dead stags in this zone, which were *Eucalyptus microcarpa* individuals suggest that this area was once Grey Box woodland prior to land clearing for the substation.

PCT 76 DG Roadside: This zone also occurs as a low condition grassland, however was classified separately due to being located alongside Whitehead Street with different land management. This zone contains a very low native ground cover (1.1%). Remnant Grey Box trees along Whitehead Street suggest this area was once Grey Box woodland prior to land clearing.



Photograph 4-9 PCT 76 Planted within the Subject Land



Photograph 4-10 PCT 76 Woodland within the Subject Land



Photograph 4-11 PCT 76 DG Substation within the Subject Land



Photograph 4-12 PCT 76 DG Roadside within the Subject Land

Justification of PCT selection

The occurrence of PCT 76 within the Subject Land aligns with the information provided in the BioNet Vegetation Classification database for this community. This is based on a number of features includes landform position, species assemblage, dominant canopy species, distribution and location. The disturbed nature of the vegetation has resulted in a low diversity of native groundcover species in the understorey, and in the midstorey. With this information, PCT was selected was based on canopy species present, location and distribution, soils and landform position.

PCT 76 was determined using the following information:

- The dominance of Grey Box (*Eucalyptus microcarpa*) in the upper stratum (where the upper stratum is present) as well as in the surrounding locality

- Native ground cover species include *Oxalis perennans*, Windmill Grass (*Chloris truncata*), Climbing Saltbush (*Einadia nutans*), Knob Sedge (*Carex inversa*) and Corrugated Sida (*Sida corrugata*)
- Brown clay loam and sandy clay soils are present
- Located on flat alluvial plains
- Located in the Riverina IBRA bioregion, Murray Fans subregion
- PCT 76 is mapped in the Subject Land on the SVTM.

Alignment with Threatened Ecological Communities

PCT 76 is associated with two Threatened Ecological Communities (TECs). These are:

- *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions* (Endangered under the BC Act)
- *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* (Endangered under the EPBC Act).

An assessment of whether the vegetation zones of PCT 76 in the Subject Land align with these TECs follows in Section 4.3.

4.3. Threatened ecological communities

A comparison between the final determination of both TECs and the VI plot data for each vegetation zone was undertaken to determine whether the vegetation recorded within the Subject Land is consistent with the criterion for each TEC.

One TEC was determined to be present, being the BC Act listed *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions* (refer to Table 4-4).

The vegetation does not align with the federally listed TEC *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* (refer to Table 4-5)

A summary of the TECs identified as present within the Subject Land are listed in Table 4-3 and their extent is shown in Figure 4-3 and Figure 4-4.

Table 4-3 TECs present within the Subject Land

TEC name	Profile ID (from TBDC)	BC Act status	EPBC Act status	Associated vegetation zones within the Subject Land	Area within Subject Land (ha)
<i>Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions</i>	20072	Endangered	Not listed	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted	VZ 1 = 0.05 VZ 2 = 0.16

4.3.1. Threatened Ecological Community equivalency assessment

Vegetation zones for PCT 76 that is associated with a TEC have been assessed against the relevant BC Act and EPBC Act scientific criteria to determine if they are present within the Subject Land. These assessments and results are presented in Table 4-4 and Table 4-5 for the BC Act and EPBC Act respectively.

New South Wales (BC Act)

PCT 76 is associated with the BC Act listed *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions* TEC. It was determined that two patches of PCT 76 within the Subject Land conform to the BC Act criteria for this TEC. The decision making process is outlined below in Table 4-4 with reference to the NSW scientific determination for this TEC (NSW TSSC, 2011).

Table 4-4 BC Act criteria for *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions* TEC per vegetation zone

Scientific Determination	VZ1 PCT 76_Woodland (BP05)	VZ2 PCT 76_Planted (BP01)	VZ3 PCT 76_DG_Substation (BP02)	VZ4 PCT 76_DG_Roadside (BP06)
Does the PCT occur in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar or Brigalow Belt South IBRA Bioregions?	Yes – the Subject Land occurs within the Riverina IBRA bioregion	Yes – the Subject Land occurs within the Riverina IBRA bioregion	Yes – the Subject Land occurs within the Riverina IBRA bioregion	Yes – the Subject Land occurs within the Riverina IBRA bioregion
Does this PCT occur on fertile alluvial soils (or occasionally colluvial or eluvial)?	Yes	Yes	Yes	Yes
Does the PCT contain Inland Grey Box (<i>Eucalyptus microcarpa</i>) as the dominant tree species?	Yes – <i>Eucalyptus microcarpa</i> is the dominant tree species present.	Yes – <i>Eucalyptus microcarpa</i> is the dominant tree species present.	Two dead individuals of <i>Eucalyptus microcarpa</i> are present in this zone. Therefore, <i>Eucalyptus microcarpa</i> used to be the dominant species,	No trees are present within this zone, however <i>Eucalyptus microcarpa</i> is dominant in the surrounding landscape along Whitehead Street and the scientific determination for the

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Corowa Battery Energy Storage System



Scientific Determination	VZ1 PCT 76_Woodland (BP05)	VZ2 PCT 76_Planted (BP01)	VZ3 PCT 76_DG_Substation (BP02)	VZ4 PCT 76_DG_Roadside (BP06)
			however the patch is now a derived grassland.	community states “in some locations the overstorey may be absent as a result of past clearing or thinning, leaving only an understorey” (NSW TSSC, 2011).
Does the PCT occur as an open woodland with sparse or absent shrub layer and a variable ground layer containing grass and herbaceous species?	Yes – the canopy of this PCT occurs as an open woodland with an absent shrub layer. Ground cover varies in density and contains both grasses and herbaceous species.	Yes – the canopy of this PCT occurs as an open woodland with a sparse shrub layer with only one species being present. Ground cover varies in density and contains both grasses and herbaceous species.	No – occurs as a derived grassland, however the shrub layer is absent and the ground cover varies in density and contains both grasses and herbaceous species.	No – occurs as a derived grassland, however the shrub layer is absent and the ground cover varies in density and contains both grasses and herbaceous species.
Does the PCT have the assemblage of species that are listed as frequently occurring within this EEC?	Yes, the following species were identified: • <i>Eucalyptus microcarpa</i> • <i>Crassula sieberiana</i>	Yes, the following species were identified: • <i>Eucalyptus microcarpa</i> • <i>Brachychiton populneus</i> • <i>Carex inversa</i> • <i>Einadia nutans</i> • <i>Maireana enchylaenoides</i> • <i>Sida corrugata</i>	Yes, the following species were identified: • <i>Eucalyptus microcarpa</i> (dead stags) • <i>Chloris truncata</i> • <i>Oxalis perennans</i>	Only one of the species listed in the Scientific Determination was recorded being <i>Crassula sieberiana</i> .
Outcome	Meets criteria – Forms part of the BC Act listed TEC.	Meets criteria – Forms part of the BC Act listed TEC.	In accordance with the final determination for Inland Grey	In accordance with the final determination for Inland Grey

Scientific Determination	VZ1 PCT 76_Woodland (BP05)	VZ2 PCT 76_Planted (BP01)	VZ3 PCT 76_DG_Substation (BP02)	VZ4 PCT 76_DG_Roadside (BP06)
			Box Woodland, the BC Act listed community can occur with differing structure resulting from disturbance history (e.g., remnant patches with intact canopy but degraded ground cover, remnant grassland without canopy) which has led to a large reduction in ecological function of the community. The final determination also states that <i>“disturbed remnants are considered to form part of the community including remnants where the understorey, overstorey or both would, under appropriate management, respond to assisted natural regeneration from the soil seed bank”</i> (NSW TSSC, 2011). The vegetation condition is very low with limited native species, and it is unlikely that soil seed bank is present within the patch due to past soil disturbance from substation and track	Box Woodland, the BC Act listed community can occur with differing structure resulting from disturbance history (e.g., remnant patches with intact canopy but degraded ground cover, remnant grassland without canopy) which has led to a large reduction in ecological function of the community. The final determination also states that <i>“disturbed remnants are considered to form part of the community including remnants where the understorey, overstorey or both would, under appropriate management, respond to assisted natural regeneration from the soil seed bank”</i> (NSW TSSC, 2011). The vegetation condition is very low with limited native species, and it is unlikely that soil seed bank is present within the patch due to past soil disturbance from existing underground utility

Scientific Determination	VZ1 PCT 76_Woodland (BP05)	VZ2 PCT 76_Planted (BP01)	VZ3 PCT 76_DG_Substation (BP02)	VZ4 PCT 76_DG_Roadside (BP06)
			construction and regular weed spraying and maintenance. Assisted natural regeneration is unlikely to occur as a result. Therefore this zone does not form part of the BC Act listed TEC.	lines, table drain and soil disturbances from road construction. Assisted natural regeneration is unlikely to occur as a result. Therefore this zone does not form part of the BC Act listed TEC.

Commonwealth (EPBC Act)

PCT 76 is associated with the EPBC Act listed *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* TEC. It was determined that no patches of PCT 76 within the Subject Land conform to the EPBC Act criteria for this TEC. The decision making process is outlined below in Table 4-6 with reference to the Commonwealth scientific determination for this TEC (DSEWPC, 2010).

Table 4-5 EPBC Act criteria for *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* TEC per vegetation zone

Key Diagnostic Characteristics	VZ1 PCT 76_Woodland (BP05)	VZ2 PCT 76_Planted (BP01)	VZ3 PCT 76_DG_Substation (BP02)	VZ4 PCT 76_DG_Roadside (BP06)
Is, or was previously the most common tree species Grey Box (<i>Eucalyptus microcarpa</i>)?	Yes – <i>Eucalyptus microcarpa</i> is the dominant tree species in this zone.	Yes – <i>Eucalyptus microcarpa</i> is the dominant tree species in this zone.	Yes – two dead individuals of <i>Eucalyptus microcarpa</i> are present in this zone. Therefore, <i>Eucalyptus microcarpa</i> used to be the dominant species.	Yes – although no trees are present in this zone, <i>Eucalyptus microcarpa</i> is dominant in the surrounding landscape.

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Key Diagnostic Characteristics	VZ1 PCT 76_Woodland (BP05)	VZ2 PCT 76_Planted (BP01)	VZ3 PCT 76_DG_Substation (BP02)	VZ4 PCT 76_DG_Roadside (BP06)
Is the patch at least 0.5 ha in size?	No – the patch is less than 0.5ha	No – the patch is less than 0.5ha	Yes – the patch is approximately 0.5ha in size	Yes – the patch is 0.45 ha within the Subject Land but extends alongside Whitehead Street outside the Subject Land.
Do non-grass weeds make up more than 30% of the plant cover in the ground layer?	N/A – above criteria is not met	N/A – above criteria is not met	Yes – approximately 65% of BP02 is made up of non-grass weed species, the most dominant being <i>Medicago truncatula</i> at 30%.	No – approximately 4.9% is comprised of non-grass weeds. The majority of the groundcover is grassy weeds.
Do trees cover at least 10% of the patch?	N/A – above criteria is not met	N/A – above criteria is not met	N/A – above criteria is not met	No – trees are absent in this vegetation zone
Is there evidence that Grey Box trees were once common in the patch	N/A – above criteria is not met	N/A – above criteria is not met	N/A – above criteria is not met	Yes – remnant Grey Box trees present in the locality so likely to have been a Grey Box woodland prior to clearing
Are there at least 12 perennial native species in the mid and ground layers?	N/A – above criteria is not met	N/A – above criteria is not met	N/A – above criteria is not met	No – five perennial native species in the ground layer
Is the patch bigger than 2 ha?	N/A – above criteria is not met	N/A – above criteria is not met	N/A – above criteria is not met	N/A – above criteria is not met

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Key Diagnostic Characteristics	VZ1 PCT 76_Woodland (BP05)	VZ2 PCT 76_Planted (BP01)	VZ3 PCT 76_DG_Substation (BP02)	VZ4 PCT 76_DG_Roadside (BP06)
Are there at least 8 trees/ha. a) That contain hollows; or b) Have a diameter >60 cm at 1.3 m above ground level?	N/A – above criteria is not met	N/A – above criteria is not met	N/A – above criteria is not met	N/A – above criteria is not met
Is at least 10% of the plant cover in the ground layer made up of perennial native grass species?	N/A – above criteria is not met	N/A – above criteria is not met	N/A – above criteria is not met	N/A – above criteria is not met
Outcome	Does not meet criteria – TEC is not present as patch is too small	Does not meet criteria – TEC is not present as patch is too small	Does not meet criteria – TEC is not present as patch is too degraded: weedy	Does not meet criteria – TEC is not present as patch is too degraded: too few native species

4.4. Vegetation zones

Collection of rapid assessment points, and detailed floristic plots have been used to assist the delineation of vegetation zones. One PCT was identified in the Subject Land. The PCT was stratified into zones representing a similar broad condition state. These zones were based on the overstorey, midstorey and understorey condition, vegetation integrity scores generated by the BAM-C, and observed land management practices. The following describes how each vegetation zone was delineated within the Subject Land:

- **Woodland:** typically contains native overstorey. Shrub layer is absent and understory is heavily disturbed and dominated by exotic species. There is minimal understory regeneration.
- **Planted:** typically contains native overstorey species and a sparse shrub layer. The understory is heavily disturbed and dominated by exotic species. There is some regeneration of the canopy species.
- **DG Substation:** absence of canopy species with a low diversity and cover of native understorey subject to frequent mowing
- **DG Roadside:** absence of canopy species with a low diversity of native understorey species however the cover of native species is very low

Patch size has been calculated for each vegetation zone. For woodland zones, patch size was determined by including all native woodland vegetation with a gap of less than 100 m from the next area of native vegetation, including the derived grassland verified onsite. For the derived grassland zones, patch size was determined by including all derived native grassland zones connected with a gap of less than 30 m, as well as connecting to the woodland patches with a gap less than 100 m, as they are a derived form of the woodland. Patches for all four vegetation zones extend outside the Subject Land and Assessment Area. A patch size class of >100 ha has been assigned to all four vegetation zones as outlined in Table 4-6. Vegetation zones are presented in Figure 4-3 and Figure 4-4.

Table 4-6 Vegetation zones and patch sizes within the Development Footprint and Subject Land

Vegetation zone ID	PCT ID number and name	Condition	Subject Land Area (ha)	Development Footprint Area (ha)	Patch size class	No. vegetation integrity plots (required under the BAM)	No. vegetation integrity plots completed	No. vegetation integrity plots used in assessment	Plot IDs of vegetation integrity plots used in assessment
1	PCT 76 Western Grey Box tall grassy woodland on alluvial loam and play soils in the NSW South Western Slopes and Riverina Bioregions	Woodland	0.05	0	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	1	1	1	BP05
2	PCT 76 Western Grey Box tall grassy woodland on alluvial loam and play soils in the NSW South Western Slopes and Riverina Bioregions	Planted	0.16	0	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	1	1	1	BP01
3	PCT 76 Western Grey Box tall grassy woodland on alluvial loam and play soils in the NSW South Western Slopes and Riverina Bioregions	DG_Substation	0.54	0.53	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	1	1	1	BP02
4	PCT 76 Western Grey Box tall grassy woodland on alluvial loam and play soils	DG_Roadside	0.45	0.09	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha	1	1	1	BP06

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Vegetation zone ID	PCT ID number and name	Condition	Subject Land Area (ha)	Development Footprint Area (ha)	Patch size class	No. vegetation integrity plots (required under the BAM)	No. vegetation integrity plots completed	No. vegetation integrity plots used in assessment	Plot IDs of vegetation integrity plots used in assessment
	<i>in the NSW South Western Slopes and Riverina Bioregions</i>				☒ >100 ha				

4.4.1. Vegetation integrity (vegetation condition)

Vegetation integrity survey plots

A total of six VI plots were undertaken following Section 4.3.3 of the BAM (DPE, 2020). One plot was completed for each vegetation zone, as well as one plot being undertaken in the exotic (cropped) areas and one within a planted native vegetation zone. Locations of each VI plot are mapped in Figure 4-3 and Figure 4-4. The results of the plot field data along with photos of each plot can be found in Appendix E.1 and Appendix E.2 respectively.

Scores

The plot data from each VI plot were entered into the BAM-C by an Accredited Assessor. The vegetation integrity score (VI score) for each of the vegetation zones are shown in Table 4-7 below.

Table 4-7 Current vegetation integrity scores for each vegetation zone within the Subject Land

Vegetation zone ID	PCT/Zone	Composition condition score	Structure condition score	Function condition score (where relevant)	Vegetation Integrity Score	Hollow bearing trees present?
1	76_Woodland	31	19.6	44.5	30	Yes
2	76_Planted	60.2	26.7	73.1	49	No
3	76 DG_Substation	27.8	39.5	1.9	12.7	No
4	76 DG_Roadside	60.0	0.2	6.4	7.3	No

Use of benchmark data

The vegetation integrity scores above were calculated against the default benchmark data provided in the BAM-C.



Figure 4-3 PCTs, TECs, vegetation zones and VI plot locations within the Subject Land Map 1 of 2



Figure 4-4 PCTs, TECs, vegetation zones and VI plot locations within the Subject Land Map 2 of 2

5. Habitat suitability for threatened species

Habitat in the Subject Land consists of derived native grasslands and woodlands. Threatened species may use this habitat for foraging, breeding, nesting or resting. Woodland in moderate condition has a predominantly exotic understory with some regenerative trees and one patch containing a sparse shrub layer. Derived grasslands are generally in low condition across the Subject Land as a result of past clearing and current land management such as mowing. The majority of the Subject Land is currently utilised for agriculture, with exotic crop species, therefore subjected to agricultural related activities that have reduced vegetation quality. Grasslands across the Subject Land have the potential to support threatened species including birds, reptiles and amphibians, but it is less likely that these species would occupy the area due to the degraded habitat. This is similar to threatened flora species. Habitat for arboreal species and generalists including birds, bats and mammals is in better condition in the woodland zones, however these zones are small and provide limited foraging or roosting habitat for threatened species. No significant rocky habitat is present within the Subject Land. Aquatic habitat within the Subject Land consists of one farm dam which was dry at the time of the field surveys in August 2025. Five HBTs were recorded within the Subject Land around the BESS location, with a total of 19 being recorded in the broader locality (refer to Appendix E.6 for an inventory of the identified HBTs and their location in the landscape).

Planted Vegetation

Areas of native and exotic planted vegetation not conforming to a PCT were also assessed for threatened species habitat. No HBTs were recorded within any of these patches of planted vegetation. The majority of the planted vegetation was young (DBH range of 5 - 30cm) and unlikely to contain hollows not visible from ground level. A small patch of mature Pine Trees contained one medium sized stick nest around 30cm in diameter. The stick nest was subsequently surveyed during targeted surveys for threatened raptor species with none being detected using the stick nest. Planted trees were generally in single linear rows, and fragmented from other vegetation patches, providing very limited habitat for threatened fauna. The understory within planted vegetation patches were comprised of exotic species and heavily disturbed, with a low likelihood of providing habitat for threatened flora species.

The farm dam to the south of the existing Corowa substation is surrounded by planted native vegetation, however this dam was dry during the August 2025 field survey and therefore no targeted surveys for Sloane's Froglet (*Crinia sloanei*) were undertaken here.

5.1. Identification of threatened species for assessment

5.1.1. Background searches

A BioNet search was undertaken on 27 August 2025 and identified 28 threatened species with records within 10 km of the Subject Land. No threatened species records are present within the Subject Land and therefore, no additional species from this search were added to the BAM-C.

5.1.2. Ecosystem credit species

Table 5-1 lists the ecosystem credit species returned by the BAM-C as being associated with PCTs present inside the Development Footprint. These species are assumed to occur within the suitable habitat onsite and contribute to ecosystem credits.

One species, Painted Honeyeater (*Grantiella picta*) was excluded due to the absence of Mistletoe species from the Subject Land.

Additionally, one species, Large Bent-winged Bat (*Miniopterus orianae oceanensis*) was recorded on site from an ANABAT acoustic recorder. This species has been manually added to the BAM-C as an ecosystem credit species.

Table 5-1 Ecosystem credit species predicted by the BAM-C

Scientific name	Common Name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Associated PCT & veg zones	Sensitivity to potential gain
		BC Act	EPBC Act						
<i>Aphelocephala leucopsis</i>	Southern Whiteface	Vulnerable	Vulnerable	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Low
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	Vulnerable	Not Listed	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Moderate
<i>Chalinolobus picatus</i>	Little Pied Bat	Vulnerable	Not Listed	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	High
<i>Chthonicola sagittata</i>	Speckled Warbler	Vulnerable	Not Listed	No	☒ BAM-C ☐ TBDC ☐ Previous survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation	High

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Scientific name	Common Name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Associated PCT & veg zones	Sensitivity to potential gain
		BC Act	EPBC Act						
					☐ Current survey			VZ 4 PCT 76_DG_Roadside	
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	Vulnerable	Vulnerable	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	High
<i>Daphoenositta chrysoptera</i>	Varied Sittella	Vulnerable	Not Listed	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Moderate
<i>Falco hypoleucos</i>	Grey Falcon	Vulnerable	Vulnerable	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Moderate
<i>Falco subniger</i>	Black Falcon	Vulnerable	Not Listed	No	☒ BAM-C ☐ TBDC ☐ Previous survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation	Moderate

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Scientific name	Common Name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Associated PCT & veg zones	Sensitivity to potential gain
		BC Act	EPBC Act						
					☐ Current survey			VZ 4 PCT 76_DG_Roadside	
<i>Grantiella picta</i>	Painted Honeyeater	Vulnerable	Vulnerable	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	No	Excluded due to lack of habitat (absence of mistletoes)	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Moderate
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle (Foraging)	Vulnerable	Not Listed	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	High
<i>Hieraaetus morphnoides</i>	Little Eagle (Foraging)	Vulnerable	Not Listed	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Moderate
<i>Hirundapus caudacutus</i>	White-throated Needletail	Vulnerable	Vulnerable	No	☒ BAM-C ☐ TBDC ☐ Previous survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation	High

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Scientific name	Common Name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Associated PCT & veg zones	Sensitivity to potential gain
		BC Act	EPBC Act						
					☐ Current survey			VZ 4 PCT 76_DG_Roadside	
<i>Lathamus discolor</i>	Swift Parrot (Foraging)	Endangered	Critically Endangered	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Moderate
<i>Lophochroa leadbeateri</i>	Pink Cockatoo (Foraging)	Vulnerable	Endangered	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Moderate
<i>Lophoictinia isura</i>	Square-tailed Kite (Foraging)	Vulnerable	Not Listed	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Moderate
<i>Melanodryas cucullata cucullata</i>	South-eastern Hooded Robin	Endangered	Endangered	No	☒ BAM-C ☐ TBDC ☐ Previous survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation	Moderate

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Scientific name	Common Name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Associated PCT & veg zones	Sensitivity to potential gain
		BC Act	EPBC Act						
					☐ Current survey			VZ 4 PCT 76_DG_Roadside	
<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	Vulnerable	Not Listed	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Moderate
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	Vulnerable	Not Listed	Yes	☐ BAM-C ☐ TBDC ☐ Previous survey ☒ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	High
<i>Neophema pulchella</i>	Turquoise Parrot	Vulnerable	Not Listed	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	High
<i>Petroica boodang</i>	Scarlet Robin	Vulnerable	Not Listed	No	☒ BAM-C ☐ TBDC ☐ Previous survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation	Moderate

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Scientific name	Common Name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Associated PCT & veg zones	Sensitivity to potential gain
		BC Act	EPBC Act						
					☐ Current survey			VZ 4 PCT 76_DG_Roadside	
<i>Petroica phoenicea</i>	Flame Robin	Vulnerable	Not Listed	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Moderate
<i>Polytelis swainsonii</i>	Superb Parrot (Foraging)	Vulnerable	Vulnerable	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Moderate
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	Vulnerable	Not Listed	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Moderate
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheathtail-bat	Vulnerable	Not Listed	No	☒ BAM-C ☐ TBDC ☐ Previous survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation	High

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Scientific name	Common Name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Associated PCT & veg zones	Sensitivity to potential gain
		BC Act	EPBC Act						
					☐ Current survey			VZ 4 PCT 76_DG_Roadside	
<i>Stagonopleura guttata</i>	Diamond Firetail	Vulnerable	Vulnerable	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside	Moderate

5.1.3. Species credit species

As the Project is being assessed under Appendix C of the BAM, the 'Small Area' Streamlined Assessment Tool in BAM-C was utilised (Part 4 Development – small area). This Streamlined Assessment Tool generates a simplified list of candidate species requiring further assessment. Under the Small Area assessment, only species detected incidentally on the Subject Land, or species listed as a Serious and Irreversible Impact (SAIL) entity require further assessment. Table 5-2 below lists all the candidate species identified within the BAM-C as being associated with the PCT present within the Subject Land under the Small Area assessment.

Two additional candidate species were added into the BAM-C due to being detected from an ANABAT acoustic recorder:

- Large Bent-winged Bat (*Miniopterus orianae oceanensis*)
- Southern Myotis (*Myotis macropus*).

Two candidate species were able to be excluded from assessment due to the lack of habitat constraints as outlined within the BAM-C:

- Swift Parrot (*Lathamus discolor*)
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*)

Justifications for exclusion of these species are provided in Table 5-2.

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Table 5-2 Candidate species identified in BAM-C and included/excluded from assessment

Scientific Name	Common Name	Listing status		Dual Credit Species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
<i>Crinia sloanei</i>	Sloane's Froglet	Endangered	Endangered	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside
<i>Lathamus discolor</i>	Swift Parrot	Endangered	Critically Endangered	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	No	Subject Land is outside of the important mapped habitat for this species.	N/A
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat (Breeding)	Vulnerable	Not Listed	Yes	☐ BAM-C ☐ TBDC ☐ Previous survey ☒ Current survey	No	No caves, tunnels, mines or culverts suspected to be used for breeding within the Subject Land.	N/A
<i>Myotis macropus</i>	Southern Myotis	Vulnerable	Not Listed	No	☐ BAM-C ☐ TBDC ☐ Previous survey	Yes	N/A	VZ 1 PCT 76_Woodland VZ 2 PCT 76_Planted

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Scientific Name	Common Name	Listing status		Dual Credit Species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
					☒ Current survey			VZ 3 PCT 76_DG_Substation VZ 4 PCT 76_DG_Roadside

5.1.4. Additional targeted surveys

Prior to the refinement of the Development Footprint, there were two proposed road upgrade locations, one of which was located at the intersection of the Riverina Highway and Whitehead Street (refer to Section 7 for more information about this refinement). With this additional area, the Project could have exceeded the 3 ha clearing threshold for assessment under Appendix C of the BAM. Therefore, the Project was originally being assessed as a standard full BDAR with the full suite of candidate flora and fauna species considered for targeted survey. Additional targeted surveys were undertaken for three flora species and seven fauna species associated with PCT 76 prior to being eligible for a small area streamlined assessment. These threatened species are shown in Table 5-3 and Table 5-4.

Table 5-3 Additional threatened flora species surveyed prior to streamlined BDAR

Scientific Name	Common Name	Listing status	
		BC Act	EPBC Act
<i>Austrostipa wakoolica</i>	A Speargrass	Endangered	Endangered
<i>Swainsona murrayana</i>	Slender Darling Pea	Vulnerable	Vulnerable
<i>Swainsona sericea</i>	Silky Swainson-pea	Vulnerable	Not Listed

Table 5-4 Additional threatened fauna species surveyed prior to streamlined BDAR

Scientific Name	Common Name	Listing status		Dual Credit Species
		BC Act	EPBC Act	
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Endangered	Endangered	No
<i>Hieraaetus morphnoides</i>	Little Eagle	Vulnerable	Not Listed	Yes
<i>Lophochroa leadbeateri</i>	Pink Cockatoo	Vulnerable	Endangered	Yes
<i>Lophoictinia isura</i>	Square-tailed Kite	Vulnerable	Not Listed	Yes
<i>Myotis macropus</i>	Southern Myotis	Vulnerable	Not Listed	No
<i>Phascolarctos cinereus</i>	Koala	Endangered	Endangered	No

Scientific Name	Common Name	Listing status		Dual Credit Species
		BC Act	EPBC Act	
<i>Polytelis swainsonii</i>	Superb Parrot	Vulnerable	Vulnerable	Yes

5.2. Presence of candidate species credit species

As per Appendix C of the BAM, only candidates at risk of a SAI are required to be surveyed to determine presence or absence for a small area streamlined BDAR. Only one species listed as a SAI candidate was required to be surveyed for, being Sloane's Froglet (*Crinia sloanei*). All other SAI species were excluded based on habitat constraints outlined in the BAM-C as listed in Table 5-2. Additional candidate species were also surveyed for prior to the refinement of the Development Footprint and the Project being assessed under Appendix C of the BAM.

Table 5-5 shows the methods used to determine presence/absence of potential candidate fauna species, whether the species was present and whether the species qualifies as a candidate species credit species.

Table 5-5 Determining the presence of candidate fauna species credit species on the Subject Land

Scientific name	Common name	Listing status		Method used to determine presence	Present?	Further assessment required? (BAM Subsections 5.2.5 and 5.2.6)
		BC Act	EPBC Act			
<i>Crinia sloanei</i>	Sloane's Froglet	Endangered	Endangered	Targeted threatened species survey	No	No

5.3. Threatened species surveys

As mentioned above, under the Appendix C of the BAM, only candidate species credit species at risk of SAI are required to be assessed. Targeted surveys for non-SAI species were undertaken before the Project was refined to minimise impacts on native vegetation and subsequently qualify for a small area streamlined BDAR. The results of these additional surveys are also provided in this section, however it is noted that these are not a requirement of the small area BDAR.

5.3.1. Specific flora survey requirements and guidelines

The following guidelines BioNet notes were followed for the surveys described in Table 5-6:

- NSW Government DPIE *Surveying threatened plants and their habitats* (DPIE, 2020).
- NSW BioNet Threatened Biodiversity Data Collection (NSW DCCEEW, 2024).

Parallel field traverses were undertaken at 10 m intervals across the Subject Land for each corresponding survey period for the Slender Darling Pea (*Swainsona murrayana*), Silky Swainson-pea (*Swainsona sericea*) and a Spear-grass (*Austrostipa wakoolica*). Two ecologists walked separate transects at the roadside of Riverina Highway and Whitehead Street, and adjacent to the BESS site, covering all areas of native vegetation within the Subject Land. Table 5-6 details the survey methodology, timing and effort required for each threatened flora species. Flora survey effort is mapped in Figure 5-1 to Figure 5-4.

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Table 5-6 Threatened species surveys for candidate flora species credit species on the Subject Land

Scientific name	Common name	Threatened flora species surveys					Present	Further assessment required (BAM Subsections 5.2.5 and 5.2.6)
		Survey method (transects or grids)	Recommended survey period	Timing of survey – within recommended period? (BAM-C / TBDC)		Effort (hours & no. people)		
<i>Austrostipa wakoolica</i>	A Speargrass	Parallel field traverses 10 m apart (open vegetation)	October - December	☒ Yes October 2025	☐ No	October 2025: Two ecologists	No	No
<i>Swainsona murrayana</i>	Slender Darling Pea	Parallel field traverses 10 m apart (open vegetation)	September	☒ Yes September 2025	☐ No	September 2025: Two ecologists	No	No
<i>Swainsona sericea</i>	Silky Swainson-pea	Parallel field traverses 10 m apart (open vegetation)	September – November	☒ Yes September 2025	☐ No	September 2025: Two ecologists	No	No

5.3.2. Specific fauna survey requirements and guidelines

Along with *Threatened Biodiversity Survey & Assessment* (DEC, 2004) and survey comments in the Threatened Biodiversity Data Collection (TBDC) for individual species, the following guidelines were used for particular species groups:

- Amphibians: *NSW Guide for the survey of threatened frogs and their habitats for the Biodiversity Assessment Method* (DPIE, 2020).
- Bats: *'Species credit' threatened bats and their habitats, NSW survey guide for the Biodiversity Assessment Method* (DPIE, 2021).
- Birds: *Survey guidelines for Australia's threatened birds* (DEWHA, 2010) was used to for broad survey method in terms of evidence of presence and characterising habitat.
- Hollow-dependent birds: *Biodiversity Assessment Method survey guide for hollow-dependent birds* (draft guidelines) (NSW DCCEEW, 2025).
- Koala: *Biodiversity Assessment Method Survey Guide for Koalas* (DPE, 2022).

Table 5-7 details the survey methodology, timing and effort for each species' threatened fauna surveys. Fauna survey effort is mapped in Figure 5-5 to Figure 5-8.

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Table 5-7 Threatened species surveys for candidate fauna species credit species on the Subject Land

Scientific name	Common name	Threatened fauna species surveys					Present	Further assessment required (BAM Subsections 5.2.5 and 5.2.6)
		Survey method	Recommended survey period	Timing of survey – within recommended period? (BAM-C / TBDC)		Effort (hours & no. people)		
<i>Crinia sloanei</i>	Sloane’s Froglet	Call-playback and spotlighting	July - August	☒ Yes August 2025	☐ No	Call-playback methodology with spotlighting was undertaken by 2 x ecologists across 4 nights (commencing at 6pm and finishing between 8pm and 9:30pm). Surveys were conducted in areas of potential habitat within the Subject Land and within 200 m of the Subject Land, including farm dams and vegetated depressions. Total effort = 21 person hours across the 4 nights	No	No
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Stick nest searches Stick nest watches	July – December	☒ Yes	☐ No	2 x ecologists conducted one day of stick nest	No	No

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Scientific name	Common name	Threatened fauna species surveys					Present	Further assessment required (BAM Subsections 5.2.5 and 5.2.6)
		Survey method	Recommended survey period	Timing of survey – within recommended period? (BAM-C / TBDC)		Effort (hours & no. people)		
				October 2025		searches in areas of potential suitable habitat across the Subject Land and directly adjacent to the Subject Land. 2 x ecologists conducted two 30 minute stick nest watches repeated across two days at each of the two trees with stick nests located on-site. Stick nest watches occurred during the first 3 hours following sunrise (between 6am and 9am). Total effort = 2 hours stick nest watch hours per person		
Hieraaetus morphnoides	Little Eagle	Stick nest searches Stick nest watches	August – October	☒ Yes October 2025	☐ No	2 x ecologists conducted one day of stick nest searches in areas of	No	No

Scientific name	Common name	Threatened fauna species surveys				Present	Further assessment required (BAM Subsections 5.2.5 and 5.2.6)	
		Survey method	Recommended survey period	Timing of survey – within recommended period? (BAM-C / TBDC)				Effort (hours & no. people)
						potential suitable habitat across the Subject Land and directly adjacent to the Subject Land. 2 x ecologists conducted two 30 minute stick nest watches repeated across two days at each of the two trees with stick nests located on-site. Stick nest watches occurred during the first 3 hours following sunrise (between 6am and 9am). Total effort = 2 hours stick nest watch hours per person		
Lophochroa leadbeateri	Pink Cockatoo	Diurnal area searches	September – December	☒ Yes October 2025	☐ No	Area searches were undertaken by 2 x ecologists within the Subject Land in areas with	No	No

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Scientific name	Common name	Threatened fauna species surveys					Present	Further assessment required (BAM Subsections 5.2.5 and 5.2.6)	
		Survey method	Recommended survey period	Timing of survey – within recommended period? (BAM-C / TBDC)		Effort (hours & no. people)			
							HBTs. Area searches were conducted on foot over two consecutive mornings for two hours per repeat, during the first 3 hours after sunrise (between 6am and 9am). Total effort = 4 hours per person		
Lophoictinia isura	Square-tailed Kite	Stick nest searches Stick nest watches	September – January	☒ Yes October 2025	☐ No	2 x ecologists conducted one day of stick nest searches in areas of potential suitable habitat across the Subject Land and directly adjacent to the Subject Land. 2 x ecologists conducted two 30 minute stick nest watches repeated across two days at each of the two trees with stick nests	No	No	

Scientific name	Common name	Threatened fauna species surveys					Present	Further assessment required (BAM Subsections 5.2.5 and 5.2.6)
		Survey method	Recommended survey period	Timing of survey – within recommended period? (BAM-C / TBDC)		Effort (hours & no. people)		
						located on-site. Stick nest watches occurred during the first 3 hours following sunrise (between 6am and 9am). Total effort = 2 hours stick nest watch hours per person		
<i>Myotis macropus</i>	Southern Myotis	Bioacoustics (Anabat)	October - March	☒ Yes October 2025	☐ No	Six nights of passive acoustic recorders (ANABATs) at one farm dam. Total effort = 60 hours of recording.	Yes	Yes
<i>Phascolarctos cinereus</i>	Koala	Spot Assessment Technique (SAT)	All year	☒ Yes October 2025	☐ No	All potential Koala feed trees within the Subject Land were searched by two ecologists for potential scats beneath each tree.	No	No

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Scientific name	Common name	Threatened fauna species surveys				Present	Further assessment required (BAM Subsections 5.2.5 and 5.2.6)	
		Survey method	Recommended survey period	Timing of survey – within recommended period? (BAM-C / TBDC)				Effort (hours & no. people)
						Total effort = 18 trees searched.		
<i>Polytelis swainsonii</i>	Superb Parrot	Diurnal area searches	September – November	☒ Yes October 2025	☐ No	Area searches were undertaken by 2 x ecologists within the Subject Land in areas with HBTs. Area searches were conducted on foot over two consecutive mornings for two hours per repeat, during the first 3 hours after sunrise (between 6am and 9am). Total effort = 4 hours per person	No	No

5.4. Expert reports

No expert reports were sought for this assessment.



Figure 5-1 Targeted flora survey effort Map 1 of 4



Figure 5-2 Targeted flora survey effort Map 2 of 4



Figure 5-3 Targeted flora survey effort Map 3 of 4



Figure 5-4 Targeted flora survey effort Map 4 of 4



Figure 5-5 Targeted fauna survey effort Map 1 of 4



Figure 5-6 Targeted fauna survey effort Map 2 of 4



Figure 5-7 Targeted fauna survey effort Map 3 of 4



Figure 5-8 Targeted fauna survey effort Map 4 of 4

5.5. Threatened Species Survey Results

5.5.1. Candidate Species Surveys

Sloane's Froglet

The farm dam present within the Development Footprint was dry at the time of the field surveys in August 2025. Surveys were undertaken in the closest dams outside the subject land and along table drains of Whitehead Street and Riverina Highway. No Sloane's Froglet individuals were recorded at the farm dam 50 m west of the Subject Land or along the roadside of Whitehead street or the Riverina Highway and Whitehead Street intersection. Common *Crinia signifera* were heard calling from the dam 50m west of the Subject Land, which provide good frog habitat with vegetated banks and emergent vegetation.

Multiple individuals of Sloane's Froglet were recorded calling at the reference site (Whitehead Street Wetland), which was surveyed on 29 August 2025 to confirm the species was present within the broader Assessment Area due to existing BioNet records at this location and confirm the seasonal conditions for Sloane's Froglet surveys were suitable. This reference site is approximately 1.4 km south of the proposed BESS location and 400 m west of the intersection upgrades at Bullecourt Road and Honour Avenue.

Sloane's Froglet prefers wetlands which contain riparian and aquatic vegetation, with the species most often being detected in waterbodies that contain grasses and reeds that are a medium height and have a small stem diameter. These types of waterbodies are essential for breeding for Sloane's Froglet. The species also requires connection between refuge sites and breeding sites, with the species moving across the landscape when it is wet, utilising roadside drains, table drains, irrigation channels and inundated grasslands for this connectivity (Threatened Species Scientific Committee, 2019). Little is known about the movement of Sloane's Froglet (Knight, 2015) and therefore it is unknown how far the species disperses from one site to another. As a result, it is unknown if Sloane's Froglet may occur within the Subject Land under optimal conditions. Shallow table drains are present along Bullecourt Road and Whitehead Street, thus connectivity could be present between the Whitehead Street wetland and the Subject Land during wet periods. Given the highly disturbed agricultural environment between the Subject Land and Whitehead Street, lack of waterbodies and absence of calls during the targeted surveys it is unlikely that the Subject Land would be relied upon by this species for breeding.

5.5.2. Additional Surveys

Threatened Flora

No threatened flora species were detected during targeted surveys conducted in September 2025 and October 2025. No similar looking species were detected during the surveys. The groundcover is highly exotic, being dominated by species included, but not limited to, Ryegrass (*Lolium perenne*), Soft Brome (*Bromus hordeaceus*), Onion Grass (*Romulea rosea* var. *australis*), Barrel Medic (*Medicago truncatula*), Catsear (*Hypochaeris radicata*) and Wild Oats (*Avena fatua*).

Threatened Raptors

No threatened raptor species were recorded during the targeted surveys undertaken in October 2025. Of the four stick nests recorded, one was determined to be used by a non-threatened Australian Raven (*Corvus coronoides*) whilst no birds were observed using the remaining three. Additionally, all four stick nests are likely too small for threatened raptors to use, with the maximum diameter of the nests being 30 cm.

Threatened Hollow dependent birds

No threatened hollow dependent bird species were detected during targeted surveys conducted in October 2025. No bird species were observed using the hollows within the Subject Land. A full list of bird species is provided in Appendix E.5.

Threatened Bats

A total of 3,929 recordings from the deployed Anabat were submitted to RA Environmental Consultants for analysis. Bat call recordings were analysed using a Decision Tree filter. A total of ten microbat species were identified as being present, with an additional three species determined to be potentially present (RA Environmental Consultants, 2025). Of the 13 species present and potentially present, two are listed as Vulnerable under the BC Act:

- Southern Myotis (*Myotis macropus*) – Potentially present
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*) – Present

For the full Microbat Call Identification Report by RA Environmental Consultants (2025), refer to Appendix E.3.

Threatened Mammals

No Koala scats were detected during SAT surveys undertaken in October 2025. Of the 18 trees surveyed, six had possum scats recorded and one had fox scat recorded. No scats were detected under the remaining 11 trees.

5.6. Area and location of suitable habitat for a species credit species

5.6.1. Justification for selecting areas for species polygons

As mentioned above, two threatened microbat species were determined to be present or potentially present from the Anabat recordings (refer to Appendix E.3 for the Anabat survey results). These are:

- Southern Myotis (*Myotis macropus*)
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*)

Southern Myotis is a species credit species whilst Large-Bent-winged Bat is a dual credit species (i.e. ecosystem credit species and species credit species). The approach to the development of their species polygons is outlined below.

Southern Myotis

Southern Myotis (*Myotis macropus*), was determined to be 'potentially present' from the Anabat recorder analysis (Appendix E.3 (RA Environmental Consultants, 2025)). Southern Myotis calls can overlap with the non-threatened Lesser Long-eared Bat (*Nyctophilus geoffroyi*) and Gould's Long-eared Bat (*Nyctophilus gouldi*) in the Riverina region. As a positive identification could not be achieved from the calls, a precautionary approach has been applied, and the Southern Myotis is assumed to be present.

Southern Myotis is a fauna species assessed by area. Southern Myotis forage over waterbodies and are associated with most habitat types near water. They are usually found in areas that are vegetated rather than cleared (Churchill, 2008). As a result of this, the dam to the east of the Subject Land was not considered suitable habitat due to the cleared land surrounding it. Therefore, the species polygon was determined by

identifying and applying a 200 m buffer to the farm dam to the west of the Subject Land only, where the species was detected.

As per the TBDC, the Southern Myotis is associated with PCT 76. No areas of PCT 76 occur within the 200 m buffer of the farm dam where the species was recorded. As a result, no credits will be generated for this species. The Southern Myotis species polygon is presented below in Figure 5-9.

Large Bent-winged Bat

Large Bent-winged Bat (*Miniopterus orianae oceanensis*) calls were also positively identified from the Anabat. The Large Bent-winged Bat was assessed in accordance with the *Species Credit Threatened Bats and Their Habitats – NSW Guide for the Biodiversity Method* (DPIE, 2021). This species is both an ecosystem credit species and a species credit species. Species credits are only generated if breeding habitat is being impacted by the Proposal. No potential breeding habitat such as caves, tunnels, mines, culverts or other structures known or suspected to be used for breeding are present within the Subject Land. Therefore, a species polygon and subsequent credits are not required for this species.

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Table 5-8 Results for present species (recorded within the Subject Land)

<i>Scientific name</i>	<i>Common name</i>	<i>Biodiversity risk weighting (BAM-C & TBDC*)</i>	<i>SAIL entity** (BAM-C & TBDC)</i>	<i>Habitat constraints / microhabitats present on the Subject Land / vegetation zone</i>	<i>Abundance – No. individual plants present on subject land (flora with unit of measure of count)</i>	<i>Extent (ha) of suitable habitat present on Subject Land (flora or fauna with unit of measure of area)</i>	<i>TBDC species specific recommendations e.g. buffers, general comments (where relevant)</i>	<i>Extent (ha) of suitable habitat present in Development Footprint</i>	<i>Habitat condition (vegetation integrity score for each vegetation zone in the polygon – area species only)</i>
<i>Myotis Macropus</i>	Southern Myotis	High (2)	No	Waterbodies (dams) greater than 3 m in width	N/A	1.20	200 m buffer on habitat constraints including associated PCTs	0	N/A – no suitable habitat will be impacted

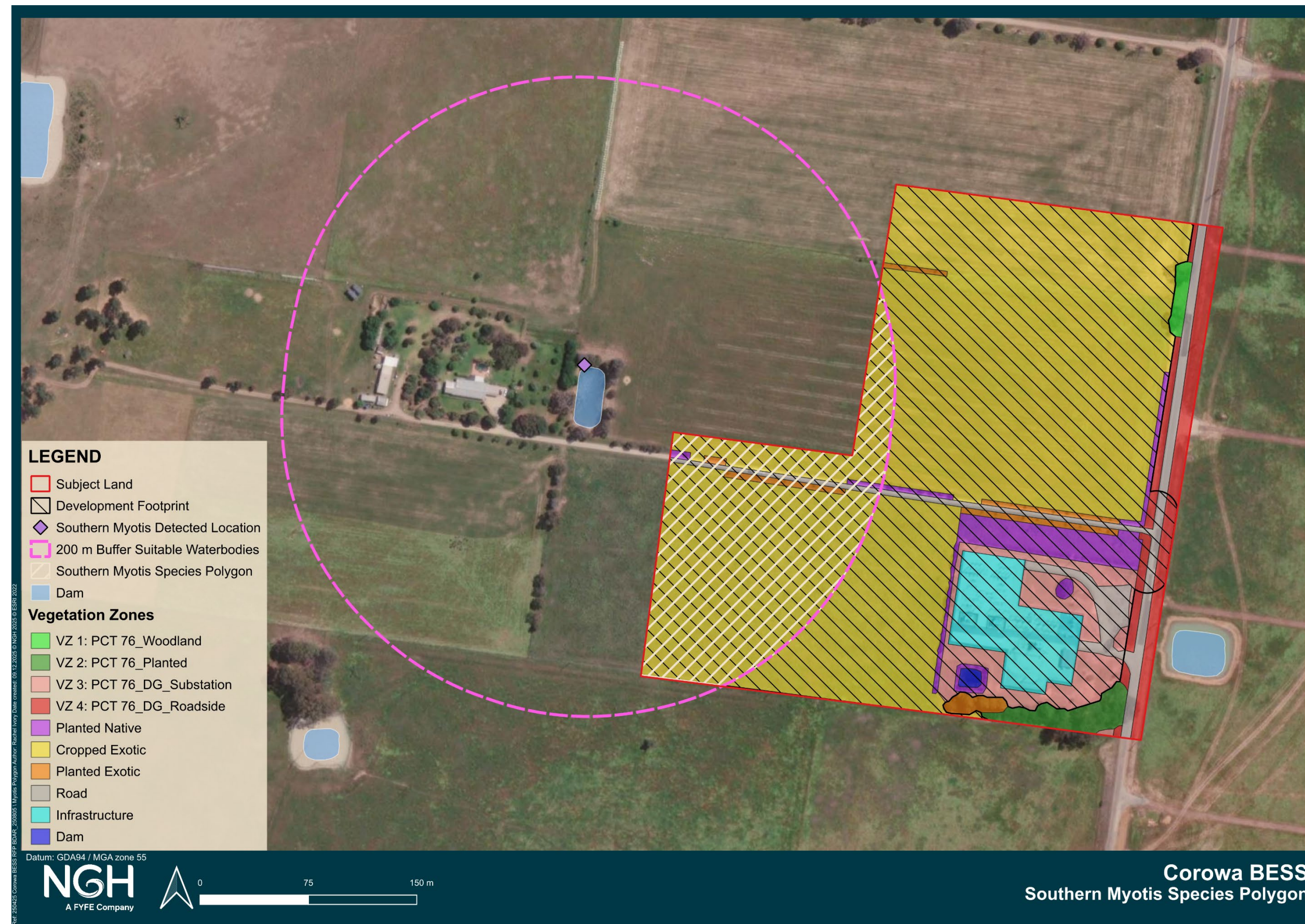


Figure 5-9 Southern Myotis species polygon

5.7. Threatened species listed under the EPBC Act

No species credit species that are listed under the EPBC Act are considered to be present within the Subject Land.

5.8. Further survey recommendations

Although the Southern Myotis has been recorded as 'potentially present', no further surveys (e.g. mist netting or harp trapping) are recommended due to the absence of suitable habitat present within the Development Footprint. Two survey methodologies are required for the Koala to adequately determine absence of the species. Only one method was used for this assessment. However, it is not recommended to undertake a second methodology as the Koala is not a candidate species under the Streamlined Assessment. The Koala was surveyed for prior to the refinement of the Development Footprint. All other candidate species under the Streamlined Assessment have been adequately surveyed for or ruled out based on habitat constraints.

6. Identifying prescribed biodiversity impacts

Prescribed impacts to biodiversity factors within the Subject Land have been identified and detailed in Table 6-1 below and mapped in Figure 6-1, including impacts to threatened species and entities.

Table 6-1 Prescribed impacts identified

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature	Habitat importance to threatened entities
Karst, caves, crevices, cliffs, rocks or other geological features of significance	☐ Yes / ☒ No	No karst, caves, crevices, cliffs, rock or other geological features of significance inside the Subject Land.	N/A	N/A
Human-made structures	☒ Yes / ☐ No	Human-made structures located inside the Subject Land include the existing Corowa substation and three small culverts. Following field surveys, it was concluded the substation infrastructure is unlikely to support threatened species due to the presence of heavy barbed wire and fencing. The culverts may provide habitat for threatened bats, however these were inspected and no evidence of roosts or use was detected.	Species detected within the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>) Ecosystem credit species assumed present based on suitable habitat and associated PCTs: - Yellow-bellied Sheath-tail Bat (<i>Saccolaimus flaviventris</i>)	Culverts provide habitat for bats to roost, as they often roost along waterways. Although no roosts were detected and all culverts were dry, culverts inside the Subject Land may provide rest and shelter for threatened bats.

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature	Habitat importance to threatened entities
Non-native vegetation	☒ Yes / ☐ No	There is 7.97 ha of non-native vegetation within the Subject Land as cropped land, exotic planted vegetation (e.g. Pine Trees) and ornamental streetscape plantings. Additionally, there is 1.95 ha of non-native vegetation within the Subject land comprised of both sealed and unsealed roads and existing infrastructure. Following field surveys, it was concluded that the non-native vegetation did not provide important habitat for any threatened species due to the exotic-dominant and agriculturally disturbed grassland. One stick nest was observed in the planted Pine Trees, however it was not considered large enough for any threatened raptor species and no threatened species were identified using it during targeted surveys.	Ecosystem credit species assumed present that may use non-native vegetation within the subject land: • Black Falcon (<i>Falco subniger</i>) • Grey Falcon (<i>Falco hypoleucos</i>) • Little Eagle (<i>Hieraaetus morphnoides</i>) • Square-tailed Kite (<i>Lophoictinia isura</i>) • White-throated Needletail (<i>Hirundapus caudacutus</i>) • Turquoise Parrot (<i>Neophema pulchella</i>) • Scarlet Robin (<i>Petroica boodang</i>) • Flame Robin (<i>Petroica phoenicea</i>) • Superb Parrot (<i>Polytelis swainsonii</i>) • Diamond Firetail (<i>Stagonopleura guttata</i>)	Bird species may utilise non-native vegetation for foraging or nesting.
Habitat connectivity	☒ Yes / ☐ No	Woodland connectivity is limited as a result of clearing leading to fragmentation. Habitat connectivity mostly occurs as small patches of woodland, mostly along the roadsides, and scattered paddock trees. Although there are some large gaps in the roadside patches, these patches do	Species detected within the Subject Land: • Southern Myotis (<i>Myotis macropus</i>) • Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>)	Woodland habitat and scattered trees provide habitat connectivity for bird species moving across landscapes to the Murray River. Woodland also provides habitat for bats and arboreal mammals.

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature	Habitat importance to threatened entities
		eventually join up with the vegetation along the Murray River to the south of the Subject Land. Grassland areas also present and provides habitat connectivity between woodland patches.	Ecosystem credit species assumed present based on suitable habitat and associated PCT: - Southern Whiteface (<i>Aphelocephala leucopsis</i>) - Dusky Woodswallow (<i>Artamus cyanopterus cyanopterus</i>) - Speckled Warbler (<i>Chthonicola sagittatus</i>) - Brown Treecreeper (eastern subspecies) (<i>Climacteris picumnus victoriae</i>) - Varied Sittella (<i>Daphoenositta chrysoptera</i>) - Grey Falcon (<i>Falco hypoleucos</i>) - Black Falcon (<i>Falco subniger</i>) - White-bellied Sea-eagle (<i>Haliaeetus leucogaster</i>) - White-throated Needletail (<i>Hirundapus caudacutus</i>) - Pink Cockatoo (<i>Lophochroa leadbeateri</i>) - South-eastern Hooded Robin (<i>Melanodryas cucullata cucullata</i>) - Black-chinned Honeyeater (eastern subspecies) (<i>Melithreptus gularis gularis</i>)	Grassland habitat provides connectivity for ground-foraging bird species. Sloane's Froglet requires connection between refuge sites and breeding sites, with the species moving across the landscape when it is wet, utilising roadside drains, table drains, irrigation channels and inundated grasslands for this connectivity (Threatened Species Scientific Committee, 2019). Little is known about the movement of Sloane's Froglet (Knight, 2015) and therefore it is unknown how far the species disperses from one site to another. Inundated grasslands during wet seasons and shallow table drains along Bullecourt Road and Whitehead Street provide connectivity for the known population of the species at Whitehead Street Wetland to the greater locality during wet seasons.

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature	Habitat importance to threatened entities
			- Turquoise Parrot (<i>Neophema pulchella</i>) - Scarlet Robin (<i>Petroica boodang</i>) - Flame Robin (<i>Petroica phoenicea</i>) - Superb Parrot (<i>Polytelis swainsonii</i>) - Grey-crowned Babbler (eastern subspecies) (<i>Pomatostomus temporalis temporalis</i>) - Yellow-bellied Sheathtail Bat (<i>Saccolaimus flaviventris</i>) - Diamond Firetail (<i>Stagonopleura guttata</i>) TECs detected within Subject Land: Inland Grey Box Woodland	
Waterbodies, water quality and hydrological processes	☒ Yes / ☐ No	Waterbodies impacted indirectly consist of one dam, located at the house and is approximately 50 m from the Subject Land. One dam inside the substation was inspected and did not contain any water during the field surveys in August 2025, however there is the potential for Sloane's Froglet to inhabit this dam during wet periods. No creeks or streams occur within the Subject Land. Waterbodies can be seen in Figure 3-2.	Species detected within the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>) Ecosystem credit species assumed present based on suitable habitat and associated PCTs: - Dusky Woodswallow (<i>Artamus cyanopterus cyanopterus</i>) - Speckled Warbler (<i>Chthonicola sagittatus</i>)	Dams and creeks provide a water source for bat species detected within the Subject Land. Dams and creeks could also provide a water source as habitat for bird species reliant on water. Sloane's Froglet is reliant on waterbodies and aquatic vegetation as habitat. Additionally, Sloane's Froglet utilises roadside drains, table drains, irrigation channels for movement between refuge and breeding sites. The table drains along Bullecourt

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature	Habitat importance to threatened entities
			• Grey Falcon (<i>Falco hypoleucos</i>) • Black Falcon (<i>Falco subniger</i>) • White-bellied Sea-eagle (<i>Haliaeetus leucogaster</i>) • White-throated Needletail (<i>Hirundapus caudacutus</i>) • Pink Cockatoo (<i>Lophochroa leadbeateri</i>) • Scarlet Robin (<i>Petroica boodang</i>) • Flame Robin (<i>Petroica phoenicea</i>) • Superb Parrot (<i>Polytelis swainsonii</i>) • Grey-crowned Babbler (eastern subspecies) (<i>Pomatostomus temporalis temporalis</i>) • Yellow-bellied Sheath-tail Bat (<i>Saccolaimus flaviventris</i>) • Diamond Firetail (<i>Stagonopleura guttata</i>)	Road and Whitehead Street may provide connectivity for the species during wet periods.
Wind turbine strikes (wind farm development only)	☐ Yes / ☒ No	No wind turbines are proposed within the Subject Land.	N/A	N/A
Vehicle strikes	☒ Yes / ☐ No	The proposed activity will cause an increase in traffic and vehicle movements during the assessment, pre-clearance and construction phases of the Project.	Ecosystem credit species assumed present based on suitable habitat and associated PCTs:	Increased vehicle traffic during the pre-clearance and construction phases of the Project could increase the chance of vehicle strikes within the Subject Land,

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature	Habitat importance to threatened entities
			- Southern Whiteface (<i>Aphelocephala leucopsis</i>) - Dusky Woodswallow (<i>Artamus cyanopterus cyanopterus</i>) - Speckled Warbler (<i>Chthonicola sagittatus</i>) - Brown Treecreeper (eastern subspecies) (<i>Climacteris picumnus victoriae</i>) - Varied Sittella (<i>Daphoenositta chrysoptera</i>) - Pink Cockatoo (<i>Lophochroa leadbeateri</i>) - South-eastern Hooded Robin (<i>Melanodryas cucullata cucullata</i>) - Black-chinned Honeyeater (eastern subspecies) (<i>Melithreptus gularis gularis</i>) - Turquoise Parrot (<i>Neophema pulchella</i>) - Scarlet Robin (<i>Petroica boodang</i>) - Flame Robin (<i>Petroica phoenicea</i>) - Superb Parrot (<i>Polytelis swainsonii</i>) - Grey-crowned Babbler (eastern subspecies) (<i>Pomatostomus temporalis temporalis</i>)	as well as along Whitehead Street and Bullecourt Road. Patches of woodland vegetation at the intersection of Whitehead Street and Bullecourt Road and Whitehead Street Wetland provide good quality habitat for fauna species such as Sloane's Froglet and Flame Robin that may traverse across transport routes. Primarily aerial species such as raptors are at less risk of vehicle strike than other generalist birds or ground-dwelling species.

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Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature	Habitat importance to threatened entities
			- Diamond Firetail (<i>Stagonopleura guttata</i>) Threatened species in the locality - Sloane's Froglet (<i>Crinia sloanei</i>)	



Figure 6-1 Areas of Prescribed Impacts

Stage 2: Impact assessment (biodiversity values and prescribed impacts)

7. Avoid and minimise impacts

7.1. Avoiding and minimising direct/indirect impacts on project location and design)

The design of the Project is the result of an iterative process. The design has been adapted progressively as information regarding site constraints, potential impacts, and risks associated with the proposal have become available. The proposed Development Footprint has been located and designed to avoid and minimise impacts to native vegetation and biodiversity values as much as possible. There have been three iterations to the Development Footprint, which can be viewed in Figure 7-1 to Figure 7-3.

7.1.1. Initial project location and design

In selecting a location for the BESS, Flow Power undertook a detailed site selection process which included the rating of potential site alternatives based on certain key selection criteria including environmental, social and technical parameters. The Involved Lots was selected based on the provision of an optimal combination of:

- Sufficient levels of available capacity in the grid distribution system
- Proximity to a grid connection, being the existing Corowa substation, located adjacent the site
- Low potential impacts to biodiversity due to the majority of the site being cleared of native vegetation which allows for flexibility in the final design
- Excellent road access off Whitehead Street, and access to major transport routes such as the Riverina Highway
- Suitable planning context
- Minimal sensitive receivers within two kilometres of the Subject Land.
- Low land use conflict.

The Involved Lots was selected with the goal of balancing social, environmental and economic aspects associated with a BESS development. The Involved Lots was also selected due to the generally low ecological value across the Development Footprint, with the BESS site dominated by exotic vegetation as a result of agricultural activities such as cropping. Topography was an additional factor in site selection, with an elevation of 140 m above sea level and flat throughout the Subject Land. Furthermore, the site was selected due to the presence of the existing grid connection infrastructure with the Corowa substation forming part of the Development Footprint, reducing the need for extensive new infrastructure.

The initial location and design included three proposed road upgrades required to facilitate traffic movements for the construction phase:

- Site access at 275 Whitehead Street
- Intersection of Honour Avenue and Bullecourt Road
- Intersection of Whitehead Street and the Riverina Highway.

The Development Footprint in the initial project location and design was approximately 13.98 ha, with the indicative investigation area for the BESS site and related existing infrastructure (Whitehead Street and the

Corowa substation) occupying approximately 10.29 ha of this and the proposed intersection upgrades occupying approximately 3.69 ha.

Initial biodiversity assessments by NGH identified areas of exotic vegetation (cropped and planted), native vegetation (planted and two PCTs in woodland and derived grassland forms), ornamental streetscape plantings, existing infrastructure and one farm dam which was dry at the time of the August 2025 surveys. The site is not identified on the Biodiversity Values Map, does not contain key fish habitat, and no important habitat for threatened species has been mapped within its boundaries. The initial design was the 'worst case scenario' with no avoid and minimise on biodiversity values shown. Targeted surveys for Sloane's Froglet and September flora species were undertaken in these areas to ensure surveys were completed in the survey window for the species.

The initial project design included impacts to:

- 0.24 ha of PCT 75 good condition woodland at the road intersection upgrade at Whitehead Street and the Riverina Highway
- 1.19 ha of PCT 76 good condition woodland at the road intersection upgrade at Whitehead Street and the Riverina Highway
- 0.21 ha of PCT 76 moderate condition woodland within the BESS site (planted and remnant)
- 0.99 ha of PCT 76 derived grassland within the BESS site
- 1.15 ha of planted native vegetation
- 0.54 ha of planted exotic vegetation and ornamental streetscape plantings
- Eleven HBTs

7.1.2. First modification – removal of the Riverina Highway and Whitehead Street intersection

The first modification to the project design involved the removal of the proposed road upgrade at the Whitehead Street and Riverina Highway intersection. This area contains good quality woodland of two different PCTs (PCT 76 and PCT 75) with mature remnant trees and many habitat features such as hollow bearing trees (HBTs) and fallen timber (Photograph 7-1). PCT 76 is associated with a NSW and Commonwealth listed TEC as listed in Section 4.2.1, whilst PCT 75 is associated with NSW listed *Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes Bioregion* and the NSW and Commonwealth Critically Endangered Ecological Community (CEEC) *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland*, with the NSW form of this CEEC also being a SAI candidate as well as. No VI plots were undertaken at this location and therefore it remains uncertain which of these TECs were the best fit for the vegetation zone.

The updates to the Development Footprint resulted in the avoidance of:

- 1.19 ha of PCT 76 good condition woodland, BC Act listed TEC: *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions* and potential EPBC Act listed *Grey Box Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia*
- 0.24 ha of PCT 75 good condition woodland and potential NSW and Commonwealth (Cth) CEECs
- Numerous HBTs with the potential to provide habitat for threatened birds (owls and parrots) and arboreal mammals such as Squirrel Glider (*Petaurus norfolcensis*).



Photograph 7-1 Grey Box Woodland avoided at intersection of Whitehead Road and Riverina Highway

7.1.3. Second modification – removal of woodland zones

The second modification to the project design involved the removal of the woodland zones (vegetation zones 1 and 2) associated with Grey Box Woodland TEC as well as the planted Pine Trees from the Development Footprint. The modification also resulted in the removal of approximately 200 m of Whitehead Street north and south of the proposed site access from the Development Footprint as well as the extension of the intersection upgrade extending down Bullecourt Road approximately 70 m.

The updates to the Development Footprint resulted in the avoidance of:

- 0.21 ha of PCT 76 moderate condition woodland (including planted) which forms part of the BC Act listed *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregion* TEC
- 0.37 ha of PCT 76 derived grassland on the roadside of Whitehead Street and around the existing Corowa substation
- Five HBTs within PCT 76 woodland and planted vegetation zones

Although still a 'worst case scenario', the Development Footprint has avoided and minimised impacts to biodiversity as much as possible. The final siting of the BESS is still being investigated and will be determined following specialist studies such as flood assessments. The connection of the BESS to the existing Corowa substation will also be determined during the post-approval detailed design phase of the Project, however will remain entirely within the Development Footprint.

In summary, the Corowa BESS avoids and minimises impacts to biodiversity. Impacts are avoided to biodiversity through:

- Selection of a BESS site that is predominantly exotic
- Retaining all woodland patches in the northern and southern parts of the Subject Land
- Retaining all identified HBTs within the Subject Land
- Selection of the road upgrade site being at the intersection of Honour Avenue and Bullecourt Road which does not contain any remnant native vegetation

Impacts are minimised through:

- Utilising areas of poorer condition native vegetation where possible
- Mitigation measures to reduce residual risks to biodiversity
- Overall site selection.

7.2. Avoid and minimise prescribed impacts

7.2.1. Initial project location and design

In addition to the direct and indirect impacts avoided as outlined in Section 7.1, the initial project location and design considered several prescribed impacts. Key considerations included the aim to utilise an area for the BESS site that has previously been cleared, particularly for agricultural use, as well as siting the project adjacent to the existing Corowa substation. This reduced the need for potential removal of habitat and native vegetation, therefore minimising impacts on habitat connectivity within the Corowa area.

7.2.2. First modification – removal of the Riverina Highway and Whitehead Street intersection

The first modification involved the removal of the proposed road intersection upgrade site at Whitehead Street and the Riverina Highway. This included the avoidance of intact good quality woodland habitat which provides relatively good habitat connectivity within the locality, mostly along roadsides to the north and south of the Riverina Highway, joining up with the vegetation along the Murray River in the south as well as minimises risk of vehicle strike from increased vehicles alongside good quality woodland habitat.

7.2.3. Second modification – removal of woodland zones

The second modification to the project design involved the removal of the woodland zones (vegetation zones 1 and 2) as well as the planted Pine Trees from the Development Footprint. The avoidance of these woodland areas retains habitat connectivity within the Subject Land and the Corowa region. One stick nest was recorded within this patch of Pine Trees during the field surveys; therefore the avoidance of the non-native Pine Trees retains potential habitat for fauna species within the Subject Land.



Figure 7-1 Avoid and minimise measures Map 1 of 3



Figure 7-2 Avoid and minimise measures Map 2 of 3



Figure 7-3 Avoid and minimise measures Map 3 of 3

7.3. Other measures considered

The consideration for locating the BESS in the existing cropped paddocks was also due to the absence of tall trees (planted trees are still present along the driveway, however these trees are a maximum of 4 m tall) and a flat landscape, reducing native vegetation impacts and minimising potential damage to the BESS from falling trees.

7.4. Summary of measures to avoid and minimise impacts

A summary of mitigation and avoidance measures and associated timelines and responsibilities for these measures have been detailed in Table 7-1 below.

Table 7-1 Avoidance and minimisation measures for direct, indirect and prescribed impacts

Action	Outcome	Timing	Responsibility
BESS site selection in mostly cropped paddocks	Reduced disturbance to natural ecosystems by choosing a location in previous and current cropped land, limiting impacts on native vegetation and wildlife habitat.	Project Design	Flow Power
Utilisation of existing access track	Avoided the need to construct a new road, thereby minimising additional habitat disturbance, protecting vegetation, and maintaining habitat connectivity.	Project Design	Flow Power
Proximity to existing Corowa substation	Minimised need for new infrastructure, which reduced potential biodiversity impacts associated with creating new transmission lines and infrastructure corridors.	Project Design	Flow Power
Removal of Whiteheads Road/Riverina Highway transport route and intersection upgrade	Prevent impacts to good condition woodland of PCT 76 and PCT 75. Prevented impacts to habitat connectivity and increased risk of vehicle strikes at this intersection	Project Design	Flow Power
Avoidance of woodland areas in Subject Land	Prevented disturbance to moderate condition BC Act listed TEC as well as HBTs	Project Design	Flow Power
Avoidance of HBTs	All of the HBTs that were recorded within the Subject Land have been avoided by the Project, therefore retaining potential habitat for fauna species.	Project Design	Flow Power

8. Impact assessment

Assumptions

The following assumptions underpin this impact assessment:

- All activities associated within the development would be contained wholly within the Development Footprint, including stockpiles, machinery manoeuvring, access tracks and infrastructure.
- Vegetation integrity within the Development Footprint would be reduced to zero and complete vegetation clearing is assumed.

8.1. Direct impacts

8.1.1. Residual direct impacts

The construction and operational phases of the proposal have the potential to impact biodiversity values at the site that cannot be avoided via impact minimisation and avoidance measures. This would occur through residual direct impacts, such as habitat clearance (and associated noise and disturbance) and ongoing existence of infrastructure (which may create barriers to movement and generate noise and disturbance). These impacts are summarised in Table 8-1.

Table 8-1 Residual direct impacts to biodiversity during the construction and operational phases

Describe impact	BC Act status	EPBC Act Status	SAIL entity	Project phase/timing of impact	Extent (ha)
Clearing for construction: reduction in community extent and integrity					
Native vegetation (all zones) and ecosystem credit species	N/A	N/A	N/A	Construction	0.62 ha
Planted native vegetation (non-PCT)	N/A	N/A	N/A	Construction	0.76 ha
Non-native vegetation (includes planted, cropped, roads and infrastructure)	N/A	N/A	N/A	Construction	8.94 ha

8.1.2. Changes in vegetation integrity scores

The proposed clearing will reduce the VI scores in two zones to zero, as shown in Table 8-2 below.

Table 8-2 Change in VI Score for each vegetation zone as a result of identified impacts

Vegetation zone	PCT ID/Zone	Area (ha)	Before development				After development				Change in VI score
			Composition	Structure	Function	VI score	Composition	Structure	Function	VI score	
3	PCT 76_DG_Substation	0.53	27.8	39.5	1.9	12.7	0	0	0	0	-12.7
4	PCT 76_DG_Roadside	0.09	60.0	0.2	6.4	7.3	0	0	0	0	-7.3

8.1.3. Loss of hollow-bearing trees

Surveys identified 19 HBTs within the broader locality, five of which are located within the vegetation zones mapped in the Subject Land. All HBTs present within the Subject Land have been avoided by the Project and would not be removed.

8.2. Indirect impacts

Indirect impacts are those that are not directly related to clearing of native vegetation. Indirect impacts that contribute to key threatening processes from the Project may include edge effects, dust and noise disturbance, weed introduction and spread, shading of retained vegetation or inadvertent impacts to adjacent native vegetation. Table 8-3 describes the type, frequency, intensity, duration and consequences of the indirect impact of the Project.

Table 8-3 Potential indirect impacts to biodiversity during the construction and operational phases

Indirect impact	Impacted entities	Extent	Frequency/timing	Duration of the threat	Likelihood and consequences
Inadvertent impacts on adjacent habitat or vegetation. Accidental clearing or impacts to vegetation can occur where clearing boundaries are not delineated, or where machinery or materials are stockpiled within driplines of trees.	PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions. BC Act Listed TEC: - Inland Grey Box Woodland. Ecosystem credit species listed in Section 5.1.2. Threatened species detected in close proximity to the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>)	Subject Land	Irregular during construction phase	Short-term	Likelihood of inadvertent impacts or clearing is high if boundaries are not clearly delineated. Consequence would be moderate for TECs and threatened entities habitat and low for other habitat and native vegetation. Consequences include: - Direct loss of native flora and fauna habitat - Potential for injury and mortality of fauna during clearing of fauna habitat. - Disturbance to fallen timber. - Disturbance to avoided HBTs and woodland - Increased edge effects
Reduced viability of adjacent habitat due to edge effects. Edge effects can occur where works and/or development occur in close proximity to	PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions. BC Act Listed TEC: Inland Grey Box Woodland.	Within 100m of woodland and habitat edges	Ongoing	Long-term	The location of the Project is in a highly agricultural area, which has historically and presently contributed to edge effects. The areas of woodland are already subject to invasion by exotic species.

Indirect impact	Impacted entities	Extent	Frequency/timing	Duration of the threat	Likelihood and consequences
vegetation, and can include shading, invasion by exotic species, and increase in edge ratios as a result of clearing patches.	Ecosystem credit species listed in Section 5.1.2. Threatened species detected in close proximity to the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>)				The Project is unlikely to contribute to any further edge effects for the native vegetation patches remaining within the Subject Land as there will be no impacts to woodland vegetation.
Increased risk of starvation, exposure and loss of shade or shelter Through vegetation removal, potential exists for sheltering locations to be impacted.	Ecosystem credit species listed in Section 5.1.2. Threatened species detected in close proximity to the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>)	Unknown	Irregular during construction and operation phases	Long-term	The likelihood of such impacts upon threatened entities is low given the already disturbed nature of most of the Development Footprint and the woodland areas being avoided by the Project. The consequence on bioregional persistence is likely to be low.

Indirect impact	Impacted entities	Extent	Frequency/timing	Duration of the threat	Likelihood and consequences
Reduced viability of adjacent habitat due to vehicle traffic Adjacent habitat has the potential to be impacted through increased vehicle traffic during construction	Ecosystem credit species listed in Section 5.1.2. Threatened species detected in close proximity to the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>)	Unknown	Construction phase	Short-term	The increased vehicle traffic may alter fauna activities and/or movements Given the Subject Land occurs adjacent to existing public sealed roads with the surrounding vegetation already largely cleared, the likelihood and consequence would be low for most species.
Reduced viability of adjacent habitat due to increased noise Construction activities and operation of machinery can result in increased noise, causing disturbance to local fauna	Ecosystem credit species listed in Section 5.1.2. Threatened species detected in close proximity to the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>)	Subject Land and adjacent extending habitat	Construction and operational phases	Short-term	Noise is expected to increase during construction as a result of increased vehicle traffic and machinery operation for clearing, construction and associated activities however the likelihood of impact is low due to minimal quality habitat within or adjacent to the Subject Land for threatened fauna.
Transport of weeds and pathogens from the site to adjacent vegetation Construction and operation involve the movement of machinery	PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions. BC Act Listed TEC: Inland Grey Box Woodland.	Subject Land	Construction and operational phases	Long-term	Unmitigated, the likelihood of weed invasion and spread is high. The consequence is low to moderate, as the Subject Land and surrounds contain multiple weed species as a result of clearing and agricultural activities. Consequences to TECs and threatened species habitat

Indirect impact	Impacted entities	Extent	Frequency/timing	Duration of the threat	Likelihood and consequences
and personnel which have the potential to transfer weed seed, and soil containing pathogens.	Ecosystem credit species listed in Section 5.1.2. Threatened species detected in close proximity to the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>) Threatened species in the locality - Sloane's Froglet (<i>Crinia sloanei</i>)				through weed encroachment is low with mitigation measures in place. The likelihood of spreading the amphibian chytrid fungus pathogen is low due to limited waterbodies within the subject land (with water being the primary source of transmission) however consequence could be high if the pathogen is introduced into the populations of Sloane's Froglet in the locality.
Cumulative loss of breeding habitat and competition for remaining resources A reduction in the number of HBTs in the landscape leads to competition and resource stress within both threatened and non-threatened hollow-dependent fauna.	N/A	N/A	N/A	Long-term	The likelihood is low. All suitable breeding habitat for threatened and non-threatened species (e.g. HBTs and suitable dams) are being avoided by the Project. Although one dam is being impacted, this dam was dry during the site visit in August 2025.

Indirect impact	Impacted entities	Extent	Frequency/timing	Duration of the threat	Likelihood and consequences
Trampling of threatened flora species Potential for threatened flora species within or immediately adjacent to Development Footprint being avoided by the works to be trampled by site staff	N/A	Within and adjacent to the Development Footprint	Construction and operational phase	Long-term	The likelihood of impact to threatened flora species through trampling is low. Targeted flora surveys were conducted throughout the native vegetation areas of the Subject Land in September and October 2025, and no threatened flora were detected. The consequence of loss of unknown individuals being trampled is minimal.
Inhibition of nitrogen fixation and increased soil salinity Increased soil salinity has the potential to occur as a result of vegetation removal impacting groundwater, bringing salt to surface.	PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions. BC Act Listed TEC: - Inland Grey Box Woodland. Ecosystem credit species listed in Section 5.1.2. Threatened species detected in close proximity to the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>)	Within the Subject Land	Construction phase	Short-term	The likelihood is low, as the Subject Land is already disturbed by agricultural land use activities. The consequence would be moderate as salinity may impact ecosystem functionality.

Indirect impact	Impacted entities	Extent	Frequency/timing	Duration of the threat	Likelihood and consequences
Fertiliser drift Fertiliser drift is typically associated with agricultural activities and as such, the proposal is not considered likely to generate this impact.	N/A	N/A	N/A	Long-term	The likelihood is negligible. The Subject Land is already disturbed by agricultural land use activities and there is minimal native vegetation clearing. No fertiliser is proposed to be used.
Rubbish dumping Increased accessibility through construction and operational roads, in addition to establishment of public access compounds may allow for access and dumping of rubbish	PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions. BC Act Listed TEC: - Inland Grey Box Woodland. Ecosystem credit species listed in Section 5.1.2. Threatened species detected in close proximity to the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>)	Subject Land	Construction and operational phases	Long-term	The likelihood of rubbish dumping is moderate during the construction phase if controls are not in place. The likelihood of rubbish dumping during operation are low due to limited public access to the BESS site. The consequence of wood collection is low given the already highly disturbed nature of the site.
Wood collection	PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay	Limited	Construction and operational phases	Long-term	The likelihood of wood collection is low due to limited public access to

Indirect impact	Impacted entities	Extent	Frequency/timing	Duration of the threat	Likelihood and consequences
Increased accessibility through construction and operational roads, in addition to establishment of public access compounds may allow for access and collection of firewood.	soils in the NSW South Western Slopes and Riverina Bioregions. BC Act Listed TEC: - Inland Grey Box Woodland. Ecosystem credit species listed in Section 5.1.2. Threatened species detected in close proximity to the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>)				the BESS site. The consequence of wood collection is low given the already disturbed nature of the site and minimal fallen timber within the Subject Land.
Removal and disturbance of rock, including bush rock Increased accessibility through construction and operational roads, in addition to establishment of public access compounds may allow for access and collection of rock and bush rock.	N/A	Limited	Construction and operational phases	Long-term	The likelihood is negligible. No areas of significant rocky areas including bush rock were recorded during the field surveys within the Subject Land.

Indirect impact	Impacted entities	Extent	Frequency/timing	Duration of the threat	Likelihood and consequences
Increase in predatory and pest species populations Increased accessibility in addition to potential food waste storage has potential to increase access for predators and pest animals.	Ecosystem credit species listed in Section 5.1.2. Threatened species detected in close proximity to the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>)	Subject Land and surrounding vegetation	Construction and operational phases	Long-term	The likelihood is low, as the Subject Land is highly agricultural and already accessible to predatory species such as foxes and pest species such as the house mouse. The consequence is low given the already disturbed nature of the site, and the small area of proposed clearing in comparison to the retained vegetation.
Disturbance to specialist breeding and foraging habitat Removal of hollow-bearing trees, woody vegetation and woody ground debris has potential to reduce area of specialist breeding and foraging habitat.	Ecosystem credit species listed in Section 5.1.2. Threatened species detected in close proximity to the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>)	Subject Land	Construction and operational phases	Long-term	The likelihood is negligible due to the woodland areas which contain these habitat features being avoided by the Project.

Indirect impact	Impacted entities	Extent	Frequency/timing	Duration of the threat	Likelihood and consequences
Earthworks and mobilisation of sediments Increased sediment load within waterways and soil movement have potential to occur as a result of construction works.	PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions. BC Act Listed TEC: Inland Grey Box Woodland.	Subject Land	Construction phase	Short-term	Unmitigated, there is a moderate risk of increased sediment load within waterways and soil movement. The unmitigated consequence of earthworks and mobilisation of sediments is moderate to high and include erosion and sedimentation and/or pollution of soils, dams and downstream habitats.
Increased risk of fire Fire ignition during construction as per EIS. Intrinsic fire risk of BESS sites.	PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions. BC Act Listed TEC: - Inland Grey Box Woodland. Ecosystem credit species listed in Section 5.1.2. Threatened species detected in close proximity to the Subject Land: - Southern Myotis (<i>Myotis macropus</i>) - Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>)	Subject Land	Construction and operational phases	Long-term	There is a moderate risk of componentry failure resulting in a fire. The biodiversity consequences are likely to be high. Buffers around the BESS will reduce the likelihood of any fire spreading to surrounding vegetation.

8.3. Prescribed impacts

Table 8-4 describes the potential prescribed impacts in the Subject Land associated with the Project.

Table 8-4 Nature, extent, duration and possible consequences of prescribed impacts

Prescribed impact	Nature	Extent	Duration	Consequence
Impacts of development on karst, caves, crevices and cliffs, rocks, and other geological features	N/A	N/A	N/A	N/A
Impacts of development on human-made structures	Throughout the Subject Land there are human-made structures including the existing Corowa substation and three small culverts. The existing access track will be extended and widened as part of the Project.	Two of the culverts are likely to be altered as they occur within the Development Footprint, one at the entrance to the site where road upgrades are proposed to occur and one near the existing Corowa substation.	Impacts to human-made structures will occur during the construction phase only.	The consequence is that the Project would impact the culvert during the construction phase. No threatened species are considered to rely on the culverts and it is unlikely that this is going to increase impacts on threatened entities.
Impacts of development on non-native vegetation	Non-native vegetation occurs within and adjacent to the Subject Land. Non-native cropped vegetation exists within the Development Footprint, predominantly in the northern and southern paddocks of the existing access track and planted exotic vegetation occurs as	Approximately 8.94 ha of non-native vegetation will be removed from the Development Footprint. This includes exotic crops, exotic planted vegetation, ornamental streetscape plantings, roads (sealed and unsealed), infrastructure and a dam.	Impacts to non-native vegetation will occur during the construction phase only.	8.94 ha of non-native vegetation will be removed from the Development Footprint. It is unlikely that the removal of this extent of non-native vegetation would have a significant impact on native threatened fauna due to the highly disturbed nature of this vegetation. There are no habitat

Prescribed impact	Nature	Extent	Duration	Consequence
	patches along this access track. Ornamental streetscape plantings which are not considered native to the Corowa region are also present within the proposed road upgrade site at the intersection of Honour Avenue and Bullecourt Road.			features such as HBTs present within these areas of non-native vegetation.
Impacts of development on habitat connectivity	Existing habitat connectivity is already highly fragmented within the locality due to past clearing. Woodland patches within the Subject Land provides some connectivity to the broader locality, mainly in linear corridors along roadsides. Connectivity is present for highly mobile arboreal species such as birds.	The Subject Land is already highly fragmented, with historically cleared native vegetation. Despite this, the proposed works may negligibly increase fragmentation and barriers to wildlife movement. The installation of fencing, road construction and BESS infrastructure is likely to impact connectivity. The species most likely impacted by changes to connectivity are those reliant on habitat within short distances to travel through the landscape.	Impacts to connectivity within the Development Footprint are expected to be permanent. Impacts are likely to reduce in the long term as biodiversity in the area adapts to the presence of the BESS.	The removal of planted vegetation in the form of native, exotic and ornamental streetscape plantings would have a minor impact on habitat connectivity within the locality. Due to the low condition of grasslands across the Subject Land, it is unlikely that threatened species inhabiting grasslands would be substantially impacted through its removal. Movement of both terrestrial and aerial species is unlikely to be substantially impeded by the proposal given the woodland patches have been avoided by the Project. Sloane's Froglet, known in the locality may be dependent on table drains to move across the landscape in wet periods and could be impacted by

Prescribed impact	Nature	Extent	Duration	Consequence
				construction. Appropriate mitigation measures to include frog friendly passages across the road access and frog fencing to exclude amphibians from moving across the roadside during construction would minimise impacts on Sloane's Froglet.
Impacts of development on water quality, water bodies and hydrological processes	The Project has the potential to indirectly impact water quality, waterbodies and hydrological processes that sustain threatened species.	The extent of impacts to this issue is likely to be minor. One farm dam is present within the Development Footprint which was dry during the August 2025 field surveys. Two additional farms dams are present 50 m west and 10 m east of the Subject Land. There are no other waterbodies present within the Development Footprint. These have potential to be subject to indirect impacts such as polluted runoff, reduction in water quality and sedimentation from construction activities.	Impacts to waterbodies will likely be confined to the construction period.	The potential consequences include reduced water quality that may impact threatened species that rely on these water sources and habitat, such as Southern Myotis and Sloane's Froglet. With appropriate mitigation measures in place, impacts are likely to be low. Correct implementation of safeguards/mitigation will prevent prescribed biodiversity impacts on waterbodies and water quality.
Impacts of wind turbine strikes	N/A	N/A	N/A	N/A

Biodiversity Development Assessment Report – streamlined small area

Corowa Battery Energy Storage System



Prescribed impact	Nature	Extent	Duration	Consequence
Impacts of vehicle strikes on threatened fauna, or fauna part of a TEC	Increased vehicle traffic during the construction phase of the Project could result in an increased risk of vehicle strikes to threatened fauna species.	The extent of vehicular strike is likely to be minor due to construction being conducted in daylight hours and speed limits being enforced.	Short-term construction phase	The overall consequence is expected to be negligible due to low fauna activity detected during surveys and construction being restricted to daylight hours to avoid impacts to Sloane's Froget.

8.4. Mitigating residual impacts – management measures and implementation

Impacts that cannot be avoided must be mitigated. Presented here is an identification of mitigation measures to address residual direct and indirect, prescribed and uncertain impacts that were identified in the previous sections as moderate or above likelihood. Mitigation measures proposed to manage impacts, including proposed techniques, timing, frequency, responsibility for implementing each measure, risk of failure, and an analysis of the consequences of any residual impacts are provided in Table 8-5.

Summary of mitigation measures for direct impacts include:

- B1 A trained wildlife handler or fauna spotter catcher (FSC) to be on-site during clearing to mitigate potential impacts to displacement, injury, or death of resident fauna.
- B2 Installation of temporary frog exclusion fencing prior to construction to exclude Sloane's Froglet from the construction site

Summary of mitigations for indirect impacts include:

- B3 Inadvertent impacts of adjacent habitat or vegetation can be mitigated through clear physical demarcation of the boundary between areas to be retained and areas slated for clearing.
- B4 Increased risk of noise and light pollution can be mitigated by limiting noise-producing operational work to standard working hours
- B5 Movement of weeds and pathogens can be mitigated by a basic vehicle and machinery hygiene protocol in alignment with NSW DPHI Hygiene guidelines
- B6 Impacts of Rubbish dumping can be mitigated by high quality construction practices
- B7 Mobilisation of sediments can be mitigated through application of standard erosion and sediment control practices.
- B8 Increased risk of fire can be mitigated through hazard reduction planning.

Summary of mitigations for prescribed impacts include:

- B9 Site access driveway final designs from Whitehead Road into the site to include formed culvert for safe amphibian passage to prevent any loss of connectivity along Whitehead Road for Sloane's Froglet
- B10 Implementation of sediment and erosion controls to mitigate impacts of the development on water quality, water bodies and hydrological processes.
- B11 Enforcement of vehicle speed limits across the site during construction and operation to minimise vehicle strikes on threatened fauna, or fauna part of a TEC.

Table 8-5 Summary of proposed mitigation and management measures for residual impacts (direct, indirect and prescribed)

No.	Impact	Mitigation measure	Methods/technique	Timing	Frequency	Responsibility	Likely efficacy
B1	Habitat loss, displacement of resident fauna, injury or death of fauna	Trained fauna spotter catcher (FSC) and/or ecologist on site during clearing events to native vegetation	• Instigating clearing protocols, to include a trained ecologist or licensed wildlife handler to be present during clearing events of native and exotic vegetation (including planted and cropped) • Pre-clearance surveys should be completed in the 48 hours prior to clearing • If threatened fauna are detected during pre-clearance surveys, an incidental finds protocol including comparative habitat assessments should be prepared for clearing sites and proposed release sites provided to ensure that habitat features are available in the released sites.	During construction (clearing)	One-off	Operator	High
B2	Habitat loss, displacement of resident fauna, injury or death of fauna	Installation of temporary frog exclusion fencing prior to construction	• Installation of temporary frog exclusion fencing prior to construction to exclude Sloane's Froglet from the construction site. Specifications include: • Non-woven, smooth UV fabric • Installed to a height at least 60cm • Trenched into the ground at least 20cm	Pre-Construction	Ongoing	Contractor	High

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No.	Impact	Mitigation measure	Methods/technique	Timing	Frequency	Responsibility	Likely efficacy
B3	Inadvertent impacts on adjacent habitat or vegetation, including trampling	Clear physical demarcation of boundary between areas to be retained and areas proposed to be cleared	Biodiversity Management Plan (BMP) to include: • Documented clearance protocols to include demarcation (e.g. use of pickets or flagging) of vegetation to be retained • No clearing to occur outside the development footprint • No stockpiling or storage outside of the Development Footprint • Tree Protection Zones (TPZs) for retained woodland • Clearing limits must be delineated prior to proposed commencement of clearing at each area	Pre-construction and construction	Ongoing	Contractor	High
B4	Reduced viability of adjacent habitat due to increased noise	Avoid clearing / construction during night-time hours and during breeding season of threatened fauna species	EMS includes specification of works to be undertaken during the following times: • Monday – Friday: 7am – 6pm • Saturday: 8am – 1pm Limited use of lighting	Construction	Ongoing	Contractor and operator	High
B5	Transport of weeds and pathogens from the site	Weed control and hygiene protocols	Biodiversity Management Plan (BMP) to include: • Weed control and Vehicle and machinery hygiene protocols to prevent spread of weeds and pathogens within Subject Land	Construction and operation	To be determined in BMP	Contractor and operator	High

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No.	Impact	Mitigation measure	Methods/technique	Timing	Frequency	Responsibility	Likely efficacy
	to adjacent vegetation		- Weed control should be completed by a suitably qualified person in the identification and management of weed species - Basic hygiene measures to align with NSW DPIE Hygiene guidelines - <i>Protocols to protect priority biodiversity areas in NSW from Phytophthora cinnamomi, myrtle rust, amphibian chytrid fungus and invasive plants</i> (NSW DPIE, 2020) to prevent introduction of Amphibian Chytrid Fungus into the site				
B6	Rubbish dumping	High quality construction practices	EMS to include: List or map of lawful locations for dumping construction rubbish	Construction	Ongoing	Contractor	High
B7	Earthworks and mobilisation of sediments.	Sediment and erosion controls	Preparation of an EMS to include: Erosion and sediment control practices in line with the 'Blue Book' <i>Managing Urban Stormwater: soils and construction Vol1</i> (Landcom 2004).	Construction	Ongoing	Contractor	High
B8	Increased risk of fire	Built in hazard reduction planning	Implement a Bushfire Emergency Management and Operations Plan in consultation with NSW RFS and FR NSW. This would include necessary	Planning	Complete	Proponent	High

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No.	Impact	Mitigation measure	Methods/technique	Timing	Frequency	Responsibility	Likely efficacy
			Asset Protection Zones (APZs) included within the Development Footprint.				
B9	Impacts of development on habitat connectivity.	Site access driveway final designs to include safe amphibian passage along Whitehead Road	Site access driveway final designs from Whitehead Road into the site to include formed culvert for safe amphibian passage to prevent any loss of connectivity along Whitehead Road.	Final Design /construction	Ongoing	Contractor	High
B10	Impacts of development on water quality, water bodies and hydrological processes.	Sediment and erosion controls.	Preparation of an EMS to include: Erosion and sediment control practices in line with the 'Blue Book' <i>Managing Urban Stormwater: soils and construction Vol1</i> (Landcom 2004).	Construction	Ongoing	Contractor	High
B11	Vehicle strikes on threatened fauna, or fauna part of a TEC.	Vehicle speed limits implemented across the site during construction and operation.	Vehicle impacts will be reduced by: Limit vehicle speeds to 40km/h to reduce the risk of vehicle strike. Construction activities are limited to daylight hours to reduce vehicle strikes of nocturnal fauna	Construction and operation	Ongoing	Contractor and operator	High

Further details on the proposed implementation of recommended mitigation measures are provided below in Table 8-6.

Table 8-6 Implementation of mitigation measures

Impact	Measure/action	Monitoring and evaluation strategy	Performance criteria	Adaptive management threshold	Adaptive management response
Direct impacts					
Habitat loss, displacement of resident fauna, injury or death of fauna	FSC on-site during clearing	BMP to include: • Requirement for pre-clearance surveys by suitably trained person/s during construction phase • Requirement for presence of FSC during removal of important habitat elements (e.g. HBT) during construction phase to relocate or arrange for care of injured individuals • Clearing limits and auditing mechanism to ensure limits are not exceeded • Proformas to record details of above actions.	Auditing report shows pre-clearance surveys undertaken and provides details of any FSC responses	Clearing limits insufficient to capture all construction activities Unexpected threatened species encountered	Commence project modification process Unexpected threatened species find protocol enacted

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Impact	Measure/action	Monitoring and evaluation strategy	Performance criteria	Adaptive management threshold	Adaptive management response
		Details to be included in audit reports			
Indirect impacts					
Inadvertent impacts on adjacent habitat or vegetation, including trampling	Clear physical demarcation of boundary between retained and cleared areas	BMP to include: Demarcation (flagging) of no-go zones, vegetation for retention, habitat trees and habitat features. Physical demarcation required; not to rely on operators' GPS.	Audit report shows demarcation undertaken and does not find inadvertent impacts upon adjacent areas	<u>Trigger 1</u> If adjacent areas found to be impacted, calculate quantum of impact. <u>Trigger 2</u> For TEC, impact trigger >0.1 ha For non-TEC native vegetation, impact trigger >0.5 ha	<u>Trigger 1</u> Check demarcation is in accordance with BMP. Adjust as necessary to avoid future impact <u>Trigger 2</u> Consult with BCD
Reduced viability of adjacent habitat due to increased noise	Avoid clearing / construction during night-time hours and during breeding season of threatened fauna species Works to be undertaken during the following times: • Monday to Friday: 7am – 6pm	EMS to: • Specify works to be undertaken during day as much as possible to avoid light spill at night • Require light shields installed on construction compound to minimise light spill	Auditing report verifies hours of operation and light shield installation	No light shields installed	Investigate reasons for non-compliance, work with contractor to achieve impact reduction or avoidance

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Impact	Measure/action	Monitoring and evaluation strategy	Performance criteria	Adaptive management threshold	Adaptive management response
	• Saturday: 8am – 1pm.				
Transport of weeds and pathogens from the site to adjacent vegetation	Weed control and hygiene protocol	BMP will include actions in accordance with (DPI, 2020): • Buffer zones • Designated parking areas • Standard basic vehicle hygiene protocol (wash-down facilities) in line with NSW Hygiene Guidelines (DPIE 2020) and best practice weed management consistent with guidelines provided by DPI NSW, focusing on priority weeds • Proformas for construction company to fill out to evidence adherence	Audit report will compile forms from construction company	Audit report finds poor adherence to protocols	Investigate the matter with reference to the <i>Biosecurity Act 2015</i> (Biosecurity Act)
Rubbish dumping	High quality construction practices	A Waste Management Plan would be incorporated into the EMS, applying the	Auditing report finds adherence	Auditing report does not find adherence	Consultation with developer and/or construction contractor with reference to the

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Impact	Measure/action	Monitoring and evaluation strategy	Performance criteria	Adaptive management threshold	Adaptive management response
		principles to avoid, re-use and recycle to minimise wastes. EMS will include: • List or map of lawful locations for dumping construction rubbish. • Requirement for the construction contractor to present a construction and demolition waste plan in line with Construction and demolition waste: a management toolkit (EPA NSW 2020) • Auditing report to ensure adherence			<i>Protection of the Environment Operations Act 1997</i>
Earthworks and mobilisation of sediments.	Sediment and erosion controls	EMS to include: • Erosion and sediment control practices in line with the 'Blue Book' <i>Managing Urban Stormwater: soils and construction Vol1</i> (Landcom 2004) • Auditing report to	Auditing report finds adherence	Auditing report does not find adherence	Consultation with developer and/or construction contractor with reference to the <i>Protection of the Environment Operations Act 1997</i>

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Impact	Measure/action	Monitoring and evaluation strategy	Performance criteria	Adaptive management threshold	Adaptive management response
		ensure adherence			
Increased risk of fire	Built-in hazard reduction planning	Planning phase has incorporated separation distances, asset protection zone, emergency egress provision to west of site and water supply for firefighting.	Any fires ignited on site do not spread to adjacent vegetation	Fires ignited on site have potential to spread to adjacent vegetation or have spread	Consultation with Rural Fire Service to improve the containment of fires at BESS site
Prescribed impacts					
Human-made structures	Clear physical demarcation of Development Footprint	EMS to include clear demarcation (flagging, poles, fencing) of Development Footprint.	Audit report shows demarcation undertaken and does not find inadvertent impacts upon adjacent areas	If adjacent areas found to be impacted, calculate quantum of impact	Check demarcation is in accordance with EIS. Adjust as necessary to avoid future impact
Habitat connectivity	Clear physical demarcation of boundary between retained and cleared areas to avoid retained habitat	BMP to include: Demarcation (flagging) of no-go zones, vegetation for retention, habitat trees and habitat features. Physical demarcation required; not to rely on operators'	Audit report shows demarcation undertaken and does not find inadvertent impacts upon adjacent areas	<u>Trigger 1</u> If adjacent areas found to be impacted, calculate quantum of impact <u>Trigger 2</u> For TEC, impact trigger >0.1 ha.	<u>Trigger 1</u> Check demarcation is in accordance with BMP. Adjust as necessary to avoid future impact <u>Trigger 2</u> Consult with CPHR

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Impact	Measure/action	Monitoring and evaluation strategy	Performance criteria	Adaptive management threshold	Adaptive management response
		GPS		For non-TEC native vegetation, impact trigger >0.5 ha	
Water quality, water bodies and hydrological processes	Sediment and erosion controls to minimise impacts	EMS to include: - Erosion and sediments control practices in line with the 'Blue Book' (Landcom, 2004). - Auditing report to ensure adherence	Auditing report finds adherence	Auditing report does not find adherence	Consultation with developer and/or construction contractor with reference to the <i>Protection of the Environment Operations Act 1997</i>
Vehicle strikes on threatened fauna, or fauna part of a TEC	Implementation of vehicle speed limits and number of vehicles on site to avoid strike	EIS to state vehicle speed limits and limit the number of vehicles on site following vehicle traffic report	Auditing report finds adherence and no strikes occur	Auditing report does not find adherence or a strike occurs	Immediately stop works and report to CPHR.

8.5. Adaptive management strategy for uncertain impacts

There are no uncertain impacts associated with the Project after the implementation of mitigation measures. No adaptive management strategies have been prepared as a result.

9. Serious and irreversible impacts (SII)

9.1. Assessment for serious and irreversible impact on biodiversity values

This section addresses Section 10.2 of the BAM and follows the guidance to assist a decision-maker to determine a serious and irreversible impact (DPE, 2020).

All threatened entities impacted by the proposal have been considered if they are or have the potential to be Serious and Irreversible Impact (SII) entities. The criteria used to determine if a development will have serious and irreversible impacts include impacts that:

- a) Will cause a further decline of the species or ecological community that is currently observed, estimated, inferred, or reasonably suspected to be in a rapid rate of decline, or
- b) Will further reduce the population size of the species or ecological community that is currently observed, estimated, inferred, or reasonably suspected to have a very small population size, or
- c) Impact on the habitat of a species or ecological community that is currently observed, estimated, inferred, or reasonably suspected to have a very limited geographic distribution, or
- d) Impact on a species or ecological community that is unlikely to respond to measures to improve habitat and vegetation integrity and is therefore irreplaceable.

All SII entities associated with the Project have been determined to be absent through survey or due to habitat constraints. Therefore, no threatened entities that classify as a SII will be impacted by this Project.

10. Impact summary

10.1. Determine an offset requirement for impacts

10.1.1. Impacts on native vegetation and TECs or ECs (ecosystem credits)

An offset is required for all impacts of development on PCTs that are associated with:

- a) A vegetation zone that has a vegetation integrity score ≥ 15 where the PCT is representative of an endangered or critically endangered ecological community, or
- b) A vegetation zone that has a vegetation integrity score of ≥ 17 where the PCT is associated with threatened species habitat (as represented by ecosystem credits), or is representative of a vulnerable ecological community, or
- c) A vegetation zone that has a vegetation integrity score ≥ 20 where the PCT is not representative of a TEC or associated with threatened species habitat.

No vegetation zones present within the Development Footprint require offsetting due to their VI scores being less than 15. As a result, no ecosystem credits are required for this Project. These vegetation zones are shown in Table 10-1 and mapped in Figure 10-1 and Figure 10-2.

Table 10-1 Impacts that **do not** require offsets - ecosystem credits

Vegetation Zone/PCT	PCT name	Impact area (ha)	TEC	Entity at risk of SAI?	Current VI score	Future VI score
VZ3 76 DG_Substation	Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	0.53	n/a	No	12.7	0
VZ4 76 DG_Roadside	Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	0.09	n/a	No	7.3	0

10.1.2. Impacts on planted native vegetation

The Project will result in the clearing of 0.76 ha of planted native vegetation. The planted native vegetation is unlikely to provide habitat for threatened species, and no biodiversity offsets are required for these areas.

10.1.3. Impacts on threatened species and their habitat (species credits)

No species credits have been generated for this Project.

10.1.4. Indirect and prescribed impacts

No indirect or prescribed impacts remain after measures to avoid, minimise and mitigate have been implemented.

10.1.5. Offsets required under the EPBC Act

A habitat evaluation was undertaken in Appendix D.7 did not identify any species listed under the EPBC Act to have the potential to be impacted by the Project. As a result, the Project is not considered to require an EPBC Act referral or offsets in accordance with the EPBC Act Offsets Policy.

10.2. Impacts that do not require further assessment

Areas not requiring assessment were identified in accordance with Section 9.3 of the BAM (DPIE, 2020). These areas of impact are detailed in Table 10-2 below and shown in Figure 10-1 and Figure 10-2.

Table 10-2 Impacts that do not need further assessment for ecosystem credits

Impact	Location within Subject Land	Justification why no further assessment is required
Non-native vegetation (planted and cropped)	The paddocks to the north and south of the Subject Land, as well as ornamental street plantings at the road intersection upgrade site	No native vegetation is present. Assessed for prescribed impacts only.
Infrastructure (sealed and unsealed roads and existing Corowa substation)	Existing sealed roads at Whitehead Street, Honour Avenue and Bullecourt Road, as well as an unsealed road to the residence of 275 Whitehead Street.	No native vegetation is present. Assessed for prescribed impacts only.



Figure 10-1 Thresholds for assessing and offsetting Map 1 of 2



Figure 10-2 Thresholds for assessing and offsetting Map 2 of 2

11. Biodiversity credit report

There are no ecosystem credit requirements nor species credit requirements for the Project. The BAM credit reports can be viewed in Appendix G.

12. Conclusion

NGH has prepared this BDAR on behalf of Flow Power to assess the biodiversity impacts of the proposed Corowa BESS using the Biodiversity Assessment Method 2020 (BAM) as required under the *Biodiversity Conservation Act, 2016*. The proposed Corowa BESS is classified as an SSD as detailed in the *Planning Systems SEPP* (2021). In this BDAR, biodiversity impacts have been assessed through comprehensive mapping and assessment completed in accordance with Appendix C: streamlined assessment module – small area, and Appendix D: streamlined assessment module – planted native vegetation of the BAM. Using state vegetation mapping and on-ground vegetation stratification, one PCT was identified within the Subject Land and the Development Footprint:

- PCT 76 *Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions*.

One TEC was identified within the Subject Land, being:

- *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Penepplain, Nandewar and Brigalow Belt South Bioregions* (Inland Grey Box Woodland) – Endangered under the BC Act.

Two species were recorded during targeted surveys of the farm dam located 50 m west of the Subject Land, however no habitat for these species is impacted within the development footprint and therefore no species credits have been generated:

- Large Bent-winged Bat (*Miniopterus orianae oceanensis*)
- Southern Myotis (*Myotis macropus*).

No other candidate species were recorded or are assumed present. A total of 19 HBTs were identified within the Subject Land, and immediately north and south of the Subject Land, as well as at the intersection of the Riverina Highway and Whitehead Street. All HBTs have been excluded from the Development Footprint and are not proposed to be impacted.

Impacts have been avoided, minimised or offset through the following:

- Site selection of the proposed BESS location, which has historically been cleared for cropping, and comprised of exotic vegetation. Through selecting this site, biodiversity loss has been minimised, thereby reducing potential impacts on native ecosystems
- Site selection for the access road and subsequent road upgrades being located at the intersection of Honour Avenue and Bullecourt Road which contains no remnant native vegetation or HBTs
- Avoiding all woodland patches of PCT 76 and Inland Grey Box Woodland TEC within the Subject Land
- Avoiding all HBTs

No species listed under the EPBC Act have been identified within the habitat evaluation (Appendix D.7) as having the potential to be impacted by the Project and therefore referral under the EPBC Act is not required.

Mitigation measures have been outlined to reduce the direct, indirect, and prescribed impacts to biodiversity. Direct impacts to native vegetation is shown in Table 12-1. There are no credit obligations for this Project as a result of avoid and minimise efforts.

Table 12-1 Ecosystem credit requirement

Zone ID	PCT ID	PCT name	Zone area (ha)	Vegetation integrity score	Ecosystem credits required
3	PCT 76_DG_Substation	Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	0.53	12.7	0
4	PCT 76_DG_Roadside	Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	0.09	7.3	0

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Appendix A BDAR requirements compliance

Table 13-1 Assessment of compliance with BDAR minimum information requirements – small area streamlined assessment module

BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
Introduction	Chapters 2 and 3	Information	
		Introduction to the biodiversity assessment including:	–
		☒ brief description of the proposal	1.1
		☒ identification of subject land boundary, including: ☒ operational footprint ☒ construction footprint indicating clearing associated with temporary/ancillary construction facilities and infrastructure	1.1
		☒ general description of the subject land	1.1.3
		☒ sources of information used in the assessment, including reports and spatial data	1.5
		☒ identification of assessment method applied (i.e. linear or site-based)	3.1
		Maps and tables	
		☒ Map of the subject land boundary showing the final proposal footprint, including the construction footprint for any clearing associated with temporary/ancillary construction facilities and infrastructure	Figure 1-1
Landscape	Sections 3.1 and 3.2, Appendix E	Information	

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		Identification of site context components and landscape features, including:	–
		☒ general description of subject land topographic and hydrological setting, geology and soils	3.2
		☒ percent native vegetation cover in the assessment area (as described in BAM Section 3.2)	3.3
		☒ IBRA bioregions and subregions (as described in BAM Subsection 3.1.3(2.))	3.2.1
		☒ rivers and streams classified according to stream order (as described in BAM Subsection 3.1.3(3.) and Appendix E)	3.2.2
		☒ wetlands within, adjacent to and downstream of the site (as described in BAM Subsection 3.1.3(3.))	3.2.2
		☒ connectivity of different areas of habitat (as described in BAM Subsection 3.1.3(5–6.))	3.2.3
		☒ areas of geological significance and soil hazard features (as described in BAM Subsections 3.1.3(7.) and 3.1.3(12.))	3.2.4
		☒ areas of outstanding biodiversity value occurring on the subject land and assessment area (as described in BAM Subsection 3.1.3(8–9.))	3.2.5
		Maps and tables	
		☒ Site Map ☒ Boundary of subject land ☒ Cadastre of subject land (including labelling of Lot and DP or section plan if relevant) ☒ Landscape features identified in BAM Subsection 3.1.3 ☐ areas of outstanding biodiversity value within the subject land	Figure 1-1
		☒ Location Map	Figure 3-2

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		☒ Digital aerial photography at 1:1,000 scale or finer ☒ Boundary of subject land ☒ Assessment area (i.e. the subject land and either 1500 m buffer area or 500 m buffer for linear development) ☒ Landscape features identified in BAM Subsection 3.1.3 ☐ Additional detail (e.g. local government area boundaries) relevant at this scale ☐ areas of outstanding biodiversity value within the assessment area	
		Landscape features identified in BAM Subsection 3.1.3 and to be shown on the Site Map and/or Location Map include:	–
		☒ IBRA bioregions and subregions ☒ rivers, streams and estuaries ☒ wetlands and important wetlands ☒ connectivity of different areas of habitat ☐ areas of geological significance and soil hazard features	Figure 3-1 Figure 3-2
		Data	
		☒ All report maps as separate jpeg files	–
		Individual digital shape files of:	–
		☒ subject land boundary	–
		☒ assessment area (i.e. subject land and 1500 m buffer area) boundary	–
		☒ cadastral boundary of subject land	–
		☒ areas of native vegetation cover	–

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		☒ areas of habitat connectivity	–
Native vegetation	Chapter 4	Information	
		☒ Patch size (in accordance with BAM Subsection 4.3.2)	4.4 Table 4-6
		☒ Provide justification for all parts of the subject land that do not contain native vegetation (as described in BAM Subsection 4.1.2)	4.1.2 4.1.3
		☒ Identification of the dominant PCT on the subject land and extent (ha) with justification of method used (existing information or plot-based survey data)	4.2
		☒ Identification of any TEC associated with the PCT (BAM Subsection 4.2.2)	4.3
		☒ Estimate of percent cleared value of dominant PCT (BAM Subsection 4.2.1(5.))	4.2.1
		☐ Identification of any TEC on site that is not associated with the dominant PCT (Note: This TEC is required to be assessed and offset.	N/A
		☐ Equivalence with mapping units of previous vegetation maps reviewed as part of the assessment (i.e. equivalent mapping units)	N/A
		☒ Vegetation integrity of the PCT(s) on the subject land as individual vegetation zones	4.4.1 Table 4-7
		☒ Justification for how this was determined (i.e. qualitatively by observing values for the condition attributes set out in Table 2 of the BAM or quantitatively by collecting field data for the condition attributes at a plot in accordance with BAM Subsection 4.3.4)	4.4.1
		☒ Use of relevant benchmark data from BioNet Vegetation Classification (as described in BAM Subsections 4.3.3(5.))	4.4.1

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		Where use of more appropriate local benchmark data is proposed (as described in BAM Subsection 1.4.2, BAM Subsection 4.3.3(5.) and BAM Appendix A):	–
		☐ identify the PCT or vegetation class for which local benchmark data will be applied	N/A
		☐ identify published sources of local benchmark data (if benchmarks obtained from published sources)	N/A
		☐ describe methods of local benchmark data collection (if reference plots used to determine local benchmark data)	N/A
		☐ provide justification for use of local data rather than BioNet Vegetation Classification benchmark values	N/A
		Maps and tables	
		☒ Map of native vegetation extent for the subject land (as described in BAM Section 3.1)	Figure 4-3 Figure 4-4
		☒ Map of PCT/vegetation zones within the subject land (as described in BAM Section 4.2(1.))	Figure 4-3 Figure 4-4
		☒ Map the location of floristic vegetation survey plots and vegetation integrity survey plots relative to PCT boundaries	Figure 4-3 Figure 4-4
		☒ Map of TEC distribution on the subject land	Figure 4-3 Figure 4-4
		☒ Patch size of native vegetation (as described in BAM Subsection 4.3.2)	Table 4-6
		Table of current vegetation integrity scores for each vegetation zone within the site and including:	–

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		☒ composition condition score ☒ structure condition score ☒ function condition score	Table 4-7
		☒ Report from BAM-C (Small area module) including vegetation integrity scores (BAM Section 4.4)	Appendix F
		Data	
		☒ All report maps as separate jpeg files	–
		☒ Plot field data (MS Excel format)	
		☒ Plot field datasheets	Appendix E
		Digital shape files for all maps and spatial data	–
Threatened species	Chapter 5 and Section 9.1	Information	
		☒ Describe the review of existing information and any field survey undertaken to assess habitat constraints and microhabitats for threatened species within the subject land	2.4
		☒ Determination of the suite of threatened species likely to occur on or use the proposed site according to Steps 1 and 2 in BAM Section 5.2 including species to be assessed for ecosystem credits and the list of species to be assessed for species credits	5.1
		☒ List of ecosystem credit species derived from the TBDC (as described in BAM Subsections 5.2.1 and 5.2.2) with justification for the exclusion of any ecosystem credit species based on habitat constraints (as described in BAM Subsection 5.2.2)	5.1.2 Table 5-1

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		☒ Identification of candidate species credit species that are at risk of an SAIL and therefore, must be further assessed (BAM Section 9.1)	5.1.3 Table 5-2
		Note: Candidate species credit species that are not at risk of an SAIL and not incidentally recorded on the subject land do not require further assessment.	–
		For candidate species credit species that are at risk of an SAIL, a description of the species, any habitat constraints or microhabitats associated with the species on the subject land and information used to create the species polygon/s in accordance with Steps 3 to 5 of BAM Section 5.2 including:	
		☒ justification for determining that a candidate species credit species at risk of an SAIL is unlikely to have suitable habitat on the subject land or specific vegetation zone (based on a field assessment of the subject land and published literature or an expert report prepared in accordance with Box 3 of the BAM)	2.3.3 Table 5-2
		☒ determination of the presence of remaining candidate species credit species at risk of an SAIL (by assuming presence, conducting a threatened species survey or an expert report).	2.3.3 Table 5-5
		Note: If the subject land is mapped on an important habitat map for a species, or for a component of its habitat, the subject land is considered to have suitable habitat for the species to be present.	
		☐ species polygons identifying the location and area of suitable habitat for each candidate threatened species at risk of an SAIL that is recorded on the subject land and is measured by area, OR	N/A
		☐ species polygons identifying the area of suitable habitat and targeted surveys identifying the count and location of individuals on the subject land for each candidate threatened flora species at risk of an SAIL that is recorded on the subject land and is measured by count	N/A
		☒ species polygons for each threatened species identified on the subject land that is not at risk of an SAIL (i.e. incidentally observed during site visit)	5.5

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		☒ Determination of habitat condition within species polygon/s for each threatened species (measured by area) at risk of an SAIL or incidentally observed during the site visit (Step 6 of BAM Section 5.2)	5.5
		☐ For flora species credit species at risk of an SAIL or incidentally observed during site visit, provide a count, or an estimation, of the number of individual plants present on the subject land (as described in BAM Subsection 5.2.5(4.))	N/A
		Maps and tables	
		☒ Table showing ecosystem credit species in accordance with BAM Subsection 5.1.1, and:	Table 5-1
		☒ identifying any ecosystem credit species removed from the list of species on the basis of further assessment in accordance with BAM Subsections 5.2.2 and 5.2.	Table 5-1
		☒ identifying the sensitivity to gain class of each species (BAM Section 5.4)	Table 5-1
		☒ Table detailing species credit species within the subject land at risk of an SAIL (BAM Section 9.1) or incidentally observed during the site visit including any associated habitat feature/components and its abundance (flora)/extent of habitat (flora and fauna) and biodiversity risk weighting (BAM Sections 5.2–5.4)	Table 5-2
		☒ Map of species credit species records within the subject land and species polygons for flora and fauna species at risk of an SAIL or incidentally observed during the site visit (as described in BAM Subsection 5.2.5(1–7.))	Figure 5-9
		Data	
		☒ Digital shape files of suitable habitat species polygons	–
		☒ Species polygon map in jpeg format	

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		☐ Expert reports and any supporting data used to support conclusions of the expert report	N/A
		☒ Field datasheets detailing survey information including prevailing conditions, date, time, equipment used, etc.	Table 2-1
Prescribed impacts	Chapter 6	Information	
		Any prescribed impacts from the small area proposal must be set out in the BDAR consistent with Appendix K:	–
		☒ karst, caves, crevices, cliffs, rocks and other geological features of significance (as described in BAM Subsection 6.1.1) ☒ occurrences of human-made structures and non-native vegetation (as described in BAM Subsection 6.1.2) ☒ corridors or other areas of connectivity linking habitat for threatened entities (as described in BAM Subsection 6.1.3) ☒ waterbodies or any hydrological processes that sustain threatened entities (as described in BAM Subsection 6.1.4)	6 Table 6-1
		☐ protected animals that may use the proposed wind farm development site as a flyway or migration route (as described in BAM Subsection 6.1.5)	N/A
		☒ where the proposed development may result in vehicle strike on threatened fauna or on animals that are part of a threatened ecological community (as described in BAM Subsection 6.1.6)	6 Table 6-1
		☒ Identify a list of threatened entities that may be dependent upon or may use habitat features associated with any of the prescribed impacts	6 Table 6-1
		☒ Describe the importance of habitat features to the species including, where relevant, impacts on life cycle or movement patterns (e.g. Subsection 6.1.3)	6 Table 6-1

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		Where the proposed development is for a wind farm:	–
		☐ identify a candidate list of protected animals that may use the development site as a flyway or migration route, including: resident threatened aerial species, resident raptor species and nomadic and migratory species that are likely to fly over the proposal area (as described in BAM Subsection 6.1.5)	N/A
		☐ provide details of targeted survey for candidate species of wind farm developments undertaken in accordance with BAM Subsection 6.1.5(2–3.)	N/A
		☐ predict the habitual flight paths for nomadic and migratory species likely to fly over the subject land and map the likely habitat for resident threatened aerial and raptor species (BAM Subsection 6.1.5(4.))	N/A
		Where the proposal may result in vehicle strike:	–
		☒ identify a list of threatened fauna or protected fauna species that are part of a TEC and at risk of vehicle strike due to the proposal	6 Table 6-1
		Maps and tables	
		☒ Map showing location of any prescribed impact features (i.e. karst, caves, crevices, cliffs, rocks, human-made structures, etc.)	Figure 6-1
		Data	
		☒ Digital shape files of prescribed impact feature locations	–
		☒ Prescribed impact features map in jpeg format	–
Avoid and minimise impacts	Chapter 7	Information	

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		Demonstration of efforts to avoid and minimise impacts on biodiversity values (including prescribed impacts) associated with the proposal location in accordance with Chapter 7, including an analysis of alternative:	–
		☒ modes or technologies that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed mode or technology	7.1 7.2
		☒ alternative locations that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed location	7.1 7.2
		☒ alternative sites within a property on which the proposal is located that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed site	7.1 7.2
		☒ Describe efforts to avoid and minimise impacts (including prescribed impacts) to biodiversity values through proposal design (as described in BAM Sections 7.1 and 7.2)	7.1 7.2
		☒ Identification of any other site constraints that the proponent has considered in determining the location and design of the proposal (as described in BAM Subsection 7.2.1(3.))	7
		Maps and tables	
		☒ Table of measures to be implemented before, during and after construction to avoid and minimise the impacts of the proposal, including action, outcome, timing and responsibility	Table 8-3 Table 8-4 Table 8-5
		☒ Map of final proposal footprint, including construction and operation	Figure 7-1 Figure 7-2 Figure 7-3
		☒ Maps demonstrating indirect impact zones where applicable	Figure 4-3 Figure 4-4

BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		Data	
		Digital shape files of:	–
		☒ final proposal footprint	–
		☒ direct and indirect impact zones	–
		☒ Maps in jpeg format	–
Assessment of impacts	Chapter 8, Sections 8.1 and 8.2	Information	
		Determine the impacts on native vegetation and threatened species habitat, including:	
		☒ a description of direct impacts of clearing of native vegetation, threatened ecological communities and threatened species habitat (as described in BAM Section 8.1)	Table 8-1
		☒ description of the nature, extent, frequency, duration and timing of indirect impacts of the proposal (as described in BAM Subsection 8.2)	Table 8-3
		Any prescribed impacts from the small area proposal must be set out in the BDAR consistent with Appendix K:	–
		assessment of the nature, extent frequency, duration and timing of impacts on the habitat of threatened species or ecological communities associated with:	–
		☐ karst, caves, crevices, cliffs, rocks and other features of geological significance	N/A
		☒ human-made structures	Table 8-4

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		☒ non-native vegetation	Table 8-4
		☒ connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range	Table 8-4
		☒ movement of threatened species that maintains their life cycle	Table 8-4
		☒ water quality, waterbodies and hydrological processes that sustain threatened species and threatened ecological communities	Table 8-4
		☐ assessment of the impacts of wind turbine strikes on protected animals	N/A
		☒ assessment of the impacts of vehicle strikes on threatened species of animals or on animals that are part of a TEC	Table 8-4
		☒ evaluate the consequences of prescribed impacts	Table 8-4
		☐ describe impacts that are uncertain	N/A
		☒ document limitations to data, assumptions and predictions	8
		Maps and tables	
		☒ Table showing change in vegetation integrity score for each vegetation zone as a result of identified impacts	Table 8-2
		Data	
		N/A	–

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
Mitigation and management of impacts	Chapter 8, Sections 8.4 and 8.5	Information	
		Identification of measures to mitigate or manage impacts in accordance with the recommendations in BAM Subsections 8.4.1 and 8.4.2 including:	–
		☒ techniques, timing, frequency and responsibility ☒ identify measures for which there is risk of failure ☒ evaluate the risk and consequence of any residual impacts	Table 8-5
		☒ document any adaptive management strategy proposed	8.5
		Identification of measures for mitigating impacts related to:	–
		☒ displacement of resident fauna (as described in BAM Subsection 8.4.1(2.)) ☒ indirect impacts on native vegetation and habitat (as described in BAM Subsection 8.4.1(3.)) ☒ mitigating prescribed biodiversity impacts (as described in BAM Subsection 8.4.2)	Table 8-5 Table 8-6
		☐ Details of the adaptive management strategy proposed to monitor and respond to impacts on biodiversity values that are uncertain (BAM Section 8.5)	N/A
		Maps and tables	
		☒ Table of measures to be implemented before, during and after construction to mitigate and manage impacts of the proposal, including action, outcome, timing and responsibility	Table 8-5
		Data	
		N/A	–

BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
Thresholds for assessing and offsetting the impacts of the proposal	Chapter 9	Information	
		☐ Information from the TBDC and/or other sources to report on the current status of threatened species, threatened populations at risk of an SAIL and TEC/s for the proposal, and	N/A
		☐ Report on impacts of the proposal on TEC/s in accordance with BAM Subsection 9.2.1	N/A
		☐ Report on impacts of the proposal on threatened species and/or threatened populations at risk of an SAIL in accordance with BAM Section 9.1	N/A
		☐ Identification of impacts requiring offset in accordance with BAM Section 9.2	N/A
		☒ Identification of impacts not requiring offset in accordance with BAM Subsection 9.2.1(3.)	Table 10-1
		☒ Identification of areas not requiring assessment in accordance with BAM Section 9.3	Table 10-2
		Maps and tables	
		☐ Map showing the extent of TECs at risk of an SAIL within the subject land	N/A
		☐ Map showing location of threatened species at risk of an SAIL within the subject land	N/A
		Map showing location of:	–
		☐ impacts requiring offset	N/A
		☐ impacts not requiring offset	Figure 10-1 Figure 10-2

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		☐ areas not requiring assessment	Figure 10-1 Figure 10-2
		Data	
		Digital shape files of:	–
		☐ extent of TECs at risk of an SAIL within the subject land	–
		☐ threatened species at risk of an SAIL within the subject land	–
		☐ boundary of impacts requiring offset	–
		☒ boundary of impacts not requiring offset	–
		☒ boundary of areas not requiring assessment	–
		☒ Maps in jpeg format	–
Applying the no net loss standard	Chapter 10	Information	
		☒ Description of the impact on PCTs/TECs	10
		☐ Description of the impact on threatened species at risk of an SAIL or incidentally observed via site visit	N/A
		☒ Number of ecosystem credits required for impacts on biodiversity values according to BAM Subsection 9	Table 12-1

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		☐ Number of species credits required for impacts on biodiversity values according to BAM Subsection 10.1.3, including any species credit species that has been incidentally observed on the subject land	N/A
		Note: Species credits for any species at risk of an SAI are calculated in the event that the decision-maker forms the opinion that the proposed impact is unlikely to be serious and irreversible and therefore can be offset	–
		☐ Identification of credit class for ecosystem credits and species credits according to BAM Section 10.2 (this can be generated from BAM-C)	N/A
		Maps and tables	
		☐ Table showing the biodiversity risk weightings	N/A
		☐ Table of BC Act listing status for PCTs and threatened species requiring offset	N/A
		☐ Table of species at risk of an SAI or incidentally observed on site assessed for species credits and the number of credits required	N/A
		☒ BAM-C credit report	Appendix G
		Data	
		N/A	–

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Table 13-2 Assessment of compliance with BDAR minimum information requirements – planted vegetation streamlined assessment module

BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
Introduction	Chapters 2 and 3	Information	
		Introduction to the biodiversity assessment including:	–
		☒ brief description of the proposal	1.1
		☒ identification of subject land boundary, including: ☒ operational footprint ☒ construction footprint indicating clearing associated with temporary/ancillary construction facilities and infrastructure	1.1
		☒ general description of the subject land	1.1.3
		☒ sources of information used in the assessment, including reports and spatial data	1.5
Planted Native Vegetation	Appendix D, D.1	Information	
		☒ Determination of which subsection of the decision-making key (D.1) applies to the native vegetation to be cleared or impacted by the proposal	Appendix F
		☒ Justification and evidence for the above determination (e.g. photos, management plans/agreements, etc.)	Appendix F
		Maps and tables	
		☒ Map of the subject land boundary showing the final proposal footprint, including the construction footprint for any clearing associated with temporary/ancillary construction facilities and infrastructure (if BDAR).	Figure 1-1

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
Landscape Context	Sections 3.1 and 3.2, Appendix E	Information	
		Identification of site context components and landscape features, including:	–
		☒ general description of subject land topographic and hydrological setting, geology and soils	3.2
		☒ IBRA bioregions and subregions (as described in BAM Subsection 3.1.3(2.))	3.2.1
		Landscape features identified on the Site Map and/or Location Map include:	–
		☒ Boundary of Subject Land ☒ Cadastre of Subject land	Figure 1-1
		Data	
		☒ All report maps as separate jpeg files	–
		Individual digital shape files of:	–
		☒ subject land boundary	–
		☒ assessment area (i.e. subject land and 1500 m buffer area) boundary	–
		☒ cadastral boundary of subject land	–
Native vegetation	Chapter 4, Appendix A and Appendix H	Information	

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		If D.1(2.i.) or D.1(3.i.) of the decision-making key in Appendix D apply, Chapter 4 is not required. If D.1(1.i.) or D.1(4.i.) apply, Chapter 4 is required – refer to the minimum information requirements for a BDAR or BCAR in Appendix K.	Appendix F
Threatened species	Appendix D, D.2 (and Chapter 5 of the BAM)	Information. Note: If D.1(2.i.) or D.1(3.i.) of the decision-making key in Appendix D apply, Chapter 5 is not required and the assessment of planted native vegetation for threatened species habitat must be conducted in accordance with D.2. If D.1(1.i.) or D.1(4.i.) apply, Chapter 5 is required – refer to the minimum information requirements for a BDAR or BCAR in Appendix K	
		☒ Describe the review of existing information and assessment of the suitability of the planted native vegetation for use by threatened species	Appendix F 2.4 5
		☐ Record any incidental sightings or evidence (e.g. scats) of threatened species credit species (flora and fauna) found to be using, inhabiting or part of, the planted native vegetation	
		Maps and tables	
		☒ Field data sheet including records of any incidental sightings or evidence of threatened species credit species as outlined above	Appendix E
		☒ Table detailing species credit species within the subject land at risk of an SAI (BAM Section 9.1) or incidentally observed during the site visit including any associated habitat feature/components and its abundance (flora)/extent of habitat (flora and fauna) and biodiversity risk weighting (BAM Sections 5.2–5.4)	Table 5-2
		☒ Map of species credit species records within the subject land and species polygons for flora and fauna species at risk of an SAI or incidentally observed during the site visit (as described in BAM Subsection 5.2.5(1–7.))	Figure 5-9

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
Prescribed impacts	Chapter 6	Information	
		Any prescribed impacts from the planted native vegetation proposal must be set out in the BDAR consistent with Appendix K:	–
		☒ karst, caves, crevices, cliffs, rocks and other geological features of significance (as described in BAM Subsection 6.1.1) ☒ occurrences of human-made structures and non-native vegetation (as described in BAM Subsection 6.1.2) ☒ corridors or other areas of connectivity linking habitat for threatened entities (as described in BAM Subsection 6.1.3) ☒ waterbodies or any hydrological processes that sustain threatened entities (as described in BAM Subsection 6.1.4)	6 Table 6-1
		☐ protected animals that may use the proposed wind farm development site as a flyway or migration route (as described in BAM Subsection 6.1.5)	N/A
		☒ where the proposed development may result in vehicle strike on threatened fauna or on animals that are part of a threatened ecological community (as described in BAM Subsection 6.1.6)	6 Table 6-1
		☐ provide details of targeted survey for candidate species of wind farm developments undertaken in accordance with BAM Subsection 6.1.5(2–3.)	N/A
		Maps and tables	
		☒ Map showing location of any prescribed impact features (i.e. karst, caves, crevices, cliffs, rocks, human-made structures, etc.)	Figure 6-1
		Data	
		☒ Digital shape files of prescribed impact feature locations	–

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		☒ Prescribed impact features map in jpeg format	–
Avoid and minimise impacts	Chapter 7	Information	
		Demonstration of efforts to avoid and minimise impacts on biodiversity values (including prescribed impacts) associated with the proposal location in accordance with Chapter 7, including an analysis of alternative:	7.1 7.2
		☒ Describe efforts to avoid and minimise impacts (including prescribed impacts) to biodiversity values through proposal design (as described in BAM Sections 7.1 and 7.2)	7.1 7.2
		☒ Identification of any other site constraints that the proponent has considered in determining the location and design of the proposal (as described in BAM Subsection 7.2.1(3.))	7
		Maps and tables	
		☒ Table of measures to be implemented before, during and after construction to avoid and minimise the impacts of the proposal, including action, outcome, timing and responsibility	Table 8-3 Table 8-4 Table 8-5
		☒ Map of final proposal footprint, including construction and operation	Figure 7-1 Figure 7-2 Figure 7-3
		☒ Maps demonstrating indirect impact zones where applicable	Figure 4-3 Figure 4-4
		Data	
		Digital shape files of:	–

Biodiversity Development Assessment Report – streamlined small area

Corowa Battery Energy Storage System



BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		☒ final proposal footprint	–
		☒ direct and indirect impact zones	–
		☒ Maps in jpeg format	–
Assessment of impacts	Chapter 8, Sections 8.1 and 8.2	Information	
		Determine the impacts on native vegetation and threatened species habitat, including:	
		☒ a description of direct impacts of clearing of native vegetation, threatened ecological communities and threatened species habitat (as described in BAM Section 8.1)	Table 8-1
		☒ description of the nature, extent, frequency, duration and timing of indirect impacts of the proposal (as described in BAM Subsection 8.2)	Table 8-3
		Any prescribed impacts from the planted native vegetation proposal must be set out in the BDAR consistent with Appendix K:	–
		Assessment of the nature, extent frequency, duration and timing of impacts on the habitat of threatened species or ecological communities associated with:	–
		☐ karst, caves, crevices, cliffs, rocks and other features of geological significance	N/A
		☒ human-made structures	Table 8-4
		☒ non-native vegetation	Table 8-4
		☒ connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range	Table 8-4

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		☒ movement of threatened species that maintains their life cycle	Table 8-4
		☒ water quality, waterbodies and hydrological processes that sustain threatened species and threatened ecological communities	Table 8-4
		☐ assessment of the impacts of wind turbine strikes on protected animals	N/A
		☒ assessment of the impacts of vehicle strikes on threatened species of animals or on animals that are part of a TEC	Table 8-4
		☒ evaluate the consequences of prescribed impacts	Table 8-4
		☐ describe impacts that are uncertain	N/A
		☒ document limitations to data, assumptions and predictions	8
		Maps and tables	
		☒ Table showing change in vegetation integrity score for each vegetation zone as a result of identified impacts	Table 8-2
		Data	
		N/A	–
Mitigation and management of impacts	Chapter 8, Sections 8.4 and 8.5	Information	
		Identification of measures to mitigate or manage impacts in accordance with the recommendations in BAM Subsections 8.4.1 and 8.4.2 including:	–

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BDAR section	BAM ref.	BAM requirement	Section reference(s) in the BDAR
		☒ techniques, timing, frequency and responsibility ☒ identify measures for which there is risk of failure ☒ evaluate the risk and consequence of any residual impacts	Table 8-5
		☒ document any adaptive management strategy proposed	8.5
		Identification of measures for mitigating impacts related to:	–
		☒ displacement of resident fauna (as described in BAM Subsection 8.4.1(2.)) ☒ indirect impacts on threatened species habitat (as described in BAM Subsection 8.4.1(3.))	Table 8-5 Table 8-6
		Maps and tables	
		☒ Table of measures to be implemented before, during and after construction to mitigate and manage impacts of the proposal, including action, outcome, timing and responsibility	Table 8-5
		Data	
		N/A	–
Impact Summary	Appendix D, D.2	Information	
		If D.1(2.i.) or D.1(3.i.) of the decision-making key in Appendix D apply, Chapter 4 is not required. If D.1(1.i.) or D.1(4.i.) apply, Chapter 4 is required – refer to the minimum information requirements for a BDAR or BCAR in Appendix K.	Appendix F

Appendix B BioNet species list

A compiled list of the threatened species resulting from the BioNet Atlas species sightings search is provided overleaf.

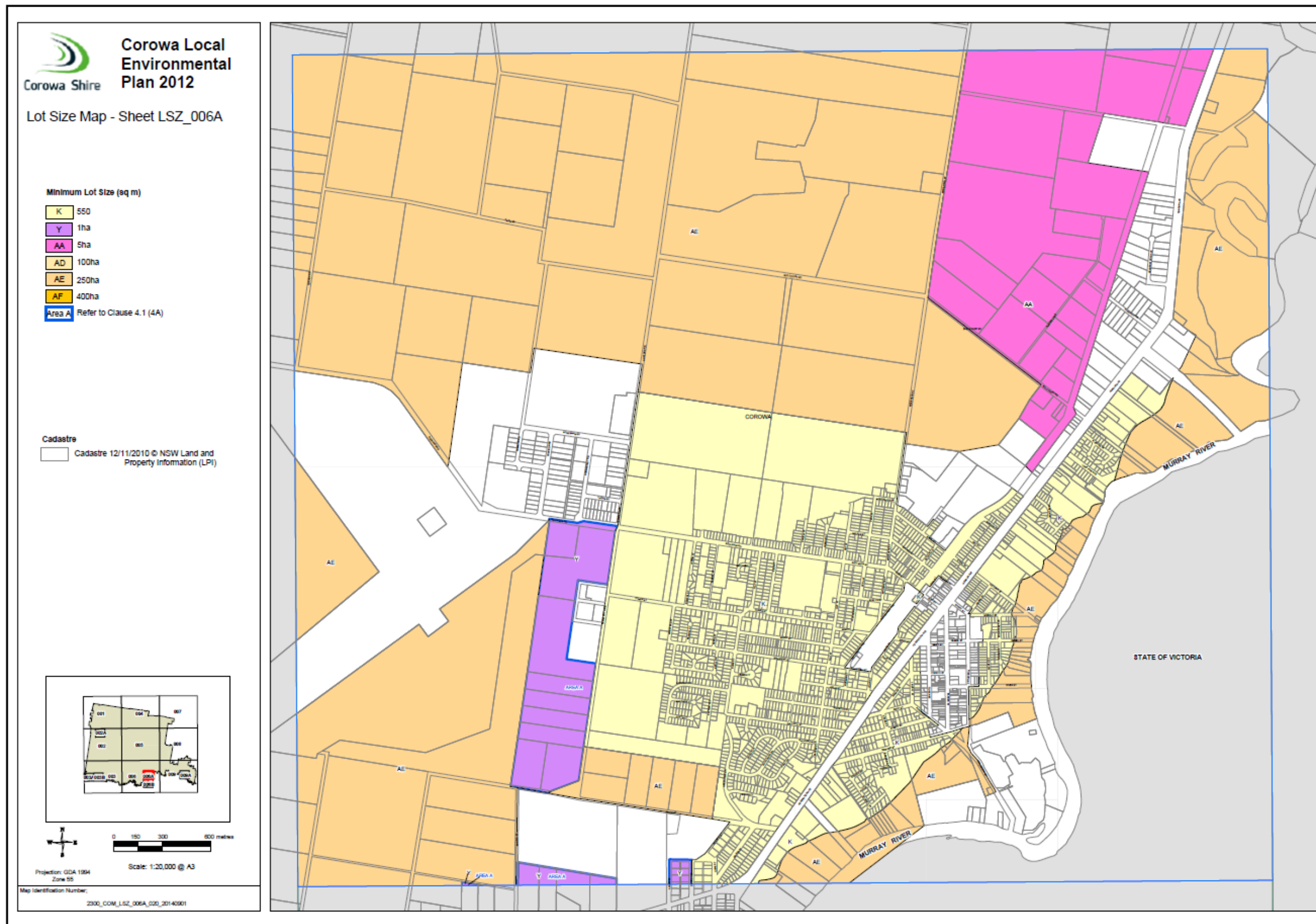
Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Licensed Report of all Valid Records of Threatened (listed on BC Act 2016) ,Commonwealth listed ,CAMBA listed ,JAMBA listed or ROKAMBA listed Entities in selected area [North: -35.09 West: 145.87 East: 147.20 South: -36.19] returned a total of 11,713 records of 87 species.

Report generated on 27/08/2025 9:25 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Amphibia	Myobatrachidae	3135	<i>Crinia sloanei</i>		Sloane's Froglet	E1,P	E	829	
Animalia	Amphibia	Hylidae	3207	<i>Litoria raniformis</i>		Southern Bell Frog	E1,P	V	8	
Animalia	Reptilia	Pygopodidae	2144	<i>Aprasia parapulchella</i>		Pink-tailed Legless Lizard	V,P	V	54	
Animalia	Aves	Anseranatidae	0199	<i>Anseranas semipalmata</i>		Magpie Goose	V,P		18	
Animalia	Aves	Anatidae	0216	<i>Oxyura australis</i>		Blue-billed Duck	V,P		33	
Animalia	Aves	Anatidae	0214	<i>Stictonetta naevosa</i>		Freckled Duck	V,P		31	
Animalia	Aves	Apodidae	0335	<i>Apus pacificus</i>		Fork-tailed Swift	P	C,J,K	16	
Animalia	Aves	Apodidae	0334	<i>Hirundapus caudacutus</i>		White-throated Needletail	V,P	V,C,J,K	13	
Animalia	Aves	Ardeidae	0197	<i>Botaurus poiciloptilus</i>		Australasian Bittern	E1,P	E	9	
Animalia	Aves	Accipitridae	0218	<i>Circus assimilis</i>		Spotted Harrier	V,P		27	
Animalia	Aves	Accipitridae	0226	<i>Haliaeetus leucogaster</i>		White-bellied Sea-Eagle	V,P		122	
Animalia	Aves	Accipitridae	0231	<i>Hamirostra melanosternon</i>		Black-breasted Buzzard	V,P,3		1	
Animalia	Aves	Accipitridae	0225	<i>Hieraaetus morphnoides</i>		Little Eagle	V,P		91	
Animalia	Aves	Falconidae	0236	^^ <i>Falco hypoleucos</i>		Grey Falcon	V,P,2	V	3	
Animalia	Aves	Falconidae	0238	<i>Falco subniger</i>		Black Falcon	V,P		40	
Animalia	Aves	Gruidae	0177	<i>Antigone rubicunda</i>		Brolga	V,P		79	
Animalia	Aves	Burhinidae	0174	<i>Burhinus grallarius</i>		Bush Stone-curlew	E1,P		77	
Animalia	Aves	Pedionomidae	0020	<i>Pedionomus torquatus</i>		Plains-wanderer	E1,P,3	CE	4	
Animalia	Aves	Rostratulidae	0170	<i>Rostratula australis</i>		Australian Painted Snipe	E1,P	E	30	
Animalia	Aves	Scolopacidae	0163	<i>Calidris acuminata</i>		Sharp-tailed Sandpiper	V,P	V,C,J,K	9	
Animalia	Aves	Scolopacidae	0161	<i>Calidris ferruginea</i>		Curlew Sandpiper	E4A,P	CE,C,J,K	1	
Animalia	Aves	Scolopacidae	0162	<i>Calidris ruficollis</i>		Red-necked Stint	P	C,J,K	1	
Animalia	Aves	Scolopacidae	0168	<i>Gallinago hardwickii</i>		Latham's Snipe	V,P	V,J,K	9	
Animalia	Aves	Scolopacidae	0154	<i>Tringa glareola</i>		Wood Sandpiper	P	C,J,K	2	
Animalia	Aves	Scolopacidae	0159	<i>Tringa stagnatilis</i>		Marsh Sandpiper	P	C,J,K	6	
Animalia	Aves	Laridae	0112	<i>Hydroprogne caspia</i>		Caspian Tern	P	J	10	
Animalia	Aves	Cacatuidae	0268	<i>Callocephalon fimbriatum</i>		Gang-gang Cockatoo	E1,P,3	E	87	
Animalia	Aves	Cacatuidae	8862	^^ <i>Calyptorhynchus lathami lathami</i>		South-eastern Glossy Black-Cockatoo	V,P,2	V	12	
Animalia	Aves	Cacatuidae	0270	^^ <i>Lophochroa leadbeateri</i>		Pink Cockatoo	V,P,2	E	4	
Animalia	Aves	Psittacidae	0309	<i>Lathamus discolor</i>		Swift Parrot	E1,P	CE	85	
Animalia	Aves	Psittacidae	0306	<i>Neophema chrysostoma</i>		Blue-winged Parrot	V,P	V	6	
Animalia	Aves	Psittacidae	0302	<i>Neophema pulchella</i>		Turquoise Parrot	V,P,3		94	
Animalia	Aves	Psittacidae	0259	<i>Parvipsitta porphyrocephala</i>		Purple-crowned Lorikeet	V,P,3		20	
Animalia	Aves	Psittacidae	0260	<i>Parvipsitta pusilla</i>		Little Lorikeet	V,P		132	
Animalia	Aves	Psittacidae	0277	<i>Polytelis swainsonii</i>		Superb Parrot	V,P,3	V	292	
Animalia	Aves	Strigidae	0246	<i>Ninox connivens</i>		Barking Owl	V,P,3		39	
Animalia	Aves	Tytonidae	0250	<i>Tyto novaehollandiae</i>		Masked Owl	V,P,3		2	
Animalia	Aves	Climacteridae	8127	<i>Climacteris picumnus victoriae</i>		Brown Treecreeper (eastern subspecies)	V,P	V	1200	
Animalia	Aves	Acanthizidae	0466	<i>Aphelocephala leucopsis</i>		Southern Whiteface	V,P	V	197	
Animalia	Aves	Acanthizidae	0504	<i>Pyrrholaemus sagittatus</i>		Speckled Warbler	V,P		242	
Animalia	Aves	Meliphagidae	0603	^^ <i>Anthochaera phrygia</i>		Regent Honeyeater	E4A,P,2	CE	95	
Animalia	Aves	Meliphagidae	0602	<i>Certhionyx variegatus</i>		Pied Honeyeater	V,P		1	
Animalia	Aves	Meliphagidae	0448	<i>Epthianura albifrons</i>		White-fronted Chat	V,P		18	
Animalia	Aves	Meliphagidae	0598	<i>Grantiella picta</i>		Painted Honeyeater	V,P	V	7	
Animalia	Aves	Meliphagidae	8303	<i>Melithreptus gularis gularis</i>		Black-chinned Honeyeater (eastern subspecies)	V,P		161	
Animalia	Aves	Pomatostomidae	8388	<i>Pomatostomus temporalis temporalis</i>		Grey-crowned Babbler (eastern subspecies)	V,P		865	
Animalia	Aves	Neosittidae	0549	<i>Daphoenositta chrysoptera</i>		Varied Sittella	V,P		169	
Animalia	Aves	Pachycephalidae	0403	<i>Pachycephala inornata</i>		Gilbert's Whistler	V,P		7	
Animalia	Aves	Artamidae	8519	<i>Artamus cyanopterus cyanopterus</i>		Dusky Woodswallow	V,P		558	
Animalia	Aves	Petroicidae	8367	<i>Melanodryas cucullata cucullata</i>		South-eastern Hooded Robin	E1,P	E	204	
Animalia	Aves	Petroicidae	0380	<i>Petroica boodang</i>		Scarlet Robin	V,P		337	
Animalia	Aves	Petroicidae	0382	<i>Petroica phoenicea</i>		Flame Robin	V,P		493	
Animalia	Aves	Hirundinidae	0787	<i>Cecropis daurica</i>		Red-rumped Swallow	P	C,J,K	1	

Animalia	Aves	Estrildidae	0652	<i>Stagonopleura guttata</i>	Diamond Firetail	V,P	V	420	
Animalia	Mammalia	Dasyuridae	1008	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	4	
Animalia	Mammalia	Phascolarctidae	1162	<i>Phascolarctos cinereus</i>	Koala	E1,P	E	17	
Animalia	Mammalia	Burramyidae	1150	<i>Cercartetus nanus</i>	Eastern Pygmy-possum	V,P		1	
Animalia	Mammalia	Petauridae	1137	<i>Petaurus norfolcensis</i>	Squirrel Glider	V,P		558	
Animalia	Mammalia	Petauridae	1137	<i>Petaurus norfolcensis</i>	Squirrel Glider in the Wagga Wagga Local Government Area	E2,V,P		2	
Animalia	Mammalia	Pteropodidae	1280	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	180	
Animalia	Mammalia	Emballonuridae	1321	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V,P		5	
Animalia	Mammalia	Vespertilionidae	1372	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V,P		6	
Animalia	Mammalia	Vespertilionidae	1357	<i>Myotis macropus</i>	Southern Myotis	V,P		5	
Animalia	Mammalia	Miniopteridae	3330	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V,P		8	
Plantae	Flora	Asteraceae	6558	<i>Brachyscome muelleroides</i>	Claypan Daisy	V	V	9	
Plantae	Flora	Asteraceae	6893	<i>Brachyscome papillosa</i>	Moss-giel Daisy	V	V	19	
Plantae	Flora	Asteraceae	11295	<i>Leptorhynchus orientalis</i>	Lanky Buttons	E1		3	
Plantae	Flora	Asteraceae	15364	<i>Leucochrysum albicans subsp. tricolor</i>	Hoary Sunray	E1	E	1	
Plantae	Flora	Asteraceae	7097	<i>Senecio garlandii</i>	Woolly Ragwort	V		68	
Plantae	Flora	Brassicaceae	1824	<i>Lepidium monoplacoides</i>	Winged Pepper-cress	E1	E	24	
Plantae	Flora	Brassicaceae	1860	<i>Stenopetalum velutinum</i>	Velvet Thread-petal	E4		1	
Plantae	Flora	Chenopodiaceae	6371	<i>Sclerolaena napiformis</i>	Turnip Copperburr	E1	E	87	
Plantae	Flora	Fabaceae (Faboideae)	9987	<i>Cullen parvum</i>	Small Scurf-pea	E1		6	
Plantae	Flora	Fabaceae (Faboideae)	3048	<i>Swainsona murrayana</i>	Slender Darling Pea	V	V	41	
Plantae	Flora	Fabaceae (Faboideae)	3054	<i>Swainsona plagiotropis</i>	Red Darling Pea	V	V	1103	
Plantae	Flora	Fabaceae (Faboideae)	3056	<i>Swainsona recta</i>	Small Purple-pea	E1	E	3	
Plantae	Flora	Fabaceae (Faboideae)	8538	<i>Swainsona sericea</i>	Silky Swainson-pea	V		7	
Plantae	Flora	Marsileaceae	8140	<i>Pilularia novae-hollandiae</i>	Austral Pillwort	E1,3		23	
Plantae	Flora	Orchidaceae	6800	^^ <i>Caladenia arenaria</i>	Sand-hill Spider Orchid	E1,P,2	E	402	
Plantae	Flora	Orchidaceae	10851	^^ <i>Caladenia callitrophila</i>		E4A,P,2		17	
Plantae	Flora	Orchidaceae	9523	^^ <i>Caladenia concolor</i>	Crimson Spider Orchid	E1,P,2	V	502	
Plantae	Flora	Orchidaceae	9477	^^ <i>Caladenia rosella</i>	Rosella Spider Orchid	E4,P,2	E	1	
Plantae	Flora	Orchidaceae	11197	^^ <i>Diuris sp. (Oaklands, D.L. Jones 5380)</i>	Oaklands Diuris	E1,P,2		1294	
Plantae	Flora	Orchidaceae	4457	^^ <i>Diuris tricolor</i>	Pine Donkey Orchid	V,P,2		2	
Plantae	Flora	Poaceae	4739	<i>Amphibromus fluitans</i>	Floating Swamp Wallaby-grass	V	V	40	
Plantae	Flora	Poaceae	10389	<i>Austrostipa metatoris</i>	A spear-grass	V	V	1	
Plantae	Flora	Poaceae	10388	<i>Austrostipa wakoolica</i>	A spear-grass	E1	E	2	

Appendix C Minimum lot size



Minimum lot size for the Subject Land (circled red) under the Corowa Local Environmental Plan 2012 (sourced from [Corowa Local Environmental Plan 2012 | Planning Portal - Department of Planning and Environment](#))

Appendix D Matters of national environmental significance

D.1 Protected matters search report summary

An EPBC Act Protected Matters Report was generated on 3rd September 2025 to identify Matters of National Environmental Significance (MNES) that have the potential to occur within 10 km of the Development Footprint. Those relevant to this BDAR include:

- Threatened species
- Threatened ecological communities
- Migratory species

The potential for these MNES to occur within the Subject Land are discussed below. The full report is provided in Appendix D.8.

D.2 Summary of habitat in Subject Land

The Subject Land has been subjected to extensive clearing in the past for agricultural use. The Subject Land is dominated by cropped paddocks, with small areas of native derived grassland and woodland present. Planted native and planted exotic vegetation is also present within the Subject Land, as is one man-made dam, sealed and unsealed roads, existing infrastructure and ornamental streetscape plantings. The past clearing and current agricultural use has impacted the vegetation across the site, with the derived native grasslands being of low condition, dominated by exotic species, although native grasses and forbs are present in low cover. The grasslands are subjected to frequent mowing and are degraded with a lack of habitat complexity present. The woodland patches are in moderate condition, however the understorey is dominated by exotic species. These patches contain hollow bearing trees which can provide habitat for arboreal mammals and birds. One patch of woodland has a sparse shrub layer. Rocky habitat is absent from the Subject Land and the farm dam present was dry during the duration of the field surveys from August to November 2025. No other aquatic habitat is present within the Subject Land.

D.3 Ramsar wetlands of international importance

The EPBC Act Protected Matters Report identified the following seven Ramsar Wetlands of International Importance downstream of the search area (Subject Land and 10 km buffer):

- Banrock Station Wetland Complex, 500 – 600 km downstream
- Barmah Forest, 50 – 100 km downstream
- Gunbower Forest, 150 – 200 km downstream
- Hattah-kulkyne Lakes, 300 – 400 km downstream
- NSW Central Murray State Forests, 50 – 100 km downstream
- Riverland, 500 – 600 km downstream
- The Coorong, and Lakes Alexandrina and Albert Wetland, 500 – 600 km downstream

The closest Ramsar Wetland of International Importance is the NSW Central Murray State Forests and Barmah Forest, both approximately 50 – 100 km downstream of the search area (Subject Land and 10 km buffer). All wetlands are considered too far downstream to influence or be influence by the development. This is in accounts of there being no creeks, streams or wetlands within or adjacent to the Subject Land.

D.4 Threatened ecological communities (TECs)

The EPBC Act Protected Matters Report identified six Threatened Ecological Communities with the potential to occur:

- Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions (Endangered)
- Grey Box (*Eucalyptus microcarpa*) Grassy Woodland and Derived Native Grasslands of South-eastern Australia (Endangered)
- Mallee Bird Community of the Murray Darling Depression Bioregion (Endangered)
- Natural Grasslands of the Murray Valley Plains (Critically Endangered)
- Weeping Myall Woodlands (Endangered)
- White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland (Critically Endangered)

Field investigations including VI plots determined that Grey Box (*Eucalyptus microcarpa*) Grassy Woodland and Derived Native Grasslands of South-eastern Australia TEC does not occur within the Subject Land as the patches of vegetation were either too small or too degraded. Refer to Section 4.2.2 for the decision-making process.

All other TECs identified as potentially present in the EPBC Act Protected Matter Report were confirmed absent from the Subject Land.

D.5 Threatened species

The EPBC Act Protected Matters Report identified 47 threatened species with the potential to occur within the search area. The full list of species is provided in the Habitat Evaluation Table in Appendix D.7. Of these species, five were identified through the habitat assessment as having potential habitat found within the Subject Land. Targeted surveys were conducted for each of these species and they were not detected.;

Fauna

- Pink Cockatoo (*Lophochroa leadbeateri*)
- Superb Parrot (*Polytelis swainsonii*)
- Sloane’s Froglet (*Crinia sloanei*)
- Koala (*Phascolarctos cinereus*)

Flora

- Slender Darling Pea (*Swainsona murrayana*)

The habitat assessment concluded that the remaining 42 threatened species were unlikely to occur or be impacted by the Project.

D.6 Migratory species

The EPBC Act Protected Matters Report identified 10 listed migratory species with the potential to occur within the search area. The habitat assessment concluded that no migratory species were likely to occur or be impacted by the Project. The full list of species is provided in the Habitat Evaluation Table in Appendix D.7.

D.7 MNES habitat evaluation

The tables in this appendix present the habitat evaluation for threatened species, ecological communities, and endangered populations listed for the locality in the *NSW BioNet*¹ and those identified as potentially occurring in the area according to the Commonwealth EPBC *Protected Matters Search Tool*².

The likelihood of occurrence is based on presence of habitat, proximity of nearest records, and mobility of the species (where relevant). The assessment of potential impact is based on the nature of the proposal, the ecology of the species, and its likelihood of occurrence. The following classifications are used:

Presence of Habitat:

- Present: Potential or known habitat is present within the Subject Land.
- Marginal: Habitat present that could be used by the species on occasion but not preferred.
- Absent: No potential or known habitat is present within the Subject Land.

Likelihood of Occurrence:

- Recorded: The species was observed in the Subject Land during the current survey
- High: It is highly likely that a species inhabits the Subject Land and is dependent on identified suitable habitat (i.e., for breeding or important life cycle periods such as winter flowering resources), has been recorded recently in the locality (10km) and is known or likely to maintain resident populations in the Subject Land. Also includes species known or likely to visit the Subject Land during regular seasonal movements or migration.
- Moderate: Potential habitat is present in the Subject Land. Species unlikely to maintain sedentary populations, however, may seasonally use resources within the Subject Land opportunistically or during migration. The species is known to be dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitat within the Subject Land, or habitat is in a modified or degraded state. Includes cryptic flowering flora species that were not seasonally targeted by surveys and that have not been recorded.
- Unlikely: There is a low probability that the species inhabits the Subject Land and has not been recorded recently in the locality (10km). It may be an occasional visitor but habitat similar to the Subject Land is widely distributed in the local area, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on available habitat. Specific habitat is not present in the Subject Land, or the species are a non-cryptic perennial flora species that were specifically targeted by surveys and not recorded.

Potential Impact

- No: The proposal is unlikely to impact this species or its habitats, or the proposal could impact this species or its habitats however the impacts are considered manageable such that no direct or indirect impacts are likely. No Assessment of Significance (AoS) is necessary for this species.
- Yes: The proposal is likely to directly impact this species or its habitats. An Assessment of Significance (AoS) has been applied to these entities

Note: due to the lack of aquatic habitat present within the Subject Land, aquatic species including fish and crustacean have been excluded from this assessment

Key: V = Vulnerable, E = Endangered, CE = Critically Endangered, M = Migratory

¹ The *NSW BioNet* is administered by the NSW Biodiversity Conservation Services (BCS) and is an online database of fauna and flora records that contains over four million recorded sightings.

² This online tool is designed for the public to search for matters protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). It is managed by the Commonwealth Department of the Climate Change, Energy, Environment and Water (DCCEEW).

Threatened Ecological Communities

Name	Listing status		Habitat	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act				
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions	Not Listed	E	The woodlands are distributed widely, occurring in tracts or as patches within open forests or woodlands dominated by other species. A feature common to many areas where the woodlands occur is the presence of clayey and/or alkaline sub-soils. The nominated woodland's component communities are generally characterised as woodland or open woodland with a well developed ground stratum that is usually grassy, but also includes many subshrubs and herbs; some component communities have understoreys that are predominantly shrubby or herbaceous. Most component communities lack a well-developed tall shrub layer. Buloke is common to all component communities, but slender cypress-pine and grey box may be structurally dominant in some. The composition of the ground stratum varies considerably among component communities.	Absent Buloke is not present within the Subject Land. TEC is not associated with PCT 76 present on site.	Unlikely TEC has been determined to be absent via survey	No TEC is absent from the site
Grey Box (<i>Eucalyptus microcarpa</i>) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Not Listed	E	The Grey Box (<i>Eucalyptus microcarpa</i>) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia predominantly occurs on the drier edge of the temperate grassy eucalypt woodland belt and ranges from central New South Wales through northern and central Victoria into South Australia. Patches that are disjunct from the main belt of the ecological community occur to the south of the Great Dividing Range in Victoria, around Melton and Sunbury to the west of Melbourne, and also to the west of the Murray River coastal plain in South Australia, around the Flinders and Mount Lofty Ranges near Adelaide. The ecological community is relatively less well studied and understood in comparison with other grassy woodland systems in south-eastern Australia. The ecological community also occupies a complex position in the landscape.	Present TEC is associated with PCT 76 present on site. Grey Box is the dominant species present.	Unlikely TEC has been determined to be absent via survey. Refer to the TEC assessment in Section 4.3.1 for more information	No TEC has been determined to be absent from the site
Mallee Bird Community of the Murray Darling Depression Bioregion	Not Listed	E	Mallee specialists are found almost exclusively in mallee habitats and include: black-eared miner <i>Manorina melanotis</i> , chestnut quail-thrush <i>Cinclosoma castanotum</i> , mallee emu-wren <i>Stipiturus mallee</i> , malleefowl <i>Leipoa ocellata</i> , red-lored whistler <i>Pachycephala rufogularis</i> , scarlet-chested parrot <i>Neophema splendida</i> , striated grasswren <i>Amytornis striatus</i> and mallee western whiplbird <i>Psophodes leucogaster</i> . Mallee dependents are bird species dependent on mallee where it is present, but that also utilise non-mallee woodland or shrubland habitat that intergrades with mallee vegetation. Most of the Mallee Bird Community feed on invertebrates, with the honeyeaters also consuming nectar and pollen. Eleven species also include seeds and/or fruit in their diet. The two parrots primarily feed on seed, fruit and foliage. The Mallee Bird Community is found in all four broadly recognised mallee habitat types: Triodia Mallee, mallee that has a relatively open understorey with hummock grass and sparse sclerophyll shrubs with an arid affinity (150-300 mm annual rainfall); Chenopod and Tussock Grass Mallee, mallee with a relatively open understorey with semi-succulent chenopod shrubs and tussock grasses, develops in areas with more moderate rainfall (200-300 mm annually); Shrubby Mallee, mallee with a relatively open understorey of sclerophyll shrubs which are long-lived with regenerative organs, generally in areas of moderate rainfall (200-300 mm/year); and Heathy Mallee, mallee that typically has a relatively dense understorey of sclerophyll shrubs with temperate affinities, with grasses and forbs being less common, develops in areas of higher rainfall (300-600 mm/year), with recruitment of trees and shrubs closely tied to fire.	Absent TEC is not associated with PCT 76 present on site. No characteristic Mallee species are present.	Unlikely TEC has been determined to be absent via survey	No TEC is absent from the site

Name	Listing status		Habitat	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act				
Natural Grasslands of the Murray Valley Plains	Not Listed	CE	The Natural Grasslands of the Murray Valley Plains ecological community is a type of natural temperate grassland that has semi-arid characteristics, due to the lower rainfall where it occurs. The structure is an open grassland to forbland in which trees and tall shrubs are sparse to absent. The vegetation is dominated by the ground layer with range of perennial grasses, forbs and small shrubs. Characteristic genera present typically include: for grasses – <i>Rytidosperma</i> , <i>Austrostipa</i> , <i>Chloris</i> and <i>Enteropogon</i> ; for forbs – <i>Arthropodium</i> , <i>Bulbine</i> , <i>Calotis</i> , <i>Chrysocephalum</i> , <i>Leptorhynchos</i> , <i>Minuria</i> , <i>Ptilotus</i> , <i>Rhodanthe</i> , <i>Sida</i> and <i>Swainsona</i> ; and for small shrubs – <i>Atriplex</i> and <i>Maireana</i> .	Absent TEC is not associated with PCT 76 present on site	Unlikely TEC has been determined to be absent via survey	No TEC is absent from the site
Weeping Myall Woodlands	Not Listed	E	The Weeping Myall Woodlands occur in a range from open woodlands to woodlands, generally 4-12 m high, in which Weeping Myall (<i>Acacia pendula</i>) trees are the sole or dominant overstorey species. Species assemblage Weeping Myall trees often occur in monotypic stands, however other vegetation may also occur in the ecological community, though not as dominant species. These include: Western Rosewood (<i>Alectryon oleifolius</i> subsp. <i>elongatus</i>); Poplar Box (<i>Eucalyptus populnea</i>); or Black Box (<i>Eucalyptus largiflorens</i>). Grey Mistletoe (<i>Amyema quandang</i>) commonly occurs on the branches of Weeping Myall trees throughout the ecological community’s range.	Absent TEC is not associated with PCT 76 present on site. No Weeping Myall is present.	Unlikely TEC has been determined to be absent via survey	No TEC is absent from the site
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	CE	CE	It is an open woodland community (sometimes occurring as a forest formation), in which the most obvious species are one or more of the following: White Box <i>Eucalyptus albens</i> , Yellow Box <i>E. melliodora</i> and Blakely's Red Gum <i>E. blakelyi</i> . Intact sites contain a high diversity of plant species, including the main tree species, additional tree species, some shrub species, several climbing plant species, many grasses and a very high diversity of herbs. The understorey in intact sites is characterised by native grasses and a high diversity of herbs; the most commonly encountered include Kangaroo Grass (<i>Themeda australis</i>), Poa Tussock (<i>Poa sieberiana</i>), wallaby grasses (<i>Rytidosperma</i> spp.), spear-grasses (<i>Austrostipa</i> spp.), Common Everlasting (<i>Chrysocephalum apiculatum</i>), Scrambled Eggs (<i>Goodenia pinnatifida</i>), Small St John's Wort (<i>Hypericum gramineum</i>), Narrow-leafed New Holland Daisy (<i>Vittadinia muelleri</i>) and blue-bells (<i>Wahlenbergia</i> spp.).	Absent TEC is not associated with PCT 76 present on site.	Unlikely TEC has been determined to be absent via survey	No TEC is absent from the site

Flora

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
<i>Amphibromus fluitans</i> (River Swamp Wallaby-grass, Floating Swamp Wallaby-grass)	V	V	<i>Amphibromus fluitans</i> grows mostly in permanent swamps. The species needs wetlands which are at least moderately fertile and which have some bare ground, conditions which are produced by seasonally-fluctuating water levels. Habitats in south-western NSW include swamp margins in mud, dam and tank beds in hard clay and in semi-dry mud of lagoons with <i>Potamogeton</i> and <i>Chamaeraphis</i> spp.. Flowering time is from spring to autumn or November to March. Disturbance regimes are not known, although the species requires periodic flooding of its habitat to maintain wet conditions.	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Lack of suitable habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Brachyscome muelleroides</i> (Mueller Daisy)	V	V	Grows in damp areas on the margins of claypans in moist grassland with <i>Pycnosorus globosus</i> , <i>Agrostis avenacea</i> and <i>Austrodanthonia duttoniana</i> . Also recorded from the margins of lagoons in mud or water, and in association with <i>Calotis anthemoides</i> . Victorian collections have generally come from open positions on the Murray River floodplain, swampy River Red Gum (<i>Eucalyptus camaldulensis</i>) Forest and damp depressions. Occurs in the Wagga Wagga, Narrandera, Tocumwal and Walbundrie areas.	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Lack of suitable habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Caladenia arenaria</i> (Sand-hill Spider-orchid)	E	E	Occurs in woodland with sandy soil, especially that dominated by White Cypress Pine (<i>Callitris glaucophylla</i>). Is found mostly on the south west plains and western south west slopes. The Sand-hill Spider Orchid is currently only known to occur in the Riverina between Urana and Narrandera.	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits the Subject Land due to marginal habitat presence, the Subject Land is outside its distribution and there is a lack of records within the locality.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Lepidium monolocoides</i> (Winged Peppercress)	E	E	Widespread in the semi-arid western plains regions of NSW. Occurs on seasonally moist to waterlogged sites, on heavy fertile soils, with a mean annual rainfall of around 300-500 mm. Predominant vegetation is usually an open woodland dominated by <i>Allocasuarina luehmannii</i> (Bullock) and/or eucalypts, particularly <i>Eucalyptus largiflorens</i> (Black Box) or <i>Eucalyptus populnea</i> (Poplar Box). The field layer of the surrounding woodland is dominated by tussock grasses. Recorded in a wetland-grassland community comprising <i>Eragrostis australasicus</i> , <i>Agrostis avenacea</i> , <i>Austrodanthonia duttoniana</i> , <i>Homopholis proluta</i> , <i>Myriophyllum crispatum</i> , <i>Utricularia dichotoma</i> and <i>Pycnosorus globosus</i> , on waterlogged grey-brown clay. Also recorded from a <i>Maireana pyramidata</i> shrubland.	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Lack of suitable habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Myriophyllum porcatum</i>	Not Listed	V	The ridged water-milfoil is an annual aquatic herb endemic to Victoria, where it is widely but patchily distributed across the north and north-west of the state. Population numbers	0 (PMST)	Absent	Unlikely	No

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
(Ridged Water-milfoil)			are unknown though likely to fluctuate dramatically depending on seasonal rainfall in appropriate habitat. The ridged water-milfoil occurs in shallow, ephemeral and seasonal wetlands, including lakes, swamps and rock pools in granite outcrops.		No potential or known habitat is present within the Subject Land.	This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	Lack of suitable habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Prasophyllum petilum</i> (Tarengo Leek Orchid)	E	E	Natural populations are known from a total of five sites in NSW. These are near Boorowa, Queanbeyan area, Ilford, Delegate and a newly recognised population approximately 10 km west of Muswellbrook. It also occurs at Hall in the ACT. Grows in open sites within Natural Temperate Grassland at the Boorowa and Delegate sites. Also grows in grassy woodland in association with River Tussock (<i>Poa labillardierei</i>), Black Gum (<i>Eucalyptus aggregata</i>) and tea-trees (<i>Leptospermum</i> spp.) near Queanbeyan and within the grassy ground layer dominated by Kangaroo Grass under Box-Gum Woodland at Ilford (and Hall). Occurs on relatively fertile soils in grassy woodland or natural grassland. Occurs on flat or gently sloping sites on plains and rolling hills. Soils are usually loams, clay loams or sandy clays. Winters are cold, and summers mild to warm. Apparently highly susceptible to grazing, being retained only at little-grazed travelling stock reserves (Boorowa & Delegate) and in cemeteries (near Queanbeyan, Ilford and Hall). Plants retreat into subterranean tubers after fruiting, so are not visible above-ground outside of growing periods.	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits the Subject Land due to marginal habitat presence and lack of records within the locality.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Prasophyllum validum</i> (Sturdy Leek-orchid, Mount Remarkable Leek-orchid)	Not Listed	V	Occurs across inland Victoria and in South Australia in the Flinders Ranges. Tends to grow in drier woodland habitats, generally with a low sparse understorey. In Victoria, it occurs in box and box-ironbark woodland with overstorey trees including <i>Eucalyptus polyanthemos</i> , <i>Eucalyptus albens</i> , <i>Eucalyptus macrorhyncha</i> , <i>Eucalyptus viminalis</i> and <i>Callitris glaucophylla</i> , and an open grassy to sparsely shrubby understorey including <i>Themeda triandra</i> , <i>Joycea pallida</i> , <i>Arthropodium strictum</i> , <i>Acacia verniciflua</i> , <i>Bursaria spinosa</i> , <i>Grevillea alpina</i> and <i>Grevillea dryophylla</i> . Soils vary from heavy clays to sandy loams.	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits the Subject Land due to marginal habitat presence and lack of records within the locality.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Sclerolaena napiformis</i> (Turnip Copperburr)	E	E	Known from only a few small populations in remnant grassland in the southern Riverina of NSW and north-central Victoria. NSW populations are confined to the area between Jerilderie and Moama on travelling stock routes and road reserves. Confined to remnant grassland habitats on clay-loam soils. Grows on level plains in tussock grassland of <i>Austrostipa nodosa</i> and <i>Chloris truncata</i> , in grey cracking clay to red-brown loamy clay. Sites are roadside travelling stock routes and reserves subject to sheep grazing. Associated species include <i>Austrodanthonia duttoniana</i> , <i>Enteropogon acicularis</i> , <i>Austrostipa nodosa</i> , <i>Chloris truncata</i> , <i>Lolium rigidum</i> , <i>Swainsona murrayana</i> , <i>S. plagiotropis</i> , <i>S. procumbens</i> , <i>Rhodanthe corymbiflora</i> , <i>Calotis scabiosifolia</i> , <i>Microseris lanceolata</i> , <i>Acacia pendula</i> and various chenopods.	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits the Subject Land due to marginal habitat presence and lack of records within the locality.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
<i>Senecio macrocarpus</i> (Large-fruit Fireweed, Large-fruit Groundsel)	Not Listed	V	The species is endemic to south-eastern Australia. The species has been more recently recorded in NSW. There are five known records of the species from east of Gundaroo in the South Eastern Highlands bioregion. Occurs in a variety of habitats including grasslands, sedgelands, shrublands and woodlands. Generally grows on sparsely vegetated sites on sandy loam to heavy clay soils, often in depressions that are waterlogged in winter. Seems to occur in areas where competition from other understorey plants is low. In NSW, it has been recorded near creeks in clay loam soils on shale, often in Yellow Box grassy open woodland with mixed shrubs and forbs.	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits the Subject Land due to marginal habitat presence and lack of records within the locality.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Swainsona murrayana</i> (Slender Darling-pea, Slender Swainson, Murray Swainson-pea)	V	V	Found throughout NSW , it has been recorded in the Jerilderie and Deniliquin areas of the southern riverine plain, the Hay plain as far north as Willandra National Park, near Broken Hill and in various localities between Dubbo and Moree. The species has been collected from clay-based soils, ranging from grey, red and brown cracking clays to red-brown earths and loams. Grows in a variety of vegetation types including bladder saltbush, black box and grassland communities on level plains, floodplains and depressions and is often found with Maireana species. Plants have been found in remnant native grasslands or grassy woodlands that have been intermittently grazed or cultivated.	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely Presence of potential habitat, however targeted surveys determined this species is absent from the Subject Land.	No Absence of species from Subject Land.
<i>Swainsona plagiotropis</i> (Red Darling-pea, Red Swainson-pea)	V	V	Occurs in the upper Murray River valley in the south-western plains of NSW and into Victoria. Most NSW records are from the Jerilderie area, with possible collections from the Louth-Bourke area and a disjunct record in the north-western plains from Buttabone Stud Park 35 km NW of Warren. Also rare in Victoria, restricted to a few sites in the central north, mostly between Bendigo and the Murray River south of Echuca. Grows on flat grassland and in heavy red soil, often on roadsides and especially in table drains. Soils are derived from quaternary sediments and are usually red-brown clay-loams. The species is absent from black low-lying soils. Recorded from roadsides, rail reserves, stock routes and areas of lightly grazed unimproved pasture comprising Austrodanthonia, Enteropogon acicularis and Austrostipa grassland communities. Associated species include <i>Austrostipa aristiglumis</i> , <i>A. nodosa</i> , <i>A. setacea</i> , <i>Homopholis proluta</i> , <i>Chloris truncata</i> , <i>Austrodanthonia caespitosa</i> , <i>A. duttoniana</i> , <i>Enteropogon acicularis</i> , <i>Hordeum spp.</i> , <i>Lolium rigidum</i> , <i>Rhodanthe corymbiflora</i> , <i>Calotis scabiosifolia</i> , <i>Microseris lanceolata</i> and <i>Chrysocephalum apiculatum</i> .	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits the Subject Land due to marginal habitat presence and lack of records within the locality.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Swainsona recta</i> (Small Purple-pea, Mountain Swainson-pea, Small Purple Pea)	E	E	The species occurs within, and is a component of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland. Occurs predominantly in grassy woodlands, but sometimes extends into grassy open-forest. Tree cover is usually dominated by Blakely's Red Gum (<i>Eucalyptus blakelyi</i>), Yellow Box (<i>E. melliodora</i>), Candlebark Gum (<i>E. rubida</i>) and Long-leaf Box (<i>E. goniocalyx</i>). Grows in association with understorey dominants that include Kangaroo Grass (<i>Themeda australis</i>), Poa tussocks (<i>Poa spp.</i>) and spear-grasses (<i>Austrostipa spp.</i>).	0 (PMST)	Absent No potential or known habitat is present within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Lack of suitable habitat present, lack of local records and unlikely to occur within Subject Land.

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
			Occurs on both red-brown loams and grey gritty or stony loams, generally on undulating terrain. It occurs on all aspects and has an altitudinal range from 180 m to 960 m above sea level.				

Fauna

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
Birds (including Migratory)							
<i>Actitis hypoleucos</i> (Common Sandpiper)	Not Listed	M	Found along all coastlines of Australia and in many areas inland. The population that migrates to Australia breeds in the Russian far east. Roost sites are typically on rocks or in roots or branches of vegetation, especially mangroves. The species utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. Has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. The muddy margins utilised by the species are often narrow, and may be steep. The species is often associated with mangroves, and sometimes found in areas of mud littered with rocks or snags. The species is known to perch on posts, jetties, moored boats and other artificial structures, and to sometimes rest on mud or 'loaf' on rocks.	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Absence of suitable habitat, no local records and unlikely to occur within Subject Land.
<i>Anthochaera phrygia</i> (Regent Honeyeater)	CE	CE	Known breeding areas include Bundarra-Barraba, Capertee Valley, Hunter Valley, and Chiltern. Inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Inhabits woodlands that support a significantly high abundance and species richness, particularly with large numbers of mature trees, high canopy cover and abundance of mistletoes. Feeds mainly on the nectar from a relatively small number of eucalypts that produce high volumes of nectar. Key eucalypt species include Mugga Ironbark, Yellow Box, White Box and Swamp Mahogany. Other tree species may be regionally important. Flowering of associated species such as Thin-leaved Stringybark (<i>Eucalyptus eugenioides</i>) and other Stringybark species, and Broad-leaved Ironbark (<i>E. fibrosa</i>) can also contribute important nectar flows at times. Nectar and fruit from the mistletoes (<i>Amyema miquelii</i> , <i>A. pendula</i> and <i>A. cambagei</i>) are also utilised.	12	Marginal Habitat present that could be used by the species on occasion when migrating through landscapes.	Unlikely There is a low probability that the species inhabits the Subject Land. It may be an occasional visitor but habitat similar to the Subject Land is widely distributed in the local area. Consequently, the species is not dependent on available habitat. 12 records within 10 km, the	No Very marginal habitat present, low records and unlikely to occur within Subject Land.

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
						most recent from 2014 and occurred approximately 3 km southwest of the Subject Land. Not detected during field surveys.	
<i>Aphelocephala leucopsis</i> (Southern Whiteface)	V	V	Occurs in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains. Forage almost exclusively on the ground, favouring habitat with low tree densities and an herbaceous understorey litter cover.	0 (PMST)	Marginal Habitat present that could be used by the species on occasion but not preferred.	Unlikely There is a low probability that the species inhabits the Subject Land. It may be an occasional visitor but habitat similar to the Subject Land is widely distributed in the local area. Consequently, the species is not dependent on available habitat.	No Very marginal habitat present, no records and unlikely to occur within Subject Land.
<i>Apus pacificus</i> (Fork-tailed Swift)	Not Listed	M	A non-breeding migrant to Australia. Widespread across Australia and territories arriving in north-west Australia in October and November. From this entry point birds expand through southern WA and much of mainland Australia, typically arriving in Victoria in December and January and departing in April, to return to northern breeding areas (east Asia from Siberia to Japan and South to Indochina and northern Thailand). The species is almost entirely aerial, flying from less than 1 m to at least 300 m above ground. In Australia, they mostly occur over inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands and sometimes well out to sea. They also occur over settled areas, including towns, urban areas and cities. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand-dunes. They sometimes occur above rainforests, wet sclerophyll forest or open forest or plantations of pines.	1	Marginal Habitat present that could be used by the species on occasion but not preferred.	Unlikely There is a low probability that the species inhabits the Subject Land. It may be an occasional visitor but habitat similar to the Subject Land is widely distributed in the local area. There is one local record of this species from 1986, approximately 2 km southwest of the Subject Land.	No Very marginal habitat present, low records and unlikely to occur within Subject Land.
<i>Botaurus poiciloptilus</i> (Australasian Bittern)	E	E	Favours permanent freshwater wetlands with tall, dense vegetation, particularly <i>Typha</i> spp. and <i>Eleocharis</i> spp.. Hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails. Feeding platforms may be constructed over deeper water from reeds trampled by the bird; platforms are often littered with prey remains. Breeding occurs in summer from October to January; nests are built in secluded places in densely-vegetated wetlands on a platform of reeds; there are usually six olive-brown	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Absence of suitable habitat, no local records and unlikely to occur within Subject Land.

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
			eggs to a clutch. Mainly found in shallow wetlands (less than 1 m deep) with dense growth of rushes or sedges.				
<i>Calidris acuminata</i> (Sharp-tailed Sandpiper)	V	V, M	Spends the non-breeding season in Australia. Most of the population migrates to Australia, mostly to the south-east and are widespread in both inland and coastal locations and in both freshwater and saline habitats. In Australasia, the species prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, salt pans and hypersaline salt lakes inland. They also occur in saltworks and sewage farms. They use flooded paddocks, sedgeland and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and also swamps and creeks lined with mangroves. They tend to occupy coastal mudflats mainly after ephemeral terrestrial wetlands have dried out, moving back during the wet season. They may be attracted to mats of algae and water weed either floating or washed up around terrestrial wetlands, and coastal areas with much beachcast seaweed. Sometimes they occur on rocky shores and rarely on exposed reefs.	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Absence of suitable habitat, no local records and unlikely to occur within Subject Land.
<i>Calidris ferruginea</i> (Curlew Sandpiper)	CE	CE, M	Occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. Inland records are probably mainly of birds pausing for a few days during migration. Breeds in Siberia and migrates to Australia for the non-breeding period, arriving between August and November, and departing between March and mid-April. Generally occupies littoral and estuarine habitats, and in NSW is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes inland. It forages in or at the edge of shallow water, occasionally on exposed algal mats or waterweed, or on banks of beach-cast seagrass or seaweed. Roosts on shingle, shell or sand beaches; spits or islets on the coast or in wetlands; or sometimes in salt marsh, among beach-cast seaweed, or on rocky shores. Feeds on worms, molluscs, crustaceans, insects and some seeds.	1	Absent Lack of suitable habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits the Subject Land. There is one local record of this species from 2018, approximately 400 m southwest of the Subject Land at Whitehead Street Wetland.	No Absence of suitable habitat, no local records and unlikely to occur within Subject Land.
<i>Calidris melanotos</i> (Pectoral Sandpiper)	Not Listed	M	In NSW, the Pectoral Sandpiper is widespread, but scattered. Records exist east of the Great Divide, from Casino and Ballina, south to Ulladulla. In Australasia, the Pectoral Sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. The species is usually found in coastal or near coastal habitat but occasionally found further inland. It prefers wetlands that have open fringing mudflats and low, emergent or fringing vegetation, such as grass or samphire. The species has also been recorded in swamp overgrown with lignum. They forage in shallow water or soft mud at the edge of wetlands.	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Absence of suitable habitat, no local records and unlikely to occur within Subject Land.

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
			The Pectoral Sandpiper is omnivorous, consuming algae, seeds, crustaceans, arachnids and insects.				
<i>Callocephalon fimbriatum</i> (Gang-gang Cockatoo)	E	E	Endemic to south-eastern Australia from southern Victoria through south- and central-eastern NSW. In NSW, it is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. It occurs regularly in the ACT. Primarily occurs within the temperate eucalypt forests and woodlands of mainland south-east Australia. The species is an altitudinal migrant. Favours old growth forest and woodland attributes for nesting and roosting. Nests are located in hollows that are 7cm in diameter or larger in eucalypts and 3m or more above the ground. During summer months, they primarily inhabit mature, wet sclerophyll forests, typically dominated by eucalypts. Eucalypt-dominated assemblages with dense, shrubby acacia, wattle and banksia understory support the highest density of birds. The species has also been reported in more open eucalypt assemblages, subalpine Snow Gum woodland, temperate rainforests, and occasionally regenerating forests. They regularly feed on flower buds and seed pods, but also on blossoms, leaf buds, fruits, seeds and also insect larvae. During winter months, they tend to range beyond montane forests to inhabit woodland assemblages at lower, drier altitudes. Most birds occur in open eucalypt assemblages during this period. Occasionally inhabits assemblages of River Red Gum (<i>Eucalyptus camaldulensis</i>), dense coastal thickets of <i>Leptospermum</i> or Casuarina, or heathland. The species is also observed in suburban areas of cities including within parks, gardens, and roadside tree plantations.	0 (PMST)	Marginal Potential habitat present that could be used by the species on occasion but not preferred.	Unlikely This species is unlikely to inhabit the Subject Land due to marginal suitable habitat and lack of records within the locality. Not detected during field surveys.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Climacteris picumnus victoriae</i> (Brown Treecreeper (south-eastern))	V	V	Endemic to south-eastern Australia from the Grampians in western Victoria, through central NSW to the Bunya Mountains in Queensland, and from the coast to the inland slopes of Great Dividing Range. In NSW the western boundary of the range runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell. Found in eucalypt woodlands (including Box-Gum, stringybarks or other rough-barked eucalypts) and dry open forest of the inland slopes and plains inland of the Great Dividing Range. Mainly inhabits woodlands dominated with an open grassy understorey, sometimes with one or more shrub species. Also found in mallee and River Red Gum (<i>Eucalyptus camaldulensis</i>). 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. Terrestrial and arboreal in about equal proportions. Active, noisy and conspicuous while foraging on trunks and branches of trees and amongst fallen timber. Spend much more time foraging on the ground and fallen logs than other treecreepers.	12	Marginal Habitat present that could be used by the species on occasion when migrating through landscapes.	Unlikely There is a low probability that the species inhabits the Subject Land. It may be an occasional visitor but habitat similar to the Subject Land is widely distributed in the local area. Consequently, the species is not dependent on available habitat. 12 records within 10 km, the most recent from 2013 and occurred approximately 350 m northeast of the Subject Land, adjacent to the Murray River. Not	No Very marginal habitat present, low records and unlikely to occur within Subject Land.

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
						detected during field surveys.	
<i>Falco hypoleucos</i> (Grey Falcon)	V	V	Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast, and near wetlands where surface water attracts prey. Preys primarily on birds, especially parrots and pigeons, using high-speed chases and stoops; reptiles and mammals are also taken. Utilises old nests of other birds of prey and ravens, usually high in a living eucalypt near water or a watercourse; peak laying season is in late winter and early spring. Sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. Believed to be extinct in areas with more than 500 mm rainfall in NSW.	1	Marginal Limited habitat within the Subject Land including grassland.	Unlikely There is a low probability that the species inhabits the Subject Land. It may be an occasional visitor but habitat similar to the Subject Land is widely distributed in the local area. There is one record within 10 km, from 2010 and occurred approximately 3.5 km west of the Subject Land. Not detected during field surveys.	No Marginal habitat present, low records and unlikely to occur within Subject Land.
<i>Gallinago hardwickii</i> (Latham's Snipe, Japanese Snipe)	V	V, M	A non-breeding visitor to much of eastern Australia. Most birds spend the non-breeding period at sites located south of the Richmond River in NSW. Known to occur in the upland wetlands of the New England Tablelands and Monaro Plateau. In Australia, the species occurs in permanent and ephemeral wetlands up to 2000 m above sea level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies). Can also occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity.	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Grantiella picta</i> (Painted Honeyeater)	V	V	Nomadic and occurs at low densities throughout its range. The greatest concentrations of the bird and almost all breeding occurs on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland. Inhabits Boree/ Weeping Myall (<i>Acacia pendula</i>), Brigalow (<i>A. harpophylla</i>) and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus <i>Amyema</i> . Nest from spring to autumn in a small, delicate nest hanging within the outer canopy of drooping eucalypts, she-oak, paperbark or mistletoe branches.	0 (PMST)	Marginal Limited habitat within the Subject Land including eucalypts.	Unlikely This species is unlikely to inhabit the Subject Land due to lack of mistletoes, marginal habitat and lack of local records.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Hirundapus caudacutus</i> (White-throated Needletail)	V	V, M	Arrive in eastern Australia from their breeding grounds in the northern hemisphere in about October each year and leave somewhere between May and August. More common in coastal areas, less so inland. Almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above	0 (PMST)	Marginal Limited habitat within the Subject Land including farmland and woodland.	Unlikely This species is unlikely to inhabit the Subject Land due to marginal suitable	No Marginal habitat present, lack of local records and

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
			the ground. Occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland. Also commonly occur over heathland, but less often over treeless areas, such as grassland or swamps. When flying above farmland, they are more often recorded above partly cleared pasture, plantations or remnant vegetation at the edge of paddocks.			habitat and lack of records within the locality.	unlikely to occur within Subject Land.
<i>Lathamus discolor</i> (Swift Parrot)	CE	CE	Breeds in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In NSW mostly occurs on the coast and south-west slopes. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany (<i>Eucalyptus robusta</i>), Spotted Gum (<i>Corymbia maculata</i>), Red Bloodwood (<i>C. gummifera</i>), Forest Red Gum (<i>E. tereticornis</i>), Mugga Ironbark (<i>E. sideroxylon</i>), and White Box (<i>E. albens</i>). Commonly used lerp infested trees include Inland Grey Box (<i>E. microcarpa</i>), Grey Box (<i>E. moluccana</i>), Blackbutt (<i>E. pilularis</i>), and Yellow Box (<i>E. melliodora</i>).	3	Marginal Limited habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to marginal habitat and low records within the locality. There is one record within 10 km, from 2015 and occurred approximately 4.6 km north of the Subject Land.	No Marginal habitat present, low records and unlikely to occur within Subject Land.
<i>Lophochroa leadbeateri leadbeateri</i> (Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo, Pink Cockatoo (eastern))	V	E	It is the only subspecies found in NSW. Inhabits a wide range of treed and treeless inland habitats, always within easy reach of water. The species feeds mostly on the ground, especially on the seeds of native and exotic melons and on the seeds of species of saltbush, wattles, and cypress pines. Normally found in pairs or small groups, though flocks of hundreds may be found where food is abundant. Nesting, in tree hollows, occurs throughout the second half of the year; nests are at least 1 km apart, with no more than one pair every 30 square kilometres.	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely Presence of potential habitat, however targeted surveys determined this species is absent from the Subject Land.	No Absence of species from Subject Land.
<i>Melanodryas cucullata cucullata</i> (South-eastern Hooded Robin, Hooded Robin (south-eastern))	E	E	Considered a sedentary species, but local seasonal movements are possible. Found from Brisbane to Adelaide and throughout much of inland NSW, with the exception of the extreme north-west. The species prefers dry eucalypt and acacia woodlands and shrublands with an open understorey, some grassy areas and a complex ground layer. Woodlands with tall trees or dense tree cover are generally avoided by the species, however they may occur in tall, dense heaths with scattered open areas. They are considered a sedentary species, but local seasonal movements are possible. In agricultural landscapes they prefer patches of habitat greater than 10 ha with moderately deep to deep soils, however they can occur in patches as small as 2.9 ha They forage on insects and small lizards, hunting for invertebrates in grassy clearings. Perches on low dead stumps and fallen timber or on low-hanging branches. Territories range from around 10 ha during the breeding season, to 30 ha in the non-breeding	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits the Subject Land due to marginal habitat presence and lack of records within the locality. Not detected during field surveys.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
			season. Nest is a small, neat cup of bark and grasses bound with webs, in a tree fork or crevice, from less than 1-5 m above the ground.				
<i>Motacilla flava</i> (Yellow Wagtail)	Not Listed	M	A regular wet season visitor to northern Australia. Increasing records in NSW suggest this species is an occasional but regular summer visitor to the Hunter River region. The species is considered a vagrant to Victoria, South Australia and southern Western Australia. Occupies a range of damp or wet habitats with low vegetation, from damp meadows, marshes, waterside pastures, sewage farms and bogs to damp steppe and grassy tundra. In the north of its range, it is also found in large forest clearings. Breeds from April to August, although this varies with latitude.	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Neophema chrysostoma</i> (Blue-winged Parrot)	V	V	The species prefers dry eucalypt and acacia woodlands and shrublands with an open understorey, some grassy areas and a complex ground layer. Woodlands with tall trees or dense tree cover are generally avoided by the species, however they may occur in tall, dense heaths with scattered open areas. They are considered a sedentary species, but local seasonal movements are possible. In agricultural landscapes they prefer patches of habitat greater than 10 ha with moderately deep to deep soils, however they can occur in patches as small as 2.9 ha. They forage on insects and small lizards, hunting for invertebrates in grassy clearings. Perches on low dead stumps and fallen timber or on low-hanging branches. Territories range from around 10 ha during the breeding season, to 30 ha in the non-breeding season. Nest is a small, neat cup of bark and grasses bound with webs, in a tree fork or crevice, from less than 1-5 m above the ground	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits the Subject Land due to marginal habitat presence and lack of records within the locality. Not detected during field surveys.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Pandion haliaetus</i> (Osprey)	V	M	The breeding range of the Eastern Osprey extends around the northern coast of Australia (including many offshore islands) from Albany in Western Australia to Lake Macquarie in NSW; with a second isolated breeding population on the coast of South Australia, extending from Head of Bight east to Cape Spencer and Kangaroo Island. Eastern Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia. In Australia, Eastern Ospreys mainly feed on fish, especially mullet where available, and rarely take molluscs, crustaceans, insects, reptiles, birds and mammals.	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Pedionomus torquatus</i> (Plains-wanderer)	E	CE	Live in semi-arid, lowland native grasslands that typically occur on hard red-brown soils. These grasslands support a high diversity of plant species, including a number of state and nationally threatened species. Is a ground-dwelling grassland bird, which is cryptic and very difficult to observe during the day. Habitat structure appears to play a more important role than plant species composition. Preferred habitat typically comprises 50% bare ground, 10% fallen litter, and 40% herbs,	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
			forbs and grasses. Most grassland habitat is <5 cm high, but some vegetation up to a maximum of 30 cm is important for concealment, as long as grass tussocks are spaced 10-20 cm apart. During prolonged drought, the denudation of preferred habitats may force birds into marginal denser and taller grassland habitats that become temporarily suitable. Average home range of a single bird is about 12 ha. Breeding pairs have overlapping home ranges that total approximately 18 ha. 99% of records in NSW in the past 30 years come from an area of the western Riverina bounded by Hay and Narrandera on the Murrumbidgee River in the north, the Cobb Highway in the west, the Billabong Creek in the south, and Urana in the east.			habitat and lack of records within the locality.	
<i>Polytelis swainsonii</i> (Superb Parrot)	V	V	Occurs only in south-eastern Australia. In NSW, it mostly occurs west of the Great Divide, where it mainly inhabits the Riverina, the South West Slopes and Southern Tableland Regions: west to Mathoura, Boorooban, Goolgowi, and east to Canberra, Yass and Cowra. Inhabit Box-Gum, Box-Cypress-pine and Boree woodlands and River Red Gum forest. Nest in the hollows of large trees (dead or alive) mainly in tall riparian River Red Gum forest or woodland. On the South West Slopes and the Southern Tablelands, nest trees can be in open Box-Gum woodland or isolated living or dead paddock trees. Species known to be used are Blakely's Red Gum, Yellow Box, Apple Box and Red Box. Nest in tree hollows with an entrance diameter of 6cm or wider, and that are at least 3.5m above the ground. <i>P. swainsonii</i> nests in trees with an average tree height ranging from 12 to 24 m, and a diameter at breast height of 113 cm. They have also been observed to utilise hollows with the following hollow measurements: • Minimum entrance diameter of eight to 12 cm • Depth of 59-112 cm • Floor diameter of 15-22 cm • Branch or stem diameter of 36-49 cm.	5	Marginal Limited habitat within the Subject Land.	Unlikely Five records within the locality, the most recent from 2021 and occurring approximately 5.8 km northeast of the Subject Land. Targeted surveys confirmed absence of this species from the Subject Land.	No Absence of species from Subject Land.
<i>Rostratula australis</i> (Australian Painted Snipe)	E	E	Endemic to Australia, it has been recorded in all mainland states, where the records are widely and sparsely scattered. Most records have come from eastern Australia, and most of these records are from the Murray–Darling Basin. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds. The nest consists of a scrape in the ground, lined with grasses and leaves.	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Stagonopleura guttata</i> (Diamond Firetail)	V	V	Endemic to south-eastern Australia, extending from central Queensland to the Eyre Peninsula in South Australia. It is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Central and South Western Slopes and the North West Plains and Riverina. Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum (<i>Eucalyptus pauciflora</i>) Woodlands. Also occurs in open forest, mallee, Natural	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits the Subject Land due to marginal habitat presence and lack of records within	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
			Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. Prefers areas with relatively low tree density, few large logs, and little litter cover but high grass cover. Feeds exclusively on the ground, on ripe and partly-ripe grass and herb seeds and green leaves, and on insects (especially in the breeding season). Usually encountered in flocks of between 5-40 birds, occasionally more. Groups separate into small colonies to breed, between August and January. Nests are globular structures built either in the shrubby understorey, or higher up, especially under hawk's or raven's nests. Appears to be sedentary, though some populations move locally, especially those in the south.			the locality. Not detected during field surveys.	
<i>Tringa nebularia</i> (Common Greenshank, Greenshank)	E	E, M	Found along all coastlines of Australia and in many areas inland. The population that migrates to Australia breeds in the Russian far east. Roost sites are typically on rocks or in roots or branches of vegetation, especially mangroves. The species utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. Has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. The muddy margins utilised by the species are often narrow, and may be steep. The species is often associated with mangroves, and sometimes found in areas of mud littered with rocks or snags. The species is known to perch on posts, jetties, moored boats and other artificial structures, and to sometimes rest on mud or 'loaf' on rocks.	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Lack of suitable habitat present, lack of local records and unlikely to occur within Subject Land.
Frogs							
<i>Crinia sloanei</i> (Sloane's Froglet)	E	E	Recorded from widely scattered sites in the floodplains of the Murray-Darling Basin, with the majority of records in the Darling Riverine Plains, NSW South Western Slopes and Riverina bioregions in NSW. It is typically associated with periodically inundated areas in grassland, woodland and disturbed habitats.	1820	Marginal Limited habitat within the Subject Land including grassland adjacent to farm dam.	Unlikely Presence of potential habitat, however targeted surveys determined this species is absent from the Subject Land and within 200 m within the Subject Land.	No Absence of species from Subject Land.
<i>Litoria raniformis</i> (Southern Bell Frog, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog)	E	V	Lives and breeds in temporary and permanent waterbodies including oxbows off creeks and rivers, farm dams, large and small natural wetlands, constructed frog ponds and temporary puddles. It prefers wetlands that contain riparian and aquatic vegetation. Most often it has been found in waterbodies that contain grasses and reeds that are of medium height and have small stem diameters, such as Couch (<i>Elymus repens</i>), Watercouch (<i>Paspalum pasplodes</i>) or the Common Spikerush (<i>Eleocharis acuta</i>).	0 (PMST)	Absent Lack of suitable habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Lack of suitable habitat present, lack of local records and unlikely to occur within Subject Land.

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
			Waterbodies containing this type of vegetation are essential for the species as it lays its eggs attached to vegetation.				
Insect							
<i>Keyacris scurra</i> (Key’s Matchstick Grasshopper)	E	E	This species is usually found in native grasslands and open woodlands. Has been recorded in other vegetation associations containing a native understorey (especially disturbance tolerant grasses including, but not always, Kangaroo Grass (<i>Themeda triandra</i>)) and known food plants including Asteraceae. Recent sightings have occurred in a wide range of vegetation types including wet sclerophyll forest, montane low forest, dry woodlands, heathland and montane grasslands. Has been observed to feed on a range of species including Silver Hairgrass (<i>Aira caryophyllea</i>), Sedges (<i>Scirpus sp.</i>), Early Nancy (<i>Wurmbea dioica</i>), Native Leek (<i>Bulbine bulbosa</i>), Red Beard Orchid (<i>Calochilus paludosus</i>), Curled Dock (<i>Rumex crispus</i>), Sorrel (<i>Acetosella vulgaris/Rumex acetosella</i>), Mouse-ear Chickweed (<i>Cerastium glomeratum</i>), Common Buttercup (<i>Ranunculus lappaceus</i>), Sweet Briar (<i>Rosa rubiginosa</i>), Orchid (<i>Acaena ovina</i>), Subterranean Clover (<i>Trifolium subterraneum</i>), Haresfoot Clover (<i>Trifolium arvense</i>), <i>Poranthera microphylla</i>, Creamy Candles (<i>Stackhousia monogyna</i>), <i>Hibbertia sericea</i>, Lavender (<i>Lavandula stoechas</i>), Vervain (<i>Salvia verbenaca</i>), Great Mullein (<i>Verbascum thapsus</i>), Field Madder (<i>Sherardia arvensis</i>), Rough Fruited Bedstraw (<i>Galium tricornatum</i>), Common Everlasting (<i>Helichrysum apiculatum</i>), <i>Ozothamnus retusus</i> or <i>O. scaber</i> (<i>Helichrysum bilobum</i>), Showy Copper-wire Daisy (<i>Podolepis jaceoides</i>) (<i>Podolepis acuminata</i>) and <i>Craspedia uniflora</i>.	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to absence of suitable habitat and lack of records within the locality.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
Mammals							
<i>Dasyurus maculatus maculatus</i> (SE mainland population) (Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population))	V	E	The SE mainland population occurs in eastern Australia from south-eastern Queensland to western Victoria. 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. Use hollow-bearing trees, fallen logs, other animal burrows, small caves and rocky outcrops as den sites. Use communal “latrine sites”, often on flat rocks among boulder fields, rocky cliff-faces or along rocky stream beds or banks. Home range between 200 to 4,000 ha and often traverse their home ranges along densely vegetated creeklines.	1	Marginal Limited habitat within the Subject Land.	Unlikely This species is unlikely to inhabit the Subject Land due to marginal habitat and low records. One local record of this species occurred 4.2 km southwest of the Subject Land in 2013.	No Marginal habitat present, low records and unlikely to occur within Subject Land.
<i>Nyctophilus corbeni</i>	V	V	Overall, the distribution of the south eastern form coincides approximately with the Murray Darling Basin with the Pilliga Scrub region being the distinct stronghold for this species. Inhabits a variety of vegetation types, including mallee, Bulloke (<i>Allocasuarina</i>	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits	No Marginal habitat present, lack of local records and

Scientific Name (Common Name)	Listing status		Habitat	Number of records within 10km	Presence of habitat	Likelihood of occurrence	Potential impact
	BC Act	EPBC Act					
(Corben's Long-eared Bat, South-eastern Long-eared Bat)			<i>luehmannii</i>) and Box-Eucalypt dominated communities, but it is distinctly more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland. Roosts in tree hollows, crevices, and under loose bark.			the Subject Land due to marginal habitat presence and lack of records within the locality.	unlikely to occur within Subject Land.
<i>Phascolarctos cinereus</i> (combined populations of Qld, NSW and the ACT) (Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory))	E	E	In NSW it mainly occurs on the central and north coasts with some populations in the west of the Great Dividing Range. 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.	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits the Subject Land due to marginal habitat presence and lack of records within the locality. Targeted surveys did not find any evidence of the species.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
<i>Pteropus poliocephalus</i> (Grey-headed Flying-fox)	V	V	Australia's only endemic flying-fox, generally found within 200 km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. 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, or in vegetation with a dense canopy. Can travel up to 50 km from the camp to forage; commuting distances are more often less than 20 km. Feed on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and Banksia spp., and fruits of rainforest trees and vines. Also forage in cultivated gardens and fruit crops.	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits the Subject Land due to marginal habitat presence and lack of records within the locality.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.
Reptile							
<i>Aprasia parapulchella</i> (Pink-tailed Worm-lizard, Pink-tailed Legless Lizard)	V	V	Known from the Central and Southern Tablelands, and the South Western Slopes. A concentration of populations in the Canberra/Queanbeyan Region, Cooma, Yass, Bathurst, Albury and West Wyalong. Inhabits sloping, open woodland areas with predominantly native grassy groundlayers, particularly those dominated by Kangaroo Grass (<i>Themeda triandra</i>). Sites are typically well-drained, with rocky outcrops or scattered, partially-buried rocks. Commonly found beneath small, partially-embedded rocks and appear to spend considerable time in burrows below these rocks; the burrows have been constructed by and are often still inhabited by small black ants and termites. Feeds on the larvae and eggs of the ants with which it shares its burrows.	0 (PMST)	Marginal Limited habitat within the Subject Land.	Unlikely There is a low probability that the species inhabits the Subject Land due to marginal habitat presence and lack of records within the locality.	No Marginal habitat present, lack of local records and unlikely to occur within Subject Land.

D.8 EPBC Act Protected Matters Report

Please see overleaf.



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

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

Report created: 03-Sep-2025

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	7
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	6
Listed Threatened Species:	47
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	18
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	3
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	6
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	500 - 600km upstream from Ramsar site	In feature area
Barmah forest	50 - 100km upstream from Ramsar site	In buffer area only
Gunbower forest	150 - 200km upstream from Ramsar site	In buffer area only
Hattah-kulkyne lakes	300 - 400km upstream from Ramsar site	In feature area
Nsw central murray state forests	50 - 100km upstream from Ramsar site	In buffer area only
Riverland	500 - 600km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	500 - 600km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities		[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps. Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.		
Community Name	Threatened Category	Presence Text Buffer Status
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions	Endangered	Community may occurIn feature area within area
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area In feature area
Mallee Bird Community of the Murray Darling Depression Bioregion	Endangered	Community may occurIn feature area within area

Community Name	Threatened Category	Presence Text	Buffer Status
Natural Grasslands of the Murray Valley Plains	Critically Endangered	Community likely to occur within area	In feature area
Weeping Myall Woodlands	Endangered	Community may occurIn feature area within area	
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species

[[Resource Information](#)]

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

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat may occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Lophochroa leadbeateri leadbeateri Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo, Pink Cockatoo (eastern) [82926]	Endangered	Species or species habitat may occur within area	In feature area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat known to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only
CRUSTACEAN			
Euastacus armatus Murray Crayfish [81537]	Vulnerable	Species or species habitat known to occur within area	In feature area
FISH			
Bidyanus bidyanus Silver Perch, Bidyan [76155]	Endangered	Species or species habitat known to occur within area	In buffer area only
Craterocephalus fluviatilis Murray Hardyhead [56791]	Endangered	Species or species habitat may occur within area	In buffer area only
Galaxias rostratus Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat known to occur within area	In buffer area only
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
FROG			
Crinia sloanei Sloane's Froglet [59151]	Endangered	Species or species habitat known to occur within area	In feature area
Litoria raniformis Southern Bell Frog, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat may occur within area	In feature area
INSECT			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Keyacris scurra Key's Matchstick Grasshopper [89739]	Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
PLANT			
Amphibromus fluitans River Swamp Wallaby-grass, Floating Swamp Wallaby-grass [19215]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Brachyscome muelleroides Mueller Daisy [15572]	Vulnerable	Species or species habitat may occur within area	In feature area
Caladenia arenaria Sand-hill Spider-orchid [9275]	Endangered	Species or species habitat may occur within area	In buffer area only
Lepidium monoplacoides Winged Pepper-cress [9190]	Endangered	Species or species habitat likely to occur within area	In feature area
Myriophyllum porcatum Ridged Water-milfoil [19919]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Prasophyllum petilum Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area	In buffer area only
Prasophyllum validum Sturdy Leek-orchid, Mount Remarkable Leek-orchid [10268]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sclerolaena napiformis Turnip Copperburr [11742]	Endangered	Species or species habitat likely to occur within area	In feature area
Senecio macrocarpus Large-fruit Fireweed, Large-fruit Groundsel [16333]	Vulnerable	Species or species habitat may occur within area	In feature area
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat may occur within area	In feature area
Swainsona plagiotropis Red Darling-pea, Red Swainson-pea [10804]	Vulnerable	Species or species habitat may occur within area	In feature area
Swainsona recta Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area	In buffer area only

REPTILE

Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area
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Listed Migratory Species

[[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Migratory Terrestrial Species

Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
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Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands

[\[Resource Information \]](#)

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

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [15271]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [15270]	NSW	In buffer area only

Commonwealth Land Name		State	Buffer Status
Listed Marine Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area	In buffer area only
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Carlyle H115 B.R	Natural Features Reserve	VIC	In buffer area only
River Murray Reserve	Natural Features Reserve	VIC	In buffer area only
River Murray Reserve (non-PV)	Natural Features Reserve	VIC	In buffer area only

Regional Forest Agreements	[Resource Information]
Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.	

RFA Name	State	Buffer Status
North East Victoria RFA	Victoria	In buffer area only

EPBC Act Referrals					[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
Residential development (including wetland retention basins)	2022/09402		Completed	In buffer area only	

Controlled action				
The Modified Operation of the Goulburn Murray Irrigation District	2009/5123	Controlled Action	Post-Approval	In buffer area only

Not controlled action				
Corowa to Mulwala Trail	2019/8598	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area

Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

Please feel free to provide feedback via the [Contact us](#) page.

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Appendix E Survey data

E.1 Vegetation integrity plot data

Table 13-3 Vegetation survey data and locations

plot	pct	area	patchsize	condition class	zone	easting	northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic	Plot-based vegetation survey?	Vegetation integrity survey?
BP01	76	0.16	101	Planted	55	445082	6018991	269	3	1	5	3	0	0	40.1	25	1.5	0.3	0	0	2	0	54.0	1	0	2	4	3	2	2	0.1	☒ Yes ☐ No	☒ Yes ☐ No
BP02	76	0.54	101	DG_Substation	55	444976	6019035	89	0	0	4	1	0	0	0	0	15.6	0.1	0	0	0	0	14.0	0	0	0	0	0	0	0	0.1	☒ Yes ☐ No	☒ Yes ☐ No
BP03	Exotic - cropped	7.43	N/A	N/A	55	444971	6019106	256	0	0	1	1	0	0	0	0	0.1	0.1	0	0	0	0	6.4	0	0	0	0	0	0	0	0	☒ Yes ☐ No	☒ Yes ☐ No
BP04	Planted Native	1.13	N/A	N/A	55	445110	6019110	267	1	1	0	1	0	0	3	3	0	0.1	0	0	0	0	29.0	0	1	2	0	0	0	1	70	☒ Yes ☐ No	☒ Yes ☐ No
BP05	76	0.05	101	Woodland	55	445135	6019257	354	1	0	3	2	0	0	25	0	3.2	0.2	0	0	2	2	69.0	0	0	0	0	0	0	0	10	☒ Yes ☐ No	☒ Yes ☐ No
BP06	76	0.45	101	DG_Roadside	55	445116	6019130	357	0	0	4	5	0	0	0	0	0.4	0.7	0	0	0	0	24.8	0	0	0	0	0	0	0	1.3	☒ Yes ☐ No	☒ Yes ☐ No

BAM Site Field Survey							
Project:	250425	Plot Identifier	1	Pic 20x20	50923_102813	Pic 20x50	20250923_105828.jpg
Survey date:	23/09/2025	Compass Orientation (head of 20x20 plot)				269W	
Recorders	Julie Gooding, Maddie Robertson		PCT:	76	Planted		
GPS Easting	445082.3562	GPS Northing	6018991.101		Datum	2020	Zone 55
Landform			Soils			Drainage & Slope	
Morphology	plain		Soil Texture	sandy clay		Slope	
LandF Element			Soil Colour	brown		Aspect	
LandF Pattern			Soil Depth			Drainage	
Microrelief			Geology			Watercourses	
Plot Disturbance							
	Severity	Age	Observational Evidence				
Clearing	2	O	regeneration				
Cultivation	0	0					
Soil erosion	0	0					
Firewood	0	0					
Grazing	0	0					
Fire Damage	0	0					
Storm Damage	0	0					
Weediness	1	R	capeweed most dominant				
Other	0	0					
Severity: 0 = no evidence, 1=light, 2=moderate, 3=severe Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)							
Additional information							
Current land use							
substation - visual screen							
Age class of trees (DBH range) , Condition of Vegetation, Hollows							
3-20 years							
Disturbances (i.e. fire, grazing,ferals, clearing, logging, soil degradation, pollution, weeds, dieback)							
clearing, herbicide, weeds							
Significant and threatened species and communities (Note pop. size/area, structure, repro status, habit, habitat, threats, photos)							
N/A							
Dominant Species outside Plot		Remnant Grey Box on Whitehead Road					

FUNCTION			
Function attributes for		1	
BAM Attribute (20x20m plot)			
Count of Native Richness	Stratum	Sum	
	Tree (TG)	3	
	Shrub (SG)	1	
	Forb (FG)	3	
	Grass & grasslike (GG)	5	
	Fern (EG)	0	
	Other (OG)	0	
	TOTAL	12	
BAM Attribute (20x20m plot)			
Count of cover abundance (native vascular plants)	Stratum	Sum	
	Tree (TG)	40.1	
	Shrub (SG)	25	
	Forb (FG)	0.3	
	Grass & grasslike (GG)	1.5	
	Fern (EG)	0	
	Other (OG)	0	
	TOTAL Native	66.9	
TOTAL 'HTE'	0.1		
BAM Attribute (20 x 50m plot) Tree Stem Counts			
DBH (cm)	Euc	Non Euc	Hollows
>80	0	0	0
50-79	2	0	0
30-49	3	0	0
20-29	4	0	0
10-19	2	0	0
5-9	0	0	0
<5	2	1	N/A
Length of logs (m)		1	
0.1%=63x63cm			
0.5%=1.4x1.4m			
1%=2x2m			
5%=4x5m			
25%=10x10m			

BAM Attributes (1 x 1m Plots)				
Litter Cover	Tape length	% cover	Average %	Photos
	5m	30%	54.0%	
	15m	50%		
	25m	75%		
	35m	95%		
	45m	20%		
Bare ground cover	5m	0%	0.4%	
	15m	0%		
	25m	1%		
	35m	0%		
Cryptogam cover	45m	1%	0.0%	
	5m	0%		
	15m	0%		
	25m	0%		
Rock Cover	35m	0%	0.0%	
	45m	0%		
	5m	0%		
	15m	0%		
	25m	0%		
Total Cover (>100%)		275%		
Native cover		67%		
Exotic cover		154%		
Other Ground Cover		54%		

COMPOSITION & STRUCTURE									
Species recorded for 1									
Abbreviation	Scientific Name	Common Name	Family	% Cover	Abundance	Exotic	Growth Form	High Threat?	Comments
Euca micr	<i>Eucalyptus microcarpa</i>	Western Grey Box	Myrtaceae	30	8		Tree (TG)	No	Planted
Euca side	<i>Eucalyptus sideroxylon</i>	Mugga Ironbark	Myrtaceae	10	4		Tree (TG)	No	Planted
Loli	<i>Lolium spp.</i>	A Ryegrass	Poaceae	50	2000+	*		No	
Aven	<i>Avena spp.</i>		Poaceae	30	2000+	*		No	
Mela brac	<i>Melaleuca bracteata</i>	Black Tea-tree	Myrtaceae	25	6		Shrub (SG)	No	Planted cultivar
Pinu	<i>Pinus spp.</i>		Pinaceae	0.1	1	*		No	Seedling
Lact serr	<i>Lactuca serriola</i>	Prickly Lettuce	Asteraceae	0.1	10	*		No	
Medi	<i>Medicago spp.</i>	A Medic	Fabaceae (Faboide)	0.1	5	*		No	
Olea euro	<i>Olea europaea</i>	Common Olive	Oleaceae	0.1	2	*		HTE	Seedling
Gali apar	<i>Galium aparine</i>	Goosegrass	Rubiaceae	0.1	10	*		No	
Sonc oler	<i>Sonchus oleraceus</i>	Common Sowthistle	Asteraceae	0.1	20	*		No	
Vulp	<i>Vulpia spp.</i>	Rat's-tail Fescue	Poaceae	5	1000	*		No	
Brac popu	<i>Brachychiton populneus</i>	Kurrajong	Malvaceae	0.1	1		Tree (TG)	No	Seedling
Ryti fulv	<i>Rytidosperma fulvum</i>		Poaceae	1	50		Grass & grasslike (GG)	No	
walw prol	<i>Walwhalleya prolata</i>		Poaceae	0.2	5		Grass & grasslike (GG)	No	
Eina nuta	<i>Einadia nutans</i>	Climbing Saltbush	Chenopodiaceae	0.1	8		Forb (FG)	No	
Aust scab	<i>Austrostipa</i>	Speargrass	Poaceae	0.1	10		Grass & grasslike (GG)	No	
Romu rose aust	<i>Romulea rosea var. aust</i>	Onion Grass	Iridaceae	0.3	1000+	*		No	
Cyno dact	<i>Cynodon dactylon</i>	Common Couch	Poaceae	0.1	5		Grass & grasslike (GG)	No	
malv parv	<i>Malva parviflora</i>	Small-flowered Mallow	Malvaceae	0.1	5	*		No	
Cera glom	<i>Cerastium glomeratum</i>	Mouse-ear Chickweed	Caryophyllaceae	0.1	20	*		No	
Brom hord	<i>Bromus hordeaceus</i>	Soft Brome	Poaceae	0.2	200	*		No	
Phal aqua	<i>Phalaris aquatica</i>	Phalaris	Poaceae	0.2	2	*		No	
Plan lanc	<i>Plantago lanceolata</i>	Lamb's Tongues	Plantaginaceae	0.1	10	*		No	
Rume cris	<i>Rumex crispus</i>	Curled Dock	Polygonaceae	0.1	1	*		No	
Mair ench	<i>Maireana enchylaenoides</i>	Wingless Fissure-weed	Chenopodiaceae	0.1	1		Forb (FG)	No	
Arct cale	<i>Arctotheca calendula</i>	Capeweed	Asteraceae	0.1	30	*		No	
Sida corr	<i>Sida corrugata</i>	Corrugated Sida	Malvaceae	0.1	1		Forb (FG)	No	
Trif arve	<i>Trifolium arvense</i>	Haresfoot Clover	Fabaceae (Faboide)	0.1	30	*		No	
Care inve	<i>Carex inversa</i>	Knob Sedge	Cyperaceae	0.1	1		Grass & grasslike (GG)	No	
Hord	<i>Hordeum spp.</i>	A Barley Grass	Poaceae	0.1	100	*		No	

BAM Site Field Survey							
Project:	250425	Plot Identifier	BP2	Pic 10x40	51021_105259	Pic 10x100	20251021_110918.jpg
Survey date:	21/10/2025	Compass Orientation (head of 10x40 plot)			89 E		
Recorders	Julie Gooding, Maddie Robertson		PCT:	76	DG_Substation		
GPS Easting	444976.9772	GPS Northing	6019035.772	Datum	2020	Zone	55
Landform			Soils			Drainage & Slope	
Morphology	slope		Soil Texture	clay loam		Slope	
LandF Element			Soil Colour	brown		Aspect	
LandF Pattern			Soil Depth			Drainage	
Microrelief			Geology			Watercourses	
Plot Disturbance							
	Severity	Age	Observational Evidence				
Clearing	3	0	farmland adjacent, current use of substation				
Cultivation	0	0					
Soil erosion	1	NR					
Firewood	0	0					
Grazing	0	0					
Fire Damage	0	0					
Storm Damage	0	0					
Weediness	3	NR	weedy & weed-dominant				
Other	0	0					
Severity: 0 = no evidence, 1=light, 2=moderate, 3=severe Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)							
Additional information							
Current land use							
substation							
Age class of trees (DBH range) , Condition of Vegetation, Hollows							
0							
Disturbances (i.e. fire, grazing, ferals, clearing, logging, soil degradation, pollution, weeds, dieback)							
clearing, weeds							
Significant and threatened species and communities (Note pop. size/area, structure, repro status, habit, habitat, threats, photos)							
0							
Dominant Species outside Plot		capeweed					

FUNCTION			
Function attributes for		BP2	
BAM Attribute (10x40m plot)			
Count of Native Richness	Stratum	Sum	
	Tree (TG)	0	
	Shrub (SG)	0	
	Forb (FG)	1	
	Grass & grasslike (GG)	4	
	Fern (EG)	0	
	Other (OG)	0	
	TOTAL	5	
BAM Attribute (10x40m plot)			
Count of cover abundance (native vascular plants)	Stratum	Sum	
	Tree (TG)	0	
	Shrub (SG)	0	
	Forb (FG)	0.1	
	Grass & grasslike (GG)	15.6	
	Fern (EG)	0	
	Other (OG)	0	
	TOTAL Native	15.7	
TOTAL 'HTE'	0.1		
BAM Attribute (10 x 100m plot) Tree Stem Counts			
DBH (cm)	Euc	Non Euc	Hollows
>80	0	0	0
50-79	0	0	0
30-49	0	0	0
20-29	0	0	0
10-19	0	0	0
5-9	0	0	0
<5	0	0	N/A
Length of logs (m)		0	
0.1%=63x63cm			
0.5%=1.4x1.4m			
1%=2x2m			
5%=4x5m			
25%=10x10m			

BAM Attributes (1 x 1m Plots)				
Litter Cover	Tape length	% cover	Average %	Photos
	5m	5%	14.0%	
	15m	2%		
	25m	60%		
	35m	0%		
	85m	3%		
Bare ground cover	5m	20%	5.2%	
	15m	1%		
	25m	5%		
	35m	0%		
	85m	0%		
Cryptogam cover	5m	0%	0.4%	
	15m	2%		
	25m	0%		
	35m	0%		
	85m	0%		
	Rock Cover	5m		0%
15m		0%		
25m		0%		
35m		0%		
85m		0%		

Total Cover (>100%)	132%
Native cover	16%
Exotic cover	97%
Other Ground Cover	20%

COMPOSITION & STRUCTURE									
Species recorded for BP2									
Abbreviation	Scientific Name	Common Name	Family	% Cover	Abundance	Exotic	Growth Form	High Threat?	Comment
Arct cale	<i>Arctotheca calendula</i>	Capeweed	Asteraceae	15	5000+	*		No	
Brom hord	<i>Bromus hordeaceus</i>	Soft Brome	Poaceae	10	5000	*		No	
Cera vulg	<i>Cerastium vulgare</i>	Mouse-ear Chickweed	Caryophyllaceae	1	3000	*		No	
Plan lanc	<i>Plantago lanceolata</i>		Plantaginaceae	0.3	50	*		No	
Both macr	<i>Bothriochloa macra</i>	Red Grass	Poaceae	15	4000		Grass & grasslike (GG)	No	
Oxal	<i>Oxalis spp.</i>		Oxalidaceae	0.1	4		Forb (FG)	No	
Erod mosc	<i>Erodium moschatum</i>	Musky Crowfoot	Geraniaceae	15	5000	*		No	
Medi trun	<i>Medicago truncatula</i>	Barrel Medic	Fabaceae (Faboide)	30	1000	*		No	
Vulp	<i>Vulpia spp.</i>	Rat's-tail Fescue	Poaceae	5	5000	*		No	
Sonc oler	<i>Sonchus oleraceus</i>	Common Sowthistle	Asteraceae	0.1	3	*		No	
Trif arve	<i>Trifolium arvense</i>	Haresfoot Clover	Fabaceae (Faboide)	0.1	20	*		No	
Romu rose aust	<i>Romulea rosea var. au</i>	Onion Grass	Iridaceae	0.1	100	*		No	
Ryti fulv	<i>Rytidosperma fulvum</i>	Wallaby Grass	Poaceae	0.1	10		Grass & grasslike (GG)	No	
Brom dian	<i>Bromus diandrus</i>	Great Brome	Poaceae	0.1	20	*		HTE	
Poa bulb	<i>Poa bulbosa</i>	Bulbous Poa	Poaceae	0.1	10	*		No	
Aven fatu	<i>Avena fatua</i>	Wild Oats	Poaceae	0.5	100	*		No	
Hypo glab	<i>Hypochaeris glabra</i>	Smooth Catsear	Asteraceae	0.1	8	*		No	
Trif camp	<i>Trifolium campestre</i>	Hop Clover	Fabaceae (Faboide)	2	1000+	*		No	
Trif	<i>Trifolium spp.</i>	A Clover	Fabaceae (Faboide)	1	1000	*		No	
cyno dact	<i>Cynodon dactylon</i>	Common Couch	Poaceae	0.4	10		Grass & grasslike (GG)	No	
chlo trun	<i>Chloris truncata</i>	Windmill Grass	Poaceae	0.1	10		Grass & grasslike (GG)	No	
Echi plan	<i>Echium plantagineum</i>	Patterson's Curse	Boraginaceae	0.1	5	*		No	
hypo radi	<i>Hypochaeris radicata</i>	Catsear	Asteraceae	0.5	100	*		No	
Hord	<i>Hordeum spp.</i>	A Barley Grass	Poaceae	0.2	80	*		No	
rume cris	<i>Rumex crispus</i>	Curled Dock	Polygonaceae	0.1	7	*		No	

BAM Site Field Survey							
Project:	250425	Plot Identifier	3	Pic 20x20	51021_114243	Pic 20x50	20251021_114957.jpg
Survey date:	21/10/2025	Compass Orientation (head of 20x20 plot)				256 W	
Recorders	Julie Gooding, Maddie Robertson		PCT:	Exotic - cropped			
GPS Easting	444971.5508	GPS Northing	6019106.331		Datum	2020	Zone 55
Landform			Soils			Drainage & Slope	
Morphology	Plain		Soil Texture	Silty Clay		Slope	
LandF Element			Soil Colour	Grey		Aspect	
LandF Pattern			Soil Depth			Drainage	
Microrelief			Geology			Watercourses	
Plot Disturbance							
	Severity	Age	Observational Evidence				
Clearing	3	NR	Historic clearing				
Cultivation	3	R	Cropping				
Soil erosion	0						
Firewood	0						
Grazing	2	R	Cow pats				
Fire Damage	0						
Storm Damage	0						
Weediness	3	NR	Rye Grass				
Other							
Severity: 0 = no evidence, 1=light, 2=moderate, 3=severe Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)							
Additional information							
Current land use							
Agriculture							
Age class of trees (DBH range) , Condition of Vegetation, Hollows							
No Trees							
Disturbances (i.e. fire, grazing, ferals, clearing, logging, soil degradation, pollution, weeds, dieback)							
Cropping and Grazing							
Significant and threatened species and communities (Note pop. size/area, structure, repro status, habit, habitat, threats, photos)							
None							
Dominant Species outside Plot		Remnant Grey Box on Whitehead Road					

FUNCTION			
Function attributes for		3	
BAM Attribute (20x20m plot)			
Count of Native Richness	Stratum	Sum	
	Tree (TG)	0	
	Shrub (SG)	0	
	Forb (FG)	1	
	Grass & grasslike (GG)	1	
	Fern (EG)	0	
	Other (OG)	0	
	TOTAL	2	
BAM Attribute (20x20m plot)			
Count of cover abundance (native vascular plants)	Stratum	Sum	
	Tree (TG)	0	
	Shrub (SG)	0	
	Forb (FG)	0.1	
	Grass & grasslike (GG)	0.1	
	Fern (EG)	0	
	Other (OG)	0	
	TOTAL Native	0.2	
TOTAL 'HTE'	0		
BAM Attribute (20 x 50m plot) Tree Stem Counts			
DBH (cm)	Euc	Non Euc	Hollows
>80	0	0	0
50-79	0	0	0
30-49	0	0	0
20-29	0	0	0
10-19	0	0	0
5-9	0	0	0
<5	0	0	N/A
Length of logs (m)		0	
0.1%=63x63cm			
0.5%=1.4x1.4m			
1%=2x2m			
5%=4x5m			
25%=10x10m			

BAM Attributes (1 x 1m Plots)				
Litter Cover	Tape length	% cover	Average %	Photos
	5m	10%	6.4%	
	15m	5%		
	25m	5%		
	35m	10%		
45m	2%			
Bare ground cover	5m	1%	1.8%	
	15m	1%		
	25m	1%		
	35m	5%		
Cryptogam cover	45m	1%		
	5m	0%	0.0%	
	15m	0%		
	25m	0%		
	35m	0%		
45m	0%			
Rock Cover	5m	0%	0.0%	
	15m	0%		
	25m	0%		
	35m	0%		
	45m	0%		

Total Cover (>100%)	105%
Native cover	0%
Exotic cover	97%
Other Ground Cover	8%

COMPOSITION & STRUCTURE									
Species recorded for 3									
Abbreviation	Scientific Name	Common Name	Family	% Cover	Abundance	Exotic	Growth Form	High Threat?	EPBC Status
Loli	<i>Lolium spp.</i>	A Ryegrass	Poaceae	40	5000+	*		No	
Brom hord	<i>Bromus hordeaceus</i>	Soft Brome	Poaceae	30	5000+	*		No	
Trif cern	<i>Trifolium cernuum</i>	Drooping-flowered Clover	Fabaceae (Faboideae)	5	500	*		No	
Sonc oler	<i>Sonchus oleraceus</i>	Common Sowthistle	Asteraceae	0.1	8	*		No	
Echi plan	<i>Echium plantagineum</i>	Patterson's Curse	Boraginaceae	0.8	500	*		No	
Phal aqua	<i>Phalaris aquatica</i>	Phalaris	Poaceae	15	500	*		No	
Hord	<i>Hordeum spp.</i>	A Barley Grass	Poaceae	5	2000+	*		No	
Ryti fulv	<i>Rytidosperma fulvum</i>	Wallaby Grass	Poaceae	0.1	2		Grass & grasslike (GG)	No	
Aven fatu	<i>Avena fatua</i>	Wild Oats	Poaceae	0.1	20	*		No	
Rume cris	<i>Rumex crispus</i>	Curled Dock	Polygonaceae	0.1	1	*		No	
Vulp	<i>Vulpia spp.</i>	Rat's-tail Fescue	Poaceae	0.1	200	*		No	
Cirs vulg	<i>Cirsium vulgare</i>	Spear Thistle	Asteraceae	0.1	1	*		No	
Cera vulg	<i>Cerastium vulgare</i>	Mouse-ear Chickweed	Caryophyllaceae	0.1	30	*		No	
Arct cale	<i>Arctotheca calendula</i>	Capeweed	Asteraceae	0.1	6	*		No	
Erod mosc	<i>Erodium moschatum</i>	Musky Crowfoot	Geraniaceae	0.1	10	*		No	
vici sati	<i>Vicia sativa</i>	Common vetch	Fabaceae (Faboideae)	0.1	4	*		No	
Oxal	<i>Oxalis spp.</i>		Oxalidaceae	0.1	2		Forb (FG)	No	

BAM Site Field Survey							
Project:	250425	Plot Identifier	4	Pic 20x20	20251021_125606.jpg	Pic 20x50	20251021_130851.jpg
Survey date:	21/10/2025	Compass Orientation (head of 20x20 plot)			267 W		
Recorders	Julie Gooding, Maddie Robertson	PCT:	Planted native				
GPS Easting	445110.7412	GPS Northing	6019110.088	Datum	GDA 2020	Zone	55
Landform			Soils			Drainage & Slope	
Morphology	plain	Soil Texture	clay loam	Slope			
LandF Element		Soil Colour	brown	Aspect			
LandF Pattern		Soil Depth		Drainage			
Microrelief		Geology		Watercourses			
Plot Disturbance							
	Severity	Age	Observational Evidence				
Clearing	3	O	planted native 5-10 years old				
Cultivation	0	0					
Soil erosion	0	0					
Firewood	0	0					
Grazing	0	0					
Fire Damage	0	0					
Storm Damage	0	0					
Weediness	3	NR	weeds dominant: Great Brome & Oat Grass				
Other	0	0					
Severity: 0 = no evidence, 1=light, 2=moderate, 3=severe Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)							
Additional information							
Current land use							
unmaintained planted native vegetation							
Age class of trees (DBH range) , Condition of Vegetation, Hollows							
5-10 years							
Disturbances (i.e. fire, grazing,ferals, clearing, logging, soil degradation, pollution, weeds, dieback)							
clearing, weeds							
Significant and threatened species and communities (Note pop. size/area, structure, repro status, habit, habitat, threats, photos)							
N/A							
Dominant Species outside Plot		Great Brome					

FUNCTION			
Function attributes for		4	
BAM Attribute (20x20m plot)			
Count of Native Richness	Stratum	Sum	
	Tree (TG)	1	
	Shrub (SG)	1	
	Forb (FG)	1	
	Grass & grasslike (GG)	0	
	Fern (EG)	0	
	Other (OG)	0	
	TOTAL	3	
BAM Attribute (20x20m plot)			
Count of cover abundance (native vascular plants)	Stratum	Sum	
	Tree (TG)	3	
	Shrub (SG)	3	
	Forb (FG)	0.1	
	Grass & grasslike (GG)	0	
	Fern (EG)	0	
	Other (OG)	0	
	TOTAL Native	6.1	
	TOTAL 'HTE'	70	
BAM Attribute (20 x 50m plot) Tree Stem Counts			
DBH (cm)	Euc	Non Euc	Hollows
>80	0	0	0
50-79	0	0	0
30-49	0	0	0
20-29	0	0	0
10-19	2	0	0
5-9	1	0	0
<5	1	0	N/A
Length of logs (m)		0	
0.1%=63x63cm			
0.5%=1.4x1.4m			
1%=2x2m			
5%=4x5m			
25%=10x10m			

BAM Attributes (1 x 1m Plots)				
Litter Cover	Tape length	% cover	Average %	Photos
	5m	20%	29.00%	
	15m	10%		
	25m	40%		
	35m	60%		
	45m	15%		
Bare ground cover	5m	1%	0.20%	
	15m	0%		
	25m	0%		
	35m	0%		
Cryptogam cover	45m	0%	0.00%	
	5m	0%		
	15m	0%		
	25m	0%		
	35m	0%		
Rock Cover	45m	0%	0.00%	
	5m	0%		
	15m	0%		
	25m	0%		
	35m	0%		
Total Cover (>100%)		140%		
Native cover		6%		
Exotic cover		105%		
Other Ground Cover		29%		

COMPOSITION & STRUCTURE									
Species recorded for 4									
Abbreviation	Scientific Name	Common Name	Family	% Cover	Abundance	Exotic	Growth Form	High Threat?	Comment
aven fatu	<i>Avena fatua</i>	Wild Oats	Poaceae	10	1000+	*		No	
Brom dian	<i>Bromus diandrus</i>	Great Brome	Poaceae	70	5000+	*		HTE	
Brom hord	<i>Bromus hordeaceus</i>	Soft Brome	Poaceae	5	1000+	*		No	
Phal aqua	<i>Phalaris aquatica</i>		Poaceae	5	100	*		No	
Euca cine	<i>Eucalyptus cinerea</i>	Argyle Apple	Myrtaceae	3	1		Tree (TG)	No	Planted
Call	<i>Callistemon spp.</i>	Callistemon cultivar	Myrtaceae	3	2		Shrub (SG)	No	Planted cult
Vici sati	<i>Vicia sativa</i>	Common vetch	Fabaceae (Faboide	0.1	100	*		No	
Hord	<i>Hordeum spp.</i>	A Barley Grass	Poaceae	5	1000	*		No	
Salv verb	<i>Salvia verbenaca</i>	Vervain	Lamiaceae	0.1	2	*		No	
Oxal	<i>Oxalis spp.</i>		Oxalidaceae	0.1	1		Forb (FG)	No	
Echi plan	<i>Echium plantagineum</i>	Patterson's Curse	Boraginaceae	0.1	20	*		No	
Lact serr	<i>Lactuca serriola</i>	Prickly Lettuce	Asteraceae	0.2	50	*		No	
Hypo radi	<i>Hypochaeris radicata</i>	Catsear	Asteraceae	0.1	10	*		No	
Penn clan	<i>Cenchrus clandestinus</i>	Kikuyu	Poaceae	3	100	*		No	
Erod mosc	<i>Erodium moschatum</i>	Musky Crowfoot	Geraniaceae	0.1	10	*		No	
Trif	<i>Trifolium spp.</i>	A Clover	Fabaceae (Faboide	0.1	1	*		No	
Plan lanc	<i>Plantago lanceolata</i>	Lamb's Tongues	Plantaginaceae	0.1	1	*		No	
Arct cale	<i>Arctotheca calendula</i>	Capeweed	Asteraceae	0.1	1	*		No	

BAM Site Field Survey							
Project:	250425	Plot Identifier	5	Pic 20x20	51021_132645	Pic 20x50	20251021_134129.jpg
Survey date:	21/10/2025	40m X 10m	Compass Orientation (head of 20x20 plot)			354 N	
Recorders	Julie Gooding, Maddie Robertson		PCT:	76	Woodland		
GPS Easting	445135.1148	GPS Northing	6019257.825		Datum	GDA 2020	Zone 55
Landform			Soils			Drainage & Slope	
Morphology	plain		Soil Texture	clay loam		Slope	
LandF Element	roadside		Soil Colour	brown		Aspect	
LandF Pattern			Soil Depth			Drainage	
Microrelief			Geology			Watercourses	
Plot Disturbance							
	Severity	Age	Observational Evidence				
Clearing	2	NR	historic clearing within Lot				
Cultivation	0	0					
Soil erosion	0	0					
Firewood	0	0					
Grazing	1	NR	light grazing				
Fire Damage	0	0					
Storm Damage	0	0					
Weediness	2	NR	Weedy groundcover				
Other	0	0					
Severity: 0 = no evidence, 1=light, 2=moderate, 3=severe Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)							
Additional information							
Current land use							
roadside							
Age class of trees (DBH range) , Condition of Vegetation, Hollows							
50+ yrs, (DBH 150cm)							
Disturbances (i.e. fire, grazing,ferals, clearing, logging, soil degradation, pollution, weeds, dieback)							
clearing, weeds, soil degradation							
Significant and threatened species and communities (Note pop. size/area, structure, repro status, habit, habitat, threats, photos)							
Grey Box Woodland TEC							
Dominant Species outside Plot							

FUNCTION			
Function attributes for		5	
BAM Attribute (20x20m plot)			
Count of Native Richness	Stratum	Sum	
	Tree (TG)	1	
	Shrub (SG)	0	
	Forb (FG)	2	
	Grass & grasslike (GG)	3	
	Fern (EG)	0	
	Other (OG)	0	
	TOTAL	6	
BAM Attribute (20x20m plot)			
Count of cover abundance (native vascular plants)	Stratum	Sum	
	Tree (TG)	25	
	Shrub (SG)	0	
	Forb (FG)	0.2	
	Grass & grasslike (GG)	3.2	
	Fern (EG)	0	
	Other (OG)	0	
	TOTAL Native	28.4	
TOTAL 'HTE'	10		
BAM Attribute (20 x 50m plot) Tree Stem Counts			
DBH (cm)	Euc	Non Euc	Hollows
>80	2	0	2
50-79	0	0	0
30-49	0	0	0
20-29	0	0	0
10-19	0	0	0
5-9	0	0	0
<5	0	0	N/A
Length of logs (m)		0	
0.1%=63x63cm			
0.5%=1.4x1.4m			
1%=2x2m			
5%=4x5m			
25%=10x10m			

BAM Attributes (1 x 1m Plots)				
Litter Cover	Tape length	% cover	Average %	Photos
	5m	80%	69.00%	
	15m	95%		
	25m	5%		
	35m	95%		
	45m	70%		
Bare ground cover	5m	1%	1.00%	
	15m	0%		
	25m	3%		
	35m	0%		
	45m	1%		
Cryptogam cover	5m	0%	0.00%	
	15m	0%		
	25m	0%		
	35m	0%		
	45m	0%		
Rock Cover	5m	3%	0.80%	
	15m	0%		
	25m	1%		
	35m	0%		
	45m	0%		

Total Cover (>100%)	193%
Native cover	28%
Exotic cover	94%
Other Ground Cover	71%

COMPOSITION & STRUCTURE									
Species recorded for 5									
Abbreviation	Scientific Name	Common Name	Family	% Cover	Abundance	Exotic	Growth Form	High Threat?	Comment
Euca micr	<i>Eucalyptus microcarpa</i>	Western Grey Box	Myrtaceae	25	2		Tree (TG)	No	
Brom hord	<i>Bromus hordeaceus</i>	Soft Brome	Poaceae	0.5	500	*		No	
Echi plan	<i>Echium plantagineum</i>	Patterson's Curse	Boraginaceae	3	500	*		No	
Brom dian	<i>Bromus diandrus</i>		Poaceae	10	2000+	*		HTE	
Loli	<i>Lolium spp.</i>	A Ryegrass	Poaceae	20	2000+	*		No	
Hord	<i>Hordeum spp.</i>	A Barley Grass	Poaceae	20	2000+	*		No	
Aven fatu	<i>Avena fatua</i>	Wild Oats	Poaceae	10	2000+	*		No	
Sonc oler	<i>Sonchus oleraceus</i>	Common Sowthistle	Asteraceae	0.1	10	*		No	
Lact serr	<i>Lactuca serriola</i>	Prickly Lettuce	Asteraceae	0.2	100	*		No	
Trif subt	<i>Trifolium subterraneum</i>	Subterranean Clover	Fabaceae (Faboide)	0.1	10	*		No	
Arct cale	<i>Arctotheca calendula</i>	Capeweed	Asteraceae	0.1	50	*		No	
Poly avic	<i>Polygonum aviculare</i>	Wireweed	Polygonaceae	0.1	30	*		No	
Rume cris	<i>Rumex crispus</i>	Curled Dock	Polygonaceae	0.1	30	*		No	
Phal aqua	<i>Phalaris aquatica</i>		Poaceae	0.5	50	*		No	
Cyno dact	<i>Cynodon dactylon</i>	Common Couch	Poaceae	3	200		Grass & grasslike (GG)	No	
Junc Flav	<i>Juncus (flavidus ?)</i>		Juncaceae	0.1	10		Grass & grasslike (GG)	No	
Amph macr	<i>Amphibromus macrorrhizus</i>	Long-nosed Swamp Walla	Poaceae	0.1	1		Grass & grasslike (GG)	No	
poa annu	<i>Poa annua</i>	Winter Grass	Poaceae	0.1	20	*		No	
Trif camp	<i>Trifolium campestre</i>	Hop Clover	Fabaceae (Faboide)	0.1	5	*		No	
Lyth hyss	<i>Lythrum hyssopifolia</i>	Hyssop Loosestrife	Lythraceae	0.1	30		Forb (FG)	No	
Erod mosc	<i>Erodium moschatum</i>	Musky Crowfoot	Geraniaceae	0.1	3	*		No	
Cras sieb	<i>Crassula sieberiana</i>	Australian Stonecrop	Crassulaceae	0.1	10		Forb (FG)	No	
Moen errec	<i>Moenchia erecta</i>	Erect Chickweed	Caryophyllaceae	0.1	1	*		No	
Marr vulg	<i>Marrubium vulgare</i>	White Horehound	Lamiaceae	0.1	10	*		No	
Cirs vulg	<i>Cirsium vulgare</i>	Spear Thistle	Asteraceae	0.1	1	*		No	
Lepi	<i>Lepidium spp.</i>	A Peppercreess	Brassicaceae	0.1	1	*		No	
Hypo glab	<i>Hypochaeris glabra</i>	Smooth Catsear	Asteraceae	0.1	1	*		No	

BAM Site Field Survey							
Project:	250425	Plot Identifier	6	Pic 10x40	51021_140252	Pic 10x100	20251021_143327.jpg
Survey date:	21/10/2025	Compass Orientation (head of 10x40 plot)				357 N	
Recorders	Julie Gooding, Maddie Robertson		PCT:	76	DG_Roadside		
GPS Easting	445116.1544	GPS Northing	6019130.445		Datum	GDA 2020	Zone 55
Landform			Soils			Drainage & Slope	
Morphology	plain		Soil Texture	clay loam		Slope	
LandF Element			Soil Colour	brown		Aspect	
LandF Pattern			Soil Depth			Drainage	
Microrelief			Geology			Watercourses	
Plot Disturbance							
	Severity	Age	Observational Evidence				
Clearing	3	O					
Cultivation	0	0					
Soil erosion	1	NR					
Firewood	0	0					
Grazing	0	0					
Fire Damage	0	0					
Storm Damage	0	0					
Weediness	2	NR	moderate weed cover, room for native spp. to colonise				
Other	0						
Severity: 0 = no evidence, 1=light, 2=moderate, 3=severe Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)							
Additional information							
Current land use							
roadside vegetation							
Age class of trees (DBH range) , Condition of Vegetation, Hollows							
N/A							
Disturbances (i.e. fire, grazing,ferals, clearing, logging, soil degradation, pollution, weeds, dieback)							
clearing, weeds, pollution							
Significant and threatened species and communities (Note pop. size/area, structure, repro status, habit, habitat, threats, photos)							
N/A							
Dominant Species outside Plot		Remnant Grey Box on Whitehead Road					

FUNCTION			
Function attributes for		6	
BAM Attribute (10x40m plot)			
Count of Native Richness	Stratum	Sum	
	Tree (TG)	0	
	Shrub (SG)	0	
	Forb (FG)	5	
	Grass & grasslike (GG)	4	
	Fern (EG)	0	
	Other (OG)	0	
	TOTAL	9	
BAM Attribute (10x40m plot)			
Count of cover abundance (native vascular plants)	Stratum	Sum	
	Tree (TG)	0	
	Shrub (SG)	0	
	Forb (FG)	0.7	
	Grass & grasslike (GG)	0.4	
	Fern (EG)	0	
	Other (OG)	0	
	TOTAL Native	1.1	
TOTAL 'HTE'		1.3	
BAM Attribute (10 x 100m plot) Tree Stem Counts			
DBH (cm)	Euc	Non Euc	Hollows
>80	0	0	0
50-79	0	0	0
30-49	0	0	0
20-29	0	0	0
10-19	0	0	0
5-9	0	0	0
<5	0	0	N/A
Length of logs (m)		0	
0.1%=63x63cm			
0.5%=1.4x1.4m			
1%=2x2m			
5%=4x5m			
25%=10x10m			

BAM Attributes (1 x 1m Plots)				
Litter Cover	Tape length	% cover	Average %	Photos
	5m	1%	24.8%	
	25m	40%		
	45m	1%		
	65m	80%		
	85m	2%		
Bare ground cover	5m	60%		24.4%
	25m	2%		
	45m	40%		
	65m	0%		
	85m	20%		
Cryptogam cover	5m	1%	0.2%	
	25m	0%		
	45m	0%		
	65m	0%		
	85m	0%		
	Rock Cover	5m		1%
25m		0%		
45m		4%		
65m		0%		
85m		0%		

Total Cover (>100%)		144%
Native cover		1%
Exotic cover		92%
Other Ground Cover		50%

COMPOSITION & STRUCTURE									
Species recorded for 6									
Abbreviation	Scientific Name	Common Name	Family	% Cover	Abundance	Exotic	Growth Form	High Threat?	EPBC Status
Salv verb	<i>Salvia verbenaca</i>	Vervain	Lamiaceae	0.3	100	*		No	
Echi plan	<i>Echium plantagineum</i>	Patterson's Curse	Boraginaceae	0.1	50	*		No	
Loli	<i>Lolium spp.</i>	A Ryegrass	Poaceae	40	5000+	*		No	
Plan lanc	<i>Plantago lanceolata</i>	Plantain	Plantaginaceae	2	1000	*		No	
Aven fatu	<i>Avena fatua</i>	Wild Oats	Poaceae	20	2000	*		No	
Vulp myur	<i>Vulpia myuros</i>	Rat's Tail Fescue	Poaceae	2	1000	*		No	
Phal aqua	<i>Phalaris aquatica</i>	Phalaris	Poaceae	1	50	*		No	
Sonc oler	<i>Sonchus oleraceus</i>	Common Sowthistle	Asteraceae	0.1	30	*		No	
Loma mult mult	<i>Lomandra (multiflora?)</i>	Mat-rush	Asparagaceae	0.1	1		Grass & grasslike (GG)	No	No flowers
Hord	<i>Hordeum spp.</i>	A Barley Grass	Poaceae	2	1000	*		No	
Cera vulg	<i>Cerastium vulgare</i>	Mouse-ear Chickweed	Caryophyllaceae	0.2	500	*		No	
Erod cicu	<i>Erodium cicutarium</i>	Common Crowfoot	Geraniaceae	0.1	30	*		No	
Brom hord	<i>Bromus hordeaceus</i>	Soft Brome	Poaceae	20	2000+	*		No	
Hypo radi	<i>Hypochaeris radicata</i>	Catsear	Asteraceae	0.1	1	*		No	
Oxal	<i>Oxalis spp.</i>		Oxalidaceae	0.1	1		Forb (FG)	No	
Lyth hyss	<i>Lythrum hyssopifolia</i>	Hyssop Loosestrife	Lythraceae	0.3	500		Forb (FG)	No	
Poa annu	<i>Poa annua</i>	Winter Grass	Poaceae	0.1	10	*		No	
Poly avic	<i>Polygonum aviculare</i>	Wireweed	Polygonaceae	0.2	100	*		No	
Romu rose aust	<i>Romulea rosea var. aust</i>	Onion Grass	Iridaceae	0.1	50	*		No	
Junc	<i>Juncus (bufonius?)</i>	A Rush	Juncaceae	0.1	20		Grass & grasslike (GG)	No	Small annual
rume cris	<i>Rumex crispus</i>	Curled Dock	Polygonaceae	0.1	30	*		No	
Isol vict	<i>Isolepis victoriensis</i>		Cyperaceae	0.1	50		Grass & grasslike (GG)	No	
Trif	<i>Trifolium spp.</i>	A Clover	Fabaceae (Faboide)	0.2	30	*		No	
Arct cale	<i>Arctotheca calendula</i>	Capeweed	Asteraceae	0.2	20	*		No	
Vici sati	<i>Vicia sativa</i>	Common vetch	Fabaceae (Faboide)	1	500	*		No	
Trif arve	<i>Trifolium arvense</i>	Haresfoot Clover	Fabaceae (Faboide)	0.1	2	*		No	
Epil	<i>Epilobium spp.</i>		Onagraceae	0.1	3		Forb (FG)	No	
Pasp dila	<i>Paspalum dilatatum</i>	Paspalum	Poaceae	0.3	50	*		HTE	
Junc flav	<i>Juncus (flavidus?)</i>	A Rush	Juncaceae	0.1	2		Grass & grasslike (GG)	No	
Cirs vulg	<i>Cirsium vulgare</i>	Spear Thistle	Asteraceae	0.1	1	*		No	
Cras sieb	<i>Crassula sieberiana</i>	Australian Stonecrop	Crassulaceae	0.1	20		Forb (FG)	No	
ment satu	<i>Mentha (satureioides?)</i>	Native Pennyroyal	Lamiaceae	0.1	4		Forb (FG)	No	no flowers
Brom dian	<i>Bromus diandrus</i>	Great Brome	Poaceae	1	1000	*		HTE	
Trif	<i>Trifolium spp.</i>	A Clover	Fabaceae (Faboide)	0.1	1	*		No	

E.2 VI plot photographs

Please see overleaf.

Plot 1



Start of plot



5 m



15 m



25 m



35 m



45 m



End of plot

Plot 2



Start of plot



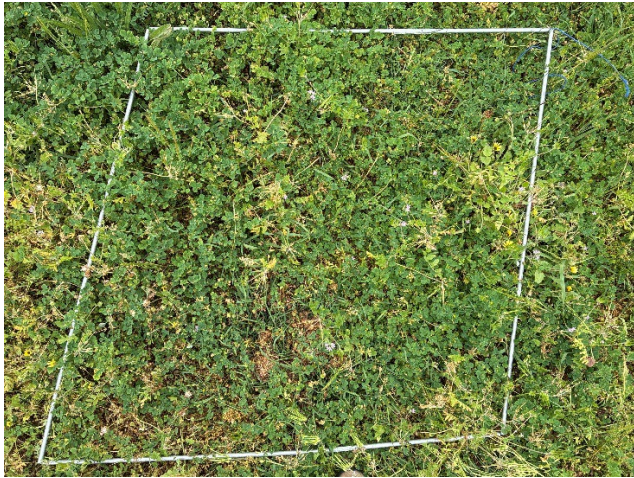
5 m



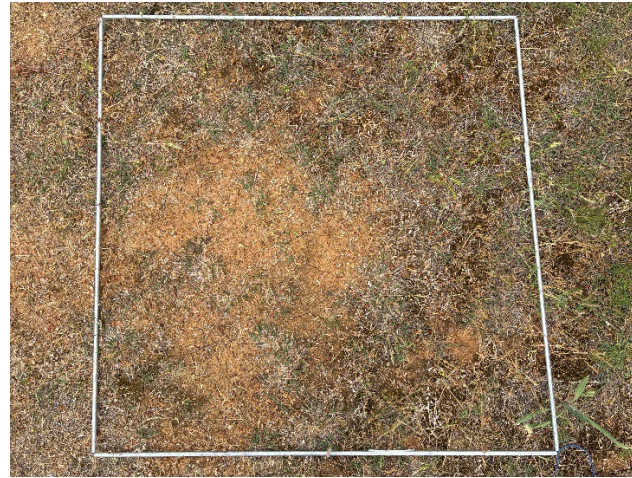
15 m



25 m



35 m



85 m

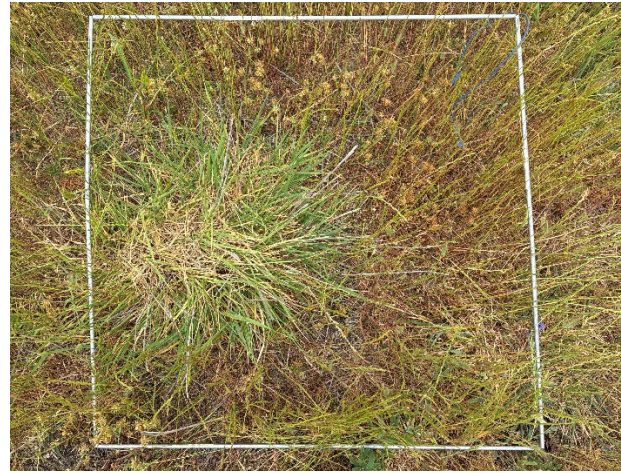


End of plot

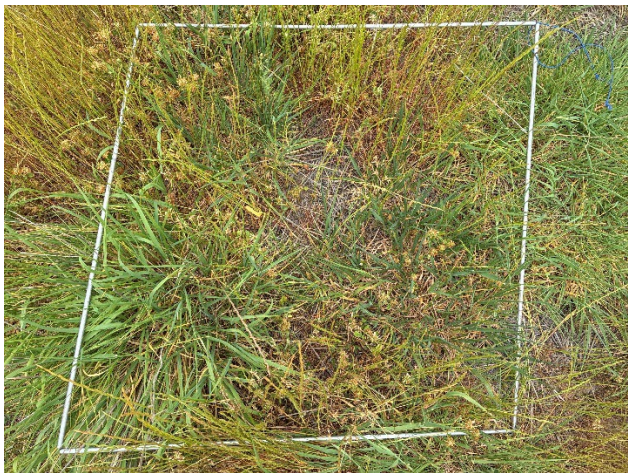
Plot 3



Start of plot



5 m



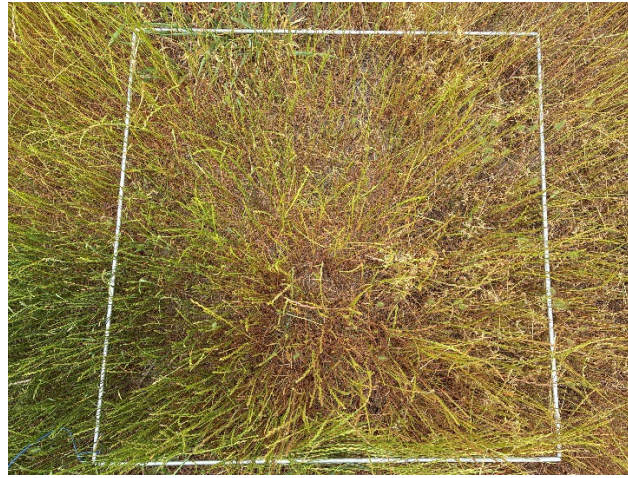
15 m



25 m



35 m



85 m

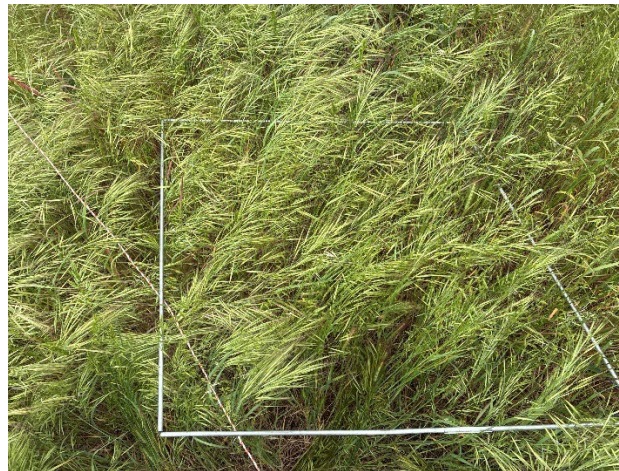


End of plot

Plot 4



Start of plot



5 m



15 m



25 m



35 m



85 m



End of plot

Plot 5



Start of plot



5 m



15 m



25 m



35 m



85 m



End of plot

Plot 6



Start of plot



5 m



25 m



45 m



65 m



85 m



End of plot

E.3 Anabat survey results

Please see overleaf.

Corowa Microbat Ultrasonic Call Identification Report
NGH Consulting Pty Ltd
Prepared for Maddie Robertson
Prepared by RA Environmental Consultants
ABN – 63 6685 875 27



Project aim

The objective of this microbat call identification report was to review the submitted microbat call data to identify the microbats that are present within the subject land.

Methods

Survey effort

The subject land is located approximately 3 km north of Corowa in New South Wales. The data analyzed were collected on a passively deployed Anabat Swift detector (Titley Scientific). The detector was deployed for seven survey nights, including 15 and 20 October 2025. The Anabat Swift detector was programmed and deployed by NGH Consulting.

Candidate species list

The subject land is located within the Riverina biogeographical region, as described by Pennay *et al.* (2004). Before analysing the submitted microbat call data, a candidate list of microbat species known to or are deemed likely to occur in the region (in this instance, region acquaints to a 10 km radius of subject land) was prepared by completing a search and a review of the Australian Bat Society 'Bat Maps' ([BatMap - Ausbats](#)), NSW Bionet database search tool, Atlas of Living Australia ([Atlas of Living Australia – Open access to Australia's biodiversity data \(ala.org.au\)](#)), Churchill (2008), Pennay *et al.* (2011) as well as Van Dyck and Strahan (2008).

This review identified 13 microbat species known to or considered likely to occur within a 10 km radius of the subject lands (Appendix 1 and Appendix 2).

Data analysis

Three thousand, nine hundred and twenty-nine Waveform Audio File Format (WAV) full-spectrum files were submitted for analysis. These files were subjected to a Decision Tree (DT) filter (Titley Scientific 2025) to:

- Exclude all noise files.
- Roughly sort the microbat call sequences into 5 to 10 kHz average characteristic frequency (Fc) groups.
- Attach a label to each file that best represents a species or species complex that could be responsible for making the call.

Following this process, the sorted and labelled microbat call sequences were manually reviewed in Anabat Insight. Species and species complex identifications were confirmed by comparing the call sequence characteristics of the recorded microbat calls to the call parameters published in:

- The *Region based guide to the echolocation calls of microbats in New South Wales* (Pennay *et al.* 2004) ([Bat Calls of New South Wales \(PDF - 1.4MB\) \(nsw.gov.au\)](#)) and an accompanying reference library of over 200 calls collected from the Sydney Basin bioregion of NSW ([Bat calls of New South Wales | Surveys, monitoring and records | Environment and Heritage](#)).
- The *Key to the bat calls of south-east Queensland and north-east New South Wales* (Reinhold *et al.* 2001). This guide provides useful descriptions of the call characteristics for many species that occur in this region. [\(1\) \(PDF\) Key to the bat calls of south-east Queensland and north-east New South Wales \(researchgate.net\)](#).

- *Australian Bats Field Guide*. Mobile App (Thomson *et al.* 2024).

While reviewing the recorded microbat call sequences, the following protocols (adapted from Lloyd *et al.* 2006) were applied:

- Recorded call sequences containing fewer than three pulses are generally excluded from the analysis. These calls are often too short to confidently identify the species making the call (Law *et al.* 1999).
- For those call sequences that can be used to identify a microbat species (or a species complex), two categories of confidence were used (Mills *et al.* 1996):
 - Present – the Fc, quality, and structure of the call sequence (e.g., pulse characteristics) (as per Pennay *et al.* 2004 and Thomson *et al.* 2024) are such that the identity of the microbat species making the call can be resolved with a relatively high degree of confidence.
 - Potentially present – the quality and structure of the call sequence are such that there is some uncertainty about the identity of the species that produced the call sequence. Or there is some likelihood of confusion with another species that produces a similar (overlapping) call sequence. Therefore, making it impossible to resolve or attribute that call profile to a single microbat species.
- Unusual call sequences (e.g. possible social calls, intra- and inter-species interaction, forage or feeding buzzes) that cannot be used to identify a microbat species were labeled as being of ‘low’ quality or dismissed from the analysis.
- Sequences that cannot be attributed to an echolocating microbat (e.g. insect buzzes, wind, train, and vehicle movements), were dismissed from the analysis.

Results and Discussion

Overview

Ten microbat species were identified as being present in the subject land (Table 1). A further three species were determined to be potentially present (Table 1). Examples of the recorded microbat species and species complex call sequences are shown in Figure 1 to Figure 12.

Threatened species information.

One threatened microbat, *Miniopterus orianae oceanensis* (Large Bent-winged Bat), which is listed as Vulnerable under the BC Act, was determined to be present in the subject land (Table 1). One further microbat species, *Myotis macropus* (Southern Myotis), which is also listed as Vulnerable under the BC Act was determined to be potentially present (Table 1).

No microbat species listed as threatened under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) were recorded.

Table 1. The microbat species that were recorded during this survey.

Species name	Common name	Conservation status		Present / potentially present
		EPBC Act 1999	BC Act 2016	
<i>Austronomus australis</i>	White-striped Free-tailed Bat	-	-	Present
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	-	-	Present
<i>Chalinolobus morio</i>	Chocolate Wattled Bat	-	-	Present
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	-	Vulnerable	Present
<i>Myotis macropus</i>	Southern Myotis	-	Vulnerable	Potentially Present
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	-	-	Potentially Present
<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	-	-	Potentially Present
<i>Ozimops planiceps</i>	Southern Free-tailed Bat	-	-	Present
<i>Ozimops ridei</i>	Ride's Free-tailed Bat	-	-	Present
<i>Scotorepens balstoni</i>	Inland Broad-nosed Bat	-	-	Present
<i>Vespadelus darlingtoni</i>	Large Forest Bat	-	-	Present
<i>Vespadelus regulus</i>	Southern Forest Bat	-	-	Present
<i>Vespadelus vulturnus</i>	Little Forest Bat	-	-	Present

Survey limitations - unresolved call sequences

A microbat species was deemed to be present or potentially present when the recorded call characteristics matched those described in Pennay *et al.* (2004) and Thomson *et al.* (2024). In the Riverina bioregion of NSW, several species can have overlapping call sequences (Pennay *et al.* 2004). These overlapping call sequences can have similar Fc ranges and identical pulse characteristics, making it difficult, or at times impossible, to attribute (or resolve) a microbat call profile to a single species. If an overlap has been deemed to occur, that call sequence will be considered ‘unresolved’ and given a multi-species complex label. Unless specified elsewhere, those species included in an unresolved call sequence will be determined as being ‘potentially present’ only. The following species recorded during this survey may exhibit overlapping call sequences.

- The call sequences of the non-threatened *Chalinolobus gouldii* (Gould’s Wattled Bat), *Ozimops planiceps* (Southern Free-tailed Bat), and *O. ridei* (Ride’s Free-tailed Bat) can overlap. See Figure 2, Figure 7, and Figure 8, for the resolved call sequences for these three species.
- The call sequences of Gould’s Wattled Bat and *Scotorepens balstoni* (Inland Broad-nosed) can overlap. See Figure 2 and Figure 9 for the resolved call sequences for these two species.
- The call sequences of the non-threatened *C. morio* (Chocolate Wattled Bat), *Vespadelus regulus*, and *V. vulturinus* (Little Forest Bat) can overlap at frequencies between 50 and 53.5 kHz. See Figure 3, Figure 11, and Figure 12 for the resolved call sequences for these three species.
- In this region, the call sequences of the threatened Large Bent-winged Bat, the non-threatened *V. darlingtoni* (Large Forest Bat), and the Little Forest Bat can overlap. See Figure 5, Figure 10, and Figure 12 for examples of the resolved and unresolved call sequences for these species.
- In this region, the call sequence of the threatened Southern Myotis can overlap with the call sequence of the non-threatened *Nyctophilus geoffroyi* (Lesser Long-eared Bat), and *N. gouldi* (Gould’s Long-eared Bat). See Figure 6 for an example of an unresolved call sequence for these three species.

To confirm the presence of the species deemed to be *potentially present* within the subject land, it would be necessary to undertake further surveys. The DPIE (2021) ‘*Species credit*’ *threatened bats and their habitats* guide suggests that these further surveys could involve:

- The use of mist or harp traps to conduct live capture and release surveys.
- The use of thermal cameras and hand-held microbat call detectors to monitor forage (e.g., Southern Myotis) and roost emergence activity.
- Roost (e.g., natural caves, bridge structures, stormwater drains or culverts, under exfoliating bark or hollow-bearing trees) searches for:
 - The presence of roosting microbats.
 - Indirect evidence of roosting microbats in the form of urine staining, guano, fur, carcasses (dead microbats), and bat fly (Superfamily: Hippoboscoidea, Family Nycteribiidae and Streblidae) pupae casings.

Reporting and nomenclature

This microbat bat call identification report follows the recommended reporting requirements provided by the Australian Bat Society (Reardon 2003). Microbat species and common names follow Jackson and Groves (2015) and Armstrong *et al.* (2020), except for *Miniopterus orianae oceanensis*, which is referred to as the Large Bent-winged Bat (Office of Environment and Heritage. (2019). Large Bent-winged Bat – profile viewed at [Large Bent-winged Bat - profile | NSW Environment, Energy and Science](#))

Disclaimer

The statements made in this report are made to inform a BDAR that is to be prepared by NGH Consulting Pty Ltd. Rod Armistead Environmental Consultants will not be liable for any loss or damage that might arise from the use of this report by any third party.

Rod Armistead Environmental Consultants, if required, reserves the right to re-analyse, review, and/or discuss the labeling and identification of the species identified in this assessment.

Examples of the resolved and unresolved microbat call sequences recorded during this survey. The call sequences shown below are displayed with overlapping full-spectrum and zero-crossing file formats. Unless otherwise specified, all the call sequences are shown with the time compressed (viewed with one millisecond between pulses), time per tick is set at F7 (10 milliseconds), Auto FS is on, and the smoothness is set at auto or at 5 (Penney *et al.* 2004; Titley Scientific 2023). The x-axis represents time in milliseconds, and the y-axis represents the average characteristic frequency in Kilohertz. The metrics for each call sequence, detector type, detector serial number, location, date, and time of each recording are shown in the two information panels located on the right-hand side of each call sequence.

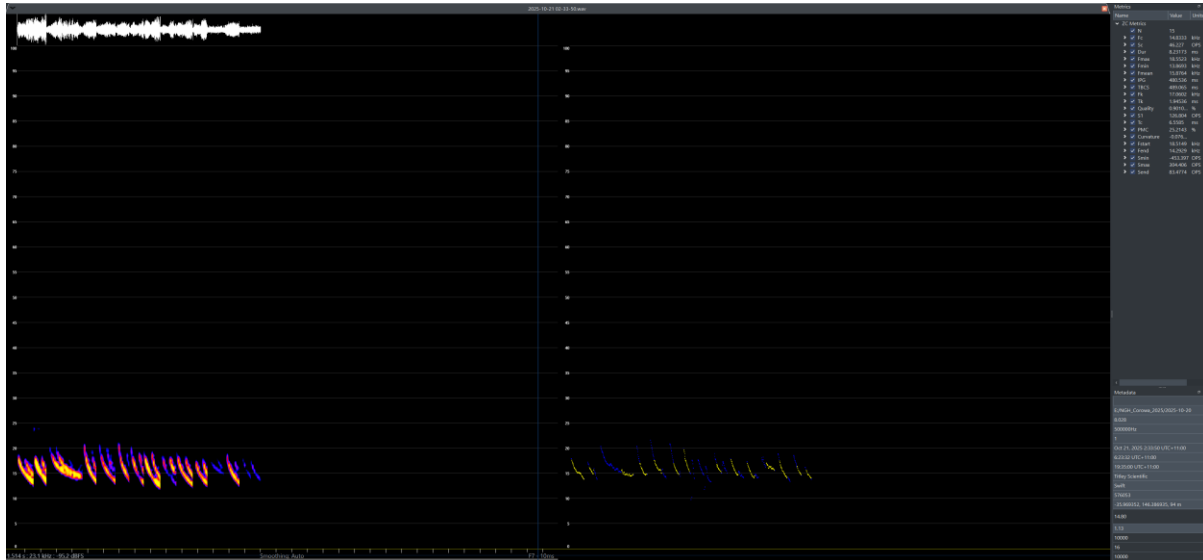


Figure 1. Call sequence for *Austronomus australis* (White-striped Free-tailed Bat).

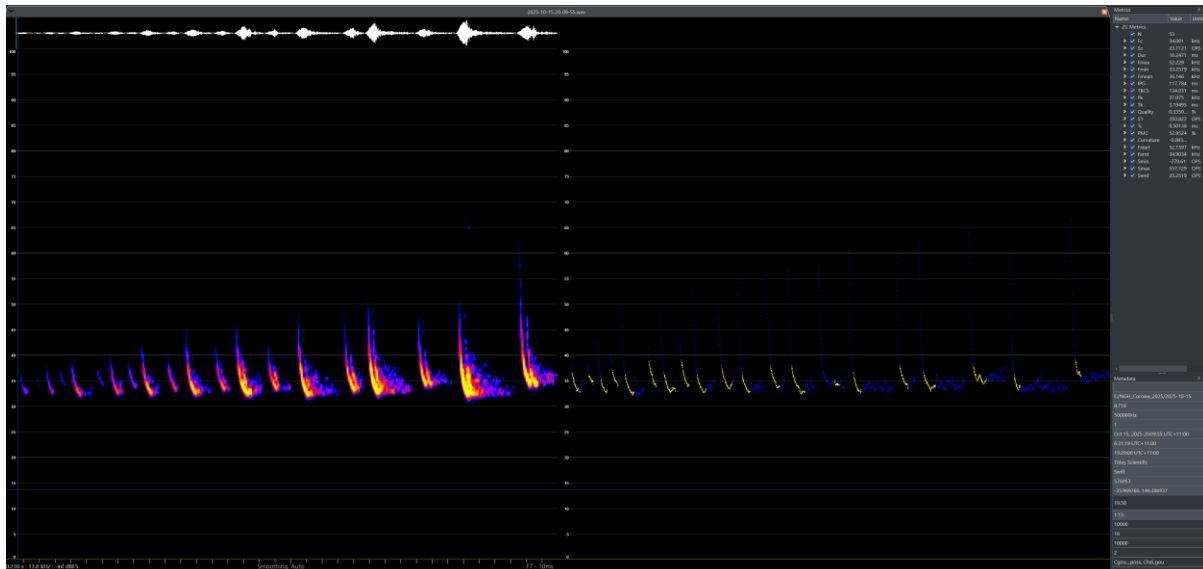


Figure 2. Call sequence for *Chalinolobus gouldii* (Gould's Wattled Bat)

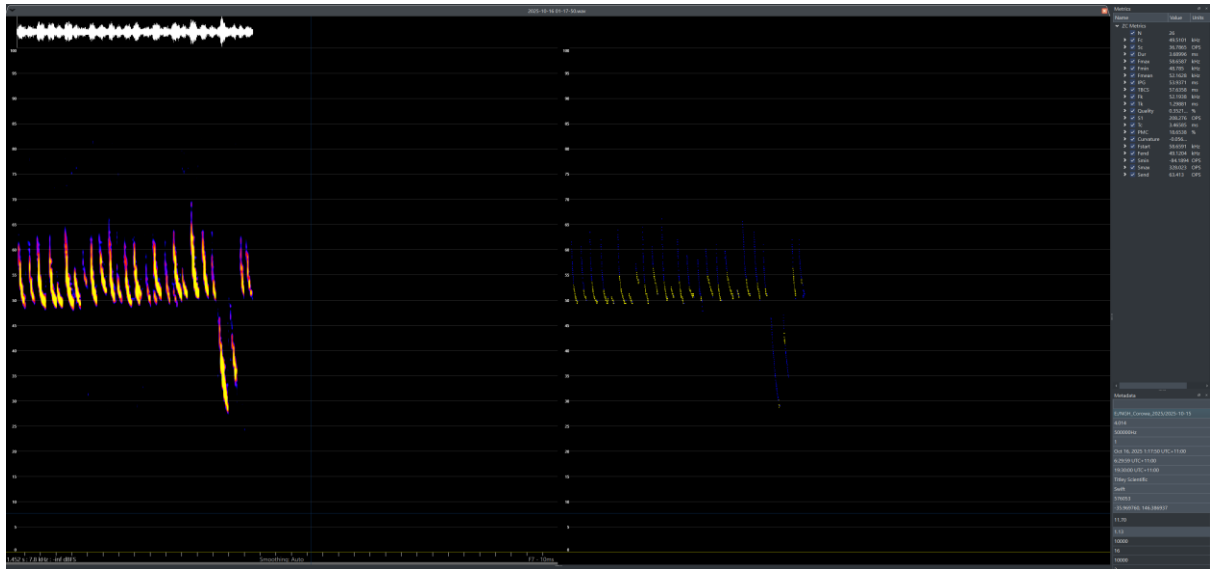


Figure 3. Call sequence for *Chalinolobus morio* (Chocolate Wattled Bat)

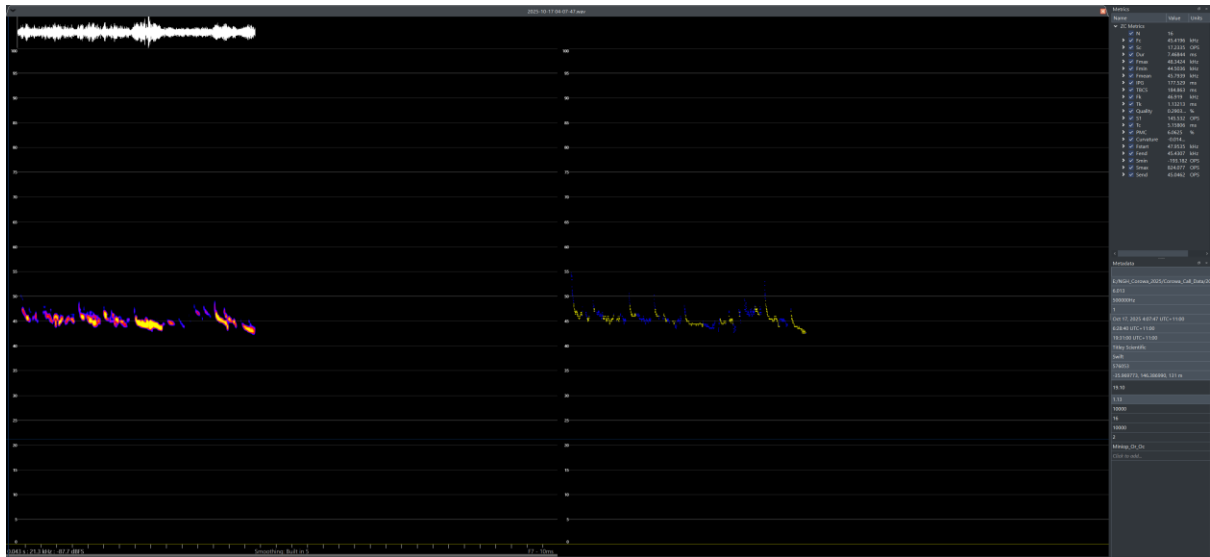


Figure 4. Call sequence for *Miniopterus orianae oceanensis* (Large Bent-winged Bat).

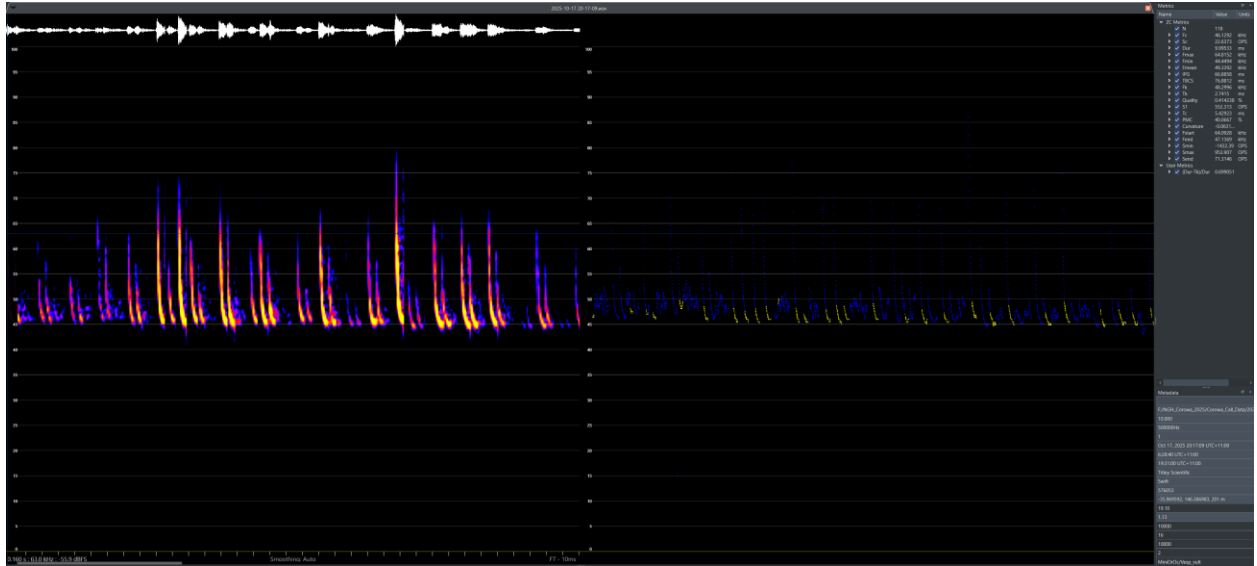


Figure 5. Potential call sequence for *Miniopterus orianae oceanensis* (Large Bent-winged Bat) or *Vespadelus regulus* (Southern Forest Bat).

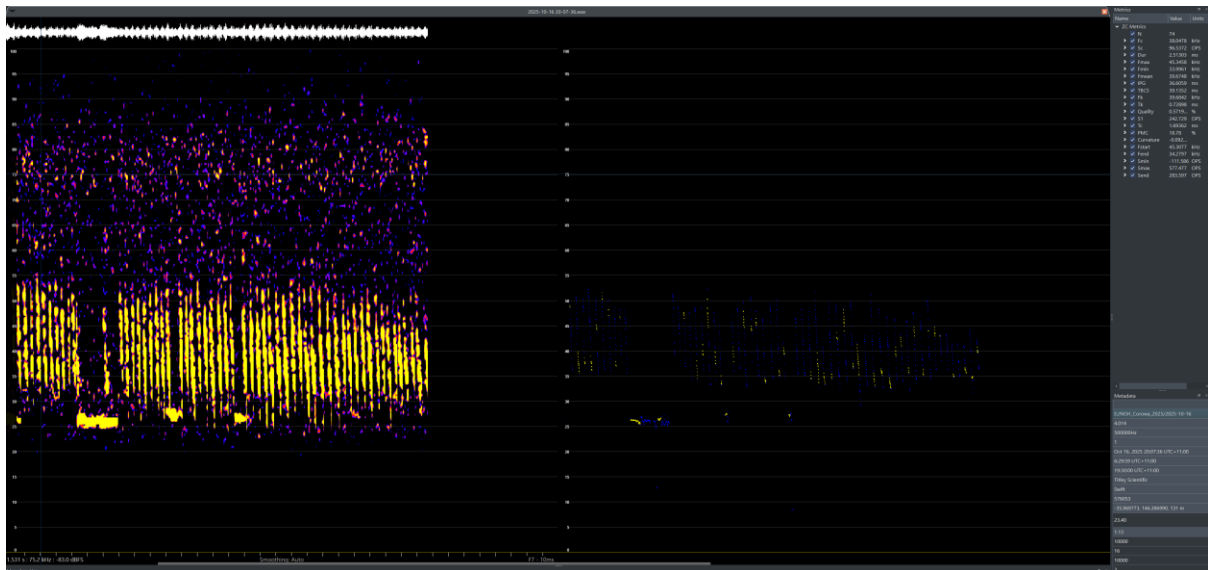
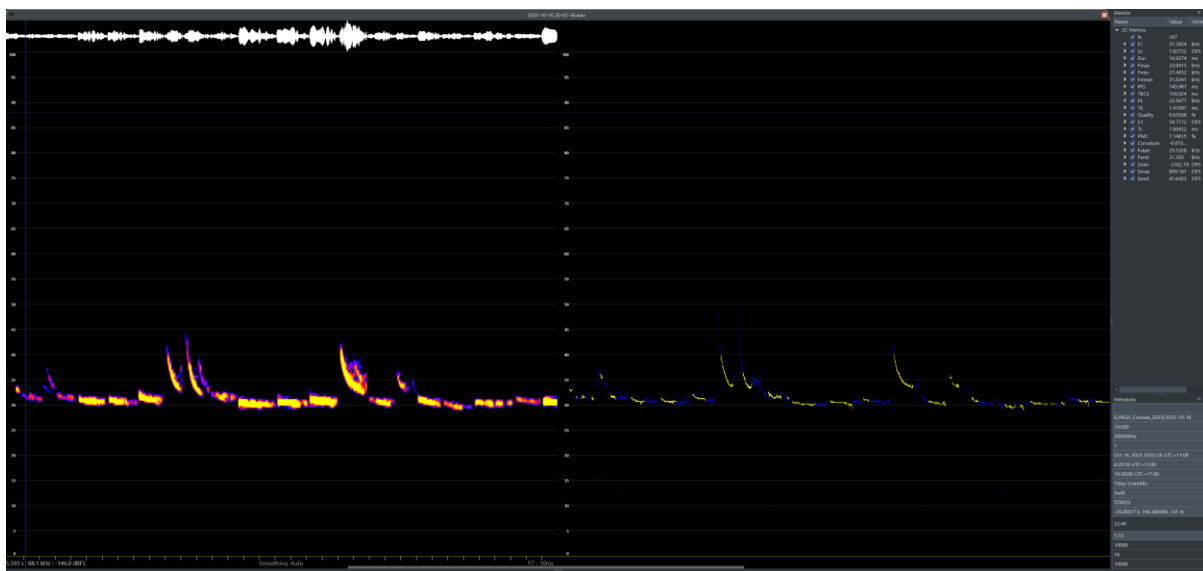
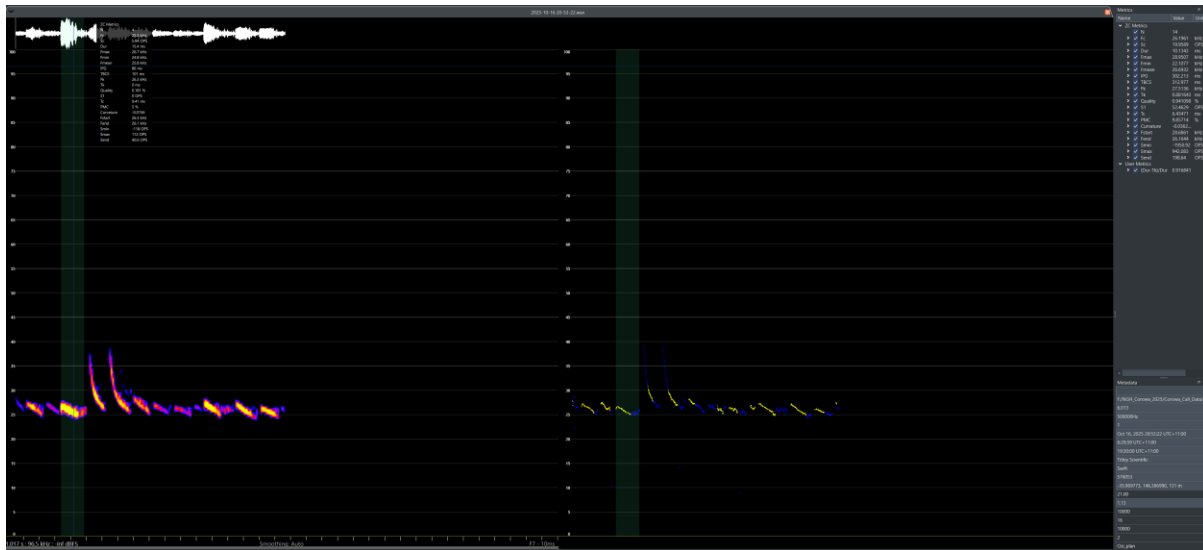
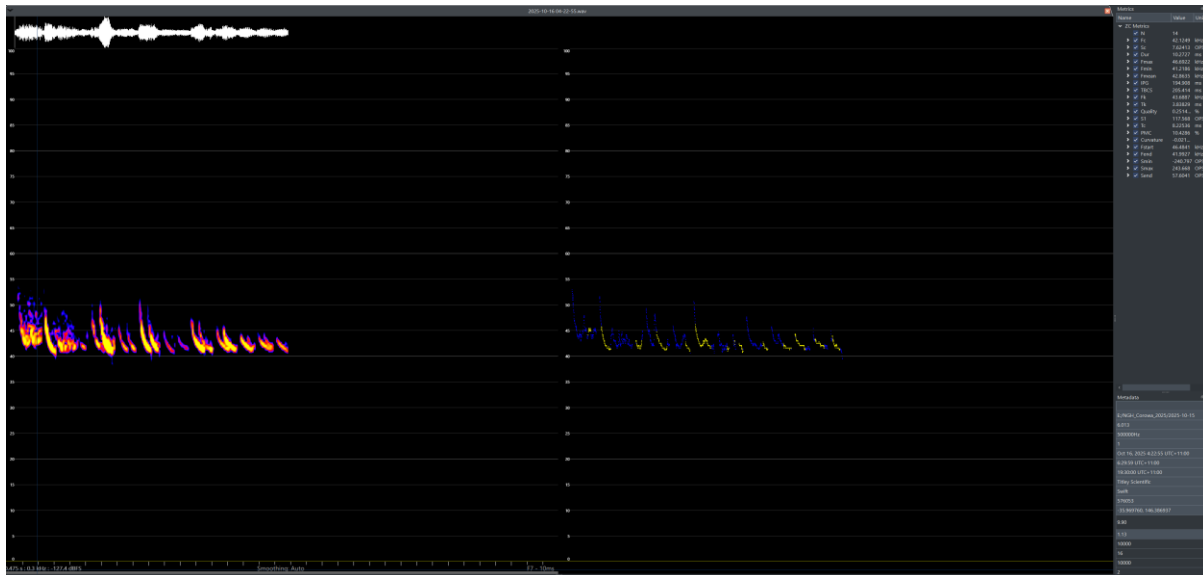
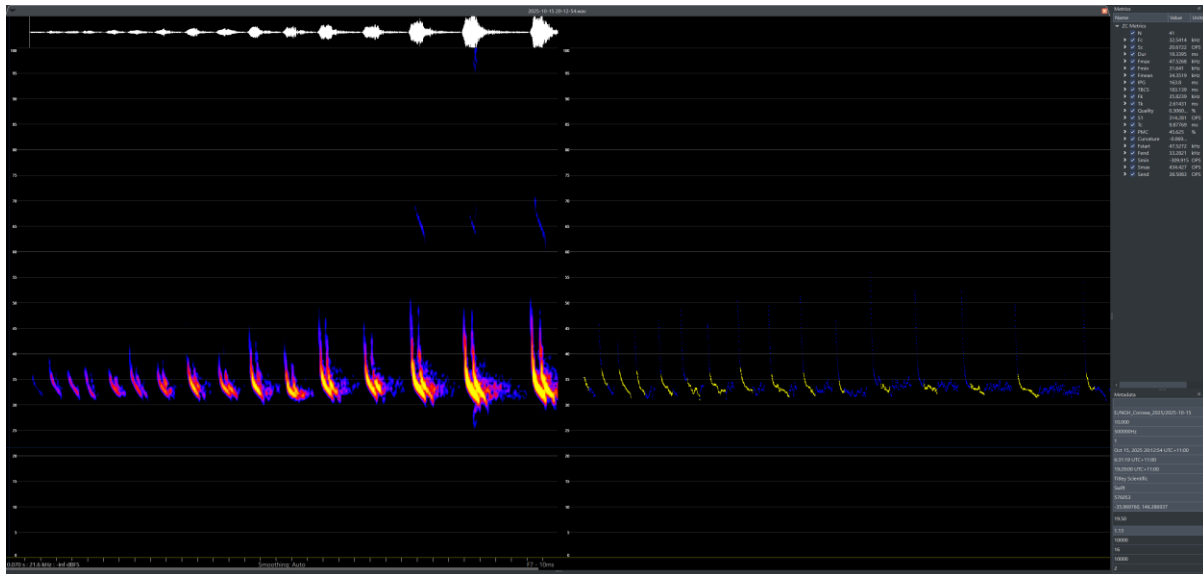
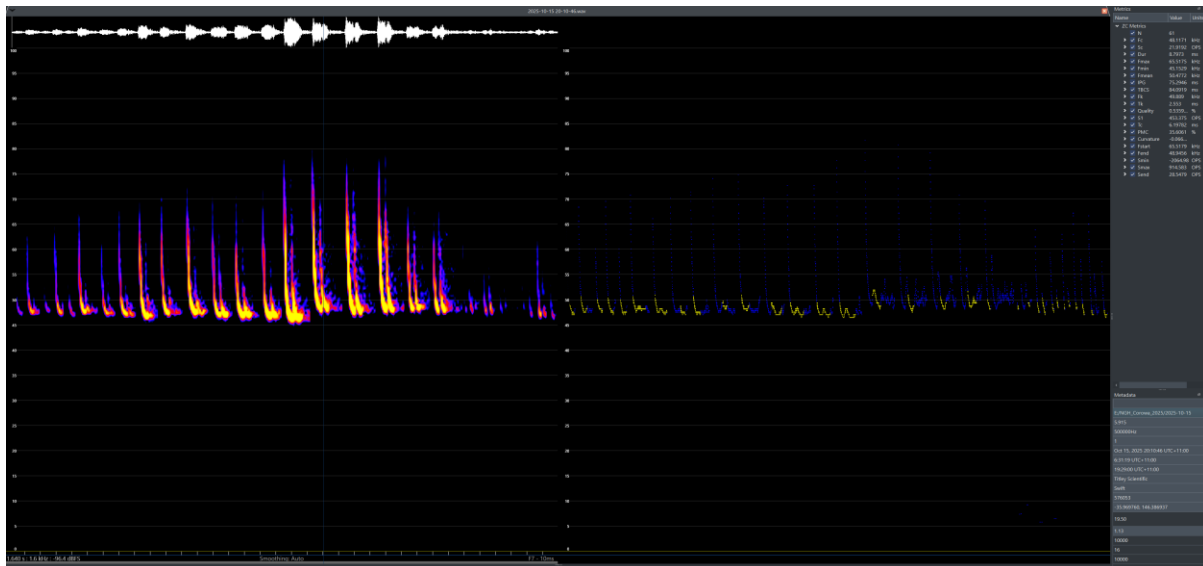
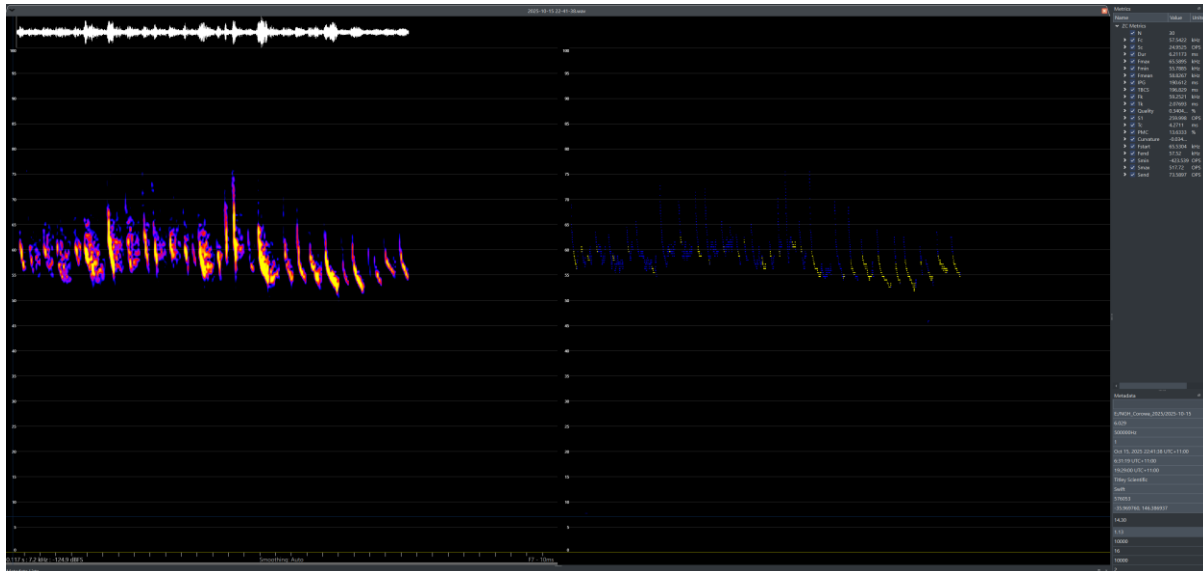


Figure 6. Potential call sequence for *Myotis macropus* (Southern Myotis), *Nyctophilus geoffroyi* (Lesser Long-eared Bat), or *Nyctophilus gouldi* (Gould's Long-eared Bat).



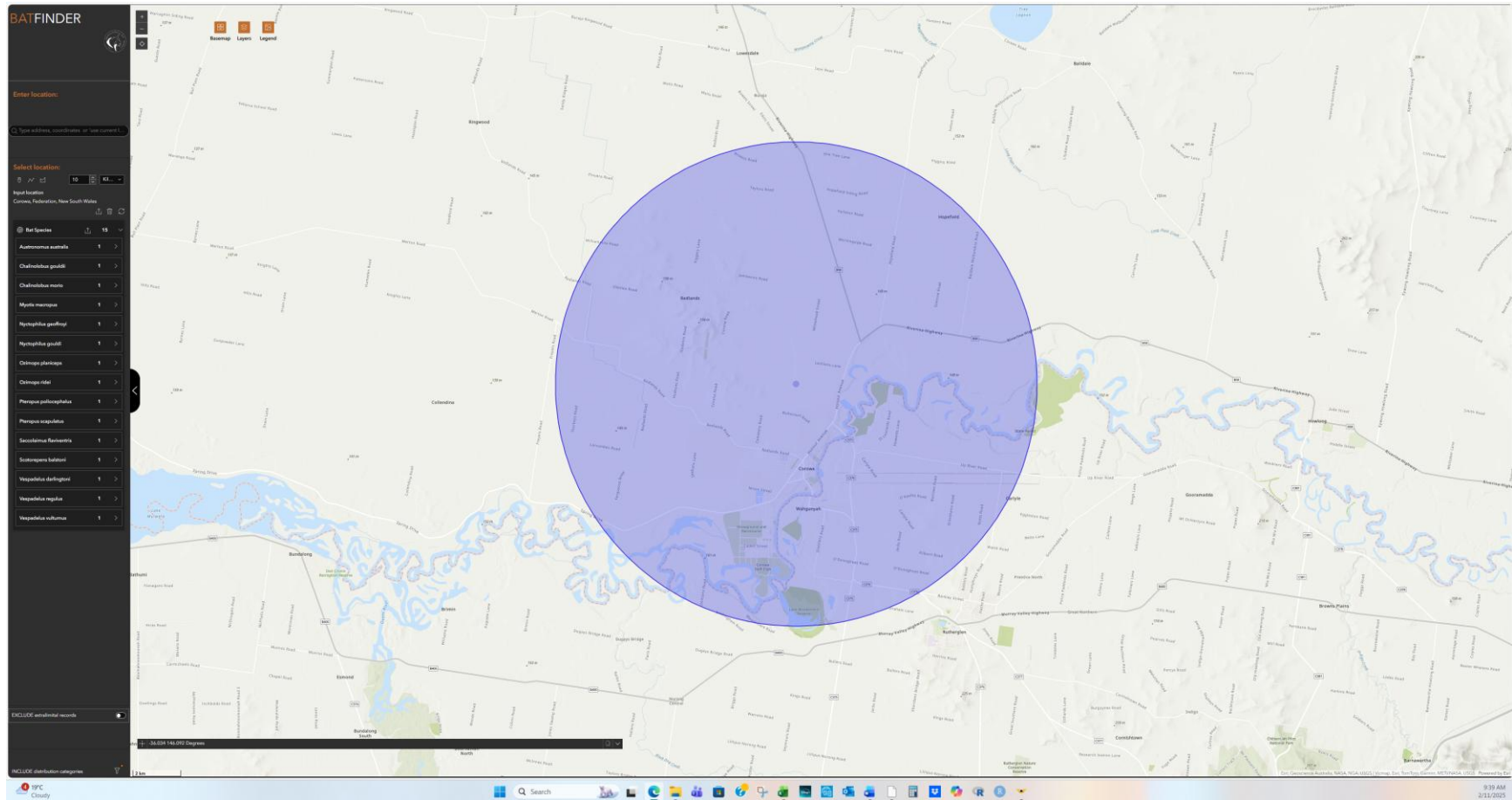




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Appendix 1. Microbat species that are predicted to occur or have been previously recorded within a 10 km radius of the subject land (source Australia Bat Society Bat Maps). *Pteropus poliocephalus* (Grey-headed Flying-fox) and *P. scapulatus* (Little Red Flying-fox) while included in the side panel, are non-echolocating megabats and are not considered in this report.



Appendix 2. Candidate species list with species-specific characteristic frequency (Fc) range for the Riverina Biogeographic region as described in Penny *et al.* (2004). The candidate species list was developed after a review of the Atlas of Living Australia, BatMaps (Australian Bat Society), Penny *et al.* (2011), NSW threatened species profile webpages, and the NSW Bionet database.

Species name	Common name	Pulse characteristics	Characteristic Frequency range (kilohertz (kHz))
<i>Austronomus australis</i>	White-striped Free-tailed Bat	Flattened, sometimes sloped	10 – 15 kHz
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	Curved, call sequence contains undulated consecutive pulses	26.5 – 34 kHz
<i>Chalinolobus morio</i>	Chocolate Wattled Bat	Curved, down-sweeping tail	46.5 – 53 kHz
<i>Miniopterus orianae oceanensis</i> *	Large Bent-winged Bat	Curved, often with a down-sweeping tail	44.5 – 48 kHz
<i>Myotis macropus</i> *	Southern Myotis	Steep, near-vertical pulses	Variable
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	Steep, near-vertical pulses	Variable
<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	Steep, near-vertical pulses	Variable
<i>Ozimops planiceps</i>	Southern Free-tailed Bat	Flat, or curved	26.0 to 30.5 kHz
<i>Ozimops ridei</i>	Ride's Free-tailed Bat	Flat, or slightly curved	28.5 – 31 kHz
<i>Saccolaimus flaviventris</i> *	Yellow-bellied Sheath-tailed Bat	Flat, or curved. Harmonics, when viewed in full spectrum.	17.5 – 19.0 kHz
<i>Scotorepens balstoni</i>	Inland Broad-nosed Bat	Curved, hooked pulses, with up-sweeping tail	34.5 – 37.0 kHz

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Species name	Common name	Pulse characteristics	Characteristic Frequency range (kilohertz (kHz))
<i>Vespadelus darlingtoni</i>	Large Forest Bat	Curved, hooked pulses with up-sweeping tail	41.0 – 44.0 kHz
<i>Vespadelus regulus</i>	Southern Forest Bat	Curved, hooked pulses with up-sweeping tail	50.0 – 55.0 kHz
<i>Vespadelus vulturinus</i>	Little Forest Bat	Curved, hooked pulses with up-sweeping tail	48.5 – 53.0 kHz

Source Pennay *et al.* (2004) *Represents those threatened species that are listed as Vulnerable under the BC Act.

E.4 Amphibian survey

The table below lists all recorded fauna species during the targeted surveys conducted for Sloane's Froglet

Scientific name	Common name	Native?	Comments
<i>Crinia signifera</i>	Common Eastern Froglet	Y	Heard only around dam to the west of the Subject Land
<i>Crinia sloanei</i>	Sloane's Froglet	Y	Heard at the reference site only

E.5 Bird survey

The table below lists all recorded fauna species during the targeted surveys conducted during the targeted bird surveys undertaken in October 2025

Scientific name	Common name	Native?	Comments
Birds			
<i>Acridotheres tristis</i>	Common Myna	N	
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	Y	
<i>Chenonetta jubata</i>	Australian Wood Duck	Y	
<i>Corvus coronoides</i>	Australian Raven	Y	
<i>Eolophus roseicapillus</i>	Galah	Y	
<i>Grallina cyanoleuca</i>	Magpie Lark	Y	
<i>Gymnorhina tibicen</i>	Australian Magpie	Y	
<i>Haliastur sphenurus</i>	Whistling Kite	Y	
<i>Manorina melanocephala</i>	Noisy Miner	Y	
<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant	Y	

Scientific name	Common name	Native?	Comments
<i>Platycercus eximius</i>	Eastern Rosella	Y	
<i>Psephotus haematonotus</i>	Red-rumped Parrot	Y	
<i>Rhipidura leucophrys</i>	Willie Wagtail	Y	
<i>Smicrornis brevirostris</i>	Weebill	Y	
<i>Sturnus vulgaris</i>	European Starling	N	
<i>Threskiornis spinicollis</i>	Straw-necked Ibis	Y	
<i>Zosterops lateralis</i>	Silvereye	Y	
Mammals			
<i>Lepus europaeus</i>	European Hare	N	Declared pest in NSW
Insects			
<i>Anisoptera sp.</i>	Dragonfly sp.	Unknown	
Reptiles			
<i>Lampropholis guichenoti</i>	Common Garden Skink	Y	

E.6 Hollow bearing tree inventory

HBT ID	Easting	Northing	Scientific Name	Common Name	DBH (cm)	Tree Height (m)	Number of hollows	Hollow size*	Location	Retained?
1	445054.9	6018774	Stag	Stag	100	11	3	vs, s	Whitehead Street	Yes
2	445177.7	6019566	<i>Eucalyptus microcarpa</i>	Grey Box	160	10	2	vs, s	Whitehead Street	Yes
3	445037.7	6018594	Stag	Stag	100	8	3	s, m	Whitehead Street	Yes
4	446527.8	6024321	<i>Eucalyptus microcarpa</i>	Grey Box	78	8	4	vs, s	Intersection of Riverina Highway and Whitehead Street	Yes
5	446536.3	6024313	<i>Eucalyptus microcarpa</i>	Grey Box	111	16	10	vs, s, m	Intersection of Riverina Highway and Whitehead Street	Yes
6	446538.9	6024285	<i>Eucalyptus microcarpa</i>	Grey Box	85	18	2	vs, m	Intersection of Riverina Highway and Whitehead Street	Yes
7	445137.5	6019299	<i>Eucalyptus microcarpa</i>	Grey Box	150	15	3	s, m	Subject Land	Yes

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Corowa Battery Energy Storage System



HBT ID	Easting	Northing	Scientific Name	Common Name	DBH (cm)	Tree Height (m)	Number of hollows	Hollow size*	Location	Retained?
8	445077.4	6018874	Stag	Stag	90	13	1	vs	Whitehead Street	Yes
9	445075	6018866	Stag	Stag	60	12	1	s	Whitehead Street	Yes
10	445064.2	6018801	Stag	Stag	90	10	3	vs, s	Whitehead Street	Yes
11	445165.9	6019488	<i>Eucalyptus melliodora</i>	Yellow Box	200	16	2	s	Whitehead Street	Yes
12	445090.2	6018993	<i>Eucalyptus microcarpa</i>	Grey Box	150	18	1	l	Subject Land	Yes
13	445095.5	6019001	<i>Eucalyptus microcarpa</i>	Grey Box	100	12	1	vl	Subject Land	Yes
14	445071.3	6018984	<i>Eucalyptus microcarpa</i>	Grey Box	80	15	1	vs	Subject Land	Yes
15	446511.6	6024374	<i>Eucalyptus microcarpa</i>	Grey Box	100	15	1	l	Intersection of Riverina Highway and Whitehead Street	Yes

Biodiversity Development Assessment Report – streamlined small area

Corowa Battery Energy Storage System



HBT ID	Easting	Northing	Scientific Name	Common Name	DBH (cm)	Tree Height (m)	Number of hollows	Hollow size*	Location	Retained?
16	446520.7	6024380	Stag	Stag	60	10	1	vs	Intersection of Riverina Highway and Whitehead Street	Yes
17	446501.3	6024395	<i>Eucalyptus microcarpa</i>	Grey Box	90	14	1	l	Intersection of Riverina Highway and Whitehead Street	Yes
18	445133	6019267	<i>Eucalyptus microcarpa</i>	Grey Box	130	15	4	l, vl	Subject Land	Yes
19	445071.6	6018816	<i>Eucalyptus microcarpa</i>	Grey Box	150	15	3	m	Whitehead Street	Yes

*vs = very small (<5 cm), s = small (6-10 cm), m = medium (11-20 cm), l = large (20-40 cm), vl = very large (>40 cm)

E.7 Targeted survey results summary

Survey date	Target species	Result
26-29 August 2025	Sloane's Froglet (<i>Crinia sloanei</i>)	Not observed (absent)
23 September 2025	Silky Swainson-pea (<i>Swainsona sericea</i>)	Not observed (absent)
23 September 2025	Slender Darling Pea (<i>Swainsona murrayana</i>)	Not observed (absent)
15 October 2025	A Spear-grass (<i>Austrostipa wakoolica</i>)	Not observed (absent)
15–21 October 2025	Southern Myotis (<i>Myotis macropus</i>)	Potentially present
15–21 October 2025	Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>) – incidentally detected	Present
15-16 October 2025	Square-tailed Kite (<i>Lophoictinia isura</i>)	Not observed (absent)
15-16 October 2025	White-bellied Sea-Eagle (<i>Haliaeetus leucogaster</i>)	Not observed (absent)
15-16 October 2025	Little Eagle (<i>Hieraaetus morphnoides</i>)	Not observed (absent)
15-16 October 2025	Superb Parrot (<i>Polytelis swainsonii</i>)	Not observed (absent)
15-16 October 2025	Pink Cockatoo (<i>Lophochroa leadbeateri</i>)	Not observed (absent)
21 October 2025	Koala (<i>Phascolarctos cinereus</i>)	No Koala scat detected (absent)

Appendix F Planted Vegetation Decision Making Key

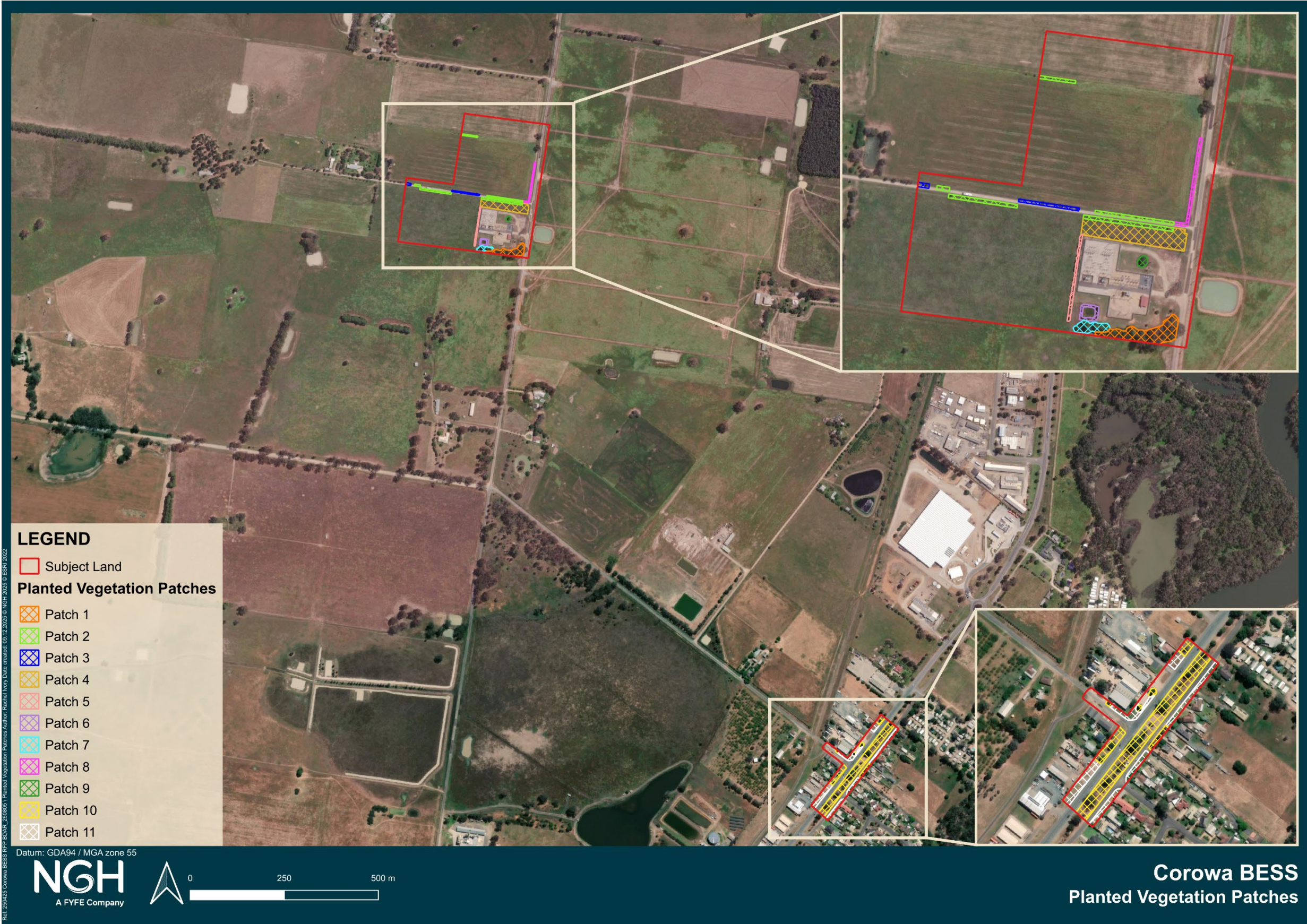


Table 13-4 Decision making key for planted vegetation patch 1

Decision Making Key	Planted Vegetation Patch 1
This assessment addresses the patch of vegetation that is located within the southeastern portion of the Corowa substation lot. This patch is comprised of Grey Box (<i>Eucalyptus microcarpa</i>), Mugga Ironbark (<i>Eucalyptus sideroxylon</i>) and one individual of Kurrajong (<i>Brachychiton populneus</i>).	
	
1. Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?	Yes The planted native vegetation must be allocated to the best-fit PCT and the BAM must be applied. This patch has been assigned to PCT 76 due to Grey Box being a commonly planted species, as well as remnant Grey Box being present in the adjacent landscape. Although the other planted tree species are not representative of this PCT, it was the best fit given the presence of groundcover species such as <i>Carex inversa</i>, <i>Einadia nutans</i> and <i>Sida corrugata</i>. This patch has been assigned a vegetation zone (Vegetation Zone 2: PCT 76_Planted) and has been assessed under the BAM in this BDAR.

Table 13-5 Decision making key for planted vegetation patch 2

Decision Making Key	Planted Vegetation Patch 2
This assessment addresses the patches of vegetation located along the driveway of the Subject Land, as well as in the northern paddock. These areas are comprised of a row of Ash Trees (<i>Fraxinus</i> sp.) with an exotic grassland understory.	
	
1. Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?	No Ash trees (<i>Fraxinus</i> sp.) are not a native species in Australia and therefore cannot reasonably be assigned to a PCT. Therefore, no native vegetation is present. This patch has been assessed for prescribed impacts associated with non-native vegetation.
Assessment of planted vegetation for threatened species habitat	The trees were assessed to possess minimal habitat features for threatened species. The trees occur up to 3 m in height and range from 5 to 10 cm in diameter at breast height (DBH). No stick nests or hollows were identified, and no fauna species were observed foraging or occupying the trees during the field surveys. The planted exotic vegetation is unlikely to provide habitat for threatened species due to the low condition.

Table 13-6 Decision making key for planted vegetation patch 3

Decision Making Key	Planted Vegetation Patch 3
This assessment addresses the patches of vegetation located along the driveway of the Subject Land. All areas are comprised of one tree species. evenly spaced along a single row. Floristic material was limited due to the young age of the trees but suspected to be <i>Corymbia citriodora</i>.	
	
1. Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?	No There is no remnant native vegetation adjacent to this patch. Additionally, the <i>Corymbia</i> sp. in this patch is not local to the Corowa area. Go to 2
2. Is the planted native vegetation: a. planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and b. the primary objective was to replace or regenerate a plant community type or a threatened plant species population or its habitat?	No This planted vegetation appears to be mostly for aesthetic purposes along the driveway. The plantings were not likely to have been required for the purpose of environmental rehabilitation or restoration under an existing conservation agreement or to replace or regenerate a plant community type or a threatened plant species or its habitat. Go to 3
3. Is the planted/translocated native vegetation individuals of a threatened species or other native species planted/translocated for the purpose of providing threatened species habitat under one of the following:	No The planted vegetation is not likely to have been required for any of the listed purposes. The planted vegetation appears to be mostly for aesthetic purposes along the property driveway.

Decision Making Key	Planted Vegetation Patch 3
a. a species recovery project, b. Saving our Species project, c. other types of government funded restoration project, d. condition of consent for a development approval that required those species to be planted or translocated for the purpose of providing threatened species habitat, e. legal obligation as part of a condition or ruling of court. This includes regulatory directed or ordered remedial plantings (e.g. Remediation Order for clearing without consent issued under the BC Act or the Native Vegetation Act), f. ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan, or g. approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the NSW Water Management Act 2000)?	Go to 4
4. Was the planted native vegetation (including individuals of a threatened flora species) undertaken voluntarily for revegetation, environmental rehabilitation or restoration without a legal obligation to secure or provide for management of the native vegetation?	No Given the location of the vegetation adjacent to the driveway to the residence of 275 Whitehead Street, it is likely that the vegetation was planted for aesthetic purposes. Go to 5
5. Is the native vegetation (including individuals of a threatened flora species) planted for functional, aesthetic, horticultural or plantation forestry purposes? This includes examples such as: windbreaks in agricultural landscapes, roadside plantings (including street trees, median strips, roadside batters), landscaping in parks, gardens and sport fields/complexes, macadamia plantations or teatree farms?	Yes Assessment of planted native vegetation for threatened species habitat required The trees are mostly planted along the driveway to the residence of 275 Whitehead Street and were likely planted for aesthetic purposes. This vegetation was assessed for threatened species habitat (e.g. stick nests and hollows).
Assessment of planted native vegetation for threatened species habitat	The trees were assessed to possess minimal habitat features for threatened species. The trees range from 6 to 10 cm in diameter at breast height (DBH). No stick nests or hollows were identified, and no fauna species were observed foraging or occupying the trees during the field surveys.

Table 13-7 Decision making key for planted vegetation patch 4

Decision Making Key	Planted Vegetation Patch 4
This assessment addresses the patch of vegetation that occurs to the north of the Corowa substation. The patch is comprised of Argyle Apple (<i>Eucalyptus cinerea</i>) and <i>Callistemon</i> cultivar species.	
	
1. Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?	No There is no remnant native vegetation adjacent to this patch. Additionally, neither Argyle Apple or the <i>Callistemon</i> species present are local to the Corowa area. Go to 2
2. Is the planted native vegetation: a. planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and b. the primary objective was to replace or regenerate a plant community type or a threatened plant species population or its habitat?	No This planted vegetation appears to be mostly for aesthetic purposes. The plantings were not likely to have been required for the purpose of environmental rehabilitation or restoration under an existing conservation agreement or to replace or regenerate a plant community type or a threatened plant species or its habitat. Go to 3
3. Is the planted/translocated native vegetation individuals of a threatened species or other native	No

Decision Making Key	Planted Vegetation Patch 4
species planted/translocated for the purpose of providing threatened species habitat under one of the following: a. a species recovery project, b. Saving our Species project, c. other types of government funded restoration project, d. condition of consent for a development approval that required those species to be planted or translocated for the purpose of providing threatened species habitat, e. legal obligation as part of a condition or ruling of court. This includes regulatory directed or ordered remedial plantings (e.g. Remediation Order for clearing without consent issued under the BC Act or the Native Vegetation Act), f. ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan, or g. approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the NSW Water Management Act 2000)?	The planted vegetation is not likely to have been required for any of the listed purposes. The planted vegetation appears to be mostly for aesthetic purposes. Go to 4
4. Was the planted native vegetation (including individuals of a threatened flora species) undertaken voluntarily for revegetation, environmental rehabilitation or restoration without a legal obligation to secure or provide for management of the native vegetation?	No Given the location of the vegetation north of the existing Corowa substation within the property boundary of 275 Whitehead Street, it is likely that the vegetation was planted for aesthetic purposes. Go to 5
5. Is the native vegetation (including individuals of a threatened flora species) planted for functional, aesthetic, horticultural or plantation forestry purposes? This includes examples such as: windbreaks in agricultural landscapes, roadside plantings (including street trees, median strips, roadside batters), landscaping in parks, gardens and sport fields/complexes, macadamia plantations or teatree farms?	Yes Assessment of planted native vegetation for threatened species habitat is required The trees appear to be for aesthetic purposes, being planted to the north of the Corowa substation most likely to provide some visual screening of the existing Corowa substation once the trees grow. This vegetation was assessed for threatened species habitat (e.g. stick nests and hollows).
Assessment of planted native vegetation for threatened species habitat	The trees were assessed to possess minimal habitat features for threatened species. The trees have a height of up to 4 m and range from 2 to 10 cm in

Decision Making Key	Planted Vegetation Patch 4
	diameter at breast height (DBH). No stick nests or hollows were identified, and no fauna species were observed foraging or occupying the trees during the field surveys.

Table 13-8 Decision making key for planted vegetation patch 5

Decision Making Key	Planted Vegetation Patch 5
This assessment addresses the patch of vegetation that occurs to the west of the Corowa substation. The patch is comprised entirely of a single row of Kurrajong trees (<i>Brachychiton populneus</i>).	
	
1. Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?	No Go to 2 Although Kurrajong trees can occur naturally within the area, the trees within this patch are young with an exotic dominated understorey with no remnant native vegetation adjacent to this patch. Additionally, Kurrajong trees are classified as a widely cultivated native species under the BAM. This patch of Kurrajong trees cannot be reasonably assigned to a PCT as a result.
2. Is the planted native vegetation: a. planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and	No This planted vegetation appears to be mostly for aesthetic purposes as a visual screen of the existing Corowa substation. The plantings were not likely to have been required for the purpose of environmental rehabilitation or restoration under an existing

Decision Making Key	Planted Vegetation Patch 5
b. the primary objective was to replace or regenerate a plant community type or a threatened plant species population or its habitat?	conservation agreement or to replace or regenerate a plant community type or a threatened plant species or its habitat. Go to 3
3. Is the planted/translocated native vegetation individuals of a threatened species or other native species planted/translocated for the purpose of providing threatened species habitat under one of the following: a. a species recovery project, b. Saving our Species project, c. other types of government funded restoration project, d. condition of consent for a development approval that required those species to be planted or translocated for the purpose of providing threatened species habitat, e. legal obligation as part of a condition or ruling of court. This includes regulatory directed or ordered remedial plantings (e.g. Remediation Order for clearing without consent issued under the BC Act or the Native Vegetation Act), f. ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan, or g. approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the NSW Water Management Act 2000)?	No The planted vegetation is not likely to have been required for any of the listed purposes. The planted vegetation appears to be mostly for aesthetic purposes, providing a visual screen of the existing Corowa substation. Go to 4
4. Was the planted native vegetation (including individuals of a threatened flora species) undertaken voluntarily for revegetation, environmental rehabilitation or restoration without a legal obligation to secure or provide for management of the native vegetation?	No Given the location of the vegetation adjacent to the existing Corowa substation, it is likely that the vegetation was planted for aesthetic purposes as a visual screen of the existing Corowa substation. Go to 5
5. Is the native vegetation (including individuals of a threatened flora species) planted for functional, aesthetic, horticultural or plantation forestry purposes? This includes examples such as: windbreaks in agricultural landscapes, roadside plantings (including street trees, median strips, roadside	Yes Assessment of planted native vegetation for threatened species habitat required The row of Kurrajong trees has likely been planted for aesthetic purposes, most likely providing a visual screen of the Corowa substation for the residence at

Decision Making Key	Planted Vegetation Patch 5
batters), landscaping in parks, gardens and sport fields/complexes, macadamia plantations or teatree farms?	275 Whitehead Street. This vegetation was assessed for threatened species habitat (e.g. stick nests and hollows).
Assessment of planted native vegetation for threatened species habitat	The trees were assessed to possess minimal habitat features for threatened species. The trees have a range from 10 to 30 cm in diameter at breast height (DBH). No stick nests or hollows were identified, and no fauna species were observed foraging or occupying the trees during the field surveys.

Table 13-9 Decision making key for planted vegetation patch 6

Decision Making Key	Planted Vegetation Patch 6
This assessment addresses the patch of vegetation that occurs around the dam to the south of the Corowa substation. The patch is comprised of Black Tea-tree (<i>Melaleuca bracteata</i>).	
	
1. Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?	No Black Tea-tree does not naturally occur within the Corowa region. Therefore, this patch cannot reasonably be assigned to a PCT occurring within the Murray Fans IBRA subregion. Go to 2
2. Is the planted native vegetation: a. planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and b. the primary objective was to replace or regenerate a plant community type or a threatened plant species population or its habitat?	No The plantings were not likely to have been required for the purpose of environmental rehabilitation or restoration under an existing conservation agreement or to replace or regenerate a plant community type or a threatened plant species or its habitat. Go to 3
3. Is the planted/translocated native vegetation individuals of a threatened species or other native species planted/translocated for the purpose of	No The planted vegetation is not likely to have been required for any of the listed purposes.

Decision Making Key	Planted Vegetation Patch 6
providing threatened species habitat under one of the following: a. a species recovery project, b. Saving our Species project, c. other types of government funded restoration project, d. condition of consent for a development approval that required those species to be planted or translocated for the purpose of providing threatened species habitat, e. legal obligation as part of a condition or ruling of court. This includes regulatory directed or ordered remedial plantings (e.g. Remediation Order for clearing without consent issued under the BC Act or the Native Vegetation Act), f. ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan, or g. approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the NSW Water Management Act 2000)?	Go to 4
4. Was the planted native vegetation (including individuals of a threatened flora species) undertaken voluntarily for revegetation, environmental rehabilitation or restoration without a legal obligation to secure or provide for management of the native vegetation?	No Given the location of the vegetation surrounding a dam, it is unlikely that the vegetation was planted for revegetation, environmental rehabilitation or restoration. Go to 5
5. Is the native vegetation (including individuals of a threatened flora species) planted for functional, aesthetic, horticultural or plantation forestry purposes? This includes examples such as: windbreaks in agricultural landscapes, roadside plantings (including street trees, median strips, roadside batters), landscaping in parks, gardens and sport fields/complexes, macadamia plantations or teatree farms?	Yes Assessment of planted native vegetation for threatened species habitat required The trees are planted around an existing dam and were likely planted for functional purposes such as providing shade. This vegetation was assessed for threatened species habitat (e.g. stick nests and hollows).
Assessment of planted native vegetation for threatened species habitat	The trees were assessed to possess minimal habitat features for threatened species. No stick nests or hollows were identified, and no fauna species were

Decision Making Key	Planted Vegetation Patch 6
	observed foraging or occupying the trees during the field surveys.

Table 13-10 Decision making key for planted vegetation patch 7

Decision Making Key	Planted Vegetation Patch 7
This assessment addresses the patch of vegetation that occurs to the in the south of the Subject Land, south of the dam and Corowa substation. It occurs next to the patch of Planted PCT 76, however this patch is comprised entirely of Pine Trees (<i>Pinus sp.</i>).	
	
1. Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?	No <i>Pinus</i> is not a genus that is native to Australia and therefore cannot reasonably be assigned to a PCT. Therefore, no native vegetation is present. This patch has been assessed for prescribed impacts associated with non-native vegetation.
Assessment of planted vegetation for threatened species habitat	The trees were assessed to possess minimal habitat features for threatened species. No hollows were identified, however one medium sized stick nest approximately 30 cm in diameter was recorded. A stick nest watch was conducted for 30 minutes on two consecutive mornings in October to determine if the nest was being used, however no fauna species were detected occupying the trees during the surveys. Additionally, it is unlikely that the stick nest would be used by threatened raptor species due to the size (diameter of 30 cm).

Table 13-11 Decision making key for planted vegetation patch 8

Decision Making Key	Planted Vegetation Patch 8
This assessment addresses the patch of vegetation that occurs to the east of the Subject Land along the lot boundary of Lot 12 DP1115583. The patch is comprised of juvenile <i>Eucalyptus</i> species in a single row. Identification of planted eucalyptus was difficult due to the young age of the trees, however were confirmed not to be a local species.	
	
1. Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?	No There is no remnant native vegetation adjacent to this patch. Additionally, the <i>Eucalyptus</i> sp. in this patch is not local to the Corowa area. Go to 2
2. Is the planted native vegetation: a. planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and b. the primary objective was to replace or regenerate a plant community type or a threatened plant species population or its habitat?	No This planted vegetation appears to be mostly for aesthetic purposes. The plantings were not likely to have been required for the purpose of environmental rehabilitation or restoration under an existing conservation agreement or to replace or regenerate a plant community type or a threatened plant species or its habitat. Go to 3

Decision Making Key	Planted Vegetation Patch 8
3. Is the planted/translocated native vegetation individuals of a threatened species or other native species planted/translocated for the purpose of providing threatened species habitat under one of the following: a. a species recovery project, b. Saving our Species project, c. other types of government funded restoration project, d. condition of consent for a development approval that required those species to be planted or translocated for the purpose of providing threatened species habitat, e. legal obligation as part of a condition or ruling of court. This includes regulatory directed or ordered remedial plantings (e.g. Remediation Order for clearing without consent issued under the BC Act or the Native Vegetation Act), f. ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan, or g. approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the NSW Water Management Act 2000)?	No The planted vegetation is not likely to have been required for any of the listed purposes. The planted vegetation appears to be mostly for aesthetic purposes. Go to 4
4. Was the planted native vegetation (including individuals of a threatened flora species) undertaken voluntarily for revegetation, environmental rehabilitation or restoration without a legal obligation to secure or provide for management of the native vegetation?	No Given the location of the vegetation adjacent to the driveway to the residence of 275 Whitehead Street, it is likely that the vegetation was planted for aesthetic purposes. Go to 5
5. Is the native vegetation (including individuals of a threatened flora species) planted for functional, aesthetic, horticultural or plantation forestry purposes? This includes examples such as: windbreaks in agricultural landscapes, roadside plantings (including street trees, median strips, roadside batters), landscaping in parks, gardens and sport fields/complexes, macadamia plantations or teatree farms?	Yes Assessment of planted native vegetation for threatened species habitat required The trees appear to be for aesthetic purposes, being planted along the property boundary of 275 Whitehead Street. This vegetation was assessed for threatened species habitat (e.g. stick nests and hollows).

Decision Making Key	Planted Vegetation Patch 8
Assessment of planted native vegetation for threatened species habitat	The trees were assessed to possess minimal habitat features for threatened species. The trees have a height of up to 3 m and range from 5 to 10 cm in diameter at breast height (DBH). No stick nests or hollows were identified, and no fauna species were observed foraging or occupying the trees during the field surveys.

Table 13-12 Decision making key for planted vegetation patch 9

Decision Making Key	Planted Vegetation Patch 9
This assessment addresses the patch of trees to the east of the Corowa substation. This patch is comprised entirely of Black Tee-tree (<i>Melaleuca bracteata</i>).	
	
1. Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?	No Black Tea-tree does not naturally occur within the Corowa region. Therefore, this patch cannot reasonably be assigned to a PCT occurring within the Murray Fans IBRA subregion. Go to 2
2. Is the planted native vegetation: a. planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and b. the primary objective was to replace or regenerate a plant community type or a threatened plant species population or its habitat?	No The plantings were not likely to have been required for the purpose of environmental rehabilitation or restoration under an existing conservation agreement or to replace or regenerate a plant community type or a threatened plant species or its habitat. Go to 3

Decision Making Key	Planted Vegetation Patch 9
3. Is the planted/translocated native vegetation individuals of a threatened species or other native species planted/translocated for the purpose of providing threatened species habitat under one of the following: a. a species recovery project, b. Saving our Species project, c. other types of government funded restoration project, d. condition of consent for a development approval that required those species to be planted or translocated for the purpose of providing threatened species habitat, e. legal obligation as part of a condition or ruling of court. This includes regulatory directed or ordered remedial plantings (e.g. Remediation Order for clearing without consent issued under the BC Act or the Native Vegetation Act), f. ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan, or g. approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the NSW Water Management Act 2000)?	No The planted vegetation is not likely to have been required for any of the listed purposes. Go to 4
4. Was the planted native vegetation (including individuals of a threatened flora species) undertaken voluntarily for revegetation, environmental rehabilitation or restoration without a legal obligation to secure or provide for management of the native vegetation?	No Given there are only a few individuals in a small patch, it is unlikely that the vegetation was planted for revegetation, environmental rehabilitation or restoration. Go to 5
5. Is the native vegetation (including individuals of a threatened flora species) planted for functional, aesthetic, horticultural or plantation forestry purposes? This includes examples such as: windbreaks in agricultural landscapes, roadside plantings (including street trees, median strips, roadside batters), landscaping in parks, gardens and sport fields/complexes, macadamia plantations or teatree farms?	No It is unlikely that these trees have been planted for any functional, aesthetic, horticultural or plantation forestry purposes given its position in the Subject Land. However, the patch was still assessed for threatened species habitat as per Appendix D.2 Assessment of planted native vegetation module for threatened species habitat (e.g. stick nests and hollows).

Decision Making Key	Planted Vegetation Patch 9
Assessment of planted native vegetation for threatened species habitat	The trees were assessed to possess minimal habitat features for threatened species. The trees range from 10 to 20 cm in diameter at breast height (DBH). No stick nests were identified, and only one small fissure at ground level was identified. This fissure is unlikely to provide habitat for any threatened fauna species that may occur within the region given its location at ground level. No fauna species were observed foraging or occupying the trees during the field surveys.

Table 13-13 Decision making key for planted vegetation patch 10

Decision Making Key	Planted Vegetation Patch 10
This assessment addresses the patch of vegetation that occurs within the Subject Land at the proposed road upgrades along Honour Avenue. The patch is comprised of a mix of species such as Sugar Gum (<i>Eucalyptus cladocalyx</i>), Ash Trees (<i>Fraxinus sp.</i>), Silky Oak (<i>Grevillea robusta</i>), Brush Box (<i>Lophostemon confertus</i>), <i>Callistemon</i> cultivar species and Paperbark (<i>Melaleuca linearifolia</i>).	
	
1. Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?	No Sugar Gum is endemic to South Australia and does not occur naturally in NSW. Additionally, both Silky Oak and Brush Box do not occur naturally in southern NSW and both are listed as a widely cultivated native species under the BAM. There are no remnant trees. Given the species do not occur naturally in the region, a PCT cannot be reasonably assigned to this patch of vegetation. Go to 2
2. Is the planted native vegetation: a. planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and	No This planted vegetation appears to be mostly for aesthetic purposes within the ornamental streetscape of Honour Avenue. The plantings were not likely to have been required for the purpose of environmental rehabilitation or restoration under an existing

Decision Making Key	Planted Vegetation Patch 10
b. the primary objective was to replace or regenerate a plant community type or a threatened plant species population or its habitat?	conservation agreement or to replace or regenerate a plant community type or a threatened plant species or its habitat. Go to 3
3. Is the planted/translocated native vegetation individuals of a threatened species or other native species planted/translocated for the purpose of providing threatened species habitat under one of the following: a. a species recovery project, b. Saving our Species project, c. other types of government funded restoration project, d. condition of consent for a development approval that required those species to be planted or translocated for the purpose of providing threatened species habitat, e. legal obligation as part of a condition or ruling of court. This includes regulatory directed or ordered remedial plantings (e.g. Remediation Order for clearing without consent issued under the BC Act or the Native Vegetation Act), f. ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan, or g. approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the NSW Water Management Act 2000)?	No The planted vegetation is not likely to have been required for any of the listed purposes. The planted vegetation appears to be mostly for aesthetic purposes within the ornamental streetscape of Honour Avenue. Go to 4
4. Was the planted native vegetation (including individuals of a threatened flora species) undertaken voluntarily for revegetation, environmental rehabilitation or restoration without a legal obligation to secure or provide for management of the native vegetation?	No It is unlikely that the vegetation was undertaken voluntarily for revegetation, environmental rehabilitation or restoration given its location along Honour Avenue. Go to 5
5. Is the native vegetation (including individuals of a threatened flora species) planted for functional, aesthetic, horticultural or plantation forestry purposes? This includes examples such as: windbreaks in agricultural landscapes, roadside plantings (including street trees, median strips, roadside	Yes Assessment of planted native vegetation for threatened species habitat required The trees occur as roadside plantings along Honour Avenue. This vegetation was assessed for threatened species habitat (e.g. stick nests and hollows).

Decision Making Key	Planted Vegetation Patch 10
batters), landscaping in parks, gardens and sport fields/complexes, macadamia plantations or teatree farms?	
Assessment of planted native vegetation for threatened species habitat	The trees were assessed to possess minimal habitat features for threatened species. The vegetation occurs within the middle of an urban environment between two main roads. No stick nests or hollow were identified, and no fauna species were observed foraging or occupying the trees during the field surveys.

Table 13-14 Decision making key for planted vegetation patch 11

Decision Making Key	Planted Vegetation Patch 11
This assessment addresses the patch of vegetation that occurs within the Subject Land at the proposed road upgrades along Honour Avenue. This patch mostly occurs as manicured lawns with Kikuyu Grass (<i>Cenchrus clandestinus</i>) being dominant. Other weed species include, but are not limited to, Ryegrass (<i>Lolium sp.</i>) and Mouse-ear Chickweed (<i>Cerastium fontanum</i>).	
	
1. Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?	No Kikuyu Grass is not a native species in Australia and is classified as a High Threat Weed under the BAM. Due to this, it cannot reasonably be assigned to a PCT. Therefore, no native vegetation is present. This patch has been assessed for prescribed impacts associated with non-native vegetation.
Assessment of planted vegetation for threatened species habitat	The patch was assessed to possess minimal habitat features for threatened species. No trees were present within this patch and other habitat features such as rocky habitat, fallen timber and man-made structures such as culverts were also absent. The planted exotic vegetation is unlikely to provide habitat for threatened species due to the low condition as a result.

Appendix G BAM calculator credit reports

Please see overleaf.

BAM Vegetation Zones Report

Proposal Details

Assessment Id	Assessment name	BAM data last updated *
00060769/BAAS18074/25/00062212	Corowa BESS Small Area BDAR	05/08/2025
Assessor Name	Report Created	BAM Data version *
Julie Gooding	16/01/2026	Current classification (live - default) (82)
Assessor Number	Assessment Type	BAM Case Status
BAAS18074	Part 4 Developments (Small Area)	Finalised
Assessment Revision	BOS entry trigger	Date Finalised
2	BOS Threshold: Biodiversity Values Map and area clearing threshold	16/01/2026

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	76_DG_Substation	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	DG_Substation	0.53	1	

BAM Vegetation Zones Report

2	76_DG_Roadside	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	DG_Roadside	0.09	1	
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BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00060769/BAAS18074/25/00062212	Corowa BESS Small Area BDAR	05/08/2025
Assessor Name	Report Created	BAM Data version *
Julie Gooding	16/01/2026	Current classification (live - default) (82)
Assessor Number	Assessment Type	BAM Case Status
BAAS18074	Part 4 Developments (Small Area)	Finalised
Assessment Revision	BOS entry trigger	Date Finalised
2	BOS Threshold: Biodiversity Values Map and area clearing threshold	16/01/2026

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Black Falcon	Falco subniger	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Diamond Firetail	Stagonopleura guttata	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Dusky Woodswallow	Artamus cyanopterus cyanopterus	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Flame Robin	Petroica phoenicea	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions

BAM Predicted Species Report

Grey Falcon	<i>Falco hypoleucos</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis temporalis</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Little Eagle	<i>Hieraaetus morphnoides</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Little Pied Bat	<i>Chalinolobus picatus</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Painted Honeyeater	<i>Grantiella picta</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Pink Cockatoo	<i>Lophochroa leadbeateri</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Scarlet Robin	<i>Petroica boodang</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
South-eastern Hooded Robin	<i>Melanodryas cucullata cucullata</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Southern Whiteface	<i>Aphelocephala leucopsis</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Speckled Warbler	<i>Chthonicola sagittata</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Square-tailed Kite	<i>Lophoictinia isura</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Superb Parrot	<i>Polytelis swainsonii</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions

BAM Predicted Species Report

Swift Parrot	<i>Lathamus discolor</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Turquoise Parrot	<i>Neophema pulchella</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Varied Sittella	<i>Daphoenositta chrysoptera</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
White-throated Needletail	<i>Hirundapus caudacutus</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
Yellow-bellied Sheath-tail-bat	<i>Saccolaimus flaviventris</i>	76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions

Threatened species Manually Added

Common Name	Scientific Name
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
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BAM Candidate Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00060769/BAAS18074/25/00062212	Corowa BESS Small Area BDAR	05/08/2025
Assessor Name	Report Created	BAM Data version *
Julie Gooding	16/01/2026	Current classification (live - default) (82)
Assessor Number	Assessment Type	BAM Case Status
BAAS18074	Part 4 Developments (Small Area)	Finalised
Assessment Revision	BOS entry trigger	Date Finalised
2	BOS Threshold: Biodiversity Values Map and area clearing threshold	16/01/2026

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
<i>Crinia sloanei</i> Sloane's Froglet	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☒ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Myotis macropus</i> Southern Myotis	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☒ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

Common Name	Scientific Name
Large Bent-winged Bat	Miniopterus orianae oceanensis

BAM Candidate Species Report

Southern Myotis

Myotis macropus

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat constraints
Swift Parrot	Lathamus discolor	Habitat constraints

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00060769/BAAS18074/25/00062212	Corowa BESS Small Area BDAR	05/08/2025
Assessor Name	Report Created	BAM Data version *
Julie Gooding	16/01/2026	Current classification (live - default) (82)
Assessor Number	BAM Case Status	Date Finalised
BAAS18074	Finalised	16/01/2026
Assessment Revision	BOS entry trigger	Assessment Type
2	BOS Threshold: Biodiversity Values Map and area clearing threshold	Part 4 Developments (Small Area)

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Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAI	Ecosystem credits
Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions												
1	76_DG_Substation	Not a TEC	12.7	12.7	0.53	PCT Cleared - 92%	High Sensitivity to Gain			2.50		0

BAM Credit Summary Report

2	76_DG_Roadside	Not a TEC	7.3	7.3	0.09	PCT Cleared - 92%	High Sensitivity to Gain			2.50		0
											Subtotal	0
											Total	0

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAIL	Species credits
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BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00060769/BAAS18074/25/00062212	Corowa BESS Small Area BDAR	05/08/2025
Assessor Name	Assessor Number	BAM Data version *
Julie Gooding	BAAS18074	Current classification (live - default) (82)
Proponent Names	Report Created	BAM Case Status
	16/01/2026	Finalised
Assessment Revision	BOS entry trigger	Assessment Type
2	BOS Threshold: Biodiversity Values Map and area clearing threshold	Part 4 Developments (Small Area)
Date Finalised	* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.	
16/01/2026		

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Nil		
Species		
Nil		



BAM Biodiversity Credit Report (Like for like)

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT

No Changes

Predicted Threatened Species Not On Site

Name

No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Not a TEC	0.6	0	0	0

BAM Biodiversity Credit Report (Like for like)

76-Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Floodplain Transition Woodlands This includes PCT's: 76, 628	Floodplain Transition Woodlands >=90%	76_DG_Substation	No	0	Murray Fans, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Floodplain Transition Woodlands This includes PCT's: 76, 628	Floodplain Transition Woodlands >=90%	76_DG_Roadside	No	0	Murray Fans, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

No Species Credit Data

Credit Retirement Options

Like-for-like credit retirement options

Appendix H Staff qualifications and experience

Name	Title	Qualifications / experience	Role in BDAR
Julie Gooding	Technical Lead	BAM accredited assessor (BAAS18074) Bachelor of Science (Biology)	Oversee fieldwork Oversee project direction Oversee reporting BAM-C data entry and analysis BDAR Review and approval Targeted threatened flora surveys Targeted threatened fauna surveys Fieldwork – VI plots, PCT mapping
Maddie Robertson	Ecologist	Bachelor of Science (Biodiversity and Conservation), Bachelor of Environment	Report author Targeted threatened fauna surveys Targeted threatened flora surveys Fieldwork – VI plots, PCT mapping
Ellen Darby	Ecologist	Bachelor of Biodiversity and Conservation	Targeted threatened fauna surveys
Isabelle Andary-Geslin	Ecologist	Bachelor of Environmental Science	Targeted threatened fauna surveys Targeted threatened flora surveys
Rachel Ivory	Ecologist	Bachelor of Environmental Science and Management (Ecosystems and Biodiversity)	Primary report author Figure preparation
Rodney Armistead	Ecologist	Ecologist	Anabat assessment and report

Name	Title	Qualifications / experience	Role in BDAR
		Fauna Ecology / Plant Pathology (PhD)	



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