PRACTICAL ECOLOGY
ecological restoration & consulting

Feasibility Study for the Gippsland Odyssey Trail Nyora to Woolamai Extension – Ecological Assessment



October 2024

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Contents

1. INTRODUCTION 7
1.1 Scope 7
1.2 Study area 8
1.2.1 Adjacent land 8
1.2.2 Landscape 8
1.2.3 Zoning and Overlays 8
2. METHODS 10
2.1 Field survey 10
2.1.1 Vegetation Categorisation, Classification and Quality 10
2.1.2 Flora survey 12
2.1.3 Fauna habitat survey 13
2.1.4 Limitations of flora survey 13
2.2 Potentially occurring rare or threatened species 13
2.3 Taxonomy 15
2.4 Permits 15
3. RESULTS 16
3.1 Vegetation Categorisation, Classification and Quality 16
3.1.1 Ecological Vegetation Classes 16
3.1.2 Habitat Quality Assessment 24
3.1.3 Exotic and Planted Vegetation 26
3.2 Flora 26
3.2.1 Rare or threatened flora 27
3.3 Fauna 28
3.3.1 Fauna survey 28
3.3.2 Fauna habitat and connectivity 28
3.3.3 Rare or threatened fauna 29
4. DEVELOPMENT PROPOSAL 31
5. RELEVANT POLICY AND LEGISLATION 32
5.1 Environment Protection and Biodiversity Conservation Act 1999 32
5.1.1 EPBC Act Listed Flora 32
5.1.2 EPBC Act Listed Fauna 33
5.1.3 EPBC Act Listed Communities 34
5.2 Flora and Fauna Guarantee Act 1988 35
5.2.1 FFG Act Listed Flora and Fauna 35
5.2.2 FFG Act Listed Communities 36
5.2.3 FFG Act Protected Flora Species 36
5.2.4 Flora and Fauna Guarantee Amendment Act 2019 37
5.3 Planning and Environment Act 1987 37
5.3.1 State Planning Policy Framework 38
5.3.2 Zoning 38
5.3.3 Bushfire Management Overlay 38
5.3.4 Environmental Significance Overlay – Schedule 9 39
5.3.5 Significant Landscape Overlay – Schedule 1 41
5.3.6 Development Plan Overlay – Schedule 7 (DPO7) 42
5.3.7 Land Subject to Inundation Overlay – Schedule 1 (LSIO1) 42

5.4 Clause 52.17 44
5.5 Wildlife Act 1975 and Wildlife Regulations 2013 44
5.6 Catchment and Land Protection Act 1994 44
6. NATIVE VEGETATION IMPACT ASSESSMENT 47
6.1 Assessment Pathway 48
6.1.1 Location category 48
6.2 7 metre Buffer Vegetation Removal Impacts 50
6.2.1 Extent of impact from proposed development 50
6.2.2 Assessment Pathway 50
6.2.3 Avoid and Minimising impacts to biodiversity 52
6.2.4 Native vegetation removal requirements 52
6.3 37 metre Buffer Vegetation Removal Impacts 54
6.3.1 Extent of impact from proposed development 54
6.3.2 Assessment Pathway 54
6.3.3 Avoid and Minimising impacts to biodiversity 56
6.3.4 Native vegetation removal requirements 56
6.4 Offset Strategy 57
7. RECOMMENDATIONS TO BE CONSIDERED 59
7.1 Targeted Surveys 59
7.2 Fauna 59
7.3 Native vegetation 59
7.4 Revegetation and Landscaping 59
7.4.1 Approximate Opinion of Probably Costs for Revegetation 63
8. ESTIMATED OPINION OF PROBABLE COSTS FOR ECOLOGICAL MATTERS 65
8.1.1 Detailed Ecological Assessment and Native Vegetation Impact Analysis 67
8.1.2 State Native Vegetation Offsets 67
8.1.3 Construction Environmental Management Plan 68
8.1.4 Land Management Plan 68
8.1.5 Bushfire Assessment 68
8.2 ESTIMATED COSTINGS FOR POTENTIAL FEDERAL MATTERS 68
9. CONCLUSION 70
10. REFERENCES 71

APPENDICES

Appendix 1. Flora recorded at study area 73
Appendix 2. Potentially occurring rare or threatened flora species 76
Appendix 3. Potentially occurring rare or threatened fauna species 87
Appendix 4. Native Vegetation Removal Report (7 metre Buffer) 150
Appendix 5. Native Vegetation Removal Report (37 metre Buffer) 151
Appendix 6. Maps 152

TABLES

Table 1. Criteria for potential occurrence of significant species 14

Table 2.	Ecological Vegetation Class within the study area	16
Table 3.	Details of threatened communities identified by the PMST and presence within study area	25
Table 4.	Summary of plant taxa recorded	26
Table 5.	Listed flora species likely to occur on site	27
Table 6.	Incidental fauna list recorded during the site visits	28
Table 7.	Listed fauna species likely to occur on site	29
Table 8.	Declared noxious weed occurring within the study area	46
Table 9.	Declared established pest animals potentially occurring on site	46
Table 10.	Determining the Assessment Pathway	48
Table 11.	Application requirements for applications for a permit to remove native vegetation	51
Table 12.	Steps taken to avoid and minimise biodiversity impacts	52
Table 13.	Summary of native vegetation to be removed for 7 metre buffer methodology.	52
Table 14.	Offsets required for 7 metre buffer methodology.	52
Table 15.	Application requirements for applications for a permit to remove native vegetation	55
Table 16.	Steps taken to avoid and minimise biodiversity impacts	56
Table 17.	Summary of native vegetation to be removed for 37 metre buffer methodology.	56
Table 18.	Offsets required if a permit is granted.	57
Table 19.	Planting Pallet for EVC 16: Lowland Forest	61
Table 20.	Planting Pallet for EVC 18: Riparian Forest	61
Table 21.	Planting Paller for EVC 53: Swamp Scrub	62
Table 22.	Approximate opinion of probable costs for 1ha of revegetation	63
Table 23.	Approximate costs for ecological work in the design of the rail trail	66

FIGURES

Figure 1.	Alignment with overhanging Lowland Forest in northern area near Nyora	18
Figure 2.	Alignment within cutting in northern area near Nyora	18
Figure 3.	Alignment within a cutting with overhanging trees (near Dilger Road)	18
Figure 4.	Historic wooden trestle bridge over a Bass River tributary (near Dilger Road)	18
Figure 5.	Long and high historic bridge over the Bass River with overhanging vegetation	19
Figure 6.	Long and high historical bridge over the Bass River	19
Figure 7.	Typical alignment of the former railway line currently used as grazing farmland	19
Figure 8.	The former railway line alignment with fringing wetland vegetation	19
Figure 9.	Edge of the former railway alignment with a patch of Rushes *Juncus spp.* that has been historically grazed	20
Figure 10.	The former railway alignment with regenerating Swamp Scrub	20
Figure 11.	The former railway alignment intersecting Riparian Forest (Gaws Road)	20
Figure 12.	The former railway alignment in cutting with fringing vegetation	20
Figure 13.	Moderate-High quality Lowland Forest	21
Figure 14.	Moderate quality Lowland Forest	21

Figure 15. The former railway alignment intersecting naturally occurring Swamp Scrub along boundary of property 21
Figure 16. Area of proposed rail trail intersecting Riparian Forest 21
Figure 17. Historic timber trestle bridge indicating the former railway alignment 22
Figure 18. Bridal Creeper and Blackberry along the former railway alignment (Dilger Road) 22
Figure 19. View of the former railway alignment through farming landscape 22
Figure 20. Dense Swamp Scrub through the former railway alignment 22
Figure 21. Habitat Zone running through the former railway alignment (Schier Road) 23
Figure 22. Dense Swamp Scrub through the former railway alignment 23
Figure 23. High quality Swamp Scrub on the former railway alignment 23
Figure 24. Regenerating Swamp Scrub along the edge of the former railway alignment 23
Figure 25. Local records for Giant Gippsland Earthworm around Nyora (study area in red) 34
Figure 26. Local record for Giant Gippsland Earthworm near Woodleigh (study area in red) 34
Figure 27. Location of ESO9 (in green) in relation to the study area (in red) 40
Figure 28. Location category for vegetation to be removed. 49

MAPS

Map 1. Study Area 153
Map 2. Ecological Assessment 154

1. INTRODUCTION

Practical Ecology Pty Ltd was commissioned by Michael Smith & Associates to provide an ecological feasibility for the proposed Gippsland Odyssey Trail Extension from Nyora to Woolamai. These services are sought to guide the planning of the trail alignment and determine the associated costs associated with its construction and management from an ecological standpoint.

The proposal involves the extension of the existing Gippsland Odyssey Trail framework to create a rail trail from Nyora to Woolamai along the Crown land reserve that was historically used for a railway line through the landscape. The railway ceased to operate in approximately 1974 and the proposed rail trail proposes to use the rail reserve and formation of the railway tracks for majority of its alignment.

The proposed rail trail would run through the local area dominated by farmland but with scattered occurrences of bush and scrub and along the valley parallel to the foothills of the Gippsland Plain and Strzelecki Ranges.

The Crown land reserve was inspected by Practical Ecology consultants concurrently with Mike Smith and other members of the consultancy team. The presence of native vegetation and fauna habitat was assessed and potential design issues were considered throughout the site visits along the proposed rail trail.

Details of the proposed development were then provided by Michael Smith and Associated which guided the field assessment, following which detailed plans were provided to guide the impact assessment.

This report includes findings for the entire proposed trail alignment consisting of approximately 24 kilometres, and unless explicitly stated, findings relate to the alignment as a whole.

1.1 Scope

The information presented in this report is based on the following scope of works:

- a desktop review of relevant information covering important reports, documents and information regarding the area;
- the compilation of a list of vascular plants, including an assessment of their biological significance, recorded within the study area;
- a review of the existing and/or original Ecological Vegetation Classes (EVC's) present within the study area;
- determination of habitat zones and their approximate habitat score, and/or scattered trees according to the *Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017);
- a review of relevant literature, fauna and flora records and habitat conditions on the site to determine the likelihood of the presence of nationally significant flora and fauna;
- identification of impacts on areas identified as 'remnant patches' and 'scattered trees';
- identification of potential impacts on any significant flora and fauna species, and the provision of an indication of how impacts will be ameliorated to meet *Victorian Flora and Fauna Guarantee (FFG) Act*

1988 and Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* requirements if necessary.

- determination of the applicable Risk-based pathway and associated approximate offset requirements in accordance with the *Biodiversity Assessment Guidelines* (DEPI 2013);
- the provision of mapping to illustrate necessary information, including existing conditions and the proposed management zones under the development proposal.

1.2 Study area

The site covers the proposed rail trail alignment that is located along the historic Nyora to Woolamai rail corridor (Map 1). This area is a Crown land reserve and consists of a narrow corridor of Crown land that traverses the landscape between private properties.

The proposed rail trail runs between the townships of Nyora and Woolamai in West Gippsland, Victoria. Various agricultural paddocks fall on either side of the study area which dominates the majority of its alignment. The proposed rail trail alignment occasionally passes through vegetated areas and waterways such as the Bass River, Blue Mountain Creek, Tennant Creek, Wattle Creek and other small tributaries to the Bass River. The rail trail alignment also passes across nine local roads with the South Gippsland Highway being the most significant road crossed.

1.2.1 Adjacent land

The site is located in between Nyora and Woolamai, approximately 100 kilometres southeast of the central business district of the city of Melbourne. The study area is surrounded by rural properties and paddocks with many small waterways within the adjacent landscape. The vegetation patches associated with these water bodies and those on private properties play an important role in providing a fragmented matrix of ecological connectivity throughout the landscape as a large portion of this landscape has been historically cleared for farming.

1.2.2 Landscape

Bioregions are a landscape-scale approach to classifying the environment using a range of attributes such as climate, geomorphology, geology, soils and vegetation. There are 28 bioregions identified within Victoria, the study area occurs in two bioregions, the Gippsland Plain and Strzelecki Ranges bioregions (DEECA 2024a).

Under the Catchment and Land Protection Act 1994 (the CaLP Act), Victoria is divided into ten catchment regions with a Catchment Management Authority (CMA) established for each region (Victorian Water Industry Association Inc 2015). The study area is within the Port Philip and Westernport Catchment which has been integrated into Melbourne Water's area of responsibility, effective from 1 January 2022 (Melbourne Water 2022).

1.2.3 Zoning and Overlays

The site is zoned Public and Park Recreation Zone (PPRZ) and is subject to the following overlays:

- Bushfire Management Overlay (BMO) – partial coverage in select areas
- Environmental Significance Overlay – Schedule 9 (ESO9) (South Gippsland)
- Land Subject to Inundation Overlay (LSIO)
- Significant Landscape Overlay – (SLO1)

2. METHODS

2.1 Field survey

Multiple field survey efforts were undertaken five separate days by Nathaniel Knight and Lincoln Kern (Practical Ecology) accompanied by Michael Smith and Jee Joon Foo (Michael Smith & Associates) and Jeff Robinson (OPS Engineers) in late May and June 2024. Each survey day focussed on a small section of the proposed trail layout, meeting with associated landowners along the way. From the ecological standpoint the surveys aimed to:

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

Further detail regarding the field survey completed within the study area is provided below.

2.1.1 Vegetation Categorisation, Classification and Quality

Vegetation was assessed for its categorisation according to the *Guidelines for the removal, destruction and lopping of native vegetation* (DEECA 2017), then it's Ecological Vegetation Class and finally, its general quality, as determined by habitat components observed on site.

2.1.1.1 Vegetation Categories

Vegetation in the study area was categorised in accordance with the *Guidelines for the removal, destruction and lopping of native vegetation* (DEECA 2017) which defines native vegetation as

- **Native Vegetation**

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

- **Native Vegetation Patch**

  A patch of native vegetation is either:

  - an area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native
  - any area with three or more native canopy trees where the drip line of each tree touches the drip line of at least one other tree, forming a continuous canopy, or

- any mapped wetland included in the current wetlands layer available in the Department of Energy, Environment and Climate Action's (DEECA) Native Vegetation Information Management tool and other DEECA systems.

- **Native canopy tree**

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

- **Large Tree**

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

- **Scattered Tree:**

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

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

2.1.1.2 Ecological Vegetation Classes

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

Modelled EVC distribution was accessed to assess the EVC likely to occur within the study area (DEECA 2024b). EVCs were then identified in the field according to observable attributes including dominant and characteristic species consistent with the benchmark descriptions (DEECA 2024c).

2.1.1.3 Habitat Quality Assessment

Habitat Quality was used to determine the condition of the vegetation and significance of a defined patch of native vegetation. This methodology involved a general assessment of the habitat based on the Habitat Hectare assessment as outlined in the *Vegetation Quality Assessment Manual–Guidelines for Applying the Habitat Hectares Scoring Method* (DSE 2004c). Whilst habitat scoring was **not** undertaken, patches of native vegetation were given an estimated quality score based on the framework of Habitat Hectares.

2.1.1.4 Threatened Ecological Communities

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

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

While there are no specific criteria which determine the presence of FFG Act communities, an informal method of comparing site characteristics and floristics with community descriptions in the document: *Characteristics of Threatened Communities – Flora and Fauna Guarantee Act 1988* (FFG SAC undated) was undertaken. This document summarises the characteristics of FFG Act threatened communities, to assist with field recognition. An evaluation of the Habitat Zones identified as part of this ecological assessment was made against the information in DEECA (2017).

2.1.1.5 Classification of Exotic and Planted Vegetation

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

Areas considered Exotic Vegetation included for example mown or grazed areas dominated by exotic species. These areas did not generally contain any trees or shrubs. These areas are not covered by any polygons on Maps 2 or 3.

Areas with non-indigenous revegetation or planted trees were considered 'Planted Vegetation'. This included areas dominated by Australian or Victorian natives, garden beds planted with exotic and non-indigenous species. It also includes planted trees that were not considered indigenous to the local area. These areas are also not covered by any polygons on the Maps 2 or 3.

as the focus of field surveys was on native vegetation triggering permit requirements under Clause 52.17 of Bass Coast Planning Scheme, the definition of a native canopy tree within (DEECA 2017) was taken into consideration when defining vegetation within the study area. A canopy tree is defined as one normally found in the upper layer of the relevant EVC. Consequently, the DBH for trees 'Native to Australia', 'Exotic' or 'Native to Victoria', but not deemed indigenous to the study area, are not considered as part of the determination of a Scattered Tree or Large Tree within a patch in relation to this Report.

2.1.2 Flora survey

Existing flora records on the Victorian Biodiversity Atlas (DEECA 2024f) for a 5-kilometre radius around the study area were obtained on 24/05/2024. Records from pre-1980 were removed.

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

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

2.1.3 Fauna habitat survey

The main focus in regards to fauna was to undertake a general habitat assessment. The habitat assessment relies upon making judgements on the suitability of habitat present within the study area for any significant species recorded in the database search.

2.1.4 Limitations of flora survey

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

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

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

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

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

2.2 Potentially occurring rare or threatened species

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

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

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

- previous recordings of species in the local area
- date of last record
- the habitat requirements of individual species

- the physical attributes of the site, such as topography, geology, soils, aspect and other habitat features such as trees with hollows, the presence of rocks or boulders, logs on the ground
- the history of land use at the study area
- the ecological landscape context; i.e. the degree of connectivity, modification and fragmentation across the landscape.

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

Table 1. Criteria for potential occurrence of significant species

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

	The required habitat attributes to the support the species are present within the study area and are in good condition. Species habitat is present in low-moderate condition though there are extensive local records and/or the species if present is unlikely to have been observed onsite. A known population of the species is located in similar habitat conditions in close proximity or connected to the study area. The study area is connected to habitat areas where the species is known to occur and likely to be used as dispersal habitat through the landscape.	The required habitat attributes to the support the species are present within the study area and are in good condition. A known population of the species is located in similar habitat conditions in close proximity or connected to the study area.
Present	The species was recorded within the study area during the site assessment or evidence was provided by the client to support the recent presence of the species.	The species was recorded within the study area during the site assessment.

2.3 Taxonomy

Flora and fauna taxonomy used in this report is in accordance with the Victorian Biodiversity Atlas Checklist dated 24/05/2024 (DEECA 2024f).

2.4 Permits

Practical Ecology Pty Ltd staff are covered under a *The Wildlife Act 1975* Permit (No: 10010286) and FFG Act permit (No. 10010155) to take/keep protected flora and Wildlife and Small Institutions Ethics Committee approval (37.21).

3. RESULTS

3.1 Vegetation Categorisation, Classification and Quality

3.1.1 Ecological Vegetation Classes

A brief description of the native vegetation observed within the study area is provided in Table 2 and depicted on Map 2. Further information pertaining to the quality of the patches of native vegetation identified within the study area is provided below in Section 3.1.2.

Note that while native vegetation patches and Large Trees are present within the study area, details on exotic vegetation and planted vegetation is provided in Section 3.1.5.

Table 2. Ecological Vegetation Class within the study area

EVC No. and Name	BCS^	Description within study area
EVC 16: Lowland Forest	Vulnerable within Gippsland Plain Bioregion Vulnerable within Strzelecki Ranges Bioregion	Gippsland Plain: Eucalypt forest to 20 metres tall on relatively fertile, moderately well-drained soils in areas of relatively high rainfall. Characterised by the diversity of life forms and species in the understorey including a range of shrubs, grasses and herbs. Strzelecki Ranges: Open forest to 25 metres tall. It grows on a wide variety of geology and soils mostly on north and north westerly aspects. Characterised by an often heathy understorey with a variety of other life forms including shrubs, grasses and herbs. Patches of Lowland Forest were present mainly towards the northern end of the study area. These patches were comprised of a canopy dominated by Messmate Stringybark *Eucalyptus obliqua* and Swamp Gum *Eucalyptus ovata.* The understorey contained mostly weed species however, native species are also present such as Thatch Saw-sedge *Gahnia radula*, Spiny-headed Mat-rush *Lomandra longifolia*, Sword Tussock-grass *Poa ensiformis* and Hop Wattle *Acacia stricta.*
EVC 18: Riparian Forest	Vulnerable within Gippsland Plain Bioregion Vulnerable within Strzelecki Ranges Bioregion	Both: A tall forest to 30 metres tall along river banks and associated alluvial terraces with occasional occurrences in the heads of gullies leading into creeks and rivers. The soil is fertile alluvium, regularly inundated and permanently moist. Dominated by tall eucalypts but also has an open to sparse secondary tree layer of wattles and scattered dense patches of shrubs, ferns, grasses and herbs. Patches of Riparian Forest were observed along creeks and rivers that intersect the study area. These patches mainly consisted of Manna Gum *Eucalyptus viminalis* and Swamp Gum. The quality of these patches varied with some containing intact understorey and others containing little to no native understorey species. In all cases these patches were infested with weeds such as Blackberry **Rubus fruticosus spp. agg*.

EVC No. and Name	BCS^	Description within study area
EVC 53: Swamp Scrub	Endangered within Gippsland Plain Bioregion Endangered within Strzelecki Ranges Bioregion	Gippsland Plain: Closed scrub to 8 metres tall at low elevations on alluvial deposits along streams or on poorly drained sites with higher nutrient availability. The EVC is dominated by Swamp Paperbark Melaleuca ericifolia (or sometimes Woolly Tea-tree Leptospermum lanigerum) which often forms a dense thicket, out-competing other species. Occasional emergent eucalypts may be present. Where light penetrates to ground level, a moss/lichen/liverwort or herbaceous ground cover is often present. Dry variants have a grassy/herbaceous ground layer. Strzelecki Ranges: Closed scrub to 8 metres tall at low elevations on alluvial deposits along streams or on poorly drained sites with higher nutrient availability. The vegetation characteristically lacks a eucalypt overstorey and is dominated by Swamp Paperbark Melaleuca ericifolia which often forms a dense thicket, out-competing other species. Where light penetrates to ground level, a moss/lichen/liverwort or herbaceous ground cover is often present. Dry variants have a grassy/herbaceous ground layer. Patches of Swamp Scrub were present in the southern half of the study area as it drew nearer to the coast. Patches varied in quality with most containing thick stands of Swamp Paperbark *Melaleuca ericifolia*, with other species including Common Reed *Phragmites australis,* Spiny-headed Mat-rush, Thatch Saw-sedge and Rushes *Juncus* spp. Some lower quality patches had been cleared and only contained groundstorey components of this EVC.

^ BCS: Bioregional Conservation Status; * denotes exotic species

As shown in Table 2 above, two of the EVC's present on site are deemed Vulnerable: Lowland Forest and Riparian Forest and one EVC is deemed Endangered: Swamp Scrub. For an EVC to be deemed Vulnerable 10-30% of it must remain in the landscape. For an EVC to be considered Endangered, less than 10% of it remains in the landscape. The Bioregional Conservation Status of the EVC's present on site confirms that the Gippsland Plains is an over cleared landscape that only contains very small pockets of these vegetation communities. The native vegetation along the Crown land reserve is mostly cleared but some disturbed remnants; in this heavily cleared and farmed landscape the habitat along the old railway represents one of the last opportunities in the region to re-establish connecting habitats.



Figure 1. Alignment with overhanging Lowland Forest in northern area near Nyora



Figure 2. Alignment within cutting in northern area near Nyora



Figure 3. Alignment within a cutting with overhanging trees (near Dilger Road)



Figure 4. Historic wooden trestle bridge over a Bass River tributary (near Dilger Road)



Figure 5. Long and high historic bridge over the Bass River with overhanging vegetation



Figure 6. Long and high historical bridge over the Bass River



Figure 7. Typical alignment of the former railway line currently used as grazing farmland



Figure 8. The former railway line alignment with fringing wetland vegetation



Figure 9. Edge of the former railway alignment with a patch of Rushes *Juncus spp.* that has been historically grazed



Figure 10. The former railway alignment with regenerating Swamp Scrub



Figure 11. The former railway alignment intersecting Riparian Forest (Gaws Road)



Figure 12. The former railway alignment in cutting with fringing vegetation



Figure 13. Moderate-High quality Lowland Forest



Figure 14. Moderate quality Lowland Forest



Figure 15. The former railway alignment intersecting naturally occurring Swamp Scrub along boundary of property



Figure 16. Area of proposed rail trail intersecting Riparian Forest



Figure 17. Historic timber trestle bridge indicating the former railway alignment

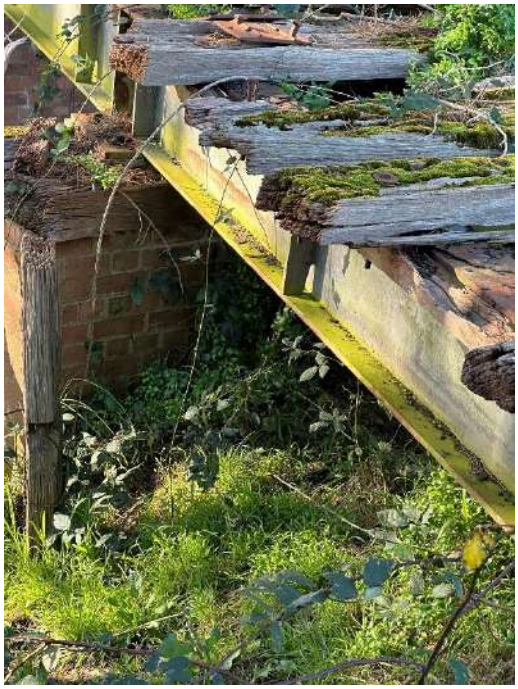


Figure 18. Bridal Creeper and Blackberry along the former railway alignment (Dilger Road)



Figure 19. View of the former railway alignment through farming landscape



Figure 20. Dense Swamp Scrub through the former railway alignment



Figure 21. Habitat Zone running through the former railway alignment (Schier Road)



Figure 22. Dense Swamp Scrub through the former railway alignment



Figure 23. High quality Swamp Scrub on the former railway alignment



Figure 24. Regenerating Swamp Scrub along the edge of the former railway alignment

3.1.2 Habitat Quality Assessment

A Habitat Quality Assessment was undertaken on all patches of native vegetation observed within the study area. Habitat quality scores were based on factors such as native canopy cover, understorey vegetation quality and cover, weed cover, and their connectivity to other patches of native vegetation which are typically used during the *Habitat Hectares* methodology. It is noted that these scores have only been used to provide a visual aid on the varying habitat quality throughout the study area and may not provide statistical differences for future assessments.

For the purposes of calculating the estimated offsets required for the project, modelled habitat scores were used for determining vegetation quality (see Section 6).

3.1.2.1 EPBC Act Communities

Table 1 below list the Nationally threatened community identified by the EPBC Act PMST as potentially occurring within five kilometres of the study area. The PMST assessment identifies communities in the EPBC Act PMST as 'known to occur', 'likely to occur' or 'may occur'. As shown in Table 1, two of these EPBC Act threatened communities was raised by this search as 'may occur' within the study area.

Table 3. Details of threatened communities identified by the PMST and presence within study area

Community	Status	Summary of Community	EPBC Act PMST Report Status	Present within study area?
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered	The ecological community is a type of grassland ranging to open grassy woodland with scattered trees and shrubs that occurs in the South East Coastal Plain IBRA bioregion1 of Victoria. It is generally found on heavy grey silty-loamy soils, which are poorly drained and therefore often damp and sometimes waterlogged. The heavy soils may be derived from floodplain or swamp deposits, and they may be influenced by moisture from local rainfall, surface flows from local creeks or runoff from surrounding land, and occasionally groundwater.	Community may occur within search area	**No** The vegetation within this community is listed as a closed tussock grassland or open grassy woodland with the cover of larger woody plants (shrubs 1 metre or taller) to amount to no more than five per cent projective foliage cover across the grassland patch. This does not match the habitat zones found on site. Aside from the cleared pastural areas, the projective foliage cover of woody plants was much higher than five per cent. Additionally, the cleared pastural areas lack native grass or herbaceous which is a key diagnostic characteristic of this community. Based on the above this community is not considered to be present within the study area.
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	The ecological community consists of organisms including and associated with saltmarsh in coastal regions of sub-tropical and temperate Australia. The physical environment for the ecological community is coastal areas under regular or intermittent tidal influence. In southern latitudes saltmarsh is often the main vegetation-type in the intertidal zone and commonly occurs in association with estuaries. The Coastal Saltmarsh ecological community consists mainly of salt-tolerant vegetation (halophytes) including: grasses, herbs, sedges, rushes and shrubs. Succulent herbs, shrubs and grasses generally dominate and vegetation is generally of less than 0.5 m height (with the exception of some reeds and sedges.)	Community likely to occur within area	**No** The native vegetation found within the Habitat Zones throughout the study area does not consist of salt tolerant species that define the flora present within this community. Additionally, the study area isn't located within the regions that this community is typically found in.

3.1.2.2 FFG Act Communities

No state listed, FFG Act threatened communities are modelled by DEECA (DEECA 2024a) as present within the surrounding landscape. Additionally, none of the communities listed as threatened under the FFG Act relate to the ecological communities found within the study area.

3.1.3 Exotic and Planted Vegetation

Majority of the remaining vegetation on site consists of exotic grasses used for livestock grazing. Exotic trees and shrubs including Radiata Pine **Pinus radiata*, Blackberry **Rubus fruticosus spp. agg.* and Hawthorn **Crataegus monogyna* were scattered along select sections of the study area, particularly in areas away from private land.

Four regionally controlled weed species and three restricted weed species were observed throughout the study area. These species are listed as a 'regionally-controlled' weed under the CaLP Act, and there is therefore a legal obligation for landowners to reduce the growth and spread of the species on their land (in this case Crown land). Further information on the CaLP Act can be found in Section 5.5.

While there are scattered indigenous species present in areas outside of the patches of native vegetation (Habitat Zones) identified in Section 3.1.1, these are scattered in their extent with a cover below 25 per cent. This includes scattered occurrences of rushes and grasses. Refer to Section 5 for relevant legislative requirements.

3.2 Flora

A brief record of flora was taken from the study area of common or notable species. The focus of this assessment was not to gather a comprehensive list of flora species and as such, some cryptic or smaller species may not have been recorded. Across the entire length of the study area, a total of 82 plant taxa were recorded in the study area during this survey of which 40 were indigenous (49%) and 42 (51%) were introduced or naturalised outside their natural range. Appendix 2 lists all flora recorded within the study area. Table 4 summarises plant taxa recorded in the study area during this survey.

Table 4. Summary of plant taxa recorded

Flora Status	Number of Taxa
Indigenous vascular taxa	40
Exotic taxa	37
Native taxa outside of natural range	5
TOTAL	**82**

3.2.1 Rare or threatened flora

3.2.1.1 Field Survey

One species listed under the FFG Act or EPBC Acts were observed within the study area. This species was Spotted Gum #*Corymbia maculata* which is listed as Vulnerable under the FFG Act although it would be considered planted in the study site because it only occurs naturally in East Gippsland

3.2.1.2 Database records

Searches undertaken of the VBA and the EPBC Act PMST identified 24 flora species of state and/or national significance. These have either been recorded within five kilometres from the study area boundaries or are predicted to occur within this search area. All species identified on from the VBA and the EPBC Act PMST species are listed in Appendix 3.

One listed species have been identified as having a 'Moderate' to 'Moderate-High' likelihood of occurring on site. This is listed in Table 5 below.

Table 5. Listed flora species likely to occur on site

EPBC	FFG	Origin	Scientific name	Common name	Likelihood occurrence	Likelihood Reasoning
	Vu	#	*Corymbia maculata*	Spotted Gum	Present	Individuals observed on site was planted for windbreaks. Only two local records. The study area is outside the species natural range therefore it is unlikely to occur naturally. Species is commonly planted as an ornamental plant.
VU	Cr		*Eucalyptus strzeleckii*	Strzelecki Gum	Moderate	Seven local records with last record from 2019. Species known to occur in areas around site. Species could be present on site particularly in the northern region, however unlikely due to land clearing.
	Cr		*Hypocreopsis amplectens*	Clasping Hypocreopsis	Moderate	Numerous local records with last record from 2021. Species is confined to a few known locations many of which are in the surrounding area. While many areas supporting suitable habitat (i.e. Swamp Paperbark) appear to have been historically disturbed, suitable habitat is present in certain areas (e.g. Habitat Zone 7b).

Strzelecki Gum *Eucalyptus strzeleckii* is listed as Vulnerable under the EPBC Act and Critically Endangered under the FFG Act and was assessed as having a 'Moderate' likelihood of occurring within the study area. Clasping Hypocreopsis *Hypocreopsis amplectens* is listed as Critically Endangered under the FFG Act. No individuals of these species were recorded on site and no further action is recommended regarding them given that the proposal does not extend beyond the current footprint.

3.3 Fauna

3.3.1 Fauna survey

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

Table 6. Incidental fauna list recorded during the site visits

Common name	Scientific name	Record type
Red Fox	*Vulpes vulpes*	Observed
Laughing Kookaburra	*Dacelo novaeguineae*	Heard
Spotted Marsh Frog	*Limnodynastes tasmaniensis*	Heard
European Rabbit	** Oryctolagus cuniculus*	Observed
Australian Raven	*Corvus coronoides*	Observed
Australian King Parrot	*Alisterus scapularis*	Heard
Common Froglet	*Crinia signifera*	Heard

3.3.2 Fauna habitat and connectivity

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

- tree canopies, including trees with fissured bark and crevices
- large flowering Eucalyptus trees with hollows
- drainage lines with riparian vegetation and water present
- grassy understorey vegetation.

The study area provides habitat for a range of local fauna species, including roosting and nesting habitat for a range of bird species relatively common in rural landscapes. Bats could also utilise these trees, which could provide roosting habitat for microbats within bark fissures and crevices.

The drainage lines, wet depressions, creeks and associated riparian vegetation and water provide habitat for a range of local species, including aquatic species such as frogs, fish, and insects as well as birds and any passing migrants attracted to the water itself.

While many of the flowering trees provide a foraging resource for fauna, some of the large trees contain hollows, which provide nesting habitat for arboreal mammals such as possums and birds. Eastern Ring-tailed possum *Pseudocheirus peregrinus* utilise.

Grassy understorey vegetation is likely to provide habitat for smaller fauna species such as invertebrates and potentially lizards. While there were small areas of grassy understory vegetation that may provide habitat for fauna species most of the grassy areas recorded were not natural grasslands but existed as a derived state from highly disturbed woodland.

3.3.3 Rare or threatened fauna

3.3.3.1 Database records

Searches undertaken of the VBA and the EPBC Act PMST identified 102 fauna species of state and/or national significance. This includes species listed as migratory under the EPBC Act. These fauna species have either been recorded within five kilometres from the study area boundaries or are predicted to occur within this search area. All species identified on from the VBA and the EPBC Act PMST species are listed in Appendix 4.

Table below provide information of the fauna species of state and/or national significance likely to occur on site.

Table 7. Listed fauna species likely to occur on site

Treaty	EPBC	FFG	Scientific name	Common name	Likelihood occurrence	Likelihood Reasoning
C,R,J			*Apus pacificus*	Fork-tailed Swift	High	While there is only one VBA record from 1980, there is a 2024 Birdata record in the broader area. This species is often under-recorded as it is difficult to observe. Species may occasionally aerially forage over the site but is unlikely to make significant use of the site.
C,J			*Ardea alba*	Great Egret	Moderate	Few local records with last record from 2019. Species is known to inhabit flooded paddocks which are present directly adjacent to the site. Species may occasionally forage on site during wetter months.
C, J			*Bubulcus coromandus*	Eastern Cattle Egret	High	While there are only two local VBA records with last record from 2001, there are some more recent (2021) Birdata records in the broader area. The study area contains suitable conditions for the species which may rarely use the site for foraging or travel.
	VU	En	*Callocephalon fimbriatum*	Gang-gang Cockatoo	Moderate	Numerous local records however, the last record was in 1995. Species is known to occur in the area and may roost or forage in trees present on site.
B, R , J,C	VU		*Gallinago hardwickii*	Latham's Snipe	Moderate	Few local records with last VBA record from 1989. More recent (2021) Birdata records occur in the broader landscape. This species often under-recorded as difficult to observe. Species inhabits wetlands with dense fringing and/or emergent vegetation which are present on site. While it is likely that the species would be present on site, it is unlikely that the species breed on site as this species does not breed in Australia.

Treaty	EPBC	FFG	Scientific name	Common name	Likelihood occurrence	Likelihood Reasoning
C,R,J	VU	Vu	*Hirundapus caudacutus*	White-throated Needletail	High	Few local records, with the last record from 2019. This species is often under-recorded as challenging to observe. The species may occasionally fly over the site whilst foraging. However, it is unlikely that the site will be significantly used by this species as this species is almost entirely aerial.
	VU	En	*Megascolides australis*	Giant Gippsland Earthworm	Moderate-High	Multiple records within the area. Species may be present in drainage lines during high rain events due to the connection with the creek where the species has been recorded though the drainage line was dry at the time of inspection.
	VU		*Neophema chrysostoma*	Blue-winged Parrot	Moderate	Numerous local records. While the last VBA record is from 1996, there are some more recent (2021) Birdata ones in the broader landscape. Species is known to forage in disturbed environments such as paddocks and to breed in south-east Victoria.
		En	*Pseudophryne semimarmo*	Southern Toadlet	Moderate-High	Numerous local records with last record from 2023. Species inhabits forests with bark and logs and not necessarily near water. As there are fragmented areas of forest, multiple wet areas/depressions, and decent number of recent records, this species may occur in some isolated areas of the site.

Potential impact(s) on the species listed in this table have been analysed in Section 5.

For the remaining listed fauna identified through database searches, the likelihood that they would occur within the study area is considered Low-Moderate, Low or Low-nil. For these species, their likelihood of occurrence is low given their habitat preferences.

4. DEVELOPMENT PROPOSAL

The proposed rail trail alignment follows in large part the formation or footprint of the former railway line that passed through the landscape from Woolamai to Nyora. In some scenarios the rail trail would leave this footprint due to restrictions based on the land, geology, hydrology or ecology. These detours are required to make the rail trail feasible in these areas.

Throughout the course of the rail trail alignment there are either partial losses associated with impacts to understorey or canopy losses and in some areas a complete loss that contains both understorey and canopy losses. Details of these indigenous vegetation impacts can be seen in Map 3, Appendix 6.

Note that an arboricultural assessment has not been completed at this stage. At this stage any tree with >10% encroachment has been considered lost. This may be refined if an arboricultural report is completed in future.

A permit is required under Clause 52.17 for the removal of the Habitat Zones and Scattered/Canopy Trees impacted by the proposed trail alignment and associated construction footprint.

Section 5 and 6 below seek to respond to Clause 52.17 and details the estimated potential impacts to Native Vegetation according to the *Guidelines for the removal, destruction and lopping of native vegetation* (DEECA 2024b).

5. RELEVANT POLICY AND LEGISLATION

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

5.1 Environment Protection and Biodiversity Conservation Act 1999

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

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

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

5.1.1 EPBC Act Listed Flora

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

Database searches for significant flora species likely to occur within 5-kilometres of the study area produced a list of 14 EPBC Act listed species. Two species were determined to have a moderate likelihood of occurring on site, these species are Strzelecki Gum and Clasping Hypocreopsis. Targeted surveys would be recommended to determine their presence or absence along the rail trail alignment however, it is likely that if any are present on site the rail trail could be altered to avoid an impact.

Given the low likelihood of occurrence across the study area for the remaining EPBC Act flora species identified through database searches, direct losses are unlikely. The risk of a significant impacts as defined by the EPBC Act on these listed flora species is therefore also deemed to be low.

At this stage, no referral is recommended under the EPBC Act in relation to significant flora species.

5.1.2 EPBC Act Listed Fauna

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

Database searches for significant fauna species likely to occur within a 5-kilometres of the study area produced a list of 70 EPBC Act listed fauna species. This includes species listed as Migratory under the EPBC Act and/or as threatened species.

Five EPBC Act listed fauna species are considered to have a 'Moderate' or higher likelihood of occurrence within the study area: Gang-gang Cockatoo *Callocephalon fimbriatum*, Latham's Snipe *Gallinago hardwickii*, White-throated Needletail *Hirundapus caudacutus*, Giant Gippsland Earthworm *Megascolides australis*, Blue-winged Parrot *Neophema chrysostoma*.

Gang-gang Cockatoo is listed as 'Vulnerable' under the EPBC Act and has a 'Moderate' likelihood of occurring within the study area. This species may occasionally visit the site to forage on flowering Eucalypts. However, as the trees on site likely do not make up significant habitat for the species it is unlikely that the development would have a significant impact on the species.

Latham's Snipe is listed as 'Vulnerable' under the EPBC Act and has a 'Moderate' likelihood of occurring within the study area. However, typically inhabits wetlands which are sparse on site. It is likely that it would only forage on site and is unlikely to breed in the vegetation present on site. As such the rail trail is unlikely to have a significant impact on this species.

White-throated Needletail is listed as 'Vulnerable' under the EPBC Act and has a 'High' likelihood of occurring within the study area. However, this species is an aerial forger it will only utilise the area above the study area so the construction and proposed rail trail is not likely to have a significant impact on this species' habitat.

Giant Gippsland Earthworm is listed as 'Vulnerable' under the EPBC Act and has a 'Moderate-High' likelihood of occurring within the study area. This is due to the presence of a few local records in the vicinity of the study area. If present on site, it is likely to only occur in the northern section of the study area near where these observations have been made. It is difficult to determine whether this species would be present on site at this time however, during the detailed design phase a more definitive likelihood can be determined. It is generally considered unlikely to occur within the study area as the development is largely within soil that has already been altered and compacted from the historical railway formation construction. Construction of the trail is unlikely to have a significant impact on the species as it typically occurs in alluvial soils along streams and is unlikely to occur in the old compacted rail formation. Avoiding old bridges that are beyond repair and placing the trail alongside on floodplains may have a minor impact of its potential habitat that would need to be considered. Due to these considerations, it is unlikely that habitat for the Giant Gippsland Earthworm would be significantly impacted by the project during the detailed design stage.



Figure 25. Local records for Giant Gippsland Earthworm around Nyora (study area in red)



Figure 26. Local record for Giant Gippsland Earthworm near Woodleigh (study area in red)

Blue-winged Parrot is listed as 'Vulnerable' under the EPBC Act and has a 'Moderate' likelihood of occurring within the study area. This species may occasionally visit the site to forage on in the paddocks and pasture present on site. However, as the trees on site likely do not make up significant habitat for the species it is unlikely that the development would have a significant impact on the species.

For these five species, targeted surveys or habitat assessments are likely required to determine whether they are present or absent within the study area.

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

5.1.3 EPBC Act Listed Communities

As detailed in Section 3.1.2.1, no EPBC listed community is likely to occur within the study area so the proposed rail trail will not impact on any of these listed communities.

5.2 Flora and Fauna Guarantee Act 1988

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

- listing of threatened taxa, communities of flora or fauna and potentially threatening processes, and creation of Action Statements and Management Plans for all listed taxa communities of flora or fauna and processes
- declaration of a Critical Habitat if the habitat is critical for the survival of a species or a community of flora or fauna, if listed as Critical Habitat, the Minister for Environment may then make an Interim Conservation Order (ICO) to conserve the Critical Habitat (NB: no Critical Habitat has been declared in the State)
- protection of flora and fauna through listing offences such as penalties relating to not following an ICO and taking, trading in, keeping, moving or processing protected flora without a licence. (NB: this does not apply to taking protected flora from private land (other than land which is part of the critical habitat for the flora) except for taking tree-ferns, grasstrees or sphagnum moss for the purpose of sale.

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

5.2.1 FFG Act Listed Flora and Fauna

There are 20 flora species and 73 fauna species listed under the FFG Act 2019 recorded within a 5 km radius of the study area.

One listed flora species were recorded on site: Spotted Gum *Corymbia maculata* – this individual was planted and not naturally occurring in the landscape. Two other flora species have a 'Moderate' or higher likelihood of occurrence on site: Clasping Hypocreopsis *Hypocreopsis amplectens* and Strzelecki Gum *Eucalyptus strzeleckii*. Targeted species surveys are recommended for these species to accurately determine their presence or absence on site.

Regarding the listed fauna, four species have a 'Moderate' or higher likelihood of occurrence on site: Gang-gang Cockatoo, White-throated Needletail, Giant Gippsland Earthworm and Southern Toadlet.

Gang-gang Cockatoo may use the trees on site for occasional foraging and breeding if they contain hollows. Whilst this species may occasionally use site, impacts from the construction of the rail trail can be avoided by limiting the removal of trees, particularly Large Trees.

White-throated Needletail may occasionally aerially forage in the area over the study area however, is unlikely to make significant use of the site. The construction of a rail trail would not significantly impact this species.

As stated in 5.1.2 above, Giant Gippsland Earthworm is unlikely to be impacted from the construction of the rail trail as it is located primarily on already altered and compacted soils and the likely area of suitable habitat for this species is limited to areas where little disruptive works needs to occur.

Southern Toadlet is the only species which is likely to be potentially impacted by the proposed construction works. A permit to remove habitat of the species may be required under the FFG Act. In order to determine their presence in the construction footprint, a targeted survey for the species was conducted.

Refer to Appendix 2 and Appendix 4 for further information on these species.

The Warragul Burrowing Crayfish *Engaeus sternalis* is listed as Critically Endangered under the FFG Act. From online searches for records of this species none were found within a 5km radius of the study area. However, this species is known to occur along Wattle Creek which intersects the study area. This species is cryptic and rarely reported hence why there are few records. As this species inhabits floodplains, similarly to the Giant Gippsland Earthworm, it is unlikely to be significantly affected from the rail trail as bridges will need to be above the floodplain. Minor impacts may occur from the construction of footings of new bridges. Surveys for this species should occur prior to construction to determine their presence within the study area.

Relevance to proposal

Targeted surveys are likely required to determine their presence or absence within the proposed rail trail footprint and a permit may be required to remove the individuals (flora) or their habitat (fauna).

5.2.2 FFG Act Listed Communities

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

Relevance to proposal

As detailed in section 3.1.3.2, no FFG Act threatened communities have been identified within the study area and therefore will not be impacted by the proposed rail trail.

5.2.3 FFG Act Protected Flora Species

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

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

The Protected Flora List includes plants from three sources:

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

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

As the site is public land and a number of these species were recorded, a permit under the FFG Act will likely be required prior to construction.

5.2.4 Flora and Fauna Guarantee Amendment Act 2019

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

The Amendment Act:

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

Relevance to proposal

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

5.3 Planning and Environment Act 1987

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

The following section considers relevant sections of the Planning Scheme.

5.3.1 State Planning Policy Framework

Clause 12 Environmental and Landscape Values

Clause 12 of the planning scheme recognises that planning:

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

Clauses of particular relevance include:

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

Relevance to proposal

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

5.3.2 Zoning

The entire site is zoned Public Park and Recreation Zone (PPRZ) and is subject to the schedule of this Zone. The purpose of this zone includes:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To recognise areas for public recreation and open space.
- To protect and conserve areas of significance where appropriate.
- To provide for commercial uses where appropriate.

Relevance to proposal

Under this zoning a permit is not required to construct a path or trail.

5.3.3 Bushfire Management Overlay

The small areas of the study area around Almurta, Victoria are covered by the Bushfire Management Overlay (BMO). The objective of this overlay is to:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.

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

Relevance to proposal

As the proposed rail trail will form a facility of recreation and leisure the BMO will apply to areas of the trail where this overlay occurs. To fulfil the requirements of the BMO an assessment under Clause 53.02 of the planning scheme will be required to create an emergency management plan and assess egress routes and appropriate amenities for the safe function of the rail trail. In addition to this, as the entire study area is within a Bushfire Prone Area, Clause 13.02-1S Bushfire Planning needs to be addressed to ensure the protection of human life is prioritised both within the development and the surrounding community.

5.3.4 Environmental Significance Overlay – Schedule 9

The Environmental Significance Overlay – Schedule 9 (ESO9) covers a few small patches in the northern portion of the study area. This overlay focuses on the habitat area of the Giant Gippsland Earthworm.

Relevance to proposal

A permit is not required to construct the following buildings or construct or carry out works, where the following apply:

- Buildings and works on lots less than 8,000 square metres within a Residential, Township or Industrial Zone.
- An alteration or extension to a dwelling where the additions do not exceed 100 square metres.
- An out-building associated with an existing use provided the building footprint is not more than 200 square metres.
- Establishment of a replacement building or dwelling within the same construction footprint.
- A survey has been conducted by a suitably qualified person establishing that no buildings and works will negatively impact Giant Gippsland Earthworm numbers. This survey is to be completed to the satisfaction of the responsible authority and the Department of Energy, Environment and Climate Action, and be in accordance with the Giant Gippsland Earthworm Environmental Significance Overlay Reference Document (September 2015).
- If a Giant Gippsland Earthworm Land Management Plan has been approved by the Department of Energy, Environment and Climate Action and the responsible authority.
- To undertake road maintenance, rehabilitation or improvement works within the formation of an existing road reserve.
- Where emergency works are required to be undertaken by or on behalf of a public authority.

All applications must be referred in accordance with Section 55 of the Act to the referral authority as specified in the schedule to Clause 66.04.

Additionally, applications under this schedule must include the following to the satisfaction to the responsible authority:

- Clear and precise details of the buildings and/or works proposed, including the location of any wastewater treatment systems, dispersal fields, stormwater flow, driveways, ground disturbance, changes to hydrology or drainage.
- Description of the purpose for the development.
- Detailed scale map of the subject land showing:
    - property boundaries and dimensions;
    - location of proposed buildings and works site;
    - all waterways, including creeks, streams, soaks, seepages or wetlands within or adjacent to works, and;
    - the locality of Giant Gippsland Earthworm habitat affected by the proposal.
- An impact assessment of the proposal on Giant Gippsland Earthworm habitat conducted by a suitably qualified person and in accordance with the *Giant Gippsland Earthworm Environmental Significance Overlay Reference Document* (September 2015).
- Details on how the application has attempted to avoid, minimise or offset negative impact on Giant Gippsland Earthworm habitat.

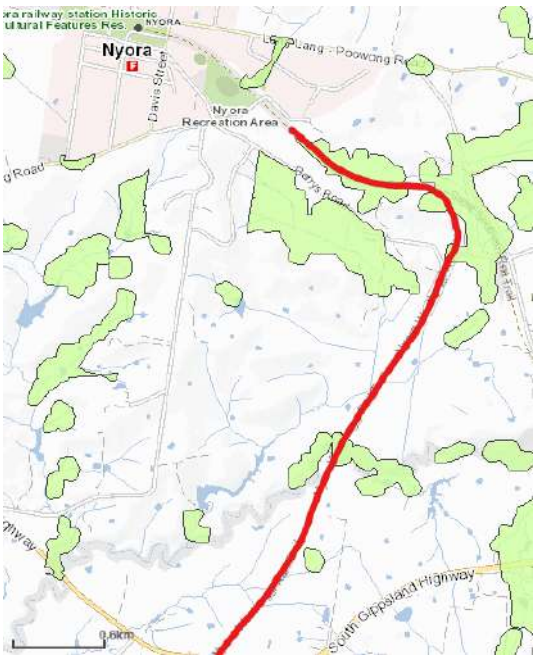


Figure 27. Location of ESO9 (in green) in relation to the study area (in red)

As detailed in Figure 27 the ESO9 only intersects the proposed railway trail in three key areas. The two northern areas have already been developed as part of previous trail projects so no impact will occur in these areas. The area to the south where the ESO9 intersects the rail trail alignment is located along Bass River. This crossing

already contains a bridge that would need little reconstruction works to be made functional. These additional works do not involve ground works so the impacts to Giant Gippsland Earthworm within the areas of the ESO9 are very unlikely.

5.3.5 Significant Landscape Overlay – Schedule 1

This overlay is present through majority of the northern part of the study area until it reaches Glen Forbes, Victoria. The purpose of this overlay is to:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To identify significant landscapes.
- To conserve and enhance the character of significant landscapes.

Schedule 1 of this overlay specifically relates to the Strzelecki Foothills and Bass Valley. It aims:

- To protect and enhance the landscape quality of the area.
- To protect and enhance vegetation within the landscape.
- To ensure that buildings are sited and designed to minimise detrimental impact on the landscape.
- To encourage development which is of a size and scale sympathetic and responsive to the surrounding high quality rural and coastal landscapes.
- To retain the dominance of the undulating and uncluttered landscape throughout the hinterland by ensuring that buildings and structures outside settlements sit within, rather than dominate the landscape.
- To maintain locations of highly scenic and natural vistas along roads and at formal lookout points.
- To minimise detrimental impact of built form along the coastline, on hill slopes visible from main roads and settlements and prominent slopes.
- To minimise the visual impact of signage and other infrastructure, particularly on hill faces, in coastal areas and in other areas of high landscape values or visibility.

Relevance to proposal

Under this overlay a permit is required to:

- Construct a building or construct or carry out works. This does not apply:
    - If a schedule to this overlay specifically states that a permit is not required.
    - To the conduct of agricultural activities including ploughing and fencing (but not the construction of dams) unless a specific requirement for that activity is specified in a schedule to this overlay.
- Construct a fence if specified in the schedule to this overlay.
- Remove, destroy or lop any vegetation specified in a schedule to this overlay. This does not apply:
    - If the table to Clause 42.03-3 specifically states that a permit is not required.

- To the removal, destruction or lopping of native vegetation in accordance with a native vegetation precinct plan specified in the schedule to Clause 52.16.

5.3.6 Development Plan Overlay – Schedule 7 (DPO7)

This overlay is present in a very small section of the former railway corridor within the Glen Forbes Recreation Reserve. The purpose of this overlay is to:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To identify areas which require the form and conditions of future use and development to be shown on a development plan before a permit can be granted to use or develop the land.
- To exempt an application from notice and review if a development plan has been prepared to the satisfaction of the responsible authority.

Relevance to proposal

A permit must not be granted to use or subdivide land, construct a building or construct or carry out works until a development plan has been prepared to the satisfaction of the responsible authority.

This does not apply if a schedule to this overlay specifically states that a permit may be granted before a development plan has been prepared to the satisfaction of the responsible authority.

A permit granted must:

- Be generally in accordance with the development plan.
- Include any conditions or requirements specified in a schedule to this overlay.

5.3.7 Land Subject to Inundation Overlay – Schedule 1 (LSIO1)

This overlay is present in various segments throughout the study area, generally where it intersects the Bass River or creek or where the land is low lying. The purpose of this overlay is to:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To identify flood prone land in a riverine or coastal area affected by the 1 in 100 (1 per cent Annual Exceedance Probability) year flood or any other area determined by the floodplain management authority.
- To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, responds to the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.
- To minimise the potential flood risk to life, health and safety associated with development.
- To reflect a declaration under Division 4 of Part 10 of the Water Act, 1989.

- To protect water quality and waterways as natural resources by managing urban stormwater, protecting water supply catchment areas, and managing saline discharges to minimise the risks to the environmental quality of water and groundwater.

- To ensure that development maintains or improves river, marine, coastal and wetland health, waterway protection and floodplain health.

Relevance to proposal

A permit is required to construct a building or to construct or carry out works, including:

- A fence.
- Roadworks, if the water flow path is redirected or obstructed.
- Bicycle pathways and trails.
- Public toilets.
- A disabled access ramp.

This does not apply:

- If a schedule to this overlay specifically states that a permit is not required.
- To roadworks or bicycle paths and trails constructed or carried out by or on behalf of the Head, Transport for Victoria, to the satisfaction of the relevant floodplain management authority.
- To flood mitigation works carried out by the responsible authority or floodplain management authority.
- To the following works in accordance with plans prepared to the satisfaction of the responsible authority:
    - The laying of underground sewerage, water and gas mains, oil pipelines, underground telephone lines and underground power lines provided they do not alter the topography of the land.
    - The erection of telephone or power lines provided they do not involve the construction of towers or poles.
- To post and wire and post and rail fencing.

Under Schedule 1 of this overlay a permit is not required to construct or carry out works associated with the use of land for agriculture, including:

- A footpath, bicycle path or boardwalk, provided that they are constructed at ground level.
- An elevated boardwalk, provided that the new surface levels are above the applicable levels set by the relevant floodplain management authority.
- A non-domestic disabled access ramp.

Note: Contact the relevant floodplain management authority to determine the appropriate floor level height. Map 1 on page 4 shows the boundaries of the two floodplain management authorities in Bass Coast Shire.

5.4 Clause 52.17

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

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

Relevance to proposal

For the proposed development on site, a planning permit is required for the removal of Native Vegetation under this Clause.

This report, and in particular, Section 6, seeks to respond to this Clause.

5.5 Wildlife Act 1975 and Wildlife Regulations 2013

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

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

Relevance to proposal

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

5.6 Catchment and Land Protection Act 1994

The *Catchment and Land Protection Act 1994* (CaLP Act) intends to manage land degradation including detrimental environmental or economic impacts of declared noxious weeds and pest animals.

Under section 20 of the (Catchment and Land Protection Act 1994) CaLP Act, all land owners, including the Crown, public authorities and licensees of Crown lands, must, in relation to their land, take all reasonable steps to:

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

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

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

State Prohibited Weeds (S) are either currently absent in Victoria or are restricted enough to be eradicated. The Victorian Government is responsible for their control.

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

Relevance to proposal

There were a number of weeds declared noxious under the *Catchment and Land Protection (CaLP) Act 1994* identified on the site. The following table lists the declared noxious weed observed on site. For legal obligations in relation to the control of these species, see: https://agriculture.vic.gov.au/biosecurity/protecting-victoria/legislation-policy-and-permits/invasive-species-laws-and-the-catchment-and-land-protection-act-1994

Table 8. Declared noxious weed occurring within the study area

Scientific Name	Common Name	Control Category (Port Phillip & Westernport)^
**Allium triquetrum*	Angled Onion	R
**Foeniculum vulgare*	Fennel	R
**Cirsium vulgare*	Spear Thistle	C
**Senecio jacobaea*	Ragwort	C
**Oxalis pes-caprae*	Soursob	R
**Crataegus monogyna*	Hawthorn	C
**Rubus fruticosus spp. agg.*	Blackberry	C

^ C = Regionally Controlled R = Restricted

Established pest animals potentially occurring on the site include:

Table 9. Declared established pest animals potentially occurring on site

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

6. NATIVE VEGETATION IMPACT ASSESSMENT

This section addresses the proposed native vegetation impacts associated with the permit application for the construction of the proposed rail trail.

A permit is required to remove native vegetation on the site as outlined in the Native Vegetation Clause 52.17 of the planning scheme and detailed in the *Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017).

The purpose of clause 52.17 and 'the Guidelines' is to ensure a no net loss to biodiversity as a result of removal or loss of native vegetation. This is achieved in three steps:

1. Avoid the removal, destruction or lopping of native vegetation
2. Minimise impacts from the removal where native vegetation cannot be avoided and,
3. Provide an offset to compensate for the biodiversity impact if a permit is granted

This section has been separated into two sub sections that explore differing amounts of native vegetation removal.

Section 6.2 explores the possibility of a 7 metre buffer along the approximate rail trail alignment. This takes into consideration the 4 metre width of the rail trail with a 2 metre buffer either side to allow for batters or other infrastructure requirements that may need to be installed. It is noted that this is the most likely footprint for the rail trail for a detailed study.

Section 6.3 outlines the worst case scenario that may be required by DEECA for linear infrastructure. In this case the extent of native vegetation deemed lost would include the proposed rail trail including a 34 metre buffer from the footprint (37 metres total). This has been explored in relation to the requirements of vegetation removal along linear infrastructure. Utilising this methodology, even if native vegetation is not physically removed it is still considered lost as the rail trail may cause impacts to trees over their lifetime.

The native vegetation removal reports (NVR Reports) that were produced for each scenario used modelled scores from DEECA's *Native vegetation removal tool*. The modelled scores were chosen as the condition of the native vegetation was likely higher than the actual conditions leading to overestimated scores. This will provide redundancy if development was to proceed as the likely quantity and actual cost of offsets is likely lower than what is estimated within this report.

There may be some exemptions that apply for in relation to the removal of native vegetation along the rail trail. An exemption means that a permit does not need to be granted to remove the indigenous vegetation and offsets do not need to be sought. Out of all the exemptions one may be applicable to select areas along the Crown land reserve, this exemption is the Road Safety exemption. This exemption is for the clearing of native vegetation for the safe and efficient function of an existing road. This exemption would apply for the vegetation around the roadsides that the proposed rail trail would intersect. In many cases this vegetation has not been included within the offset calculations however, in some cases the vegetation overlaps. During a detailed analysis of the native vegetation impacts this exemption would need to be considered when calculating the offsets required.

An analysis of the Regrowth exemption was conducted however, it is our understanding that this clearing would only apply to areas that were legally cleared and regrowth is less than 10 years old. As the area is Crown land

and the railway hasn't operated within the last 10 years, any vegetation that was cleared within this parcel was likely illegal and therefore this exemption does not apply in this case.

6.1 Assessment Pathway

An application to remove, destroy or lop native vegetation must be classified as one of the following assessment pathways:

- basic
- intermediate
- detailed

The application requirements and decision guidelines in Clause 52.17 must be applied in accordance with the relevant assessment pathway.

To determine the assessment pathway, two factors are considered in relation to the native vegetation proposed to be removed:

- the location category (shown in the location map as location 1, 2 or 3)
- the extent of proposed native vegetation removal

Table 10. Determining the Assessment Pathway

Extent of native vegetation	Location category		
	Location 1	Location 2	Location 3
Less than 0.5 hectares and not including any large trees	Basic	Intermediate	Detailed
Less than 0.5 hectares and including one or more large trees	Intermediate	Intermediate	Detailed
0.5 hectares or more	Detailed	Detailed	Detailed

Source: Table 3, *Guidelines for the removal, destruction or lopping of native vegetation* (DEECA 2024b)

6.1.1 Location category

The location category has been determined for all of Victoria. Native vegetation will be in either Location 1, 2 or 3 as outlined below:

- Location 3 – includes locations where the removal of less than 0.5 hectares of native vegetation could have a significant impact on habitat for a rare or threatened species.
- Location 2 – includes locations that are mapped as endangered EVCs and/or sensitive wetlands and coastal areas are not included in Location 3.
- Location 1 – includes all remaining locations in Victoria.

The vegetation to be removed is in Locations 1 and 2. Figure 28 below shows the location category.

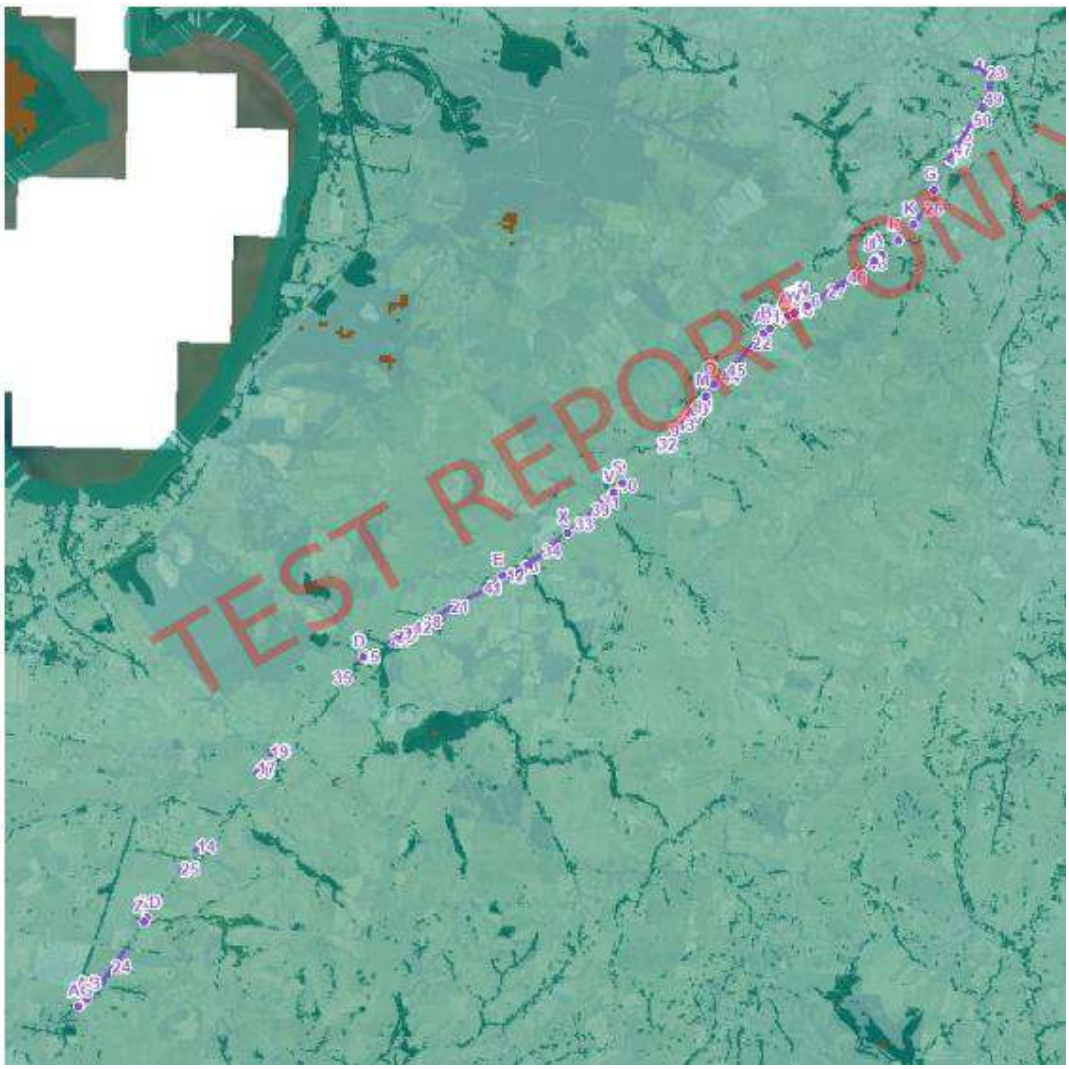


Figure 28. Location category for vegetation to be removed.

6.2 7 metre Buffer Vegetation Removal Impacts

This section the native vegetation removal requirements relating to a 7 metre wide band of native vegetation being impacted by the proposed rail trail for its entire 24km length. This buffer follows the existing rail formation which will limit the impacts to native vegetation. However, as there is some regeneration along the formation and edge impacts from the proposed rail trail some impacts will still occur. This 7 metre approach takes into consideration the 3 metre width of the rail trail and a 2 metre buffer either side for batters and other infrastructure. This method is considered a practical approach in determining the impacts to native vegetation and would likely be the actual footprint during the detailed design stage of the project. This buffer has the potential to be reduced in areas where sensitive construction could occur and the trail width is reduced in areas like high quality vegetation but would need to be discussed further in the event that this happens.

6.2.1 Extent of impact from proposed development

As outlined in 'The Guidelines', an application must consider:

- the proposal and all buildings and works that could impact on existing native vegetation, including mapped wetlands.
- Consider any ancillary uses, utilities, access and earthworks associated with the use or development and any defendable space requirements.
- The full extent of native vegetation removal must be considered.
- Assumed losses account for indirect loss of native vegetation for example, encroachment into tree protection zones, loss from changed water flows and shading.

Using this methodology the impacts to native vegetation would include:

- 3.30 ha of EVC 16: Lowlands Forest,
- 0.73 ha of EVC 18: Riparian Forest,
- 2.40 ha of EVC 53: Swamp Scrub,
- 11 Large Scattered Trees, and
- 7 Small Scattered Trees.

6.2.2 Assessment Pathway

As there is greater than 0.5 ha of proposed clearing, the site follows the Detailed application pathway.

Table 11 presents the application requirements to remove native vegetation under Clause 52.17 as provided in *the Guidelines for the removal, destruction and lopping of native vegetation* (DEECA 2024c) and details whether these have been met.

Table 11. Application requirements for applications for a permit to remove native vegetation

No.	Application requirements	Assessment Pathway	Provided/response
		Detailed	
1	Information about the native vegetation to be removed, including: • the assessment pathway and reason for the assessment pathway. This includes the location category of the native vegetation to be removed • a description of the native vegetation to be removed • maps showing the native vegetation and property in context • the offset requirement, determined that will apply if the native vegetation is approved to be removed.	Native Vegetation Removal (NVR) Report And Section 6.1.2	Yes ☒ No ☐ N/a ☐
2	Topographic and land information relating to the native vegetation to be removed, showing ridges, crests and hilltops, wetlands and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion, as appropriate.	Shown in Map 1-3	Yes ☒ No ☐ N/a ☐
3	Recent photographs (dated) of the native vegetation to be removed.	Section 3.1	Yes ☒ No ☐ N/a ☐
4	Details of any other native vegetation approved to be removed, or that was removed without the required approvals, on the same property or on contiguous land in the same ownership as the applicant, in the five year period before the application for a permit is lodged.	None	Yes ☒ No ☐ N/a ☐
5	An avoid and minimise statement. The statement describes any efforts to avoid the removal of, and minimise the impacts on the biodiversity and other values of native vegetation, and how these efforts focussed on areas of native vegetation that have the most value.	Section 6.3	Yes ☒ No ☐ N/a ☐
6	A copy of any property vegetation plan that applies to the site.	N/A	Yes ☐ No ☐ N/a ☒
7	Where the removal of native vegetation is to create defendable space, a written statement explaining why the removal of native vegetation is necessary. This is not required when the creation of defendable space is in conjunction with an application under the Bushfire Management Overlay.	N/A	Yes ☐ No ☐ N/a ☒
8	If the application is under Clause 52.16, a statement that explains how the proposal responds to the Native Vegetation Precinct Plan	N/A	Yes ☐ No ☐ N/a ☒
9	An offset statement explaining that an offset that meets the offset requirements for the native vegetation	Section 6.5	Yes ☒ No ☐ N/a ☐

No.	Application requirements	Assessment Pathway	Provided/response
		Detailed	
	to be removed has been identified and how it will be secured.		
10	A site assessment report of the native vegetation to be removed, completed by an accredited native vegetation assessor.	Section 3.1.3	Yes ☒ No ☐ N/a ☐
11	Information about impacts on rare or threatened species habitat	Appendix 4	Yes ☒ No ☐ N/a ☐

6.2.3 Avoid and Minimising impacts to biodiversity

Table 12 details the steps that have been applied to avoid and minimise impacts of the proposed development.

Table 12. Steps taken to avoid and minimise biodiversity impacts

Steps taken to avoid and minimise biodiversity impacts
• Small buffer applied to edge of proposed trail to reduce impacts to native vegetation along edges of trail • Trail alignment utilising existing rail formation where possible where little native vegetation is present • Trail deviates around trees, particularly larger trees, where possible to avoid impacts to native vegetation

6.2.4 Native vegetation removal requirements

The Native Vegetation Removal report is provided by DEECA as per the proposed 7 metre buffer methodology as outlined above. A summary of the report is given in Table 13 and the full report is provided in Appendix 4.

Table 13. Summary of native vegetation to be removed for 7 metre buffer methodology.

Summary Item	Result
Assessment pathway	Detailed
Total extent	6.657 ha
Extent of past removal	0.000 ha
Scattered Trees (large)	11 trees
Scattered Trees (small)	7 trees
Location category	2

Offset targets

If a permit is granted to remove the selected vegetation using this methodology, a requirement to obtain a native vegetation offset will be included in permit conditions. In this scenario the offset must meet the following requirements:

Table 14. Offsets required for 7 metre buffer methodology.

Offset amount	Offset attributes
General Offset amount	• 1.8730 General Habitat Units

	• Offset must be within Melbourne Water CMA or South Gippsland Shire LGA, Bass Coast Shire LGA • Offset must have a minimum strategic biodiversity value of 0.3668 • 11 large trees
Specific Offset amount	• 1.611 species units of habitat for Giant Gippsland Earthworm *Megascolides australis* • 0 large trees

This is the likely scale of impact that would result from the construction of the proposed rail trail because of the following issues:

- Much of the Crown land reserve is already cleared of native vegetation and has been maintained in that condition by grazing by adjacent property owners;

- Detailed assessment of the indigenous trees along the trail would be assessed as part of the detailed planning process and it is likely that any losses of significant trees can be avoided and minimised.

Any trees in close proximity of the constructed trail can be assessed by arborists to determine the level of disturbance to root zones. Completing this will likely prevent the associated loss of many trees along the rail trail alignment as the impacts from the trail on the roots of some trees may be minimal. An arborist would likely also provide measures to ensure the ongoing health of trees located near the trail is maintained during construction of the trail and during its ongoing use.

6.3 37 metre Buffer Vegetation Removal Impacts

This section the native vegetation removal requirements relating to a 37 metre wide band of native vegetation being impacted by the proposed rail trail for its entire 24km length. This has been considered due to requirements of DEECA for the removal of vegetation along linear infrastructure such as trails, pathways and pipelines. There is a requirement to consider the overall maximum TPZ of trees that have not been assessed that may potentially be impacted from development. These requirements are outlined within the *Assessor's Handbook – Applications to remove, destroy or lop native vegetation* (DELWP 2017) which details the required buffer widths of linear infrastructure until detailed assessment is completed later. This buffer does not cross over the Crown land reserve boundary into private land and has been cut off where the intersect occurs.

This methodology is a test of the worst case scenario and should not be relied upon for the actual impacts from the proposed rail trail. The detailed design process and inspection by an arborist to determine potential impacts on tree health of retained trees along the trail during construction will enable the significant reduction of the possible impact.

6.3.1 Extent of impact from proposed development

As outlined in 'The Guidelines', an application must consider:

- the proposal and all buildings and works that could impact on existing native vegetation, including mapped wetlands.
- Consider any ancillary uses, utilities, access and earthworks associated with the use or development and any defendable space requirements.
- The full extent of native vegetation removal must be considered.
- Assumed losses account for indirect loss of native vegetation for example, encroachment into tree protection zones, loss from changed water flows and shading.

Using this methodology the impacts to native vegetation would include:

- 15.61 ha of EVC 16: Lowland Forest,
- 3.12 ha of EVC 18: Riparian Forest,
- 10.76 ha of EVC 53: Swamp Scrub
- 16 Large Scattered Trees, and
- 12 Small Scattered Trees

6.3.2 Assessment Pathway

As there is greater than 0.5 ha of proposed clearing, the site follows the Detailed application pathway.

Table 15 presents the application requirements to remove native vegetation under Clause 52.17 as provided in *the Guidelines for the removal, destruction and lopping of native vegetation* (DEECA 2024c) and details whether these have been met.

Table 15. Application requirements for applications for a permit to remove native vegetation

No.	Application requirements	Assessment Pathway	Provided/response
		Detailed	
1	Information about the native vegetation to be removed, including: • the assessment pathway and reason for the assessment pathway. This includes the location category of the native vegetation to be removed • a description of the native vegetation to be removed • maps showing the native vegetation and property in context • the offset requirement, determined that will apply if the native vegetation is approved to be removed.	Native Vegetation Removal (NVR) Report And Section 6.1.2	Yes ☒ No ☐ N/a ☐
2	Topographic and land information relating to the native vegetation to be removed, showing ridges, crests and hilltops, wetlands and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion, as appropriate.	Shown in Map 1-3	Yes ☒ No ☐ N/a ☐
3	Recent photographs (dated) of the native vegetation to be removed.	Section 3.1	Yes ☒ No ☐ N/a ☐
4	Details of any other native vegetation approved to be removed, or that was removed without the required approvals, on the same property or on contiguous land in the same ownership as the applicant, in the five year period before the application for a permit is lodged.	None	Yes ☒ No ☐ N/a ☐
5	An avoid and minimise statement. The statement describes any efforts to avoid the removal of, and minimise the impacts on the biodiversity and other values of native vegetation, and how these efforts focussed on areas of native vegetation that have the most value.	Section 6.3	Yes ☒ No ☐ N/a ☐
6	A copy of any property vegetation plan that applies to the site.	N/A	Yes ☐ No ☐ N/a ☒
7	Where the removal of native vegetation is to create defendable space, a written statement explaining why the removal of native vegetation is necessary. This is not required when the creation of defendable space is in conjunction with an application under the Bushfire Management Overlay.	N/A	Yes ☐ No ☐ N/a ☒

No.	Application requirements	Assessment Pathway	Provided/response
		Detailed	
8	If the application is under Clause 52.16, a statement that explains how the proposal responds to the Native Vegetation Precinct Plan	N/A	Yes ☐ No ☐ N/a ☒
9	An offset statement explaining that an offset that meets the offset requirements for the native vegetation to be removed has been identified and how it will be secured.	Section 6.5	Yes ☒ No ☐ N/a ☐
10	A site assessment report of the native vegetation to be removed, completed by an accredited native vegetation assessor.	Section 3.1.3	Yes ☒ No ☐ N/a ☐
11	Information about impacts on rare or threatened species habitat	Appendix 5	Yes ☒ No ☐ N/a ☐

6.3.3 Avoid and Minimising impacts to biodiversity

Table 16 details the steps that have been applied to avoid and minimise impacts of the proposed development.

Table 16. Steps taken to avoid and minimise biodiversity impacts

Steps taken to avoid and minimise biodiversity impacts
• Trail alignment utilising existing rail formation where possible where little native vegetation is present • Vegetation deemed lost under Clause 52.17 will be physically retained • Trail deviates around trees where possible to avoid physical impacts to native vegetation

6.3.4 Native vegetation removal requirements

The Native Vegetation Removal report is provided by DEECA as per the clearing outlined above. A summary of the report is given in Table 17 and the full report is provided in Appendix 5.

Table 17. Summary of native vegetation to be removed for 37 metre buffer methodology.

Summary Item	Result
Assessment pathway	Detailed
Total extent	30.418 ha
Extent of past removal	0.000 ha
Scattered Trees (small)	16 trees
Scattered Trees (large)	12 trees
Location category	2

Offset targets

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

Table 18. Offsets required if a permit is granted.

Offset amount	Offset attributes
General Offset amount	• 0.1350 General Habitat Units • Offset must be within Melbourne Water CMA or South Gippsland Shire LGA, Bass Coast Shire LGA • Offset must have a minimum strategic biodiversity value of 0.3375 • 2 large trees
Specific Offset amount	• 7.587 species units of habitat for Giant Gippsland Earthworm *Megascolides australis* • 14.861 species units of habitat for Strzelecki Gum *Eucalyptus strzeleckii* • 14 large trees

In cases of linear infrastructure, it is necessary to avoid a detailed requirement for an offset condition in any permit as it is anticipated that through detailed design and sensitive construction that the impacts on native vegetation will be significantly reduced. With long stretches of linear infrastructure, it is unrealistic to do the detailed design work at the point of feasibility or initial assessment and a clear requirement to reduce the impacts and offsets through the detailed design implemented in later stages must be anticipated.

6.4 Offset Strategy

All applications that require a permit to remove native vegetation must include an offset strategy as a part of the application.

Offsets can be either:

- First party – located on land owned by the landholder who is proposing to remove the native vegetation
- Third party – located on land owned by a third party

The offsets that are required to account for vegetation loss on site are to be achieved by creating third party offsets off-site.

Due to there being very limited species-specific offsets available for the listed species Giant Gippsland Earthworm and Strzelecki Gum gaining offsets for these species may be very challenging or impossible via the third party method. A search of the credit register indicates that such offsets are not readily available through a third-party. Sourcing of this offset is not likely to be straightforward, and will require further correspondence with DEECA regarding how to approach the attainment of this offset; an alternative arrangement may need to be sought and approved.

In some scenarios, the species-specific offset requirements can be removed from obligations after corresponding with DEECA. During the detailed assessment this option may need to be explored in order to be able to acquire offsets for the project. Further correspondence would be needed with DEECA to determine if the offset type for this vegetation can be amended.

The approach to the removal of a rare or threatened species from the removal report as outlined in the *Assessor's handbook Applications to remove, destroy or lop native vegetation* (DELWP 2017) states the following:

> *The applicant receives an NVR report including species offset requirements and considers that the native vegetation to be removed has habitat characteristics that are clearly inconsistent with the habitat requirements of a species requiring an offset.*

The applicant consults with a competent ecologist (this may also be the accredited assessor that completed the site assessment) to prepare the proposal. The completed site assessment should provide sufficient information to confirm habitat characteristics of the site. Additional species survey is not required.

A proposal to remove a rare or threatened species from the assessment process is compiled and emailed with the subject 'species habitat review – removal site' to nativevegetation.support@delwp.vic.gov.au.

Native vegetation support team will review the proposal and consult with relevant DELWP experts including regional officers. The outcome will be provided within 20 working days. If the proposal is not supported, the native vegetation will be considered habitat as depicted in the Habitat importance map.

If the proposal is supported, an amended NVR report excluding the relevant species from the assessment will be provided and must be included in the final application.

A proposal to remove a rare or threatened species from the assessment process must include:

1. The NVR report for the proposed removal of native vegetation, identifying which species offset is proposed to be removed from the assessment process.

2. Photographs of the native vegetation to be removed, specifically the habitat zones under consideration.

3. Justification, confirmed by a competent ecologist, that the habitat characteristics of the native vegetation to be removed are clearly inconsistent with the habitat requirements of the species. The native vegetation should not meet any of the habitat requirements for the species. Habitat requirements may include (but are not limited to) areas suitable for propagation, breeding, foraging, movement, landscape permeability or habitat connectivity. Include:

a. a brief description of the habitat requirements of the species, with references from credible sources

b. a brief description of the habitat characteristics of the native vegetation proposed to be removed, specifically for the habitat zone under consideration.

4. The credentials of the competent ecologist.

The offsets for species such as Giant Gippsland Earthworm could potentially be removed with evidence of sensitive detailed design of the rail trail that would minimise impacts to this species. This has already been on several occasions in West Gippsland because it has been generally determined that the Environmental Significance Overlay was drawn conservatively and included in areas where they do not actually occur. If it is determined that areas of the ESO protecting the Gippsland Giant Earthworm do not actually contain populations of the species there are precedents to remove that habitat from the Habitat Importance Maps that inform the Species-specific Unit offsets which would eliminate any of the species-specific units required from the offset.

In extreme cases where species specific offsets are required an cannot be removed but cannot be found via a third party, alternative offsets can be nominated to be acquired as a substitute. This can be investigated further during the detailed assessments.

7. RECOMMENDATIONS TO BE CONSIDERED

7.1 Targeted Surveys

As previously mentioned, targeted surveys or habitat assessments are likely recommended for all EPBC Act and FFG Act species identified as having a 'Moderate' or higher likelihood of occurring on site as outlined in Section 5.1.1, Section 5.1.2 and Section 5.2.1. The species recommended for further analysis include:

- Clasping Hypocreopsis *Hypocreopsis amplectens*
- Gang-gang Cockatoo *Callocephalon fimbriatum*
- Latham's Snipe *Gallinago hardwickii*
- Giant Gippsland Earthworm *Megascolides australis*
- Blue-winged Parrot *Neophema chrysostoma*

7.2 Fauna

Effort should be made to ensure any wildlife located within any area proposed for clearing is carefully salvaged and relocated from the works areas. This should also ensure minimal wildlife damage during the works.

Prior to any excavation activities it is recommended that a zoologist inspect the alignment for the presence of Southern Toadlet and any other fauna that may be present. If any are found a zoologist should be onsite during soil disturbance activities to undertake fauna salvage.

7.3 Native vegetation

Native vegetation has been identified and mapped across the site. The works area should be clearly flagged out as environmental protection zones to avoid impacts to adjacent areas of native vegetation. This is especially important for the large trees, which provide important habitat features for native fauna. Additionally, although small scattered amounts of indigenous vegetation were not mapped as habitat zones due to their low densities, the removal of indigenous vegetation requires a permit under Clause 52.17 and therefore these plants cannot be removed without a permit.

7.4 Revegetation and Landscaping

Whilst revegetation along the rail trail is not strictly necessary, it would provide visual appeal to the rail trail and when established a visual and potential biosecurity barrier for residents whose properties are located adjacent to the rail trail alignment. Revegetation would need to consider the local landscape and its location, drainage, elevation and soil composition. Plants must also be sourced from a local native nursery that grows plants of local provenance to the site. This is necessary to preserve the genetic gene pool of the area and prevent non-viable cross breeding from occurring.

The overall goal for initial revegetation is to increase the visual appeal of key locations or provide visual barriers for neighbours at the end of the construction period and not to revegetate the entire length of the rail trail. The overall goal would be to conduct strategic revegetation in the hope that a community interested in enhancing the rail trail corridor forms around the trail that would be eager to conduct additional revegetation and apply for grants to do so over the long term, as has occurred along many trails in Victoria. It is possible that some of this revegetation could be part of the required offset for native vegetation losses if designed properly to meet such requirements.

The proposed rail trail should also be considered to be a significant long term conservation project as well as a recreational and tourism project. It could be suggested that this is a critical aspect of the project as the restoration of the natural environment and the wildlife corridor the rail trail corridor represents will significantly enhance the experience of the rail trail for its' users over time. As detailed above the Gippsland Plains Bioregion is substantially cleared of native vegetation and the Crown land reserve it would be built in represents one of the few opportunities to enhance habitat and its' connectivity in the local landscape.

Designing of revegetation should take into consideration the *National Standards for the Practice of Ecological Restoration in Australia* (AABR 2021). The Standards identify the need, purpose and principles of ecological restoration – and outline the steps required to plan, implement, monitor and evaluate a restoration project to increase the likelihood of its success.

The Standards also aim to aid private, public and community sectors in their efforts to encourage, measure and audit ecologically appropriate environmental repair in all land and water ecosystems of Australia.

Table 19, Table 20 and Table 21 below have been provided as planting pallets that can be used for appropriate areas. This has been calculated in plots of 100m^2 that can be extrapolated out to larger revegetation areas. These pallets take into consideration the percentage cover each lifeform would occupy in a healthy, mature environment to determine the density of planting. The planting pallets are also standardised to all equate to 50 plants per 100m^2 to allow for ease of costing and procuring plants.

Table 19. Planting Pallet for EVC 16: Lowland Forest

Lifeform Type	Benchmark Cover for Mature EVCs (%)	Common Name	Scientific Name	Maximum Mature Height	No. per 100m²
T	30	Messmate Stringybark	*Eucalyptus obliqua*	90m	1
		Narrow-leaf Peppermint	*Eucalyptus radiata*	50m	
UT	10	Blackwood	*Acacia melanoxylon*	45m	3
MS	30	Prickly Moses	*Acacia verticillata*	10m	6
		Silver Banksia	*Banksia marginata*	10m	
		Heath Tea-tree	*Gaudium myrsinoides*	2.5m	
		Common Heath	*Epacris impressa*	2m	
		Prickly Tea-tree	*Leptospermum continentale*	2m	
		Hop Goodenia	*Goodenia ovata*	2m	
		Common Cassinia	*Cassinia aculeata*	3m	
		Burgan	*Kunzea leptospermoides*	5m	
SS	10	Erect Guinea-flower	*Hibbertia riparia*	1.2m	10
		Common Hovea	*Hovea heterophylla*	1m	
		Common Flat-pea	*Platylobium obtusangulum*	1m	
		Broom Spurge	*Amperea xiphoclada var. xiphoclada*	0.9m	
LTG	15	Small Grass-tree	*Xanthorrhoea minor ssp. Lutea*	1m	10
		Spiny-headed Mat-rush	*Lomandra longifolia*	1m	

T – Canopy Tree, **UT** – Understorey Tree, **MS** – Medium Shrub, **SS –** Small Shrub, **LTG** – Large Tufted Graminoid, **MTG** – Medium Tufted Graminoid

Table 20. Planting Pallet for EVC 18: Riparian Forest

Lifeform Type	Benchmark Cover for Mature EVCs (%)	Common Name	Scientific Name	Maximum Mature Height	No. per 100m²
T	40	Messmate Stringybark	*Eucalyptus obliqua*	90m	1
		Narrow-leaf Peppermint	*Eucalyptus radiata*	50m	
		Manna Gum	*Eucalyptus viminalis*	50m	
		Swamp Gum	*Eucalyptus ovata*	20m	
UT	15	Blackwood	*Acacia melanoxylon*	45m	3
		Silver Wattle	*Acacia dealbata*	30m	
		Hazel Pomaderris	*Pomaderris aspera*	15m	
MS	25	Prickly Moses	Acacia verticillata	10m	6
		Snow Daisy-bush	Olearia lirata	4m	
		Common Cassinia	*Cassinia aculeata*	3m	
		Hop Goodenia	*Goodenia ovata*	2m	
		Prickly Tea-tree	*Leptospermum continentale*	2m	
		Tree Everlasting	*Ozothamnus ferrugineus*	2.5m	
LTG	15	Red-fruit Saw-sedge	*Gahnia sieberiana*	2.5m	20
		Tall Sedge	*Carex appressa*	1.7m	
		Common Tussock-grass	*Poa labillardierei*	1.3m	
		Spiny-headed Mat-rush	*Lomandra longifolia*	1m	

T – Canopy Tree, **UT** – Understorey Tree, **MS** – Medium Shrub, **LTG** – Large Tufted Graminoid, **MTG** – Medium Tufted Graminoid

Table 21. Planting Paller for EVC 53: Swamp Scrub

Lifeform Type	Benchmark Cover for Mature EVCs (%)	Common Name	Scientific Name	Maximum Mature Height	No. per 100m²
T	–	Swamp Gum	*Eucalyptus ovata*	20m	1
UT	50	Woolly Tea-tree	*Leptospermum lanigerum*	4m	4
MS	10	Swamp Paperbark	*Melaleuca ericifolia*	7m	5
		Prickly Currant-bush	*Coprosma quadrifida*	5m	
		Prickly Tea-tree	*Leptospermum continentale*	2m	
LTG	10	Tall Rush	*Juncus procerus*	2.5m	10
		Common Tussock-grass	Poa labillardierei	1.3m	
MH	–	Bidgee-widgee	*Acaena novae-zelandiae*	1.5cm	10

UT – Understorey Tree, **MS** – Medium Shrub, **LTG** – Large Tufted Graminoid, **MTG** – Medium Tufted Graminoid, **MH** – Medium Herb

7.4.1 Approximate Opinion of Probably Costs for Revegetation

As the amount of revegetation proposed to be undertaken is unknown at this time, the opinion of probable costs in Table 22 below are based on 1ha of revegetation including labour to install and maintain plants.

Table 22. Approximate opinion of probable costs for 1ha of revegetation

Item	Activities	Estimated Hours	Rate	Item	#	Rate	Cost (ex. GST)
Procurement of plants	Cost for ordering and procurement for plants per 1ha plot	–	$3/plant	Indigenous Plants	5000	$3/plant	$15,000.00
Procurement of necessary resources	Costs for other materials that may be required, herbicide, plant guards, stakes etc.	–	–	Herbicide	20	$90.00	$1,800.00
				Biodegradable Plant Guards	5100	$70.00 (pack of 25)	$7,140.00
				Hardwood Stakes	11000	$75.00 (pack of 50)	$16,500.00
				Jute Mat Squares	5100	$150.00 (pack of 100)	$7,650.00
Pre installation preparation*	Costs associated with the preparation of the site prior to revegetation occurring (i.e. spraying herbicide, removal of weeds etc.)	16	$90	–	–	–	$1,440.00
Installation of plants	Costs associated with the planting of plants per 1ha plot.	8	$90	–	–	–	$720.00
Maintenance of plants*	Costs associated with the ongoing maintenance of installed plants for a 2-year period (i.e. herbicide application, removal of weeds, watering etc.)	384	$90	–	–	–	$34,560.00
	Total Hours	**216**					
	Total (excluding GST)						**$84,810.00**
	20% Contingency						**$16,962.00**
	Total (excluding GST)						**$101,772.00**
	Total (excluding GST)						**$111,949.20**

*The maintenance costs for the revegetation is over a 2-year period and for 1ha of planting. Establishing more than 1ha of plantings likely wouldn't greatly increase the costs of ongoing maintenance as crews would be able to maintain larger areas than 1ha in a day and would also save on travel time as there would only be the need for one trip. Essentially the more revegetation conducted the more savings can be made on maintenance.

Note with the table above that larger areas of revegetation to manage will not drastically increase the hours required for work, as multiple 1ha patches can be maintained in one day so time for travel, set up and pack up wouldn't need to be added to extra plots.

8. ESTIMATED OPINION OF PROBABLE COSTS FOR ECOLOGICAL MATTERS

Table 1 below provides the opinion of probable costs for all items covered within this report including the approximate amount required for third party offsets that would need to be sourced prior to development. It should be noted that these figures are estimates and have likely been overestimated to allow for small variations that may occur when works occur. A brief description of the tasks involved with each item is discussed below.

Table 23. Approximate costs for ecological work in the design of the rail trail

Item	Activities		Estimated Hours	Rate/hr	Cost (ex. GST)
Detailed Ecological Assessment and Native Vegetation Impact Analysis	Costs associated with a detailed ecological assessment including subsequent reporting on site conditions and a detailed assessment for impacts to native vegetation.		137	$160.00	$25,280.00
Targeted Surveys for Rare or Threatened Species	Costs associated with the completion of targeted surveys for all rare or threatened species under the FFG Act and EPBC Act that are deemed likely to be present or utilise the site.		500	$160.00	$80,000.00
State Native Vegetation Offsets (GHU's)	Costs associated with the procurement of state native vegetation offsets for General Habitat Units from a third party supplier. Prices estimated based on public data dated 30/06/2024.	7 metre buffer	n/a	n/a	Approx. $440,000.00
		37 metre buffer	n/a	n/a	Approx. $32,000.00
State Native Vegetation Offsets Giant Gippsland Earthworm*	Costs associated with the procurement of state native vegetation offsets for Giant Gippsland Earthworm from a third party supplier.	7 metre buffer	n/a	n/a	None available
		37 metre buffer	n/a	n/a	None available
State Native Vegetation Offsets Strzelecki Gum*	Costs associated with the procurement of state native vegetation offsets for Strzelecki Gum from a third party supplier. Prices estimated based on public data dated 30/06/2024.	7 metre buffer	n/a	n/a	n/a
		37 metre buffer	n/a	n/a	Approx. $7,130,000.00
Bushfire Assessment	Costs associated with an assessment and reporting to satisfy the requirements of the BMO across the site and addressing Clause 53.02 of the planning scheme and Clause 13.02-1S		45	$160.00	$7,200.00
Construction Environmental Management Plan	Costs associated with the creation of a Construction Environmental Management Plan (CEMP) during construction works on site.		40	$160.00	$6,400.00
Land Management Plan	Costs associated with the creation of a Land Management Plan (LMP) that would detail how the trail should be appropriately managed for a 10-year period.		74	$160.00	$11,840.00
Revegetation	Total costs associated with revegetation and maintenance on site for 1ha as shown in Table 22.		216	$90.00	$101,772.00

***Only required if native vegetation impacts determine it is necessary after mitigation measures are implemented during detailed design.**

As seen within Table 1, native vegetation offsets may vary depending on the scope of vegetation removal. As demonstrated offsets for Giant Gippsland Earthworm are unavailable and are likely very hard to source. As such alternative measures would need to be undertaken to reach the offset conditions within the NVR Report (Appendix 4).

Additionally, the estimated hours for targeted surveys for rare or threatened flora and fauna are likely higher than what would be required in reality. As it is very difficult to determine what species would need to be surveyed for at this time and where the key habitat is present, the species required for analysis would be determined during the detailed flora and fauna surveys.

The presence of some threatened species could be determined from an arboricultural assessment of the trees within the Crown land reserve which is recommended to inform the losses of trees along the proposed rail trail alignment. This could include an assessment of hollow bearing trees to determine the presence of some species. An arborist report would also identify the presence or absence of Strzelecki Gums within the Crown land reserve and map their locations so that impacts to this species can be minimised.

8.1.1 Detailed Ecological Assessment and Native Vegetation Impact Analysis

The detailed ecological assessment would involve traversing the entire site and conducting a Habitat Hectares Assessment for all native vegetation patches present within the footprint or close to construction that may be impacted. This involves scoring the habitat based on observable features such as percent cover of native species, cover of weeds, logs, canopy health and neighbourhood factors. This assessment would also serve to inform whether Targeted Surveys are required for FFG Act and EPBC Act listed species as discussed in Section 5.

Using the information captured during the detailed ecological assessment, a detailed native vegetation impact analysis would be conducted to determine the extent of native vegetation that will be impacted from the proposed works. This will either be as General Habitat Units (GHUs) or Species Specific Units (SSUs). This will inform the offsets that are required to be obtained before construction commences.

As stated in Table 23 our opinion of the probable hours and costs for these services is 137 hours which equates to a cost of $25,280.00 at $160.00 per hour.

This will need to be undertaken by a qualified ecologist.

8.1.2 State Native Vegetation Offsets

Procurement of state native vegetation offsets will be required prior to construction commencing to account for the native vegetation that will be impacted from the development of the rail trail. These will need to be purchased from a third party supplier such as an offset broker.

Table 23 above outlines our estimate of the costs required for both the 7 metre and 37 metre methodology used to determine impacts for native vegetation. This was determined using publicly available data of recent sales using similar General Habitat Units and Strategic Biodiversity Scores as the ones calculated for the study area and extrapolating the data.

It is noted that the costs associated with the 7 metre buffer method are much higher than the 37 metre buffer method. However, the 37 metre buffer contains a larger number of federal offsets which are significantly more expensive than the state native vegetation offsets.

8.1.3 Construction Environmental Management Plan

A Construction Environmental Management Plan (CEMP) will likely be required prior to construction commencing to ensure that appropriate measures are undertaken to protect the native flora and fauna values present on site outside the construction zone. A CEMP typically covers potential issues such as noise, dust, erosion, sediment, waste, chemicals, significant flora/fauna and archaeological heritage. The CEMP would provide mitigation measures to be implemented during construction to reduce the impacts from these factors.

As outlined in Table 23 our opinion of the probable hours and costs for these services is 40 hours which equates to a cost of $6,400.00 at $160.00 per hour.

8.1.4 Land Management Plan

A Land Management Plan (LMP) is likely required prior to construction to development management zones for the ongoing use and management of the site. The LMP would prescribe management zones and outline what activities can and cannot occur in each zone. This would also include the protection of trees, native vegetation patches and other areas that should not be impacted from the construction of the rail trail.

As outlined in Table 23 our opinion of the probable hours and costs for these services is 74 hours which equates to a cost of $11,840.00 at $160.00 per hour.

8.1.5 Bushfire Assessment

A Bushfire assessment will be required as part of the study area lies within the Bushfire Management Overlay and the entire site falls within the Bushfire Prone Area. This would entail a brief assessment of the site from a bushfire perspective and associated reporting to ensure that the rail trail does not pose a threat to human life and to consider Clause 52.03 and Clause 13.02-1S.

As outlined in Table 23 our opinion of the probable hours and costs for these services is 40 hours which equates to a cost of $6,400.00 at $160.00 per hour.

8.2 ESTIMATED COSTINGS FOR POTENTIAL FEDERAL MATTERS

This section aims to highlight the potential requirement for federal EPBC matters that may arise from the proposed development. This has been included separately as they are not guaranteed to occur if impacts to EPBC listed species do not occur. As it is unknown what (if any) EPBC Act listed species may be impacted from the development of the trail it is impossible to provide a cost estimate for the required actions. However, the required actions if a EPBC listed species is impacted are:

- Targeted Surveys
- EPBC Referrals
- Federal Offsets

If EPBC Act species are determined to be impacted from the rail trail, targeted surveys would be the first step to determine whether they are present on site or if the site is likely to provide habitat for the species. If it is determine that the species is present or may use the site an EPBC Referral would be required. Further from that federal offsets may need to be acquired prior to development if matters relating to the EPBC Act continue.

It should be noted that matters relating to the EPBC Act are generally very costly and take a long time to resolve and should be avoided if possible.

Table 23 above outlines our estimate of the costs required for both the 7 metre and 37 metre methodology used to determine impacts for native vegetation. This was determined using publicly available data of the rate per General Habitat Unit for each community. The costs associated with the 37 metre buffer are much higher for federal offsets compared to the 7 metre buffer.

Note that no offsets are available for Giant Gippsland Earthworm however, in these cases alternative measures may need to be negotiated with DEECA to offset the losses.

9. CONCLUSION

The establishment of the rail trail extension from Nyora to Woolamai through the Crown land reserve is considered feasible from an ecological standpoint. The removal of some native vegetation along the construction footprint will need to be offset using third party offsets and at this stage cannot be established on site given the requirements for an offset site.

Habitat for Giant Gippsland Earthworm is modelled as present within the footprint and species specific offsets are required if vegetation is to be removed from the site from preliminary testing. Whilst Giant Gippsland Earthworm offsets are very hard to find, it is possible to work around these issues through correspondence with DEECA and a more detailed planning and design stage.

The potential impacts to other listed species found three flora and nine fauna species that would require further research, habitat assessments or targeted surveys to determine whether they utilise the current Crown land reserve. Additionally, a detailed Habitat Hectares assessment would need to be undertaken throughout all native vegetation patches along the length of the proposed rail trail to gather detailed scores and information on the vegetation present.

If the proposed rail trail is determined to have an impact on rare or threatened flora and/or fauna a referral to DEECA will be required for any species listed under the EPBC Act. Additionally, any species to be impacted listed under the FFG Act is required to have a permit for removal.

Other reports would need to be created to ensure that the construction of the proposed rail trail does not impact on native flora and fauna in the surrounding areas that is no scheduled for removal. These include the creation of a Construction Environment Management Plan and Land Management Plan. Additionally, assessments for bushfire would need to be undertaken to ensure the safety of the rail trail users as well as the community that it occupies.

The proposed rail trail can be framed as an opportunity for tourists to invest in the local area but also as a wide scale biodiversity connectivity project that could be facilitated through revegetation of large sections along the Crown land reserve including at the former railway station sites and community support. The impacts to nature from the construction of the rail trail would be far less than the benefits created from a large scale revegetation project that provides wildlife crossings and corridors throughout the landscape. Providing fauna and flora an opportunity to spread through the landscape with the rail trail as a 'highway' would significantly benefit the landscape which has been mostly cleared of native vegetation patches.

10. REFERENCES

AABR (2021) *National Standards for the Practice of Ecological Restoration in Australia*. Australian Association of Bush Regenerators. Accessed via: https://www.aabr.org.au/learn/what-i-bush-regeneration/national-restoration-standards/

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Appendix 1. Flora recorded at study area

The following table provides a list of flora recorded in the study area during fieldwork.

Conservation status under EPBC Act 1999: EX: Extinct, CR: Critically endangered, EN: Endangered, VU: Vulnerable and CD: Conservation dependant	**Conservation status under FFG Act 1988:** x: Presumed extinct, e: Endangered, v: Vulnerable, r: rare and k: poorly known
Origin *: exotic species; #: Victorian native species extended beyond natural range; Empty: Indigenous species	

Family	Origin	Scientific Name	Common Name	EPBC	FFG
FERNS AND ALLIES					
Cyatheaceae		*Cyathea australis*	Rough Tree-fern		
Dennstaedtiaceae		*Pteridium esculentum subsp. esculentum*	Austral Bracken		
CONIFERS					
Pinaceae	*	*Pinus radiata*	Radiata Pine		
MONOCOTYLEDONS					
Alliaceae	*	*Agapanthus praecox subsp. orientalis*	Agapanthus		
Alliaceae	*	*Allium triquetrum*	Angled Onion		
Commelinaceae	*	*Tradescantia fluminensis*	Wandering Jew		
Cyperaceae	*	*Cyperus eragrostis*	Drain Flat-sedge		
Cyperaceae		*Eleocharis spp.*	Spike Sedge		
Cyperaceae		*Gahnia radula*	Thatch Saw-sedge		
Cyperaceae		*Gahnia sieberiana*	Red-fruit Saw-sedge		
Cyperaceae		*Lepidosperma elatius*	Tall Sword-sedge		
Cyperaceae		*Lepidosperma spp.*	Sword Sedge		
Juncaceae		*Juncus pallidus*	Pale Rush		
Juncaceae		*Juncus pauciflorus*	Loose-flower Rush		
Juncaceae		*Juncus spp.*	Rush		
Poaceae	*	*Agrostis capillaris*	Brown-top Bent		
Poaceae	*	*Anthoxanthum odoratum*	Sweet Vernal-grass		
Poaceae	*	*Cenchrus clandestinus*	Kikuyu		
Poaceae	*	*Cortaderia selloana subsp. selloana*	Pampas Grass		
Poaceae	*	*Cynodon dactylon*	Couch		
Poaceae	*	*Dactylis glomerata*	Cocksfoot		
Poaceae	*	*Ehrharta erecta*	Panic Veldt-grass		
Poaceae	*	*Lolium perenne*	Perennial Rye-grass		
Poaceae		*Microlaena stipoides var. stipoides*	Weeping Grass		
Poaceae	*	*Paspalum dilatatum*	Paspalum		
Poaceae	*	*Paspalum distichum*	Water Couch		
Poaceae	*	*Phalaris aquatica*	Toowoomba Canary-grass		
Poaceae		*Phragmites australis*	Common Reed		
Poaceae		*Poa ensiformis*	Sword Tussock-grass		

Poaceae		*Poa labillardierei*	Common Tussock-grass	
Xanthorrhoeaceae		*Lomandra longifolia*	Spiny-headed Mat-rush	
DICOTYLEDONS				
Amaranthaceae		*Amaranthus spp.*	Amaranth	
Anthemideae	#	*Cotula australis*	Common Cotula	
Apiaceae		*Centella cordifolia*	Centella	
Apiaceae	*	*Foeniculum vulgare*	Fennel	
Asteraceae		*Cassinia aculeata subsp. aculeata*	Common Cassinia	
Asteraceae	*	*Cirsium vulgare*	Spear Thistle	
Asteraceae	*	*Erigeron bonariensis*	Flaxleaf Fleabane	
Asteraceae	*	*Helminthotheca echioides*	Ox-tongue	
Asteraceae	*	*Hypochaeris radicata*	Flatweed	
Asteraceae		*Olearia lirata*	Snowy Daisy-bush	
Asteraceae	*	*Senecio jacobaea*	Ragwort	
Asteraceae	*	*Sonchus oleraceus*	Common Sow-thistle	
Brassicaceae		*Lepidium spp.*	Peppercress	
Brassicaceae	*	*Nasturtium officinale*	Watercress	
Fabaceae		*Indigofera australis subsp. australis*	Austral Indigo	
Fabaceae	*	*Melilotus officinalis*	Common Melilot	
Fabaceae	*	*Trifolium repens var. repens*	White Clover	
Geraniaceae		*Geranium solanderi s.l.*	Austral Crane's-bill	
Geraniaceae		*Geranium spp.*	Crane's Bill	
Goodeniaceae		*Goodenia ovata*	Hop Goodenia	
Loranthaceae		*Amyema spp.*	Mistletoe	
Mimosaceae		*Acacia dealbata*	Silver Wattle	
Mimosaceae	#	*Acacia floribunda*	White Sallow-wattle	
Mimosaceae		*Acacia melanoxylon*	Blackwood	
Mimosaceae		*Acacia stricta*	Hop Wattle	
Mimosaceae		*Acacia verticillata*	Prickly Moses	
Myrtaceae	#	*Corymbia maculata*	Spotted Gum	Vu
Myrtaceae	#	*Eucalyptus botryoides*	Southern Mahogany	
Myrtaceae		*Eucalyptus obliqua*	Messmate Stringybark	
Myrtaceae		*Eucalyptus ovata*	Swamp Gum	
Myrtaceae		*Eucalyptus radiata s.l.*	Narrow-leaf Peppermint	
Myrtaceae		*Eucalyptus viminalis*	Manna Gum	
Myrtaceae		*Leptospermum continentale*	Prickly Tea-tree	
Myrtaceae		*Melaleuca ericifolia*	Swamp Paperbark	
Oxalidaceae	*	*Oxalis pes-caprae*	Soursob	
Phytolaccaceae	*	*Phytolacca octandra*	Red-ink Weed	
Pittosporaceae	#	*Pittosporum undulatum*	Sweet Pittosporum	
Plantaginaceae	*	*Plantago lanceolata*	Ribwort	
Polygonaceae		*Persicaria spp.*	Knotweed	
Polygonaceae	*	*Rumex spp.*	Dock	
Proteaceae		*Banksia integrifolia subsp. integrifolia*	Coast Banksia	
Ranunculaceae	*	*Ranunculus repens*	Creeping Buttercup	

Rhamnaceae		*Pomaderris aspera*	Hazel Pomaderris
Rosaceae		*Acaena novae-zelandiae*	Bidgee-widgee
Rosaceae	*	*Crataegus monogyna*	Hawthorn
Rosaceae	*	*Malus pumila*	Apple
Rosaceae	*	*Rubus fruticosus spp. agg.*	Blackberry
Rosaceae		*Rubus parvifolius*	Small-leaf Bramble
Rubiaceae	*	*Galium aparine*	Cleavers
Solanaceae	*	*Nicotiana glauca*	Tree Tobacco
Solanaceae	*	*Solanum nigrum s.l.*	Black Nightshade

Appendix 2. Potentially occurring rare or threatened flora species

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

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

EPBC	FFG	Origin	Scientific name	Common name	Habitat/species notes	No. individuals recorded	Last record	Likelihood of occurrence	Likelihood Reasoning	Likely Impact from Proposed Development	Impact Reasoning
	Cr		*Acrobolbus cinerascens*	Grey Pouchwort	In Victoria the taxon is known only from three widely areas: the Otways, Wilsons Promontory, and the Baw Baw Range. It also occurs in Tasmania, New South Wales and New Zealand.	1	2001	Low	Only one local record from 2001. The study area is highly disturbed from agricultural practises making it unlikely for the species to occur on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.
	En		*Corybas aconitiflorus*	Spurred Helmet-orchid	Localized and uncommon in southern parts of eastern Victoria with isolated westerly occurrences near Portland and Edenhope. Colonies grow in sheltered positions, often on damp sand under ferns or shrubs. Flowers May–Jul.	2	2005	Low	Only two local records with last record from 2005. The study area is highly disturbed from agricultural practises making it unlikely for the species to occur on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.

Vu	#	*Corymbia maculata*	Spotted Gum	Only known in Victoria from the Mottle Range, south of Buchan. Flowers Jul.–Sep.	2	2017	Present	Individuals observed on site was planted for windbreaks. Only two local records. The study area is outside the species natural range therefore it is unlikely to occur naturally. Species is commonly planted as an ornamental plant.	Unlikely	As the study area is outside of the species' natural range, there is no potential for impacts on the species ' habitat, nor on naturally occurring populations or individual specimens.
Vu		*Enneapogon gracilis*	Slender Bottle-washers	Confined in Victoria to dry, sandy soils in the vicinity of the upper reaches of the Snowy River and its tributaries (e.g. Willis at the NSW border, Suggan Buggan, near MacKillops Bridge between Tubbut and Wulgulmerang), with an isolated record near Patho in northern Victoria. Flowers Aug.–Mar.	1	2012	Low	Only one local record from 2012 which is likely to be a misidentification or cultivated specimen, as the study area is outside the species' natural range. In any case, the Study area is highly disturbed from agricultural practises making it unlikely for the species to occur on site.	Unlikely	As the study area is outside of the species' natural range, there is no potential for impacts on the species ' habitat, nor on naturally occurring populations or individual specimens.
En		*Eucalyptus fulgens*	Green Scentbark	Occurs east from Healesville and Woori Yallock to the Latrobe Valley near Driffield. Flowers autumn.	2	1991	Low	Only two local records with last being from 1991. The study area is outside of the main area of occurrence of the species with only two records on the Bass Coast.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically

										cleared for its construction.
	En	#	*Eucalyptus globulus subsp. globulus*	Southern Blue-gum	Recent studies of variation in Southern Blue-gums (Jordan et al. 1993) suggest that populations of typical subsp. globulus occur in Victoria only in the area south of the Strzelecki Range, e.g. Port Franklin, Wilsons Promontory, and that other populations in south Gippsland and the Otway Ranges probably represent intergrades between subsp. globulus and subsp. pseudoglobulus. Flowers Nov.-Dec.	2	2019	Low-Moderate	Two local records with last record from 2019. Species naturally found in areas around the study area. Species could be present on site, particularly in the southern region however, unlikely due to land clearing and the low number of records..	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.
VU	Cr		*Eucalyptus strzeleckii*	Strzelecki Gum	Largely restricted to the western section of the Strzelecki Range, from Neerim South in the north, south to Foster, and with a few isolated records from the Otway ranges. Favours ridges, slopes and streambanks and deep fertile soils. Flowers spring.	7	2019	Moderate	Seven local records with last record from 2019. Species known to occur in areas around site. Species could be present on site particularly in the northern region, however unlikely due to land clearing.	Unlikely	Footprint of proposed trail in on historic railway which has already been historically cleared for its construction. Trail alignment can be altered to avoid impacts to

								species. Targeted surveys would be required to confidentially determine absence of this species.
Cr	*Hypocreopsis amplectens*	Clasping Hypocreopsis	Species has been classified as "vulnerable" under the Victorian Flora and Fauna Guarantee Act 1988, and the Adams Creek Conservation Reserve west of Nyora, was created partly because of its occurrence there. Recent work to raise the profile of Tea-tree Fingers *(Hypocreopsis amplectens)* including an educational booklet produced by Fungi map in 2016 resulted in a fourth site being found in the Victorian Yarra Valley by the Fungi Group of the Victorian Field Naturalists Club in 2017. This new population has had the largest number of individual fruiting bodies recorded on new host plant the Yarra Burgan (*Kunzea leptospermoides*). Since 2016	30	2021	Moderate	Numerous local records with last record from 2021. Species is confined to a few known locations many of which are in the surrounding area. While many areas supporting suitable habitat (i.e. Swamp Paperbark) appear to have been historically disturbed, suitable habitat is present in certain areas (e.g. Habitat Zone 7b).	Possible	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction. Targeted surveys would be required to confidentially determine absence of this species.

repeated visits the Adams Creek and Grantville Nature Conservation Reserves have confirmed small populations survive, however recent surveys of the original location in Greens Bush, on the Mornington Peninsula have resulted in no sightings.

	En	#	*Melaleuca armillaris subsp. armillaris*	Giant Honey-myrtle	Mainly confined to near-coastal sandy heaths, scrubs slightly raised above saltmarsh, riparian scrubs, rocky coastlines and foothill outcrops eastwards from about Marlo. Occurrences to the west are naturalized from cultivated stock. Flowers summer.	2	2022	Low	Only two local records with last record from 2022. The study area is outside the species natural range however, some individuals may be present in Swamp Scrub areas as recruits from plantings and/or hybrids with Swamp Paperbark. This species is commonly planted as an ornamental species.	Unlikely	As the study area is outside of the species' natural range, there is no potential for impacts on the species ' habitat, nor on naturally occurring populations or individual specimens.
VU	En		*Pterostylis chlorogramma*	Green-striped Greenhood	Apparently localized in Victoria, but exact range uncertain due to confusion with closely allied species. Grows in moist areas of heathy and shrubby forest, on well-drained soils. Flowers Jul.-Sep.	2	1993	Low	Only two local records with last record from 1993. Conditions on site are suitable however, given the disturbance from historical and current grazing, it is unlikely to occur on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.
	En		*Pterostylis grandiflora*	Cobra Greenhood	Generally restricted and uncommon in near-coastal eastern Victoria, growing on moist, shady slopes in open-forest, on well-drained soil. Flowers May-Aug.	5	1998	Low	Few local records with last record from 1998. Soil conditions on site are generally not favourable for the species. The site is also highly disturbed from historic and current grazing making it unlikely to occur on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.

	Cr	*Thelymitra orientalis*	Slender Plum-orchid	Grows in damp heathy flats and seepage areas usually in peaty white sands. Flowers Oct.-Nov.	Low	No records within 5 km and conditions on site are generally not favourable for the species. The site is also highly disturbed from historic and current grazing making it unlikely to occur on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.
EN	En	*Caladenia orientalis*	Eastern Spider-orchid	Endemic to Victoria where found in coastal heathlands and heathy woodlands between Grantville and Yarram, on well-drained sandy soil. Flowers Sep.-Oct.	Low-Moderate	No records within 5km. Species is known to occur in the areas around the study area and the site contains suitable conditions however, given the high disturbance on site from historical and current grazing, it is unlikely that the species would be present on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.
EN	Cr	*Dianella amoena*	Matted Flax-lily	Largely confined to drier grassy woodland and grassland communities south of the Dividing Range and now much depleted through its range. Flowers mostly Nov.-Jan.	Low	No records within 5km. The study area doesn't contain suitable conditions for this species combined with the disturbance from grazing it is unlikely that this species is present on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.

EN	En	*Thelymitra epipactoides*	Metallic Sun-orchid	Grows mostly in coastal heathland, grassland and woodland, but extending further inland into similar habitats in the western part of its range. Substrates may be moist or dry sandy soils. Flowers Sep.–Nov.	Low	No records within 5km. The study area contains suitable conditions for the species however, given the disturbance from grazing it is unlikely to occur on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.
VU	Vu	*Glycine latrobeana*	Clover Glycine	Widespread but of sporadic occurrence and rarely encountered. Grows mainly in grasslands and grassy woodlands. Flowers mostly Sep.–Dec.(–Feb. at higher altitudes).	Low	No records within 5km. The study area doesn't contain suitable conditions for this species combined with the disturbance from grazing it is unlikely that this species is present on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.
VU		*Pterostylis cucullata*	Leafy Greenhood	Widely distributed but disjunct, mostly occurring in small groups in coastal areas, sometimes near inland watercourses. Flowers Aug.–Oct.	Low	No records within 5 km. The study area contains somewhat suitable conditions for the species in certain areas, however given the disturbance from grazing it is unlikely to occur on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.

VU		*Senecio psilocarpus*	Swamp Fireweed	Rare, restricted in Victoria to a few herb-rich winter-wet swamps throughout the south of the state, west from Sale, growing on volcanic clays or peaty soils. Flowers Nov.-Mar.	Low	No records within 5km. The study area contains suitable conditions for the species however, given the disturbance from grazing it is unlikely to occur on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.
VU	En	*Thesium australe*	Austral Toad-flax	Once widespread across Victoria, but all recent collections are from highland areas in the vicinity of Wulgulmerang and it is believed to have become extinct across most of its Australian range due to loss of habitat and grazing. Grows in grasslands, woodlands and herbfields, usually in damp situations. Flowers mostly spring and summer.	Low	No records within 5km. The study area doesn't contain suitable conditions for this species combined with the disturbance from grazing it is unlikely that this species is present on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.
VU	Cr	*Xerochrysum palustre*	Swamp Everlasting	Occurs in lowland swamps, usually on black cracking clay soils, scattered from near the South Australian border north-west of Portland to Bairnsdale district, but rare due to habitat depletion. Flowers Nov.-Mar.	Low	No records within 5km. The study area doesn't contain suitable conditions for this species combined with the disturbance from grazing it is unlikely that this species is present on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.

VU		*Caladenia tessellata*	Thick-lip Spider-orchid	Apparently confined to eastern Victoria from near-coastal heathy woodlands to open forests on well-drained sandy soils. Flowers Sep.-Oct.	Low	No records within 5km. The study area doesn't contain suitable conditions for this species combined with the disturbance from grazing it is unlikely that this species is present on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.
VU	Cr	*Prasophyllum spicatum*	Dense Leek-orchid	Grows in coastal heath and sandhills. Flowers Aug.-Nov. Localised across southern Victoria in coastal heathland and near-coastal heathy forest on sandy soils. Flowers Oct.-Dec.	Low	No records within 5km. The study area doesn't contain suitable conditions for this species combined with the disturbance from grazing it is unlikely that this species is present on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.
VU	En	*Lepidium aschersonii*	Spiny Peppercress	Mostly on heavy clay soil near salt lakes on volcanic plain, but with outlying records from near Lake Omeo (in 1940 &1981) and the Grampians (in 1893). Flowers spring-autumn.	Low	No records within 5km. The study area doesn't contain suitable conditions for this species combined with the disturbance from grazing it is unlikely that this species is present on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.

VU	*Amphibromus fluitans*	River Swamp Wallaby-grass	Largely confined to permanent swamps, principally along the Murray River between Wodonga and Echuca, uncommon to rare in the south (e.g. Casterton, Moe, Yarram), probably due to historic drainage of wetlands. Sometimes forming loose turf-like colonies at the edge of receding waters and then spikelets tend to be smaller than typical (represented by the bracketed values in the above description). Flowers Nov.-Mar.	Low	No records within 5km. The study area doesn't contain suitable conditions for this species combined with the disturbance from grazing it is unlikely that this species is present on site.	Unlikely	Species not likely to occur on site and footprint of proposed trail in on historic railway which has already been historically cleared for its construction.

Appendix 3. Potentially occurring rare or threatened fauna species

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

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

Treaty	EPBC	FFG	Scientific name	Common name	Species habitat notes	No. records	Last record	Likelihood of occurrence	Likelihood Reasoning	Likely Impact from Proposed Development	Impact Reasoning
		En	*Accipiter novaehollandiae*	Grey Goshawk	Species generally favours tall, wet forests, particularly in gullies, for roosting and hunting. It depends on mature forests for breeding, rarely using forest regrowth less than 30 years old. They are also seen in woodlands, dry forests, wooded farmlands and suburban parks below altitudes of 500 m.	3	2007	Low	Only three local records with last record in 2007. Species typically inhabits old growth forests which are not present on site. Species may rarely fly over site while hunting or travelling across the landscape toward more suitable habitats. Unlikely to make significant use of the site.	Unlikely	The proposed rail trail follows already disturbed footprint of the historic railway. No suitable habitat for this species will be removed to accommodate the trail alignment.

B			*Acrocephalus australis*	Reed-Warbler	Plain, brownish songbird of reedbeds, dense vegetation, and long grass near wetlands. Inhabits freshwater wetlands in eastern half of Australia, mostly coastal wetlands of western Australia.	18	2018	Low-Moderate	Few local records with last record from 2018. This species inhabits reedy vegetation along waterways. Whilst this occurs in some small scattered areas along the study area, they are limited and low quality. There is still a chance that this species occasionally visits the site however, it is unlikely that it will make significant use of it.	Unlikely	While the proposed rail trail follows already disturbed footprint of the historic railway, impact on adjacent areas may be required to construct the trail. Therefore, areas where this species is likely to occasionally occur may be impacted by the development. While this is the case, it is unlikely that the species be significantly impacted by the development as it is most likely not making significant use of the site and will simply fly away.
	VU	Vu	*Antechinus minimus maritimus*	Swamp Antechinus	The species habitat is typically wet heath, heathy woodland, sedgeland and dense tussock grassland, rarely above 200m. Found in a variety of vegetation communities with different dominant floristic groups and consistently high percentage of understorey cover across them.	2	1984	Low	Only two local records with last record from 1984. Species inhabits areas with high understorey coverage for protection. The study area mostly	Unlikely	The proposed rail trail follows already disturbed footprint of the historic railway. Limited areas of suitable habitat for this species will be removed to

			Key bioregions include: Otway Plain, Gippsland Plain, Glenelg Plain, Volcanic Plain, Otway Ranges, Wilsons Promontory, Warrnambool Plain and Dundas Tablelands.				consists of grazed grasses making it unsuitable for this species. While some areas of denser understorey occur on site, they are disconnected and heavily disturbed.		accommodate the trail alignment.
C,R,J		*Apus pacificus*	Fork-tailed Swift	The species is widespread but sparsely scattered in all regions of Victoria. It is almost exclusively aerial, flying from less than 1 metre to at least 300m above ground and probably much higher. In Australia, they mostly occur over inland plains but sometimes above foothills or in coastal areas. They are known to occur over cliffs, beaches, over islands, sometimes well out to sea, settled areas, including towns, urban areas and cities. They mostly occur over dry or open habitats, including riparian woodland and Tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand-dunes. They sometimes occur above	1	1980	High	While there is only one VBA record from 1980, there is a 2024 Birdata record in the broader area. This species is often under-recorded as it is difficult to observe. Species may occasionally aerially forage over the site but is unlikely to make significant use of the site.	Unlikely	Unlikely to make significant us of the site

				rainforests, wet sclerophyll forest or open forest or plantations of pines.					
C,J		*Ardea alba*	Great Egret	Great Egrets prefer shallow water, particularly when flowing, but may be seen on any watered area, including damp grasslands. The species can be seen alone or in small flocks, often with other egret species, and roost at night in groups. Great Egrets occur throughout most of the world. They are common throughout Australia, with the exception of the most arid areas.	12	2001	Moderate	Few local records with last record from 2019. Species is known to inhabit flooded paddocks which are present directly adjacent to the site. Species may occasionally forage on site during wetter months.	Unlikely	While the species is likely to occasionally forage on site, it is unlikely to make significant use of it. The proposed development will only slightly reduce the foraging habitat available to the species in the area.
	Cr	*Ardea intermedia plumifera*	Plumed Egret	Occurs in the shallows of mainly grassy inland wetlands, flooded pastures or grasslands. They only occasionally visit coastal wetlands and are generally rare in Victoria. They are sometimes seen foraging in pastures with grazing cattle. This species builds platform	1	2001	Low–Moderate	Only one local record from 2001. Species is known to inhabit flooded paddocks which are present directly adjacent to the site. Species may occasionally use the	Unlikely	Unlikely to occur or make significant use of the site

					nests which are built in trees in riverine forest, swamp woodland and mangroves.				site during wetter months however, the lack of local records makes it unlikely.	
J,R			*Ardenna tenuirostris*	Short-tailed Shearwater	Short-tailed Shearwaters return to their breeding colonies in southern Australia at the end of September. Colonies can be found in coastal areas from New South Wales through Western Australia, with the majority found through Bass Strait and around Tasmania. The birds begin by renovating old burrows or building new ones that extend one to two metres long in sandy headlands amongst low lying vegetation like bower spinach and tussock grasses. From early April to late September, they will spend all of their time out in the ocean, resting on the surface of the water when needed. The species is largely found on and near Phillip Island.	8	1996	Low	Few local records with last record from 1998. This species inhabits the coast and sandy areas which are absent from the site.	Unlikely	Unlikely to occur or make significant use of the site
B,R,J,C	VU	En	*Arenaria interpres*	Ruddy Turnstone	The species is widespread within Australia during its non-breeding period of the year, including from Tasmania in the south to Darwin in the north and many coastal areas in	3	1981	Low	Three local records with last record from 1981. Species typically inhabits coastal areas. The study area is not	Unlikely	Unlikely to occur or make significant use of the site

				between. It is found in most coastal regions, with occasional records of inland populations. It strongly prefers rocky shores or beaches where there are large deposits of rotting seaweed.				located along the coast.		
	Vu	*Biziura lobata*	Musk Duck	Endemic to Australia, they range from north-west Western Australia, through the south and east to southern Queensland, and can be found several hundred kilometres inland in some areas. Prefer deep freshwater lagoons, with dense reed beds. They are normally seen singly or in pairs, but may form medium to large groups in the winter. Flight usually takes place at night.	85	2019	Low	Many local records with last record from 2018. Species inhabits permanent large waterbodies. The study area doesn't contain such waterbodies.	Unlikely	Unlikely to occur or make significant use of the site
C,J		*Bubulcus coromandus*	Eastern Cattle Egret	Coastal and hinterland Australia, with a stronghold in south-eastern Australia. It is a winter-spring migrant in Victoria, where it frequents stock paddocks/pasture, croplands, wetlands/drains, coastal mudflats, and tips. Typically found in fields and dry grassy habitats. They nest in large colonies near water, woodlands near lakes or rivers, swamps, and small inland or coastal islands.	2	2001	High	While there are only two local VBA records with last record from 2001, there are some more recent (2021) Birdata records in the broader area. The study area contains suitable conditions for the species which may rarely use the site	Unlikely	While the species is likely to occasionally forage on site, it is unlikely to make significant use of it. The proposed development will only slightly reduce the foraging habitat available to the species in the area.

								for foraging or travel.		
B,R,J, C	VU		*Calidris acuminata*	Sharp-tailed Sandpiper	The species migrates to Australia in September from its breeding grounds in Siberia, remaining until February-March. Found throughout the mainland and Tasmania, they inhabit shallow inland freshwater wetlands, mudflats, saltmarshes, mangroves, rocky shores and beaches. They form large flocks and are commonly seen with other waders foraging on the grassy edges of shallow waters.	4	2000	Low	Only four local records with last record from 2000. Species typically inhabits wet areas near the coast where they forage. The study area doesn't contain suitable habitat for the species.	Unlikely	Unlikely to occur or make significant use of the site
B,R,J, C	VU	En	*Calidris canutus*	Red Knot	The species is common in all the main suitable habitats around the coast of Australia but is less numerous in south-west Australia than elsewhere. In Australasia the Red Knot mainly inhabit intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours; sometimes on sandy ocean beaches or shallow pools on exposed	1	1980	Low	Only one local record from 1980. Species inhabits coastal areas and rarely use inland waterbodies. The study area is not along the coast.	Unlikely	Unlikely to occur or make significant use of the site

					wave-cut rock platforms or coral reefs. They are occasionally seen on terrestrial saline wetlands near the coast, such as lakes, lagoons, pools and pans, and recorded on sewage ponds and saltworks, but rarely use freshwater swamps. They rarely use inland lakes or swamps.					
B,R,J, C	CR	Cr	*Calidris ferruginea*	Curlew Sandpiper	Species occurs around the Australian coastline and widespread inland, though in smaller numbers. Records occur in all states during the non-breeding period, and also during the breeding season when many non-breeding one year old birds remain in Australia rather than migrating north. The species mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both	2	1981	Low	Only two local records with last record from 1981. Species inhabits coastal areas and rarely use inland waterbodies. The study area is not along the coast.	Unlikely	Unlikely to occur or make significant use of the site

			fresh and brackish waters. Occasionally they are recorded around floodwaters.						
B,R,J, C	*Calidris ruficollis*	Red-necked Stint	Mostly found in coastal areas, including in sheltered inlets, bays, lagoons and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores. Occasionally recorded on exposed or ocean beaches, and sometimes on stony or rocky shores, reefs or shoals. They also occur in saltworks and sewage farms; saltmarsh; ephemeral or permanent shallow wetlands near the coast or inland, including lagoons, lakes, swamps, riverbanks, waterholes, bore drains, dams, soaks and pools in salt flats. Mostly forages on bare wet mud on intertidal mudflats or sandflats, or in very shallow	5	1989	Low	Few records with last record from 1989. Species inhabits coastal areas and rarely use inland waterbodies. The study area is not along the coast.	Unlikely	Unlikely to occur or make significant use of the site

				water; mostly in areas with a film of surface water and mostly close to edge of water.						
EN	En	*Callocephalon fimbriatum*	Gang-gang Cockatoo	The species can be found in eucalypt woodland forests of south-eastern Australia. It is a seasonal altitudinal migrant where it moves from mountain forests at higher altitudes to forests at lower altitudes and coastal areas during Autumn and Winter. Usually seen in small groups but can form large flocks when foraging. Found in South-east Australia. From eastern New South Wales, through to the Central Tablelands and South-Western Slopes around Wagga Wagga and Albury; along the New South Wales south coast. Widespread in the Gippsland region and Central Highlands in Victoria.	50	1995	Moderate	Numerous local records however, the last record was in 1995. Species is known to occur in the area and may inhabit or forage in trees present on site.	Possible	Impacts on this species are possible if suitable hollow-bearing trees are removed from the site.

B	*Charadrius bicinctus*	Double-banded Plover	The Double-banded Plover is found on littoral, estuarine and fresh or saline terrestrial wetlands and also saltmarsh, grasslands and pasture. It occurs on muddy, sandy, shingled or sometimes rocky beaches, bays and inlets, harbours and margins of fresh or saline terrestrial wetlands such as lakes, lagoons and swamps, shallow estuaries and rivers. The species is sometimes associated with coastal lagoons, inland salt lakes and saltworks. It is also found on seagrass beds, especially Zostera, which, when exposed at low tide, remain heavily saturated or have numerous water-filled depressions. This species sometimes utilises kelp beds. The greatest numbers are found in Tasmania and Victoria, but numbers diminish to the north and west of these regions.	5	1981	Low	Few local records with last record from 1981. Species inhabits coastal areas for foraging and nesting. Species is unlikely to be present in the study area.	Unlikely	Unlikely to occur or make significant use of the site

	Cr	*Falco subniger*	Black Falcon	Thinly distributed over most of the Australian mainland except the eastern humid coastal and escarpment forests. Inhabits woodland, shrubland and grassland in the arid and semi-arid zones, especially wooded (eucalypt dominated) watercourses; it also uses agricultural land with scattered remnant trees. The Falcon is often associated with streams or wetlands, visiting them in search of prey. It uses standing dead trees as lookout posts. Specific aspects of habitat floristics or quality are probably more relevant to prey densities than to structural habitat selection by the falcon.	1	1999	Low-Moderate	Only one local record from 1999. Species is generally rare in Victoria. Species may rarely use site to hunt or pass over while moving but is generally unlikely to occur on site. However, it is important to note that this species is often under-recorded as mistaken for Brown Falcon.	Unlikely	Unlikely to occur or make significant use of the site
B,R,J, C	VU	*Gallinago hardwickii*	Latham's Snipe	Found in all regions of Victoria except for the north-west. In Victoria the Shepparton, Sale, Wonthaggi, Port Phillip Bay and Warrnambool regions appear to be important habitat. Occurs in permanent and ephemeral wetlands up to 2000 m above sea-level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and	7	1989	Moderate	Few local records with last VBA record from 1989. More recent (2021) Birdata records occur in the broader landscape. This species often under-recorded as difficult to observe. Species inhabits wetlands with dense fringing and/or emergent	Unlikely	The species will most likely just fly away.

					other water bodies). However, they can also occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity.			vegetation which are present on site. While it is likely that the species would be present on site, it is unlikely that the species breed on site as this species does not breed in Australia.		
	VU		*Halobaena caerulea*	Blue Petrel	It breeds on offshore stacks near Macquarie Island where 500–600 breeding pairs occur. Individuals are rarely encountered inshore and offshore over the continental shelf and in pelagic waters off the shelf break	1	1980	Low	Only one local record from 1980. Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site
C,R,J	VU	Vu	*Hirundapus caudacutus*	White-throated Needletail	Widespread throughout Victoria, though more so on and south of the Great Dividing Range. Few records In western Victoria outside the Grampians and the south west. Almost exclusively aerial, from heights of less than 1 metre up to more than 1000 m above the ground. Occur over most types of habitat.	11	2019	High	Few local records, with the last record from 2019. This species is often under-recorded as challenging to observe. The species may occasionally fly over the site whilst foraging. However, it is unlikely that the site will be significantly used by this species as this species is almost entirely aerial.	Unlikely	Unlikely to make significant use of the site.

C,J	Vu	*Hydroprogne caspia*	Caspian Tern	In Victoria, occurs in most coastal regions, with scattered records throughout the western half of the state, including the Murray Valley. Only three significant regular breeding colonies are known in Victoria: Corner Inlet, Mud Island in Port Philip Bay and Mallacoota. Mostly found in sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas) and those with sandy or muddy margins are preferred. They also occur on near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes (including ephemeral lakes), waterholes, reservoirs, rivers and creeks. They also use artificial wetlands, including reservoirs, sewage ponds and saltworks. In offshore areas the species prefers sheltered situations, particularly near islands, and is rarely seen beyond reefs.	1	1981	Low	Only one local record from 1981. Species inhabits coastal areas and unlikely to occur on site.	Unlikely	Unlikely to make significant use of the site.

EN	En	*Isoodon obesulus obesulus*	Southern Brown Bandicoot	Occurs in a variety of habitats including heath, woodland and open forest but with a preference for dense ground cover and well drained sandy soil. The requirement for dense cover may not be absolute, as when fox control reduced predation pressure, southern brown bandicoots used new sites with sparser vegetation cover. Primarily distributed in coastal regions in Victoria, although isolated populations occur inland in the Dandenong Ranges, the Grampian Ranges and central western Victoria. The subspecies has a disjunct distribution across southern Victoria, with most records being clustered within parts of several southern Victorian bioregions, including the East Gippsland Lowlands, Gippsland Plain (western section), Otway Plain (Anglesea section), Warrnambool Plain (Port Campbell section), Greater Grampians, Glenelg Plains and Wilsons Promontory.	1	1994	Low-Moderate	There is only one local record from 1994. The study area consists mostly of grazed pasture with a few fragmented areas of forest and swamp scrub. The fact that the areas of suitable habitat are disconnected from each other and from the ones in the broader landscape further decreases the likelihood of this species' occurrence on site.	Unlikely	Unlikely to make significant use of the site.

	CR	Cr	*Lathamus discolor*	Swift Parrot	Breeds in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany, Spotted Gum, Red Bloodwood, Forest Red Gum, Mugga Ironbark, and White Box.	1	1981	Low-Moderate	Only one local record from 1981. Species typically associated with box eucalypt species which are uncommon in the wider landscape and absent on site. While this is the case, there is still a chance that this species occasionally visit the site during its migration across Victoria.	Unlikely	Unlikely to make significant use of the site.
		Vu	*Lewinia pectoralis*	Lewin's Rail	Found in south-eastern mainland Australia and Tasmania. Inhabits wetland areas with dense vegetation, including wetlands, farm dams, swamps, saline lakes and river flats where they usually forage around the waters edge in shallow waters and close to cover for a variety of aquatic plants and invertebrates. Most active at dawn, dusk and low light. Establishes nests above the water line amongst dense vegetation such as tussock grasses, reeds and associated vegetation.	1	1981	Low-Moderate	Only one local record from 1981. Species typically inhabit wetlands with dense vegetation. Only small disturbed wetlands occur on site. Furthermore, the absence of more recent records in the broader area further decreases the likelihood of occurrence of this species on site.	Unlikely	Unlikely to make significant use of the site.

	VU	Vu	*Litoria raniformis*	Growling Grass Frog	The species persists in isolated populations in the greater Melbourne area, in the south-west of Victoria and a few sites in central Victoria and Gippsland. This species is found mostly amongst emergent vegetation, including Bullrush, Phragmites sp. and Eleocharis sp.(sedges), in or at the edges of still or slow-flowing water bodies such as lagoons, swamps, lakes, ponds and farm dams. The species can be found floating in warmer waters in temperatures between 18-25°C. Additionally, this species occurs in clays or well-watered sandy soils; open grassland, open forest, and ephemeral and permanent non-saline marshes and swamps; montane eucalypt forest, dry schlerophyll forest in coastal Victoria; steep-banked water edges (like ditches and drains) and gently graded edges containing fringing plants; and formerly, areas of high altitudes.	1	1981	Low-Moderate	Only one local record from 1981. Species is generally rare in eastern Victoria. Species may be present in the creeks and rivers the study area intersects however, this is unlikely given the surrounding landscape and the absence of recent records.	Unlikely	Unlikely to make significant use of the site.

B	EN	En	*Macronectes giganteus*	Southern Giant-Petrel	The species breeds on six subantarctic and Antarctic islands in Australian territory; Macquarie Island, Heard Island and McDonald Island in the Southern Ocean, and Giganteus Island, Hawker Island, and Frazier Island in the Australian Antarctic Territories. In summer, it mainly occurs over Antarctic waters, and it is widespread south as far as the pack-ice and onto the Antarctic continent.	1	1980	Low	Only one local record from 1980. Species inhabits coastal areas and rarely travels inland. The study area is not along the coast.	Unlikely	Unlikely to make significant use of the site.
	VU	En	*Megascolides australis*	Giant Gippsland Earthworm	The species is endemic to approximately 440 km² of the Bass River Valley, in South Gippsland, Victoria, in a triangle roughly bounded by Loch, Korumburra and Warragul. The species is generally found in the deep blue-grey clay-like soils over cretaceous rocks in the western Strezlecki Ranges and in the alluvial soils in depositional zones to the north and south-west. Rainfall in the area is over 700 mm a year. The earthworm is usually associated with creek banks (especially smaller tributaries of the Bass River), soaks, river flats or on slopes with a southerly or westerly aspect and is rarely found on	61	2014	Moderate-High	Numerous local records with last record in 2014. The study area intersects some areas that could be suitable GGE habitat, particularly where creeks and rivers intersect. The southern portion of the study area is unlikely to contain GGE as it is outside its known range.	Unlikely	The proposed rail trail follows already disturbed footprint of the historic railway. This is elevated and contains railway ballast which is not ideal habitat for the species. Where potential habitat occurs, mitigation measures will be implemented to avoid impacts to the species.

					north facing slopes. The species is absent from soil with a high levels of coarse sand and areas of waterlogging and compaction.					
	EN	Vu	*Melanodryas cucullata*	Hooded Robin	Hooded Robins are found all over mainland Australia, except Cape York and eastern Gulf of Carpentaria or inland around the Simpson Desert, on the Nullarbor Plain or south of the Kimberley Ranges. They are more commonly found in south-eastern Australia from Adelaide to Brisbane. Hooded Robins are found in lightly timbered woodland, mainly dominated by Acacia and/or eucalypts.	2	1981	Low-Moderate	Only two local records with last record from 1981. Species inhabits lightly timbered forests. Whilst these are scattered through the site, they are fragmented and disturbed, which further reduce the species likelihood of occurrence on site.	Unlikely	Unlikely to make significant use of the site.
B			*Myiagra cyanoleuca*	Satin Flycatcher	In Victoria, the species is widespread in the south and east, in the area south of a line joining Numurkah, Maldon, the northern Grampians, Balmoral and Nelson. They are sparsely scattered on the western plains and very occasionally further north (e.g. a few scattered sites in the Little Desert). Satin	21	2018	Low-Moderate	Only a very small pockets of densely vegetated wet areas occurs on site. While animals could occasionally occur on site while travelling across the landscape toward areas of more	Unlikely	Unlikely to make significant use of the site.

				Flycatchers inhabit heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests.				suitable habitats, it is unlikely that they would make significant use of the site.	
VU		*Neophema chrysostoma*	Blue-winged Parrot	Blue-winged parrots inhabit a range of habitats from coastal, sub-coastal and inland areas, through to semi-arid zones. They tend to favour grasslands and grassy woodlands and are often found near wetlands both near the coast and in semi-arid zones. The species can also be seen in altered environments such as airfields, golf-courses and paddocks. Pairs or small parties of Blue-winged parrots forage mainly near or on the ground for seeds of a wide range of native and introduced grasses, herbs and shrubs.	46	1996	Moderate	Numerous local records. While the last VBA record is from 1996, there are some more recent (2021) Birdata ones in the broader landscape. Species is known to forage in disturbed environments such as paddocks and to breed in south-east Victoria.	Possible	Impacts on this species are possible if suitable hollow-bearing trees are removed from the site.
	Cr	*Ninox connivens*	Barking Owl	Within Victoria the Barking Owl occurs in open woodlands and open forests, including Box Ironbark and riparian River Red Gum habitats, as well as some foothill habitats on granitic slopes. The species has been recorded more frequently in edge habitats such as the interface between woodlands	2	1999	Low-Moderate	Only two local records with last record from 1999. Species prefers woodlands but also occurs in fragmented trees. However, given the fragmentation of the treed vegetation in	Unlikely	Large old / mature trees likely to bear suitable hollow(s) for this species will be retained on site.

					and wooded farmland, than in forest interiors. Scattered distribution in Victoria, the species predominantly occurs in the 400–700mm rainfall zone north of the Great Dividing Range.				the broader landscape, and the age of the records, the likelihood of occurrence of the species on site is deemed Low–moderate.	
		Vu	*Ninox strenua*	Powerful Owl	The species is endemic to eastern and south-eastern Australia, mainly on the eastern side of the Great Dividing Range, from south-eastern Queensland to Victoria. The species is found in open forests and woodlands, as well as along sheltered gullies in wet forests with dense understoreys, especially along watercourses. Will sometimes be found in open areas near forests such as farmland, parks and suburban areas, as well as in remnant bushland patches. Needs old growth trees to nest.	5	2008	Low	Only two local records with last record from 1999. Species prefers woodlands but also occurs in fragmented trees. However, given the fragmentation of the treed vegetation in the broader landscape, and the age of the records, the likelihood of occurrence of the species on site is deemed Low–moderate.	Unlikely	Large old / mature trees likely to bear suitable hollow(s) for this species will be retained on site.
B,R,J, C	CR	Cr	*Numenius madagascariensis*	Eastern Curlew	Common summer migrant to Australia (August – May). Sheltered coasts, especially estuaries, embayments, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats.	2	1981	Low	Only two local records with last record from 1981. Species inhabits coastal areas and rarely use inland waterbodies. The	Unlikely	Unlikely to occur or make significant use of the site

								study area is not along the coast.		
B,R,J, C	En	*Numenius phaeopus*	Whimbrel	The Whimbrel is a regular migrant to Australia and New Zealand, with a primarily coastal distribution. In Victoria it is commonly found at Corner Inlet, Westernport and Port Phillip Bays. The Whimbrel is often found on the intertidal mudflats of sheltered coasts. It is also found in harbours, lagoons, estuaries and river deltas, often those with mangroves, but also open, unvegetated mudflats. It is occasionally found on sandy or rocky beaches, on coral or rocky islets, or on intertidal reefs and platforms. It has been infrequently recorded using saline or brackish lakes near coastal areas. It also used salt flats with saltmarsh, or saline grasslands with standing water left after high spring-tides, and in similar habitats in sewage farms and salt fields. There are a small number of inland records from saline lakes and Cane-grass swamps. It has also been recorded in	2	1981	Low	Only two local records with last record from 1981. Species inhabits coastal areas and rarely use inland waterbodies. The study area is not along the coast.	Unlikely	Unlikely to occur or make significant use of the site

				coastal dunes and on a football field.						
	Vu	*Ornithorhynchus anatinus*	Platypus	Platypus are endemic to Australia and is dependent on rivers, streams and bodies of freshwater. It is present in eastern Queensland and New South Wales, eastern, central and southwestern Victoria and throughout Tasmania. Platypuses occur in freshwater systems from tropical rainforest lowlands and plateaus of far northern Queensland to cold, high altitudes of Tasmania and the Australian Alps. They feed in both slow-moving and rapid (riffle) parts of streams, but show preference to coarser bottom substrates, particularly cobbles and gravel. When not foraging, the Platypus spends	1	1993	Low	Only one local record from 1981. Whilst the study area intersects creeks and rivers, it is unlikely that Platypus are present in them due to the water quality of the area (farming activities, erosion, etc.) and the lack of recent records.	Unlikely	Unlikely to occur or make significant use of the site

				most of the time in its burrow in the bank of the river, creek or a pond. At times, the individuals use rocky crevices and stream debris as shelters, or they burrow under the roots of vegetation near the stream. Hence, the ideal habitat for the species includes a river or a stream with earth banks and native vegetation that provides shading of the stream and cover near the bank. The presence of logs, twigs, and roots, as well as cobbled or gravel water substrate result in increased microinvertebrate fauna (a main food source), and the Platypus also tends to be more abundant in areas with pool-riffle sequences.					
	Vu	*Oxyura australis*	Blue-billed Duck	The Blue-billed Duck is endemic to Australia, being found in the temperate wetlands of the south-east and south-west parts of the continent. It is common in Victoria. The Blue-billed Duck is almost wholly aquatic, and is seldom seen on land. Non-breeding flocks, often with several hundred individuals, congregate on large, deep open freshwater dams and lakes in autumn. The daylight	37	2019	Low	Numerous local records with last record in 2019. Species inhabits large, deep freshwater lakes which are absent from the study area. Species is unlikely to occur on site.	Unlikely	Unlikely to occur or make significant use of the site

			hours are spent alone in small concealed bays within vegetation or communally in large exposed rafts far from the shore.						
B,C	*Plegadis falcinellus*	Glossy Ibis	Within Australia, the species moves in response to good rainfalls, expanding its range, however the core breeding areas used are within the Murray-Darling Basin region of New South Wales and Victoria, the Macquarie Marshes in New South Wales, and in southern Queensland. The species' preferred habitat for foraging and breeding are fresh water marshes at the edges of lakes and rivers, lagoons, flood-plains, wet meadows, swamps, reservoirs, sewage ponds, rice-fields and cultivated areas under irrigation. The species is occasionally found in coastal locations such as estuaries, deltas, saltmarshes and coastal lagoons.	1	1999	Low	Only one local record from 1999. Limited areas of suitable habitat on site.	Unlikely	Unlikely to occur or make significant use of the site

B,R,J, C	Vu	*Pluvialis fulva*	Pacific Golden Plover	The species are recorded at scattered sites in the south-east, with most records in Victoria along the coast between Jack Smith Lake (south of Sale) and the Bellarine Peninsula, including Western Port and Port Phillip Bay. Nationally important sites include Corner, Swan Bay–Mud Islands and Shallow Inlets. In non-breeding grounds in Australia this species usually inhabits coastal habitats, though it occasionally occurs around inland wetlands. Pacific Golden Plovers usually occur on beaches, mudflats and sandflats (sometimes in vegetation such as mangroves, low saltmarsh such as Sarcocornia, or beds of seagrass) in sheltered areas including harbours, estuaries and lagoons, and also in evaporation ponds in saltworks. The species is also sometimes recorded on islands, sand and coral cays and exposed reefs and rocks.	2	1980	Low	Only two local records from 1980. Species inhabits coastal areas or rarely inland wetlands. However, as the study area doesn't contain either habitat features it is unlikely that the species would occur on site.	Unlikely	Unlikely to occur or make significant use of the site

	En	*Pseudophryne semimarmorata*	Southern Toadlet	The Southern Toadlet occurs in southern Victoria. This species is usually found in dry sclerophyll (gum) forests under bark, logs and leaf litter where it lives in small tunnels. They do not necessarily have to be near permanent water.	42	2023	Moderate-high	Numerous local records with last record from 2023. Species inhabits forests with bark and logs and not necessarily near water. As there are fragmented areas of forest, multiple wet areas/depressions, and decent number of recent records, this species may occur in some isolated areas of the site.	Possible	Individuals may be injured or killed during construction work.
B		*Rhipidura rufifrons*	Rufous Fantail	The species has breeding populations occurring from about the South Australia–Victoria border, through south and central Victoria, on and east of the Great Divide in New South Wales, then extending north into Queensland. In east and south-east Australia, the Rufous Fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts such as Tallowwood, Mountain Grey Gum, Narrow-leaved Peppermint, Mountain Ash, Alpine Ash, Blackbutt or Red Mahogany; usually with a dense	12	2018	Low	Few local records with last record from 2018. Species inhabits forested gullies with dense understory. This habitat is absent from the study area therefore, this species is unlikely to occur on site.	Unlikely	Unlikely to occur or make significant use of the site

				shrubby understorey often including ferns.					
	Vu	*Spatula rhynchotis*	Australasian Shoveler	Widely distributed in Victoria. The Australasian Shoveler is found in all kinds of wetlands, preferring large undisturbed heavily vegetated freshwater swamps. It is also found on open waters and occasionally along the coast	231	2019	Low	Many local records with last record from 2019. Species inhabits large wetlands with fringing vegetation. No suitable habitat is present on site so local records likely from a nearby wetland. Species is unlikely to use the site but may occasionally fly over site while travelling.	Unlikely	Unlikely to occur or make significant use of the site

En	*Stictonetta naevosa*	Freckled Duck	The Freckled Duck is found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. It breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina. The duck is forced to disperse during extensive inland droughts when wetlands in the Murray River basin provide important habitat. The species may also occur as far as coastal New South Wales and Victoria during such times. The species prefers permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds.	4	2018	Low	Few local records with last record from 2018. Species inhabits large wetlands with fringing vegetation. No suitable habitat is present on site so local records likely from a nearby wetland. Species is unlikely to use the site but may occasionally fly over site while travelling.	Unlikely	Unlikely to occur or make significant use of the site

		En	*Synoicus chinensis*	King Quail	The King Quail subspecies Coturnix chinensis victoriae is endemic to Australia, it occurs along eastern Australia from Cape York to south eastern South Australia. French Island is considered the stronghold for this species with most Victorian records and most of the recent records from this area. King Quail inhabits dense low vegetation, including swamps, wet heathlands, shrubland, swamp scrub, grasslands and crops such as Lucerne. Prime habitat on French Island comprises Wetland Heath EVC, consisting of a low treeless heathland, with small trees Messmate stringybark and Narrow Leaved Peppermint Gum. Swamp Scrub EVC is also an important habitat which occurs along creek lines or where there is poor drainage open understorey consisting of scrub up to 5 m in height that is dominated by Melaleuca ericifolia.	2	1983	Low	Only two local records with last record from 1983. Species inhabits dense vegetation in swampy conditions. The study area contains little habitat with dense understorey. This habitat is also fragmented making it unlikely that the species would occur on site.	Unlikely	Unlikely to occur or make significant use of the site
B	VU	En	*Thalassarche carteri*	Indian Yellow-nosed Albatross	The Indian Yellow-nosed Albatross forages mostly in the southern Indian Ocean where it is particularly abundant off Western Australia. The Indian	1	1980	Low	Only one local record from 1980. Species inhabits coastal areas and rarely travels inland.	Unlikely	Unlikely to occur or make significant use of the site

					Yellow-nosed Albatross is a marine bird, located in subtropical and warmer subantarctic waters.			The study area is not along the coast.		
B	EN	En	*Thalassarche cauta*	Shy Albatross	The shy albatross is endemic breeder to Australia and it breeds on three island colonies off Tasmania, in the southern Indian Ocean: Albatross Island, Pedra Branca, and the Mewstone. It is the only albatross endemic to Australia. Juvenile birds are known to fly as far as South Africa; otherwise, non-breeding birds can be found throughout the southern oceans, but specifics are hard to determine due to their similarity to the other species. It is sometimes found off the Pacific coast of the United States.	4	1981	Low	Few local records from 1981. Species inhabits coastal areas and rarely travels inland. The study area is not along the coast.	Unlikely	Unlikely to occur or make significant use of the site
BR	VU		*Thalassarche melanophris*	Black-browed Albatross	The Australian Black-browed Albatross breeding population is restricted to four locations during the breeding season: Heard Island; McDonald Island; Macquarie Island; and Bishop and Clerk Islands. The breeding population's area of occupancy is defined as the area on which the population occurs at the time when it is most constrained. During summer, it	2	1980	Low	Few local records from 1980. Species inhabits coastal areas and rarely travels inland. The study area is not along the coast.	Unlikely	Unlikely to occur or make significant use of the site

					breeds in colonies on a number of subantarctic and Antarctic islands between 46 °S and 56 °S. During winter, Black-browed Albatrosses migrate northwards for foraging.					
	VU	Vu	*Thinornis cucullatus*	Hooded Plover	Its natural habitats are freshwater lakes, freshwater marshes, coastal saline lagoons, and sandy beaches. Heavy populations are found on beaches with seaweed and dunes. It is threatened by habitat loss because of its small population and limited native range. It is a non-migratory inhabitant of coastal and subcoastal Western Australia, South Australia, New South Wales, Victoria and Tasmania, and is a vagrant in Queensland.	5	1981	Low	Few local records with last record from 1981. Species lakes and marshes particularly near the coast. The study area doesn't contain habitat preferred by this species therefore, it is unlikely to occur on site.	Unlikely	Unlikely to occur or make significant use of the site
B,R,J, C	EN	En	*Tringa nebularia*	Common Greenshank	Widespread in coastal regions, mainly between Gippsland Lakes and Port Phillip Bay. Inland the species is known mostly in the west and in the Murray River Valley. The Common Greenshank is found in inland wetlands and sheltered coastal habitats such as large mudflats and	2	1980	Low	Only two records with last record from 1980. Species inhabits coastal areas and inland wetlands. The study area doesn't contain any wetlands and isn't near the coast, therefore, it is	Unlikely	Unlikely to occur or make significant use of the site

					saltmarsh, mangroves or seagrass.				unlikely to occur on site.	
		En	*Varanus varius*	Lace Monitor	The species is widespread and, in some areas, common in the forests of the warm temperate and sometimes cool temperate zones of Gippsland. In Northern and Western Victoria, it occurs mainly in the warm temperate zone, extending along the mesic forested corridors of major watercourses through the semi-arid zone (such as the Murray River). The species is mainly found in treed habitats within the Damp Schlerophyll Forest Riparian Forest Box-Iron Bark Forest Red Gum and Black Box Woodland ecosystems.	12	2008	Low-Moderate	Few local records with last record in 2008. Species typically inhabits forests and treed woodlands. The study area has a few treed patches however, these are fragmented and low quality making it unlikely for this species to be present on site or make significant use of the site. Local records are from nearby conservation reserves.	Unlikely	Unlikely to occur or make significant use of the site. Furthermore, the trees likely to bear large hollows will be retained on site.
B,R,J, C	VU	En	*Xenus cinereus*	Terek Sandpiper	In Victoria, the species has been recorded from Corner Inlet, Anderson Inlet, Westernport Bay and west Port Phillip Bay. The Terek Sandpiper mostly forages in the open, on soft wet intertidal mudflats or in sheltered estuaries, embayments, harbours or lagoons. The	2	1981	Low	Only two local records with last record from 1981. Species inhabits coastal areas. The study area is not along the coast therefore, it is unlikely to occur on site.	Unlikely	Unlikely to occur or make significant use of the site

				species has also been recorded on islets, mudbanks, sandbanks and spits, and near mangroves and occasionally in samphire. In Westernport Bay, Victoria, the Terek Sandpiper prefers to roost on isolated banks of mangroves, surrounded by water.					
C	En	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	The White-bellied Sea-Eagle is distributed along the coastline (including offshore islands) of mainland Australia and Tasmania. It also extends inland along some of the larger waterways, especially in eastern Australia. The White-bellied Sea-Eagle is found in coastal habitats (especially those close to the sea-shore) and around terrestrial wetlands in tropical and temperate regions of mainland Australia and its offshore islands. The habitats occupied by the Sea-Eagle are characterised by the presence of large areas of open water (larger rivers, swamps, lakes, the sea). Birds have been recorded in (or flying over) a variety of terrestrial habitats.	1	1984	Low-moderate	Only one local record from 1984. Species typically occurs around the coast, near large waterbodies and is known to fly inland along major rivers. The study area follows a river from the coast however, it provides little breeding habitat or foraging opportunity for the species.	Unlikely	Unlikely to occur or make significant use of the site

EN	En	*Lissolepis coventryi*	Swamp Skink	Found mainly in the coastal region of south-eastern Australia, primarily south of the Great Dividing Range and mainly in Victoria with small areas in southern New South Wales and south-eastern South Australia. The species is often restricted to densely vegetated swamps and associated watercourses, and adjacent wet heaths (Melaleuca or Leptospermum thickets), sedgelands and saltmarshes. It can occur in association with freshwater and saltmarsh environments. Generally active between September to May. Secretive species that develops burrows or utilises burrows of freshwater crayfish or rocks, logs, tussocks and sedges.	3	1995	Low-moderate	Few local record with last VBA record from 1995. Note that are some more recent (2021) ALA records with photos in the broader area. Whilst some areas of the study area could contain suitable habitat, they are all highly disturbed.	Unlikely	Unlikely to occur or make significant use of the site
	En	*Pseudemoia rawlinsoni*	Glossy Grass Skink	Lives in south-east Australia. Lives among rushes, grasses, rotting logs and low dense vegetation in moist areas bordering swamps and water courses.	1	2003	Low-moderate	Only one local record from 2003. Species inhabits dense vegetation along waterways. Whilst some areas of the study area could contain suitable habitat, it is highly disturbed.	Unlikely	Unlikely to occur or make significant use of the site

CR	Cr	*Anthochaera phrygia*	Regent Honeyeater	The species favours box–ironbark habitat which once extended from west of the Adelaide Hills right through inland Victoria and sub-coastal New South Wales into Queensland. The species show a consistent preference for eucalypt species: Mugga Ironbark, White Box, Yellow Box and Yellow Gum. All four species flower profusely and have especially rich nectar flows. It is a rare vagrant to the country around Bendigo (where it was once common) and to Gippsland (where it was a regular visitor), and in most years only a handful of birds are seen in eastern Victoria — four–fifths of sightings are from just three locations: Chiltern, the Killawarra, and the Reef Hills.	Low	Species forages on certain Eucalypt species as a food source. These species are not present on site therefore, the species is unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site
CR	Cr	*Pedionomus torquatus*	Plains–wanderer	The plains wanderer is a highly unique, ground–dwelling bird that lives in the grasslands of Queensland, New South Wales, Victoria and South Australia. Plains wanderers inhabit sparse native grasslands and are often absent from areas where grass becomes too dense or too sparse. They nest amongst native grasses and herbs, or	Low	Species inhabits sparse grasslands comprised of native species. The study area contains little native grasses and is highly disturbed making it unlikely for the species to be present on site.	Unlikely	Unlikely to occur or make significant use of the site

					sometimes amongst crops, feeding on a mixture of seeds, invertebrates and leaves.			
	CR	Cr	*Neophema chrysogaster*	Orange-bellied Parrot	Orange-bellied Parrots breed in Tasmania then migrate to the southern coast of mainland Australia, as far west as Yorke Peninsula in South Australia, and east in Victoria to Westernport Bay. Orange-bellied Parrots are seen almost exclusively in coastal and sub-coastal areas, preferring peninsulas and islands. Saltmarshes, littoral (shore) heathlands and low scrublands are preferred habitats as well as grassy areas, which can include golf courses. They breed in forests on the west coast of Tasmania dominated by Smithton Peppermints, but tend to avoid extensive tracts of temperate rainforest.	Low	This species is almost exclusively found in coastal areas. As the site is not located along the coast it is unlikely that it would be present on site.	Unlikely	Unlikely to occur or make significant use of the site
B	EN	En	*Thalassarche chrysostoma*	Grey-headed Albatross	The grey-headed albatross also known as the grey-headed mollymawk, is a large seabird from the albatross family. It has a circumpolar distribution, nesting on isolated islands in the Southern Ocean and	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site

					feeding at high latitudes, further south than any of the other mollymawks.			
	EN		*Pterodroma leucoptera*	Gould's Petrel	Gould's Petrel is a pelagic marine species, spending much of its time foraging at sea and coming ashore only to breed. A few beach cast specimens have been collected, most in New South Wales, but also a few in south-eastern Queensland and in Victoria. The Australian subspecies breeds and roosts on two islands off New South Wales, Cabbage Tree and Boondelbah Islands, and the at-sea distribution is poorly known.	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site
B,R,J, C	EN	En	*Charadrius mongolus*	Lesser Sand Plover	Within Australia, the Lesser Sand-Plover is widespread in coastal regions, and has been recorded in all states. In non-breeding grounds in Australia, this species usually occurs in coastal littoral and estuarine environments. It inhabits large intertidal sandflats or mudflats in sheltered bays, harbours and estuaries, and occasionally sandy ocean beaches, coral reefs, wave-cut rock platforms and rocky outcrops. It also sometime occurs in short	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site

					saltmarsh or among mangroves. The species also inhabits saltworks and near-coastal saltpans, brackish swamps and sandy or silt islands in river beds.			
B	EN		*Diomedea sanfordi*	Northern Royal Albatross	Ranges widely over the Southern Ocean, with individuals seen in Australian waters off south-eastern Australia. The Northern Royal Albatross feeds regularly in Tasmanian and South Australian waters, and less frequently in New South Wales waters. Marine, pelagic and aerial. Its habitat includes subantarctic, subtropical, and occasionally Antarctic waters. It occurs where the surface temperature of the water is between 6–20 °C.	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site
	EN	Cr	*Botaurus poiciloptilus*	Australasian Bittern	This well camouflaged and elusive species inhabits well vegetated wetlands all over Victoria. This species is part nocturnal and forages over water in dense cover, sometimes from platforms in wetland vegetation. Habitat is usually tall reedbeds, sedges,	Low	Species occurs within densely vegetated wetlands. All the wetlands present on site are small and heavily disturbed.	Unlikely	Unlikely to occur or make significant use of the site

					rushes, cumbungi or lignum. Also occurs on rice fields, drains in tussocky paddocks and occasionally on saltmarshes and brackish wetlands. Nests are shallow saucers on trampled water plants.			
B,R,J, C	VU	Vu	*Limosa lapponica baueri*	Bar-tailed Godwit	Found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It is found often around beds of seagrass and, sometimes, in nearby saltmarsh. It has been sighted in coastal sewage farms and saltworks, salt lakes and brackish wetlands near coasts, sandy ocean beaches, rock platforms, and coral reef-flats. It is rarely found on inland wetlands or in areas of short grass, such as farmland, paddocks and airstrips, although it is commonly recorded in paddocks at some locations overseas. Usually forages near the edge of water or in shallow water, mainly in tidal estuaries and harbours. Usually roosts on sandy beaches, sandbars, spits and also in near-coastal saltmarsh.	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site

C	EN	Cr	*Rostratula australis*	Australian Painted-snipe	The Australian Painted Snipe has been recorded at wetlands in all states of Australia. It is most common in eastern Australia, where it has been recorded at scattered locations throughout much of Queensland, New South Wales, Victoria and south-eastern South Australia. The Australian Painted Snipe generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. They also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains. Typical sites include those with rank emergent tussocks of grass, sedges, rushes or reeds, or samphire; often with scattered clumps of lignum Muehlenbeckia or Cane-grass or sometimes Tea-tree. The Australian Painted Snipe sometimes utilises areas that are lined with trees, or that have some scattered fallen or washed-up timber.	Low	Species typically inhabits wetlands or waterlogged areas. The study area is highly disturbed and contains limited suitable habitat for this species. Furthermore, there are no local records. Therefore, it is unlikely to occur on site.	Unlikely	Unlikely to occur or make significant use of the site

B	VU	En	*Macronectes halli*	Northern Giant-Petrel	The species breeds in the sub-Antarctic, and visits areas off the Australian mainland mainly during the winter months (May–October). Immature and some adult birds are commonly seen during this period in offshore and inshore waters from around Fremantle (Western Australia) to around Sydney (New South Wales). The species is marine and oceanic. It nests in coastal areas where vegetation or broken terrain offers shelter, on sea-facing slopes, headlands, in the lee of banks, under or against vegetation clumps, below cliffs or overhanging rocks, or in hollows.	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site
	VU	Vu	*Falco hypoleucos*	Grey Falcon	In Victoria, the species is on the periphery of its arid-zone range. Grey Falcons have been sighted in most years in north-west Victoria. They may be more common in Victoria during or following droughts. The species occurs throughout the arid and semi-arid zones of Australia, where the mean annual rainfall is less than 500 mm, but rarely in waterless areas. These areas are relatively treeless except along watercourses, and comprise	Low	Species is generally rare in Victoria and generally occupying inland Australia as its stronghold, and on occasion visiting northern and western Victoria, it is very unlikely the species would occur within the site. There are no records in southern Victoria.	Unlikely	Unlikely to occur or make significant use of the site

				sandy to stony plains, spinifex tussock grassland, low shrubland and acacia scrub. Nests are usually in tall eucalypts close to a watercourse, although these may be dry during nesting. During droughts they venture towards higher rainfall areas, and seasonally may move north during winter and south during the summer. The area near the junction of the Murray and Darling Rivers has held larger numbers of Grey Falcons in drought years and appears to be a drought refuge. .			
VU	Vu	*Stagonopleura guttata*	Diamond Firetail	The Diamond Firetail is endemic to south-eastern Australia. Diamond Firetails are found in open grassy woodland, heath and farmland or grassland with scattered trees. Mainly inhabit grassy woodlands or wooded farmlands containing River Red Gum Eucalyptus camaldulensis, Yellow Gum Eucalyptus leucoxylon, Murray Pine Callitris gracilis or Buloke Allocasuarina luehmannii near permanent water	Low-Moderate	Species inhabits a range of environments including farmland. Species could potentially breed in suitable hollow-bearing trees. However, there are no records of this species in the area.	Unlikely	Unlikely to occur or make significant use of the site

B,R,J, C	VU	Cr	*Calidris tenuirostris*	Great Knot	Occurs within sheltered, coastal habitats containing large, intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons. Often recorded on sandy beaches with mudflats nearby, sandy spits and islets and sometimes on exposed reefs or rock platforms. Migrates to Australia from late August to early September, although juveniles may not arrive until October–November.	Low	Species occurs in coastal areas. As the study area is not along or near the coast it is unlikely that this species would occur on site.	Unlikely	Unlikely to occur or make significant use of the site
	VU	Cr	*Diomedea epomophora*	Southern Royal Albatross	Southern royal albatrosses nest almost exclusively on the Chatham Islands, located hundreds of miles east of New Zealand. After breeding, the species may circumnavigate the Southern Ocean, though it is most commonly sighted in New Zealand and South American waters. It has never been recorded north of the Equator. Nearly 80 percent of a royal albatross' life is spent directly exposed to the cold, treacherous, open oceans of the Southern Hemisphere. Remote tropical islands are sought out for nesting. They typically nest on slopes with tussock grass providing some shelter, though exposed sites	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site

					are also common as they ease the often difficult tasks of take-off and landing.				
B,J	VU	Cr	*Diomedea exulans*	Wandering Albatross	Breeds on Macquarie Island. A single breeding pair has also been recorded on Heard Island. It feeds in Australian portions of the Southern Ocean. Marine, pelagic and aerial. It occurs where water surface temperatures range from -2° to 24°C. Nests on coastal or inland ridges, slopes, plateaux and plains, often on marshy ground. Nests of the Wandering Albatross are sited on moss terraces, in dense tussocks, and often in loose aggregations on the west (windward) side of islands. It prefers open or patchy vegetation (tussocks, ferns or shrubs), and it requires nesting areas that are near exposed ridges or hillocks so that it can take off.	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site

C,J	VU		*Ardenna grisea*	Sooty Shearwater	Pelagic in Antarctic to sub-tropical seas. In Australia, the species breeds on islands off New South Wales and Tasmania and is a moderately common migrant and visitor to coasts of Victoria. Found in the southern hemisphere during summer, where the species breeds around southern Australia. The species forages in pelagic (open ocean) sub-tropical, sub-Antarctic and Antarctic waters. May occasionally forage inshore, especially during rough weather. The species feeds on a wide variety of pelagic prey, including cephalopods, fish and crustaceans and nests in burrows or rock crevices on coastal slopes, ridges and cliff tops, in herbfields, tussock grassland or forest.	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site

	VU	Vu	*Grantiella picta*	Painted Honeyeater	The species is nomadic and occurs at low densities throughout its range. The greatest concentrations of the bird and almost all breeding occurs on the inland slopes of the Great Dividing Range in New South Wales, Victoria and southern Queensland. During the winter it is more likely to be found in the north of its distribution. Inhabits Boree/ Weeping Myall, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests.	Low	Potential habitat on site. However, there are no local records. Very unlikely to occur south of the Great Dividing Range, with only a few records in this area, but a small potential it could occur while on passage.	Unlikely	Unlikely to occur or make significant use of the site
B	VU	Cr	*Phoebetria fusca*	Sooty Albatross	Marine and pelagic. In summer, the species occurs mainly south of 35° S in subtropical and subantarctic waters, but it is most abundant near the Subtropical Convergence.	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site
	VU	Cr	*Sternula nereis nereis*	Fairy Tern	Within Australia, the Fairy Tern occurs along the coasts of Victoria, Tasmania, South Australia and Western Australia. The Fairy Tern nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation. The subspecies has been found in embayments of a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and mainland	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site

					coastline. The bird roosts on beaches at night.			
B,R,J, C	VU	Vu	*Pluvialis squatarola*	Grey Plover	Most records in Victoria are from three distinct areas around Jack Smith Lake and Corner Inlet, in Westernport and Port Phillip Bays, and along the western coast, between Warrnambool and the South Australian border. In non-breeding grounds in Australia, Grey Plovers occur almost entirely in coastal areas, where they usually inhabit sheltered embayments, estuaries and lagoons with mudflats and sandflats, and occasionally on rocky coasts with wave-cut platforms or reef-flats, or on reefs within muddy lagoons. They also occur around terrestrial wetlands such as near-coastal lakes and swamps, or salt-lakes. The species is also very occasionally recorded further inland, where they occur around wetlands or salt-lakes. On their breeding grounds they inhabit tundra.	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site

B,R,J, C	VU	Vu	*Charadrius leschenaultii*	Greater Sand Plover	In Australia, the Greater Sand Plover occurs in coastal areas in all states. In southern Australia it is mostly recorded in Corner Inlet, Western Port and Port Phillip Bay in Victoria. In the non-breeding grounds in Australasia, the species is almost entirely coastal, inhabiting littoral and estuarine habitats. They mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons, and inshore reefs, rock platforms, small rocky islands or sand cays on coral reefs. They are occasionally recorded on near-coastal saltworks and salt lakes, including marginal saltmarsh, and on brackish swamps.	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site
B	VU		*Diomedea antipodensis*	New Zealand Wandering Albatross	The species is endemic to New Zealand, however forages widely in open water in the south-west Pacific Ocean, Southern Ocean and the Tasman Sea, notably off the coast of New South Wales. Marine, pelagic and aerial. Nests in open patchy vegetation, such as among	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site

					tussock grassland or shrubs on ridges, slopes and plateaus.				
	VU		*Thalassarche impavida*	Campbell Albatross	This species nests only at Campbell Island and the adjacent Isle de Jeanette Marie south of New Zealand, with a total population estimated at 24,600 pairs. It ranges widely in Australasian seas. It occurs in both inshore and offshore waters, including the continental shelf break and pelagic waters. Forages on fish, squid, crustacea, carrion and gelatinous organisms.	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site
B	VU	En	*Thalassarche bulleri*	Buller's Albatross	The species breeds in New Zealand (Snares, Solander and Chatham Islands), but are regular visitors to Australian waters. They are frequently seen off the coast from Coffs Harbour, south to Tasmania and west to Eyre Peninsula, however, some of these birds may be the Pacific Albatross. Buller's Albatross are most common off south-east Tasmania between January-April. Buller's Albatross are marine and pelagic, inhabiting subtropical and subantarctic waters of the southern Pacific	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site

				Ocean. Specific habitat requirements are poorly known, but they have been observed in association with fishing boats close inshore and over waters 180–360 m deep in New Zealand.				
VU	Vu	*Pycnoptilus floccosus*	Pilotbird	Pilotbirds are endemic to south east Australia. Upland Pilotbirds occur above 600 m in the Brindabella Ranges in the Australian Capital Territory, and in the Snowy Mountains in New South Wales and north-east Victoria. Lowland Pilotbirds occur in forests from the Blue Mountains west of Newcastle, around the wetter forests of eastern Australia, to the Dandenong's near Melbourne). Pilotbirds usually inhabit the ground layer of wet sclerophyll forests in temperate zones in moist gullies. They can also be found in dry sclerophyll forests and woodlands occupying dry slopes and ridges with dense undergrowth. Pilotbirds are strictly terrestrial, living on the ground in dense forests with	Low	Suitable habitat is present in some higher quality areas of the study area however, given the fragmentation of the study area and the inconsistency of suitable habitat, it is unlikely that this species would occur on site or make significant use of the site. No local records.	Unlikely	Unlikely to occur or make significant use of the site

			heavy undergrowth. In some places along the coast, they can also occur along the moist margins of creeks extending into heathland. Most of their time is spent on the ground foraging through the undergrowth and they are poor fliers.				
VU	*Climacteris picumnus victoriae*	Brown Treecreeper	The Brown Treecreeper is endemic to eastern Australia and occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. It is less commonly found on coastal plains and ranges. Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other Rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species;	Low	Suitable habitat is present in some higher quality areas of the study area however, given the fragmentation of the study area and the inconsistency of suitable habitat, it is unlikely that this species would occur on site. No local records.	Unlikely	Unlikely to occur or make significant use of the site

				also found in mallee and River Red Gum.				
B	VU	*Thalassarche salvini*	Salvin's Albatross	Breeding occurs on nine islands and islets in the Bounty Islands (99% of total), Western Chain in the Snares Islands, and possibly The Pyramid in the Chatham Islands, New Zealand. Breeds on just a few small barren and rocky islands, and otherwise occupies the open oceans.	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site
B	VU	*Thalassarche steadi*	White-capped Albatross	A marine species that occurs in subantarctic and subtropical waters. It reaches tropical areas associated with the cool Humboldt Current off South America.	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site

VU		*Pachyptila turtur subantarctica*	Fairy Prion	The fairy prion (southern) breeds on Macquarie Island and a number of other subantarctic islands outside of Australia. There are 80 to 250 breeding pairs in Australia and a global population of 80,000. In Australia, breeding is recorded on two rock stacks off Macquarie Island and on the nearby Bishop and Clerk Island. The population may have been larger prior to the arrival of black rats on Macquarie Island. The subspecies digs burrows among rocks or low vegetation in which to nest. Burrows may be dug below mat forming herbs. Feeds by plucking food from the ocean surface. Some individuals may migrate towards New Zealand and southern Australia in winter.	Low	Species occurs along the coast and rarely travels inland. Unlikely to be present on site.	Unlikely	Unlikely to occur or make significant use of the site
Conservation Dependent	Conservation Dependent	*Seriolella brama*	Blue Warehou	The blue Warehou is a migratory species. A study in waters off New Zealand has shown that the species undertakes major seasonal migrations in order to feed and spawn, and in response to changes in water temperature. The species shows preference for relatively warmer waters of between 10 and 15 °C when compared with other trevallas.	NIL	No suitable habitat present on site	n/a	No suitable habitat present on site

				Larval blue Warehou have been observed from the surface to depths of 100 m, with the highest abundances found in the upper 50 m. Older larvae and small juveniles are commonly found under drifting jellyfish or larger inanimate objects, with larger juveniles congregating in bays and estuaries, and once individuals have attained lengths greater than 30 cm in length, they are most abundant in the continental slope waters further offshore.				
	Conservation Dependent	Conservation Dependent	*Thunnus maccoyii*	Southern Bluefin Tuna	Found in oceanic waters normally on the seaward side of the continental shelf. In New South Wales, Southern Bluefin Tuna occur from northern New South Wales to the Victorian border.	NIL	No suitable habitat present on site	n/a	No suitable habitat present on site
EN	En		*Galaxiella pusilla*	Dwarf Galaxias	On the mainland, it occurs from the Mitchell River Basin in central Gippsland, Victoria, to the Cortina Lakes, near the Coorong in South Australia. Occurs in slow flowing and still, shallow, permanent and temporary freshwater habitats such as swamps, drains and the backwaters of streams and	Low–Moderate	Suitable habitat present on site, however, there are no local records. The study area is, however, located in an area mapped as 'Species or species habitat likely to occur' according to	Unlikely	Unlikely to occur or make significant use of the site

				creeks, often (but not always) containing dense aquatic macrophytes and emergent plants.		the species SPRAT profile. Furthermore, the water may be flowing too fast for this species in the section of the river crossing the site.		
EN	Vu	*Nannoperca obscura*	Yarra Pygmy Perch	Small, isolated populations exist between Melbourne and the Hopkins River system in south-west Victoria, but the major Victorian populations are located between the Barwon River and the South Australia border. The Yarra Pygmy Perch typically occurs in lakes, ponds and slow-flowing rivers, but prefers small-medium sized, relatively shallow (1-2 metres) freshwater streams with moderate to high flow.	Low	Suitable habitat, however, there are no local records.	Unlikely	Unlikely to occur or make significant use of the site
VU	En	*Prototroctes maraena*	Australian Grayling	The species occurs in streams and rivers on the eastern and southern flanks of the Great Dividing Range, from Sydney, southwards to the Otway Ranges of Victoria and in Tasmania. The species is diadromous, spending part of its lifecycle in freshwater and at least part of the larval and/or juvenile stages in coastal seas. Adults (including pre spawning and spawning adults) inhabit cool, clear, freshwater streams	Low	Suitable habitat, however, there are no local records.	Unlikely	Unlikely to occur or make significant use of the site

				with gravel substrate and areas alternating between pools and riffle zones such as the Tambo River, which is also known to have granite outcrops. The species has also been associated with clear, gravel-bottomed habitats in the Mitchell and Wonnangatta Rivers (Victoria) and in a muddy-bottomed, heavily silted habitat in the Tarwin River (Victoria). The species has been found over 100 km upstream from the sea.				
EN	En	*Dasyurus maculatus maculatus*	Spot-tailed Quoll	There are records of the Spot-tailed Quoll all across Victoria. The main stronghold areas for this species in Victoria are now in North East and East Gippsland. The populations in Southwest Victoria, including the Otway Ranges, Cobobbonee State Forest, Mt Eccles National Park and the Mt Eccles lava flow are critically endangered. The Spot-tailed Quoll occupies a range of forest habitats, particularly wet eucalypt forests associated with rocky outcrops, extensive riparian vegetation and high levels of ground dwelling prey. They make dens in hollow logs, hollow trees, rock crevices and	Low	Suitable habitat is present in some higher quality areas of the study area however, given the fragmentation of the study area and the inconsistency of suitable habitat, it is unlikely that this species would occur on site.	Unlikely	Unlikely to occur or make significant use of the site

					caves. They feed nocturnally but have been observed in daylight hours. They feed on small/medium mammals, birds and insects. Latrine sites are often situated in exposed areas such as rock ledges.			
	EN	En	*Petauroides volans*	Southern Greater Glider	The Southern Greater Glider occurs in eastern Australia, in eucalypt forests and woodlands, where it has a broad distribution from around Proserpine in Queensland, south through New South Wales and the Australian Capital Territory into Victoria. The species feeds exclusively on eucalypt leaves, buds, flowers and mistletoe.	Low	Suitable habitat is present in some higher quality areas of the study area however, given the fragmentation of the study area and the inconsistency of suitable habitat, it is unlikely that this species would occur on site.	Unlikely	Unlikely to occur or make significant use of the site
B	EN	En	*Balaenoptera musculus*	Blue Whale	Migratory species, moves from higher to lower latitudes for feeding, breeding and calving during the Australian summer. Moves in response to suitable prey. Feeding often occurs at or near the surface.	NIL	No suitable habitat present on site	n/a	No suitable habitat present on site

B	EN	En	*Eubalaena australis*	Southern Right Whale	The Southern Right Whale is a strictly marine species which has a southern circumpolar distribution. This species migrates to the southern coastlines, including Australia, to breed and calve in the austral winter–spring. In Victoria, regularly seen in Warrnambool.	NIL	No suitable habitat present on site	n/a	No suitable habitat present on site
	EN	Vu	*Mastacomys fuscus mordicus*	Broad-toothed Rat	The Broad-toothed rat is a terrestrial and mostly nocturnal rodent which inhabits high rainfall areas. They prefer a moderate-to-dense ground cover of grasses or sedges, with shrubs usually present, particularly along valley floors near to streams. Although the Broad-toothed Rat is found from coastal environments to high altitude areas its main strongholds are mostly in subalpine and alpine regions. In Victoria, it is found in the Victorian Alpine Region and near the Otways.	Low	Suitable habitat is present in some higher quality areas of the study area however, given the fragmentation of the study area and the inconsistency of suitable habitat, it is unlikely that this species would occur on site. Furthermore, there are no local records.	Unlikely	Unlikely to occur or make significant use of the site
	VU	Vu	*Potorous tridactylus trisulcatus*	Long-nosed Potoroo	Most commonly found in heathy coastal vegetation, dry and wet sclerophyll forests with a dense understorey with a sandy loamy soil. Rarely ventures far from cover and preferred habitat has a relatively thick groundcover.	Low	Suitable habitat is present in some higher quality areas of the study area however, given the fragmentation of the study area and the inconsistency of	Unlikely	Unlikely to occur or make significant use of the site

						suitable habitat, it is unlikely that this species would occur on site. Furthermore, there are no local records.		
VU	En	*Pseudomys novaehollandiae*	New Holland Mouse	The New Holland Mouse has a fragmented distribution across Tasmania, Victoria, New South Wales and Queensland. In Victoria, the New Holland Mouse is known from Anglesea (Otway Ranges, western Victoria), Loch Sport (Gippsland), Providence Ponds and Wilsons Promontory (Prosser et al. 2007). The species is known to inhibit open heathland, open woodland with a heathland understory and vegetated sand dunes. It requires high floristic diversity, especially leguminous perennials.	Low	Suitable habitat is present in some higher quality areas of the study area however, given the fragmentation of the study area and the inconsistency of suitable habitat, it is unlikely that this species would occur on site. Furthermore, there are no local records.	Unlikely	Unlikely to occur or make significant use of the site

VU	Vu	*Pteropus poliocephalus*	Grey-headed Flying-fox	The Grey-headed Flying-fox is Australia's only endemic flying-fox and occurs in the coastal belt from Rockhampton in central Queensland to Melbourne in Victoria. The Grey-headed Flying-fox requires foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. It also feeds on commercial fruit crops and on introduced tree species in urban areas. The primary food source is blossom from Eucalyptus and related genera but in some areas it also utilises a wide range of rainforest fruits.	Low-moderate	There is no known colony within 50km of the site. While this is the case, there is still a chance that animals visit the site while travelling across the landscape toward another colony.	Unlikely	Unlikely to occur or make significant use of the site
VU	Vu	*Petaurus australis*	Yellow-bellied Glider	The Yellow-bellied Glider is found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. The species occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation;	Low	Suitable habitat is present in some higher quality areas of the study area however, given the fragmentation of the study area and the inconsistency of suitable habitat, it is unlikely that this species would occur	Unlikely	Unlikely to occur or make significant use of the site

					mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south.		on site. Furthermore, there are no local records.		
B	EN	Cr	*Dermochelys coriacea*	Leathery Turtle	Regularly found in the high latitudes of all oceans including the South Pacific Ocean in the waters offshore from New South Wales, Victoria, Tasmania and Western Australia. A highly pelagic species, venturing close to shore mainly during the nesting season. Require sandy beaches to nest, with some evidence that coarser sand is more conducive to successful hatching than finer sand. Sand temperatures between 24–34 °C are needed for successful incubation. Beaches free from light pollution are required to prevent disorientation, disturbance and to allow nesting females to come ashore.	NIL	No suitable habitat present on site	n/a	No suitable habitat present on site
B	EN		*Caretta caretta*	Loggerhead Turtle	In Australia, the Loggerhead Turtle occurs in the waters of coral and rocky reefs, seagrass beds and muddy bays throughout eastern, northern and western Australia. In	NIL	No suitable habitat present on site	n/a	No suitable habitat present on site

					Australia, Loggerhead Turtles nest on open, sandy beaches.				
B	VU		*Chelonia mydas*	Green Turtle	Green Turtles nest, forage and migrate across tropical northern Australia. They usually occur between the 20°C isotherms, although individuals can stray into temperate waters. Green Turtles spend their first five to ten years drifting on ocean currents. During this pelagic (ocean-going) phase, they are often found in association with drift lines and rafts of Sargassum (a floating marine plant that is also carried by currents).	NIL	No suitable habitat present on site	n/a	No suitable habitat present on site
B	VU	En	*Carcharodon carcharias*	Great White Shark	Found from close inshore around rocky reefs, surf beaches and shallow coastal bays to outer continental shelf and slope areas. Also found in regions with high prey density, such as pinniped colonies.	NIL	No suitable habitat present on site	n/a	No suitable habitat present on site

Appendix 4. Native Vegetation Removal Report (7 metre Buffer)

Native Vegetation Removal Report

NVRR ID: SCENARIO TEST

This report provides offset requirements for internal testing of different proposals to remove native vegetation. **This report DOES NOT support an application to remove, destroy or lop native vegetation.**
The estimated offset requirements outlined in this report are provided to inform decisions regarding the avoidance and minimisation of impacts and detailed project design. This report **is not an assessment by DEECA** of the proposed native vegetation removal. Native vegetation information and offset requirements have been determined using spatial data provided by the applicant or their consultant.

TEST REPORT ONLY

Report details

Date created: 17/10/2024

Local Government Area:
SOUTH GIPPSLAND SHIRE
BASS COAST SHIRE

Registered Aboriginal Party: Bunurong

Coordinates: 145.58293, -38.43288

Address:
1010A LOCH-KERNOT ROAD KERNOT 3979
SOUTH GIPPSLAND HIGHWAY NYORA 3987
15 GOLDIES ROAD LOCH 3945
32 CLEMATIS ROAD WOOLAMAI 3995
BASS HIGHWAY DALYSTON 3992
MITCHELL STREET NYORA 3987
(21 additional addresses not listed)

Regulator Notes

Removal polygons are located:
- On Crown Land

Summary of native vegetation to be removed

Assessment pathway	**Detailed Assessment Pathway**		
Location category	Location 2 The native vegetation extent map indicates that this area is typically characterised as supporting native vegetation. Additionally, it is modelled as encompassing an endangered Ecological Vegetation Class, sensitive wetland or sensitive coastal area. The removal of less than 0.5 hectares of native vegetation in this area will not require a Species Offset.		
Total extent including past and proposed removal (ha) *Includes endangered EVCs (ha): 5.474*	**7.587**	*Extent of past removal (ha)*	*0*
		Extent of proposed removal - Patches (ha)	*6.657*
		Extent of proposed removal - Scattered Trees (ha)	*0.930*
No. Large Trees proposed to be removed	**11**	*No. Large Patch Trees*	*0*
		No. Large Scattered Trees	*11*

No. Small Scattered Trees	7

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

Offset requirements if approval is granted

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

General Offset amount [1]	**1.8730 General Habitat Units**
Vicinity	Melbourne Water CMA or SOUTH GIPPSLAND SHIRE LGA, BASS COAST SHIRE LGA
Minimum strategic biodiversity value score [2]	0.3668
Large Trees*	11
Species Offset amount	**1.611** Species Habitat Units for Gippsland Giant Earthworm, Megascolides australis (15004)
Large Trees*	0
***The total number of Large Trees that the offset must protect**	**11** Large Trees to be protected in either the General, Species or combination across all habitat units protected

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

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

Next steps

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

This report DOES NOT support an application to remove, destroy or lop native vegetation.

If you wish to remove the mapped native vegetation you must prepare removal data in accordance with the NVR Map Data Standards and use the Detailed Upload function of NVR Map to generate a Native Vegetation Removal Report (NVRR). The NVRR can be submitted with an application for approval to remove, destroy or lop native vegetation.

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Avoid and minimise

This scenario test report has identified impacts to biodiversity values if the proposed design is progressed. Consider this impact and explore options to avoid or minimise impacts to the following biodiversity values if identified in this report. Measures taken to avoid or minimise impacts can inform your required Avoid and Minimise Statement.

- a. Patch of native vegetation (See Appendix 3 - Images 1 and 2)
- b. Large Trees (See Appendix 3 - Images 1 and 2)
- c. Habitat for rare or threatened species (See Appendix 3 - Image 7)
- d. Endangered EVCs (See Appendix 3 - Image 6)
- e. Areas classified as Location 2 (See Appendix 3 - Image 3 dark green areas)
- f. Areas classified as Location 3 (See Appendix 3 - Image 3 brown areas)

Offsets

This scenario test report has estimated offset requirements if the proposed project design is progressed. Consider whether this offset is currently available and how it will be secured. If it is not currently available, consider how it will be located. Your Offset statement must demonstrate that an offset has been located and that it will be secured before native vegetation is removed. The following avenues may assist when checking the availability of offset credits:

- Use the Native Vegetation Credit Register (NVCR) Search Tool
- Contact a NVCR registered broker
- Contact landowners or land managers of sites that may be able to be used to generate habitat units that meet the offset requirements

Appendix 1: Description of native vegetation to be removed

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

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

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

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

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

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Native vegetation to be removed

Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
1	Patch	-	GipP0053	Endangered	0.698	-	0.051	0.051	0.500	1.000	0.072	Gippsland Giant Earthworm Megascolides australis (15004)
10	Patch	-	Strz0016, Strz0053	Endangered, Vulnerable	0.421	-	0.282	0.282	0.516	1.000	0.237	Gippsland Giant Earthworm Megascolides australis (15004)

Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
11	Patch	-	GipP0053, GipP0016, Strz0016, Strz0053	Endangered, Vulnerable	0.636	-	0.380	0.380	0.542	1.000	0.484	Gippsland Giant Earthworm Megascolides australis (15004)
12	Patch	-	GipP0053, Strz0053	Endangered	0.217	-	0.082	0.082	0.437	1.000	0.035	Gippsland Giant Earthworm Megascolides australis (15004)
13	Patch	-	GipP0053	Endangered	0.207	-	0.012	0.012	0.440	-	0.003	General
14	Patch	-	GipP0053	Endangered	0.430	-	0.032	0.032	0.410	-	0.015	General
15	Patch	-	GipP0937	Endangered	0.500	-	0.024	0.024	0.460	-	0.013	General
16	Patch	-	GipP0053, GipP0937	Endangered	0.377	-	0.015	0.015	0.460	-	0.006	General
17	Patch	-	GipP0029	Endangered	0.609	-	0.298	0.298	0.508	-	0.206	General
18	Patch	-	GipP0053	Endangered	0.223	-	0.092	0.092	0.460	-	0.022	General
19	Patch	-	GipP0053	Endangered	0.270	-	0.096	0.096	0.420	-	0.028	General
2	Patch	-	Strz0018	Vulnerable	0.390	-	0.000	0.000	0.410	-	0.000	General
20	Patch	-	GipP0053	Endangered	0.200	-	0.038	0.038	0.425	-	0.008	General
21	Patch	-	Strz0016	Vulnerable	0.200	-	0.209	0.209	0.400	-	0.044	General

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Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
22	Patch	-	GipP0191	Vulnerable	0.200	-	0.179	0.179	0.400	-	0.038	General
23	Patch	-	Strz0937, Strz0029	Endangered	0.417	-	0.061	0.061	0.417	-	0.027	General
24	Patch	-	GipP0053, GipP0029	Endangered	0.314	-	0.584	0.584	0.484	-	0.204	General
25	Patch	-	GipP0053	Endangered	0.200	-	0.004	0.004	0.340	-	0.001	General
26	Patch	-	GipP0053	Endangered	0.230	-	0.067	0.067	0.380	-	0.016	General
27	Patch	-	GipP0053, GipP0191	Endangered, Vulnerable	0.200	-	0.159	0.159	0.385	-	0.033	General
28	Patch	-	GipP0053	Endangered	0.466	-	0.020	0.020	0.410	-	0.010	General
29	Patch	-	GipP0053	Endangered	0.200	-	0.048	0.048	0.430	-	0.010	General
3	Patch	-	Strz0018, GipP0018	Vulnerable	0.543	-	0.051	0.051	0.711	1.000	0.055	Gippsland Giant Earthworm Megascolides australis (15004)
30	Patch	-	GipP0053	Endangered	0.201	-	0.158	0.158	0.439	-	0.034	General
31	Patch	-	GipP0029	Endangered	0.544	-	0.077	0.077	0.890	-	0.060	General
32	Patch	-	GipP0029, Strz0029	Endangered	0.375	-	0.123	0.123	0.440	-	0.050	General

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Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
33	Patch	-	Strz0016	Vulnerable	0.406	-	0.137	0.137	0.697	-	0.071	General
34	Patch	-	GipP0053, GipP0016	Endangered, Vulnerable	0.409	-	0.576	0.576	0.485	-	0.263	General
35	Patch	-	GipP0191	Vulnerable	0.200	-	0.139	0.139	0.400	-	0.029	General
36	Patch	-	Strz0016	Vulnerable	0.466	-	0.218	0.218	0.403	-	0.107	General
37	Patch	-	GipP0053	Endangered	0.200	-	0.089	0.089	0.398	-	0.019	General
38	Patch	-	GipP0053	Endangered	0.233	-	0.601	0.601	0.457	-	0.153	General
39	Patch	-	Strz0016	Vulnerable	0.200	-	0.085	0.085	0.320	-	0.017	General
4	Patch	-	GipP0053	Endangered	0.200	-	0.039	0.039	0.430	-	0.008	General
40	Patch	-	GipP0053, GipP0016	Endangered, Vulnerable	0.486	-	0.266	0.266	0.549	1.000	0.258	Gippsland Giant Earthworm Megascolides australis (15004)
41	Patch	-	Strz0016	Vulnerable	0.331	-	0.433	0.433	0.428	1.000	0.287	Gippsland Giant Earthworm Megascolides australis (15004)
42	Patch	-	GipP0053	Endangered	0.208	-	0.122	0.122	0.431	1.000	0.051	Gippsland Giant Earthworm Megascolides australis (15004)

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Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
43	Patch	-	GipP0053, Strz0016, Strz0053	Endangered, Vulnerable	0.228	-	0.110	0.110	0.432	-	0.027	General
44	Patch	-	Strz0018, Strz0053, Strz0029	Endangered, Vulnerable	0.236	-	0.205	0.205	0.418	1.000	0.097	Gippsland Giant Earthworm Megascolides australis (15004)
45	Patch	-	GipP0053, GipP0029	Endangered	0.297	-	0.377	0.377	0.430	-	0.120	General
5	Patch	-	GipP0018	Vulnerable	0.616	-	0.029	0.029	0.870	1.000	0.035	Gippsland Giant Earthworm Megascolides australis (15004)
6	Patch	-	GipP0053	Endangered	0.231	-	0.001	0.001	0.430	1.000	0.000	Gippsland Giant Earthworm Megascolides australis (15004)
7	Patch	-	Strz0016	Vulnerable	0.200	-	0.012	0.012	0.420	-	0.003	General
8	Patch	-	GipP0053	Endangered	0.200	-	0.048	0.048	0.430	-	0.010	General
9	Patch	-	Strz0016, Strz0053	Endangered, Vulnerable	0.430	-	0.029	0.029	0.690	-	0.016	General
A	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.400	-	0.015	General

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Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
B	Scattered Tree	60	Strz0937	Endangered	0.200	-	0.031	0.031	0.440	-	0.007	General
C	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.402	-	0.007	General
D	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.410	-	0.015	General
E	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.540	-	0.007	General
F	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.054	0.410	-	0.011	General
G	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.540	-	0.007	General
H	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.054	0.410	-	0.011	General
I	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.390	-	0.007	General
J	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.450	-	0.015	General

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Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
K	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.720	-	0.008	General
L	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.430	-	0.015	General
M	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.720	-	0.008	General
N	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.450	-	0.015	General
O	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.055	0.450	-	0.012	General
P	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.410	-	0.015	General
Q	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.055	0.450	-	0.012	General
R	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.430	-	0.015	General

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

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

Species common name	Species scientific name	Taxon ID	Conservation status	Group	Habitat impacted	Proportional impact (%)
Gippsland Giant Earthworm	Megascolides australis	15004	Endangered	Dispersed	Habitat importance map	**0.0060**
Strzelecki Gum	Eucalyptus strzeleckii	504558	Vulnerable	Dispersed	Habitat importance map	0.0014
Spurred Helmet-orchid	Corybas aconitiflorus	500835	Rare	Dispersed	Habitat importance map	0.0004
Mauve-tuft Sun-orchid	Thelymitra malvina	503374	Vulnerable	Dispersed	Habitat importance map	0.0004
Australian Grayling	Prototroctes maraena	4686	Vulnerable	Dispersed	Habitat importance map	0.0002
Wavy Swamp Wallaby-grass	Amphibromus sinuatus	503625	Vulnerable	Dispersed	Habitat importance map	0.0002
Grey Goshawk	Accipiter novaehollandiae novaehollandiae	10220	Vulnerable	Dispersed	Habitat importance map	0.0001
Orange-tip Finger-orchid	Caladenia aurantiaca	500523	Rare	Dispersed	Habitat importance map	0.0001
Cobra Greenhood	Pterostylis grandiflora	502798	Rare	Dispersed	Habitat importance map	0.0001
Australasian Shoveler	Anas rhynchotis	10212	Vulnerable	Dispersed	Habitat importance map	0.0000
Hardhead	Aythya australis	10215	Vulnerable	Dispersed	Habitat importance map	0.0000
Swamp Skink	Lissolepis coventryi	12407	Vulnerable	Dispersed	Habitat importance map	0.0000
Green-striped Greenhood	Pterostylis chlorogramma	504728	Vulnerable	Dispersed	Habitat importance map	0.0000

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Habitat Group

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

Habitat Impacted

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

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

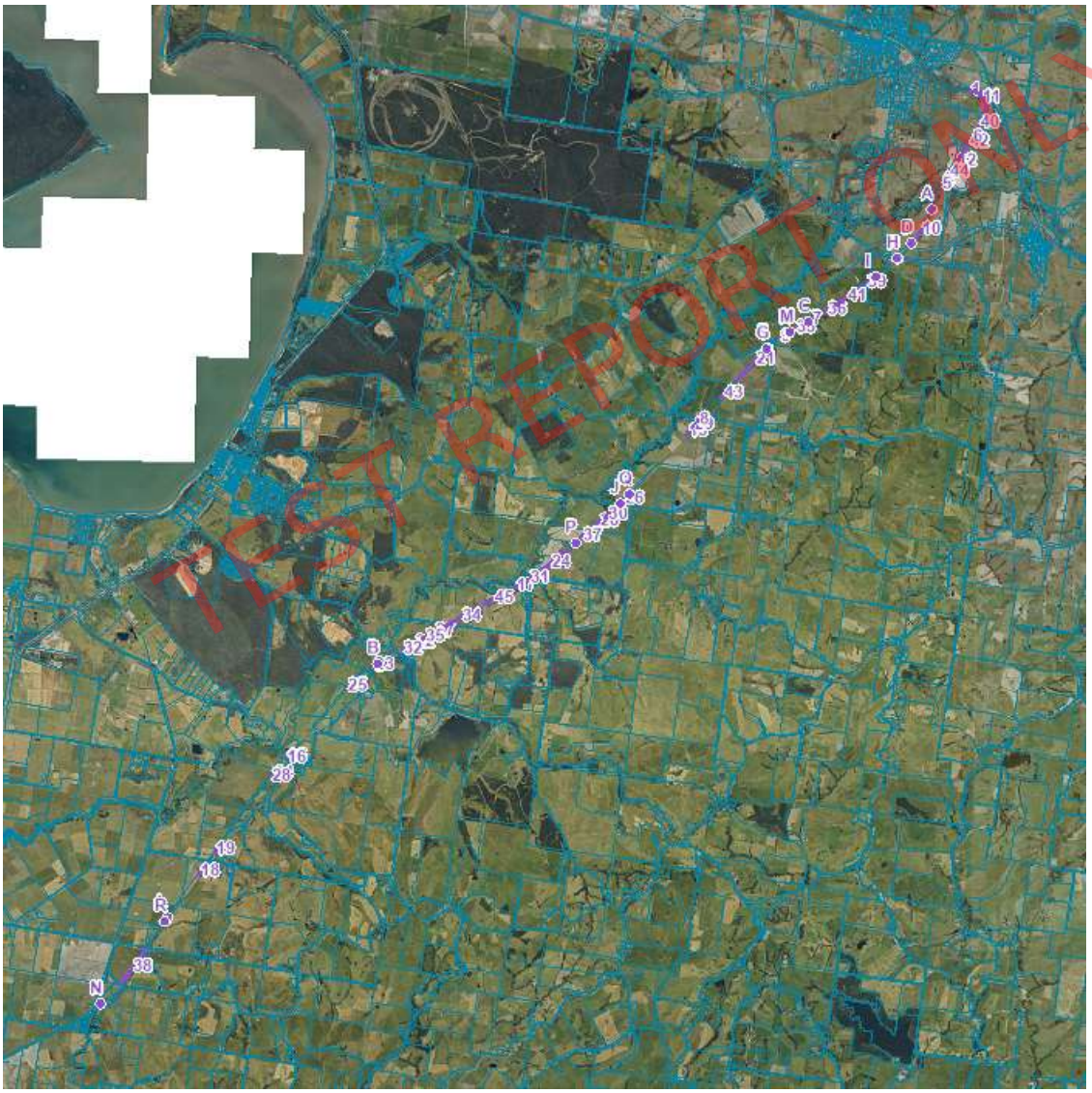
Top Ranking Maps consist of the 2,000 hectares of habitat with the highest Habitat Importance Scores for each dispersed species.

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

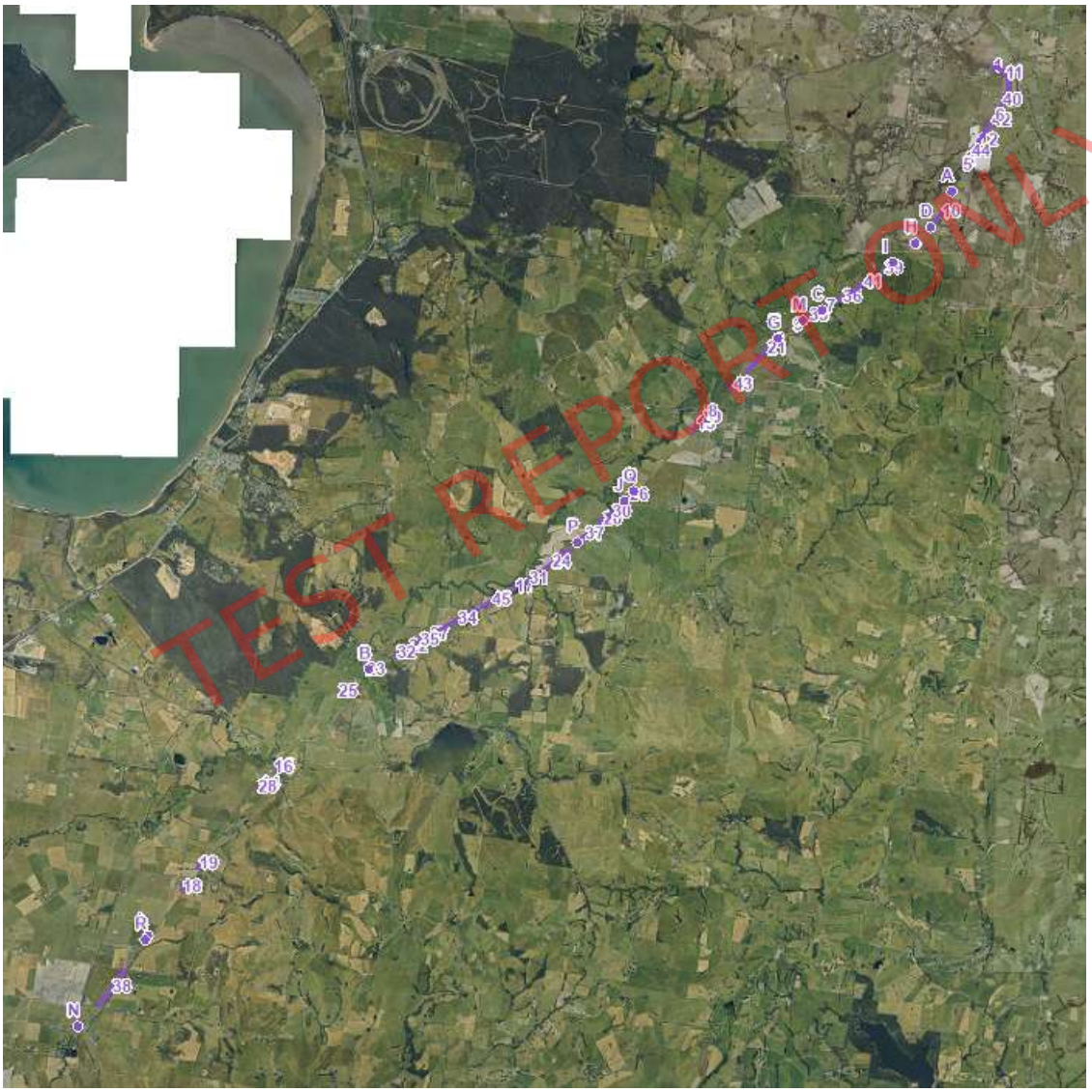
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Appendix 3: Images of mapped native vegetation

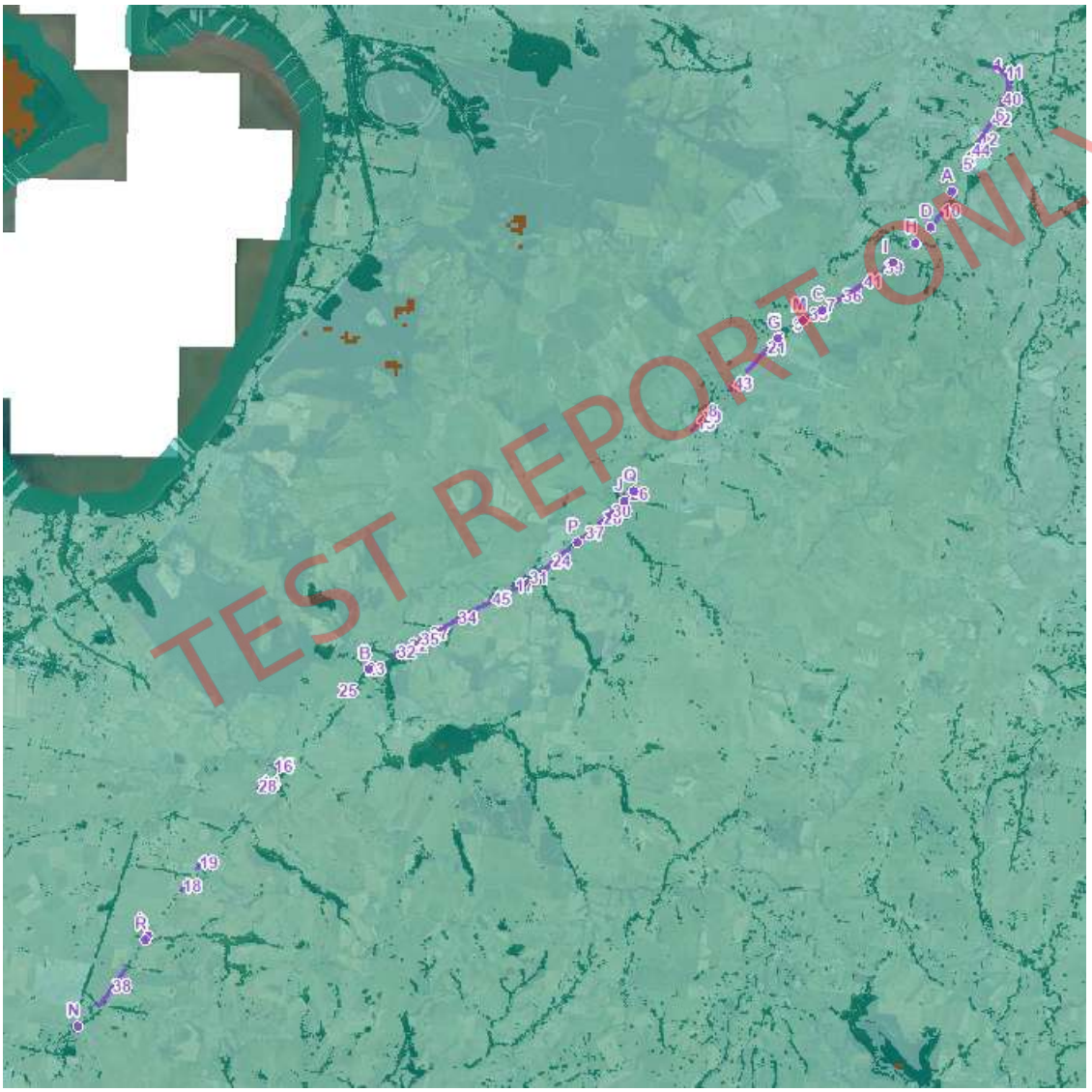
1. Property in context



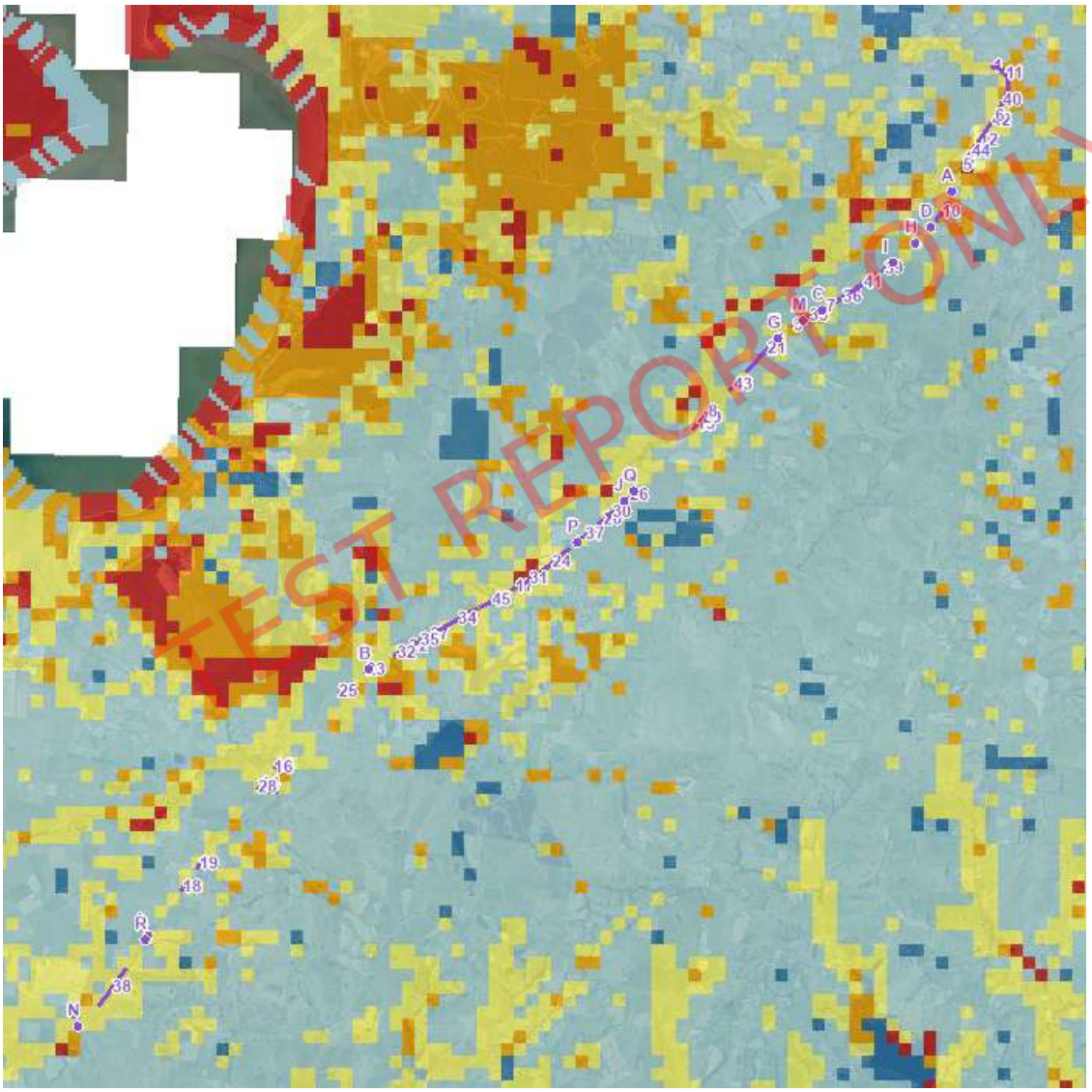
2. Aerial photograph showing mapped native vegetation



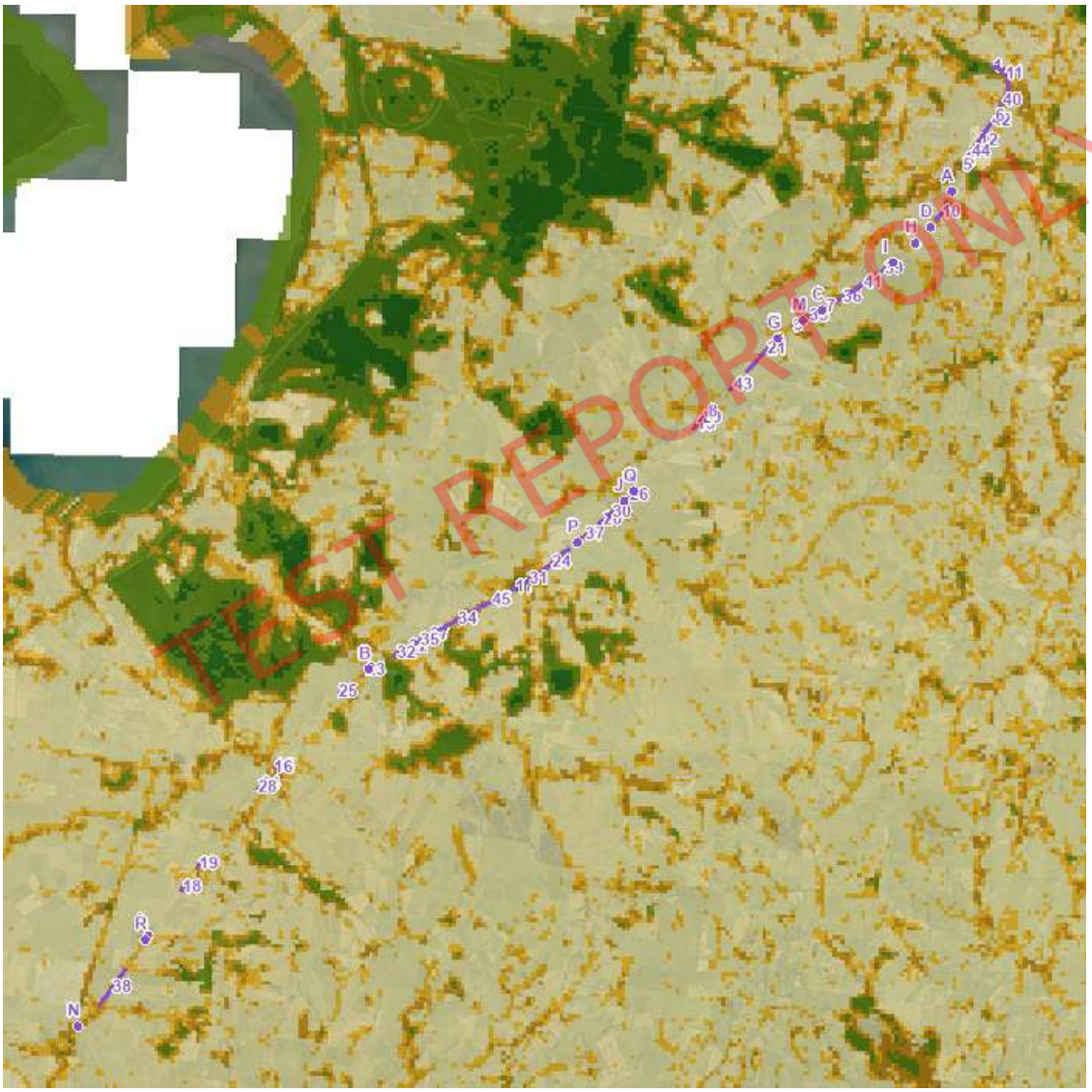
3. Location Risk Map



4. Strategic Biodiversity Value Score Map



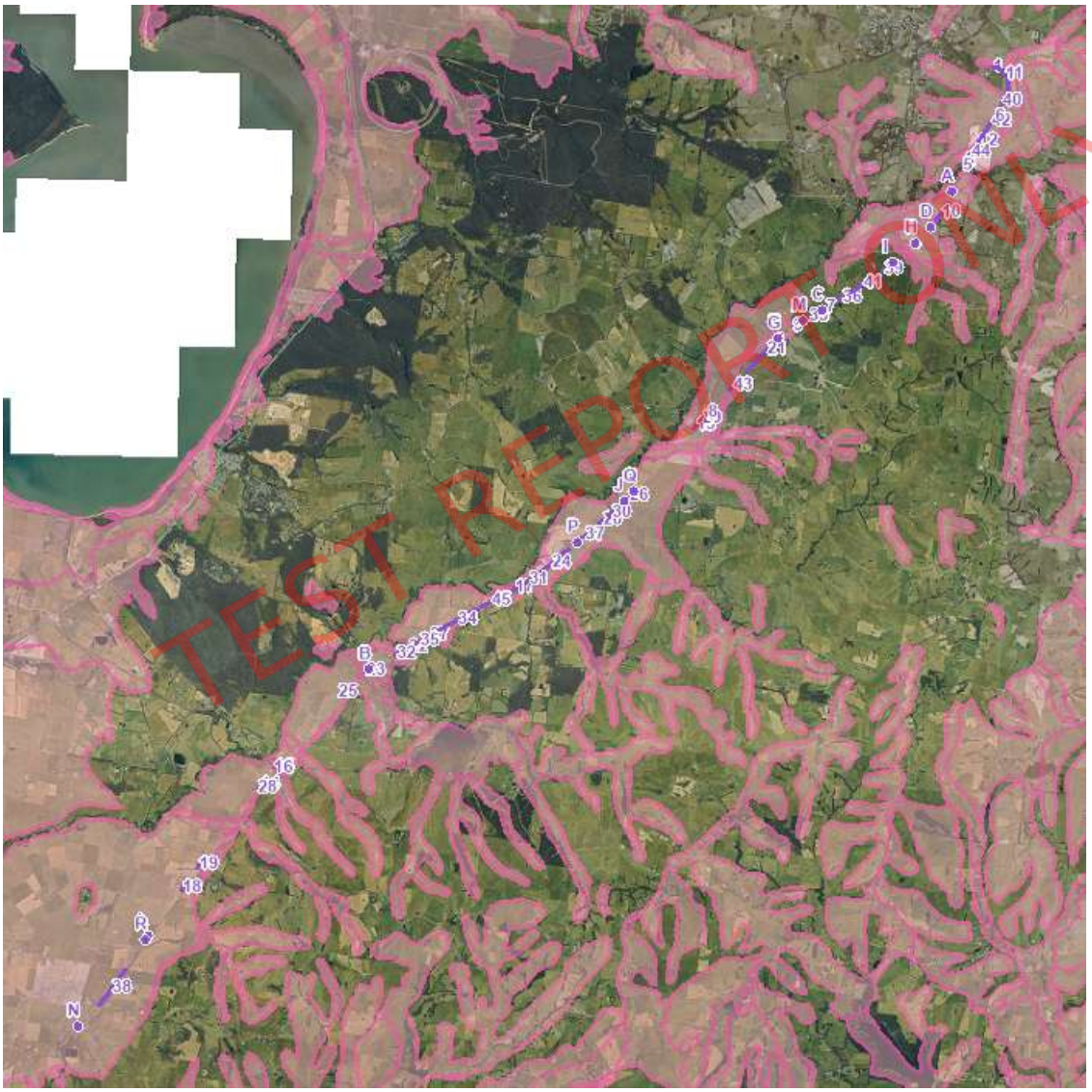
5. Condition Score Map



Proposed Removal

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

6. Endangered EVCs



Proposed Removal

Endangered 1750 Ecological Vegetation Classes

N

3000 m

7. Habitat Importance maps

Gippsland Giant Earthworm

Megascolides australis

15004



Removal Features

Habitat Importance

0 100

N

3000 m

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Appendix 5. Native Vegetation Removal Report (37 metre Buffer)

Native Vegetation Removal Report

NVRR ID: SCENARIO TEST

This report provides offset requirements for internal testing of different proposals to remove native vegetation. **This report DOES NOT support an application to remove, destroy or lop native vegetation.**
The estimated offset requirements outlined in this report are provided to inform decisions regarding the avoidance and minimisation of impacts and detailed project design. This report **is not an assessment by DEECA** of the proposed native vegetation removal. Native vegetation information and offset requirements have been determined using spatial data provided by the applicant or their consultant.

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Report details

Date created: 17/10/2024

Local Government Area:
SOUTH GIPPSLAND SHIRE
BASS COAST SHIRE

Registered Aboriginal Party: Bunurong

Coordinates: 145.58440, -38.43220

Address:
615 GRANTVILLE-GLEN ALVIE ROAD KERNOT 3979
1010A LOCH-KERNOT ROAD KERNOT 3979
SOUTH GIPPSLAND HIGHWAY NYORA 3987
15 GOLDIES ROAD LOCH 3945
32 CLEMATIS ROAD WOOLAMAI 3995
BASS HIGHWAY DALYSTON 3992
(31 additional addresses not listed)

Regulator Notes

Removal polygons are located:
- On Crown Land

Summary of native vegetation to be removed

Assessment pathway	**Detailed Assessment Pathway**		
Location category	Location 2 The native vegetation extent map indicates that this area is typically characterised as supporting native vegetation. Additionally, it is modelled as encompassing an endangered Ecological Vegetation Class, sensitive wetland or sensitive coastal area. The removal of less than 0.5 hectares of native vegetation in this area will not require a Species Offset.		
Total extent including past and proposed removal (ha) *Includes endangered EVCs (ha): 22.568*	**31.832**	*Extent of past removal (ha)*	*0*
		Extent of proposed removal - Patches (ha)	*30.418*
		Extent of proposed removal - Scattered Trees (ha)	*1.414*
No. Large Trees proposed to be removed	**16**	*No. Large Patch Trees*	*0*
		No. Large Scattered Trees	*16*

No. Small Scattered Trees	12

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

Offset requirements if approval is granted

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

General Offset amount [1]	**0.1350 General Habitat Units**
Vicinity	Melbourne Water CMA or SOUTH GIPPSLAND SHIRE LGA, BASS COAST SHIRE LGA
Minimum strategic biodiversity value score [2]	0.3375
Large Trees*	2
Species Offset amount	**7.587** Species Habitat Units for Gippsland Giant Earthworm, Megascolides australis (15004)
	14.861 Species Habitat Units for Strzelecki Gum, Eucalyptus strzeleckii (504558)
Large Trees*	14
***The total number of Large Trees that the offset must protect**	**16** Large Trees to be protected in either the General, Species or combination across all habitat units protected

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

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

Next steps

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

This report DOES NOT support an application to remove, destroy or lop native vegetation.

If you wish to remove the mapped native vegetation you must prepare removal data in accordance with the NVR Map Data Standards and use the Detailed Upload function of NVR Map to generate a Native Vegetation Removal Report (NVRR). The NVRR can be submitted with an application for approval to remove, destroy or lop native vegetation.

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Avoid and minimise

This scenario test report has identified impacts to biodiversity values if the proposed design is progressed. Consider this impact and explore options to avoid or minimise impacts to the following biodiversity values if identified in this report. Measures taken to avoid or minimise impacts can inform your required Avoid and Minimise Statement.

- a. Patch of native vegetation (See Appendix 3 - Images 1 and 2)
- b. Large Trees (See Appendix 3 - Images 1 and 2)
- c. Habitat for rare or threatened species (See Appendix 3 - Image 7)
- d. Endangered EVCs (See Appendix 3 - Image 6)
- e. Areas classified as Location 2 (See Appendix 3 - Image 3 dark green areas)
- f. Areas classified as Location 3 (See Appendix 3 - Image 3 brown areas)

Offsets

This scenario test report has estimated offset requirements if the proposed project design is progressed. Consider whether this offset is currently available and how it will be secured. If it is not currently available, consider how it will be located. Your Offset statement must demonstrate that an offset has been located and that it will be secured before native vegetation is removed. The following avenues may assist when checking the availability of offset credits:

- Use the Native Vegetation Credit Register (NVCR) Search Tool
- Contact a NVCR registered broker
- Contact landowners or land managers of sites that may be able to be used to generate habitat units that meet the offset requirements

Appendix 1: Description of native vegetation to be removed

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

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

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

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

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

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Native vegetation to be removed

Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
1	Patch	-	Strz0018, GipP0018	Vulnerable	0.560	-	0.384	0.384	0.764	1.000	0.430	Gippsland Giant Earthworm Megascolides australis (15004)
1	Patch	-	Strz0018, GipP0018	Vulnerable	0.560	-	0.384	0.384	0.764	0.561	0.336	Strzelecki Gum Eucalyptus strzeleckii (504558)

Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
10	Patch	-	GipP0053	Endangered	0.200	-	0.031	0.031	0.450	-	0.007	General
11	Patch	-	GipP0191	Vulnerable	0.200	-	0.141	0.141	0.400	0.149	0.032	Strzelecki Gum Eucalyptus strzeleckii (504558)
12	Patch	-	GipP0053	Endangered	0.212	-	0.102	0.102	0.440	0.230	0.027	Strzelecki Gum Eucalyptus strzeleckii (504558)
13	Patch	-	GipP0053, GipP0191	Endangered, Vulnerable	0.200	-	0.635	0.635	0.382	0.170	0.149	Strzelecki Gum Eucalyptus strzeleckii (504558)
14	Patch	-	GipP0053	Endangered	0.350	-	0.016	0.016	0.420	0.350	0.008	Strzelecki Gum Eucalyptus strzeleckii (504558)
15	Patch	-	GipP0053	Endangered	0.237	-	2.656	2.656	0.456	0.250	0.788	Strzelecki Gum Eucalyptus strzeleckii (504558)
16	Patch	-	GipP0053	Endangered	0.200	-	0.146	0.146	0.425	-	0.031	General
17	Patch	-	GipP0053	Endangered	0.200	-	0.101	0.101	0.430	0.050	0.021	Strzelecki Gum Eucalyptus strzeleckii (504558)
18	Patch	-	GipP0053	Endangered	0.201	-	0.315	0.315	0.439	0.290	0.081	Strzelecki Gum Eucalyptus strzeleckii (504558)
19	Patch	-	Strz0937, Strz0029	Endangered	0.417	-	0.171	0.171	0.424	0.418	0.101	Strzelecki Gum Eucalyptus strzeleckii (504558)

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Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
2	Patch	-	GipP0053, GipP0016	Endangered, Vulnerable	0.578	-	0.314	0.314	0.500	1.000	0.364	Gippsland Giant Earthworm Megascolides australis (15004)
2	Patch	-	GipP0053, GipP0016	Endangered, Vulnerable	0.578	-	0.314	0.314	0.500	0.580	0.287	Strzelecki Gum Eucalyptus strzeleckii (504558)
20	Patch	-	GipP0053	Endangered	0.200	-	0.529	0.529	0.391	0.081	0.114	Strzelecki Gum Eucalyptus strzeleckii (504558)
21	Patch	-	GipP0053, GipP0016, Strz0016, Strz0053	Endangered, Vulnerable	0.633	-	1.644	1.644	0.543	1.000	2.080	Gippsland Giant Earthworm Megascolides australis (15004)
21	Patch	-	GipP0053, GipP0016, Strz0016, Strz0053	Endangered, Vulnerable	0.633	-	1.644	1.644	0.543	0.633	1.698	Strzelecki Gum Eucalyptus strzeleckii (504558)
22	Patch	-	GipP0053	Endangered	0.200	-	0.001	0.001	0.450	-	0.000	General
23	Patch	-	Strz0018, Strz0053, Strz0029	Endangered, Vulnerable	0.246	-	0.706	0.706	0.417	1.000	0.346	Gippsland Giant Earthworm Megascolides australis (15004)
23	Patch	-	Strz0018, Strz0053, Strz0029	Endangered, Vulnerable	0.246	-	0.706	0.706	0.417	0.251	0.217	Strzelecki Gum Eucalyptus strzeleckii (504558)

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Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
24	Patch	-	GipP0053, Strz0016, Strz0053	Endangered, Vulnerable	0.247	-	0.363	0.363	0.429	0.249	0.112	Strzelecki Gum Eucalyptus strzeleckii (504558)
25	Patch	-	Strz0016, Strz0053	Endangered, Vulnerable	0.200	-	1.033	1.033	0.406	0.141	0.236	Strzelecki Gum Eucalyptus strzeleckii (504558)
26	Patch	-	GipP0053	Endangered	0.200	-	0.000	0.000	0.320	-	0.000	General
27	Patch	-	Strz0016	Vulnerable	0.200	-	0.307	0.307	0.317	0.124	0.069	Strzelecki Gum Eucalyptus strzeleckii (504558)
28	Patch	-	Strz0016	Vulnerable	0.462	-	1.092	1.092	0.403	0.462	0.738	Strzelecki Gum Eucalyptus strzeleckii (504558)
29	Patch	-	Strz0016	Vulnerable	0.325	-	2.252	2.252	0.427	1.000	1.464	Gippsland Giant Earthworm Megascolides australis (15004)
29	Patch	-	Strz0016	Vulnerable	0.325	-	2.252	2.252	0.427	0.320	0.966	Strzelecki Gum Eucalyptus strzeleckii (504558)
3	Patch	-	Strz0016	Vulnerable	0.200	-	0.064	0.064	0.420	0.200	0.015	Strzelecki Gum Eucalyptus strzeleckii (504558)
30	Patch	-	GipP0053	Endangered	0.200	-	0.085	0.085	0.421	0.190	0.020	Strzelecki Gum Eucalyptus strzeleckii (504558)

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Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
31	Patch	-	GipP0191	Vulnerable	0.200	-	0.023	0.023	0.440	0.170	0.005	Strzelecki Gum Eucalyptus strzeleckii (504558)
32	Patch	-	GipP0053	Endangered	0.200	-	0.023	0.023	0.439	-	0.005	General
33	Patch	-	GipP0053	Endangered	0.200	-	0.020	0.020	0.430	-	0.004	General
34	Patch	-	GipP0053	Endangered	0.440	-	0.227	0.227	0.410	0.459	0.146	Strzelecki Gum Eucalyptus strzeleckii (504558)
35	Patch	-	GipP0053	Endangered	0.200	-	0.106	0.106	0.430	0.089	0.023	Strzelecki Gum Eucalyptus strzeleckii (504558)
36	Patch	-	Strz0016	Vulnerable	0.200	-	0.269	0.269	0.400	0.140	0.061	Strzelecki Gum Eucalyptus strzeleckii (504558)
37	Patch	-	GipP0053	Endangered	0.241	-	0.081	0.081	0.420	0.370	0.027	Strzelecki Gum Eucalyptus strzeleckii (504558)
38	Patch	-	Strz0016, Strz0053	Endangered, Vulnerable	0.423	-	0.956	0.956	0.523	1.000	0.808	Gippsland Giant Earthworm Megascolides australis (15004)
38	Patch	-	Strz0016, Strz0053	Endangered, Vulnerable	0.423	-	0.956	0.956	0.523	0.420	0.574	Strzelecki Gum Eucalyptus strzeleckii (504558)
39	Patch	-	GipP0053, GipP0016	Endangered, Vulnerable	0.409	-	2.569	2.569	0.486	0.410	1.480	Strzelecki Gum Eucalyptus strzeleckii (504558)

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Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
4	Patch	-	Strz0018, Strz0053, Strz0029	Endangered, Vulnerable	0.252	-	0.363	0.363	0.430	1.000	0.183	Gippsland Giant Earthworm Megascolides australis (15004)
4	Patch	-	Strz0018, Strz0053, Strz0029	Endangered, Vulnerable	0.252	-	0.363	0.363	0.430	0.241	0.113	Strzelecki Gum Eucalyptus strzeleckii (504558)
40	Patch	-	GipP0053, GipP0937	Endangered	0.418	-	0.088	0.088	0.460	0.418	0.052	Strzelecki Gum Eucalyptus strzeleckii (504558)
41	Patch	-	GipP0937	Endangered	0.487	-	0.117	0.117	0.460	0.488	0.084	Strzelecki Gum Eucalyptus strzeleckii (504558)
42	Patch	-	GipP0029, Strz0029	Endangered	0.405	-	0.385	0.385	0.440	0.398	0.218	Strzelecki Gum Eucalyptus strzeleckii (504558)
43	Patch	-	GipP0053, Strz0053	Endangered	0.213	-	1.126	1.126	0.432	1.000	0.480	Gippsland Giant Earthworm Megascolides australis (15004)
43	Patch	-	GipP0053, Strz0053	Endangered	0.213	-	1.126	1.126	0.432	0.172	0.281	Strzelecki Gum Eucalyptus strzeleckii (504558)
44	Patch	-	GipP0053	Endangered	0.229	-	0.167	0.167	0.382	0.300	0.050	Strzelecki Gum Eucalyptus strzeleckii (504558)
45	Patch	-	Strz0016, Strz0053	Endangered, Vulnerable	0.427	-	0.128	0.128	0.690	0.427	0.078	Strzelecki Gum Eucalyptus strzeleckii (504558)

TEST REPORT ONLY

Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
46	Patch	-	GipP0053	Endangered	0.200	-	0.017	0.017	0.340	-	0.003	General
47	Patch	-	GipP0191	Vulnerable	0.200	-	0.307	0.307	0.400	0.134	0.070	Strzelecki Gum Eucalyptus strzeleckii (504558)
48	Patch	-	Strz0016	Vulnerable	0.398	-	0.671	0.671	0.697	0.425	0.381	Strzelecki Gum Eucalyptus strzeleckii (504558)
49	Patch	-	GipP0053	Endangered	0.230	-	0.220	0.220	0.460	0.222	0.062	Strzelecki Gum Eucalyptus strzeleckii (504558)
5	Patch	-	GipP0053, Strz0053	Endangered	0.208	-	1.067	1.067	0.434	1.000	0.443	Gippsland Giant Earthworm Megascolides australis (15004)
5	Patch	-	GipP0053, Strz0053	Endangered	0.208	-	1.067	1.067	0.434	0.150	0.255	Strzelecki Gum Eucalyptus strzeleckii (504558)
50	Patch	-	GipP0053, GipP0191	Endangered, Vulnerable	0.200	-	0.483	0.483	0.400	0.044	0.101	Strzelecki Gum Eucalyptus strzeleckii (504558)
51	Patch	-	GipP0053	Endangered	0.229	-	0.022	0.022	0.470	0.270	0.006	Strzelecki Gum Eucalyptus strzeleckii (504558)
52	Patch	-	GipP0053, GipP0083	Endangered	0.200	-	0.114	0.114	0.400	-	0.024	General
53	Patch	-	GipP0053	Endangered	0.200	-	0.077	0.077	0.430	0.075	0.017	Strzelecki Gum Eucalyptus strzeleckii (504558)

TEST REPORT ONLY

Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
54	Patch	-	GipP0053, GipP0016	Endangered, Vulnerable	0.488	-	1.012	1.012	0.550	1.000	0.989	Gippsland Giant Earthworm Megascolides australis (15004)
54	Patch	-	GipP0053, GipP0016	Endangered, Vulnerable	0.488	-	1.012	1.012	0.550	0.488	0.736	Strzelecki Gum Eucalyptus strzeleckii (504558)
55	Patch	-	GipP0053, GipP0016, GipP0029	Endangered, Vulnerable	0.305	-	1.335	1.335	0.432	0.290	0.526	Strzelecki Gum Eucalyptus strzeleckii (504558)
56	Patch	-	GipP0053, Strz0016, Strz0053	Endangered, Vulnerable	0.232	-	0.553	0.553	0.435	0.225	0.157	Strzelecki Gum Eucalyptus strzeleckii (504558)
57	Patch	-	GipP0053	Endangered	0.200	-	0.039	0.039	0.430	-	0.008	General
58	Patch	-	GipP0053, GipP0029	Endangered	0.324	-	2.562	2.562	0.496	0.317	1.093	Strzelecki Gum Eucalyptus strzeleckii (504558)
59	Patch	-	GipP0083	Endangered	0.200	-	0.000	0.000	0.400	-	0.000	General
6	Patch	-	GipP0053	Endangered	0.200	-	0.068	0.068	0.430	0.050	0.014	Strzelecki Gum Eucalyptus strzeleckii (504558)
7	Patch	-	GipP0053	Endangered	0.272	-	0.143	0.143	0.420	0.350	0.052	Strzelecki Gum Eucalyptus strzeleckii (504558)

TEST REPORT ONLY

Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
8	Patch	-	GipP0029	Endangered	0.597	-	1.920	1.920	0.597	0.632	1.871	Strzelecki Gum Eucalyptus strzeleckii (504558)
9	Patch	-	GipP0053, GipP0083	Endangered	0.200	-	0.074	0.074	0.400	-	0.015	General
A	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.400	0.070	0.015	Strzelecki Gum Eucalyptus strzeleckii (504558)
AA	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.440	0.070	0.015	Strzelecki Gum Eucalyptus strzeleckii (504558)
AB	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.059	0.450	0.428	0.017	Strzelecki Gum Eucalyptus strzeleckii (504558)
B	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.390	0.070	0.007	Strzelecki Gum Eucalyptus strzeleckii (504558)
C	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.430	-	0.015	General
D	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.540	0.260	0.008	Strzelecki Gum Eucalyptus strzeleckii (504558)
E	Scattered Tree	60	Strz0937	Endangered	0.200	-	0.031	0.031	0.440	0.387	0.009	Strzelecki Gum Eucalyptus strzeleckii (504558)

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Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
F	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.460	0.420	0.020	Strzelecki Gum Eucalyptus strzeleckii (504558)
G	Scattered Tree	60	Strz0053	Endangered	0.200	1	0.070	0.070	0.430	0.330	0.019	Strzelecki Gum Eucalyptus strzeleckii (504558)
H	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.059	0.450	0.413	0.017	Strzelecki Gum Eucalyptus strzeleckii (504558)
I	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.400	0.370	0.009	Strzelecki Gum Eucalyptus strzeleckii (504558)
J	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.430	0.277	0.018	Strzelecki Gum Eucalyptus strzeleckii (504558)
K	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.402	0.370	0.009	Strzelecki Gum Eucalyptus strzeleckii (504558)
L	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.055	0.450	0.310	0.014	Strzelecki Gum Eucalyptus strzeleckii (504558)
M	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.720	0.380	0.009	Strzelecki Gum Eucalyptus strzeleckii (504558)
N	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.054	0.410	0.200	0.013	Strzelecki Gum Eucalyptus strzeleckii (504558)

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Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
O	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.720	0.380	0.009	Strzelecki Gum Eucalyptus strzeleckii (504558)
P	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.540	0.200	0.008	Strzelecki Gum Eucalyptus strzeleckii (504558)
Q	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.410	0.070	0.015	Strzelecki Gum Eucalyptus strzeleckii (504558)
R	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.400	-	0.007	General
S	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.410	0.070	0.015	Strzelecki Gum Eucalyptus strzeleckii (504558)
T	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.055	0.450	0.310	0.014	Strzelecki Gum Eucalyptus strzeleckii (504558)
U	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.390	0.070	0.007	Strzelecki Gum Eucalyptus strzeleckii (504558)
V	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.450	0.447	0.020	Strzelecki Gum Eucalyptus strzeleckii (504558)
W	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.540	0.257	0.008	Strzelecki Gum Eucalyptus strzeleckii (504558)

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Information provided by or on behalf of the applicant			Information calculated by NVR Map									
Zone	**Type**	**DBH (cm)**	**EVC code (modelled)**	**Bioregional conservation status**	**Condition score (modelled)**	**Large Tree(s)**	**Polygon extent (ha)**	**Extent without overlap (ha)**	**SBV score**	**HI Score**	**Habitat Units**	**Offset Type**
X	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.054	0.410	0.161	0.013	Strzelecki Gum Eucalyptus strzeleckii (504558)
Y	Scattered Tree	60	Strz0016	Vulnerable	0.200	-	0.031	0.031	0.390	0.167	0.007	Strzelecki Gum Eucalyptus strzeleckii (504558)
Z	Scattered Tree	60	GipP0053	Endangered	0.200	1	0.070	0.070	0.470	-	0.016	General

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

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

Species common name	Species scientific name	Taxon ID	Conservation status	Group	Habitat impacted	Proportional impact (%)
Gippsland Giant Earthworm	Megascolides australis	15004	Endangered	Dispersed	Habitat importance map	**0.0259**
Strzelecki Gum	Eucalyptus strzeleckii	504558	Vulnerable	Dispersed	Habitat importance map	**0.0061**
Spurred Helmet-orchid	Corybas aconitiflorus	500835	Rare	Dispersed	Habitat importance map	0.0018
Mauve-tuft Sun-orchid	Thelymitra malvina	503374	Vulnerable	Dispersed	Habitat importance map	0.0016
Wavy Swamp Wallaby-grass	Amphibromus sinuatus	503625	Vulnerable	Dispersed	Habitat importance map	0.0009
Australian Grayling	Prototroctes maraena	4686	Vulnerable	Dispersed	Habitat importance map	0.0006
Grey Goshawk	Accipiter novaehollandiae novaehollandiae	10220	Vulnerable	Dispersed	Habitat importance map	0.0005
Cobra Greenhood	Pterostylis grandiflora	502798	Rare	Dispersed	Habitat importance map	0.0005
Orange-tip Finger-orchid	Caladenia aurantiaca	500523	Rare	Dispersed	Habitat importance map	0.0003
Swamp Skink	Lissolepis coventryi	12407	Vulnerable	Dispersed	Habitat importance map	0.0001
Green-striped Greenhood	Pterostylis chlorogramma	504728	Vulnerable	Dispersed	Habitat importance map	0.0001
Australasian Shoveler	Anas rhynchotis	10212	Vulnerable	Dispersed	Habitat importance map	0.0000
Hardhead	Aythya australis	10215	Vulnerable	Dispersed	Habitat importance map	0.0000

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Habitat Group

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

Habitat Impacted

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

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

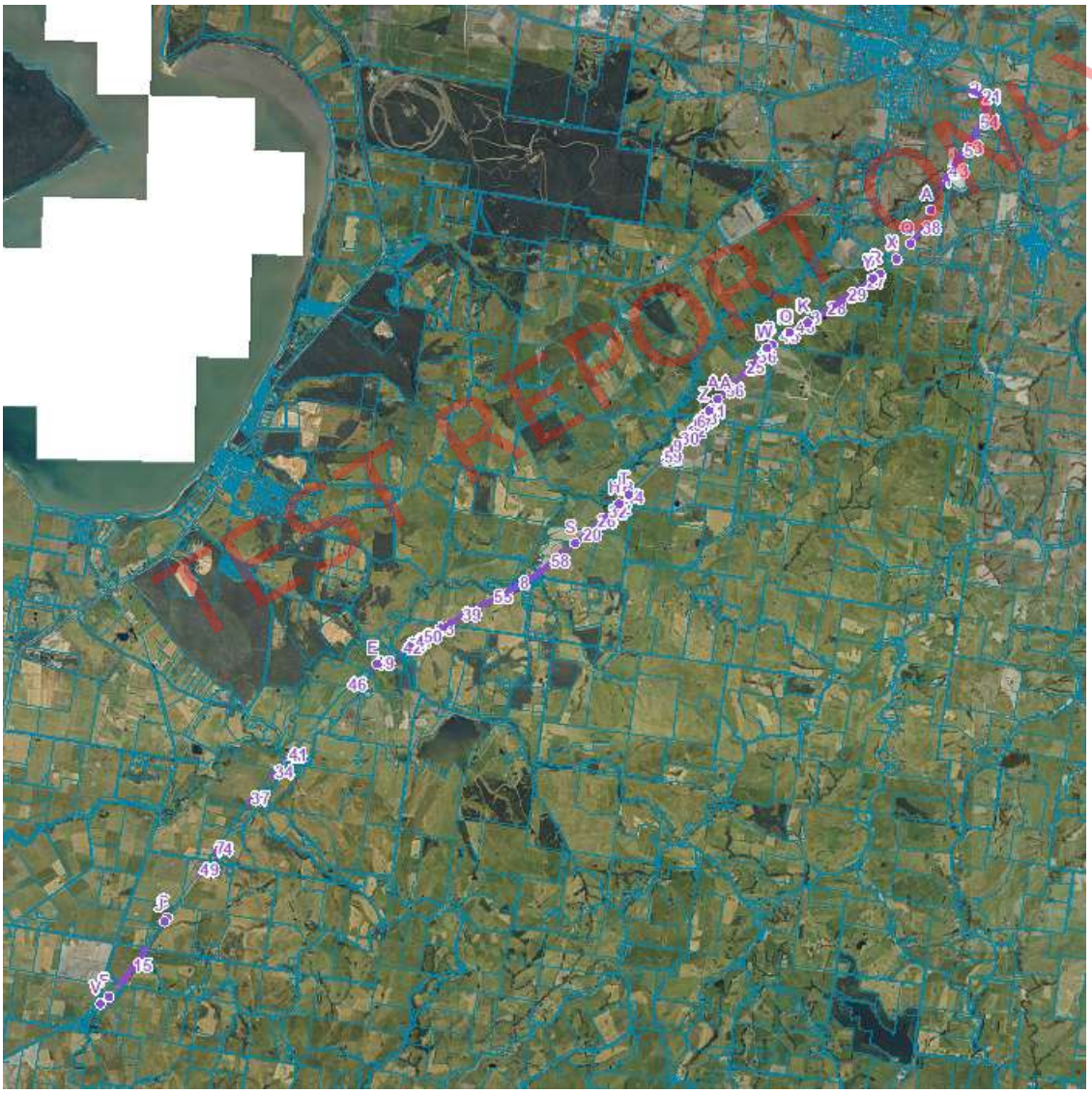
Top Ranking Maps consist of the 2,000 hectares of habitat with the highest Habitat Importance Scores for each dispersed species.

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

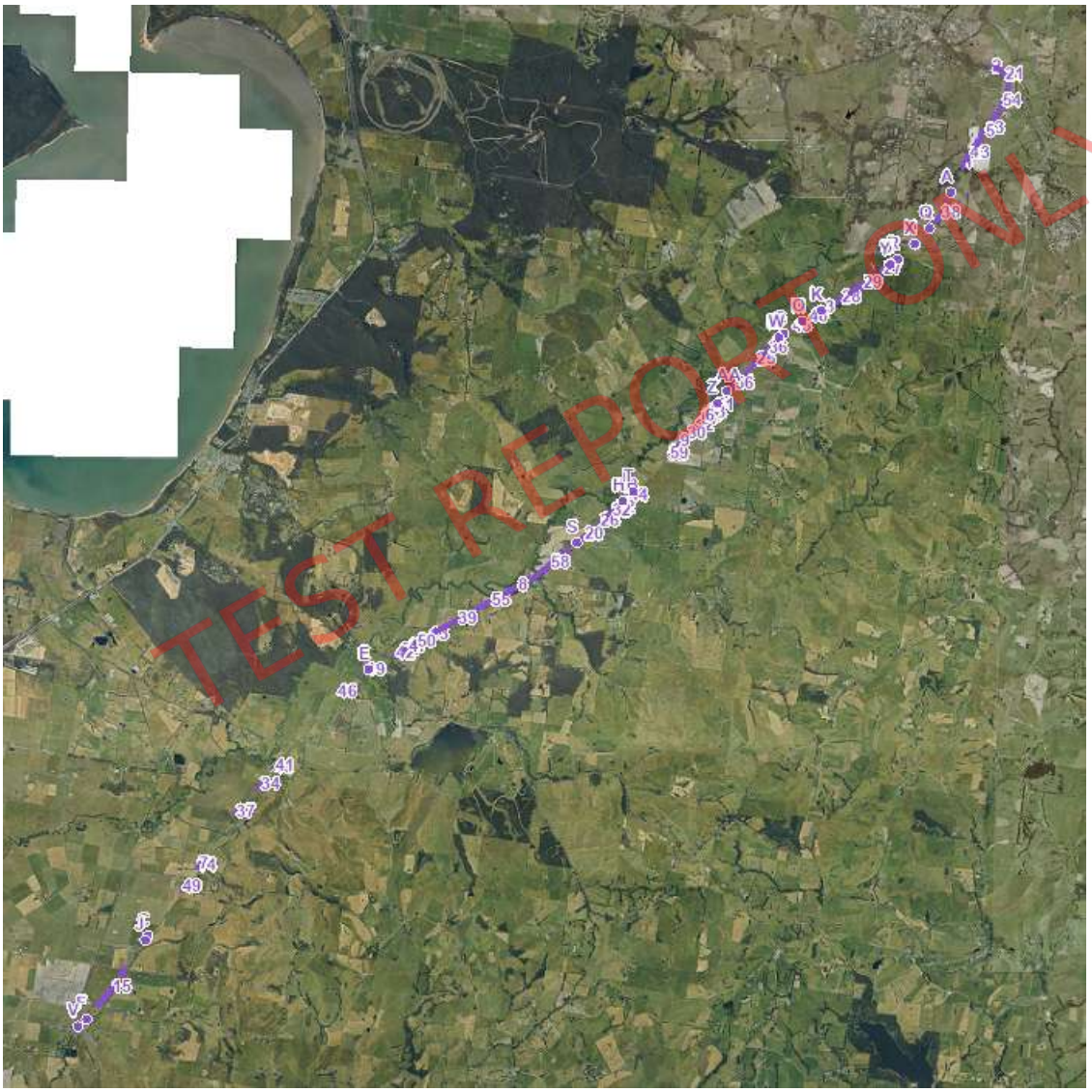
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Appendix 3: Images of mapped native vegetation

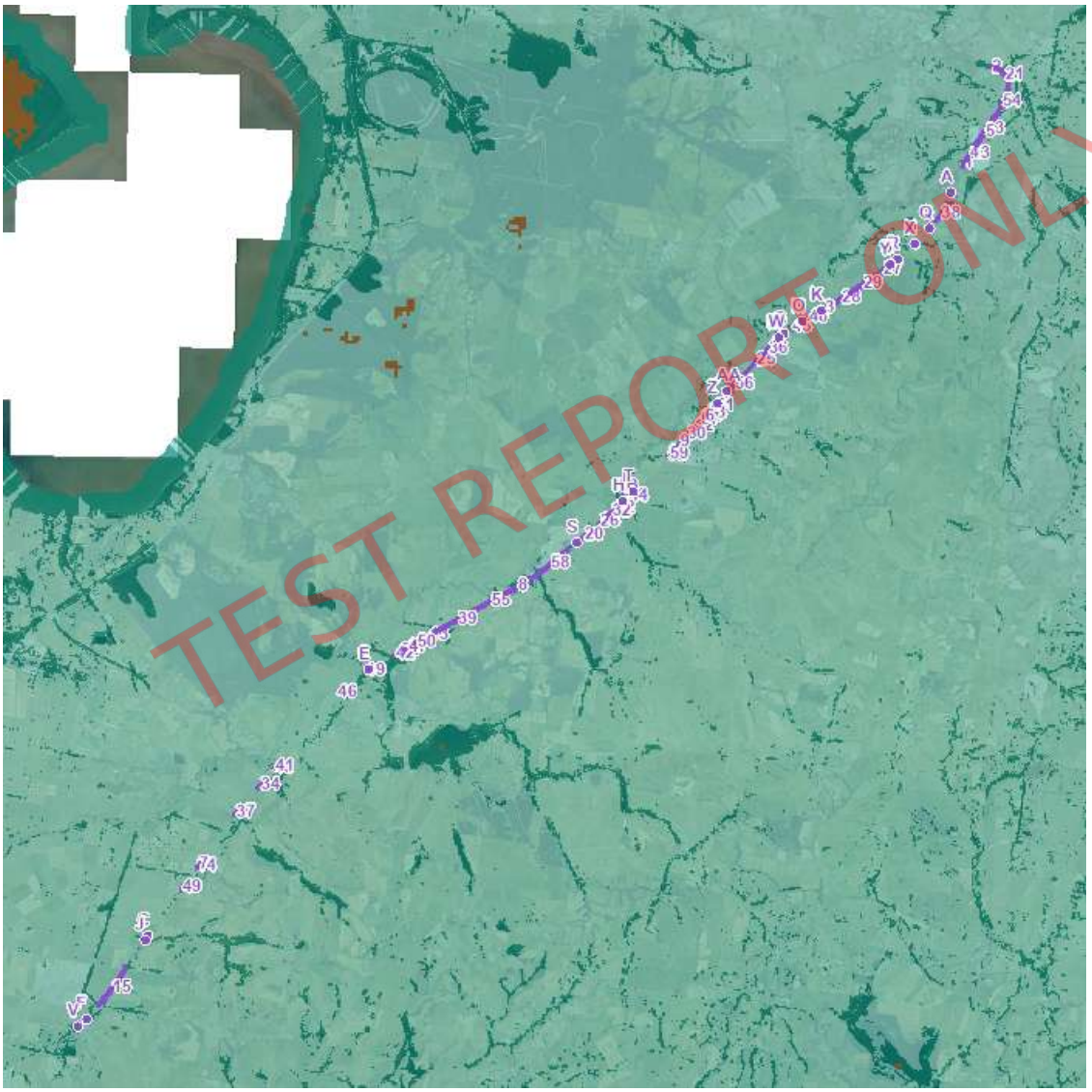
1. Property in context



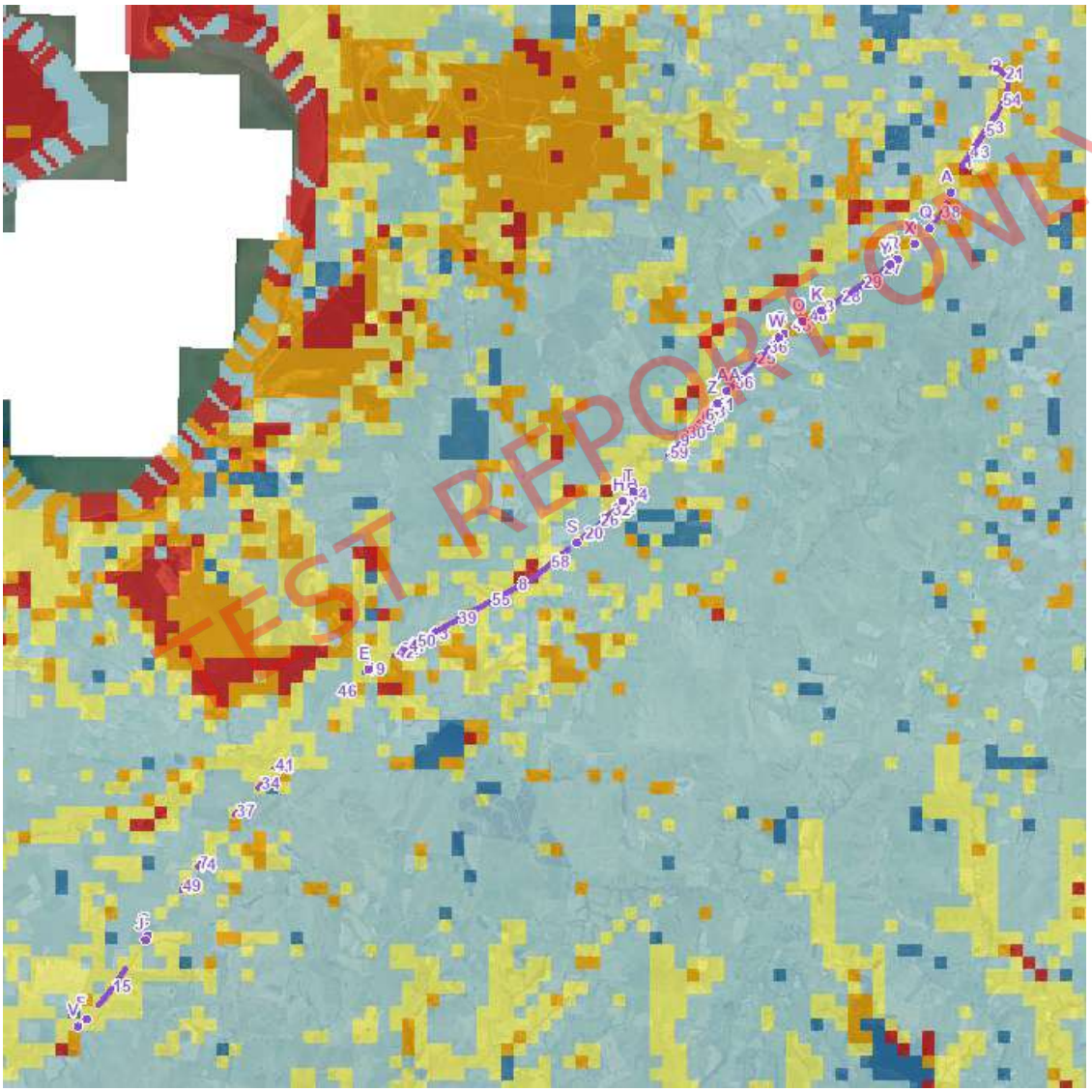
2. Aerial photograph showing mapped native vegetation



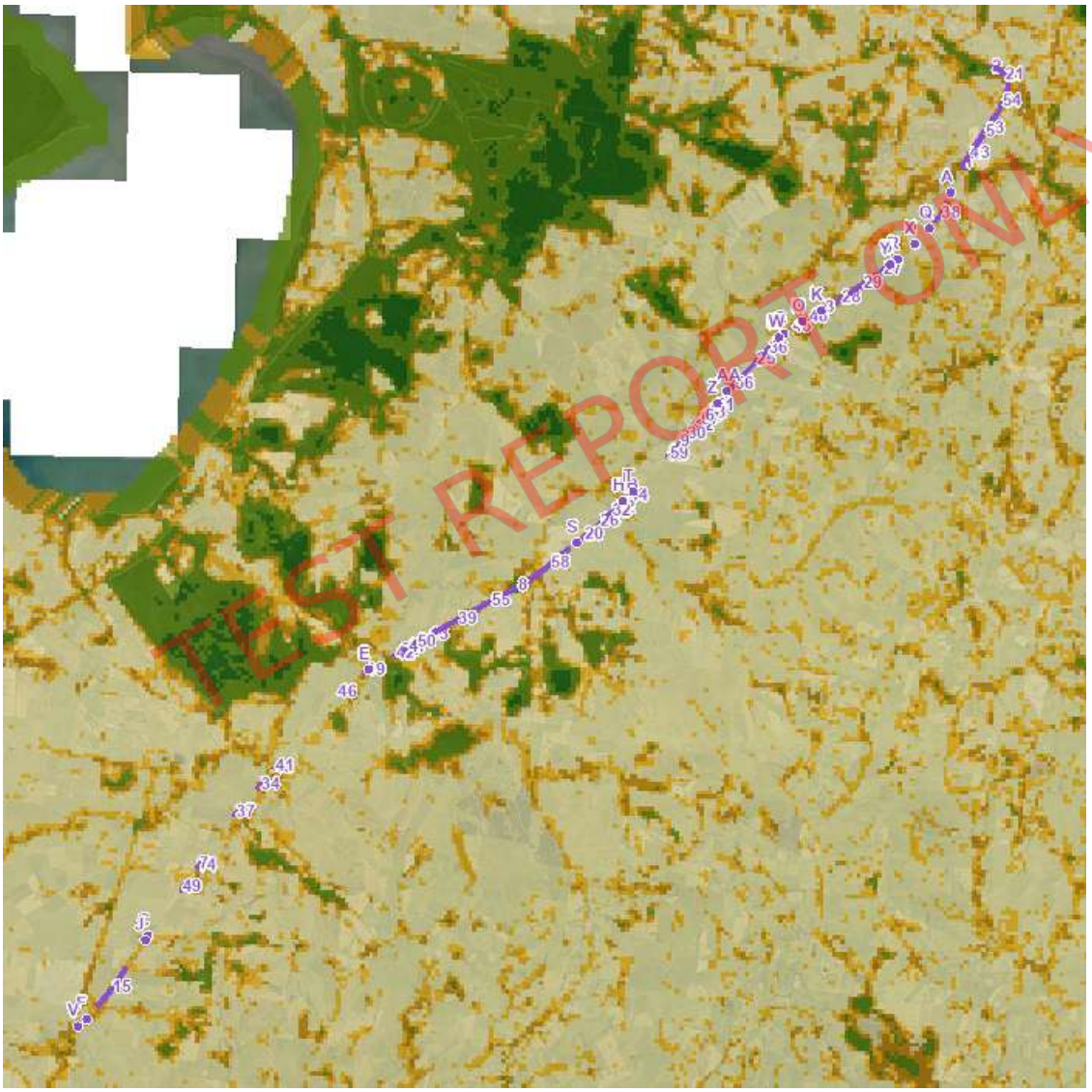
3. Location Risk Map



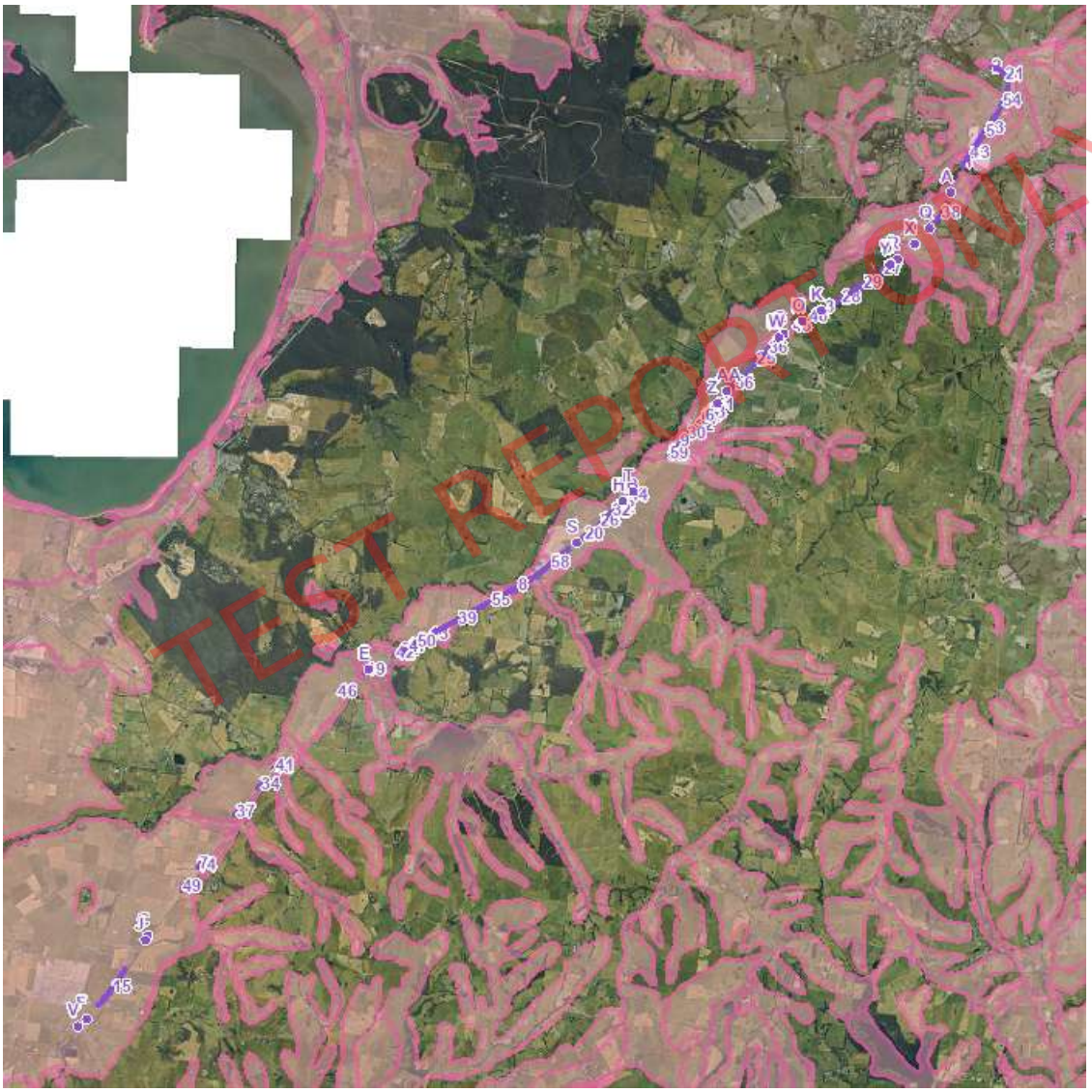
4. Strategic Biodiversity Value Score Map



5. Condition Score Map



6. Endangered EVCs



Proposed Removal

Endangered 1750 Ecological Vegetation Classes

N

3000 m

7. Habitat Importance maps

Gippsland Giant Earthworm

Megascolides australis

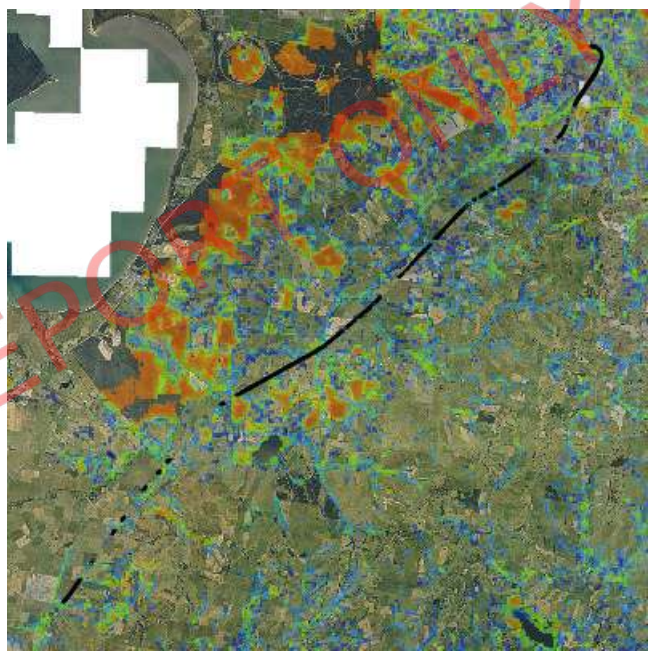
15004



Strzelecki Gum

Eucalyptus strzeleckii

504558



Removal Features

Habitat Importance



0 100



3000 m

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Appendix 6. Maps

Maps start on the following page.



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ecological restoration & consulting
p: (03) 9484 1555 e: enquiries@practicalecology.com.au

Legend

Study Area

Details

Mapping by: Ali Nia
Date: 9/19/2024
Version: 1
Aerial photography from Esri World Imagery.
Data Source: Base layers courtesy of VicMap,
Copyright © State of Victoria.

Map 1. Study Area

Gippsland Odyssey Extension

N

Scale: 1:60,000 (Page size A3)

Nyora-Wonthaggi Rail Trail
SOUTH GIPPSLAND RAILWAY
Patersons Road
Berrys Road
Unnamed
Bass River
Ferriers Road
3
1
4
4
4b
4b
6
120m
110m
100m
90m
80m
130m
140m

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Legend

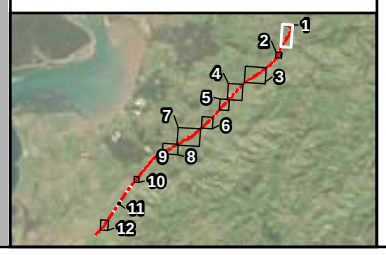
- Study Area
- Parcels
- Contours (10m)
- Constructed watercourse
- Natural watercourse
- Railways

Habitat Zones

- EVC 16: Lowland Forest (Low)
- EVC 16: Lowland Forest (Low-Moderate)
- EVC 16: Lowland Forest (Moderate)
- EVC 18: Riparian Forest (Low-Moderate)

Details

Mapping by: Ali Nia
Date: 9/19/2024
Version: 1
Aerial photography from
Esri World Imagery.
Data Source: Base layers
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Map 2. Ecological Assessment

Gippsland Odyssey Extension

Scale: 1:5,800 (Page size A3)

Bass River

70m

2

4b

80m

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Legend

- Study Area
- Parcels
- Contours (10m)
- Natural watercourse
- Railways

Habitat Zones

- EVC 16: Lowland Forest (Low)
- EVC 16: Lowland Forest (Moderate-High)

Details

Mapping by: Ali Nia

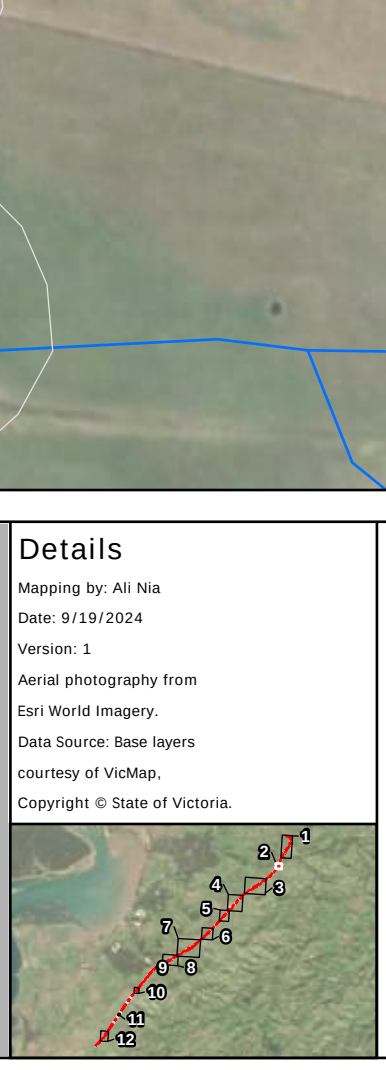
Date: 9/19/2024

Version: 1

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Map 2. Ecological Assessment

Gippsland Odyssey Extension

Scale: 1:1,800 (Page size A3)



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Legend

- Study Area
- Parcels
- Contours (10m)
- Constructed watercourse
- Natural watercourse
- Railways

Habitat Zones

- EVC 16: Lowland Forest (Moderate)
- EVC 16: Lowland Forest (Moderate-High)

Details

Mapping by: Ali Nia

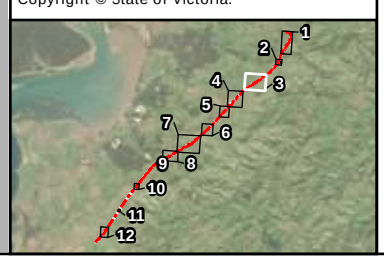
Date: 9/19/2024

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Map 2. Ecological Assessment

Gippsland Odyssey Extension

Scale: 1:6,300 (Page size A3)



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Legend

- Study Area
- Parcels
- Contours (10m)
- Natural watercourse
- Railways

Habitat Zones

- EVC 16: Lowland Forest (Low)
- EVC 53: Swamp Scrub (Low-Moderate)
- EVC 53: Swamp Scrub (Moderate)

Details

Mapping by: Ali Nia

Date: 9/19/2024

Version: 1

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Map 2. Ecological Assessment

Gippsland Odyssey Extension

Scale: 1:4,400 (Page size A3)



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Legend

- Study Area
- Parcels
- Contours (10m)
- Constructed watercourse
- Natural watercourse
- Railways

Habitat Zones

- EVC 16: Lowland Forest (Low)
- EVC 53: Swamp Scrub (Low)
- EVC 53: Swamp Scrub (Moderate)

Details

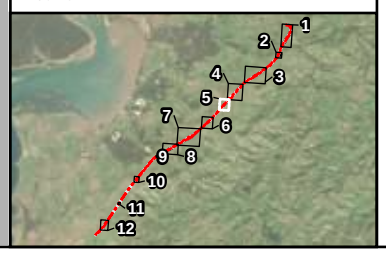
Mapping by: Ali Nia

Date: 9/19/2024

Version: 1

Aerial photography from Esri World Imagery.

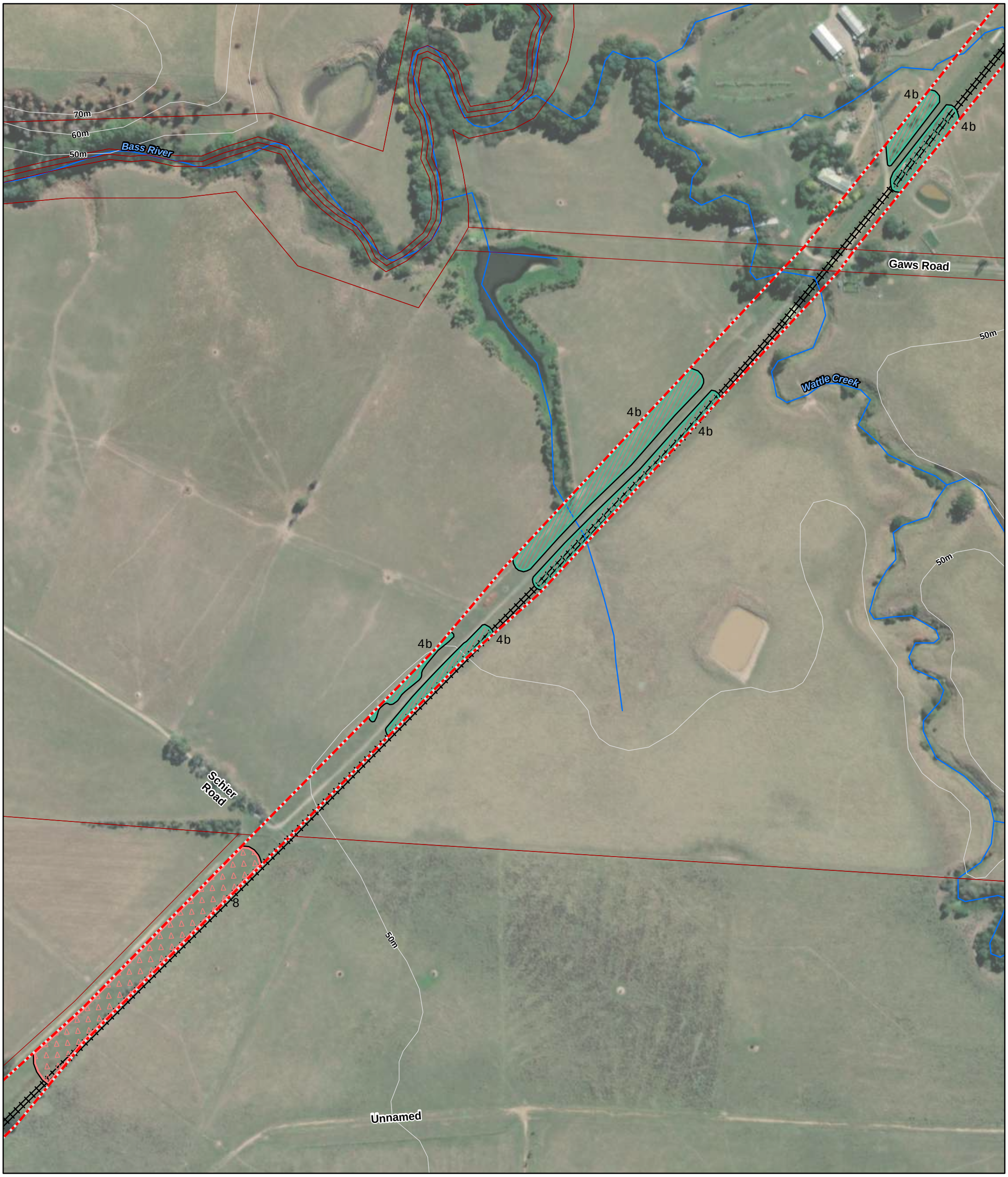
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Map 2. Ecological Assessment

Gippsland Odyssey Extension

Scale: 1:2,800 (Page size A3)



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Legend

- Study Area
- Parcels
- Contours (10m)
- Natural watercourse
- Railways

Habitat Zones

- EVC 16: Lowland Forest (Low)
- EVC 53: Swamp Scrub (Low)

Details

Mapping by: Ali Nia

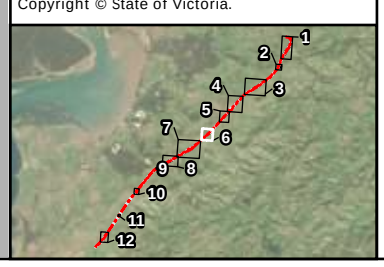
Date: 9/19/2024

Version: 1

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Map 2. Ecological Assessment

Gippsland Odyssey Extension

Scale: 1:3,300 (Page size A3)

Stewart Road
Bass River
Schier Road
Loch-Kermot Road
Campbell Road
Unnamed
Suckling Road
13b
2
7b
60m
50m
70m
40m
80m

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Legend

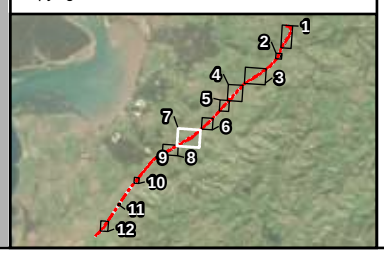
- Study Area
- Parcels
- Contours (10m)
- Natural watercourse
- Railways

Habitat Zones

- EVC 16: Lowland Forest (Low-Moderate)
- EVC 16: Lowland Forest (Moderate-High)
- EVC 18: Riparian Forest (High)
- EVC 53: Swamp Scrub (High)

Details

Mapping by: Ali Nia
Date: 9/19/2024
Version: 1
Aerial photography from Esri World Imagery.
Data Source: Base layers courtesy of VicMap,
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Map 2. Ecological Assessment

Gippsland Odyssey Extension

Scale: 1:6,700 (Page size A3)

Unnamed
Bass River
Grantville-Glen Alvie Road
Saleyard Drive
Ewing Lane
7b
7
8
11
50m
60m
70m
80m
40m

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Legend

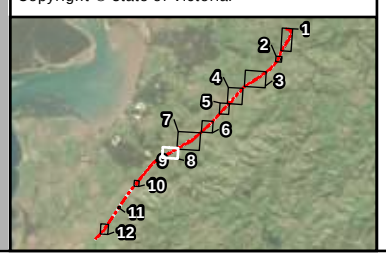
- Study Area
- Parcels
- Contours (10m)
- Natural watercourse
- Railways

Habitat Zones

- EVC 53: Swamp Scrub (Low)
- EVC 53: Swamp Scrub (Low-Moderate)
- EVC 53: Swamp Scrub (Moderate)
- EVC 53: Swamp Scrub (High)

Details

Mapping by: Ali Nia
Date: 9/19/2024
Version: 1
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Esri World Imagery.
Data Source: Base layers
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Map 2. Ecological Assessment

Gippsland Odyssey Extension

Scale: 1:4,600 (Page size A3)

Tennent Creek

13

Almurta-Glen Forbes Road

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Legend

- Study Area
- Parcels
- Natural watercourse
- Railways

Habitat Zones

- EVC 18: Riparian Forest (Low)

Details

Mapping by: Ali Nia

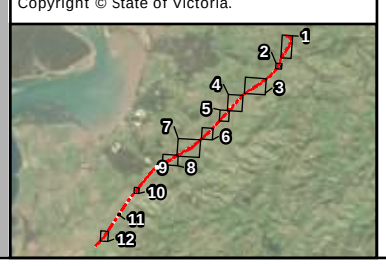
Date: 9/19/2024

Version: 1

Aerial photography from Esri World Imagery.

Data Source: Base layers courtesy of VicMap,

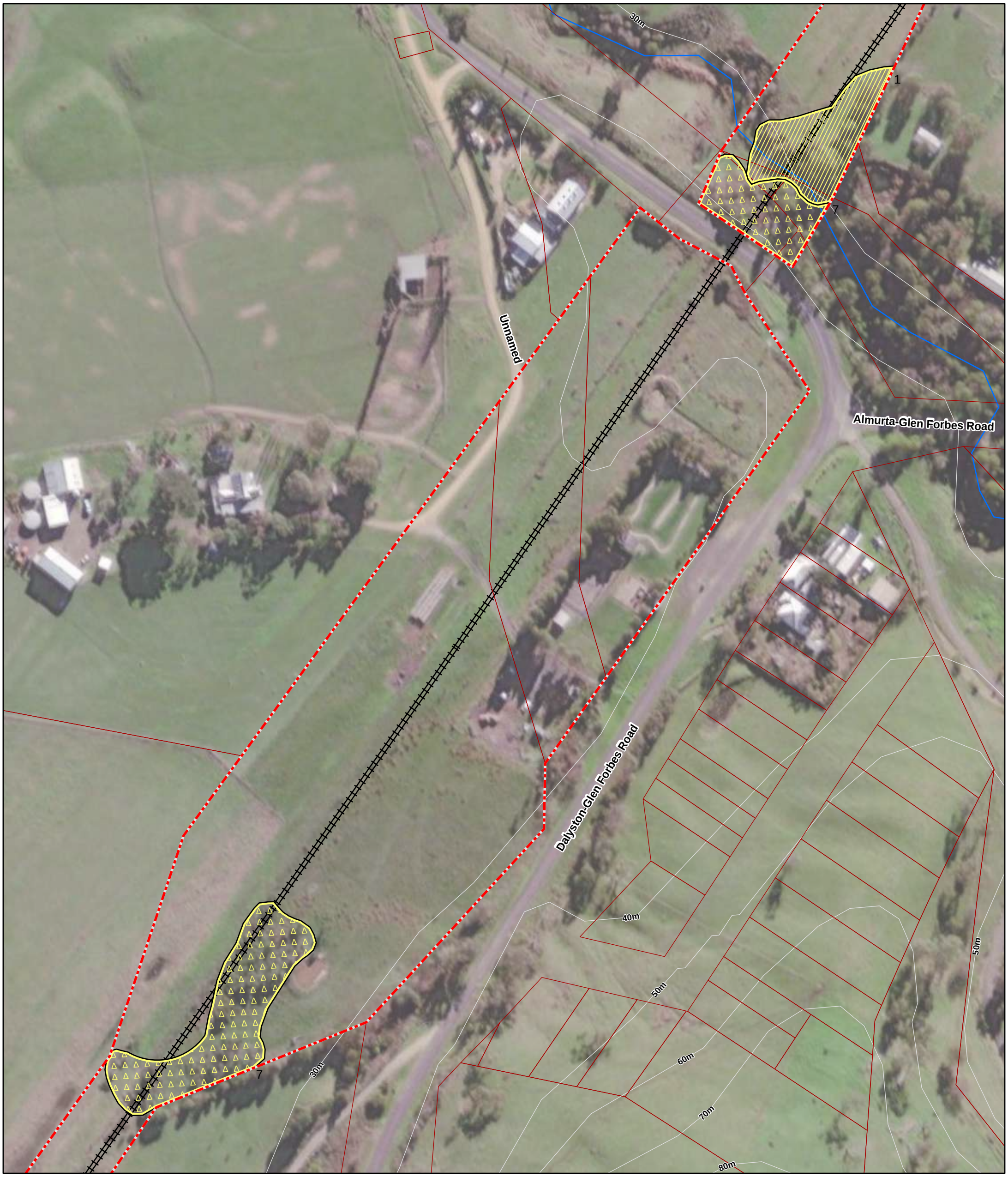
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Gippsland Odyssey Extension

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Legend

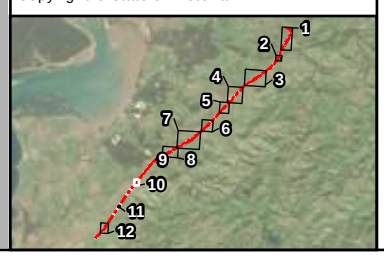
- Study Area
- Parcels
- Contours (10m)
- Natural watercourse
- Railways

Habitat Zones

- EVC 16: Lowland Forest (Moderate)
- EVC 53: Swamp Scrub (Moderate)

Details

Mapping by: Ali Nia
Date: 9/19/2024
Version: 1
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Map 2. Ecological Assessment

Gippsland Odyssey Extension

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Legend

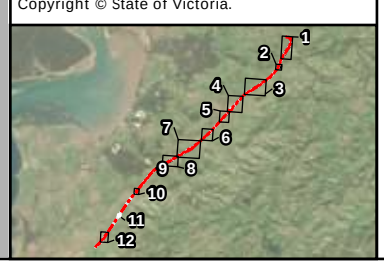
- Study Area
- Parcels
- Contours (10m)
- Natural watercourse
- Railways

Habitat Zones

- EVC 53: Swamp Scrub (Moderate)

Details

Mapping by: Ali Nia
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Map 2. Ecological Assessment

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Scale: 1:600 (Page size A3)

Mackay Road

8

20m

Mcgrath Road

Unnamed

30m

Trew Road

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Legend

- Study Area
- Parcels
- Contours (10m)
- Natural watercourse
- Railways

Habitat Zones

- EVC 53: Swamp Scrub (Low)

Details

Mapping by: Ali Nia

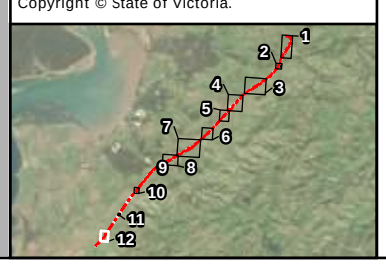
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