Biodiversity assessment and offset investigation, Lightwood Park Road, Smythesdale, Victoria

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1 Introduction

Ecology and Heritage Partners Pty Ltd was commissioned by Daniel Prior to conduct a biodiversity assessment and offset investigation at Lots 10 and 11 of plan of subdivision 1A\PP2351, Lightwood Park Road, Smythesdale, Victoria.

The purpose of this report is to identify the ecological values known to, or likely to occur within the study area, assess the native vegetation proposed to be removed based on a preliminary development plan, and to provide information on the implications of Victoria's '*Permitted clearing of native vegetation – Biodiversity assessment guidelines*' (the Guidelines) (DEPI 2013).

A residential development consisting of 10 residential lots was initially proposed within the study area; however, following further analysis, in order to minimise vegetation removals, the development plan has been revised to comprise a new layout containing nine lots. In order to offset vegetation losses associated with the development, vegetation within the study area is proposed to be protected and managed to generate native vegetation credits.

The following sections describe our assessment methodology and provide information on the potential regulatory and legislative implications associated with the proposed action.

2 Study Area

The study area is located at Lots 10 and 11 of plan of subdivision 1A\PP2351, Lightwood Park Road, Smythesdale, Victoria, approximately 18 kilometres south-west of Ballarat (Figure 1). The site covers approximately 43 hectares and is bound by Miners Hut Road and private property to the north, the un-used road reserve of Lightwood Park Road to the west and private property to the south and east.

According to the Victorian Department of Environment, Land, Water and Planning (DELWP) Biodiversity Interactive Map (DELWP 2015a), the study area occurs within the Central Victorian Uplands bioregion. It is located within the jurisdiction of the Corangamite Catchment Management Authority (CMA) and the Golden Plains Shire Council municipality.

3 Methods

3.1 Desktop Assessment

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

- The DELWP Biodiversity Interactive Map (DELWP 2015a) for the extent of historic and current EVCs;
- The Native Vegetation Information Management (NVIM) Tool (DELWP 2015c) for modelled biodiversity data;
- The VBA (DEPI 2014), Flora Information System (FIS) (Viridans 2013a) and Atlas of Victorian Wildlife (AVW) (Viridans 2013b) for previously documented flora and fauna records within the project locality;
- The Federal Department of Environment (DoE) Protected Matters Search Tool (PMST) for matters of National Environmental Significance (NES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (DoE 2015);
- The DELWP Planning Maps Online to ascertain current zoning and environmental overlays (DELWP 2015d);
- Aerial photography of the study area;
- Relevant environmental legislation and policies; and,
- Previous ecological assessments within the study area.

3.2 Site Inspection

An ecological assessment of the study area was undertaken by a qualified ecologist on 16 September 2015. The inspections sought primarily to provide ground-truthing of information provided by the desktop assessment, particularly in relation to the following:

- Modelled data for remnant vegetation patches, scattered trees and habitat for rare or threatened species; and,
- Potential habitat for species and ecological communities listed under the EPBC Act and *Flora and Fauna Guarantee Act 1988* (FFG Act).

3.3 Permitted Clearing Assessment (the Guidelines)

The clearing of native vegetation is assessed under the 'Permitted clearing of native vegetation - Biodiversity assessment guidelines' (the Guidelines) (DEPI 2013). The Guidelines manage the impacts on biodiversity from native vegetation removal using a risk-based approach. Two factors – extent risk and location risk – are used to determine the risk associated with an application for a permit to remove native vegetation. The location risk (A, B or C) has been determined for all areas in Victoria and is available on DELWP's Native Vegetation Information Management (NVIM) Tool (DELWP 2015c). Determination of risk-based pathway is summarised in Table 1.

Table 1. Risk-based pathways for applications to remove remnant patches of native vegetation and scattered trees (DEPI 2013)

Extent*		Location		
		A	B	C
Remnant Patch	< 0.5 hectares	Low	Low	High
	≥ 0.5 hectares and < 1 hectare	Low	Moderate	High
	≥ 1 hectare	Moderate	High	High
Scattered Tree	< 15 scattered trees	Low	Moderate	High
	≥ 15 scattered trees	Moderate	High	High

* For the purpose of determining the risk-based pathway of an application to remove native vegetation the extent includes any other native vegetation that was permitted to be removed on the same contiguous parcel of land with the same ownership as the native vegetation to be removed, where the removal occurred in the five year period before an application to remove native vegetation is lodged.

Native vegetation (as defined in Table 2) is assessed using two key parameters: extent (in hectares) and condition. Extent is determined through a site assessment. The condition score for Moderate and High Risk-based pathways must be assessed through a habitat hectare assessment conducted by a qualified ecologist. The condition score for Low Risk-based pathways may be based on either modelled data available on the NVIM Tool (DELWP 2015c), or through a habitat hectare assessment.

The methodology for undertaking a habitat hectare assessment is described in the Vegetation Quality Assessment Manual (DSE 2004).

Table 2. Definition of native vegetation (DEPI 2013)

Category	Definition	Extent	Condition
Remnant Patch	An area of native vegetation where at least 25 per cent of the total perennial understorey plant cover is native plants. OR An area with three or more native canopy trees where the canopy foliage cover is at least 20 per cent of the area.	Measured in hectares. Based on hectare area of the remnant patch.	Vegetation Quality Assessment Manual (DSE 2004).
Scattered Tree	A native canopy tree that does not form part of a patch.	Measured in hectares. Each scattered tree is assigned an extent of 0.071 hectares (30m diameter).	Scattered trees are assigned a default condition score of 0.2.

Offsets are divided into two categories: General and Specific. Specific offsets are required when the removal of native vegetation has a significant impact on habitat for a rare or threatened species[1]. Otherwise, a General offset is required. The offset requirements for native vegetation removal are calculated by DELWP, with the resulting Biodiversity Impact and Offset Requirements report presented in Appendix 4.

3.3.1 Gain calculations

Potential native vegetation gain available within the proposed offset site was calculated using DELWPs Gain Calculator, version 1.2 (DSE 2008).

[1] Only species listed as 'critically endangered', 'endangered', 'vulnerable' or 'rare' on DEPI's advisory lists (DSE 2005; DSE 2013) for flora and fauna are considered a rare or threatened species.

3.4 Limitations

The short duration of the survey 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. Targeted flora or fauna surveys were not undertaken, as this was beyond the preliminary scope. Nevertheless, the terrestrial flora and fauna data collected during the field assessment and information obtained from relevant desktop sources is considered adequate to provide an accurate and indicative assessment of the ecological values present within the study area.

4 Results

4.1 Vegetation

4.1.1 Forest

Vegetation within the study area was dominated by forest, located throughout the property. Based on the site assessment, forest within the study area is consistent with Heathy Dry Forest EVC (EVC 20). This is consistent with extant DELWP mapping which shows these areas to be dominated by this EVC (DELWP 2015b).

Heathy Dry Forest within the study area was in good condition and dominated by Messmate *Eucalyptus obliqua* and Narrow-leaf Peppermint *Eucalyptus radiata* (Plate 1; Figure 2). The understorey was dominated by small-medium shrubs, and graminods, including Narrow-leaf Bitter Pea *Daviesia virgata*, Black-anther Flax-lily *Dianella admixta*, Grey Tussock-grass *Poa sieberiana*, Slender Rice-flower *Pimelea linifolia*, Small Grass-tree *Xanthorrhoea minor*, Blackwood *Acacia melanoxylon*, Hedge Wattle *Acacia paradoxa* and Cranberry Heath *Astroloma humifusum*. Small herbs and climbers were also present, including, Common Raspwort *Gonocarpus tetragynus*, Common Hovea *Hovea heterophylla*, Pink Bells *Tetratheca ciliata*, Purple Coral-pea *Hardenbergia violacea*, and Ivy-leaved Violet *Viola hederacea*.

A low cover of weeds was present which included, Yorkshire Fog *Holcus lanatus*, Sour-sob *Oxalis pes-caprae*, Angled Onion *Allium triquetrum* and Cat's Ear *Hypochoeris radicata*.

4.2 Fauna Habitat

Forest within the study area provides moderate quality habitat to native fauna. Many of the Eucalypts recorded in this area are large and provide fruitful nectar yields that would attract a large number of native bird species in the immediate area. However large hollow bearing trees were limited. A sparse medium shrub layer was present over a sparse, but diverse ground layer, which provides a diversity of habitats to a range of fauna species, including small mammals, birds, frogs and reptiles.

Plate 1. Heathy Dry Forest within the study area, (Source EHP 16/09/2015).

4.3 Significant Flora and Fauna

4.3.1 Flora

The VBA and FIS contain records of three nationally significant and 12 State significant flora species previously recorded within 10 kilometres of the study area (DEPI 2014; Viridans 2013a) (Appendix 1; Figure 3). The PMST nominated an additional ten nationally significant species which have not been recorded in the locality but have the potential to occur (DoE 2015).

While not recorded during the site assessment, there is a moderate likelihood that the study area supports the State significant Yarra Gum *Eucalyptus yarraensis*.

4.3.2 *Fauna*

The VBA and FIS contain records of two nationally significant, 24 State significant and seven regionally significant fauna species previously recorded within 10 kilometres of the study area (DEPI 2014; Viridans 2013a) (Appendix 2; Figure 3). The PMST nominated an additional 11 nationally significant species which have not been recorded in the locality but have the potential to occur (DoE 2015).

While not recorded during the site assessment, there is a moderate likelihood that the study area supports the State significant Brush-tailed Phascogale *Phascogale tapoatafa*, Powerful Owl *Ninox strenua*, Brown Treecreeper (south-eastern ssp.) *Climacteris picumnus victoriae*, Brown Toadlet *Pseudophryne bibronii* and Southern Toadlet *Pseudophryne semimarmorata*.

4.4 Permitted Clearing Assessment (the Guidelines)

Based on DELWP's NVIM Tool, the study area is within Location A, with 10.514 hectares of native vegetation assumed to be impacted[2]. As such, the permit application falls under the Moderate Risk-based pathway.

[2] Vegetation assumed to be impacted includes all vegetation within road reserves of new roads to be constructed, two metre buffer either side of new parcel boundaries, proposed dwelling footprints, and defendable space (Figure 2). All areas of defendable space were treated as 100% loss of vegetation quality, in accordance with DELWP (2015e), given partial clearing of understorey species and partial removal of canopy trees is required in accordance with the Bushfire Management Statement (Ecology and Heritage Partners 2016).

The offset requirement for native vegetation removal is **0.951 General Biodiversity Equivalence Units** (BEU). The Biodiversity Assessment Report containing details of the offset requirements and other relevant information is presented in Appendix 4. A summary of offsets for proposed vegetation losses is presented in Table 3.

Table 3. Vegetation proposed to be removed, Permitted Clearing Assessment (the Guidelines)

Risk	Risk-based pathway	High
Vegetation to be removed	Total Extent	10.514
	Remnant Patch (ha)	10.514
	Scattered Trees (no.)	0
	Location Risk	A
	Strategic Biodiversity Score	0.102
Offset requirements	General Offsets Required (BEU)	0.951
	Vicinity (catchment / LGA)	Corangamite / Golden Plains Shire Council
	Minimum Strategic Biodiversity Score	0.082

Note: BEU = Biodiversity Equivalence Units

4.5 Gain available within the proposed offset site

Within the proposed offset site, the total potential gain available under the Guidelines (DEPI 2013) consists of 0.544 General Biodiversity Equivalence Units (Appendix 3).

4.6 Allocation of native vegetation gain

The offset requirements for the proposed removals can be met using a combination of onsite and offsite offsets, comprising (Table 4):

- 0.544 General Biodiversity Equivalence Units offset onsite; and,
- 0.407 General Biodiversity Equivalence Units offset offsite via a third party.

Table 4 Allocation of vegetation gain.

Removal of native vegetation		Allocation of native vegetation gain					
Target (GBEU)	Min. SBS	Offset zone	SBS	Gain within offset site (GBEU)	Gain utilised	Target Met	Deficit remaining to be secured via a third party (GBEU)
0.951	0.082	On-site	0.102	0.544	0.951	No	0.407
0.951				0.544	0.951		0.407

Notes: SBS = Strategic Biodiversity Score; GBEU = General Biodiversity Equivalence Unit

5 Legislative and Policy Implications

5.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes a Commonwealth process for the assessment of proposed actions (i.e. project, development, undertaking, activity, or series of activities) likely to have a significant impact on matters of National Environment Significance (NES), or those that are undertaken on Commonwealth Land.

No matters of National Environmental Significance are likely to occur within the study area, or are likely to be impacted by the proposed development (Appendix 1)

5.2 Flora and Fauna Guarantee Act 1988

The FFG Act is the primary legislation dealing with biodiversity conservation and sustainable use of native flora and fauna in Victoria. Proponents are required to apply for an FFG Act Permit to 'take' listed and/or protected[3] flora species, listed vegetation communities and listed fish species in areas of public land (i.e. within road reserves, drainage lines and public reserves). An FFG Act permit is generally not required for removal of species or communities on private land, or for the removal of habitat for a listed terrestrial fauna species.

Two species protected under the FFG Act were recorded within the study area, Small Grass-tree and Cranberry Heath. There is suitable habitat within the study area for additional species protected under the FFG Act (e.g. daisies and wattles). A permit under the FFG Act will be required for removal of listed species within areas of public land (road reserves, including currently un-used road reserves). The proponent should allow up to six weeks to obtain an FFG Act permit through DELWP.

5.3 Planning and Environment Act 1987

The *Planning and Environment Act 1987* outlines the legislative framework for planning in Victoria and for the development and administration of planning schemes. All planning schemes contain native vegetation provisions at Clause 52.17, which require a planning permit from the relevant local Council to remove, destroy or lop native vegetation on a site of more than 0.4 hectares, unless an exemption under clause 52.17-7 of the Victorian Planning Schemes applies or a subdivision is proposed with lots less than 0.4 hectares[4].

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[3] In addition to 'listed' flora species, the FFG Act identifies 'protected' flora species. This includes any of the Asteraceae (Daisies) Ericaceae (Heaths), all orchids, ferns (excluding Pteridium esculentum), *Xanthorrhoea* species, *Acacia* species (excluding *Acacia dealbata, Acacia decurrens, Acacia implexa, Acacia melanoxylon and Acacia paradoxa*), as well as any taxa that may be a component of a listed ecological community. A species may be both listed and protected.

[4] In accordance with the Victorian Civil and Administrative Tribunal's (VCAT) decision Villawood v Greater Bendigo CC (2005) VCAT 2703 (20 December 2005) all native vegetation is considered lost where proposed lots are less than 0.4 hectares in area and must be offset at the time of subdivision.

5.3.1 *Local Planning Schemes*

The study area is located within the Golden Plains Shire Council municipality and is zoned Rural Living Zone (RLZ). The following overlays apply:

- Bushfire Management Overlay (BMO) – relating to protection of human life and infrastructure from bushfire.; and,
- Design and Development Overlay – Schedule 7 (DDO7).

A Planning Permit from Golden Plains Shire Council is required to remove, destroy or lop any native vegetation. DELWP is likely to be a mandatory recommending referral authority as more than 0.5 hectares of native vegetation is proposed to be removed.

A Bushfire Management Plan has been prepared, in accordance with the requirements of the Bushfire Management Overlay (Ecology and Heritage Partners 2016.

5.3.2 *Permitted clearing of native vegetation - Biodiversity assessment guidelines*

The Victorian Planning Provisions relating to biodiversity protection and native vegetation management was amended in December 2013 to reflect the new permitted clearing of native vegetation and biodiversity policy encapsulated in the 'Permitted clearing of native vegetation - Biodiversity assessment guidelines' (the Guidelines) (DEPI 2013).

Areas of remnant native vegetation to be impacted must be offset, including areas of defendable space. The results of the permitted clearing assessment under the Guidelines are presented above (Section 4.4).

5.4 Wildlife Act 1975 and Wildlife Regulations 2013 (Victoria)

The *Wildlife Act 1975* (and associated Wildlife Regulations 2013) is the primary legislation in Victoria providing for protection and management of wildlife. Authorisation for habitat removal may be obtained under the *Wildlife Act 1975* through a licence granted under the *Forests Act 1958*, or under any other Act such as the *Planning and Environment Act 1987*. Any persons engaged to remove, salvage, hold or relocate native fauna during construction must hold a current Management Authorisation under the *Wildlife Act 1975*.

5.5 Catchment and Land Protection Act 1994

The *Catchment and Land Protection Act 1994* (CaLP Act) contains provisions relating to catchment planning, land management, noxious weeds and pest animals. Landowners are responsible for the control of any infestation of noxious weeds and pest fauna species to minimise their spread and impact on ecological values.

Two weed listed as noxious under the CaLP Act was recorded during the assessment (Sour-sob and Angled Onion). Similarly, there is evidence that the study area is currently occupied by several pest fauna species listed under the CaLP Act (Red Fox *Vulpes vulpes* and European Rabbit *Oryctolagus cuniculus*). A Weed Management Plan and a pest fauna eradication plan may be required.

5.6 Potential Impacts

The proposed action is likely to directly impact on several indigenous flora and fauna species, and communities recorded within the study area. These impacts may include:

- Loss of potential habitat for State (Yarra Gum);
- Loss of potential habitat for State (Brush-tailed Phascogale, Powerful Owl, Brown Treecreeper (south-eastern ssp.), Brown Toadlet and Southern Toadlet);
- The removal of an EVC of Least Concern (Heathy Dry Forest);
- Loss of habitat and potential mortality for locally common fauna species dependent on tree hollows (e.g. Common Brush-tailed Possum *Trichosurus vulpecula*, Eastern Rosella *Platycercus eximius*, Rainbow Lorikeet *Trichoglossus haematodus,* Gould's Wattled Bat *Chalinolobus gouldii*), loose or shedding bark (e.g. Lesser Long-eared Bat *Nictophilus geoffroyi*) and leaf litter and other ground debris (e.g. lizards, snakes, frogs and invertebrates) for foraging, shelter, roosting or nesting;
- Potential for the spread of weeds and soil pathogens due to on-site activities;
- Disturbance to wildlife from increased human activity and noise during construction; and,
- Indirect impacts on adjacent areas if construction activities and drainage are not appropriately managed.

5.7 Mitigation Measures

5.7.1 Minimise Impacts

For the removal of vegetation that falls under the Moderate pathways, the Guidelines (DEPI 2013) require the responsible authority to consider whether reasonable steps have been taken to ensure that impacts of the proposed removal of native vegetation on biodiversity have been minimised. Minimisation effort should be commensurate with the contribution that the native vegetation makes to Victoria's biodiversity (DELWP 2015a).

5.7.2 Contribution to Victoria's Biodiversity

The Handbook (DELWP 2015a) describes the relevant information to consider when determining the contribution native vegetation makes to Victoria's biodiversity (Table 5). Based on available information it is determined that the native vegetation proposed to be removed as part of the current application has a Moderate contribution to Victoria's biodiversity.

Table 5. Assessment of the contribution the native vegetation makes to Victoria's biodiversity (as per Table 3 of the Handbook [DELWP 2015a])

Criteria	Assessment	Contribution
What is the extent and condition of native vegetation?		
Habitat hectare assessment • The higher the value, the greater the contribution to Victoria's biodiversity. • Scores above 0.8 indicate very good condition.	Total extent: 10.514 hectares. Habitat score: 0.59	Moderate
What is the landscape biodiversity value of the native vegetation?		
Strategic Biodiversity Score • The higher the value, the greater the contribution to Victoria's biodiversity. • Scores above 0.8 are very important sites.	0.102**Error! Reference source not found.**	Low
Is the native vegetation important habitat for rare or threatened species?		
Number of Rare or Threatened species habitats impacted • The more species listed, the greater the contribution the native vegetation makes to Victoria's biodiversity. • Site observations may also be considered.	18 species	Based on overall impacts to habitat for rare or threatened species the overall impact is considered to be **Moderate**.
Number of Rare or Threatened species habitats impacted above the specific offset threshold • The more species requiring a specific offset, the greater the contribution the native vegetation makes to Victoria's biodiversity.	No species impacted above the significant impact threshold.	
The proportional impact for species requiring a specific offset • The higher the proportional impacts, the more	n/a: no species impacted above the significant impact threshold.	

Criteria	Assessment	Contribution
important that site is for that particular species.		
Habitat importance score for impacted species • The higher the habitat importance score, the more important that site is for that particular species.	n/a: no species impacted above the significant impact threshold.	
Impact on highly localised habitat • Native vegetation that provides habitat for species with highly localised habitat is very important vegetation as it is limited and any loss needs to be carefully considered.	n/a: no species impacted above the significant impact threshold.	

5.7.3 Minimisation Statement[5]

The following measures have been taken to minimise the impacts of the proposed removal of native vegetation on biodiversity:

- Reduction in the number of proposed residential lots from ten to nine;
- Sharing of defendable space between adjacent lots where possible; and,
- Dwellings located as close as possible to access roads.

[5] Section 5.2 (page 20) of the Handbook (DELWP 2015a) states:

> *"Minimisation should target native vegetation that makes the greatest contribution to Victoria's biodiversity - that is, areas of better condition, higher strategic biodiversity score, and/or higher habitat importance scores.*
>
> *The minimisation statement could state that minimisation was achieved by a past strategic planning exercise or by site interventions, or that it is not achievable or desirable on site for specific reasons."*

Section 6.3.2 (page 26) of the Handbook (DELWP 2015a) states:

> *"Minimisation should be commensurate with the contribution that the native vegetation makes to Victoria's biodiversity. Minimum effort can be considered reasonable when the native vegetation contributes lower value to Victoria's biodiversity – for example, only general offsets are required, strategic biodiversity score is low, the native vegetation is limited in extent and isolated from other patches of remnant vegetation."*

Section 6.5, Table 4 (page 29) of the Handbook (DELWP 2015a) states:

> *"Statement can describe that minimisation is unreasonable at the site level because the native vegetation makes a very low contribution to biodiversity (such as no species offset requires, low strategic biodiversity score) or because retained native vegetation would have limited long term prospect of retaining biodiversity value."*

5.7.4 *Best Practice Mitigation Measures*

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

- Minimise impacts to native vegetation and habitats through construction and micro-siting techniques. 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 to be retained should be included as a mapping overlay on any construction plans;
- Removal of any habitat trees or shrubs (particularly hollow-bearing trees) should be undertaken between February and September to avoid the breeding season for the majority of 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;
- Ensure that best practice sedimentation and pollution control measures are undertaken at all times, in accordance with Environment Protection Agency guidelines (EPA 1991; EPA 1996; 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, rather than exotic deciduous trees and shrubs.

In addition to these measures, the following documents should be prepared and implemented prior to any construction activities:

- Construction Environmental Management Plan (CEMP). The CEMP should include specific species/vegetation conservation strategies, daily monitoring, sedimentation management, site specific rehabilitation plans, weed and pathogen management measures, etc.;

5.7.5 *Offset Strategy*

The offset requirements are proposed to be met through a combination of onsite and offsite offsets (Section 4.6).

Ecology and Heritage Partners are a DELWP accredited OTC offset broker. Ecology and Heritage Partners can confirm that the offset obligations generated by this proposal can be satisfied through existing credits registered in our OTC database. Several landowners registered in our offset database have suitable General Biodiversity Equivalence Unit (BEUs) native vegetation credits available within the Corangamite CMA.

6 Further Requirements

Further requirements associated with development of the study area, as well as additional studies or reporting that may be required, are provided in Table 6, below.

Table 6. Further requirements associated with development of the study area

Relevant Legislation	Implications	Further Action
Environment Protection and Biodiversity Conservation Act 1999	No matters of National Environmental Significance are likely to occur within the study area, or are likely to be impacted by the proposed development	No further action required.
Flora and Fauna Guarantee Act 1988	Two species protected under the FFG Act were recorded within the study area, Small Grass-tree and Cranberry Heath. There is suitable habitat within the study area for additional species protected under the FFG Act (e.g. daisies and wattles). A permit under the FFG Act will be required for removal of listed species within areas of public land (road reserves, including currently un-used road reserves). The proponent should allow up to six weeks to obtain an FFG Act permit through DELWP.	Apply for permit under the FFG Act to 'take' listed species within public land.
Planning and Environment Act 1987	A Planning Permit from Golden Plains Shire Council is required to remove, destroy or lop any native vegetation. Areas of remnant native vegetation must be offset if they are proposed to be disturbed as part of the project. The results of the permitted clearing assessment under the Guidelines are presented in Section 4.4. The property is covered by a Bushfire Management Overlay, requiring a Bushfire Management Statement to be prepared.	Prepare and submit a Planning Permit application. Planning Permit conditions are likely to include a requirement for: • Demonstration of impact minimisation. • A Bushfire Management Statement.
Catchment and Land Protection Act 1994	Weeds 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.
Wildlife Act 1975	Any persons engaged to conduct salvage and translocation or general handling of terrestrial fauna species must hold a current Management Authorisation.	Ensure wildlife specialists hold a current Management Authorisation.

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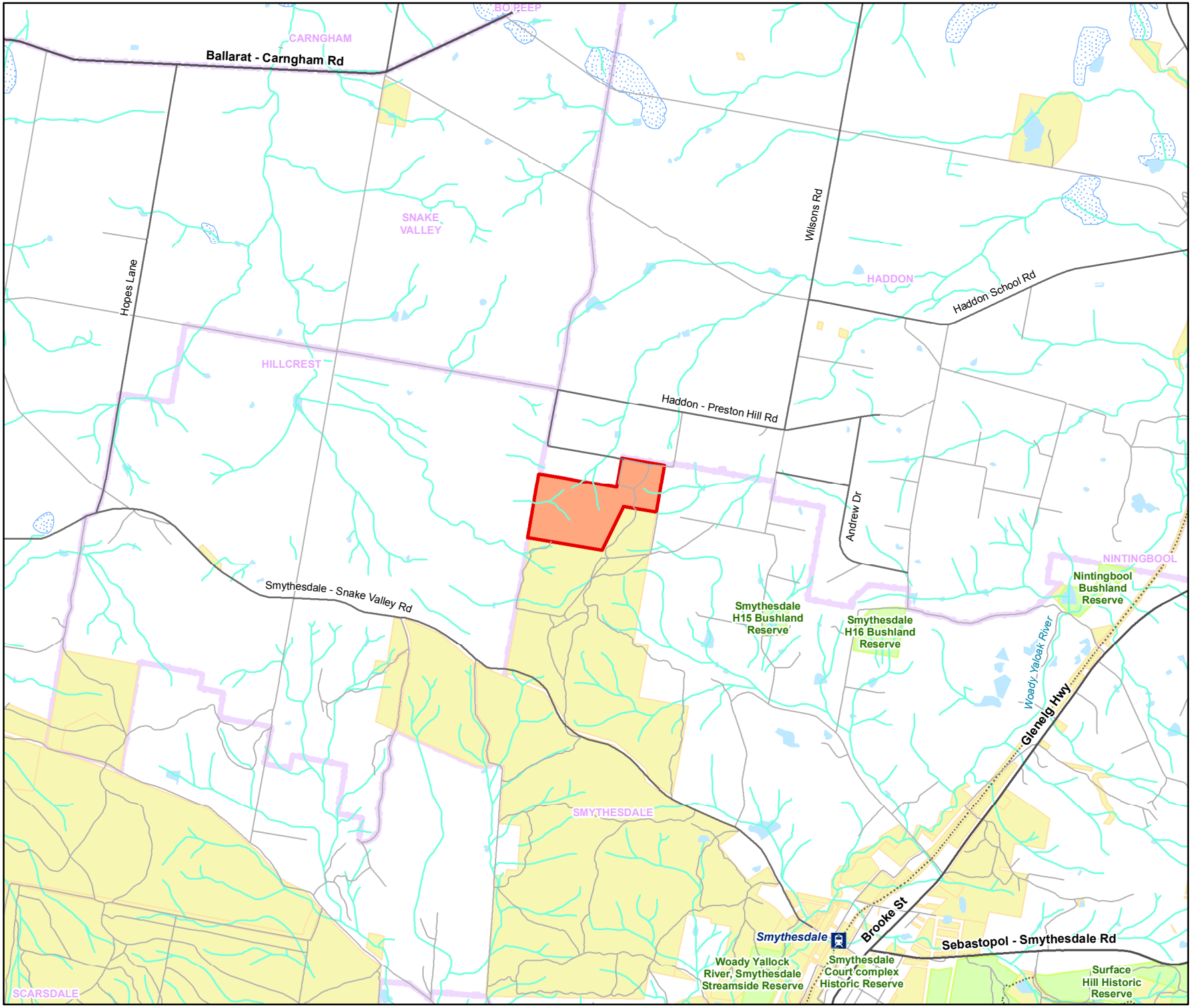


Legend

- Study area
- Major Road
- Collector Road
- Minor Road
- Walking Track
- Minor Watercourse
- Permanent Waterbody
- Land Subject to Inundation
- Parks and Reserves
- Crown Land
- Localities

Figure 1

Location of the study area

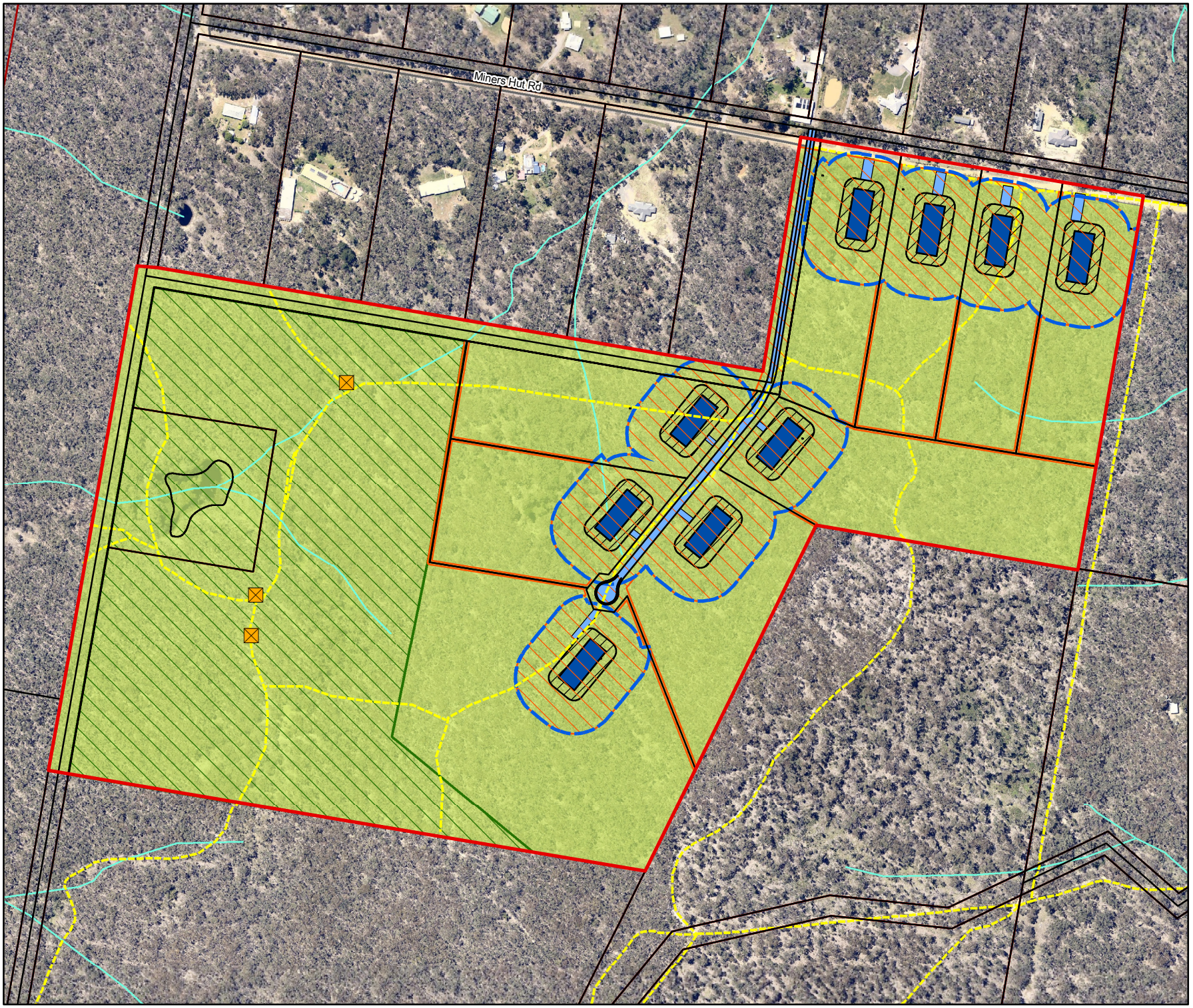
Lightwood Park Rd,Smythesdale

N

0 500 1,000

Metres

ecology & heritage partners



Legend

- Miners Hut Road, Carngham
- Heathy Dry Forest
- Vegetation impacted
- Proposed offset area
- Dwelling
- 10m buffer
- Defendable space (35m and 43m)
- Proposed access roads
- Property boundaries
- Existing tracks
- Mine shaft

Figure 2

Ecological features

Miners Hut Road, Carngham

N

0 50 100

Metres

ecology & heritage partners

Appendix 1 – Significant Flora Species

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

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	DEPI	Likelihood of occurrence in study area
NATIONAL SIGNIFICANCE							
Dianella amoena #	Matted Flax-lily	1	2012	EN	L	e	5
Dodonaea procumbens #	Trailing Hop-bush	-	-	VU	-	v	5
Glycine latrobeana #	Clover Glycine	-	-	VU	L	v	5
Grevillea bedggoodiana #	Enfield Grevillea	46	2014	VU	L	v	4
Lachnagrostis adamsonii #	Adamson's Blown-grass	-	-	EN	L	v	5
Leucochrysum albicans var. *tricolor* #	Hoary Sunray	-	-	EN	-	e	5
Pimelea spinescens subsp. *Spinescens* #	Spiny Rice-flower	1	1990	CR	L	e	5
Poa sallacustris #	Salt-lake Tussock-grass	-	-	VU	L	v	5
Prasophyllum frenchii #	Maroon Leek-orchid	-	-	EN	L	e	5
Rutidosis leptorhynchoides #	Button Wrinklewort	-	-	EN	L	e	5
Senecio psilocarpus #	Swamp Fireweed	-	-	VU	-	v	5
Thelymitra matthewsii #	Spiral Sun-orchid	-	-	VU	L	v	5
Xerochrysum palustre #	Swamp Everlasting	-	-	VU	L	v	5
STATE SIGNIFICANCE							
Acacia lanigera var. *lanigera*	Woolly Wattle	2	2011	-	-	r	4
Asperula charophyton	Elongate Woodruff	1	1770	-	-	k	5
Calochilus therophilus	Slender Beard-orchid	1	1990	-	-	k	5
Chiloglottis X *pescottiana*	Bronze Bird-orchid	1	2014	-	-	r	5

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	DEPI	Likelihood of occurrence in study area
Dipodium pardalinum	Spotted Hyacinth-orchid	1	2014	-	-	r	5
Eucalyptus yarraensis	Yarra Gum	33	2012	-	-	r	3
Lachnagrostis punicea subsp. *filifolia*	Purple Blown-grass	1	1996	-	L	r	5
Lachnagrostis punicea subsp. *punicea*	Purple Blown-grass	1	1997	-	-	r	5
Leptospermum turbinatum	Shiny Tea-tree	1	1991	-	-	r	5
Senecio glomeratus subsp. *longifructus*	Annual Fireweed	1	2010	-	-	r	5
Thelymitra exigua	Short Sun-orchid	1	2010	-	-	k	5
Thelymitra X *macmillanii*	Crimson Sun-orchid	1	1883	-	-	v	5

Notes: EPBC = Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), FFG = Flora and Fauna Guarantee Act 1988 (FFG Act), DSE = Advisory List of Threatened Flora in Victoria (DSE 2005), EX = Extinct, CR = Critically endangered, EN = Endangered, VU = Vulnerable, K = Poorly Known (Briggs and Leigh 1996), X = Extinct, e = Endangered, v = Vulnerable, r = Rare, k = Poorly Known, L = Listed, # Records identified from EPBC Act Protected Matters Search Tool, * = Records identified from the FIS.

Data source: Victorian Biodiversity Atlas (DEPI 2014); Protected Matters Search Tool (DoE 2015).

Order: Alphabetical.

Likelihood: Habitat characteristics of significant flora species previously recorded within 10 kilometres of the study area, or that may potentially occur within the study area were assessed to determine their likelihood of occurrence. The likelihood of occurrence rankings are defined below.

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 a 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.

Appendix 2 – Significant Fauna Species

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

Common Name	Scientific Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	DSE (2013)	National Action Plan	Likelihood
NATIONAL SIGNIFICANCE								
Grey-headed Flying-fox	*Pteropus poliocephalus*	#	1	VU	L	VU	VU	3
Australasian Bittern	*Botaurus poiciloptilus*	#	1	EN	L	EN	VU	4
Plains-wanderer	*Pedionomus torquatus*	#	1	CR	L	CR	EN	4
Australian Painted Snipe	*Rostratula australis*	#	1	VU	L	CR	VU	4
Swift Parrot	*Lathamus discolor*	#	1	EN	L	EN	EN	3
Regent Honeyeater	*Anthochaera phrygia*	#	1	CR	L	CR	EN	4
Painted Honeyeater	*Grantiella picta*	#	1	VU	L	VU	NT	4
Striped Legless Lizard	*Delma impar*	#	1	VU	L	EN	VU	4
Growling Grass Frog	*Litoria raniformis*	2010	22	VU	L	EN	VU	4
Dwarf Galaxias	*Galaxiella pusilla*	#	1	VU	L	EN	VU	4
Australian Grayling	*Prototroctes maraena*	#	1	VU	L	VU	VU	4
Yarra Pygmy Perch	*Nannoperca obscura*	2007	2	VU	L	VU	VU	4
Golden Sun Moth	*Synemon plana*	#	1	CR	L	CR	-	4
STATE SIGNIFICANCE								
Brush-tailed Phascogale	*Phascogale tapoatafa*	2008	1	-	L	VU	NT	2
Musk Duck	*Biziura lobata*	1993	18	-	-	VU	-	3
Freckled Duck	*Stictonetta naevosa*	2002	1	-	L	EN	-	3
Australasian Shoveler	*Anas rhynchotis*	1990	19	-	-	VU	-	3
Hardhead	*Aythya australis*	2002	32	-	-	VU	-	3
Blue-billed Duck	*Oxyura australis*	1979	1	-	L	EN	-	3
White-throated Needletail	*Hirundapus caudacutus*	1981	5	-	-	VU	-	4
Eastern Great Egret	*Ardea modesta*	1981	13	-	L	VU	-	3
Black Falcon	*Falco subniger*	2002	1	-	-	VU	-	3
Brolga	*Grus rubicunda*	2014	8	-	L	VU	-	4
Australian Bustard	*Ardeotis australis*	1954	2	-	L	CR	NT	4
Common Greenshank	*Tringa nebularia*	1977	1	-	-	VU	-	4

Common Name	Scientific Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	DSE (2013)	National Action Plan	Likelihood
Powerful Owl	*Ninox strenua*	2000	3	-	L	VU	-	2
Brown Treecreeper (south-eastern ssp.)	*Climacteris picumnus victoriae*	2003	1	-	-	NT	NT	2
Speckled Warbler	*Chthonicola sagittatus*	1981	4	-	L	VU	NT	4
Hooded Robin	*Melanodryas cucullata cucullata*	1971	2	-	L	NT	NT	4
Swamp Skink	*Lissolepis coventryi*	2003	5	-	L	VU	-	4
Tussock Skink	*Pseudemoia pagenstecheri*	2002	2	-	-	VU	-	4
Brown Toadlet	*Pseudophryne bibronii*	2005	2	-	L	EN	DD	2
Southern Toadlet	*Pseudophryne semimarmorata*	2005	34	-	-	VU	-	2
Southern Pygmy Perch	*Nannoperca australis*	2010	33	-	-	-	-	4
Otway Crayfish	*Geocharax gracilis*	2010	7	-	-	EN	-	4
Western Crayfish	*Geocharax falcata*	2007	1	-	-	EN	-	4
REGIONAL SIGNIFICANCE								
Fat-tailed Dunnart	*Sminthopsis crassicaudata*	1991	3	-	-	NT	-	4
Eastern Pygmy-possum	*Cercartetus nanus*	1961	2	-	X	NT	-	3
Pied Cormorant	*Phalacrocorax varius*	1979	1	-	-	NT	-	4
Nankeen Night Heron	*Nycticorax caledonicus hillii*	1971	1	-	-	NT	-	3
Latham's Snipe	*Gallinago hardwickii*	1980	5	-	-	NT	-	3
Whiskered Tern	*Chlidonias hybridus javanicus*	1980	4	-	-	NT	-	4
Spotted Quail-thrush	*Cinclosoma punctatum*	2007	1	-	-	NT	-	3

Notes: EPBC = Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), FFG = Flora and Fauna Guarantee Act 1988 (FFG Act), DSE = Advisory List of Threatened Flora in Victoria (DSE 2014), # = Records identified from EPBC Act Protected Matters Search Tool, EX = Extinct, CR = Critically endangered, EN = Endangered, VU = Vulnerable, K = Poorly Known, X = Extinct, e = Endangered, v = Vulnerable, r = Rare, k = Poorly Known, L = Listed.

Data sources: Victorian Biodiversity Atlas (DEPI 2014); Victorian Fauna Database (Viridans 2014b); Protected Matters Search Tool (DoE 2015).

Taxonomic order: Mammals (Strahan 1995 in Menkhorst & Knight 2004); Birds (Christidis & Boles, 2008); Reptiles and Amphibians (Cogger et al. 1983 in Cogger 1996); Fish (Nelson 1994); Mussels & Crustaceans (Alphabetical); Invertebrates (Alphabetical).

Likelihood: Habitat characteristics of significant fauna species previously recorded within 10 kilometres of the study area, or that may potentially occur within the study area were assessed to determine their likelihood of occurrence. The likelihood of occurrence rankings are defined below.

1 - High Likelihood

- Known 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 (DEPI 2014); and/or,
- The study area contains the species' preferred habitat.

2 - 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 (DEPI 2014); and/or,
- The study area contains some characteristics of the species' preferred habitat.

3 - 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.

4 - 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.

Appendix 3 – Gain Calculations

Table A.3 Calculation of native vegetation gain

Land tenure			Freehold		
Property Size			>=10 Ha		
Patch Size			>=5ha <20ha		
Zone type			Offset (Stat Planning)		
Proposal type			Remnant patch		
Security arrangement			Registered on-title agreement		
Bioregion			Central Victorian Uplands		
EVC name			Heathy Dry Forest		
BCS			Least Concern		
		Max	Current condition	Maintenance gain/ha	Improvement gain/ha
Scores	**Large Trees**	10	2	na	
	Tree Canopy Cover	5	4	0.4	0
	Understorey	25	10	1	5
	Lack of Weeds	15	13		4
	Recruitment	10	5	0.5	4
	Organic Litter	5	5	0.5	0
	Logs	5	4	4.4	0
	Standardised Site Condition	75	46		
	Landscape Context	25	16		
	HabHa Score	100	59		
Subtotal of gains				6.4	13
Standardised Sum Main + Impr Gain/Ha			19.8		
Prior Mgt Gain/Ha			5.9		
Security Gain/Ha			5.9		
Total Gain/Ha			31.6		
Size of Habitat Zone (ha)			15.992		
Total Gain (Habitat Hectares)			5.013		
Strategic Biodiversity Score			0.108		
General Biodiversity Equivalence Units generated			**0.544**		

Appendix 4 – Biodiversity Impact and Offset Requirements Report

Biodiversity impact and offset requirements report

This report **does not represent an assessment by DELWP** of the proposed native vegetation removal. It provides additional biodiversity information to support moderate and high risk-based pathway applications for permits to remove native vegetation under clause 52.16 or 52.17 of planning schemes in Victoria.

Date of issue: **14/12/2016** **DELWP ref: EHP_0567**
Time of issue: **4:06 pm**

Project ID	EHP8868_Carngham

Summary of marked native vegetation

Risk-based pathway	**Moderate**
Total extent	10.514 ha
Remnant patches	10.514 ha
Scattered trees	0 trees
Location risk	A

Strategic biodiversity score of all marked native vegetation	0.102

Offset requirements if a permit is granted

If a permit is granted to remove the marked native vegetation, a requirement to obtain a native vegetation offset will be included in the permit conditions. The offset must meet the following requirements:

Offset type	**General offset**
General offset amount (general biodiversity equivalence units)	0.951 general units
General offset attributes	
Vicinity	Corangamite Catchment Management Authority (CMA) **or** Golden Plains Shire Council
Minimum strategic biodiversity score	0.082[1]

See Appendices 1 and 2 for details in how offset requirements were determined.

NB: values presented in tables throughout this document may not add to totals due to rounding

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

Next steps

Any proposal to remove native vegetation must meet the application requirements of the moderate risk-based pathway and it will be assessed under the moderate risk-based pathway.

If you wish to remove the marked native vegetation you are required to apply for a permit from your local council. Council will then refer your application to DELWP for assessment, as required. **This report is not a referral assessment by DELWP.**

The biodiversity assessment report from NVIM and this biodiversity impact and offset report should be submitted with your application for a permit to remove native vegetation you plan to remove, lop or destroy.

The Biodiversity assessment report generated by the tool within NVIM provides the following information:

- The location of the site where native vegetation is to be removed.
- The area of the patch of native vegetation and/or the number of any scattered trees to be removed.
- Maps or plans containing information set out in the *Permitted clearing of native vegetation – Biodiversity assessment guidelines*
- The risk-based pathway of the application for a permit to remove native vegetation

This report provides the following information to meet application requirements for a permit to remove native vegetation:

- Confirmation of the risk-based pathway of the application for a permit to remove native vegetation
- The strategic biodiversity score of the native vegetation to be removed
- Information to inform the assessment of whether the proposed removal of native vegetation will have a significant impact on Victoria's biodiversity, with specific regard to the proportional impact on habitat for any rare or threatened species.
- The offset requirements should a permit be granted to remove native vegetation.

Additional application requirements must be provided with an application for a permit to remove native vegetation in the moderate or high risk-based pathways. These include:

- A habitat hectare assessment report of the native vegetation that is to be removed
- A statement outlining what steps have been taken to ensure that impacts on biodiversity from the removal of native vegetation have been minimised
- An offset strategy that details how a compliant offset will be secured to offset the biodiversity impacts of the removal of native vegetation.

Refer to the *Permitted clearing of native vegetation – Biodiversity assessment guidelines* and for a full list and details of application requirements.

Authorised by the Victorian Government, 8 Nicholson Street, East Melbourne.

For more information contact the DELWP Customer Service Centre 136 186

Appendix 1 – Biodiversity impact of removal of native vegetation

Habitat hectares

Habitat hectares are calculated for each habitat zone within your proposal using the extent and condition scores in the GIS data you provided.

Habitat zone	Site assessed condition score	Extent (ha)	Habitat hectares
1-1-A	0.590	10.514	6.203
TOTAL			**6.203**

Impacts on rare or threatened species habitat above specific offset threshold

The specific-general offset test was applied to your proposal. The test determines if the proposed removal of native vegetation has a proportional impact on any rare or threatened species habitats above the specific offset threshold. The threshold is set at 0.005 per cent of the total habitat for a species. When the proportional impact is above the specific offset threshold a specific offset for that species' habitat is required.

The specific-general offset test found your proposal does not have a proportional impact on any rare or threatened species' habitats above the specific offset threshold. No specific offsets are required. A general offset is required as set out below.

Clearing site biodiversity equivalence score(s)

The general biodiversity equivalence score for the habitat zone(s) is calculated by multiplying the habitat hectares by the strategic biodiversity score.

Habitat zone	Habitat hectares	Proportion of habitat zone with general offset	Strategic biodiversity score	General biodiversity equivalence score (GBES)
1-1-A	6.203	100.000 %	0.102	0.634

Biodiversity impact and offset requirements report

Mapped rare or threatened species' habitats on site

This table sets out the list of rare or threatened species' habitats mapped at the site beyond those species for which the impact is above the specific offset threshold. These species habitats do not require a specific offset according to the specific-general offset test.

Species number	Species common name	Species scientific name
10045	Lewin's Rail	Lewinia pectoralis pectoralis
10215	Hardhead	Aythya australis
10220	Grey Goshawk	Accipiter novaehollandiae novaehollandiae
10230	Square-tailed Kite	Lophoictinia isura
10246	Barking Owl	Ninox connivens connivens
10248	Powerful Owl	Ninox strenua
10498	Chestnut-rumped Heathwren	Calamanthus pyrrhopygius
10504	Speckled Warbler	Chthonicola sagittatus
10598	Painted Honeyeater	Grantiella picta
11017	Brush-tailed Phascogale	Phascogale tapoatafa
12283	Lace Monitor	Varanus varius
13117	Brown Toadlet	Pseudophryne bibronii
13125	Southern Toadlet	Pseudophryne semimarmorata
500044	Sticky Wattle	Acacia howittii
501326	Yarra Gum	Eucalyptus yarraensis
501456	Clover Glycine	Glycine latrobeana
504491	Southern Blue-gum	Eucalyptus globulus subsp. globulus
505337	Austral Crane's-bill	Geranium solanderi var. solanderi s.s.

Appendix 2 – Offset requirements detail

If a permit is granted to remove the marked native vegetation the permit condition will include the requirement to obtain a native vegetation offset.

To calculate the required offset amount required the biodiversity equivalence scores are aggregated to the proposal level and multiplied by the relevant risk multiplier.

Offsets also have required attributes:

- General offsets must be located in the same Catchment Management Authority (CMA) boundary or Local Municipal District (local council) as the clearing and must have a minimum strategic biodiversity score of 80 per cent of the clearing.[2]

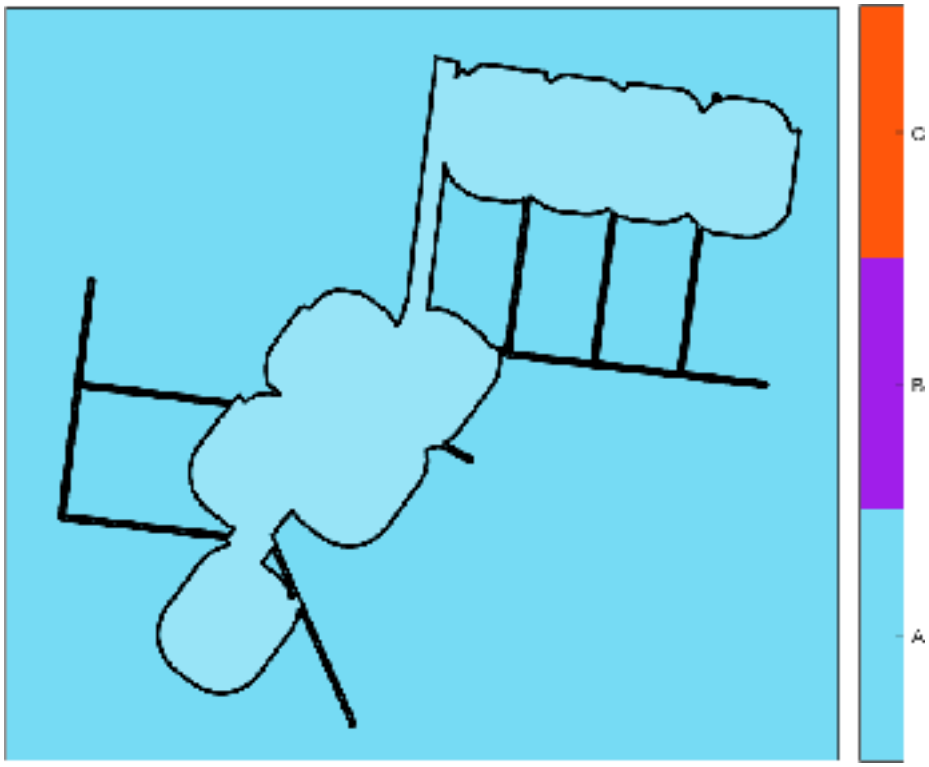
The offset requirements for your proposal are as follows:

Offset type	Clearing site biodiversity equivalence score	Risk multiplier	Offset requirements	
			Offset amount (biodiversity equivalence units)	Offset attributes
General	0.634 GBES	1.5	0.951 general units	Offset must be within Corangamite CMA or Golden Plains Shire Council Offset must have a minimum strategic biodiversity score of 0.082

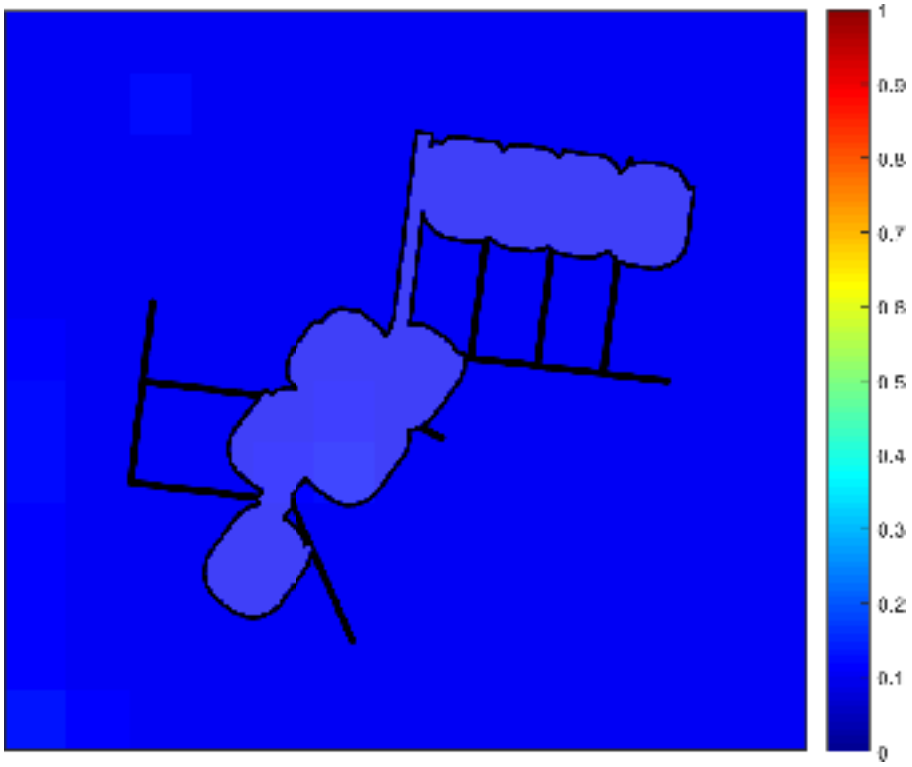
[2] Strategic biodiversity score is a weighted average across habitat zones where a general offset is required

Appendix 3 – Images of marked native vegetation

1. Native vegetation location risk map



2. Strategic biodiversity score map



3. Aerial photograph showing marked native vegetation

Glossary

Condition score

This is the site-assessed condition score for the native vegetation. Each habitat zone in the clearing proposal is assigned a condition score according to the habitat hectare assessment method. This information has been provided by or on behalf of the applicant in the GIS file.

Dispersed habitat

A dispersed species habitat is a habitat for a rare or threatened species whose habitat is spread over a relatively broad geographic area greater than 2,000 hectares.

General biodiversity equivalence score

The general biodiversity equivalence score quantifies the relative overall contribution that the native vegetation to be removed makes to Victoria's biodiversity. The general biodiversity equivalence score is calculated as follows:

$$\text{General biodiversity equivalence score} = \text{habitat hectares} \times \text{strategic biodiversity score}$$

General offset amount

This is calculated by multiplying the general biodiversity equivalence score of the native vegetation to be removed by the risk factor for general offsets. This number is expressed in general biodiversity equivalence units and is the amount of offset that is required to be provided should the application be approved. This offset requirement will be a condition to the permit for the removal of native vegetation.

$$\text{Risk adjusted general biodiversity equivalence score} = \text{general biodiversity equivalence score clearing} \times 1.5$$

General offset attributes

General offset must be located in the same Catchment Management Authority boundary or Municipal District (local council) as the clearing site. They must also have a strategic biodiversity score that is at least 80 per cent of the score of the clearing site.

Habitat hectares

Habitat hectares is a site-based measure that combines extent and condition of native vegetation. The habitat hectares of native vegetation is equal to the current condition of the vegetation (condition score) multiplied by the extent of native vegetation. Habitat hectares can be calculated for a remnant patch or for scattered trees or a combination of these two vegetation types. This value is calculated for each habitat zone using the following formula:

$$\text{Habitat hectares} = \text{total extent (hectares)} \times \text{condition score}$$

Habitat importance score

The habitat importance score is a measure of the importance of the habitat located on a site for a particular rare or threatened species. The habitat importance score for a species is a weighted average value calculated from the habitat importance map for that species. The habitat importance score is calculated for each habitat zone where the habitat importace map indicates that species habitat occurs.

Habitat zone

Habitat zone is a discrete contiguous area of native vegetation that:

- is of a single Ecological Vegetation Class
- has the same measured condition.

Highly localised habitat

A highly localised habitat is habitat for a rare or threatened species that is spread across a very restricted area (less than 2,000 hectares). This can also be applied to a similarly limited sub-habitat that is disproportionately important for a wide-ranging rare or threatened species. Highly localised habitats have the highest habitat importance score (1) for all locations where they are present.

Minimum strategic biodiversity score

The minimum strategic biodiversity score is an attribute for a general offset.

The strategic biodiversity score of the offset site must be at least 80 per cent of the strategic biodiversity score of the native vegetation to be removed. This is to ensure offsets are located in areas with a strategic value that is comparable to, or better than, the native vegetation to be removed. Where a specific and general offset is required, the minimum strategic biodiversity score relates only to the habitat zones that require the general offset.

Offset risk factor

There is a risk that the gain from undertaking the offset will not adequately compensate for the loss from the removal of native vegetation. If this were to occur, despite obtaining an offset, the overall impact from removing native vegetation would result in a loss in the contribution that native vegetation makes to Victoria's biodiversity.

To address the risk of offsets failing, an offset risk factor is applied to the calculated loss to biodiversity value from removing native vegetation.

$$Risk\ factor\ for\ general\ offsets = 1.5$$

$$Risk\ factor\ for\ specific\ offset = 1$$

Offset type

The specific-general offset test determines the offset type required.

When the specific-general offset test determines that the native vegetation removal will have an impact on one or more rare or threatened species habitat above the set threshold of 0.005 per cent, a specific offset is required. This test is done at the permit application level.

A general offset is required when a proposal to remove native vegetation is not deemed, by application of the specific-general offset test, to have an impact on any habitat for any rare or threatened species above the set threshold of 0.005 per cent. All habitat zones that do not require a specific offset will require a general offset.

Proportional impact on species

This is the outcome of the specific-general offset test. The specific-general offset test is calculated across the entire proposal for each species on the native vegetation permitted clearing species list. If the proportional impact on a species is above the set threshold of 0.005 per cent then a specific offset is required for that species.

Specific offset amount

The specific offset amount is calculated by multiplying the specific biodiversity equivalence score of the native vegetation to be removed by the risk factor for specific offsets. This number is expressed in specific biodiversity equivalence units and is the amount of offset that is required to be provided should the application be approved. This offset requirement will be a condition to the permit for the removal of native vegetation.

$$Risk\ adjusted\ specific\ biodiversity\ equivalence\ score = specific\ biodiversity\ equivalence\ score\ clearing \times 1$$

Specific offset attributes

Specific offsets must be located in the modelled habitat for the species that has triggered the specific offset requirement.

Specific biodiversity equivalence score

The specific biodiversity equivalence score quantifies the relative overall contribution that the native vegetation to be removed makes to the habitat of the relevant rare or threatened species. It is calculated for each habitat zone where one or more species habitats require a specific offset as a result of the specific-general offset test as follows:

$$\text{Specific biodiversity equivalence score} = \text{habitat hectares} \times \text{habitat importance score}$$

Strategic biodiversity score

This is the weighted average strategic biodiversity score of the marked native vegetation. The strategic biodiversity score has been calculated from the *Strategic biodiversity map* for each habitat zone.

The strategic biodiversity score of native vegetation is a measure of the native vegetation's importance for Victoria's biodiversity, relative to other locations across the landscape. The *Strategic biodiversity map* is a modelled layer that prioritises locations on the basis of rarity and level of depletion of the types of vegetation, species habitats, and condition and connectivity of native vegetation.

Total extent (hectares) for calculating habitat hectares

This is the total area of the marked native vegetation in hectares.

The total extent of native vegetation is an input to calculating the habitat hectares of a site and in calculating the general biodiversity equivalence score. Where the marked native vegetation includes scattered trees, each tree is converted to hectares using a standard area calculation of 0.071 hectares per tree. This information has been provided by or on behalf of the applicant in the GIS file.

Vicinity

The vicinity is an attribute for a general offset.

The offset site must be located within the same Catchment Management Authority boundary or Local Municipal District as the native vegetation to be removed.