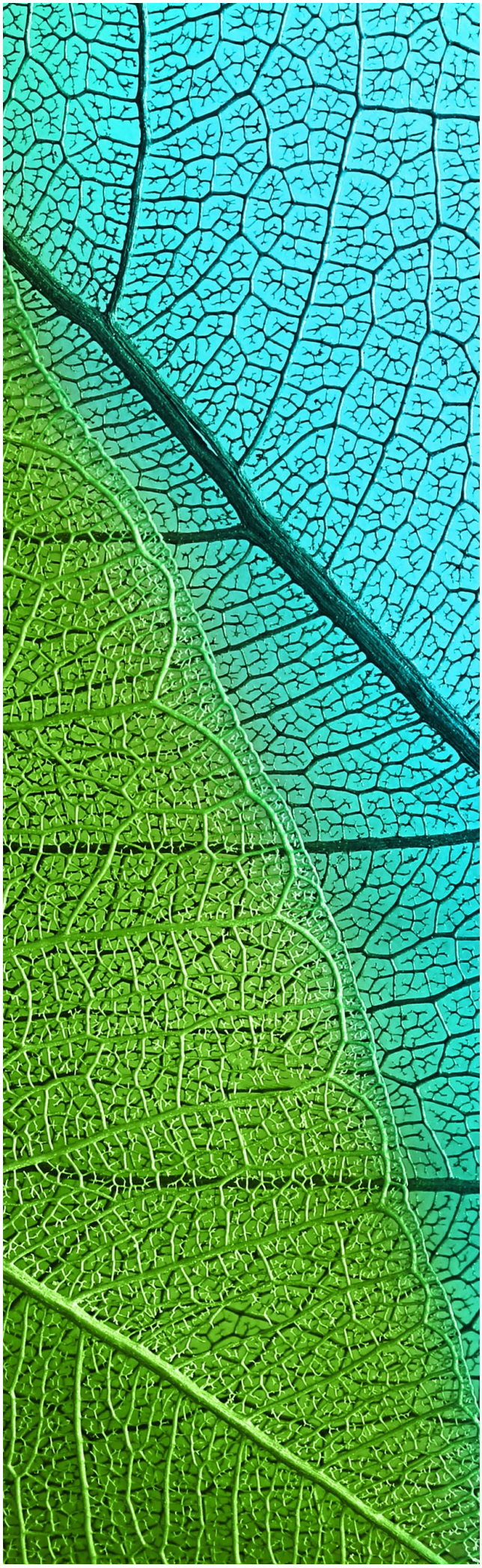

Wodonga Battery Project, 157 Kiewa Valley Highway, Baranduda

Flora and Fauna Assessment

Prepared for Chris Smith and Associates

June 2024
Report No. 22115.01 (2.1)

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1. Executive summary

Nature Advisory Pty Ltd undertook a flora and fauna assessment of an approximately 18.5-hectare area of land in Baranduda. A utility-scale battery is proposed for the study area. The area is covered by the Leneva Valley and Baranduda Precinct Structure Plan. Current plans are attached as Appendix 11.

This investigation was commissioned to provide information on the extent and condition of native vegetation in the study area according to Victoria's Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017a), herein referred to as 'the Guidelines', and any potential impacts on flora and fauna matters listed under the state Flora and Fauna Guarantee Act 1988 (FFG Act) and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). This report outlines any implications under relevant national, state and local legislation and policy frameworks.

The study area supported alluvial soils on a flat to gently undulating landscape. A drainage line occurred along the north-eastern boundary of the study area. Additionally, within the study area, adjacent to the nearby dams, were slight depressions in the landscape that could be seasonally inundated.

Vegetation in the study area consisted predominantly of non-native grasses dominated by Couch and Paspalum, with a row of remnant and planted trees along the north-eastern boundary of the study area. The row of trees along the north-eastern boundary of the study area consisted of various planted eucalypts, acacias, paperbarks and bottlebrushes. One large tree within the row of trees were assumed to be remnant due to the size and species distribution. The lower lying areas around the dams supported incidental occurrences of Gold Rush that did not constitute a patch.

Fauna habitat in the study area consisted of modified grazing pasture, treed habitat in the form of a windbreak of large trees and aquatic habitat in the form of a drainage line along the northern boundary and a flooded low-lying area associated with a farm dam.

The following four listed species are likely to occur or have the potential to occur:

- Diamond Firetail (FFG Act: Vulnerable)
- Gang-gang Cockatoo (EPBC Act: Endangered)
- Little Eagle (FFG Act: Vulnerable)
- Plumed Egret (FFG Act: Critically Endangered)

The analysis of susceptibility of the above fauna species to the impacts of the development identified that none of the above species will be impacted by any development in the study area.

No listed communities under the EPBC Act or FFG Act were recorded within the study area.

No permit is required for the removal of any vegetation on the site as it is covered by the Leneva Valley and Baranduda Precinct Structure Plan, Precinct 2 map J.

Only one large scattered tree and incidental occurrences of native vegetation that do not constitute a patch or scattered tree under the Guidelines were found.

	Application requirement	Response
1.	Information about the native vegetation to be removed.	See Section 5.2
2.	Topographic and land information relating to the native vegetation to be removed.	See Section 5.1
3.	Recent, dated photographs of the native vegetation to be removed.	See Appendix 7
4.	Details of any other native vegetation approved to be removed, or that was removed without the required approvals, on the same property or contiguous land in the same ownership as the applicant, in the five-year period before the application for a permit is lodged.	N/A
5.	An avoid and minimise statement.	See Section 6.5.1
6.	A copy of any Property Vegetation Plan contained within an agreement made pursuant to section 69 of the *Conservation, Forests and Lands Act 1987* that applies to the native vegetation to be removed.	N/A
7.	Where the removal of native vegetation is to create defendable space, a written statement explaining why the removal of native vegetation is necessary. This statement is not required when the creation of defendable space is in conjunction with an application under the Bushfire Management Overlay.	N/A
8.	If the application is under Clause 52.16, a statement that explains how the proposal responds to the Native Vegetation Precinct Plan considerations (at decision guideline 8).	N/A
9.	An offset statement providing evidence that an offset that meets the offset requirements for the native vegetation to be removed has been identified and can be secured in accordance with the Guidelines.	See Section **Error! Reference source not found.** and Appendix 10

2. Introduction

Chris Smith and Associates engaged Nature Advisory Pty Ltd to conduct a flora and fauna assessment of an 18.5-hectare area of land in Baranduda. The specific area investigated, referred to herein as the 'study area', comprised a portion of the land parcels 11\PS340793 and 2\PS406394. The study area is proposed for the development of a utility-scale battery . See Appendix 11 for plans.

This investigation was commissioned to provide information on the extent and condition of native vegetation in the study area according to Victoria's *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017a), herein referred to as 'the Guidelines', and any potential impacts on flora and fauna matters listed under the state *Flora and Fauna Guarantee Act 1988* (FFG Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This report outlines any implications under relevant national, state and local legislation and policy frameworks.

Specifically, the scope of the investigation included the following:

- A review of information on the flora and native vegetation of the study area and surrounds, including:
    - Victorian Biodiversity Atlas administered by the Department of Energy, Environment and Climate Action (DEECA);
    - The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) Protected Matters Search Tool; and
    - DEECA's Native Vegetation Information Management system (NVIM).
- A site survey involving the following:
    - Characterisation and mapping of native vegetation on the site, as defined in Victoria's Guidelines for the removal, destruction or lopping of native vegetation (the 'Guidelines');
    - Assessment of native vegetation in accordance with the Guidelines, including habitat hectare assessment and/or scattered tree assessment;
    - Compilation of flora and fauna species lists for the site;
    - Assessment of the nature and quality of native fauna habitat; and
    - Assessment of the likelihood of occurrence of EPBC Act and FFG Act-listed flora, fauna and communities on the site.

This investigation was undertaken by a team from Nature Advisory comprising Cody Hajnal (Botanist), Clint Schipper (Zoologist) and Jim Grant (Senior Ecologist & Project Manager).

3. Planning and legislative considerations

This investigation and report address the application on the site of relevant legislation and planning policies that protect biodiversity. Local, state and Commonwealth controls are summarised below.

3.1. Planning provisions

The study area is located within the City of Wodonga local government area and is currently zoned Industrial 1 Zone in the Wodonga Planning Scheme. No permit is required for the removal of any vegetation on the site as it is covered by the Leneva Valley and Baranduda Precinct Structure Plan, Precinct 2 map J.

3.1.1. Overlays

The study area is subject to the following 4 overlays in the Wodonga Planning Scheme, none of which are relevant to this investigation:

- *Environmental Significance Overlay – Schedule 5 (ESO5)* – This purpose of this overlay is to prevent the establishment of odour sensitive developments. A permit is not required to remove, destroy or lop any non-native vegetation.
- *Vegetation Protection Overlay – Schedule 4 (VPO4)* - not relevant to the current investigation.
- *Bushfire Management Overlay (BMO)* - not relevant to the current investigation.
- *Floodway Overlay (FO)* - not relevant to the current investigation.

The study area is also recognised as a designated Bushfire Prone Area (BPA). No other overlays which cover the study area are relevant to this investigation.

3.1.2. Particular provisions

Planning provisions are established under the *Victorian Planning and Environment Act 1987*.

The following particular provision in all Victorian Planning Schemes is relevant to this investigation:

- Clause 52.17 – *Native Vegetation*.

The purpose of this clause is to ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation. This is achieved by applying the following three step approach in accordance with the Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017a):

1. Avoid the removal, destruction or lopping of native vegetation.
2. Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.
3. Provide an offset to compensate for the biodiversity impact if a permit is granted to remove, destroy or lop native vegetation.

This provision states that permit is required to remove, destroy or lop native vegetation, including dead native vegetation. This does not apply to the following:

- If an exemption in Table 52.17-7 specifically states that a permit is not required.
- If a native vegetation precinct plan corresponding to the land is incorporated into the planning scheme and listed in the schedule to Clause 52.16.

- The native vegetation is specified in a schedule to Clause 52.17.

Application requirements

Any application to remove, destroy or lop native vegetation must comply with the application requirements specified in the Guidelines (DELWP 2017a).

When assessing an application, Responsible Authorities are also obligated to refer to Clause 12.01-2 (Native vegetation management) in the Planning Scheme that, in addition to the Guidelines, refers to the following:

- *Assessor's handbook – applications to remove, destroy or lop native vegetation* (Version 1.1) (DELWP 2018a).
- State-wide biodiversity information maintained by DEECA.

The application of the Guidelines (DELWP 2017a) is explained further in Appendix 1.

Referral to DEECA

Clause 66.02-2 of the planning scheme determines the role of DEECA in the assessment of native vegetation removal permit applications. If an application is referred, DEECA may make certain recommendations to the responsible authority in relation to the permit application.

Any application to remove, destroy or lop native vegetation must be referred to DEECA if any of the following apply:

- The impacts to native vegetation fall within the Detailed Assessment Pathway;
- A property vegetation plan applies to the site; or
- The native vegetation is on Crown land that is occupied or managed by the responsible authority.

3.2. EPBC Act

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) protects a number of threatened species and ecological communities that are considered to be of national conservation significance. Any significant impacts to these species require the approval of the Australian Minister for the Environment.

If there is a possibility of a significant impact on nationally threatened species, communities or listed migratory species, a Referral under the EPBC Act should be considered. The Minister will decide whether the project will be a 'controlled action' under the EPBC Act after 20 business days, in which case the project can only be undertaken with the approval of the Minister. This approval depends on a further assessment and approval process (lasting between three and nine months, depending on the level of assessment).

Implications under the EPBC Act for the current proposal are discussed in Section 6.6.

3.3. FFG Act

The Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act) includes:

- a *Threatened List* (DELWP 2022f); and
- a *Protected Flora List* (DELWP 2019).

This Act generally only has implications for impacts to FFG-listed values where they occur on Public Land.

Threatened List

The FFG Threatened List represents Victoria's single operational list of threatened flora, fauna and communities. Each species is assigned a threatened status which aligns with the listing categories and criteria for the International Union for the Conservation of Nature (IUCN) Red List.

Although there are no legislative implications for impacts to these species under the FFG Act, these values should be avoided wherever possible, in recognition of their threatened status at a state level.

Any application for a planning permit may also be assessed by the responsible or referral authority for potential impacts to FFG threatened values as part of broader considerations of impacts to biodiversity.

Protected Flora List

The Protected Flora List includes plants from three sources:

- Plant taxa (species, subspecies or varieties) listed as threatened under the FFG Act,
- Plant taxa belonging to communities listed as threatened under the FFG Act, and
- Plant taxa which are not threatened but require protection for other reasons. For example, some species which are attractive or highly sought after, such as orchids and grass trees, are protected so that the removal of these species from the wild can be controlled (DELWP 2019).

Under the Act, any removal of protected flora from public land requires a Protected Flora Permit, which must be obtained from the relevant regional DELWP officer. This can only be obtained after the removal of this flora is approved as part of a planning permit.

Implications under the FFG Act for the current proposal are discussed in Section 6.7.

3.4. CaLP Act

The *Catchment and Land Protection Act 1994* (CaLP Act) requires that landowners (or a third party to whom responsibilities have been legally transferred) must eradicate regionally prohibited weeds and prevent the growth and spread of regionally controlled weeds.

Weed species listed under the CaLP Act that have been recorded in the study area are discussed in Section 6.8.

4. Existing information and methods

4.1. Existing information

Existing information used for this investigation is described below.

4.1.1. Existing reporting and documentation

The existing documentation below, relating to the study area, was reviewed.

- Wodonga Planning Scheme;

4.1.2. Native vegetation

Pre-1750 (pre-European settlement) vegetation mapping administered by DELWP was reviewed to determine the type of native vegetation likely to occur in the study area and surrounds. Information on Ecological Vegetation Classes (EVCs) was obtained from published EVC benchmarks. These sources included the following:

- Relevant EVC benchmarks for the Victorian Riverina bioregion[1] (DSE 2004a); and
- *NatureKit* (DEECA 2023a).

4.1.3. Listed matters

Existing flora and fauna species records and information regarding the potential occurrence of listed matters were obtained from an area termed the 'search region', defined here as an area with a radius of 5 kilometres from the approximate centre point of the study area (coordinates: latitude 36˚ 9' 21.6216" S and longitude 146˚ 56' 46.698" E).

A list of the flora and fauna species recorded in the search region was obtained from the *Victorian Biodiversity Atlas* (VBA), a database administered by DELWP.

The online EPBC Act *Protected Matters Search Tool* (DCCEEW 2023a) was consulted to determine whether nationally listed species or communities potentially occurred in the search region based on habitat modelling.

4.2. Field methods

The field assessment was conducted on 15 February 2023. During this assessment, the study area was surveyed in detail on foot, to inspect any areas supporting native vegetation and/or fauna habitat.

Sites in the study area found to support native vegetation or with potential to support listed matters were mapped through a combination of aerial photograph interpretation and ground-truthing using a hand-held ArcGIS Field Maps® (Esri).

4.2.1. Native vegetation

Native vegetation is currently defined in Clause 73.01 of all Victorian planning schemes as 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses'. The Guidelines (DELWP 2017a) further classify native vegetation as belonging to two categories:

[1] A bioregion is defined as "a geographic region that captures the patterns of ecological characteristics in the landscape, providing a natural framework for recognising and responding to biodiversity values". In general, bioregions reflect underlying environmental features of the landscape (DNRE 1997).

- Patch; or
- Scattered tree.

The definitions of these categories are provided below, along with the prescribed DELWP methods of assessment. Further details on definitions of patches and scattered trees are provided in Appendix 1.

Patch

A patch of native vegetation may be defined as one of the following:

- An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native; or
- Any area with three or more native canopy trees[2] where the drip line[3] of each tree touches the drip line of at least one other tree, forming a continuous canopy; or
- Any mapped wetland included in the *Current wetlands map*, available at *MapShareVic* (DEECA 2023b).

Patch condition is assessed using the habitat hectare method (Parkes *et al.* 2003; DSE 2004b) whereby components of the patch (e.g. tree canopy, understorey and ground cover) are assessed against an EVC benchmark. The score effectively measures the percentage to which the condition of the vegetation resembles the original condition.

The *Native Vegetation Information Management* (NVIM) system (DEECA 2023c) provides modelled condition scores for native vegetation to be used in certain circumstances.

Scattered tree

A scattered tree may be defined as the following:

- A native canopy tree[2] that does not form part of a patch.

Scattered trees are counted and mapped, the species identified and the circumference at 1.3 m above the ground is recorded.

4.2.2. Flora species and habitats

Records of flora species were made in conjunction with sampling methods used to undertake habitat hectare assessments of the native vegetation described above. Specimens requiring identification using laboratory techniques were collected.

Species protected under the FFG Act were determined by crosschecking species recorded against the FFG Act *Protected Flora List* (DELWP 2019).

The potential for habitats to support listed flora species was assessed based on the following criteria:

- The presence of suitable habitat for flora species such as soil type, floristic associations and landscape context; and

[2] A native canopy tree is a mature tree (i.e. able to flower) that is taller 3 metres and normally found in the upper layer of the relevant vegetation type.
[3] The drip line is the outermost boundary of a tree canopy (leaves and/or branches) where the water drips onto the ground.

- The level of disturbance of suitable habitats by anthropogenic disturbances and invasions by pest plants and animals.

Wherever appropriate, a precautionary approach was adopted in determining the likelihood of occurrence or flora listed under the EPBC Act and/or FFG Act. That is, where insufficient evidence was available regarding the potential occurrence of a listed species, the assumption was made that this could be in an area of suitable habitat.

4.2.3. Fauna species and habitats

The techniques below were used to detect fauna species utilising the study area.

- Incidental searches for mammal scats, tracks and signs (e.g. diggings, signs of feeding and nests/burrows).
- Turning over logs/rocks and other ground debris for reptiles, frogs and mammals.
- Daytime bird observations.
- General searches for reptiles and frogs, including identification of frog calls in seasonally wet areas.
- General searches for bat habitat including waterbodies and potential roosting sites such as dead trees with hollows and underneath the bark of trees.

Fauna habitats are described using habitat components that include old-growth trees, fallen timber and leaf litter.

Habitat connectivity of the study area (i.e. degree of isolation/fragmentation), including linkages to other habitats in the region, was determined using field observations, recent aerial photography and *NatureKit* (DEECA 2023a).

Wherever appropriate, a precautionary approach was adopted in determining the likelihood of occurrence or fauna listed under the EPBC Act and FFG Act. That is, where insufficient evidence was available regarding the potential occurrence of a listed species, the assumption was made that this could be in an area of suitable habitat.

4.2.4. Threatened ecological communities

EPBC Listed communities

The likelihood of EPBC listed threatened ecological communities occurring in the study area was determined by the following process:

- Review of the communities modelled to potentially occur in the study area from the EPBC Act *Protected Matters Search Tool* (DCCEEW 2023a), and
- Checking general field observations of mapped native vegetation against published descriptions of these communities and assessment against the identification criteria and condition thresholds from the relevant listing advice.

FFG Listed communities

The likelihood of FFG listed threatened ecological communities occurring in the study area was determined by the following process:

- Review of the communities modelled to potentially occur within 5 kilometres of the study area (DELWP 2018b),
- Review of any communities without modelled distribution habitat mapping, and

- Checking general field observations against published descriptions of the identified communities (SAC 2015).

4.3. Limitations of field assessment

The site assessment was conducted during summer. The short duration and seasonal timing of field assessments can result in some species not being detected when these may occur at other times. Additionally, some flora species and lifeforms may be undetectable at the time of survey or unidentifiable due to a lack of flowers or fruit.

Timing of the survey and condition of vegetation were otherwise considered suitable to ascertain the extent and condition of native vegetation and fauna habitats.

These limitations were not considered to compromise the validity of the investigation as the habitat hectares scoring method has been intentionally designed to account for seasonal and temporal variation within patches of native vegetation. This reduces the subjectivity and variability between assessors and minimises the time taken during the assessment process. In most cases, habitat zones will be placed comfortably within a habitat component category that would unlikely change even if additional data was collected during alternative survey times (DSE 2004b).

Therefore, this investigation accurately addresses the relevant policies and decision guidelines

5. Assessment results

5.1. Site description

The study area for this investigation (Figure 1) constituted approximately 18.5 hectares of private land located at Baranduda, approximately 6.5 km southeast of Wodonga and 255 km northeast of Melbourne. The study area was bordered by the Kiewa Valley Highway to the southwest, Baranduda Drive to the southeast, Wodonga terminal station to the northeast and Middle Creek to the northwest.

The study area supported alluvial soils on a flat to gently undulating landscape. A drainage line occurred along the north-eastern boundary of the study area. Additionally, within the study area, adjacent to the nearby dams, were slight depressions in the landscape that could be seasonally inundated.

The study area currently supports stock grazing and may have previously supported other agricultural uses such as cropping. Surrounding land predominantly supported industrial development to the southeast, northeast and northwest beyond Middle Creek. To the southwest was Baranduda Cemetery, public parks and land to expand urban growth. Additionally, further to the south and southeast were general and low-density residential areas and further to the north and northwest lies the Wodonga Military Area.

Vegetation in the study area consisted predominantly of non-native grasses with a row of remnant and planted trees along the north-eastern boundary of the study area. Grassy vegetation was dominated by Paspalum and Couch with many occurrences of the herb Sheep Sorrel. The row of trees along the north-eastern boundary of the study area consisted of various planted eucalypts, acacias, paperbarks and bottlebrushes. One large tree within the row of trees were assumed to be remnant due to the size and species distribution. The lower lying areas around the dams supported incidental occurrences of Gold Rush that did not constitute a patch.

Fauna habitat within the study area comprised of native treed vegetation, Grassland and Aquatic habitat. Fauna habitat within the study area is described in greater detail below in Section 5.4.

The following key fauna habitat areas occurred within the region:

- Nearby significant habitat occurred approximately 3.5 kilometres south-south-west of the study area in the Baranduda Regional Park. Native vegetation in the study area was partially isolated from this habitat by roads, industrial developments, and residential areas; and
- Wodonga Regional Park is located approximately 2.5 kilometres to the north of the study area and is partially isolated from the study area by roads and residential areas.

The study area lies within the Victorian Riverina bioregion, within the North East catchment management area and on Waveroo Country.

5.2. Native vegetation

5.2.1. Patches of native vegetation

Pre–European EVC mapping (DEECA 2023a) indicated that the study area and surrounds would have supported Plains Grassy Woodland (EVC 55) and Floodplain Riparian Woodland (EVC 56) prior to European settlement based on modelling of factors including rainfall, aspect, soils and remaining vegetation.

No patches of native vegetation were recorded in the study area.

Figure 1: Study area and native vegetation

Project: 157 Keiwa Valley Hway
Client: Chris Smith and Associates
Date: 20/02/2023

Study area

Native vegetation

Large scattered tree

N

Metres

0 50

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5.2.2. Scattered trees

The scattered tree recorded in the study area would once have comprised the canopy component of Plains Grassy Woodland (EVC 55).

One large scattered tree (≥ 80-centimetre DBH) occurred in the study area (Figure 1).

Details of the scattered tree recorded is listed in Appendix 2.

5.3. Flora species

5.3.1. Species recorded

During the field assessment, 51 plant species were recorded, of which 13 (25%) were indigenous and 38 (75%) were introduced or non-indigenous native in origin (Appendix 3).

5.3.2. Listed species

Records from the VBA (DEECA 2023d) and Commonwealth EPBC Protected Matters Search Tool (DCCEEW 2023a) indicated that within the search region there were records of, or potential suitable habitat occurred for, 3 species listed under the Commonwealth EPBC Act and 14 listed under the state FFG Act, including 2 listed under both Acts.

No listed flora species were recorded during the field survey.

The likelihood of occurrence of species listed under the EPBC Act and FFG Act in the study area is addressed in Appendix 3. Species considered 'likely to occur' have very high potential of occurring in the study area based on numerous records in the search region and suitable habitat in the study area. Species considered to have the 'potential to occur' are those for which suitable habitat exists, but recent records are scarce.

This analysis indicates that no listed flora species are likely to occur or have the potential to occur.

5.4. Fauna habitats

The study area supported the following three fauna habitat types:

- Native treed vegetation;
- Grassland; and
- Aquatic habitat.

Native Treed Vegetation: This habitat occurred along the northern boundary of the study area. It consisted of large native trees, many of which had been planted. This habitat is relatively isolated from areas of higher quality indigenous treed vegetation in the area. Although a number of the trees were large, no trees were observed to contain hollows. This habitat provides feeding and resting opportunities for common native bird and mammal species. This habitat is of moderate biodiversity value.

Photo 1: Treed vegetation along the northern boundary of the study area, characterized by large native trees.

Grassland: This habitat dominated the study area. It consisted of grazing pasture dominated by exotic grasses and herbs typical of modified grazing pastures. This habitat provides feeding opportunities for common native birds and mammals associated with open farmland. This habitat is of low biodiversity value.

Photo 2: Grassland habitat characteristic of the majority of the study area.

Aquatic habitat: This habitat occurred in the drainage line along the length of the northern boundary of the study area and in a flooded area connected to one of the farm dams. The drainage line consisted of introduced pasture grasses and herbs, while the area near the farm dam contained mostly exotic species with a small area of native wetland sedge species. Both areas of this habitat appear to be ephemeral. When in flood these areas provide breeding and feeding areas for common frog species and feeding opportunities for common wetland bird species. This habitat is of moderate biodiversity value. Two farm dams are located very close to the southern boundary and a third dam close to the western boundary of the study area. Small flocks of common duck species were observed on these dams.

Photo 3: Aquatic habitat characteristic of the drainage line (top) and flooded area associated with the farm dam (bottom).

5.5. Fauna species

5.5.1. Species recorded

During the field assessment 22 fauna species were recorded. This included 21 bird (two introduced), and one mammal (one introduced) species (Appendix 4).

5.5.2. Listed species

The review of existing information [including VBA records (DEECA 2023d) and the results of the EPBC Protected Matters Search Tool (DCCEEW 2023a) indicated that within the search region there were records of, or potential suitable habitat occurred for, 30 fauna species listed under the Commonwealth EPBC Act and 38 listed under the state FFG Act, including 23 listed under both Acts.

No listed flora species were recorded during the field survey.

The likelihood of occurrence of species listed under the EPBC Act and FFG Act in the study area is addressed in Appendix 4. This analysis of potential occurrence of listed fauna species excludes the following:

- Aerial species (such as swift species) given that the planned development is of a terrestrial nature;
- Marine fauna given that the study area is inland; and
- Migratory oceanic bird species (such as albatrosses and petrels) given that the study area is inland.

Species considered 'likely to occur' have very high potential of occurring in the study area based on numerous records in the search region and suitable habitat in the study area. Species considered to have the 'potential to occur' are those for which suitable habitat exists, but recent records are scarce.

This analysis indicates that the following four listed fauna species are likely to occur or have the potential to occur:

- Diamond Firetail (FFG Act: Vulnerable)
- Gang-gang Cockatoo (EPBC Act: Endangered)
- Little Eagle (FFG Act: Vulnerable)
- Plumed Egret (FFG Act: Critically Endangered)

5.5.3. Susceptibility of listed fauna to impacts

The following analysis identifies the susceptibility of listed fauna species that may utilise the study area to development. This analysis includes consideration of the following factors:

- Mobility of the species;
- Availability and extent of other suitable habitat in the region and degree to which each species may rely on habitat in the study area; and

Targeted surveys will be required to determine the presence or absence of any listed fauna species considered to be susceptible to impacts from development.

Birds (non-migratory)

Four listed non-migratory bird species are considered to have the potential to occur in the study area. The susceptibility of these species to possible impacts from any development in the study area is discussed below.

- **Diamond Firetail** (FFG Act: Vulnerable)

This species could potentially visit the treed northern boundary and associated pasture area of the study area due to the presence of suitable cover from which this species could forage on seeding grasses, the seeds of which form the diet of this species. Given the planned development, the relatively isolated nature of the suitable habitat within the study area and the large amount of more suitable habitat available in the surrounding area, the Diamond firetail would likely not be impacted by development in the study area.

- **Gang-gang Cockatoo** (EPBC Act: Endangered)

This species could potentially visit the treed northern boundary of the study area, where it could forage on the seeds of the various eucalyptus species; however, this habitat is limited within the study area. Given the limited foraging potential of this habitat within the study area and the large amount of higher quality habitat available to this species in the surrounding area, the Gang-gang Cockatoo would likely not be impacted by development in the study area.

- **Little Eagle** (FFG Act: Vulnerable)

This species could potentially visit the study area due the presence of suitable foraging and resting habitat the grazing pasture and treed northern boundary provide. The foraging opportunities within the study area are limited and given the large amount of higher quality habitat available in the area, the Little Eagle would not likely be impacted by development in the study area.

- **Plumed Egret** (FFG Act: Critically Endangered)

This species is likely to occasionally visit the study area due to the presence of artificial waterbodies; however, the extent of this habitat is limited within the study area. Given the large amount of habitat available in the surrounding region, the Plumed Egret would likely not be impacted by development in the study area.

Migratory Birds

No listed migratory bird species (excluding oceanic species and shorebirds) have the potential to occur in the study area.

Mammals

No listed mammal species are considered to have the potential to occur in the study area.

Reptiles

No listed reptile species are considered to have the potential to occur in the study area.

Frogs

No listed frog species are considered to have the potential to occur in the study area.

Fish

No listed fish species are considered to have the potential to occur in the study area.

Invertebrates

No listed invertebrate species are considered to have the potential to occur in the study area.

5.6. Listed ecological communities

EPBC Listed communities

The EPBC *Protected Matters Search Tool* (DCCEEW 2020a) indicated that two ecological communities listed under the EPBC Act had the potential to occur in the search region. Occurrence of these

communities in the study area was determined based on an assessment of the native vegetation present against published descriptions and condition thresholds for these communities.

Table 1: EPBC Act-listed ecological communities and likelihood of occurrence in the study area

Ecological Community	EPBC Status	Occurrence in the study area
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	No suitable treed vegetation recorded in the study area.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	No suitable treed vegetation recorded in the study area.

Notes: EPBC = status under the EPBC Act.

These communities were deemed unlikely to occur within the study area due to an absence of suitable floristic indicators or the study area occurs beyond the known distribution.

FFG Listed communities

A review of the communities modelled to potentially occur within 5 kilometres of the study area (DELWP 2018b), as well as reviewing any communities without modelled distribution habitat mapping, indicated that two ecological communities listed under the FFG Act had the potential to occur in the search region. Occurrence of these communities in the study area was determined based on an assessment of the native vegetation present against published descriptions of these communities (SAC 2015).

Table 2: FFG Act-listed ecological communities and likelihood of occurrence in the study area

Ecological Community	Occurrence in the study area
Grey Box - Buloke Grassy Woodland This community is found on flat to very gently undulating plains in northern Victoria and a few places in central Victoria. This community usually develops in the absence of fire on sites with relatively fertile, fine-grained soils.	Does not occur within the study area. The modelled distribution habitat mapping does not suggest this community occurs within the study area. Additionally, the floral assemblage needed to form this community was not recorded in the site assessment.
Northern Plains Grassland The Northern Plains Grassland Community is restricted to the naturally treeless plains of northern Victoria, and dominated by largely perennial tussocky grasses with an occasional, sparse occurrence of trees or large shrubs.	Does not occur within the study area. The modelled distribution habitat mapping covers the planted trees in the northeast of the study area.

These communities were deemed unlikely to occur within the study area due to an absence of suitable floristic indicators or the study area occurs beyond the known distribution.

6. Implications under legislation and policy

6.1. Proposed development

The current proposal will involve the construction of a utility-scale battery .

To determine impacts to native vegetation, the proposed plan was overlaid with the native vegetation mapped as part of this investigation. Native vegetation occurring in the following locations was considered to be removed based on the proposed plan:

- Direct removal:
  - Native vegetation within all proposed building envelopes; and
  - Native vegetation within all proposed driveways.
- Consequential removal:
  - Native vegetation within 10 metres of all proposed building envelopes; and
  - Trees with the more than 10% of their TPZ encroached.

Impacts to trees

In accordance with the *Assessor's Handbook* (DELWP 2018a), a tree is deemed lost when earthworks encroach on more than 10% of the Tree Protection Zone (TPZ), unless deemed otherwise by an arborist. A TPZ is defined as an area around the trunk of the tree that has a radius of 12 × the DBH (to a maximum of 15 metres but no less than 2 metres). Dead trees are treated in the same manner.

However, trees which form part of a 'patch' of native vegetation are not required to be individually mapped in accordance with the habitat hectare assessment method, unless they meet the minimum DBH of a large tree under the relevant EVC Benchmark.

6.2. Clause 12.01 of the of the Planning Scheme

The objectives of Clause 12.01 – *Biodiversity* are to protect and enhance Victoria's biodiversity and to ensure that there is no let loss as a result of the removal, destruction or lopping of native vegetation. This is in general, achieved by the 'Guidelines' and the avoid, minimise and offset obligations as detailed within this report. However, this clause is also relevant to the application by considering the protection and enhancement of habitat for indigenous plants and animals in urban areas and avoiding fragmentation of habitat. The site as it is covered by the Leneva Valley and Baranduda Precinct Structure Plan, Precinct 2 map J.

6.3. Clause 52.17 of the Planning Scheme

A permit for the proposed removal of native vegetation is not required under Cl. 52.17. No permit is required for the removal of any vegetation on the site as it is covered by the Leneva Valley and Baranduda Precinct Structure Plan, Precinct 2 map J.

6.4. Exemptions to Clause 52.17

6.4.1. Native Vegetation - Clause 52.17-7

Exemptions listed in Cl. 52.17-7 relevant to the study area are:

- *Planted vegetation:* Native vegetation that is to be removed, destroyed or lopped that was either planted or grown as a result of direct seeding. This exemption does not apply to native vegetation planted or managed with public funding for the purpose of land protection or enhancing biodiversity.

A row of planted eucalypts, acacias, paperbarks, and bottlebrushes were recorded along the north eastern boundary within the study area. These trees were recognised as planted due to their species distributions and similar age, as seen in the photo below:

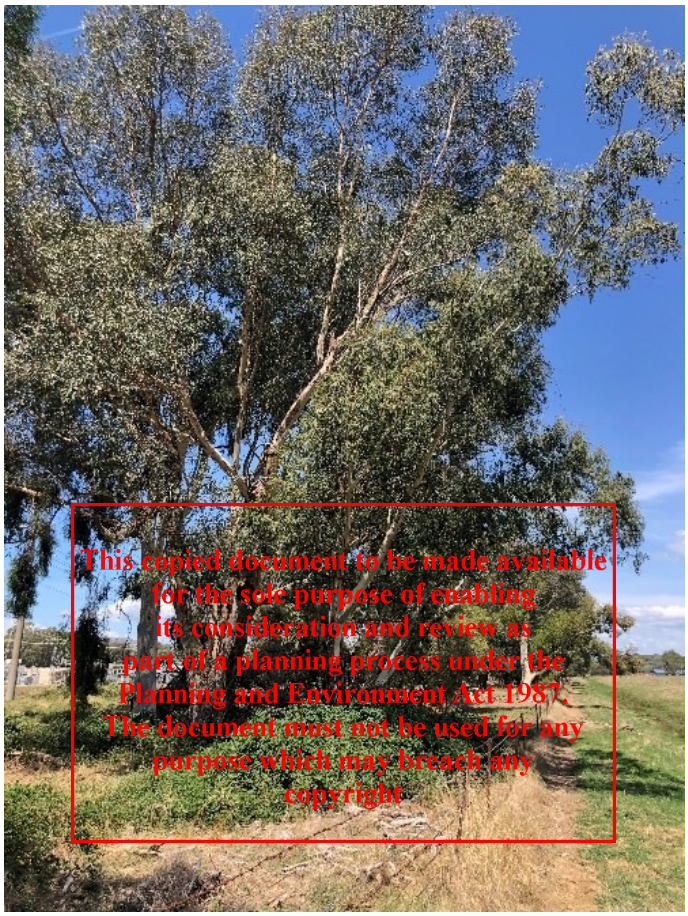

Photo 4: Planted native vegetation along the north eastern boundary of the study area.

6.5. Implications under the Guidelines

6.5.1. Avoid and minimise statement

Though an avoid and minimise statement is not legally required avoidance and minimisation of impacts to native vegetation and habitat have been planned. The majority of the utility-scale battery development in the study area is planned to be located on land dominated by non-native grasses away from the treed northern boundary or the aquatic vegetation close to the farm dam. The grazing pasture is of low ecological value. Thus, the development of this site will have a minor impact on flora and fauna habitat within the site and the area.

6.5.2. Impacts to native vegetation

The current proposal footprint will result in the loss of a total extent of 0.07 hectares of native vegetation as represented in and documented in the *Native Vegetation Removal* (NVR) report provided by DELWP (Appendix 9).

This comprised the following:

- One large scattered tree (equating to an area loss of 0.07 hectares), see Figure 2.

The native vegetation to be removed is not in an area mapped as an endangered Ecological Vegetation Class.

There is an understanding that no native vegetation has been approved for removal on the property within the last five years.

A photograph of the native vegetation proposed for removal is provided in Appendix 7.

6.5.3. *Modelled species important habitat*

The current proposal footprint will not have a significant impact on any habitat for any rare or threatened species as determined in Appendix 9.

6.5.4. *Assessment pathway*

The assessment pathway is determined by the location category and extent of native vegetation as detailed for the study area as follows:

- **Location Category:** Location 1 and Location 2

As the site occurs across two location categories, the highest location category (i.e., Location 2) is applied.

- **Extent of native vegetation:** A total of 0.07 hectares of native vegetation (including one large tree).

Based on the extent of native vegetation removal being <0.5 hectares, including at least one large tree, and being in Location 2, the Guidelines stipulate that the proposal is to be assessed under the **Intermediate** assessment pathway, as determined by the following matrix:

Table 3: Assessment pathway matrix

Extent of native vegetation	Location Category		
	Location 1	Location 2	Location 3
< 0.5 hectares and not including any large trees	Basic	Intermediate	Detailed
< 0.5 hectares and including one or more large trees	Intermediate	**Intermediate**	Detailed
≥ 0.5 hectares	Detailed	Detailed	Detailed

This proposal **would not** trigger a referral to DEECA based on the above criteria.

6.5.5. *Offset requirements*

No offsets required to compensate for the proposed removal of native vegetation from the study area.

Figure 2: Native vegetation to be removed

Project: 157 Keiwa Valley Hway
Client: Chris Smith and Associates
Date: 20/02/2023

Study area
Tree Protection Zone (TPZ)

Native vegetation

Large scattered tree
Tree to be removed

N

Metres
0 50

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6.6. EPBC Act

The EPBC Act protects a number of threatened species and ecological communities that are considered to be of national conservation significance. Any significant impacts on these species require the approval of the Australian Minister for the Environment.

Based on the relevant guidelines, the proposed development is unlikely to result in a significant impact on EPBC Act-listed values presented below.

Therefore, there are no implications under the EPBC Act.

6.7. FFG Act

The Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act) includes:

- a *Threatened List* (DELWP 2022f); and
- a *Protected Flora List* (DELWP 2019).

This Act generally only has implications for impacts to FFG-listed values where they occur on Public Land.

Threatened species

No FFG Act values listed as threatened are anticipated to be impacted from the proposed private development:

Although there are no legislative implications for impacts to these species on private land under the FFG Act, these values should be avoided wherever possible, in recognition of their threatened status at a state level.

Any application for a planning permit may also be assessed by the responsible or referral authority for potential impacts to FFG threatened values as part of broader considerations of impacts to biodiversity.

Protected Flora

No FFG Act values listed as protected are anticipated to be impacted from the proposed development on public land:

Therefore, a Protected Flora Permit under the FFG Act would not be required for the current proposal.

6.8. CaLP Act

The *Catchment and Land Protection Act 1994* (CaLP Act) requires that landowners (or a third party to whom responsibilities have been legally transferred) must eradicate regionally prohibited weeds and prevent the growth and spread of regionally controlled weeds.

Property owners who do not eradicate Regionally prohibited weeds or prevent the growth and spread of Regionally controlled weeds for which they are responsible, may be issued with a Land Management Notice or Directions Notice that requires specific control work to be undertaken.

In accordance with the *Catchment and Land Protection Act 1994*, the noxious weed species listed below, that were recorded in the study area, must be controlled.

- St Barnaby's Thistle;
- Spear Thistle;
- Sweet Briar;
- Caltrop; and
- Bathurst Burr.

Precision control methods that minimise off-target kills (e.g. spot spraying) should be used in environmentally sensitive areas (e.g. within or near native vegetation, waterways, etc.).

6.9. Design and Construction mitigation recommendations

The following design recommendations are provided to avoid/minimise impacts to native vegetation, and flora and fauna habitats:

Recommendations to mitigate impacts to vegetation during construction are provided below:

- Establish appropriate TPZs around scattered native trees to be retained prior to works.
- Ensure all construction personnel are appropriately briefed prior to works, and that no construction personnel, machinery or equipment are placed inside TPZs.
- A suitably qualified zoologist should undertake a pre-clearance survey of planted trees to be removed during the week prior to removal to identify the presence of any nests or hollows.
- If considered necessary based on the results of the pre-clearance survey, a suitably qualified zoologist should be on site during any tree removal works to capture and relocate any misplaced fauna that may be present.

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Appendix 1: Details of the assessment process in accordance with the Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017a)

Purpose and objective

Policies and strategies relating to the protection and management of native vegetation in Victoria are defined in the State Planning Policy Framework (SPPF). The objective of all Victorian Planning Schemes, as identified in Clause 12.01, is 'To ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation'.

This is to be achieved through the following three-step approach, as described in the Guidelines:

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

Note: While a planning permit may still be required, if native vegetation does not meet the definition of either a patch or a scattered tree, an offset under the Guidelines is not required.

Assessment pathways

The first step in determining the type of assessment required for any site in Victoria is to determine the assessment pathway for the proposed native vegetation removal. The three possible assessment pathways for applications to remove native vegetation in Victoria are the following:

- Basic;
- Intermediate; or
- Detailed.

This assessment pathway is determined by the following two factors:

- **Location Category**, as determined using the Location Map of Victoria. The location category indicates the potential risk to biodiversity from removing a small amount of native vegetation. The three location categories are defined as follows:
    - Location 1 – shown in light blue-green on the Location Map; occurring over most of Victoria.
    - Location 2 – shown in dark blue-green on the Location Map; includes areas mapped as endangered EVCs and/or sensitive wetlands and coastal areas.
    - Location 3 – shown in brown on the Location Map; includes areas where the removal of less than 0.5 hectares of native vegetation could have a significant impact on habitat for rare and threatened species.
- **Extent of native vegetation** – The extent of any patches and scattered trees proposed to be removed (and the extent of any past native vegetation removal), with consideration as to whether the proposed removal includes any large trees. Extent of native vegetation is determined as follows:
    - **Patch** – the area of the patch in hectares.
    - **Scattered Tree** – the extent of a scattered tree is dependent on whether the scattered tree is small or large. A tree is considered to be a large tree if the DBH is greater than or equal to the large tree benchmark DBH for the relevant bioregional EVC. Any scattered tree that is not a

large tree is a small scattered tree. The extent of large and small scattered trees is determined as follows:

- **Large scattered tree** – the area of a circle with a 15 metre radius, with the trunk of the tree at the centre.
- **Small scattered tree** – the area of a circle with a ten-metre radius, with the trunk of the tree at the centre.

The assessment pathway for assessing an application to remove native vegetation is subsequently determined as shown in the following matrix table:

Extent of native vegetation	Location Category		
	Location 1	Location 2	Location 3
< 0.5 hectares and not including any large trees	Basic	Intermediate	Detailed
< 0.5 hectares and including one or more large trees	Intermediate	Intermediate	Detailed
≥ 0.5 hectares	Detailed	Detailed	Detailed

Note: If the native vegetation to be removed includes scattered trees, the higher location category is used to determine the assessment pathway.

Landscape scale information – strategic biodiversity value

The strategic biodiversity value (SBV) is a measure of a location's importance to Victoria's biodiversity, relative to other locations across the state. This is represented as a score between 0 and 1, and determined from the SBV map, available from *NVIM* (DEECA 2023c).

Landscape scale information – habitat for rare or threatened species

Habitat importance for rare or threatened species is a measure of the importance of a location in the landscape as habitat for a particular rare or threatened species, in relation to other habitat available for that species. This is represented as a score between 0 and 1 and determined from the Habitat importance maps, administered by DELWP.

This includes two groups of habitat:

- **Highly localised habitats** – Limited in area and considered to be equally important, therefore having the same habitat importance score.
- **Dispersed habitats** – Less limited in area and based on habitat distribution models.

Habitat for rare or threatened species is used to determine the type of offset required in the detailed assessment pathway.

Biodiversity value

A combination of site-based and landscape scale information is used to calculate the biodiversity value of native vegetation to be removed. Biodiversity value is represented by a general or species habitat score, as determined below.

Firstly, the extent and condition of native vegetation to be removed are combined to determine the habitat hectares as follows:

Habitat hectares = extent of native vegetation × condition score

Secondly, the habitat hectare score is combined with a landscape factor to obtain an overall measure of biodiversity value. Two landscape factors exist as follows:

- **General landscape factor** – determined using an adjusted strategic biodiversity score and relevant when no habitat importance scores are applicable;
- **Species landscape factor** – determined using an adjusted habitat importance score for each rare or threatened species habitat mapped at a site in the Habitat importance map.

These factors are subsequently used as follows to determine the biodiversity value of a site:

General habitat score = habitat hectares × general landscape factor

Species habitat score = habitat hectares × species landscape factor

Offset requirements

A native vegetation offset is required for the approved removal of native vegetation. Offsets conform to one of two types and each type incorporates a multiplier to address the risk of offset:

- A **general offset** is required when the removal of native vegetation does not have a significant impact on any habitat for rare or threatened species (i.e. the proportional impact is below the species offset threshold). In this case a multiplier of 1.5 applies to determine the general offset amount.

General offset (amount of general habitat units) = general habitat score × 1.5

- A **species offset** is required when the removal of native vegetation has a significant impact on habitat for a rare or threatened species (i.e. the proportional impact is above the species offset threshold). In this case a multiplier of 2 applies to determine the species offset amount.

Species offset (amount of species habitat units) = Species habitat score × 2

Note: If native vegetation does not meet the definition of either a patch or scattered tree, an offset is not required.

Offset attributes

Offsets must meet the following attribute requirements, as relevant:

- General offsets
  - **Offset amount** – general offset = general habitat score × 1.5

- **Strategic biodiversity value (SBV)** – the offset has at least 80% of the SBV of the native vegetation removed
- **Vicinity** – the offset is in the same CMA boundary or municipal district as the native vegetation removed
- Habitat for rare and threatened species – N/A
- **Large trees** – the offset includes the protection of at least one large tree for every large tree to be removed

- Species offsets
  - **Offset amount** – species offset = species habitat score × 2
  - Strategic biodiversity value (SBV): N/A
  - Vicinity: N/A
  - **Habitat for rare and threatened species** – the offset comprises mapped habitat according to the Habitat importance map for the relevant species
  - **Large trees** – the offset includes the protection of at least one large tree for every large tree to be removed

Appendix 2: Large trees in patches and scattered trees recorded in the study area

Tree No.	Common Name	Scientific Name	DBH (cm)	Circumference (cm)	Habitat Category	Radius of TPZ (m)	Remove/Retain	Notes
1	Yellow Box	*Eucalyptus melliodora*	126	396	Large Scattered Tree	15		

Notes: DBH = Diameter at breast height (130 cm from the ground); **TPZ** = Tree Protection Zone.

Appendix 3: Flora species recorded in the study area

Origin	Common Name	Scientific Name	FFG-T	FFG-P	CaLP Act	WONS
*†	Cootamundra Wattle	*Acacia baileyana*				
†	Silver Wattle	*Acacia dealbata*				
*	Sheep Sorrel	*Acetosella vulgaris*				
	Lesser Joyweed	*Alternanthera denticulata*				
*	Green Amaranth	*Amaranthus viridis*				
*	Bearded Oat	*Avena barbata*				
*	Prairie Grass	*Bromus catharticus*				
*	Soft Brome	*Bromus hordeaceus*				
#†	Crimson Bottlebrush	*Callistemon citrinus*				
†	River Bottlebrush	*Callistemon sieberi*				
*	St Barnaby's Thistle	*Centaurea solstitialis*			P	
*	Spear Thistle	*Cirsium vulgare*			C	
#†	Spotted Gum	*Corymbia maculata*				
*	Paddy Melon	*Cucumis myriocarpus subsp. myriocarpus*				
*	Couch	*Cynodon dactylon var. dactylon*				
*	Drain Flat-sedge	*Cyperus Eragrostis*				
*	Common Thorn Apple	*Datura stramonium*				
	Clammy Goosefoot	*Dysphania pumilio*				
*	Barnyard Grass	*Echinochloa crus-galli*				
†	River Red Gum	*Eucalyptus camaldulensis*				
†	Red Stringybark	*Eucalyptus macrorhyncha*				
	Yellow Box	Eucalyptus melliodora				

†	Red Box	*Eucalyptus polyanthemos*				
†	Narrow-leaf Peppermint	*Eucalyptus radiata*				
†	Eucalyptus	*Eucalyptus spp.*				
†	Manna Gum	*Eucalyptus viminalis*				
*	Common Heliotrope	*Heliotropium europaeum*				
*	Mediterranean Barley-grass	*Hordeum hystrix*				
*	Smooth Cat's-ear	*Hypochaeris glabra*				
*	Flatweed	*Hypochaeris radicata*				
	Gold Rush	*Juncus flavidus*				
	Small Loosestrife	*Lythrum hyssopifolia*				
*	Small-flower Mallow	*Malva parviflora*				
†	Paperbark	*Melaleuca spp.*				
* †	Prickly-leaved Paperbark	*Melaleuca styphelioides*				
	Wood Sorrel	*Oxalis spp.*				
*	Paspalum	*Paspalum dilatatum*				
#	Water Pepper	*Persicaria hydropiper*				
*	Toowoomba Canary-grass	*Phalaris aquatica*				
*	Red-ink Weed	*Phytolacca octandra*				
*	Prostrate Knotweed	*Polygonum aviculare s.l.*				
#	Common Purslane	*Portulaca oleracea*				
*	Cherry Plum	*Prunus cerasifera*				
*	Sweet Briar	*Rosa rubiginosa*			C	
*	Blackberry	*Rubus fruticosus spp. agg.*				
	Slender Dock	*Rumex brownii*				

*	Curled Dock	*Rumex crispus*				
	Slender Wallaby-grass	*Rytidosperma racemosum.*				
*	Slender Pigeon Grass	*Setaria parviflora*				
*	Black Nightshade	*Solanum nigrum s.s.*				
*	Caltrop	*Tribulus terrestris*			P	
*	Subterranean Clover	*Trifolium subterraneum*				
*	Bathurst Burr	*Xanthium spinosum*			C	

Notes: EPBC = Threatened species status under the EPBC Act; **FFG-T** = Threatened species status under the FFG Act; **FFG-P =** Listed as protected (P) under the FFG Act; **CaLP Act**: Declared noxious weeds under the CaLP Act (S = State Prohibited Weeds – any infestations must be reported to DELWP that is responsible for control of these; P = Regionally Prohibited Weeds – landowners must eradicate these; C = Regionally Controlled Weeds – landowners must prevent the growth and spread of these; R = Restricted Weeds – trade in these weeds and propagules, either as plants, seeds or contaminants in other materials is prohibited).

* = introduced to Victoria

= Victorian native taxa occurring outside the natural range

† = planted

Appendix 4: Fauna species recorded in the study area

Origin	Common name	Scientific name	EPBC-T	EPBC-M	FFG-T
	Brown Goshawk	*Accipiter fasciatus*			
*	Common Myna	*Acridotheres tristis*			
	Australian Pipit	*Anthus australis*			
	Australian Raven	*Corvus coronoides*			
	Mistletoebird	*Dicaeum hirundinaceum*			
	White-faced Heron	*Egretta novaehollandiae*			
	Galah	*Eolophus roseicapilla*			
	Magpie-lark	*Grallina cyanoleuca*			
	Australian Magpie	*Gymnorhina tibicen*			
	Welcome Swallow	*Hirundo neoxena*			
	Superb Fairywren	*Malurus cyaneus*			
*	European Rabbit	*Oryctolagus cuniculus*			
	Spotted Pardalote	*Pardalotus punctatus*			
	Fairy Martin	*Petrochelidon ariel*			
	Little Friarbird	*Philemon citreogularis*			
	Noisy Friarbird	*Philemon corniculatus*			
	White-plumed Honeyeater	*Ptilotula penicillata*			
	Willie Wagtail	*Rhipidura leucophrys*			
	Weebill	*Smicrornis brevirostris*			
*	Common Starling	*Sturnus vulgaris*			
	Red Wattlebird	*Trichoglossus molucannus*			
	Silvereye	*Zosterops lateralis*			

Notes: EPBC-T = Threatened species status under EPBC Act; **EPBC-M**: Migratory status under the EPBC Act (M = listed migratory taxa; Bonn Convention (A2H) – Convention on the Conservation of Migratory Species of Wild Animals – listed as a member of a family; Bonn Convention (A2S) – Convention on the Conservation of Migratory Species of Wild Animals – species listed explicitly; CAMBA – China-Australia Migratory Birds Agreement; JAMBA – Japan-Australia Migratory Birds Agreement; ROKAMBA – Republic of Korea Australia Migratory Birds Agreement); **FFG:** = Threatened species status under the FFG Act.

* = introduced to Victoria

Appendix 5: Likelihood of occurrence of listed flora

Common name	Scientific name	Conservation status		Habitat	Number of records	Date of last record	Likelihood of occurrence
		EPBC	FFG				
Deane's Wattle	*Acacia deanei subsp. deanei*		Endangered	Common in dry forest in north-central Victoria and in the Suggan Buggan area of East Gippsland, often on stony slopes and rocky outcrops (Entwisle et al. 1996). Only known from small population in Chiltern area.	1	1/11/1998	Study area within natural distribution. However, no habitat present in study area and no specimens were recorded in the detailed field assessment. Most recent record is over 20 years old. **Unlikely to occur.**
Western Silver Wattle	*Acacia decora*		Endangered	NSW and QLD. Victoria, known only from around Dookie and Thoona (west of Wangaratta) and near Wodonga; confined to railway and roadside remnants of open woodland (VicFlora 2022).	4	9/5/1995	Study area within natural distribution. However, no habitat present in study area and no specimens were recorded in the detailed field assessment. Most recent record is over 20 years old. **Unlikely to occur.**
River Swamp Wallaby-grass	*Amphibromus fluitans*	Vulnerable		River Swamp Wallaby-grass grows mostly in permanent swamps and also lagoons, billabongs, dams and roadside ditches. The species requires moderately fertile soils with some bare ground; conditions that are caused by seasonally-fluctuating water levels (DAWE 2020).	N/A	N/A	Study area within natural distribution and contains habitat. No specimens recorded in the detailed field assessment. **Unlikely to occur.**
Crimson Spider-orchid	*Caladenia concolor*	Vulnerable	Endangered	Known from a variety of woodland and open forest habitats, usually within Box-Ironbark ecosystems, and often among low heathy shrubs. Soils are generally sand and clay loams that are often gravelly or stony and always well drained. It does not occur in the Basalt Land systems (DAWE 2020).	N/A	N/A	Study area within natural distribution. However, no habitat present in study area. **Unlikely to occur.**
Button Rush	*Cyperus leptocarpus*		Endangered	Occurs in open damp places such as sandy stream-banks and drying lake margins; widespread but scattered and uncommon (VicFlora 2023).	1	18/2/2004	Study area within natural distribution and contains habitat. No specimens recorded in the detailed field assessment. Most recent record is over 15 years old. **Unlikely to occur.**
Broom Bitter-pea	*Daviesia genistifolia* s.s.		Endangered	Occurs in dry sclerophyll forests (VicFlora 2023).	1	18/2/2004	Study area within natural distribution. However, no habitat present in study area and no specimens were recorded in the detailed field assessment. Most recent record is over 15 years old. **Unlikely to occur.**
Wedge Diuris	*Diuris dendrobioides*		Critically Endangered	Extremely rare in Victoria where known only from native grasslands in the vicinity of Wodonga (VicFlora 2023).	22	1/9/2010	Study area within natural distribution. However, no habitat present in study area. **Unlikely to occur.**

Common name	Scientific name	Conservation status		Habitat	Number of records	Date of last record	Likelihood of occurrence
		EPBC	FFG				
Purple Diuris	*Diuris punctata var. punctata*		Endangered	Principally in lowland native grasslands, grassy woodlands, heathy woodlands and open heathlands, usually on fertile, loamy soils and including periodically inundated areas (Earl & Barlow 2004).	19	12/5/2005	Study area within natural distribution. However, no habitat present in study area. Most recent record is over 15 years old. **Unlikely to occur.**
Common Pipewort	*Eriocaulon scariosum*		Endangered	Occurs in bog communities and drainage areas, often in running water (Conn 1994).	1	18/2/2004	Study area within natural distribution and contains habitat. No specimens recorded in the detailed field assessment. Most recent record is over 15 years old. **Unlikely to occur.**
Dwarf Brooklime	*Gratiola pumilo*		Endangered	Seasonally inundated, alluvial soils, usually in river flats (VBD 2012)	1	20/1/1988	Study area within natural distribution and contains habitat. No specimens recorded in the detailed field assessment. Most recent record is over 35 years old. **Unlikely to occur.**
Tick Indigo	*Indigofera adesmiifolia*		Endangered	Rare and confined to drier hill country in the north-east of Victoria (VicFlora 2023). Grows in seasonally inundated, damp ground (PlantNET 2023).	2	13/9/2000	Study area within natural distribution and contains habitat. No specimens recorded in the detailed field assessment. Most recent record is over 20 years old. **Unlikely to occur.**
Water Nymph	*Najas tenuifolia*		Endangered	In still or slowly moving fresh or occasionally brackish water of billabongs and tributaries of the Murray River (VicFlora 2023).	1	26/5/1988	Study area within natural distribution However, no habitat present in study area. No specimens recorded in the detailed field assessment. Most recent record is over 35 years old. **Unlikely to occur.**
Small-leaf Bush-pea	*Pultenaea foliolosa*		Endangered	Open dry forests (Corrick 1996).	5	14/2/2014	Study area within natural distribution. However, no habitat present in study area and no specimens were recorded in the detailed field assessment. **Unlikely to occur.**

Common name	Scientific name	Conservation status		Habitat	Number of records	Date of last record	Likelihood of occurrence
		EPBC	FFG				
Mountain Swainson-pea	*Swainsona recta*	Endangered	Critically Endangered	Occurs in native grasslands and sparse woodland. Woodland habitats are often dominated by Eucalyptus blakelyi (Blakely's Red Gum), E. melliodora (Yellow Box), E. goniocalyx (Apple Box), E. polyanthemos (Red Box), E. albens (White Box), Angophora floribunda (Rough-barked Apple) or Callitris endlicheri (Black Cypress-pine) and have a grassy understorey. Grassland habitats are generally dominated by Themeda triandra, Poa spp. Stipa spp, Bulbine bulbosa and other native grassland species. The species may occasionally occur in open-heath or shrubland habitat containing Heathy Bush-pea (Pultenaea procumbens), Urn Heath (Melichrus urceolatus), Hoary Guinea-flower (Hibbertia obtusifolia), Pretty Pearlflower (Cryptandra amara), Daphne Heath (Brachyloma daphnoides), Leucopogon sp. and Many-flowered Matrush (Lomandra multiflora), among others (DAWE 2020).	N/A	N/A	Study area within natural distribution. However, no habitat present in study area and no specimens were recorded in the detailed field assessment. **Unlikely to occur.**
Silky Swainson-pea	*Swainsona sericea*		Endangered	Rare in Victoria, of disjunct occurrence in north of state where usually found in grassland and grassy woodland (Jeanes 1996).	2	22/9/2007	Study area within natural distribution. However, no habitat present in study area and no specimens were recorded in the detailed field assessment. **Unlikely to occur.**

Notes: EPBC = threatened species status under EPBC Act; **FFG** = threatened species status under the FFG Act.

Appendix 6: Likelihood of occurrence of listed fauna

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Birds								
Australasian Bittern	*Botaurus poiciloptilus*	Endangered		Critically Endangered	Terrestrial wetlands, including a range of wetland types but prefers permanent water bodies with tall dense vegetation, particularly those dominated by sedges, rush, reeds or cutting grass (Marchant & Higgins 1990).	1	1/08/1992	No suitable habitat in the study area or immediate surroundings, and the paucity of historical records in the vicinity of the study area suggests this species is **Unlikely to occur**.
Australasian Shoveler	*Spatula rhynchotis*			Vulnerable	Large and deep permanent bodies of water and aquatic flora abundant. Also occurs on billabongs, watercourses and flood waters on alluvial plains, freshwater meadows, shallow swamps, reed swamps, wooded lakes, sewage farms and farm dams (Marchant & Higgins 1990).	1	22/09/1999	Farm dams in the vicinity of the study area, are suitable habitat, however there is no suitable habitat in the study area, further the paucity of historical records in the vicinity of the study area suggests this species is **Unlikely to occur**.
Australian Painted-snipe	*Rostratula australis*	Endangered		Critically Endangered	Generally inhabits shallow terrestrial freshwater wetlands, including temporary and permanent lakes, swamps and claypans. They also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains. Typical sites include those with rank emergent tussocks of grass, sedges, rushes or reeds, or samphire; often with scattered clumps of Lignum, muehlenbeckia or canegrass or sometimes tea-tree (Melaleuca). Sometimes utilises areas that are lined with trees, or that have some scattered fallen or washed up timber (DAWE 2020).	N/A	N/A	Farm dams in the vicinity of the study area, are suitable habitat, however there is no suitable habitat in the study area, and the absence of recent records in the vicinity of the study area suggests this species is **Unlikely to occur**.
Barking Owl	*Ninox connivens*			Critically Endangered	Eucalyptus dominated forests and woodlands, commonly near waterbodies, such as streams and rivers, and requires hollow trees for nesting and trees with dense foliage for roosting (Higgins 1999).	1	10/12/2000	The windbreak of large planted native trees along the northern boundary of the study area could provide suitable roosting habitat for this species, however no recent records from the are suggests this species is **Unlikely to occur.**
Bush Stone-curlew	*Burhinus grallarius*			Critically Endangered	Open woodlands with Grey Box, Yellow Box and/or River Red Gum, with a grassy understorey. The species is mainly found in northern and western Victoria; the bird has declined since European settlement, especially in the south of the state (Robinson & Johnson 1997).	1	2/04/1984	No suitable habitat in the study area or immediate surroundings, and only a single recent record in the vicinity of the study area suggests this species is **Unlikely to occur**.
Common Greenshank	*Tringa nebularia*		M (Bonn A2H, CAMBA, JAMBA, ROKAMBA)	Endangered	Inhabits wide range of coastal or inland wetlands with varying levels of salinity; mainly muddy margins or rocky shores of wetlands (Higgins & Davies 1996).	N/A	N/A	Farm dams in the vicinity of the study area, are suitable habitat, however there is no suitable habitat in the study area, and the absence of recent records in the vicinity of the study area suggests this species is **Unlikely to occur**.

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Common Sandpiper	*Actitis hypoleucos*		M (Bonn A2H, CAMBA, JAMBA, ROKAMBA)	Vulnerable	Inhabits a wide range of coastal or inland wetlands with varying levels of salinity; mainly muddy margins or rocky shores of wetlands. In Victoria, mostly found Westernport and Port Phillip Bay (Higgins & Davies 1996).	N/A	N/A	Farm dams in the vicinity of the study area, are suitable habitat, however there is no suitable habitat in the study area, and the absence of recent records in the vicinity of the study area suggests this species is **Unlikely to occur**.
Curlew Sandpiper	*Calidris ferruginea*	Critically Endangered	M (Bonn A2H, CAMBA, JAMBA, ROKAMBA)	Critically Endangered	Inhabits wide range of coastal or inland wetlands with varying levels of salinity; mainly muddy margins or rocky shores of wetlands (Higgins & Davies 1996).	N/A	N/A	Farm dams in the vicinity of the study area, are suitable habitat, however there is no suitable habitat in the study area, and the absence of recent records in the vicinity of the study area suggests this species is **Unlikely to occur**.
Diamond Firetail	*Stagonopleura guttata*			Vulnerable	Commonly found in box-ironbark forests and woodlands and also occurs along watercourses and in farmland areas. Widespread but scattered. Forages on a wide range of seeds, which in some cases a large portion can be derived from weed species (Read 1994). Populations had declined in Victoria since the 1950s (Emison et al. 1987; Tzaros 2005).	6	19/07/2018	Suitable habitat in the study area and immediate surroundings and recent records in the vicinity of the study area suggests this species is **Likely to occur.**
Eastern Curlew	*Numenius madagascariensis*	Critically Endangered	M (Bonn A1, CAMBA, JAMBA, ROKAMBA)	Critically Endangered	Inhabits sheltered coasts, especially estuaries, embayment, harbours, inlets and coastal lagoons with large intertidal mudflats or sandflats, often with beds of sea grass (Higgins & Davies 1996).	N/A	N/A	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area suggests this species is **Unlikely to occur**.
Eastern Great Egret	*Ardea alba modesta*			Vulnerable	Widespread in Australian wetlands, both freshwater and tidal, provided there is open shallow water in which they can wade, also use flooded grasslands (Menkhorst et al 2017).	1	4/11/2018	Farm dams in the vicinity of the study area are suitable habitat, however there is no suitable habitat in the study area, and the absence of recent records in the vicinity of the study area suggests this species is **Unlikely to occur**.
Gang-gang Cockatoo	*Callocephalon fimbriatum*	Endangered			In summer generally in tall mountain forests and woodlands, particularly in heavily timbered, mature wet sclerophyll forests and woodlands. Prefer Eucalyptus dominated assemblages. Also occurs in subalpine snow gum woodlands and occasionally in temperate rainforests and regenerating forests. In winter occur at lower altitudes in drier, more open Eucalyptus woodland (Higgins 1999).	111	22/08/2021	Suitable habitat in the study area and immediate surroundings and recent records in the vicinity of the study area suggests this species is **Likely to occur.**
Grey Falcon	*Falco hypoleucos*	Vulnerable		Vulnerable	Inhabits arid and semi-arid zones; mainly on sandy and stony plains of inland drainage systems, lightly timbered with acacia. Hunt far into open areas, over spinifex, tussock grasslands and low shrublands. In Victoria, few records mostly in north and north-western regions (Marchant & Higgins 1993).	N/A	N/A	No suitable habitat in the study area or immediate surroundings, and the absence of historical records in the vicinity of the study area. **Unlikely to occur**.

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Grey Goshawk	*Accipiter novaehollandiae*			Endangered	Inhabit rainforests, open forests, swamp forests, woodlands and plantations; most abundant where forest or woodland provide cover for hunting from perches. in Vic., most common in Otway ranges (Marchant & Higgins 1993).	1	21/01/2021	Suitable habitat in the study area and immediate surroundings and one recent record in the vicinity of the study area. **Unlikely to occur.**
Latham's Snipe	*Gallinago hardwickii*		M (Bonn A2H, JAMBA, ROKAMBA)		Occurs in wide variety of permanent and ephemeral wetlands; it prefers open freshwater wetlands with dense cover nearby, such as the edges of rivers and creeks, bogs, swamps, waterholes. The species is widespread in southeast Australia and most of its population occurs in Victoria, except in the northwest of the state (Naarding 1983; Higgins & Davies 1996).	3	17/12/2020	Farm dams in the vicinity of the study area are suitable habitat, however there is no suitable habitat in the study area. **Unlikely to occur**.
Little Eagle	*Hieraaetus morphnoides*			Vulnerable	Over wooded and forested lands and open country of Aust. Range extending into arid zone. Most abundant in open forest and woodland (Marchant & Higgins 1993).	54	19/07/2018	Suitable habitat in the study area and immediate surroundings and recent records in the vicinity of the study area. **Likely to occur.**
Little Egret	*Egretta garzetta*			Endangered	It occurs in a range of coastal and terrestrial wetlands, including freshwater wetlands with vegetation such as bulrush and requires trees for roosting and nesting (Marchant & Higgins 1990).	1	1/09/1990	Farm dams in the vicinity of the study area are suitable habitat, however there is no suitable habitat in the study area, and the paucity of recent records in the vicinity of the study area. **Unlikely to occur**.
Painted Honeyeater	*Grantiella picta*	Vulnerable		Vulnerable	Inhabits box-ironbark forests and woodlands and mainly feeds on the fruits of mistletoe. Strongly associated with mistletoe around the margins of open forests and woodlands. Can also be found in farmland containing remnant treed vegetation. Occurs at few localities. Uncommon breeding migrant from further north, arriving in October and leaving in February (Higgins et al. 2001; Tzaros 2005).	N/A	N/A	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.
Pectoral Sandpiper	*Calidris melanotos*		M (Bonn A2H, JAMBA, ROKAMBA)		Inhabit shallow fresh to saline wetlands, usually coastal to near-coastal, but occasionally farther inland. Wetlands often have open fringing mudflats and low emergent or fringing vegetation (Higgins & Davies 1996).	N/A	N/A	Farm dams in the vicinity of the study area are suitable habitat, however there is no suitable habitat in the study area, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.
Plains-wanderer	*Pedionomus torquatus*	Critically Endangered		Critically Endangered	This species is highly sensitive to changes in grassland cover and density. Typically inhabits treeless native grasslands with sparse cover, with a preference for grasslands composed of wallaby grass and spear grass (Marchant & Higgins 1993). Habitat becomes unsuitable when grassland becomes dense (CA 2016). Evidence suggests it avoids areas of tree cover, with no records of the species within 300m of trees (>10m high) in their strongholds in New South Wales or Victoria (CA 2016).	N/A	N/A	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Plumed Egret	*Ardea intermedia plumifera*			Critically Endangered	It mainly inhabits terrestrial wetlands; only occasionally visit coastal wetlands and forages amongst aquatic vegetation in shallow water and requires trees for roosting and nesting. It often occurs in wetlands that contain vegetation, including bulrush (Marchant & Higgins 1990).	7	17/12/2020	Farm dams in the vicinity of the study area are suitable habitat, however there is no suitable habitat in the study area, recent records in the vicinity of the study area. **Potential to occur**.
Regent Honeyeater	*Anthochaera phrygia*	Critically Endangered		Critically Endangered	Inhabits dry box-ironbark eucalypt forests near rivers and creeks on inland slopes of the Great Dividing Range. Can also occur in small remnant patches or in mature trees in farmland or partly cleared agricultural land (Higgins et al. 2001).	N/A	N/A	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.
Rufous Fantail	*Rhipidura rufifrons*		M (Bonn A2H)		In east and south-east Australia, mainly inhabits tall wet sclerophyll forests, often in gullies. When on passage in warmer months, they are sometimes recorded in drier sclerophyll forests and woodlands, as well as parks and gardens (Higgins et al. 2006). Virtually absent from south-eastern Australia during winter (Higgins et al. 2006).	2	13/12/2019	The windbreak of large planted native trees along the northern boundary of the study area could provide suitable foraging habitat for this species while it passes through the area during migration, however only two records from the area. **Unlikely to occur.**
Satin Flycatcher	*Myiagra cyanoleuca*		M (Bonn A2H)		Mostly found in eucalypt forest, particularly tall wet forests and woodland within gullies (Higgins et al. 2006). Also inhabits eucalypt woodland comprising an open understorey and a grassy ground layer (Higgins et al. 2006). Generally, absent from rainforest (Higgins et al. 2006).	N/A	N/A	The windbreak of large planted native trees along the northern boundary of the study area could provide suitable foraging habitat for this species while it passes through the area during migration, however no recent records from the area. **Unlikely to occur.**
Sharp-tailed Sandpiper	*Calidris acuminata*		M (Bonn A2H, CAMBA, JAMBA, ROKAMBA)		Inhabit shallow fresh to saline wetlands, usually coastal to near-coastal, but occasionally farther inland. Wetlands often have open fringing mudflats and low emergent or fringing vegetation (Higgins & Davies 1996).	N/A	N/A	Farm dams in the vicinity of the study area are suitable habitat, however there is no suitable habitat in the study area, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.
Speckled Warbler	*Pyrrholaemus sagittatus*			Endangered	Inhabits dry eucalypt forests and woodlands, especially those with box-ironbark eucalypt associations. It is also found in River Red Gum woodlands. The species is uncommon; populations have declined since the 1980s (Higgins & Peter 2002; Tzaros 2005).	44	29/03/2020	No suitable habitat in the study area or immediate surroundings. **Unlikely to occur**.
Superb Parrot	*Polytelis swainsonii*	Vulnerable		Endangered	Occurs in eucalypt dominated forests and woodlands, namely comprised of River Red-gum, Yellow Box and Grey Box, with seasonal occurrences in box-pine and Boree woodland (Baker-Gabb 2011). The species range extends along major riverine systems and the inland slopes of the Great Divide, stretching from central Victoria to north of Tamworth in NSW. Breeds in hollow branch or trunk of tall eucalypts within 9 km of feeding areas. Mostly feeds in box woodlands and wooded farmlands; less often in riparian forests (Higgins 1999).	N/A	N/A	No suitable habitat in the study area or immediate surroundings and the absence of recent records. **Unlikely to occur**.

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Swift Parrot	*Lathamus discolor*	Critically Endangered		Critically Endangered	Prefers a select range of eucalypts in Victoria, including Yellow Gum, Grey Box, White Box, Red Ironbark and Yellow Box, as well as River Red-gum when this species supports abundant 'lerp' (Saunders & Tzaros 2011). The species is also known to forage within planted stands of Spotted Gum and Sugar Gum (Nature Advisory; unpublished data). Breeds in Tasmania and migrates to the mainland of Australia for the autumn, winter and early spring months. It lives mostly north of the Great Dividing Range, passing through two areas of Victoria on migration: the Port Phillip district and Gippsland (Emison et al. 1987; Higgins 1999; Kennedy & Tzaros 2005). Though it is also not uncommonly sighted in urban areas (Nature Advisory; unpublished data). Occurrence of this species on the mainland can substantially change from year to year depending on food availability, giving potential for this species to occur almost anywhere throughout its range (Emison et al. 1987).	1	30/08/2005	The windbreak of large planted native trees along the northern boundary of the study area could provide suitable foraging habitat for this species while it passes through the area during migration. **Unlikely to occur.**
Turquoise Parrot	*Neophema pulchella*			Vulnerable	Occur in eucalypt woodlands and open forests, with ground cover of grasses and sometimes low understorey of shrubs; usually in native grassy forests and woodlands composed of mixed assemblages of native pine and variety of eucalypts. Also occur in savannah woodlands and riparian woodlands. In Vic. Recorded in East Gippsland and northern and northeastern districts (Higgins 1999).	2	14/07/1981	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.
Yellow Wagtail	*Motacilla flava*		M (CAMBA, JAMBA, ROKAMBA)			N/A	N/A	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.
Mammals								
Brush-tailed Phascogale	*Phascogale tapoatafa*			Vulnerable	Dry forest and woodland in association with box, ironbark and stringybark eucalypts (Menkhorst 1995). Closely associated with remnant vegetation, this species occupies large home ranges of woodland habitat (M=100Ha; F=20-70Ha) (Menkhorst 1995).	8	16/07/2003	No suitable habitat in the study area or immediate surroundings. **Unlikely to occur**.
Grey-headed Flying-fox	*Pteropus poliocephalus*	Vulnerable		Vulnerable	Brisbane, Newcastle, Sydney and Melbourne are occupied continuously. Elsewhere, during spring, they are uncommon south of Nowra and widespread in other areas of their range. Roosts in aggregations of various sizes on exposed branches. Roost sites are typically located near water, such as lakes, rivers or the coast. Roost vegetation includes rainforest patches, stands of Melaleuca, mangroves and riparian vegetation, but colonies also use highly modified vegetation in urban and suburban areas (DAWE 2020).	1	1/01/2012	A wide-ranging species, the windbreak of large planted native trees along the northern boundary of the study area could provide suitable periodic foraging habitat for this species when in flower, however just one recent record from the area. **Unlikely to occur.**

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Spot-tailed Quoll	*Dasyurus maculatus maculatus*	Endangered		Endangered	Rainforest, wet and dry forest, coastal heath and scrub and River Red-gum woodlands along inland rivers (Menkhorst 1995).	N/A	N/A	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.
Squirrel Glider	*Petaurus norfolcensis*			Vulnerable	Dry forest and woodland and nearby riverine corridors (Menkhorst 1995).	18	28/05/2020	The windbreak of large planted native trees along the northern boundary of the study area could provide foraging habitat for this species however the connectivity of this area to more suitable habitat is limited. **Unlikely to occur**.
Reptiles								
Lace Monitor	*Varanus varius*			Endangered	Well-timbered areas from dry woodland to wet southern forests and rainforest (Wilson & Swan 2003).	2	13/01/2019	No suitable habitat in the study area or immediate surroundings. **Unlikely to occur**.
Pink-tailed Worm-Lizard	*Aprasia parapulchella*	Vulnerable		Endangered	Sites where the species is found generally include rocky outcrops or scattered partly buried rocks. This species is diurnal and largely fossorial, sheltering under rocks and vegetation, and in the burrow passages of small ants and termites within grassland and woodland habitats of south-eastern Australia (Robertson & Coventry 2019). It feeds primarily on the larvae and eggs of ants. In Victoria, the species is largely restricted to box-ironbark woodland in the Greater Bendigo region, though it may also persist elsewhere in the state (Robertson & Coventry 2019).	N/A	N/A	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.
Striped Legless Lizard	*Delma impar*	Vulnerable		Endangered	Grassland specialist. Known to occur in some areas dominated by introduced species such as Harding Grass Phalaris aquatica, Serrated Tussock Nasella trichotoma and Flatweed Hypocharis radicata and at sites with a history of grazing and pasture improvement. shelter in grass tussocks, thick ground cover, soil cracks, under rocks, spider burrows, and underground debris such as timber. The majority of sites in Victoria and NSW occur on cracking clay soils with some surface rock which provide shelter for the species (DAWE 2020).	N/A	N/A	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.
Fish								
Flat-headed Galaxias	*Galaxias rostratus*	Critically Endangered		Vulnerable	Still or gently flowing water on the margins of lakes, billabongs and streams. Usually swims in midwater over rock or sand bottoms, also in the vicinity of aquatic plants such as ribbon weed (Allen et al. 2002).	N/A	N/A	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.
Macquarie Perch	*Macquaria australasica*	Endangered		Endangered	Cool, clear water of rivers and lakes. Favours slower moving water (Allen et al. 2002).	N/A	N/A	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Murray Cod	*Maccullochella peelii*	Vulnerable		Endangered	Slow flowing turbid water of rivers and streams of low elevation; also fast flowing clear upland streams (Allen et al. 2002).	5	3/03/2016	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.
Murray Hardyhead	*Craterocephalus fluviatilis*	Endangered		Critically Endangered	Endemic to the lowland reaches of the Murray and Murrumbidgee rivers and their tributaries, floodplain billabongs and lakes (Hammer et al. 2002). Now restricted to a small number of saline deflation basin lakes in Victoria and South Australia in the middle and lower reaches of the Murray River, and in the Lower Lakes (Hammer et al. 2007).	N/A	N/A	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.
Southern Pygmy Perch	*Nannoperca australis (Murray-Darling lineage)*			Vulnerable	Upper Marray River to Avoca River. Vegetated margins of streams, billabongs, drains, dams and swamps in still or gently flowing water (Allen et al. 2002).	5	6/02/2012	Farm dams in the vicinity of the study area are suitable habitat, however there is no suitable habitat in the study area, and the paucity of recent records in the vicinity of the study area. **Unlikely to occur**.
Trout Cod	*Maccullochella macquariensis*	Endangered		Endangered	Rapidly flowing streams over rocky or gravel bottoms (Allen et al. 2002).	1	7/03/2006	No suitable habitat in the study area or immediate surroundings, and only one recent record in the vicinity of the study area. **Unlikely to occur**.
Frogs								
Growling Grass Frog	*Litoria raniformis*	Vulnerable		Vulnerable	Permanent, still or slow flowing water with fringing and emergent vegetation in streams, swamps, lagoons and artificial wetlands such as farm dams and abandoned quarries (Clemann & Gillespie 2004).	N/A	N/A	No suitable habitat in the study area or immediate surroundings, and the absence of recent records in the vicinity of the study area. **Unlikely to occur**.
Sloane's Froglet	*Crinia sloanei*	Endangered		Endangered	Temporary and permanent waterbodies, preferring wetlands containing riparian and aquatic vegetation (especially grasses and reeds of medium height with small stem diameters, e.g. couch, watercouch, or Common Spikerush). Gilgai and other depressions favoured on clay plains. Elsewhere, generally restricted to temporary ponds in river valleys up to 8 km from large rivers. Uses roadside drains, table drains, irrigation channels and inundated grasslands to disperse across landscape. Rural residential areas appear to be the remaining strongholds for the species, although the reason is unknown (Department of Climate Change, Energy, the Environment and Water 2019).	3	7/09/2020	Farm dams in the vicinity of the study area are suitable habitat, however there is no suitable habitat in the study area, and the paucity of recent records in the vicinity of the study area. **Unlikely to occur**.

Notes: EPBC-T = threatened species status under EPBC Act; **EPBC-M =** migratory status under the EPBC Act (M = listed migratory taxa; Bonn Convention (A2H) - Convention on the Conservation of Migratory Species of Wild Animals – listed as a member of a family; Bonn Convention (A2S) - Convention on the Conservation of Migratory Species of Wild Animals - species listed explicitly; CAMBA - China- Australia Migratory Birds Agreement; JAMBA - Japan-Australia Migratory Birds Agreement; ROKAMBA - Republic of Korea Australia Migratory Birds Agreement); **FFG** = threatened species status under the FFG Act.

Appendix 7: Photograph of native vegetation proposed for removal

The photograph was taken on 15 February 2023

Photo 5: Large Scattered Tree

Appendix 8: EVC benchmarks

Plains Grassy Woodland (EVC 55_61) – Victorian Riverina

Department of Sustainability and Environment

EVC/Bioregion Benchmark for Vegetation Quality Assessment

Victorian Riverina bioregion

EVC 55_61: Plains Grassy Woodland

Description:
An open, eucalypt woodland to 15 m tall. Occupies well drained, fertile soils on flat or gently undulating plains at low elevations in areas with >600 mm annual rainfall. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer characterised by summer-growing grasses.

Large trees:

Species	DBH(cm)	#/ha
Eucalyptus spp.	80 cm	10 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
10%	*Eucalyptus camaldulensis*	River Red Gum
	Eucalyptus melliodora	Yellow Box

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	1	5%	T
Medium Shrub	3	10%	MS
Small Shrub	2	1%	SS
Prostrate Shrub	1	1%	PS
Large Herb	3	5%	LH
Medium Herb	8	15%	MH
Small or Prostrate Herb	3	5%	SH
Large Tufted Graminoid	2	5%	LTG
Medium to Small Tufted Graminoid	12	45%	MTG
Medium to Tiny Non-tufted Graminoid	2	5%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C

LF Code	Species typical of at least part of EVC range	Common Name
MS	*Acacia pycnantha*	Golden Wattle
MS	*Acacia paradoxa*	Hedge Wattle
MS	*Acacia acinacea* s.l.	Gold-dust Wattle
MS	*Bursaria spinosa*	Sweet Bursaria
SS	*Pimelea humilis*	Common Rice-flower
PS	*Astroloma humifusum*	Cranberry Heath
PS	*Bossiaea prostrata*	Creeping Bossiaea
MH	*Oxalis perennans*	Grassland Wood-sorrel
MH	*Chrysocephalum apiculatum* s.l.	Common Everlasting
MH	*Acaena echinata*	Sheep's Burr
MH	*Eryngium ovinum*	Blue Devil
SH	*Dichondra repens*	Kidney-weed
LTG	*Austrostipa* spp.	Spear-grass
MTG	*Themeda triandra*	Kangaroo Grass
MTG	*Elymus scaber* var. *scaber*	Common Wheat-grass
MTG	*Austrodanthonia setacea*	Bristly Wallaby-grass
MTG	*Austrodanthonia racemosa* var. *racemosa*	Stiped Wallaby-grass
MNG	*Microlaena stipoides* var. *stipoides*	Weeping Grass

Victoria The Place To Be

Recruitment:
Continuous

Organic Litter:
10 % cover

Logs:
10 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MS	*Lycium ferocissimum*	African Box-thorn	high	high
LH	*Cirsium vulgare*	Spear Thistle	high	high
LH	*Sonchus oleraceus*	Common Sow-thistle	high	low
LH	*Plantago lanceolata*	Ribwort	high	low
MH	*Hypochoeris radicata*	Cat's Ear	high	low
LNG	*Holcus lanatus*	Yorkshire Fog	high	high
MTG	*Vulpia bromoides*	Squirrel-tail Fescue	high	low
MTG	*Romulea rosea*	Onion Grass	high	low
MTG	*Briza minor*	Lesser Quaking-grass	high	low
MTG	*Briza maxima*	Large Quaking-grass	high	low

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Appendix 9: Native Vegetation Removal (NVR) report

Scenario test – native vegetation removal

This report provides offset requirements for internal testing of different proposals to remove native vegetation. **This report DOES NOT support an application to remove, destroy or lop native vegetation under Clause 52.16 or 52.17 of planning schemes in Victoria.** A report must be obtained from the Department of Environment, Land, Water and Planning (DELWP).

Date of issue: **20/02/2023**
Time of issue: **11:29 am**

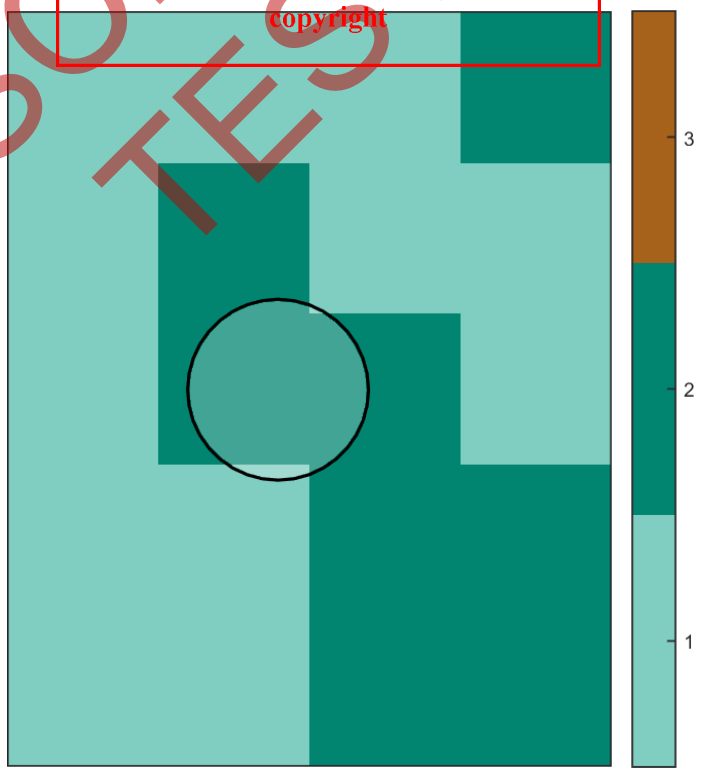
Report ID: Scenario Testing

Project ID	22115_Kiewa_Valley_Hway_rem_230220

Assessment pathway

Assessment pathway	**Intermediate Assessment Pathway**
Extent including past and proposed	0.070 ha
Extent of past removal	0.000 ha
Extent of proposed removal	0.070 ha
No. Large trees proposed to be removed	1
Location category of proposed removal	Location 2 The native vegetation is in an area mapped as an endangered Ecological Vegetation Class (as per the statewide EVC map). Removal of less than 0.5 hectares of native vegetation in this location will not have a significant impact on any habitat for a rare or threatened species.

1. Location map



Scenario test – native vegetation removal

Offset requirements if a permit is granted

Any approval granted will include a condition to obtain an offset that meets the following requirements:

General offset amount[1]	0.015 general habitat units
Vicinity	North East Catchment Management Authority (CMA) or Wodonga City Council
Minimum strategic biodiversity value score[2]	0.368
Large trees	1 large tree

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 mapped at the site.

Appendix 3 includes maps showing native vegetation to be removed and extracts of relevant species habitat importance maps

1 The general offset amount required is the sum of all general habitat units in Appendix 1.

2 Minimum strategic biodiversity score is 80 per cent of the weighted average score across habitat zones where a general offset is required

Scenario test – native vegetation removal

Next steps

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

This report DOES NOT support an application to remove, destroy or lop native vegetation under Clause 52.16 or 52.17 of planning schemes in Victoria.

If you wish to remove the mapped native vegetation you must submit the related shapefiles to the Department of Environment, Land, Water and Planning (DELWP) for processing, by email to ensymnvrtool.support@delwp.vic.gov.au. DELWP will provide a *Native vegetation removal report* that is required to meet the permit application requirements in accordance with *Guidelines for the removal, destruction or lopping of native vegetation* (Guidelines).

Appendix 1: Description of native vegetation to be removed

All zones require a general offset, the general habitat units each zone is calculated by the following equation in accordance with the Guidelines:

General habitat units = extent x condition 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

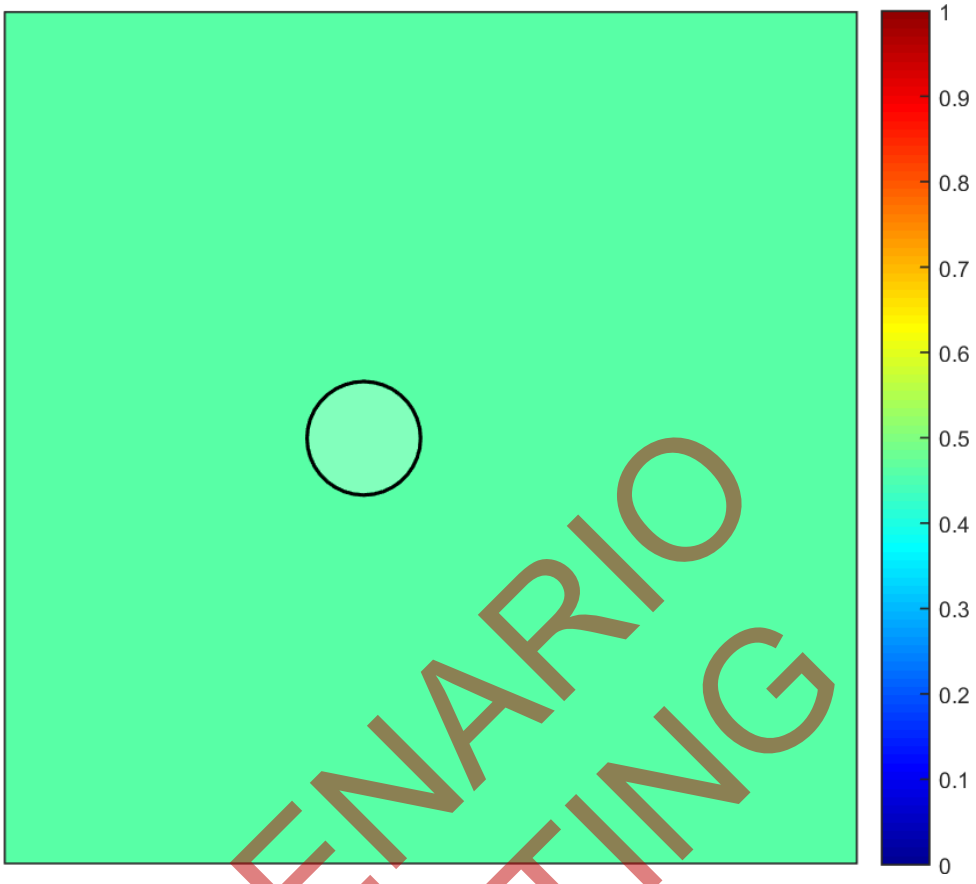
Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	**Type**	**BioEVC**	**BioEVC conservation status**	**Large tree(s)**	**Partial removal**	**Condition score**	**Polygon Extent**	**Extent without overlap**	**SBV score**	**HI score**	**Habitat units**	**Offset type**
1-1	Scattered Tree	vriv0055_61	Endangered	1	no	0.200	0.070	0.070	0.460		0.015	General

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

This is not applicable in the Intermediate Assessment Pathway.

Appendix 3 – Images of mapped native vegetation

2. Strategic biodiversity values map



Appendix 10: Evidence that native vegetation offset requirement is available

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: 20/02/2023 12:04 **Report ID: 17772**

What was searched for?

General offset

General habitat units	Strategic biodiversity value	Large trees	Vicinity (Catchment Management Authority or Municipal district)	
0.015	0.368	1	CMA	North East
			or LGA	Wodonga City

Details of available native vegetation credits on 20 February 2023 12:04

These sites meet your requirements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
VC_CFL-3074_01	17.521	2912	North East	Towong Shire	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)

There are no potential sites listed in the Native Vegetation Credit Register that meet your offset requirements.

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
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@delwp.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
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 DELWP Customer Service Centre 136 186 or the Native Vegetation Credit Register at nativevegetation.offsetregister@delwp.vic.gov.au

Appendix 11 Current Plans

Notes:

1. Drawings colour coded. Must print copies in colour
2. All dimensions in metres(m) unless noted otherwise
3. Survey datum: GDA 2020/MGA Zone 55
4. All dimensions, quantities and levels shall be verified onsite prior to further works
5. Layout shown is for information purposes only, not for construction
6. Battery technology will be 20' containerised solution
7. Building dimensions and layouts indicative only. Actual dimensions to be determined during detailed design
8. Substation layout to be determined during detailed design
9. BESS, inverter and substation building/equipment to be RAL7035 or similar low-impact colour. Warehouse and O&M building to be low impact Colourbond colour or similar

Ausnet services to construct new double switched 330 kV bay and augment existing infrastructure. Approximate dimensions of bench expansion 125 m x 30 m

~30m

~125m

~41m

Existing drainage channel to remain

Single circuit 330 kV overhead connection to Wodonga Terminal Station. Approximate location of Ausnet lattice tower

Substation infrastructure, including 4 main transformers (indicative capacity 150 MVA), 4 sets 33 kV harmonic filters

Remove vegetation as required for construction of overhead line. Permit not required (NV precinct applies)

Containerised storage if required

33 kV switch room and control building

~22m

~228m

Property boundaries per Vicplan

Approximate repatriation point for VAHR 8225-0338. To be fenced off following repatriation

Wodonga Terminal Station (WOTS) Owned and operated by AusNet Services

Bushfire setback for critical infrastructure (setback determined based on vegetation and lease boundary)

~17m

~376m

Water tank minimum total capacity onsite 576 kL. Locations to be determined during detailed design in consultation with authorities

Approximate location and coverage of hydrants, if required

Secondary emergency exit point. Not intended for construction

Lot 2 PS406394

Typical road width 6 m

~138m

Lot 1 PS406394

Stock fence to be constructed immediately inside Lease boundary (purple dashed line)

Final arrangement of substation access, fencing and control building alignment to be determined during detailed design

~72m

~20m

Proposed construction site offices, laydown area. Layout to be confirmed

~197m

~399m

Proposed security gate. Access arrangements subject to TNSP approval

~147m

Up to 496 BESS containers

Detention basin to be excavated post-construction in accordance with approved SWMP

Auxiliary infrastructure (estimated 10 kiosks)

Primary construction access gate

124 inverter stations on open skids with associated MV stations

Lot 11 PS340793

Culvert and drainage augmentation as required

Distance to property boundary abutting Kiewa Hwy approx. 287 m

Distance to property boundary abutting Baranduda Dr approx. 344 m from this point

Vegetation screening as landscaping plan

N

0 100m

Baranduda Dr

Rev.	DATE	BY	CHK.	REVISION NOTES
A04	06/06/24	SY	DL	Amended vegetation screening
A03	28/05/24	SY	DL	Modified indicative primary plant alignments
A02	14/05/24	SY	AA	Added in AusNet borehole locations
A01	02/05/24	SY	AA	Draft release

birdwood energy
birdwood energy
Level 18, 1 Nicholson St
VIC 3001, Australia
East Melbourne
https://www.birdwoodenergy.com/

As Indicated | SHEET 1 OF 1 | A3

General Arrangement

BA1-BS-DWG-001 | REV A04