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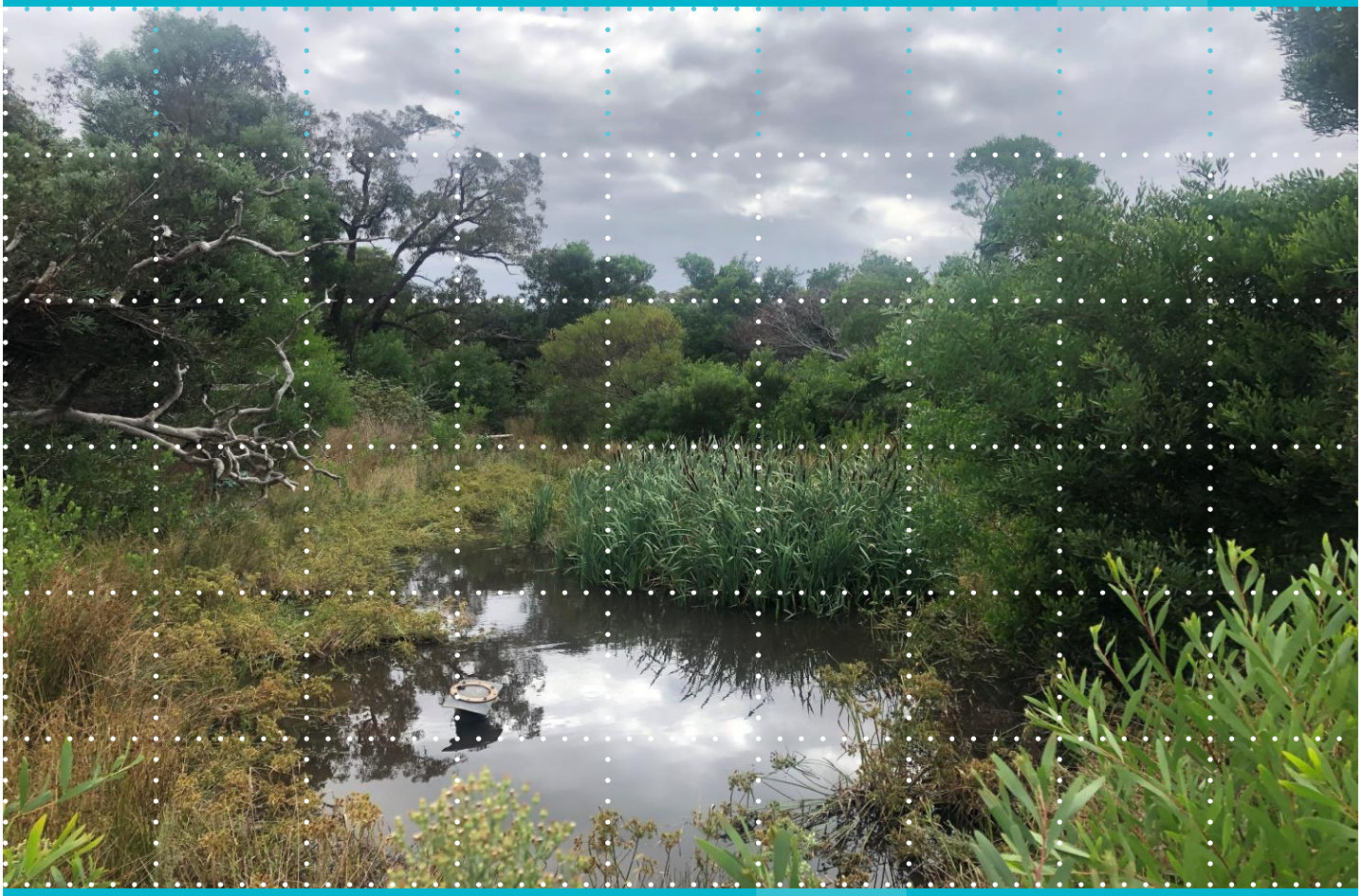
Final Report

Biodiversity Assessment for the proposed Langwarrin Quarry Extension: 60 Valley Road, Langwarrin, Victoria

Prepared for

Heidelberg Materials Pty Ltd

June 2025



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Report version	Comments	Report updated by:	Report reviewed by*:	Date submitted
Draft	Report sent to the client for review.	CS	AO	11/04/2025
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Note: * AO – Aaron Organ (Director/Principal Ecologist); SLB – Shannon LeBel (Senior Associate Ecologist)

Ecology and Heritage Partners acknowledge the Traditional Owners of the country we live and work on, and we pay our respect to Elders past, present and emerging.

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SUMMARY OF NATIVE VEGETATION REMOVAL APPLICATION REQUIREMENTS

The *Guidelines for the removal, destruction or lopping of native vegetation* (Department of Environment, Land, Water and Planning [DELWP] 2017) outlines the requirements for a permit to remove, destroy or lop native vegetation, including dead vegetation, under the Victoria Planning Provisions. There are 11 application requirements that must be met in order to satisfy these Guidelines (Table S1).

Table S1. Application requirements for a permit to remove native vegetation (Table 6 in DELWP 2017).

No.	Application Requirement	Response
Application requirements under the Detailed Assessment Pathway		
1	Information about the native vegetation to be removed, including: - The assessment pathway and reason for the assessment pathway; - A description of the native vegetation to be removed; - Maps showing the native vegetation and property in context; and - The offset requirement that will apply if the native vegetation is approved to be removed.	Refer to Section 3.1, Section 4.2, Figure 2, Appendix 3 (NVR Report) and Appendix 4
2	Topographic and land information relating to the native vegetation to be removed, showing ridges, crests and hilltops, wetlands and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion, as appropriate.	Refer to Section 1.2 and Figure 1
3	Recent dated photographs of the native vegetation to be removed.	Refer to Section 3.1
4	Details of any other native vegetation that was permitted to be removed on the same property with the same ownership as the native vegetation to be removed, where the removal occurred in the five-year period before the application to remove native vegetation is lodged.	No native vegetation has been removed by the proponent within the property within the past five years
5	An avoid and minimise statement. The statement describes any efforts to avoid the removal of and minimise the impacts on the biodiversity and other values of native vegetation, and how these efforts focussed on areas of native vegetation that have the most value.	Refer to Section 4.1
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.	Not applicable
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 must have regard to other available bushfire risk mitigation measures. This statement is not required when the creation of defendable space is in conjunction with an application under the Bushfire Management Overlay.	Not applicable as the vegetation clearance is not for defendable space
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.	Not applicable as the application responds to Clause 52.17
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.	Refer to Section 4.2.3

No.	Application Requirement	Response
10	A site assessment report of the native vegetation to be removed, including: • 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.	Refer to Figure 2, Appendix 1.1 (habitat hectares assessment) and Appendix 1.2 (tree information)
11	Information about impacts on rare or threatened species habitat, including the relevant section of the Habitat importance map for each rare or threatened species requiring a species offset.	Refer to Section 3.3 and Appendix 3 (NVR Report)

1 INTRODUCTION

1.1 Background

Ecology and Heritage Partners Pty Ltd was commissioned by Heidelberg Materials Pty Ltd to undertake a Biodiversity Assessment for the proposed Langwarrin Quarry Extension (WA 13) at 60 Valley Road, Langwarrin, Victoria.

We understand that Hanson is proposing to submit an application via the Development Facilitation Program (DFP) to facilitate the expansion of their existing quarry pit north-eastward into 60 Valley Road. All applications lodged to the DFP are determined by the Minister for Planning or the Department of Transport and Planning under delegation.

The purpose of this assessment was to identify the extent and type of native vegetation present within the study area and to determine the likely presence of significant flora and fauna species and/or ecological communities. This report presents the results of the assessment and discusses the potential ecological and legislative implications associated with the proposed action.

1.2 Study Area

The study area is located at 60 Valley Road, Langwarrin and is approximately 40 kilometres south-east of Melbourne's CBD (Figure 1). The study area covers approximately 7.094 hectares and is bound by semi-rural properties to the north and east, and the existing quarry to the south-west.

The study area contains a residence and associated outbuildings. The study area also includes open grassy areas comprised largely of exotic species mainly in the study area's eastern half. The balance of the study area contained largely intact native vegetation. Small depressions that would likely hold water in wetter months were observed within the study area. The land is flat to gently undulating due to it being part of the inland coastal sand dune system. The existing quarry is located immediately south-west of the study area, which contains steep banks.

According to the Victorian Department of Energy, Environment and Climate Action (DEECA) NatureKit Map (DEECA 2025a), the study area is located within the Gippsland Plain bioregion, Melbourne Water Catchment Management Authority (CMA) and Frankston City Council municipality.

2 METHODS

2.1 Desktop Assessment

2.1.1 *Literature and Databases*

Relevant literature, online-resources and databases were reviewed to provide an assessment of flora and fauna values associated with the study area. The following information sources were reviewed:

- The DEECA NatureKit Map (DEECA 2025a) and Native Vegetation Regulation (NVR) Map (DEECA 2025b) for:
    - Modelled data for location risk, native vegetation patches, scattered trees and habitat for rare or threatened species; and,
    - The extent of historic and current Ecological Vegetation Classes (EVCs).
- EVC benchmarks (DEECA 2025c) for descriptions of EVCs within the relevant bioregion;
- The Victorian Biodiversity Atlas (VBA) for previously documented flora and fauna records within the project locality (DEECA 2025d);
- The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool (PMST) for matters of National Environmental Significance (NES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (DCCEEW 2025);
- Relevant listings under the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act), including the latest Threatened (DEECA 2025e) and Protected (DEECA 2024) Lists;
- The online VicPlan Map (Department of Transport and Planning [DTP] 2025) to ascertain current zoning and environmental overlays in the study area;
- Aerial photography of the study area; and,

2.1.2 *Previous Ecological Assessments*

Several ecological assessments have previously been undertaken within the study area that describe the ecological values present, or that are considered likely to occur. The following list is chronological order:

- Galbraith and Associates Pty Ltd 2025. *60 Valley Road and 150 Quarry Road, Langwarrin*. Arborist report;
- Abzeco Pty Ltd 2023. *Assessment of ecological values at 60 Valley Road, Langwarrin, for the proposed Langwarrin Quarry Expansion*;
- Ecology and Heritage Partners Pty Ltd 2023. *Langwarrin Quarry – Response to RFI matters relating to Environment: Planning Application 754/2022/P*;

- Ecology and Heritage Partners Pty Ltd 2022. *Addendum – Biodiversity Impact Assessment for the Langwarrin Quarry Extension (WA13), 60 Valley Road, Langwarrin, Victoria*. An addendum report to the Paul Kelly and Associates Ecological Services Pty Ltd (2019) ecological report;
- Paul Kelly and Associates Ecological Services Pty Ltd 2019. *Ecological Features and Constraints. Quarry Extension (WA13), 60 Valley Road, Langwarrin*.

2.2 Field Assessment

A field assessment was undertaken by a habitat hectare assessor, who is accredited by DEECA in the habitat hectare assessment methodology, on 19 January 2023 and 14 February 2024 to obtain information on flora and fauna values within the study area. The study area was walked, with all significant records mapped and the overall condition of vegetation and habitats noted. EVCs were determined with reference to DEECA pre-1750 and extant EVC mapping (DEECA 2025a) and their published descriptions (DEECA 2025c).

Where native vegetation was identified during the 19 January 2023 field assessment, a habitat hectare assessment was undertaken following the methodology described in the Vegetation Quality Assessment Manual (Department of Sustainability and Environment [DSE] 2004).

2.3 Removal, Destruction or Lopping of Native Vegetation (the Guidelines)

Under the *Planning and Environment Act 1987,* Clause 52.17 of the Frankston Planning Scheme requires a planning permit to remove, destroy or lop any native vegetation, including dead vegetation, unless an exemption at Clause 52.17-7 applies.

The clearing of native vegetation for mining and extractive industries is exempt from requiring a planning permit under the 'Extractive industry' exemption detailed in Clause 52.17-7 of the Frankston Planning Scheme subject to an assessment as part of the Work Plan approval process (*Mineral Resources (Sustainable Development) Act 1990*) (MRSD Act). The removal of native vegetation is only exempt if the removal is carried out in accordance with the approved Work Plan. Furthermore, the Work Plan can only be approved once the planning permit has been issued. This exemption was confirmed in a letter prepared by Norton Rose Fulbright (2022) to Hanson, stating that the proposed quarry extension does not trigger a permit under Clause 52.17 Native Vegetation or Clause 42.01 Environmental Significance Overlay of the Frankston Planning Scheme, as Hanson can rely on the exemptions detailed in the table to Clause 52.17-7 (Extractive industry) and the table to Clause 42.01-3 (Extractive industry) respectively.

The assessment process for the clearing of vegetation follows under the MRSD Act is the same per Clause 52.17, which is through the *Guidelines for the removal, destruction or lopping of native vegetation* (the Guidelines) (Department of Environment, Land, Water and Planning [DELWP] 2017).

2.4 Southern Toadlet Surveys

Target surveys for Southern Toadlet *Pseudophryne semimarmorata* were conducted by two qualified zoologists over three nights on 30 April and 6 and 7 May 2025 in accordance with best practice methods

described in the *Interim survey guidelines for toadlets* Pseudophryne *species in Victoria* (De Angelis and Cleeland 2023) (Table 1).

Southern Toadlet occur in damp habitats that are inundated during late autumn and winter (ephemeral depression and waterbodies), often where logs or leaf litter are present.

The surveys were conducted in areas of potential habitat identified within the study area. Surveys were undertaken over three nights and involved:

- Spotlighting, call identification, and active searching for adults and metamorphs during the species known breeding season (late March – early May);
- Accessing a reference site located at Langwarrin Flora and Fauna Reserve on 30 April (survey one) and Churchill National Park on 6 and 7 May (surveys two and three), to confirm the species was actively calling prior to undertaking surveys; and,
- Active call playback at all areas of suitable habitat.

Table 1 Recommended survey requirements for *Pseudophryne* spp. in Victoria (De Angelis and Cleeland 2023).

Minimum number of surveys (on separate nights) at each potential breeding site	3
Time of year	Late March to early May in lowland areas and most inland slopes, with at least one survey in April. Surveys outside these times should be informed by weather conditions and if it is known the species is calling nearby
Time of day	From sunset and after dark (i.e. from 6pm)
Duration on each survey at each site	5 minutes (plus additional time as needed to walk/drive slowly between multiple sites while periodically stopping to listen)
Ambient temperature at the time of survey	Above 11^0C
Other weather variables	Not in heavy wind or rain

2.5 Assessment Qualifications and Limitations

This report has been written based on the quality and extent of the ecological values and habitat considered to be present or absent at the time of the desktop and/or field assessments being undertaken.

The 'snapshot' nature of a standard biodiversity assessment meant that migratory, transitory or uncommon fauna species may have been absent from typically occupied habitats at the time of the field assessment. In addition, annual or cryptic flora species such as those that persist via underground tubers may also be absent.

A comprehensive list of all terrestrial flora and fauna present within the study area was not undertaken as this was not the objective of the assessment. Rather a list of commonly observed species was recorded to inform the habitat hectare assessment and assist in determining the broader biodiversity values present within the study area.

Ecological values identified within the study area were recorded using a hand-held GPS or tablet with an accuracy of +/-3 metres. This level of accuracy is considered to provide an accurate assessment of the

ecological values present within the study area; however, this data should not be used for detailed surveying purposes.

The terrestrial flora and fauna data collected during the field assessment and information obtained from relevant desktop sources is considered to inform an accurate assessment of the ecological values present.

3 RESULTS

3.1 Vegetation Condition

Three large patches of native vegetation and four scattered native trees were recorded within the study area. The remainder of the study area comprised introduced and planted vegetation, present as largely exotic open grassy areas.

One hundred and forty-nine flora species have been recorded within the study area, including 84 indigenous and 65 non-indigenous species (Abzeco Pty Ltd 2023). A small number of additional species were observed during the Ecology and Heritage Partners' field assessment on 19 January 2023.

3.1.1 Patches of Native Vegetation

Native vegetation in the study area is representative of one EVC, being Heathy Woodland (EVC 48). The presence of this EVC is generally consistent with the modelled extent (2005) native vegetation mapping (DEECA 2025a). Heathy Woodland (HW) is characterised by low woodland to 10 metres tall dominated by eucalypts. The understorey typically contains a diverse array of narrow or ericoid-leaved shrubs (DEECA 2025c).

The patch extent was originally mapped by Paul Kelly and Associates Pty Ltd (2019). The site assessment undertaken by an Ecology and Heritage Partners assessor accredited by DEECA in the habitat hectare assessment methodology on 19 January 2023 confirmed that the EVC classification and extent of native vegetation patches was consistent with that mapped by Paul Kelly and Associates Pty Ltd (2019). The results of Ecology and Heritage Partners' habitat hectare assessment are provided in Appendix 1.1.

Three patches of Heathy Woodland were present within the study area (Figure 2), which all comprised a high diversity of native species. The canopy layer was irregular, and where present, comprised Mealy Stringybark *Eucalyptus cephalocarpa*, Narrow-leaf Peppermint *Eucalyptus radiata*, Rough-barked Manna-gum *Eucalyptus viminalis* subsp. *pryoriana* and Swamp Gum *Eucalyptus ovata* (Plate 1).

The shrub layer was present throughout and contained a high cover of Coast Wattle *Acacia longifolia* subsp. *longifolia*, with other species including Heath Tea-tree *Leptospermum myrsinoides*, Prickly Tea-tree *Leptospermum continentale*, Swamp Paperbark *Melaleuca ericifolia* and Coast Tea-tree *Leptospermum laevigatum* also present, but generally in lower abundance, or in discrete areas within the study area (Plate 2).

Smaller shrubs such as Wedding Bush *Ricinocarpos pinifolius*, Smooth Parrot-pea *Dillwynia glaberrima* and Common Rice-flower *Pimelea humilis* were also present throughout the habitat zones (Plate 3).

The ground layer supported a diverse range of herbs and graminoids, including Weeping Grass *Microlaena stipoides* var. *stipoides*, Small Grass-tree *Xanthorrhoea minor* subsp. *lutea* and Variable Sword-sedge *Lepidosperma laterale* (Plate 4).

The study area had previously been disturbed through clearing for residential purposes (i.e. creating open grassy areas associated with the dwelling), access tracks through the forest and the creation of a perimeter fire break. During the field assessment undertaken on 19 January 2023, it was observed that native vegetation within the study area appeared to be regenerating and recolonising many previously disturbed areas, with a

moderate cover of native grasses, lilies and herbs evident (Plate 5; Plate 6). This recruitment was mostly comprised of natives such as Bristly Wallaby-grass *Rytidosperma setaceum*, Bent Goodenia *Goodenia geniculata* and Austral Bracken *Pteridium esculentum*.

The recruitment of native vegetation within the study area is likely facilitated through a combination of the study area being secured by fencing, which has minimised previous disturbance activities, as well as high rainfall and relatively fewer extreme heat events over the 2-3 years leading up to the 2023 field assessment.

Based on observations made during the field assessment, any negative influence on vegetation quality caused by previous fragmentation due to ongoing disturbance along the network of internal tracks appears to have ceased. However, it is noted that the study area is still subject to edge effects caused by the presence of the existing quarry site to the south, the creation of fire break around the perimeter of the study area (as required by Schedule 15 Fire Prevention Notice – issued 12 December 2022) and the presence of low-density residential properties to the east and west.

The differences between the three habitat zones (HZs) were relatively minimal, particularly considering they were all of high quality. For example, HZ1 and HZ2 contained less than 25% weed cover, while HZ3 contained more than 25% weed cover. Furthermore, the number of Large Trees per hectare within HZ1 and HZ2 were above the benchmark number, while HZ3 contained between 40-70% of the benchmark number (Appendix 1.1).

Plate 1. Dominant, intact eucalypt canopy either side of fire break (Ecology and Heritage Partners 19/01/2023).

Plate 2. Diverse shrub layer within HZ1, including Sweet Pittosporum *Pittosporum undulatum* (Ecology and Heritage Partners 19/01/2023).

Plate 3. Wedding Bush *Ricinocarpos pinifolius* specimen (Ecology and Heritage Partners 19/01/2023).

Plate 4. Variable Sword-sedge *Lepidosperma laterale*-dominated ground-layer within HZ1 (Ecology and Heritage Partners 19/01/2023).

Plate 5. Wallaby-grass *Rytidosperma* spp. recolonising on informal tracks (Ecology and Heritage Partners 19/01/2023).

Plate 6. Bent Goodenia *Goodenia geniculate* recolonising on informal tracks (Ecology and Heritage Partners 19/01/2023).

3.1.2 Large Trees in Patches

Seventy-seven Large Trees in Heathy Woodland patches were present (Figure 2). This consisted of 57 Mealy Stringybarks, one Narrow-leaf Peppermint, one eucalypt (species not confirmed) and 18 dead eucalypt stags (Appendix 1.2).

3.1.3 Scattered Trees

Four scattered eucalypts were recorded within the study area, which consisted of two large eucalypts and two small eucalypts (with one being a Narrow-leaf Peppermint) (Figure 2; Appendix 1.2). These trees would have once formed part of the Heathy Woodland EVC; however, the understorey vegetation contained predominantly introduced species (mainly exotic pasture grasses) and the trees no longer formed a patch of native vegetation.

3.1.4 *Introduced and Planted Vegetation*

Weed cover was relatively high within the study area, with high-threat weeds particularly prevalent. Although native, the invasive non-indigenous Sweet Pittosporum *Pittosporum undulatum* was present throughout the habitat zones, along with several occurrences of the exotic English Ivy *Hedera* helix, Radiata Pine *Pinus radiata*, Agapanthus *Agapanthus praecox* subsp. *orientalis* and Inkweed *Phytolacca octandra* (Plate 7).

Several exotic grasses were present and have established throughout the study area, particularly within the open grassy areas. These include Brown-top Bent *Agrostis capillaris*, Large Quaking-grass *Briza maxima*, Panic Veldt-grass *Ehrharta erecta* var. *erecta* and Sweet Vernal-grass *Anthoxanthum oderatum*.

Noxious weeds, as defined under the *Catchment and Land Protection Act 1994* (CaLP Act), were present within the study area, with several occurrences of Blackberry *Rubus fruticosus* spp. agg. (Plate 8) and Boneseed *Chysanthemoides monilifera*. Other noxious weeds observed as per the Abzeco Pty Ltd (2023) report included Spear Thistle *Cirsium vulgare*, Common Thorn-apple *Datura stramonium* and Gorse *Ulex europaeus*. Blackberry, Boneseed and Gorse are also a Weeds of National Significance (WoNS).

Plate 7. Inkweed *Phytolacca octandra* regeneration within the study area (Ecology and Heritage Partners Pty Ltd 19/01/2023).

Plate 8. Blackberry *Rubus fruticosus* spp. agg. infestation present within the study area (Ecology and Heritage Partners Pty Ltd 19/01/2023).

3.2 Fauna Habitat

The study area contained a range of habitat qualities suitable for various fauna species, including open grassy areas, forests and tree hollows. From a strategic perspective, the study area also forms part of a biolink identified by Frankston City Council.

3.2.1 *Open Grassy Areas*

Open grassy areas generally in the eastern half of the study area are likely to be used as a foraging resource by common generalist bird species which are tolerant of modified open areas, including Australian Magpie *Cracticus tibicen*, Magpie-lark *Grallina cyanoleuca*, House Sparrow *Passer domesticus* and Willie Wagtail *Rhipidura leucophrys*.

3.2.2 Forests and Tree Hollows

Forests occur throughout the study area and provide an important resource for arboreal fauna. Many of the eucalypts are relatively mature, providing an array of small and medium hollows, bark fissures and crevices. These are likely to be relied upon for shelter and nesting by a range of hollow-dependent fauna including parrots, microbats, possums, gliders and owls. Scattered trees provide habitat for more mobile fauna species, vantage points and nesting areas for diurnal and nocturnal raptors, as well as steppingstones for more mobile fauna moving through the study area, enhancing landscape permeability for native fauna.

Several canopy trees observed within the study area were either dead (stags) or were in poor health and contained dead limbs. Several large logs were also observed to be present through the understory of the habitat zones as well. Dead trees (and mature canopy trees in general) provides moderate quality habitat for native fauna, and an important source of roosting, nesting and sheltering habitat for birds, mammals and reptiles in an otherwise modified landscape.

Tree hollows are also present within the study area, which provide important habitat for native fauna. Arboreal mammals (Brushtail Possum *Trichosurus Vulpecula*) and birds (Galah *Eolophus roseicapilla*, Eastern Rosella *Platycercus eximius)* are expected to use hollows across the study area.

A broad selection of bat species are likely to use habitat within trees where fissures or cracks are present and disused buildings associated with the study area. Grey-headed Flying-fox *Pteropus poliocephalus*, Lesser Long-eared Bat *Nyctophilis geoffroyi* and White-striped Freetail Bat *Austronomus australis* may occasionally forage over open and vegetated areas throughout the locality as these species have been recorded within the local area (ALA 2025).

Mature canopy trees provide foraging habitat for insectivorous and nectivorous birds as well as vantage points and nesting areas for diurnal and nocturnal raptors and other non-hollow dependent species including Australian Magpie *Cracticus tibicen* and Australian Raven *Corvus coronoides*. These trees also provide stepping stones for more mobile fauna moving through the locality, enhancing landscape permeability for a wide range woodland birds, possums, reptiles, as well as predators such as raptors.

Logs provide an excellent habitat and food for many species and are extremely important for the proper function of a healthy ecosystem. Frogs, reptiles and small mammals use logs with hollows for shelter and a food resource. These species include Echidna *Tachyglossus aculeatus*, Common Wombat *Vombatus ursinus*, Blue-tongue Lizard *Tiliqua scincoides scincoides* and Eastern Banjo Frog *Limnodynastes dumerilii*.

Aside from dead canopy trees, and trees with dead limbs, canopy health was broadly considered to be moderate to high. High levels of buds and fruit were observed on canopy trees, indicating a rich *in-situ* seed bank available to facilitate future recruitment of canopy species. Low levels of eucalypt recruitment were observed, although successful shrub recruitment was noticeably higher.

3.2.3 Depressions and Seasonally Inundated Areas

Low-lying areas and drainage channels are scattered throughout the study area, which would occasionally hold water during the wetter months. These areas contain a dense carpet of heathy vegetation, grasses and/or herbs.

3.2.4 *High Priority Biolinks*

The study area is identified to form part of a 'linkage corridor' referred to as 'C1', recommended to be implemented within the Frankston Fauna Linkages Study (Practical Ecology Pty Ltd 2012). C1 is proposed to be established to provide a biolink between the Pines Flora and Fauna Reserve in the west, and the Cranbourne Botanic Gardens to the east (as shown in Figure 3 of this report; Figure 29 of Practical Ecology Pty Ltd 2012).

C1 appears to predominantly comprise a range of vegetated low density residential lots, larger areas of native vegetation within privately owned land, and road reserves. The study area is one of the aforementioned low density residential parcels that forms a part of C1.

It is not considered that the integrity of C1 would be compromised if the study area was used for extractive industry purposes, as the biolink will still be maintained via an alternative corridor alignment through the study area and immediately adjacent parcels (see Proposed C1 Alternative Corridor – Figure 3). Vegetation within the alternative corridor is of similar quality and extent to that within other areas of C1 that fall within low density residential lots adjacent to the east and west of the study area, and supports a moderate cover of canopy vegetation, as well as mid and ground-story vegetation. Further, the connectivity between The Pines and Cranbourne Botanic Gardens will be maintained, and the connectivity provisions for fauna listed in Table 4 of Practical Ecology Pty Ltd (2012) will not be compromised by the action.

It is understood that the study area would be rehabilitated and revegetated within 10 years of extraction, and as such, the C1 linkage would ultimately be re-established within the study area, and result in the long-term integrity of the biolink being maintained within this section.

Separate to the extractive works proposed within the study area, an opportunity exists to embellish the section of the C2 biolink that intersects the existing quarry located immediately south of the study area (Figure 3).

C2 is present as a riparian corridor along the Boggy Creek easement. The easement is approximately 10.5 metres wide. Although the current extent of vegetation along and adjacent to Boggy Creek is greater than the width of the easement, it is predominantly located on privately owned land (outside of the easement) and under the existing Work Plan, can be removed for quarrying purposes.

However, there is the potential to embellish and increase the extent of vegetation along the C2 biolink from approximately 0.73 hectares (within the easement) to approximately 9.2 hectares (including vegetation on privately owned land outside the easement) which will ultimately optimise and enhance the connectivity provisions for fauna as detailed in Table 4 of Practical Ecology Pty Ltd (2012). Figure 4 shows the potential increased area of the biolink within the existing quarry site.

3.3 Significance Assessment

3.3.1 *Flora*

Ten nationally significant (i.e. under the EPBC Act) and 39 State significant (i.e. under the FFG Act) flora species previously recorded within 10 kilometres of the study area (DEECA 2025d) (Figure 5). An additional 12 nationally significant species which have not been previously recorded but have the potential to occur in the locality (DCCEEW 2025) (Appendix 1.3).

No national or State significant flora listed as threatened under the FFG Act were recorded during the Ecology and Heritage Partners' field assessment. Abzeco Pty Ltd (2023) located one small population of Veined Spear-grass *Austrostipa rudis* subsp. *australis*, which is listed as Endangered under the FFG Act (DEECA 2025e).

Abzeco Pty Ltd (2023) recorded 13 species listed as Protected under the FFG Act within the study area, being Rosy Hyacinth-orchid *Dipodium roseum*, Slender Onion-orchid *Microtis parviflora*, Cedar Wattle *Acacia elata*, Prickly Moses *Acacia verticilata*, Black Wattle *Acacia meransii*, Spike Wattle *Acacia oxycedrus*, Hedge Wattle *Acacia paradoxa*, Common Correa *Correa reflexa*, Common Heath *Epacris impressa*, Prickly Broom-heath *Monotoca scoparia*, Cranberry Heath *Styphelia humifusa* and Small Grass-tree *Xanthorrhoea minor* subsp. *lutea*.

There are several records of Giant Honey-myrtle *Melaleuca armillaris* subsp. *armillaris* and Spotted Gum *Corymbia maculata* within five kilometres of the study area (Figure 5), however these species' natural range is East Gippsland. These species are widely planted as ornamental specimens in Greater Melbourne.

3.3.2 Fauna

Thirty nationally significant and 40 State significant fauna species previously recorded within 10 kilometres of the study area (DEECA 2025d) (Figure 6). An additional 46 nationally significant species which have not been previously recorded but have the potential to occur in the locality (DCCEEW 2025) (Appendix 2.1). Information relating to six nationally and State significant species are provided below.

Powerful Owl *Ninox strenua*

Powerful Owl is the largest owl species in Australia. It prefers tall open sclerophyll forest and woodlands, requiring large, hollow-bearing eucalypts for breeding. Suitable nesting hollows are generally considered to be up to 50 centimetres wide, and one metre deep (Cooke *et al*. 2002). The Powerful Owl prefers areas with dense scrub nearby but has been recorded in a variety of wooded habitats. It prefers large tracts of continuous forest but will sometimes occur in more fragmented landscapes or near permanent streams dominated by Mountain Grey Gum *Eucalyptus cypellocarpa* and other eucalypts.

They have been increasingly reported in urban environments, that provide adequate prey, tree hollows for nesting and a high canopy cover with structural diversity of vegetation for roosting (Isaac *et al*. 2013) but rarely breed in these areas (Higgins 1999). Powerful Owls prefer dense gullies for roosting and breeding.

Powerful Owls mate for life (approximately 30 years) and a breeding pair defend their home-range all year round. Home-ranges are known to vary widely depending upon landscape matrix, size of bushland patches, and prey and/or tree-hollow density (Bilney 2013). They may cycle through multiple preferred nest hollows, spending between two and five years at each nest site before moving to the next (McNabb 1996) or continually utilise the same hollow (SWIFFT 2025).

During the site visit within the study area on 19 January 2023, daytime searches for potential roost and nest sites were undertaken. These surveys also sought to identify the presence of owl pellets, whitewash, the remains of prey items (e.g. Common Ring-tailed Possum *Pseudocheirus peregrinus*) and/or feathers that would indicate the presence of the species.

Active searching within the study area and adjacent parks did not result in any visual sightings of the species, nor confirm the presence of a nesting site. Several Large Trees within the broader landscape contain small to

medium sized hollows that are not likely to be suitable for use by Powerful Owl, and several trees have the potential to support larger hollows that may provide nesting/roosting habitat for the species (i.e. Little Boggy Creek Reserve, The Pines). However, none were observed within the study area.

The VBA (DEECA 2025) contains previous records of Powerful Owl located approximately four kilometres south of the study area within Langwarrin Flora and Fauna Reserve (roosting records from 2016), 5.4 kilometres south-west within Frankston Golf Club, and 5.6 kilometres east within Cranbourne Botanic Gardens. Powerful Owl monitoring efforts through GPS tracking by Deakin University show the owl has been detected within the study area, however this data is unpublished (Abzeco Pty. Ltd. 2023).

Given the presence of known records of Powerful Owl within the locality, and the data from Deakin University of its presence in the study area, it is likely the study area is used for foraging purposes as part of an active territory of the species; however, the study area is unlikely to currently support suitable breeding habitat for Powerful Owl.

Southern Brown Bandicoot *Isoodon obesulus*

Southern Brown Bandicoot is listed as Endangered under both the EPBC Act and FFG Act. This marsupial is characterised by its coarse brindled dark grey to yellow-brown fur on its back, with creamy white feet and underbelly. Ears are short and rounded, barely extending above the head. Animals tend to be 28-35 centimetres in length (head-body), with an 8-13-centimetre-long tail. Females weigh 400-1000 grams, whilst males weigh 500-1500 grams (Menkhorst and Knight 2004). The diet is omnivorous consisting largely of soil invertebrates, seeds and underground (hypogeal) fungi.

Southern Brown Bandicoot (eastern subspecies) occurs in a variety of habitats in south-eastern Australia, including heathland, swamp habitat, shrubland and heathy forest usually with well-drained soils and dry heath communities (Menkhorst 1999). It is primarily found in coastal regions of Victoria, although isolated populations do remain in the Grampians Ranges, Dandenong Ranges and within central western Victoria (Menkhorts and Seebeck). The species is reliant on habitats with dense understory vegetation, which allows the species to evade predation.

Southern Brown Bandicoot was once distributed throughout coastal regions of southeast and southwest Australia but is now threatened with population fragmentation from removal of habitat and urban sprawl. The species is also vulnerable to predation by foxes and cats (Department of Environment and Primary Industries [DEPI] 2014). Scattered records of Southern Brown Bandicoot occur throughout the surrounding area, with the records concentrated approximated six kilometres east of the study area in the Royal Botanic Gardens Cranbourne (DEECA 2025d). There are also three records (1988, 1997, 2001) approximately 1.2 kilometres west of the study area within The Pines Flora and Flora Reserve. Targeted surveys for Southern Brown Bandicoot were undertaken by Paul Kelly and Associates Pty Ltd in 2019 (Paul Kelly and Associates Pty Ltd 2019) using two camera traps, which were not detected within the study area.

Although the study area contains the species preferred habitat type (Heathy Woodland), the ground and understorey layers are highly disturbed and dominated by environmental weeds. The study area and immediate surrounds (i.e. areas connected to the study area) are not likely to support a resident population of the species given the absence of the species in the local area.

Swamp Skink *Lissolepis coventryi*

Swamp Skink is listed as Endangered under both the EPBC Act and FFG Act.

This omnivorous, medium, robust skink (approximately 100 millimetres) has a fourth toe that is noticeably longer than the third, and the presence of separated parietal scales. It produces live young, usually around January to February, and litter sizes vary from one to eight (Greer 1989).

Swamp skink typically occur in wetlands and swamp heathlands including swamp margins, tea-tree thickets and saltmarshes (Wilson and Swan 2010) in south-eastern Australia. Typically active between early September to early May, Swamp Skink are a diurnal species that bask on fallen logs, sedges and tussocks (Clemann et al. 2004). During times of inactivity, they will shelter in burrows, under dense vegetation, logs and rocks (Robertson and Clemann 2015). The species requires dense ground cover and low growing vegetation (Clemann 2001) and is highly dependent on water availability (Humphrey *et al.* 2017). However, the species is not restricted to these vegetation types, and it has been recorded in areas where vegetation structure consisted of dense ground cover, up to two metres, with sparse to no overstorey (Clemann 2006; Ecology Partners Pty Ltd 2009).

There are previous documented records of Swamp Skink within the vegetated areas directly west of the Langwarrin Quarry, including The Pines Flora and Fauna Reserve and the Centenary Park Public Golf Course (DEECA 2025d) (Figure 6). There is potential for Swamp Skink to occur along areas of Boggy Creek that contain suitable habitat, however the waterbodies within the study area are functionally disconnected from the nearby areas of habitat. The waterbodies and the surrounding understorey vegetation within the study area highly degraded and unlikely to support suitable habitat for the species.

Boggy Creek will remain unimpacted by the proposed development, and the removal of vegetation in the study area is unlikely to result in the loss of habitat for Swamp Skink.

Glossy Grass Skink *Pseudemoia rawlinsoni*

Glossy Grass Skink is listed as Endangered under the FFG Act. It is identified by its glossy olive brown colouring above, with narrow, black vertebral and paravertebral stripes from the nape to the base of the tail (Cogger 1996; Melville and Summer 2017). A narrow, cream dorsolateral stripe extends from the temporal region to the base of the tail. They have a snout-vent length up to 62 millimetres and total length up to 140 millimetres. Glossy Grass Skinks are diurnal and diet consists of small invertebrates, with females giving birth to 4-8 live young (Melville and Summer 2017).

Glossy Grass Skink inhabit humid and densely vegetated areas (i.e. rushes and grasses) close to waterbodies in south-eastern Australia (Cogger 1996; Melville and Summer 2017). These include swamps, marshes and wetlands containing dry sclerophyll forests adjoining to wet heathland areas exposed to frequent bouts of flooding (Cogger 1996). The Glossy Grass Skink utilises dense vegetation, dead trees, fallen logs, or rocky outcrops for shelter. Their distribution spreads through the alpine regions of southern New South Wales and north-eastern Victoria, southwestern and south-central Victoria, north-eastern Tasmania, and south-eastern South Australia (Cogger 1996; Highlands and Flinders 2004; Melville and Summer 2017).

Glossy Grass Skink were recently recorded approximately eight kilometres southwest of the study area (DEECA 2025d) (Figure 6). Based on the habitat conditions present and the absence of key habitat features for the species, the study area is unlikely to support suitable habitat for this species. Glossy Grass Skink may persist

in suitable habitats along Boggy Creek to the south of the study area, which will not be impacted by the proposed works.

Growling Grass Frog *Litoria raniformis major*

Growling Grass Frog is listed as Vulnerable under the EPBC Act, Endangered under the FFG Act, and Vulnerable under the National Action Plan for Australian Frogs (Tyler 1997). It is one of the largest frog species in Australia, reaching up to 104 millimetres in length, with females usually larger (60–104 millimetres) than males (55–65 millimetres) (Barker *et al*. 1995). The species varies in colour and pattern, but is generally olive to bright emerald green, with irregular gold, brown, black or bronze spotting. Vörös *et al.* (2023) identified two lineages for *Litoria raniformis, L. r. raniformis* for the northern lineage and *L. r. major* for the southern lineage.

Growling Grass Frog is largely associated with permanent or semi-permanent still and slow flowing waterbodies (i.e. streams, lagoons, farm dams and old quarry sites) (Barker *et al*. 1995). Individuals can also use temporarily inundated waterbodies for breeding purposes providing they contain water over the breeding season. The species is typically associated with waterbodies supporting an extensive cover of emergent, submerged and floating vegetation (Heard and Scroggie 2010; Robertson *et.al*. 2002).

Emergent vegetation provides basking sites for frogs and protection from predators, while floating vegetation provides suitable calling stages for adult males, breeding and oviposition (egg deposition) sites (Heard *et.al*. 2004). Terrestrial vegetation (grasses, sedges), rocks and other ground debris around a wetland perimeter also provide foraging, dispersal and over-wintering sites for frogs (Heard *et.al*. 2010). Recent studies have revealed that the spatial orientation of waterbodies across the landscape is one of the most important habitat determinants influencing the presence of the species at a given site (Heard and Scroggie 2010; Robertson *et al*. 2002). Waterbodies supporting the aforementioned habitat characteristics, and which are located within close proximity to each other are more likely to support a population of Growling Grass Frog, compared with isolated sites lacking important habitat features.

Although formerly widely distributed across southern eastern Australia, including Tasmania (Hero *et al*. 1991), the species has declined markedly across much of its former range (Heard *et al.* 2012). Historically, this species has been recorded in the local region surrounding the study area, however, there are no recent records within five kilometres of the study area (DEECA 2025d). The closest record is approximately 12 kilometres north of the study area, and there is a significant population approximately 20 kilometres to the east along the waterways of Pakenham and Koo Wee Rup.

Targeted surveys for Growling Grass Frog were undertaken by Paul Kelly and Associates Pty Ltd in 2019 (Paul Kelly and Associates Pty Ltd 2019) and the species was not detected within the study area during these surveys. There is no suitable habitat within the study area for the species, with the only permanent waterbody being a small farm dam with low percentage cover of emergent vegetation. The remaining waterbodies within the study area include an ephemeral drainage line, and shallow ephemeral wetlands created by previous disturbances. As such it is highly unlikely that the study area (and the immediate surrounds within the species' dispersal capabilities) supports a resident population of the species.

The proposed development will not impact Growling Grass Frog.

Southern Toadlet *Pseudophryne semimarmorata*

Southern Toadlet is listed as Endangered under the FFG Act. It is a small frog, with adult body length up to 30 millimetres. The back is warty and varies from brown to dark olive-green with darker flecks, the chest has black and white marbling, and the throat, lower belly and underside of the limbs are tan to orange in colour (Barker *et al.* 1995; Robinson 2000). Males have a granular belly, while the female belly is smooth (Barker *et al.* 1995; Hero *et al.* 1991; Robinson 2000). Tadpoles are dark grey to brown, sometimes with a copper sheen and with transparent, spotted fins (Anstis 2002).

Southern Toadlet typically occupies forest, woodland, shrubland, grassland and heathland habitats. Adults shelter under leaf litter, rocks, logs and other debris in damp areas (Hero *et al.* 1991; Robinson 2000). They are a ground dwelling frog with a preference for walking (Hero *et al.* 1991). Males of this species call from shallow burrows in low lying areas, usually near water or boggy ground (Hero *et al.* 1991; Robinson 2000). Males usually call in late summer to autumn, before and after periods of heavy rain (Robinson 2000).

Eggs are spawned in shallow burrows under leaf litter in low-lying areas or depressions that will later be flooded (Hero *et al.* 1991). Eggs do not hatch until the area is inundated with water.

Breeding season occurs from March to June and males call anytime from February to June depending on environmental conditions. The male call is a short, grating "cre-ek" repeated every few seconds (Hero *et al.* 1991).

There are no records of Southern Toadlet within the study area, although the species was recorded along Boggy Creek northwest of the study area within the Pines Fauna and Flora Reserve in 1988, and more recently along a tributary of Boggy Creek in 2010 approximately 4.5 kilometres south of the study area (DEECA 2025d). Majority of the recent records are south of the study area within the Langwarrin Flora and Fauna Reserve; the most recent being in 2024 (Organ, A. pers. comms).

There is potential habitat (albeit very low quality) for Southern Toadlet within the study area, including the ephemeral drainage lines as well as the sand scrapes that become inundated during times of heavy rain. The study area has low connectivity to known populations, with roads presenting as major barriers to dispersal for this species. Due to the presence of potential habitat and recent records within the local area, targeted surveys were completed for Southern Toadlet (Section 3.4).

3.3.3 Ecological Communities

Four nationally listed ecological communities are predicted to occur within 10 kilometres of the study area (DCCEEW 2025):

- Natural Damp Grassland of the Victorian Coastal Plains;
- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains;
- Subtropical and Temperate Coastal Saltmarsh; and
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

However, vegetation within the study area did not meet the condition thresholds that define any national or State-significant communities due to the absence of key indicator species, the low diversity of native flora and high cover of exotic vegetation.

3.4 Southern Toadlet Targeted Surveys

3.4.1 Habitat Assessment

Southern Toadlet occur in damp habitats that are inundated during late autumn and winter (e.g. ephemeral depressions and waterbodies), often where logs or leaf litter are present.

The habitat was considered to be suitable for Southern Toadlet, and consisted of damp, grassy woodland habitat with one damp drainage line that led to a dam that was inundated at the time of survey (Site 3). Although Sites 1 and 2, and the survey transect (#4) did not exhibit any inundation, these areas contained damp understory vegetation that provided potential habitat in the form of leaf litter, dense vegetation and logs.

Plate 9. Reference site at Langwarrin Flora and Fauna Reserve (Ecology and Heritage Partners 30/04/2025).

Plate 10. Habitat within the study area (Ecology and Heritage Partners 30/05/2025).

Plate 11. A dry dam within the study area (Site 2) (Ecology and Heritage Partners 30/05/2025).

3.4.2 *Survey results*

Targeted surveys were completed during the species peak calling period (April to early May) to determine the species presence within the site. According to the *Interim survey guidelines for toadlet* Pseudophryne *species in Victoria* (De Angelis and Cleeland 2023), auditory surveys of five minutes across three nights is sufficient to have >90% confidence of species presence.

No Southern Toadlet were observed or heard calling within the study area, despite the surveys being undertaken at temperatures above the recommended 11 degrees (Table 2).

The species was confirmed calling at a known reference site within Langwarrin Flora and Fauna Reserve on the first survey night (30 April) and at Churchill National Park for the remaining two surveys (6 and 7 May).

Five generalist frog species were identified during the survey, calling within the study area including Southern Brown Tree Frog *Litoria ewingii*, Eastern Sign-bearing Froglet *Crinia* parinsignifera, Common Eastern Froglet *Crinia signifera*, Spotted Marsh Frog *Limnodynastes tasmaniensis* and Peron's Tree Frog *Litoria peronii* (Table 2).

Table 2. Southern Toadlet Weather Conditions and Species Recorded.

Survey Date	Weather conditions						Frogs Recorded
	Survey Time	Temp. (°C) (ambient)	Wind speed / direction	Cloud Cover (%)	Relative humidity (%)	No. Southern Toadlet	
30/04/2025	18:17	14.2	5.5 ESE	0	61	0	Common Eastern Froglet, Southern Brown Tree Frog, Peron's Tree Frog, Eastern Sign-bearing Froglet, Spotted Marsh Frog
06/05/2025	20:35	20.4	14.8 NE	10	52	0	Common Eastern Froglet, Southern Brown Tree Frog, Eastern Sign-bearing Froglet
07/05/2025	20:22	12.4	9.3 W	70	63	0	Common Eastern Froglet

3.4.3 *Implications*

Despite targeted surveys being undertaken at a suitable time of year when the species was confirmed to be calling at nearby reference sites, no Southern Toadlet were recorded within the study area.

Given the small home range of the species and lack of habitat connectivity into the study area, as well as the results of the targeted surveys, a population of Southern Toadlet is not considered to be present within the study area.

4 REMOVAL, DESTRUCTION OR LOPPING OF NATIVE VEGETATION (THE GUIDELINES)

4.1 Avoid and Minimise Statement

Due to the nature of the proposed development, no native vegetation is proposed to be retained within the study area.

It is acknowledged that the study area forms part of a high priority linkage corridor (C1) within the City of Frankston. However, the integrity of this corridor would still be maintained via an alternative corridor alignment through the study area and immediately adjacent parcels which supports vegetation of similar quality and extent to that within other areas of C1 that fall within low density residential lots adjacent to the east and west of the study area. Further, it is understood that the study area would be rehabilitated and revegetated within 10 years of extraction, and as such, the C1 linkage would ultimately be re-established within the study area and result in the long-term integrity of the biolink being maintained within this section.

No native vegetation would be removed north of the study area within 60 Valley Road (i.e. the long 'corridor' back to Valley Road from the quarry site), as the existing track will be maintained in its current state and be used for light work vehicles (e.g. utes).

An informal access track already exists around the perimeter of the proposed quarry, which is shown on the proposed plans as a dedicated perimeter road for light working vehicles (Figure 2). The soil along this perimeter road is expected to remain as is, i.e. no excavation, with crush rock likely to be placed on top of the soil. The Arborist Report (Galbraith and Associates 2025, p13) has assessed the potential impact of this activity on the trees on neighbouring properties and has concluded that the perimeter road is not expected to adversely impact the health or structure of these adjoining trees and thus they can be considered retained for the purposes of calculation offset requirements.

4.2 Residual Impacts to Native Vegetation

The below clearing scenario is based on the removal of all native vegetation within the study area.

4.2.1 Vegetation proposed to be removed

The study area is within Location 1, with 4.569 hectares of native vegetation proposed to be removed. As such, the permit application falls under the Detailed assessment pathway (Table 3).

Condition scores for vegetation proposed to be removed are provided in Appendix 1.1.

Table 3. Removal of Native Vegetation (the Guidelines) (DELWP 2017).

Assessment pathway	Detailed
Location category	1
Total extent (including past and proposed) (ha)	4.569
Includes endangered EVCs (ha)	0
Extent of past removal (ha)	0
Extent of proposed removal – Patches (ha)	4.393
Extent of proposed removal – Scattered trees (ha)	0.176
Total Large Trees to be removed (no.)	79
Large patch trees to be removed (no.)	77
Large scattered trees to be removed (no.)	2
Small scattered trees to be removed (no.)	2
EVC Conservation Status of vegetation to be removed	Least Concern

4.2.2 Offset Requirements

The offset requirements for native vegetation removal for the proposed development are 3.754 General Habitat Units and 79 Large Trees.

A summary of the offset requirements associated with the proposed vegetation losses is presented in Table 4 and the Native Vegetation Removal (NVR) Report is presented in Appendix 3.

Table 4. Offset Requirements.

General Offsets Required	3.754 General Habitat Units
Large Trees	79
Vicinity (catchment/council)	Melbourne Water CMA / Frankston City Council municipality
Minimum Strategic Biodiversity Value*	0.7191

*The minimum Strategic Biodiversity Value is 80% of the weighted average score across habitat zones where a General offset is required.

4.2.3 Offset Strategy

According to DEECAs Native Vegetation Offset Register (DEECA 2025f), there are three offset sites within the Melbourne Water CMA or Frankston City Council municipality that can be used to satisfy the General Habitat Unit and Large Tree offset requirements.

An offset register search statement identifying the relevant offsite sites is provided in Appendix 4, which provides evidence that the offset obligation can be secured without any difficulty should a permit be provided for the project.

5 LEGISLATIVE AND POLICY IMPLICATIONS

5.1 *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)

The proposed action is highly unlikely to have a significant impact on any matter of NES. As such, a referral to the Commonwealth Environment Minister is unlikely to be required regarding matters listed under the EPBC Act.

5.2 *Flora and Fauna Guarantee Act 1988* (Victoria)

There are confirmed records of one flora species listed as Threatened (Veined Spear-grass) and 13 flora species listed as Protected (Rosy Hyacinth-orchid, Slender Onion-orchid, Cedar Wattle, Prickly Moses, Black Wattle, Spike Wattle, Hedge Wattle, Common Correa, Common Heath, Prickly Broom-heath, Cranberry Heath, Small Grass-tree) under the FFG Act. However, the study area is privately owned, and as such a permit under the FFG Act is not required.

5.3 *Mineral Resources (Sustainable Development) Act 1990* (Victoria)

Mineral exploration, extractive industry and mining in Victoria is regulated under the MRSD Act (Department of Primary Industries [DPI] 2008). The purpose of this Act is to encourage an economically viable mining industry that operates in a way that is compatible with the environmental, social and economic objectives of the State.

One of the key objectives of this legislation is to establish a legal framework to ensure that mineral resources are developed in ways that minimise the impacts on the environment (DPI 2009). The MRSD Act requires that a licensee proposing to work under a mining licence submit a Work Plan.

Section 79 of the MRSD Act requires that the Work Plan includes a 'Rehabilitation Plan' for the progressive rehabilitation of land disturbed by the project.

The *Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2019* require that, as of 1 July 2020, the Rehabilitation Plan component of the draft mining Work Plan must include the proposed land uses after rehabilitation, which must consider the community views expressed during consultation.

The Regulations also require that the draft mining Work Plan must include an identification and assessment of the risks that may require monitoring, maintenance, treatment or other ongoing land management activities after rehabilitation is complete - in relation to the environment, any member of the public, or land, property or infrastructure in the vicinity of the rehabilitated land.

If native vegetation is present on the site, the Rehabilitation Plan must also describe how this will be protected during the production phase of the project as well as:

- Demonstrate compliance with the EPBC Act, FFG Act and the Guidelines (DELWP 2017); and,
- Identify how appropriate offsets associated with native vegetation removal will be secured.

The obligations of the Guidelines are applied through the specific mechanism of the relevant legislation (in this case, the MRSD Act) and where applicable vegetation avoidance and/or minimisation must be demonstrated, then offset any clearing must be applied and documented (DPI 2009).

5.3.1 *Implications*

A variation to the existing Work Plan will need to be prepared. A detailed buffer and Rehabilitation Plan will need to be prepared, which includes:

- Assessment of pre- and post-mining flora and fauna;
- Provision of habitat corridors;
- Weed management; and,
- Monitoring of flora and fauna (including weeds).

For a Work Plan to be approved, DEECA and the Victorian Department of Jobs, Precincts and Regions (DJPR) must be satisfied of "*all necessary planning consents and approvals*" including where Victoria's native vegetation policy requires action, has been addressed (DPI 2009).

As per the native vegetation removal and offset information provided in Section 4.2, the study area is within Location 1, with 4.569 hectares of native vegetation proposed to be removed from the impact area. As such, the permit application falls under the Detailed assessment pathway.

The offset requirement for native vegetation removal is 3.754 General Habitat Units and 79 Large Trees.

5.4 *Planning and Environment Act 1987* (Victoria)

5.4.1 *Local Planning Scheme*

The study area is located within the Frankston City Council. The following zoning and overlays apply (DTP 2025):

- Rural Conservation Zone (RCZ)
- Special Use Zone – Schedule 2 (SUZ2)
- Bushfire Management Overlay (BMO)
- Environmental Significance Overlay – Schedule 1 (ESO1)

Environmental Significance Overlay – Schedule 1 Native Vegetation and Fauna Habitat

The ESO and ESO1 applies to the study area. The purpose of ESO1 (Clause 42.01 – Schedule 1) is to protect and enhance indigenous vegetation and strengthen connecting habitat links to maintain biodiversity.

Under the ESO, a permit is required to remove, destroy or lop any vegetation. However, this does not apply to exemptions listed under Clause 42.01-3. In this case, the 'Extractive industry' exemption applies.

5.4.2 *The Guidelines*

The State Planning Policy Framework and the decision guidelines at Clause 12.01 Biodiversity and Clause 52.17 Native Vegetation require Planning and Responsible Authorities to have regard for the Guidelines (DELWP 2017).

5.4.3 *Implications*

The clearing of native vegetation for mining and extractive industries is exempt from requiring a planning permit under the 'Extractive Industry' exemption detailed in Clause 52.17-7 of the Frankston Planning Scheme subject to an assessment as part of the Work Plan approval process (MRSD Act). The removal of native vegetation is only exempt if the removal is carried out in accordance with the approved Work Plan. Furthermore, the Work Plan can only be approved once the planning permit has been issued. A planning permit to remove native vegetation under ESO1 is not required due to the 'Extractive industry' exemption detailed in Clause 42.01-3 of the Frankston Planning Scheme.

The removal of native vegetation for the Earth Resources Industry (ERI) is regulated through the Mining and Extractive Industry Work Approvals Process (DPI 2009). A Memorandum of Understanding (MoU) between the former DPI and DSE recognises that native vegetation should be offset in accordance with the relevant legislation (DPI 2011).

5.5 *Catchment and Land Protection Act 1994* (Victoria)

Five weeds listed as noxious under the CaLP Act were recorded during the assessment (Blackberry, Boneseed, Spear Thistle, Common Thorn-apple, Gorse). Listed noxious weeds should be appropriately controlled throughout the study area.

5.6 *Wildlife Act 1975* and Wildlife Regulations 2013 (Victoria)

The study area comprises small waterbodies within the forested areas, which may hold native aquatic fauna such as turtles, frogs and/or fish. It is recommended that the waterbodies be inspected by an aquatic ecologist as part of the planning application process to determine the likely presence of native aquatic fauna and ensure that fauna is translocated before the waterbodies are drained.

Any persons engaged to remove, salvage, hold or relocate native fauna during construction must hold a current Management Authorisation under the *Wildlife Act 1975* or under any other Act issued by DEECA.

6 MITIGATION MEASURES

Recommended measures to mitigate impacts upon terrestrial and aquatic values present within the study area include:

- Minimise impacts to native vegetation and habitats through construction and micro-siting techniques, including fencing retained areas of native vegetation during construction. If indeed necessary, trees should be lopped or trimmed rather than removed.;
- All contractors should be aware of ecologically sensitive areas to minimise the likelihood of inadvertent disturbance to areas marked for retention. Native vegetation (areas of sensitivity) should be included as a mapping overlay on any construction plans;
- Tree Protection Zones (TPZs) must be implemented to prevent indirect losses of native vegetation to be retained during construction activities (Standards Australia 2009). A TPZ applies to a tree and is a specific area above and below the ground, with a radius 12 x the Diameter at Breast Height (DBH). At a minimum standard a TPZ should consider the following:
    - A TPZ of trees should be a radius no less than two metres or greater than 15 metres;
    - Construction, related activities and encroachment (i.e. earthworks such as trenching that disturb the root zone) should be excluded from the TPZ;
    - Where encroachment is 10% or more of the total area of the TPZ, the tree should be considered as lost and offset accordingly (unless an arboricultural report specifies otherwise);
    - Directional drilling may be used for works within the TPZ without being considered encroachment. The directional bore should be at least 600 millimetres deep;
    - The above guidelines may be varied if a qualified arborist confirms the works will not significantly damage the tree (including stags / dead trees). In this case the tree would be retained, and no offset would be required; and,
    - Where the minimum standard for a TPZ has not been met an offset may be required.
- Removal of any habitat trees or shrubs (particularly hollow-bearing trees or trees/shrubs with nests) should be undertaken between February and September to avoid the breeding season for most fauna species. If any habitat trees or shrubs are proposed to be removed, this should be undertaken under the supervision of an appropriately qualified zoologist to salvage and translocate any displaced fauna. A Fauna Management Plan may be required to guide the salvage and translocation process;
- Where possible, construction stockpiles, machinery, roads, and other infrastructure should be placed away from areas supporting native vegetation and Large Trees;
- Ensure that best practice sedimentation and pollution control measures are undertaken at all times, in accordance with Environment Protection Authority (EPA) guidelines where relevant (e.g. EPA 2020; EPA 2023; Victorian Stormwater Committee 1999) to prevent offsite impacts to waterways and wetlands; and

- As indigenous flora provides valuable habitat for indigenous fauna, it is recommended that any landscape plantings that are undertaken as part of the proposed works are conducted using indigenous species sourced from a local provenance that align with the modelled 1750 EVC present on site, rather than exotic deciduous trees and shrubs.

7 SUMMARY OF LEGISLATIVE IMPLICATIONS

Further requirements associated with development of the study area, as well as additional studies or reporting that may be required, are provided in Table 5.

Table 5. Further requirements associated with development of the study area.

Relevant Legislation	Implications	Further Action
Environment Protection and Biodiversity Conservation Act 1999	The proposed action is highly unlikely to have a significant impact on any matter of NES. As such, a referral to the Commonwealth Environment Minister is unlikely to be required regarding matters listed under the EPBC Act.	No further action required.
Flora and Fauna Guarantee Act 1988	There are confirmed records of one flora species listed as Threatened (Veined Spear-grass) and 13 flora species listed as Protected (Rosy Hyacinth-orchid, Slender Onion-orchid, Cedar Wattle, Prickly Moses, Black Wattle, Spike Wattle, Hedge Wattle, Common Correa, Common Heath, Prickly Broom-heath, Cranberry Heath, Small Grass-tree) under the FFG Act. However, the study area is privately owned, and as such a permit under the FFG Act is not required.	No further action required.
Mining Resources (Sustainable Development) Act 1990	A Work Plan variation will need to be updated in order to comply with the requirements of the MRSD Act. The study area is within Location 1, with 4.569 hectares of native vegetation proposed to be removed from the impact area. As such, the permit application falls under the Detailed assessment pathway. The offset requirement for native vegetation removal is 3.754 General Habitat Units and 79 Large Trees.	Prepare and submit a variation to the Work Plan.
Planning and Environment Act 1987	The clearing of native vegetation for mining and extractive industries is exempt from requiring a planning permit under the 'Extractive Industry' exemption detailed in Clause 52.17-7 of the Frankston Planning Scheme subject to an assessment as part of the Work Plan approval process (MRSD Act).	No further action required (for vegetation removal).
Catchment and Land Protection Act 1994	Five weed species (Blackberry, Boneseed, Spear Thistle, Common Thorn-apple, Gorse) listed under the CaLP Act were recorded within the study area. To meet requirements under the CaLP Act, listed noxious weeds should be appropriately controlled throughout the study area.	Listed noxious weeds and pests should be appropriately controlled throughout the study area

Relevant Legislation	Implications	Further Action
Wildlife Act 1975	The study area comprises small waterbodies within the forested areas, which may hold native aquatic fauna such as turtles, frogs and/or fish. It is recommended that the waterbodies be inspected by an aquatic ecologist as part of the planning application process to determine the likely presence of native aquatic fauna and ensure that fauna is translocated before the waterbodies are drained. Any persons engaged to conduct salvage and relocation or general handling of terrestrial fauna species must hold a current Management Authorisation.	Engage an aquatic ecologist to assess the waterbodies to determine the likely presence of native aquatic fauna. Ensure wildlife specialists hold a current Management Authorisation.

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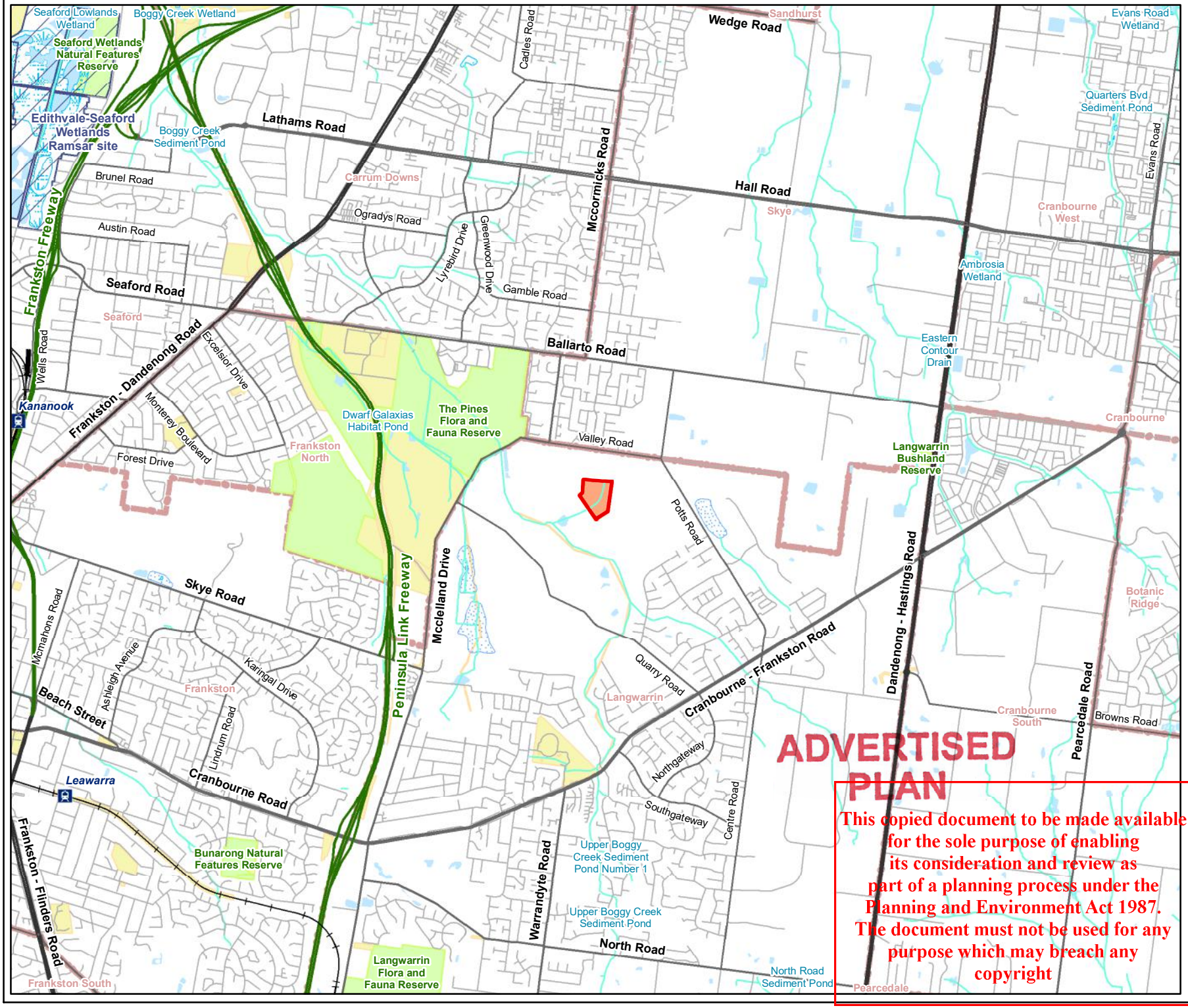

Legend

- Study Area
- Railway
- Freeway
- Highway
- Arterial road
- Collector road
- Local or minor road
- Minor watercourse
- Permanent waterbody
- Land subject to inundation
- Wetland/swamp
- Ramsar wetland
- Parks and reserves
- Crown land
- Localities

Figure 1

Location of the study area

Biodiversity Assessment for 60 Valley Road and 150 Quarry Road, Langwarrin

0 490 980
Metres

Map Scale: 1:45,000 @ A4
Coordinate System: GDA 1994 MGA Zone 55

ecology & heritage partners

Figure 2

Ecological features

Biodiversity Assessment for 60 Valley Road and 150 Quarry Road, Langwarrin

ecology & heritage partners

Legend

- Study Area
- Property boundary
- Major pit contours
- Minor pit contours
- Drainage channel
- Noise bund
- Perimeter road
- Scattered Large Tree *
- Scattered Small Tree *
- Large Tree in patch *
- Tree impacted

Ecological Vegetation Class *

- Heathy Woodland (EVC 48)
- Impacted vegetation

* Habitat zone extent and tree data are based on mapping undertaken by Paul Kelly & Associates (2019)

N

0 15 30

Metres

Map Scale: 1:1,600 @ A4
Coordinate System:
GDA 1994 MGA Zone 55

18735_Fig02_EcoFeat_P 8/04/2025 psorensen

Aerial source: Nearmap 2025

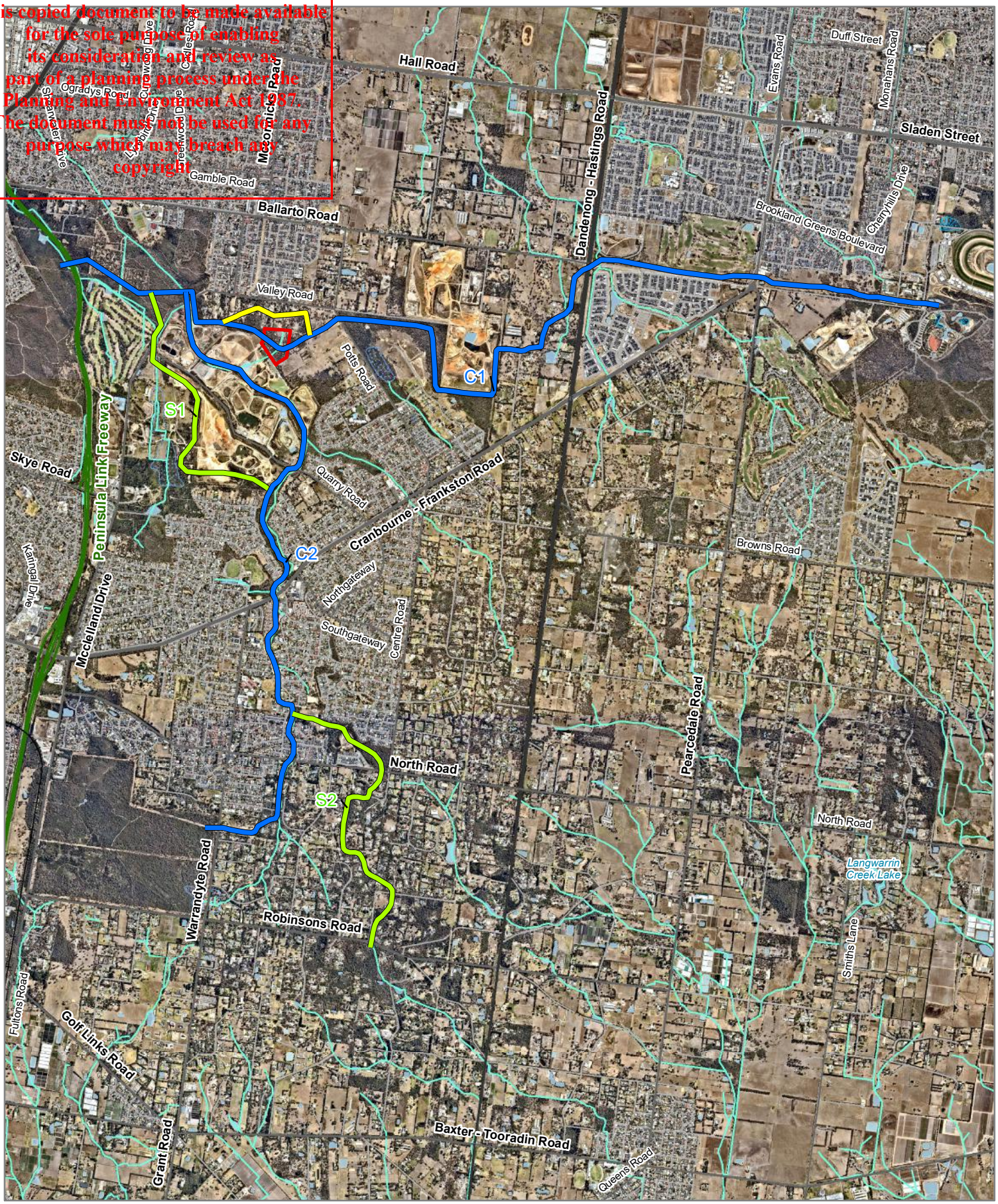

Figure 3
Fauna Linkages and Corridors
Biodiversity Assessment for 60 Valley Road and 150 Quarry Road, Langwarrin

Legend
- Study Area

Recommended implementation
- Major Corridor
- Subsidiary Corridor
- Proposed C1 Alternative Corridor

N

0 500 1,000
Metres

Map Scale: 1:50,000 @ A4
Coordinate System:
GDA 1994 MGA Zone 55

18735_Fig03_FaunaLinkCor 8/04/2025 psorensen

ecology & heritage partners

Aerial source: Nearmap 2025

Figure 4
Proposed Biolinks
Biodiversity Assessment for 60 Valley Road and 150 Quarry Road, Langwarrin

Legend

- Study Area
- Property boundaries
- Proposed Biolinks

Ecological Vegetation Class

- Heathy Woodland (EVC 48)

N

0 50 100
Metres

Map Scale: 1:6,500 @ A4
Coordinate System:
GDA 1994 MGA Zone 55

Base data source: Victoria State Government. Disclaimer: the State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

18735_Fig04_PropBioLinks 8/04/2025 psorensen

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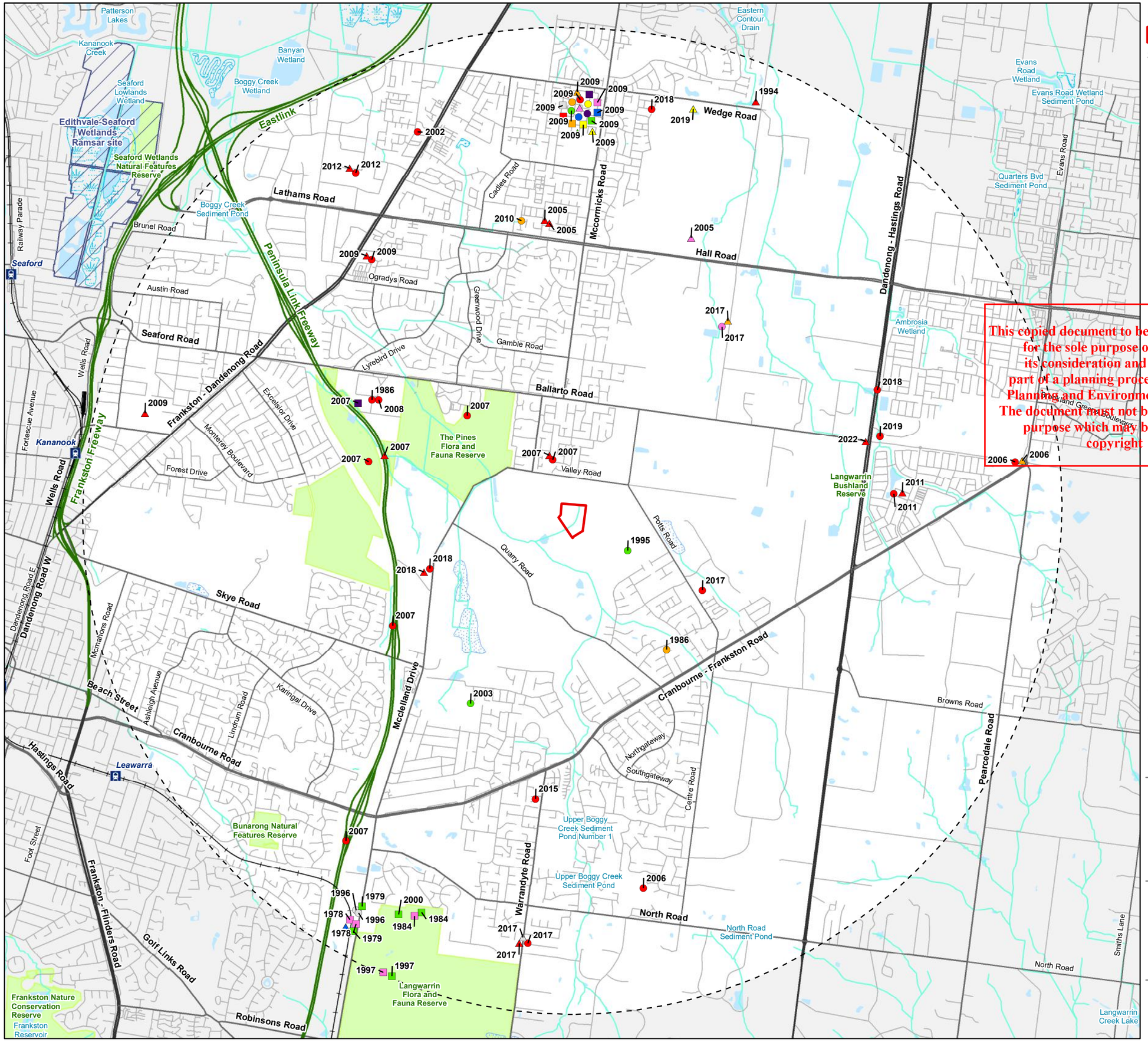
Aerial source: Nearmap 2025



Legend

Study Area

Significant flora

- Floating Bladderwort
- Giant Honey-myrtle
- Grampians Thryptomene
- Green Leek-orchid
- Green Scentbark
- Grey Billy-buttons
- Mugga
- Naked Sun-orchid
- Orange-tip Finger-orchid
- Pale Swamp Everlasting
- Plains Yam-daisy
- Powelltown Correa
- Prawn Greenhood
- Purple Blown-grass
- Purple Diuris
- River Swamp Wallaby-grass
- Southern Blue-gum
- Spotted Gum
- Sticky Wattle
- Studley Park Gum
- Swamp Everlasting
- Velvet Apple-berry
- Yarra Gum

Figure 5

Previously documented significant flora within 5km of the study area

Biodiversity Assessment for 60 Valley Road and 150 Quarry Road, Langwarrin

N

0 1 2

Kilometres

Map Scale: 1:38,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

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Legend

- Study Area

Significant fauna

- Australasian Bittern
- Australasian Shoveler
- Australian Little Bittern
- Black Falcon
- Blue-billed Duck
- Blue-winged Parrot
- Common Greenshank
- Common Sandpiper
- Curlew Sandpiper
- Dwarf Galaxias
- Freckled Duck
- Gang-gang Cockatoo
- Glossy Black-Cockatoo
- Grey-headed Flying-fox
- Growling Grass Frog
- Hooded Robin
- Lace Monitor
- Latham's Snipe
- Lewin's Rail
- Little Eagle
- Little Egret
- Musk Duck
- New Holland Mouse
- Pacific Golden Plover
- Platypus
- Plumed Egret
- Sharp-tailed Sandpiper
- Southern Brown Bandicoot
- Southern Toadlet
- Square-tailed Kite
- Swamp Antechinus
- Swift Parrot
- White-bellied Sea-Eagle
- White-footed Dunnart
- White-throated Needletail

Figure 6

Previously documented significant fauna within 5km of the study area

Biodiversity Assessment for 60 Valley Road and 150 Quarry Road, Langwarrin

N

0 1 2

Kilometres

Map Scale: 1:38,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

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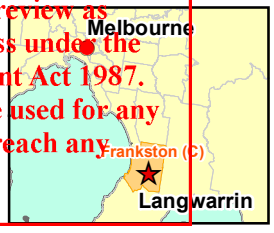
Figure 7
Southern Toadlet targeted surveys
Biodiversity Assessment for 60 Valley Road and 150 Quarry Road, Langwarrin

Legend
- Study Area
- Southern Toadlet survey locations
- Survey transect



N

0 15 30
Metres

Map Scale: 1:1,800 @ A4
Coordinate System:
GDA 1994 MGA Zone 55

ecology & heritage partners

18735_Fig07_SouthernTSurveys_P 20/06/2025 Melsley

Aerial source: Nearmap 2025

APPENDIX 1 FLORA

Appendix 1.1 Habitat Hectare Assessment

Table A1.2. Habitat Hectare Assessment Table.

Vegetation Zone		HZ1	HZ2	HZ3
Bioregion		Gippsland Plain	Gippsland Plain	Gippsland Plain
EVC		Heathy Woodland	Heathy Woodland	Heathy Woodland
EVC Number		48	48	48
EVC Conservation Status		Least Concern	Least Concern	Least Concern
Site Condition /75	Large Trees /10 *	9	9	5
	Tree Canopy Cover /5	4	4	4
	Lack of Weeds /15	9	9	4
	Understorey /25	20	15	15
	Recruitment /10	10	6	6
	Organic Matter /5	3	3	3
	Logs /5	4	2	4
	Treeless EVC Multiplier	1.00	1.00	1.00
	Subtotal =	59.00	48.00	41.00
Landscape Context /25	Patch Size /10	2	1	1
	Neighbourhood /10	0	0	0
	Distance to Core Area /5	3	3	3
	Subtotal =	5	4	4
Habitat Points /100		64	52	45
Habitat Score		**0.64**	**0.52**	**0.45**
No. Large Trees in Patch *		**47**	**27**	**3**

Note: * Detailed mapping of large trees was not undertaken by Ecology and Heritage Partners Pty Ltd. The number and location of Large Trees within each habitat zone is based on the mapping undertaken by Paul Kelly and Associates Pty Ltd (2019).

Appendix 1.2 Large Trees in Patches and Scattered Trees

All tree point data detailed in Table A1.2 was provided by Paul Kelly and Associates Pty Ltd (2019).

Table A1.2. Scattered Trees and Large Trees in Patches.

Tree # (Figure 2)	Species Name	Common Name	DBH (cm)	Size Class	Scattered / Patch	Status
9	*Eucalyptus cephalocarpa*	Mealy Stringybark	62	Large	Patch	Removed
10	*Eucalyptus cephalocarpa*	Mealy Stringybark	62	Large	Patch	Removed
11	*Eucalyptus cephalocarpa*	Mealy Stringybark	60	Large	Patch	Removed
12	*Eucalyptus cephalocarpa*	Mealy Stringybark	69	Large	Patch	Removed
13	*Eucalyptus cephalocarpa*	Mealy Stringybark	63	Large	Patch	Removed
14	*Eucalyptus cephalocarpa*	Mealy Stringybark	64	Large	Patch	Removed
15	*Eucalyptus cephalocarpa*	Mealy Stringybark	51	Large	Patch	Removed
16	*Eucalyptus cephalocarpa*	Mealy Stringybark	58	Large	Patch	Removed
17	*Eucalyptus cephalocarpa*	Mealy Stringybark	56	Large	Patch	Removed
18	*Eucalyptus cephalocarpa*	Mealy Stringybark	56	Large	Patch	Removed
19	*Eucalyptus cephalocarpa*	Mealy Stringybark	65	Large	Patch	Removed
20	*Eucalyptus cephalocarpa*	Mealy Stringybark	60	Large	Patch	Removed
21	Dead eucalypt stag	Stag	56	Large	Patch	Removed
22	*Eucalyptus radiata*	Narrow-leaf Peppermint	52	Large	Patch	Removed
23	*Eucalyptus cephalocarpa*	Mealy Stringybark	51	Large	Patch	Removed
24	*Eucalyptus cephalocarpa*	Mealy Stringybark	52	Large	Patch	Removed
25	Dead eucalypt stag	Stag	75	Large	Patch	Removed
26	*Eucalyptus cephalocarpa*	Mealy Stringybark	70	Large	Patch	Removed

Tree # (Figure 2)	Species Name	Common Name	DBH (cm)	Size Class	Scattered / Patch	Status
27	Dead eucalypt stag	Stag	53	Large	Patch	Removed
28	Dead eucalypt stag	Stag	65	Large	Patch	Removed
29	Dead eucalypt stag	Stag	62	Large	Patch	Removed
30	Dead eucalypt stag	Stag	51	Large	Patch	Removed
31	Dead eucalypt stag	Stag	60	Large	Patch	Removed
32	Dead eucalypt stag	Stag	51	Large	Patch	Removed
33	Dead eucalypt stag	Stag	74	Large	Patch	Removed
34	*Eucalyptus cephalocarpa*	Mealy Stringybark	54	Large	Patch	Removed
35	Dead eucalypt stag	Stag	52	Large	Patch	Removed
36	Dead eucalypt stag	Stag	53	Large	Patch	Removed
37	Dead eucalypt stag	Stag	63	Large	Patch	Removed
38	Dead eucalypt stag	Stag	59	Large	Patch	Removed
39	*Eucalyptus cephalocarpa*	Mealy Stringybark	63	Large	Patch	Removed
40	*Eucalyptus cephalocarpa*	Mealy Stringybark	66	Large	Patch	Removed
41	Dead eucalypt stag	Stag	63	Large	Patch	Removed
42	*Eucalyptus cephalocarpa*	Mealy Stringybark	70	Large	Patch	Removed
43	*Eucalyptus cephalocarpa*	Mealy Stringybark	52	Large	Patch	Removed
44	*Eucalyptus cephalocarpa*	Mealy Stringybark	49	Large	Patch	Removed
45	Dead eucalypt stag	Stag	50	Large	Patch	Removed
46	*Eucalyptus cephalocarpa*	Mealy Stringybark	70	Large	Patch	Removed
48	*Eucalyptus cephalocarpa*	Mealy Stringybark	57	Large	Patch	Removed
49	*Eucalyptus cephalocarpa*	Mealy Stringybark	70	Large	Patch	Removed

Tree # (Figure 2)	Species Name	Common Name	DBH (cm)	Size Class	Scattered / Patch	Status
50	*Eucalyptus cephalocarpa*	Mealy Stringybark	71	Large	Patch	Removed
51	*Eucalyptus cephalocarpa*	Mealy Stringybark	61	Large	Patch	Removed
52	Dead eucalypt stag	Stag	57	Large	Patch	Removed
53	Dead eucalypt stag	Stag	52	Large	Patch	Removed
56	*Eucalyptus cephalocarpa*	Mealy Stringybark	101	Large	Patch	Removed
57	*Eucalyptus cephalocarpa*	Mealy Stringybark	60	Large	Patch	Removed
58	*Eucalyptus cephalocarpa*	Mealy Stringybark	55	Large	Patch	Removed
59	*Eucalyptus cephalocarpa*	Mealy Stringybark	62	Large	Patch	Removed
60	*Eucalyptus cephalocarpa*	Mealy Stringybark	50	Large	Patch	Removed
61	*Eucalyptus cephalocarpa*	Mealy Stringybark	59	Large	Patch	Removed
62	*Eucalyptus cephalocarpa*	Mealy Stringybark	58	Large	Patch	Removed
63	*Eucalyptus cephalocarpa*	Mealy Stringybark	66	Large	Patch	Removed
64	*Eucalyptus cephalocarpa*	Mealy Stringybark	58	Large	Patch	Removed
65	*Eucalyptus cephalocarpa*	Mealy Stringybark	56	Large	Patch	Removed
66	*Eucalyptus cephalocarpa*	Mealy Stringybark	56	Large	Patch	Removed
67	*Eucalyptus cephalocarpa*	Mealy Stringybark	63	Large	Patch	Removed
68	*Eucalyptus cephalocarpa*	Mealy Stringybark	64	Large	Patch	Removed
69	*Eucalyptus cephalocarpa*	Mealy Stringybark	76	Large	Patch	Removed
70	*Eucalyptus cephalocarpa*	Mealy Stringybark	64	Large	Patch	Removed
71	*Eucalyptus cephalocarpa*	Mealy Stringybark	63	Large	Patch	Removed
72	*Eucalyptus cephalocarpa*	Mealy Stringybark	74	Large	Patch	Removed
73	*Eucalyptus cephalocarpa*	Mealy Stringybark	91	Large	Patch	Removed

Tree # (Figure 2)	Species Name	Common Name	DBH (cm)	Size Class	Scattered / Patch	Status
74	*Eucalyptus cephalocarpa*	Mealy Stringybark	57	Large	Patch	Removed
75	*Eucalyptus cephalocarpa*	Mealy Stringybark	58	Large	Patch	Removed
80	*Eucalyptus cephalocarpa*	Mealy Stringybark	56	Large	Patch	Removed
81	Dead eucalypt stag	Stag	70	Large	Patch	Removed
82	*Eucalyptus cephalocarpa*	Mealy Stringybark	65	Large	Patch	Removed
83	*Eucalyptus cephalocarpa*	Mealy Stringybark	63	Large	Patch	Removed
84	*Eucalyptus cephalocarpa*	Mealy Stringybark	58	Large	Patch	Removed
85	*Eucalyptus cephalocarpa*	Mealy Stringybark	54	Large	Patch	Removed
86	*Eucalyptus cephalocarpa*	Mealy Stringybark	55	Large	Patch	Removed
87	Eucalyptus spp.	Eucalypt	58	Large	Scattered	Removed
88	Eucalyptus spp.	Eucalypt	73	Large	Scattered	Removed
89	Eucalyptus spp.	Eucalypt	52	Large	Patch	Removed
90	*Eucalyptus cephalocarpa*	Mealy Stringybark	53	Large	Patch	Removed
91	Eucalyptus radiata	Narrow-leaf Peppermint	25	Small	Scattered	Removed
92	Eucalyptus spp.	Eucalypt	30	Small	Scattered	Removed
93	*Eucalyptus cephalocarpa*	Mealy Stringybark	66	Large	Patch	Removed
94	*Eucalyptus cephalocarpa*	Mealy Stringybark	56	Large	Patch	Removed
95	*Eucalyptus cephalocarpa*	Mealy Stringybark	56	Large	Patch	Removed
96	*Eucalyptus cephalocarpa*	Mealy Stringybark	70	Large	Patch	Removed

Appendix 1.3 Significant Flora Species

Significant flora within 10 kilometres of the study area is provided in the Table A1.3.3 at the end of this section, with Tables A1.3.1 and A1.3.2 below providing the background context for the values in Table 1.3.3.

Table A1.3.1 Conservation status of each species for each Act/policy. The values in this table correspond to Columns 5 to 7 in Table A1.3.3.

EPBC Act (*Environment Protection and Biodiversity Conservation Act 1999*):		FFG Act (*Flora and Fauna Guarantee Act 1988*):	
EX	Extinct	ex	Extinct
CR	Critically endangered	cr	Critically endangered
EN	Endangered	en	Endangered
VU	Vulnerable	vu	Vulnerable
#	Listed on the Protected Matters Search Tool		

Table A1.3.2 Likelihood of occurrence rankings: Habitat characteristics assessment of significant flora species previously recorded within 10 kilometres of the study area, or that may potentially occur within the study area to determine their likelihood of occurrence. The values in this table correspond to Column 8 in Table A1.3.3.

1	Known Occurrence	• Recorded within the study area recently (i.e. within ten years).
2	High Likelihood	• Previous records of the species in the local vicinity; and/or, • The study area contains areas of high-quality habitat.
3	Moderate Likelihood	• Limited previous records of the species in the local vicinity; and/or • The study area contains poor or limited habitat.
4	Low Likelihood	• Poor or limited habitat for the species, however other evidence (such as lack of records or environmental factors) indicates there is a very low likelihood of presence.
5	Unlikely	• No suitable habitat and/or outside the species range.

Table A1.3.3 Significant flora recorded within 10 kilometres of the study area.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
NATIONAL SIGNIFICANCE							
Amphibromus fluitans	River Swamp Wallaby-grass	4	2009	VU	-	5	No suitable habitat. Lives in permanent waterbodies
Caladenia orientalis #	Eastern Spider Orchid	-	-	EN	en	5	Outside natural range
Caladenia robinsonii	Frankston Spider-orchid	4	2017	EN	cr	4	Low quality habitat. Occurs in heathy near-coastal woodland on sandy soil.
Caladenia thysanochila #	Fringed Spider-orchid	-	-	EN	ex	5	No suitable habitat. Was observed once in 1988 in Mount Eliza. Has not been recorded since
Caladenia xanthochila	Yellow-lip Spider-orchid	2	2017	EN	en	5	No suitable habitat. Extremely rare. Only known from four locations in Victoria
Callitris oblonga subsp. *oblonga*	Dwarf Cypress-pine	2	2015	EN	-	5	No suitable habitat. Lives in and adjoining rivers
Dianella amoena #	Matted Flax-lily	-	-	EN	cr	4	No suitable habitat. Species prefers drier grassy woodland and grassland habitats
Eucalyptus crenulata	Buxton Gum	1	2021	EN	en	5	No present within the study area. Outside natural range

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Euphrasia collina subsp. *muelleri*	Purple Eyebright	6	1929	EN	en	5	No suitable habitat. Last known record was 96 years ago
Glycine latrobeana #	Clover Glycine	-	-	VU	vu	4	No suitable habitat. Species prefers drier grassy woodland and grassland habitats
Lepidium aschersonii #	Spiny Peppercress	-	-	VU	en	5	No suitable habitat. Occurs on heavy clay soils
Prasophyllum frenchii	Maroon Leek-orchid	1	2009	EN	en	3	Low quality habitat. One documented record 16 years ago
Prasophyllum spicatum #	Dense Leek-orchid	-	-	VU	cr	4	Low quality habitat. The species typically occurs in coastal heath and sandhills
Pterostylis chlorogramma	Green-striped Greenhood	1	1991	VU	en	4	Low quality habitat. Only one record, being 34 years ago
Pterostylis cucullata #	Leafy Greenhood	-	-	VU	-	4	No suitable habitat. Occurs in coastal dunes and sometimes near inland watercourses
Senecio macrocarpus #	Large-fruit Fireweed	-	-	VU	cr	5	Outside natural range. Occurs in Kangaroo Grass grasslands generally north and south of Melbourne

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Senecio psilocarpus #	Swamp Fireweed	-	-	VU	-	5	No suitable habitat. Occurs in herb-rich winter-wet swamps
Syzygium paniculatum	Magenta Cherry	1	2021	VU	-	5	No suitable habitat. Occurs in rainforests
Thelymitra epipactoides #	Metallic Sun-orchid	-	-	EN	en	5	No suitable habitat. Occurs in coastal heathland, grassland or woodland
Thelymitra orientalis #	Hoary Sun-orchid	-	-	CR	cr	5	No suitable habitat. Occurs on damp heathy flats
Thesium australe #	Austral Toadflax	-	-	VU	en	5	No suitable habitat. Occurs in grassland or grassy woodland
Xerochrysum palustre	Swamp Everlasting	8	2017	VU	cr	5	No suitable habitat. Occurs in lowland swamps
STATE SIGNIFICANCE							
Acacia boormanii	Snowy River Wattle	2	1996	-	en	5	Outside natural range
Acacia howittii	Sticky Wattle	4	2017	-	vu	5	No suitable habitat. Occurs in moist forests
Avicennia marina subsp. *australasica*	Grey Mangrove	1	2010	-	en	5	No suitable habitat. Occurs in permanent water or tidal shores
Banksia saxicola	Rock Banksia	1	1968	-	en	5	No suitable habitat. Occurs on rocky sites

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Billardiera scandens s.s.	Velvet Apple-berry	9	2010	-	en	4	Low quality habitat, as it grows in dry open forests and woodlands. Moderate previous records in local vicinity
Burnettia cuneata	Lizard Orchid	4	1902	-	en	5	No suitable habitat. Occurs in dense, wet heathy vegetation in near coastal areas. Last recorded 123 years ago in local area
Caladenia aurantiaca	Orange-tip Finger-orchid	3	2009	-	en	4	Occurs in heathy woodlands on well-drained sandy soils, however, there are limited previous records
Caladenia oenochila	Wine-lipped Spider-orchid	1	1920	-	cr	5	No suitable habitat. Occurs in moist, often grassy forest of woodland
Cardamine moirensis	Riverina Bitter-cress	1	1998	-	en	5	No suitable habitat. Occurs in seasonally wet areas.
Chiloglottis X *pescottiana*	Bronze Bird-orchid	2	1997	-	en	5	No suitable habitat. Occurs in coastal scrub and open forest
Coronidium gunnianum	Pale Swamp Everlasting	7	2016	-	cr	5	No suitable habitat. Occurs mostly in Grassland and riverine River Red-gum woodland.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Correa reflexa var. *lobata*	Powelltown Correa	2	2009	-	en	4	Low quality habitat. Prefers moist, often heathy, open forest
Corybas fimbriatus	Fringed Helmet-orchid	1	1920	-	en	5	No suitable habitat. Occurs on moist, shaded sandy soil near the coast. Only record in local area was 125 years ago.
Corymbia maculata	Spotted Gum	23	2022	-	vu	5	Suitable habitat, however, this eucalypt would have been easily recognisable within the study area due to its smooth cream bark. Natural range is East Gippsland. Widely planted ornamental species in Greater Melbourne
Craspedia canens	Grey Billy-buttons	5	2009	-	cr	5	No suitable habitat. Occurs in grassland, often boarding swamps
Diuris punctata var. *punctata*	Purple Diuris	11	2009	-	en	4	Low quality habitat due to modified vegetation
Eucalyptus fulgens	Green Scentbark	4	2009	-	en	5	Outside natural range
Eucalyptus globulus subsp. *globulus*	Southern Blue-gum	1	2017	-	en	5	No suitable habitat. Occurs in moist valleys

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Eucalyptus leucoxylon subsp. *connata*	Melbourne Yellow-gum	1	2018	-	en	5	Outside natural range. Occurs north and west of Melbourne down to the Bellarine Peninsula
Eucalyptus leucoxylon subsp. *megalocarpa*	Large-fruit Yellow-gum	1	2021	-	cr	5	Outside natural range. Occurs west of Melbourne to Portland generally along the coast
Eucalyptus sideroxylon subsp. *sideroxylon*	Mugga	2	2021	-	en	5	Outside natural range. Occurs in woodlands in inland Victoria
Eucalyptus X *studleyensis*	Studley Park Gum	4	2022	-	cr	5	Outside natural range. Occurs in the eastern Melbourne suburbs
Eucalyptus yarraensis	Yarra Gum	3	2009	-	cr	5	Outside natural range. Occurs in valleys and nearby slopes in open woodland generally between Melbourne, Daylesford and Ararat
Grevillea dimorpha	Flame Grevillea	1	1995	-	en	5	Outside natural range. Endemic to the Grampians. Local record was a cultivated specimen (Royal Botanic Gardens Victoria 2025)

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Hakea macraeana	Willow Needlewood	1	1995	-	cr	4	Outside natural range. Endemic to the East Gippsland. Local record was a cultivated specimen (Royal Botanic Gardens Victoria 2025)
Lachnagrostis semibarbata var. *filifolia*	Purple Blown-grass	10	2009	-	en	5	No suitable habitat. Occurs in wet marshes and slightly saline swamps
Melaleuca armillaris subsp. *armillaris*	Giant Honey-myrtle	46	2021	-	en	4	Suitable habitat, however, is endemic to Far East Gippsland. Widely planted ornamental species in Greater Melbourne
Microseris scapigera s.s.	Plains Yam-daisy	2	2009	-	cr	4	No suitable habitat. Occurs in the basalt plains of western Victoria
Poa poiformis var. *ramifer*	Dune Poa	1	2009	-	en	5	No suitable habitat. Grows on coastal dunes
Prasophyllum lindleyanum	Green Leek-orchid	3	2009	-	en	4	Low quality habitat. Prefers more fertile soils in woodland and scrubby heath
Pterostylis cucullata subsp. *cucullata*	Leafy Greenhood	1	1930	-	en	5	No suitable habitat. Occurs near coastal scrub often on sand dunes. Only known record in local area was 95 years ago

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Pterostylis pedoglossa	Prawn Greenhood	6	2009	-	en	5	No suitable habitat. Occurs in coastal and near-coastal grass tree plains east of Melbourne.
Pterostylis X *toveyana*	Mentone Greenhood	5	1927	-	en	5	No suitable habitat. Occurs in moist areas of open forest and in coastal scrub. Last known record was 98 years ago
Ranunculus amplus	Lacey River Buttercup	2	2002	-	cr	5	No suitable habitat. Occurs mostly on swamp margins, sometimes partly submerged
Rhytidosporum inconspicuum	Alpine Marianth	1	1992	-	en	5	No suitable habitat. Occurs in damp alpine or subalpine grassland and heathland
Thelionema umbellatum	Clustered Lily	6	2011	-	vu	5	No suitable habitat. Occurs in wet heathland sites
Thelymitra circumsepta	Naked Sun-orchid	6	2009	-	en	5	No suitable habitat. Occurs in open forests and woodlands in moist conditions such as swamp margins or stream banks
Thryptomene calycina	Grampians Thryptomene	4	2010	-	en	5	Outside natural range
Utricularia gibba	Floating Bladderwort	7	1996	-	en	5	No suitable habitat. Grows in swamps and wetlands

Data Sources: Victorian Biodiversity Atlas (DEECA 2025d); Protected Matters Search Tool (DCCEEW 2025).

APPENDIX 2 FAUNA

Appendix 2.1 Significant Fauna Species

Significant fauna within 10 kilometres of the study area is provided in the Table A2.1.3 at the end of this section, with Tables A2.1.1 and A2.1.2 below providing the background context for the values in Table 2.1.3.

Table A2.1.1 Conservation status of each species for each Act/policy. The values in this table correspond to Columns 5 to 8 in Table A2.1.3.

EPBC (*Environment Protection and Biodiversity Conservation Act 1999*):				FFG (*Flora and Fauna Guarantee Act 1988*):			
EX	Extinct	VU	Vulnerable	ex	Extinct	vu	Vulnerable
CR	Critically endangered	CD	Conservation Dependent	cr	Critically endangered	cd	Conservation Dependent
EN	Endangered	#	Listed on the Protected Matter Search Tool	en	Endangered		

Table A2.1.2 Likelihood of occurrence rankings: Habitat characteristics assessment of significant fauna species previously recorded within 10 kilometres of the study area, or that may potentially occur within the study area to determine their likelihood of occurrence. The values in this table correspond to Column 9 in Table A2.1.3.

1	Known Occurrence	• Recorded within the project area recently (i.e. within 10 years).
2	High Likelihood	• Likely resident in the study area based on site observations, database records, or expert advice; and/or, • Recent records (i.e. within five years) of the species in the local area (DEECA 2025d); and/or, • The study area contains the species' preferred habitat.
3	Moderate Likelihood	• The species is likely to visit the study area regularly (i.e. at least seasonally); and/or, • Previous records of the species in the local area (DEECA 2025d); and/or, • The study area contains some characteristics of the species' preferred habitat.
4	Low Likelihood	• The species is likely to visit the study area occasionally or opportunistically whilst en route to more suitable sites; and/or, • There are only limited or historical records of the species in the local area (i.e. more than 20 years old); and/or, • The study area contains few or no characteristics of the species' preferred habitat.

5	Unlikely	• No previous records of the species in the local area; and/or, • The species may fly over the study area when moving between areas of more suitable habitat; and/or, • Out of the species' range; and/or, • No suitable habitat present.

Table A2.1.3. Significant fauna within 10 kilometres of the study area.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
NATIONAL SIGNIFICANCE							
Antechinus minimus maritimus	Swamp Antechinus	1	2007	VU	vu	5	No suitable habitat.
Anthochaera phrygia #	Regent Honeyeater	-	-	CR	cr	5	No suitable habitat. Restricted to in Box-ironbark Forest in north-eastern Victoria and New South Wales
Aphelocephala leucopsis #	Southern Whiteface	-	-	VU	-	5	No suitable habitat. Occurs in dry open forests and woodlands, and inland mallee
Ardenna grisea #	Sooty Shearwater	-	-	VU	-	5	No suitable habitat. It is a sea bird
Arenaria interpres	Ruddy Turnstone	3	1982	VU	en	5	No suitable habitat. Occurs along suitable habitats along the coast.
Botaurus poiciloptilus	Australasian Bittern	41	2019	EN	cr	5	Several records in local area, however, prefers reedbeds and waterbodies such as creeks

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Calidris acuminata	Sharp-tailed Sandpiper	91	2020	VU	-	5	No suitable habitat.
Calidris canutus #	Red Knot	-	-	VU	en	5	No suitable habitat.
Calidris ferruginea	Curlew Sandpiper	56	2019	CR	cr	5	No suitable habitat.
Calidris tenuirostris #	Great Knot	-	-	VU	cr	5	No suitable habitat.
Callocephalon fimbriatum	Gang-gang Cockatoo	5	2001	EN	en	4	May visit the study area on rare occasions for foraging. No important and limiting habitat within the study area
Calyptorhynchus lathami	Glossy Black-Cockatoo	11	2022	VU	vu	5	No suitable habitat. Vagrant visitor
Carcharodon carcharias #	Great White Shark	-	-	VU	en	5	No suitable habitat.
Caretta caretta #	Loggerhead Turtle	-	-	EN	-	5	No suitable habitat.
Charadrius leschenaultii #	Greater Sand Plover	-	-	VU	vu	5	No suitable habitat.
Charadrius mongolus #	Lesser Sand Plover	-	-	EN	en	5	No suitable habitat.
Chelonia mydas #	Green Turtle	-	-	VU	-	5	No suitable habitat.
Climacteris picumnus victoriae #	Brown Treecreeper (south-eastern)	-	-	VU	-	5	No suitable habitat
Dasyurus maculatus maculatus (SE mainland population) #	Spot-tailed Quoll	-	-	EN	en	5	No suitable habitat. Occurs in forests, woodlands and heaths, however no records within the local vicinity.
Dermochelys coriacea #	Leatherback Turtle	-	-	EN	cr	5	No suitable habitat.
Diomedea antipodensis #	Antipodean Albatross	-	-	VU	-	5	No suitable habitat.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Diomedea antipodensis gibsoni #	Gibson's Albatross	-	-	VU	-	5	No suitable habitat.
Diomedea epomophora #	Southern Royal Albatross	-	-	VU	cr	5	No suitable habitat.
Diomedea exulans #	Wandering Albatross	-	-	VU	cr	5	No suitable habitat.
Diomedea sanfordi #	Northern Royal Albatross	-	-	EN	-	5	No suitable habitat.
Eubalaena australis	Southern Right Whale	2	2001	EN	en	5	No suitable habitat.
Falco hypoleucos #	Grey Falcon	99	2021	VU	vu	5	No suitable habitat. Outside species range. Occurs in arid inland areas
Fregetta grallaria grallaria #	White-bellied Storm-Petrel (Tasman Sea)	99	2021	VU	-	5	No suitable habitat.
Galaxiella pusilla	Dwarf Galaxias	99	2021	EN	en	5	Targeted surveys in 2019 recorded no specimens within the study area. Habitat on site unsuitable (Paul Kelly and Associates Pty Ltd 2019)
Gallinago hardwickii	Latham's Snipe	126	2023	VU	-	5	Several documented records from the local vicinity, however, no suitable habitat present within the study area. Uses freshwater wetlands
Grantiella picta	Painted Honeyeater	3	2017	VU	vu	5	No suitable habitat. The species principally occurs in suitable forest habitat north of the Great Divided Range

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Hirundapus caudacutus	White-throated Needletail	44	2019	VU	vu	3	Likely to fly across the study area on occasions (aerial foraging and dispersal). However, the species it not likely to use habitat resources within the study area.
Isoodon obesulus obesulus	Southern Brown Bandicoot	2,079	2021	EN	en	5	Based on the results of the targeted surveys (Paul Kelly and Associates Pty Ltd 2019) a resident population does not occur within the study area
Lathamus discolor	Swift Parrot	6	1988	CR	cr	4	May occasionally reside within the study area when on route to overwintering habitat in central and north-eastern Victoria .
Limosa lapponica	Bar-tailed Godwit	7	1988	EN	vu	5	No suitable habitat.
Limosa lapponica baueri #	Nunivak Bar-tailed Godwit	-	-	EN	-	5	No suitable habitat.
Limosa limosa	Black-tailed Godwit	8	1996	EN	cr	5	No suitable habitat.
Lissolepis coventryi	Swamp Skink	39	2019	EN	en	4	Many local records and some suitable habitat, however highly degraded. Prefers densely vegetated swamps and associated watercourses, and adjacent to wet heaths, sedgelands and saltmarshes

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Litoria raniformis	Growling Grass Frog	7	1990	VU	vu	5	No suitable habitat. No specimens detected within the study area during recent targeted surveys (Paul Kelly and Associates Pty Ltd 2019)
Macronectes giganteus #	Southern Giant-Petrel	-	-	EN	en	5	No suitable habitat.
Macronectes halli	Northern Giant-Petrel	2	2006	VU	en	5	No suitable habitat.
Melanodryas cucullata	Hooded Robin	8	2008	EN	vu	5	Limited habitat and local records. Lives in open woodland. Very few confirmed records of the species from the local area.
Mirounga leonina	Southern Elephant Seal	1	2001	VU	-	5	No suitable habitat.
Nannoperca obscura #	Yarra Pygmy Perch	-	-	EN	vu	5	No suitable habitat.
Neophema chrysogaster	Orange-bellied Parrot	2	1986	CR	cr	5	No suitable habitat and limited records. Lives in coastal and sub-coastal areas, preferring peninsulas and islands
Neophema chrysostoma	Blue-winged Parrot	14	2012	VU	-	4	Prefers grasslands and grassy woodlands. May fly over and temporarily use habitats within the study area.
Numenius madagascariensis	Eastern Curlew	9	2019	CR	cr	5	No suitable habitat.
Pachyptila turtur subantarctica #	Fairy Prion (southern)	-	-	VU	-	5	No suitable habitat.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Pedionomus torquatus #	Plains-wanderer	-	-	CR	cr	5	No suitable habitat.
Petauroides volans #	Greater Glider (southern and central)	-	-	EN	en	5	No suitable habitat.
Petaurus australis australis #	Yellow-bellied Glider (south-eastern)	-	-	VU	-	5	No suitable habitat.
Phoebetria fusca #	Sooty Albatross	-	-	VU	cr	5	No suitable habitat.
Pluvialis squatarola #	Grey Plover	-	-	VU	vu	5	No suitable habitat. It
Potorous tridactylus trisulcatus #	Long-nosed Potoroo (southern mainland)	-	-	VU	vu	5	No suitable habitat
Prototroctes maraena #	Australian Grayling	-	-	VU	en	5	No suitable habitat.
Pseudomys novaehollandiae	New Holland Mouse	12	1999	VU	en	5	No suitable habitat. Likely to be locally extinct
Pterodroma leucoptera leucoptera #	Australian Gould's Petrel	-	-	EN	-	5	No suitable habitat.
Pteropus poliocephalus	Grey-headed Flying-fox	9	2022	VU	vu	4	Specimens are likely to fly over the study area on occasions. May temporarily forage on flowering eucalypts on occasions
Pycnoptilus floccosus #	Pilotbird	-	-	VU	vu	5	No suitable habitat.
Rostratula australis	Australian Painted-snipe	3	2000	EN	cr	5	No suitable habitat.
Seriolella brama #	Blue Warehou	-	-	CD	cd	5	No suitable habitat.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Stagonopleura guttata #	Diamond Firetail	-	-	VU	vu	5	No suitable habitat. Occurs in open grassy woodland, heathland and farmland
Sternula albifrons #	Little Tern	-	-	VU	cr	5	No suitable habitat
Sternula nereis nereis #	Australian Fairy Tern	-	-	VU	cr	5	No suitable habitat.
Synemon plana #	Golden Sun Moth	-	-	VU	vu	5	No suitable habitat.
Thalassarche bulleri #	Buller's Albatross	-	-	VU	en	5	No suitable habitat.
Thalassarche bulleri platei #	Northern Buller's Albatross	-	-	VU	-	5	No suitable habitat.
Thalassarche carteri #	Indian Yellow-nosed Albatross	-	-	VU	en	5	No suitable habitat.
Thalassarche cauta	Shy Albatross	1	1994	EN	en	5	No suitable habitat.
Thalassarche chrysostoma #	Grey-headed Albatross	-	-	EN	en	5	No suitable habitat.
Thalassarche impavida #	Campbell Albatross	-	-	VU	-	5	No suitable habitat.
Thalassarche melanophris	Black-browed Albatross	2	1994	VU	-	5	No suitable habitat.
Thalassarche salvini #	Salvin's Albatross	-	-	VU	-	5	No suitable habitat.
Thalassarche steadi #	White-capped Albatross	-	-	VU	-	5	No suitable habitat.
Tringa nebularia	Common Greenshank	38	2019	EN	en	5	No suitable habitat.
Xenus cinereus #	Terek Sandpiper	-	-	VU	en	5	No suitable habitat.
STATE SIGNIFICANCE							
Accipiter novaehollandiae	Grey Goshawk	5	1990	-	en	5	No suitable habitat.
Acrodipsas brisbanensis	Large Ant Blue Butterfly	1	1941	-	en	5	No suitable habitat
Actitis hypoleucos	Common Sandpiper	41	2020	-	vu	5	No suitable habitat.
Anseranas semipalmata	Magpie Goose	3	2008	-	vu	5	No suitable habitat.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Antigone rubicunda	Brolga	1	1845	-	en	5	No suitable habitat
Arctophoca forsteri	Long-nosed Fur Seal	3	2019	-	vu	5	No suitable habitat.
Ardea alba modesta	Eastern Great Egret	71	2020	-	vu	5	Many records in local area, however, no suitable habitat. Occurs in areas with shallow water
Ardea intermedia plumifera	Plumed Egret	6	2012	-	cr	5	No suitable habitat. Lives in shallow water at the edges of wetlands and the intertidal zone
Biziura lobata	Musk Duck	91	2021	-	vu	5	Many records in local area, however, no suitable habitat. Lives in deep freshwater lakes
Calamanthus pyrrhopygius	Chestnut-rumped Heathwren	5	2019	-	vu	5	Limited habitat,
Egretta garzetta	Little Egret	17	2019	-	en	5	No suitable habitat. It is a shorebird
Falco subniger	Black Falcon	8	2019	-	cr	5	Limited habitat. Lives in tree-lined watercourses and isolated woodlands, mainly in arid and semi-arid areas
Haliaeetus leucogaster	White-bellied Sea-Eagle	20	2022	-	en	5	Limited habitat. Lives near waterways. May fly over the study area

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Hieraaetus morphnoides	Little Eagle	30	2022	-	vu	5	Limited habitat. Often seen over woodland and forested land. May visit the study area opportunistically when flying over
Hydroprogne caspia	Caspian Tern	21	2020	-	vu	5	No suitable habitat. Lives around waterbodies, such as shorelines, wetlands and estuaries
Ixobrychus dubius	Australian Little Bittern	4	2002	-	en	5	No suitable habitat. Lives around freshwater waterbodies
Lewinia pectoralis	Lewin's Rail	36	2020	-	vu	5	Many records in local area, however, no suitable habitat. Lives in vegetated wetlands
Lophoictinia isura	Square-tailed Kite	1	2019	-	vu	4	Limited habitat and only one record in the local area six years ago. May fly over the study area
Megaptera novaeangliae australis	Southern Humpback Whale	1	1980	-	cr	5	No suitable habitat.
Ninox strenua	Powerful Owl	5	2020	-	vu	3	Occasional use of the study area for foraging and dispersal. Unlikely to roost or next within the study area
Numenius phaeopus	Whimbrel	2	1984	-	en	5	No suitable habitat.
Ornithorhynchus anatinus	Platypus	1	1979	-	vu	5	No suitable habitat

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Oxyura australis	Blue-billed Duck	125	2020	-	vu	5	Many records in local area, however, no suitable habitat. Occurs in wetlands
Pezoporus wallicus	Ground Parrot	1	1845	-	en	5	No suitable habitat
Pluvialis fulva	Pacific Golden Plover	12	2005	-	vu	5	No suitable habitat.
Pomatostomus temporalis	Grey-crowned Babbler	13	2002	-	vu	5	No suitable habitat. Historically occurred on the Mornington Peninsula and not locally extinct
Pseudemoia rawlinsoni	Glossy Grass Skink	3	2010	-	en	5	Prefers moist areas bordering swamps and water courses. Unlikely to occur within the study area
Pseudophryne semimarmorata	Southern Toadlet	33	2022	-	en	3	Many records in local area. Potentially suitable habitat occurs within the study area. Primarily occurs in forests, woodlands heaths and grassland in damp areas usually under leaf litter and logs. It doesn't need to live near permanent water. Targeted survey completed.
Pyrrholaemus sagittatus	Speckled Warbler	2	1909	-	en	5	No suitable habitat.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat	1	1909	-	vu	5	Unlikely to occur within the study area based on past records
Sminthopsis leucopus	White-footed Dunnart	2	2012	-	vu	5	No suitable habitat. Occurs in heathlands and woodlands with a dense heathy understorey
Spatula rhynchotis	Australasian Shoveler	141	2020	-	vu	5	Many records in local area, however, no suitable habitat. Lives in shallow wetlands
Stictonetta naevosa	Freckled Duck	16	2019	-	en	5	No suitable habitat.
Temognatha sanguinipennis	Jewel Beetle	1	2017	-	en	5	No suitable habitat and only one record in the local area. Prefers tall eucalypt forests
Trapezites luteus luteus	Yellow Ochre Butterfly	22	2021	-	en	4	Many records in local area, although limited suitable habitat
Tringa brevipes	Grey-tailed Tattler	3	1987	-	cr	5	No suitable habitat.
Tringa glareola	Wood Sandpiper	23	2006	-	en	5	No suitable habitat.
Tringa stagnatilis	Marsh Sandpiper	23	2019	-	en	5	No suitable habitat.
Tursiops australis	Burrunan Dolphin	10	2017	-	cr	5	No suitable habitat.
Varanus varius	Lace Monitor	1	1973	-	en	4	Suitable habitat, however only one record in the local area from 52 years ago

Data Sources: Victorian Biodiversity Atlas (DEECA 2025d); Protected Matters Search Tool (DCCEEW 2025).

APPENDIX 3 NATIVE VEGETATION REMOVAL (NVR) REPORT

Native Vegetation Removal Report

NVRR ID: 320_20250409_PK4

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: 09/04/2025

Local Government Area: FRANKSTON CITY

Shapefile name:
EHP18735_Langwarrin_Patches_VG20.shp
EHP18735_Langwarrin_Trees_VG20.shp

Site assessor name: Ken Norris

Registered Aboriginal Party: Bunurong

Coordinates: 145.19450, -38.12812

Address:
150 QUARRY ROAD LANGWARRIN 3910
60 VALLEY ROAD LANGWARRIN 3910
70 VALLEY ROAD LANGWARRIN 3910

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*	**4.569**	*Extent of past removal (ha)*	*0*
		Extent of proposed removal - Patches (ha)	*4.393*
		Extent of proposed removal - Scattered Trees (ha)	*0.176*
No. Large Trees proposed to be removed	**79**	*No. Large Patch Trees*	*77*
		No. Large Scattered Trees	*2*
No. Small Scattered Trees	2		

Offset requirements if approval is granted

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

General Offset amount [1]	**3.7540 General Habitat Units**
Vicinity	Melbourne Water CMA or FRANKSTON CITY LGA
Minimum strategic biodiversity value score [2]	0.7191
Large Trees*	79
***The total number of Large Trees that the offset must protect**	**79** 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-HW	Patch	-	GipP0048	Least Concern	no	0.640	47	2.790	2.790	0.942	-	2.601	General
2-HW	Patch	-	GipP0048	Least Concern	no	0.520	27	1.249	1.249	0.794	-	0.874	General
3-HW	Patch	-	GipP0048	Least Concern	no	0.450	3	0.354	0.354	0.903	-	0.227	General

Information provided by or on behalf of the applicant							Information calculated by NVR Map						
Zone	**Type**	**DBH (cm)**	**EVC code**	**Bioregional conservation status**	**Partial Removal**	**Condition score**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
1-tr	Scattered Tree	73	GipP0048	Least Concern	no	0.200	1	0.070	0.062	0.950	-	0.018	General
2-tr	Scattered Tree	58	GipP0048	Least Concern	no	0.200	1	0.070	0.054	0.950	-	0.016	General
3-tr	Scattered Tree	25	GipP0048	Least Concern	no	0.200	-	0.031	0.031	0.950	-	0.009	General
4-tr	Scattered Tree	35	GipP0048	Least Concern	no	0.200	-	0.031	0.030	0.950	-	0.009	General

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

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

Species common name	Species scientific name	Taxon ID	Conservation status	Group	Habitat impacted	Proportional impact (%)
Veined Spear-grass	Austrostipa rudis subsp. australis	504940	Rare	Dispersed	Habitat importance map	0.0013
Green Scentbark	Eucalyptus fulgens	505175	Rare	Dispersed	Habitat importance map	0.0010
Annual Fireweed	Senecio glomeratus subsp. longifructus	507144	Rare	Dispersed	Habitat importance map	0.0009
Glossy Grass Skink	Pseudemoia rawlinsoni	12683	Vulnerable	Dispersed	Habitat importance map	0.0008
Swamp Skink	Lissolepis coventryi	12407	Vulnerable	Dispersed	Habitat importance map	0.0007
Naked Sun-orchid	Thelymitra circumsepta	503383	Vulnerable	Dispersed	Habitat importance map	0.0006
Southern Toadlet	Pseudophryne semimarmorata	13125	Vulnerable	Dispersed	Habitat importance map	0.0005
Green Leek-orchid	Prasophyllum lindleyanum	502702	Vulnerable	Dispersed	Habitat importance map	0.0005
Sticky Wattle	Acacia howittii	500044	Rare	Dispersed	Habitat importance map	0.0004
Leafy Twig-sedge	Cladium procerum	500786	Rare	Dispersed	Habitat importance map	0.0004
Purple Diuris	Diuris punctata	501084	Vulnerable	Dispersed	Habitat importance map	0.0004
Yarra Gum	Eucalyptus yarraensis	501326	Rare	Dispersed	Habitat importance map	0.0004
Parsley Xanthosia	Xanthosia leiophylla	504562	Rare	Dispersed	Habitat importance map	0.0004
Grey Goshawk	Accipiter novaehollandiae novaehollandiae	10220	Vulnerable	Dispersed	Habitat importance map	0.0002
Cobra Greenhood	Pterostylis grandiflora	502798	Rare	Dispersed	Habitat importance map	0.0002

Species common name	Species scientific name	Taxon ID	Conservation status	Group	Habitat impacted	Proportional impact (%)
White-throated Needletail	Hirundapus caudacutus	10334	Vulnerable	Dispersed	Habitat importance map	0.0001
Chestnut-rumped Heathwren	Calamanthus pyrrhopygius	10498	vulnerable	Dispersed	Habitat importance map	0.0001
Clover Glycine	Glycine latrobeana	501456	Vulnerable	Dispersed	Habitat importance map	0.0001
Green-striped Greenhood	Pterostylis chlorogramma	504728	Vulnerable	Dispersed	Habitat importance map	0.0001
Black Falcon	Falco subniger	10238	Vulnerable	Dispersed	Habitat importance map	0.0000

Habitat Group

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

Habitat Impacted

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

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

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

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

Appendix 3: Images of mapped native vegetation

1. Property in context

Proposed Removal
Past Removal
Partial Removal
Property Boundaries

N

250 m

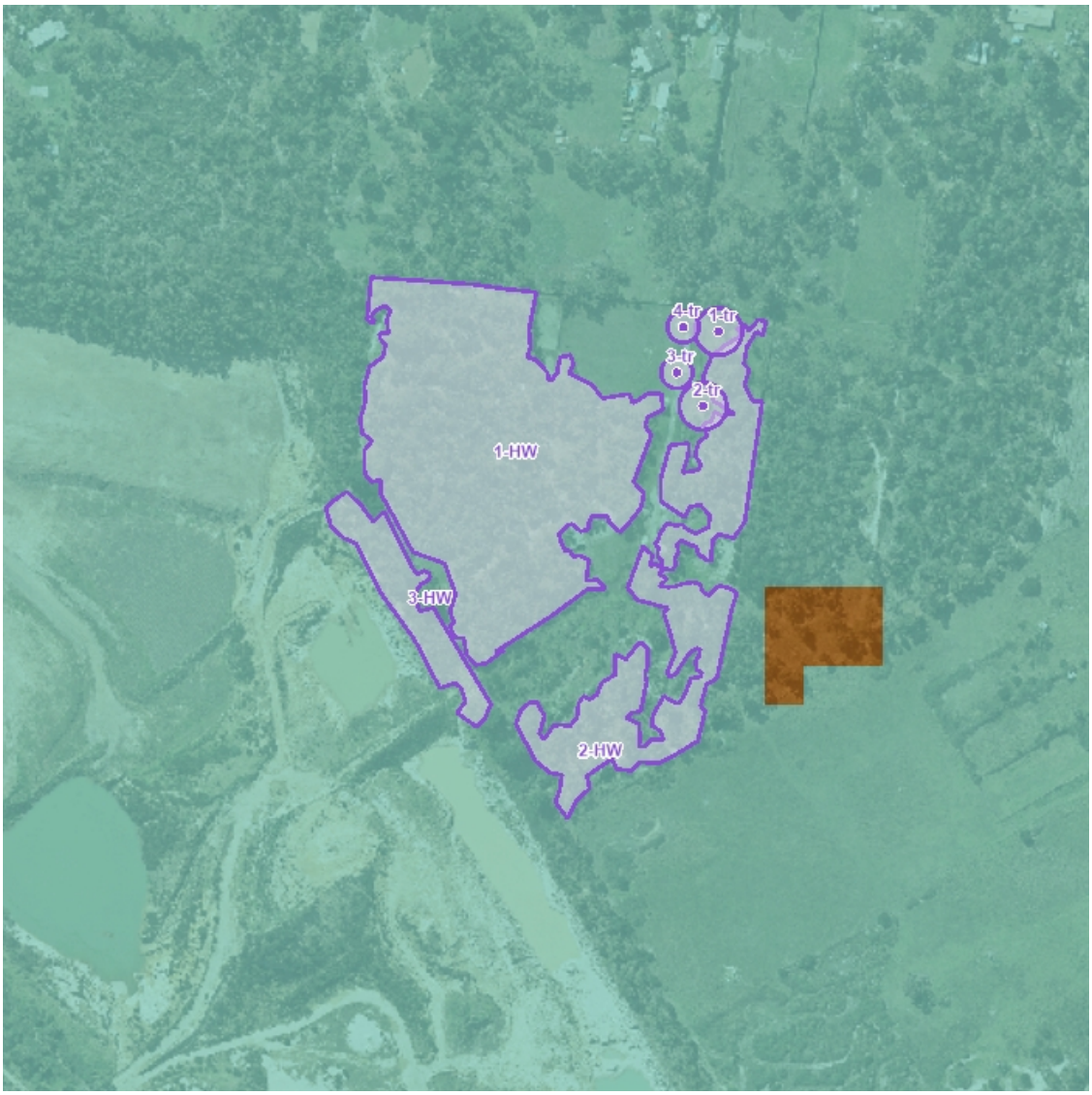
2. Aerial photograph showing mapped native vegetation

Proposed Removal
Past Removal
Partial Removal

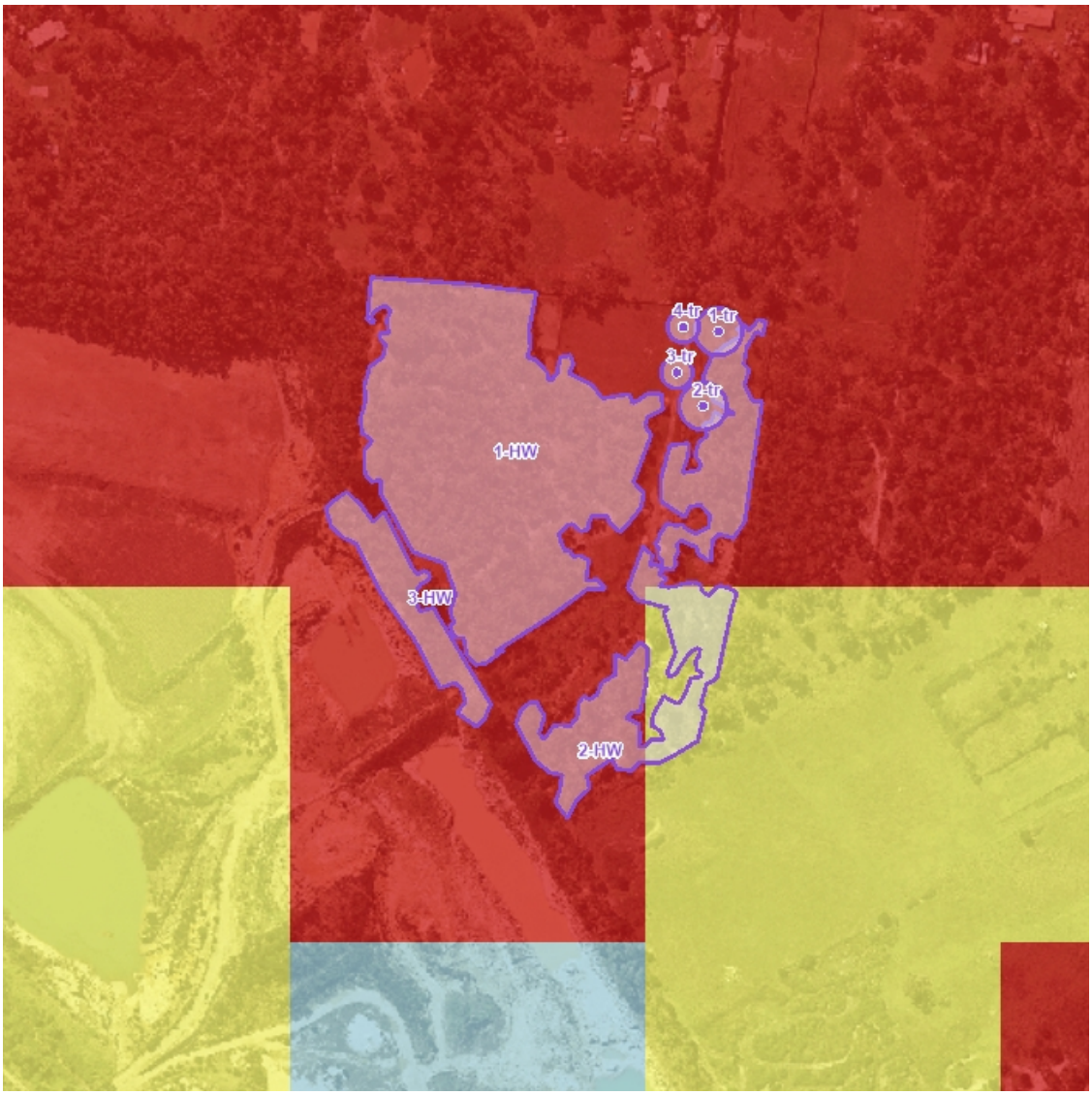
N

95 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

95 m

6. Modelled Endangered EVCs

Not Applicable

7. Habitat Importance maps

Not Applicable

APPENDIX 4 AVAILABLE NATIVE VEGETATION CREDITS

Report of available native vegetation credits

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

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

Date and time: 09/04/2025 01:00

Report ID: 29263

What was searched for?

General offset

General habitat units	Strategic biodiversity value	Large trees	Vicinity (Catchment Management Authority or Municipal district)	
3.754	0.7191	79	CMA	Melbourne Water
			or LGA	Frankston City

Details of available native vegetation credits on 09 April 2025 01:00

These sites meet your requirements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
BBA-0678	37.276	2394	Melbourne Water	Nillumbik Shire	No	Yes	No	Abezco, VegLink
BBA-2871	9.830	846	Melbourne Water	Yarra Ranges Shire	Yes	Yes	No	VegLink
VC_CFL-3710_01	6.238	322	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-3792_01	13.324	1218	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
	Fully traded			
Abezco	Abzeco Pty. Ltd.	(03) 9431 5444	offsets@abzeco.com.au	www.abzeco.com.au
Baw Baw SC	Baw Baw Shire Council	(03) 5624 2411	bawbaw@bawbawshire.vic.gov.au	www.bawbawshire.vic.gov.au
Bio Offsets	Biodiversity Offsets Victoria	0452 161 013	info@offsetsvictoria.com.au	www.offsetsvictoria.com.au
Contact NVOR	Native Vegetation Offset Register	136 186	nativevegetation.offsetregister@deeca.vic.gov.au	www.environment.vic.gov.au/native-vegetation
Ecocentric	Ecocentric Environmental Consulting	0410 564 139	ecocentric@me.com	Not avaliable
Ethos	Ethos NRM Pty Ltd	(03) 5153 0037	offsets@ethosnrm.com.au	www.ethosnrm.com.au
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