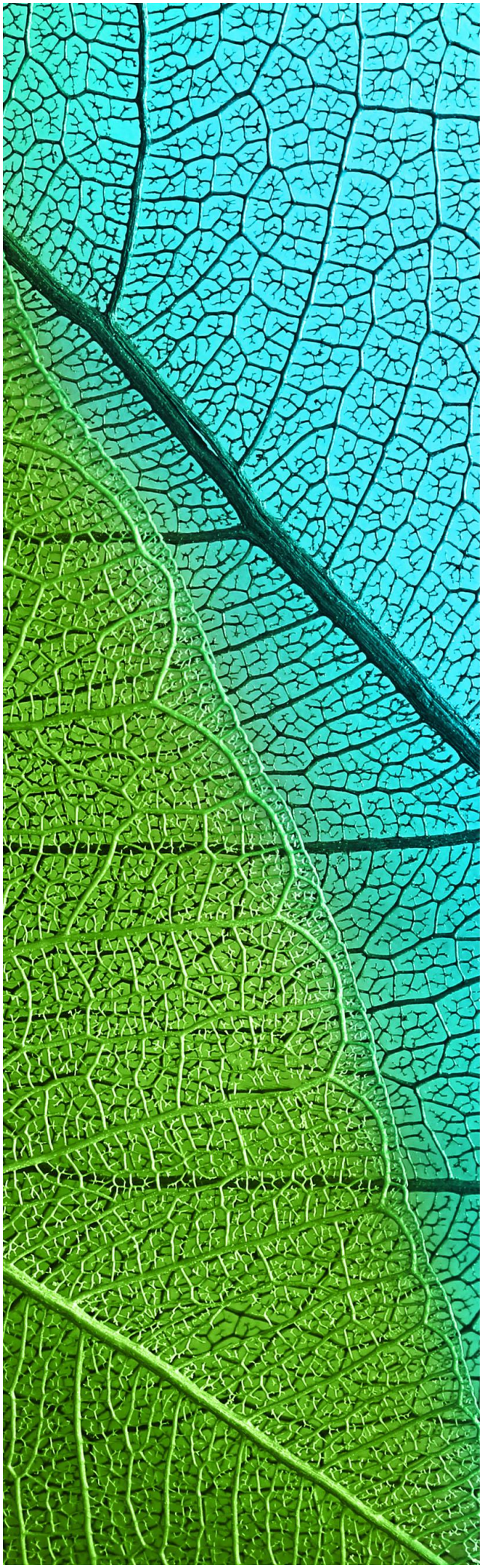


41-43 Hoddle Street, Yarra Junction

Flora and Fauna Assessment

Prepared for Dancamnic Pty Ltd

November 2024
Report No. 18111.01 (1.7)

Nature Advisory
(Formerly Brett Lane & Associates Pty Ltd)
5/61-63 Camberwell Road
Hawthorn East, VIC 3123
PO Box 337, Camberwell VIC 3124
(03) 9815 2111
www.natureadvisory.com.au

Contents

Tables

Figures

Appendices

1. Executive summary

Nature Advisory Pty Ltd undertook a flora and fauna assessment of a 2.69-hectare area of land in Yarra Junction. A 26-lot subdivision is proposed for the study area. The property extends further to the east than we have assessed covering 4.63 hectares in total.

Vegetation in the west of the study area comprised managed gardens and lawns of introduced pastures, associated with the existing dwelling. This transitioned to remnant Lowland Forest (EVC 16) in the east of the study area, which was characterised by a canopy of Narrow-leaf Peppermint and a dense midstory of Forest Burgan. Beneath the midstory native shrubbery was sparse and included Heath Wattle, Prickly Currant-bush, Sweet Bursaria and Narrow-leaf Wattle. Native groundcover consisted of Thatch Saw-sedge and Forest Wire-grass, with Tall Sundew, Scented Sundew and Ivy-leaved Violet occasionally interspersed. A range of ground ferns were also associated with damp depressions and included Austral Bracken, Austral Lady Fern, Pouched Coral-fern and Screw Fern.

Fauna habitat within the study area comprised native treed vegetation, maintained grassland of introduced species and aquatic habitat.

The following native vegetation was recorded in the study area including in the road reserve adjoining the property on Hoddle Street:

- Two patches of native vegetation, totalling 2.174 hectares (including 15 large trees in patches); and
- One large scattered tree.

The proponent proposes to remove 1.828 hectares of native vegetation comprising:

- 1.766 hectares of native vegetation in patches (including 13 large trees in patches); and
- One large scattered tree, equating to an area of 0.062 hectares.

The application site lies within Location 1. Based on the extent of native vegetation, the number of large trees, and the location category, the proposal must be assessed under the **Detailed** assessment pathway. This **would** trigger a referral to the Department of Environment, Land, Water and Planning (DELWP).

A *Native Vegetation Removal* (NVR) report for this proposal is provided in Appendix 8.

Offsets required to compensate for the proposed removal of native vegetation from the study area are:

- 0.8690 general habitat units, with following offset attribute requirements:
    - A minimum strategic biodiversity value (SBV) of 0.2004
    - Located within the Melbourne Water (previously Port Phillip and Westernport) CMA boundary or the Yarra Ranges municipal district.
    - Include protection of at least 14 large trees.

Under the Guidelines all offsets must be secured prior to the removal of native vegetation.

The tables below summarise the compliance of the information in this report with the application requirements of the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017a).

	Application requirement	Response
1.	Information about the native vegetation to be removed.	Section 5.3.1.
2.	Topographic and land information relating to the native vegetation to be removed.	Section 4.1.
3.	Recent, dated photographs of the native vegetation to be removed.	Appendix 6.
4.	Details of any other native vegetation approved to be removed, or that was removed without the required approvals, on the same property or contiguous land in the same ownership as the applicant, in the five-year period before the application for a permit is lodged.	N/A
5.	An avoid and minimise statement.	Section 6.5.1.
6.	A copy of any Property Vegetation Plan contained within an agreement made pursuant to section 69 of the *Conservation, Forests and Lands Act 1987* that applies to the native vegetation to be removed.	N/A
7.	Where the removal of native vegetation is to create defendable space, a written statement explaining why the removal of native vegetation is necessary. This statement is not required when the creation of defendable space is in conjunction with an application under the Bushfire Management Overlay.	N/A
8.	If the application is under Clause 52.16, a statement that explains how the proposal responds to the Native Vegetation Precinct Plan considerations (at decision guideline 8).	N/A
9.	An offset statement providing evidence that an offset that meets the offset requirements for the native vegetation to be removed has been identified and can be secured in accordance with the Guidelines.	Appendix 9.

Additional requirements for applications in the Detailed assessment pathway		
	Application requirement	**Response**
10.	A site assessment report of the native vegetation to be removed, including the following: ▪ A habitat hectare assessment of any patches of native vegetation, including the condition, extent (in hectares), Ecological Vegetation Class and bioregional conservation status. ▪ The location, number, circumference (in centimetres measured at 1.3 metres above ground level) and species of any large trees within patches. ▪ The location, number, circumference (in centimetres measured at 1.3 metres above ground level) and species of any scattered trees, and whether each tree is small or large.	Appendix 2 and Appendix 3.
11.	Information about impacts on rare or threatened species habitat, including the following: The relevant section of the Habitat importance map for each rare or threatened species requiring a species offset. For each rare or threatened species that the native vegetation to be removed is habitat for, according to the Habitat importance maps: ▪ the species' conservation status; ▪ the proportional impact of the removal of native vegetation on the total habitat for that species; and ▪ whether the habitats are highly localised habitats, dispersed habitats, or important areas of habitat within a dispersed species habitat.	Appendix 7.

2. Introduction

Dancamnic Pty Ltd engaged Nature Advisory Pty Ltd to conduct a flora and fauna assessment of a 2.69-hectare area of land in Yarra Junction. The specific area investigated, referred to herein as the 'study area', comprised 41-43 Hoddle Street. Subdivision is proposed for the study area.

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

Specifically, the scope of the investigation included the following:

- Existing information regarding the flora, fauna and native vegetation of the study area and surrounds was reviewed and included the following:
    - *Victorian Biodiversity Atlas* administered by the Department of Environment, Land, Water and Planning (DELWP);
    - The *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) *Protected Matters Search Tool*; and
    - DELWP's *Native Vegetation Information Management system* (NVIM).
- A site survey was undertaken and involved the following:
    - Characterisation and mapping of native vegetation on the site, as defined in Victoria's *Guidelines for the removal, destruction or lopping of native vegetation* (the 'Guidelines');
    - Assessment of native vegetation in accordance with the Guidelines, including habitat hectare assessment and/or scattered tree assessment;
    - Compilation of a flora species list/flora and fauna species lists for the site;
    - Assessment of the nature and quality of native fauna habitat; and
    - Assessment of the likelihood of occurrence of EPBC Act- and *Flora and Fauna Guarantee Act 1988* (FFG Act)-listed flora, fauna and communities on the site.

This investigation was undertaken by a team from Nature Advisory comprising Arend Kwak (Botanist), Clint Schipper (Zoologist), Emma Wagner (GIS Analyst) and Dr Inga Kulik (Director).

2.1. Local planning provisions

The study area is located within the Yarra Ranges local government area and is currently zoned Neighbourhood Residential – Schedule 2 (NRZ2) in the Yarra Ranges Planning Scheme.

The study area is located within a Bushfire-prone Area.

Local planning provisions apply under the *Victorian Planning and Environment Act 1987*.

2.2. Overlays

The study area is subject to the following three overlays in the Yarra Ranges Planning Scheme:

- *Bushfire Management Overlay (BMO)* – This overlay aims to identify areas where bushfire hazards warrant protection measures, and ensure that development prioritises the protection of human life.
- *Design and Development Overlay – Schedule 6 (DDO6)* – This overlay aims to ensure that development is at a scale consistent with the unique character of the foothills and rural townships.
- *Significant Landscape Overlay – Schedule 22 (SLO22)* – This overlay aims to recognise and conserve the environmental and visual sensitivity of residential areas, by maintaining vegetation as a dominant landscape element and ensuring development is sensitive to the landscape's natural characteristics.
- *Environmental Significance Overlay – Schedule 1 (Site Z35) (ESO1-Z35)* – This overlay aims to protect large blocks of remnant bushland providing quality habitat and important biolink corridors for native flora and fauna.

2.3. State planning provisions

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

Clause 52.17 of all Victorian Planning Schemes states the following:

A permit is required to remove, destroy or lop native vegetation, including dead native vegetation.

A permit is not required if any of the following apply:

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

2.3.1. Exemptions

Exemptions listed in Table 52.17-7 relevant to the study area include the following:

- *Planted vegetation:* Native vegetation that is to be removed, destroyed or lopped that was either planted or grown as a result of direct seeding. This exemption does not apply to native vegetation planted or managed with public funding for the purpose of land protection or enhancing biodiversity.
- *Regrowth:* Native vegetation that is to be removed, destroyed or lopped that has been naturally established or regenerated on land lawfully cleared of naturally established native vegetation and meets the following criteria:
    - Is less than 10 years old; or

- Is Austral Bracken (*Pteridium esculentum*); or
- Falls within the boundary of a timber production plantation, as indicated on a Plantation Development Notice or other documented record and has become established after the plantation; or
- Is less than 10 years old at the time of a property vegetation plan being signed by the Secretary to the Department of Environment, Land, Water and Planning (DELWP) (as constituted under Part 2 of the *Conservation, Forests and Lands Act 1987*) and is shown on that plan as being 'certified regrowth'; and occurs on land that is to be used or maintained for cultivation or pasture during the term of that plan.

This exemption does not apply to land where native vegetation has been destroyed or otherwise damaged as a result of flood, fire or other natural disaster.

2.3.2. Application requirements

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

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

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

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

2.3.3. Referral to DELWP

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

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

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

2.4. EPBC Act

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

If there is a possibility of a significant impact on nationally threatened species, communities or listed migratory species, a Referral under the EPBC Act should be considered. The Minister will decide whether the project will be a 'controlled action' under the EPBC Act after 20 business days, in which case the project can only be undertaken with the approval of the Minister. This approval

depends on a further assessment and approval process (lasting between three and nine months, depending on the level of assessment).

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

2.5. FFG Act

The Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act) lists threatened and protected species and ecological communities (DELWP 2017b, DELWP 2018b). Any removal of protected flora, including threatened flora species and plants that constitute threatened communities listed under the FFG Act from public land, requires a Protected Flora Licence or Permit under the Act that can be obtained from DELWP.

The FFG Act only applies to private land where a license is required to remove grass trees, tree ferns and sphagnum moss for sale or where an Interim Conservation Order has been made to protect critical habitat for a threatened species or community. As no such habitat has ever been declared, this mechanism under the FFG Act has never been implemented.

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

2.6. EE Act

One or a combination of several criteria may trigger a requirement for a Referral to the Victorian Minister for Planning who will determine whether an Environmental Effects Statement (EES) will be required according to the *Ministerial Guidelines for Assessment of Environmental Effects under the* Environment Effects Act 1978 (DSE 2006).

The criteria related to flora, fauna and native vegetation that trigger a Referral are listed below.

One or more of the following would trigger a Referral:

- Potential clearing of 10 or more hectares of native vegetation from an area that meets the following criteria:
    - Is of an Ecological Vegetation Class identified as endangered by the Department of Sustainability and Environment (in accordance with Appendix 2 of Victoria's Native Vegetation Management Framework); or
    - Is, or is likely to be, of very high conservation significance (as defined in accordance with Appendix 3 of Victoria's Native Vegetation Management Framework); and
    - Is not authorised under an approved Forest Management Plan or Fire Protection Plan;
- Potential long-term loss of a significant proportion (e.g. 1 to 5 percent depending on the conservation status of the species) of known remaining habitat or population of a threatened species within Victoria;
- Potential long-term change to the ecological character of a wetland listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'; or
- Potential extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems, over the long term.

Two or more of the following would also trigger a Referral:

- Potential clearing of 10 or more hectares of native vegetation, unless authorised under an approved Forest Management Plan or Fire Protection Plan;
- Matters listed under the Flora and Fauna Guarantee Act 1988, including the following:

- Potential loss of a significant area of a listed ecological community; or
- Potential loss of a genetically important population of an endangered or threatened species (listed or nominated for listing), including as a result of loss or fragmentation of habitats; or
- Potential loss of critical habitat; or
- Potentially significant effects on habitat values of a wetland supporting migratory bird species.

Implications under the *Environment Effects Act 1978* (EE Act) for the current proposal are discussed in Section 6.8.

2.7. CaLP Act

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

Weed and pest fauna species listed under the CaLP Act that have been recorded in the study area are discussed in Section 6.9.

3. Existing information and methods

3.1. Existing information

Existing information used for this investigation is described below.

3.1.1. Existing reporting and documentation

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

- Yarra Ranges Planning Scheme;

3.1.2. Native vegetation

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

- Relevant EVC benchmarks for the Highlands – Southern Fall bioregion[1] (DSE 2004a); and
- *NatureKit* (DELWP 2022a).

3.1.3. Listed matters

Existing flora and fauna species records and information regarding the potential occurrence of listed matters were obtained from an area termed the 'search region', defined here as an area with a radius of 10 kilometres from the approximate centre point of the study area (coordinates: latitude 37˚ 47' 18.48" S and longitude 145˚ 36' 42.16" E).

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

The online EPBC Act *Protected Matters Search Tool* (DAWE 2022a) was consulted to determine whether nationally listed species or communities potentially occurred in the search region based on habitat modelling.

3.2. Field methods

The field assessment was conducted on 5 September 2022. During this assessment, the study area was surveyed for areas supporting native vegetation and/or fauna habitat on foot.

Sites in the study area found to support native vegetation or with potential to support listed matters were mapped through a combination of aerial photograph interpretation and ground-truthing using a hand-held GPS (accurate to approximately five metres). Species and ecological communities listed as threatened under the EPBC Act or FFG Act (where these occurred on public land) were also mapped using the same method.

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

3.2.1. Native vegetation

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

- Patch; or
- Scattered tree.

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

Patch

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

- An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native; or
- Any area with three or more native canopy trees[2] where the drip line[3] of each tree touches the drip line of at least one other tree, forming a continuous canopy; or
- Any mapped wetland included in the *Current wetlands map*, available at *MapShareVic* (DELWP 2022b).

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

The *Native Vegetation Information Management* (NVIM) system (DELWP 2022c) provides modelled condition scores for native vegetation to be used in certain circumstances.

Scattered tree

A scattered tree may be defined as the following:

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

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

3.2.2. Flora species and habitats

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

Species protected under the FFG Act were determined by crosschecking against the FFG Act *Protected Flora List* (DELWP 2017b).

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

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

- The presence of suitable habitat for flora species such as soil type, floristic associations and landscape context; and
- The level of disturbance of suitable habitats by anthropogenic disturbances and invasions by pest plants and animals.

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

3.2.3. Fauna species and habitats

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

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

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

Habitat connectivity of the study area (i.e. degree of isolation/fragmentation), including linkages to other habitats in the region, was determined using field observations, recent aerial photography and *NatureKit* (DELWP 2022a).

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

3.2.4. Threatened ecological communities

The likelihood of listed threatened ecological communities occurring in the study area was determined by checking general field observations against published descriptions of relevant listed ecological communities modelled to potentially occur in the study area.

Reviewed ecological community descriptions comprised identification criteria and condition thresholds from listing advice for EPBC Act communities and FFG Act-listed community descriptions (SAC 2015).

3.3. Limitations of field assessment

The site assessment was conducted during early spring. The short duration and seasonal timing of field assessments can result in some species not being detected when these may occur at other

times. Additionally, some flora species and lifeforms may be undetectable at the time of survey or unidentifiable due to a lack of flowers or fruit.

Difficulties in identifying flora in the observed state limited the accuracy of determining native vegetation patch extent. Timing of the survey and condition of vegetation were otherwise considered suitable to ascertain the extent and condition of native vegetation and fauna habitats.

Additional impacts to native vegetation were also found to occur beyond the designated study area, due to the provision of defendable space. Therefore, as this area was not assessed as part of the current investigation, there is the potential for additional flora species and large trees to be present within the defendable space footprint.

These limitations were not considered to compromise the validity of the current investigation that was designed to address the relevant policies and decision guidelines.

Determination of EVCs considers vegetation types that would have naturally occurred in the landscape prior to European impacts. Significant past alteration of the study area's landform, hydrology and soil composition, and past vegetation clearance has resulted in the emergence of an artificial site ecosystem and the reestablishment of vegetation that is likely to be notably different from that which would have naturally occurred in the study area. Determination of EVCs in altered areas was therefore based on consideration of the following:

- Modelled EVC mapping (DELWP 2022a);
- Observations of adjacent landforms that had not been significantly altered;
- Observations of nearby natural vegetation;
- Any observed indigenous flora species that are useful for determining EVCs; and
- Relevant published EVC benchmark descriptions.

If this information was insufficient to reasonably determine which EVC would have naturally occurred and the observed vegetation resembled an EVC that is likely to have naturally occurred in the region, EVC determination was based on the structure and floristic composition of current observed vegetation.

4. Assessment results

4.1. Site description

The study area for this investigation (Figure 1) constituted approximately 2.69 hectares of private land located at Yarra Junction, approximately 0.72 kilometres south of the town centre and 58.05 kilometres east of the Melbourne CBD. The study area was bordered by residential development to the north, bushland to the east, accommodation to the south and Hoddle Street to the west.

The study area supported loam soils on a sloping landscape, that descended towards a tributary of the Little Yarra River in the east. A sheltered dam was also present in the north of the study area, amongst dense native treed vegetation.

The land has historically supported a semi-rural dwelling and stock grazing. Surrounding land predominantly supported residential and commercial purposes within Yarra Junction, with viticulture and stock grazing occurring on the outskirts.

Vegetation in the west of study area consisted of planted vegetation and managed lawns, associated with the existing dwelling. Prominent planted species included Oak, Bottlebrush, Agapanthus, New Caledonia Pine and Lilly Pilly. The managed lawns comprised an array of introduced pasture species, such as Couch, Rye, Kikuyu and Panic Veldt-grass. Broadleaf weeds were frequently interspersed and notably included Soursob, Ribwort, Chickweed and Flatweed. The eastern portion of the study area transitioned to a damp forest, characterised by a canopy of Narrow-leaf Peppermint and a lesser occurrence of Messmate Stringybark and Manna Gum. These eucalypts typically overlayed Forest Burgan, which formed a dense midstory. A sparse shrub layer was also present and comprised Prickly Currant-bush, Heath Wattle, Sweet Bursaria and Narrow-leaf Wattle. Native groundcover consisted of Thatch Saw-sedge and Forest Wire-grass, with herbs such as Tall Sundew, Scented Sundew and Ivy-leaved Violet occasionally interspersed amongst a dense bryophyte layer. A range of ground ferns were also associated with damp depressions and included Austral Bracken, Austral Lady Fern, Pouched Coral-fern and Screw Fern.

Fauna habitat within the study area comprised native treed vegetation, maintained grassland of introduced species and aquatic habitat.

The following key fauna habitat areas occurred within the region:

- Yarra Ranges National Park occur approximately 9km north of the study area. Native vegetation in the study area is connected to this habitat via large tracts of native treed vegetation to the south of the study area, however to the north and east the study area is isolated from the area by large tracts of farmland and the town of Yarra Junction.
- Kurth Kiln Regional Park and Bunyip State Park occur approximately 12km to the south of the study area. The study area is connected to this habitat via large tracts of similar native vegetation.
- The Yarra River and associated riparian habitats occurs 2 km to the north of the study area, however it is isolated from the study area by farm land and the settlement of Yarra Junction.

The study area lies within the Highlands – Southern Fall bioregion and falls within the Melbourne Water catchment management area.

4.2. Native vegetation

4.2.1. Patches of native vegetation

Pre–European EVC mapping (DELWP 2022a) indicated that the study area and surrounds would have supported Lowland Forest (EVC 16), Heathy Dry Forest (EVC 20), Riparian Thicket (EVC 59), Damp Heathy Woodland (EVC 793), a Heathland/Riparian Scrub mosaic and a Riparian Scrub/Swampy Riparian Woodland complex prior to European settlement based on modelling of factors including rainfall, aspect, soils and remaining vegetation.

Evidence on site, including floristic composition and soil characteristics, suggested that Lowland Forest (EVC 16) was present in within the study area (Figure 1). A description of this EVC is provided in the EVC benchmarks in Appendix 7.

Two patches (referred to herein as habitat zones) comprising the abovementioned EVC, were identified in the study area (Table 1). This totalled an area of 2.174 hectares of native vegetation in patches and included 15 large trees.

Table 1: Description of habitat zones in the study area

Habitat Zone	EVC	Description
A	Lowland Forest (EVC 16)	This habitat zone occurred in the east of the study area. It was characterized by a canopy Narrow-leaf Peppermint and a lesser occurrence of Messmate Stringybark and Manna Gum. These eucalypts overlayed a dense midstory of Forest Burgan, and a sparse layer of shrubs beneath. Groundcover primarily consisted of Thatch Saw-sedge and Forest Wire-grass, with Tall Sundew, Scented Sundew and Ivy-leaved Violet occasionally interspersed. Ground ferns such as Austral Bracken, Austral Lady Fern, Pouched Coral-fern and Screw Fern were present in damp depressions. Bryophyte cover was very high (65%). Weed cover was low (10%) and primarily attributed to Holly, Sweet Pittosporum and Blackberry. Assorted pastures were also prevalent where the patch interfaced with adjacent lawns. Organic litter was very high (80%) and derived from native treed vegetation.
B	Lowland Forest (EVC 16)	This habitat zone was located in the west of the study area in the road reserve along Hoddle Street. It was characterized by an overstorey of Messmate Stringybark. The understorey included some native species including Cherry Ballart, non-indigenous species including Cootamunda Wattle and Honey-myrtle.

The habitat hectare assessment results for these habitat zones are provided in Table 2. More detailed habitat scoring results are presented in Appendix 2. Details of large trees in patches are provided in Appendix 3.

Table 2: Summary of habitat hectare assessment results

Habitat Zone	EVC	Area (ha)	Condition score (out of 100)	No. of large trees in HZ
A	Lowland Forest (EVC 16)	2.137	44	13
B	Lowland Forest (EVC 16)	0.037	*	2
Total				**15**

*Not scored as not in the impact area.

Figure 1: Study area and native vegetation

Project No: 18111.01
Project: 41-43 Hoddle St, Yarra Junction
Date: 6/09/2024

- Study area
- Watercourse
- Creekline buffer - 20m
- Creekline buffer - 30m

Native vegetation

- Large tree in patch
- Large scattered tree
- Tree Protection Zone (TPZ)
- Native vegetation (not assessed)
- Lowland Forest (EVC 16)

N

Metres
0 10 20 30 40 50

Nature Advisory
PO Box 337, Camberwell, VIC 3124, Australia
www.natureadvisory.com.au
03 9815 2111 - info@natureadvisory.com.au

4.2.2. Scattered trees

Scattered trees recorded in the study area would once have comprised the canopy component of Lowland Forest (EVC 16).

One large scattered tree (≥ 70-centimetre DBH) occurred in the study area (Figure 1).

Details of all scattered trees recorded are listed in Appendix 3.

4.2.3. Other trees

There were a number of trees on the property, particularly near Hoddle Street, that were determined to be non-native or planted trees. Therefore, these trees were not mapped or given further consideration in terms of implications under Clause 52.17 of the Guidelines.

4.3. Flora species

4.3.1. Species recorded

During the field assessment, 68 plant species were recorded, of which 24 (35%) were indigenous and 44 (65%) were introduced or non-indigenous native in origin (Appendix 4).

4.3.2. Listed species

Records from the VBA (DELWP 2022d) and Commonwealth EPBC Protected Matters Search Tool (DAWE 2022a) indicated that within the search region there were records of, or potential suitable habitat occurred for, eight species listed under the Commonwealth EPBC Act and 19 listed under the state FFG Act, including seven listed under both Acts. No flora species listed under the EPBC Act were recorded during the field survey.

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

This analysis indicates that the following five FFG Act listed flora species are likely to occur or have the potential to occur:

- **Jungle Bristle-fern** (FFG Act: Endangered)
- **Sticky Wattle** (FFG Act: Vulnerable)
- **Forest Sedge** (FFG Act: Endangered)
- **Green Scentbark** (FFG Act: Endangered)
- **Tufted Club-sedge** (FFG Act: Endangered)

Table 3: Listed flora species and their likelihood of occurrence in the study area

Common Name	Scientific name	EPBC	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Jungle Bristle-fern	*Abrodictyum caudatum*		Endangered	A rare fern of rainforests in far East Gippsland, the Beenak area and Wilsons Promontory. It grows on the trunks of tree-ferns, particularly *Cyathea australis*.	3	20/02/2015	Several recent records approximately 5.39 kilometres to the east of the study area, at Britannia Creek Falls. Suitable tree fern habitat occurred immediately east of the study area – **Potential to occur.**
Sticky Wattle	*Acacia howittii*		Vulnerable	Victorian endemic, confined to east from upper Macalister River area near Mt Howitt south to near Yarram and east to near Tabberabbera, growing in moist forest; widely cultivated and naturalising in some areas (e.g. Daylesford, Greater Melbourne, Dandenong Ranges etc.) (VicFlora 2022).	2	27/08/2019	Suitable habitat present within remnant Lowland Forest (EVC 16) patch, recent record approximately 0.95 kilometres to the southwest – **Potential to occur.**
River Swamp Wallaby-grass	*Amphibromus fluitans*	Vulnerable		River Swamp Wallaby-grass grows mostly in permanent swamps and also lagoons, billabongs, dams and roadside ditches. The species requires moderately fertile soils with some bare ground; conditions that are caused by seasonally-fluctuating water levels (DAWE 2020).	None	N/A	No nearby recent records, predominantly occurs in the north-central area of Victoria – **Unlikely to occur.**
Tall Astelia	*Astelia australiana*	Vulnerable	Endangered	Victoria, known only from two populations, from Powelltown-Beenak area and Lavers Hill in Otway Range; most populations occur in Cool Temperate Rainforest dominated by Myrtle Beech; sites are characterised by shaded, moist conditions and high humidity (Cutler & Murphy 2010).	None	N/A	Outside typical range, no nearby recent records, remnant native vegetation lacked a characteristic Myrtle Beech component – **Unlikely to occur.**
Veined Spear-grass	*Austrostipa rudis subsp. australis*		Endangered	Mostly in cool areas of moderate altitude, in open forests on sandy or sandstone derived soils.	3	22/01/2005	Sandy soils and open forest habitat absent within study area – **Unlikely to occur.**
Wiry Bossiaea	*Bossiaea cordigera*		Endangered	Moist areas in heathlands, heathy woodland and open forest	3	22/04/2007	Heathland, heathy woodland and open forest habitat absent within study area – **Unlikely to occur.**
Forest Sedge	*Carex alsophila*		Endangered	Mountain gullies and swamps between Alexandra and Erica	1	20/02/2015	Several recent records approximately 5.39-5.65 kilometres to the east of the study area, at Britannia Creek Falls. Suitable habitat present within remnant Lowland Forest (EVC 16) patch – **Potential to occur.**
Spotted Gum	*Corymbia maculata*		Vulnerable	Coastal Plains and hills. Endemic to the Tara range in East Gippsland (Walsh & Entwistle).	1	1/01/1991	Outside natural range, though widely planted in urban settings. Planted individuals identified within study area.
Matted Flax-lily	*Dianella amoena*	Endangered	Critically Endangered	Lowland grassland and grassy woodlands on well-drained to seasonally waterlogged fertile sandy loams to heavy cracking soils derived from sedimentary or volcanic Geology. It is widely distributed from eastern to south-western Victoria (DAWE 2020).	None	N/A	Lowland grassland and grassy woodland habitat absent, sandy loams and heavy cracking soils absent, no nearby recent records – **Unlikely to occur.**
Green Scentbark	*Eucalyptus fulgens*		Endangered	Forest and woodlands between Healesville and Woori Yallock to the Latrobe Valley (Brooker & Slee 1996).	34	7/12/2017	Within known range, numerous nearby recent records, suitable habitat present – **Potential to occur.**
Mugga	*Eucalyptus sideroxylon subsp. sideroxylon*		Endangered	In Victoria confined to the Chiltern area, northern Warby Range and south of Winton.	1	1/01/1991	Minimal nearby recent records, outside typical range – **Unlikely to occur.**
Strzelecki Gum	*Eucalyptus strzeleckii*	Vulnerable	Critically Endangered	Apparently endemic, confined to across the western section of the Strzelecki Range, from Neerim South in the north, south to Foster. Favours ridges, slopes and streambanks and deep fertile soils (Brooker & Slee 1996).	None	N/A	No nearby recent records, outside typical range - **Unlikely to occur.**
Clover Glycine	*Glycine latrobeana*	Vulnerable	Vulnerable	Found across south-eastern Australia in native grasslands, dry sclerophyll forests, woodlands and low open woodlands with a grassy	None	N/A	No native grassland, grassy woodland or dry sclerophyll forest habitat present, no

Common Name	Scientific name	EPBC	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
				ground layer. In Victoria, populations occur in lowland grasslands, grassy woodlands and sometimes in grassy heath (DAWE 2020).			nearby recent records – **Unlikely to occur.**
Tufted Club-sedge	*Isolepis wakefieldiana*		Endangered	Scattered in cooler parts of Victoria (e.g. Halls Gap, Cape Otway, Healesville, Gelantipy, Marlo, Cann River and Genoa areas).	1	1/03/1979	Suitable habitat present within remnant Lowland Forest (EVC 16) – **Potential to occur.**
Lacy Wedge-fern	*Lindsaea microphylla*		Endangered	Heath and open forests, but also in man-made excavations	1	19/05/1993	No heath or open forest habitat present, minimal nearby recent records – **Unlikely to occur.**
Varied Mitrewort	*Mitrasacme polymorpha*		Endangered	Restricted in Victoria, but locally common in near-coastal heaths in the far east (Mallacoota area), apparently also at Wilsons Promontory, but not recorded from there since 1908.	1	1/03/1979	Outside typical range, study area occurs inland, suitable habitat absent – **Unlikely to occur**
Round-leaf Pomaderris	*Pomaderris vacciniifolia*	Critically Endangered	Critically Endangered	Occurs in damp forest and herb-rich foothill forest north-east of Melbourne in the upper catchments of the Yarra, Plenty and Yea rivers (DAWE 2020).	None	N/A	Suitable habitat present within remnant Lowland Forest (EVC 16) but outside known range (between Healesville, Eltham and Flowerdale) and no nearby records – **Unlikely to occur.**
Green-striped Greenhood	*Pterostylis chlorogramma*	Vulnerable	Endangered	Occurs in mixed Box-Stringybark forest with a shrubby understorey, often with *Pteridium esculentum* as a major component on sandy or clay loam soils (Duncan et al. 2009).	None	N/A	No nearby recent records, mixed Box-Stringybark forest habitat absent – **Unlikely to occur.**
Floating Bladderwort	*Utricularia gibba*		Endangered	Occurs in fresh-water swamps and wetlands at low elevations.	2	1/05/2007	Nearby recent record approximately 2.06 kilometres to the east, suitable habitat present in dam in the north of the study area – **Potential to occur.**
Swamp Everlasting	*Xerochrysum palustre*	Vulnerable	Critically Endangered	Grows in wetlands including sedge-swamps and shallow freshwater marshes, often on heavy black clay soils. Commonly associated genera include *Amphibromus, Baumea, Carex, Chorizandra, Craspedia, Eleocharis, Isolepis, Lachnagrostis, Lepidosperma, Myriophyllum, Phragmites australis, Themea triandra* and *Villarsia* (DAWE 2020).	None	N/A	Characteristic heavy black clay soils absent, wetland habitat absent, no nearby recent records – **Unlikely to occur.**

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

4.4. Fauna habitats

The study area supported the following three fauna habitat types:

- Native treed vegetation;
- Maintained grassland of introduced species; and
- Aquatic habitat.

Native Treed Vegetation: The native treed habitat comprised the western two thirds of the study area. It is considered of high quality, the large trees presented small to large hollows, it has a high degree of structural integrity with an intact canopy, dense understorey and ground layer of native vegetation and leaf litter. This habitat can be utilised for foraging, breeding, roosting and sheltering by a variety of native fauna including reptiles, birds, possums, wombats and bats. Connectivity with similar high-quality habitat was intact and of high quality.

Photo 1: High-quality treed vegetation in the west of the site.

Maintained Grassland of Introduced Species: This habitat type occurred close to the residential properties in the study area. Dominant vegetation was introduced pasture grasses and weeds. This habitat remains as a maintained lawn and offers foraging opportunities to herbivores such as wombats and bird species such as Eastern Rosella and Red-browed Finch.

Photo 2: Maintained lawn, composed of introduced pastures.

Aquatic Habitat: The aquatic habitat was of moderate quality and was represented by an artificial dam blocking an historic drainage line running down the slope of the study area to the creek at the back of the property outside of the study area. Very little vegetation occurred on the edges of the dam and provided little habitat for native fauna. The flooded drainage line was well vegetated with water loving plant species and provided superior habitat for native fauna such as frogs. Crayfish holes were observed along the drainage line. These provide a valuable foraging resource for a range of fauna.

Photo 3: An artificial dam, present in the north of the site.

4.5. Fauna species

4.5.1. Species recorded

During the field assessment 31 fauna species were recorded. This included 27 bird (one introduced), four mammal (two introduced) and one invertebrate species (Appendix 5).

4.5.2. Listed species

The review of existing information [including VBA records (DELWP 2022d) and the results of the EPBC Protected Matters Search Tool (DAWE 2022a) indicated that within the search region there were records of, or potential suitable habitat occurred for, 58 fauna species listed under the Commonwealth EPBC Act and the state FFG Act. The likelihood of occurrence of these species in the study area was assessed and the results are presented in Table 4.

This analysis of potential occurrence of listed fauna species excludes the following:

- Marine fauna given that the study area is inland; and
- Migratory oceanic bird species (such as albatrosses and petrels) given that the study area is inland.

Species considered 'likely to occur' are those with very high potential of occurring in the study area given the existence of numerous records in the search region and suitable habitat in the study area. Using the precautionary approach, species considered to have the 'potential to occur' are those for which suitable habitat exists, but recent records are scarce. This analysis indicates that eight listed fauna species are likely to occur or have the potential to occur. These species include the following:

- **Fork-tailed Swift** (Migratory – EPBC Act).
- **Gang-gang Cockatoo (**Endangered – EPBC Act).
- **Grey Goshawk** (Endangered – FFG Act).
- **Powerful Owl** (Vulnerable – FFG Act).
- **Rufous Fantail** (Migratory – EPBC Act).
- **Satin Flycatcher** (Migratory – EPBC Act).
- **White-throated Needletail** (Vulnerable & Migratory – EPBC Act).

The susceptibility of these species to impacts from development is discussed in Section 4.5.3.

Table 4: Listed fauna species and their likelihood of occurrence in the study area

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Birds								
Australasian Bittern	*Botaurus poiciloptilus*	Endangered		Critically Endangered	Terrestrial wetlands, including a range of wetland types but prefers permanent water bodies with tall dense vegetation, particularly those dominated by sedges, rush, reeds or cutting grass (Marchant & Higgins 1990).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of recent records suggest this species is **Unlikely to occur.**
Australasian Shoveler	*Spatula rhynchotis*			Vulnerable	Large and deep permanent bodies of water and aquatic flora abundant. Also occurs on billabongs, watercourses and flood waters on alluvial plains, freshwater meadows, shallow swamps, reed swamps, wooded lakes, sewage farms and farm dams (Marchant & Higgins 1990).	1	1/11/1981	The study area and immediate surroundings do not support suitable habitat and absence of recent records suggest this species is **Unlikely to occur.**
Australian Painted-snipe	*Rostratula australis*	Endangered		Critically Endangered	Generally inhabits shallow terrestrial freshwater wetlands, including temporary and permanent lakes, swamps and claypans. They also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains. Typical sites include those with rank emergent tussocks of grass, sedges, rushes or reeds, or samphire; often with scattered clumps of *Lignum muehlenbeckia* or canegrass or sometimes tea-tree (Melaleuca). Sometimes utilises areas that are lined with trees, or that have some scattered fallen or washed-up timber (DAWE 2020).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of recent records suggest this species is **Unlikely to occur.**
Barking Owl	*Ninox connivens*			Critically Endangered	Eucalyptus dominated forests and woodlands, commonly near water-bodies, such as streams and rivers, and requires hollow trees for nesting and trees with dense foliage for roosting (Higgins 1999).	2	1/08/2000	Paucity of recent records in the area suggests this species is **Unlikely to occur.**
Black-faced Monarch	*Monarcha melanopsis*		M (Bonn A2H)		Rainforests, eucalypt woodlands, coastal scrub and damp gullies (Higgins et al. 2006)	None	N/A	An absence of historical records suggests this species is **Unlikely to occur.**
Blue-billed Duck	*Oxyura australis*			Vulnerable	Terrestrial wetlands and prefers deep permanent, well vegetated water bodies. V (Marchant & Higgins 1990).	3	6/12/1981	The study area does not support suitable habitat and absence of recent records suggest this species is **Unlikely to occur.**
Common Sandpiper	*Actitis hypoleucos*		M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)	Vulnerable	Inhabits a wide range of coastal or inland wetlands with varying levels of salinity; mainly muddy margins or rocky shores of wetlands. In Victoria, mostly found Westernport and Port Phillip Bay (Higgins & Davies 1996).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Curlew Sandpiper	*Calidris ferruginea*	Critically Endangered	M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)	Critically Endangered	Inhabits wide range of coastal or inland wetlands with varying levels of salinity; mainly muddy margins or rocky shores of wetlands (Higgins & Davies 1996).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Diamond Dove	*Geopelia cuneata*			Vulnerable	Mostly arid and semi-arid grassland savannah, often of spinifex and in low open woodlands with grassy understorey. Also often found in open riparian woodlands (Higgins & Davies 1996).	1	1/09/1981	The study area and immediate surroundings do not support suitable habitat and only one historical record suggest this species is **Unlikely to occur.**

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Diamond Firetail	*Stagonopleura guttata*			Vulnerable	Commonly found in box-ironbark forests and woodlands and also occurs along watercourses and in farmland areas. Widespread but scattered. Forages on a wide range of seeds, which in some cases a large portion can be derived from weed species (Read 1994). Populations had declined in Victoria since the 1950s (Emison et al. 1987; Tzaros 2005).	1	1/11/1980	The study area and immediate surroundings do not support suitable habitat and only one historical record in the vicinity of the study area suggests this species is **Unlikely to occur.**
Eastern Curlew	*Numenius madagascariensis*	Critically Endangered	M (Bonn A1, ROKAMBA, JAMBA, CAMBA)	Critically Endangered	Inhabits sheltered coasts, especially estuaries, embayment, harbours, inlets and coastal lagoons with large intertidal mudflats or sandflats, often with beds of sea grass (Higgins & Davies 1996).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Fork-tailed Swift	*Apus pacificus*		M (CAMBA, ROKAMBA, JAMBA)		The species can occur in wet sclerophyll forest but mainly prefers open forest or plains. It is almost exclusively aerial and feeds up to hundreds on metres above the ground, but can feed among open forest canopy. The species breeds internationally and seldom roosts in trees (Higgins 1999).	3	4/02/2021	Wide ranging aerial species that could occur over the study area any year suggests this species has the **Potential to occur.**
Gang-gang Cockatoo	*Callocephalon fimbriatum*	Endangered			In summer generally in tall mountain forests and woodlands, particularly in heavily timbered, mature wet sclerophyll forests and woodlands. Prefer Eucalyptus dominated assemblages. Also occurs in subalpine snow gum woodlands and occasionally in temperate rainforests and regenerating forests. In winter occur at lower altitudes in drier, more open Eucalyptus woodland (Higgins 1999).	87	4/02/2021	Suitable habitat in the study area and immediate surroundings and recent records in the immediate vicinity of the study area suggests this species has **Likely to occur.**
Grey Falcon	*Falco hypoleucos*	Vulnerable		Vulnerable	Inhabits arid and semi-arid zones; mainly on sandy and stony plains of inland drainage systems, lightly timbered with acacia. Hunt far into open areas, over spinifex, tussock grasslands and low shrublands. In Victoria, few records mostly in north and northwestern regions (Marchant & Higgins 1993).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Grey Goshawk	*Accipiter novaehollandiae*			Endangered	Inhabit rainforests, open forests, swamp forests, woodlands and plantations; most abundant where forest or woodland provide cover for hunting from perches. in Vic., most common in Otway ranges (Marchant & Higgins 1993).	19	3/12/2019	Suitable habitat in the study area and immediate surroundings and a modest number of recent records in the immediate vicinity of the study area suggests this species has the **Potential to occur.**
Hardhead	*Aythya australis*			Vulnerable	Inhabits large, deep waters where vegetation is abundant; particularly deep swamps and lakes, pools and creeks. Also occur on freshwater meadows, seasonal swamps with abundant aquatic flora, reed swamps, wooded lakes and swamps, rice fields, and sewage ponds (Marchant & Higgins 1990).	12	3/12/2019	The study area does not support suitable habitat suggest this species is **Unlikely to occur.**
King Quail	*Synoicus chinensis*			Endangered	Inhabits dense swampy low-lying heath mixed with grass, or low treeless heath within moist depressions. Breed, roost and feed on ground (Marchant & Higgins 1993).	1	1/12/1981	The study area and immediate surroundings do not support suitable habitat and only one historical record in the vicinity of the study area suggests this species is **Unlikely to occur.**
Latham's Snipe	*Gallinago hardwickii*		M (Bonn A2H, ROKAMBA, JAMBA)		Occurs in wide variety of permanent and ephemeral wetlands; it prefers open freshwater wetlands with dense cover nearby, such as the edges of rivers and creeks, bogs, swamps, waterholes. The species is wide spread in southeast Australia and most of its population occurs in Victoria, except in the northwest of the state (Naarding 1983; Higgins & Davies 1996).	5	6/10/1988	The study area and immediate surroundings support a limited amount of suitable habitat and few historical records in the vicinity of the study area suggests this species is **Unlikely to occur.**

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Lewin's Rail	*Lewinia pectoralis*			Vulnerable	Occurs in a variety of densely vegetated wetland habitats, fresh or saline, and usually with areas of standing water. Requires shallow water areas for foraging (Marchant & Higgins 1993).	1	5/10/1988	The study area and immediate surroundings support a limited amount of suitable habitat and few historical records in the vicinity of the study area suggests this species is **Unlikely to occur.**
Little Eagle	*Hieraaetus morphnoides*			Vulnerable	Over wooded and forested lands and open country of Aust. Range extending into arid zone. Most abundant in open forest and woodland (Marchant & Higgins 1993).	4	1/11/1981	The study area and immediate surroundings support suitable habitat and however few historical records in the vicinity of the study area suggests this species is **Unlikely to occur.**
Musk Duck	*Biziura lobata*			Vulnerable	It inhabits terrestrial wetlands, estuarine habitats and sheltered inland waters. Almost entirely aquatic; preferring deep water of large swamps, lakes and estuaries, where conditions are stable and aquatic flora abundant (Marchant & Higgins 1990).	9	1/12/1981	The study area does not support suitable habitat suggest this species is **Unlikely to occur.**
Painted Honeyeater	*Grantiella picta*	Vulnerable		Vulnerable	Inhabits box-ironbark forests and woodlands and mainly feeds on the fruits of mistletoe. Strongly associated with mistletoe around the margins of open forests and woodlands. Can also be found in farmland containing remnant treed vegetation. Occurs at few localities. Uncommon breeding migrant from further north, arriving in October and leaving in February (Higgins et al. 2001; Tzaros 2005).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Pectoral Sandpiper	*Calidris melanotos*		M (Bonn A2H, ROKAMBA, JAMBA)		Inhabit shallow fresh to saline wetlands, usually coastal to near-coastal, but occasionally farther inland. Wetlands often have open fringing mudflats and low emergent or fringing vegetation (Higgins & Davies 1996).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Pilotbird	*Pycnoptilus floccosus*	Vulnerable				3	18/10/1981	Suitable habitat in the study area and immediate surroundings, however few historical records and last record in the area over 20 years ago suggests this species is **Unlikely to occur.**
Powerful Owl	*Ninox strenua*			Vulnerable	Found in open and tall wet sclerophyll forests with sheltered gullies and old growth forest with dense understorey. They are also found in dry forests with box and ironbark eucalypts and River Red Gum. Large old trees with hollows are required by this species for nesting. In Victoria, the Powerful Owl is widespread, having been recorded from most of the state. However, throughout its range it is uncommon and occurs in low densities (Higgins 1999). Also occurs in highly urbanised areas, such as metropolitan Melbourne, where they are heavily reliant upon various forms of movement corridors (riparian strips, roadside vegetation and recreational reserves) to both hunt within and navigate throughout the landscape (Carter et al. 2019).	11	2/08/2019	Suitable habitat in the study area and immediate surroundings and a modest number of recent records in the immediate vicinity of the study area suggests this species has the **Potential to occur.**
Regent Honeyeater	*Anthochaera phrygia*	Critically Endangered		Critically Endangered	Inhabits dry box-ironbark eucalypt forests near rivers and creeks on inland slopes of the Great Dividing Range. Can also occur in small remnant patches or in mature trees in farmland or partly cleared agricultural land (Higgins et al. 2001).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Rufous Fantail	*Rhipidura rufifrons*		M (Bonn A2H)		In east and south-east Australia, mainly inhabits tall wet sclerophyll forests, often in gullies. When on passage in warmer months, they are sometimes recorded in drier sclerophyll forests and woodlands, as well as parks and gardens (Higgins et al. 2006). Virtually absent from south-eastern Australia during winter (Higgins et al. 2006).	52	4/02/2021	Suitable habitat in the study area and immediate surroundings and recent records in the immediate vicinity of the study area suggests this species is **Likely to occur.**
Satin Flycatcher	*Myiagra cyanoleuca*		M (Bonn A2H)		Mostly found in eucalypt forest, particularly tall wet forests and woodland within gullies (Higgins et al. 2006). Also inhabits eucalypt woodland comprising an open understorey and a grassy ground layer (Higgins et al. 2006). Generally absent from rainforest (Higgins et al. 2006).	43	5/06/2019	Suitable habitat in the study area and immediate surroundings and recent records in the immediate vicinity of the study area suggests this species is **Likely to occur.**
Sharp-tailed Sandpiper	*Calidris acuminata*		M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)		Inhabit shallow fresh to saline wetlands, usually coastal to near-coastal, but occasionally farther inland. Wetlands often have open fringing mudflats and low emergent or fringing vegetation (Higgins & Davies 1996).	1	29/10/1977	The study area and immediate surroundings do not support suitable habitat and only one historical record in the vicinity suggest this species is **Unlikely to occur.**
Sooty Owl	*Tyto tenebricosa*			Endangered	Inhabits old growth montane forests and wet or dry tall open sclerophyll forests (Higgins 1999).	1	7/10/2014	Suitable habitat in the study area and immediate surroundings, however only one historical record from the area suggests this species is **Unlikely to occur.**
Square-tailed Kite	*Lophoictinia isura*			Vulnerable	It occurs mainly in open forests and woodlands and in Victoria utilises habitats with box-ironbark, peppermint, Stringybark and River Red Gum eucalypt associations. The rarest and least seen bird in Victoria, mainly occur in the far east of the state, though occasionally recorded in central and western parts of the state (Marchant & Higgins 1993).	1	2/12/1979	Suitable habitat in the study area and immediate surroundings, however only one historical record from the area suggests this species is **Unlikely to occur.**
Swift Parrot	*Lathamus discolor*	Critically Endangered		Critically Endangered	Prefers a select range of eucalypts in Victoria, including Yellow Gum, Grey Box, White Box, Red Ironbark and Yellow Box, as well as River Red-gum when this species supports abundant 'lerp' (Saunders & Tzaros 2011). The species is also known to forage within planted stands of Spotted Gum and Sugar Gum (Nature Advisory; unpublished data). Breeds in Tasmania and migrates to the mainland of Australia for the autumn, winter and early spring months. It lives mostly north of the Great Dividing Range, passing through two areas of Victoria on migration: the Port Phillip district and Gippsland (Emison et al. 1987; Higgins 1999; Kennedy & Tzaros 2005). Though it is also not uncommonly sighted in urban areas (Nature Advisory; unpublished data). Occurrence of this species on the mainland can substantially change from year to year depending on food availability, giving potential for this species to occur almost anywhere throughout its range (Emison et al. 1987).	4	29/04/1978	The study area and immediate surroundings do not support suitable habitat and few historical records and no recent records suggest this species is **Unlikely to occur.**
White-bellied Sea-Eagle	*Haliaeetus leucogaster*			Endangered	Maritime habitats, terrestrial large wetlands and coastal lands of tropical and temperate Australia and offshore islands, ranging far inland only over large rivers and wetlands. The eagles usually breed on coast and offshore islands and inland beside large lakes or rivers, usually in tall trees in or near water, also in cliffs, rock pinnacles and escarpments (Marchant & Higgins 1993).	1	1/08/2001	Suitable habitat in the study area and immediate surroundings, however only one historical record from the area suggests this species is **Unlikely to occur.**
White-throated Needletail	*Hirundapus caudacutus*	Vulnerable	M (CAMBA, ROKAMBA, JAMBA)	Vulnerable	Aerial, over all habitats, but probably more over wooded areas, including open forest and rainforest. Often over heathland and less often above treeless areas such as grassland and swamps or farmland (Higgins 1999).	20	31/12/2006	Wide ranging aerial species that could occur over the study area any year suggests this species has the **Potential to occur.**

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Yellow Wagtail	*Motacilla flava*		M (CAMBA, JAMBA, ROKAMBA)		Regular non-breeding visitor in northern Australia mainly spring-summer, vagrant to the south. Occupies a wide range of habitats, usually open areas with low vegetation such as crop, grassland and even parkland. Often recorded near water (Higgins, Peter & Cowling 1999)	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Mammals								
Broad-toothed Rat	*Mastacomys fuscus mordicus*	Vulnerable		Vulnerable	Specialist herbivore which occurs in high rainfall areas in eastern highlands, south gippsland highland and Otway ranges. Habitats include alpine herbfield, heath, woodland, sedgeland and coastal tussock grassland (Menkhorst 1995). This species has also been known to inhabit dense, heathy vegetation within disturbed areas such as powerline easements and alpine ski slopes (Clarke & White 2008; Whisson et al. 2015).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Eastern Horseshoe Bat	*Rhinolophus megaphyllus megaphyllus*			Endangered	Roosts in warm and humid caves and mine shafts within forested areas (Menkhorst 1995).	1	22/06/1998	One historical record and no recent records suggest this species is **Unlikely to occur.**
Grey-headed Flying-fox	*Pteropus poliocephalus*	Vulnerable		Vulnerable	Brisbane, Newcastle, Sydney and Melbourne are occupied continuously. Elsewhere, during spring, they are uncommon south of Nowra and widespread in other areas of their range. Roosts in aggregations of various sizes on exposed branches. Roost sites are typically located near water, such as lakes, rivers or the coast. Roost vegetation includes rainforest patches, stands of Melaleuca, mangroves and riparian vegetation, but colonies also use highly modified vegetation in urban and suburban areas (DAWE 2020).	None	N/A	Wide ranging aerial species that could occur over the study area any year suggests this species has the **Potential to occur.**
Leadbeater's Possum	*Gymnobelideus leadbeateri*	Critically Endangered		Critically Endangered	Ash forest with critical requirements of abundant nest sites in old hollow-bearing trees, a structurally dense canopy or secondary tree layer, an understorey containing Acacia spp. (Menkhorst 1995).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Long-nosed Potoroo	*Potorous tridactylus trisulcatus*	Vulnerable		Vulnerable	In Victoria, the species occupies a wide variety of wet forest and wet scrub, usually occuring on sandy loam soils where rainfall exceeds 750mm annually (Menkhorst 1995); In Tasmania, moist forest with dense shrub layer; in the north edge of rainforest (Menkhorst 1995). Dense understorey vegetation is an essential component for the species persistence, which can consist of grass trees, sedges, ferns, heath, tea-tree or melaleucas (Menkhorst 1995).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Platypus	*Ornithorhynchus anatinus*			Vulnerable	Inhabits freshwater streams, ranging from alpine creeks to tropical lowland rivers; also lakes, shallow reservoirs and farm dams (Menkhorst and knight 2001).	17	12/11/2012	The study area does not support suitable habitat and absence of recent records suggest this species is **Unlikely to occur.**
Smoky Mouse	*Pseudomys fumeus*	Endangered		Endangered	Smoky Mouse occurs in a wide variety of habitats, from heath to dry sclerophyll forest, especially along ridgetops with a heath understorey, and occasionally adjacent wetter habitats such as fern gullies (Menkhorst 1995). A characteristic of many localities, except those in wet gullies, is a floristically diverse shrub layer with members of the plant families *Epacridaceae, Fabaceae* and *Mimosaceae* well represented (DAWE 2020). Shrub seeds and berries are important food sources for the species, with fire frequency and intensity highly influential in the occurrence of such habitat, and ultimately the species (Menkhorst 1995).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Southern Brown Bandicoot	*Isoodon obesulus obesulus*	Endangered		Endangered	Suitable habitat for Southern Brown Bandicoots (eastern) is defined to be any patches of native or exotic vegetation, within their distribution, which contains understorey vegetation structure with 50–80% average foliage density in the 0.2–1 m height range. In areas where native habitats have been degraded or diminished, exotic vegetation, such as Blackberry (*Rubus spp.*), can and often does, provide important habitat (DAWE 2020).	5	12/07/1971	Suitable habitat in the study area and immediate surroundings, however few historical records and no records in the area for over 50 years suggests this species is **Unlikely to occur.**
Southern Greater Glider	*Petauroides volans*	Vulnerable		Vulnerable	In Victoria, this species inhabits forest habitats dominated by peppermint, stringybark, ash and gum eucalypts (Menkhorst 1995). Restricted to the central highlands and eastern Victoria, and common in areas of high rainfall. Rare in dry stringybark-box and Snow Gum forest, and does not occur in the box-ironbark or River Red-gum dominated riverina regions (Menkhorst 1995).	6	21/03/1979	Suitable habitat in the study area and immediate surroundings, however few historical records and no records in the area for over 50 years suggests this species is **Unlikely to occur.**
Spot-tailed Quoll	*Dasyurus maculatus maculatus*	Endangered		Endangered	Rainforest, wet and dry forest, coastal heath and scrub and River Red-gum woodlands along inland rivers (Menkhorst 1995).	None	N/A	Suitable habitat in the study area and immediate surroundings, however an absence of historical records suggests this species is **Unlikely to occur.**
Swamp Antechinus	*Antechinus minimus maritimus*	Vulnerable		Vulnerable	Dense wet heath, tussock grassland, sedgeland heathy woodland and coastal heath and scrub (Menkhorst 1995). Requires mature, dense vegetation with thick ground cover (DAWE 2020). Shelters in short burrows or underneath dense leaf litter. Rarely occurs more than 200m above sea level. Though this species has also previously been detected at sites which had experienced some structural disturbance in the South Gippsland region (Nature Advisory; unpublished data).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
White-footed Dunnart	*Sminthopsis leucopus*			Vulnerable	Coastal tussock grassland and sedgeland, wet heath, and forest or woodland with a dense heathy understorey or mid-storey vegetation (Menkhorst 1995).	2	1/09/1978	Suitable habitat in the study area and immediate surroundings, however few historical records and no records in the area for over 50 years suggests this species is **Unlikely to occur.**
Reptiles								
Lace Monitor	*Varanus varius*			Endangered	Well timbered areas from dry woodland to wet southern forests and rainforest (Wilson & Swan 2003).	6	1/12/2015	Suitable habitat in the study area and immediate surroundings, however few historical records suggests this species is **Unlikely to occur.**
Mountain Skink	*Liopholis montana*	Endangered			Areas of granite associated with tall open forest and heath along the Great Dividing Range to the Yarra River Valley (Wilson & Swan 2003).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Swamp Skink	*Lissolepis coventryi*			Endangered	Wetlands including swamp margins, lakes, rivers, creeks and even tidal salt marshes, often associated with tea-tree thickets (Wilson & Swan 2003).	2	31/10/1995	Suitable habitat in the study area and immediate surroundings, however few historical records and an absence of recent records in the area suggests this species is **Unlikely to occur.**
Fish								
Australian Grayling	*Prototroctes maraena*	Vulnerable		Endangered	Large and small coastal streams and rivers with cool, clear waters with a gravel substrate and altering pools and riffles (Cadwallader & Backhouse 1983).	4	9/12/2000	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Dwarf Galaxias	*Galaxiella pusilla*	Vulnerable		Endangered	Ranges from the far west of the state through to the Mitchell River basin in central Gippsland. Vegetated margins of still water, ditches, swamps and backwaters of creeks, both ephemeral and permanent (Allen et al. 2002). Some wetlands where it occurs may partially or completely dry up during summer, with such wetlands reliant on seasonal flooding plus linkages to other sites where the species occurs, for habitat and population replenishment (Saddlier, Jackson & Hammer 2010). Dwarf Galaxias is also often found in association with burrowing freshwater crayfish (*Engaeus spp.*), with the crayfish burrows reportedly providing refuge from predators and dry conditions for the species (Saddlier, Jackson & Hammer 2010).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Macquarie Perch	*Macquaria australasica*	Endangered		Endangered	Cool, clear water of rivers and lakes. Favours slower moving water (Allen et al. 2002).	1	12/11/2012	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Murray Cod	*Maccullochella peelii*	Vulnerable		Endangered	Slow flowing turbid water of rivers and streams of low elevation; also fast flowing clear upland streams (Allen et al. 2002).	1	1/01/1970	The study area and immediate surroundings do not support suitable habitat and only one historical record suggest this species is **Unlikely to occur.**
Yarra Pygmy Perch	*Nannoperca obscura*	Vulnerable		Vulnerable	Streams and small lakes, prefers flowing water with abundant aquatic vegetation (Allen et al. 2002).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Invertebrates								
Golden Sun Moth	*Synemon plana*	Vulnerable		Vulnerable	Areas that are, or have been native grasslands or grassy woodlands. It is known to inhabit degraded grasslands with introduced grasses being dominant, with a preference for the native wallaby grass being present (DEWHA 2009). Also known to be closely associated with exotic grass species, with populations found in grassland almost entirely composed of Chilean needlegrass (Richter et al. 2013).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**
Frogs								
Brown Toadlet	*Pseudophryne bibronii*			Endangered	Wet and dry forest, grassy areas besides small creeks, alpine grasslands and mossy bogs (Cogger 2000). In Victoria, the Brown Toadlet is distributed from the north-east through to central and western Victoria with scattered records in Gippsland (SWIFFT 2020).	1	1/01/1962	The study area and immediate surroundings do not support suitable habitat and only one historical record suggest this species is **Unlikely to occur.**
Growling Grass Frog	*Litoria raniformis*	Vulnerable		Vulnerable	Permanent, still or slow flowing water with fringing and emergent vegetation in streams, swamps, lagoons and artificial wetlands such as farm dams and abandoned quarries (Clemann & Gillespie 2004).	None	N/A	The study area and immediate surroundings do not support suitable habitat and absence of historical records suggest this species is **Unlikely to occur.**

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

4.5.3. Susceptibility of listed fauna to impacts

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

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

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

Birds (non-migratory)

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

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

This species is likely to visit the study area due to the presence of large eucalyptus trees, Gang-gang Cockatoos feed on a variety of food sources including the seed pods of various eucalyptus species (Higgins 1999). The eucalyptus did not seem to offer hollows large enough to be utilized by breeding Gang-gang Cockatoos. Given the large amount of foraging habitat available in the surrounding area, the Gang-gang Cockatoo would likely not be impacted by development in the study area.

- **White-throated Needletail** (EPBC Act: Vulnerable & Migratory)

The White-throated Needletail is listed as vulnerable and migratory under the EPBC act. It migrates to Australia from east Asia to spend the period September to March. It is an aerial forager of flying insects. In Victoria it generally occurs over forested country of the highlands and coasts, less commonly inland or over open country or urban areas. Given this species aerial habit and the large amount of habitat available to this species, the White-throated Needletail would likely not be impacted by development in the study area.

Migratory Birds

Three listed migratory bird species (excluding oceanic species) have the potential to occur in the study area. The susceptibility of these species to possible impacts from any development in the study area is discussed below.

- **Fork-tailed Swift** (EPBC Act: Migratory)

The Fork-tailed Swift migrates to Australia from east Asia to spend the period October to March. In Victoria it is infrequent, spending only a short period generally late summer and early autumn, in the state. It is aerial forager feeding on flying insects, generally occurring over open country. Thus the Fork-tailed Swift would likely not be impacted by development in the study area.

- **Rufous Fantail** (EPBC Act: Migratory)

The Rufous Fantail breeds in southern and mountain districts of Victoria (and coast and ranges of NSW and Queensland) where they inhabit shady gullies in higher-rainfall forests and feed on insects. They are present from October to late March or early April, after which they move to tropical Australia and southern New Guinea. Given the large amount of breeding habitat available in the surrounding area, the Rufus Fantail would likely not be impacted by development in the study area.

- **Satin Flycatcher** (EPBC Act: Migratory)

The Satin Flycatcher breeds in southern and mountain districts of Victoria, Tasmania and as far north as the Blue Mountains NSW, where they inhabit wet and dry sclerophyll forests and feed on insects. They are present from September to late March, after which they move to southern New Guinea for the duration of the winter. Given the large amount of breeding habitat available in the surrounding area, the Rufus Fantail would likely not be impacted by development in the study area.

Mammals

One listed mammal species is considered to have the potential to occur in the study area. The susceptibility of this species to possible impacts from any development in the study area is discussed below.

- **Grey-headed Flying-fox** (EPBC Act: Vulnerable)

This species is likely to visit the study area to forage during the flowering season of the large eucalyptus trees on site. Given the large amount of foraging habitat available in the surrounding area, this species would likely not be impacted by development in the study area.

No listed reptile, frog, fish or invertebrate species is considered to have the potential to occur in the study area.

4.6. Listed ecological communities

The EPBC Protected Matters Search Tool (DAWE 2020a) indicated that one ecological community listed under the EPBC Act had the potential to occur in the search region (Table 5). Occurrence of this community in the study area was determined based on an assessment of the native vegetation present against published descriptions and condition thresholds for this community.

Table 5: EPBC Act-listed ecological communities and likelihood of occurrence in the study area

Ecological Community	EPBC Status	Occurrence in the study area
Alpine Sphagnum Bogs and Associated Fens	EN	Study area exists outside alpine region, no bogland habitat present - **Does not occur.**

Notes: EPBC = status under the EPBC Act (EN=Endangered).

5. Assessment of impacts

5.1. Proposed development

The current proposal will involve subdivision.

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

- Direct removal:
    - Native vegetation within all proposed building envelopes and lots < 0.4 ha in size; and
    - Native vegetation within defendable space, except for 3 large trees.
- Consequential removal:
    - Native vegetation within 10 metres of all proposed building envelopes.
    - Native vegetation within 2 metres on either side of all proposed lot boundaries (to address the future *Fences* exemption as (per Cl. 52.17-7).
    - Native vegetation required to be removed for the creation of defendable space.
    - Trees with the more than 10% of their TPZ encroached.
    - Native vegetation on new lots with an area of less than 0.4 hectares (to account for future *Site area* exemption from the requirement for a permit application as per Cl. 52.17-7).

Impacts to trees

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

5.2. Design recommendations

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

- Remnant Lowland Forest (EVC 16) should be retained where feasible, given the good quality of native vegetation and associated fauna habitat. This could be achieved by limiting development to the west of the property, where native vegetation is limited in extent. This would contribute to the visual character of the area, as well as supporting the overarching objectives of Clause 12.01, SLO22 and ESO1-Z35, which occurs within the footprint.
- An arborist should be consulted to nominate trees for retention where possible. This recommendation has been completed as an arborist has assessed all of the trees and provided a report on their health and status and the impacted trees (Arbor Survey 2024a and 2024b).

Further mitigation recommendations to mitigate impacts to native vegetation during construction are provided in Section 7.

5.3. Impacts of proposed development

5.3.1. Native vegetation

The current subdivision footprint will result in the loss of a total extent of 1.828 hectares of native vegetation as represented in Figure 2 and documented in the *Native Vegetation Removal* (NVR) report provided by DELWP (Appendix 8).

This comprised the following:

- 1.766 hectares of native vegetation in patches (including 13 large trees in patches);
- One large scattered tree, equating to an area loss of 0.062 hectares.

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

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

Photographs of native vegetation proposed for removal are provided in Appendix 6.

5.3.2. Modelled species important habitat

The current proposal footprint will not have a significant impact on any habitat for any rare or threatened species as determined in Appendix 8.

5.3.3. Listed flora species

The analysis of the likelihood of occurrence of listed flora species presented in Section 4.3.2 identified that the following five FFG Act listed species have the potential to occur in the study area:

- **Jungle Bristle-fern** (FFG Act: Endangered)
- **Sticky Wattle** (FFG Act: Vulnerable)
- **Forest Sedge** (FFG Act: Endangered)
- **Green Scentbark** (FFG Act: Endangered)
- **Tufted Club-sedge** (FFG Act: Endangered)

If present, these species could be impacted by any development affecting the remnant Lowland Forest (EVC 16) identified onsite. As the FFG Act only applies on public land, a permit would not be required under the FFG Act.

5.3.4. Fauna habitat

Removal of any of the native treed vegetation of the western two-thirds of the study area will result in impacts to fauna habitat.

5.3.5. Listed fauna species

The analysis of susceptibility of listed fauna species to impacts presented in Section 4.5.3 identified that no listed fauna species would be significantly impacted by the proposed development of the study area.

5.3.6. Threatened ecological communities

The proposed development footprint will not impact any threatened ecological communities.

Figure 2: Native vegetation removal

Project No: 18111_01
Project: Hoddle Street, Yarra Junction
Date: 23/10/2024

- Study area
- Watercourse
- Creekline buffer - 30m
- Tree Protection Zone (TPZ)

Native vegetation

- Large tree in patch
- Large scattered tree
- Native vegetation (not assessed)
- Lowland Forest (EVC 16)

Removal

- Tree to be removed - assessed by Arborist
- Native vegetation to be removed

N

Metres
0 10 20 30 40 50

GDA2020 Vicgrid

Nature Advisory
PO Box 337, Camberwell, VIC 3124, Australia
www.natureadvisory.com.au
03 9815 2111 - info@natureadvisory.com.au

6. Implications under legislation and policy

6.1. Clause 12.01 Biodiversity and Clause 12.03 Waterbodies and Wetlands of the Planning Scheme

The overarching objective of Clause 12.01 Biodiversity is to conserve and protect Victoria's biodiversity values. The current proposal will not significantly impact habitat connections in the landscape, and intact tracts of native vegetation of comparable quality will persist adjacent to the study area. The development layout partially responds to this objective through the retention of native vegetation in the eastern portion of the study area. This retains the north-south corridor through the landscape.

The objective of Clause 12.03 Waterbodies and Wetlands is to protect and enhance waterway systems including river and riparian corridors, waterways, lakes, wetlands and billabongs. This Clause has several design and site development requirements to maintain and enhance the natural environment of the waterways including a 30m conservation setback requirement on the waterway conservation reserve. The proposed subdivision design has been shaped to avoid encroachment into this buffer, where possible, with only a small (106 sqm) encroachment into the conservation reserve buffer along the waterway.

6.2. Clause 52.17 of the Planning Scheme

A permit for the proposed removal of native vegetation is required under Cl. 52.17 of the State Planning Provisions.

6.3. Zoning

Neighbourhood Residential – Schedule 2 (NRZ2)

The relevant purpose of this zoning is to manage and ensure that development respects the neighbourhood character, heritage, environmental or landscape characteristics. The purpose of Schedule 2 to this zoning is to recognise the rural and foothills incremental change areas. One of the decision guidelines under this schedule is to consider whether development minimises site coverage and maintains natural and established vegetation cover and provides for landscaping opportunities.

The proposal therefore partially considers the objectives of zoning, as it aims to establish residential housing associated with the Yarra Junction township, that is consistent with the layout of adjacent and surrounding developments. This is achieved through the retention of native vegetation within the subdivision layout. However, the proposal does result in impacts to a substantial area of natural vegetation cover.

6.4. Overlays

Environmental Significance Overlay – Schedule 1 (Site Z35) (ESO1-Z35)

This overlay aims to ensure the long-term protection of wildlife habitat and other conservation values of sites of botanical and zoological significance, associated with the Yarra Junction bushland and wetlands. This overlay partially intersects with the study area. The extent of this overlay has been redefined to extend further to the west and cover more of the native vegetation on the property than what it previously did.

The purpose of Schedule 1 to this overlay is to protect the highest biodiversity habitat areas and biolink corridors. The development plan was redesigned in order to avoid the previous extent of this overlay which covered approximately the eastern half of this site (See section 6.5.1 Avoid and

minimise statement below). However, since redesigning the development layout, the extent of the ESO1 now extends further west and intersects with the development footprint. Therefore, a permit under this overlay is triggered. A response to the decision guidelines is provided below:

Under this ESO, a 30-metre buffer should be placed along the watercourse to protect the water quality and habitat that utilise the watercourse. This 30-metre buffer is indicated on Figure 2. The proposed development has been revised to ensure this 30-metre buffer remains.

Decision guidelines	Response
Whether the proposal will contribute to the achievement of the environmental objectives of this schedule to the overlay.	Given that the proposal will result in the removal of habitat, the proposal will not contribute to achieving the objectives of this overlay. It is recommended that a Land Management Plan is development to protect and enhance the retained native vegetation on Lot 10 to ensure there is an ongoing mechanism for future protection and enhancement of the ecological values retained within the property. This would result in a positive contribution to the ecological objectives of this overlay.
Whether the proposal will require the removal of indigenous vegetation from a site where the majority of understorey ground cover comprises indigenous plants	The identified vegetation towards the western boundary of the site has a predominantly weedy understorey and was primarily considered a patch of vegetation because of the contiguous canopy. However, as this vegetation transitioned into the valley, the understorey became much more native and diverse. By restricting development to the western portion of the site, this minimises impacts to indigenous understorey vegetation.
Where removal of vegetation is unavoidable, whether vegetation loss is minimised and appropriate actions taken to offset the loss.	The development layout was redesigned to reduce impacts to the old extent of this ESO. This resulted in the minimisation of impacts to native vegetation to an extend deemed viable for the applicant.
Whether the proposed development or vegetation removal minimises adverse environmental effects including impacts on rare or threatened species, during and after the construction phase	The retention of habitat throughout the eastern portion of the site will ensure that any rare or threatened species impacts will be minimised.
Whether the proposal as any adverse effect on faunal movement within habitat corridors and within and between highest biodiversity habitat areas.	By retaining the native vegetation in the eastern portion of the study area, this maintains the existing biolink through the landscape. The proposed impacts will not disrupt any biolinks in the landscape.

Significant Landscape Overlay – Schedule 22 (SLO22)

This overlay aims to recognise and conserve the environmental and visual sensitivity of residential areas, by maintaining vegetation as a dominant landscape element and ensuring development is sensitive to the landscape's natural characteristics. The purpose of Schedule 22 to this overlay is to presence the existing landscape of the foothills and rural townships. This overlay covers the entire study area, therefore a permit is triggered. A response to the relevant decision guidelines is provided below:

Decision guidelines	Response
The role of vegetation in contributing to the character and environmental significance of the area	The vegetation proposed to be removed will impact on values which are contributing to the existing environmental values of the area. However, the retention of native vegetation throughout the eastern portion of the study area will protect a substantial amount of these values.
The site coverage allows for the planting of canopy trees and other vegetation	There appears to be scope to incorporate the planting of indigenous vegetation as street trees. Additionally, many of the lots are of a substantial enough size to support the planting of canopy trees.
The habitats for native fauna, including wildlife corridors will be protected, strengthened or created	By retaining the native vegetation in the eastern portion of the study area, this maintains the existing biolink through the landscape. The proposed impacts will not disrupt any biolinks in the landscape. This corridor could be protected and strengthened by the establishment of a Land Management Plan.
If the buildings or works will adversely impact on the natural environment of the adjacent watercourse	Any approved development plan must ensure that there is adequately construction environmental protection measures in place to ensure there are no adverse impacts to the adjacent watercourse.

6.4.1. Exemptions

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

- *Planted vegetation:* Native vegetation that is to be removed, destroyed or lopped that was either planted or grown as a result of direct seeding. This exemption does not apply to native vegetation planted or managed with public funding for the purpose of land protection or enhancing biodiversity.
- *Regrowth:* Native vegetation that is to be removed, destroyed or lopped that has naturally established or regenerated on land lawfully cleared of naturally established native vegetation, and may be classified as one of the following:
    - Less than 10 years old; or
    - Austral Bracken (*Pteridium esculentum*); or
    - Within the boundary of a timber production plantation, as indicated on a Plantation Development Notice or other documented record and has established after the plantation; or

- Less than ten years old at the time of a property vegetation plan being signed by the Secretary to DELWP (as constituted under Part 2 of the *Conservation, Forests and Lands Act 1987*) and is shown on that plan as being 'certified regrowth'; and on land that is to be used or maintained for cultivation or pasture during the term of that plan.

This exemption does not apply to land where native vegetation has been destroyed or otherwise damaged as a result of flood, fire or other natural disaster.

6.5. Implications under the Guidelines

6.5.1. Avoid and minimise statement

In accordance with the Guidelines, all applications to remove native vegetation must provide an avoid and minimise statement that describes any efforts undertaken to avoid the removal of, and minimise the impacts to biodiversity and other values of native vegetation, and how these efforts were focused on areas of native vegetation with the highest value. Efforts to avoid and minimise impacts to native vegetation in the current application are presented as follows:

- Strategic Level Planning – The development site is covered by an Environmental Significance Overlay (ESO1) Highest Biodiversity Habitat Areas and Biolink Corridors in the Yarra Ranges Planning Scheme (DoTP 2024). When the development was initially proposed (2018) and the initial flora and fauna assessment was completed (2022), ESO1 only covered a section of the property (See below the first screenshot (screenshot 1) of the Planning Property Report from 1 September 2022), and the development largely avoided ESO1. Now ESO1 has been extended to cover most of the site (see the screenshots below -Screenshot 2 and 3).

  The proposal originally addressed ESO1 in part by retaining vegetation where the original ESO1 was located through a redevelopment of the proposed layout. The current proposal does not address ESO1 as most of the vegetation on the site in the west and now covered by ESO1 is to be removed. In the east some vegetation is to be retained and this vegetation will still ensure that the habitat connectivity of the vegetation in the ESO1 is maintained, albeit reduced. The biolink will therefore still remain but will be reduced and may have edge effects and indirect impacts from the proposed development on the quality of the remaining habitat and its ability to function as a corridor.

- Site level planning – The development is sited to limit impacts in the eastern portion of the property, which will allow for the continued preservation of some remnant vegetation and fauna habitat that were covered by the ESO1 in 2022. This will also contribute to the visual character of the area. The development plan has undergone multiple iterations to further minimise these impacts and includes retention of vegetation in the east of the site to maintain habitat connectivity and habitat.

  At the site level trees indigenous trees that are proposed for removal could be retained as logs in the vegetation in the east of the site that is proposed to be retained. In addition, nest boxes could be installed in retained trees to provide replacement habitat for any losses of hollows.

  Since the initial planning application for the original proposal several updates to the proposal have been made to avoid and minimise disturbance to native flora and fauna. These include:

- The subdivision is responsive of the 30m conservation reserve requirement under Clause 12.03-1S and efforts to reduce encroachment into this buffer have been made, where possible. However, there is a marginal encroachment of 106sqm due to battering requirements as well as to facilitate an appropriate defendable space setback to allow adequate building envelopes for Lots 12 & 13.

- An amendment to provide a frontage road to the watercourse area providing a more appropriate interface and minimising impact to two high value trees.
- The loop road design has been adjusted to satisfy key traffic engineering principles, with the alignment developed to minimise the impact to high value trees.
- The entrance road location impacts a number of high value trees internally, however, avoids impacts to the existing trees, including two large native trees, in the Hoddle Street Road reserve. The alignment of the entrance road is governed by the location of the existing dwelling to be retained to the north and location of existing trees within Hoddle Street. With the exception of the entry road alignment, the balance of the road system has been designed to minimise the removal of high value trees, with just 3 high value trees requiring removal due to the required road works (trees 51, 73 and 74). One additional tree in the road reserve will now be retained after further revision of the footprint (Revised Plans 1799_CPA_Rev G 16/02/2024).
- Preliminary road gradings have been undertaken to provide a level of comfort around which high value trees could be retained, with all potentially viable trees in the vicinity of the road reserve now proposed to be retained. To achieve this retaining walls will be required in some locations.
- Lot boundaries have been amended so that high value trees are positioned within lots in such a way as to maintain a reasonable building envelope opportunity, where possible/reasonable.
- Concept engineering servicing design has been developed to enable the removal of the existing drainage and sewerage easement along the north boundary where high value trees have been identified. By locating key drainage and sewerage services within the adjacent road reserve where no high value trees were identified, these trees can be retained.
- An arborist has been consulted to provide advice on additional tree retention. Following consultation, it has been determined that an additional three remnant canopy trees will be retained (Arbor Survey 2024).
- Furthermore, no feasible opportunities exist to further avoid and minimise impacts to native vegetation, in addition to the proposed retention of vegetation in the east of the site that is covered by the original ESO1, without undermining the key objectives of the proposal.

Screenshot 1 (above) of the Planning Property Report for property 41 (DoTP 2022). The report was downloaded from VicPlan on 1 September 2022. Screenshot 2 and 3 (below) are from 15 February 2024 (DoTP 2024) of property 41 and 43 showing the increase in extent of the ESO1 overlay on both properties (red dashed area).

6.5.2. Assessment pathway

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

- **Location Category:** Location 1
- **Extent of native vegetation:** A total of 1.828 hectares comprised of 1.766 hectares of native vegetation (including 13 large trees) and one large scattered tree (equating to a total area of 0.062 hectares).

Based on the extent of native vegetation removal being ≥ 0.5 hectares, the Guidelines stipulate that the proposal is to be assessed under the **Detailed** assessment pathway, as determined by the following matrix:

Table 6: Assessment pathway matrix

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

This proposal **would** trigger a referral to DELWP based on the above criteria.

6.5.3. Offset requirements

Offsets required to compensate for the proposed removal of native vegetation from the study area are as follows:

- 0.8690 general habitat units and must include the following offset attribute requirements:
  - Minimum strategic biodiversity value (SBV) of 0.2004.
  - Occur within the Melbourne Water (formerly the Port Phillip and Westernport CMA) boundary or the Yarra Ranges municipal district.
  - Include protection of at least 14 large trees.

Under the Guidelines all offsets must be secured prior to the removal of native vegetation.

6.5.4. Offset statement

The offset target for the current proposal will be achieved via a third-party offset.

An online search of the Native Vegetation Credit Register (NVCR) has shown that the required offset is currently available for purchase from a native vegetation credit owner (DELWP 2022e).

Evidence that the required offset is available is provided in Appendix 9. The required offset would be secured following approval of the application to remove native vegetation.

6.6. EPBC Act

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

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

Therefore, there are no implications under the EPBC Act.

6.7. FFG Act

The Victorian FFG Act lists threatened and protected species and ecological communities (DELWP 2018b, DELWP 2017b). Any removal of threatened flora species or communities (or protected flora) listed under the FFG Act from public land requires a Protected Flora Permit under the Act, obtained from DELWP.

The FFG Act only applies to private land in relation to the commercial collection of grasstrees, tree ferns and sphagnum moss. It should be noted that tree ferns were present within the defendable space footprint to the east of the study area. These should therefore be nominated for retention, in accordance with defendable space standards.

No FFG Act values listed as threatened or protected are susceptible to impacts from the proposed development on public land.

6.8. EE Act

The *Ministerial Guidelines for Assessment of Environmental Effects under the* Environment Effects Act 1978 (DSE 2006) identifies criteria that trigger a Referral to the State Minister for Planning.

Based on the relevant criteria, a Referral to the state Minister for Planning will not be required under the EE Act for the aspects covered by the current investigation.

6.9. CaLP Act

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

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

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

- Blackberry and Spear Thistle

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

There are likely two fauna species listed under the CaLP Act utilising habitat within the study area, European Rabbit and Red Fox. The management of Blackberry may reduce habitat for these species and any dens on the site should also be managed.

7. Construction mitigation recommendations and design recommendations

Recommendations to avoid and minimise impacts to native vegetation are provided in this report in Section 5.2.

Additional recommendations to mitigate impacts to vegetation during construction are provided below:

- Establish appropriate vegetation protection zones around areas of native vegetation to be retained prior to works.
- Establish appropriate TPZs around native trees to be retained prior to works.
- Ensure all construction personnel are appropriately briefed prior to works, and that no construction personnel, machinery or equipment are placed inside vegetation zones/TPZs.
- Sediment controls should be established adjacent to the eastern boundary of the development footprint, prior to construction occurring. This will minimise the potential for runoff into the Little Yarra River tributary present in the east of the site.
- A suitably qualified zoologist should undertake a pre-clearance survey of planted trees to be removed during the week prior to removal to identify the presence of any nests or hollows.
- If considered necessary based on the results of the pre-clearance survey, a suitably qualified zoologist should be on site during any tree removal works to capture and relocate any misplaced fauna that may be present.
- Indigenous trees that are proposed for removal could be retained as logs in the vegetation in the east of the site that is proposed to be retained.
- Nest boxes could be installed in retained trees to provide replacement habitat for any losses of hollows.
- Avoid unnecessary artificial lighting in the estate and residences to reduce impacts of lights on fauna species.
- Weed species in the vegetation that is to be retained on the site should be managed including the removal of all CaLP listed weeds - Blackberry and Spear Thistle (See Section 6.9 CaLP Act).
- The retained vegetation and habitat in the east of the study site should also be fenced to ensure that pet animals don't utilise the area and thus pose a threat to the wildlife that inhabit it. Similarly retained vegetation including the two large trees in the road reserve along Hoddle Street should be fenced to avoid impacts.
- Under the ESO1, Council has recommended the protection of the watercourse through the establishment of a 30-metre conservation buffer. This is to protect a known breeding population of Platypus in the Little Yarra River (Yarra Ranges Council RFI 2024). We have shown this buffer on the figure 1 and 2 in this report to guide the development footprint. The proposed development has been revised to ensure the development does not encroach on this 30-metre buffer.

8. References

Allen GR, Midgley SH & Allen M 2002, Field Guide to the Freshwater Fishes of Australia, Western Australian Museum, Perth.

Arbor Survey 2024a. Sub-division Impact Assessment. 41-43 Hoddle Street, Yarra Junction. Report Prepared 8 February 2024.

Arbor Survey 2024b. Sub-division Impact Assessment. 41-43 Hoddle Street, Yarra Junction. Report Prepared 5 August 2024. V. 2

Cadwallader PL & Backhouse GN 1983, A Guide to the Freshwater Fish of Victoria, Fisheries and Wildlife, Melbourne.

Carter N, Cooke R, White JG, Whisson DA, Isaac B & Bradsworth N 2019, 'Joining the dots: How does an apex predator move through an urbanzing landscape?', Global Ecology and Conservation, vol. 16, pp. 1-12.

Clarke DJ & White JG 2008, 'Management of power line easement vegetation for small mammal conservation in Australia: A case study of the Broad-toothed Rat *(Mastacomys fuscus*)', in JW Goodrich-Mahoney, LP Abrahamson, JL Ballard & SM Tikalsky (eds), Environmental Concerns in Rights-of-Way Management: Eighth International Symposium Menkhorst, Deakin University, pp 467-477.

Clemann N & Gillespie GR 2004, 'Recovery Plan for *Litoria raniformis* 2004 – 2008', Department of Environment and Heritage, now Department of the Environment, Canberra.

Cogger HG 2000, Reptiles and Amphibians of Australia, Reed New Holland, Sydney; State Wide Integrated Flora and Fauna Teams (SWIFFT) 2020, Species profile database - Brown Toadlet, SWIFFT, accessed 201X.

DAWE 2020, Species Profile and Threats Database, Department of Agriculture, Water and the Environment, Canberra, accessed 2020, <http://www.environment.gov.au/sprat.>

DAWE 2022a, *EPBC Act Protected Matters Search Tool*, Department of the Environment and Energy, Canberra, https://www.environment.gov.au/epbc/pmst/index.html.

DAWE 2022b, *Species Profile and Threats Database*, Department of Agriculture, Water and the Environment, Canberra, https://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl.

DELWP 2017a, *Guidelines for the removal, destruction or lopping of native vegetation-*, Department of Environment, Land, Water and Planning, East Melbourne.

DELWP 2017b, *Flora and Fauna Guarantee Act 1988 - Protected Flora List, June 2017*, Department of Environment, Land, Water and Planning, East Melbourne.

DELWP 2018a, *Assessor's Handbook – Applications to remove, destroy or lop native vegetation* (Version 1.1, dated October 2018), Department of Environment, Land, Water and Planning, East Melbourne.

DELWP 2018b, *Flora and Fauna Guarantee Act 1988 – Threatened List, April 2018*, Department of Environment, Land, Water and Planning, East Melbourne.

DELWP 2022a, *NatureKit*, Department of Environment, Land, Water and Planning, East Melbourne, Victoria, https://www.environment.vic.gov.au/biodiversity/naturekit.

DELWP 2022b, *MapShareVic*, Department of Environment, Land, Water and Planning, East Melbourne, Victoria, https://www2.delwp.vic.gov.au/maps/maps-and-services/interactive-maps.

DELWP 2022c, *Native Vegetation Information Management system*, Department of Environment, Land, Water and Planning, East Melbourne, Victoria, https://nvim.delwp.vic.gov.au/.

DELWP 2022d, *Victorian Biodiversity Atlas 3.2.8*, Department of Environment, Land, Water and Planning, East Melbourne, Victoria, https://vba.dse.vic.gov.au.

DELWP 2022e, *Online Search of the Native Vegetation Credit Register,* Department of Environment, Land, Water and Planning, East Melbourne, https://nvcr.delwp.vic.gov.au.

Department of the Environment and Energy 2016, 'Conservation advice - *Antechinus minimus* maritimus', Department of the Environment and Energy, Canberra, , <http://www.environment.gov.au/sprat>; Menkhorst P 1995, Mammals of Victoria, Oxford University Press, Melbourne.

DEWHA 2009, Background Paper to EPBC Act Policy Statement 3.12 – Significant Impact Guidelines for the Critically Endangered Golden Sun Moth (*Synemon plana*), Department of Environment, Water, Heritage and the Arts, now Department of the Environment, Canberra.

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

Higgins PJ & Davies SJJF 1996, Handbook of Australian, New Zealand and Antarctic Birds, Volume 3: Snipe to Pigeons, Oxford University Press, Melbourne.

Higgins PJ 1999, Handbook of Australian, New Zealand and Antarctic Birds, Volume 4: Parrots to Dollarbird, Oxford University Press, Melbourne.

Higgins, PJ, Peter, JM & Cowling, SJ 2006, Handbook of Australian, New Zealand and Antarctic Birds, Volume 7: Boatbills to Starlings, Oxford University Press, Melbourne.

Higgins, PJ, Peter, JM & Steele, WK 2001, Handbook of Australian, New Zealand and Antarctic Birds, Volume 5: Tyrant-flycatchers to Chats, Oxford University Press, Melbourne.

Kennedy SJ & Tzaros CL 2005, 'Foraging ecology of the Swift Parrot *Lathamus discolor* in the box-ironbark forests and woodlands of Victoria', Pacific Conservation Biology 11: 158—173.

Marchant S & Higgins PJ 1990, Handbook of Australian, New Zealand and Antarctic birds, Volume 1: Ratites to Ducks, Oxford University Press, Melbourne.

Marchant S & Higgins PJ 1993, Handbook of Australian, New Zealand and Antarctic birds, Volume 2: Raptors to Lapwings, Oxford University Press, Melbourne.

Menkhorst P 1995, Mammals of Victoria, Oxford University Press, Melbourne.

Menkorst P and Knight F 2001. A field guide to the Mammals of Australia, Oxford University Press, South Melbourne.

Naarding JA 1983, Latham's Snipe in Southern Australia, Wildlife Division Technical Report 83/1, Tasmania National Parks and Wildlife Service, Tasmania.

Parkes D, Newell G & Cheal D 2003, Assessing the Quality of Native Vegetation: The 'habitat hectares' approach', *Ecological Management and Restoration* 4:29 – 38.

Read, JL 1994, 'The diet of three species of Firetail Finches in temperate South Australia', Emu - Austral Ornithology, vol. 94, pp. 1-8.

Richter A, Osborne W, Hnatuik S & Rowell A 2013, 'Moths in fragments: insights into the biology and ecology of the Australian endangered golden sun moth *Synemon plana* (Lepidoptera: Castniidae) in natural temperate and exotic grassland remnants', Journal of Insect Conservation, vol. 17, No. 4.

Saddlier S, Jackson J & Hammer, M 2010, 'National recovery plan for the Dwarf Galaxias (*Galaxiella pusilla*)', (DELWP), Melbourne.

Saunders, DL & Tzaros, CL 2011, 'National recovery plan for Swift Parrot *Lathamus discolor'*, Birds Australia, Melbourne.

Tzaros C 2005, Wildlife of the Box-Ironbark Country, CSIRO Publishing, Collingwood.

Whisson, DA, Holland, GJ & Kelly TR 2015, 'Peristence of a threatened species in a modified alpine resort environment: the Broad-toothed Rat', Journal of Mammology, vol. 96, no. 1, pp 151-158.

Wilson, S & Swan, G 2003, A Complete Guide to the Reptiles of Australia, Reed New Holland, Sydney.

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

Purpose and objective

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

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

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

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

Assessment pathways

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

- Basic;
- Intermediate; or
- Detailed.

This assessment pathway is determined by the following two factors:

- **Location Category**, as determined using the Location Map of Victoria. The location category indicates the potential risk to biodiversity from removing a small amount of native vegetation. The three location categories are defined as follows:
    - Location 1 – shown in light blue-green on the Location Map; occurring over most of Victoria.
    - Location 2 – shown in dark blue-green on the Location Map; includes areas mapped as endangered EVCs and/or sensitive wetlands and coastal areas.
    - Location 3 – shown in brown on the Location Map; includes areas where the removal of less than 0.5 hectares of native vegetation could have a significant impact on habitat for rare and threatened species.
- **Extent of native vegetation** – The extent of any patches and scattered trees proposed to be removed (and the extent of any past native vegetation removal), with consideration as to whether the proposed removal includes any large trees. Extent of native vegetation is determined as follows:
    - **Patch** – the area of the patch in hectares.
    - **Scattered Tree** – the extent of a scattered tree is dependent on whether the scattered tree is small or large. A tree is considered to be a large tree if the DBH is greater than

or equal to the large tree benchmark DBH for the relevant bioregional EVC. Any scattered tree that is not a large tree is a small scattered tree. The extent of large and small scattered trees is determined as follows:

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

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

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

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

Landscape scale information – strategic biodiversity value

The strategic biodiversity value (SBV) is a measure of a location's importance to Victoria's biodiversity, relative to other locations across the state. This is represented as a score between 0 and 1, and determined from the SBV map, available from *NVIM* (DELWP 2022c).

Landscape scale information – habitat for rare or threatened species

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

This includes two groups of habitat:

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

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

Biodiversity value

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

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

Habitat hectares = extent of native vegetation × condition score

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

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

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

General habitat score = habitat hectares × general landscape factor

Species habitat score = habitat hectares × species landscape factor

Offset requirements

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

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

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

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

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

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

Offset attributes

Offsets must meet the following attribute requirements, as relevant:

- General offsets

- **Offset amount** – general offset = general habitat score × 1.5
- **Strategic biodiversity value (SBV)** – the offset has at least 80% of the SBV of the native vegetation removed
- **Vicinity** – the offset is in the same CMA boundary or municipal district as the native vegetation removed
- Habitat for rare and threatened species – N/A
- **Large trees** – the offset includes the protection of at least one large tree for every large tree to be removed

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

Appendix 2: Detailed habitat hectare assessment results

Habitat Zone			A
Bioregion			HSF
EVC Number			16
Total area of Habitat Zone (ha)			2.137
Site Condition	Large Old Trees	/10	3
	No. large trees in habitat zone		13
	Tree Canopy Cover	/5	2
	Lack of Weeds	/15	7
	Understorey	/25	15
	Recruitment	/10	6
	Organic Matter	/5	3
	Logs	/5	2
	Site condition standardising multiplier*		1.00
	Site Condition subtotal		*38*
Landscape Context	Patch Size	/10	8
	Neighbourhood	/10	3
	Distance to Core	/5	3
Total Condition Score		**/100**	**52**

* Modified approach to habitat scoring - refer to Table 14 of DELWP's Vegetation Quality Assessment Manual (DSE, 2004).

Note HZ B was not scored as it is located in the road reserve along Hoddle Street and is not impacted by the proposed development.

Appendix 3: Large trees in patches and scattered trees recorded in the study area

Tree no.	Common Name	Scientific Name	DBH (cm)	Habitat Category	Radius of TPZ (m)	Remove/Retain	Notes
1	Manna Gum	*Eucalyptus viminalis*	73	Large tree in HZ A	8.76	Remove	N/A
2	Manna Gum	*Eucalyptus viminalis*	77	Large tree in HZ A	9.24	Remove	N/A
3	Narrow-leaf Peppermint	*Eucalyptus radiata*	70	Large tree in HZ A	8.4	Remove	N/A
4	Messmate Stringybark	*Eucalyptus obliqua*	70	Large tree in HZ A	8.4	Retain	N/A
5	Messmate Stringybark	*Eucalyptus obliqua*	77	Large tree in HZ A	9.24	Remove	N/A
6	Messmate Stringybark	*Eucalyptus obliqua*	118	Large tree in HZ A	14.16	Remove	N/A
7	Messmate Stringybark	*Eucalyptus obliqua*	159	Large tree in HZ A	19.08	Retain	Multiple trunks
8	Narrow-leaf Peppermint	*Eucalyptus radiata*	74	Large tree in HZ A	8.88	Remove	N/A
9	Narrow-leaf Peppermint	*Eucalyptus radiata*	84	Large tree in HZ A	10.08	Remove (fencing exemption)	N/A
10	Messmate Stringybark	*Eucalyptus obliqua*	76	Large tree in HZ A	9.12	Remove (fencing exemption)	N/A
11	Narrow-leaf Peppermint	*Eucalyptus radiata*	72	Large tree in HZ A	8.64	Remove	N/A
12	Narrow-leaf Peppermint	*Eucalyptus radiata*	72	Large tree in HZ A	8.64	Remove (fencing exemption)	N/A
13	Manna Gum	*Eucalyptus viminalis*	77	Large tree in HZ A	9.24	Remove (fencing exemption)	N/A
14	Narrow-leaf Peppermint	*Eucalyptus radiata*	83	Large scattered tree	9.96	Remove	N/A
15	Messmate Stringybark	*Eucalyptus obliqua*	70	Large Tree in HZ B	8.4	Retained	In road Reserve
16	Mesmate Stringybark	*Eucalyptus obliqua*	97	Large Tree in HZ B	11.6	Retained	In road reserve

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

Appendix 4: Flora species recorded in the study area

Origin	Common name	Scientific name	EPBC	FFG	CaLP Act
*	Cootamunda Wattle	*Acacia baileyanna*			
	Heath Wattle	*Acacia brownii*		P	
	Blackwood	*Acacia melanoxylon*			
	Narrow-leaf Wattle	*Acacia mucronata subsp. longifolia*		P	
*	African Lily	*Agapanthus sp.*			
*	Onion Grass	*Allium vineale*			
*	Aloe	*Aloe sp.*			
*	New Caledonia Pine	*Araucaria columnaris*			
*	Capeweed	*Arctotheca calendula*			
*	English Daisy	*Bellis perennis*			
	Sweet Bursaria	*Bursaria spinosa*			
	Bottlebrush	*Callistemon sp.*			
*	Spear Thistle	*Cirsium vulgare*			C
*	Lemon	*Citrus limon*			
	Prickly Currant-bush	*Coprosma quadrifida*			
#	Spotted Gum	*Corymbia maculata*			
	Austral Lady Fern	*Diplazium australe*			
	Scented Sundew	*Drosera aberrans*			
	Tall Sundew	*Drosera auriculata*			
*	Panic Veldt-grass	*Ehrharta erecta*			
*	Couch	*Elymus repens*			
*	Eucalypt	*Eucalyptus sp.*			
	Messmate Stringybark	*Eucalyptus obliqua*			
	Narrow-leaf Peppermint	*Eucalyptus radiata*			
	Manna Gum	*Eucalyptus viminalis*			
*	Milkweed	*Euphorbia peplus*			
	Cherry Ballart	*Exocarpus cupressiformis*			
*	Desert Ash	*Fraxinus angustifolia*			
	Thatch Saw-sedge	*Gahnia radula*			
*	Cleavers	*Galium aparine*			
	Pouched Coral Fern	*Gleichenia dicarpa*			
	Trailing Goodenia	*Goodenia lanata*			
*	Willow-leaved Hakea	*Hakea salicifolia*			
*	English Ivy	*Hedera helix*			
*	Yorkshire Fog	*Holcus lanatus*			
	Common Hovea	*Hovea heterophylla*			
	Penny-weed	*Hydrocotyle tripartita*			
*	Flatweed	*Hypochaeris radicata*			
*	English Holly	*Ilex aquifolium*			
	Forest Burgan	*Kunzea sp.*			
	Screw Fern	*Lindsaea linearis*			
*	Rye	*Lolium sp.*			
*	Japanese Honeysuckle	*Lonicera japonica*			
*	Loosestrife	*Lysimachia sp.*			
*	Southern Magnolia	*Magnolia grandiflora*			
#	Honey-myrtle	*Melaleuca armillaris*			
*	Paperbark	*Melaleuca sp.*			
*	Red-flowered Mallow	*Modiola caroliniana*			

Origin	Common name	Scientific name	EPBC	FFG	CaLP Act
*	Soursob	*Oxalis pes-caprae*			R
	Wonga Vine	*Pandorea pandorana*			
*	Kikuyu	*Pennisetum clandestinum*			
*	Pine	*Pinus sp.*			
#	Sweet Pittosporum	*Pittosporum undulatum*			
*	Ribwort	*Plantago lanceolata*			
	Austral Bracken	*Pteridium esculentum*			
*	Oak	*Quercus sp.*			
*	Blackberry	*Rubus fruticosus agg.*			C
*	Broad-leaved Dock	*Rumex obtusifolius*			
*	Rough Sow-thistle	*Sonchus asper*			
*	Common Sow-thistle	*Sonchus oleraceus*			
*	Chickweed	*Stellaria media*			
*	Lily Pilly	*Syzygium sp.*			
*	Dandelion	*Taraxacum sp.*			
	Forest Wire-grass	*Tetrarrhena juncea*			
*	White Clover	*Trifolium repens*			
	Ivy-leaved Violet	*Viola hederacea*			
*	Yucca	*Yucca sp.*			
*	Arum-lily	*Zantedeschia aethiopica*			

Notes: EPBC = threatened species status under the EPBC Act (EX = presumed extinct in the wild; CR = critically endangered; EN = endangered; VU = vulnerable); **FFG-T** = listed as threatened (L) under the FFG Act; **FFG-P**: listed as protected (P) under the FFG Act; **CaLP Act**: declared noxious weeds under the CaLP Act (S = State Prohibited Weeds [any infestations are to be reported to DELWP. DELWP is responsible for control of State Prohibited Weeds]; P = Regionally Prohibited Weeds [Landowners must eradicate regionally prohibited weeds]; C = Regionally Controlled Weeds [Landowners must prevent the growth and spread of Regionally controlled weeds]; R = Restricted Weeds [Trade in these weeds and propagules, either as plants, seeds or contaminants in other materials is prohibited]).

* = Introduced to Victoria

= Victorian native taxa occurring outside the natural range

Appendix 5: Fauna species recorded in the study area

Origin	Common name	Scientific name	EPBC-T	EPBC-M	FFG
Birds					
	Australian King-Parrot	*Alisterus scapularis*			
	Australian Magpie	*Gymnorhina tibicen*			
	Brown Goshawk	*Accipiter fasciatus*			
	Brown Thornbill	*Acanthiza pusilla*			
*	Common Blackbird	*Turdus merula*			
	Crimson Rosella	*Platycercus elegans*			
	Eastern Rosella	*Platycercus eximius*			
	Eastern Spinebill	*Acanthorhynchus tenuirostris*			
	Eastern Yellow Robin	*Eopsaltria australis*			
	Golden Whistler	*Pachycephala pectoralis*			
	Grey Fantail	*Rhipidura albiscapa*			
	Grey Shrikethrush	*Colluricincla harmonica*			
	Laughing Kookaburra	*Dacelo novaeguineae*			
	Little Wattlebird	*Anthochaera chrysoptera*			
	Pied Currawong	*Strepera graculina*			
	Red Wattlebird	*Anthochaera carunculata*			
	Red-browed Finch	*Neochmia temporalis*			
	Red-browed Treecreeper	*Climacteris erythrops*			
	Silvereye	*Zosterops lateralis*			
	Spotted Pardalote	*Pardalotus punctatus*			
	Striated Thornbill	*Acanthiza lineata*			
	Superb Fairywren	*Malurus cyaneus*			
	Welcome Swallow	*Hirundo neoxena*			
	White-browed Scrubwren	*Sericornis frontalis*			
	White-eared Honeyeater	*Nesoptilotis leucotis*			
	Yellow-faced Honeyeater	*Caligavis chrysops*			
Mammals					
	Common Wombat	*Vombatus ursinus*			
	Eastern Ringtail Possum	*Pseudocheirus peregrinus*			
*	European Rabbit	*Oryctolagus cuniculus*			
*	Fallow Deer	*Dama dama*			
	Swamp Wallaby	*Wallabia bicolor*			

Notes:
EPBC-T = Threatened species status under EPBC Act
EPBC-M: Migratory status under the EPBC Act
FFG: L = listed as threatened under the FFG Act

* = introduced to Victoria
# = Victorian native taxa occurring outside their natural range

Appendix 6: Photographs of native vegetation proposed for removal

All photographs were taken on 5 September 2022.

Photo 1: The exterior of Habitat Zone A – Lowland Forest (EVC 16), demonstrating a canopy of Narrow-leaf Peppermint overlying dense Forest Burgan.

Photo 2: The interior of Habitat Zone A, characterised by Forest Burgan overlying Thatch Saw-sedge.

Photo 3: Tree 14, a large Narrow-leaf Peppermint of good health.

Appendix 7: EVC benchmarks

Lowland Forest (EVC 16) – Highlands – Southern Fall

Department of Sustainability and Environment

EVC/Bioregion Benchmark for Vegetation Quality Assessment

Highlands – Southern Fall bioregion

EVC 16: Lowland Forest

Description:
Eucalypt forest to 25 m tall on relatively fertile, moderately well-drained soils in areas of relatively high rainfall. Characterised by the diversity of life forms and species in the understorey including a range of shrubs, grasses and herbs.

Large trees:

Species	DBH(cm)	#/ha
Eucalyptus spp.	70 cm	20 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
30%	*Eucalyptus obliqua*	Messmate Stringybark
	Eucalyptus radiata s.l.	Narrow-leaf Peppermint
	Eucalyptus sieberi	Silvertop Ash
	Eucalyptus dives	Broad-leaved Peppermint

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	2	10%	T
Medium Shrub	9	30%	MS
Small Shrub	3	5%	SS
Prostrate Shrub	2	1%	PS
Large Herb	2	1%	LH
Medium Herb	5	10%	MH
Small or Prostrate Herb	2	1%	SH
Large Tufted Graminoid	2	5%	LTG
Large Non-tufted Graminoid	2	10%	LNG
Medium to Small Tufted Graminoid	4	10%	MTG
Medium to Tiny Non-tufted Graminoid	1	1%	MNG
Ground Fern	2	10%	GF
Scrambler or Climber	2	1%	SC
Bryophytes/Lichens	na	10%	BL

LF Code	Species typical of at least part of EVC range	Common Name
MS	*Epacris impressa*	Common Heath
MS	*Leptospermum continentale*	Prickly Tea-tree
MS	*Pultenaea gunnii*	Golden Bush-pea
MS	*Acacia mucronata ssp. longifolia*	Narrow-leaf Wattle
SS	*Amperea xiphoclada var. xiphoclada*	Broom Spurge
SS	*Lomatia ilicifolia*	Holly Lomatia
PS	*Acrotriche prostrata*	Trailing Ground-berry
MH	*Gonocarpus tetragynus*	Common Raspwort
MH	*Viola hederacea sensu Willis (1972)*	Ivy-leaf Violet
SH	*Goodenia lanata*	Trailing Goodenia
LTG	*Xanthorrhoea minor ssp. lutea*	Small Grass-tree
LTG	*Lomandra longifolia*	Spiny-headed Mat-rush
LNG	*Gahnia radula*	Thatch Saw-sedge
LNG	*Tetrarrhena juncea*	Forest Wire-grass
MTG	*Joycea pallida*	Silvertop Wallaby-grass
MTG	*Poa australis spp. agg.*	Tussock Grass
MTG	*Lomandra filiformis*	Wattle Mat-rush
MTG	*Lepidosperma laterale*	Variable Sword-sedge
MTG	*Dianella revoluta s.l.*	Black-anther Flax-lily
MNG	*Microlaena stipoides var. stipoides*	Weeping Grass
GF	*Pteridium esculentum*	Austral Bracken
GF	*Lindsaea linearis*	Screw Fern
SC	*Billardiera scandens*	Common Apple-berry

Victoria The Place To Be

EVC 16: Lowland Forest
Highlands – Southern Fall bioregion

Recruitment:
Continuous

Organic Litter:
40 % cover

Logs:
20 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MH	*Hypochoeris radicata*	Cat's Ear	high	low

Published by the Victorian Government Department of Sustainability and Environment April 2004

www.dse.vic.gov.au

Appendix 8: Native Vegetation Removal (NVR) report

Native Vegetation Removal Report

NVRR ID: 377_20241023_BTT

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

Report details

Date created: 23/10/2024

Local Government Area: YARRA RANGES SHIRE

Shapefile name:
18111_01_NVR_Patches_TO_DEECA_241023.shp
18111_01_NVR_Trees_TO_DEECA_241023.shp

Site assessor name: Arend Kwak

Registered Aboriginal Party: Wurundjeri

Coordinates: 145.61275, -37.78847

Address:
41 HODDLE STREET YARRA JUNCTION 3797
43 HODDLE STREET YARRA JUNCTION 3797

Regulator Notes

Removal polygons are located:

Summary of native vegetation to be removed

Assessment pathway	**Detailed Assessment Pathway**		
Location category	Location 1 The native vegetation extent map indicates that this area is not typically characterised as supporting native vegetation. It does not meet the criteria to be classified as Location Category 2 or 3. The removal of less than 0.5 hectares of native vegetation in this area will not require a Species Offset.		
Total extent including past and proposed removal (ha) *Includes endangered EVCs (ha): 0*	**1.828**	*Extent of past removal (ha)*	*0*
		Extent of proposed removal - Patches (ha)	*1.766*
		Extent of proposed removal - Scattered Trees (ha)	*0.062*
No. Large Trees proposed to be removed	**14**	*No. Large Patch Trees*	*13*
		No. Large Scattered Trees	*1*
No. Small Scattered Trees	0		

Offset requirements if approval is granted

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

General Offset amount [1]	**0.8690 General Habitat Units**
Vicinity	Melbourne Water CMA or YARRA RANGES SHIRE LGA
Minimum strategic biodiversity value score [2]	0.2004
Large Trees*	14
***The total number of Large Trees that the offset must protect**	**14** Large Trees to be protected in either the General, Species or combination across all habitat units protected

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

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

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

Next steps

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

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

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

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

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

Additional application requirements must be met including:

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

Appendix 1: Description of native vegetation to be removed

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

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

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

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

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

Native vegetation to be removed

Information provided by or on behalf of the applicant							Information calculated by NVR Map						
Zone	**Type**	**DBH (cm)**	**EVC code**	**Bioregional conservation status**	**Partial Removal**	**Condition score**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
1-a	Patch	-	HSF_0016	Least Concern	no	0.520	11	1.729	1.729	0.247	-	0.841	General
1-b	Patch	-	HSF_0016	Least Concern	no	0.440	2	0.037	0.037	0.306	-	0.016	General
1-ta	Scattered Tree	83	HSF_0016	Least Concern	no	0.200	1	0.070	0.062	0.315	-	0.012	General

Document Set ID: 9491670
Version: 2, Version Date: 26/05/2025

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

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

Species common name	Species scientific name	Taxon ID	Conservation status	Group	Habitat impacted	Proportional impact (%)
White Star-bush	Asterolasia asteriscophora subsp. albiflora	505647	Endangered	Dispersed	Habitat importance map	0.0012
Brickmaker's Sedge	Gahnia grandis	501390	Vulnerable	Dispersed	Habitat importance map	0.0006
Long Pink-bells	Tetratheca stenocarpa	503354	Rare	Dispersed	Habitat importance map	0.0005
Powelltown Correa	Correa reflexa var. lobata	505404	Rare	Dispersed	Habitat importance map	0.0005
Wiry Bossiaea	Bossiaea cordigera	500435	Rare	Dispersed	Habitat importance map	0.0003
Varied Mitrewort	Mitrasacme polymorpha	502211	Rare	Dispersed	Habitat importance map	0.0003
Round-leaf Pomaderris	Pomaderris vacciniifolia	502675	Endangered	Dispersed	Habitat importance map	0.0003
Veined Spear-grass	Austrostipa rudis subsp. australis	504940	Rare	Dispersed	Habitat importance map	0.0003
Green Scentbark	Eucalyptus fulgens	505175	Rare	Dispersed	Habitat importance map	0.0003
Silky Golden-tip	Goodia pubescens	504600	Rare	Dispersed	Habitat importance map	0.0002

Document Set ID: 9491670
Version: 2, Version Date: 26/05/2025

Species common name	Species scientific name	Taxon ID	Conservation status	Group	Habitat impacted	Proportional impact (%)
Grey Goshawk	Accipiter novaehollandiae novaehollandiae	10220	Vulnerable	Dispersed	Habitat importance map	0.0001
Eastern Horseshoe Bat	Rhinolophus megaphyllus megaphyllus	11303	Vulnerable	Dispersed	Habitat importance map	0.0001
Tufted Club-sedge	Isolepis wakefieldiana	501789	Rare	Dispersed	Habitat importance map	0.0001
Lacy Wedge-fern	Lindsaea microphylla	502015	Rare	Dispersed	Habitat importance map	0.0001
Forest Phebalium	Phebalium squamulosum subsp. squamulosum	504817	Rare	Dispersed	Habitat importance map	0.0001
Lewin's Rail	Lewinia pectoralis pectoralis	10045	Vulnerable	Dispersed	Habitat importance map	0.0000
Square-tailed Kite	Lophoictinia isura	10230	Vulnerable	Dispersed	Habitat importance map	0.0000
Powerful Owl	Ninox strenua	10248	Vulnerable	Dispersed	Habitat importance map	0.0000
White-throated Needletail	Hirundapus caudacutus	10334	Vulnerable	Dispersed	Habitat importance map	0.0000
Greater Glider	Petauroides volans	11133	Vulnerable	Dispersed	Habitat importance map	0.0000
Lace Monitor	Varanus varius	12283	Endangered	Dispersed	Habitat importance map	0.0000

Document Set ID: 9491670
Version: 2, Version Date: 26/05/2025

Species common name	Species scientific name	Taxon ID	Conservation status	Group	Habitat impacted	Proportional impact (%)
Nunniong Everlasting	Ozothamnus rogersianus	501623	Rare	Dispersed	Habitat importance map	0.0000
Small Fork-fern	Tmesipteris parva	503405	Rare	Dispersed	Habitat importance map	0.0000
Parsley Xanthosia	Xanthosia leiophylla	504562	Rare	Dispersed	Habitat importance map	0.0000
Large-leaf Cinnamon-wattle	Acacia leprosa var. uninervia	505141	Rare	Dispersed	Habitat importance map	0.0000
Floodplain Fireweed	Senecio campylocarpus	507136	Rare	Dispersed	Habitat importance map	0.0000

Habitat Group

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

Habitat Impacted

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

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

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

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

Document Set ID: 9491670
Version: 2, Version Date: 26/05/2025

Appendix 3: Images of mapped native vegetation

1. Property in context

Proposed Removal
Past Removal
Partial Removal
Property Boundaries

N

250 m

2. Aerial photograph showing mapped native vegetation

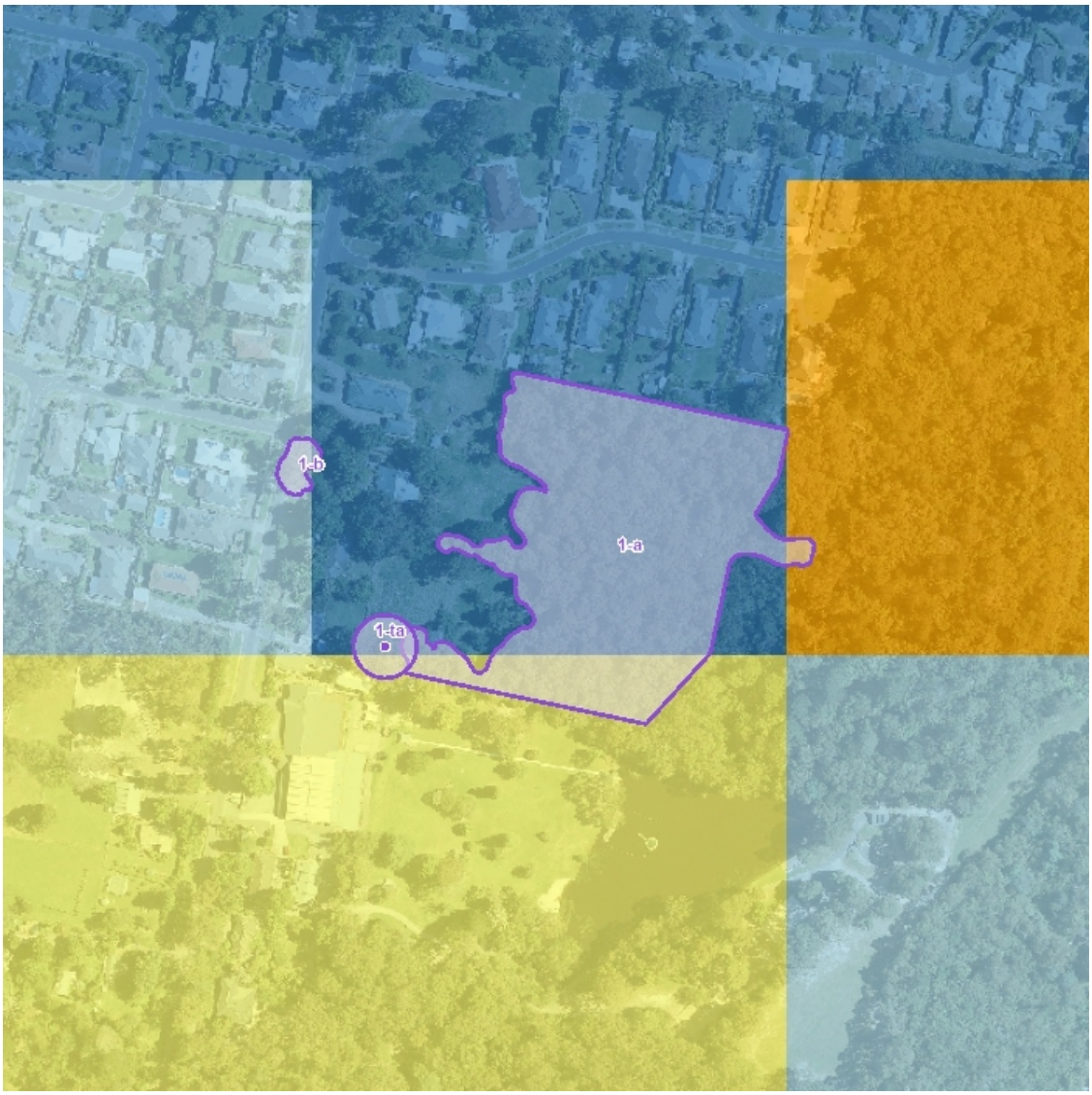
Proposed Removal
Past Removal
Partial Removal

N

75 m

3. Location Risk Map

4. Strategic Biodiversity Value Score Map



5. Modelled Condition Score Map

Proposed Removal
Past Removal
Partial Removal

0.81 - 1.00
0.61 - 0.80
0.41 - 0.60
0.21 - 0.40
0.00 - 0.20

N

75 m

6. Modelled Endangered EVCs

Not Applicable

7. Habitat Importance maps

Not Applicable

Document Set ID: 9491670
Version: 2, Version Date: 26/05/2025

Appendix 9: Evidence that native vegetation offset requirement is available

Report of available native vegetation credits

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

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

Date and time: 28/10/2024 04:37 **Report ID: 27028**

What was searched for?

General offset

General habitat units	Strategic biodiversity value	Large trees	Vicinity (Catchment Management Authority or Municipal district)	
0.869	0.2004	14	CMA	Melbourne Water
			or LGA	Yarra Ranges Shire

Details of available native vegetation credits on 28 October 2024 04:37

These sites meet your requirements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
BBA-0670	14.213	97	Melbourne Water	Cardinia Shire	No	Yes	No	Abezco, VegLink
BBA-0677	5.097	1408	Melbourne Water	Whittlesea City	No	Yes	No	Abezco, VegLink
BBA-0678	41.860	2579	Melbourne Water	Nillumbik Shire	No	Yes	No	VegLink
BBA-2789	1.317	14	Melbourne Water	Baw Baw Shire	Yes	Yes	No	Contact NVOR
BBA-2790	2.911	116	Melbourne Water	Baw Baw Shire	Yes	Yes	No	Contact NVOR
BBA-2870	2.544	431	Melbourne Water	Yarra Ranges Shire	Yes	Yes	No	VegLink
BBA-2871	14.245	1638	Melbourne Water	Yarra Ranges Shire	Yes	Yes	No	VegLink
VC_CFL-3710_01	6.300	322	Melbourne Water	Yarra Ranges Shire	Yes	Yes	No	VegLink
VC_CFL-3744_01	1.164	349	Melbourne Water	Macedon Ranges Shire	Yes	Yes	No	VegLink
VC_CFL-3805_01	3.323	802	Melbourne Water	Yarra Ranges Shire	Yes	Yes	No	VegLink

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

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

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

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

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
VC_CFL-3746_01	4.962	563	Melbourne Water	Macedon Ranges Shire	Yes	Yes	No	VegLink
VC_CFL-3792_01	14.025	1235	Melbourne Water	Macedon Ranges 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@deeca.vic.gov.au	www.environment.vic.gov.au/native-vegetation
Ecocentric	Ecocentric Environmental Consulting	0410 564 139	ecocentric@me.com	Not avaliable
Ethos	Ethos NRM Pty Ltd	(03) 5153 0037	offsets@ethosnrm.com.au	www.ethosnrm.com.au
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