biosis®
APEM Group

Winton Battery Energy Storage System

Flora and fauna assessment

Final Report

Prepared for Avenis Energy Pty Ltd

4 December 2025

Biosis offices

New South Wales

Albury

Phone: (02) 6069 9200
Email: albury@biosis.com.au

Gosford

Phone: (02) 9101 8700
Email: gosford@biosis.com.au

Newcastle

Phone: (02) 4911 4040
Email: newcastle@biosis.com.au

Sydney

Phone: (02) 9101 8700
Email: sydney@biosis.com.au

Western Sydney

Phone: (02) 9101 8700
Email: sydney@biosis.com.au

Wollongong

Phone: (02) 4201 1090
Email: wollongong@biosis.com.au

Victoria

Ballarat

Phone: (03) 5304 4250
Email: ballarat@biosis.com.au

Melbourne

Phone: (03) 8686 4800
Email: melbourne@biosis.com.au

Wangaratta

Phone: (03) 5718 6900
Email: wangaratta@biosis.com.au

Document information

Report to:	Avenis Energy Pty Ltd
Prepared by:	Elise Keane
Biosis project no.:	41485
File name:	41485.Winton.BESS.FFA.FIN03.20251204
Citation:	Biosis 2025. Winton Battery Energy Storage System: Flora and fauna assessment. Report prepared for Avenis Energy Pty Ltd. Author: Keane E, Biosis Pty Ltd, Albury, NSW. Project no. 41485.

Document control

Version	Internal review	Date issued
Draft version 01	JY	20/12/2024
Final version 01	GZ	14/04/2025
Final version 02	MSG	02/12/2025
Final version 03	MSG	04/12/2025

Acknowledgements

Biosis acknowledges the contribution of the following people and organisations in undertaking this study:

- Avenis Energy Pty Ltd: Ruaidh Cameron and Thomas Strobel
- Victorian Government Department of Environment, Energy and Climate Action for access to the Victorian Biodiversity Atlas, NatureKit and NVR Map tool
- Australian Government Department of Climate Change, Energy the Environment and Water for access to the Protected Matters Search Tool

Biosis staff involved in this project were:

- Jessica Chapman, Nicholas Lloyd, Yonina Eizenberg, Danielle Eastick & Elise Keane (field assistance)
- Michael Knudsen (mapping)
- Jeff Yugovic, Georgina Zacks and Matthew Gibson (quality assurance)

Biosis acknowledges the Aboriginal and Torres Strait Islander peoples as Traditional Custodians of the land on which we live and work.

We pay our respects to the Traditional Custodians and Elders past and present and honour their connection to Country and ongoing contribution to society.

Contents

Contents ii
Definitions v
Summary vi
Ecological values vi
Government legislation and policy vi
Guidelines for the removal, destruction or lopping of native vegetation (the Guidelines) viii
Recommendations ix
1 Introduction 1
1.1 Project background 1
1.2 Scope of assessment 1
1.3 Location of study area 1
2 Methods 3
2.1 Database review 3
2.2 Definitions of threatened species and communities 3
2.3 Determining likelihood of occurrence of threatened species 4
2.4 Site investigation 4
2.4.1 Flora assessment 4
2.4.2 Fauna assessment 5
2.4.3 Targeted survey - Sloane's Froglet 5
2.4.4 Permits 6
2.5 Qualifications 7
2.6 Legislation and policy 7
2.7 Mapping 8
3 Results 9
3.1 Landscape context 9
3.2 Vegetation and fauna habitat 9
3.3 Landscape context 15
3.4 Threatened species 15
3.5 Threatened ecological communities 16
3.5.1 EPBC communities 16
3.5.2 FFG communities 18
3.6 Sloane's Froglet targeted survey results 19
3.7 Other ecological values 19
3.8 Further survey recommendations 19
4 Biodiversity legislation and government policy 21
4.1 Commonwealth 21
4.1.1 *Environment Protection and Biodiversity Conservation Act 1999* 21

4.2 State 23
4.2.1 *Flora and Fauna Guarantee Act 1988* (FFG Act) 23
4.2.2 *Catchment and Land Protection Act 1994* (CaLP Act) 24
4.2.3 *Planning and Environment Act 1987* (incl. Planning Schemes and Solar Guidelines) 24
4.2.4 *Environment Effects Act 1978* 26
5 Victoria's Guidelines for the removal, destruction or lopping of native vegetation 27
5.1 Proposed removal of native vegetation 28
5.1.1 Habitat hectares 28
5.2 Determining the assessment pathway 36
5.3 Offset requirements 36
5.4 Proposed offset strategy 37
6 Key ecological values and recommendations 38
References 42
Appendices 45
Appendix 1 Flora 46
Appendix 1.1 Flora species recorded from the study area 47
Appendix 1.2 Listed flora species 50
Appendix 1.3 Threatened ecological communities 55
Appendix 2 Fauna 56
Appendix 2.1 Fauna species recorded from the study area 56
Appendix 2.2 Listed fauna species 58
Appendix 2.3 Migratory species (EPBC Act listed) 71
Appendix 3 Photos of the study area 72
Appendix 4 Significant impact assessment 80
Appendix 4.1 Swift Parrot *Lathamus discolor* 80
Appendix 4.2 Regent Honeyeater *Anthochaera phrygia* 82
Appendix 4.3 Painted Honeyeater *Grantiella picta* 84
Appendix 4.4 Diamond Firetail *Stagonopleura guttata* and Brown Treecreeper (south–eastern) *Climacteris picumnus victoriae* 87
Appendix 5 Tree data 91
Appendix 6 Photos of vegetation to be removed 97
Appendix 7 Native vegetation removal report 103
Appendix 8 Available native vegetation credits 121

Tables

Table 1 Conservation status of threatened species and ecological communities 4
Table 2 Summary of vegetation and habitat types within the study area 11
Table 3 Summary of EPBC Act and FFG Act listed species most likely to occur in the study area 15
Table 4 Justification for identifying Grey Box Grassy Woodland within areas of EVC 235 and EVC 803 (criteria from (TSSC 2010). 17
Table 5 Assessment of project in relation to the EPBC Act 21

Table 6 Response to VPO3 25
Table 7 Habitat hectares of native vegetation within the study area 29
Table 8 Summary of DEECA Native Vegetation Removal Report 36
Table 9 Summary of key ecological values, potential implications of developing the study area and recommendations to minimise ecological impacts during the design phase. 39
Table 10 Suggested mitigation measures to be considered during the construction phase and included in the project CEMP 40
Table 11 Flora species recorded from the study area 47
Table 12 Threatened flora species recorded or predicted to occur within 10 km of the study area 50
Table 13 Threatened ecological communities predicted to occur within 10 km of the project area. 55
Table 14 Vertebrate fauna recorded from the study area 56
Table 15 Threatened fauna species recorded or predicted to occur within 10 km of the study area 58
Table 16 Migratory fauna species recorded or predicted to occur within 10 km of the study area 71
Table 17 Swift Parrot – assessment against Significant Impact Criteria (DoE 2013) 80
Table 18 Regent Honeyeater – assessment against Significant Impact Criteria (DoE 2013) 82
Table 19 Painted Honeyeater assessment against Significant Impact Criteria (DoE 2013) 85
Table 20 Diamond Firetail and Brown Treecreeper (south–eastern) assessment against Significant Impact Criteria (DoE 2013) 88
Table 21 Trees within 15 metres of the development footprint 91
Table 22 Large patch trees and scattered trees within the study area 91

Figures

Figure 1 Location of the study area - Winton, Victoria 2
Figure 2 Ecological features of the study area 20
Figure 3 Vegetation proposed for removal in the study area. 30

Definitions

BESS	Battery Energy Storage System
CaLP Act	*Catchment and Land Protection Act 1994*
CMA	Catchment Management Authority
DBH	Diameter at Breast Height
DCCEEW	Australian Government Department of Climate Change, Energy, the Environment and Water
DEECA	Victorian Department of Energy, Environment and Climate Action
DELWP	Victorian former Department of Environment, Land, Water and Planning
DEWHA	Australian Government former Department of the Environment, Water, Heritage and the Arts
Environment Effects Act	*Environment Effects Act 1978*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
EVC	Ecological Vegetation Class
FFG Act	*Flora and Fauna Guarantee Act 1988*
FZ	Farming Zone
GIS	Geographic Information System
NVR Map	Native Vegetation Regulations Map
Planning and Environment Act	*Planning and Environment Act 1987*
SBV Score	Strategic Biodiversity Value Score
SUZ	Special Use Zone
TRZ 2	Transport Zone 2 – Principal Road Network
TRZ3	Transport Zone 3 – Significant Municipal Road
TSSC	Threatened Species Scientific Committee
VBA	Victorian Biodiversity Atlas
VES	Visual encounter surveys
VPO3	Vegetation Protection Overlay 3
VQA	Vegetation Quality Assessment

Summary

Biosis Pty Ltd was commissioned by Avenis Energy Pty Ltd to undertake a flora and fauna assessment of an area proposed for the placement of a Battery Energy Storage System (BESS) and the development of an underground cable connection route to link the BESS to the Glenrowan Terminal Station in Winton, Victoria. The study area is located on private farmland and extends into neighbouring remnant native vegetation where the connection route is proposed. It is approximately 9 kilometres south–west of Glenrowan.

Ecological values

Key ecological values identified within the study area are as follows:

- 3.05 ha of Box Ironbark Forest Ecological Vegetation Class (EVC) 61. This EVC has a vulnerable bioregional conservation status within the Central Victorian Uplands Bioregion.
- 2.79 ha of Plains Woodland/Herb-rich Wetland Mosaic EVC 235. This EVC has an endangered bioregional conservation status within the Central Victorian Uplands Bioregion.
- 0.92 ha of Plains Sedgy Wetland EVC 647. This EVC has an endangered bioregional conservation status within the Central Victorian Uplands Bioregion.
- 3.40 ha of Plains Woodland EVC 803. This EVC has an endangered bioregional conservation status within the Central Victorian Uplands Bioregion.
- One *Environment and Biodiversity Conservation Act 1999* (EPBC Act) threatened ecological community: Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grassland of South–eastern Australia (EPBC Act: endangered).
- Two *Flora and Fauna Guarantee Act 1988* (FFG Act) listed flora species: Umbrella Grass *Digitaria divaricatissima var. divaricatissima* (FFG Act, endangered) and Mugga Ironbark *Eucalyptus sideroxylon* (FFG Act, endangered).
- Potential habitat for one EPBC Act listed only species, four EPBC Act and FFG Act listed fauna species, and four FFG Act only listed species.
- Four protected flora species (FFG Act) occur within the study area.

Government legislation and policy

An assessment of the project in relation to key biodiversity legislation and policy is summarised below.

Legislation / policy	Relevant ecological feature on site	Permit/approval required	Notes
Environment Protection and Biodiversity Conservation Act 1999	**Five** EPBC Act listed fauna species assessed as likely to occur with a medium or higher likelihood: • Swift Parrot • Regent Honeyeater • Painted Honeyeater	Referral not recommended as significant impact on matters of national environmental significance considered unlikely.	Targeted survey for Sloane's Froglet *Crinia sloanei* was undertaken in suitable habitat on the BESS site, with no individuals recorded, and as such the species is considered to have a low likelihood of occurrence. Suitable habitat is also

Legislation / policy	Relevant ecological feature on site	Permit/approval required	Notes
	• Diamond Firetail • Brown Treecreeper (south–eastern) **One** EPBC Act listed threatened ecological community: • Grey Box (*Eucalyptus microcarpa*) Grassy Woodland and Derived Native Grassland of South–eastern Australia		present along the connection route corridor but there will be no impacts on areas of potential habitat. The study area contains Swift Parrot and Regent Honeyeater foraging species such as Mugga Ironbark, Grey Box, White Box and Yellow Box. There will be minimal impacts on Grey Box (0.516 ha) dominated patch vegetation. This vegetation removal is not considered to constitute a significant impact on Swift Parrot and Regent Honeyeater. Painted Honeyeater, Diamond Firetail and Brown Treecreeper (south–eastern) may occasionally forage in the study area, but the impacts on small patches of habitat is not considered to constitute a significant impact on these highly mobile species. There will be no impacts on vegetation representing the Grey Box Grassy Woodland community.
Flora and Fauna Guarantee Act 1988	Listed flora species, communities and protected flora species recorded on site.	Protected Flora Permit not required on private land but may be required if any protected species are impacted on roadsides.	The BESS site is private land with public road reserves to be crossed by the connection route.
Planning & Environment Act 1987	All indigenous vegetation to be removed, destroyed or lopped.	Planning permit required to remove, destroy or lop native vegetation. Permit application needs to address provisions of the Benalla Planning Scheme and Vegetation Protection Overlay 3 (VPO3). The Minister for Planning is the responsible authority for BESS sites and associated development in Victoria.	An assessment against Victoria's Guidelines for the removal, destruction or lopping of native vegetation is provided in Section 5 for a Detailed Assessment Pathway planning application. A response to VPO3 application requirements and decision guidelines (Regent Honeyeater habitat / Lurg Ironbark vegetation protection area) is provided in Section 4 of this report.

Legislation / policy	Relevant ecological feature on site	Permit/approval required	Notes
Catchment and Land Protection Act 1994	Noxious weeds, pest animals.	Several established pest animals and plants occur or are likely to occur within the study area. These include European Brown Hare *Lepus europaeus* and European Rabbit *Oryctolagus cuniculus*.	Established pest species are a serious threat to primary production, Crown land, the environment or community health in Victoria. Avenis Energy has the responsibility to take all reasonable steps to prevent the spread of, and as far as possible eradicate, established pest species within the study area.
Environment Effects Act 1978	Native vegetation, wetlands and threatened species.	The individual and combined potential effects criteria are unlikely to be triggered for biodiversity impacts.	The individual and combined potential effects criteria based on the level of proposed native vegetation removal, EVC bioregional conservation status, impacts on FFG Act listed species and impacts on wetlands indicates the project is unlikely to trigger a referral to the Minister for Planning for an EES determination.

Guidelines for the removal, destruction or lopping of native vegetation (the Guidelines)

Based on the current design, the proposed development will require the removal of 0.646 hectares of native vegetation, including two large ~~trees, from within Location category 2. Therefore~~, the planning permit application will be assessed on the Detailed Assessment Pathway. The strategic biodiversity value score of the native vegetation proposed for removal is 0.360 to 0.580.

Avoid and minimise statement

The proposed removal of native vegetation is necessary for the delivery of the BESS site and connection route. Steps that have been taken during the siting and design of the BESS and connection route to ensure that impacts on biodiversity from the removal of native vegetation have been avoided and minimised are summarised below in accordance with Department of Energy, Environment and Climate Action (DEECA) Assessor's Handbook (DELWP 2018). More detail on how avoidance and minimisation has been achieved in relation to the native vegetation values described in Appendix 1D of DELWP (2018) is provided in Section 5 of this report.

Strategic level planning

This site has been chosen due to its proximity to electrical transmission infrastructure and Glenrowan Terminal Station.

Site level planning

Site level impact avoidance and minimisation steps include:

- Avoiding higher quality areas of native vegetation. A due diligence assessment was undertaken to determine the areas of native vegetation within the study area. Once informed by this assessment, the BESS was designed to be located within areas of introduced vegetation to minimise disturbance of native vegetation.
- Placement of the connection route within cleared areas where possible to minimise the impact on native woodland vegetation patches along the Hume Freeway and Winton–Glenrowan Road.
- Locating temporary site storage and compounds on existing disturbed land to minimise impacts on native vegetation.
- Designing the proposed access road to avoid scattered trees, including updating the access route from Lee Road to avoid native vegetation removal.
- Investigating the use of underground boring for the connection route. Options for undergrounding portions of the connection route were explored in light of the need for the connection route to cross the Hume Freeway. Discussions between Avenis Energy, the Department of Transport and Planning and Benalla Rural City Council indicate that the preferred option is trenching, with the exception of where the connection route crosses the Hume Freeway where the preference is for directional drilling of the underground cable.

Offset requirements

If a permit is granted, the offset requirements would be 0.2620 general habitat units and protection of two large trees.

The general offset must be within the Goulburn Broken Catchment Management Authority area or the Benalla municipal district and must have a minimum strategic biodiversity value score of 0.3771.

It is likely that Avenis Energy will purchase the offset credits from the Victorian native vegetation credit register.

Recommendations

The following actions will be implemented where possible during design and construction to ensure additional impacts on native vegetation are avoided and minimised:

- Development and implementation of a Construction Environment Management Plan that aims to minimise both direct and indirect impacts on the surrounding landscape during construction.
- Implementation of run-off, dust and sedimentation controls during construction.
- Correct practice of machinery and equipment hygiene to ensure weeds are not spread throughout the native vegetation.
- Use of clear no-go fencing and contractor inductions to protect native vegetation outside the study area.

Future requirements for infrastructure and services must be forecast as much as possible at this time and allowance made outside any nominated reserves for all construction works. All areas of vegetation/habitat nominated in the design plan as 'retained' are to be treated as no-go zones and are not to be encroached upon as development progresses.

1 Introduction

1.1 Project background

Biosis Pty Ltd was commissioned by Avenis Energy Pty Ltd (Avenis Energy) to undertake a flora and fauna assessment of an area proposed for the placement of a Battery Energy Storage System (BESS) facility and the construction of related infrastructure including an underground cable connection route (2.04 hectare footprint) linking the BESS to the Ausnet Glenrowan Terminal Station in Winton, Victoria (study area). The study area is located on private farmland and extends into neighbouring remnant native vegetation within the Hume Freeway and Winton – Glenrowan Road corridor where the linking connection route infrastructure is proposed. The connection route will be installed via trenching, with directional drilling utilised where the underground cable crosses the Hume Freeway.

1.2 Scope of assessment

The objectives of this investigation are to:

- Describe the vascular flora (ferns, conifers, flowering plants), vertebrate fauna (mammals, birds, reptiles, frogs, fishes) and decapod crustacea (e.g. crayfish) observed within the study area.
- Map native vegetation and other habitat features within the study area.
- Conduct a vegetation quality assessment.
- Review the implications of relevant biodiversity legislation and policy, including Victoria's Guidelines for the removal, destruction or lopping of native vegetation ('the Guidelines').
- Identify potential implications of the proposed development and provide recommendations to assist with development design.

1.3 Location of study area

The study area is located approximately 9 kilometres south–west of Glenrowan and approximately 13 kilometres north–east of Benalla (Figure 1). It encompasses 36.45 hectares of private land in two sections and the adjacent 21.25 hectares of road reserves. The BESS site is located on the private land parcel Lot 1 TP 98336, and the connection route extends from this private land parcel into the Hume Freeway and Winton–Glenrowan Road road reserves. The study area is currently zoned Farming Zone (FZ) (private land parcel), Transport Zone 2 – Principal Road Network (TRZ2) (private land parcel and Hume Freeway road reserve), Transport Zone 3 – Significant Municipal Road (TRZ3) (Winton–Glenrowan Road road reserve) and Special Use Zone – Schedule 4 (SUZ) (Glenrowan Terminal Station) under the Benalla Planning Scheme.

The study area is within the:

- Central Victorian Uplands Bioregion
- Broken River Basin
- Goulburn Broken Catchment Management Authority (CMA) area
- Benalla Rural City Council.

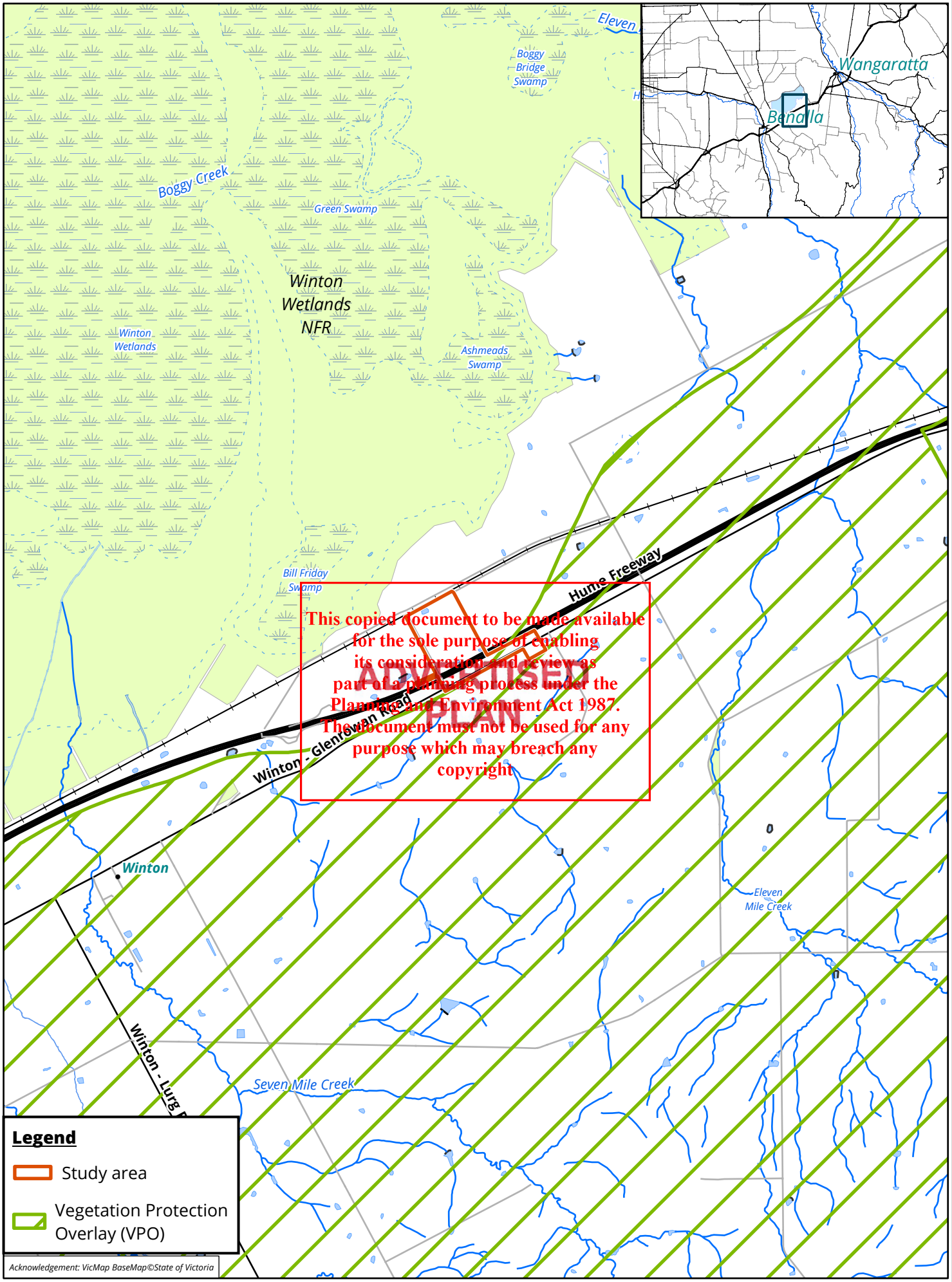


Figure 1 Location of the study area - Winton, Victoria

biosis

Matter: 41485,
Date: 27 November 2025,
Prepared for: EK, Prepared by: MK, Last edited by: pgidley
Layout: 41485_F1_Locality
Project: P:\41400s\41485\Mapping\41485_Winton BESS FFA.aprx

0 500 1,000 1,500 2,000
Metres

Scale: 1:50,000 @ A4
Coordinate System GDA2020 MGA Zone 55

N

2 Methods

2.1 Database review

In order to provide a context for the study area, information about flora and fauna from within 10 kilometres of the study area (the 'local area') was obtained from relevant biodiversity databases, many of which are maintained by the Victorian Government Department of Energy, Environment and Climate Action (DEECA) (formerly Department of Environment, Land, Water and Planning (DELWP)) or the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW). Records from the following databases were collated and reviewed:

- DEECA's Victorian Biodiversity Atlas (VBA), including the 'VBA_FLORA25, FLORA100 & FLORA Restricted' and 'VBA_FAUNA25, FAUNA100 & FAUNA Restricted' datasets (DSE 2009).
- DCCEEW's Protected Matters Search Tool for matters protected by the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Other sources of biodiversity information were examined including:

- DEECA's NatureKit mapping tool.
- DEECA's Habitat Importance maps.
- DEECA's Native Vegetation Regulations (NVR) Map online application tool.
- Planning Scheme zones including any precinct structure plans, overlays and particular provisions relevant to biodiversity based on http://planningschemes.dpcd.vic.gov.au.
- Existing and nearby site reports:
  - Preliminary ecological assessment for a Battery Energy Storage System facility, Winton (Biosis 2023a).
  - Preliminary ecological assessment for a powerline at the Winton Battery Energy Storage System facility, Winton (Biosis 2024a).
  - Winter targeted surveys and habitat mapping for Sloane's Froglet *Crinia sloanei* at the proposed Battery Energy Storage System in Winton (Biosis 2024b).
  - Winton North Solar Farm and electricity transmission line: Flora and fauna assessment (Biosis 2023b).

2.2 Definitions of threatened species and communities

Threatened species and communities are listed under the EPBC Act and/or Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act). The conservation status of a species or ecological community is determined by its listing status under Commonwealth or State legislation/policy (Table 1).

Table 1 Conservation status of threatened species and ecological communities

Government level	Conservation status
National	Listed as nationally critically endangered, endangered or vulnerable under the EPBC Act.
State	Listed as extinct, extinct in the wild, critically endangered, endangered, vulnerable or conservation dependent in Victoria under the FFG Act.

Lists of threatened species generated from the databases are provided in Appendix 1 (flora) and Appendix 2 (fauna). Each species has been assessed to determine its likelihood of occurrence based on the following process.

2.3 Determining likelihood of occurrence of threatened species

Likelihood of occurrence indicates the potential for a species or ecological community to occur regularly within the study area. It is based on expert opinion, information in relevant biodiversity databases and reports, and an assessment of habitats on the site. Likelihood of occurrence is ranked as negligible, low, medium, high or recorded. The rationale for the rank assigned is provided for each species in Appendix 1 (flora) and Appendix 2 (fauna). Those species for which there is little or no suitable habitat within the study area are assigned a likelihood of low or negligible and are not considered further.

Only those species listed under the EPBC Act or the FFG Act (hereafter referred to as ' threatened species') are assessed to determine their likelihood of occurrence. The habitat value for threatened species is calculated by the Habitat Importance Modelling produced by DEECA (DELWP 2017a). Where threatened species are recorded in the study area this is noted in Appendix 1 (flora) and Appendix 2 (fauna).

Threatened species which have at least medium likelihood of occurrence are given further consideration in this report. The need for targeted survey for these species is also considered.

2.4 Site investigation

2.4.1 Flora assessment

Preliminary flora assessment of the BESS site was undertaken by Jessica Chapman (Botanist) on 1 November 2023 and preliminary flora assessment of the proposed connection route was undertaken by Nicholas Lloyd (Botanist) on 9 July 2024. Additional flora inspections were undertaken on 26 September 2024 by Elise Keane (Senior Botanist). A list of flora species was compiled (Appendix 1) and will be submitted to DEECA for incorporation into the VBA. Planted species were not recorded unless they were naturalised.

Native vegetation is defined in the Victoria Planning Provisions as 'plants that are indigenous to Victoria, including trees, shrubs, herbs, and grasses' (Clause 73.01).

The Guidelines classify native vegetation into two categories (DELWP 2017b):

- A **patch** of native vegetation (measured in hectares) is one of the following:
  - An area of vegetation, with or without trees, where at least 25% of the total perennial understorey cover is native.
  - An area with three or more native canopy trees where the drip line (i.e. the outermost boundary of a tree canopy) of each tree touches the drip line of at least one other tree, forming a continuous canopy.

  - Any mapped wetland included in the Current wetlands map, available in DEECA systems and tools.

- A **scattered tree** is defined as a native canopy tree that does not form part of a patch.

Patch vegetation is classified into ecological vegetation classes (EVCs), which are the standard unit for classifying vegetation types in Victoria. They are described through a combination of floristics, lifeforms and ecological characteristics, and through an inferred fidelity to particular environmental attributes. Each EVC contains one or more floristic (plant) communities. EVC benchmarks are standard descriptions that allow the vegetation quality on a given site to be determined under the Guidelines (DELWP 2017b).

A canopy tree is a mature tree that is greater than three metres in height and is normally found in the upper layer of a vegetation type. Ecological vegetation class descriptions provide a list of the typical canopy species. A scattered tree is defined as either small or large and is determined using the large tree benchmark for the relevant EVC. The extent of a small, scattered tree is the area of a circle with a 10-metre radius (i.e. 0.031 hectares), while the extent of a large, scattered tree is a circle with a 15-metre radius (i.e. 0.070 hectares). A condition score is applied to each scattered tree based on information provided by DEECA's NVR Map.

Vegetation Quality Assessment (VQA) was undertaken for all patches of native vegetation based on DEECA's habitat hectare method (DSE 2004) and the Guidelines (DELWP 2017b). For the purposes of this assessment the limit of the resolution for identification of a patch of native vegetation was taken to be 0.001 habitat hectares (Hha). If a discrete patch of native vegetation had sufficient cover but its condition and extent would not result in the identification of at least 0.001 habitat hectares, the vegetation patch was not mapped.

Species nomenclature for flora follows the Victorian Biodiversity Atlas (VBA).

2.4.2 Fauna assessment

The BESS site was investigated by Jessican Chapman on 1 November 2023 and the connection route area was investigated by Nicholas Lloyd on 9 July 2024 to determine the overall values for fauna in the combined study area. These were determined primarily on the basis of the types and qualities of habitat(s) present. This investigation determined that suitable habitat was present for Sloane's Froglet *Crinia sloanei* in waterbodies and seasonally inundated vegetation within the study area. Viable habitat ranged from low to high value dams, dry gilgai and flooded grasslands. This triggered the requirement to undertake targeted surveys for Sloane's froglet.

2.4.3 Targeted survey – Sloane's Froglet

Targeted survey for Sloane's Froglet was undertaken on three consecutive nights between 8 July and 10 July 2024 by Yonina Eizenberg (Zoologist) and Danielle Eastick (Zoologist). To ensure a rigorous approach was adopted, the assessment was undertaken in accordance with the survey guidelines for Australia's threatened frogs (DEWHA 2010) and in close consultation with the Sloane's Froglet Conservation advice (TSSC 2019).

Optimal timing and weather conditions

Surveys were conducted at night, during the peak calling period, when males are most vocal, from June to August (TSSC 2019). To maximise the likelihood of capturing the targeted species vocalising, surveys were conducted after a rainfall event or during light rainfall. Wind levels were low to ensure that calls were not distorted, and the temperature was within the 10–13° C range. Weather was recorded before and after each survey to ensure the survey weather criteria were met.

Reference areas

Reference areas of known Sloane's Froglet populations were visited before the onset and during the period of the targeted surveys to confirm the species were calling. These areas included:

- Wangaratta Common Nature Conservation Reserve (DEWHA 2010).
- Thurgoona known Sloane's Froglet population.

Site selections, sampling design and effort

Twenty-two sites were selected from the suitable habitat within the study area and five sites were identified as viable habitat within the vicinity of the study area. Twenty-seven sites were surveyed each night for Sloane's Froglet.

Surveys were independent as each selected site was distanced so that recorded individuals were not counted multiple times. Each site was surveyed once per night for three consecutive nights. Location of playback was repeated throughout the survey period.

Survey methods – Call playback and visual encounter search

Three nights of nocturnal call playback surveys were conducted in accordance with the relevant guidelines (DEWHA 2010). Each survey involved two observers attending pre-determined areas of suitable Sloane's froglet habitat, including dams and inundated wet areas, listening for male calls. After at least 5 minutes of silently listening, with no use of artificial light, a recording of a Sloane's Froglet male call was played to elicit a response of the target species. Observers remained silent and listened for any responses for one minute and then repeated the call playback process for an additional 5 minutes.

Visual encounter surveys (VES) (Crump & Scott 1994) were also utilised whilst commuting to the call playback areas and once within a call playback area. This involved two observers walking throughout the study area, using LED headlamps and hand torches, searching for frogs perching on fringing vegetation, algae, logs and exposed banks.

All species of fauna encountered during the surveys were noted. Fauna records will be submitted to the VBA.

2.4.4 Permits

Biosis undertakes flora and fauna assessments under the following permits and approvals:

- Wildlife Authorisation issued by DEECA under the Victorian *Wildlife Act 1975* (Permit Number 10010193).
- Permit to Take/Keep Protected Flora issued by DEECA under the FFG Act (Permit Number 10010194).
- Permit to Take Protected Fish issued by DEECA under the FFG Act (Permit Number 10010195).
- Permit to Conduct Research in areas managed by the Parks Victoria issued by DEECA under the Victorian *National Parks Act 1975*, *Crown Land (Reserves) Act 1978* and *Parks Victoria Act 2018* (Permit Number 10010071).
- Permit to catch and release fish issued by the Victorian Fisheries Authority under the Victorian *Fisheries Act 1995* (Permit Number RP 1220, Personal File Number 13041).
- Approvals 18.21 and 20.21 issued by the Wildlife and Small Institutions Animal Ethics Committee of the Victorian Government.

- Scientific Procedures Fieldwork Licence issued by the Victorian Government Wildlife and Small Institutions Animal Ethics Committee (Licence Number 20020).

2.5 Qualifications

Ecological surveys provide a sampling of flora and fauna at a given time and season. There are a number of reasons why not all species may be detected at a site during survey, such as low abundance, patchy distribution, species dormancy, seasonal conditions, and migration and breeding behaviours. In many cases these factors do not present a significant limitation to assessing the overall biodiversity values of a site.

The flora assessments were conducted in winter and spring. All survey times are considered appropriate for ecological surveys on the drier northern plains of Victoria. The cover of annual and perennial weed species was high in some locations making locating and identifying native understorey species difficult at times. However, the survey effort was considered sufficient to assess the general values of the study area given its highly modified condition and ongoing agricultural use. Ausnet's Glenrowan Terminal Station was not accessed during field assessments, but site values were viewed from adjacent public roads.

Native Vegetation Removal Reports are prepared through DEECA's NVR Map online application. Biosis supplies relevant site-based spatial information as inputs to DEECA and we are entirely reliant on DEECA's output reports for all assessment pathway applications. Biosis makes every effort to ensure site and spatial information entered into the NVR Map, or supplied to DEECA, is an accurate reflection of proposed native vegetation removal.

Targeted fauna surveys were conducted in winter, during the peak calling period for Sloane's Froglet. The flooded grasslands and some dams on the south–eastern boundary of the study area were close to high-speed traffic on the Hume Freeway. Surveys were carried out later in the night to avoid the noise emitted during peak travelling times.

2.6 Legislation and policy

The implications for the project were assessed in relation to key biodiversity legislation and policy including:

- Matters listed under the EPBC Act, associated policy statements, significant impacts guidelines, listing advice and key threatening processes.
- Threatened taxa, communities and threatening processes listed under Section 10 of the FFG Act and associated action statements and listing advice.
- Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017b).
- Native Vegetation Management Plans prepared by Catchment Management Authorities.
- *Planning and Environment Act 1987*, specifically Clauses 12.01-2, 52.17 and 66.02 and Overlays in the Benalla Planning Scheme.
- Noxious weed and pest animal lists under the *Catchment and Land Protection Act 1994* (CaLP Act).
- *Environment Effects Act 1978.*
- *Environment Protection Act 1971*: State Environmental Protection Policy (Waters) 2018.

Consideration was also given to the Solar Energy Facilities Design and Development Guideline (DELWP 2022) (Solar Guidelines), however most content in these guidelines reflects standard biodiversity regulations and policies that operate across Victoria and are considered throughout this report.

2.7 Mapping

Avenis Energy supplied site plans, including a proposed development footprint for the BESS, connection route and associated access routes. Native vegetation removal and impact assessments presented here reflect the current BESS design version 3 provided on 17 February 2025 and connection route design provided on 31 January 2025. The connection route corridor is 20 metres wide for the majority of the corridor, expanding to 40 metres wide where the corridor enters Glenrowan Terminal Substation.

Mapping was conducted using hand-held GPS-enabled tablets and aerial photo interpretation. The accuracy of this mapping is therefore subject to the accuracy of the tablets (generally ±7 metres) and dependent on the limitations of aerial photo rectification and registration.

Mapping has been produced using a Geographic Information System (GIS). Electronic GIS files which contain our flora and fauna spatial data are available to incorporate into design concept plans. However, this mapping may not be sufficiently precise for detailed design purposes.

3 Results

The ecological features of the study area are described below and mapped in Figure 2.

Species recorded during the flora and fauna assessment are listed in Appendix 1 (flora) and Appendix 2 (fauna). Unless of particular note these species are not discussed further.

Threatened species recorded or predicted to occur in the local area are also listed in these appendices, along with an assessment of the likelihood of the species occurring within the study area.

3.1 Landscape context

The study area occurs in a predominantly agricultural landscape, with most remnant native vegetation patches occurring on road reserves. There are also several renewable energy projects within the locality, including Winton Solar Farm, Glenrowan West Solar Farm and Winton Lochard Energy Solar and Hydrogen Facility located south of the study area along Winton–Glenrowan Road and Winton North Solar Farm located northeast of the study area along Ashmead Road.

Winton Wetlands is immediately north of the study area, north of Nelson Road. Winton Wetlands is an 8,750-hectare reserve with 32 wetlands supporting a variety of native flora and fauna and habitat for several threatened waterbirds. The study area is disconnected from the Winton Wetlands Reserve by two roads and a rail corridor.

3.2 Vegetation and fauna habitat

The study area consists of two broad zones, including predominantly cleared farmland and native remnant woodland along roadsides.

Most of the study area, including the BESS site and parts of the transmission line, has been highly modified through extensive land clearing, cultivation, cropping and pasture improvement. Native vegetation within the BESS site remains as isolated scattered paddock trees. A section in the south–west of the study area has been planted with native eucalypt species, predominantly Grey Box *Eucalyptus microcarpa*.

The BESS site is currently used for cattle grazing, with the paddocks supporting predominantly Wimmera Rye-grass *Lolium rigidum* and Squirrel-tail Fescue *Vulpia bromoides* with scattered Capeweed *Arctotheca calendula*, Spear Thistle *Cirsium vulgare* and Small-flower Mallow *Malva parviflora*. These areas are of limited ecological value. Planted exotic trees are scattered throughout the study area.

Ephemeral gilgais are present throughout the north–east of the study area. These patches are dominated by the introduced species Toowoomba Canary-grass *Phalaris aquatica,* and do not form an EVC. The study area also supports two constructed farm dams, which contain limited fringing vegetation due to livestock grazing and trampling.

Roadside vegetation on Lee Road, Bower Road, either side of the Winton–Glenrowan Road and on the northern side of the Hume Freeway comprises planted and remnant eucalypt woodland and forest. Treed vegetation within the paddock between Winton–Glenrowan Road and the Hume Freeway consists of some patch vegetation with a mixture of remnant and planted eucalypt trees and some patches containing entirely planted eucalypt species. Vegetation in the middle of the Hume Freeway comprises entirely planted trees including Lightwood *Acacia implexa* and Drooping Sheoak *Allocasuarina verticillata.* Roadside understorey

vegetation predominantly comprises Toowoomba Canary-grass, Paspalum *Paspalum dilatatum*, African Love-grass *Eragrostis curvula* and flatweed *Hypochaeris radicata*.

The Glenrowan Terminal Station was not accessible during field assessments. Site values were only visually assessed in the area where the proposed connection route entered this private property. The groundcover vegetation comprised predominantly introduced vegetation, with no native vegetation present where the connection route enters the Glenrowan Terminal Station.

Topography in the study area is generally flat with a small rise towards the northern end of Winton–Glenrowan Road. The majority of the BESS site is flat with clay loam soils, whilst the rise along Winton–Glenrowan Road contains rocky and shallow metamorphic soils.

These features are described further in Table 2 and mapped in Figure 2. Photos are provided in Appendix 3.

Table 2 Summary of vegetation and habitat types within the study area

Vegetation or habitat type	Description	Location	Significant values
Box Ironbark Forest **EVC 61** **Photo 1**	Occurs as a forest comprising both remnant and planted trees on roadsides on gentle rises. The forest canopy is dominated by Grey Box *Eucalyptus microcarpa,* White Box *Eucalyptus albens*, Red Box *Eucalyptus polyanthemos* and Mugga *Eucalyptus sideroxylon* subsp. *sideroxylon*. The shrub/ground stratum is dominated by native species such as Gold-dust Wattle *Acacia acinacea*, Rough Wattle *Acacia aspera* subsp. *aspera* and Black-anther Flax-lily *Dianella revoluta* var. *revoluta* and introduced species such as Lesser Quaking-grass *Briza minor* and Slender Pigeon-grass *Setaria parviflora.* Represented by Habitat Zone 8.	Along the eastern portion of Winton–Glenrowan Road.	Box Ironbark Forest provides a diversity of niches for fauna, including foraging resources for birds such as the threatened Grey-crowned Babbler *Pomatostomus temporalis*, Painted Honeyeater *Grantiella picta*, Brown Treecreeper (south–eastern) *Climacteris picumnus victoriae* and Diamond Firetail *Stagonopleura guttata*. The threatened Regent Honeyeater *Anthochaera phrygia* and Swift Parrot *Lathamus discolor* may use this vegetation on rare occasions. Large hollow bearing trees in this vegetation type may provide habitat for microbats and Squirrel Glider *Petaurus norfolcensis*. The shrubby ground layer provides protective cover for locally common mammals including Yellow-footed Antechinus *Antechinus flavipes* and Eastern Grey Kangaroo *Macropus giganteus*. Reptiles may also be present, particularly where breaks in canopy provide opportunities for thermoregulation, including the threatened Lace Monitor *Varanus varius*.
Plains Woodland/Herb-rich Gilgai Wetland Mosaic **EVC 235** **Photo 2–Photo 4**	Occurs as a mosaic between Plains Woodland and Herb-rich Gilgai Wetland vegetation. The canopy is dominated by River Red-gum *Eucalyptus camaldulensis* and Grey Box with a sparse to absent shrub layer. Within the study area, this EVC is subject to seasonal inundation, including the formation of gilgais. The understorey contains a mixture of native and introduced species, with drier areas tending	Within the road reserve along Lee Road on northern edge of the study area, and along the northern side of Hume Freeway. Also present in a small patch along an ephemeral drainage line along Winton–Glenrowan Road.	Eucalypts in these areas offer possible foraging and nesting habitat for a range of bird and arboreal mammals. Larger and well-connected patches provide habitat for threatened species, including Grey-crowned Babbler, Diamond Firetail, Painted Honeyeater and Brown

Vegetation or habitat type	Description	Location	Significant values
	to be dominated by introduced species such as Toowoomba Canary-grass *Phalaris aquatica,* Squirrel-tailed Fescue *Vulpia bromoides*, Wild Oat *Avena fatua*, Yorkshire Fog *Holcus lanatus* and Paterson's Curse *Echium plantagineum*. Wetter areas are more commonly native dominated and support species including Common Spike-sedge *Eleocharis acuta*, Small St John's Wort *Hypericum gramineum*, Toad Rush *Juncus bufonius*, Pale Rush *Juncus pallidus*, Water Starwort *Callitriche* spp. and Club Sedge *Isolepis* spp. Represented by Habitat Zones 1, 3 and 6.		Treecreeper (south–eastern), as well as Squirrel Glider and Lace Monitor.
Plains Sedgy Wetland **EVC 647** **Photo 5**	Occurs as an ephemeral wetland. A small diversity of sedges and rushes are present, including Poong'ort *Carex tereticaulis,* Common Grass-sedge *Carex breviculmis*, Common Spike-sedge, Toad Rush, Pale Rush, Water Starwort and Club Sedge. The edges of the ephemeral wetland contain introduced species Toowoomba Canary-grass and Wild Oat. The wetland is highly disturbed, with cattle prints throughout the patch. Represented by Habitat Zone 7.	South–east corner of the study area.	May provide refuge for some frog species and foraging/nesting habitat for waterbirds. This vegetation was surveyed for Sloane's Froglet which was determined not to be present in this patch.
Plains Woodland **EVC 803** **Photo 6–Photo 7**	Occurs as remnant seasonally damp woodland on fertile clay soils. The canopy is dominated by Grey Box and White Box, with a sparse to absent shrub layer. The ground stratum is dominated by introduced species such as Squirrel-tailed Fescue, Wild Oat, Yorkshire Fog and Paterson's Curse. A low density of native species occurs in the ground stratum including Wallaby Grass *Rytidosperma* spp., and Rush *Juncus* spp. Represented by Habitat Zone 2, 4 and 5.	Within roadside vegetation along Bowers Road and the western end of Winton–Glenrowan Road.	Eucalypts in these areas offer possible foraging and nesting habitat for a range of bird and arboreal mammals. Larger and well-connected patches provide habitat for threatened species, including Grey-crowned Babbler, Diamond Firetail, Painted Honeyeater and Brown Treecreeper (south–eastern), as well as Squirrel Glider and Lace Monitor. This EVC is represented by patches in the connection route section of the study

Vegetation or habitat type	Description	Location	Significant values
			area, specifically adjacent to Winton–Glenrowan Road, in the road verges. The vegetation in these patches is consistent with the EPBC Act listed TEC Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South–eastern Australia.
Scattered trees **Photo 8**	Scattered remnant and planted trees within the study area, surrounded by cleared paddock, including River Red-gum and Grey Box.	Throughout the study area.	Scattered remnant trees within the study area provide a foraging resource for mobile fauna species. Some of the trees contain hollows. Eucalypts offer potential foraging habitat for the threatened Swift Parrot and other nectar-feeding and woodland birds.
Planted vegetation **Photo 9**	Planted native vegetation occurs as windbreak rows along fencelines and the Hume Freeway. Planted non-native vegetation occurs as garden trees in the vicinity of the house along Bowers Road, with planted Olive trees also present on the private land along the fenceline of Bowers Road.	Predominantly in the west of the study area and along the Hume Freeway.	Planted vegetation along the Hume Freeway is established, and therefore would provide foraging habitat for threatened and non-threatened woodland birds. They also provide movement corridors for mammals such as Squirrel Glider. Planted vegetation within the farmland and along fence lines is unlikely to provide core habitat values for significant flora or fauna species.
Predominantly introduced vegetation **Photo 10**	The majority of the study area supports paddocks that have been cleared in the past and are currently used for grazing purposes. The paddocks are dominated by introduced species including Wimmera Rye-grass, Squirrel-tail Fescue and Toowoomba Canary-grass.	Throughout the study area, including along road reserves where no trees are present, and throughout the private farmland.	Predominantly introduced vegetation offers limited habitat, except for common farmland birds and mobile fauna such as Eastern Grey Kangaroo.

Vegetation or habitat type	Description	Location	Significant values
Constructed dams **Photo 11–Photo 12**	The majority of dams are in a degraded state owing to the absence of woody vegetation, trampling by livestock and nitrification. Nonetheless, the dams provide habitat for waterbirds and amphibians, containing low quality fringing habitat including Broad-leaf Cumbungi *Typha orientalis*, *Juncus* sp. and *Carex* sp., as well as the introduced Toowoomba Canary-grass.	Small dams are located in the south of the farmland area, adjacent to the Hume Freeway road corridor.	The dams are generally of low habitat value however they provide some habitat for waterbirds and common frog species.

3.3 Landscape context

Much of the land surrounding the study area has been subject to agricultural land use, including being cleared for pasture and cropping. Native vegetation within the study area consists of scattered trees, and remnant patches (woodland) that have been retained as linear corridors along road reserves. In addition to these areas, patches within the locality have been revegetated by the Regent Honeyeater Project to provide potential habitat for woodland fauna with the focus of providing resources for the EPBC Act listed Regent Honeyeater. The Regent Honeyeater is considered to have a medium likelihood of occurrence in the study area, predominantly along Winton–Glenrowan Road, where it is likely to only very occasionally visit this area for foraging.

North of the study area is the Winton Wetlands Reserve (formerly Lake Mokoan). The study area is loosely connected via roadside vegetation to the southern extent of the Warby-Ovens National Park near Glenrowan, approximately 9 kilometres north–east. Both these areas are known to support several threatened species.

3.4 Threatened species

Listed threatened species recorded or predicted to occur within 10 kilometres of the study area or from the relevant catchment (aquatic species) are listed in Appendix 1 (flora) and Appendix 2 (fauna). An assessment of the likelihood of these species occurring in the study area and an indication of where within the site (i.e. which habitats or features of relevance to the species) is included. A summary of those species recorded or with a medium or higher likelihood of occurring in the study area is provided in Table 3.

Table 3 Summary of EPBC Act and FFG Act listed species most likely to occur in the study area

Species name	Listing status	Area of value within the study area
Flora		
Umbrella Grass	Endangered under FFG Act	EVC 61 woodland habitat adjacent to the Glenrowan Terminal Station.
Mugga Ironbark	Endangered under FFG Act	EVC 61 and EVC 803 woodland habitat along Winton–Glenrowan Road.
Fauna		
Swift Parrot	Critically endangered under EPBC Act	Foraging habitat in woodland along roadsides.
Regent Honeyeater	Critically endangered under EPBC Act	Foraging habitat in flowering eucalypt trees and mistletoe along roadsides.
Painted Honeyeater	Vulnerable under the EPBC Act, Vulnerable under the FFG Act	Foraging habitat in woodland and mistletoe along roadsides.
Diamond Firetail	Vulnerable under the EPBC Act, Vulnerable under the FFG Act	Foraging and breeding habitat in woodland along roadsides.
Brown Treecreeper (south–eastern)	Vulnerable under the EPBC Act	Foraging and breeding habitat in woodland along roadsides.
White-bellied Sea-eagle	Endangered under FFG Act	Foraging habitat in woodland along roadside and within farmland areas.

Species name	Listing status	Area of value within the study area
Lace Monitor	Endangered under FFG Act	Foraging and breeding habitat in woodland and hollows along roadside and within farmland areas.
Grey-crowned Babbler	Vulnerable under FFG Act	Foraging and breeding habitat in woodland along roadsides.
Squirrel Glider	Vulnerable under FFG Act	Foraging and breeding habitat in woodland and hollows along roadsides.

3.5 Threatened ecological communities

Six threatened ecological communities (TECs) listed under the EPBC Act or FFG Act were predicted to occur within the study area, including:

- Buloke Woodlands of the Riverina and Murray-darling Depression Bioregions (Endangered, EPBC Act).
- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South–eastern Australia (Endangered, EPBC Act).
- White Box – Yellow box – Blakely's Red gum grassy Woodland and Derived Native Grassland (Critically Endangered, EPBC Act).
- Creekline Grassy Woodland (Goldfields) Community (Threatened, FFG Act).
- Grey Box – Buloke Grassy Woodland Community (Threatened, FFG Act).
- Northern Plains Grassland Community (Threatened, FFG Act).

3.5.1 EPBC communities

Of the EPBC Act listed TECs predicted to occur within the study area, one was determined to be present within a number of vegetation patches, Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South–eastern Australia. Further details on this TEC are provided below.

No Buloke *Allocasuarina luehmannii* was recorded within the study area, and as such the Buloke Woodlands of the Riverina and Murray-darling Depression Bioregions TEC is not present.

Whilst White Box and Yellow Box were present within the study area, along Bowers Road and Winton–Glenrowan Road, these species were not the dominant canopy species. Furthermore, of the EVCs present, none are considered associated with this TEC (DCCEEW 2023a). As such, this TEC is not considered to be present within the study area.

Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South–eastern Australia

Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South–eastern Australia TEC is listed as endangered under the EPBC Act. Within this community, the tree canopy is dominated by Grey Box, or it occurs as patches of derived grassland where a tree canopy of Grey Box was originally present, and the native ground layer remains intact. The understorey contains a sparse shrub layer and a species-rich ground layer of grasses and herbs (TSSC 2010). Both EVC 235 and EVC 803 are considered likely to contain this TEC (DSEWPaC 2012).

An assessment against the key diagnostic characteristics and condition thresholds for this TEC is provided in Table 4. It was determined that all areas of EVC 803 HZ2 and HZ5 met the criteria to qualify as this TEC. EVC 803 HZ 4 and all areas of EVC 235 did not meet the criteria due to not containing Grey Box as the dominant canopy species, the patch size being too small to meet the condition thresholds, or the patch being considered degraded according to the condition thresholds.

Table 4 Justification for identifying Grey Box Grassy Woodland within areas of EVC 235 and EVC 803 (criteria from (TSSC 2010).

Criterion	EVC 235	EVC 803
Is, or was previously, the most common tree species Grey Box?	Vegetation along Lee Road (Habitat Zone 1) is dominated by Grey Box. The canopy of the patch within the road reserve adjacent to the south–east corner of the private farmland (Habitat Zone 3) is dominated by Grey Box, whilst all other patches on the Hume Freeway road reserve are dominated by River Red-gum and as such is not considered to conform to this TEC. The patch located along Winton – Glenrowan Road (Habitat Zone 6), is dominated by River Red Gum and as such is not considered to conform to this TEC.	Grey Box is the dominant species across most EVC 803 habitat zone. Habitat Zone 4 contained River Red-gum as the dominant species, and as such is not considered to conform to this TEC.
Is the patch at least 0.5 hectares in size?	Habitat Zone 1 is greater than 0.5 hectares in size. Habitat Zone 3 is less than 0.5 hectares in size, due to the fragmented nature of the woodland patches on the north of the Hume Freeway, this patch was greater than 50 m away from neighbouring patches, and therefore was considered an isolated patch.	All patches of EVC 803 are at least 0.5 ha. Whilst individual patches along the road reserves may be fragmented and less than 0.5 ha, these patches are within 50 m of adjacent patches, being fragmented by roads and driveways, and as such are considered to be part of a larger contiguous patch.
Do non-grass weeds make up more than 30% of the plant cover in the ground layer?	No, the non-grass invasive species cover was low in Habitat Zone 1.	No, the non-grass invasive species cover is relatively low in places.
Do trees cover at least 10% of the patch?	Canopy cover is present in all Grey Box dominated patches.	Canopy cover is present in all Grey Box dominated patches.
Is the patch bigger than 2 hectares?	Areas on and adjacent to the Lee Road reserve are larger than 2 ha. Patch size was determined beyond the study area boundary.	Areas on and adjacent to the road reserves are larger than 2 ha. Patch size was determined beyond the study area boundary.
Are there at least 8 trees/ha that contain hollows or have a diameter	Within the Habitat Zone 1 patch there are at least 8 trees/ha that have a	Within patches there are at least 8 trees/ha that have a DBH greater than 60 cm.

Criterion	EVC 235	EVC 803
>60 cm at 1.3 m above ground level?	diameter at breast height (DBH) greater than 60 cm.	
Is at least 10% of the plant cover in the ground layer made up of perennial native grass species?	No, native grass cover was sparse, and although there are native grasses present including *Austrostipa bigeniculata*, Weeping Grass *Microlaena stipoides*, Common Wallaby-grass *Rytidosperma caespitosum* and Kangaroo Grass *Themeda triandra*, overall cover of these species is low, constituting approximately 1% cover across the patch. The ground cover was dominated by sedges and rushes including Poong'ort and *Juncus* sp., as well as the perennial introduced Toowoomba Canary-grass.	Within all patches, at least 10% of the plant cover in the ground layer is made up of perennial native grass species, including spear-grasses *Austrostipa scabra* and *Austrostipa bigeniculata,* Weeping Grass, Windmill Grass *Chloris truncata* and Common Wallaby-grass.
Conclusion	No patches of EVC 235 conform to the key diagnostic characteristics and condition thresholds for this TEC. Habitat Zone 1 is considered degraded due to containing insufficient native species cover in the ground layer. Habitat Zone 6 and all but one patch of Habitat Zone 3 did not contain Grey Box as the dominant canopy species. The eastern patch of Habitat Zone 3 was too small to meet the condition thresholds.	Most patches of EVC 803 conform to the listing criteria and condition thresholds for this TEC. Habitat Zone 4, located in the south–west of the study area at the intersection between Bowers Road and the Hume Freeway, does not conform to this TEC due to containing River Red-gum as the dominant canopy species.

3.5.2 FFG communities

Of the FFG Act TECs known to occur within the local area, one was considered present within areas of EVC 235, Creekline Grassy Woodland (Goldfields) Community, as follows.

The remaining FFG Act TECs do not occur on site due to the lack of characteristic landscape settings and floristic elements.

Creekline Grassy Woodland (Goldfields) Community

Creekline Grassy Woodland (Goldfields) Community is threatened under the FFG Act. This TEC occurs as small remnants within the box-ironbark ecosystems of Victoria. River Red-gum forms an open overstorey canopy, sometimes with Yellow Box and Grey Box. The groundcover contains a dense layer of grasses and sedges. The community fringes shallow or ephemeral drain lines on the lower slopes. This TEC is considered present within the study area where River Red-gum is the dominant species, particularly in areas of EVC 235 which occur along the ephemeral drainage lines.

3.6 Sloane's Froglet targeted survey results

Sloane's Froglet is a small bodied native frog species endemic to the Murray-Darling Basin with scattered populations in the north central Victoria and central western New South Wales region (TSSC 2019). It is listed as Endangered under the EPBC Act and FFG Act. Sloane's Froglet has limited records within the 5-kilometre buffer area around the study area but has historically been recorded in Winton Wetlands, approximately 2 kilometres from the study area. Due to recent high rainfall years, this species' distribution has expanded and therefore, due to the presence of gilgai habitat and farm dams, it was considered to have potential to occur within the study area.

Targeted surveys were undertaken for this species in July 2024, to inform Avenis Energy's self-assessment against the EPBC Act Significant Impact Guidelines (DoE 2013). Further details on the survey method are provided in Section 2.4.3.

Sloane's Froglet was not recorded within the study area or within the suitable habitat in the vicinity of the study area. Sloane's Froglets were recorded on both reference sites, which indicates that the species was likely not present in the study area. The distribution of Sloane's froglet is restricted to a very small area within the Riverina Bioregion in New South Wales, near Albury and adjacent areas on the Northern Plains in north-central Victoria (TSSC 2019). While there have been previous records of Sloane's Froglet within the local area, habitat fragmentation and climate related stressors have impacted the population, making it absent from otherwise suitable sites.

In most of the call playback areas, two species of froglet were observed calling each night, Common Froglet *Crinia signifera* and the Eastern Sign-bearing Froglet *Crinia parinsignifera*. These species were densely packed within the inundated wet areas on the south–eastern boundary, including both dams on this boundary, and no other species were observed. Although the northern section of the site presented with gilgai and suitable habitat, there were limited inundated wet areas in this section, and fewer *Crinia* species were heard calling.

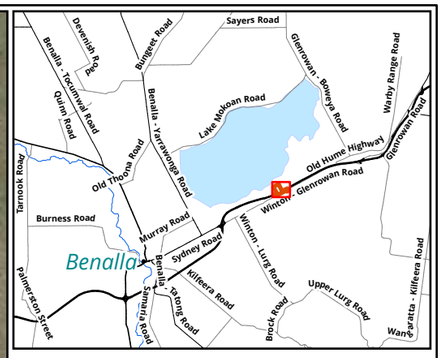
The connection route corridor has not been subject to targeted surveys for Sloane's Froglet and does provide some limited habitat in the form of an ephemeral drainage line and roadside drains. Based on the targeted surveys at the BESS site, it is considered Sloane's Froglet also has a low likelihood of occurring along the connection route corridor. If the species is present, impacts on its habitat are likely to be minimal, with the connection route corridor avoiding the ephemeral drainage line.

3.7 Other ecological values

The proposed BESS and connection route occurs within approximately 2 kilometres of Winton Wetlands Reserve. The Winton Wetlands are recognised as a nationally important wetland restoration project (CoA 2012). There are no direct connections in the form of watercourses between the study area and Winton Wetlands Reserve, with the study area separated from the Winton Wetlands Reserve by road corridors, a rail corridor and farmland.

3.8 Further survey recommendations

Based on the current scope of development and impacts associated with the proposed BESS and connection route, we do not recommend any further targeted surveys.



Legend

- Study area
- Large patch tree
- Scattered tree
- Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia
- Drainage line

Call playback

- Sloane's Froglet targeted survey location

Proposed works

- Connection route
- Proposed development

Habitat zone (EVC)

- Planted vegetation
- (CVU_0061) Box Ironbark Forest
- (CVU_0647) Plains Sedgy Wetland
- (CVU_0235) Plains Woodland/ Herbrich Gilgai Wetland Mosaic
- (CVU_0803) Plains Woodland
- (CVU_0803) Plains Woodland (derived)

Figure 2 Ecological features of the study area

0 40 80 120 160 200

Metres

Scale: 1:5,000 @ A3

Coordinate System: GDA 1994 MGA Zone 55

N

biosis

Matter: 41027,
Date: 04 December 2025 ,
Prepared for: NL, Prepared by: MK, Last edited by: pgidley
Layout: 41485_F2_Eco
Project: P:\41400s\41485\Mapping\41485_Winton BESS FFA.aprx

Acknowledgements: VicMap BaseMap©State of Victoria

4 Biodiversity legislation and government policy

This section provides an assessment of the project in relation to key biodiversity legislation and government policy. It does not describe the legislation and policy in detail. Where available, links to further information are provided.

4.1 Commonwealth

4.1.1 *Environment Protection and Biodiversity Conservation Act 1999*

The EPBC Act applies to developments and associated activities that have the potential to significantly impact on Matters of National Environmental Significance (MNES) protected under the Act.

Further information including a guide to the referral process is available at http://www.environment.gov.au/epbc/index.html

The MNES relevant to the project are summarised in Table 5. It includes an assessment against the EPBC Act policy statements published by the Australian Government which provide guidance on the practical application of EPBC Act.

Table 5 Assessment of project in relation to the EPBC Act

MNES	Project specifics	Assessment against significant impact guidelines
EPBC Act listed species	Thirty-nine (39) EPBC Act listed species are recorded or predicted to occur in the project search area. The likelihood of these species occurring in the study area is assessed in Appendix 1 (flora) and Appendix 2 (fauna).	Most of these species are not likely to occur and development is unlikely to constitute a significant impact. Targeted surveys for Sloane's Froglet were undertaken to provide more data on this species presence/absence and distribution within the study area. This species is now considered to have a low likelihood of occurrence. Five fauna species have potential to occur within the study area: • Swift Parrot • Painted Honeyeater • Regent Honeyeater • Diamond Firetail • Brown Treecreeper (south–eastern). These species may utilise remnant roadside woodland vegetation within the study area and surrounds on occasion. Significant impact criteria assessments have been prepared below for these species.
EPBC Act listed ecological communities	Three EPBC Act listed ecological communities are recorded or predicted to occur in the project search area.	One EPBC Act listed ecological community occurs within the study area:

MNES	Project specifics	Assessment against significant impact guidelines
	One community (Grey Box Woodland) was recorded as present within the study area.	• Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South–eastern Australia. This TEC was recorded as present within the Bower Road Reserve and Winton–Glenrowan Road reserve. The current BESS and connection route design avoids all areas of this community.
Migratory species	Six migratory species are recorded or predicted to occur in the project search area (Appendix 2).	While some of these species would be expected to use the study area on occasions, and some of them may do so regularly or may be a resident in the nearby Winton Wetlands, the study area does not provide important habitat for an ecologically significant proportion of any of these species.
Wetlands of international importance (Ramsar sites)	The study area is identified as being within the catchment of seven Ramsar sites: • NSW Central Murray State Forests • Banrock Station Wetland Complex • Riverland • The Coorong, And Lakes Alexandrina and Albert Wetland • Gunbower Forest • Barmah Forest • Hattah-Kulkyne Lakes	The study area does not drain directly into any Ramsar site, and the development is not likely to result in a significant impact.

An assessment of whether the proposed BESS and associated connection route is likely to have a significant impact on Swift Parrot, Painted Honeyeater, Regent Honeyeater, Diamond Firetail, Grey-crowned Babbler and Grey Box Grassy Woodlands is provided below according to the Commonwealth's significant impact guidelines. The assessments have been undertaken in the context of key development design responses to avoid and minimise biodiversity loss, and the resultant unavoidable residual impacts.

Avoidance and minimisation steps include:

- Avoidance of all areas of EVC 803 which represents the EPBC Act listed Grey Box Grassy Woodland Community.
- Avoidance of remnant, scattered trees within the BESS site, locating the BESS footprint within cleared areas.
- Minimising impacts on treed woodland patches along the connection route, noting that underground boring of the transmission line along the linear rail reserve has been investigated, however the preferred option is trenching (with the exception of below the Hume Freeway).
- Retention of plantings along the property boundaries and the Hume Freeway.

Residual impacts include:

- The removal of 0.516 hectares of patch native vegetation along the connection route corridor and vehicle access locations, including:

- Woodland patches along the Hume Freeway and Winton–Glenrowan Road for the connection route corridor which provide potential habitat for threatened bird species.
- Woodland patches along Bowers Road and Lee Road for the vehicle access locations which provide potential habitat for threatened bird species.

Significant impact assessments were undertaken for threatened woodland birds which have the potential to occur within the study area, including Swift Parrot, Regent Honeyeater, Painted Honeyeater, Diamond Firetail and Brown Treecreeper (south–eastern) (Appendix 4).

On the basis of criteria outlined in the relevant Significant Impact Guidelines (DoE 2013) it is considered unlikely that a significant impact on a MNES would result from the proposed action. Referral of the proposed action to the Australian Government Minister for the Environment to determine whether the action requires approval under the EPBC Act is therefore unlikely to be required.

4.2 State

4.2.1 *Flora and Fauna Guarantee Act 1988* (FFG Act)

The FFG Act is a key piece of Victorian legislation on the conservation of threatened species and communities and on the management of potentially threatening processes. Under the Act a permit is required from DEECA to 'take' protected flora species. Permit exemptions under the Act generally apply to the non-commercial removal of protected flora from private land, unless there is critical habitat that has been declared on the land. Authorisation under the Act is required to collect, kill, injure or disturb listed fish on private or public land.

Link for further information: https://www.environment.vic.gov.au/conserving-threatened-species/victorias-framework-for-conserving-threatened-species

The FFG Act defines public land as Crown land or land owned by, or vested in, a public authority, while private land is defined as any land other than public land. A public authority is defined in the FFG Act as a body established for a public purpose by or under any Act and includes:

- an administrative office
- a government department
- a municipal council
- a public entity
- a State-owned enterprise.

Native vegetation on site includes two FFG Act listed threatened communities which contain two FFG Act listed threatened flora species and habitat for a further eight listed FFG Act fauna species (Appendix 1).

The study area is on private land and public land, does not contain any declared 'critical habitat' for the purposes of the FFG Act and the protected (restricted use) flora species are not being taken for the purpose of commercial sale. A protected flora permit is therefore not required, however the presence of rare or threatened flora and habitat for threatened fauna will be considered by the Responsible Authority in determining its response to an application for native vegetation removal under Clause 52.17 (see below).

4.2.2 *Catchment and Land Protection Act 1994* (CaLP Act)

The CaLP Act identifies and classifies certain species as noxious weeds or pest animals and provides a system of controls on noxious species.

Declared noxious weeds identified in the study area are listed in Appendix 1 (Table 11) and established pest animals are listed in Appendix 2 (Table 14).

The proponent must take all reasonable steps to eradicate regionally prohibited weeds, prevent the growth and spread of regionally controlled weeds, and prevent the spread of and as far as possible eradicate established pest animals. The State is responsible for eradicating State prohibited weeds from all land in Victoria.

Further information is at http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds

4.2.3 *Planning and Environment Act 1987* (incl. Planning Schemes and Solar Guidelines)

The *Planning and Environment Act 1987* controls the planning and development of land in Victoria and provides for the development of planning schemes for all municipalities.

Of particular relevance to the development proposal are controls relating to the removal, destruction or lopping of native vegetation contained within the Benalla Planning Scheme (the Scheme), including permit requirements. The Scheme (Clause 73.01) defines 'native vegetation' as 'Plants that are indigenous to Victoria, including trees, shrubs, herbs, and grasses'. It is an objective of Clause 12.01-2 of the State Planning Policy Framework (Native Vegetation Management) that removal of native vegetation results in no net loss in the contribution made by native vegetation to Victoria's biodiversity.

Clause 52.17 (Native Vegetation) requires a planning permit to remove, destroy or lop native vegetation including some dead native vegetation subject to exemptions. Decision guidelines that must be considered by the referral or responsible authority are contained in Section 7 of the Guidelines and referred to in Clause 52.17-4. Clause 52.17 does not apply if a Native Vegetation Precinct Plan corresponding to the land is incorporated in the Scheme. Where native vegetation does not meet the definition of a patch or scattered tree as described in Section 3.2 there is no offset requirement under the Guidelines. However, a permit is still required to remove, destroy or lop native vegetation that is not a patch or scattered tree under Clause 52.17 subject to exemptions.

Under Clause 66.02 a permit application to remove, destroy or lop native vegetation is required to be referred to DEECA as a recommending referral authority if any of the following apply (note that under the Solar Energy Facilities Design and Development Guideline the Minister will seek input of regional DEECA Environment staff):

- the class of application is on the detailed assessment pathway
- a property vegetation precinct plan applies to the site or
- the native vegetation is on Crown land occupied or managed by the Responsible Authority.

The need for a permit to remove native vegetation may also be triggered by overlays within the Scheme. The location of the overlays in relation to the study area can be determined via the following link: http://planningschemes.dpcd.vic.gov.au. The provisions of the following overlays apply to the study area:

- Vegetation Protection Overlay 3 (VPO3) Regent Honeyeater habitat/Lurg Ironbark vegetation protection area (Figure 1).

Vegetation Protection Overlay 3 (VPO3) Regent Honeyeater habitat/Lurg Ironbark vegetation protection area

This VPO covers the eastern section of the connection route corridor along Winton–Glenrowan Road where it enters the Glenrowan Terminal Station (Figure 1). This overlay relates to the protection of Regent Honeyeater Habitat/Lurg Ironbark Vegetation and requires that "*An application must show the species of native vegetation proposed for removal and measures proposed to minimise the removal of Mugga Ironbark, White Box, Yellow Box and Blakely's Red Gum all of which support the survival of the Regent honeyeater and the other threatened species*." This report provides details of the remnant and planted tree species to be removed with the majority of the trees being Grey Box and River Red-gum, which are not listed in the VPO. Natural mature stands of Mugga Ironbark along Winton–Glenrowan Road will be avoided where the connection route enters the Glenrowan Terminal Station. A detailed response to VPO3 is provided in Table 6.

Table 6 Response to VPO3

Requirement	Proposal response
Clause 42.02-3 Application requirements	
An application must show the species of native vegetation proposed for removal and measures proposed to minimise the removal of Mugga Ironbark, White Box, Yellow Box and Blakeley's Red Gum all of which support the survival of the Regent honeyeater and the other threatened species.	This report documents small patches of woodland to be removed as part of the planning permit application. Two large, dead trees will be removed. Natural stands of Mugga Ironbark and White Box will be avoided with impacts restricted to planted River Red-gum and Grey Box along Winton–Glenrowan Road.
Clause 42.02-4 Decision guidelines	
Before deciding on an application, the responsible authority must consider the recommendations of the "Regent Honeyeater Recovery Plan", Department of Natural Resources and Environment 1997, and the status of vegetation shown on the map series "Remnant Vegetation of the Lurg Hills", Sally Mann and Doug Robinson 1992.	The Regent Honeyeater Recovery Plan 1997 has been reviewed. The 1997 Recovery Plan, and the more recent National Recovery Plan (DoE 2016a), identify the following key food tree species for Regent Honeyeater: • Mugga Ironbark *E. sideroxylon* • Yellow Box *E. melliodora* • White Box *E. albens* • Yellow Gum *E. leucoxylon* Of these key food tree species, Mugga Ironbark, Yellow Box and White Box occur in the study area. No remnant Mugga Ironbark, Yellow Box and White Box will be directly impacted. The 1997 recovery plan does not make any specific recommendations for scattered Grey Box, River Red-gum or dead trees. The Remnant Vegetation of the Lurg Hills (1992) could not be located as a publicly available document, and therefore, an assessment against the status maps in that document could not be undertaken. More recent DEECA EVC mapping that assigns a bioregional conservation status and a Strategic Biodiversity Value (SBV) score to native vegetation is considered a more appropriate designation of native vegetation value. The vegetation patches to be removed are remnants of endangered woodland EVCs and have a low to medium SBV score (see Table 7).

Victoria's Guidelines for the removal, destruction or lopping of native vegetation

The Guidelines are incorporated into the Victoria Planning Provisions and all planning schemes in Victoria (DELWP 2017b). The Guidelines replaced the previous incorporated document titled Permitted clearing of native vegetation – Biodiversity assessment guidelines (DEPI 2013) on 12 December 2017.

The purpose of the Guidelines is to guide how impacts on biodiversity should be considered when assessing a permit application to remove, destroy or lop native vegetation. The objective for the guidelines in Victoria is 'No net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation'.

A detailed assessment of the implications for the project under the Guidelines is provided in Section 5 of this report. Under the Guidelines, there are three assessment pathways for assessing an application for a permit to remove native vegetation: basic, intermediate and detailed.

A detailed determination of the assessment pathway for the planning application relevant to the proposed development is provided in Section 5.2. In summary, the planning application for removal of native vegetation must meet the requirements of, and be assessed in, the Detailed Assessment Pathway.

4.2.4 *Environment Effects Act 1978*

The *Environment Effects Act 1978* establishes a process to assess the environmental impacts of a project. If applicable, the Act requires that an Environment Effects Statement (EES) be prepared by the proponent. The EES is submitted to the Minister for Planning and enables them to assess the potential environmental effects of the proposed development.

The general objective of the assessment process is to provide for the transparent, integrated and timely assessment of the environmental effects of projects capable of having a significant effect on the environment (DoTP 2023).

The *Ministerial Guidelines for Assessment of Environmental Effects under the Environment Effects Act 1978* (DTP 2023) provide a range of criteria that can be used to determine whether an EES may be required for a project. These criteria relate to individual potential environmental effects and a combination of (two or more) potential environmental effects.

An assessment of the project against the individual and combined potential effects criteria based on the level of proposed native vegetation removal, EVC bioregional conservation status, impacts on FFG Act listed species and impacts on wetlands indicates the project is unlikely to trigger a referral to the Minister for Planning for an EES determination. The minor disturbance to woodland and dry forest patches for the project is unlikely to have regional or State significant environmental impacts.

However, the guidelines are not binding, and the decision as to whether an EES is required is ultimately at the discretion of the Minister for Planning.

5 Victoria's Guidelines for the removal, destruction or lopping of native vegetation

The Guidelines set out and describe the application of Victoria's statewide policy in relation to assessing and compensating for the removal of native vegetation in order to achieve the objective of 'no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation' (DELWP 2017b).

This objective is to be achieved through Victoria's planning system using an assessment approach that relies on strategic planning and the permit and offset system. The key policy for achieving no net loss to biodiversity is the three-step approach of avoid, minimise and offset:

- **Avoid** the removal, destruction or lopping of native vegetation.
- **Minimise** impacts resulting from the removal, destruction or lopping of native vegetation that cannot be avoided.
- Provide an **offset** to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation.

Steps that have been taken during the design of the development to ensure that impacts on biodiversity from the removal of native vegetation have been minimised include:

- Avoiding higher quality areas of native vegetation. A due diligence assessment was undertaken to determine the areas of native vegetation within the study area. Once informed by this assessment, the BESS was designed to be located within areas of introduced vegetation to minimise disturbance of native vegetation.
- Placement of the connection route within cleared areas where possible to minimise the impact on native woodland vegetation patches along the Hume Freeway and Winton–Glenrowan Road.
- Locating temporary site storage and compounds on existing disturbed land to minimise impacts on native vegetation.
- Designing the proposed access roads to avoid scattered trees, including updating the access route from Lee Road to avoid as much native vegetation removal as possible. The proposed access routes include a construction buffer, with 5 metres either side where there are no trees and 15 metres where trees are adjacent. The impacts to TPZs in of trees in proximity to these access routes has been considered within the NVR.
- Investigating the use of underground boring for the connection route. Options for undergrounding portions of the connection route were explored in light of the need for the connection route to cross the Hume Freeway. Discussions between Avenis Energy, the Department of Transport and Planning and Benalla Rural City Council indicate that the preferred option is trenching, with the exception of where the connection route crosses the Hume Freeway where the preference is for directional drilling of the underground cable.
- Underboring across the full connection route will be explored where the route intersects areas of native vegetation. Where underboring is not feasible, open trenching will be utilised along the route. All native vegetation along the connection route has been considered lost within the NVR, however removal of vegetation deemed lost within the NVR will be avoided where possible.

The Department of Energy, Environment and Climate Action provides biodiversity information tools to assist with determining the assessment pathway associated with the removal of native vegetation and the contribution that native vegetation within the study area makes to Victoria's biodiversity.

All planning permit applications to remove native vegetation are assigned to an assessment pathway determined by the extent and location of proposed native vegetation removal. The assessment pathway determines the information to be provided in a planning permit application and the decision guidelines the responsible authority (e.g. Council) and/or DEECA as a referral authority will use to assess the permit application.

The biodiversity information tools have two components:

Site-based information

The site-based information is observable at a particular site. Biosis has collected the requisite site-based information for the assessment against the Guidelines.

Landscape scale information

Landscape scale information requires consideration of information beyond the site. This information is managed by DEECA and can be accessed via the NVR Map.

The following section summarises the results of the site-based assessment and the outputs generated by the Native Vegetation Removal Report, which identifies the assessment pathway on which the planning application will be assessed. The full Native Vegetation Removal Report can be viewed in Appendix 7.

5.1 Proposed removal of native vegetation

The extent of native vegetation patches and the location of large trees within patches and any scattered trees within the study area were mapped (Figure 2), and the vegetation condition was assessed in relation to standard methods (DSE 2004) and pre-determined EVC benchmarks: https://www.environment.vic.gov.au/biodiversity/bioregions-and-evc-benchmarks. DEECA's NVR Map was also used to determine vegetation extent and condition.

The proposed removal of native vegetation was assessed in accordance with the design provided to Biosis. The development proposes to remove 0.646 hectares of native vegetation, comprising 0.516 hectares of patch vegetation, one large scattered tree and two small scattered trees (Figure 3). One large tree within a native vegetation patch is proposed to be removed. Spatial data (shapefiles) of proposed vegetation removal were uploaded to DEECA's NVR Map online application, which provided a Native Vegetation Removal Report for the project. This is provided in Appendix 7 and summarised in the following sections.

5.1.1 Habitat hectares

A continuous area of the same EVC is termed a 'habitat zone'. Different habitat zones exists where there are different EVCs present and/or discrete (non-continuous) patches of the same EVC. A separate vegetation quality assessment was conducted for each habitat zone. The vegetation quality assessment score was multiplied by the extent of the habitat zone to give a value in habitat hectares.

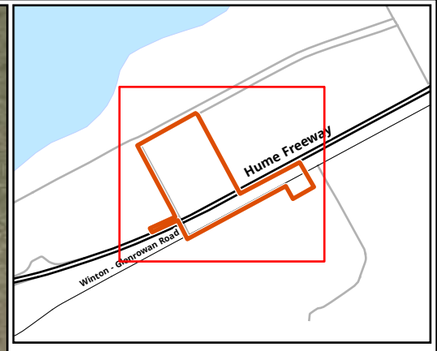
Eight habitat zones were identified across the study area, with the results of the vegetation quality assessment provided in Table 7.

Table 7 Habitat hectares of native vegetation within the study area

Site ID				Winton BESS							
Habitat Zone ID			1	2	3	4	5	6	7	8
EVC #: Name			CVU - 235	CVU - 803	CVU - 235	CVU - 803	CVU - 803	CVU - 235	CVU - 647	CVU - 61
		Max Score	Score	Score	Score	Score	Score	Score	Score	Score
Site Condition	Large Trees	10	6	8	4	5	8	0	0	4
	Tree Canopy Cover	5	5	5	5	4	5	3	0	5
	Lack of Weeds	15	9	6	2	2	2	1	2	6
	Understorey	25	5	5	5	5	5	5	15	15
	Recruitment	10	6	6	3	3	6	5	6	10
	Organic Litter	5	3	3	5	5	5	3	5	3
	Logs	5	0	0	0	4	0	0	0	0
	Total Site Score		34	33	24	28	31	17	28	43
	EVC Standardiser		1	1	1	1	1	1	1.25	1
	Adjusted Site Score		34	33	24	28	31	17	35	43
Landscape Value	Patch Size	10	2	2	1	1	8	8	1	8
	Neighbourhood	10	0	0	0	0	0	0	0	0
	Distance to Core Area	5	1	1	1	1	3	3	1	3
	Total Landscape Score		3	3	2	2	11	11	2	11
Habitat points = #/100		100	37	36	26	30	42	28	37	54
CONDITION SCORE		1	0.370	0.360	0.260	0.300	0.420	0.280	0.370	0.540
Habitat Zone area (ha)			1.527	1.751	0.619	0.140	1.507	0.059	0.875	3.313
Habitat hectares (Hha)			0.565	0.630	0.161	0.042	0.633	0.017	0.324	1.789

A total of 61 large trees within patches of native vegetation is within the study area. The locations of large trees within patches are shown in Figure 2 and the DBH of each large tree is provided in Appendix 5.

There are 12 scattered small trees and three scattered large trees within the study area. Two scattered small trees and one scattered large tree will be removed, as shown in Figure 3.



Legend

- Study area
- Drainage line

EPBC Act listed community

- Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia

Proposed works

- Proposed development
- Connection route

Large trees in patch

- To be retained
- To be removed

Scattered trees

- To be retained
- To be removed
- Tree protection zone

Habitat zone (EVC)

- Planted vegetation
- (CVU_0061) Box Ironbark Forest
- (CVU_0647) Plains Sedgy Wetland
- (CVU_0235) Plains Woodland/ Herbrich Gilgai Wetland Mosaic
- (CVU_0803) Plains Woodland
- (CVU_0803) Plains Woodland (derived)
- Proposed vegetation removal

Figure 3.1 Vegetation proposed for removal in the study area

0 40 80 120 160 200

Metres

Scale: 1:5,000 @ A3

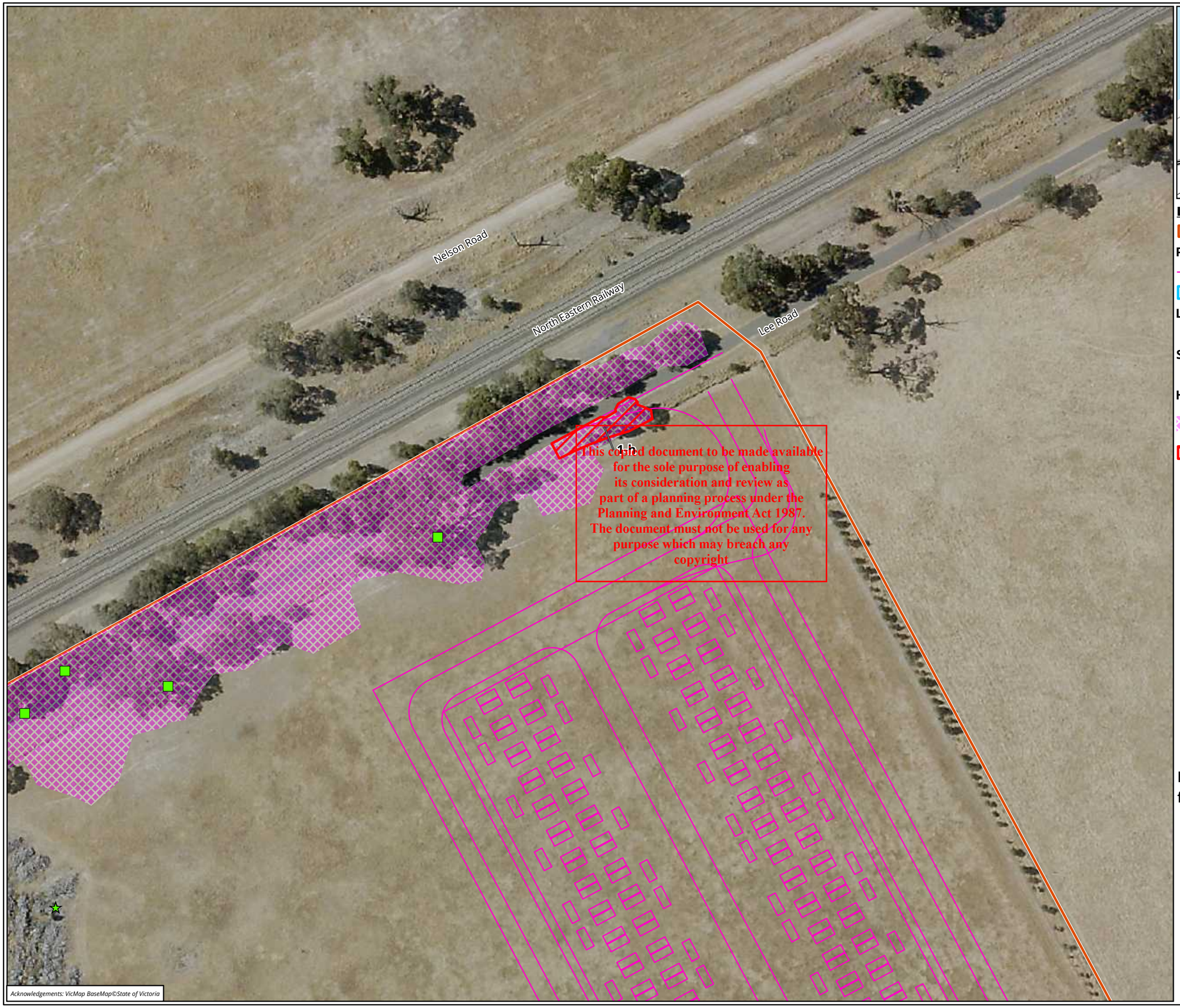
Coordinate System: GDA2020 MGA Zone 55

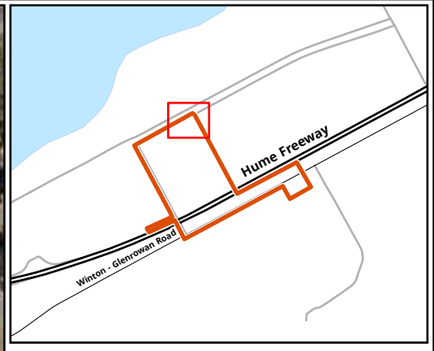
N

biosis

Matter: 41027,
Date: 04 December 2025 ,
Prepared for: NL, Prepared by: MK, Last edited by: pgidley
Layout: 41485_F3_VegLoss
Project: P:\41400s\41485\Mapping\
41485_Winton BESS FFA.aprx

Acknowledgements: VicMap BaseMap©State of Victoria





Legend

Study area

Proposed works

Proposed development

Connection route

Large trees in patch

To be retained

Scattered trees

To be retained

Habitat zone (EVC)

(CVU_0235) Plains Woodland/ Herbrich Gilgai Wetland Mosaic

Proposed vegetation removal

Figure 3.2 Vegetation proposed for removal in the study area

0 8 16 24 32 40

Metres

Scale: 1:1,000 @ A3

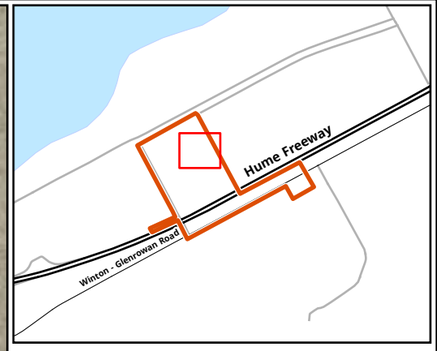
Coordinate System: GDA2020 MGA Zone 55

N

biosis

Matter: 41027,
Date: 04 December 2025 ,
Prepared for: NL, Prepared by: MK, Last edited by: pgidley
Layout: 41485_F3_VegLoss
Project: P:\41400s\41485\Mapping\41485_Winton BESS FFA.aprx

Acknowledgements: VicMap BaseMap©State of Victoria



Legend

Study area

Proposed works

Proposed development

Connection route

Scattered trees

To be removed

Tree protection zone

ST-4

Figure 3.3 Vegetation proposed for removal in the study area

0 8 16 24 32 40

Metres

Scale: 1:1,000 @ A3

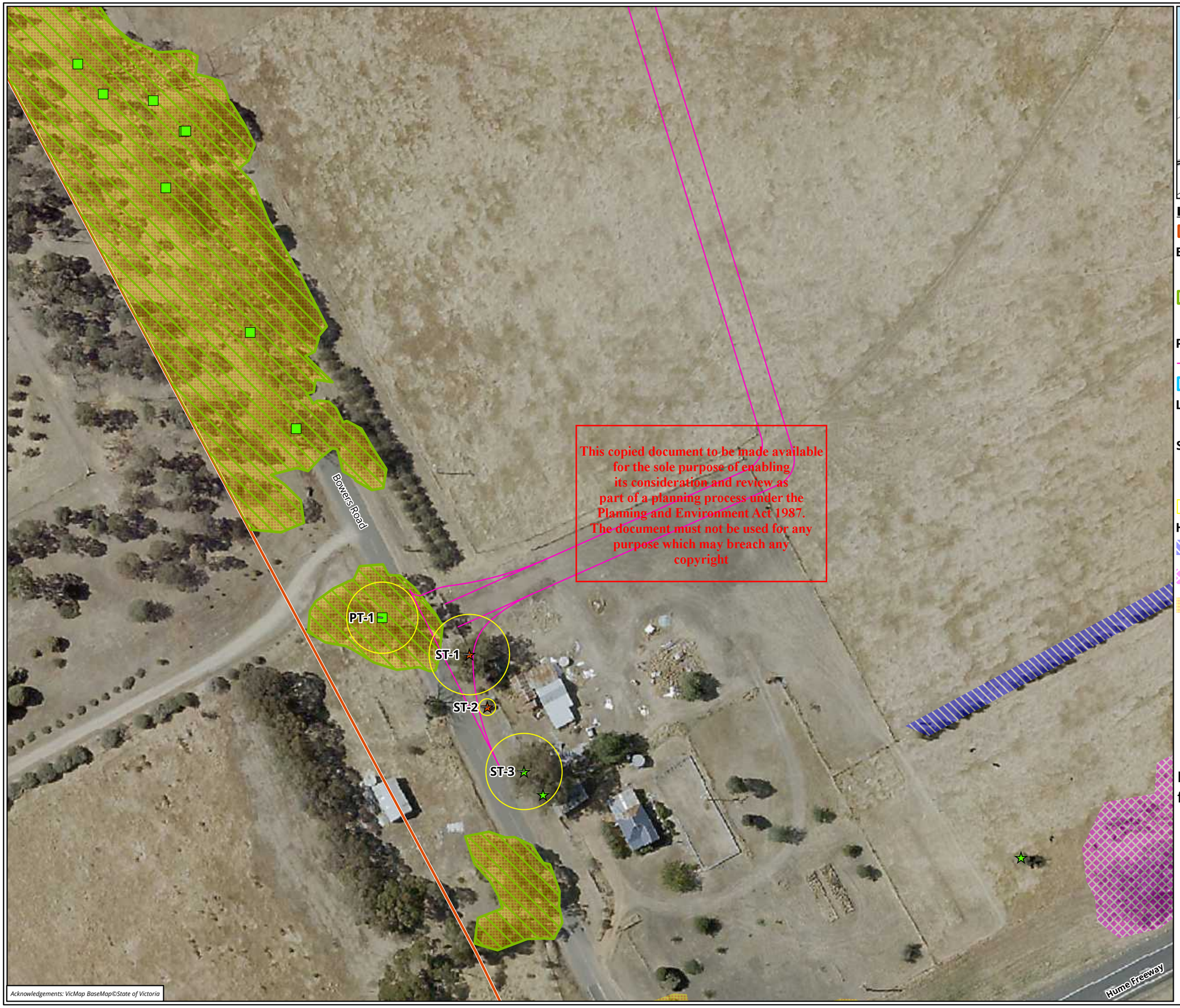
Coordinate System: GDA2020 MGA Zone 55

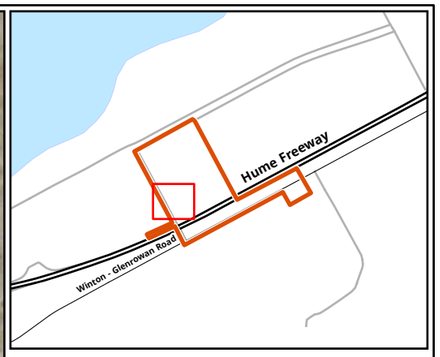
N

biosis

Matter: 41027,
Date: 04 December 2025 ,
Prepared for: NL, Prepared by: MK, Last edited by: pgidley
Layout: 41485_F3_VegLoss
Project: P:\41400s\41485\Mapping\
41485_Winton BESS FFA.aprx

Acknowledgements: VicMap BaseMap©State of Victoria





Legend

Study area

EPBC Act listed community

Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia

Proposed works

Proposed development

Connection route

Large trees in patch

To be retained

Scattered trees

To be retained

To be removed

Tree protection zone

Habitat zone (EVC)

Planted vegetation

(CVU_0235) Plains Woodland/ Herbrich Gilgai Wetland Mosaic

(CVU_0803) Plains Woodland

Figure 3.4 Vegetation proposed for removal in the study area

0 8 16 24 32 40

Metres

Scale: 1:1,000 @ A3

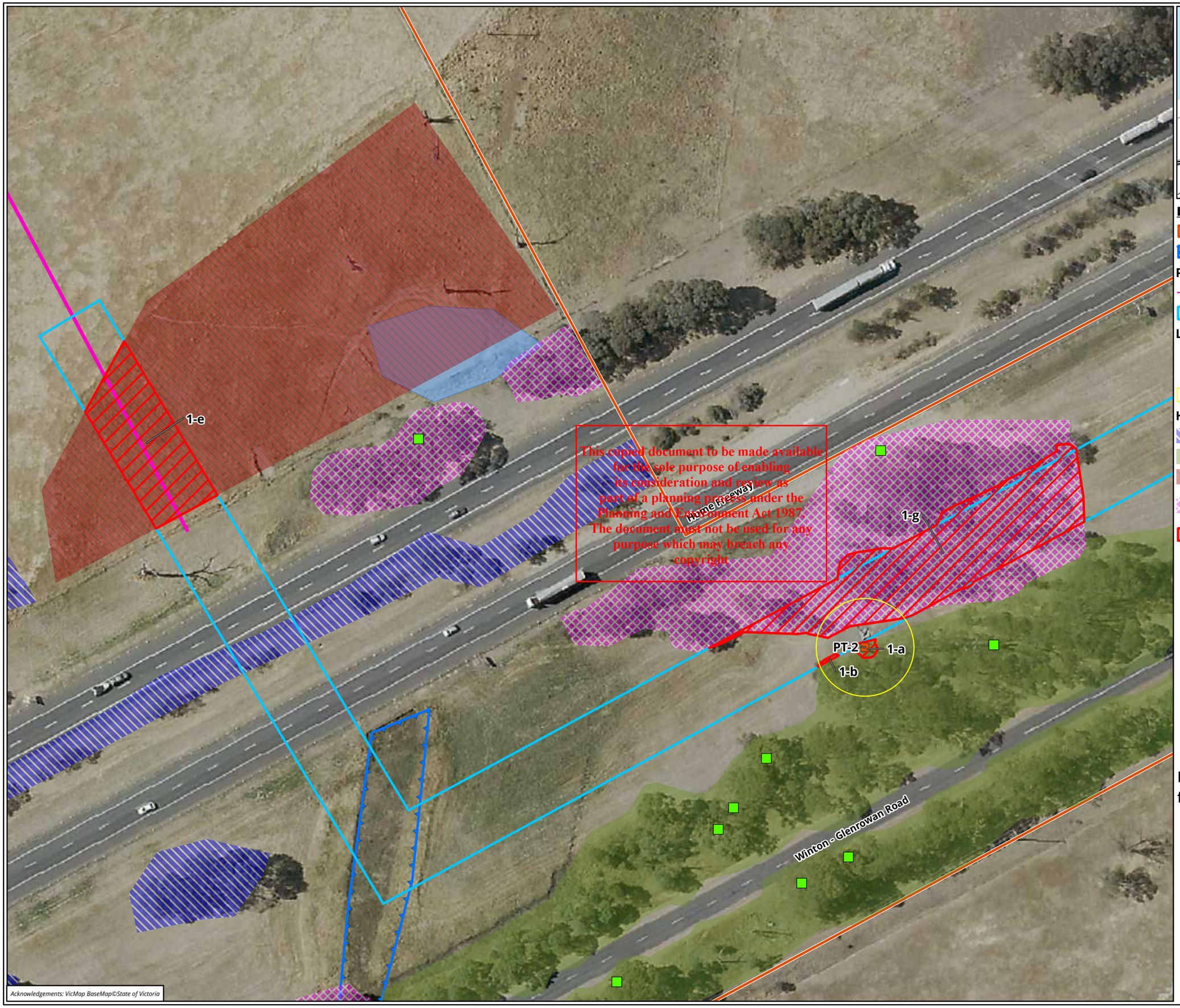
Coordinate System: GDA2020 MGA Zone 55

N

biosis

Matter: 41027,
Date: 04 December 2025 ,
Prepared for: NL, Prepared by: MK, Last edited by: pgidley
Layout: 41485_F3_VegLoss
Project: P:\41400s\41485\Mapping\41485_Winton BESS FFA.aprx

Acknowledgements: VicMap BaseMap©State of Victoria



Legend

- Study area
- Drainage line

Proposed works

- Proposed development
- Connection route

Large trees in patch

- To be retained
- To be removed
- Tree protection zone

Habitat zone (EVC)

- Planted vegetation
- (CVU_0061) Box Ironbark Forest
- (CVU_0647) Plains Sedgy Wetland
- (CVU_0235) Plains Woodland/ Herbrich Gilgai Wetland Mosaic
- Proposed vegetation removal

Figure 3.5 Vegetation proposed for removal in the study area

0 8 16 24 32 40

Metres

Scale: 1:1,000 @ A3

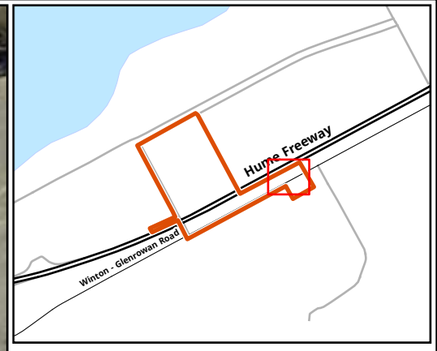
Coordinate System: GDA2020 MGA Zone 55

N

biosis

Matter: 41027,
Date: 04 December 2025 ,
Prepared for: NL, Prepared by: MK, Last edited by: pgidley
Layout: 41485_F3_VegLoss
Project: P:\41400s\41485\Mapping\
41485_Winton BESS FFA.aprx

Acknowledgements: VicMap BaseMap©State of Victoria



Legend

- Study area

Proposed works

- Proposed development
- Connection route

Large trees in patch

- To be retained

Scattered trees

- To be removed

Habitat zone (EVC)

- Planted vegetation
- (CVU_0061) Box Ironbark Forest
- Proposed vegetation removal

Figure 3.6 Vegetation proposed for removal in the study area

0 8 16 24 32 40

Metres

Scale: 1:1,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

N

biosis

Matter: 41027,
Date: 04 December 2025 ,
Prepared for: NL, Prepared by: MK, Last edited by: pgidley
Layout: 41485_F3_VegLoss
Project: P:\41400s\41485\Mapping\
41485_Winton BESS FFA.aprx

Acknowledgements: VicMap BaseMap©State of Victoria

5.2 Determining the assessment pathway

Applications to remove native vegetation are categorised into one of three assessment pathways: basic, intermediate or detailed. Two factors are used to determine the assessment pathway for a permit application, the **location** and **extent** of the native vegetation proposed to be removed. Location has been divided into three possible categories by DEECA and has been pre-determined by DEECA for all locations in Victoria. The location of a particular site is determined using the location map available in the NVR Map online application tool (https://mapshare.vic.gov.au/nvr/).

The extent of native vegetation proposed to be removed determines the assessment pathway by considering the following:

- The total area (hectares) of native vegetation (including any patches and scattered trees) proposed to be removed.
- Whether any large trees are proposed to be removed, either as scattered trees or occurring in patches.

It is proposed to remove ≥0.5 hectares and two large trees of native vegetation from within Location category 2, therefore the application for removal of this native vegetation must meet the requirements of, and be assessed in, the Detailed Assessment Pathway. These requirements are provided in Appendix 7.

5.3 Offset requirements

In order to ensure a gain to Victoria's biodiversity that is equivalent to the loss resulting from the proposed removal of native vegetation, compensatory offsets are required. Losses and gains are measured in general or species habitat scores or units. The offset must also include at least one large tree for every large tree removed.

For a Detailed Assessment Pathway application, the species-general offset test determines if a general offset, species offset or combination of both is required.

The results of the species-general offset test are provided in Appendix 7 and summarised in Table 8.

Table 8 Summary of DEECA Native Vegetation Removal Report

Attribute	Outcome	Notes
Location category	Location 2	
Native vegetation removal extent	0.646 hectares	8 patches including 1 large patch tree 1 large scattered tree and 2 small scattered trees
Assessment Pathway	Detailed	Removal of ≥0.5 hectares of native vegetation including 1 large patch tree, 1 large scattered tree and 2 small scattered trees.
Strategic Biodiversity Value Score	0.360 to 0.580	
Modelled habitat for threatened species	Yes	Modelled habitat for 67 species (Appendix 7). Proportional impact less than 0.005% of habitat for all species.
Offset type	General	Species offsets were not triggered for this project.
Offset multiplier	1.5	

Attribute	Outcome	Notes
Offset amount: general habitat units	0.2620 general habitat units	
General offset vicinity	Goulburn Broken CMA area or Benalla Rural City LGA	The offset site must be located within the same Catchment Management Authority boundary or municipal district as the native vegetation to be removed.
General offset minimum Strategic Biodiversity Value Score	0.3771	
Large tree attributes	2 large trees	The offset must include protection of at least one large tree for every large tree to be removed.

5.4 Proposed offset strategy

The DEECA native vegetation credit register was used to search for available general habitat units that satisfy the offset requirements as specified in Section 5.3. A search of the Native vegetation offset credit register shows that the required offset credits are available, with the report on available native vegetation credits provided in Appendix 8.

6 Key ecological values and recommendations

This section identifies the key ecological features of the study area, provides an outline of potential implications of proposed development on those values and includes recommendations to assist Avenis Energy to design a development to minimise impacts on biodiversity.

The primary measure to reduce impacts on biodiversity values within the study area is to avoid and minimise removal of native vegetation and terrestrial and aquatic habitat. It is critical that this be considered during the design phase of the project, when key decisions are made about the location of built infrastructure, site compounds, access roads and temporary material storage. The results of this assessment should therefore be incorporated into the project design, by adding the flora and fauna mapping information into the planning maps and investigating options to retain as much of the mapped vegetation/habitats as possible. Priority should be given to highest value areas and retaining larger areas in preference to numerous smaller ones.

The design phase is also the time during which future requirements for infrastructure and services must be forecast and allowance made outside any nominated reserves for all construction works. All areas of vegetation/habitat nominated in the design plan as 'retained' are to be treated as no-go zones and are not to be encroached upon as development progresses.

A summary of potential implications of development of the study area and recommendations to minimise impacts of the project is provided in Table 9.

Table 9 Summary of key ecological values, potential implications of developing the study area and recommendations to minimise ecological impacts during the design phase.

Ecological feature (Figure 2)	Implications of development	Recommendations
Native vegetation	The permanent removal of 0.646 hectares of vegetation. Removal of 1 large tree within a patch, 1 large scattered tree and 2 small scattered trees. The application will be assessed on the Detailed Assessment Pathway. Proportional impacts to native vegetation below the species offset threshold for all species.	Avoid and minimise removal of native vegetation, in accordance with the Guidelines. Refer to Section 5. Retained vegetation should be fenced off and treated as no-go zones. Identify and implement appropriate offsets for vegetation losses as outlined in Section 5.3.
Threatened species and ecological communities	Removal of known/potential habitat for threatened species (as identified in Table 3). Presence of Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South–eastern Australia (Grey Box Grassy Woodland) (Endangered under EPBC Act).	Avoid and minimise removal of larger and more connected patches of remnant native vegetation. Avoid removal of remnant EPBC Act listed ecological community within the connection route corridor.
Aquatic habitat features	Potential alterations to runoff, site drainage and hydrology	Avoid/minimise removal of terrestrial and/or aquatic habitat by designing to avoid or minimise instream works. Protect key values (including waterways) by retaining features and including appropriate buffers into design.
Habitat connectivity	Removal of vegetation/habitat that forms part of a notable habitat linkage.	Retain fauna habitat linkages within the development and the local area. These include remnant vegetation patches along road corridors, which provide linkages for fauna within the wider locality.

Construction and post-construction management

Specific detail relating to preventing impacts on retained native vegetation and aquatic and terrestrial habitat should be addressed in a site-specific Construction Environmental Management Plan (CEMP). This will include issues relating to contractors such as environmental inductions, installation of temporary fencing/signage, drainage and sediment control. Suggested mitigation measures to be considered during the construction phase and to be included in the CEMP are outlined in Table 10.

Table 10 Suggested mitigation measures to be considered during the construction phase and included in the project CEMP

	Actions	Timing	Responsibility
Site selection and project planning stage			
Avoid and minimise removal of native vegetation and fauna habitat for BESS site and connection route	General site responsiveness during design phase of the project, consultation with ecologist based on mapping of biodiversity values.	Completed during design phase but will require further refinement at detailed design.	Avenis Energy and ecologist
External and internal BESS site access	Locate all tracks, where possible, on existing cleared areas or farm tracks and access points at existing farm gates off well-formed rural roads	Completed during design phase but will require further refinement at detailed design.	Avenis Energy and ecologist
Construction			
Construction Environmental Management	Construction and Operation Environmental Management Plan to be prepared	Prior to construction	Avenis Energy and/or construction contractor
No-go areas to protect retained vegetation and micro-siting requirements	Installation of appropriate exclusion fencing around trees and vegetation to be retained in, or directly adjacent to, the development site: • The radius of the tree protection zone (TPZ) is calculated for each tree by multiplying its diameter at breast height (DBH) by 12 (i.e. TPZ = DBH x 12) in accordance with the Council of Australian Standards (2009). Alternatively, the agreed maximum 15 metre buffer could be applied to trees according to DELWP (2018) to make TPZ fence establishment simpler prior to construction. • A TPZ should not be less than 2 metres or greater than 15 metres except where crown protection is required (Council of Australian Standards 2009). • Appropriate signage such as 'No Go Zone' or 'Environmental Protection Area' should be installed. • Identify the location of any 'No Go Zones' in site inductions.	Prior to construction	Avenis Energy and/or construction contractor Ecologist (micro-siting)

	Actions	Timing	Responsibility
	• Fencing should be star pickets with high visibility bunting. Micro-siting of connection route by a qualified ecologist, where required, to minimise vegetation removal.		
Stockpiles and laydown areas	All material stockpiles, vehicle parking and machinery storage will be located within cleared areas or areas proposed for clearing, and not in areas of retained native vegetation.	Prior to and during construction	Avenis Energy and/or construction contractor
Soil erosion/sedimentation	• Dust suppression measures should be implemented during construction. • Implementation of temporary stormwater controls during construction is necessary to ensure that discharges to drainage channels and ephemeral wetlands are consistent with existing conditions. • Sediment and erosion control measures should be implemented prior to construction works commencing (e.g. silt fences, sediment traps). These should conform to relevant guidelines, should be maintained throughout the construction period and should be carefully removed following the completion of works.	Prior to and during construction	Avenis Energy and/or construction contractor
Weed control on site	Where practicable, all fill, soil or rocks transported on site should be weed and pathogen free and all vehicles operating on site should be washed down prior to works commencing.	During construction	Avenis Energy and/or construction contractor

References

Biosis 2023a. 'Preliminary ecological assessment for a Battery Energy Storage System facility, Winton.', Report prepared for Avenis Energy Pty Ltd. Biosis Pty Ltd, Melbourne, VIC. Project no. 39695.

Biosis 2023b. *Winton North Solar Farm and Electricity Transmission Line: Flora and Fauna Assessment*, Report prepared for Marble Energy Pty Ltd. Authors: Looby, M, Zacks, G and Chapman, J. Biosis Pty Ltd, Wangaratta, VIC. Project No. 37070.

Biosis 2024a. *Preliminary ecological assessment for a powerline at the Winton Battery Energy Storage System facility, Winton*, Report prepared for Avenis Energy Pty Ltd. Biosis Pty Ltd, Melbourne, VIC. Project no. 41027.

Biosis 2024b. *Winter targeted surveys and habitat mapping for Sloane's Froglet Crinia sloanei at the proposed Battery Energy Storage System (BESS) in Winton, VIC*, Report prepared for Avenis Energy Pty Ltd. Biosis Pty Ltd, Melbourne, VIC. Project no. 40830.

CoA 2012. 'A $20 million wetland restoration project under way at Winton Wetlands', *Wetlands Australia National Wetlands Update*Issue 20.

Council of Australian Standards 2009. 'AS 4970-2009 Protection of Trees on Development Sites', Standards Australia. Sydney, NSW. https://www.tcaa.com.au/wp-content/uploads/2018/11/AS-4970-2009-Protection-of-trees-on-development-sites.pdf.

Crump M & Scott N 1994. *Visual encounter surveys. In Measuring and Monitoring Biological Diversity. Standard Survey Methods for Amphibians*, Washington, USA.

DAWE 2021. 'National Recovery Plan for the Painted Honeyeater *Grantiella picta*', Department of Agriculture, Water and the Environment, Canberra, ACT. https://www.dcceew.gov.au/environment/biodiversity/threatened/publications/recovery/painted-honeyeater-2022.

DCCEEW 2023a. *Approved Conservation Advice for the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland*, Authors: Department of Climate Change, Energy, the Environment and Water, Canberra, ACT, https://www.environment.gov.au/biodiversity/threatened/communities/pubs/43-conservation-advice.pdf.

DCCEEW 2023b. 'Conservation Advice for *Climacteris picumnus victoriae* (Brown Treecreeper (south-eastern))', Commonwealth Department of Climate Change, Energy, the Environment and Water. Canberra, ACT. http://www.environment.gov.au/biodiversity/threatened/species/pubs/67062-conservation-advice-31032023.pdf.

DCCEEW 2024a. 'National Recovery Plan for the Swift Parrot *Lathamus discolor*', Department of Climate Change, Energy, the Environment and Water, Canberra, ACT. CC BY 4.0.

DCCEEW 2024b. 'Conservation Advice for *Stagonopleura guttata* (diamond firetail)', Commonwealth Department of Climate Change, Energy, the Environment, and Water, Canberra, ACT. http://www.environment.gov.au/biodiversity/threatened/species/pubs/59398-conservation-advice-31032023.pdf.

DEECA 2023. *Flora and Fauna Guarantee Act 1988 – Threatened List: Characteristics of Threatened Communities*, Amended June 2023. Department of Energy, Environment, and Climate Action. Melbourne, VIC. https://www.environment.vic.gov.au/__data/assets/pdf_file/0021/655410/FFG-Threatened-List-June-2023.pdf.

DEECA 2024. *Victorian Biodiversity Atlas - Fauna and Flora*, *Victorian Biodiversity Atlas - Fauna and Flora*, https://vba.biodiversity.vic.gov.au/vba/#/.

DELWP 2017a. 'Native Vegetation Regulation - Habitat Importance Maps (HIM) for VROTs species', accessed 1 January 2017, http://services.land.vic.gov.au/catalogue/metadata?anzlicId=ANZVI0803005813&publicId=guest&extractionProviderId=3.

DELWP 2017b. 'Guidelines for the Removal, Destruction or Lopping of Native Vegetation', https://www.environment.vic.gov.au/native-vegetation/native-vegetation-removal-regulations.

DELWP 2018. 'Applicant's guide: Applications to remove, destroy or lop native vegetation', Victorian Government Department of Environment, Land, Water and Planning. East Melbourne, Victoria.

DELWP 2022. *Solar Energy Facilities Design and Development Guideline, October 2022*, The State of Victoria Department of Environment, Land, Water and Planning.

DEPI 2013. *Permitted clearing of native vegetation - Biodiversity assessment guidelines*, Victorian Government Department of Environment and Primary Industries. Melbourne, VIC. https://www.environment.vic.gov.au/__data/assets/pdf_file/0018/90360/Permitted-clearing-of-native-vegation-Biodiversity-assessment-guidelines.pdf.

DEWHA 2010. *Survey Guidelines for Australia's Threatened Frogs: Guidelines for detecting frogs listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999*, Department of the Environment Water Heritage and the Arts.

DoE 2013. *Matters of National Environmental Significance Significant impact guidelines 1.1 - Environment Protection and Biodiversity Conservation Act 1999*, Department of the Environment, Canberra, ACT, accessed 14 February 2024, https://www.dcceew.gov.au/environment/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance.

DoE 2015. 'Approved conservation advice for *Grantiella picta* painted honeyeater', Department of Environment, Canberra, ACT. https://www.environment.gov.au/biodiversity/threatened/species/pubs/470-conservation-advice.pdf.

DoE 2016a. 'National Recovery Plan for the Regent Honeyeater *Anthochaera phrygia*', Department of Environment, Canberra, ACT. https://www.dcceew.gov.au/environment/biodiversity/threatened/recovery-plans/national-recovery-plan-regent-honeyeater-anthochaera-phrygia-2016.

DoE 2016b. 'Approved Conservation Advice for *Lathamus discolor* Swift Parrot', Department of the Environment, Canberra, ACT. http://www.environment.gov.au/biodiversity/threatened/species/pubs/744-conservation-advice-05052016.pdf.

DSE 2004. *Native Vegetation: Sustaining a living landscape. Vegetation Quality Assessment Manual – Guidelines for applying the Habitat hectares scoring method. Version 1.3*, Victorian Government Department of Sustainability and Environment. Melbourne, VIC. https://www.environment.vic.gov.au/__data/assets/pdf_file/0016/91150/Vegetation-Quality-Assessment-Manual-Version-1.3.pdf.

DSE 2009. 'Victorian Biodiversity Atlas "VBA_FAUNA25, FAUNA100 & FAUNARestricted, FLORA25, FLORA100 & FLORARestricted"', Victorian Government Department of Sustainability and Environment. Melbourne, VIC.

DSEWPaC 2012. 'Grey Box *(Eucalyptus microcarpa)* Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia', Department of Sustainability, Environment, Water, Population and Communities. https://www.dcceew.gov.au/sites/default/files/documents/grey-box-booklet.pdf.

DTP 2023. 'Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978 (Eighth edition, 2023)', Department of Transport and Planning, Melbourne, VIC. https://www.planning.vic.gov.au/__data/assets/pdf_file/0028/682453/DTP0497-Ministerial-Guidelines-8th-edition-web-FA44.pdf.

Emison WB, Beardsell CM, Norman FI, & Loyn RH 1987. *Atlas of Victorian Birds*, Department of Conservation Forests and Lands and Royal Australasian Ornithologists Union, Melbourne, VIC.

Environment Protection and Biodiversity Conservation Act 1999. '*Environment Protection and Biodiversity Conservation Act 1999*', accessed 4 December 2019, Australian Government Department of Environment and Energy, Canberra, ACT. Amended July 2023. https://www.legislation.gov.au/Details/C2023C00192.

RBGV 2024. *VicFlora Flora of Victoria*, *Royal Botanic Gardens Victoria*, accessed 8 November 2024, https://vicflora.rbg.vic.gov.au/.

TSSC 2010. 'Commonwealth Listing Advice on Grey Box *(Eucalyptus microcarpa)* Grassy Woodlands and Derived Native Grasslands of South-eastern Australia', Department of the Environment, Water, Heritage and the Arts, Canberra, ACT. https://www.environment.gov.au/biodiversity/threatened/communities/pubs/86-listing-advice.pdf.

TSSC 2019. 'Conservation Advice Crinia sloanei (Sloane's Froglet)', Threatened Species Scientific Committee. Australia.https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=59151.

Appendices

Appendix 1 Flora

Abbreviations and symbols:

Code	Meaning	Reference
National listings		
EX	Extinct	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
CR	Critically endangered	
EN	Endangered	
VU	Vulnerable	
PMST	Protected Matters Search Tool	
State listings		
x	Extinct	Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act)
cr	Critically endangered	
e	Endangered	
v	Vulnerable	
t	Threatened	
P	Protected (public land only)	
RU	Protected (restricted use)	
Weed status (CaLP Act, DCCEEW Weeds of National Significance)		
SP	State prohibited species	Victorian *Catchment and Land Protection Act 1994* (CaLP Act)
RP	Regionally prohibited species	
RC	Regionally controlled species	
R	Restricted species	

Appendix 1.1 Flora species recorded from the study area

Table 11 Flora species recorded from the study area

Status	Scientific name	Common name
Indigenous species		
RU	*Acacia acinacea* s.l.	Gold-dust Wattle
RU	*Acacia aspera* subsp. *aspera*	Rough Wattle
	Acacia dealbata	Silver Wattle
	Acacia implexa	Lightwood
RU	*Acacia verniciflua*	Varnish Wattle
	Allocasuarina verticillata	Drooping Sheoak
	Amphibromus spp.	Swamp Wallaby-grass
	Amyema miquelii	Box Mistletoe
	Amyema pendula	Drooping Mistletoe
	Austrostipa bigeniculata	Kneed Spear-grass
	Austrostipa scabra	Rough Spear-grass
	Austrostipa spp.	Spear Grass
	Callitriche spp.	Water Starwort
	Carex breviculmis	Common Grass-sedge
	Carex spp.	Sedge
	Carex tereticaulis	Poong'ort
	Cassinia sifton	Drooping Cassinia
RU	*Cheilanthes sieberi*	Cloak fern
	Chloris truncata	Windmill Grass
	Cyperus spp.	Flat Sedge
	Dianella revoluta var. *revoluta s.l.*	Black-anther Flax-lily
	Einadia hastata	Saloop
	Eleocharis acuta	Common Spike-sedge
	Enteropogon acicularis	Spider Grass
	Eucalyptus albens	White Box
	Eucalyptus camaldulensis	River Red Gum
	Eucalyptus macrorhyncha	Red Stringybark
	Eucalyptus melliodora	Yellow Box

Status	Scientific name	Common name
	Eucalyptus microcarpa	Grey Box
	Eucalyptus polyanthemos	Red Box
e	*Eucalyptus sideroxylon* subsp. *sideroxylon*	Mugga
	Hypericum gramineum	Small St John's Wort
	Isolepis spp.	Club Sedge
	Juncus bufonius	Toad Rush
	Juncus pallidus	Pale Rush
	Juncus spp.	Rush
	Oxalis perennans	Grassland Wood-sorrel
	Panicum effusum	Hairy Panic
	Rytidosperma caespitosum	Common Wallaby-grass
	Rytidosperma fulvum	Copper-awned Wallaby-grass
	Rytidosperma spp.	Wallaby Grass
	Scleranthus spp.	Knawel
	Vittadinia cuneata	Fuzzy New Holland Daisy
	Vittadinia gracilis	Woolly New Holland Daisy
Introduced species		
	Agrostis capillaris	Brown-top Bent
	Aira spp.	Hair Grass
	Arctotheca calendula	Cape Weed
	Avena fatua	Wild Oat
	Avena sativa	Oat
	Briza maxima	Large Quaking-grass
	Briza minor	Lesser Quaking-grass
	Bromus spp.	Brome
	Capsella bursa-pastoris	Shepherd's Purse
R	*Cirsium vulgare*	Spear Thistle
	Cynodon dactylon var. *dactylon*	Couch
	Cyperus eragrostis	Drain Flat-sedge
	Dactylis glomerata	Cocksfoot
RC	*Echium plantagineum*	Paterson's Curse

Status	Scientific name	Common name
RC	*Eragrostis curvula*	African Love-grass
	Erigeron bonariensis	Flaxleaf Fleabane
	Erodium botrys	Big Heron's-bill
	Holcus lanatus	Yorkshire Fog
	Hordeum vulgare s.l.	Barley
RC	*Hypericum perforatum* subsp. *veronense*	St John's Wort
	Hypochaeris radicata	Flatweed
	Lolium perenne	Perennial Rye-grass
	Lolium rigidum	Wimmera Rye-grass
	Malva parviflora	Small-flower Mallow
	Medicago polymorpha	Burr Medic
	Olea europaea subsp. *cuspidata*	African Olive
R	*Opuntia* spp.	Prickly Pear
	Paspalum dilatatum	Paspalum
	Phalaris aquatica	Toowoomba Canary-grass
	Plantago lanceolata	Ribwort
	Ranunculus sceleratus subsp. *sceleratus*	Celery Buttercup
	Romulea rosea	Onion Grass
	Rumex conglomeratus	Clustered Dock
	Rumex crispus	Curled Dock
	Setaria parviflora	Slender Pigeon-grass
	Sonchus oleraceus	Common Sow-thistle
	Trifolium repens var. *repens*	White Clover
	Verbena bonariensis s.l.	Purple-top Verbena
	Vulpia bromoides	Squirrel-tail Fescue

Appendix 1.2 Listed flora species

The following table includes threatened flora species that have potential to occur within the study area, sourced from the VBA and PMST (accessed on 25 September 2024). Where years are specified for the most recent database records, these refer to records from the VBA unless otherwise specified. Where no year is specified, the PMST predicts the species has potential to occur. Some flora habitat descriptions are reproduced from the Royal Botanic Gardens Victoria (RBGV 2024) with permission.

Table 12 Threatened flora species recorded or predicted to occur within 10 km of the study area

Scientific name	Common name	Listing status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
National significance								
Amphibromus fluitans	River Swamp Wallaby-grass	VU		2006	PMST	Swampy areas, mainly along the Murray River between Wodonga and Echuca with scattered records from southern Victoria.	**Low**	Recorded within 10 km of the study area however habitat within the study area is unlikely to support this species.
Caladenia concolor	Crimson Spider-orchid	VU	e		PMST	Open, grassy understorey in Box Ironbark and dry foothill forests.	**Negligible**	No records within the 10 km of the study area. Habitat is unlikely to support this species within the study area.

Scientific name	Common name	Listing status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Eucalyptus cadens	Warby Range Swamp-gum	VU	e		PMST	Woodlands, typically in or around the margins of springs, soaks and water bodies; often occurring in almost pure stands.	**Low**	No records within the 10 km of the study area. Species was not recorded during field survey
Lepidium monoplocoides	Winged Peppercress	EN	e		PMST	A variety of grassland, wetland and floodplain communities on finely textured soils; sometimes in exposed, sparsely vegetated sites, on dry and eroded clay scolds.	**Negligible**	No records within the 10 km of the study area. Habitat is unlikely to support this species within the study area.
Myriophyllum porcatum	Ridged Water-milfoil	VU	cr		PMST	Ephemeral wetlands, rock pools, farm dams and watercourse shallows.	**Low**	No records within the 10 km of the study area. Habitat is of marginal quality within the study area.
Prasophyllum validum	Sturdy Leek-orchid	VU			PMST	Drier woodland habitats generally with a low, sparse understorey. In Victoria, it occurs in box and box-ironbark woodland with an open grassy	**Negligible**	Not recorded within the 10 km locality. Habitat within the study area is not considered likely to support this species.

Scientific name	Common name	Listing status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
						to sparsely shrubby understorey.		
Senecio macrocarpus	Large-headed Fireweed	VU	cr		PMST	Grassland, shrubland and woodland habitats on heavy soils subject to waterlogging and/or drought conditions in summer.	**Low**	No records within the 10 km of the study area. Habitat is of marginal quality within the study area.
Swainsona murrayana	Slender Darling-pea	VU	e		PMST	Around lakes and on flats that are subject to seasonal inundation.	**Negligible**	No records within the 10 km of the study area. Habitat is unlikely to support this species within the study area.
Swainsona recta	Mountain Swainson-pea	EN	cr		PMST	Open woodlands with grassy understorey.	**Negligible**	Recorded within 10 km of the study area however habitat within the study area is unlikely to support this species.
State significance								

Scientific name	Common name	Listing status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Allocasuarina luehmannii	Buloke		cr	2022		Non-calcareous soils in drier areas on slopes and plains; often in woodlands associated with Grey Box.	**Low**	Suitable habitat present but this obvious species was not recorded within the study area during field surveys.
Cyperus leptocarpus	Button Rush		e	1962		Open, damp places such as sandy stream-banks or drying lake margins.	**Low**	Recorded historically within 10 km of the study area. Only marginal habitat present within the study area.
Digitaria divaricatissima* var. *divaricatissima	Umbrella Grass		e	2008		Mostly on heavier soils prone to occasional flooding.	**Recorded**	Suitable habitat in the study area along eastern half of Winton–Glenrowan Road. Species has been previously recorded by Biosis (2022) on the eastern end of the study area along Winton – Glenrowan Road near the Glenrowan Terminal Station.

Scientific name	Common name	Listing status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Diuris punctata* var. *punctata	Purple Diuris		e	1904		Fertile, loamy soils and periodically wet areas in lowland grasslands, grassy woodlands, heathy woodlands and open heathlands.	**Negligible**	Recorded historically within the 10 km of the study area, with one periodically wet area present, however area is highly disturbed.
Eucalyptus sideroxylon* subsp. *sideroxylon	Mugga		e	1988		Typically found on poor, shallow soils, including sands, gravels, ironstones and clays.	**Recorded**	Recorded during site assessment on eastern half of Winton–Glenrowan Road. Suitable habitat in EVC 61.
Gratiola pumilo	Dwarf Brooklime		e	1959		Seasonally inundated depressions, typically river flats and lake margins, on alluvial soils.	**Negligible**	Recorded historically within 10 km of the study area, however small area of potential habitat within study area.
Najas tenuifolia	Water Nymph		e	1962		Billabongs or tributaries of the Murray River, in still or slow-moving waters.	**Negligible**	Recorded within 10 km of the study area, however no suitable habitat present within study area.

Appendix 1.3 Threatened ecological communities

The following table includes threatened ecological communities that have potential to occur within the project area, compiled with reference to characteristics of FFG Act threatened communities (DEECA 2023) and predictive output from the PMST (accessed on 25 September 2024).

Table 13 Threatened ecological communities predicted to occur within 10 km of the project area.

Ecological community	Status	Comments
National significance		
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions	EN	The vegetation in the study area does not meet the diagnostic characteristics to be considered as this EPBC listed community due to the lack of landscape and floristic elements.
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South–eastern Australia	EN	Grey Box is the most common eucalypt within treed areas of the project area. It is associated with EVC 235 and EVC 803. Some patches of vegetation in the study area met the diagnostic characteristics and condition thresholds to be considered this EPBC listed community.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	CR	The eucalypt species that define this community are present in the study area, which are associated with EVC 61 Box Ironbark Forest and EVC 803 Plains Woodland. However, the examples of these EVCs do not meet the condition thresholds to be considered this EPBC listed community.
State significance		
Creekline Grassy Woodland (Goldfields) Community	t	This community includes the remnant woodland patches within the study area where River Red-gum is the dominant species, in particular in areas of EVC 235.
Grey Box - Buloke Grassy Woodland Community	t	The Grey Box vegetation in the study area is not characteristic of this FFG Act listed community due to the lack of Buloke.
Northern Plains Grassland Community	t	The vegetation in the study area is not characteristic of this FFG listed community due to lack of landscape and floristic elements.

Appendix 2 Fauna

Abbreviations and symbols:

Code	Meaning	Reference
National listings		
EX	Extinct	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
CR	Critically endangered	
EN	Endangered	
VU	Vulnerable	
CD	Conservation dependent	
PMST	Protected Matters Search Tool	
State listings		
x	Extinct	Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act)
cr	Critically endangered	
e	Endangered	
v	Vulnerable	
t	Threatened	
P	Protected (fish only)	
Pest animal status		
PS	Declared pest animal	Victorian *Catchment and Land Protection Act 1994* (CaLP Act)

Appendix 2.1 Fauna species recorded from the study area

Table 14 Vertebrate fauna recorded from the study area

Status	Scientific name	Common name
Birds		
	Acanthiza chrysorrhoa	Yellow-rumped Thornbill
	Cacatua galerita	Sulphur-crested Cockatoo
	Chenonetta jubata	Australian Wood Duck
	Coracina novaehollandiae	Black-faced Cuckoo-shrike
	Corvus coronoides	Australian Raven
	Egretta novaehollandiae	White-faced Heron
	Eolophus roseicapilla	Galah
	Falco berigora	Brown Falcon
	Geopelia placida	Peaceful Dove

Status	Scientific name	Common name
	Gymnorhina tibicen	Australian Magpie
	Malurus cyaneus	Superb Fairy-wren
	Nycticorax caledonicus	Nankeen Night-Heron
	Petroica phoenicea	Flame Robin
	Platycercus eximius	Eastern Rosella
	Psephotus haematonotus	Red-rumped Parrot
	Rhipidura leucophrys	Willie Wagtail
Frogs		
	Crinia parinsignifera	Eastern Sign-bearing Froglet
	Crinia signifera	Common Froglet
	Limnodynastes tasmaniensis	Spotted Marsh Frog (race unknown)
Introduced species		
PS	*Lepus europaeus*	European Brown Hare
PS	*Oryctolagus cuniculus*	European Rabbit

Appendix 2.2 Listed fauna species

The following table includes a list of threatened fauna species that have potential to occur within the study area, sourced from the VBA and PMST (accessed on 25 September 2024). Where years are specified for the most recent database records, these refer to records from the VBA unless otherwise specified. Where no year is specified, the PMST predicts the species has potential to occur.

Table 15 Threatened fauna species recorded or predicted to occur within 10 km of the study area

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
National significance								
Pedionomus torquatus	Plains-wanderer	CR	cr		PMST	Native grassland with a sparse, open structure.	Negligible	Species not recorded within 10 km of the study area. No suitable habitat present that would support this species.
Gallinago hardwickii	Latham's Snipe	VU		2017	PMST	Migrates to Australia from July to April. Prefers open, well-vegetated, permanent and ephemeral freshwater wetlands, with tussock grasslands, reeds and rushes, tea-tree scrub, woodlands and forests nearby. Can occur on the edges of creeks and rivers, river-pools and floodplains.	Low	Some aquatic and ephemeral habitat present that would provide low quality foraging habitat for this species; however, study area is unlikely to support permanent population of this species. High quality habitat is available within the nearby Winton Wetlands.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Rostratula australis	Australian Painted-snipe	EN	cr		PMST	Shallows of well-vegetated freshwater wetlands.	Low	No records of this species within 10 km of the study area. Some aquatic and ephemeral habitat present that would provide low quality foraging habitat for this species. High quality habitat is available within the nearby Winton Wetlands.
Botaurus poiciloptilus	Australasian Bittern	EN	cr	1990	PMST	Shallow freshwater and brackish wetlands with abundant emergent aquatic vegetation.	Low	Recorded historically within 10 km of the study area. Some aquatic and ephemeral habitat present that would provide low quality foraging habitat for this species. High quality habitat is available within the nearby Winton Wetlands.
Falco hypoleucos	Grey Falcon	VU	v		PMST	Arid and semi-arid lightly timbered plains and Acacia scrub.	Low	No records within 10 km of the study area. Some low quality foraging habitat present.
Callocephalon fimbriatum	Gang-gang Cockatoo	EN	e		PMST	S Vic to E NSW. Forests and woodlands from coast to alpine areas. Autumn-winter dispersal from highlands to lower elevations. Forages in eucalypts, acacias and some exotic garden trees and shrubs.	Low	No records within 10 km of the study area. Some habitat present that could support foraging and breeding of this species in the form of eucalyptus woodland and hollows. Study area is unlikely to support a permanent population of this species due to its fragmented nature.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Polytelis swainsonii	Superb Parrot	VU	e		PMST	Red-gum and box-dominated forests and woodlands.	Low	No records within 10 kilometres of the study area. Some habitat present that could support foraging and breeding of this species in the form of eucalypt woodland and hollows, however, preferred foraging and breeding habitat is not present.
Neophema chrysostoma	Blue-winged Parrot	VU			PMST	A range of coastal, sub-coastal and semi-arid regions throughout south–eastern Australia. Feeds on seeds of a range of native grasses and herbs.	Low	No records within study area or surrounds. Species has been previously recorded within Winton Wetlands. May use the study area on occasion, with marginal habitat present.
Lathamus discolor	Swift Parrot	CR	cr	1990	PMST	Forests, woodlands and well-treed urban areas, especially those supporting nectar-producing tree species.	Medium	May utilise eucalypts within the study area for foraging on occasion during migration to mainland Australia.
Hirundapus caudacutus	White-throated Needletail	VU	v		PMST	Almost exclusively aerial within Australia, occurring over most types of habitat, particularly wooded areas.	Low	No records within 10 km of the study area. May utilise the study area on occasion, foraging aerially over the study area, however unlikely to directly utilise habitat within the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Calidris ferruginea	Curlew Sandpiper	CR	cr	1997	PMST	Found in coastal bays and inlets throughout Australia, but also found in freshwater and brackish wetlands and open muddy shores.	Negligible	Recorded historically within 10 km of the study area. No suitable habitat in the form of mudflats or wetlands within the study area. Higher quality habitat is available within the nearby Winton Wetlands.
Calidris acuminata	Sharp-tailed Sandpiper	VU			PMST	Prefers muddy edges of shallow fresh or brackish wetlands with inundated or emergent low vegetation. Occasionally use flooded paddocks and other ephemeral wetlands.	Negligible	No suitable wetland habitat present within the study area. Higher quality habitat is available within the nearby Winton Wetlands.
Melanodryas cucullata	Hooded Robin	EN	v		PMST	Woodlands of eucalypt, Mallee, semi-cleared farmland.	Low	No records within the study area and surrounding area. Suitable habitat patches are small and fragmented, and are unlikely to support this species, which prefers patches larger than 10 hectares.
Aphelocephala leucopsis	Southern Whiteface	VU			PMST	Open woodlands and shrublands where there is an understorey of grasses or shrubs, or both.	Negligible	No records within the study area. Species has been previously recorded within Winton Wetlands Reserve. Marginal habitat present. Study area is unlikely to support a permanent population of this species.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Grantiella picta	Painted Honeyeater	VU	v	1995	PMST	Dry open woodlands and forests.	Medium	Historical records of this species. Some habitat present that could support foraging and breeding of this species in the form of eucalypt woodland with some mistletoe. High mistletoe abundance along Winton–Glenrowan Road.
Anthochaera phrygia	Regent Honeyeater	CR	cr	1990	PMST	Dry woodlands and forests dominated by nectar-producing tree species.	Medium	This species cannot be entirely discounted from very occasionally occurring within the study area, however this likelihood is considered medium mainly due to the lack of extensive stands of ironbark, white box or yellow box eucalypts, and due to the rarity of the species. There is a captive release program within 50 kilometres of the study area at Chiltern and extensive plantings have been undertaken for this species south of the Hume Freeway around Lurg.
Stagonopleura guttata	Diamond Firetail	VU	v	2017	PMST	Open forests and woodlands with a grassy ground layer.	Medium	Minimal recent records within the locality. Eucalypt woodlands present which have the potential to support this species.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Climacteris picumnus victoriae	Brown Treecreeper (south–eastern)	VU		2019	PMST	Open eucalypt forests, woodlands and Mallee, often where there are stands of dead trees.	Medium	Recent records within 5 kilometres of the study area. Species is known to forage and breed within disturbed eucalypt woodlands.
Dasyurus maculatus maculatus (SE mainland population)	Spot-tailed Quoll	EN			PMST	Rainforest and wet and dry sclerophyll forests and woodlands.	Negligible	No recent records within 10 kilometres of the study area. No suitable habitat in the form of rainforest or wet forests within the study area.
Pteropus poliocephalus	Grey-headed Flying-fox	VU	v		PMST	Rainforest, wet and dry sclerophyll forest, woodland and urban areas.	Low	May occasionally forage on eucalypts within the study area. Located greater than 50 km from nearest known GHFF camp, and so unlikely to frequently utilise study area.
Aprasia parapulchella	Pink-tailed Worm-Lizard	VU	e		PMST	Woodland and grassland with partially buried rocks.	Low	No records within 10 kilometres of the study area. Minimal suitable habitat.
Delma impar	Striped Legless Lizard	VU	e		PMST	Natural temperate grassland, grassy woodland and exotic grassland.	Low	Grassland habitat is highly disturbed and unlikely to support this species.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Crinia sloanei	Sloane's Froglet	EN	e		PMST	Adults are most common in woodlands, floodplains, grasslands, and open and disturbed areas.	Low	Ephemeral gilgai habitat present that may support breeding of this species. No records within 5 km of the study area. Due to the recent flooding and ideal seasonal conditions the distribution of this species has expanded. This species has been recorded historically within the Winton Wetlands and has been recorded 6 km from the study area. Targeted surveys were undertaken for this species within the study area, and this species was not recorded.
Litoria raniformis	Growling Grass Frog	VU	v	1788	PMST	Still or slow-flowing waterbodies and surrounding terrestrial vegetation. [NOTE Due to recent taxonomic changes: Nth Vic GGF is L. raniformis raniformis and Sth Vic GGF L. raniformis major. No legislative implications]	Low	This species is considered regionally extinct in most parts of North East Victoria and no suitable wetland habitat occurs in the study area.
Galaxias rostratus	Flat-headed Galaxias	CR	v		PMST	Still or slow-moving waters of rivers, billabongs, lakes and swamps.	Negligible	No suitable well-connected permanent or semi-permanent wetland/waterway habitat.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Maccullochella macquariensis	Trout Cod	EN	e		PMST	Streams characterised by a high abundance of large woody debris.	Negligible	No suitable permanent waterway habitat.
Maccullochella peelii	Murray Cod	VU	e	1993	PMST	A diverse range of stream habitats in the Murray-Darling basin; principally the main channels of rivers and their major tributaries.	Negligible	No suitable permanent wetland/waterway habitat present. The species was introduced to Lake Mokoan prior to decommissioning and persists in refuge pools in Winton Wetlands and may very occasionally during flood events move along local creek systems.
Macquaria australasica	Macquarie Perch	EN	e		PMST	Tributaries of the Murray Darling system, with introduced populations in the Yarra and Wannon Rivers. Streams with clear water and deep, rocky holes with abundant cover.	Negligible	No suitable permanent waterway habitat present.
Synemon plana	Golden Sun Moth	VU	v		PMST	Natural temperate grassland, grassy woodland and pasture supporting spear grasses and wallaby grasses and exotic grassland dominated by Chilean needle grass.	Negligible	No suitable native or introduced grassland present. All open areas are dominated by exotic species and have limited native grass feed species present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Keyacris scurra	Key's Matchstick Grasshopper	EN	e		PMST	Grasslands and other vegetation associations containing a native grass understory, particularly assemblages of *Themeda triandra* and known food plants (particularly Asteraceae).	Negligible	No local records and lack of suitable *Themeda triandra* dominated grassy habitats.
State significance								
Burhinus grallarius	Bush Stone-curlew		cr	2000		Open woodland, treed farmland.	Low	Previously present in the landscape but becoming increasingly rare in North East Victoria. Majority of the study area lacks understorey structure and woody debris required by this species. Anecdotal evidence from local landholders suggests the species has been locally extinct as their distinctive nocturnal calls have not been heard in the past decade.
Antigone rubicunda	Brolga		e	2010		Shallow freshwater and brackish wetlands, crops, grassland and pasture. [NOTE: Due to recent taxonomic changes; genus Antigone has changed to Grus. Formally recognised by birdlife Australia]	Low	Minimal suitable habitat. Dams and drainage line through study area unlikely to support a permanent population.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Egretta garzetta	Little Egret		e	1976		Swamps, billabongs, floodplain pools, mudflats, mangroves and channels; breeds in trees standing in water.	Low	Minimal suitable habitat. Dams and drainage line through study area unlikely to support a permanent population.
Ardea intermedia plumifera	Plumed Egret		cr	1980		Densely-vegetated freshwater wetlands including lakes, swamps and billabongs. Breeds in trees standing in water.	Low	This species is recorded historically within the 10 km locality. Habitat present is marginal for this species and is considered unlikely to support breeding or regular foraging of this species. Higher quality habitat within the nearby Winton Wetlands is available for this species.
Ardea alba modesta	Eastern Great Egret		v	2018		Flooded crops, pasture, swamps, lagoons, saltmarsh, sewage ponds, estuaries, dams, roadside ditches. Breeds in trees standing in water.	Low	Species has been previously recorded within the 10 km locality. Habitat present is marginal for this species and is considered unlikely to support breeding or regular foraging of this species. Higher quality habitat within the nearby Winton Wetlands is available for this species.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Spatula rhynchotis	Australasian Shoveler		v	2018		Variety of wetlands, with a preference for large, permanent, freshwater lakes/swamps with dense fringing vegetation.	Low	Species has been previously recorded within the 10 km locality. Habitat present is marginal for this species and is considered unlikely to support breeding or regular foraging of this species. Higher quality habitat within the nearby Winton Wetlands is available for this species.
Stictonetta naevosa	Freckled Duck		e	2006		Large freshwater wetlands, generally with dense vegetation.	Low	Species has been previously recorded within the 10 km locality. Habitat present is marginal for this species and is considered unlikely to support breeding or regular foraging of this species. Higher quality habitat within the nearby Winton Wetlands is available for this species.
Oxyura australis	Blue-billed Duck		v	1987		Open or densely vegetated wetlands.	Low	Species has been previously recorded within the 10 km locality. Habitat present is marginal for this species and is considered unlikely to support breeding or regular foraging of this species. Higher quality habitat within the nearby Winton Wetlands is available for this species.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Biziura lobata	Musk Duck		v	2017		Deep, permanent freshwater wetlands with areas of open water and patches of dense aquatic vegetation.	Low	Species has been previously recorded within the 10 km locality. Habitat present is marginal for this species and is considered unlikely to support breeding or regular foraging of this species. Higher quality habitat within the nearby Winton Wetlands is available for this species.
Haliaeetus leucogaster	White-bellied Sea-Eagle		e	2018		Coastal areas such as beaches and estuaries, inland wetlands and major inland streams.	Medium	Known to occur within the nearby Winton Wetlands and may forage over the study area on occasion.
Actitis hypoleucos	Common Sandpiper		v		PMST	Migrates to Australia from August to March. Prefers coastal and inland wetlands with generally narrow muddy margins.	Negligible	No suitable wetland habitat present within the study area. Higher quality habitat is available within the nearby Winton Wetlands.
Pomatostomus temporalis	Grey-crowned Babbler		v	2019		Open forests and woodlands.	Medium	Recorded in close proximity to the study area in similar eucalypt habitat with connectivity to the study area. Likely to utilise habitat within study area on occasion.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Petaurus norfolcensis	Squirrel Glider		v	2009		Drier woodlands, riverine woodland and coastal forest.	Medium	Roadside patches containing large trees are considered important habitat for this species. May utilise woodland patches within the study area.
Varanus varius	Lace Monitor		e	2015		Wooded habitats, including woodlands.	High	Recorded directly adjacent to the study area in 2015. Species is versatile and utilises eucalypt woodland including in farmland landscapes.

Appendix 2.3 Migratory species (EPBC Act listed)

Table 16 Migratory fauna species recorded or predicted to occur within 10 km of the study area

Scientific name	Common name	Most recent record
Gallinago hardwickii	Latham's Snipe	2017
Plegadis falcinellus	Glossy Ibis	2017
Hirundapus caudacutus	White-throated Needletail	PMST
Calidris ferruginea	Curlew Sandpiper	1997
Calidris acuminata	Sharp-tailed Sandpiper	PMST
Myiagra cyanoleuca	Satin Flycatcher	2017

Appendix 3 Photos of the study area

Photo 1 **Box Ironbark Forest EVC 61 along Winton–Glenrowan Road, supporting native and some introduced ground cover (looking south–east, 26 September 2024).**

Photo 2 **Plains Woodland/Herb-rich Wetland Mosaic EVC 235 along Lee Road, supporting native and introduced ground cover (looking north, 26 September 2024).**

Photo 3 Plains Woodland/Herb-rich Wetland Mosaic EVC 235 along the Hume Freeway, supporting predominantly introduced ground cover (looking south-east, 26 September 2024).

Photo 4 Plains Woodland/Herb-rich Wetland Mosaic EVC 235 along ephemeral creekline adjacent to Winton–Glenrowan Road, supporting predominantly introduced ground cover (looking north, 26 September 2024).

Photo 5 **Plains Sedgy Wetland EVC 647 within south-east of farmland (looking east, 26 September 2024).**

Photo 6 **Plains Woodland EVC 803 along Bowers Road, supporting native and introduced ground cover (looking south–west, 26 September 2024).**

Photo 7 Plains Woodland EVC 803 along Winton–Glenrowan Road, supporting predominantly introduced ground cover (looking east, 26 September 2024).

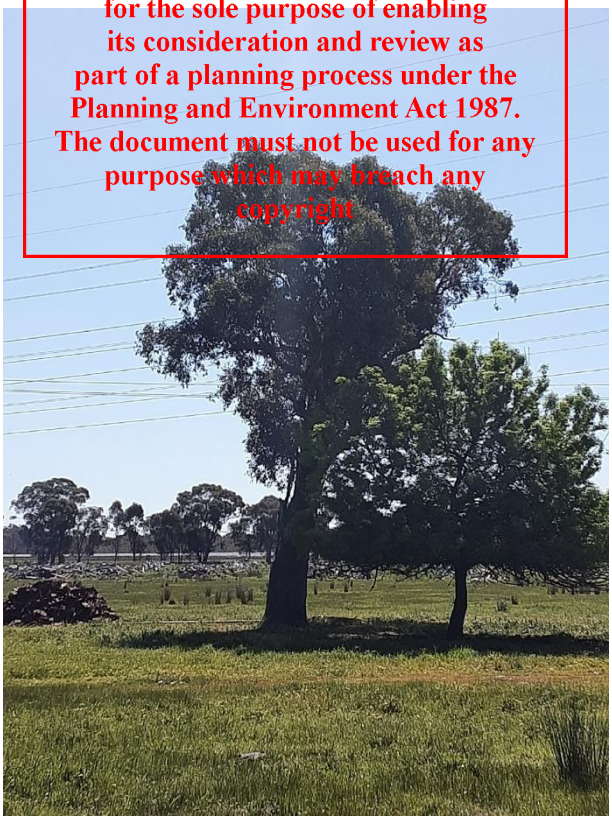


Photo 8 Large scattered tree within the west of the study area (looking north, 26 September 2024).

Photo 9 **Planted wind break vegetation within the south–west of the study area (looking south, 26 September 2024).**

Photo 10 **Predominantly introduced vegetation, containing Wimmera Rye-grass and Toowoomba Canary-grass, in the centre of the study area (looking south, September 2024).**

Photo 11 **Farm dam within south–west of the study area, supporting low quality fringing vegetation (looking east, 26 September 2024).**

Photo 12 **Farm dam within the south–east of the study area, supporting scattered fringing vegetation (looking west, 26 September 2024).**

Photo 13 **Planted exotic scattered tree within north-east of the study area (looking south-east, 1 November 2023).**

Appendix 4 Significant impact assessment

Appendix 4.1 Swift Parrot *Lathamus discolor*

Status: Swift Parrot is listed as Critically Endangered under the EPBC Act.

Distribution: The Swift Parrot breeds in Tasmania during the summer and the entire population migrates north to mainland Australia for the winter. Whilst on the mainland, the Swift Parrot disperses widely to forage on flowers and *psyllid* perps in eucalypt species, with the majority being found in Victoria and NSW. In Victoria, Swift Parrots are predominantly found in the dry forests and woodlands of the box-ironbark region on the inland slopes of the Great Diving Range (DoE 2016b).

Habitat: Key foraging species includes Yellow Gum, Red Ironbark *Eucalyptus tricarpa*, Mugga Ironbark, Grey Box, White Box, Yellow Box, Swamp Mahogony *Eucalyptus robusta*, Forest Red Gum *Eucalyptus tereticornis*, Blackbutt *Eucalyptus pilularis* and Spotted Gum *Corymbia maculata*. Box-ironbark habitat is considered the principal wintering habitat of the Swift Parrot on the mainland (DoE 2016b).

Occurrence within local area: Swift Parrot has been recorded sporadically around the study area. There is no extensive box-ironbark forest within the study area with only small patches of EVC 61 in the road reserves of Winton–Glenrowan Road where the connection route corridor will enter the Glenrowan Terminal Station. There are remnant patches of woodland containing Grey Box on the road reserves. Swift Parrot has the potential to be an occasional visitor to the study area during autumn and winter.

A significant impact assessment in accordance with DoE (2013) is provided in Table 17.

Table 17 Swift Parrot – assessment against Significant Impact Criteria (DoE 2013)

Significant Impact Criteria	Likelihood of significant impact	Justification
Lead to a decrease in the size of a population	Unlikely	Swift Parrots are known to occur occasionally in the local area and utilise lerp infested Grey Box as a foraging resource (DCCEEW 2024a) or blossom from melliferous species. The proposed action is expected to occur within suitable foraging habitat however given the local scale of removal (0.516 ha of potential foraging habitat) and the extensive availability of foraging habitat outside the development footprint and within the wider locality, it is unlikely to lead to a long-term decrease in the size of a population of the species.
Reduce the area of occupancy of the species	Unlikely	Whilst the proposed action will result in the removal of approximately 0.516 ha of potential foraging habitat, this vegetation is located on the edges of remnant woodland patches. Due to this, and the small scale of vegetation removal, as well as the highly mobile nature of this species, the area of occupancy will not be reduced.
Fragment an existing population into two or more populations	Unlikely	Due to its complex movement patterns typified by migration and local nomadism, the Swift Parrot has what is effectively a single national population. Individuals move interchangeably between key wintering sites on the

Significant Impact Criteria	Likelihood of significant impact	Justification
		Australian mainland and can move freely through areas of unsuitable and marginal habitat to seek out and exploit favourable habitat patches. As such, the removal of 0.516 of potential foraging habitat within an already fragmented landscape will not fragment an existing population into two or more populations.
Adversely affect habitat critical to the survival of the species	Unlikely	Habitat critical to the survival for Swift Parrot includes all preferred foraging species within known and likely foraging habitat on the mainland (DCCEEW 2024a). Whilst the study area contains preferred foraging species, including Mugga Ironbark, Grey Box, White Box and Yellow Box, given the linear nature of the vegetation, and its location within an area of high disturbance adjacent to the Hume Freeway, it is unlikely to be used by large numbers of birds repeatedly or for extended periods of time. The proposed works will result in the removal of 0.516 ha of vegetation. As such, it is therefore unlikely the proposal would adversely affect habitat critical to this species survival.
Disrupt the breeding cycle of a population	Unlikely	This species only breeds in Tasmania, and therefore the breeding cycle of a population will not be disrupted by the proposed works.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely	The removal of 0.516 ha of vegetation on the edge of the patches, in a fragmented landscape, is unlikely to cause Swift Parrot decline, especially as it is unlikely to constitute key or priority habitat.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	Unlikely	The proposed action is unlikely to exacerbate the current level of invasive species threat operating within the study area to the point that they become harmful to the Swift Parrot.
Introduce disease that may cause the species to decline	Unlikely	The proposed action is highly unlikely to introduce a disease that causes Swift Parrot to decline.
Interfere with the recovery of a species	Unlikely	A national recovery plan for Swift Parrot has been produced with the aim of increasing the population in size to the extent that the species no longer qualifies for listing as threatened under the EPBC Act. Given the small scale of clearing required by the project, and the location of the impacted vegetation on the edge of an existing linear patch, it is unlikely that the proposed action will directly interfere with any Swift Parrot recovery actions in North East Victoria.

Conclusion for Swift Parrot

The Swift Parrot's migratory nature means that it cannot be discounted from occurring anywhere there are box-ironbark tree species in northern Victoria. However, the availability of resources in the broader landscape means that small patch removal associated with the BESS development and connection route will not lead to any decline in the species' overall abundance or area of occupancy. Furthermore, the vegetation within the study area is unlikely to constitute critical habitat for this species. On this basis, it is considered unlikely that a significant impact would result from the BESS development.

Appendix 4.2 Regent Honeyeater *Anthochaera phrygia*

Status: Regent Honeyeater is listed as Critically Endangered under the EPBC Act.

Distribution: The Regent Honeyeater was once distributed across much of Victoria and into NSW, SA and Queensland. Through the twentieth century (especially over the past two decades), this nectar-feeding bird has suffered a serious decline in its numbers and reduction in its distribution. While there have been recent records of the Regent Honeyeater throughout Victoria, the Chiltern-Mount Pilot National Park in North East Victoria is considered likely to be the last major stronghold of this species in the state. A captive breeding program has successfully released birds into the national park over the past five years, with one banded bird being observed in Glenrowan in early September 2022. The Lurg-Benalla district is considered to be a subsidiary area used by Regent Honeyeaters for foraging and breeding (DoE 2016a).

Habitat: Mugga Ironbark is their main food tree in Victoria (Emison et al. 1987), although White Box, Swamp Gum Eucalyptus ovata and Manna Gum Eucalyptus viminalis are also utilised. However, it is a nomadic species and has been recorded in many flowering eucalypt trees and shrubs in many areas across Victoria (DoE 2016a).

Occurrence within local area: Records from the mid-1990s occur around Glenrowan and one captive bred banded bird was observed in Glenrowan in early September 2022, and individuals were recorded from Lurg in 2011 and 2018, however, no recent records for this species occur within or adjacent to the study area. Mugga Ironbark occurs in EVC 61 in the road reserves of Winton–Glenrowan Road where the connection route corridor will enter the Glenrowan Terminal Station. Given the presence of Mugga Ironbark and the Regent Honeyeater's nomadic nature there is some possibility that the species may occasionally visit the study area for foraging.

A significant impact assessment in accordance with DoE (2013) is provided in Table 18.

Table 18 Regent Honeyeater – assessment against Significant Impact Criteria (DoE 2013)

Significant Impact Criteria	Likelihood of significant impact	Justification
Lead to a decrease in the size of a population	Unlikely	Regent Honeyeaters are known to occur occasionally in the local area and a variety of food resources, mainly nectar from eucalypts and mistletoe (DoE 2016a). The proposed action is expected to occur within suitable foraging habitat however given the local scale of removal (0.516 ha of potential foraging habitat) and the extensive availability of foraging habitat outside the development footprint and within the wider locality, it is unlikely to lead to a long-term decrease in the size of a population of the species.

Significant Impact Criteria	Likelihood of significant impact	Justification
Reduce the area of occupancy of the species	Unlikely	Whilst the proposed action will result in the removal of approximately 0.516 ha of potential foraging habitat, this vegetation is located on the edges of remnant woodland patches. Due to this, and the small scale of vegetation removal, as well as the highly mobile nature of this species, the area of occupancy will not be reduced.
Fragment an existing population into two or more populations	Unlikely	Due to its complex movement patterns Regent Honeyeater has what is effectively a single national population. Individuals move interchangeably between several key sites in Victoria and NSW and can move freely through areas of unsuitable and marginal habitat to seek out and exploit favourable habitat patches. As such, the removal of 0.516 of potential foraging habitat within an already fragmented landscape will not fragment an existing population into two or more populations.
Adversely affect habitat critical to the survival of the species	Unlikely	Habitat critical to the survival of this species is defined in the Regent Honeyeater National Recovery Plan (DoE 2016a) as: • Any breeding or foraging habitat in areas where the species is likely to occur (as defined by the distribution map provided in Figure 2 of the Plan); and • Any newly discovered breeding or foraging location. The Plan identifies the Killawarra-Glenrowan district as a key area for the species. The vegetation within the study area is not a known breeding or foraging location. The vegetation near the connection route contains Mugga Ironbark, White Box and Yellow Box, species used for foraging by Regent Honeyeaters however, it is expected that all large live trees will be avoided during construction with some impacts on the edges of vegetation patches along Winton–Glenrowan Road for the connection route. As such, it is unlikely the proposal will adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	Unlikely	Potential breeding habitat (roadside vegetation) is being largely retained. Even if the species did occasionally breed within parts of the study area, which is considered unlikely, the entire population would not be breeding within the study area, other pairs would be breeding elsewhere at key sites (e.g. Chiltern-Mt Pilot National Park) and therefore the proposal is unlikely to disrupt the breeding cycle of Regent Honeyeater.
Modify, destroy, remove, isolate or decrease the availability or	Unlikely	The removal of 0.516 ha of vegetation on the edge of the patches, in a fragmented landscape, is unlikely to cause the Regent Honeyeater decline.

Significant Impact Criteria	Likelihood of significant impact	Justification
quality of habitat to the extent that the species is likely to decline		
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	Unlikely	The proposed action is unlikely to exacerbate the current level of invasive species threat operating within the study area to the point that they become harmful to the Regent Honeyeater.
Introduce disease that may cause the species to decline	Unlikely	The proposed action is highly unlikely to introduce a disease that causes the Regent Honeyeater to decline.
Interfere with the recovery of a species	Unlikely	A national recovery plan for the Regent Honeyeater (DoE 2016a) has been produced to minimise the probability of extinction of the Regent Honeyeater in the wild, and to increase the probability of important populations becoming self-sustaining in the long term. Given the small scale of clearing required by the project, and the location of the impacted vegetation on the edge of an existing linear patch, it is unlikely that the proposed action will directly interfere with Regent Honeyeater recovery actions in North East Victoria.

Conclusion for Regent Honeyeater

The Regent Honeyeater's spatial ecology, and the proximity of the study area to known key sites means that it cannot be discounted from occurring within the study area. Large remnant trees have been avoided during the design stage of this project (particularly the connection route) to avoid the possibility of an impact on this species. Furthermore, the availability of resources and dispersal corridors in the broader landscape means that vegetation removal associated with the BESS site and connection route is unlikely to lead to any decline in the species' current abundance or presence in the region. The vegetation within the study area is unlikely to constitute critical habitat or to be a key area for foraging or breeding. On this basis it is considered that a significant impact is unlikely as a result of the BESS development.

Appendix 4.3 Painted Honeyeater *Grantiella picta*

Status: Painted Honeyeater is listed as Vulnerable under the EPBC Act.

Distribution: The Painted Honeyeater is sparsely distributed from south–eastern Australia to north–western Queensland and eastern Northern Territory. The greatest concentrations and almost all records of breeding occur on the inland slopes of the Grey Dividing Range between the Grampians, Victoria and Roma, Queensland. The species migrates seasonally following the fruiting of mistletoe. Given its dispersive habit, the species is considered to have a single population (DoE 2015).

Habitat: The Painted Honeyeater is the most specialised of Australia's honeyeater, with its diet mainly consisting of mistletoe fruits, but also includes nectar and arthropods. As such, it inhabits mistletoe in eucalypt forests and woodlands, with preference placed on woodland which contain a higher number of mature trees, as these host more mistletoes. It is more common in wider blocks of remnant woodland than in narrow strips, although will breed in narrow roadside strips if ample mistletoe fruit is available (DoE 2015).

Occurrence within local area: Records from the mid-1990s occur around Glenrowan and species was observed in 2018 within the Warby-Ovens National Park north–east of the study area. A high abundance of mistletoe was observed within the study area, in the road reserve of Winton-Glenrowan Road where the connection route corridor will enter the Glenrowan Terminal Station. Given the presence of mistletoe and the Painted Honeyeater's nomadic nature there is some possibility that the species may occasionally visit the study area for foraging.

A significant impact assessment in accordance with DoE (2013) is provided in Table 19.

Table 19 Painted Honeyeater assessment against Significant Impact Criteria (DoE 2013)

Significant Impact Criteria	Likelihood of significant impact	Justification
Lead to a long-term decrease in the size of an important population of the species	Unlikely	All Painted Honeyeaters in Australia are regarded as one single population that moves freely within their entire national range (DoE 2015). The proposed action is expected to occur within suitable foraging habitat however given the local scale of removal (0.516 ha of potential foraging habitat) and the extensive availability of foraging habitat outside the development footprint and within the wider locality, it is unlikely to lead to a long-term decrease in the size of a population of the species.
Reduce the area of occupancy of an important population	Unlikely	Whilst the proposed action will result in the removal of approximately 0.516 ha of potential foraging habitat, this vegetation is located on the edges of remnant woodland patches. Due to this, and the small scale of vegetation removal, as well as the highly mobile nature of this species, the area of occupancy will not be reduced.
Fragment an existing important population into two or more populations	Unlikely	Due to its complex movement patterns Painted Honeyeater has what is effectively a single national population. Individuals move interchangeably within its range from Victoria to Queensland and can move freely through areas of unsuitable and marginal habitat to seek out and exploit favourable habitat patches. As such, the removal of 0.516 of potential foraging habitat within an already fragmented landscape will not fragment an existing population into two or more populations.
Adversely affect habitat critical to the survival of the species	Unlikely	Habitat critical to the survival of this species is defined in the Painted Honeyeater National Recover Plan (DAWE 2021) as: • Known or likely breeding habitat in Weeping Myall *Acacia pendula*, Brigalow *Acacia harpophylla* woodlands, box-gum woodlands and box-ironbark forests on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland; and • All preferred foraging species within known and likely foraging habitat particularly mistletoes of the genus *Amyema* growing on forest and woodland eucalypts and acacias.

Significant Impact Criteria	Likelihood of significant impact	Justification
		The vegetation within the study area contains key foraging species, including a high abundance of mistletoe, and as such would be considered habitat critical to the survival of the species. It is expected that all large live trees will be avoided during construction with some impacts on the edges of vegetation patches along Winton–Glenrowan Road for the connection route. There will be the removal of 0.516 ha of vegetation within the study area, with larger patches of suitable foraging habitat remaining outside the development footprint. As such, it is unlikely the proposal will adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	Unlikely	Potential breeding habitat (roadside vegetation containing mistletoe) is being largely retained. Even if the species did occasionally breed within parts of the study area, which is considered unlikely, the entire population would not be breeding within the study area, other pairs would be breeding elsewhere at key and therefore the proposal is unlikely to disrupt the breeding cycle of Painted Honeyeater.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely	The removal of 0.516 ha of vegetation on the edge of the patches, in a fragmented landscape, is unlikely to cause the Painted Honeyeater decline.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the vulnerable species' habitat	Unlikely	The proposed action is unlikely to exacerbate the current level of invasive species threat operating within the study area to the point that they become harmful to the Painted Honeyeater.
Introduce disease that may cause the species to decline	Unlikely	The proposed action is highly unlikely to introduce a disease that causes the Painted Honeyeater to decline.
Interfere with the recovery of a species	Unlikely	A national recovery plan for the Painted Honeyeater (DAWE 2021) has been produced to minimise the probability of extinction of the Painted Honeyeater in the wild, and to increase the probability of important populations becoming self-sustaining in the long term. Key strategies to achieve this include protecting, managing and restoring Painted Honeyeater breeding and foraging habitats at the local, regional and landscape scales. Given the small scale of clearing required by the project, and the location of the impacted vegetation on the edge of an existing linear patch, it is unlikely that the proposed action will directly interfere with Painted Honeyeater recovery actions in North East Victoria.

Conclusion for Painted Honeyeater

The Painted Honeyeater's spatial ecology, and the presence of a high abundance of the key foraging species mistletoe within the study area means that it cannot be discounted from occurring within the study area. Large remnant trees have been avoided during the design stage of this project (particularly the connection route) to avoid the possibility of an impact on this species. Furthermore, the availability of resources and dispersal corridors in the broader landscape means that vegetation removal associated with the BESS site and connection route is unlikely to lead to any decline in the species' current abundance or presence in the region. The vegetation within the study area is unlikely to constitute critical habitat or to be a key area for foraging or breeding. On this basis it is considered that a significant impact is unlikely as a result of the BESS development.

Appendix 4.4 Diamond Firetail *Stagonopleura guttata* and Brown Treecreeper (south–eastern) *Climacteris picumnus victoriae*

Diamond Firetail

Status: Diamond Firetail is listed as Vulnerable under the EPBC Act.

Distribution: The Diamond Firetail occurs on the south–east mainland of Australia from south–east Queensland to Eyre Peninsula, South Australia. The species has disappeared from many of the more settled parts of NSW, ACT and Victoria, as well as being reduced to three separate isolated subpopulations in South Australia (DCCEEW 2024b).

Habitat: The Diamond Firetail occurs in eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats, including farmland and grassland with scattered trees. The species prefers areas with relatively low tree density, few large logs and high grass cover (DCCEEW 2024b).

Occurrence within local area: Records from the mid-1990s occur around Glenrowan and the species was observed in 2017 within the Winton Wetlands north of the study area. Suitable habitat in the form of woodland within road reserves occurs within the study area, and there is some possibility that the species may occasionally visit the study area.

Brown Treecreeper (south–eastern)

Status: Brown Treecreeper (south–eastern) is listed as Vulnerable under the EPBC Act.

Distribution: The Brown Treecreeper (south–eastern) is endemic to south–eastern Australia from the Grampians, Victoria, through central NSW to the Bunya Mountains in Queensland. The species is less commonly found on coastal plains and ranges. Whilst the overall range of the species has remained the same, the species failure to cross habitat gaps means that it has been lost from many habitat fragments (DCCEEW 2023b).

Habitat: The Brown Treecreeper (south–eastern) occurs in dry open forests and woodlands, mainly inhabiting woodlands dominated by stringybarks and other rough-barked eucalypts with an open grassy understorey. It is usually not found in woodlands with a dense shrub layer or heavily degraded woodlands (DCCEEW 2023b).

Occurrence within local area: There are a high number of records within the locality, with the species being recorded in 2017 and 2018 within habitat along Winton–Glenrowan Road approximately 3 kilometres north–east of the study area. Suitable habitat in the form of woodland on road reserves occurs within the study area.

Given the similarity of habitat use within the study area, a combined significant impact assessment in accordance with DoE (2013) has been undertaken for Diamond Firetail and Brown Treecreeper (south–eastern), as provided in Table 16.

Table 20 Diamond Firetail and Brown Treecreeper (south–eastern) assessment against Significant Impact Criteria (DoE 2013)

Significant Impact Criteria	Likelihood of significant impact	Justification
Lead to a long-term decrease in the size of an important population of the species	Unlikely	The proposed action is expected to occur within suitable foraging and nesting habitat however given the local scale of removal (0.516 ha of potential foraging habitat) and the extensive availability of foraging habitat outside the development footprint and within the wider locality, it is unlikely to lead to a long-term decrease in the size of a population of Diamond Firetail or Brown Treecreeper (south–eastern).
Reduce the area of occupancy of an important population	Unlikely	Whilst the proposed action will result in the removal of approximately 0.516 ha of potential foraging and nesting habitat for Diamond Firetail and Brown Treecreeper (south–eastern), this vegetation is located on the edges of remnant woodland patches. Due to this, and the small scale of vegetation removal, as well as the highly mobile nature of these species, the area of occupancy will not be reduced.
Fragment an existing important population into two or more populations	Unlikely	There have been no records of either species within the study area, although Brown Treecreeper (south–eastern) has been recorded within similar habitat approximately 3 km north–east of the study area. As such, it is considered unlikely that an important population existing within the study area. The removal of 0.516 of potential foraging and nesting habitat within an already fragmented landscape, will not fragment an existing population into two or more populations, particularly given the fragmented landscape and highly mobile nature of these species.
Adversely affect habitat critical to the survival of the species	Unlikely	Habitat critical to the survival of Diamond Firetail is defined in the Conservation Advice (DCCEEW 2024b) as: • Eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats; and • Areas with low tree density, few large logs and little tree cover but high grass cover for foraging, roosting and breeding. Habitat critical to the survival of Brown Treecreeper (south–eastern) is defined in the Conservation Advice (DCCEEW 2023b) as: • Relatively undisturbed grassy woodland with native understorey,

Significant Impact Criteria	Likelihood of significant impact	Justification
		• Large living and dead trees which are essential for roosting and nesting sites and for foraging, • Fallen timber which provides essential foraging habitat; and • Hollows in standing dead or live trees. The vegetation within the study area contains critical habitat for both species in the form of eucalypt woodland, although given its location within road reserves, the habitat is considered disturbed. It is expected that all large live trees will be avoided during construction with some impacts on the edges of vegetation patches along Winton–Glenrowan Road for the connection route. There will be the removal of 0.516 ha of vegetation within the study area, with larger patches of suitable foraging habitat remaining outside of the development footprint. As such, it is unlikely the proposal will adversely affect habitat critical to the survival of these species.
Disrupt the breeding cycle of an important population	Unlikely	Potential breeding habitat (roadside woodland vegetation) is being largely retained. Even if these species did occasionally breed within parts of the study area, which is considered unlikely, the entire population would not be breeding within the study area, other pairs would be breeding elsewhere at key sites and therefore the proposal is unlikely to disrupt the breeding cycle of Diamond Firetail or Brown Treecreeper (south–eastern).
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely	The removal of 0.516 ha of vegetation on the edge of the patches, in a fragmented landscape is unlikely to cause Diamond Firetail or Brown Treecreeper (south–eastern) decline.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the vulnerable species' habitat	Unlikely	The proposed action is unlikely to exacerbate the current level of invasive species threat operating within the study area to the point that they become harmful to Diamond Firetail or Brown Treecreeper (south–eastern).
Introduce disease that may cause the species to decline	Unlikely	The proposed action is highly unlikely to introduce a disease that causes Diamond Firetail or Brown Treecreeper (south–eastern) to decline.
Interfere with the recovery of a species	Unlikely	There have been no national recovery plans produced for either Diamond Firetail or Brown Treecreeper (south–eastern), although primary conservation outcomes, as identified within these species Conservation Advice, include maintaining or increasing the populations for both species. Key strategies to achieve this include retaining and protecting woodland habitat.

Significant Impact Criteria	Likelihood of significant impact	Justification
		Given the small scale of clearing required by the project, and the location of the impacted vegetation on the edge of an existing linear patch, it is unlikely that the proposed action will directly interfere with Diamond Firetail or Brown Treecreeper (south–eastern) recovery actions in North East Victoria.

Conclusion for Diamond Firetail and Brown Treecreeper (south–eastern)

Diamond Firetail and Brown Treecreeper (south–eastern) may occur in the study area, and they are known to occur within close proximity to the study area and throughout North East Victoria. Large remnant trees have been avoided during the design stage of this project (particularly the connection route) to avoid the possibility of an impact on this species. Furthermore, the availability of resources and dispersal corridors in the broader landscape means that vegetation removal associated with the BESS site and connection route is unlikely to lead to any decline in the species' current abundance or presence in the region. The vegetation within the study area is unlikely to be a key area for foraging or breeding. On this basis it is considered that a significant impact is unlikely as a result of the BESS development.

Appendix 5 Tree data

Table 21 Trees within 15 metres of the development footprint

Tree #	Tree type	Species	DBH (cm)	Circumference (cm)	Size	Extent (hectares)	Tree protection zone (m)	Encroachment (%)	Canopy health	Other attributes	Status
PT-1	Patch tree	Grey Box *Eucalyptus microcarpa*	85	267	Large	0.070	10.2	0.00	30–70%	Hollows present	Retained
PT-2	Patch tree	Dead	118	370.7	Large	0.070	14.2	42.93	n/a	Hollows present	Removed
ST-1	Scattered tree	Grey Box *Eucalyptus microcarpa*	67, 69	210.4, 216.8	Small	0.031	8.3	52.30	30–70%		Removed
ST-2	Scattered tree	Grey Box *Eucalyptus microcarpa*	15, 14	47.1, 43.9	Small	0.031	2.4	100.00	30–70%		Removed
ST-3	Scattered tree	Grey Box *Eucalyptus microcarpa*	72, 57	226.2, 179.1	Large	0.070	8.6	8.68	30–70%		Retained
ST-4	Scattered tree	Dead	75	235.6	Large	0.070	9.0	100.00	n/a		Removed

Table 22 Large patch trees and scattered trees within the study area

Tree type	Species	DBH (cm)	Circumference (cm)	Size	Extent (hectares)	Canopy health	Hollows present	Status
Patch tree	White Box *Eucalyptus albens*	106	333.01	Large	0.070	>70%	Yes	Retained

Tree type	Species	DBH (cm)	Circumference (cm)	Size	Extent (hectares)	Canopy health	Hollows present	Status
Patch tree	Grey Box *Eucalyptus microcarpa*	126	395.84	Large	0.070	>70%	Yes	Retained
Patch tree	White Box *Eucalyptus albens*	116	364.42	Large	0.070	>70%	Yes	Retained
Patch tree	Yellow Box *Eucalyptus melliodora*	80	251.33	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	77	241.90	Large	0.070	<30%	Yes	Retained
Patch tree	Dead	123	386.42	Large	0.070	n/a	Yes	Retained
Patch tree	Dead	72	226.19	Large	0.070	n/a	Yes	Retained
Patch tree	White Box *Eucalyptus albens*	78	245.04	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	110	345.58	Large	0.070	30–70%	Yes	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	80	251.33	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	70	219.91	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	110	345.58	Large	0.070	30–70%	Yes	Retained
Patch tree	Yellow Box *Eucalyptus melliodora*	70	219.91	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	112	351.86	Large	0.070	30–70%	Yes	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	70	219.91	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	70	219.91	Large	0.070	<30%	Yes	Retained
Patch tree	Red Box *Eucalyptus polyanthemos*	85	267.04	Large	0.070	30–70%	Yes	Retained
Patch tree	Dead	120	376.99	Large	0.070	n/a	Yes	Retained

Tree type	Species	DBH (cm)	Circumference (cm)	Size	Extent (hectares)	Canopy health	Hollows present	Status
Patch tree	Grey Box *Eucalyptus microcarpa*	135	424.12	Large	0.070	30–70%	Yes	Retained
Patch tree	Yellow Box *Eucalyptus melliodora*	98	307.88	Large	0.070	30–70%	Yes	Retained
Patch tree	Yellow Box *Eucalyptus melliodora*	108	339.29	Large	0.070	30–70%	Yes	Retained
Patch tree	White Box *Eucalyptus albens*	80	251.33	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	80	251.33	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	90	282.74	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	83	260.75	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	80	251.33	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	85	267.04	Large	0.070	30–70%	Yes	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	85	267.04	Large	0.070	30–70%	No	Retained
Patch tree	River Red-gum *Eucalyptus camaldulensis*	96	301.59	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	110	345.58	Large	0.070	>70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	133	417.83	Large	0.070	>70%	Yes	Retained
Patch tree	River Red-gum *Eucalyptus camaldulensis*	70	219.91	Large	0.070	>70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	81	254.47	Large	0.070	30-–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	80	251.33	Large	0.070	>70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	94, 67	295.3, 210.49	Large	0.070	>70%	No	Retained

Tree type	Species	DBH (cm)	Circumference (cm)	Size	Extent (hectares)	Canopy health	Hollows present	Status
Patch tree	Grey Box *Eucalyptus microcarpa*	74, 39	232.48, 122.52	Large	0.070	30–70%	No	Retained
Patch tree	River Red-gum *Eucalyptus camaldulensis*	70	219.91	Large	0.070	<30%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	73	229.34	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	88	276.46	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	102	320.44	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	124	389.56	Large	0.070	>70%	Yes	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	148	464.96	Large	0.070	30–70%	Yes	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	95	298.45	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	107	336.15	Large	0.070	>70%	No	Retained
Patch tree	River Red-gum *Eucalyptus camaldulensis*	91	285.88	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	77, 35, 16	241.90, 109.96, 50.27	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	82	257.61	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	73	229.34	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	95, 55,60	298.45, 172.79, 188.50	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	109	342.43	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	81	254.47	Large	0.070	30–70%	No	Retained

Tree type	Species	DBH (cm)	Circumference (cm)	Size	Extent (hectares)	Canopy health	Hollows present	Status
Patch tree	Grey Box *Eucalyptus microcarpa*	92	289.03	Large	0.070	30–70%	Yes	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	91, 61	285.88, 191.64	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	94	295.31	Large	0.070	>70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	105	329.87	Large	0.070	30–70%	Yes	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	73, 61, 60	229.64, 191.64, 188.50	Large	0.070	30–70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	96	301.59	Large	0.070	>70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	124	389.56	Large	0.070	>70%	No	Retained
Patch tree	Grey Box *Eucalyptus microcarpa*	124	389.56	Large	0.070	>70%	No	Retained
Scattered tree	River Red Gum *Eucalyptus camaldulensis*	21.5	67.54	Small	0.031	30–70%	Yes	Retained
Scattered tree	Grey Box *Eucalyptus microcarpa*	44	138.23	Small	0.031	30–70%	No	Retained
Scattered tree	River Red-gum *Eucalyptus camaldulensis*	24.5	76.97	Small	0.031	30–70%	No	Retained
Scattered tree	River Red-gum *Eucalyptus camaldulensis*	26,17	81.68, 53.41	Small	0.031	30–70%	Yes	Retained
Scattered tree	Grey Box *Eucalyptus microcarpa*	90	282.74	Large	0.070	30–70%	No	Retained
Scattered tree	Grey Box *Eucalyptus microcarpa*	64	282.74	Small	0.031	30–70%	No	Retained
Scattered tree	Grey Box *Eucalyptus microcarpa*	39,40	122.52, 125.66	Small	0.031	30–70%	No	Retained
Scattered tree	Grey Box *Eucalyptus microcarpa*	90	282.74	Large	0.070	30–70%	Yes	Retained

Tree type	Species	DBH (cm)	Circumference (cm)	Size	Extent (hectares)	Canopy health	Hollows present	Status
Scattered tree	River Red-gum *Eucalyptus camaldulensis*	22	69.12	Small	0.031	30–70%	Yes	Retained
Scattered tree	Grey Box *Eucalyptus microcarpa*	34	106.81	Small	0.031	30–70%	No	Retained
Scattered tree	Grey Box *Eucalyptus microcarpa*	29,8,9	91.11, 25.13, 28.27	Small	0.031	30–70%	No	Retained

Appendix 6 Photos of vegetation to be removed

Photo 14 Vegetation zone 1h, photo taken 26 September 2024

Photo 15 Vegetation zone 1g, photo taken 9 July 2024

Photo 16 Vegetation zone 1e, photo taken 26 September 2024

Photo 17 Vegetation zones 1a and 1b, photo taken 9 July 2024. Includes PT2 (dead tree on right hand side of photo).

Photo 18 Vegetation zones 1c and 1d, photo taken 9 July 2024

Photo 19 Vegetation zone 1f, photo taken 9 July 2024

Photo 20 Scattered tree ST1, photo taken 26 September 2024

Photo 21 Scattered tree ST2, photo taken 26 September 2024

Photo 22 Scattered tree ST4, photo taken 1 November 2023

Appendix 7 Native vegetation removal report

Native Vegetation Removal Report

NVRR ID: 381_20251204_URF

This report provides information to support an application to remove, destroy or lop native vegetation in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* (the Guidelines). This report is **not an assessment by DEECA** of the proposed native vegetation removal. Native vegetation information and offset requirements have been determined using spatial data provided by the applicant or their consultant.

Report details

Date created: 04/12/2025

Local Government Area: BENALLA RURAL CITY

Shapefile name:
NVR41485_ST_20251204.shp
NVR41485_patches_20251204.shp

Site assessor name: Elise Keane

Registered Aboriginal Party: Yorta Yorta

Coordinates: 146.12679, -36.49341

Address: 6 BOWERS ROAD WINTON 3673

Regulator Notes

Removal polygons are located:

Summary of native vegetation to be removed

Assessment pathway	**Detailed Assessment Pathway**		
Location category	Location 2 The native vegetation extent map indicates that this area is typically characterised as supporting native vegetation. Additionally, it is modelled as encompassing an endangered Ecological Vegetation Class, sensitive wetland or sensitive coastal area. The removal of less than 0.5 hectares of native vegetation in this area will not require a Species Offset.		
Total extent including past and proposed removal (ha) *Includes endangered EVCs (ha): 0.422*	**0.646**	*Extent of past removal (ha)*	*0*
		Extent of proposed removal - Patches (ha)	*0.516*
		Extent of proposed removal - Scattered Trees (ha)	*0.130*
No. Large Trees proposed to be removed	**2**	*No. Large Patch Trees*	*1*
		No. Large Scattered Trees	*1*
No. Small Scattered Trees	2		

Offset requirements if approval is granted

Any approval granted will include a condition to obtain an offset, before the removal of native vegetation, that meets the following requirements:

General Offset amount [1]	**0.2620 General Habitat Units**
Vicinity	Goulburn Broken CMA or BENALLA RURAL CITY LGA
Minimum strategic biodiversity value score [2]	0.3771
Large Trees*	2
***The total number of Large Trees that the offset must protect**	**2** Large Trees to be protected in either the General, Species or combination across all habitat units protected

NB: values within tables in this document may not add to the totals shown above due to rounding
Appendix 1 includes information about the native vegetation to be removed
Appendix 2 includes information about the rare or threatened species with mapped habitat at the site
Appendix 3 includes the following figures

- Location map
- Strategic Biodiversity Value map
- Condition map
- Endangered EVCs map
- Aerial photograph showing mapped native vegetation
- Property in context
- Habitat Importance maps

1. The General Offset amount required is the sum of all General Habitat Units in Appendix 1.
2. Minimum strategic biodiversity value score is 80 per cent of the weighted average score across habitat zones where a General Offset is required.
3. The Species Offset amount(s) required is the sum of all Species Habitat Units in Appendix 1.

Next steps

Any proposal to remove native vegetation must meet the application requirements of the Detailed Assessment Pathway and it will be assessed under the Detailed Assessment Pathway.

If you wish to remove the mapped native vegetation you are required to apply for approval from the responsible authority. The responsible authority will refer your application to DEECA for assessment, as required. **This report is not a referral assessment by DEECA.**

This *Native vegetation removal report* must be submitted with your application for approval to remove, destroy or lop native vegetation.

Refer to the Guidelines for a full list of application requirements This report provides information that meets the following application requirements:

- The assessment pathway and reason for the assessment pathway.
- A description of the native vegetation to be removed (partly met).
- Maps showing the native vegetation and property (partly met).
- Information about the impacts on rare or threatened species.
- The offset requirements determined in accordance with Section 5 of the Guidelines that apply if approval is granted to remove native vegetation.

Additional application requirements must be met including:

- Topographical and land information
- Recent dated photographs.
- Details of past native vegetation removal.
- An avoid and minimise statement.
- A copy of any Property Vegetation Plan as applicable.
- A defendable space statement as applicable.
- A statement about the Native Vegetation Precinct Plan (NVPP) as applicable.
- A site assessment report including a habitat hectare assessment of any patches of native vegetation and details of trees.
- An offset statement that explains that an offset has been identified and how it will be secured.

Appendix 1: Description of native vegetation to be removed

The Species-General Offset Test was applied to your proposal. This test determines if the proposed removal of native vegetation has a proportional impact on any rare or threatened species habitats above the Species Offset threshold. The threshold is set at 0.005 per cent of the mapped habitat value for a species. When the proportional impact meets or exceeds the Species Offset threshold, a Species Offset is required. This test is completed for all species with mapped habitat at the site. Multiple Species Offsets will be required if the Species Offset threshold is exceeded for multiple species.

Where a zone requires Species Offset(s), the Species Habitat Units for each species in that zone are calculated by the following equation in accordance with the Guidelines: ***Species Habitat Units = extent without overlap x condition score x species landscape factor x 2, where the species landscape factor = 0.5 + (habitat importance score/2)***

The Species Offset amount(s) required is the sum of all Species Habitat Units per zone.

Where a zone does not require a Species Offset, the General Habitat Units in that zone are calculated by the following equation in accordance with the Guidelines: ***General Habitat Units = extent without overlap x condition score x general landscape factor x 1.5, where the general landscape factor = 0.5 + (strategic biodiversity value score/2)***

The General Offset amount required is the sum of all General Habitat Units per zone.

Native vegetation to be removed

Information provided by or on behalf of the applicant							Information calculated by NVR Map						
Zone	**Type**	**DBH (cm)**	**EVC code**	**Bioregional conservation status**	**Partial Removal**	**Condition score**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
1-a	Patch	-	CVU_0061	Vulnerable	no	0.540	1	0.002	0.002	0.430	-	0.001	General
1-b	Patch	-	CVU_0235	Endangered	no	0.280	-	0.000	0.000	0.430	-	0.000	General
1-c	Patch	-	CVU_0061	Vulnerable	no	0.540	-	0.132	0.132	0.461	-	0.078	General
1-d	Patch	-	CVU_0061	Vulnerable	no	0.540	-	0.044	0.044	0.580	-	0.028	General

Information provided by or on behalf of the applicant							Information calculated by NVR Map						
Zone	**Type**	**DBH (cm)**	**EVC code**	**Bioregional conservation status**	**Partial Removal**	**Condition score**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
1-e	Patch	-	CVU_0647	Endangered	no	0.370	-	0.091	0.091	0.430	-	0.036	General
1-f	Patch	-	CVU_0061	Vulnerable	no	0.540	-	0.045	0.045	0.400	-	0.026	General
1-g	Patch	-	CVU_0235	Endangered	no	0.280	-	0.184	0.184	0.565	-	0.060	General
1-h	Patch	-	CVU_0235	Endangered	no	0.370	-	0.018	0.018	0.390	-	0.007	General
1-ST	Scattered Tree	69	CVU_0803	Endangered	no	0.200	-	0.031	0.030	0.400	-	0.006	General
2-ST	Scattered Tree	15	CVU_0803	Endangered	no	0.200	-	0.031	0.030	0.400	-	0.006	General
4-ST	Scattered Tree	75	CVU_0803	Endangered	no	0.200	1	0.070	0.070	0.360	-	0.014	General

Appendix 2: Information about impacts to rare or threatened species' habitats on site

This table identifies all rare or threatened species with mapped habitat at the site and the proportional impact associated with the proposed native vegetation removal.

Species common name	Species scientific name	Taxon ID	Conservation status	Group	Habitat impacted	Proportional impact (%)
Mugga	Eucalyptus sideroxylon subsp. sideroxylon	504493	Rare	Dispersed	Habitat importance map	0.0002
Euroa Guinea-flower	Hibbertia humifusa subsp. erigens	505083	Vulnerable	Dispersed	Habitat importance map	0.0002
Grey-crowned Babbler	Pomatostomus temporalis temporalis	10443	Endangered	Dispersed	Habitat importance map	0.0001
Western Silver Wattle	Acacia decora	500027	Vulnerable	Dispersed	Habitat importance map	0.0001
Bent-leaf Wattle	Acacia flexifolia	500035	Rare	Dispersed	Habitat importance map	0.0001
Yarran Wattle	Acacia omalophylla	500069	Endangered	Dispersed	Habitat importance map	0.0001
Narrow Goodenia	Goodenia macbarronii	501513	Vulnerable	Dispersed	Habitat importance map	0.0001
Cottony Cassinia	Cassinia ozothamnoides	501560	Vulnerable	Dispersed	Habitat importance map	0.0001
Small-leaf Bush-pea	Pultenaea foliolosa	502848	Rare	Dispersed	Habitat importance map	0.0001
Northern Sandalwood	Santalum lanceolatum	503005	Endangered	Dispersed	Habitat importance map	0.0001
Jericho Wire-grass	Aristida jerichoensis var. subspinulifera	504631	Endangered	Dispersed	Habitat importance map	0.0001
Lewin's Rail	Lewinia pectoralis pectoralis	10045	Vulnerable	Dispersed	Habitat importance map	0.0000
Bush Stone-curlew	Burhinus grallarius	10174	Endangered	Dispersed	Habitat importance map	0.0000
Brolga	Grus rubicunda	10177	Vulnerable	Dispersed	Habitat importance map	0.0000
Square-tailed Kite	Lophoictinia isura	10230	Vulnerable	Dispersed	Habitat importance map	0.0000

Species common name	Species scientific name	Taxon ID	Conservation status	Group	Habitat impacted	Proportional impact (%)
Black Falcon	Falco subniger	10238	Vulnerable	Dispersed	Habitat importance map	0.0000
Barking Owl	Ninox connivens connivens	10246	Endangered	Dispersed	Habitat importance map	0.0000
Superb Parrot	Polytelis swainsonii	10277	Endangered	Dispersed	Habitat importance map	0.0000
Swift Parrot	Lathamus discolor	10309	Endangered	Dispersed	Habitat importance map	0.0000
Chestnut-rumped Heathwren	Calamanthus pyrrhopygius	10498	vulnerable	Dispersed	Habitat importance map	0.0000
Speckled Warbler	Chthonicola sagittatus	10504	Vulnerable	Dispersed	Habitat importance map	0.0000
Painted Honeyeater	Grantiella picta	10598	Vulnerable	Dispersed	Habitat importance map	0.0000
Squirrel Glider	Petaurus norfolcensis	11137	Endangered	Dispersed	Habitat importance map	0.0000
Bearded Dragon	Pogona barbata	12177	Vulnerable	Dispersed	Habitat importance map	0.0000
Lace Monitor	Varanus varius	12283	Endangered	Dispersed	Habitat importance map	0.0000
Growling Grass Frog	Litoria raniformis	13207	Endangered	Dispersed	Habitat importance map	0.0000
Ausfeld's Wattle	Acacia ausfeldii	500013	Vulnerable	Dispersed	Habitat importance map	0.0000
Buloke Mistletoe	Amyema linophylla subsp. orientalis	500217	Vulnerable	Dispersed	Habitat importance map	0.0000
Mueller Daisy	Brachyscome muelleroides	500465	Endangered	Dispersed	Habitat importance map	0.0000
Blue Burr-daisy	Calotis cuneifolia	500594	Rare	Dispersed	Habitat importance map	0.0000
Buloke	Allocasuarina luehmannii	500678	Endangered	Dispersed	Habitat importance map	0.0000
Plump Windmill Grass	Chloris ventricosa	500757	Vulnerable	Dispersed	Habitat importance map	0.0000
Silky Umbrella-grass	Digitaria ammophila	501041	Vulnerable	Dispersed	Habitat importance map	0.0000

Species common name	Species scientific name	Taxon ID	Conservation status	Group	Habitat impacted	Proportional impact (%)
Umbrella Grass	Digitaria divaricatissima var. divaricatissima	501045	Vulnerable	Dispersed	Habitat importance map	0.0000
Golden Cowslips	Diuris behrii	501061	Vulnerable	Dispersed	Habitat importance map	0.0000
Purple Diuris	Diuris punctata	501084	Vulnerable	Dispersed	Habitat importance map	0.0000
Hairy Hop-bush	Dodonaea boroniifolia	501087	Rare	Dispersed	Habitat importance map	0.0000
Long Eryngium	Eryngium paludosum	501238	Vulnerable	Dispersed	Habitat importance map	0.0000
Veiled Fringe-sedge	Fimbristylis velata	501369	Rare	Dispersed	Habitat importance map	0.0000
Clover Glycine	Glycine latrobeana	501456	Vulnerable	Dispersed	Habitat importance map	0.0000
Western Golden-tip	Goodia medicaginea	501518	Rare	Dispersed	Habitat importance map	0.0000
Slender Club-sedge	Isolepis congrua	501773	Vulnerable	Dispersed	Habitat importance map	0.0000
Lanky Buttons	Leptorhynchos elongatus	501941	Endangered	Dispersed	Habitat importance map	0.0000
Smooth Minuria	Minuria integerrima	502201	Rare	Dispersed	Habitat importance map	0.0000
Waterbush	Myoporum montanum	502240	Rare	Dispersed	Habitat importance map	0.0000
Velvet Daisy-bush	Olearia pannosa subsp. cardiophylla	502317	Vulnerable	Dispersed	Habitat importance map	0.0000
Small Scurf-pea	Cullen parvum	502773	Endangered	Dispersed	Habitat importance map	0.0000
Hairy Tails	Ptilotus erubescens	502825	Vulnerable	Dispersed	Habitat importance map	0.0000
Dwarf Bitter-cress	Rorippa eustylis	502944	Rare	Dispersed	Habitat importance map	0.0000
Branching Groundsel	Senecio cunninghamii var. cunninghamii	503104	Rare	Dispersed	Habitat importance map	0.0000
Small Burr-grass	Tragus australianus	503418	Rare	Dispersed	Habitat importance map	0.0000

Species common name	Species scientific name	Taxon ID	Conservation status	Group	Habitat impacted	Proportional impact (%)
Rye Beetle-grass	Tripogon loliiformis	503455	Rare	Dispersed	Habitat importance map	0.0000
Yellow-tongue Daisy	Brachyscome chrysoglossa	503654	Vulnerable	Dispersed	Habitat importance map	0.0000
Dwarf Brooklime	Gratiola pumilo	503753	Rare	Dispersed	Habitat importance map	0.0000
Broom Bitter-pea	Daviesia genistifolia s.s.	503813	Rare	Dispersed	Habitat importance map	0.0000
Pale Swamp Everlasting	Coronidium gunnianum	504655	Vulnerable	Dispersed	Habitat importance map	0.0000
Pepper Grass	Panicum laevinode	504808	Vulnerable	Dispersed	Habitat importance map	0.0000
Spiny Rice-flower	Pimelea spinescens subsp. spinescens	504823	Endangered	Dispersed	Habitat importance map	0.0000
Southern Swainson-pea	Swainsona behriana	504944	Rare	Dispersed	Habitat importance map	0.0000
Silky Swainson-pea	Swainsona sericea	504946	Vulnerable	Dispersed	Habitat importance map	0.0000
Fuzzy New Holland Daisy	Vittadinia cuneata var. morrisii	505060	Rare	Dispersed	Habitat importance map	0.0000
Late-flower Flax-lily	Dianella tarda	505085	Vulnerable	Dispersed	Habitat importance map	0.0000
Delicate Crane's-bill	Geranium sp. 6	505347	Vulnerable	Dispersed	Habitat importance map	0.0000
Floodplain Fireweed	Senecio campylocarpus	507136	Rare	Dispersed	Habitat importance map	0.0000
Grey Grass-tree	Xanthorrhoea glauca subsp. angustifolia	507229	Endangered	Dispersed	Habitat importance map	0.0000
Dwarf Cassinia	Cassinia diminuta	507664	Rare	Dispersed	Habitat importance map	0.0000
Carpet Python	Morelia spilota metcalfei	62969	Endangered	Dispersed	Habitat importance map	0.0000

Habitat Group

- Highly localised habitat means there is 2,000 hectares or less mapped habitat for the species.
- Dispersed habitat means there is more than 2,000 hectares of mapped habitat for the species.

Habitat Impacted

The Species General Offset test, as described in Section 5.3.1 of the Guidelines, is used to determine if proposed native vegetation removal will result in a proportionally significant impact on the habitat value of rare or threatened species. The test is applied where the native vegetation proposed for removal:

- Intersects the Habitat Importance Map for a rare or threatened species; or
- Intersects the 'top ranking' modelled habitat for a rare or threatened species with dispersed habitat, as identified in its Top Ranking Habitat Importance Map.

Top Ranking Maps consist of the 2,000 hectares of habitat with the highest Habitat Importance Scores for each dispersed species.

The 'Habitat impacted' column identifies whether the Habitat Importance Map or its Top Ranking Map was used to determine the proportional impact for a species with dispersed habitat.

Appendix 3: Images of mapped native vegetation

1. Property in context

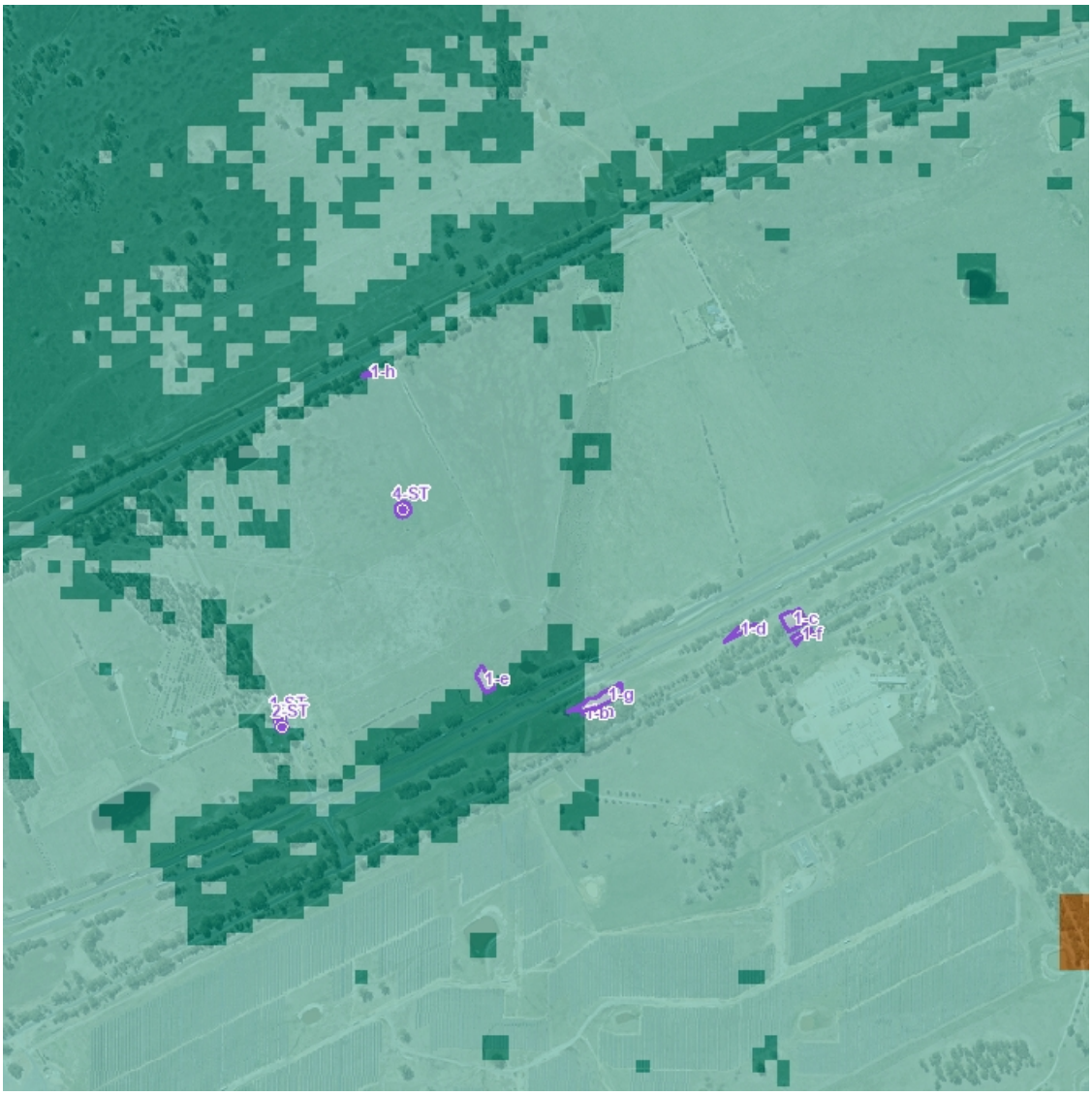
2. Aerial photograph showing mapped native vegetation

Proposed Removal
Past Removal
Partial Removal

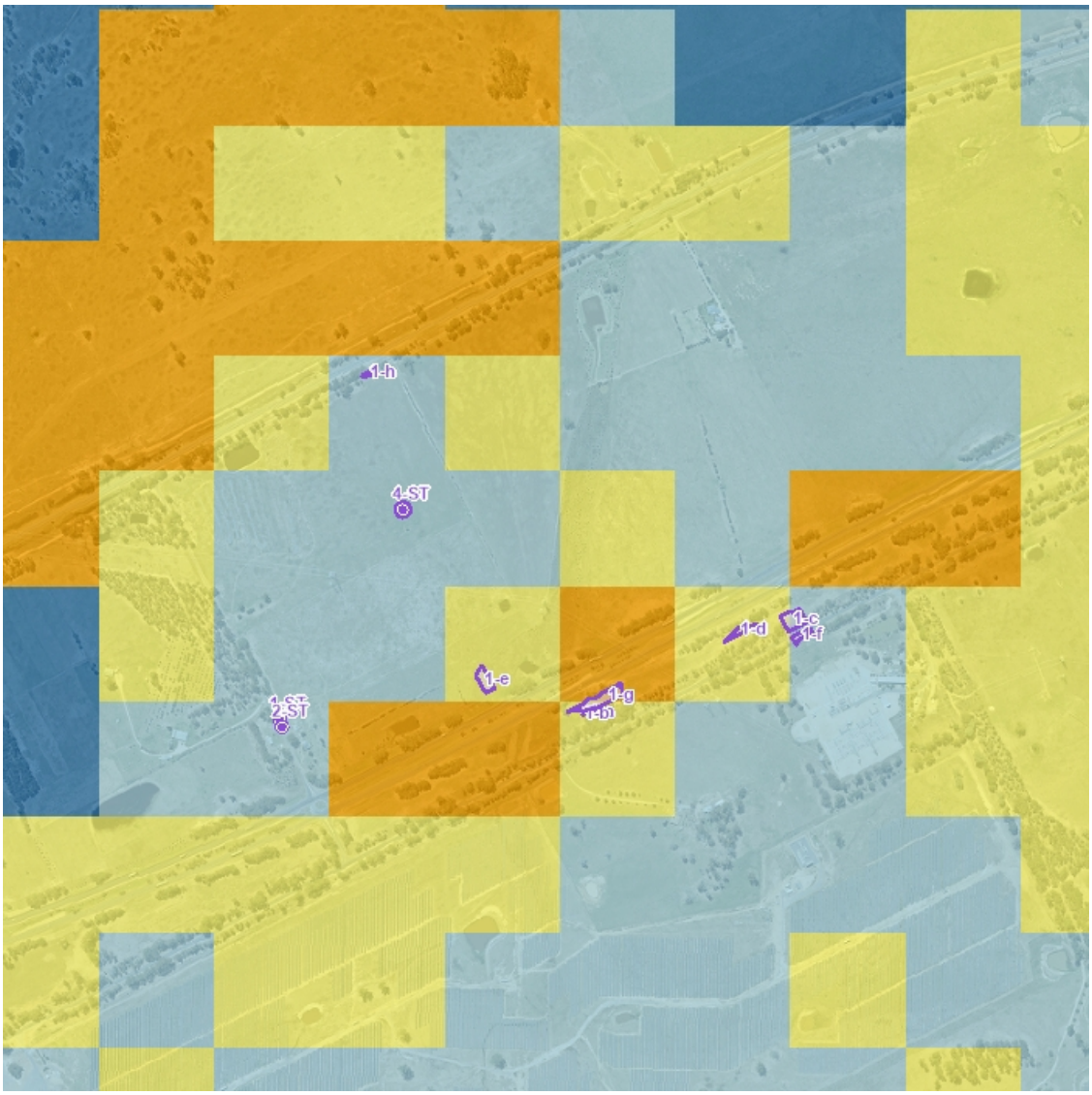
N

300 m

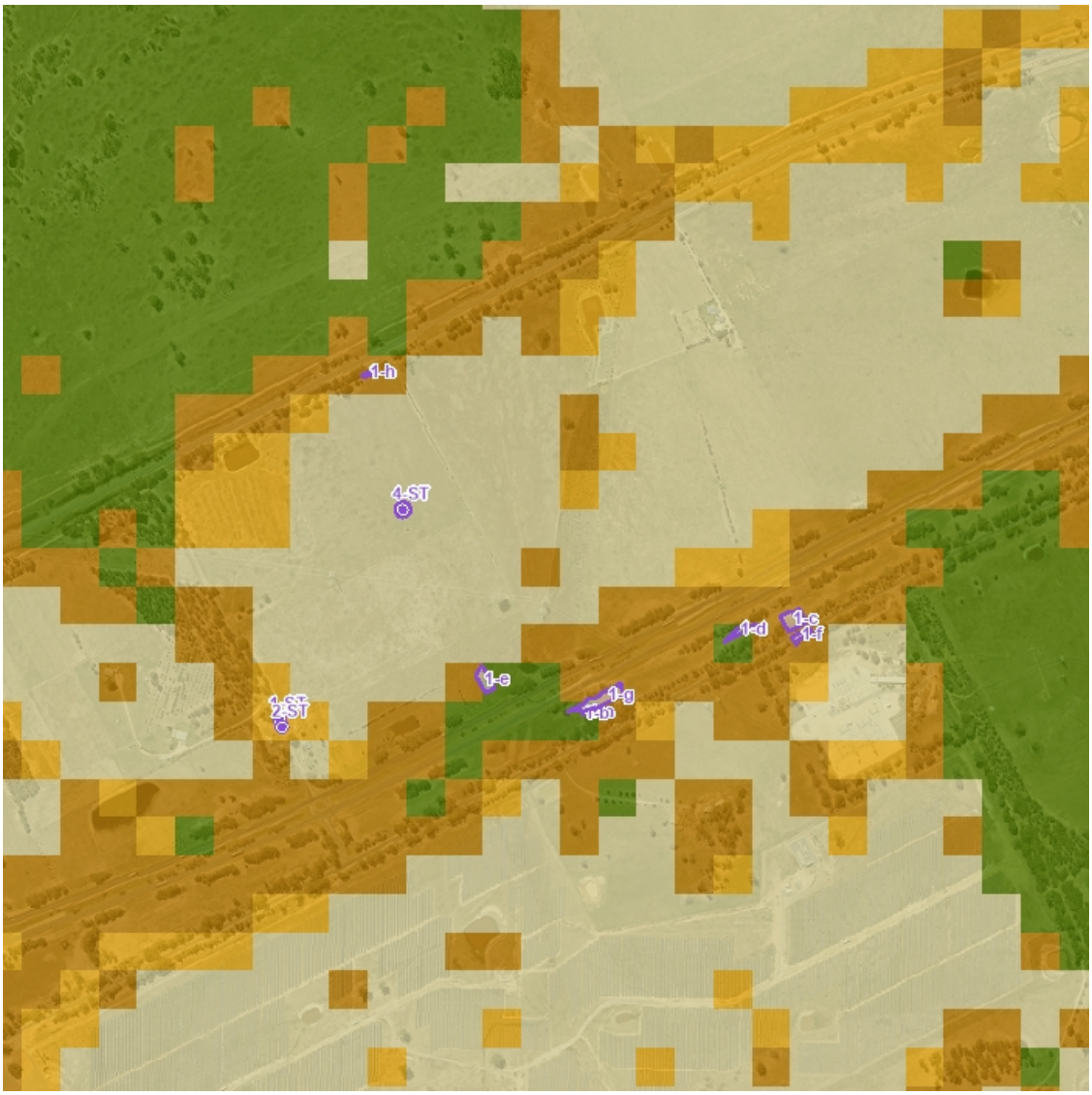
3. Location Risk Map



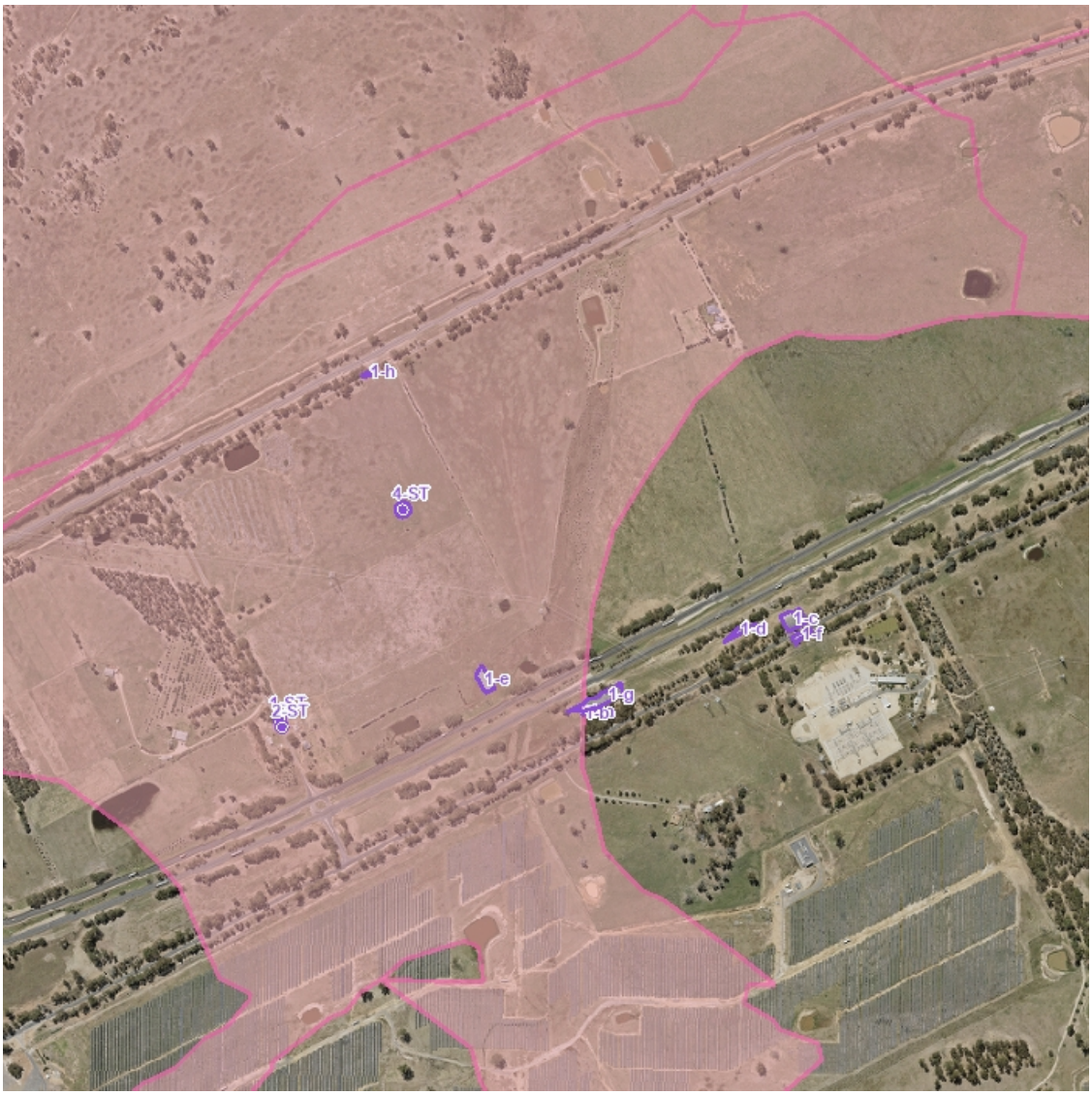
4. Strategic Biodiversity Value Score Map



5. Modelled Condition Score Map



6. Modelled Endangered EVCs



- Proposed Removal
- Past Removal
- Partial Removal
- Endangered 1750 Ecological Vegetation Classes

7. Habitat Importance maps

Not Applicable

Appendix 8 Available native vegetation credits

Report of available native vegetation credits

This report lists native vegetation credits available to purchase through the Native Vegetation Credit Register.

This report is **not evidence** that an offset has been secured. An offset is only secured when the units have been purchased and allocated to a permit or other approval and an allocated credit extract is provided by the Native Vegetation Credit Register.

Date and time: 04/12/2025 03:13 **Report ID: 33198**

What was searched for?

General offset

General habitat units	Strategic biodiversity value	Large trees	Vicinity (Catchment Management Authority or Municipal district)
0.262	0.3771	2	CMA: Goulburn Broken or LGA: Benalla Rural City

Details of available native vegetation credits on 04 December 2025 03:13

These sites meet your requirements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
BBA-1145	0.944	50	Goulburn Broken	Mitchell Shire	No	Yes	No	Ethos
BBA-2355	1.213	6	Goulburn Broken	Greater Shepparton City	Yes	Yes	No	VegLink

These sites meet your requirements using alternative arrangements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)

There are no sites listed in the Native Vegetation Credit Register that meet your offset requirements when applying the alternative arrangements as listed in section 11.2 of the Guidelines for the removal, destruction or lopping of native vegetation.

These potential sites are not yet available, land owners may finalise them once a buyer is confirmed.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
VC_CFL-3701_01	10.574	18	Goulburn Broken, North Central	Greater Bendigo City	Yes	Yes	No	Bio Offsets
VC_CFL-3747_01	11.546	332	Goulburn Broken	Mansfield Shire	Yes	Yes	No	Contact NVOR

LT - Large Trees *CMA - Catchment Management Authority* *LGA - Municipal District or Local Government Authority*

Next steps

If applying for approval to remove native vegetation
Attach this report to an application to remove native vegetation as evidence that your offset requirement is currently available.

If you have approval to remove native vegetation
Below are the contact details for all brokers. Contact the broker(s) listed for the credit site(s) that meet your offset requirements. These are shown in the above tables. If more than one broker or site is listed, you should get more than one quote before deciding which offset to secure.

Broker contact details

Broker Abbreviation	Broker Name	Phone	Email	Website
	Fully traded			
Abezco	Abzeco Pty. Ltd.	(03) 9431 5444	offsets@abzeco.com.au	www.abzeco.com.au
Baw Baw SC	Baw Baw Shire Council	(03) 5624 2411	bawbaw@bawbawshire.vic.gov.au	www.bawbawshire.vic.gov.au
Bio Offsets	Biodiversity Offsets Victoria	0452 161 013	info@offsetsvictoria.com.au	www.offsetsvictoria.com.au
Contact NVOR	Native Vegetation Offset Register	136 186	nativevegetation.offsetregister@deeca.vic.gov.au	www.environment.vic.gov.au/native-vegetation
Ecocentric	Ecocentric Environmental Consulting	0410 564 139	ecocentric@me.com	Not avaliable
Ethos	Ethos NRM Pty Ltd	(03) 5153 0037	offsets@ethosnrm.com.au	www.ethosnrm.com.au
IDES	ID Ecological Management	(03) 9437 0555		www.idecological.com.au
Nillumbik SC	Nillumbik Shire Council	(03) 9433 3316	offsets@nillumbik.vic.gov.au	www.nillumbik.vic.gov.au
TFN	Trust for Nature	8631 5888	offsets@tfn.org.au	www.trustfornature.org.au
VegLink	Vegetation Link Pty Ltd	(03) 8578 4250 or 1300 834 546	offsets@vegetationlink.com.au	www.vegetationlink.com.au
Yarra Ranges SC	Yarra Ranges Shire Council	1300 368 333	biodiversityoffsets@yarraranges.vic.gov.au	www.yarraranges.vic.gov.au

For more information contact the DEECA Customer Service Centre 136 186 or the Native Vegetation Credit Register at nativevegetation.offsetregister@delwp.vic.gov.au

biosis®
APEM Group