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DRAFT

Flora and Fauna Assessment and Impact Analysis

Tarilta Low Level Crossing
Mount Alexander Shire

Prepared for Mount Alexander Shire Council

September 2023

Flora and Fauna Assessment and Impact Analysis for Tarilta Low Level Crossing Prepared for Mount Alexander Shire

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1. INTRODUCTION

Practical Ecology Pty Ltd was commissioned by Mount Alexander Shire Council to provide ecological consultancy services and deliver a Flora and Fauna and Impact Analysis for the Tarilta low level crossing upgrade project located between Ball and Welch Lane and Vaught-Tarilta Road in Tarilta. These services were sought as part of a planning permit application by Mount Alexander Shire to undertake works associated with the construction of a new bridge over the Loddon River that will provide all weather access that connects Ball and Welch Lane and Vaught-Tarilta Road.

1.1 Scope

This Flora and Fauna Assessment and Impact Analysis has been prepared to provide information on current site conditions within the Subject Site and aims to ensure that the design and delivery of proposed bridge considers the flora and fauna values present. The information presented in this report is based on the following scope of works:

- a desktop review of relevant information including relevant flora and fauna databases, relevant literature, including legislation and planning permit requirements
- a site assessment aimed at documenting the ecological values that are present, or are likely to be present within the Subject Site including:
    - categorisation of vegetation according to *Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017a) as either native vegetation patches, scattered trees or non-native vegetation
    - assessment of native vegetation based on the methodology outlined in the *Vegetation Quality Assessment Manual-Guidelines for Applying the Habitat Hectares Scoring Method* (DSE 2004)
    - a description of the existing and/or original Ecological Vegetation Classes (EVCs)
    - the compilation of a list of vascular plants and vertebrate fauna (incidentally) observed across the Subject Site
    - consideration of the potential of the site to support populations of, or habitat for, significant flora and fauna species or threatened ecological communities
- reporting and mapping on existing conditions and potential impacts, inclusive of:
    - a detailed habitat assessment that also considers use of the site by listed flora and fauna species
    - discussion of relevant ecological policy and legislation in relation to the proposed development
    - a statement outlining how the proposed development design has avoided and minimised loss of native vegetation and habitat values
    - a Native Vegetation Impact and Offset Requirements assessment based on detailed design plans to meet the requirements of Clause 52.17 of the Mount Alexander Planning Scheme

- mapping to illustrate necessary information, including existing conditions
- recommendations for targeted or other surveys
- assessment of ecological impacts against the statement of environmental significance/environmental objective in the schedule to the Environmental Significance Overlay.

1.2 Subject Site

The Subject Site that was the focus of this current assessment is based on the existing unmade road that extends from Ball and Welch Lane and Vaughan-Tarilta Road with a 20-m buffer applied to consider any additional impacts from the bridge upgrade that may occur. Both the Loddon River and Fryers Creek traverse the Subject Site, with these waterways intersecting close to the existing Low-level Crossing. The north-western end of the wider Subject Site also includes part of Burgoyne Street.

The existing low level crossing is composed of rocks and substrate to form a roadway that can be used in dry conditions by all vehicles, but only four-wheel drives when inundated. The existing infrastructure is the only direct connection between Vaughan and Tarilta.

It is important to note that while the current design proposal considered as part of the Impact Analysis is based on the replacement of the existing low level crossing with a proposed bridge, the Subject Site includes the areas away from the proposed bridge associated with the unmade road leading to and from it. This information was captured and included as part of the overall Subject Site associated within this current report given a previous proposal to include upgrades to these roads in addition to bridge installation works. Information on the ecological values in the wider areas along and surrounding the unmade road has been included as part of this report for information purposes and can be referred to should these roads be upgraded by Mount Alexander Shire Council in the future.

1.2.1 Adjacent land

The Subject Site is immediately surrounded by public land assorted with the Burgoyne Street and the Vaughn-Tarilta Road bridge that is currently de-commissioned. Residential properties are present to the south and north-west, with the Subject Site sitting within a matrix of residential areas associated with the Vaughn township and larger rural properties comprised of cleared paddocks and bushland. Through connection of bushland located along the Loddon River, the Subject Site links to bushland areas on public land, such as the Castlemaine Diggings National Heritage Park. The Subject Site also links via bushland to Fryers Ridge Nature Conservation Reserve to the east.

1.2.2 Landscape

Bioregions are a landscape-scale approach to classifying the environment using a range of attributes such as climate, geomorphology, geology, soils and vegetation. Of the 28 bioregions identified within Victoria, the Subject Site is located within the Goldfields bioregion (DELWP 2018c).

Under the *Catchment and Land Protection Act 1994* (the CaLP Act), Victoria is divided into ten catchment regions with a Catchment Management Authority (CMA) established for each region (Victorian Water Industry Association Inc 2015). The Subject Site occurs within the Port Philip and Westernport Catchment (DELWP 2018c).

1.2.3 Zoning and Overlays

The Subject Site is intersected by two Planning Scheme Zones under the Mount Alexander Planning Scheme: Public Conservation and Resource Zone (PCRZ) and Township Zone (TZ). The Subject Site is also subject to the following overlays:

- Bushfire Management Overlay (BMO; entire Subject Site)
- Environmental Significance Overlay – Schedule 5 (ESO5; selected areas over Loddon River only)
- Heritage Overlay (Various Schedules, with coverage over entire Subject Site)

2. METHODS

2.1 Field survey

A field survey was undertaken by Ramon Ciccone, Maria Koulaginis and Michelle Savona on 5th July 2023 and focused on the entire Subject Site with particular consideration to proposed construction areas, according to the design plans available at the time. It aimed to:

- map and assess native vegetation patches and trees according to requirements of the *Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017a)
- determine Ecological Vegetation Classes (EVCs), and capture data to facilitate determination of any threatened ecological communities
- compile a list of vascular plants observed across the Subject Site
- consider the Subject Site's habitat values, including habitat connectivity and available habitat for threatened fauna and flora.

Further detail regarding the field survey completed within the Subject Site is provided below.

2.1.1 Vegetation Categorisation, Classification and Quality

Vegetation was assessed for its categorisation according to the *Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017), then its Ecological Vegetation Class and finally, quality, as determined by a Habitat Hectare assessment.

2.1.1.1 Vegetation Categories

Vegetation in the Subject Site was categorised in accordance with the *Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017) which defines native vegetation as:

- **Native Vegetation**

  Native Vegetation as per the Victorian Planning Provisions (Clause 73.01): plants that are indigenous to Victoria, including trees shrubs, herbs and grasses.

- **Native Vegetation Patch**

  A patch of native vegetation is either:

  - an area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native
  - any area with three or more native canopy trees where the drip line 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 layer available in the Department of Energy, Environment and Climate Action (DEECA) Native Vegetation Information Management tool and other DEECA systems.

- **Native canopy tree**

  A *native canopy tree* is a mature tree (i.e. that is able to flower) that is greater than 3m in height and is normally found in the upper layer of the relevant vegetation type.

- **Large Tree**

  A *Large Tree* is either: a live tree that is equal to or greater than the large tree benchmark for the species in the relevant EVC; or a standing dead tree has a trunk diameter of 40 centimetres or greater

- **Scattered Tree:**

  A Scattered Tree is a native canopy tree that does not form part of a patch.

  Scattered Trees are measured by diameter at breast height (DBH) at 1.3 metres above ground level. Scattered Trees have 2 size classes, Large Trees and Small Trees, i.e. those that have a DBH that is less than the large tree benchmark for the species in the relevant EVC.

2.1.1.2 Ecological Vegetation Classes

Ecological Vegetation Classes (EVCs) are a method of systematic organisation of plant communities into common types that occur in similar environmental conditions throughout Victoria. Each vegetation type is identified based on its floristic composition (the plant species present), vegetation structure (woodland, grassland, saltmarsh), landform (gully, foothill, plain) and environmental characteristics (soil type, climate).

Modelled EVC distribution was accessed to assess the EVC likely to occur within the Subject Site (DELWP 2018c). EVCs were then identified in the field according to observable attributes including dominant and characteristic species consistent with the benchmark descriptions (DELWP 2018a).

2.1.1.3 Habitat Hectare Assessment

A Habitat Hectare assessment is used to determine the condition of the vegetation and significance of a defined patch of native vegetation. This methodology used in undertaking a Habitat Hectare assessment is outlined in the *Vegetation Quality Assessment Manual-Guidelines for Applying the Habitat Hectares Scoring Method* (DSE 2004). The methodology involves making visual and quantitative assessments on various characteristics of native vegetation according to established criteria that are set against an optimum benchmark.

This process begins with the identification of the EVC. Each EVC has an optimal benchmark representing its mature, natural (pre-1750) state. The assessment area is measured based on 7 habitat/vegetation components and 3 landscape components as a percentage of the EVC benchmark.

Assessment areas are separated into different Habitat Zones where:

- their location is discrete within a Subject Site (i.e. it is not continuous with another Habitat Zone),

- where adjoining Habitat Zones are representative of two different types of EVCs,
- the condition score varies by more than 15 points, or
- the extent of the continuous patch of vegetation is greater than 1 hectare (as per DEWLP 2018a).

2.1.1.4 Threatened Ecological Communities

As there was potential for *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and/or *Flora and Fauna Guarantee Act 1988* (FFG Act) listed communities to be present within the Subject Site, patches of native vegetation identified were considered against published criteria and/or characteristics that define these threatened communities.

The EPBC Act listed communities deemed likely to occur within the Subject Site or surrounds was based on the list of MNES indicated as potentially occurring within a five-kilometre radius in the report produced using the EPBC Act Protected Matters Search Tool (PMST). Under the EPBC Act, there are key diagnostic criteria and conditions thresholds as defined by Commonwealth Threatened Species Scientific Committee (TSSC) that assist in identifying EPBC listed communities. The Habitat Zones identified across the Subject Site were therefore assessed against these key diagnostic criteria, and where required, the relevant condition thresholds of the threatened communities identified by the PMST.

While there are no specific criteria which determine the presence of FFG Act communities, an informal method of comparing site characteristics and floristics with community descriptions in the document: *Characteristics of Threatened Communities – Flora and Fauna Guarantee Act 1988* (DELWP 2019d) was undertaken. This document summarises the characteristics of FFG Act threatened communities, to assist with field recognition. An evaluation of the Habitat Zones identified as part of this ecological assessment was made against the information in DEECA (2019d).

2.1.1.5 Large tree Survey

All large trees were identified, geolocated and their Diameter at Breast Height (DBH) measured. Note that data in relation to Large Trees as identified in this current report have been taken from the separate *Arboricultural Impact Assessment Tarilta Low-Level Crossing* prepared by Maria Koulaginis of Practical Ecology (dated September 2023).

Note that any dead trees greater than 40 cm DBH should be protected with a radius of 15 metres from the base to be considered retained (DEPI 2014a, pg. 10).

2.1.1.6 Classification of Exotic and Planted Vegetation

Vegetation that did not meet the definition of a Native Vegetation Patch or Scattered Tree within the Subject Site was classified as either Exotic Vegetation or Planted Vegetation.

Note that as the focus of field surveys was on native vegetation triggering permit requirements under Clause 52.17 of the Mount Alexander Planning Scheme, the definition of a native canopy tree within DEECA (2017a) was taken into consideration when defining vegetation within the Subject Site. A canopy tree is defined as one normally found in the upper layer of the relevant EVC. Consequently, the DBH for trees 'Native to Australia',

'Exotic' or 'Native to Victoria', but not deemed indigenous to the Subject Site, are not considered as part of the determination of a Scattered Tree or Large Tree within a patch in relation to this Report.

2.1.2 Flora survey

Existing flora records on the Victorian Biodiversity Atlas (VBA; DELWP 2020d) for a ten-kilometre radius around the Subject Site were obtained on 16/05/2023. Records from pre-1975 were removed. Note here than a wider radius was considered given the low number of records obtained when a five-kilometre buffer was initially applied. This approach of using a wider buffer aimed to ensure all flora species that could potentially occur within the Subject Site based on local records was appropriately considered.

During the field survey, the Subject Site was inspected on foot. A species list (or defined area list) for indigenous or naturalised flora (i.e. not including planted species) present across the Subject Site was compiled.

Species that could not be identified in the field were recorded to the nearest possible family or genera. These were then collected as per the protocols associated with Practical Ecology's Flora and Fauna Guarantee (FFG) Act 1988 permit (No. 10010155) for the collection of plant material. To assist in the identification of some flora, major features of the specimens were collected where possible, including leaves, parts of branches, fruit and/or flowers.

2.1.3 Fauna habitat survey

Incidental observations of fauna recorded during the course of the field survey were recorded. The main focus in regards to fauna was however on a habitat assessment. This relies upon making judgements on the potential of habitat present within the Subject Site to support significant fauna species identified through database searches. Further detail is provided below in Section 2.2

2.1.4 Field survey limitations

The following considerations should be made regarding the limitations of the field survey:

- it was undertaken in mid-Winter which is not the optimal time for plant identification as key identifying features, such as flowers, may not be present at the assessment time
- it is expected that some other species, particularly orchid, lily and other herbaceous species that can only be observed for a limited period of time may not have been recorded during the present assessment
- flora surveys were undertaken over a short period of time
- fauna surveys were based on incidental observations only.

The field survey was considered an adequate representation of site condition and sufficient to determine potential impacts associated with the proposed development on site.

In regard to fauna, the likely presence of significant fauna species was determined primarily through habitat assessments. This is a more conservative approach likely to include species that are difficult to detect even if suitable habitat was observed in the Subject Site, and if that species was known to occur regionally.

Determination of vegetation boundaries was undertaken using ground-truthing with aerial photography. Mapping should be considered approximate only (e.g. +/- 1-5m).

2.2 Potentially occurring State and Commonwealth Listed Species

All significant flora and fauna species identified on databases as previously recorded, or potentially occurring, within the vicinity of the Subject Site were subject to a 'likelihood of occurrence' assessment. The species assessed were those identified within a ten-kilometre buffer search from the boundaries of the Subject Site through searches of the VBA and the EPBC Act PMST.

The 'likelihood of occurrence' for each species was assessed as being Nil, Low, Moderate, High or Recorded, based on the criteria listed in Table 1.

In determining likelihood of occurrence and potential use of the Subject Site by these national or state significant flora and fauna species, the following factors were considered:

- previous recordings of species in the local area
- date of last record
- the habitat requirements of individual species
- the physical attributes of the site, such as topography, geology, soils, aspect and other habitat features such as trees with hollows, the presence of rocks or boulders, logs on the ground
- the history of land use at the Subject Site
- the ecological landscape context; i.e. the degree of connectivity, modification and fragmentation across the landscape.

A matrix that describes the justification for the likelihood of occurrence is presented below.

Table 1. Criteria for potential occurrence of significant species

Likelihood of occurrence	Criteria – one or more of the following conditions applies for threatened fauna species	Criteria – one or more of the following conditions applies for threatened flora species
Nil	Species known to be extinct in local area and/or absent from the site. No suitable habitat is present.	Species known to be extinct in local area and/or absent from the site. No suitable habitat is present.
Low	The species has not been previously recorded within the 5km radius of the Subject Site. Historical records (>15 years ago) of the species within 5km of the Subject Site though no suitable habitat to support the species is present. The Subject Site is beyond the current known geographic range of the species. The species required habitat attributes are not present within the Subject Site. One or more habitat attributes present though no local records and/or lack of required suitable connectivity to the Subject Site.	The species has not been recently recorded within the 5km radius of the Subject Site. The Subject Site is beyond the current known geographic range of the species. The species' required habitat attributes are highly restricted within the Subject Site. The species' habitat would have historically been present, but the site is highly degraded to the point that it is not suitable to support the species.
Medium	The species has historically (>15 years ago) been recorded within the Subject Site, or has been recorded more recently (<15 years ago) within the 5km radius of the Subject Site. Multiple records for the species are within the area or in close proximity to the Subject Site. The species required habitat attributes are present within the Subject Site though are in poor or modified condition. Habitat attributes are present and in moderate condition though species is known to be cryptic or undetected resulting in limited records within the Subject Site or surrounding area. One or more of the species required habitat attributes are present resulting in the potential to support the species.	The species has historically been recorded within the Subject Site, though due to past and current land uses may no longer be present. The species has been recorded recently within the 5km radius of the Subject Site. The Subject Site is near the edge of the current known geographic range of the species. The species' required habitat attributes are present within the Subject Site though are in somewhat poor or modified condition.
High	The species has recently (within the last 10 years) been recorded within the Subject Site or in close proximity. The required habitat attributes to the support the species are present within the Subject Site and are in good condition. Species habitat is present in low-moderate condition though there are extensive local records and/or the species if present is unlikely to have been observed onsite. A known population of the species is located in similar habitat conditions in close proximity or connected to the Subject Site. The Subject Site is connected to habitat areas where the species is known to occur and likely to be used as dispersal habitat through the landscape.	The species has recently been recorded within the Subject Site or in close proximity. The Subject Site is within the current known geographic range of the species. The required habitat attributes to the support the species are present within the Subject Site and are in good condition. A known population of the species is located in similar habitat conditions in close proximity or connected to the Subject Site.

Likelihood of occurrence	Criteria – one or more of the following conditions applies for threatened fauna species	Criteria – one or more of the following conditions applies for threatened flora species
Present	The species was recorded within the Subject Site during the site assessment or evidence was provided by the client to support the recent presence of the species.	The species was recorded within the Subject Site during the site assessment.

2.3 Taxonomy

Flora and fauna taxonomy used in this report is in accordance with the Victorian Biodiversity Atlas Checklist prepared on 14/07/2023.

2.4 Permits

Practical Ecology Pty Ltd staff are covered under a *The Wildlife Act 1975* Permit (No: 10010286) and FFG Act permit (No. 10010896) to take/keep protected flora and Wildlife and Small Institutions Ethics Committee approval (37.21).

3. RESULTS

3.1 Vegetation Categorisation, Classification and Quality

3.1.1 Ecological Vegetation Classes

Pre-1750s EVC mapping by DEECA (DELWP 2020a) indicates that the Subject Site was predominantly originally EVC 851: Stream Bank Shrubland, with areas of EVC 55: Plains Grassy Woodland present to the south, and areas EVC 20: Heathy Dry Forest and EVC47: Valley Grassy Forest.

While this is the case, the trees present on site along with other flora species, in conjunction with consideration of the site location in the landscape, indicated that the above DEECA modelled EVCs were not representative of the native vegetation present within the Subject Site. While EVC 55: Plains Grassy Woodland was deemed potentially appropriate given one of the character species of this EVC is River Red Gum *Eucalyptus camaldulensis*, the benchmark description of this EVC notes that it "*Occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations*". While there is no modelling for EVC 641: Riparian Woodland within the site or local area, the native vegetation on site best aligns with this EVC based on character canopy species and its benchmark description for the Goldfields Bioregion in particular.

EVC 641: Floodplain Riparian Woodland is described as the following, which characterises the native vegetation across the Subject Site and its periodically flooded nature: *Occurs beside permanent streams, typically on narrow alluvial deposits. Woodland to 15 m tall generally dominated by Eucalyptus camaldulensis over a tussock grass-dominated understorey. Tall shrubs may be present and amphibious herbs may occur in occasional ponds and beside creeks. While flooding may be common, sites are rarely inundated for lengthy periods.*

A brief description of the native vegetation representative of the EVC as observed within the Subject Site, is provided in Table 2 with locations of its presence as Habitat Zones depicted on Map 2 in Appendix 1. Photographs of this native vegetation is present as Figure 1 through to Figure 3.

Further information pertaining to the quality of the patches of native vegetation identified within the Subject Site is provided below in Section 3.1.2.

Note that while native vegetation patches are present within the Subject Site, details on exotic vegetation and planted vegetation is provided in Section 3.1.4

Figure 1. Existing low level crossing showing Habitat Zone 2 shown far side of Loddon River on edge; Habitat Zone 3 right of image

Figure 2. Existing low level crossing showing Habitat Zone 2 on far side of edge Loddon River; Habitat Zone 1 surrounding waterways beyond

Figure 3. Habitat Zone 1 straddling existing unmade road east of existing low level crossing

Table 2. Ecological Vegetation Class within the Subject Site

EVC No. and Name	BCS^	Description within Subject Site
EVC 641: Riparian Woodland	Endangered within Goldfields Bioregion	Habitat Zone 1, 2 and 3 were considered representative of this EVC. Native vegetation patches mapped across the Subject Site as part of Habitat Zone 1 make up its majority and were dominated by a canopy of River Red Gum, with some Manna Gum *Eucalyptus viminalis* also present. While some indigenous mid-and ground-storey is present beneath this canopy such as Blackwood *Acacia melanoxylon*, River Bottlebrush *Callistemon sieberi*, Rush Juncus spp. Sedge Carex spp, Common Tussock-grass *Poa labillardierei*, Sheep's Burr *Acaena echinata* and Water Ribbons *Cycnogeton* spp. A range of weed species also occur within this Habitat Zone including but not limited to Soursob **Oxalis pes-caprae* , Angled Onion **Allium triquetrum*, Bridal Creeper **Asparagus asparagoides*, Spear Thistle **Cirsium vulgare*, Hemlock **Conium maculatum*, Hawthorn **Crataegus monogyna*, Drain Flat-sedge **Cyperus eragrostis*, Cocksfoot **Dactylis glomerata*, Panic Veldt-grass **Ehrharta erecta*, Annual Veldt-grass **Ehrharta longiflora*, Caper Spurge **Euphorbia lathyrism*, Cleavers **Galium aparine,* Toowoomba Canary-grass **Phalaris aquatica*, Blackberry **Rubus fruticosus* spp. agg. Variegated Thistle **Silybum marianum* and Blue Periwinkle **Vinca majo*r. Habitat Zone 2 was identified on the edge of the bank of the Loddon River, with clear canopy separation from adjacent areas mapped as Habitat Zone 1. The vegetation here comprises of Blackwood and River Bottlebrush only that occur very close to the waters edge and were considered to have a cover of at least 25%. Weeds within this Habitat Zone include Angled Onion, Caper Spurge, Spear Thistle, Drain Flat-sedge and Blackberry. Habitat Zone 3 represents vegetation on the west side of the Loddon River, south of the existing low level crossing. Here there is one River Red Gum present in the canopy, along with Blackwood and Common Tussock-grass scattered throughout. River Bottlebrush is present at the very edge of the Habitat Zone close to the Loddon River and existing low level crossing. Weeds within this Habitat Zone include Lombardy Poplar **Populus nigra 'Italica'*, Yorkshire Fog *Holcus lanatus, Gorse ** Ulex europaeus* and Bridal Creeper. Spiny Rush **Juncus acutus* subsp. *acutus* also present on the western edge of this zone in a depression.

^ BCS: Bioregional Conservation Status; * denotes exotic species

3.1.2 Habitat hectare assessment

Table 3 below presents the results of the Habitat hectare assessment.

Table 3. Results of the Habitat Hectares assessment for the Habitat Zones identified on site

Habitat Zone			1 (a,b,c)	2	3
Bioregion			Goldfields	Goldfields	Goldfields
EVC Name (initials)			RW	RW	RW
EVC Number			641	641	641
EVC Conservation Status			E	E	E
Size of Zone (ha)			0.351	0.0001	0.195
		Max Score	Score	Score	Score
Site Condition	Large Old Trees	10	7	0	0
	Canopy Cover	5	2	0	2
	Understorey	25	15	5	5
	Lack of Weeds	15	0	0	0
	Recruitment	10	1	3	0
	Organic Litter	5	3	2	4
	Logs	5	5	4	5
	EVC Standardiser	n/a	1	1	1
	Standardised Score	**75**	**33**	**14**	**16**
Landscape value	Patch Size	10	8	8	8
	Neighbourhood	10	1	1	1
	Distance to Core	5	4	4	4
Habitat points		**100**	**36**	**27**	**29**
Habitat Score (habitat points/100)		**0.##**	**0.36**	**0.27**	**0.29**
No. of Large Old Trees			**5**	**0**	**0**

3.1.3 Threatened Ecological Communities

3.1.3.1 EPBC Act Communities

Table 4 below lists the Nationally threatened communities identified by the EPBC Act PMST as potentially occurring within ten-kilometres of the Subject Site. As shown in Table 4, these communities are marked in the EPBC Act PMST as 'likely to occur' or 'may occur'. As shown in Table 4, one of these EPBC Act threatened communities is deemed to be present within the Subject Site.

Table 4. Details of threatened communities identified by the PMST and presence within Subject Site

Community	Status	Summary of Community	EPBC Act PMST Report Status	Present within Subject Site?
Grassy Eucalypt Woodland of the Victorian Volcanic Plain	Critically Endangered	Eucalypt woodland that is restricted to Quaternary basalt soils. Occurs on flat to gently undulating plains and associated stony knolls, generally at elevations up to 500 metres above sea level. The ecological community lies within a rainfall zone of 500-800 mm per annum and has a canopy typically dominated by River Red Gum *Eucalyptus camaldulensis*	Community may occur within area	**No.** While the Subject Site that is dominated by River Red Gum, it does not fall within the Volcanic Victorian Plain Bioregion or contain an understorey dominated by native ground layer species.
Grey Box *Eucalyptus microcarpa* Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	The typical structure of the Grey Box (*E. microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia ecological community is a woodland to open forest with a canopy dominated by eucalypts and an understorey with a moderately dense to sparse shrub layer and a ground layer of perennial and annual native forbs and graminoids. Tussock grasses dominate the ground layer vegetation, though other graminoids or forbs may be common. Chenopods also may be present in the ground layer. A list of typical plant species for the ecological community arranged by IBRA bioregion (Interim Biogeographical Regionalisation of Australia version.	Community likely to occur within area	**No.** This Subject Site does not contain the canopy species associated with this community, Grey Box.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	This is an ecological community that can occur as either a woodland or a derived grassland (a grassy woodland from which the trees have been removed). It has a ground layer of native tussock grasses and herbs and a sparse, scattered shrub layer. White Box (*Eucalyptus albens*), Yellow Box (*E. melliodora*) or Blakely's Red Gum (*E. blakelyi*) dominate the ecological community, where a tree layer still occurs.	Community likely to occur within area	**No.** This community is characterised by a species-rich understorey, and the dominance, or prior dominance, of tree species that are not present within the Subject Site. The EVC present on site is also one not typically supporting this community.

3.1.3.2 FFG Act Communities

There is one FFG Act threatened communities modelled by DEECA (DELWP 2020a) that has some coverage within the Subject Site: Grey Box – Buloke Grassy Woodland. Mapping of this community is generally in line with that of EVC 55: Plains Grassy Woodland located on the south-eastern edge of the Subject Site.

The *Flora and Fauna Guarantee Act 1988 – Threatened List – Characteristics of Threatened Communities (Department of Sustainability & Environment 2007)* describes the Grey Box – Buloke Grassy Woodland Community as per the below:

> *The Grey Box – Buloke Grassy Woodland Community is a mainly grassy woodland found on flat or very gently undulating plains in northern Victoria and a few places in central Victoria. It tends to develop in the absence of fire on sites with relatively fertile, fine-grained soils.*
>
> *Grey Box (Eucalyptus microcarpa) is usually the structurally dominant tree over a lower stratum of Buloke (Allocasuarina luehmannii). Where fire is absent over a very long period, buloke may become the dominant species. The ground layer is mainly grasses such as Bristly Wallaby-grass (Danthonia setacea = Rytidosperma setaceum), Squirrel-tail Fescue (Vulpia bromoides), Soft Brome (Bromus hordeaceous = B. hordeaceus), Windmill-grass (Chloris truncata), Common Wheat-grass (Elymus scaber = E. scaber var. scaber), occasionally Kangaroo Grass (Themeda triandra) and (rarely) Tussock-grass (Poa sieberiana). Although a shrub layer is usually lacking, a scattering of wattles is present at some sites, including Deane's Wattle (Acacia deanei), Gold-dust Wattle (A. acinacea) and Golden Wattle (A. pycnantha) and a few other shrubs such as Drooping Cassinia or 'Chinese Scrub' (Cassinia arcuata).*

The floristic composition of native vegetation within the Subject Site does is not in line with the definition of this FFG Act listed community. No Grey Box *Eucalyptus microcarpa* or Buloke *Allocasuarina luehmannii* specimens were observed on site. On this basis, the Grey Box – Buloke Grassy Woodland Community does not occur within the Subject Site.

While this is the case, there was also some potential that Creekline Grassy Woodland (Goldfields) Community may be present within the Subject Site. The *Flora and Fauna Guarantee Act 1988 – Threatened List – Characteristics of Threatened Communities (Department of Sustainability & Environment 2007)* describes the Creekline Grassy Woodland (Goldfields) Community as per the below:

> *Creekline Grassy Woodland (Goldfields) Community The Creekline Grassy Woodland (Goldfields) Community occurs as small remnants within the box-ironbark ecosystems of Victoria.*
>
> *Two sub-communities have been identified. Both have River Red Gum (Eucalyptus camaldulensis) forming open overstorey canopy, often with larger old trees. Groundcover is a dense layer of grasses and sedges including Weeping Grass (Microlaena stipoides = M. stipoides var. stipoides), Tall Sedge (Carex appressa), rushes (Juncus spp.), Wirilda (Acacia retinodes = Acacia provincialis), Black Wattle (Acacia mearnsii), and Rough-barked Honey-myrtle (Melaleuca parvistaminea). Broome (Bromus spp.), Quaking-grass (Briza spp.) and Fescue (Vulpia spp.) are commonly-present weed species. Yellow Box (Eucalyptus melliodora) and Grey Box (E. microcarpa) occur in one of the sub-communities, whereas the other has a characteristic understorey dominated by Common Tussock-grass (Poa labillardierei = P. labillardierei var. labillardierei) and Kangaroo Grass (Themeda triandra). The community occurs as a woodland interface between the undulating sedimentary rises and the geologically younger alluvial plains.*

It fringes shallow or ephemeral drainage lines on the lower slopes of box-ironbark forests, but is distinct from the riparian vegetation found along permanently flowing streams on the alluvial plains

As the Creekline Grassy Woodland (Goldfields) Community "*fringes shallow or ephemeral drainage lines on the lower slopes of box-ironbark forests, but is distinct from the riparian vegetation found along permanently flowing streams on the alluvial plains",* the native vegetation within the Subject Site is not representative of this community. While River Red Gum dominates, the vegetation present surrounds the Loddon River and Fryers Creek which are permanently flowing.

3.1.4 Exotic and Planted Vegetation

Areas of vegetation beyond the defined Habitat Zones discussed above and shown on Map 2 are composed of exotic species.

3.2 Flora

A total of 55 plant taxa were recorded in the Subject Site during this survey of which 13 were indigenous (24%) and 42 (76%) were introduced or naturalised outside their natural range. Appendix 2 lists all flora recorded within the Subject Site. Table 5 summarises plant taxa recorded in the Subject Site during this survey.

Table 5. Summary of plant species recorded

Flora Status	Number of Taxa
Indigenous vascular species	13
Exotic species	41
Native species outside of natural range	1
TOTAL	**55**

3.2.1 State and Commonwealth Listed Flora

3.2.1.1 Field Survey

No species listed under the FFG Act or EPBC Act were observed within the Subject Site during the field survey.

3.2.1.2 Database records

Searches undertaken of the VBA and the EPBC Act PMST identified 38 flora species of state and/or national significance. These have either been recorded within ten-kilometres from the Subject Site boundaries or are predicted to occur within this search area. All species identified on from the VBA and the EPBC Act PMST species are listed in Appendix 3.

As shown in Appendix 3, for the majority of flora identified through database searches, the likelihood that they would occur within the Subject Site is considered 'Nil' or 'Low'.

For these species, their habitat preferences are not met at the Subject Site and/or the site is deemed too disturbed and dominate by exotic species in the groundlayer to support these species. One species does however have a 'Low-Moderate' likelihood of occurrence: Floodplain Fireweed *Senecio campylocarpus*. This FFG Act listed species occurs mostly throughout central Victoria, usually in seasonally inundated areas. There is however only one record for this species within ten-kilometres of the Subject Site on the VBA. The location of the Subject Site surrounding drainage lines means that there is at least some potential that this species could occur, although degradation of the groundlayer and low number of local records reduces this potential to Low-Moderate.

3.3 Fauna

3.3.1 Fauna survey

The results of the incidental fauna survey are presented in Table 6.

Table 6. Incidental fauna list recorded during field survey

Family	Scientific Name	Common Name	Record Type
AMPHIBIANS			
Myobatrachidae	*Crinia signifera*	Common Froglet	Heard
BIRDS			
Cacatuidae	*Cacatua spp.*	Corellas and Cockatoos	Observed
Alcedinidae	*Dacelo novaeguineae*	Laughing Kookaburra	Heard
Psittacidae	*Platycercus elegans*	Crimson Rosella	Observed
Artamidae	*Gymnorhina tibicen*	Australian Magpie	Observed
Maluridae	*Malurus cyaneus*	Superb Fairy-wren	Observed
Artamidae	*Strepera graculina*	Pied Currawong	Heard

3.3.2 Fauna habitat and connectivity

The focus with regards to fauna during the assessment was the consideration of the site's potential to provide fauna habitat. The habitat observed within the site included:

- tree canopies, including trees with fissured bark and crevices
- large flowering Eucalyptus trees with hollows
- dense ground-layer vegetation
- a high number of logs, and
- the waterways, including the Loddon River and small section of Fryers Creek where it needs the Loddon River very close to the existing low level crossing.

The Loddon River and Fryers Creek, along with associated riparian vegetation serves as a vital habitat corridor connecting large patches of bushland in the local landscape and enabling the movement of a range of fauna species. While the surrounding areas to the north and south-east of the Subject Site consist of areas predominantly cleared for farm, the vegetation along the waterways through the Subject Site connects bushland

to the Castlemaine Diggings National Heritage Park and Fryers Ridge Nature Conservation Reserve. These public land areas are recognised for their ability to support a diverse range of fauna species.

3.3.3 State and Commonwealth Listed Fauna

3.3.3.1 Database records

Searches undertaken of the VBA and the EPBC Act PMST identified 63 fauna species of listed at a State and/or Commonwealth level. This includes species listed as migratory under the EPBC Act. These fauna species have either been recorded within ten kilometres from the Subject Site boundaries or are predicted to occur within this search area. All species identified on from the VBA and the EPBC Act PMST species are listed in Appendix 4.

The table below provide information of the fauna species of listed at a State and/or Commonwealth level that have a Moderate or higher likelihood of occurring within the Subject Site.

Table 7. Listed fauna species likely to occur on site

Status*			Scientific name	Common name	Likelihood of occurrence	Likelihood Reasoning
Treaty	EPBC	FFG				
	VU		*Climacteris picumnus*	Brown Treecreeper (south-eastern ssp.)	Moderate	The Brown Treecreeper is found in woodland that lacks a dense understory in particular. Given the high levels of leaf litter and logs present for foraging the species could occasionally occur on site, at least for foraging given the high numbers of local records.
C,R,J			*Apus pacificus*	Fork-tailed Swift	Moderate	Despite being a migratory species, the Fork-tailed Swift can be found with quite a few records within the local area. Despite being almost entirely aerial this species can roost or forage aerially over the Study Subject.
	VU	Vu	*Stagonopleura guttata*	Diamond Fire	Moderate	The Diamond Firetail has been commonly seen around the local landscape and recently as 2019. Occurring along woodlands and farmland areas, there is some potential for the species to occur on site.
		Vu	*Hieraaetus morphnoides*	Little Eagle	Moderate - High	There are numerous records for this species in the local landscape, including observation of the species relatively close to the Subject Site. The species is likely to at least potentially roost and hunt from trees within the Subject Site; there is also potential that the species could nest within trees within the Subject Site given its preference for trees along tree-line watercourses.

Status*			Scientific name	Common name	Likelihood of occurrence	Likelihood Reasoning
Treaty	EPBC	FFG				
	CR	Cr	*Lathamus discolor*	Swift Parrot	Moderate	There are numerous records for this species in the local landscape, with most from records from drier forest types such as Box Ironbark Forest. While individuals may make some use of the trees on site for foraging on occasion, this is likely to be only while on passage to more suitable habitat and they are unlikely to make significant use of the foraging resources on site.
		En	*Pseudophryne bibronii*	Brown Toadlet	Moderate	While there are some records for this species within relatively close proximity to the Subject Site, more recent records from denser forest areas in the surrounding landscape. While this is the case, given the moist nature of the Subject Site and its tendency to flood there is some potential that this species could occur within the Subject Site.
C,R,J	VU	Vu	*Hirundapus caudacutus*	White-throated Needletail	Moderate	The White-throated Needletail is almost predominantly aerial. However will be seen to use forests, and open habitat like farmlands. There is some potential that the species could forage aerially over the Subject Site.
		Vu	*Aythya australis*	Hardhead	Moderate	There have been several records of the Hardhead within the local landscape. Inhabiting deep water to shallow wetlands the species may be suitable to using the Loddon River or Fryers Creek at least for foraging.
		Vu	*Ornithorhynchus anatinus*	Platypus	Moderate - High	The Platypus has had a few records in recent years within the surrounding landscape lodged on the VBA. Occurring in a wide variety of streams including the Loddon River, there is potential for this species to be present at the Subject Site. This would likely serve as at least foraging and sheltering habitat for the species. Given that steeper banks are preferred for burrowing by the species however, it is unlikely that burrowing would occur within the vicinity of the existing low level crossing. Further detail is provided below.
		Vu	*Pomatostomus temporalis*	Grey-crowned Babbler	Moderate	There have been some records of the Grey-crowned Babbler on the VBA in the areas surrounding the Subject Site. Occurring in woodlands and as there are Eucalypt woodlands present at the Subject Site there is a likelihood of the species being present.

^ Status:
International Treaty: B: Bonn Convention; C: CAMBA; J: JAMBA; R: ROKAMBA.
Conservation status under EPBC Act 1999: EX: Extinct, CR: Critically endangered, EN: Endangered, VU: Vulnerable and CD: Conservation dependant
FFG Act 1998 (2020 status): Cd: Conservation dependant, Cr: Critically endangered, En: Endangered, Ex: Extinct, Th: Threatened, Vu: Vulnerable, En(ExV): Endangered (extinct in Vic)

Further information on potential impact(s) on the species listed in Table 7 are further detailed in Section 5.

For the remaining listed fauna identified through database searches, the likelihood that they would occur within the Subject Site is considered Low-medium, Low or Nil. For these species, their likelihood of occurrence is low given their habitat preferences. Refer to Appendix 4 for more information.

As noted above, the Platypus *Ornithorynchus anatinus* has a Moderate-High likelihood of occurring within the Subject Site given its known presence in the Loddon River and previous local records.

The Platypus has uniquely evolved to become an efficient swimmer, surviving in rivers and streams along the East Coast of Australia down to Victoria and Tasmania in the South (PD 1998). The Platypus is a semi-aquatic species of mammal of Australia, that is equipped with the right type of biomechanical morphology to construct both resting and nesting burrows along the banks of rivers and streams. Generally, rivers and streams that Platypus are found in occur in riparian habitats that are crucial for habitat complexity, provides stable banks for burrowing construction and having instream organic material (Hawke K 2020). Within this type of habitat, vegetation and fallen trees along river banks remove the chances of erosion and increase the soil stability that is crucial for burrowing (Thomas J 2019). In terms of such burrowing, these monotremes often prefer vegetated consolidated riverbanks that are greater than 0.95m in height, and while burrow entrances are commonly seen above the water's surface, burrows can extend for up to 30 metres (Hawke K 2020). Platypus can select burrow sites according to bank height at the burrow chamber, however, past studies have indicated that burrows are not on banks sloping less than 20 degrees, with the species preferring more steeper and undercut banks which are crucial to the species burrow success and are an important habitat characteristic (Thomas J 2019). This may be correlated to the decreased risk of flooding with sloped and steep burrows (Serena 1994). Moreover, other studies published, have indicated that platypus tend to burrow where the is substantial cover provided by weeds, where there's overhanging vegetation or the presence of trees such as River Red Gum, Willows and Manna Gums.

In relation to the Subject Site at Tarilta, the riverbank is quite shallow and flat, thus would not evidently support an ideal place for a burrow for a platypus. This would most likely see burrows become flooded as the river or creek rises during the year, and Platypus increasingly prone to predators without the protection of a burrow to retreat to. Nonetheless, there are potential sources of food within the Loddon River and Fyers Creek for the species. Platypus will hunt frogs and scavenge on their eggs found in nearby waterbodies (Faragher RA 1979), noting that there is a plentiful population of Common Eastern Froglet that were heard actively calling at the Subject Site during the field survey. Most common to a platypus' diet is an array of diverse aquatic invertebrate populations from insects, crustaceans or molluscs that may be present in the flow of the Loddon River or Fryers Creek (Faragher RA 1979). Therefore, the species is likely to at least use the habitat within the Subject Site to forage, but is likely to avoid using the riparian riverbank/creekline habitat within the vicinity of the existing low level crossing to burrow. Any platypus within the area will most likely be burrowing further down the riverbank away from low level crossing location. It also noted here that given the current absence of flow across the existing low level crossing during summer periods when water levels are below the level of the crossing, it is expected that passage through the Loddon River by Platypus is at present likely cut-off at certain points of the year.

4. DEVELOPMENT PROPOSAL AND ASSOCIATED IMPACTS

The proposed development involves the construction of a new bridge over the Loddon River that will provide an all-weather connection between Ball and Welch Lane and Vaught-Tarilta Road.

Extracts of design plans for the proposed bridge (Drawing No. ML17237-C001 Dated 19/06/2018 and Drawing No. ML17237-S302 Dated 14/05/2019), as supplied by Dale Barker of Mount Alexander Shire Council, are presented as Figure 4 through to Figure 6. Full plans are provided in Appendix 5. The bridge is to be based on the installation of concrete deck slabs and associated kerbs installed over four driven piles. There will also be approach slabs installed on the sides of the bridge with crushed rock pavement to be installed to match the existing pavement profile. The easternmost pile will be driven at the eastern edge of the existing low-level crossing, and the westernmost pile at the edge of the existing banks to the Loddon River. The two centre piles will be driven into the confines of the existing low level crossing over which the Loddon River currently flows most of the year, except in periods of low flow in summer. Rock beaching is proposed beneath the bridge and approach slabs. This rock beaching will extend beyond the boundaries of the actual bridge on both sides. The existing low level crossing surface will be removed to 500mm prior to installation of this rock beaching to allow flow beneath the proposed bridge.

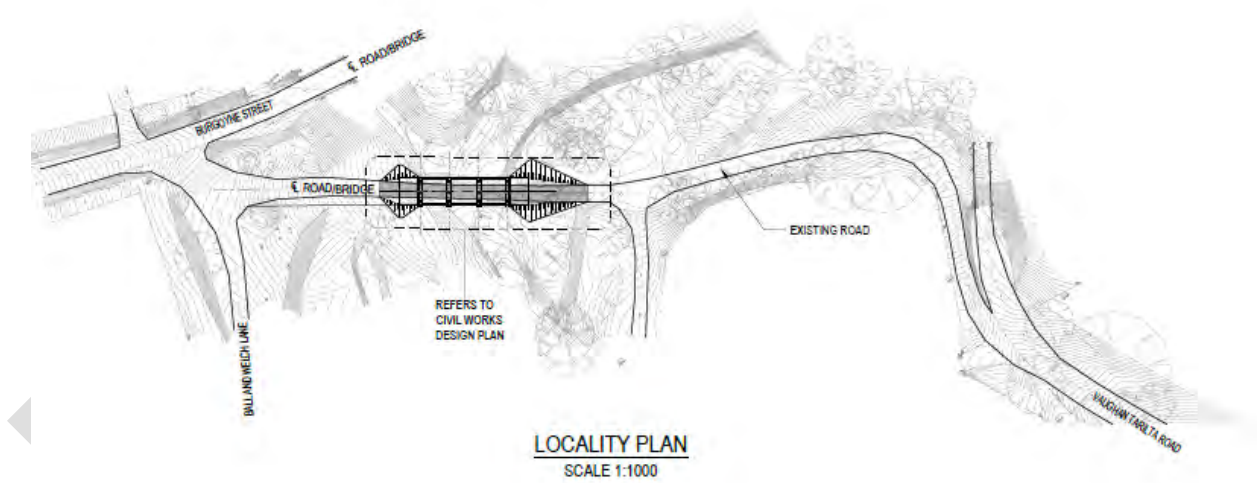

Figure 4. Design Plan Overview

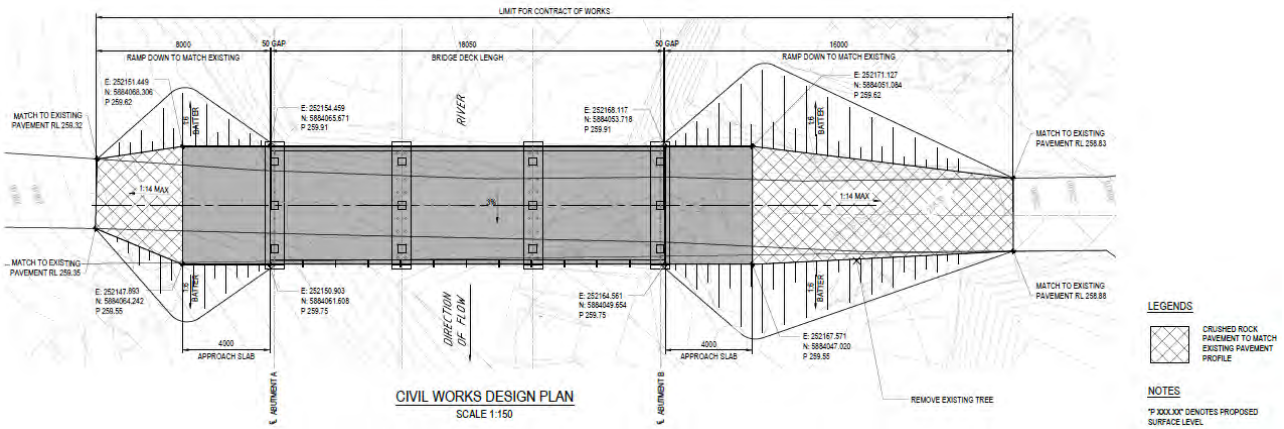

Figure 5. Design Plan – Top View

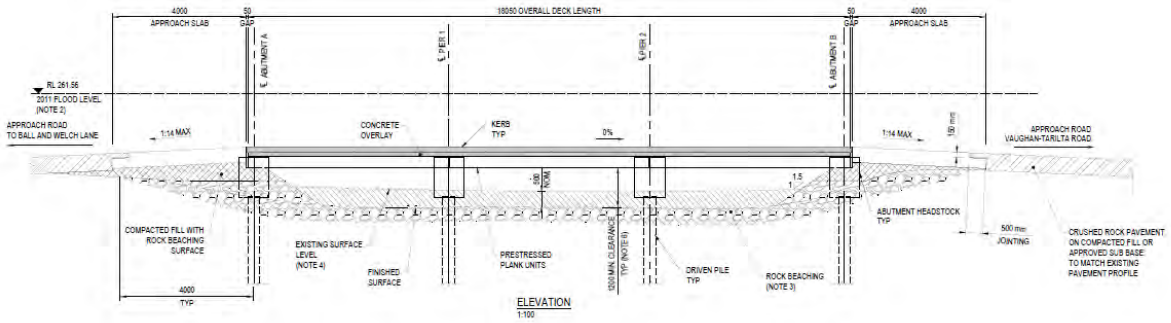

Figure 6. Design Plan – Side View

It is understood through correspondence with Dale Barker that construction works associated with the bridge will be completed during the summer months when there is limited to no flow across the existing low level crossing in order to minimise the impacts caused by the works. A rock spall pier will be constructed over the existing low level crossing to reduce impacts to the river, and to provide access to the driving location of the piles. This will only be built across two-thirds of the river to ensure any flows continue while the works are completed. Works are expected to take approximately 20-25 days from set up to removal of the rock spall pier with the pile driven, noting that this timeframe will also potentially include the construction of the concrete deck slabs on the piles to reduce disturbance to the river bed. Once the piles have been driven, the rock spall pier will be removed and the existing low level crossing excavated and rock beaching installed. As VicRoads Standard document Section 713 'Type 1 beaching' will be installed and include a layer of geofabric placed in accordance with Section 210 to reduce the effects of siltation.

Prior to the construction, pre-works to be conducted will include:

- A pre-start fauna inspection will be conducted by qualified personnel (noting that recommendations around this inspection are provided as part of the recommendations in Section 6)
- Set up of all sediment and environmental protections, including Tree Protection Zones, to meet the required standards for a North Central Catchment Management Authority works on waterway permit.

Based on the above development proposal, there will be at least some direct impacts to native vegetation and associated habitat. This includes direct known and potential impacts to patches of native vegetation based on the anticipated Construction Footprint.

Note that for the purposes of considering impacts within this report, impacts associated with construction on native vegetation has been based on the top view layout of the design as per Figure 5, with a 5m buffer surrounding the design to allow for construction. The area of proposed impacts also takes into consideration the presence of the existing road, which passes under the canopy of Habitat Zone 1a as shown on Map 2 and Map 3. It is anticipated that there will be an additional ancillary area required for construction for laydown, stockpiling and/or crane pad purposes, and it has been assumed that this will be located on the west side of the bridge to the north of the road where no Habitat Zones were identified.

Based on proposed construction and as depicted on Map 3, there will be direct losses of native vegetation and associated habitat as follows:

- Direct loss of native vegetation totalling ~169m^2 from Habitat Zone 1a, which is based on the removal of some understorey species that occur along the edges of proposed construction footprint

- In line with arboricultural impact assessment while there may be encroachment from the proposal into the TPZ of selected trees within this Habitat Zone, such as Tree 21, they are expected to remain viable with standard Tree Protection Measures.

- The only tree lost from this Habitat Zone is Tree 23 – a Blackwood – which is part of the understorey of this Habitat Zone and its loss is accounted for in associated understorey losses as calculated in Section 5.5.6.

- Note that native vegetation that is part of Habitat Zone 1a, located north of the confluence of the Loddon River and Fryers Creek is not expected to be impacted by works. The Habitat Zone outline in this location is based on the canopy of trees in this area which overhand the water; there will therefore be no impacts to understorey vegetation which is set back from this canopy and no impacts to these trees will occur according to the arboricultural impact assessment

- Direct loss of native vegetation totalling approximately 8m^2 across Habitat Zone 2, given its location close to the bridge alignment and associated battering and rock beaching. While there is some potential that this vegetation could be retained, given its location on the edge of Loddon River it has been deemed lost on a worst -case scenario basis.

- Direct loss of native vegetation totalling approximately ~84m^2 within Habitat Zone 3, again based on at least removal of some understorey species along the edges of proposed construction

    - There are some River Bottle-brush located along the edge of the Loddon River close to the bridge along with other scattered groundlayer species that will be impacted by works. In line with the arboricultural impact assessment no trees within this Habitat Zone will be removed. While Tree 38 is very close to construction, it is expected to remain viable given battering for the proposed road bridge development should be located at least 2.4 metres (outside the Structural Root Zone) from the centre of trunk

Based on the above vegetation losses, there will be some losses of available habitat for fauna. While the vegetation proposed for removal is less likely to be utilised by any significant degree by bird species that could occupy the site, there is potential for the bridge and associated batters and rock beaching to remove at least some habitat for amphibian species that may utilise this terrestrial habitat. A high number of Common Froglet *Crinia signifera* were heard calling during the site assessment, and there is at least some potential that listed species including Brown Toadlet *Pseudophryne bibronii* may occur. At least some terrestrial habitat potentially used by these species is expected to be removed although not to a degree that would substantially impact the species. Regardless, a pre-start fauna inspection will be conducted by qualified personal that can manage any fauna that may be located within areas impacted by works. Recommendations around this are provided as part of the recommendations in Section 6.

It is noted here that it may be the case that additional areas are required for construction purposes beyond the Construction Footprint defined in this report. If this this is the case, this report assumes that these will be located on the west side of the existing low level crossing as far as possible from the waterways where no native vegetation patches (Habitat Zones) have been documented in this report. Any excavation in these additional areas or required tree removal works to accommodate construction will be supervised by a qualified person to manage fauna; tree removal works may require input from consulting arborist.

Given the location of the proposed development over the Loddon River and end of Fryers Creek in very close proximity, there are potential for indirect impacts to ecological values that also require consideration. Such impacts relate to working within and close to waterways and associated indirect impacts from sedimentation. Noise and vibration are also likely to occur when the piles are driven. As noted above sediment and environmental protections to meet the required standards for a North Central Catchment Management Authority works on waterway permit will be implemented as part of the proposal. While there may be some sedimentation of the waterways even with these measures in place, and noise and vibration is expected, this will be over a relatively short-time frame associated with construction (~20-25 days from set up to removal of the rock spall pier with the pile driven, potentially including the construction of the concrete deck slabs). In the longer term, on-going sedimentation associated with use of the current low-level crossing is expected to be reduced. There are no lights proposed in the current plans associated with the bridge; therefore there will be no material change to lighting arrangements that could potentially impact fauna utilising the waterways and adjacent areas at night.

5. RELEVANT POLICY AND LEGISLATION

The following section explores relevant policy and legislation pertaining to ecology from the national level through to the local level.

5.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places defined in the Act as MNES. There are nine matters of national environmental significance to which the EPBC Act applies, these are:

- World heritage sites
- National heritage places
- Wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed)
- Nationally threatened species and ecological communities
- Migratory species
- Commonwealth marine areas
- Nuclear actions
- The Great Barrier Reef Marine Park
- a water resource, in relation to coal seam gas development and large coal mining development.

If a project is likely to have a significant impact on one of the nine matters of national environmental significance, the action or proposal must be referred to the Commonwealth DoEE. This 'referral' is, then released to the public for comment. A '*significant impact is defined under the EPBC Act as an impact that is important, notable, or of consequence, having regard to its context or intensity'* (DoE 2013).

Under the EPBC Act, actions that are likely to have a significant impact upon MNES require approval from the Environment Minister to undertake those actions. An action includes any project, development, undertaking, activity or series of activities.

Relevance to proposal

Of the nine matters of national environmental significance to which the EPBC Act applies, two are deemed relevant to the Subject Site: nationally threatened species and ecological communities, and migratory species.

Threatened Ecological Communities

No threatened ecological communities were deemed likely to be represented within the Subject Site.

Nationally Threatened Species: Flora

No EPBC Act listed flora species were recorded during the field survey.

Database searches for significant flora species likely to occur within 10-kilometres of the Subject Site produced a list of 23 EPBC Act listed species. Given the low likelihood of occurrence across the Subject Site of all 23 EPBC Act flora species identified through database searches, direct losses are unlikely. The risk of a significant impacts as defined by the EPBC Act on these listed flora species is therefore also deemed to be low.

No referral is recommended under the EPBC Act in relation to significant flora species.

Nationally Threatened Species: Fauna

No EPBC Act listed fauna species were recorded during field surveys.

Database searches for significant fauna species likely to occur within a 10-kilometres of the Subject Site produced a list of 42 EPBC Act listed fauna species. This includes species listed as Migratory under the EPBC Act and/or as threatened species.

Five EPBC Act listed fauna species are considered to have a 'Moderate' or 'Moderate-High' likelihood of occurrence within the Subject Site: Fork-tailed Swift *Apus pacificus*, Diamond Firetail *Stagonopleura guttata*, Brown Treecreeper *Climacteris picumnus*, White-throated Needletail *Hirundapus caudacutus* and Swift Parrot *Lathamus discolor.* Tree losses associated with the proposal are minimal with only two trees proposed for direct removal according to the arboricultural impact assessment (Practical Ecology 2023). These are Tree 22 (Weeping Willow **Salix babylonica*) and Tree 23 (Blackwood). Given this, there will still be many trees available for these species to continue to forage within the Subject Site and surrounding area. Swift Parrot breeds in Tasmania and is a winter migrant to Victoria, typically occurring in drier forests such as Box Ironbark Forest to forage. Consequently, impacts to this species are expected to be negligible at most given the abundance of other suitable foraging trees in the surrounding landscape. Brown Treecreeper and Diamond Firetail are also unlikely to be substantially impacted given the abundance of habitat trees in the surrounding area. As the White-throated Needletail and Fork-tailed Swift are only likely to forage aerially above the Subject Site, they are not expected to be impacted by the removal of trees or other habitat from the Subject Site.

For other species of fauna listed under the EPBC Act that have lower than moderate likelihood of occurrence, a significant impact on these species is not expected. No targeted surveys for EPBC Act listed fauna species are recommended; this is also the case for a referral under the EPBC Act in relation to significant fauna species.

5.2 Flora and Fauna Guarantee Act 1988

The *Flora and Fauna Guarantee Act 1988* was legislated to ensure the continued survival of all Victorian species of flora and fauna and all Victorian communities of plants and animals. The FFG Act provides a number of ways to help achieve its objectives including:

- listing of threatened taxa, communities of flora or fauna and potentially threatening processes, and creation of Action Statements and Management Plans for all listed taxa communities of flora or fauna and processes
- declaration of a Critical Habitat if the habitat is critical for the survival of a species or a community of flora or fauna, if listed as Critical Habitat, the Minister for Environment may then make an Interim

Conservation Order (ICO) to conserve the Critical Habitat (NB: no Critical Habitat has been declared in the State)

- protection of flora and fauna through listing offences such as penalties relating to not following an ICO and taking, trading in, keeping, moving or processing protected flora without a licence. (NB: this does not apply to taking protected flora from private land (other than land which is part of the critical habitat for the flora) except for taking tree-ferns, grasstrees or sphagnum moss for the purpose of sale.

The Department of Energy, Environment and Climate Action (DEECA) is the referral authority for matters under the FFG Act.

5.2.1 Threatened Species

There are 33 flora species and 49 fauna species listed under the FFG Act recorded within a 10 km radius of the Subject Site.

None of the listed flora species were found within the Subject Site during the site assessment. All 33 flora species are deemed to have a 'low' or 'low-moderate' likelihood of occurring within the Subject Site.

Regarding the listed fauna, eight species have a 'Moderate' or 'Moderate to High' likelihood of occurrence on site. This includes Diamond Firetail, Swift Parrot, White-throated Needletail, Hardhead, Little Eagle *Hieraaetus morphnoides* and Grey-crowned Babbler *Pomatostomus temporalis*. As highly mobile species expected to only utilise the Subject Site occasionally for foraging there should be no long-term impacts to these species from the proposed development on their continued use of the Subject Site. Any impacts would be short-term and associated with construction activities.

While this is the case, there is some potential that the proposal could impact on habitat for Brown Toadlet should it occur within the Subject Site. Most local records for this species are clustered in drier forests however the moist nature of the Subject Site means that there is some potential the species could occur. There are no species permit requirements for removal of FFG Act listed species or their habitat. While this is the case, there is an opportunity to manage for this species before and during constriction to ensure that this species, and other species of amphibians that may be present are appropriately considered. A pre-clearance fauna inspection, and inspection of areas subject to installation of ballast or other materials above existing terrestrial surfaces, is recommended to ensure that any individuals are re-located to areas away from construction.

As noted in Section 3.3.3.1, there is a Moderate to High potential that Platypus occurs within the stretch of at least the Loddon River that passes through the Subject Site. Given the banks that are present, this area is less likely to be used for burrowing and nesting and more likely part of the wider foraging areas for the species. Given the existing low level crossing, there is an existing barrier to dispersal of this species should it occur in this area, especially during dry periods when water does not pass over the existing crossing. Dale Barker of Mount Alexander Shire Council (August 2023, Pers. Comm.) indicated that there are no culverts under the existing low level crossing through which this species – or other aquatic species – may pass. Given the proposed works, which will involve a short period of construction it is expected that the reduction in height of the existing low level crossing under the proposed bridge – that will allow for water flow throughout the year – will have a long term benefit for the Platypus and other aquatic species through facilitation of passage along the Loddon River all year. While there may be some short-term impacts associated with construction, such as that from siltation, light and vibration, such impacts will be managed through the construction process to avoid and minimise impacts as much as possible.

5.2.2 Threatened Communities

The FFG Act also provides for the listing of communities of flora and fauna which are threatened. The Scientific Advisory Committee (SAC) has produced a set of descriptions of Victorian Threatened Communities. The purpose of the descriptions is to help field recognition of the various communities of flora and fauna currently listed as 'threatened' under the Flora and Fauna Guarantee Act.

Relevance to proposal

Consideration was given to the potential for the Grey Box – Buloke Grassy Woodland Community to occur within the Subject Site based on mapping by DEECA. Consideration was also given to additional FFG Act communities such as the Creekline Grassy Woodland (Goldfields) Community which could be present based on characteristic canopy species. While this is the case, such communities are not considered present within the Subject Site.

5.2.3 Protected Flora Species

The protected flora controls are set out in Division 2 of Part 5 of the FFG Act. It is an offence to take, trade in, keep, move or process protected flora without a permit, or unless authorised by Order of the Governor in Council published in the *Government Gazette* (GIC Order). The FFG Act defines "take" to mean to kill, injure, disturb or collect.

For all protected flora, the controls apply to flora "…in any form including the whole organism or any part or product, whether alive or dead or however processed." (Section 45 of the FFG Act). This does not apply to private land where permission is given by the owner and the flora is not taken for the purposes of selling.

The Protected Flora List includes plants from three sources:

- plant taxa which are not threatened but are declared to be protected under section 46 of the *Flora and Fauna Guarantee Act 1988*
- plant taxa which are listed as threatened under section 10 the *Flora and Fauna Guarantee Act 1988*
- plant taxa belonging to communities which are listed as threatened under section 10 of the *Flora and Fauna Guarantee Act 1988.*

As well as protecting threatened species, protected flora are listed as protected to regulate exploitation including removal from the wild for cultivation and the cut-flower industry. Among others the list includes all clubmosses, ferns and fern allies (excluding *Pteridium esculentum*), all members of the Asteraceae (daisies) family, all members of Epacridaceae (heaths), all members of Orchidaceae (orchids) and all Acacias (excluding Silver, Early Black, Lightwood, Blackwood and Hedge Wattles).

Relevance to proposal

None of the flora species recorded within the Subject Site are considered protected flora under the FFG Act. Therefore, a permit to remove protected flora under the FFG Act is not required.

5.2.4 Flora and Fauna Guarantee Amendment Act 2019

The FFG Act has been amended to provide a modern and strengthened framework for the protection of Victoria's biodiversity. The *Flora and Fauna Guarantee Amendment Act 2019* (the Amendment Act) came into effect on June 1, 2020.

The Amendment Act:

- introduces principles to guide the implementation of the FFG Act, including consideration of the rights and interests of Traditional Owners and the impacts of climate change
- requires consideration of biodiversity across government to ensure decisions and policies are made with proper consideration of the potential impacts on biodiversity
- clarifies existing powers to determine critical habitat and improves their protection by encouraging cooperative management
- gives effect to a consistent national approach to assessing and listing threatened species using the Common Assessment Method (CAM), which will reduce duplication of effort between jurisdictions and facilitate the monitoring and reporting of species' conservation status
- modernises the FFG Act's enforcement framework including stronger penalties.

The Amended Act requires ministers and public authorities to consider the FFG Act when performing functions that might impact biodiversity when exercising their functions (set out in new section 4B).

The Act requires that in performing any of their functions that may reasonably be expected to impact on biodiversity, including a function under any Act, ministers and public authorities must consider the Act's objectives, so far as is consistent with the proper exercising of their functions.

Additional matters are also specified to be considered to clarify the objectives, including the Biodiversity Strategy, relevant action statements, management plans or critical habitat determinations. The types of potential impacts on biodiversity that should be considered are also specified, these include:

- long- and short-term impacts
- detrimental and beneficial impacts
- direct and indirect impacts
- cumulative impacts
- potentially threatening processes.

The act establishes tools to provide guidance to public authorities in considering biodiversity, these include:

- Ministerial guidelines to clarify the duty and support public authorities with further information.

Public authority management agreements made with the Secretary to DELWP, which can provide certainty that biodiversity impacts are being sufficiently considered and being managed and can streamline approval requirements.

Relevance to project

The proposed bridge is being built and administered by Mount Alexander Shire Council. As a public authority, the FFG Act must be considered when performing functions that might impact biodiversity. This Report and in the information contained within it has sought to consider and discuss potential impacts to FFG Act listed ecological (biodiversity) values, inclusive of long- and short-term impacts, direct and indirect impacts, and potentially threatening processes. The latter of these are addressed through the recommendations provided in Section 7.

5.3 Wildlife Act 1975 and Wildlife Regulations 2013

The *Wildlife Act 1975* provides for the protection and conservation of native wildlife (fauna) within Victoria. It also provides the basis for the majority of wildlife permit/licensing requirements within the state. Under the Act a person must not hunt, take or destroy endangered, notable or protected wildlife; this includes all native vertebrate animals, all kinds of deer, non-indigenous quail, pheasants, and partridges, and all terrestrial invertebrate animals listed under the *Flora and Fauna Guarantee Act 2019.*

The *Wildlife Regulations 2013* provide further detail relating to the act, including that a person not to damage, disturb or destroy any wildlife habitat (s42), although this does not apply if the person is authorised to do so under any other Act such as the *Planning and Environment Act 1987.*

Relevance to proposal

It is unlikely a separate permit is required under this Act as damage should only be to wildlife habitat and not wildlife. However, if any wildlife is located within the habitat proposed for clearing, salvage and translocation of such wildlife may be required as part of the planning permit. This should also ensure wildlife is not damaged during construction works.

5.4 Catchment and Land Protection Act 1994

The *Catchment and Land Protection Act 1994* (CaLP Act) intends to manage land degradation including detrimental environmental or economic impacts of declared noxious weeds and pest animals. Under section 20 of the CaLP Act, all land owners, including the Crown, public authorities and licensees of Crown lands, must, in relation to their land, take all reasonable steps to:

- avoid causing or contributing to land degradation which causes or may cause damage to land of another land owner;
- eradicate regionally prohibited weeds;
- prevent the growth and spread of regionally controlled weeds on their land;
- prevent the spread of, and as far as possible, eradicate established pest animals.

These are also provisions within the Act to prevent the spread of declared noxious weeds, through regulating the purchase, sale, possession for the purposes of sale, display, propagation or transport of these species into or within Victoria. Furthermore, under the Act it is prohibited to bring into Victoria, keep, sell or release declared pest animals without an authority (permit).

Declared noxious weeds are categorised into four groups depending on their known and potential impact and specific circumstances for each region. These categories are:

- State Prohibited Weeds (S) are either currently absent in Victoria or are restricted enough to be eradicated. The Victorian Government is responsible for their control.
- Regionally Prohibited Weeds (P) in the Port Phillip Catchment Management Authority (CMA) area these weeds are not necessarily widespread but have the potential to become widespread. It is expected that weeds that meet this criteria can be eradicated from the region. For weeds considered to be Regionally Prohibited it is the responsibility of the land owner to control these weeds on their land but not on adjacent roadside reserves.
- Regionally Controlled Weeds (C) are usually widespread but it is important to prevent further spread. It is the responsibility of the landowner to control these weeds on their property and on adjacent roadside reserves.
- Restricted Weeds (R) include plants that pose unacceptable risk of spreading in the State or other Australian states and are considered to be a serious threat to primary production, Crown land, the environment and/or community health if they were traded in Victoria. Trade in these weeds and their propagules, either as plants, seeds or contaminants in other material is prohibited.

Relevance to proposal

There were a few weeds declared noxious under the CaLP Act identified on the site. The following table lists the declared noxious weed observed on site.

Table 8. Declared noxious weed occurring within the Subject Site

Scientific Name	Common Name	Control Category (North Central)
**Allium triquetrum*	Angled Onion	R
**Asparagus asparagoides*	Bridal Creeper	R
**Cirsium vulgare*	Spear Thistle	R
**Conium maculatum*	Hemlock	R
**Crataegus monogyna*	Hawthorn	R
**Juncus acutus*	Spiny Rush	C
**Rosa rubiginosa*	Sweet Briar	C
**Rubus fruticosus agg.*	Blackberry	C
**Silybum marianum*	Variegated Thistle	R
**Ulex europaeus*	Gorse	C

No established pest animal species were observed during the site assessment. However, several species have the potential to occur within the Subject Site including:

Table 9. Declared established pest animals potentially occurring on site

Scientific Name	Common Name
**Felis catus*	Cat
**Oryctolagus cuniculus*	European Rabbit
**Vulpes vulpes*	Red Fox

5.5 Planning and Environment Act 1987

The *Planning and Environment Act 1987* establishes the framework for planning the use, development and protection of land in Victoria in the present and long-term interests of all Victorians. This includes providing the structure for and administering the implementation of Planning Schemes in each municipality through the Victorian Planning Provisions (VPPs). Planning Schemes are legal instruments outlining provisions for land use, development and protection. They are constructed and sourced from the VPPs.

The following section considers relevant sections of the Planning Scheme.

5.5.1 State Planning Policy Framework

Clause 12 Environmental and Landscape Values

Clause 12 of the planning scheme recognises that planning:

- should help to protect the health of ecological systems and the biodiversity they support (including ecosystems, habitats, species and genetic diversity) and conserve areas with identified environmental and landscape values.
- must implement environmental principles for ecologically sustainable development that have been established by international and national agreements.
- should protect sites and features of nature conservation, biodiversity, geological or landscape value.

Clauses of particular relevance include:

- Clause 12.01-1 Protection of biodiversity
- Clause 12.01-2 Native vegetation management

Relevance to proposal

The objectives of these clauses are considered in the body of this report that relate to avoiding and minimising impacts to biodiversity.

5.5.2 Zoning

The Subject Site is zoned as Public Conservation and Resource Zone (PCRZ) and Township Zone (TZ), and is therefore subject to the schedule of these zones.

The purpose of PCRZ is:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To protect and conserve the natural environment and natural processes for their historic, scientific, landscape, habitat or cultural values.

- To provide facilities which assist in public education and interpretation of the natural environment with minimal degradation of the natural environment or natural processes

  To provide for appropriate resource-based uses.

The purpose of TZ is:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To provide for residential development and a range of commercial, industrial and other uses in small towns.
- To encourage development that respects the neighbourhood character of the area.
- To allow educational, recreational, religious, community and a limited range of other non-residential uses to serve local community needs in appropriate locations.

Relevance to proposal

While a permit is required to construct a building or construct or carry out works under PPRZ, this does not apply to *building or works specified in Clause 62.02-1 or 62.02-2 carried out by or on behalf of a public authority or municipal council, if the public authority or municipal council is carrying out functions, powers or duties conferred by or under the Local Government Act 1989, the Reference Areas Act 1978, the National Parks Act 1975, the Fisheries Act 1995, the Wildlife Act 1975, the Forests Act 1958, the Water Industry Act 1994, the Water Act 1989, the Marine Safety Act 2010, the Port Management Act 1995 or the Crown Land (Reserves) Act 1978.* Under Clause 62.02-2 the term "roadworks" is used. A permit may therefore be required under this Zoning.

Under Township Zone, a permit is required for a range of uses although there are no specific terms around the proposed works included in this Zoning.

5.5.3 Bushfire Management Overlay – Schedule 1

The entire Subject Site is covered by the Bushfire Management Overlay – Schedule 1 (BMO1). The objective of this overlay is to:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To ensure that the development of land prioritises the protection of human life and strengthens community resilience to bushfire.
- To identify areas where the bushfire hazard warrants bushfire protection measures to be implemented.
- To ensure development is only permitted where the risk to life and property from bushfire can be reduced to an acceptable level.

Relevance to proposal

A permit under the BMO is required with regards to subdivisions or to the construction or building or carrying out of works associated with selected uses, such as hospitals and retail premises. The proposed bridge construction is not expected to trigger a planning permit requirement under this Overlay.

5.5.4 Environmental Significance Overlay (ESO5) – Schedule 5

Environmental Significance Overlay (ESO5) – Schedule 5 specifically covers the Loddon River. The Mount Alexander Shire is located in the headwaters of the Loddon-Campaspe water catchment, which is the fourth most degraded catchment in the Murray Darling Basin. The management of land adjacent to watercourses is necessary to reduce erosion, maintain vegetation, habitat and improve water quality. The objectives of this overlay are:

- To maintain the quality and quantity of water within the watercourse.
- To maintain the ability of streams and watercourses to carry natural flows.
- To prevent erosion of banks, streambeds and adjoining land and the siltation of watercourses, drains and other features.
- To protect and encourage the long-term future of flora and fauna habitats along watercourses.
- To ensure development does not occur on land liable to flooding.
- To prevent pollution and increased turbidity of water in natural water courses.
- To conserve existing wildlife habitats, close to natural watercourses and, where appropriate, to allow for generation and regeneration of habitats.
- To minimise the potential damage caused to human life, buildings and property by flood waters.
- To restrict the intensity of use and development of land and to activities which are environmentally sensitive and which are compatible with potential drainage or flooding hazards.

Relevance to proposal

Under this overlay a permit is required to:

- Construct a building or construct or carry out works. This does not apply if a schedule to this overlay specifically states that a permit is not required.
- Construct a fence if specified in a schedule to this overlay.
- Construct bicycle pathways and trails.
- Subdivide land. This does not apply if a schedule to this overlay specifically states that a permit is not required.
- Remove, destroy or lop any vegetation, including dead vegetation. This does not apply:
    - If a schedule to this overlay specifically states that a permit is not required.
    - If the table to Clause 42.01-3 specifically states that a permit is not required.
    - To the removal, destruction or lopping of native vegetation in accordance with a native vegetation precinct plan specified in the schedule to Clause 52.16.

Note under Clause 42.01-3, there is an exemption for Road Safety, which refers to:

> *Vegetation that is to be removed, destroyed or lopped to the minimum extent necessary by or on behalf of a public authority or municipal council to maintain the safe and efficient function of an existing public road in accordance with the written agreement of the Secretary to the Department of Environment, Land, Water and Planning (as constituted under Part 2 of the Conservation, Forests and Lands Act 1987).*

Mount Alexander Shire Council currently has a written agreement from the Secretary to DEECA to rely on the *Road safety* exemption. The Council is listed in the following document available online stating this is the case: https://www.environment.vic.gov.au/__data/assets/pdf_file/0030/617619/RoadWrittenAgreementList_Feb23.pdf.

As the installation of the proposed bridge and associated works are being conducted to "*improve the safety of the road to ensure all vehicles have a safe passage across the river [and will] enhance the current function of the existing road, providing better access"* (Dale Barker, Pers. Comm. September 2023) it is apparent that the Road safety exemption is applicable. Given that the total area of native vegetation to be removed is approximately 0.026 ha, and being completed to enhance the safe and efficient function of an existing road, the works being proposed are considered Low Impact Construction Works in accordance with the document titled: *Procedure to rely on the Road safety exemption in planning schemes* (DELWP 2018) as they will involve the removal of less than 0.5 hectares of native vegetation.

Further information pertaining to the application of the Road safety exemption as it relates to Clause 52.17 is provided in Section 5.5.6 which also covers the provision of information required for Low Impact Construction Works as guided by (DELWP 2018).

It is noted that with regard to Clause 42.01 (Environmental Significance Overlay), DELWP (2018) states that:

> *The exemption in the overlay clauses applies to all (native and non-native) vegetation. There is a requirement that the road authority (if not also the responsible authority) notifies the relevant responsible authority before vegetation is removed for low impact construction works or road safety projects on land where these overlays apply.*

Based on this requirement, and as outlined further in Section 5.5.6, DEECA must be notified before removal of native vegetation takes place.

5.5.5 Heritage Overlay – Schedule (HO998)

The following application requirements apply to an application under Clause 43.01, in addition to those specified elsewhere in the planning scheme and must accompany an application, as appropriate, to the satisfaction of the responsible authority:

- A written report that explains how the proposal addresses any relevant policy in this scheme and the justification for any variations from the policy.
- Building structural reports for demolition applications.
- Conservation management plans for any applications that raise significant heritage issues.
- Arborist report for applications involving significant trees.

- Plans and elevations including: detail plans as provided for applications. Fully scaled and dimensioned elevations and floor plans of existing conditions, the extent of any proposed demolition, and any alterations and additions or new buildings.
- A fully scaled and dimensioned site plan showing the existing and proposed development including outbuildings, fences, significant vegetation, car parking, new crossovers, on-site parking space locations and any other noteworthy features.
- A photo montage of the streetscape.
- A streetscape elevation which shows the existing streetscape and how the proposal sits within it.
- Elevations, where appropriate, which shows how the proposal sits within its immediate area, particularly from oblique views from neighbouring streetscapes where any part of the proposal will be visible.
- Full details and samples of materials, finishes, and colours.
- Details of any primary or secondary sources used to provide evidence of the earlier or original use, form or decoration of the heritage place.
- A landscape plan.
- For upper storey additions, sightlines showing the proposed upper storey additions.

Relevance to proposal

An arborist report is being prepared separately. The heritage place includes: Part HO1234 Bridge over Loddon River Vaughan and Castlemaine Diggings National Heritage Park

5.5.6 Clause 52.17

Under Clause 52.17 a permit is required to remove, destroy or lop native vegetation on sites greater than 0.4 hectares. Clause 52.17 requires a planning permit for the removal of native vegetation, unless exemptions apply. The purpose of the clause (amongst others) is to minimise impacts on Victoria's biodiversity from the removal of native vegetation and to manage native vegetation to minimise land and water degradation.

Application requirements and decision guidelines are listed within the Clause. Applications may fall into a Basic, Intermediate or Detailed risk pathway depending on the location and extent of vegetation removed. The application requirements and decisions depend on the relevant risk pathway. Referral to DEECA under Clause 66.02 may be required for an application to remove native vegetation; e.g. if clearing is greater than 0.5 ha or the application follows the detailed pathway.

Relevance to proposal

Consistent with the *Road safety* exemption that applies to the need for a planning permit under ESO5, this same exemption applies to Clause 52.17. Under this exemption, the requirement to obtain a permit under this Clause does not apply to:

> *Native vegetation that is to be removed, destroyed or lopped to the minimum extent necessary by or on behalf of a public authority or municipal council to maintain the safe and efficient function of an existing road in*

accordance with the written agreement of the Secretary to the Department of Environment, Land, Water and Planning (as constituted under Part 2 of the Conservation, Forests and Lands Act 1987).

As noted above, Mount Alexander Shire Council currently has a written agreement from the Secretary to DEECA to rely on the Road safety exemption, with the works being proposed classifiable as *low impact construction works* given that they *require the removal of less than 0.5 hectares of native vegetation* and are being done to *enhance the safe and efficient function of an existing road* (DELWP 2018).

It is noted that while a Permit under Clause 52.17 is not required based on the Road Safety exemption, the removal of native vegetation for low impact construction works must comply with specific requirements outlined in the *Procedure to rely on the Road safety exemption in planning schemes* (DELWP 2018) on Pages 6 through 8. The information below seeks to provide information pertaining to these requirements:

- *Identify the native vegetation to be removed*
    - This report, and in particular Section 3.1 along with Map 2 and Map 3, identifies native vegetation within the Subject Site in accordance with the requirements of the *Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017).
    - Assumed loss of native vegetation from the proposed bridge have been outlined in Section 4 above and total approximately 261m^2. This is inclusive of anticipated impacts from construction on the native vegetation identified surrounding the bridge location, and also takes into consideration TPZs in accordance with the *Australian standard 4970-2009 Protection of trees on development sites* (AS 4970-2009). Anticipated tree removals take into account the information presented in the separate *Arboricultural Impact Assessment Tarilta Low-Level Crossing* prepared by Maria Koulaginis of Practical Ecology (dated September 2023).
- *Avoid and minimise*
    - Proposed impacts to native vegetation will be undertaken to the minimum extent necessary in order to construct the bridge. Such removals based largely on anticipated impacts to allow for construction processes meaning that most native vegetation surrounding the existing roadway will be retained. While removals will include some losses of native understorey species from all Habitat Zones, which includes individual Blackwood and River Bottle-brush specimens close to the existing roadway and edge of the Loddon River, it is noted that no overstorey trees are proposed to be included in these removals.
- *Consult*
    - Information in the *Procedure to rely on the Road safety exemption in planning schemes* (DELWP 2018) implies that works are being undertaken by a party other than Council, and refer to the need to notifying local Council. It also noted that local council *cannot object to the proposed vegetation removal when undertaken in accordance with this procedure*. It is anticipated that this will apply to the current application, even where DEECA may be deemed the referral authority in relation to Council works.
- *Consult with biodiversity experts*
    - As noted below, the assessment pathway applicable to the project as guided by the *Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017) is Basic. On this basis, consultation in relation to the application of the Road safety exemption and associated

requirements is to be undertaken with the *Road authority's internal experts*. In this instance, Practical Ecology has been acting on behalf of council to provide advise as it relates to native vegetation and other ecological matters which is reflected in the contents of this current report.

- *Final design and assessment pathway*

    - The *Native Vegetation Removal Report* generated for this project, based on losses shown on Map 3 is provided in Appendix 6. EVCs and scores for each of the Habitat Zones affected by the proposed works have been based on data collected during the field survey and presented in Section 3.1.2; these have been used rather than modelled condition scores and DEECA mapped EVCs.

    - Note here that losses within the *Native Vegetation Removal Report* in Appendix 6 are based on all native vegetation located in the areas marked for removal being impacted on a worse-case scenario basis. Note here however that there will be no canopy trees removed from these areas, within only one tree – Tree 23 – identified in the arborist report to be removed from these areas. There will be some low-growing Blackwoods and River Bottlebrush likely to be removed from these Habitat Zones, along with some understorey species, however overall losses are anticipated to be minimal based on the final proposed design.

- *Exempt Project Endorsement Form*

    - As per the *Procedure to rely on the Road safety exemption in planning schemes* (DELWP 2018), The Native Vegetation Removal Report in Appendix 6 must be attached to the Exempt Project Endorsement Form. This form is provided in Appendix 7, noting that a report of available offsets is also provided in Appendix 8 to show that required offsets are available through a third-party from multiple brokers.

6. RECOMMENDATIONS

6.1 Fauna

Effort must be made to ensure any wildlife located within any area proposed for clearing is carefully salvaged and relocated from the works areas (whether it be near trees or by the riverbanks or river).

A pre-start fauna inspection should be conducted by qualified personnel that can manage any fauna that may be located within areas impacted by works before construction works. Inspections should also be undertaken prior to any initial soil disturbance, or placement of ballast over existing grade on the riverbank sections in attempt to manage any amphibian species that may be present in these locations.

6.2 Native vegetation

Native vegetation has been identified and mapped across the site. The works area should be clearly flagged out to avoid impacts to adjacent areas of native vegetation. Further detail is provided below.

6.3 Weeds and pathogens

To minimise the risk of introducing weeds onto the site, machinery should be cleaned prior to use and all effort should be made to ensure any materials utilised on the site is clean and free of weed seeds and pathogens.

6.4 Management of construction site

The proposed Construction Footprint should be clearly marked and managed so that only areas permitted to be disturbed are impacted. This will include keeping construction works to the areas identified as works zone, access, vehicle movement and storage of materials.

To ensure the flora and fauna values identified on site are managed appropriately:

- construction works to be confined to designated 'Go-Zones', where construction activities and access will take place;
- temporary fencing, to be installed around the 'Go-Zones' to limit the movement of vehicles and machinery; where there is the potential for subsurface harm to root zones the use of above ground footings should be considered
- erosion and sediment control measures to be implemented, including;
    - drainage management
    - soil stabilisation measures alongside construction zones near areas likely to exhibit erosion;

  - protocols around management and location of stockpiles, along with restrictions on vehicle movement through fencing;
  - sediment barriers to be erected where necessary to prevent sediment laden runoff

- waste management and chemical management to be undertaken to reduce risk of contamination of areas containing flora and fauna values;
- areas of native vegetation that may be excavated should have the soil managed appropriately to ensure that the seed bank is utilised in remediation.

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Appendix 1. Maps

Maps commence on the following page.

Disclaimer

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Legend

- Subject Site
- Parcels
- Contours (10m)
- Natural watercourse

Details

Mapping by: Ali Nia
Date: 9/13/2023
Version: 1
Aerial photography from Nearmap (June. 2023).
Data Source: Base layers courtesy of VicMap,

Map 1. Subject Site

Tarilta Low Level Crossing

N

0 5 10 m

Scale: 1:600 (Page size A3)

Disclaimer

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Legend

- Subject Site
- Parcels
- Contours (10m)
- Natural watercourse

Trees

- S — Small Tree in the Patch
- L — Large Tree in the Patch

Habitat Zone

- EVC 641: Riparian Woodland

Details

Mapping by: Ali Nia
Date: 9/13/2023
Version: 1
Aerial photography from Nearmap (June. 2023).
Data Source: Base layers courtesy of VicMap, Copyright © State of Victoria.

Map 2. Ecological Conditions

Tarilta Low Level Crossing

N

0 5 10 m

Scale: 1:600 (Page size A3)

Disclaimer

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Legend

- Subject Site
- Parcels
- Contours (10m)
- Natural watercourse

Trees

- S — Small Tree in the Patch
- L — Large Tree in the Patch

Habitat Zone

- EVC 641: Riparian Woodland
- Vegetation Impacts

Details

Mapping by: Ali Nia
Date: 9/13/2023
Version: 1
Aerial photography from Nearmap (June. 2023).
Data Source: Base layers courtesy of VicMap, Copyright © State of Victoria.

Map 3. Vegetation Impacts

Tarilta Low Level Crossing

N

0 5 10 m

Scale: 1:600 (Page size A3)

Appendix 2. Flora recorded at Subject Site

The following table provides a list of flora recorded in the Subject Site during fieldwork.

Origin

*: exotic species; #: Victorian native species extended beyond natural range; Empty: Indigenous species

Family	Origin	Scientific Name	Common Name	EPBC	FFG
MONOCOTYLEDONS					
Alliaceae	*	*Agapanthus praecox subsp. orientalis*	Agapanthus		
Alliaceae	*	*Allium triquetrum*	Angled Onion		
Asparagaceae	*	*Asparagus asparagoides*	Bridal Creeper		
Poaceae	*	*Avena spp.*	Oat		
Poaceae	*	*Bromus catharticus*	Prairie Grass		
Poaceae	*	*Bromus diandrus*	Great Brome		
Cyperaceae		*Carex spp.*	Sedge		
Juncaginaceae		*Cycnogeton spp.*	Water Ribbons		
Poaceae	#	*Cynodon dactylon*	Couch		
Cyperaceae	*	*Cyperus eragrostis*	Drain Flat-sedge		
Poaceae	*	*Dactylis glomerata*	Cocksfoot		
Poaceae	*	*Ehrharta erecta*	Panic Veldt-grass		
Poaceae	*	*Ehrharta longiflora*	Annual Veldt-grass		
Poaceae	*	*Holcus lanatus*	Yorkshire Fog		
Iridaceae	*	*Ixia spp.*	Ixia		
Juncaceae	*	*Juncus acutus subsp. acutus*	Spiny Rush		
Juncaceae		*Juncus spp.*	Rush		
Poaceae	*	*Paspalum dilatatum*	Paspalum		
Poaceae	*	*Phalaris aquatica*	Toowoomba Canary-grass		
Poaceae		*Poa labillardierei*	Common Tussock-grass		
Typhaceae		*Typha spp.*	Bulrush		
DICOTYLEDONS					
Mimosaceae		*Acacia melanoxylon*	Blackwood		
Rosaceae		*Acaena echinata*	Sheep's Burr		
Myrtaceae		*Callistemon sieberi*	River Bottlebrush		
Lauraceae		*Cassytha spp.*	Dodder Laurel		
Asteraceae	*	*Cirsium vulgare*	Spear Thistle		
Apiaceae	*	*Conium maculatum*	Hemlock		
Myrtaceae		*Eucalyptus camaldulensis*	River Red-gum		
Myrtaceae		*Eucalyptus polyanthemos*	Red Box		
Euphorbiaceae	*	*Euphorbia lathyris*	Caper Spurge		
Euphorbiaceae	*	*Euphorbia peplus*	Petty Spurge		
Papaveraceae	*	*Fumaria spp.*	Fumitory		

Family	Origin	Scientific Name	Common Name	EPBC	FFG
Rubiaceae	*	*Galium aparine*	Cleavers		
Geraniaceae		*Geranium spp.*	Crane's Bill		
Asteraceae	*	*Hypochaeris radicata*	Flatweed		
Primulaceae	*	*Lysimachia arvensis var. arvensis*	Scarlet Pimpernel		
Malvaceae	*	*Modiola caroliniana*	Red-flower Mallow		
Oxalidaceae	*	*Oxalis pes-caprae*	Soursob		
Oxalidaceae	*	*Oxalis purpurea*	Large-flower Wood-sorrel		
Plantaginaceae	*	*Plantago lanceolata*	Ribwort		
Salicaceae	*	*Populus nigra 'Italica'*	Lombardy Poplar		
Rosaceae	*	*Rosa rubiginosa*	Sweet Briar		
Rosaceae	*	*Rubus fruticosus spp. agg.*	Blackberry		
Polygonaceae		*Rumex spp.*	Dock		
Lamiaceae	*	*Salvia verbenaca*	Wild Sage		
Asteraceae	*	*Silybum marianum*	Variegated Thistle		
Solanaceae	*	*Solanum nigrum s.s.*	Black Nightshade		
Asteraceae	*	*Sonchus asper s.s.*	Rough Sow-thistle		
Asteraceae	*	*Sonchus oleraceus*	Common Sow-thistle		
Asteraceae	*	*Symphyotrichum subulatum*	Aster-weed		
Fabaceae	*	*Trifolium spp.*	Clover		
Fabaceae	*	*Ulex europaeus*	Gorse		
Fabaceae	*	*Vicia spp.*	Vetch		
Apocynaceae	*	*Vinca major*	Blue Periwinkle		

Appendix 3. Potentially occurring listed flora species

Conservation status under EPBC Act 1999:
EX: Extinct, CR: Critically endangered, EN: Endangered,
VU: Vulnerable and CD: Conservation dependant

Conservation status under FFG Act 1988:
x: Presumed extinct, e: Endangered, v: Vulnerable, r: rare and k: poorly known

EPBC	FFG	Origin	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	Cr		*Acacia sporadica*	Pale Hickory-wattle	Endemic to Victoria where it is known from 3 disjunct locations (Taradale, Howqua, and Carboor). At each of these sites plants occur in grassy, dry Eucalyptus woodland or forest on shallow soils. Flowers Jul.-Sep.	559	2021	Low	While numerous records in search area on VBA , species has localised occurrences with the grassy dry Eucalypt woodlands and forests that are not present within the Subject Site. The site is also highly degraded and not likely to support this species.
	Cr		*Caladenia clavescens*	Castlemaine Spider-orchid	Endemic to central Victoria where now known only from the Castlemaine region in box-ironbark forest on skeletal or stony brown loam. Flowers Sep.-Oct.	24	2011	Low	While numerous records in search area on VBA, vegetation types the species is known to occur in are not present within the Subject Site. The site is also highly degraded in the ground-layer and unlikely to support this species.
VU	En		*Caladenia concolor*	Crimson Spider-orchid	Sporadic and uncommon in dry open-forests, mostly of north-eastern Victoria, on ridges and slopes in well-drained shallow stony or skeletal soils. Flowers Sep.-Oct.	3	2010	Low	Low number of local records. Habitat within the Subject Site, including degraded ground-layer not expected to support this species.
VU	Cr		*Caladenia formosa*	Elegant Spider-orchid	Apparently restricted to south-west Victoria near Dergholm (type locality), where occurring in open woodland in sandy soil. Flowers Sep.-Oct.			Low	There are no records for this species on VBA within 10km of the Subject Site. Habitat within the Subject Site, including degraded ground-layer, not expected to support this species.

EPBC	FFG	Origin	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
VU	En		*Caladenia ornata*	Ornate Pink-fingers	In Victoria known only from the south-west in heathy forest on seasonally moist sandy loam. Flowers Oct.-Dec.			Nil	There are no records for this species on VBA within 10km of the Subject Site. Habitat within the Subject Site, including degraded ground-layer, not expected to support this species.
VU	En		*Caladenia versicolor*	Candy Spider-orchid	Restricted to the western part of the Midlands region in the vicinity of Stawell, in woodland on winter-wet sandy loam. Flowers Oct.-Nov.			Low	There are no records for this species on VBA within 10km of the Subject Site. Habitat within the Subject Site, including degraded ground-layer, not expected to support this species.
	En		*Cassinia diminuta*	Dwarf Cassinia	A subshrub of the understorey of Eucalyptus behriana mallee and E. tricarpa woodland on sandy-clay soils mostly in the Whipstick and Kamarooka Forests. Also from near Rushworth where it occurs in E. tricarpa - E. microcrapa woodland and open forest. Flowers Jan. -Mar.	36	2011	Low	While numerous records in search area on VBA, species occurs in vegetation types that that are not present within the Subject Site. The site is also highly degraded and not likely to support this species.
	Cr		*Comesperma polygaloides*	Small Milkwort	Occurs on heavier soils in Plains Grassland and Plains Grassy Woodland EVCs on volcanic soils (Walsh and Entwisle 1999).	4	2005	Low	Small Millkwort is commonly found across western grassland plains. This site was not suitable for this species
	En		*Cyanothamnus anemonifolius subsp. aurifodinus*	Goldfield Boronia	Apparently endemic in mallee communities between Bolangum (north of Stawell) and Rushworth. Flowers spring.	1	1981	Nil	Grows in Mallee communities and this is not the type of habitat on site nor surrounding areas.

EPBC	FFG	Origin	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
EN	Cr		*Dianella amoena*	Matted Flax-lily	Largely confined to drier grassy woodland and grassland communities south of the Dividing Range and now much depleted through its range. Flowers mostly Nov.-Jan.	19	2016	Low	While numerous records in search area on VBA, the vegetation types within the Subject Site are not the drier woodland and grassland communities that would typically support this community. The site is also highly degraded in the ground-layer and not likely to support this species.
	Cr		*Dianella sp. aff. longifolia (Benambra)*	Arching Flax-lily	Occurs in lowland plains grassland and grassy woodlands (e.g. Volcanic Plain and Riverina) as well as around rocky outcrops at higher altitudes than the var. longifolia (e.g. between Swifts Creek and Omeo, Benambra-Corryong district, Don River near Launching Place). Overall, rather rare in the State. Flowers Nov.-Dec.	1	2005	Nil	There is only one local record for this species on the VBA, and the vegetation types within the Subject Site are not the woodland and grassland communities that would typically support this community. The site is also highly degraded in the ground-layer and not likely to support this species.
	Cr		*Dianella tarda*	Late-flower Flax-lily	Open, often grassy forests of foothills and plains of north-eastern and north-central Victoria (e.g. Mansfield, Euroa, Chiltern, Nagambie, Nathalia areas). Often on lower slopes or near gullies and watercourses, usually on clay or clay-loam soils. Flowers Nov.-Jan.	10	2011	Low	While there are numerous records for this species in the search area on the VBA, and it is known to occur near gullies and watercourse, the ground-layer across the Subject Site was highly disturbed and dominated by exotic species. No species of Dianella were observed, and indigenous ground-storey species were minimal. It is therefore not expected to occur within the Subject Site.

EPBC	FFG	Origin	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
VU	Vu		*Eucalyptus aggregata*	Black Gum	In Victoria, restricted to Woodend–Gisborne region. Flowers summer–autumn.			Low	There are no records for this species on the VBA within 10km of the Subject Site. Restricted to Woodend–Gisborne region. Trees on site – as assessed by Arborist – not determined to be this species.
	En		*Eucalyptus conferta*	Fryers Range Scentbark	Apparently restricted to the Fryers Range between Castlemaine and Daylesford, on dry shallow soils. Flowers autumn.	39	2010	Low	While numerous records, species has a very localised occurrence on dry shallow soils. These are not present within the Subject Site, therefore the species is not expected to occur.
VU	Vu		*Glycine latrobeana*	Clover Glycine	Widespread but of sporadic occurrence and rarely encountered. Grows mainly in grasslands and grassy woodlands. Flowers mostly Sep.–Dec.(–Feb. at higher altitudes).	827	2011	Low	While there are numerous records for this species, these are predominantly from areas near Taradale in public land areas associated with Fryers Range. The Subject Site is not of the grassland or grassy woodland forest types, and degradation of the ground-layer also reduces the potential that this species would occur.
	En		*Grevillea dryophylla*	Goldfields Grevillea	Fairly common in the Western Goldfields in the Bendigo–St Arnaud–Maryborough–Castlemaine district. Grows in dry eucalypt forest (box–ironbark–stringybark associations) in poor stony or gravelly soil. Flowers Aug. – Nov.	1	2014	Low	There is only record for this species on the VBA. Further to this, Goldfields Grevillea grows in dry eucalypt forests on poor stoney or gravelly soils. As such habitat is not present within the Subject Site, the species is not expected to occur.

EPBC	FFG	Origin	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	En		*Grevillea obtecta*	Fryerstown Grevillea	Restricted to an area bounded approximately by Castlemaine, Guildford, Glenlyon and Taradale. Grows usually in well-drained situations in dry sclerophyll forest, sometimes in shallow gullies on ridge slopes. Flowers Aug.-Dec.	3026	2014	Low	Fryerstown Grevillea has affinity with dry sclerophyll forests. While there are a very high number of records with the 10km database search area, these are located in heavily forested areas to the east and south of the Subject Site. The Subject Site does not present suitable habitat for this species and it is therefore not expected to occur.
EN	En		*Lachnagrostis adamsonii*	Adamson's Blown-grass	Occurs in and around saline depressions on the Volcanic Plain where recorded from Portalington west almost to the South Australian border. Flowers Nov.-Feb.			Low	No records for this species in search area on the VBA. Adamson's Blown-grass found in saline depressions on the Volcanic Plain.
VU	En		*Lepidium aschersonii*	Spiny Peppercress	Mostly on heavy clay soil near salt lakes on volcanic plain, but with outlying records from near Lake Omeo (in 1940 &1981) and the Grampians (in 1893). Flowers spring-autumn.			Nil	There are no records for this species on VBA within 10km of the Subject Site. Habitat within the Subject Site, including degraded ground-layer, not expected to support this species.
EN	En		*Leucochrysum albicans subsp. tricolor*	White Sunray	Very rare in Victoria, the only recent collections from volcanic grassland remnants in the Wickliffe, Willaura, Streatham, Inverleigh and Creswick districts. All other Victorian collections were made last century, from e.g. Mt Cole, the Grampians and the Port Fairy district. Flowers Nov.-Dec.			Low	White Sunray very rare and found in grasslands on volcanic plains. No suitable habitat for this species within the Subject Site and no records on the VBA locally.

EPBC	FFG	Origin	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
VU	Cr		*Myriophyllum porcatum*	Ridged Water-milfoil	Rare and restricted to northern and north-western Victoria where it has been recorded growing in temporary waterholes, lagoons, farm dams and rock holes, and on clay pans. Flowers Sep.-Dec			Low	There are no records for this species on VBA within 10km of the Subject Site. Habitat within the Subject Site, including degraded ground-layer, not expected to support this species.
CR	Cr		*Pimelea spinescens subsp. spinescens*	Spiny Rice-flower	Grows in grassland, open shrubland and occasionally woodland, often on basalt-derived soils. Mostly west of Melbourne (to near Horsham), but extending as far north as Echuca. Flowers Apr.-Aug.	1548	2015	Low	While there are a number of records for this species within the search area on the VBA, these are localised and located in areas of open plains associated with woodland vegetation types. The species is not expected to occur within the Subject Site.
EN	En		*Prasophyllum frenchii*	Maroon Leek-orchid	Widespread across southern Victoria, but rare. Occurs in grassland, heathland and open forest on well-drained or water-retentive sand or clay loams. Flowers Oct.-Nov.			Low	There are no records for this species on VBA within 10km of the Subject Site. Habitat within the Subject Site, including degraded ground-layer, not expected to support this species.
VU	En		*Pterostylis chlorogramma*	Green-striped Greenhood	Apparently localized in Victoria, but exact range uncertain due to confusion with closely allied species. Grows in moist areas of heathy and shrubby forest, on well-drained soils. Flowers Jul.-Sep.			Low	There are no records for this species on VBA within 10km of the Subject Site. Habitat within the Subject Site, including degraded ground-layer, not expected to support this species.
	En		*Pterostylis rubescens*	Inland Red-tip Greenhood	Widespread across northern Victoria on slopes and ridges in drier open forests and woodlands on well-drained soils. Flowers Jan.-May	5	2006	Low	Inland Red-tip Greenhood grow in drier open forests and woodlands on well drained soils. The Subject Site is also considered too degraded to support this species.

EPBC	FFG	Origin	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	En		*Pterostylis smaragdyna*	Emerald-lip Greenhood	Apparently localized in Victoria (e.g. outer north-eastern suburbs of Melbourne, Brisbane Ranges, Ararat), but exact range uncertain due to confusion with allied species. Grows in drier forests and woodlands on well-drained shallow clay loam. Flowers Jun.-Aug.	1	2010	Low	Low number of local records. Habitat within the Subject Site, including degraded ground-layer not expected to support this species.
	Cr		*Ptilotus erubescens*	Hairy Tails	Occasional on relatively fertile soils supporting grassland and woodland communities in northern and western Victoria, but not in mallee areas. Flowers Nov.-Feb.	1	1999	Low	Low number of local records. Habitat within the Subject Site, including degraded ground-layer not expected to support this species.
	En		*Pultenaea graveolens*	Scented Bush-pea	Rare, known in Victoria from a few areas west of Melbourne (e.g. Brisbane Range, northern Grampians and midland areas between Nagambie and Castlemaine). Occurs in shrub under-storey of dry Stringybark or Ironbark forest. Flowers Oct.	10533	2015	Low	Scented Bush-pea can be found in dry stringybark or ironbark forests, with numerous records for this species in dense bushland areas to the south of the Subject Site. While this is the case, the Scented Bush-pea is not expected to occur given the vegetation types present and degradation of the ground-layer.

EPBC	FFG	Origin	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
EN	Cr		*Senecio behrianus*	Stiff Groundsel	Exceedingly rare in Victoria, and thought to be extinct until 1991 when rediscovered between Rochester and Stanhope, and Miners Rest near Ballarat in 2004. Apparently confined to heavy, winter-wet, clayey soils. Formerly known from Casterton, Swan Hill, Barham areas, with specimens from the 'Wimmera', and You Yangs near Lara of uncertain affinity, but closest to Senecio behrianus.			Low	There are no records for this species on VBA within 10km of the Subject Site. Stiff Groundsel confined to heavy winter-wet clayey soils. Habitat within the Subject Site, including degraded ground-layer, not expected to support this species.
	En		*Senecio campylocarpus*	Floodplain Fireweed	In Victoria mostly throughout central Victoria and in the north-east in loam to clay soils in forest and woodland, usually in seasonally inundated areas. Flowers spring-autumn.	1	2011	Low-Moderate	While there is only one record for this species within the search area on the VBA, the location of the Study Site surrounding drainage lines means that there is at least some potential that this species could occur. The degradation of the ground-layer does however reduce this likelihood to low-moderate at best.
VU	Cr		*Senecio macrocarpus*	Large-headed Fireweed	In Victoria largely confined to remnant Themeda grasslands on loamy clay soils derived from basalt from near Melbourne west to Skipton area. Also known from auriferous ground near Stawell. Formerly recorded from near Horsham and Casterton, but apparently long extinct from these areas. Flowers Aug.-Oct.			Nil	There are no records for this species on VBA within 10km of the Subject Site. Large Headed Fireweed mainy predoinant in Themeda grasslands. Habitat within the Subject Site, including degraded ground-layer, not expected to support this species.

EPBC	FFG	Origin	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
VU	En		*Thelymitra matthewsii*	Spiral Sun-orchid	Widely distributed but rare, in coastal sandy flats or slightly elevated sites (to 400 m) in well-drained soils (sandy loams to gravelly limestone soils) in open forest. Plants colonise disturbed sites and slowly disappear as these sites stabilise. Flowers Aug.-Sep.(-Oct.).			Low	There are no records for this species on VBA within 10km of the Subject Site. Habitat within the Subject Site, including degraded ground-layer, not expected to support this species.
VU	Cr		*Xerochrysum palustre*	Swamp Everlasting	Occurs in lowland swamps, usually on black cracking clay soils, scattered from near the South Australian border north-west of Portland to Bairnsdale district, but rare due to habitat depletion. Flowers Nov.-Mar.			Low	There are no records for this species on VBA within 10km of the Subject Site. Habitat within the Subject Site, including degraded ground-layer, not expected to support this species.

Appendix 4. Potentially occurring listed fauna species

International Treaty
B: Bonn Convention; C: CAMBA; J: JAMBA; R: ROKAMBA.
EPBC Act 1999 conservation status
EX: Extinct, CR: Critically endangered, EN: Endangered, VU: Vulnerable and CD: Conservation dependant.

FFG Act 1988 status
ex: Extinct, rx: Regionally Extinct, wx: Extinct in the Wild, cr: Critically Endangered, en: Endangered, vu: Vulnerable, nt: Near Threatened, dd: Data Deficient

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
		En	*Accipiter novaehollandiae*	Grey Goshawk	The Grey Goshawk has a stronghold in Victoria; particularly the white form in the Otway Ranges, where wet forests and gullies containing Mountain Grey Gum adjoin partly cleared farmlands. They occur in lower densities in similar habitats in the Strzelecki Ranges, Gippsland Plains and Otway Plains. Elsewhere in the State they are occasionally seen in woodlands, dry forests, suburban parks and wooded farmlands (Marchant and Higgins 1993).	2	1998	Low	Occasionally Grey Goshawks are seen in woodlands/dry forests and wooded farmlands. While there is therefore moderate quality habitat on site to support this species, there are only two local records for this species, with the latest one from 1998.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
BA2H			*Acrocephalus australis*	Australian Reed Warbler	Typically dense, low, aquatic or riparian vegetation. Vegetation with a vertical structure, in and around nearly any type of fresh, brackish or saline wetlands, reeds, cumbungi, pencil rush, over water, river red gum regrowth, weeping willows, bamboos, crops near irrigation channels and public gardens. Widespread in E Australia, mostly south of tropics; clings to stems, forages on floating vegetation. In Vic, occurs throughout lowlands and foothills and only rarely in highlands; most common in wetlands and irrigation areas of mid and upper Murray valley. Largely absent from mountainous areas of North-East and Gippsland districts (Pizzey and Knight 2007) (Higgins, Peter and Cowling 2006)	33	2020	Low-Moderate	There is riparian vegetation, including River Red Gums, alongside the waterways within and adjacent to the Subject Site. While floating vegetation on which this species forages is not prominent on site, given the number of local records there is some potential that this species would utilise the habitat present within the Subject Site, at least occasionally.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
BA2H,R,J, C		Vu	*Actitis hypoleucos*	Common Sandpiper	Regular, widespread but mostly uncommon summer migrant to Australia (Aug–May) (Pizzey and Knight 2007). Wide range of coastal or inland wetlands, with varying levels of salinity. Mainly muddy margins of rocky shores of wetlands; often around estuaries and deltas of streams; also lakes, pools, billabongs, reservoirs, dams and claypans; associated with mangroves. Large coastal mudflats are not favoured (Higgins and Davies 1996).			Nil	There are no species recordings within the local area for the Common Sandpiper, that is commonly found in coastal areas and wetlands areas. No coastal habitat types biotic/abiotic influences can be found at the Subject Site for the species to persist. Therefore a Nil likelihood is given.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	CR	Cr	*Anthochaera phrygia*	Regent Honeyeater	Its range has contracted dramatically from its historical distribution as the species has suffered badly from broad-scale clearing and complete absence of old growth box-ironbark habitat so that now only around 100 individuals remain wild in Victoria. It is a rare vagrant to the country around Bendigo (where it was once common) and to Gippsland (where it was a regular visitor), and in most years only a handful of birds are seen in eastern Victoria — four-fifths of sightings are from just three locations: Chiltern, the Killawarra, and the Reef Hills. It is highly nomadic in its movements as determined by the need for a nectar rich diet from the flowering of eucalypts particularly Mugga Ironbark Eucalyptus sideroxylon, White Box Eucalyptus albens, Yellow Box Eucalyptus melliodora and Yellow Gum Eucalyptus leucoxylon (SWIFFT 2017).			Low	There are no current records in the local areas for the Honeyeater around the Subject Site. This species of birds is confined to 100 individuals. At the Subject Site, it lacks the nectar rich species on which the species forages. The species would have a low likelihood therefore for the Subject Site.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	VU		*Aphelocephala leucopsis*	Southern Whiteface	The Southern Whiteface is endemic to Australia and typically inhabits arid open woodlands with a shrubby or grassy understory, as well as grass plains throughout much of the continents south.Not present in Tasmania or in coastal areas of the mainland, this species prefers Acacia woodlands, particularly those dominated by mulga and drought-resistant chenopod shrub species, including saltbush and bluebush.[3][6] They are considered sedentary; however, atlas records indicate that individuals may move into wetter areas outside of their normal range during drought years.	5	1999	Low	The Southern Whiteface typically inhabits arid open woodlands with a shrubby or grassy understory that are not present within the Subject Site. Further t this, the species species not been observed within the local landscape since 1999.
	VU	En	*Aprasia parapulchella*	Pink-tailed Worm-Lizard	Dry open forest and woodland, with sparse grassy understorey and abundant surface rock. Particular preference for hilly, north-west facing, well-drained slopes with outcropping sedimentary rock. Often shelters beneath rocks and in ant tunnels, on which it preys. Secretive and seldom seen (Tzaros 2005).			Low	Not having been recorded yet in the local area, the Pnk-tailed Worm-lizard can be found in woodland areas. Th Subject site composes somewhat of a woodland however the other components of its habitat preference are absent from the Subject Site and thus the likelihood of it occurring is low.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
C,R,J			*Apus pacificus*	Fork-tailed Swift	The Fork-tailed Swift is a migratory species occurring throughout Australia between October-April. This insectivorous species is almost entirely aerial. Occurs over inland plains, often over cliffs or beaches and also over settled areas. Feed aerially, and probably also roost aerially, although rarely seen to land (Higgins 1999; Pizzey and Knight 2007).	38	2020	Moderate	Despite being a migratory species, the Fork-tailed Swift can be found with quite a few records within the local area. Despite being almost entirely aerial this species can roost or forage aerially over the Study Subject.
C,J			*Ardea alba*	Great Egret	Habitat includes terrestrial wetlands, estuarine, littoral and moist grass habitats. Forages in open, shallow water and generally avoids dry or deeply flooded areas. Breed in wetlands with fringing or flooded trees, or other tall vegetation in which nests are built. Are known to use mangroves along the coast. Roosts in trees or near wetlands (Marchant and Higgins 1990).	4	2001	Low	The Great Egret appears mostly in moist grass habitats / terrestrial wetlands. While the Subject Site has some habitat elements that may support this species, given the low number of records in the local landscape and marginal habitat it is not expected to occur within the Subject SIte or make significant use of it.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
		Vu	*Aythya australis*	Hardhead	Hardheads inhabit deep to shallow wetlands with open water and fringing emergent vegetation (Pizzey and Knight 2007). The species feeds by diving in deep water and occasionally by dabbling just under the water surface (Rogers 1990b). Nests are built in thick vegetation (e.g. reeds, lignum, cumbungi), usually over water (Halse et al. 2005; Rogers 1990a). These birds are most common in the wetland systems of inland Australia (Halse et al. 2005). Birds do visit Victoria from these areas in spring and summer, returning as the northern wetlands are replenished by rain (Halse et al. 2005). However, some birds are present in Victoria all year round depending on the suitability of the wetland (Pizzey and Knight 2007).	23	2001	Moderate	There have been several records of the Hardhead within the local landscape. Inhabiting deep water to shallow wetlands the species may be suitable to using the Loddon River or Fryers Creek at least for foraging.
		Vu	*Biziura lobata*	Musk Duck	Usually seen in small numbers on the deep waters of well-vegetated fresh to saline lakes, swamps and occasionally shallow inlets and bays. Nests are formed in low vegetation in areas sheltered by surrounding vegetation (Marchant and Higgins 1990; Pizzey and Knight 2007).	3	1988	Low	There are only three records for this species in the local landscape, with the last record from 1998. Further to this, while the Subject Site includes the Loddon River and Fryers Creek, this is not considered the lake type habitat generally expected to support this species.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	EN	Cr	*Botaurus poiciloptilus*	Australasian Bittern	This species is part nocturnal and forages over water in dense cover, sometimes from platforms in wetland vegetation. Habitat is usually tall reedbeds, sedges, rushes, cumbungi or lignum. Also occurs on rice fields, drains in tussocky paddocks and occasionally on saltmarshes and brackish wetlands. Nests are shallow saucers on trampled water plants (Pizzey and Knight 2007).			Low	Australian Bittern is found in drainage areas and wetlands none of which were on site. The habitat that the Australian Bittern uses to nests on are not present, nor is other dense wetland vegetation. There were also no species recordings for the local area. This species can therefore be given the Nil classification.
C,J			*Bubulcus coromandus*	Eastern Cattle Egret		1	1980	Low	The Eastern Cattle appears mostly in moist grass habitats / terrestrial wetlands. While the Subject Site has some habitat elements that may support this species, given the low number of records in the local landscape and marginal habitat it is not expected to occur within the Subject SIte or make significant use of it.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
		Vu	*Calamanthus pyrrhopygius*	Chestnut-rumped Heathwren	The species occurs in southeastern Australia from the Granite Belt of southeast Queensland through eastern New South Wales, Victoria, and southeast South Australia. In Victoria, it ranges inland to the Grampians and Bendigo region, but is more typically observed in coastal parts. Its preferred habitats are heaths of coastal, mountain and hinterland areas, and the dense undergrowth of forests and woodland. It is sedentary and uncommon within its range.	1	1980	Low	The habitat preferences that support this species, including heathy undergrowth, are not present within the Subject Site. Further to this, there is only one record within the local landscape for this species.
BA2H,R,J, C			*Calidris acuminata*	Sharp-tailed Sandpiper	Inhabits tidal mudflats, saltmarshes, mangroves, shallow fresh, brackish or saline inland wetlands, floodwaters, irrigated pastures and crops, sewage ponds and minefields. Breeds in Arctic Siberia, migrates to south and south east Asia. Widespread summer migrant to coastal and inland Aust and Tasmania (Aug – April), mostly SE. Aust, Murray Darling Basin and W. Vic (Pizzey and Knight 2007).	1	1980	Low	There has only been one occurrence of the species across the local area of the Subject Site. The Sharp-tailed Sandpiper mainly occurs in areas inundated with water, despite the Loddon River being present, the Subject Site is not a suitable habitat for it and thus a low likelihood is given.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
BA2H,R,J, C	CR	Cr	*Calidris ferruginea*	Curlew Sandpiper	Summer migrants to Victoria from Arctic breeding grounds (Aug–April). This species is found in a range of wetland habitats: tidal mudflats, saltmarsh, saltfields, fresh to saline wetlands, both coastal (most) and inland. Also visits sewage ponds (Pizzey and Knight 2007).			Low	The Curlew Sandpiper is a migratory bird that appears in wetlands and costal areas. It has not been recorded near the Subject Site and is not geographically found in these areas. The habitat also would not occur within the Subject Site likewise.
BA2H,R,J			*Calidris melanotos*	Pectoral Sandpiper	Summer migrant (Aug–April) (Pizzey and Knight 2007). Mainly shallow, fresh to saline wetlands; usually coastal but are occasionally found inland. Habitat includes coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. Forage in shallow water or soft mud at the edges of wetlands and often close to low fringing or emergent vegetation (Higgins and Davies 1996).			Nil	With no species recordings for the Pectoral Sandpiper that is mainly a coatal speces, it is highly like to not find the species present at all at the Subject Site. Given the species niche is not present within the given habitat at the Subject Site a Nil rating was given.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	EN		*Callocephalon fimbriatum*	Gang-gang Cockatoo	The species can be found in eucalypt woodland forests of south-eastern Australia. It is a seasonal altitudinal migrant where it moves from mountain forests at higher altitudes to forests at lower altitudes and coastal areas during Autumn and Winter. Usually seen in small groups but can form large flocks when foraging. Found in South-east Australia. From eastern New South Wales, through to the Central Tablelands and South-Western Slopes around Wagga Wagga and Albury; along the New South Wales south coast. Widespread in the Gippsland region and Central Highlands in Victoria.			Low-Moderate	There are no local records of the Gang-gang Cockatoo on the VBA. The Subject Site may have composed of elements of habitat for the Gang-gang Cockatoo, however it is a seasonal altitudinal migrant and would only occasionally use the Eucalypts present on site to forage or roost before flying off to more suitable habitat. Overall with no local records the species is deemed unlikely to occur.
	VU		*Climacteris picumnus*	Brown Treecreeper (south-eastern ssp.)	Occurs in eucalypt woodlands, particularly open woodland lacking a dense understorey (Higgins, Peter and Steele 2001). It is sedentary and nests in tree hollows within permanent territories, breeding in pairs or communally in small groups. Birds forage on tree trunks,on the ground amongst leaf litter and on fallen logs for ants, beetles and larvae (Higgins, Peter and Steele 2001).	169	2019	Moderate	The Brown Treecreeper is found in woodland that lacks a dense understory in particular. Given the high levels of leaf litter and logs present for foraging the species could occasionally occur on site, at least for foraging given the high numbers of local records.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	EN	En	*Dasyurus maculatus maculatus*	Spot-tailed Quoll	There are records of the Spot-tailed Quoll all across Victoria. The main stronghold areas for this species in Victoria are now in North East and East Gippsland. The populations in Southwest Victoria, including the Otway Ranges, Cobobbonee State Forest, Mt Eccles National Park and the Mt Eccles lava flow are critically endangered. The Spot-tailed Quoll occupies a range of forest habitats, particularly wet eucalypt forests associated with rocky outcrops, extensive riparian vegetation and high levels of ground dwelling prey. They make dens in hollow logs, hollow trees, rock crevices and caves. They feed nocturnally but have been observed in daylight hours. They feed on small/medium mammals, birds and insects. Latrine sites are often situated in exposed areas such as rock ledges.			Low	There are no records of the Spot-tailed Quoll within the local area as they are mainly confined to North East/East Gippsland. Occurring in a range of habitats however they are not suited in habitat that is present at the Subject Site. Regarding the likelihood of their occurrence it would be suggested they are unlikely to occur.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	VU	En	*Delma impar*	Striped Legless Lizard	Found in native grasslands and open grassy woodlands; also known to occur in areas with cover of exotic species. Shelters beneath loose rocks and in grass tussocks (Wilson and Swan 2008).			Nil	There are no species records for the species within the local area. The habitat at the Subject Site did not suite the species preferred niche of open grassy woodlands, although there were exotic species of ground cover present, but lacked grass tussocks. This would therefor give the species a Nil likelihood rating.
	VU	Vu	*Falco hypoleucos*	Grey Falcon	Inhabit grasslands, lightly wooded plains and scrublands of interior Australia. Birds occur sporadically on the periphery of their range, such as NW. Vic. More common in Vic during or after droughts. They surprise their prey on the ground while flying low and fast over open country and also catch prey in flight. They nest in trees, in the disused stick-nests of other birds.			Low	The Grey Falcon has not been recorded within the local area of the Subject Site. The species does have adjacent open farmland nearby to the Subject Site however, which may serve as a potential site for catching prey. Despite this there is still a low likelihood of a Grey Falcon appearing at the Subject Site.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
		Cr	*Falco subniger*	Black Falcon	The Black Falcon has a stronghold in inland Australia. Most Victorian records come from the lowlands and only occasionally from the foothills. It occurs mainly over croplands, grasslands and wooded farmlands. To catch flushed prey, they sweep low over croplands and grasslands and are often attracted by smoke from grassfires and late-summer burning off. This species nests in trees in old stick-nests of other birds (Marchant and Higgins 1993; Pizzey and Knight 2007).	2	2007	Low	Given the location of the Subject Site and location of adjacent farmland within which this species is more likely to forage, it is unlikely that this species would use the trees within the Study Site to any significant degree even if it was to occur. Given the low number of local records this is not expected to be the case regardless.
	CR	Vu	*Galaxias rostratus*	Flat-headed Galaxias	Restricted to the Murray Darling system including major tributaries such as the Murrumbidgee, Loddon, Goulburn, Ovens, Mitta Mitta and Lachlan rivers. Inhabits still or gently flowing water on the margins of lakes, billabongs and streams. It usually occurs in shoals in midwater over rocky or sandy bottoms near aquatic vegetation (Allen, Midgley and Allen 2002; Gomon and Bray 2011).			Low-Moderate	Flathead galaxias inhabit still or calm flowing waters on margins of lakes, billabongs and streams. Despite this there have been no recordings within the local area. There may be the potential for the species to occur but not highly likely although it is found in the major tributaries such as the Loddon.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
BA2H,R,J, C			*Gallinago hardwickii*	Latham's Snipe	Latham's Snipe is a migratory species. The species migrates to Victoria from breeding grounds in Japan. In Victoria this species is widely distributed in a range of habits including heavily vegetated freshwater swamps, and pools or ditches in heaths or subalpine herblands (Pizzey and Knight 2007). Also occurs in small ephemeral wetlands such as wet depressions after floods recede. Generally roosts in thick vegetation during the day, sometimes under shrubs away from wetlands, and will feed in swamps at night. They are occasionally seen feeding during the day. This species feeds by probing in soft mud and rarely moves far from concealing vegetation (Higgins and Davies 1996).	8	2006	Low	As the Subject Site has at least some dense vegetation in the ground layer that may provide cover for this species, there is some potential that it could occur at least occasionally within the Subject Site or adjacent areas along the Loddon River or Freyers Creek. Most records are however quite distant from the Subject Site, and overall its potential to use the Subject Site is relatively low.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	VU	Vu	*Grantiella picta*	Painted Honeyeater	The Painted Honeyeater is a summer migrants to Victoria. They are generally found to inhabit box-ironbark, Broad-leaved Peppermint and Red Stringybark forests and box-buloke woodlands in the northern foothills of the great Divide. May also occur in Red Ironbark, Red Box forests in southern Victoria. They are occasionally found along Murray River valley to Hattah-Kulkyne NP where they inhabit Black Box woodlands. This species is usually found in open stands of old eucalypts that are infested with mistletoes (Higgins, Peter and Steele 2001).	76	2018	Low-Moderate	While there are numerous records for this species in the local area, the vegetation and trees on site is not that preferred by the species. While it may occasionally fly over the site to more suitable habitat while on migration to and from Victoria, it is not likely to make any significant use of the Subject Site.
		Vu	*Hieraaetus morphnoides*	Little Eagle	Found across mainland Australia and Tasmania. Occurs in mountain forrests to nearly treeless plains, ocassionally over lakes, beaches and cities. The Little Eagle is seen over woodland and forested lands and open country, extending into the arid zone. It tends to avoid rainforest and heavy forest. Little Eagles nest in mature living trees in open woodland or tree-lined watercourses. They rarely nest in isolated trees.	39	2006	Moderate-High	There are numerous records for this species in the local landscape, including observation of the species relatively close to the Subject Site. The species is likely to at least potentially roost and hunt from trees within the Subject Site; there is also potential that the species could nest within trees within the Subject Site given its preference for trees along tree-line watercourses.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
C,R,J	VU	Vu	*Hirundapus caudacutus*	White-throated Needletail	In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable. In Australia, White-throated Needletails almost always forage aerially, at heights up to 'cloud level', above a wide variety of habitats ranging from heavily treed forests to open habitats, such as farmland, heathland or mudflats (Higgins 1999).	10	2001	Moderate	The White-throated Needletail is almost predominantly aerial. However will be seen to use forests, and open habitat like farmlands. There is some potential that the species could forage aerially over the Subject Site.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	CR	Cr	*Lathamus discolor*	Swift Parrot	The Swift Parrot is a winter migrant to Victoria (Team 2001). They arrive from their breeding areas in Tasmania, however small numbers of non-breeding birds may remain here during summer (Higgins 1999; Team 2001). They are nomadic, and follow the flowering of trees and psyllid infestations. In Victoria their distribution is centered on box-ironbark forests, but they are often seen in town parks and occur sporadically elsewhere in dry forests, dry woodlands and wooded farmlands. They are seldom seen in treeless areas, rainforests or wet forests (Higgins 1999; Pizzey and Knight 2007). Feed mainly in winter-flowering plants, especially Red Ironbarks and ornamental trees and shrubs (Higgins 1999; Team 2001).	24723	2008	Moderate	There are numerous records for this species in the local landscape, with most from records from drier forest types such as Box Ironbark Forest. While individuals may make some use of the trees on site for foraging on occasion, this is likely to be only while on passage to more suitable habitat and they are unlikely to make significant use of the foraging resources on site.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
		En	*Lissolepis coventryi*	Swamp Skink	The Swamp Skink can be found in cool temperate, low-lying wetlands including swamp margins, tea-tree thickets and tidal salt-marshes. The freshwater wetlands are typically dominated by Leptospermum or Melaleuca spp. It typically occurs in or adjacent to dense sedge and tussock life-form vegetation without a dense canopy, allowing it to bask in the sun on logs or in open patches of the vegetation. It shelters in burrows (Wilson and Swan 2008).			Nil	There have been no records for the Swamp Skink within the local areas surrounding the Subject Site. The Subject Site does have present a vast quantity of logs however the species did not have preferential vegetation such as Leptospermum dominating the Subject Site. This gives the likelihood a Nil rating.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	VU	Vu	*Litoria raniformis*	Growling Grass Frog	The species often inhabits water bodies with a diverse assemblage of aquatic vegetation, including emergent species such as sedges (Gahnia spp.), submergent species such as curly pondweed (Potamogeton spp.), floating species such as water ribbon (Triglochin spp.) and filamentous algae (Hamer and Organ 2006; Heard, Robertson and Moysey 2004). The aquatic vegetation provides sites for male frogs to call from, sites for eggs to be deposited and relatively safe development, and food and shelter for tadpoles. Dense submergent vegetation is especially important to protect eggs and tadpoles from predation (Heard, Robertson and Moysey 2004). However, it is also known to occur in ditches, dams and swamps or sheltering under discarded debris near those sites (Stromberg, Rychener and Dixon 2009, pp. 38–39).			Low	The Growling Grass Frog occupies waterbodies with a range of aquatic vegetation. However despite the Loddon River and Fryers Creek being present at the Subject Site there are no records in the local area for this species; aquatic vegetation in the waterways likely to support this species is also largely absent within the Subject Site in the vicinity of the existing low level crossing.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
		Vu	*Lophoictinia isura*	Square-tailed Kite	Found in heathlands, woodlands, forests, tropical and sub tropical rainforest, timbered watercourses, hills and gorges. Nest are large and loose made of sticks 15-25m up in leafy tree. Range in coastal and sub-coastal south east Australia including Murray River region in SA. (Pizzey and Knight 2007)	7	2018	Low-Moderate	The Square-tailed Kite has been recorded a few times recently within the local area of the Subject Site. Found across timbered watercourses and woodlands, there lays elements of these habitat types at the Subject Site. This bird of prey could occasionally be found to be present.
	EN	En	*Maccullochella macquariensis*	Trout Cod	Found in rapidly flowing streams, around the cover of logs and debris, over rocky and gravel bottoms. Larger fish occur in deeper sections. The last remaining self-sustaining wild populations occur in the Murray River, both in northern Victoria (Allen, Midgley and Allen 2002).			Low	There are no local recordings for the Trout Cod. The Loddon River flows through the Subject Site, which may be suitable, however, the last remaining self-sustaining species belong in the Murray Darling and therefore there is no possibility for th species to occur.
	VU	En	*Maccullochella peelii*	Murray Cod	The Murray Cod lives in a wide variety of habitats from silty slow moving rivers to clear rivers with pools and riffles. This fish prefers instream habitat of rocks and logs with over-hanging vegetation (Allen, Midgley and Allen 2002).			Low	There are no records within ten-kilometres of the Subject Site for this species. The Murray Cod prefer habitats of silty slow moving rivers to clear rivers with pool and riffles. Despite Loddon River flowing through the Subject Site it is not likely for it to be present given the absence of local records.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	EN	Vu	*Melanodryas cucullata*	Hooded Robin	Highest density in semi-arid NW. Victoria where they inhabit mallee scrubs, cypress pine woodlands, mallee heaths with scattered trees and box-ironbarks forests. Uncommon in southern Vic where they occur in a range of lightly timbered habitats containing tall shrubs. These include Box woodlands, coastal heaths and heathy woodlands. Forage on bare ground, using vantage points such as dead limbs or fence posts to detect prey (Marchant and Higgins 1993; Pizzey and Knight 2007).	4	2017	Low	The habitat present on site is not that which supports this species. This along with a relatively low number of local records reduces the potential that this species would occur.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
J			*Merops ornatus*	Rainbow Bee-eater	The species is widespread throughout mainland Australia, except in desert areas. Southern birds move north for winter {Birdlife Australia, no date #14287}. They are most often found in open forests, woodlands and shrublands, and cleared areas, usually near water. They are also found on farmland with remnant vegetation and in orchards and vineyards. They will use disturbed sites such as quarries, cuttings and mines to build its nesting tunnels {Birdlife Australia, no date #14287}. Both males and females select a suitable nesting site in a sandy bank and dig a long tunnel leading to a nesting chamber, which is often lined with grasses.	7	2020	Low-Moderate	The Rainbow Bee-eater is found amongst woodland and semi-cleared land, along with farmland. While this species has only a few individuals recorded in the local landscape, the last of these records is relatively recent and the species could occur on site at least occasionally.
		Cr	*Miniopterus orianae oceanensis*	Eastern Bent-wing Bat	The eastern bent-wing bat lives along the eastern coastline of Australia. These bats will live in tall timbered forest to open grasslands. In forested areas, they are known to forage for flies, cockroaches and beetles well above the canopy but in grasslands they stay to within a few metres above the ground. Some individuals have been known to travel up to 65km in one night.	1	2011	Low-Moderate	While there is some potential for this species to utilise the Subject Site, at least for foraging, there is only one local record for the species in the local landscape.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
J, C, R			*Motacilla flava*	Yellow Wagtail	Habitat requirements are highly variable, but typically include open grassy flats near water. Habitats include open areas with low vegetation such as grasslands, airstrips, pastures, sports fields; damp open areas such as muddy or grassy edges of wetlands, rivers, irrigated farmland, dams, waterholes; sewage farms, sometimes utilise tidal mudflats and edges of mangroves. Breeds from Siberia to west Alaska, migrating to Africa and to Sth and south-eastern Asia, Indonesia and New Guinea. Regular summer migrant to mostly coastal Australia (Pizzey and Knight, 2012) The species is considered a vagrant to Victoria, South Australia and southern Western Australia (SPRATT)			Low	The Species has yet to have a recording locally to the Subject Site. The surrounding landscape however allows for the species to be able to potentially persist as there is adjacent landscape with farms. The habitat at the Subject Site however, is typically not suitable to the species.
BA2H			*Myiagra cyanoleuca*	Satin Flycatcher	The Satin Flycatcher migrates to southern parts of Victoria during the spring/summer months. It is generally found in many habitat types including wet sclerophyll and woodland particularly along watercourses (Higgins, Peter and Cowling 2006).	4	2021	Low-Moderate	The Satin Flycatcher is found along woodland along watercourses. There is some potential that the species could utilise the habitat across the Subject Site, at least occasionally, but is not expected to make significant use of the site.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	VU	Vu	*Nannoperca australis Murray-Darling Basin lineage*	Southern Pygmy Perch (Murray-Darling lineage)	Observed to prefer habitats in low-gradient waterways and floodplains with slow-flowing or still water, and aquatic macrophyte cover or wood at shallow depths, with little or no flow in summer (Cadwallader 1979; Humphries 1995; Woodward & Malone 2002; Unmack et al., 2011; 2013; Hammer et al., 2013; Price et al., 2016). The species has a limited tolerance of salinity and prefers waters with salinity less than 3.3 ppt (Chessman & Williams 1974), however it can tolerate a broad range of temperatures and extremely low dissolved oxygen levels (McNeil & Closs 2007).			Low	The Murray-Darling Basin lineage has not been recorded within the local area to the Subject Site. The species prefers waterways and floodplains of slow flowing water, however the Subject Site was not entirely as its preferred habitat despite Loddon River present which appears fast flowing.
	VU		*Neophema chrysostoma*	Blue-winged Parrot	Occurs in South-eastern mainland Australia and Tasmania. Inhabits woodlands, coastal heaths and grasslands.			Low	The Blue-winged Parrot has not been recorded within the local area to the Subject Site on the VBA. While the woodland vegetation on site is suitable for this species, the absence of local records within a ten-kilometre radius reduces it likelihood of occurrence to low.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
		Cr	*Ninox connivens*	Barking Owl	Occurs in dry woodlands, wooded farmlands and dry forests in the 500-800mm annual rainfall zone and extend into semi-arid areas in River Red Gum forests along the Murray River. Hollow dependent species (Higgins 1999; Pizzey and Knight 2007).	3	2020	Low-Moderate	The Barking Owl can occur in woodlands, wooded farmlands and dry forests (including river red gum forests). Only 3 individuals have been found and last in 2020, however the species does have a large home range and could occasionally forage on prey items that may be living within the Subject Site.
		Vu	*Ninox strenua*	Powerful Owl	Widespread in foothill and coastal forests where they especially favour gullies with Peppermint-Manna Gum forests. Occasionally seen in wetter mountain forests, drier box-ironbark forests and woodlands, and softwood plantations. Hunts at night by flying through the forest canopy catching prey from tree branches. They nest in large holes in trees (DSE 2004).	4	2007	Low-Moderate	The Powerful Owl can occur in a range of habitat types. While there are only three individuals recorded in the local landscape, with the last from 2020, the species does have a large home range and could occasionally forage on prey items that may be living within the Subject Site.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
BA1,R,J,C	CR	Cr	*Numenius madagascariensis*	Eastern Curlew	Common summer migrant to Australia (Aug–May) (Pizzey and Knight 2007). Found in sheltered coasts, especially estuaries, embayments, harbours, inlets and coastal lagoons with large intertidal mudflats or sandflats. Mainly forages on soft sheltered intertidal sandflats or mudflats, open and without vegetation, also on saltflats and in saltmarsh (Higgins and Davies 1996).			Low	The Eastern Curlew is a species of bird that migrates to Australia and inhabits coastal areas. The habitat within the Subject Site would not appear to be within the niche of the Eastern Curlew and therefore Nil likelihood would be given.
		En	*Oreoica gutturalis*	Crested Bellbird	Inhabits Slender Cypress Pine (Callitris preissii)–Belah (Allocasuarina cristata) woodlands and Dumosa Mallee (E. dumosa) scrubs (particularly in the Sunset Country) and Red Ironbark (E. sideroxylon) and Grey Box (E. microcarpa) forests in the Northern Goldfields. Less frequent in Yellow Mallee (E. incrassata), Broom Honeymyrtle (Melaleuca uncinata) scrubs regenerating after brushwood harvesting and in other mallee scrubs regenerating after fires. Often recorded where their favoured habitats adjoin farmlands. Feeds from the ground or from low, dense shrubs. Nests are built in shrubs or low trees and occasionally in hollows in stumps or limbs.	2	2017	Low	The habitat preferred by this species is not present within the Subject Site. With a low number of local records for this species, it is not likely that it would make use of the Subject Site.

		Vu	*Ornithorhynchus anatinus*	Platypus	Platypus are endemic to Australia and is dependent on rivers, streams and bodies of freshwater. It is present in eastern Queensland and New South Wales, eastern, central and southwestern Victoria and throughout Tasmania. Platypuses occur in freshwater systems from tropical rainforest lowlands and plateaus of far northern Queensland to cold, high altitudes of Tasmania and the Australian Alps. They feed in both slow-moving and rapid (riffle) parts of streams, but show preference to coarser bottom substrates, particularly cobbles and gravel. When not foraging, the Platypus spends most of the time in its burrow in the bank of the river, creek or a pond. At times, the individuals use rocky crevices and stream debris as shelters, or they burrow under the roots of vegetation near the stream. Hence, the ideal habitat for the species includes a river or a stream with earth banks and native vegetation that provides shading of the stream and cover near the bank. The presence of logs, twigs, and roots, as well as cobbled or gravel water substrate result in increased microinvertebrate fauna (a main food source), and the Platypus also	8	2021	Moderate-High	The Platypus has had a few records in recent years within the surrounding landscape lodged on the VBA. Occurring in a wide variety of streams including the Loddon River, there is potential for this species to be present at the Subject Site. This would likely serve as at least foraging and sheltering habitat for the species. Given that steeper banks are preferred for burrowing by the species however, it is unlikely that burrowing would occur within the vicinity of the existing low level crossing.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
					tends to be more abundant in areas with pool-riffle sequences.				
		Vu	*Oxyura australis*	Blue-billed Duck	This species inhabits deep, permanent, well-vegetated swamps, but at times (especially in winter) may occur in large numbers on large open wetlands. The Blue-billed Duck catches food while diving or occasionally by feeding from the water surface. Their nests are built on trampled swamp vegetation around the base of established stands of reeds/rushes, often over water or on small islands (Marchant and Higgins 1990; Pizzey and Knight 2007).	1	1998	Low	The Blue-billed Duck occurs in more swampy vegetated areas and occur in large open wetlands. While there is only on individual record from 1998 within the local landscape, open water within the Subject Site means there is at least some potential those species could occur. This is however, overall expected to be unlikely.

	EN	Cr	*Paralucia pyrodiscus lucida*	Eltham Copper	This subspecies of the Dull Copper P. pyrodiscus is endemic to Victoria, with a very sparse, scattered distribution consisting of three general localities in Victoria: Eltham/Greensborough areas where about 10 sites exist across different tenure and management; Kiata and Salisbury areas in western Victoria, known from about 6 sites which includes Crown Land at Kiata and the Salisbury Bushland Reserve; Castlemaine & Bendigo areas: about 5 sites near Castlemaine within National Park, Botanic Gardens & State Forest and 6 sites near Bendigo within National Park and one on private land (SWIFFT 2017). It has an obligatory relationship with Notoncus spp. ants and the dwarfed form of Sweet Bursaria Bursaria spinosa. These discrete populations are found within sparse, dry woodland on well-drained gentle slopes with north to west aspects, particularly with Red Stringybark Eucalyptus macrorhyncha, Red Box E. polyanthemos, Long-leaved Box E. goniocalyx, and Late Black Wattle Acacia mearnsii and an understorey including Cherry Ballart Exocarpos cupressiformis, Hedge Wattle A. paradoxa,	70	2020	Low	While there are a number of records for this species in the local landscape, the species has affinity with Sweet Bursaria which is not present within the Subject Site.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
					Drooping Cassinia Cassinia arcuata Shiny Cassinia C. longifolia, and Sweet Bursaria, and a groundcover including Small-leaf Clematis Clematis microphylla, Purple Coral-pea Hardenbergia violacea, and Common Flat-pea Platylobium obtusangulum amongst native grasses, mosses and leaf litter (DSE 2003).				
	CR	Cr	*Pedionomus torquatus*	Plains-wanderer	Main distribution is within the Riverina of NSW, patchy elsewhere, and only occurring in small numbers in northern Victoria. Inhabits open grasslands with preference towards Danthonia and Stipa species. However, vegetation structure is more important than floristic composition. Does not occur in dense grasslands and woodlands (Marchant and Higgins 1993; Pizzey and Knight 2007).	1	2021	Low	Only once has the Plains Wanderer been recorded within the local area.. The Plains Wanderer is not present in woodlands and its occupancy is very small in Victoria. Open grasslands are not present within the Subject Site. Thus a low likelihood is given to the species.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	EN	Vu	*Petauroides volans*	Greater Glider	Occurs in wet sclerophyll forest on the ranges and coastal plains from near Mossman, NE. QLD to Daylesford, VIC. Favours forests with a diversity of eucalypt species, due to seasonal variation in its preferred food tree species. Requires large tree hollows for shelter, and found in most abundance where there is a high density of tree hollows. In southern Queensland require at least 2-4 den trees for every 2ha of habitat. They are significantly vulnerable to logging and have relatively small home ranges and poor dispersal ability. In Victoria, their numbers have declined sharply in recent years (TSSC 2016).			Low	The Greater Glider has not been recorded locally to the Subject Site. They require large trees with a high abundance of large hollows and sclerophyll forest areas. The Subject Site would not be a suitable habitat for the species.
	VU		*Petaurus australis*	Yellow-bellied Glider	The Yellow-bellied Glider is found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. The species occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south.			Low	Currently there are no present records of the specie occurring within the Subject Site local area. Yellow -bellied gliders occur in tall mature eucalypt forests, to which there were elements of this present at the Subject Site which they could potentially use for habitat for roosting or foraging. Despite this however it is unlikely that they may persist here.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
		Vu	*Phascogale tapoatafa*	Brush-tailed Phascogale	This species typically inhabits dry forest and woodland dominated by box, ironbark and stringybark eucalypts but may also occur in wetter forests (Menkhorst 1996). Prefers open forest with sparse groundcover, but uses habitats ranging from mallee to rainforest. The understorey and ground cover in these favoured habitats may be sparse, consisting of "scattered tussocks and forest litter" (Menkhorst 1996). Other characteristics of known habitat of this species include dead trees (favoured for foraging), availability of bark from the Red Stringybark (for nest material) (Menkhorst 1996), and a number of tree hollows with entrances as narrow as five centimetres or less (for nesting and shelter). Has disappeared from substantial areas of Victoria in recent times (Belcher, Burnett and Jones 2008).	80	2022	Low-Moderate	While there are numerous records for this species in the local landscape, these are largely from heavily forested areas higher in the landscape that support species of Eucalypts that have greater associated with this species than those found withing the Subject Site.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	VU	En	*Polytelis swainsonii*	Superb Parrot	Found only in the Upper Murray Valley, mainly in the riverine forests and woodlands of Barmah Forest in Victoria. All other sightings have been made along or within 10 km of the Murray, Ovens and Goulburn Rivers. Nests located in hollows of very large riparian trees in River Red Gum forests. Feeds mainly in Black Box, Grey Box and Yellow Box woodlands and wooded farmlands away from their nest-trees but also within the River Red Gum forests round their nest. All nests are within 10km of major feeding areas. Forages on the ground and occasionally in eucalypts and mistletoes. The loss in range of this species is attributed to clearing and grazing of woodland feeding habitats but laying of poison baits for rabbits and Galahs, illegal trapping for the avicultural trade and logging of nest-trees are other possible causes (Higgins 1999`. pp. 287-295).	1	1982	Low	Most records for this species are located in the Upper Murray Valley. While the trees within the Subject Site are River Red Gums that this species prefers to nest in, there is only one record for this species in the local landscape from 1982.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
		Vu	*Pomatostomus temporalis*	Grey-crowned Babbler	Typically occupies open forest and woodland on inland plains. Requires an open shrub layer with sparse ground cover and fallen timber and leaf-litter and is rarely recorded in regrowth. In Vic, suitable habitat has five critical elements: 1) woodland or open forest with fertile or heavy soils, 2) more trees than sites not supporting Babblers, 3) mature eucalypts with a diameter at breast height (dbh) greater than 90cm or cypress pines with 60cm dbh, 4) understorey saplings of 10-30cm dbh for nesting or sheltering and 5) sparse ground layer with much litter and little grass cover. The absence of one element causes a decline in numbers (Higgins and Peter 2002).	11	2001	Moderate	There have been some records of the Grey-crowned Babbler on the VBA in the areas surrounding the Subject Site. Occurring in woodlands and as there are Eucalypt woodlands present at the Subject Site there is a likelihood of the species being present.
		En	*Pseudophryne bibronii*	Brown Toadlet	Frequent dry forest, woodland, shrubland and grassland, sheltering under leaf-litter and other debris in moist soaks and depressions. Eggs are spawned in shallow burrows (or nets) under litter, in low areas, near water, that will later be flooded. Tadpoles are aquatic in ponds, flooded grassland and roadside ditches (Hero, Littlejohn and Marantelli 1991).	75	2022	Moderate	While there are some records for this species within relatively close proximity to the Subject Site, with more recent records from denser forest areas in the surrounding landscape. While this is the case, given the moist nature of the Subject Site and its tendency to flood there is some potential that this species could occur within the Subject Site.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	VU	Vu	*Pteropus poliocephalus*	Grey-headed Flying-fox	Eastern coastal Australia from Gladstone in Qld to South Gippsland and Melbourne in Vic, with rare influxes further west and south. Rarely more than 200km inland. In warmer months gathers in very large camps, usually in dense forest in gullies. Population is more dispersed in winter. Size of camps fluctuate in response to local food supplies. In south numbers fluctuate in regular pattern, being highest in late summer-autumn and lowest in winter (Menkhorst and Knight 2001).	1	2012	Low	There is only one record for this species on the VBA in the surrounding landscape. While there is some potential that this species could occasionally forage on site, it potential to occur is low given the location of local camps.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
		En	*Pyrrholaemus sagittatus*	Speckled Warbler	Mainly grassy ground layer of dry sclerophyll forests and woodlands, often with scattered shrubs in under-storey.Mainly found in forests dominated by eucalyptus, especially box-ironbark forests and woodlands e.g. near Chiltern, NE. Victoria. found near Bendigo recorded in red Stringybark, red box and long leaved box with a grassy ground layer and well-spaced shrubs in understorey, but not in red ironbark or yellow gum forests. Occasionally occur in mallee habitats, sometimes with native pine; in Victoria, mostly confined to N. foothills of great divide but scattered on S. slopes of great divide (Higgins and Peter 2002).	29	2019	Low	While the species is known to occur in the surrounding area, it mostly occurs in Box-ironbark Forest and other similar vegetation types including Red Stringybark, Red Box and Long-leaved Box, which was not recorded on site. While the species may make occasional use of the site, it is not considered to be ideal habitat which was dominated by River Red Gum.
BA2H			*Rhipidura rufifrons*	Rufous Fantail	In Victoria, the Rufous Fantail mainly inhabits the undergrowth of temperate rainforests, and wetter eucalypt forests and gullies, but also occurs in paperbark thickets, sub-inland/coastal scrub, along watercourses and within parks/gardens. On migration it is seen at a wide range of locations from farmland to built up streets (Pizzey and Knight 2007).	1	2012	Low	Within the surrounding landscape, there is only one record for Rufous Fantail on the VBA. As the species prefers more wetter Eucalypt forests and gullies, the habitat was not ideal at the Subject Site. Thus the chances of the species being present at the Subject Site is low.

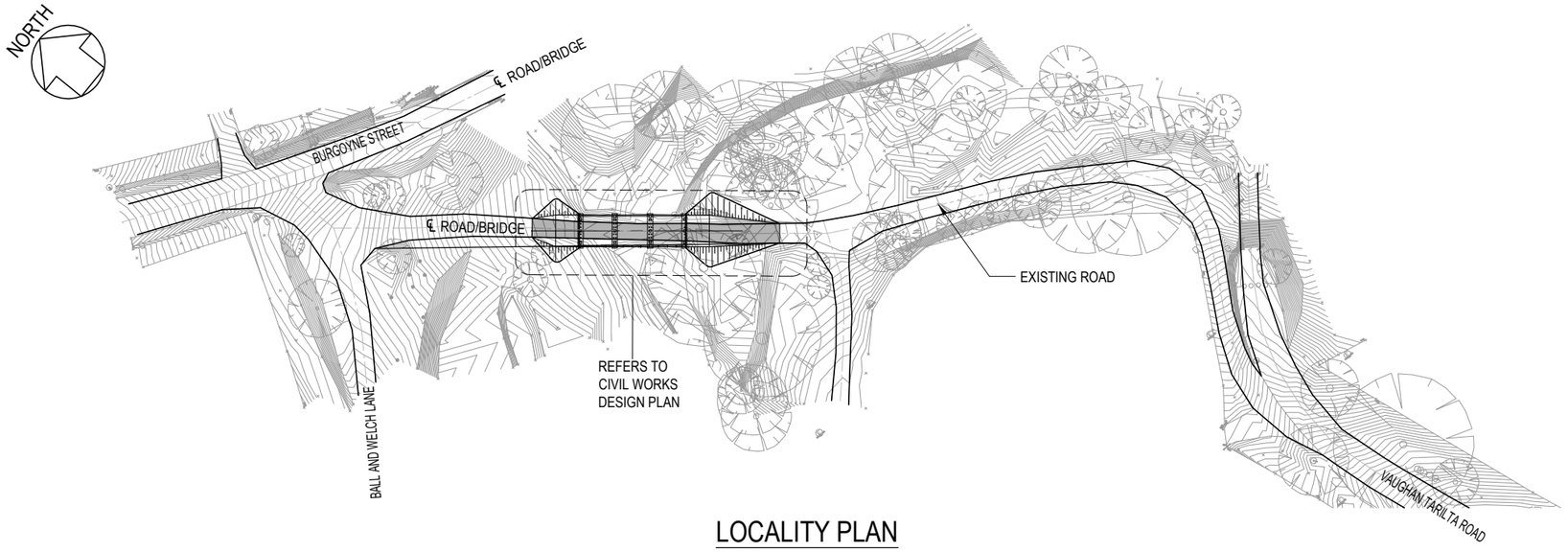
Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
C	EN	Cr	*Rostratula australis*	Australian Painted Snipe	Generally uncommon in Australia and scattered records in Victoria. Uses terrestrial shallow freshwater (occasionally brackish) wetlands, ephemeral and permanent lakes, swamps, claypans, inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains with rank emergent tussocks of grass, sedges, rushes or reeds, or samphire, often with scattered clumps lignum, canegrass or tea-tree (Marchant and Higgins 1993).			Low	The Australian painted Snipe is more found in wetlands , swamps and inundated grasslands. Site was not really this type of habitat for it to be present.
			Sminthopsis crassicaudata	Fat-tailed Dunnart	The Fat-tailed Dunnart is found in a wide range of habitats throughout southern and central Australia. Habitats include open grasslands, gibber plains, low shrublands, claypans, and also rough farmland and stubble field margins (Menkhorst and Knight 2001; Van Dyck and Strahan 2008).	2	1991	Low	There is only one record of the Fat-tailed Dunnart found within the local area according to the VBA. Habitat that the species is said to occur in e,g grassland or farmland may be within the adjacent landscape however it is present within the Subject Site.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
		Vu	*Spatula rhynchotis*	Australasian Shoveler	The Australasian Shoveler occurs mainly on large, well-vegetated wetlands and lakes, occasionally including areas with saline waters. Populations are found in higher numbers on permanent, well-vegetated freshwater swamps with areas of open water. This species nests in grass nests on the ground, usually in dense cover and near water (Marchant and Higgins 1990; Pizzey and Knight 2007).	2	1981	Low	There is only one record for this species on the VBA. Whilst the Loddon River and Fryers Creek flow through the Subject Site the open water associated with freshwater swamps and dense cover near the water required by the species is not present.
	VU	Vu	*Stagonopleura guttata*	Diamond Firetail	Inhabit woodlands, open forests and other lightly timbered habitats, such as farmland with remnant trees, or grasslands with scattered trees. Often occurs in vegetation along watercourses and very occasionally near settlements. Habitat usually has open or sparse understorey of shrubs, small trees or regrowth, and grass ground cover (Higgins, Peter and Cowling 2006).	15	2019	Moderate	The Diamond Firetail has been commonly seen around the local landscape and recently as 2019. Occurring along woodlands and farmland areas, there is some potential for this species to occur on site.

Treaty	EPBC	FFG	Scientific Name	Common Name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning
	VU	Vu	*Synemon plana*	Golden Sun Moth	It is generally found in temperate grasslands and open grassy woodlands where the ground layer is dominated by native Wallaby Grass. Optimal habitat is dominated by wallaby grasses Austrodanthonia spp with an open tussock structure. It has also been recorded in grasslands dominated by Kangaroo Grass Themeda triandra and exotic dominated grasslands (i.e. Chilean Needlegrass)(O'Dwyer and Attiwill 2000).			Low	There have been no recordings of the Golden Sun Moth on the VBA within a ten-kilometre radius. Golden Sun Moth occupies open grassy woodlands and temperate grasslands which were not really part of the Subject Site. There is surrounding farmland present nearby however which therefore allows the species to be given a low likelihood for occurring.
		En	*Trapezites luteus luteus*	Yellow Ochre	The species has become very rare in Victoria, only four isolated populations are extant. Exists through Victoria to the southern Flinders Ranges. Relies on a range of Lomandra species as plant food for larvae.	8	1988	Low	There are only three records for this species in the local landscape, with the last record from 1988. The species has isolated occurrences across Victoria and is reliant on Lomandra which were not present on site.

Appendix 5. Detailed plans

Plans commence on the following page



LOCALITY PLAN
SCALE 1:1000

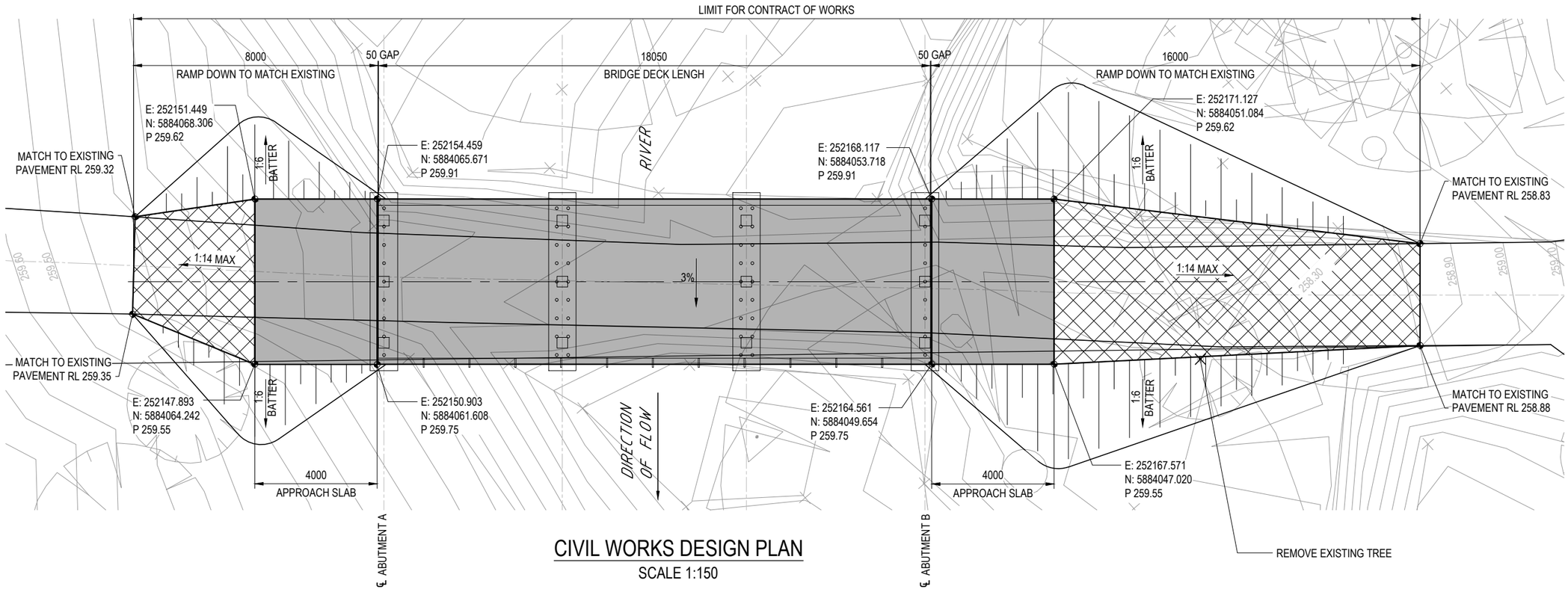
GENERAL NOTES

1. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
2. WHERE DETAILS ON THESE DRAWINGS CONFLICT WITH THE REQUIREMENTS OF THE MOUNT ALEXANDER SHIRE COUNCIL STANDARD DRAWINGS, DETAILS FROM THE STANDARD DRAWINGS SHALL BE USED.
3. MAKE SMOOTH ALL CONNECTIONS WITH ALL EXISTING WORKS.

SURVEY AND SERVICES INFORMATION

1. HORIZONTAL LEVEL DATUM : AHD
   SURVEY PREPARED BY : VERIS ADELAIDE
   GROUND FLOOR, 22 CHANCERY LANE,
   ADELAIDE SA 5000

   THE SPREAD & HEIGHT OF EACH TREE IS INDICATIVE ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY. CONTOURS ARE AN INDICATION OF THE TOPOGRAPHY ONLY. SPOT LEVELS SHOULD BE USED IF DETAILED DESIGN IS TO BE UNDERTAKEN. CONTOUR INTERVALS: 0.5m.
2. THE LOCATION OF UNDERGROUND SERVICES TO BE CONFIRMED BY THE CONTRACTOR. THE CONTRACTOR MUST CONFIRM THE EXACT LOCATION AND EXTENT OF SERVICES PRIOR TO CONSTRUCTION AND NOTIFY ANY CONFLICT WITH THE DRAWINGS IMMEDIATELY TO THE ENGINEER/SUPERINTENDENT.



CIVIL WORKS DESIGN PLAN
SCALE 1:150

LEGENDS

CRUSHED ROCK PAVEMENT TO MATCH EXISTING PAVEMENT PROFILE

NOTES

"P XXX.XX" DENOTES PROPOSED SURFACE LEVEL

REFERENCE FILES ATTACHED: M02041P2rev00

P&S FORM DRG-A3 REV - 8

DRAWING REVISION HISTORY

No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE
A	FOR APPROVAL	SH	MA	JW	19/06/18

APPROVED

ORIGINAL COPY ON FILE
"e" SIGNED BY

SIGNED

DATE

SCALE (PLOTTED FULL SIZE) AS SHOWN (A3)

SHEET SIZE A3

10 0 10 20 30 40
SCALE IN MILLIMETRES - 1:1

pitt&sherry
MELBOURNE OFFICE
HWT Tower 40 City Road
Southbank
Victoria 3006
Ph. (03) 9682 5290
Fax. (03) 9682 5292
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ABN 67 140 184 309

CLIENT MOUNT ALEXANDER SHIRE COUNCIL

PROJECT VAUGHAN-TARILTA ROAD BRIDGE

STATUS FOR APPROVAL

DRAWING TITLE SURVEY AND CIVIL WORKS DESIGN PLAN

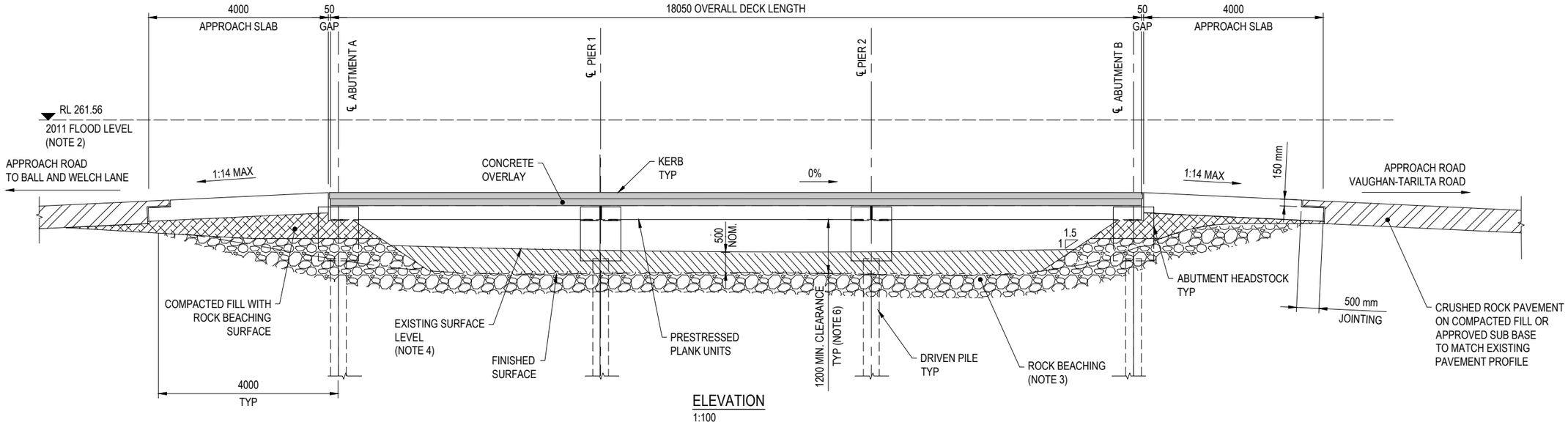
DATUMS: AHD / MGA

CLIENT No. -

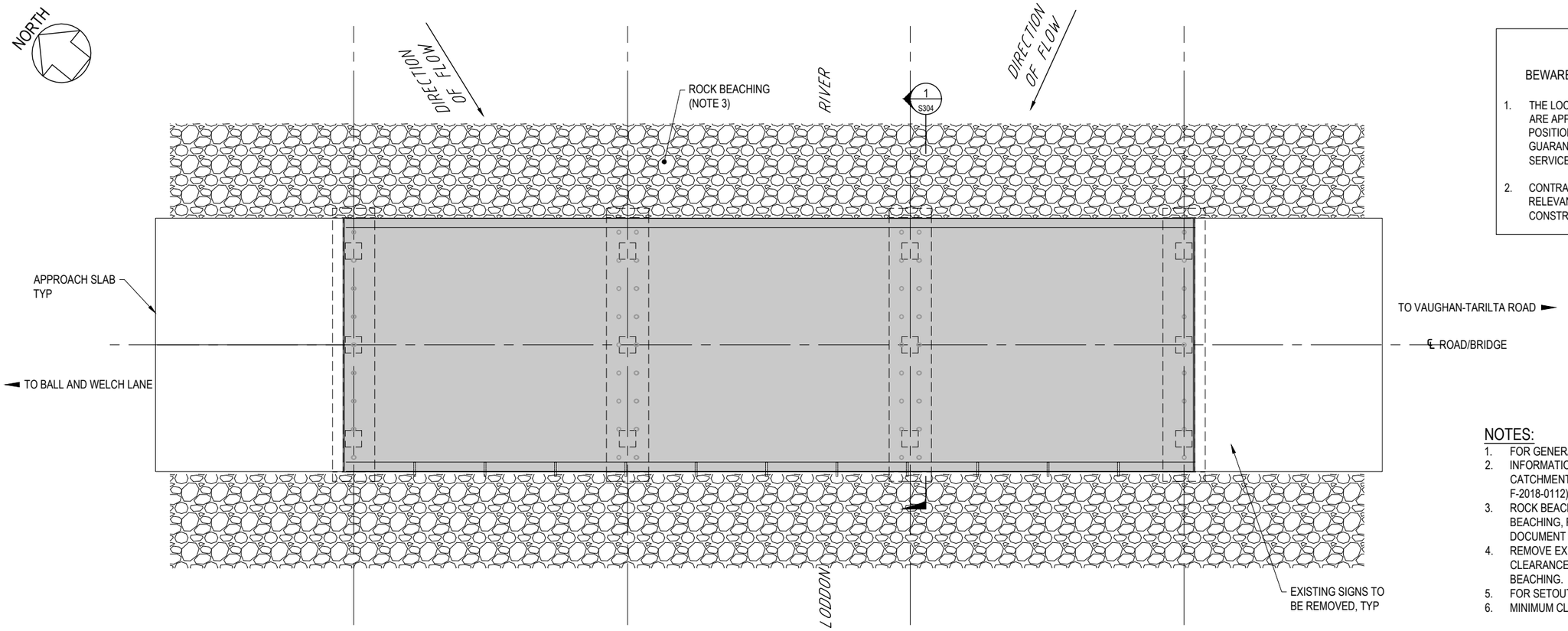
DRAWING No. ML17237-C001

REVISION A

Jun. 25, 18 - 10:39:37 Name: ML17237-C001.dwg Updated By: Simon Huang



ELEVATION
1:100



PLAN
1:100

WARNING

BEWARE OF UNDERGROUND SERVICES

1. THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.
2. CONTRACTOR TO OBTAIN APPROVALS FROM RELEVANT AUTHORITIES BEFORE CONSTRUCTION.

NOTES:

1. FOR GENERAL NOTES REFER TO DRG. ML17237-S302.
2. INFORMATION PROVIDED BY NORTH CENTRAL CATCHMENT MANAGEMENT AUTHORITY (NCCMA REF: F-2018-0112).
3. ROCK BEACHING TO BE TYPE 1 UNGROUTED ROCK BEACHING, REFER TO VICROADS STANDARD DOCUMENT SECTION 713.
4. REMOVE EXISTING MATERIAL TO PROVIDE MINIMUM CLEARANCE EXCAVATION TO EXTENT OF ROCK BEACHING.
5. FOR SETOUT REFER TO DRG. ML17237-S305.
6. MINIMUM CLEARANCE AS ADVISED BY COUNCIL.

REFERENCE FILES ATTACHED: ML17237-X300; M02041P2rev00

P&S FORM DRG-A3 REV - 8

DRAWING REVISION HISTORY

No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE
A	FOR APPROVAL	A.D.	M.A.	J.W.	31/05/2018

APPROVED
ORIGINAL COPY ON FILE
'e' SIGNED BY
SIGNED
DATE

SCALE (PLOTTED FULL SIZE) AS SHOWN (A3)
SHEET SIZE A3
10 0 10 20 30 40
SCALE IN MILLIMETRES - 1:1

pitt&sherry
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CLIENT MOUNT ALEXANDER SHIRE COUNCIL
PROJECT VAUGHAN-TARILTA ROAD BRIDGE
STATUS FOR APPROVAL

DRAWING TITLE GENERAL ARRANGEMENT
DATUMS: AHD / MGA
CLIENT No. ~
DRAWING No. ML17237-S303
REVISION A

May. 14, 19 - 15:20:14 Name: ML17237-S303.dwg Updated By: Simon Huang

Appendix 6. Native vegetation removal report

Report commences on the following page.

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: **20/09/2023**
Time of issue: **2:23 pm**

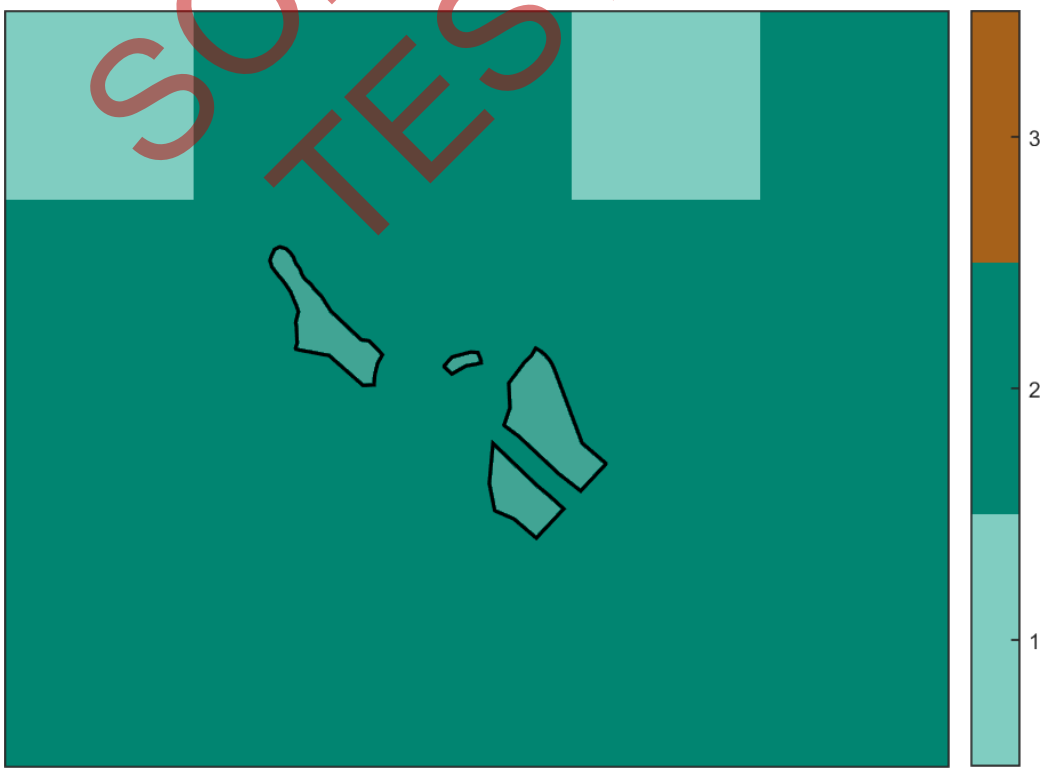
Report ID: Scenario Testing

Project ID	Tarilta_Level_Crossing_MtAlexander_Removal_v1

Assessment pathway

Assessment pathway	**Intermediate Assessment Pathway**
Extent including past and proposed	0.027 ha
Extent of past removal	0.000 ha
Extent of proposed removal	0.027 ha
No. Large trees proposed to be removed	0
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]	0.012 general habitat units
Vicinity	North Central Catchment Management Authority (CMA) or Mount Alexander Shire Council
Minimum strategic biodiversity value score[2]	0.568
Large trees	0 large trees

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	Patch	gold0641	Endangered	0	no	0.290	0.009	0.009	0.710		0.003	General
1-2	Patch	gold0641	Endangered	0	no	0.270	0.001	0.001	0.710		0.000	General
1-3	Patch	gold0641	Endangered	0	no	0.360	0.006	0.006	0.710		0.003	General
1-4	Patch	gold0641	Endangered	0	no	0.360	0.012	0.012	0.710		0.005	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 7. Exempt Project Endorsement From

Form commences on the following page.

Exempt Project Endorsement Form		
For the removal of native vegetation for low impact construction works and road safety projects in accordance with the *Procedure to rely on the road safety exemption in planning schemes.*		
1. Contact Details		
Road authorty		Mount Alexander Shire Council
Project type		Low impact construction works ~~Road safety project~~
Project Contact	Name	Dale Barker
	Phone	(03) 5471 1808
	E-mail	d.baker@mountalexander.vic.gov.au
DELWP consultation (if Detailed assessment pathway		N/A
Native vegetation report ID		XXXXXXXXXX
The information below must be filled out in the relevant sections, unless this information has been included in the Native vegetation removal report generated by NVIM, and attached to this form.		
2. Topographical and land information		
Describe any topographical or land features in the works area. This includes ridges, crests and hilltops, drainage lines, wetlands and waterways, steep slopes, low lying areas, saline discharge areas and areas of existing erosion.		
The Subject Site is based on the existing unmade road that extends from Ball and Welch Lane and Vaughan-Tarilta Road with a 20-m buffer applied to consider any additional impacts from the bridge upgrade that may occur. Both the Loddon River and Fryers Creek traverse the Subject Site, with these waterways intersecting close to the existing Low-level Crossing. The works area has a subtle slope leading to the water's edge on both sides.		
3. Avoid and minimise statement		
Describe why you cannot avoid the removal of native vegetation and what you have done to minimise impacts from removing native vegetation. This can be done by locating your works in areas where there is no native vegetation or in areas where the biodiversity value of the native vegetation is lower.		
Native vegetation occurs very close to the edge of proposed works making it difficult to completely avoid removals. Removals will be restricted in their extent, with nominated losses to determine offsets based on a worst-case scenario approach. The installation of tree protection fencing as per the Arboricultural Impact assessment and recommendations made in the *Flora and Fauna Assessment and Impact Analysis* by Practical Ecology (September 2023) will aim to ensure that on-site losses of native vegetation are as minimal as possible.		
4. Offset statement		
Describe how you intend to secure the required offset. This may be by purchasing the offset, or by establishing a new first party offset. Offsets must be secured prior to 30 September.		
At this stage, it is proposed that the required offset will be obtained through a third-party. A report of available offsets is also provided in Appendix 8 of the *Flora and Fauna Assessment and Impact Analysis* by Practical Ecology (September 2023) to show that required offsets are available through a third-party from multiple brokers.		
5. Attachments		
Attach the following information: a) Native vegetation removal report b) Site assessment report (for removal of 0.5 hectares or more) c) Recent photographs which demonstrate current condition and type of native vegetation.		
a) Provided in Appendix 4 of Flora and Fauna Assessment and Impact Analysis by Practical Ecology (September 2023) b) Not applicable as losses are less than 0.5 hectares c) Recent photographs are provided as part of *Flora and Fauna Assessment and Impact Analysis* by Practical Ecology (September 2023)		

Appendix 8. Available native vegetation credits

Report commences on the following page.

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: 21/09/2023 11:31 **Report ID: 20868**

What was searched for?

General offset

General habitat units	Strategic biodiversity value	Large trees	Vicinity (Catchment Management Authority or Municipal district)	
0.012	0.568	0	CMA	North Central
			or LGA	Mount Alexander Shire

Details of available native vegetation credits on 21 September 2023 11:31

These sites meet your requirements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
BBA-0074	0.088	1	North Central	Northern Grampians Shire	Yes	Yes	No	VegLink
BBA-0085_2	0.058	0	North Central	Hepburn Shire	Yes	Yes	No	Bio Offsets
BBA-0737	0.012	14	North Central	Northern Grampians Shire	Yes	Yes	No	Bio Offsets
BBA-0771	0.025	1	North Central	Loddon Shire	Yes	Yes	No	VegLink
BBA-2163	0.085	0	North Central	Loddon Shire	Yes	Yes	No	VegLink
BBA-2389	0.017	0	North Central	Loddon Shire	Yes	Yes	No	VegLink
BBA-3006	17.160	3	North Central	Greater Bendigo City	No	Yes	No	Ethos
BBA-3006	17.160	3	North Central	Greater Bendigo City	No	Yes	No	
BBA-3031	5.881	150	North Central	Pyrenees Shire	Yes	Yes	No	VegLink
BBA-3052_01	6.994	167	North Central	Northern Grampians Shire	Yes	Yes	No	VegLink
BBA-3052_01	0.721	0	North Central	Northern Grampians Shire	Yes	Yes	Yes	VegLink
TFN_2-C1626	22.893	0	North Central	Gannawarra Shire	No	Yes	No	VegLink
TFN-C1640	0.026	2	North Central	Hepburn Shire	Yes	Yes	No	VegLink
TFN-C1662	0.038	0	North Central	Gannawarra Shire	Yes	Yes	No	VegLink

TFN-C1662_3	6.101	0	North Central	Gannawarra Shire	Yes	Yes	No	VegLink
TFN-C1702	16.952	16	North Central	Gannawarra Shire	Yes	Yes	No	TFN
TFN-C1854	0.251	0	North Central	Macedon Ranges Shire	No	Yes	No	VegLink
TFN-C1970	6.362	0	North Central	Greater Bendigo City	No	Yes	No	Contact NVOR
TFN-C1970_2	1.657	0	North Central	Greater Bendigo City	No	Yes	No	Ethos
VC_CFL-3071_01	3.299	148	North Central	Loddon Shire	Yes	Yes	No	VegLink
VC_CFL-3773_01	1.440	957	North Central	Macedon Ranges Shire	Yes	Yes	No	VegLink
VC_CFL-3785_01	7.999	16	North Central	Mount Alexander Shire	Yes	Yes	No	VegLink
VC_CLO-2451_01	5.212	46	North Central	Greater Bendigo City	No	Yes	No	Ethos
VC_CLO-3046_01	0.059	22	North Central	Greater Bendigo City	No	Yes	No	Contact NVOR
VC_TFN-09554_01	14.131	415	North Central	Macedon Ranges Shire	Yes	Yes	No	Bio Offsets

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)
BBA-0741	0.833	0	North Central	Pyrenees Shire	Yes	Yes	No	VegLink
VC_CFL-3076_01	0.604	4	North Central	Pyrenees Shire	Yes	Yes	No	Bio Offsets

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

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
VC_CFL-3701_01	10.574	18	Goulburn Broken, North Central	Greater Bendigo City	Yes	Yes	No	Bio Offsets
VC_CFL-3742_01	12.301	410	North Central	Loddon Shire	Yes	Yes	No	VegLink

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