Final Report

Biodiversity Assessment, 180 Erskine Falls Road, Lorne, Victoria

Prepared for

Livewire Park Pty Ltd

April 2016

Ecology and Heritage Partners Pty Ltd

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Assessment	Biodiversity Assessment
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Client	Livewire Park Pty Ltd
Bioregion	Otway Ranges
CMA	Corangamite
Council	Surf Coast Shire

Summary of Application Requirements

Table S1. Application requirements for a permit to remove native vegetation under the Low risk-based pathway (*Victoria Planning Provisions* Clause 52.17 -3; DEPI 2013a)

No.	Application Requirement	Response
1	The location of the site of native vegetation to be removed.	180 Erskine Falls Road, Lorne, Victoria. Surf Coast Shire, Corangamite CMA.
2	A description of the native vegetation to be removed, including the area of the patch of native vegetation and/or the number of any scattered trees to be removed.	Total extent to be removed is 0.146 hectares (0.146 hectares remnant patch). Details provided in Section 4.
3	Maps or plans containing information set out in the Guidelines, (Department of Environment and Primary Industries, September 2013)	Refer to Figures and BIOR report (Appendix 3).
4	Recent dated photographs of the native vegetation to be removed.	Refer to Section 4.
-	Topographic information, highlighting ridges, crests and hilltops, streams and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion.	Refer to Section 2.
5	The risk-based pathway of the application to remove native vegetation.	Low
6	Where the purpose of removal, destruction or lopping of native vegetation is to create defendable space, a statement is required that explains why removal, destruction or lopping of native vegetation is necessary.	Removal of vegetation is not required to meet defendable space requirements (Section 4.3.2)
7	A copy of any property vegetation plan that applies to the site.	Not applicable.
8	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 vegetation has been removed within the past five years.
9	The strategic biodiversity score of the native vegetation to be removed.	0.324
10	The offset requirements should a permit be granted to remove native vegetation.	General: 0.046 BEUs

1 Introduction

Ecology and Heritage Partners Pty Ltd was commissioned by 10 Consulting Group on behalf of Livewire Park Pty Ltd, to conduct a Biodiversity Assessment at 180 Erskine Falls Road, Lorne, Victoria.

It is understood a tree top adventure park is proposed to be constructed on-site (Appendix 1). The development will consist of a series of cables suspended between trees, with start and landing platforms attached to the tree trunks. The construction of the ziplines and platforms will require minor pruning of tree branches. The proposal does not include direct drilling into the trees. The infrastructure will be attached to the trees by tree pine battens, which will be clamped to the trees. "From an arboricultural perspective the mode of construction is satisfactory and damage would be superficial (Leenstra 2015)".

Two buildings are proposed to be constructed, in addition to installation of a water tank and a bank of solar panels and associated underground cables.

The purpose of the assessment was to identify the extent and type of remnant native vegetation present within the study area and to determine the 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 construction of the tree top adventure park. The report also provides recommendations to address or reduce impacts and, where necessary, highlights components that require further investigation, such as targeted surveys.

2 Study Area

The study area is located at 180 Erskine Falls Road, Lorne, Victoria, approximately one kilometre west of the Lorne town centre (Figure 1). The site covers approximately four hectares and is bound by an unnamed road and private property to the north, an unused road to the east, and Erskine Falls Road to the south and west.

The study area is on a south facing slope of approximately 15°, a minor gully runs south through the centre of the study area. There are no streams or waterways and no obvious areas of erosion identified within the study area.

According to the DELWP Native Vegetation Information Management Tool (DELWP 2016a), the study area occurs within the Otway Ranges bioregion. It is located within the jurisdiction of the Corangamite Catchment Management Authority (CMA) and the Surf Coast Shire 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 Victorian Department of Environment, Land, Water and Planning (DELWP) Native Vegetation Information Management (NVIM) Tool (DELWP 2016a) for:

  - Modelled data for location risk, remnant vegetation patches, scattered trees and habitat for rare or threatened species; and,
  - The extent of historic and current EVCs.

- The VBA (DELWP 2015d), 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 2016);
- The online resource Planning Maps Online to ascertain current zoning and environmental overlays (DELWP 2016f);
- Aerial photography of the study area;
- Relevant environmental legislation and policies; and,
- Previous ecological assessments within the study area.

3.2 Site Inspection

A site assessment was undertaken on 29 February 2016 to obtain information on flora and fauna values within the study area. The study area was walked, with all observed flora and fauna species recorded, any significant records mapped and the overall condition of vegetation and habitats noted. Ecological Vegetation Classes (EVCs) were determined with reference to DELWP pre-1750 and extant EVC mapping and their published descriptions (DELWP 2015b).

Where remnant vegetation was identified a habitat hectare assessment was undertaken following methodology described in the Vegetation Quality Assessment Manual (DSE 2004).

3.3 Permitted Clearing Assessment (the Guidelines)

Under the *Planning and Environment Act 1987,* Clause 52.17 of the Planning Schemes requires a planning permit from the relevant local Council to remove, destroy or lop native vegetation. The assessment process for the clearing of vegetation follows the 'Permitted clearing of native vegetation - Biodiversity assessment guidelines' (the Guidelines) (DEPI 2013a).

3.3.1 Risk-based Pathway

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 2016a). Determination of risk-based pathway is summarised in Table 1

.

Table 1. Risk-based pathways for applications to remove native vegetation (DEPI 2013a)

Extent		Location		
		A	B	C
Native Vegetation	< 0.5 hectares	Low	Low	High
	≥ 0.5 hectares and < 1 hectare	Low	Moderate	High
	≥ 1 hectare	Moderate	High	High
Scattered Trees	< 15 scattered trees	Low	Moderate	High
	≥ 15 scattered trees	Moderate	High	High

Notes: 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.

3.3.2 Vegetation Assessment

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[1] 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 2015a), or through a habitat hectare assessment.

In addition, all mapped wetlands (based on the DELWP 'Current Wetlands' layer) must be included as native vegetation, with the modelled condition score assigned to them (DELWP 2015e).

Table 2. Determination of remnant native vegetation (DEPI 2013a)

Category	Definition	Extent	Condition
Remnant patch of native vegetation	An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native. 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 remnant 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.

Notes: Native vegetation is defined in the Victoria Planning Provisions as 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses'.

[1] A 'habitat hectare' is a unit of measurement which combines the condition and extent of native vegetation.

3.3.3 Offsets

Offsets are required to compensate for the permitted removal of native vegetation. The offset requirements for Low risk-based pathway applications are calculated using the NVIM Tool and the resulting Biodiversity Assessment Report is presented in Appendix 4.

3.4 Assessment Qualifications and Limitations

The 'snap shot' 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 site 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 of the project. 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 assessment of the ecological values present within the study area.

4 Results

4.1 Vegetation Condition

4.1.1 Remnant Patches

Remnant native vegetation in the study area was representative of one EVC: Shrubby Foothill Forest (EVC 45). The presence of this EVC is consistent with the modelled pre-1750s native vegetation mapping (DELWP 2016c). Specific details relating to observed EVCs are provided below.

Shrubby Foothill Forest

Remnant Shrubby Foothill Forest was recorded throughout the study area (Figure 2). The majority of the study area was comprised of vegetation in Moderate condition, with an intact overstorey; however the understorey was modified, only containing sparse, scattered, understorey species (Plate 1; Figure 2 SFF2). Areas in Good condition contained an intact and diverse understorey in addition to the overstorey trees (Plate 2; Appendix 2; SFF1). Areas in Poor condition were recorded within existing disturbed areas, along existing access tracks (Plate 3; Figure 2; SFF3), these areas contained an intact overstorey, but were devoid of any understorey components.

Shrubby Foothill Forest within the study area comprised of an overstorey dominated by Mountain Grey-gum *Eucalyptus cypellocarpa*, with occasional Southern Blue-gum *Eucalyptus globulus* subsp. *globulus* and Red Stringybark *Eucalyptus macrorhyncha*. The understorey was dominated by a diversity of species, with a dense medium-large shrub component, including Blackwood *Acacia melanoxylon*, Prickly Moses *Acacia verticillata*, Prickly Currant-bush *Coprosma quadrifida*, Snowy Daisy-bush *Olearia lirata*, Musk Daisy-bush *Olearia argophylla*, Tree Everlasting *Ozothamnus ferrugineus*, Dusty Miller *Spyridium parviflorum*, Honey-pots *Acrotriche serrulata*, Common Raspwort *Gonocarpus tetragynus*, Maiden-hair Fern *Adiantum aethiopicum*, Austral Bracken *Pteridium esculentum*, Tall Sword-sedge *Lepidosperma elatius*, Red-anther Wallaby-grass *Rytidosperma pallidum*, Forest Wire-grass *Tetrarrhena juncea* and Mountain Clematis *Clematis aristata*.

Weed cover was low throughout the study area. Dominant and high threat weeds included Montpellier Broom *Genista monspessulana*, Sweet Pittosporum *Pittosporum undulatum*, Sweet Vernal-grass *Anthoxanthum odoratum*, Blackberry *Rubus fruticosus* sp. agg., English Ivy *Hedera helix* and Cat's Ear *Hypochoeris radicata*.

Plate 1. Shrubby Foothill Forest in Moderate condition within the study area (SFF2; date of photograph 29 Feb. 2016)

Plate 2. Shrubby Foothill Forest in Poor condition within the study area (SFF3; date of photograph 29 Feb. 2016).

Plate 3. Shrubby Foothill Forest in Good condition within the study area (SFF1; date of photograph 29 Feb. 2016)

4.2 Fauna Habitat

Forest

The majority of the study area contains forest vegetation in Moderate or Poor condition. This habitat is characterised by an overstorey of mature eucalypts up to 40 metres tall and provides moderate quality habitat to fauna species, predominantly for diurnal raptors (e.g., Brown Goshawk *Accipiter fasciatus*, Peregrine Falcon *Falco peregrinus*), which use trees for perching, roosting and foraging activities. Areas of forest within the study area may also support larger raptor species such as Grey Goshawk *Accipiter novaehollandiae* and Southern Boobook *Ninox novaeseelandiae*. When in flower, remnant forest trees provide an important nectar resource for a variety of honeyeaters and lorikeets.

Areas in Good contain an intact canopy with mid-storey and understorey components. A number of large old trees provide hollows, of varying size and shape and there is also a large amount of ground debris consisting of logs, fallen timber and leaf litter.

A range of native species were recorded throughout this habitat, including forest bird species, such as Eastern Yellow Robin *Eopsaltria australis*, Grey Shrike-thrush *Colluricincla harmonica*, Red Wattlebird *Anthochaera carunculata*, Grey Butcherbird *Cracticus torquatus*, Grey Fantail *Rhipidura albiscarpa* and White-plumed Honeyeater *Lichenostomus penicillatus*.

The study area also supports suitable habitat for ground-dwelling fauna, such as reptiles (i.e. lizards, snakes), native frogs and mammals, particularly in areas where there is adequate native cover.

In addition, remnant vegetation within the study area is likely to facilitate fauna movement throughout the general landscape

4.3 Permitted Clearing Assessment (the Guidelines)

4.3.1 Vegetation proposed to be removed

The study area is within Location B, with 0.146 hectares of native vegetation proposed to be removed. As such, the permit application falls under the Low Risk-based pathway.

Condition scores for vegetation patches are outlined within Appendix 2.

Table 3. Permitted Clearing Assessment (the Guidelines)

Risk-based pathway	Low
Total Extent	0.146
Remnant Patch (ha)	0.146
Scattered Trees (no.)	0
Location Risk	B
Strategic Biodiversity Score	0.324

4.3.2 Losses associated with bushfire management

A Bushfire Management Overlay applies to the entire study area, however, vegetation management is not necessary as part of bushfire management for the proposed development (John Eastwood, Terramatrix, pers. comm.)

4.3.3 Offset Targets

The offset requirement for native vegetation removal is 0.046 General Biodiversity Equivalence Units (BEU).

A summary of proposed vegetation losses and associated offset requirements is presented in Table 4 and the Biodiversity Assessment Report is presented in Appendix 4.

Table 4. Offset targets

General Offsets Required	0.046 General BEUs
Specific Offsets Required	n/a
Vicinity (catchment / LGA)	Corangamite CMA / Surf Coast Shire
Minimum Strategic Biodiversity Score*	0.259

Note: BEU = Biodiversity Equivalence Units

4.4 Significance Assessment

4.4.1 *Flora*

The VBA and FIS contain records of one nationally significant and 26 State significant flora species previously recorded within 10 kilometres of the study area (DELWP 2016d; Viridans 2013a) (Appendix 2; Figure 3). The PMST nominated an additional four nationally significant species which have not been recorded in the locality but have the potential to occur (DoE 2016).

The study area supports potential habitat for the nationally significant Wrinkled Buttons *Leiocarpa gatesii*. The species has been recorded within approximately 500 metres of the study area. Wrinkled Buttons are a slender perennial herb growing to 30 centimetres tall. The plant bears yellow button like flower heads during December to April. The species distribution is confined to a small area between Anglesea and Lorne and inhabits Damp Forest and Lowland Forest, often on drier hillsides (Carter 2006). Based on the proximity of previous records and habitat within the study area, there is a moderate likelihood that the study area supports Wrinkled Buttons.

One State significant species was recorded throughout the study area, Southern Blue Gum. Three Southern Blue Gums are proposed to be removed (Leenstra 2015). The study area also supports potential habitat for the State significant Annual Fireweed *Senecio glomeratus,* Soft Crane's-bill *Geranium potentilloides*, Veined Spear-grass *Austrostipa rudis* subsp. *australis* and Netted Daisy-bush *Olearia speciosa*.

4.4.2 *Fauna*

The VBA and AVW contain records of nine nationally significant, 18 State significant and five regionally significant fauna species previously recorded within 10 kilometres of the study area (DELWP 2016d; Viridans 2013b) (Appendix 3; Figure 4). The PMST nominated an additional 29 nationally significant species which have not been recorded in the locality but have the potential to occur (DoE 2016).

Of these species, there is suitable habitat within the study area for the Nationally significant Long Nosed Potoroo *Potorous tridactylus*, which has been recorded within close proximity to the study area, and the nationally significant Spot-tailed Quoll *Dasyurus maculatus maculatus*, Southern Brown Bandicoot *Isoodon obesulus obesulus* and Grey-headed Flying-fox *Pteropus poliocephalus*. However, these species are unlikely to be permanent residents on the site and are only likely to occasionally utilise the site for foraging and dispersal purposes. As such, further assessments of these species through targeted surveys are not recommended for impacts associated with the proposed development.

The study area also contains potential habitat for the State significant Otway Black Snail *Victaphanta compacta*, Common Bent-wing Bat *Miniopterus schreibersii* (group), Grey Goshawk *Accipiter*

novaehollandiae, Powerful Owl *Ninox strenua*, Broad-toothed Rat *Mastacomys fuscus mordicus*, Swift Parrot *Lathamus discolor* and Masked Owl *Tyto novaehollandiae* (Appendix 3). The Otway Black Snail is likely to be a possible permanent resident on the site and the Common Bent-wing Bat is likely to be a frequent visitor. The remainder of these species are likely only to occasionally utilise habitat within the study area for foraging and dispersal purposes. Targeted surveys are not recommended for the above State significant fauna species, as they are unlikely to be impacted by the proposed development.

4.4.3 Communities

Three nationally listed ecological communities are predicted to occur within 10 kilometres of the study area (DoE 2015):

- Giant Kelp Marine Forests of South East Australia
- Subtropical and Temperate Coastal Saltmarsh
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

However, vegetation within the study area did not meet the diagnostic characteristics that define any national or State-significant communities.

4.4.4 Recommendation

The nationally significant Wrinkled Buttons was not recorded during the field assessment. However, the level of survey effort, for the general biodiversity assessment conducted, was not enough to provide reasonable assurance the species is not present, or to be considered a 'targeted survey'. As such, targeted surveys are recommended for the nationally significant Wrinkled Buttons during late summer/autumn to ascertain its presence, or otherwise, within the study area.

5 Legislative and Policy Implications

5.1 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes a Commonwealth process for the assessment of proposed actions likely to have a significant impact on any matters of National Environment Significance (NES).

There is a moderate likelihood that Long-nosed Potoroo utilise habitat within the study area on an occasional basis for foraging and dispersal purposes; however, the proposed action is unlikely to have a significant impact on this species. There is a moderate likelihood that the study area supports the EPBC Act listed Wrinkled Buttons; targeted surveys are recommended to further inform whether the proposed development is likely to have a significant impact on the species and whether a referral to the Commonwealth Environment Minister is likely to be required.

5.2 Flora and Fauna Guarantee Act 1988 (Victoria)

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' threatened

and/or protected flora species, threatened vegetation communities (or representative species of a community) and listed fish species in areas of public land (i.e. within road reserves, drainage lines and public reserves) (Appendix 5). 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.

No species listed as threatened under the FFG Act were recorded within the study area. However, several protected species were recorded within the study area (daisies, ferns, wattles and heaths). However the study area is privately owned, and as such a permit under the FFG Act is not required.

5.3 Planning and Environment Act 1987 (Victoria)

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[2]. Local planning schemes may contain other provisions in relation to the removal of native vegetation (Section 5.3.1).

5.3.1 Local Planning Schemes

The study area is located within the Surf Coast Shire municipality and is zoned Rural Conservation Zone (RCZ). The following overlays apply (DELWP 2015f):

- Bushfire Management Overlay (BMO); and,
- Significant Landscape Overlay – Schedule 1 (SLO1).

5.3.2 The Guidelines

The State Planning Policy Framework and the decision guidelines at Clause 52.17 (Native Vegetation) and Clause 12.01 require Planning and Responsible Authorities to have regard for 'Permitted clearing of native vegetation - Biodiversity assessment guidelines' (the Guidelines) (DEPI 2013a).

5.3.3 Implications

The RCZ prohibits the use of leisure and recreation (other than informal outdoor recreation), prohibiting the proposed use under the current planning controls. However, the following options may be available to permit the proposed use:

- Rezoning of the study area;
- A planning scheme amendment to include the subject site within the schedule to Clause 52.03 Specific Sites and Exclusions, including preparation of an Incorporated Plan; or

[2] 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.

- A planning permit application in the event that the RCZ is amended to include Leisure and Recreation as a Section 2 Use.

In accordance with the requirements of the Bushfire Management Overlay, a Bushfire Management Statement must be prepared for the construction of recreational facilities (in preparation, John Eastwood, Terramatrix, pers. comm.).

A Planning Permit from Surf Coast Shire is required to remove, destroy or lop any native vegetation. The study area is within Location B, with 0.146 hectares of native vegetation proposed to be removed. As such, the permit application falls under the Low Risk-based pathway.

The offset requirement for native vegetation removal is 0.046 General Biodiversity Equivalence Units (BEU).

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*, issued by DELWP.

5.5 Catchment and Land Protection Act 1994 (Victoria)

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 weeds listed as noxious under the CaLP Act were recorded during the assessment (Blackberry and Montpellier Broom). To meet requirements under the CaLP Act, listed noxious weeds should be appropriately controlled throughout the study area.

5.6 Best Practice Mitigation Measures

Recommended measures to mitigate impacts upon terrestrial 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. Similarly, soil disturbance should be avoided or kept to a minimum, to avoid, or minimise impacts to fauna habitats;
- Vehicles and machinery for the construction of the zipline, including platforms, should be restricted to existing roads to avoid damage to understorey vegetation; materials should be carried in by personnel, rather than delivery by vehicle (Appendix 1);

- All contractors should be aware of ecologically sensitive areas to minimise the likelihood of inadvertent disturbance to areas marked for retention. The limit of the construction zone 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 Offset Impacts

5.7.1 Offset Options

Potential offsets may be sourced using the following mechanisms:

- Over-the-Counter Offsets Scheme: The Guidelines include the expansion of the "Over-the-Counter" (OTC) Offsets Scheme, allowing non-government agencies to establish themselves as OTC Facilities. OTC Facilities will broker native vegetation offsets (credits) between landholders (with offset sites) and permit holders (with offset requirements).
- BushBroker: BushBroker maintains a register of landowners who are willing to sell offset credits. Offsets secured by Bushbroker are done so via a Section 69 Agreement under the *Conservation, Forest and Lands Act 1987*.
- Trust for Nature: Trust for Nature holds a list of landowners who are willing to sell vegetation offsets. Offsets secured by Trust for Nature are done so under the Victorian *Conservation Trust Act 1972*.
- Local Councils: The proponent may contact local councils to seek availability of offsets.

5.7.2 Offset Strategy

Ecology and Heritage Partners are a DELWP accredited OTC offset broker. We have been assisting permit holders meet their native vegetation offset obligations since 2006. Ecology and Heritage Partners broker

native vegetation credits between permit holders and credit holders across all CMAs, and have an excellent knowledge of the type and extent of available credits in the marketplace.

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 Surf Coast Shire and the Corangamite CMA, and it is anticipated that the relevant offset obligations generated by this proposal can be secured through an OTC scheme without any difficulty should a permit be issued for the development.

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 below (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	There is a moderate likelihood that Long-nosed Potoroo utilise habitat within the study area on an occasional basis for foraging and dispersal purposes; however, the proposed action is unlikely to have a significant impact on this species. There is a moderate likelihood that the study area supports the EPBC Act listed Wrinkled Buttons; targeted surveys are recommended to further inform whether the proposed development is likely to have a significant impact on the species and whether a referral to the Commonwealth Environment Minister is likely to be required.	Conduct targeted surveys for Wrinkled Buttons (Section 5.1).
Flora and Fauna Guarantee Act 1988	No species listed as threatened under the FFG Act were recorded within the study area. However, several protected species were recorded within the study area (daisies, ferns, wattles and heaths). However the study area is privately owned, and as such a permit under the FFG Act is not required.	No further action required.
Planning and Environment Act 1987	The study area is within Location B, with 0.146 hectares of native vegetation proposed to be removed. As such, the permit application falls under the Low Risk-based pathway. The offset requirement for native vegetation removal is 0.046 General Biodiversity Equivalence Units (BEU). A Planning Permit from Surf Coast Shire is required to remove, destroy or lop any native vegetation. The property is covered by a Bushfire Management Overlay.	Prepare and submit a Planning Permit application. Planning Permit conditions are likely to include a requirement for: • Identification of a compliant offset, as detailed in Section 4.2. • A Construction Environment Management Plan (CEMP). • A Bushfire Management Statement.
Catchment and Land Protection Act 1994	Several weed species 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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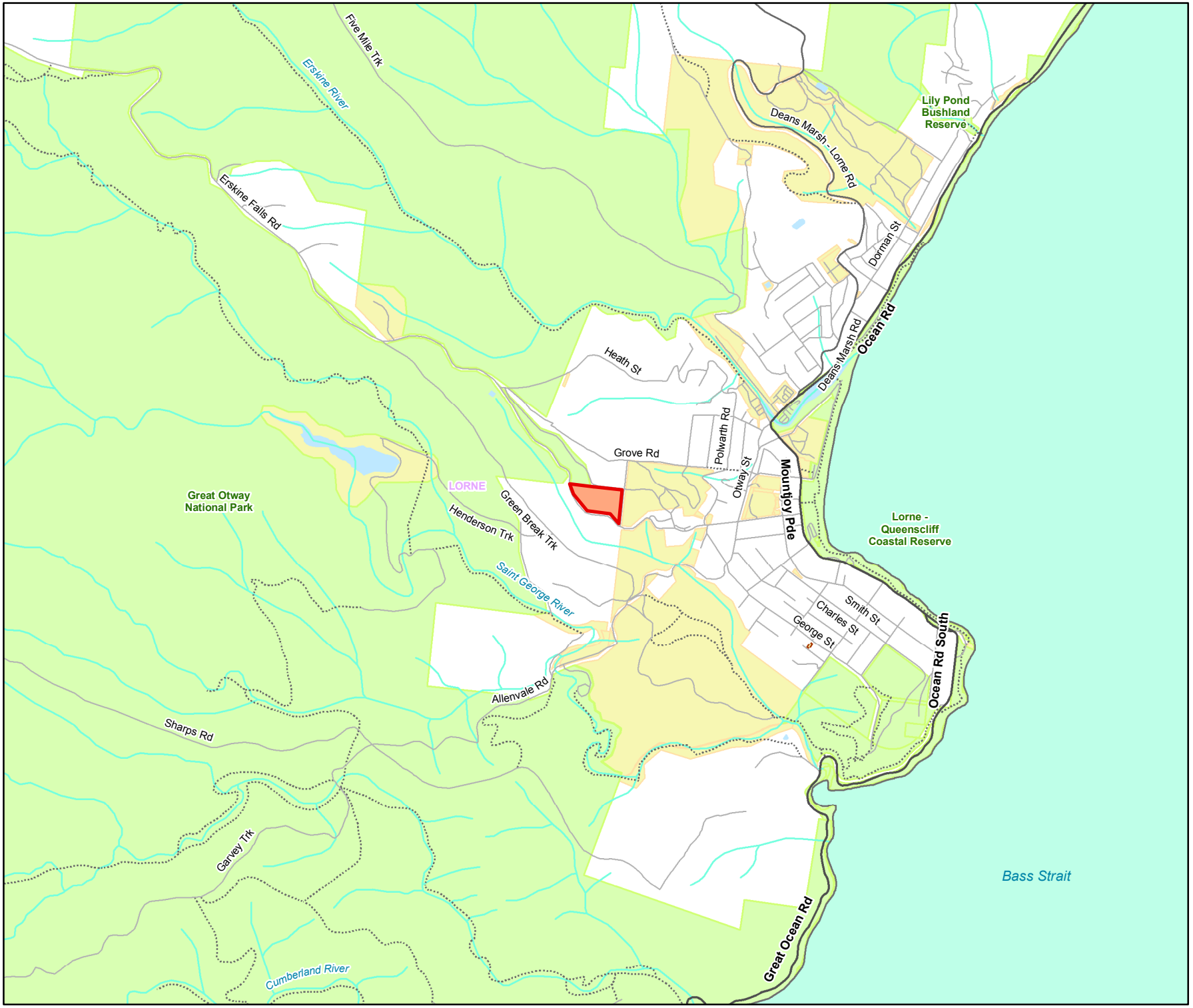
Figures



Legend

- Major Road
- Collector Road
- Minor Road
- Walking Track
- Minor Watercourse
- Permanent Waterbody
- Parks and Reserves
- Crown Land
- Localities

Figure 1

Location of the study area

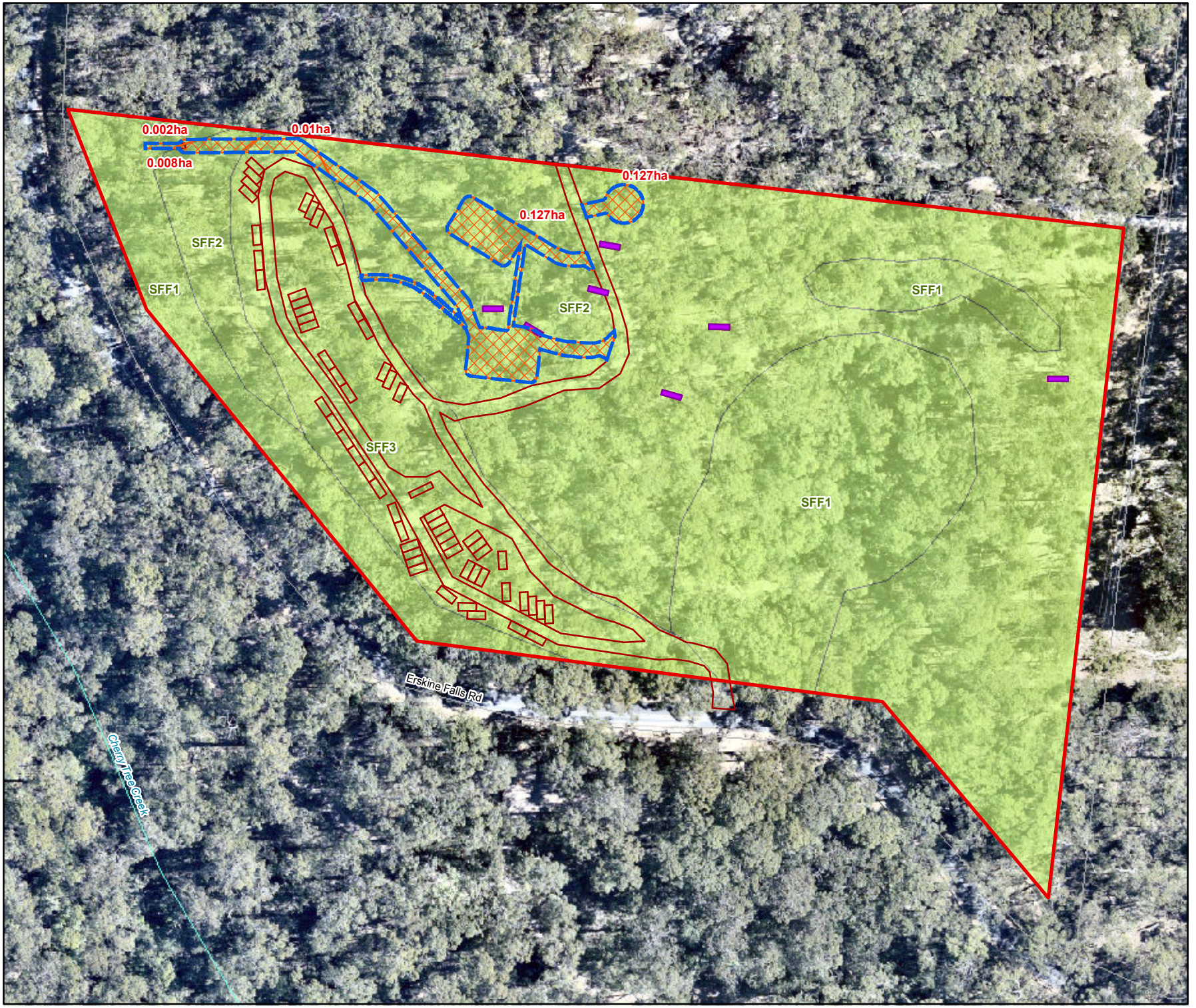
Biodiversity Assessment for 180 Erskine Falls Road, Lorne

N

0 295 590

Metres

ecology & heritage partners



Legend

- Study Area
- Construction Footprint
- Existing tracks and disturbed areas
- Zipline platforms

Ecological Vegetation Class

- Shrubby Foothill Forest
- Vegetation impacted

Figure 2

Ecological features

Biodiversity Assessment for 180 Erskine Falls Road, Lorne

N

0 15 30

Metres

ecology & heritage partners

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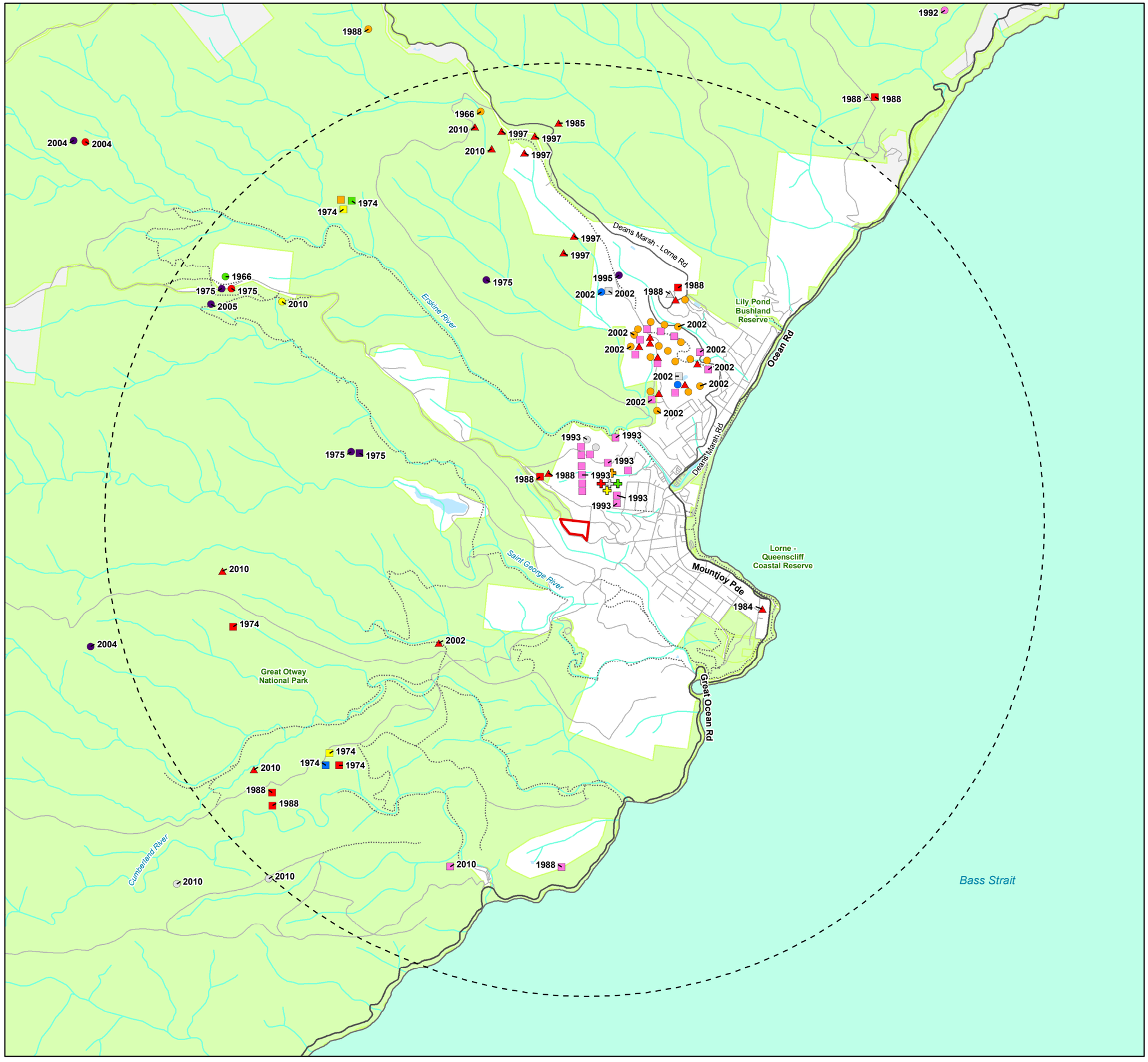


Legend

Study Area

Significant flora

- Brooker's Gum
- Dalton Mitre-moss
- Dwarf Silver Wattle
- Fairy Lanterns
- Feather Moss
- Fertile Finger-orchid
- Giant Honey-myrtle
- Madeira Moss
- Naked Beard-orchid
- Netted Daisy-bush
- Rough Blown-grass
- Satinwood
- Showy Lobelia
- Slender Bitter-cress
- Southern Blue-gum
- Umbrella Thyme-moss
- Western Peppermint
- Wrinkled Buttons

Ecology and Heritage Partners records

- Annual Fireweed
- Bent-grass
- Soft Crane's-bill
- Southern Blue-gum
- Veined Spear-grass

Figure 3

Previously documented significant flora within 5km of the study area

Biodiversity Assessment for 180 Erskine Falls Road, Lorne

N

0 0.75 1.5

Kilometres

ecology & heritage partners

Legend

- Study Area

Significant fauna

- Australian Grayling
- Blue Whale
- Broad-toothed Rat
- Chestnut-rumped Heathwren
- Common Bent-wing Bat
- Common Sandpiper
- Eastern Great Egret
- Grey Goshawk
- Grey-headed Albatross
- Humpback Whale
- Leathery Turtle
- Long-nosed Potoroo
- Masked Owl
- Nankeen Night Heron
- Pacific Gull
- Pied Cormorant
- Powerful Owl
- Ruddy Turnstone
- Rufous Bristlebird (Otway)
- Sooty Oystercatcher
- Southern Brown Bandicoot
- Southern Right Whale
- Southern Toadlet
- Spot-tailed Quoll
- White-bellied Sea-Eagle
- White-throated Needletail

Figure 4

Previously documented significant fauna within 5km of the study area

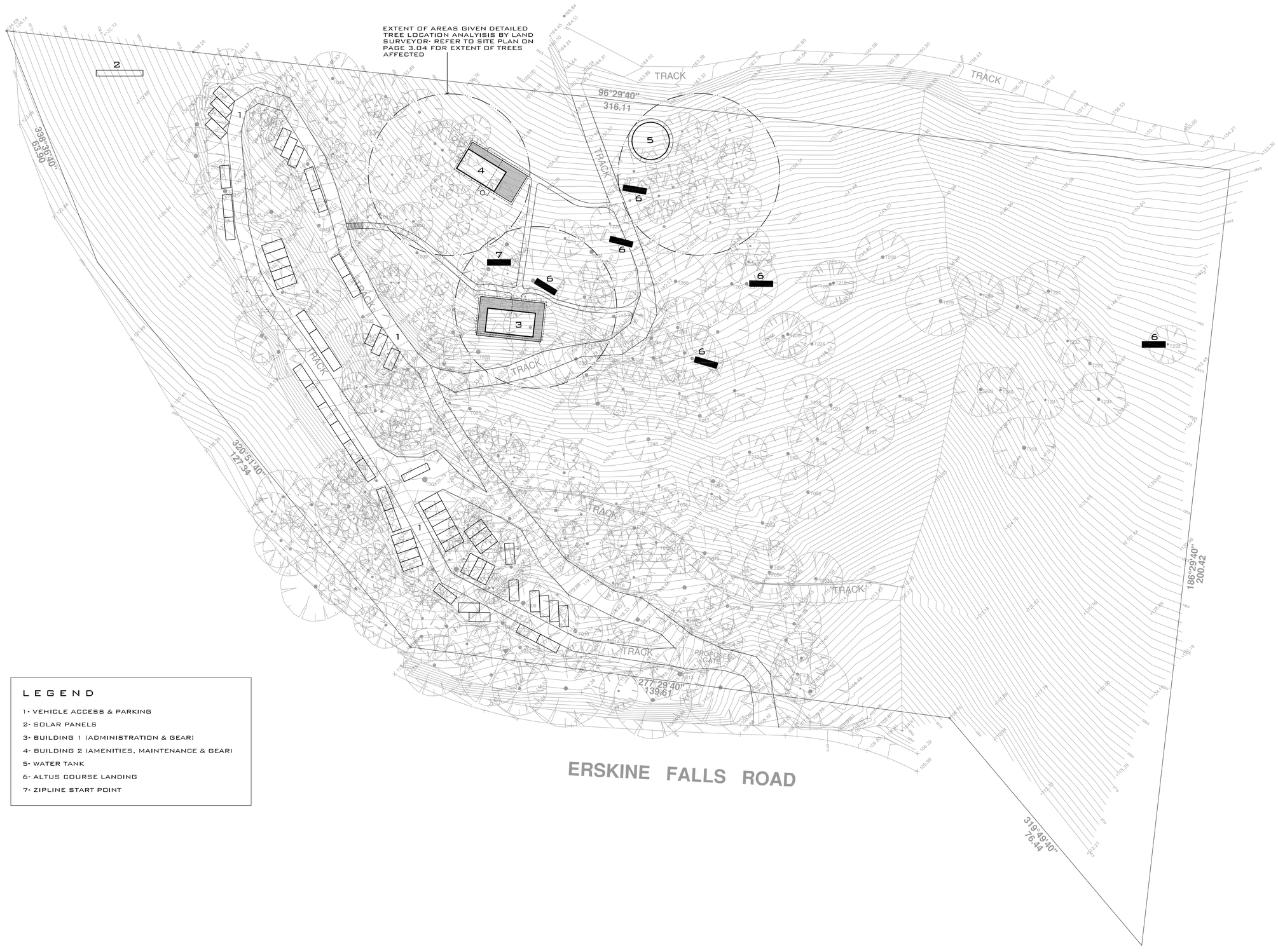
Biodiversity Assessment for 180 Erskine Falls Road, Lorne

0 0.75 1.5

Kilometres

ecology & heritage partners

Appendix 1 – Development Plan



LEGEND

1- VEHICLE ACCESS & PARKING
2- SOLAR PANELS
3- BUILDING 1 (ADMINISTRATION & GEAR)
4- BUILDING 2 (AMENITIES, MAINTENANCE & GEAR)
5- WATER TANK
6- ALTUS COURSE LANDING
7- ZIPLINE START POINT

LOCALITY PLAN

VIBE DESIGN GROUP P/L

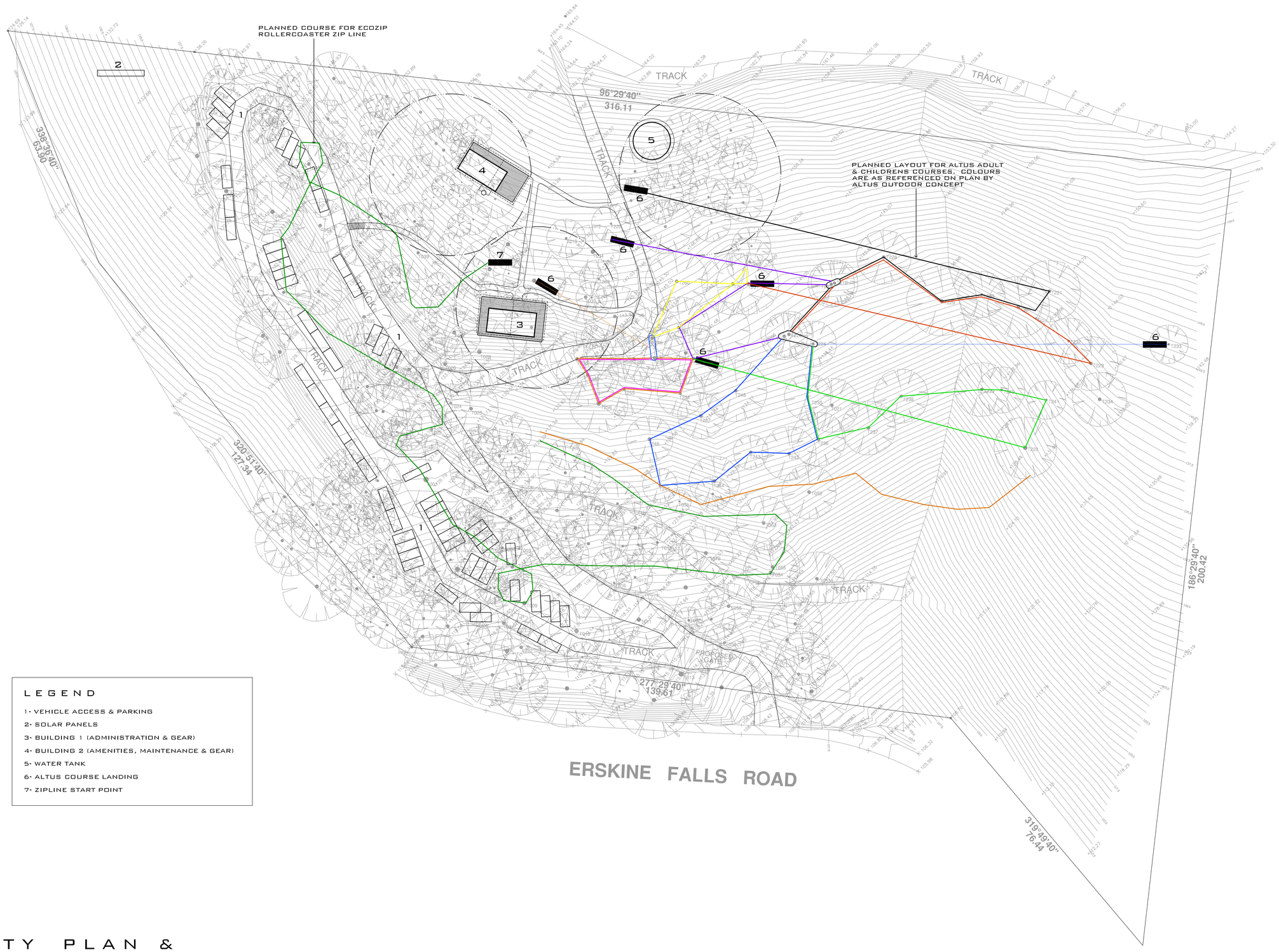
T 1800 188 056 F 1800 188 293 E INFO@VIBEDESIGN.COM.AU
MELBOURNE OFFICE- 551 BURWOOD ROAD, HAWTHORN VIC 3122
POSTAL ADDRESS- PO BOX 3125, AUBURN VIC 3123

PROJECT
180 ERSKINE FALLS ROAD, LORNE

DRAWING
LOCALITY PLAN

DESIGN

PROJECT NO.	V177				
DESIGNER MICHAEL O'SULLIVAN	SCALE	1:500	DATE	JUN 15	
	DRAWN	K.REES	PLOT	11/02/16	
ASSISTANT DESIGNER KATHRYN O'SULLIVAN	PAGE NO	1.05	REV.	00	



LEGEND

1- VEHICLE ACCESS & PARKING
2- SOLAR PANELS
3- BUILDING 1 (ADMINISTRATION & GEAR)
4- BUILDING 2 (AMENITIES, MAINTENANCE & GEAR)
5- WATER TANK
6- ALTUS COURSE LANDING
7- ZIPLINE START POINT

LOCALITY PLAN & PLANNED COURSE LOCATION

VIBE DESIGN GROUP P/L

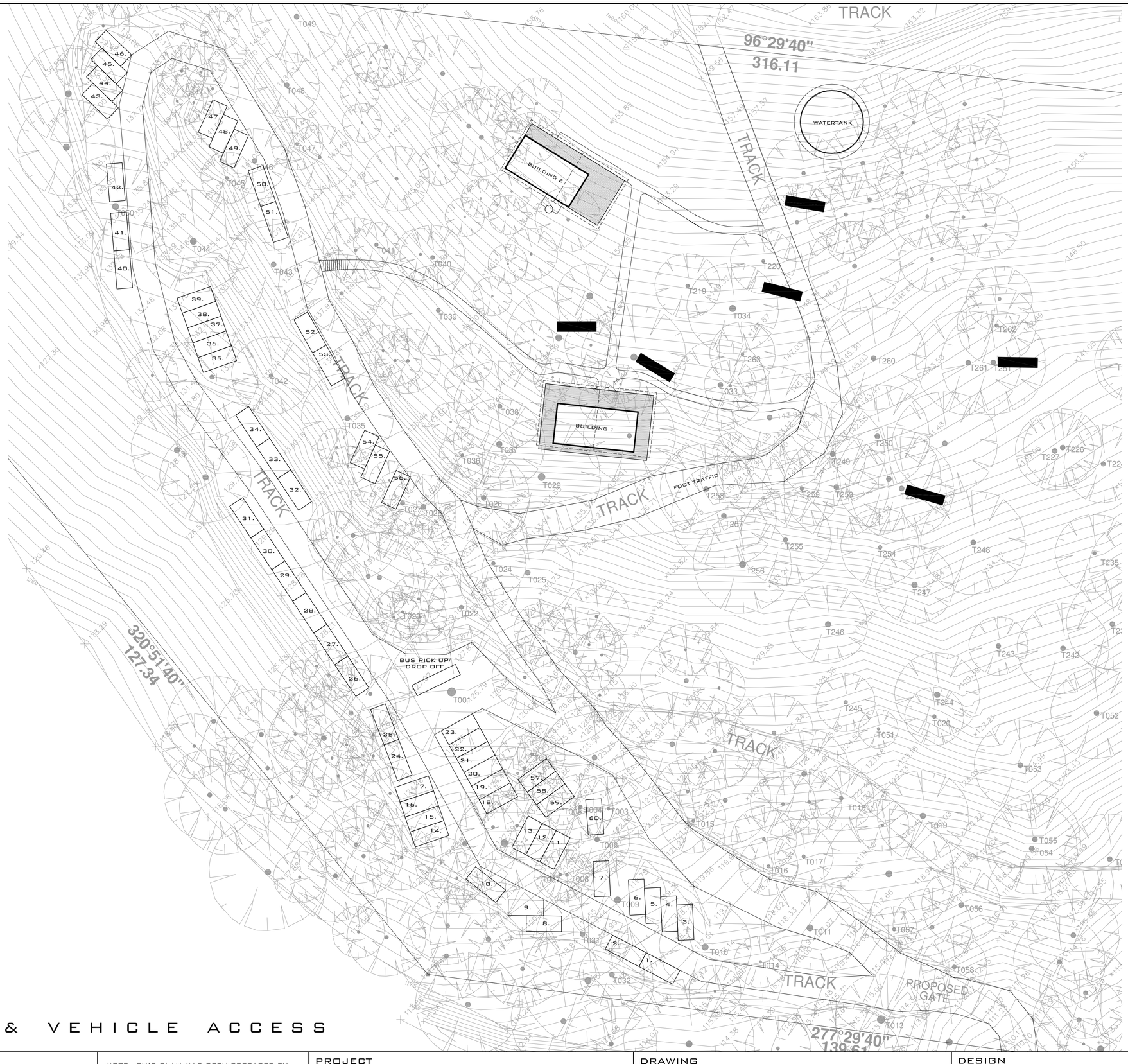
T 1800 188 056 F 1800 188 293 E INFO@VIBEDESIGN.COM.AU
MELBOURNE OFFICE- 551 BURWOOD ROAD, HAWTHORN VIC 3122
POSTAL ADDRESS- PO BOX 3125, AUBURN VIC 3123

PROJECT
180 ERSKINE FALLS ROAD, LORNE

DRAWING
LOCALITY PLAN WITH PLANNED COURSE LOCATION

DESIGN

PROJECT NO.	V177				
DESIGNER MICHAEL O'SULLIVAN	SCALE	1:500	DATE	JUN 15
	DRAWN	K.REES	PLOT	12/02/16
ASSISTANT DESIGNER KATHRYN O'SULLIVAN	PAGE NO	2.05	REV.	00



CARPARKING & VEHICLE ACCESS

VIBE DESIGN GROUP P/L

T 1800 188 056 F 1800 188 293 E INFO@VIBEDESIGN.COM.AU
MELBOURNE OFFICE- 551 BURWOOD ROAD, HAWTHORN VIC 3122
POSTAL ADDRESS- PO BOX 3125, AUBURN VIC 3123

PROJECT
180 ERSKINE FALLS ROAD, LORNE

DRAWING
CARPARKING & VEHICLE ACCESS

DESIGN

PROJECT NO. V177			
DESIGNER MICHAEL O'SULLIVAN	SCALE 1:300	DATE JUN 15	
	DRAWN K.REES	PLOT 12/02/16	
ASSISTANT DESIGNER KATHRYN O'SULLIVAN	PAGE NO 3.05	REV. 00	

POWER

POWER SOURCED FROM SOLAR PANELS POSITIONED IN NORTH-WEST CORNER OF SITE (REFER TO LOCALITY PLAN FOR PROPOSED LOCATION). BATTERY AND ASSOCIATED SERVICES LOCATED WITHIN MAINTENANCE AREA OF BUILDING 2.

WATER STORAGE

WATER HARVESTED FROM ROOF AND STORED IN 5000LTR TANKS BENEATH RELATIVE BUILDINGS BEFORE BEING PUMPED TO MAIN WATER TANK. IN CASE OF FIRE, STORED WATER FROM MAIN TANK TO BE GRAVITY FED AS REQUIRED TO PROTECT ASSETS.

TRACK

96°29'40"

316.11

WATERTANK
162890 LTR TANK SHOWN ON CONCRETE PAD

2x TREES AFFECTED BY PROPOSED BUILDING SHOWN IN BROKEN LINE

BUILDING 2
AMENITIES, MAINTENANCE & GEAR

CILVUS MULTRUM ZERO DISCHARGE SYSTEM

BUILDING 1
ADMINISTRATION & GEAR

2x TREES AFFECTED BY PROPOSED BUILDING SHOWN IN BROKEN LINE

ZIPLINE START POINT

ALTUS COURSE LANDING

TRACK

TRACK

TRACK

TRACK

T049 T048 T047 T046 T045 044 T043 T042 T041 T040 T039 T038 T037 T036 T035 T034 T033 T029 T028 T027 T026 T025 T024 T220 T219 T263 T262 T261 T260 T259 T258 T257 T256 T255 T254 T253 T252 T251 T250 T249 T248 T235 T227 T226 T224 T218 T021

DETAILED SITE PLAN

VIBE DESIGN GROUP P/L

T 1800 188 056 F 1800 188 293 E INFO@VIBEDESIGN.COM.AU
MELBOURNE OFFICE- 551 BURWOOD ROAD, HAWTHORN VIC 3122
POSTAL ADDRESS- PO BOX 3125, AUBURN VIC 3123

PROJECT
180 ERSKINE FALLS ROAD, LORNE

DRAWING
DETAILED SITE PLAN

DESIGN

PROJECT NO. V177			
DESIGNER MICHAEL O'SULLIVAN	SCALE 1:200	DATE	JUN 15
ASSISTANT DESIGNER KATHRYN O'SULLIVAN	DRAWN K.REES	PLOT	12/02/16
	PAGE NO 4.05	REV.	00

Appendix 2 – Flora

Table A1.1 Habitat Hectare Results

Vegetation Zone		SFF1	SFF2	SFF3
Bioregion		Otway Ranges	Otway Ranges	Otway Ranges
EVC		Shrubby Foothill Forest	Shrubby Foothill Forest	Shrubby Foothill Forest
EVC Number		45	45	45
EVC Conservation Status		Least Concern	Least Concern	Least Concern
Patch Condition	Large Old Trees /10	5	5	5
	Canopy Cover /5	4	4	4
	Under storey /25	25	15	0
	Lack of Weeds /15	9	9	13
	Recruitment /10	10	10	0
	Organic Matter /5	3	3	3
	Logs /5	4	2	0
	Treeless EVC Multiplier	1	1	1
	Subtotal =	60	48	25
Landscape Value /25		18	18	18
Habitat Points /100		78	66	43
Habitat Score		0.780	0.66	0.43

Table A1.2 Significant flora recorded within 10 kilometres of the study area

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.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	DEPI	Likely occurrence in study area
NATIONAL SIGNIFICANCE							
Leiocarpa gatesii	Wrinkled Buttons	48	2014	VU	L	v	3
Prasophyllum frenchii #	Maroon Leek-orchid	-	-	EN	L	e	5
Pterostylis cucullata #	Leafy Greenhood	-	-	VU	L	v	5
Thelymitra matthewsii #	Spiral Sun-orchid	-	-	VU	L	v	5
Glycine latrobeana #	Clover Glycine	-	-	VU	L	v	5
STATE SIGNIFICANCE							
Acacia nano-dealbata	Dwarf Silver Wattle	21	2002	-	-	r	3
Austrostipa rudis subsp. *rudis*	Veined Spear-grass	1	2013	-	-	r	3
Bossiaea cordigera	Wiry Bossiaea	3	1922	-	-	r	5
Caladenia flavovirens	Summer Spider-orchid	1	1942	-	-	r	5
Caladenia prolata	Fertile Finger-orchid	2	2002	-	-	k	4
Calochilus imberbis	Naked Beard-orchid	2	2002	-	-	r	4
Cardamine tenuifolia	Slender Bitter-cress	1	1974	-	-	P	5

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	DEPI	Likely occurrence in study area
Daltonia splachnoides	Dalton Mitre-moss	5	2004	-	-	k	4
Desmodium varians	Slender Tick-trefoil	1	1980	-	-	k	4
Deyeuxia imbricata	Bent-grass	1	2013	-	-	v	3
Echinodium hispidum	Madeira Moss	14	2005	-	-	r	4
Eucalyptus brookeriana	Brooker's Gum	9	2010	-	-	r	3
Eucalyptus falciformis	Western Peppermint	5	1988	-	-	r	5
Eucalyptus globulus subsp. *globulus*	Southern Blue-gum	24	2010	-	-	r	1
Eurhynchium asperipes	Feather Moss	1	1966	-	-	k	5
Fissidens dealbatus	Nerveless Pocket-moss	2	1952	-	-	r	5
Geranium potentilloides var. *abditum*	Soft Crane's-bill	1	2013	-	-	r	3
Lachnagrostis scabra	Rough Blown-grass	1	1974	-	-	P	5
Lobelia beaugleholei	Showy Lobelia	1	1974	-	-	r	5
Nematolepis squamea subsp. *squamea*	Satinwood	3	1988	-	-	r	4
Olearia speciosa	Netted Daisy-bush	13	1988	-	-	k	4
Pelargonium littorale	Coast Stork's-bill	1	1974	-	-	k	5
Pultenaea prolifera	Otway Bush-pea	1	1979	-	-	r	5
Pyrrhobryum bifarium	Umbrella Thyme-moss	3	1975	-	-	v	4
Senecio glomeratus subsp. *longifructus*	Annual Fireweed	1	2013	-	-	r	3
Thismia rodwayi	Fairy Lanterns	1	2010	-	L	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), L = Listed, # = Records identified from EPBC Act Protected Matters Search Tool, * = Records identified from the FIS. Data source: Victorian Biodiversity Atlas (DELWP 2015); Protected Matters Search Tool (DoE 2015). Order: Alphabetical.

Appendix 3 – Fauna

Table A2.1. Significant fauna within 10 kilometres of the study area.

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 (DELWP 2015); 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 (DELWP 2015); 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.

Common Name	Scientific Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	DSE (2013)	National Action Plan	Likelihood
NATIONAL SIGNIFICANCE								
New Holland Mouse #	*Pseudomys novaehollandiae*	-	-	VU	L	VU	-	4
Spot-tailed Quoll	*Dasyurus maculatus maculatus*	1993	4	EN	L	EN	VU	3
Southern Brown Bandicoot	*Isoodon obesulus obesulus*	1996	2	EN	L	NT	NT	3
Long-nosed Potoroo	*Potorous tridactylus tridactylus*	1990	10	VU	L	NT	EN	3
Grey-headed Flying-fox #	*Pteropus poliocephalus*	-	-	VU	L	VU	VU	3
Southern Bent-wing Bat #	*Miniopterus orianae bassanii*	-	-	CR	-	-	-	4
Smoky Mouse #	*Pseudomys fumeus*	-	-	EN	L	EN	RA	4
Wandering Albatross	*Diomedea exulans*	1989	1	VU	L	EN	VU	4

Common Name	Scientific Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	DSE (2013)	National Action Plan	Likelihood
Black-browed Albatross	*Thalassarche melanophris melanophris*	1989	3	VU	-	VU	NT	4
Shy Albatross	*Thalassarche cauta*	1989	2	VU	L	VU	VU	4
Salvin's Albatross #	*Thalassarche cauta salvini*	-	-	VU	-	-	-	4
Grey-headed Albatross	*Thalassarche chrysostoma*	1987	1	EN	L	VU	VU	4
Antipodean Albatross #	*Diomedea exulans antipodensis*	-	-	VU	-	-	VU	4
Campbell Albatross #	*Thalassarche melanophris impavida*	-	-	VU	-	-	VU	4
Tristan Albatross #	*Diomedea exulans exulans*	-	-	EN	-	-	VU	4
White-capped Albatross #	*Thalassarche cauta steadi*	-	-	VU	-	-	VU	4
Buller's Albatross #	*Diomedea bulleri*	-	-	VU	-	-	VU	4
Southern Royal Albatross #	*Diomedea epomophora epomophora*	-	-	VU	-	-	VU	4
Northern Royal Albatross #	*Diomedea epomophora sanfordi*	-	-	EN	-	-	VU	4
Sooty Albatross #	*Phoebetria fusca*	-	-	VU	L	-	VU	4
Southern Giant-Petrel	*Macronectes giganteus*	1999	1	EN	L	VU	VU	4
Northern Giant-Petrel #	*Macronectes halli*	-	-	VU	L	NT	-	4
Blue Petrel #	*Halobaena caerulea*	-	-	VU	-	-	-	4
Fairy Prion #	*Pachyptila turtur*	-	-	VU	-	VU	-	4
Soft-plumaged Petrel #	*Pterodroma mollis*	-	-	VU	-	-	-	4
Gould's Petrel #	*Pterodroma leucoptera*	-	-	EN	-	-	VU	4
Australasian Bittern #	*Botaurus poiciloptilus*	-	-	EN	L	EN	VU	4
Hooded Plover #	*Thinornis rubricollis rubricollis*	-	-	VU	L	VU	VU	4
Australian Painted Snipe #	*Rostratula australis*	-	-	VU	L	CR	VU	4
Fairy Tern #	*Sternula nereis nereis*	-	-	VU	L	EN	-	4

Common Name	Scientific Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	DSE (2013)	National Action Plan	Likelihood
Swift Parrot #	*Lathamus discolor*	-	-	EN	L	EN	EN	3
Orange-bellied Parrot #	*Neophema chrysogaster*	-	-	CR	L	CR	CR	4
Regent Honeyeater #	*Anthochaera phrygia*	-	-	CR	L	CR	EN	4
Painted Honeyeater #	*Grantiella picta*	-	-	VU	L	VU	NT	4
Growling Grass Frog #	*Litoria raniformis*	-	-	VU	L	EN	VU	4
Great White Shark #	*Carcharodon carcharias*	-	-	VU	L	VU	0	4
Dwarf Galaxias #	*Galaxiella pusilla*	-	-	VU	L	EN	VU	4
Australian Grayling	*Prototroctes maraena*	1997	15	VU	L	VU	VU	4
STATE SIGNIFICANCE								
Crane Flies	*supf. Tipuloidea fam. Tipulidae*	1998	1	-	-	-	-	3
Rufous Bristlebird (Otways subsp.)	*Dasyornis broadbenti caryochrous*	2009	58	-	L	NT	VU	2
Swamp Antechinus	*Antechinus minimus maritimus*	1981	1	-	L	NT	NT	4
Common Bent-wing Bat	*Miniopterus schreibersii GROUP*	2012	16	-	L	-	CD	2
Broad-toothed Rat	*Mastacomys fuscus mordicus*	1983	5	-	L	EN	-	2
White-throated Needletail	*Hirundapus caudacutus*	1997	13	-	-	VU	-	4
Eastern Great Egret	*Ardea modesta*	2008	8	-	L	VU	-	4
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	2007	1	-	L	VU	-	4
Grey Goshawk	*Accipiter novaehollandiae novaehollandiae*	2002	13	-	L	VU	-	4
Common Sandpiper	*Actitis hypoleucos*	1987	2	-	-	VU	-	4
Ruddy Turnstone	*Arenaria interpres*	1999	1	-	-	VU	-	4
Powerful Owl	*Ninox strenua*	2000	2	-	L	VU	-	2
Masked Owl	*Tyto novaehollandiae novaehollandiae*	2000	8	-	L	EN	NT	2

Common Name	Scientific Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	DSE (2013)	National Action Plan	Likelihood
Chestnut-rumped Heathwren	*Calamanthus pyrrhopygius*	1998	1	-	L	VU	-	4
Southern Toadlet	*Pseudophryne semimarmorata*	1998	1	-	-	VU	-	4
Otway Black Snail	*Victaphanta compacta*	2001	12	-	L	EN	-	2
Otway Crayfish	*Geocharax gracilis*	2008	1	-	-	EN	-	4
Riffle Beetles	*supf. Byrrhoidea fam. Elmidae*	1998	1	-	-	-	-	4
REGIONAL SIGNIFICANCE								
Pied Cormorant	*Phalacrocorax varius*	1979	2	-	-	NT	-	4
Black-faced Cormorant	*Phalacrocorax fuscescens*	1961	1	-	-	NT	-	4
Nankeen Night Heron	*Nycticorax caledonicus hillii*	2001	4	-	-	NT	-	4
Sooty Oystercatcher	*Haematopus fuliginosus*	2004	2	-	-	NT	-	4
Pacific Gull	*Larus pacificus pacificus*	2001	32	-	-	NT	-	4

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, L = Listed. Data sources: Victorian Biodiversity Atlas (DELWP 2015); 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).

Appendix 4 - Biodiversity Assessment Report

Biodiversity impact and offset requirements report

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

Date of issue: **11/03/2016** **DELWP ref: EHP_0403**
Time of issue: **10:15 am**

Project ID	EHP_7063_Erskine

Summary of marked native vegetation

Risk-based pathway	**Low**
Total extent	0.146 ha
Remnant patches	0.146 ha
Scattered trees	0 trees
Location risk	B

Strategic biodiversity score of all marked native vegetation	0.324

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)	0.046 general units
General offset attributes	
Vicinity	Corangamite Catchment Management Authority (CMA) **or** Surf Coast Shire Council
Minimum strategic biodiversity score	0.259[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

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

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 area of the patch of native vegetation and/or the number of any scattered trees to be removed
- The strategic biodiversity score of the native vegetation to be removed
- The offset requirements should a permit be granted to remove 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-SFF1-a	0.780	0.002	0.001
2-SFF2-a	0.660	0.008	0.005
3-SFF3-a	0.430	0.010	0.004
4-SFF2-b	0.660	0.013	0.008
5-SFF2-c	0.660	0.114	0.075
TOTAL			**0.094**

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	Strategic biodiversity score	General biodiversity equivalence score (GBES)
1-SFF1-a	0.001	0.373	0.001
2-SFF2-a	0.005	0.369	0.002
3-SFF3-a	0.004	0.305	0.001
4-SFF2-b	0.008	0.294	0.002
5-SFF2-c	0.075	0.325	0.024

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]

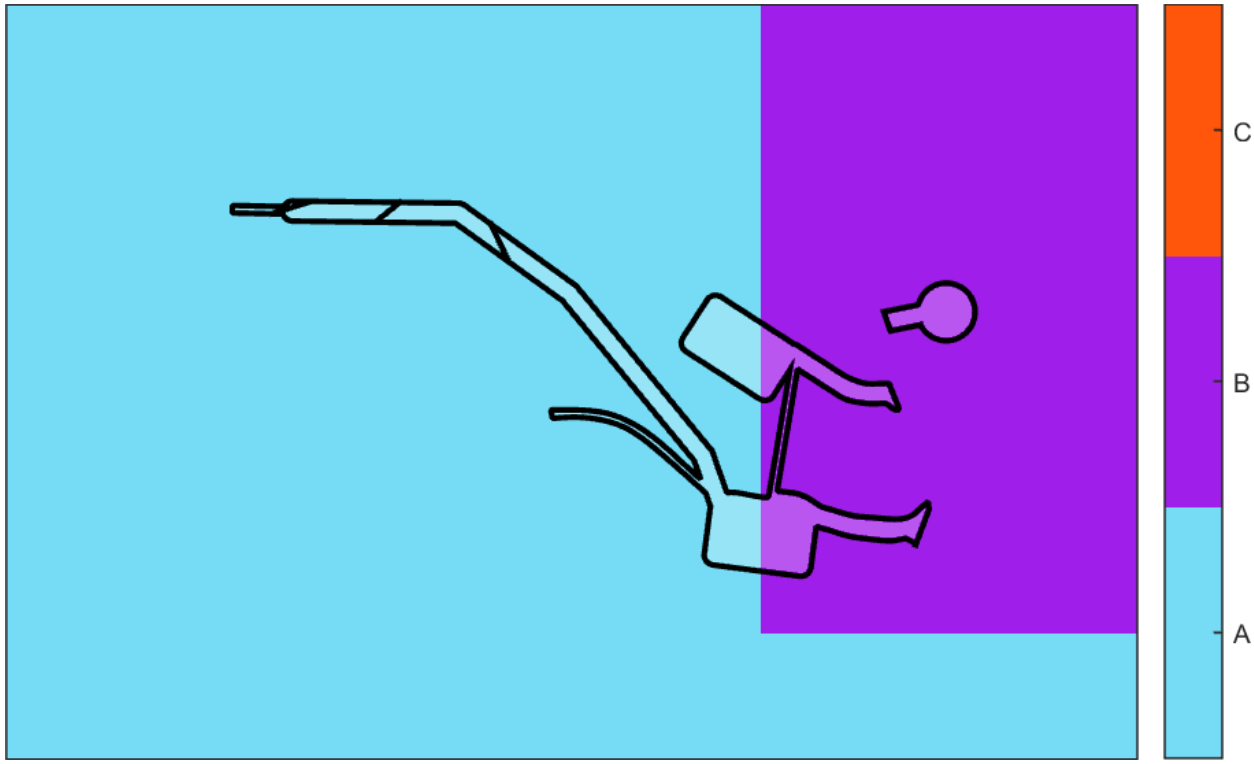
The offset requirements for your proposal are as follows:

Offset type	Clearing site biodiversity equivalence score	Risk multiplier	Offset requirements	
			Offset amount (biodiversity equivalence units)	Offset attributes
General	0.031 GBES	1.5	0.046 general units	Offset must be within Corangamite CMA or Surf Coast Shire Council Offset must have a minimum strategic biodiversity score of 0.259

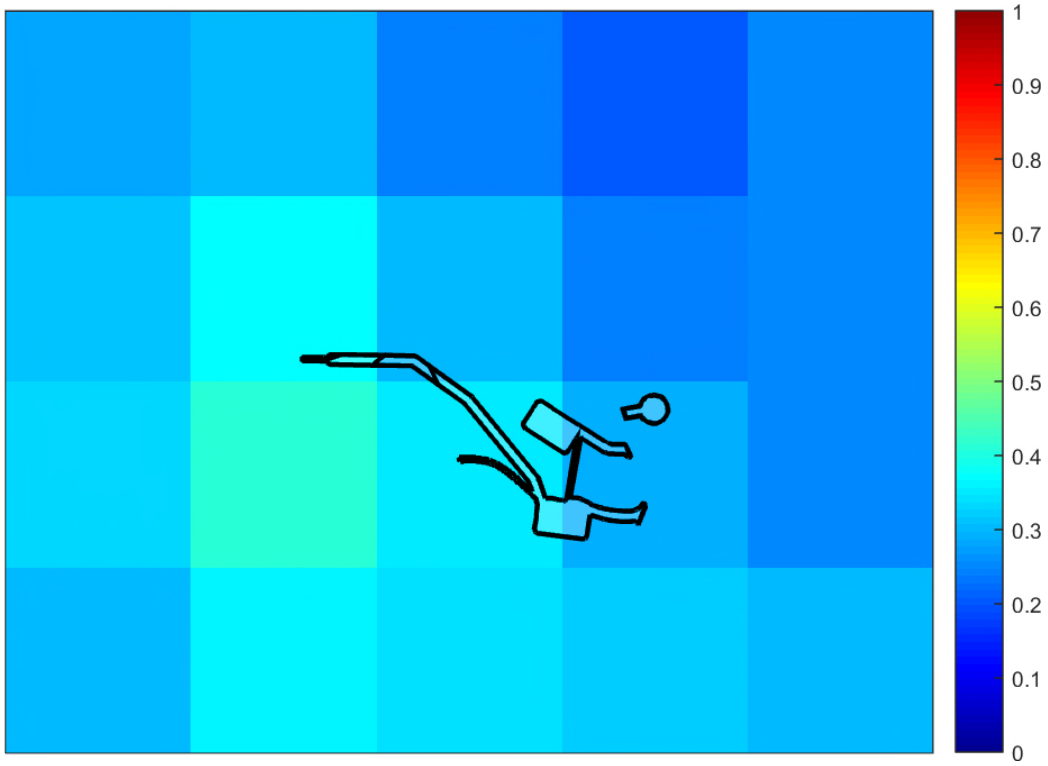
[2] Strategic biodiversity score is a weighted average across habitat zones where a general offset is required

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:

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

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.

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

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:

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

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.

$$\boldsymbol{Risk\ factor\ for\ general\ offsets} = \mathbf{1.5}$$

$$\boldsymbol{Risk\ factor\ for\ specific\ offset} = \mathbf{2}$$

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.

$$\boldsymbol{Risk\ adjusted\ specific\ biodiversity\ equivalence\ score} = \boldsymbol{specific\ biodiversity\ equivalence\ score\ clearing} \times \mathbf{2}$$

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:

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

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.

Appendix 5 – FFG Act protected species

'Protected' flora and fauna under the Flora and Fauna Guarantee Act 1988 (FFG Act) are defined as those that have legal protection under the Act. Protected taxa includes plants and animals from three sources:

- plant or animal taxa (species, subspecies or varieties) listed as threatened under the FFG Act;
- plant taxa belonging to communities listed as threatened under the FFG Act; and,
- plant taxa which are not threatened but require protection for other reasons.

Note that representative plants of a given community are protected as well as the community itself (for example scattered Wallaby-grasses *Rytidosperma* spp. are protected in degraded areas previously supporting the listed *Western [Basalt] Plains Grassland Community*).

Table A1.5 provides a list of plant groups (Families, Genera and Kingdom Divisions) protected under the FFG Act. For threatened plant species likely to occur within the study area refer to Appendix 2 (Significant Flora Species) and for listed communities (or representative species) likely to occur within the study area refer to Section 3.4.3 (State Significant Assessment: Communities).

Table A1.5. Plant groups (Families, Genera and Kingdom Divisions) protected under the FFG Act.

Taxa	Common Name	Exclusions
Pteridophyta	Clubmosses, ferns and fern allies	*Pteridium esculentum* Austral Bracken
Asteraceae	Daisies	nil
Ericaceae (formerly Epacridaceae)	Heaths	nil
Orchidaceae	Orchids	nil
Acacia	Wattles	*Acacia dealbata*, *Acacia decurrens*, *Acacia implexa*, *Acacia melanoxylon* and *Acacia paradoxa*
Baeckea	Baeckeas	nil
Boronia	Boronias	nil
Calytrix	Fringe-myrtles	nil
Correa -	Correas	nil
Darwinia	Darwinias	nil
Eremophila	Emu-bushes	nil
Eriostemon	Wax-flowers	nil
Gompholobium	Wedge-peas	nil
Grevillea	Grevilleas	nil
Prostanthera	Mint-bushes	nil
Sphagnum	Sphagnum mosses	nil
Stylidium	Trigger-plants	nil
Thryptomene	Thryptomenes	nil
Thysanotus	Fringe-lilies	nil
Xanthorrhoea	Grass-trees	nil