Heytesbury Underground Gas Storage (HUGS) Pipeline

Attachment D

Biodiversity Assessment

Final Report

Biodiversity Assessment: Heytesbury Underground Gas Storage (HUGS) Gas Pipeline, Victoria

Prepared for

Lochard Energy (Iona Operations) Pty Ltd

October 2023

Ecology and Heritage Partners Pty Ltd

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

CONTENTS

1 INTRODUCTION

1.1 Background

Ecology and Heritage Partners Pty Ltd was commissioned by Lochard Energy (Iona Operations) Pty Ltd to undertake a Biodiversity Assessment of the proposed Heytesbury Underground Gas Storage (HUGS) gas pipeline.

Ecology and Heritage Partners Pty Ltd understands that Lochard Energy Pty Ltd are proposing to expand the working storage volume (WSV) of the Iona Gas Storage Facility by the HUGS project which utilises the depleted Heytesbury gas fields as storage facilities. The HUGS project will increase the storage capacity and delivery of natural gas to ensure supply to consumers. The HUGS project and the Iona Gas Plant are located in the Otway Basin in South West Victoria.

As part of the broader HUGS development, Ecology and Heritage Partners Pty Ltd previously undertook an Ecological Assessment for the Heytesbury Underground Gas Storage Project (HUGS) (Ecology and Heritage Partners 2022). This assessment included two proposed wellsites and connecting pipeline/s that join to existing gas infrastructure. The current assessment includes two proposed wellsites, and a portion of the HUGS gas pipeline that extends from North Paaratte Production Station (NPPS) to Mylor, Fenton Creek and Tregony gas fields (MFCT), and encompasses five kilometres of new gas pipeline that connects well sites to existing gas infrastructure. Following the submission of the draft report, the development footprint was revised and now only includes one wellsite south of East-West Road within property 10. Subsequently, property 11 will no longer be impacted by the works (Table 1).

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

1.2 Scope of Works

The scope of the flora and fauna assessment were to:

- Review the relevant flora and fauna databases and available literature;
- Conduct a site assessment to identify flora and fauna values within the study area;
- Provide maps showing any areas of native vegetation and locations of any significant flora and fauna species, and/or fauna habitat (if present);
- Classify any flora and fauna species and vegetation communities identified or considered likely to occur within the study area in accordance with Commonwealth and State legislation;
- Document relevant environmental legislation and policy; and,
- Document any opportunities and constraints associated with the proposed works.

1.3 Study Area

The study area is located between the townships of Curdievale and Timboon West, Victoria, approximately 230 kilometres south-west of Melbourne (Figure 1). NPPS – MCFT includes a new five-kilometre gas pipeline that intersects 11 parcels, including private and public land (Table 1).

Table 1. Property Information.

Property Number	Registered Proprietor(s)	Standard Parcel Identifier (SPI)	Lot/Crown Allotment	Address	Land Type
1	Origin Energy Resources Ltd	4\PS426303	Lot 4 on Plan of Subdivision 426303G.	65 Gas Works Road, Paaratte, Vic 3268	Freehold
2	Lochard Energy (Iona Asset) Pty Ltd	1\LP201744	Lot 1 on Plan of Subdivision 201744U.	53 Gas Works Road, Paaratte, Vic 3268	Freehold
3	John Francis Rylance	5\PS426303	Lot 5 on Plan of Subdivision 426303G.	641 Timboon-Peterborough, Paaratte, Vic 3268	Freehold
4	Tanya Louise Vogels and Anthony William Vogels	26~1\PP3360	Crown Allotment 26 Section 1 Parish of Paaratte.	642 Timboon-Peterborough Road Paaratte 3268	Freehold
5	Brian Joseph Davison, Jessie May Davison Legal Representative(s) of Leslie Joseph Davison deceased	27~1\PP3360	Crown Allotment 27 Section 1 Parish of Paaratte.	Boundary Road, Timboon West, Vic 3268	Crown Grant
6	Brian Joseph Davison	1\TP884206	Lot 1 on Title Plan 884206H	Boundary Road, Timboon West, Vic 3268	Crown Grant
7	Corangamite Shire Council	1\TP436747	Lot 1 on Title Plan 436747X.	Boundary Road, Timboon West, Vic 3268	Freehold
8	Renee Jane Whitehead, Matthew John Whitehead	1\TP7190	Lot 1 on Title Plan 007190S.	654 Boundary Road, Timboon West, Vic 3268	Freehold
9	Mathew John Whitehead	1\TP888281	Lot 1 on Title Plan 888281V	577 Boundary Road, Timboon West, Vic 3268	Freehold

Property Number	Registered Proprietor(s)	Standard Parcel Identifier (SPI)	Lot/Crown Allotment	Address	Land Type
10	Sharyn Elizabeth Ferguson, Guy Desmond Ferguson	2\LP92940	Lot 2 on Plan of Subdivision 092940.	101 East and West Road, Timboon West, Vic 3268	Freehold
11*	Zanica Farms Pty Ltd	1\TP814988	Lot 1 on Title Plan 814988S	288 Boundary Road, Timboon West, Vic 3268	Freehold

Notes: * = Based on the current development footprint, property 11 will not be impacted by the works.

Most of the study area occurs within private property used for agricultural purposes and is bound by roads and private property. The pipeline crosses several roads, including East and West road, Boundary road, Timboon-Peterborough Road, as well as creeks and tributaries, namely Spring Creek and Skull Creek and several small unnamed creeks. The study area is largely flat with some small depressions that slope towards the creeks and tributaries.

According to the Department of Energy, Environment, and Climate Action (DEEECA – formerly the Department of Environment, Land, Water and Planning) NatureKit Map (DEECA 2023a), the study area (including the additional wellsites) is located within the Warrnambool Plain bioregion, Corangamite Catchment Management Authority (CMA) and the Corangamite Shire Council municipality.

2 METHODS

2.1 Desktop Assessment

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

- The DEECA NatureKit Map (DEECA 2023a) and Native Vegetation Information Management (NVIM) Tool (DEECA 2023b) for:
  - Modelled native vegetation (including Wetlands), location risk and strategic biodiversity value, scattered trees and habitat for rare or threatened species; and,
  - The pre-1750 and extant Ecological Vegetation Classes (EVCs), Bioregion and bioregional conservation status.
- EVC benchmarks and descriptions (DEECA 2023c);
- The Victorian Biodiversity Atlas (VBA) for previously documented flora and fauna records (DEECA 2023d);
- The Atlas of Living Australia (ALA) (ALA 2023) for assistance with the distribution and identification of flora and fauna species;
- The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool (PMST) for matters of National Environmental Significance (NES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (DCCEEW 2023a);
- Relevant listings under the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act), including the latest Threatened (DEECA 2023e), and Protected (DEECA 2019) Lists, and Potentially Threatening Processes List (DEECA 2023f);
- The online VicPlan Map (Department of Transport and Planning [DTP] 2023) to ascertain current zoning and environmental overlays in the study area;
- Any relevant literature;
- Recent high-resolution aerial imagery; and,
- Previous ecological assessments relevant to the study area; including;
  - Biodiversity Assessment: Heytesbury Underground Gas Storage (HUGS), Victoria. Ecology and Heritage Partners 2022.

2.2 Field Assessment

A field assessment was undertaken by an ecologist accredited in the Vegetation Quality Assessment (VQA) assessment methodology between 15 - 18 August 2022 to obtain information on flora and fauna values within the study area. The study area was walked, with all commonly observed vascular flora and fauna species recorded, significant records mapped, and the overall condition of vegetation and habitats noted. Ecological

Vegetation Classes (EVCs) were determined with reference to DEECA pre-1750 and extant EVC mapping (DEECA 2023a) and their published descriptions (DEECA 2023c).

Native vegetation that qualified as either a patch or scattered tree as per the definitions in Table 4 and shown in Figure 2, was mapped to the full extent within the study area. A habitat hectare assessment was undertaken to determine the quality of the vegetation. The habitat hectare assessment followed the methodology described in the Vegetation Quality Assessment Manual (Department of Sustainability and Environment - DSE 2004).

2.2.1 Large Tree and Habitat Assessment

Large tree and habitat assessments were undertaken concurrently with the habitat hectare assessments to quantify the number of Large Trees in patches and scattered trees, as well as to collate data pertaining to the presence of hollows and/or nests and significant 'habitat trees' that may provide habitat for fauna. Where present, hollows, nests or other relevant features were noted during the assessments.

Large Tree benchmarks relating to the potential EVCs present within the study area are summarised in Table 2.

Table 2. Large tree benchmarks.

EVC	Species Name	Large Tree (DBH)	Small Tree (DBH)
Heathy Woodland (EVC 48)	*Eucalyptus* spp.	≥ 60 cm	< 60 cm
Lowland Forest (EVC 16)	*Eucalyptus* spp.	≥ 70 cm	< 70 cm
Damp Heath Scrub (EVC 165)	NA	NA	NA
Swamp Scrub (EVC 53)	NA	NA	NA
Swampy Riparian Woodland (EVC 83)	*Eucalyptus* spp.	≥ 70 cm	< 70 cm

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

Under the *Planning and Environment Act 1987,* Clause 52.17 of the Corangamite Planning Scheme requires a planning permit to remove, destroy or lop native vegetation. The assessment process for the clearing of vegetation follows the '*Guidelines for the removal, destruction or lopping of native vegetation*' (the Guidelines) (DELWP 2017a). The '*Assessor's handbook: Applications to remove, destroy or lop native vegetation*' (Assessor's handbook) (DELWP 2018) provides clarification regarding the application of the Guidelines (DELWP 2017a).

2.3.1 Assessment Pathway

The Guidelines manage the impacts on biodiversity from native vegetation removal using an assessment-based approach. Two factors – extent risk and location category – are used to determine the risk associated with an application for a permit to remove native vegetation. The location category (1, 2 or 3) has been determined

for all areas in Victoria and is available on DEECA's NVIM Tool (DEECA 2023b). Determination of assessment pathways is summarised in Table 3.

Table 3. Assessment pathways for applications for removal/modification of native vegetation (DELWP 2017a).

Extent		Location		
		1	2	3
Native Vegetation	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

Notes: Extent includes any native vegetation that was removed (permitted or not) on the same contiguous parcel of land with the same ownership, where the removal occurred in the five-years prior to the current application lodgement.

2.3.2 *Vegetation Assessment*

Native vegetation (as defined in Table 4) is assessed using two key parameters: extent (in hectares) and condition.

Table 4. Native vegetation definitions as per the Guidelines (DELWP 2017a).

Category	Definition	Extent	Condition
Patch of native vegetation	• An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native (including non-vascular vegetation), **or** • An 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 map, available in DEECA systems and tools.	Measured in hectares.	Vegetation Quality Assessment Manual (DSE 2004).
		Based on hectare area of the native patch.	Modelled condition for *Current Wetlands*.
Scattered tree	A native canopy tree that does not form part of a native patch.	Measured in hectares.	Scattered trees are assigned a default condition score of 0.2 (outside a patch).
		Each **Large scattered tree** is assigned an extent of 0.071 hectares (15m radius).	
		Each **Small scattered tree** is assigned a default extent of 0.031 hectares (10 metre radius)	

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

2.3.3 *Impact Avoidance and Minimisation*

All applications to remove native vegetation must demonstrate the three-step approach of avoid, minimise and offset. This is a precautionary approach that aims to ensure that the removal of native vegetation is restricted to what is reasonably necessary, and that biodiversity is appropriately compensated for any native vegetation removal that is approved.

2.3.4 *Offsets*

Biodiversity offsets are required to compensate for the permitted removal of native vegetation. Offset obligations and offset site criteria are determined in accordance with the Guidelines (DELWP 2017a) and are divided into two categories, being General Habitat Units and Species Habitat Units.

The offset requirements for native vegetation removal are calculated by DEECA and presented in a Native Vegetation Removal (NVR) Report, which are based on the vegetation condition scores determined during the biodiversity assessment.

2.4 Significance Assessment

Ecology and Heritage Partners Pty Ltd utilise several databases (outlined in Section 2.1), literature and expert advice to undertake a significance assessment for EPBC and FFG Act Listed/Protected species that are predicted to occur or have been previously recorded within 10 kilometres of the study area.

The significance assessment is undertaken to determine the likelihood of each species occurring within the study area and to inform additional decision-making processes and approvals. The proximity, number, dispersion and date of known locality records (assuming over-dispersed and random patterns of locality records being more likely to occur in the study area) were considered to determine a species' likelihood of occurrence. Species that are likely to occur may require further assessments, including targeted surveys to confirm presence and/ or absence and further consideration and/ or approval under the EBPC Act and FFG Act.

The decision guidelines for determining the likelihood of occurrence for significant species are presented in Appendix 1.4 and Appendix 2.2.

2.5 Assessment Qualifications and Limitations

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

The field assessment was undertaken in winter (August), which is a sub-optimal season for the accurate identification of flora species. Despite this, the vegetation assessment was sufficient to determine the extent and quality of native vegetation within the study area, as per the habitat hectare assessment methodology. Further, the majority of native species that were present at the time of the assessment were flowering and/or had retained flowering parts from previous seasons, allowing identification to genus level.

While the assessment was sufficient to determine the ecological values present, the 'snapshot' nature of a standard Flora and Fauna Assessment, along with sub-optimal timing of the survey, meant that migratory, transitory or uncommon fauna species may have been absent from typically occupied habitats at the time of

the field assessment. In addition, annual or cryptic flora species such as those that persist via underground tubers may also be absent. However, the timing of the survey has not had more than reasonable impact to the accuracy of the survey due to the outlined objectives of the assessment.

Ecological values identified within the study area were recorded using a hand-held GPS or tablet with an accuracy of +/-3 metres. This level of accuracy is considered to provide an accurate assessment of the ecological values present within the study area; however, this data should not be used for detailed surveying purposes.

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

3 RESULTS

3.1 Native Vegetation

The study area is highly modified and contains grazed paddocks dominated by exotic pasture grasses, marginal wind break plantings of non-native eucalyptus species and exotic European pine trees.

Native vegetation in the study area is representative of five EVCs (Table 5).

Table 5. EVCs recorded within the study area and impact areas.

EVC name	EVC no.	Bioregional Conservation Status	Pipeline corridor	Access areas	Amount recorded in study area (hectares)	Amount impacted (hectares)	Impacted Patches
Lowland Forest	16	Vulnerable	Yes	Yes	1.01	0.061	LF2a, LF4a, LF4b
Damp Heath Scrub	165	Vulnerable	Yes	Yes	0.12	0.001	DHS1a
Swampy Riparian Woodland	83	Endangered	Yes	No	0.28	0	-
Swamp Scrub	53	Endangered	Yes	Yes	0.71	0	-
Heathy Woodland	48	Vulnerable	No	Yes	0.02	0	-

The presence of these EVCs is generally consistent with the modelled pre-1750s and extant (2005) native vegetation mapping (DEECA 2023c), except for the presence of Swampy Riparian Woodland (SRW). Although Swampy Riparian Woodland isn't modelled to occur at this location, the field assessment determined that species composition and floristic structure was characteristic of Swampy Riparian Woodland. The dominant presence of Swamp Gum *Eucalyptus ovata* in the overstorey and Blackwood *Acacia melanoxylon* within the mid-storey was characteristic of the Swampy Riparian Woodland EVC.

Specific details relating to the observed EVC are provided below. A list of all flora species recorded during the field assessment are provided in Appendix 1.1.

3.1.1 Ecological Vegetation Communities (EVCs)

Lowland Forest

Lowland Forest (LF) is typically a tall open forest to 25 metres dominated by a mix of eucalypts and tall shrubs. Lowland Forest is a diverse community with a mix of lifeforms found throughout each layer, including shrubs, grasses and graminoids, ferns, herbs and scramblers and climbers. A diversity of heathy shrubs is a notable feature of this community. Lowland Forest occurs of a variety of geologies and soil types (DEECA 2023c).

Six patches of Lowland Forest were recorded in the study area (Figure 2c, 2d, 2g). The indigenous vegetation identified with the study area was largely characteristic of the Lowland Forest Ecological Vegetation Class. Several patches were present throughout the study area with a canopy layer usually containing a moderate to high cover of Swamp Gum *Eucalyptus ovata* with the occasional Brown Stringybark Eucalyptus *baxteri* s.l. and

Messmate Stringybark *Eucalyptus obliqua*. Due to the highly modified nature of the study area, historical agricultural land use and isolation from high quality vegetation, the mid and understory layers were often of poor quality, containing few indigenous species. The mid-storey contained Prickly Tea-tree *Leptospermum continentale*, Silver Banksia *Banksia marginata* and occasional Blackwood *Acacia melanoxylon*. The understory was highly degraded except in areas with a relatively intact canopy layer. These areas were restricted to the road reserves and were often dominated by Austral Bracken *Pteridium esculentum* but also contained scattered Sedges *Lepidosperma* spp., and Spiny-headed Mat-rush *Lomandra longifolia* and Rush *Juncus* sp. (Plate 1; Plate 2).

Plate 1. A patch of Lowland Forest on Timboon-Peterborough Road (LF4b on Figure 2) (Ecology and Heritage Partners Pty Ltd 15/08/2022).

Plate 2. A patch of Lowland Forest on Timboon-Peterborough Road (LF4a on Figure 2) (Ecology and Heritage Partners Pty Ltd 15/08/2022).

Damp Heath Scrub

Damp Heath Scrub (DHS) is a shrubland to three metres, generally occurring on flat to gently sloping terrain on or near poorly drained coastal areas. High rain-fall typically combines with low drainage to retain moisture throughout the year. Emergent eucalyptus species may also occur (DEECA 2023c).

Four patches of Damp Heath Scrub were recorded in the study area (Figure 2d, 2g). Vegetation representative of Damp Heath Scrub was predominately located in the study areas northern section and was in low-moderate condition. Prickly Tea-tree dominated the mid-layer alongside the occasional Silver Banksia, Prickly Moses *Acacia verticillata* and Scrub Sheoak *Allocasuarina paludosa*. The ground layer was sparsely covered with Coast Saw-sedge *Gahnia trifida*, Variable Sword-sedge *Lepidosperma laterale* and the occasional FFG Act Protected species Austral Grass Tree *Xanthorrhoea australis* (Plate 3; Plate 4).

Plate 3. A patch of Damp Heath Scrub on Boundary Road (DHS2a on Figure 2) (Ecology and Heritage Partners Pty Ltd 17/08/2022).

Plate 4. A patch of Damp Heath Scrub on Boundary Road (DHS2b on Figure 2) (Ecology and Heritage Partners Pty Ltd 17/08/2022).

Heathy Woodland

Heathy Woodland (HW) is a eucalypt dominant woodland to 10 metres, with a diverse ericoid shrub layer. Lacking a secondary tree layer, Heath Woodland often supports a sparse ground cover of geophytes and annuals. Although this EVC may occur across a wide variety of geologies, Heathy Woodland generally prefers nutrient-poor soils (DEECA 2023c).

Five patches of Heathy Woodland were recorded in the study area (Figure 2a). Restricted to the northern section of the study area, Heathy Woodland was in low-moderate condition and supported an overstory of Messmate Stringybark *Eucalyptus obliqua*, with the occasional Swamp Gum and the State-significant Western Peppermint *Eucalyptus falciformis.* The understory contained Prickly Tea-tree, Common Heath *Epacris impressa*, Bidgee-Widgee *Acaena novae-zelandiae*, and the FFG Act protected Austral Grass-tree. Whilst the ground layer was largely devoid of native vegetation, Austral Bracken was present in areas of recent disturbance (Plate 5; Plate 6).

Plate 5. Western Peppermint along East and West Road (HW43b) (Ecology and Heritage Partners Pty Ltd

Plate 6. Austral grass tree within patch of Heathy Woodland along East and West Road (HW4a) (Ecology

18/08/2022).

and Heritage Partners Pty Ltd 18/08/2022).

Swampy Riparian Woodland

Occupying low energy streams of the foothills and plains, Swampy Riparian Woodland (SRW) usually contains an overstorey of Swamp Gum to 15 metres. Lower strata's are locally variable but are dominated by an array of medium to large shrubs, tussock grasses and sedges (DEECA 2023c).

Four patches of Swampy Riparian Woodland were recorded in the study area (Figure 2e). Swampy Riparian Woodland occurred exclusively adjacent to a low energy stream and was of poor quality. Indigenous vegetation was largely restricted to the middle and upper stories as the ground layer was heavily modified. The canopy layer comprised Swamp Gum and the middle layer mostly supported a sparse cover of shrub specimens including Prickly Moses, Woolly Tea-tree *Leptospermum lanigerum* and Blackwood (Plate 7; Plate 8).

Plate 7. Swampy Riparian Woodland along Skull Creek in property 5 (SRW2a on Figure 2) (Ecology and Heritage Partners Pty Ltd 16/08/2022).

Plate 8. A patch of Swampy Riparian Woodland along Skull Creek in property 5 (SRW1a) (Ecology and Heritage Partners Pty Ltd 16/08/2022).

Swamp Scrub

Swamp Scrub (SS) is a closed scrub to eight metres, that commonly occurs on alluvial deposits along streams or on poorly drained, high nutrient sites with high water availability. Woolly Tea-tree and/or Paperbarks *Melaleuca* spp. often form a dense thicket with the occasional emergent Eucalypt (e.g. Swamp gum). Moss, lichen or liverwort herbaceous species may cover the ground in areas where light can penetrate the canopy layer (DEECA 2023c).

Two patches of Swamp Scrub were recorded in the study area (Figure 2d). Vegetation representative of Swamp Scrub was of low-moderate quality, supporting a canopy of predominately Woolly Tea-tree and Blackwood with the occasional fringing and emergent Swamp Gum. The mid-layer was lacking, mostly supporting younger and immature canopy specimens outlined above. The ground and upper-ground layers were densely covered with large tufted and non-tufted graminoid (herbaceous and grass-like) specimens including Red-fruit Saw-sedge *Gahnia sieberiana* and Common Reed *Phragmites australis* (Plate 9; Plate 10).

Plate 9. Swamp Scrub patch along an unnamed tributary of Spring Creek within property 5 (SS2a on Figure 2) (Ecology and Heritage Partners Pty Ltd 16/08/2022).

Plate 10. A portion of Swamp Scrub along an unnamed tributary of Spring Creek within property 5 (SS1a on Figure 2) (Ecology and Heritage Partners Pty Ltd 16/08/2022).

3.1.2 Large Trees in Patches

A total of 61 and 11 Large Trees (LTs) were recorded within the study area and the pipeline corridor, respectively (Figure 2). Of those, four were dead standing trees (stags), and 15 Large Trees had hollows. The dominant species were Manna Gum, Messmate and Swamp Gum (Plate 11; Plate 12; Appendix 1.3).

Plate 11. A large patch tree (Swamp Gum) within SRW2a (Ecology and Heritage Partners Pty Ltd 16/08/2022).

Plate 12. Large patch trees within a patch of Swampy Riparian Woodland (SRW2a on Figure 2) (Ecology and Heritage Partners Pty Ltd 16/08/2022).

3.1.3 Scattered Trees

Two scattered trees were recorded within the pipeline corridor and one within the access area. A total of nine scattered trees were recorded within the study area, which consisted of eight large and one small scattered trees (Figure 2; Appendix 1.3). Of those, one tree was dead and eight contained hollows. The dominant species

was Swamp Gum. One Western Peppermint (FFG Act listed) was recorded east of the study area, along the East And West Road reserve (Figure 2a).

These trees would have once formed part of the Heathy Woodland and Lowland Forest EVCs; however, the understorey vegetation contained predominantly introduced species (mainly exotic pasture grasses) and the trees no longer formed a patch of native vegetation (Plate 13; Plate 14).

Plate 13. Scattered trees along Skull Creek within property 5 (Trees 55-57 on Figure 2) (Ecology and Heritage Partners Pty Ltd 16/08/2022).

Plate 14. Scattered tree (Swamp Gum) within property 5 (Tree 41 on Figure 2) (Ecology and Heritage Partners Pty Ltd 16/08/2022).

3.1.4 Introduced and Planted Vegetation

Areas not supporting native vegetation had a high cover (>90%) of exotic grass species, many of which were direct-seeded for use as pasture. Scattered native grasses were generally present in these areas, however they did not have the required 25% relative cover to be considered a patch.

Non-native areas predominately comprised a monoculture of pasture grass species comprising environmental weeds such as Toowoomba Canary-grass *Phalaris aquatica*, Rye-grass *Lolium* spp., Ribwort *Plantago lanceolata*, Couch *Cynodon dactylon* var. *dactylon* and Wild Oat *Avena fatua*. Planted vegetation comprising introduced and non-native tree species formed agricultural shelter belts along some of the fence lines throughout the study area. Radiata Pine *Pinus radiata* was the prominent shelter belt species with the occasional non-native *Eucalyptus* spp. also present (Plate 15).

Noxious weeds, as defined under the CaLP Act, were present within the study area, with Blackberry *Rubus fruticosus* spp. agg. mainly located along the dam fringes and Spear Thistle *Cirsium vulgare* present in limited numbers within the study area's southern half (Plate 16). Blackberry is also a Weed of National Significance (WoNS).

Plate 15. Planted windrow along a property boundary (Ecology and Heritage Partners Pty Ltd 15/08/2022).

Plate 16. An infestation of Blackberry adjacent to a patch of native vegetation (Ecology and Heritage Partners Pty Ltd 15/08/2022).

3.2 Fauna Habitat

The study area is located within a highly modified, predominantly agricultural landscape with much of the surrounding vegetation highly modified, non-indigenous or cleared. Planted exotic vegetation predominately comprising Radiata Pine *Pinus radiata* was commonly observed along fence lines acting as windrows for the cattle present within the site. Multiple formal and informal dams were also present, occasionally providing habitat for some commonly occurring frog species like the Common Eastern Froglet *Crinia signifera.*

Largely consisting of cleared paddocked areas dominated by common pasture grass species, the study area is likely utilised as a foraging resource by common generalist bird species that are tolerant of modified areas. Fauna observed using this habitat included; Australian Magpie *Cracticus tibicen*, Common Blackbird *Turdus merula*, Little Raven *Corvus mellori*, Magpie-lark *Grallina cyanoleuca*, White-faced Heron *Egretta novaehollandiae,* Eastern Rosella *Platycercus eximius* and the Australian Shelduck *Tardorna tadornoides*.

The native vegetation recorded within the study area and pipeline corridor was generally of low to moderate quality and likely provides habitat for a range of fauna, including foraging nectivorous (nectar-eating) and frugivorous (fruit-eating) birds, as well as opportunistic species such as birds of prey. Areas with good ground cover may also provide habitat corridors for ground-dwelling species such as reptiles and small mammals.

Smaller birds such as the House Sparrow *Passer domesticus,* Common Blackbird *Turdus merula,* Superb Fairy-wren *Malurus cyaneus* and arboreal mammals like the Eastern Ring-tailed Possum *Pseudocheirus peregrinus* that rely on dense shrub cover for protection and nesting may also briefly utilise the area when travelling between adjacent areas of desirable habitat.

3.3 Significance Assessment

3.3.1 Flora

The VBA contains records of six nationally significant and 41 State significant flora species previously recorded within 10 kilometres of the study area (DEECA 2023d) (Figure 3). The PMST identified an additional five nationally significant species which have not been previously recorded but have the potential to occur in the locality (DCCEEW 2023a) (Figure 3; Appendix 1.4). Of those, 11 state significant species have a moderate-high likelihood of occurrence.

One State significant species (Western Peppermint) was recorded during the site assessment outside of the study area (Figure 2a). This species has limited records within the broader landscape and is largely restricted to native vegetation along roadsides and coastal heathland. Although there is suitable habitat within the study area, additional specimens are unlikely to be present within the study area as they would have been observed during the site assessment due to the species size and distinctive features. There are no proposed impacts to any Western Peppermint. No Western Peppermint are located within the proposed disturbance area.

The proposed pipeline occurs predominantly within agricultural paddocks that contain limited habitat for significant flora. While the pipeline does cross through some unnamed creeks, HDD drilling will occur in areas of suitable habitat for significant flora, including Timboon-Peterborough Road, Spring Creek, Skull Creek and Boundary Road (Figure 2).

3.3.2 Fauna

Ten fauna species were recorded during the site assessment. No nationally or State significant species were observed.

The VBA contains records of 31 nationally significant and 38 State significant fauna species previously recorded within 10 kilometres of the study area (DEECA 2023d) (Figure 4). The PMST identified an additional 37 nationally significant species which have not been previously recorded but have the potential to occur in the locality (DCCEEW 2023a) (Figure 4; Appendix 2.2). Of these, several species are likely to utilise habitats opportunistically within the broader locality, particularly, birds and small mammals that rely on riparian vegetation and creekline habitats (Appendix 2.2).

The study area and contained development area is largely modified and unlikely to provide suitable habitat for bird species. Mobile species are likely to utilise the study area transitionally while searching for more suitable habitat and are unlikely to be impacted by the proposed works. Further, the works will not require the removal of any vegetation (native and exotic) that may provide habitat to birds, as directional drilling/boring is proposed for all areas that contain potential habitat, including road reserves, creekline vegetation and riparian habitats. Significant birds identified by the significant species search (VBA and PMST) are likely to use the study area transitionally, while moving to more suitable habitat (e.g. Brolga *Antigone rubicunda* and Little Egret *Egretta garzetta*) or for foraging (e.g. birds of prey such as Grey Goshawk *Accipiter novaehollandiae*, Black Falcon *Falco subniger*, Little Eagle *Hieraaetus morphnoides*), while some species may utilise large mature trees (with and without hollows) and dense shrubs for roosting or foraging (e.g. Gang-gang Cockatoo *Callocephalon fimbriatum,* Blue-winged Parrot *Neophema chrysostoma* and owls). To reduce the overall impacts to birds, appropriate pre-clearance mitigation measures should be implemented. These include pre-clearance

inspections of all trees/shrubs that contain evidence of arboreal fauna nesting sites (e.g. roosting and foraging habitat), and salvage and relocation by a qualified Zoologist / wildlife handler during the removal of fauna habitat.

Several terrestrial species listed under the FFG Act that rely on wetland and riparian habitats may opportunistically utilise the study area, including Hairy Burrowing Crayfish *Engaeus sericatus*, Otway Bush Yabby *Geocharax tasmanicus*, Swamp Skink *Lissolepis coventryi*, Southern Toadlet *Pseudophryne semimarmorata*, however as boring is proposed for areas containing wetland and riparian vegetation (Figure 2d) and no potential habitat will be impacted, none of these species are expected to be impacted by the development.

3.3.3 Threatened Ecological Communities

The PMST identified five nationally listed ecological communities predicted to occur within 10 kilometres of the study area (Table 6; DCCEEW 2023a):

Table 6. Threatened Ecological Communities within or predicted to occur within the study area.

Threatened Ecological Community	Conservation status	Recorded in study area	Corresponding EVC
EPBC ACT LISTED COMMUNITIES			
Grassy Eucalypt Woodland of the Victorian Volcanic Plain	Critically Endangered	No	-
Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community	Endangered	No	-
Natural Temperate Grassland of the Victorian Volcanic Plain	Critically Endangered	No	-
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	No	-
Giant Kelp Marine Forests of South East Australia	Endangered	No	-

The native vegetation present within the study area does not correspond to any of the EPBC Act listed ecological communities outlined in Table 6. More specifically, the recorded vegetation did not meet the condition thresholds outlined within the associated listing documents that define the characteristics (indicator species, diversity and cover thresholds for native and exotic flora) for any nationally significant communities.

No FFG Act-listed ecological communities were recorded within the study area (Section 5.2).

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

4.1 Avoid and Minimise Statement

The following information is based on Requisition, Contracts and Procurement (REQ) document provided by Lochard Energy Pty Ltd, *Requisition, Contracts and Procurement for the Heytesbury Underground Gas Storage Project, Flora and Fauna – HUGS Pipeline* (Revision B), verbal communications, and the concept design and construction footprint provided by Lochard Energy (Iona Operations) Pty Ltd.

To avoid and minimise impacts to native vegetation, Lochard Energy Ltd Pty proposed to survey area larger than required (i.e. the study area). The final impact scenario included in this report was developed following earlier iterations of this report. Lochard Energy Pty Ltd refined the pipeline corridor and access areas (i.e. impact areas) in consultation with landholders and Ecology and Heritage Partners with the aim of minimising the overall impacts to native vegetation. Previous iterations of the design sought to impact much greater areas of native vegetation with up to 0.570 hectares initially proposed, including portions of LF3a, SS1, DHS3a, DHS2b and 15 Large trees. After multiple iterations of design and consultation with Ecology and Heritage Partners, impacts have been reduced by over 400%.

The current development design is largely situated within areas dominated by pasture, adjacent to native vegetation. Ecology and Heritage Partners understands that Lochard Energy (Iona Operations) Pty Ltd are exempt under the *Pipelines Act 2005* from requiring a planning permit under the *Planning and Environment Act 1987* within the proposed pipeline area (wellsites are not exempt), however offsets will still be required for native vegetation removal. While the wellsites are not exempt from requiring a planning permit, there is no native vegetation within the proposed wellsite. Two proposed wellsites were included within the assessment for this project, however only the wellsite south of East and West road will proceed. No native vegetation was recorded in this location (shown as Final wellsite location on Figure 2a), however there is planted vegetation within a windrow (see Section 5.3.2 for implications). The current iteration of the development footprint has significantly reduced impacts to native vegetation by;

- Abandoning one of the originally two proposed wellsite locations,
- Significantly adjusting the disturbance area to avoid impacts to native vegetation, and
- Adopting horizontal directional drilling (HDD) in areas containing native vegetation.

Lochard Energy (Iona Operations) Pty Ltd have advised that horizontal directional drilling (HDD) will be undertaken in in road reserves (with the exception of access options 1 and 2) and within the creek east of Boundary Road (Figure 2d). The entire disturbance area will be 25 metres wide; the proposed pipeline corridor is the extent of works and will be cleared and graded (except for areas where horizontal directional drilling will occur); the proposed pipeline route includes a 1-metre wide open trench.

The majority of impacts to native vegetation and all native vegetation to be impacted within the Timboon – Peterborough Road reserve are required to facilitate safe site access during the construction phase. While HDD drilling is proposed to occur under this area (Figure 2), to co-ordinate construction the road and adjoining

private property must be egressed with large machinery. The speed limit along Timboon – Peterborough Road through the study area is 100 kilometres per hour and native vegetation clearing is required to ensure vehicles and personnel have adequate sight lines to support safe site access and egress.

No feasible opportunities exist to further avoid and minimise impacts on native vegetation without undermining the key objectives of the proposal.

4.2 Residual Impacts to Native Vegetation

4.2.1 Vegetation proposed to be removed

The study area is within Location 2, with 0.131 hectares of native vegetation proposed to be removed. As such, the permit application falls under the Intermediate assessment pathway (Table 7).

Condition scores for vegetation proposed to be removed are provided in Appendix 1.2.

Table 7. Removal of Native Vegetation (the Guidelines) (DELWP 2017a).

Assessment pathway	Intermediate
Location Category	2
Total Extent (past and proposed) (ha)	0.131
Extent of past removal (ha)	0.00
Extent of proposed removal (ha)	0.131
Large Trees (scattered and in patches) to be removed (no.)	2
Small scattered trees to be removed (no.)	0
EVC Conservation Status of vegetation to be removed	Lowland Forest (EVC 16) – Vulnerable Damp Heath Scrub (EVC 165) – Vulnerable

4.2.2 Offset Requirements

The offset requirement for native vegetation removal is 0.050 General Habitat Units and 2 Large Trees.

A summary of proposed vegetation losses and associated offset requirements is presented in Table 8 and the Native Vegetation Removal (NVR) in Appendix 3.

Table 8. Offset Requirement.

General Offsets Required	0.050 General Habitat Units
Large Trees	2
Vicinity (catchment/council)	Corangamite CMA / Corangamite Shire Council
Minimum Strategic Biodiversity Value*	0.283

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

4.2.3 *Offset Strategy*

According to DEECAs Native Vegetation Offset Register (DEECA 2023g), there are 11 offset sites within the Corangamite CMA or Corangamite Shire Council region that can be used to satisfy the General Habitat Unit and Large tree offset requirements.

An offset register search statement identifying the relevant offsite sites is provided in Appendix 4.

5 LEGISLATIVE AND POLICY IMPLICATIONS

5.1 *Environment Protection and Biodiversity Conservation Act 1999*

The EPBC Act establishes a Commonwealth process for the assessment of proposed actions likely to have a significant impact on any matters of National Environment Significance (NES). The significant impact guidelines outline the impact criteria (Table 9), and provide a decision making framework ('self-impact assessment') for determining whether an action will require referral to the Australian Government Environment Minister and/or further approval under the EPBC Act (DCCEEW 2023b).

Table 9. Potential impacts to matters of National Environmental Significance (NES).

Matter of NES	Potential Impacts
World Heritage properties	The proposed action will not impact any properties listed for World Heritage.
National Heritage places	The proposed action will not impact any places listed for National Heritage.
Ramsar wetlands of international significance	The proposed action will not impact any listed Ramsar wetlands due to no significant waterways being present within or close to the study area.
Threatened species and ecological communities	No threatened species or ecological communities were recorded or predicted to occur within the study area.
Migratory and marine species	There is no marine or wetland habitat within the study area. Further, the study area would not be classed as an 'important habitat' as defined under the EPBC Act Policy Statement *1.1 Significant Impact Guidelines* (Commonwealth of Australia 2013), in that it does not contain: • Habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, • Habitat utilised by a migratory species which is at the limit of the species range; or, • Habitat within an area where the species is declining.
Commonwealth marine area	The proposed action will not impact any Commonwealth marine areas.
Nuclear actions (including uranium mining)	The proposed action is not a nuclear action.
Great Barrier Reef Marine Park	The proposed action will not impact the Great Barrier Reef Marine Park.
Water resources impacted by coal seam gas or mining development	The proposed action is not a coal seam gas or mining development.

5.1.1 *Implications*

There were no threatened species or ecological communities recorded within the study area that would require further assessment under the EPBC Act. Further, the modified condition of the site does not provide suitable habitat for nationally significant flora, nor breeding or limiting habitat for nationally significant fauna. Although terrestrial fauna species may fly or travel over the study area when moving between areas of more suitable habitat, it is unlikely they will utilise this area, or rely on this habitat on a more permanent basis. The action is highly unlikely to have a significant impact on any matter of National Environmental Significance, and as such, a referral under the EPBC Act is not required.

5.2 *Flora and Fauna Guarantee Act 1988*

The *Flora and Fauna Guarantee Act 1988* (the FFG Act) provides for the listing of taxa (genera, species, subspecies and varieties), threatened communities of flora and fauna and potentially threatening processes.

Proponents are required to apply for an FFG Act permit to 'take' listed and/or protected flora species and listed vegetation communities. An FFG Act permit is generally not required for the removal of listed and/or protected flora species and communities on private land. There are currently no requirements for proponents to apply for a permit under the FFG Act where a proposed activity requires the removal of habitat for a listed terrestrial fauna species. The Act does however regulate the removal, salvage, temporary holding, relocation, taking, trading and keeping of FFG Act-listed fish species.

The *Flora and Fauna Guarantee Amendment Act 2019* (the Amendment Act) came into effect on June 1, 2020. The Amendment Act requires consideration of biodiversity across government to ensure decisions and policies are made with proper consideration of the potential impacts on biodiversity and now applies the FFG Act to Crown land and private/freehold land that is managed by a public authority.

The following threatening processes listed under the FFG Act should be considered in relation to the proposed development (DEECA 2023f):

- *Alteration to the natural flow regimes of rivers and streams;*
- *Degradation of native riparian vegetation along Victorian rivers and streams;*
- *Habitat fragmentation as a threatening process for fauna in Victoria;*
- *Invasion of native vegetation by Blackberry Rubus fruticosus L. agg.;* and,
- *Invasion of native vegetation by 'environmental weeds'.*

No Protected and/or Threatened species were recorded within the study area. One Protected species and one species Listed as threatened under the FFG Act were recorded outside of the study area. None are located within the proposed pipeline corridor and won't be impacted by the project:

- Western Peppermint *Eucalyptus falciformis* (Listed) – x1
- Austral Grass-tree *Xanthorrhoea australis* (Protected) – x1

5.2.1 *Implications*

One species Listed (Western Peppermint) and one species protected (Austral Grass-tree) under the FFG Act were recorded outside of the study area within the road reserve of East and West Road, which is identified as Crown land. No protected flora are proposed to be removed, therefore a protected flora permit is not required.

5.3 *Pipelines Act 2005*

The *Pipelines Act 2005* applies to the construction and operation of pipelines and provides a regulatory system to facilitate the approval and development of pipelines in Victoria. The *Pipeline Act 2005* aims to ensure that pipelines are effective, efficient, safe and sustainable, and the development and operation has minimal impacts to the environment, and the public are protected from environmental, health and safety risks. The

Act applies to pipelines that convey petroleum, oxygen, carbon dioxide, hydrogen, nitrogen, compressed air and sulphuric acid or methanol.

Under the *Pipelines Act 2005*, a licence is required from the Minister for the construction and operation of a pipeline in Victoria. The Minister must consider the potential environmental and cultural heritage impacts, the social and safety impacts, as well as the benefits of the proposed pipeline to Victoria. If a licence is issued under the *Pipelines Act 2005* for the construction and operation of a pipeline, the proposed infrastructure is exempt from the requirement to obtain a permit under the *Planning and Environment Act 1987*. However, offsets for any native vegetation proposed to be removed are required, as per the Guidelines (Clause 52.17).

5.4 Planning and Environment Act 1987

The *Planning and Environment Act 1987* (P&E Act) outlines the legislative framework for planning in Victoria and for the development and administration of planning schemes. Within Victoria, the requirement for a planning permit to remove native vegetation is triggered by a number of Clause' within the Victoria Planning Provisions Planning Scheme. Within each municipality, the local Planning Provisions for each Government Authority are outlined within the associated local Planning Scheme. The local Planning Scheme that applies to the study area is the Corangamite Planning Scheme.

The Corangamite Planning Scheme defines native vegetation at Clause 73.01 as *plants that are indigenous to Victoria, including trees, shrubs, herbs, and grasses*.

Within every local Planning Scheme, the removal of native vegetation is assessed in accordance with either Clause 52.16 or 52.17. In this case, Clause 52.17 applies, and vegetation removal should be assessed and offset in accordance with the incorporated document the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017a).

5.4.1 Local Planning Provisions

The study area is located within the Corangamite Shire Council. The following Local Planning Provisions (Zones and Overlays) apply/adjoin the study area (DTP 2023):

- Farming Zone – Schedule 1 (FZ1)
- Special Use Zone – Schedule 2 (SUZ1)
- Vegetation Protection Overlay – Schedule 2

Farming Zone – Schedule 1 (FZ1)

A schedule 1 to the Farm Zone (FZ) applies to the entire study area. The FZ (Clause 35.07) applies to areas of land utilised for agriculture and aims to ensure that land practices are sustainable to retain productive land for agriculture. Clause 35.07 also aims to ensure that any proposed development in this zone does not affect the use of land for agriculture and that the employment and current populations are retained.

Schedule 1 to the Farm Zone (Clause 35.07s1) outlines the type of earthworks that require a permit.

Special Use Zone – Schedule 2 (SUZ2) *Heytesbury Gas Facility – Timboon*

A Schedule 2 to the Special Use Zone (SUZ2) applies to property 1. The purpose of the SUZ2 (Clause 37.01s2) is to facilitate the use and development of the Heytesbury Gas Facility. The use and development in the SUZ2 should consider the character and amenity of the surrounding area and be in accordance with the incorporated document *Heytesbury Gas Facility – Timboon Incorporated Approval Document, September 1999.*

Under Clause 37.01s2, a permit is not required to use the land, construct buildings, or undertake works, provided the development and use is in accordance with the incorporated document abovementioned.

Vegetation Protection Overlay – Schedule 2 (VPO2) *Roadside Vegetation Protection Area*

A Schedule 2 to the Vegetation Protection Overlay (VPO2) applies to Timboon-Peterborough Road. The purpose of VPO2 (Clause 42.02s2) is to identify areas of roadside vegetation that provides important landscape connectivity (i.e. reduces fragmentation) for wildlife and supports rare or threatened species or communities. The VPO2 acknowledges that roadside vegetation is important and should be retained and enhanced where possible, and that vegetation improves the character and aesthetic quality of the community, which improves visitor experiences.

Under Clause 42.022s2, a permit is required to remove, destroy or lop native vegetation. A permit is not required for vegetation that is not native. A permit application in areas affected by VPO2 should include:

- The total extent of native vegetation and extent of clearing, destruction or lopping, the location of rivers, streams, watercourses, wetlands, and/or channels, the slope in areas exceeding 20 per cent;
    - Addressed in Section 1.3 and 4.2.
- The purpose for the proposed clearing;
    - Addressed in Section 1.1, 1.2 and 4.1 and 4.2.
- Any avoidance and minimisation measures that have been implemented to reduce the extent of native vegetation removal;
    - Addressed in Section 4.1.
- Any proposed post-clearing works that will be undertaken to revegetate/rehabilitate the site, including the proposed species and ground stabilisation; and,
    - Addressed in Section 6 and Appendix 1.5.
- A report that outlines the vegetation and habitat significance of the site.
    - Addressed in Section 3.1, 3.2 and 3.3.

5.4.2 The Guidelines

The Guidelines (Clause 52.17) are incorporated into all Planning Schemes within the Victorian Planning Provisions. The purpose of the Guidelines is to ensure that the objective of no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation, outlined within Clause 12.01-2S of the Victorian Planning Provision Planning Scheme are met. Therefore, decisions regarding native vegetation are done in accordance with the Guidelines (DELWP 2017a).

Within the Corangamite Planning Scheme, a planning permit under Clause 52.17 is required to remove, destroy or lop native vegetation, including some dead native vegetation, unless one or more of the exemptions in Clause 52.17-7 applies. The table of exemptions in Clause 52.17-7 of the Victorian Planning Provisions outlines the land use activities and/or developments that are exempt from requiring a planning permit. In this instance, the *Planted Vegetation* exemption is relevant.

Planted Vegetation Exemption

The planted vegetation exemption applies to *native vegetation that is to be removed, destroyed or lopped that was either planted, or grown as a result of direct seeding*, as detailed within the supplementary document to the Guidelines (DELWP 2017a), *Exemptions from requiring a planning permit to remove, destroy or lop native vegetation – Guidance* (DELWP 2017b).

The purpose of the planted vegetation exemption is to *not require a permit for the removal of native vegetation which has either been planted (e.g. planting a seedling or an established plant) or grown from direct seeding (e.g. placing a seed in the ground in any manner).*

The planted vegetation exemption does not apply *native vegetation planted or managed with public funding for the purpose of land protection or enhancing biodiversity unless the removal, destruction or lopping of the native vegetation is in accordance with written permission of the agency (or its successor) that provided the funding*. **Biodiversity purposes include improving rare and threatened species habitat, improving the condition or extent of native vegetation or improving the functioning of an ecosystem and its delivery of ecosystem services.*

This exemption is of relevance to native vegetation that has been planted within the study area (Planted on Figure 2), specifically within proposed wellsites that are not exempt under the *Planning and Environment Act 1987*. It is our understanding that no planted vegetation is proposed to be removed as part of the wellsite development, however, if planted vegetation is removed a permit would be required for planted native vegetation that was planted with public money or for biodiversity outcomes; there would be no offset required.

5.4.3 Implications

Lochard Energy (Iona Operations) Pty Ltd are exempt from obtaining a planning permit under the *Planning and Environment Act 1987* for the proposed pipeline, however, they are not exempt for areas proposed as wellsites. As per the *Pipelines Act 2005*, pipelines are not exempt from obtaining offsets for impacts to native vegetation. While Lochard Energy (Iona Operations) Pty Ltd are exempt from requiring a planning permit for the proposed pipeline, they are required to submit a Work Plan to DEECA. DEECA will ensure that works are undertaken in accordance with the Guidelines (DELWP 2017a).

No native vegetation removal will occur within the proposed wellsite as no native vegetation was recorded at this location (shown as MFCT south of East and West Road on Figure 2). The alternative wellsite north of East and West Road that was proposed will not proceed (Figure 2).

The study area is within Location 2, with 0.131 hectares of native vegetation proposed to be removed. As such, the permit application falls under the Intermediate assessment pathway. The offset requirement for native vegetation removal is 0.050 General Habitat Units and 2 Large Trees.

5.5 *Catchment and Land Protection Act 1994*

The *Catchment and Land Protection Act 1994* (CaLP Act) contains provisions relating to catchment planning, land management, noxious weeds and pest animals. Under the CaLP Act, noxious weeds are further defined as either State Prohibited (S), Regionally Prohibited (P), Regionally Controlled (C), or Restricted (R), while pest animals are classified as either Prohibited Pest Animals (P), Controlled Pest Animals (C), Regulated Pest Animals (R) or Established Pest Animals (E). This classification is dependent on the type and level of threat to primary production, Crown land, the environment and community health.

Landowners are responsible for the control of any infestation of noxious weeds and pest animals to minimise their spread and impacts. Landowners must, to the best of their ability:

- *Eradicate regionally prohibited weeds;*
- *Prevent the growth and spread of regionally controlled weeds; and,*
- *Prevent the spread of — and as far as possible eradicate — established pest animals on their* land.

There were two weeds listed as noxious under the CaLP Act recorded within the study area, Spear Thistle (Restricted) and Blackberry (Controlled). Of those, one is Restricted and two are controlled weeds within the Corangamite region. Blackberry is also a Weed of National Significance (WoNS). These are scattered throughout the study area, including the disturbance area.

No pest animals listed under the CaLP Act were observed within the study area.

5.5.1 CaLP Act Implications

Listed noxious weeds must be appropriately controlled throughout the study area. A Weed Management Plan should be developed. This plan should follow the guidelines set out in the CaLP Act, and clearly outline any obligations of the project team in relation to minimising the spread of weeds as a result of this project. This may include a pre-clearance weed survey undertaken prior to any construction activities to record and map the locations of all noxious and environmental weeds.

5.6 *Wildlife Act 1975* and Wildlife Regulations 2013

The *Wildlife Act 1975* (and associated Wildlife Regulations 2013) is the primary legislation in Victoria providing for protection and management of wildlife.

Several trees that contain hollows and/or arboreal fauna nesting sites are located within the study area.

5.6.1 Wildlife Implications

A pre-construction inspection of trees containing habitat (e.g. hollows and nests) is required prior to any tree removal. Authorisation for habitat removal may be obtained under the *Wildlife Act 1975* through a licence granted under the *Forests Act 1958*, or under any other Act such as the *Planning and Environment Act 1987*. Any persons engaged to remove, salvage, hold or relocate native fauna during construction must hold a current Management Authorisation under the *Wildlife Act 1975*, issued by DEECA.

5.7 *Water Act 1989*

The study area intersects several creeks and waterways. A 'works on waterways' permit from the Corangamite CMA is likely to be required where any action impacts on waterways within the study area.

Additionally, where structures are installed within or across waterways that potentially interfere with the passage of fish or the quality of aquatic habitat, these activities should be referred to DEECA with the Corangamite CMA included for comment.

6 MITIGATION MEASURES

6.1 Best Practice Mitigation Measures

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

- Ensuring any proposed works remain within the intended construction areas, i.e. not disturbing or removing areas of native vegetation outside the proposed disturbance area. This also applies to machinery storage, materials stockpiles, laydown areas, rest areas, parking and access roads;
- Minimise impacts to native vegetation and habitats through construction and micro-siting techniques, including appropriate signage and fencing for retained areas of native vegetation (i.e. no-go zones);
- If necessary, trees (including dead trees) should be lopped/ pruned rather than removed. If retained trees are lopped or pruned, an Arborist assessment is required, and pre-fauna salvage may be required. Where possible, all material from trees removed or lopped/ pruned (i.e. logs) should be placed outside of impacted areas and utilised on-site as habitat for fauna;
- All contractors should be inducted prior to beginning construction to ensure that they are aware of all ecologically sensitive areas;
- Ecological features (Figure 2a-f) should be included as a mapping overlay on any construction plans and should be displayed throughout common areas;
- Retained ecological features (native vegetation patches, large and small trees and significant species or habitat) must be fenced and no-go zone signs installed. A buffer of 1 metre fencing buffer should be applied to all ecological features to prevent indirect impacts. Where a buffer is not possible (e.g. pinch points), a suitable mechanism (e.g. spill fencing, bunting, signage etc) should be installed;
- Construction stockpiles, machinery, haul roads, and other infrastructure should be placed away from all retained ecological features;
- Tree Retention Zones (TRZs) must be fenced and no-go zone signage displayed to prevent indirect losses during construction activities (DSE 2010). A TRZ applies to a tree and is a specific area above and below the ground, with a radius 12 x the DBH. At a minimum standard a TRZ should consider the following:
    - A TRZ should be a radius no less than two metres or greater than 15 metres;
    - Construction related activities and encroachment (i.e. earthworks such as trenching or compaction that disturb the root zone) should be excluded from the TRZ;
    - Where encroachment exceeds 10% of the total area of the TRZ, the tree should be considered as lost and offset accordingly;
    - Directional drilling may be used for works within the TRZ without being considered encroachment. The directional bore should be at least 600 millimetres deep.

The above guidelines may be varied if a qualified arborist confirms the works will not significantly damage the tree (including stags / dead trees). In this case the tree would be retained, and no offset would be required.

- Removal of any habitat trees or shrubs (particularly hollow-bearing trees) should be undertaken between February and September to avoid the breeding season for most fauna species. If any habitat trees or shrubs are proposed to be removed, this must be undertaken under the supervision of an appropriately qualified zoologist to salvage and translocate any displaced fauna (i.e. pre-construction inspection and salvage). A Fauna Management Plan may be required to guide the salvage and translocation process;
- Ensure that best practice sedimentation and pollution control measures are undertaken, in accordance with Environment Protection Agency guidelines (EPA 1991; EPA 1996; Victorian Stormwater Committee 1999) to prevent offsite impacts to waterways and wetlands; and,

Vegetation Protection Overlay – Schedule 2

To address the application requirements of VPO2, which covers the native vegetation in the Timboon – Peterborough Road reserve, Ecology and Heritage Partners understand indigenous flora plantings will occur. Indigenous flora species should be of local or at least regional provenance, and include species which are typically characteristic of the native vegetation in this area. A table of species for revegetation is provided in Appendix 1.5. Plantings should be carried out by experienced land management and vegetation restoration contractors during the appropriate season. Plantings should occur in a 'natural' formation, typical of natural occurrences of the ecological vegetation class and not in straight lines. During final species determination in consultation with the revegetation contractor and nursery supplier, consideration for selected species ground stabilisation capacity and survivability including landscape context, management and potential disturbance should occur. Environmentally conscious biodegradable tree guards should be utilised to reduce browsing from native herbivores such as the Swamp Wallaby *Wallabia bicolor* and to prevent litter during heavy rain events.

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

- Construction Environmental Management Plan (CEMP). The CEMP should include specific species/vegetation conservation strategies, daily monitoring, sedimentation management, site specific rehabilitation plans, weed and pathogen management measures, etc.;
- Weed Management Plan. This plan should follow the guidelines set out in the CaLP Act, and clearly outline any obligations of the project team in relation to minimising the spread of weeds as a result of this project. This may include a pre-clearance weed survey undertaken prior to any construction activities to record and map the locations of all noxious and environmental weeds; and,
- Fauna Management Plan. This may be required if habitat for common fauna species is likely to be impacted and salvage and translocation must be undertaken to minimise the risk of injury or death to those species.

7 SUMMARY AND FURTHER REQUIREMENTS

Further requirements associated with development of the study area, as well as additional studies or reporting that may be required, are provided in Table 10.

Table 10. Further requirements associated with development of the study area.

Relevant Legislation	Implications	Further Action
Environment Protection and Biodiversity Conservation Act 1999	No threatened species or ecological communities were recorded within the study area.	No further action required.
Flora and Fauna Guarantee Act 1988	There are no confirmed records of species or ecological communities listed as Threatened or Protected under the FFG Act being within the study area.	No Protected or listed flora are proposed to be removed, therefore a protected flora permit is not required.
Pipelines Act 2005	Lochard Energy (Iona Operations) Pty Ltd is exempt from requiring a planning permit under the *Planning and Environment Act 1987* for the development of the pipeline within the study area. However, offsets are still required, where applicable.	Ensure works are undertaken in accordance with the *Pipelines Act 2005*.
Planning and Environment Act 1987	The study area is within Location 2, with 0.131 hectares of native vegetation proposed to be removed. As such, the permit application falls under the Intermediate assessment pathway. The offset requirement for native vegetation removal is 0.050 General Habitat Units and 2 Large Trees.	Prepare and submit a Work Plan to DEECA.
Catchment and Land Protection Act 1994	Two weeds listed as noxious under the CaLP Act recorded within the study area, Spear Thistle (Restricted) and Blackberry (Controlled). Blackberry is also a Weed of National Significance (WoNS). These are scattered throughout the study area, including the disturbance and access areas.	Listed noxious weeds and pest animals must be appropriately controlled throughout the study area. Noxious weeds and pest animals are subject to permit conditions.
Wildlife Act 1975	Suitable roosting and foraging habitat (e.g. hollows and nests etc.) for a number of fauna is present within the study area, including the disturbance and access areas.	If any vegetation is removed (i.e. trees and shrubs), the proponent should undertake a pre-construction inspection and fauna removal (salvage) and/or relocation may be required.
Water Act 1989	A 'works on waterways' permit is likely to be required from the Corangamite CMA where any action impacts on waterways within the study area.	Obtain a 'works on waterways' permit from the Corangamite CMA.

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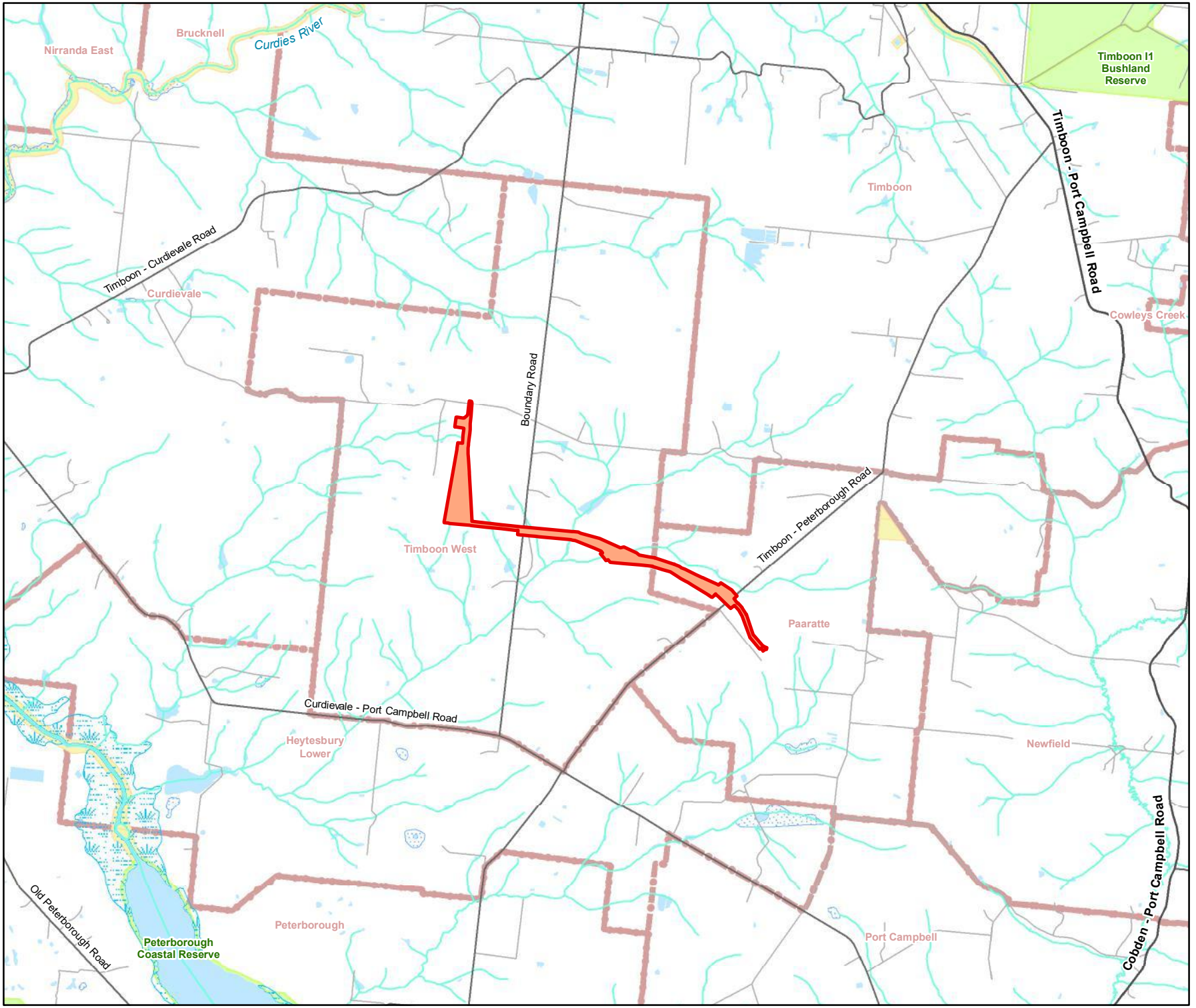


Legend

- Study Area
- Major Road
- Collector Road
- Minor Road
- Minor Watercourse
- Permanent Waterbody
- Land Subject to Inundation
- Wetland/Swamp
- Parks and Reserves
- Crown Land
- Localities

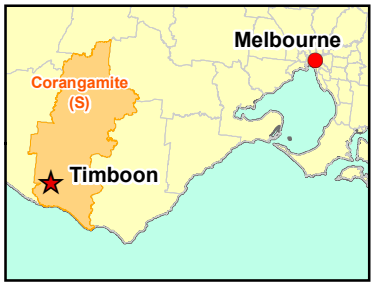


Figure 1

Location of the study area

Biodiversity Assessment for Proposed Pipeline Route MFCT-McIntee

0 500 1,000
Metres

Map Scale: 1:60,000 @ A4
Coordinate System: GDA 1994 MGA Zone 55

ecology & heritage partners

Legend

- Study Area
- Access areas
- Disturbance area
- Extra work space
- Final Wellsite
- Proposed pipeline route - Boring
- Proposed pipeline route - Trench
- Scattered Large Tree
- Scattered Small Tree
- Large Tree in patch
- Tree - Direct impact

FFG Act Listed

- Western Peppermint

FFG Act Protected

- Grass Tree

Noxious Weeds

- Blackberry
- Spear thistle

Figure 2 Overview

Ecological features

Biodiversity Assessment for Proposed Pipeline Route MFCT-McIntee

0 315 630

Metres

Map Scale: 1:20,000 @ A4
Coordinate System: GDA 1994 MGA Zone 54

ecology & heritage partners

Legend

- Study Area
- Access areas
- Disturbance area
- Extra work space
- Final Wellsite
- Proposed pipeline route - Trench
- Large Tree in patch
- Tree Protection Zone

FFG Act Listed

- Western Peppermint

FFG Act Protected

- Grass Tree

Noxious Weeds

- Blackberry
- Planted

Ecological Vegetation Class

- Heathy Woodland (EVC 48)

Figure 2a

Ecological features

Biodiversity Assessment for Proposed Pipeline Route MFCT-McIntee

N

0 40 80

Metres

Map Scale: 1:2,700 @ A4
Coordinate System: GDA 1994 MGA Zone 54

ecology & heritage partners

Legend

- Study Area
- Disturbance area
- Proposed pipeline route - Trench
- Planted

Figure 2b

Ecological features

Biodiversity Assessment for Proposed Pipeline Route MFCT-McIntee

N

0 40 80

Metres

Map Scale: 1:2,500 @ A4
Coordinate System: GDA 1994 MGA Zone 54

ecology & heritage partners

Legend

- Study Area
- Disturbance area
- Proposed pipeline route - Trench
- Planted

Ecological Vegetation Class

- Lowland Forest (EVC 16)

Figure 2c

Ecological features

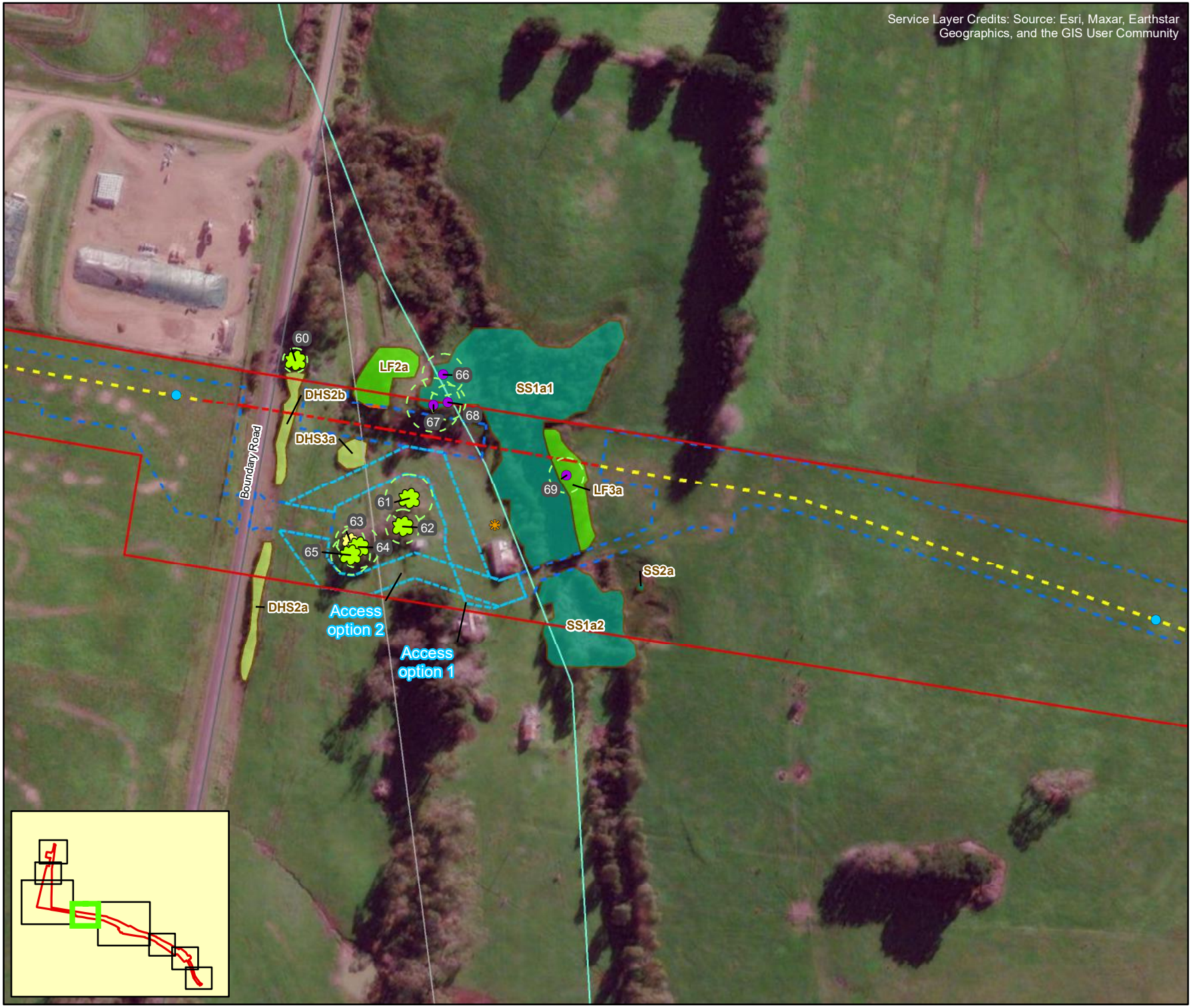
Biodiversity Assessment for Proposed Pipeline Route MFCT-McIntee

0 75 150

Metres

Map Scale: 1:5,000 @ A4
Coordinate System: GDA 1994 MGA Zone 54

ecology & heritage partners



Legend

- Study Area
- Access areas
- Disturbance area
- Proposed pipeline route - Boring
- Proposed pipeline route - Trench
- Scattered Large Tree
- Scattered Small Tree
- Large Tree in patch
- Tree Protection Zone

Noxious Weeds

- Spear thistle

Ecological Vegetation Class

- Damp Heath Scrub (EVC 165)
- Lowland Forest (EVC 16)
- Swamp Scrub (EVC 53)
- Impacted vegetation

Figure 2d

Ecological features

Biodiversity Assessment for Proposed Pipeline Route MFCT-McIntee

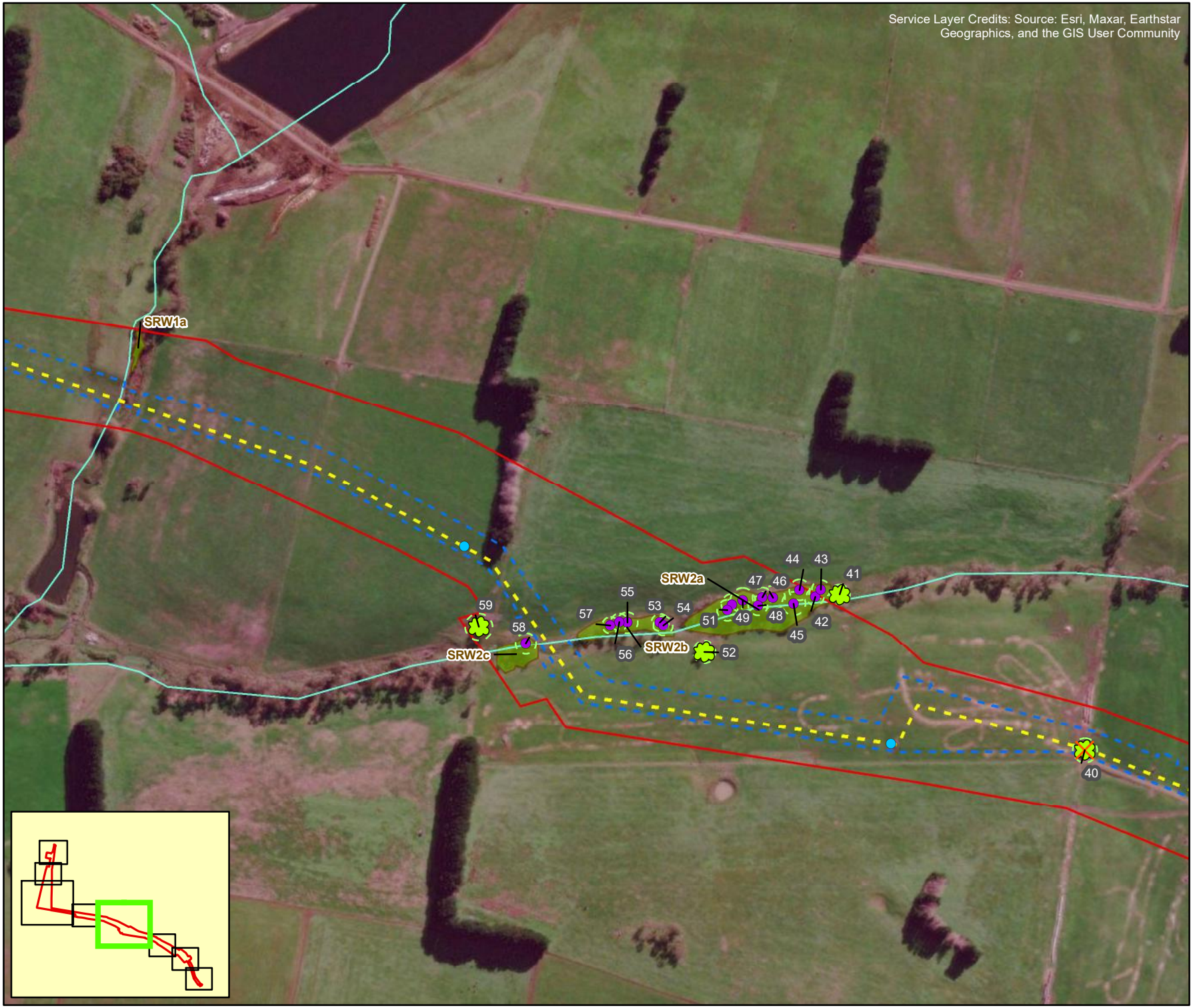
0 40 80

Metres

Map Scale: 1:2,500 @ A4

Coordinate System: GDA 1994 MGA Zone 54

ecology & heritage partners



Legend

- Study Area
- Disturbance area
- Proposed pipeline route - Trench
- Scattered Large Tree
- Large Tree in patch
- Tree Protection Zone
- Tree - Direct impact

Ecological Vegetation Class

- Swampy Riparian Woodland (EVC 83)

Figure 2e

Ecological features

Biodiversity Assessment for Proposed Pipeline Route MFCT-McIntee

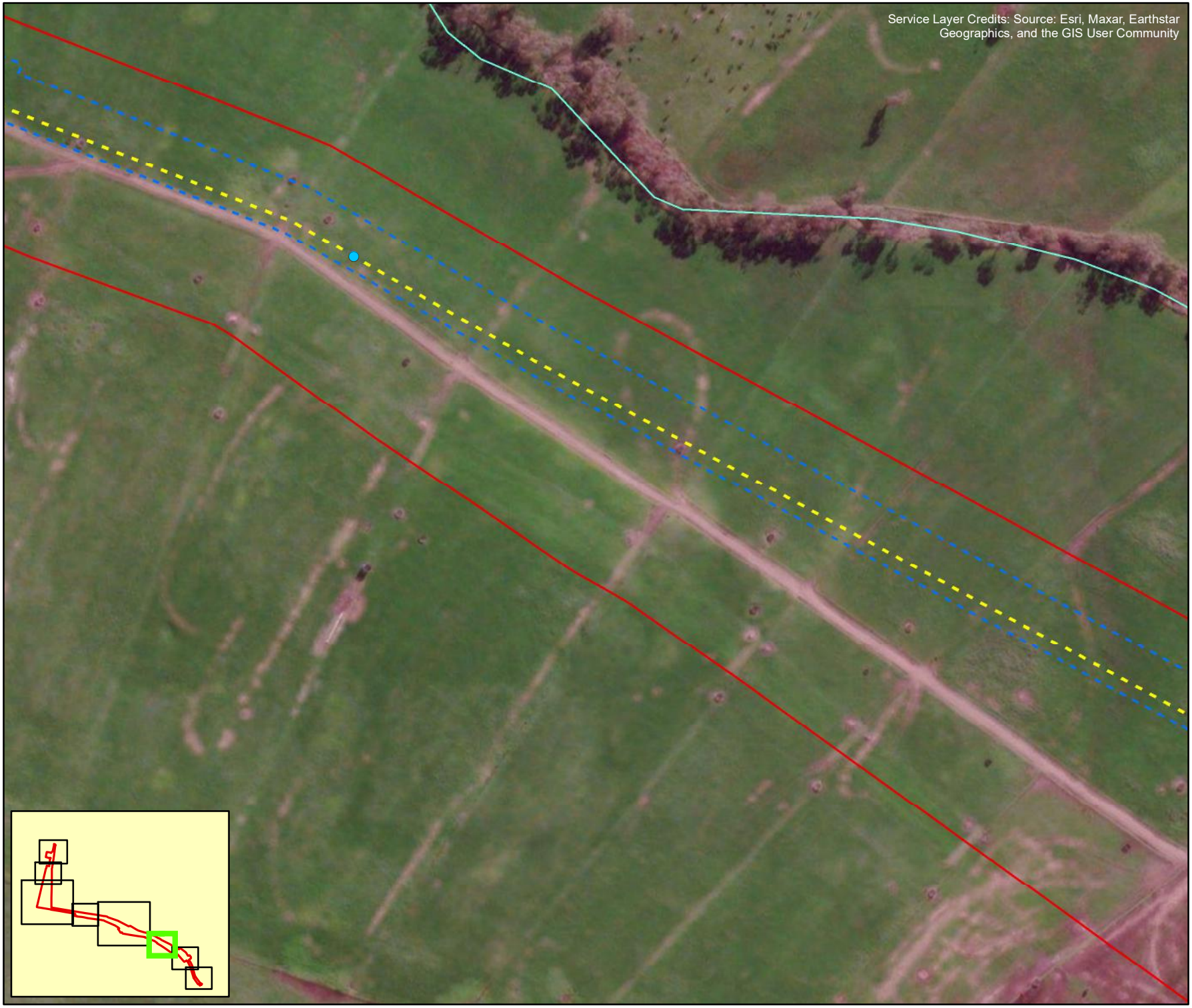
0 75 150

Metres

Map Scale: 1:5,000 @ A4

Coordinate System: GDA 1994 MGA Zone 54

ecology & heritage partners



Legend

- Study Area
- Disturbance area
- Proposed pipeline route - Trench

Figure 2f

Ecological features

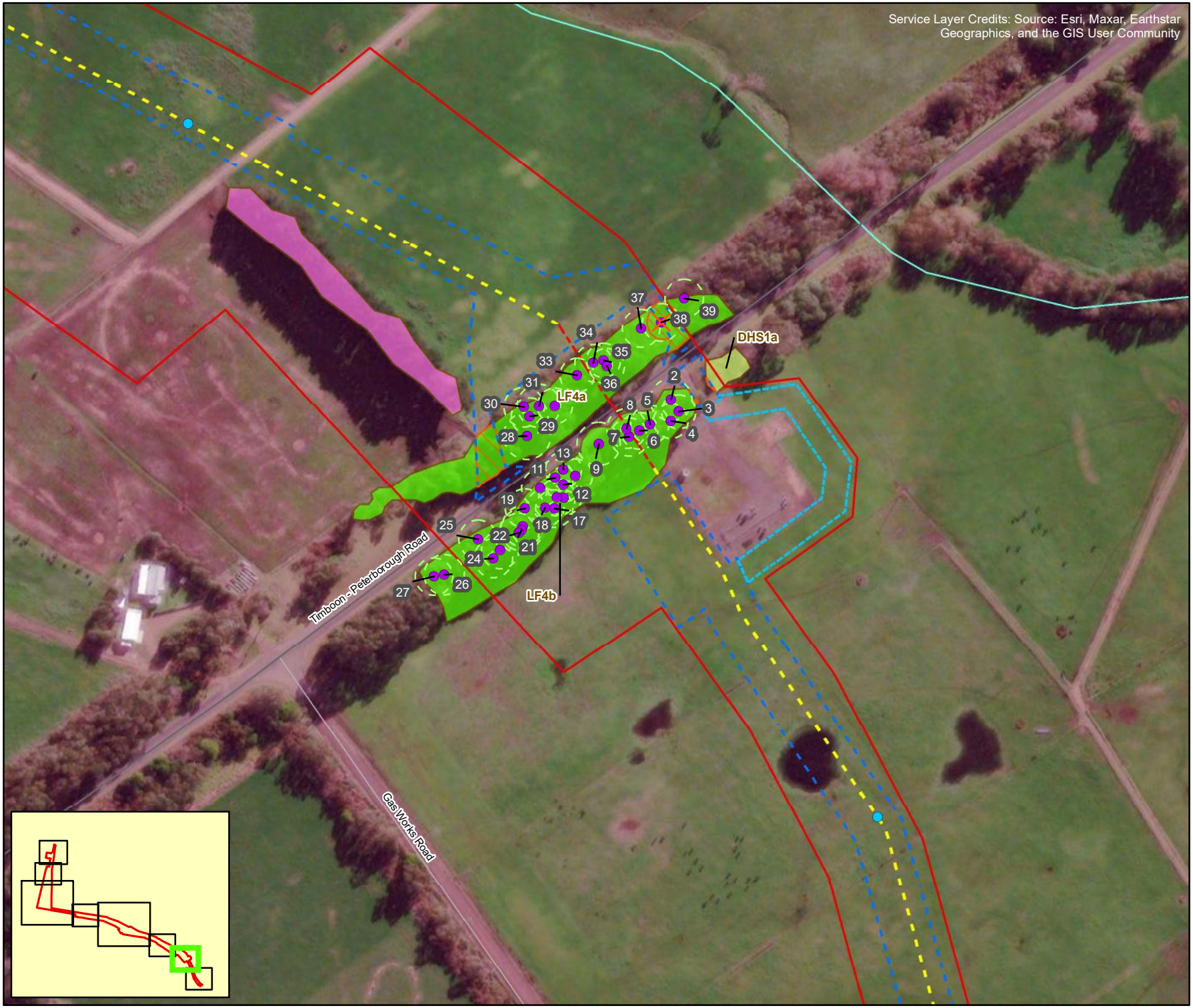
Biodiversity Assessment for Proposed Pipeline Route MFCT-McIntee

0 40 80

Metres

Map Scale: 1:2,500 @ A4
Coordinate System: GDA 1994 MGA Zone 54

ecology & heritage partners



Legend

- Study Area
- Access areas
- Disturbance area
- Proposed pipeline route - Boring
- Proposed pipeline route - Trench
- Large Tree in patch
- Tree Protection Zone
- Tree - Direct impact
- Planted

Ecological Vegetation Class

- Damp Heath Scrub (EVC 165)
- Lowland Forest (EVC 16)
- Impacted vegetation

Figure 2g

Ecological features

Biodiversity Assessment for Proposed Pipeline Route MFCT-McIntee

0 40 80

Metres

Map Scale: 1:2,500 @ A4
Coordinate System: GDA 1994 MGA Zone 54

ecology & heritage partners

Legend

- Study Area
- Disturbance area
- Proposed pipeline route - Trench
- Scattered Large Tree
- Tree Protection Zone

Figure 2h

Ecological features

Biodiversity Assessment for Proposed Pipeline Route MFCT-McIntee

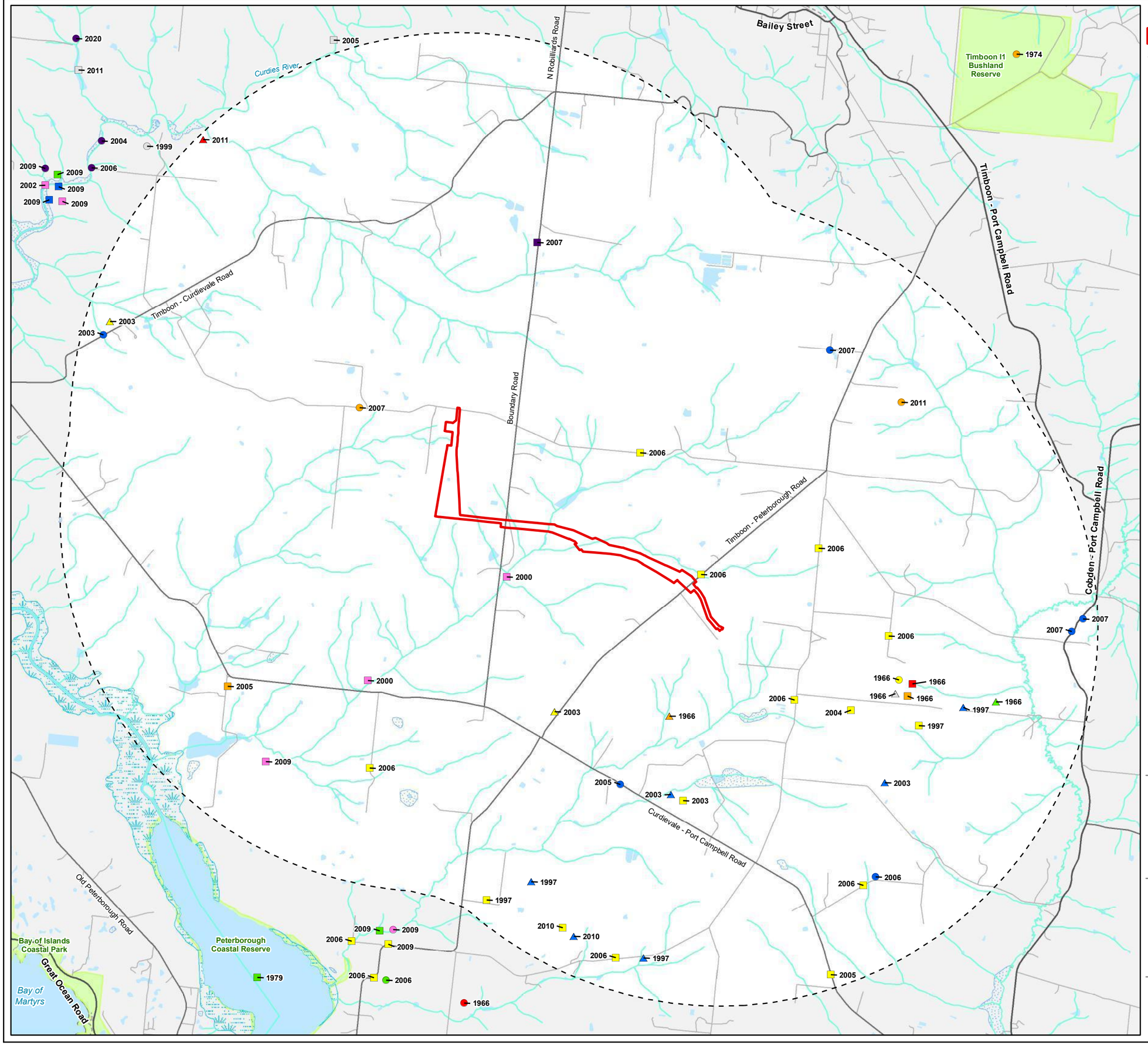
0 40 80

Metres

Map Scale: 1:2,500 @ A4

Coordinate System: GDA 1994 MGA Zone 54

ecology & heritage partners



Legend

- Study Area

Significant flora

- Clover Glycine
- Coast Colobanth
- Currant-wood
- Forest Bitter-cress
- Fragrant Saltbush
- Giant Honey-myrtle
- Lacey River Buttercup
- Leafy Twig-sedge
- Lime Fern
- Morning Flag
- Oval-leaf Logania
- Port Campbell Guinea-flower
- Rough Blown-grass
- Small Shade-nettle
- Small Sickle Greenhood
- Southern Blue-gum
- Square Raspwort
- Swamp Flax-lily
- Tiny Arrowgrass
- Tufted Grass-tree
- Velvet Apple-berry
- Western Peppermint

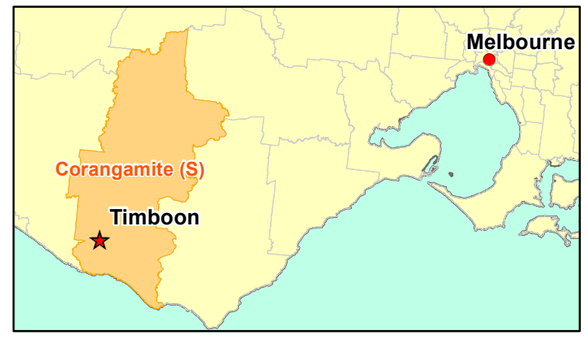


Figure 3

Previously documented significant flora within 5km of the study area

Biodiversity Assessment for Proposed Pipeline Route MFCT-McIntee

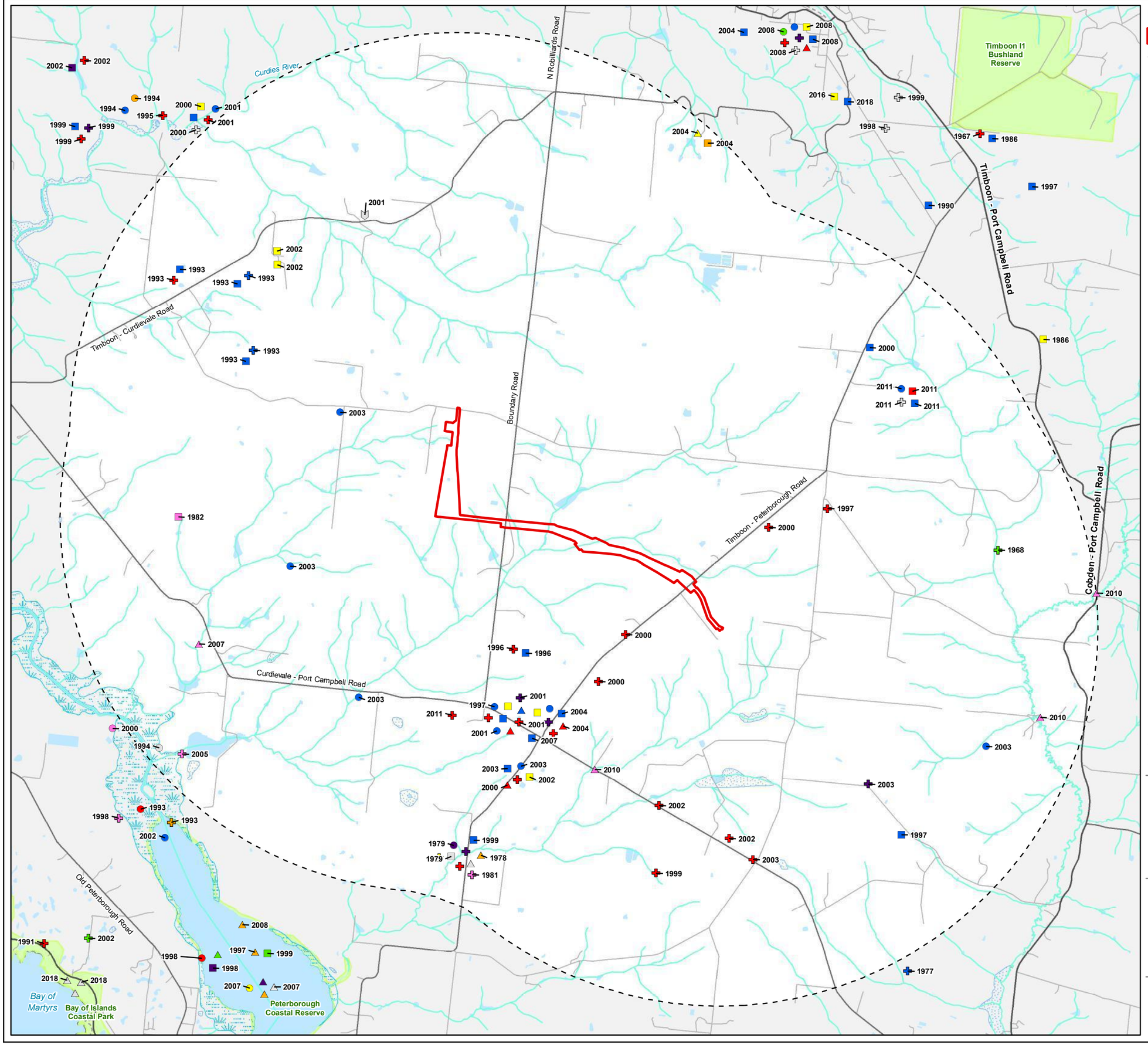
N

0 1 2

Kilometres

Map Scale: 1:48,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

ecology & heritage partners



Legend

- Study Area

Significant fauna

- Australasian Bittern
- Australasian Shoveler
- Australian Little Bittern
- Bar-tailed Godwit
- Black Falcon
- Blue-winged Parrot
- Brolga
- Caspian Tern
- Common Sandpiper
- Eastern Great Egret
- Freckled Duck
- Gang-gang Cockatoo
- Great Knot
- Grey Goshawk
- Growling Grass Frog
- Hardhead
- Hooded Plover
- Little Eagle
- Little Egret
- Magpie Goose
- Musk Duck
- Orange-bellied Parrot
- Otway Bush Yabby
- Pacific Golden Plover
- Powerful Owl
- Rufous Bristlebird (Otway)
- Sea-lion
- Shy Albatross
- Southern Brown Bandicoot
- Southern Toadlet
- White-bellied Sea-Eagle
- White-throated Needletail
- Yellow-bellied Glider

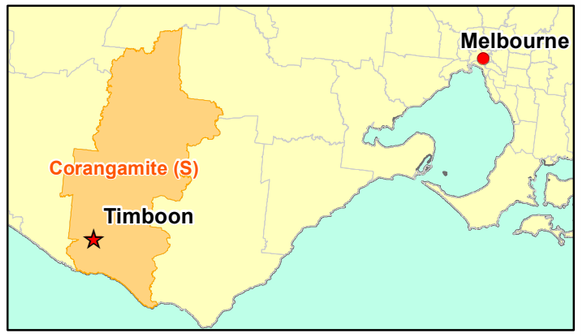


Figure 4

Previously documented significant fauna within 5km of the study area

Biodiversity Assessment for Proposed Pipeline Route MFCT-McIntee

N

0 1 2

Kilometres

Map Scale: 1:48,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

ecology & heritage partners

APPENDIX 1 FLORA

Appendix 1.1 Flora Results

Legend:

CR/EN/VU Listed under the EPBC Act
L Listed under the FFG Act
I Protected under the FFG Act
***** Noxious weed under the CaLP Act
w Weed of National Significance
Planted Victorian and non-Victorian species
Planted ornamental and/or amenity

Table A1.1. Flora recorded within the study area.

Scientific Name	Common Name	Notes
INDIGENOUS SPECIES		
Acacia melanoxylon	Blackwood	-
Acacia verticilata	Prickly Moses	-
Acaena novae-zelandiae	Bidgee-widgee	-
Allocasuarina paludosa	Scrub Sheoak	-
Allocasuarina verticillata	Drooping Sheoak	-
Asperula conferta	Common Woodruff	-
Banksia marginata	Silver Banksia	-
Bursaria spinosa	Sweet Bursaria	-
Epacris impressa	Common Heath	-
Eucalyptus baxteri s.s.	Brown Stringybark	-
Eucalyptus falciformis	Western Peppermint	L
Eucalyptus obliqua	Messmate Stringybark	-
Eucalyptus ovata	Swamp Gum	-
Eucalyptus viminalis	Manna Gum	-
Gahnia radula	Thatch Saw-sedge	-
Gahnia sieberiana	Red-fruit Saw-sedge	-
Juncus spp.	Rush	-
Lepidosperma elatius	Tall Sword-sedge	-
Lepidosperma laterale	Variable Sword-sedge	-
Leptospermum continentale	Prickly Tea-tree	-
Leptospermum lanigerum	Woolly Tea-tree	-

Scientific Name	Common Name	Notes
Leucopogon affinis	Beard Heath	-
Leucopogon australis	Spike Beard-heath	-
Lomandra longifolia	Spiny-headed Mat-rush	-
Lythrum hyssopifolia	Small Loosestrife	-
Myoporum insulare	Common Boobialla	-
Pomaderris aspera	Hazel Pomaderris	-
Pteridium esculentum	Austral Bracken	-
Rubus parvifolius	Small-leaf Bramble	-
Solanum laciniatum	Large Kangaroo Apple	-
Typha sp.	Cumbungi	-
Xanthorrhoea australis	Austral Grass-tree	I
NON-INDIGENOUS OR INTRODUCED SPECIES		
Agrostis capillaris	Brown-top Bent	-
Agapanthus praecox	Agapanthus	-
Alopecurus pratensis	Meadow Fox-tail	-
Anthoxanthum odoratum	Sweet Vernal-grass	-
Arctotheca calendula	Cape weed	-
Baloskion tetraphyllum	Tassel Cord-rush	-
Brassica spp.	Turnip	-
Bromus catharticus	Prairie Grass	-
Bromus diandrus	Great Brome	-
Bromus hordeaceus subsp. hordeaceus	Soft Brome	-
Cenchrus clandestinus	Kikuyu	-
Cerastium vulgare	Common Mouse-ear Chickweed	-
Cirsium vulgare	Spear Thistle	*
Coprosma repens	Mirror Bush	-
Dactylis glomerata	Cocksfoot	-
Dipogon lignosus	Common Dipogon	-
Ehrharta erecta var. *erecta*	Panic Veldt-grass	-
Ehrharta longiflora	Annual Veldt-grass	-
Erica lusitanica	Spanish Heath	-
Eucalyptus sp.	Eucalypt	#
Festuca arundinacea	Tall Fescue	-
Galium aparine	Cleavers	-
Helminthotheca echioides	Ox-tongue	-
Lolium perenne	Perennial Rye-grass	-

Scientific Name	Common Name	Notes
Malva parviflora	Small-flower Mallow	-
Medicago polymorpha	Burr Medic	-
Myosotis arvensis	Common Forget-me-not	-
Phalaris aquatica	Toowoomba Canary-grass	-
Pittosporum undulatum	Sweet Pittosporum	-
Pinus radiata	Radiata Pine	-
Plantago lanceolata	Ribwort	-
Ranunculus parviflorus	Small-flower Buttercup	-
Rubus anglocandicans (syn. *Rubus fruticosus* spp. agg)	Blackberry	***w**
Rumex crispus	Curled Dock	-
Solanum nigrum s.l.	Black Nightshade	-
Sonchus oleraceus	Common Sow-thistle	-
Sporobolus africanus	Rat-tail Grass	-
Taraxacum officinale spp. agg.	Garden Dandelion	-
Trifolium campestre var. *campestre*	Hop Clover	-
Trifolium repens var. *repens*	White Clover	-
Vicia sativa	Common Vetch	-
Zantedeschia aethiopica	Arum Lily	-

Appendix 1.2 Habitat Hectare Assessment

Table A1.2. Results of Habitat Hectare Assessment.

EVC		Lowland forest				Damp Heath Scrub				Swampy Riparian Woodland		Heathy Woodland					Swamp Scrub	
Vegetation Zone		LF1	LF2	LF3	LF4	DHS1	DHS2	DHS3	DHS4	SRW1	SRW2	HW1	HW2	HW3	HW4	HW5	SS1	SS2
Patch I. D		a-c	a	a-b	a	a-g	a	a	a	a	a-c	a-h	a-d	a-d	a	a	a	b
Bioregion		Warrnambool Plain																
EVC Number		16	16	16	16	165	165	165	165	83	83	48	48	48	48	48	53	53
EVC Conservation Status		Vulnerable								Endangered		Vulnerable					Endangered	
Patch Condition	Large Old Trees /10	10	10	0	0	Na	Na	Na	Na	0	10	0	0	0	7	5	Na	Na
	Canopy Cover /5	5	5	5	0	Na	Na	Na	Na	2	4	0	0	2	2	0	5	1
	Under storey /25	15	5	10	5	5	15	5	5	10	5	5	10	10	10	20	5	5
	Lack of Weeds /15	9	2	2	0	6	6	0	0	0	2	4	4	2	4	0	9	0
	Recruitment /10	6	0	3	0	3	6	0	3	10	5	1	3	1	3	6	3	0
	Organic Matter /5	5	0	5	0	3	3	0	3	5	3	4	5	5	5	5	5	0
	Logs /5	3	2	2	0	Na	Na	Na	Na	2	3	0	0	2	0	0	Na	Na
	Treeless EVC Multiplier	1.00	1.00	1.00	1.00	1.36	1.36	1.36	1.36	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.15	1.15
	Subtotal =	53.00	24.00	27.00	5.00	23.2	38.2	6.8	14.96	29	27	14	22	20	31	26	31	6.9
Landscape Value /25		4	4	5	3	4	4	4	4	3	2	2	2	2	2	4	4	4
Habitat Points /100		57	28	32	8	27	42	11	19	32	29	16	24	22	33	30	35	11
Habitat Hectare Score		**0.57**	**0.28**	**0.32**	**0.8**	**0.27**	**0.42**	**0.11**	**0.19**	**0.32**	**0.29**	**0.16**	**0.24**	**0.22**	**0.33**	**0.30**	**0.35**	**0.11**

Appendix 1.3 Scattered Trees and Large Trees in Patches

Table A1.3. Scattered Trees and Large Trees in Patches.

Tree # (Figure 2)	Species Name	Common Name	Dead / Alive	Hollow	Type	DBH	Size Class	Scattered / Patch	Status
1	*Eucalyptus baxteri*	Brown Stringybark	Alive	-	Tree	86	Large	Scattered	Retain
2	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	86	Large	Patch	Retain
3	*Eucalyptus baxteri*	Brown Stringybark	Alive	-	Tree	70	Large	Patch	Retain
4	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	72	Large	Patch	Retain
5	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	79	Large	Patch	Retain
6	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	76	Large	Patch	Retain
7	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	78	Large	Patch	Retain
8	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	82	Large	Patch	Retain
9	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	89	Large	Patch	Retain
10	*Eucalytpus* sp. (Stag)	Stag	Dead	-	Tree	70	Large	Patch	Retain
11	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	74	Large	Patch	Retain
12	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	71	Large	Patch	Retain
13	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	74	Large	Patch	Retain
14	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	73	Large	Patch	Retain
15	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	76	Large	Patch	Retain
16	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	78	Large	Patch	Retain
17	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	77	Large	Patch	Retain
18	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	77	Large	Patch	Retain
19	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	81	Large	Patch	Retain

Tree # (Figure 2)	Species Name	Common Name	Dead / Alive	Hollow	Type	DBH	Size Class	Scattered / Patch	Status
20	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	84	Large	Patch	Retain
21	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	86	Large	Patch	Retain
22	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	82	Large	Patch	Retain
23	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	78	Large	Patch	Retain
24	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	80	Large	Patch	Retain
25	*Eucalyptus obliqua*	Messmate	Alive	-	Tree	79	Large	Patch	Retain
26	*Eucalyptus obliqua*	Messmate	Alive	-	Tree	83	Large	Patch	Retain
27	*Eucalyptus obliqua*	Messmate	Alive	-	Tree	77	Large	Patch	Retain
28	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	97	Large	Patch	Retain
29	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	76	Large	Patch	Retain
30	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	82	Large	Patch	Retain
31	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	89	Large	Patch	Retain
32	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	73	Large	Patch	Retain
33	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	70	Large	Patch	Retain
34	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	77	Large	Patch	Retain
35	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	70	Large	Patch	Retain
36	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	73	Large	Patch	Retain
37	*Eucalyptus ovata*	Swamp Gum	Alive	-	Tree	78	Large	Patch	Retain
38	*Eucalyptus ovata*	Swamp Gum	Alive	-	Tree	77	Large	Patch	**Direct impact**
39	*Eucalyptus viminalis* subsp. *viminalis*	Manna Gum	Alive	-	Tree	79	Large	Patch	Retain
40	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	101	Large	Scattered	**Direct impact**
41	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	82	Large	Scattered	Retain

Tree # (Figure 2)	Species Name	Common Name	Dead / Alive	Hollow	Type	DBH	Size Class	Scattered / Patch	Status
42	*Eucalyptus ovata*	Swamp Gum	Alive	-	Tree	72	Large	Patch	Retain
43	*Eucalytpus* sp. (Stag)	Stag	Dead	-	Tree	76	Large	Patch	Retain
44	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	85	Large	Patch	Retain
45	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	97	Large	Patch	Retain
46	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	100	Large	Patch	Retain
47	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	82	Large	Patch	Retain
48	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	80	Large	Patch	Retain
49	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	102	Large	Patch	Retain
50	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	87	Large	Patch	Retain
51	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	85	Large	Patch	Retain
52	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	92	Large	Scattered	Retain
53	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	72	Large	Patch	Retain
54	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	80	Large	Patch	Retain
55	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	87	Large	Patch	Retain
56	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	70	Large	Patch	Retain
57	*Eucalyptus baxteri*	Brown Stringybark	Alive	Yes	Tree	70	Large	Patch	Retain
58	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	85	Large	Patch	Retain
59	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	112	Large	Scattered	Retain
60	*Eucalytpus* sp. (Stag)	Stag	Dead	-	Tree	50	Large	Scattered	Retain
61	*Eucalyptus ovata*	Swamp Gum	Alive	-	Tree	98	Large	Scattered	Retain
62	*Eucalyptus obliqua*	Messmate	Alive	-	Tree	70	Large	Scattered	Retain
63	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	60	Small	Scattered	Retain

Tree # (Figure 2)	Species Name	Common Name	Dead / Alive	Hollow	Type	DBH	Size Class	Scattered / Patch	Status
64	*Eucalyptus ovata*	Swamp Gum	Alive	Yes	Tree	87	Large	Scattered	Retain
65	*Eucalyptus obliqua*	Swamp Gum	Alive	Yes	Tree	80	Large	Scattered	Retain
66	*Eucalyptus ovata*	Swamp Gum	Alive	-	Tree	86	Large	Patch	Retain
67	*Eucalyptus baxteri*	Brown Stringybark	Alive	-	Tree	111	Large	Patch	Retain
68	*Eucalytpus* sp. (Stag)	Stag	Dead	Yes	Tree	72	Large	Patch	Retain
69	*Eucalyptus ovata*	Swamp Gum	Alive	-	Tree	72	Large	Patch	Retain
95	*Eucalytpus falciformis*	Western Peppermint	Alive	-	Tree	12	Small	Patch	Retain
98	*Eucalyptus ovata*	Swamp Gum	Alive	-	Tree	35	Small	Patch	Retain

Appendix 1.4 Significant Flora Species

Table A1.4.1 Conservation status of each species for each Act. The values in this table correspond to Columns 5 and 6 in Table A1.4.3.

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

Table A1.4.2 Likelihood of occurrence rankings: Habitat characteristics assessment of significant flora species previously recorded within 10 kilometres of the study area, or that may potentially occur within the study area to determine their likelihood of occurrence. The values in this table correspond to Column 7 in Table A1.4.3.

1	Known Occurrence	• Recorded within the study area recently (i.e. within ten years).
2	High Likelihood	• Previous records of the species in the local vicinity; and/or, • The study area contains areas of high-quality habitat.
3	Moderate Likelihood	• Limited previous records of the species in the local vicinity; and/or, • The study area contains poor or limited habitat.
4	Low Likelihood	• Poor or limited habitat for the species, however other evidence (such as lack of records or environmental factors) indicates there is a very low likelihood of presence.
5	Unlikely	• No suitable habitat and/or outside the species range; and/or, • Not recorded during site assessment/planted.

Table A1.4.3 Significant flora recorded or predicted to occur within 10 kilometres of the study area.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
NATIONAL SIGNIFICANCE							
Amphibromus fluitans #	River Swamp Wallaby-grass	-	-	VU	-	4	Lack of suitable swamp/wetland habitat.
Caladenia brachyscapa	Short Spider-orchid	1	1966	EX	ex	4	No local records, now possibly extinct in Victoria and only ever known (in the 1950s and 60s) from 1, or possibly 2, localities in the Warrnambool-Port Campbell area. Apparently grew in heathland and heathy woodland on well-drained sandy loam.
Glycine latrobeana	Clover Glycine	4	1999	VU	vu	4	No suitable habitat.
Haloragis exalata var. *exalata*	Square Raspwort	7	2018	VU	-	4	Confined to the south-west coast between the Glenelg River and Curdies River where it grows in damp riparian habitats.
Lepidium aschersonii #	Spiny Peppercress	-	-	VU	en	4	No suitable habitat. Species occurs in gilgai depressions, margins of freshwater and saline marches and shallow lakes. All watercourses and similar wetter areas are proposed to be bored.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Prasophyllum spicatum	Dense Leek-orchid	2	1998	VU	cr	4	Preferred sandy soils absent from study area.
Pterostylis chlorogramma #	Green-striped Greenhood	-	-	VU	en	4	No suitable habitat.
Pterostylis tenuissima	Swamp Greenhood	40	2011	VU	-	4	Preferred black peaty mud habitat absent from study area.
Thelymitra epipactoides	Metallic Sun-orchid	290	2021	EN	en	4	No suitable habitat.
Thelymitra matthewsii #	Spiral Sun-orchid	-	-	VU	en	4	No suitable habitat.
STATE SIGNIFICANCE							
Acacia howittii	Sticky Wattle	1	1990	-	vu	4	No suitable habitat.
Australina pusilla subsp. *pusilla*	Small Shade-nettle	2	2009	-	en	4	Outside natural distribution; typically restricted to the Otway ranges.
Billardiera scandens s.s.	Velvet Apple-berry	1	1966	-	en	4	No records within landscape.
Caladenia fragrantissima	Scented Spider-orchid	1	1998	-	cr	4	Outside natural distribution.
Cardamine papillata	Forest Bitter-cress	2	1966	-	en	4	No recent records, no suitable habitat.
Cladium procerum	Leafy Twig-sedge	5	2020	-	en	3	Records confined to wetland areas predominantly within Curdies River. Potential to occur within creek areas.
Colobanthus apetalus var. *apetalus*	Coast Colobanth	2	1979	-	en	4	No suitable habitat.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Corybas sp. aff. *diemenicus* (Coastal)	Late Helmet-orchid	1	2002	-	cr	4	Outside natural distribution.
Dianella callicarpa	Swamp Flax-lily	1	2011	-	en	3	Only one record within the broader landscape. Species prefers swamp-scrub. Limited potentially suitable swamp-scrub habitat present.
Diuris palustris	Swamp Diuris	5	2000	-	en	3	Preferred habitat includes grassland, woodland and swamp-scrub. Limited potentially suitable swamp-scrub habitat present. Limited local records, closest record approximately 4.5 kilometres (2011).
Eucalyptus brookeriana	Brooker's Gum	3	2016	-	en	3	Local records confined to Timboon bushland reserve; foothill habitat absent.
Eucalyptus falciformis	Western Peppermint	14	2014	-	vu	1	Recorded within study area.
Eucalyptus globulus subsp. *globulus*	Southern Blue-gum	1	2007	-	en	4	Not recorded during the site assessment.
Eucalyptus ovata subsp. *grandiflora*	West-coast Swamp-gum	2	2009	-	en	4	Not recorded during the site assessment.
Euryomyrtus ramosissima subsp. *prostrata*	Nodding Baeckea	4	2003	-	en	4	Limited records within the broader landscape, limited suitable habitat.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Exocarpos syrticola	Coast Ballart	5	1984	-	en	4	Not recorded during the site assessment.
Hibbertia truncata	Port Campbell Guinea-flower	69	2022	-	en	3	Suitable habitat present, and multiple proximate recent records <1km, 2006.
Lachnagrostis rudis subsp. *rudis*	Rough Blown-grass	6	2009	-	en	3	Suitable habitat present in swamp-scrubs and Swampy Riparian Woodland.
Lasiopetalum schulzenii	Drooping Velvet-bush	3	1996	-	cr	4	No suitable habitat.
Lawrencia spicata	Salt Lawrencia	3	1990	-	en	4	No suitable habitat.
Lobelia beaugleholei	Showy Lobelia	3	2009	-	vu	3	Limited records within the landscape, records >10 years old. Potential habitat is swamp-scrub and Swampy Riparian Woodland.
Logania ovata	Oval-leaf Logania	23	2010	-	en	4	No suitable habitat.
Machaerina laxa	Lax Twig-sedge	6	2009	-	en	3	Limited records within the landscape, records >10 years old. Potential habitat is swamp-scrub and Swampy Riparian Woodland.
Melaleuca armillaris subsp. *armillaris*	Giant Honey-myrtle	14	2011	-	en	5	Outside natural distribution.
Monotoca glauca	Currant-wood	9	2011	-	en	3	Suitable habitat present, however, there are limited proximate recent records

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
							within East and West Road (2007).
Orthrosanthus multiflorus	Morning Flag	5	2011	-	en	4	No recent records, no suitable habitat.
Oxalis rubens	Dune Wood-sorrel	1	2005	-	en	4	No suitable habitat.
Pneumatopteris pennigera	Lime Fern	9	2011	-	en	3	Limited records within the landscape, records >10 years old. Potential habitat is swamp-scrub and Swampy Riparian Woodland.
Poa billardierei	Coast Fescue	3	1990	-	en	4	No suitable habitat.
Pterostylis lustra	Small Sickle Greenhood	10	2009	-	en	3	Limited suitable habitat present, most records are located within Curdies River. There are several records within Spring Creek, with one record <1 kilometre (2000) south of the study area within property five.
Pultenaea canaliculata	Coast Bush-pea	18	2012	-	en	4	Outside natural distribution.
Pultenaea prolifera	Otway Bush-pea	3	2003	-	en	4	Limited records within the landscape, records >10 years old. Habitat is modified an unlikely to support a population.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Ranunculus amplus	Lacey River Buttercup	1	2009	-	cr	4	Outside natural distribution.
Rhagodia parabolica	Fragrant Saltbush	1	2006	-	vu	4	Outside natural distribution.
Senecio glomeratus subsp. *longifructus*	Annual Fireweed	7	2005	-	vu	4	Limited records within the broader landscape.
Senecio linearifolius var. *gariwerdensis*	Fireweed Groundsel (Grampians variant)	1	2005	-	en	4	Limited records within the broader landscape.
Thelymitra benthamiana	Blotched Sun-orchid	1	1998	-	en	4	Outside natural distribution. Suitable habitat within the study area is highly modified and unlikely to support a population.
Thomasia petalocalyx	Paper Flower	4	1980	-	en	4	Limited records within the broader landscape. No suitable habitat.
Triglochin minutissima	Tiny Arrowgrass	2	1979	-	en	4	Old record, no records within broader landscape, limited suitable habitat.
Xanthorrhoea caespitosa	Tufted Grass-tree	5	2003	-	vu	3	Limited records within the broader landscape, however suitable habitat within woodland vegetation.
Xanthosia tasmanica	Southern Xanthosia	1	2003	-	en	4	No suitable habitat.

Appendix 1.5 Flora Species for Revegetation

Scientific Name	Common Name	Number*	Scientific Name	Common Name	Number*
Canopy Species			**Ground Layer Species**		
Eucalyptus baxteri s.s.	Brown Stringybark	5-10	*Acaena novae-zelandiae*	Bidgee-widgee	10
Eucalyptus obliqua	Messmate Stringybark	5-10	*Clematis aristata*	Mountain Clematis	5
Eucalyptus ovata	Swamp Gum	5-10	*Gahnia radula*	Thatch Saw-sedge	5
Sub-canopy Species			*Gahnia sieberiana*	Red-fruit Saw-sedge	10
Acacia melanoxylon	Blackwood	10	*Lepidosperma laterale*	Variable Sword-sedge	5
Allocasuarina verticillata	Drooping Sheoak	5	*Lomandra longifolia*	Spiny-headed Mat-rush	10
Banksia marginata	Silver Banksia	5	*Microlaena stipoides*	Weeping Grass	20
Pomaderris aspera	Hazel Pomaderris	5	*Rubus parvifolius*	Small-leaf Bramble	5
Middle Layer Species			*Acrotriche serrulata*	Honey-pots	5
Acacia verticilata	Prickly Moses	10	*Tetratheca ciliata*	Pink-bells	10
Acacia implexa	Light Wood	10	*Poa poiformis*	Grey Tussock Grass	20
Leptospermum continentale	Prickly Tea-tree	10			
Solanum laciniatum	Large Kangaroo Apple	5			

*The exact species composition and number of each species is subject to availability at time of planting, at least two canopy, three sub-canopy, three middle layer and five ground layer species should be included with the number for each a minimum.

APPENDIX 2 FAUNA

Appendix 2.1 Fauna Results

Table A2. 1. Fauna recorded within the study area.

Scientific Name	Common Name	Conservation Status
Gymnorhina tibicen	Australian Magpie	-
Grallina cyanoleuca	Magpie-lark	-
Corvus tasmanicus	Forest Raven	-
Anthochaera carunculata	Red Wattle Bird	-
Anthochaera chrysoptera	Little Wattle Bird	-
Tadorna tadornoides	Australian Shelduck	-
Platycercus elegans	Crimson Rosella	-
Platycercus eximius	Eastern Rosella	-
Crinia signifera	Eastern Common Froglet	-
Egretta novaehollandiae	White-faced Heron	-

Appendix 2.2 Significant Fauna Species

Table A2.2.1 The values in this table correspond to Columns 5 to 7 in Table A2.1.3.

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

Table A2.2.2 Likelihood of occurrence rankings: Habitat characteristics assessment of significant fauna species previously recorded within 10 kilometres of the study area, or that may potentially occur within the study area to determine their likelihood of occurrence. The values in this table correspond to Column 7 in Table A2.1.3.

1	High Likelihood	• Known resident in the study area based on site observations, database records, or expert advice; and/or, • Recent records (i.e. within five years) of the species in the local area (DEECA 2023d); and/or, • The study area contains the species' preferred habitat.
2	Moderate Likelihood	• The species is likely to visit the study area regularly (i.e. at least seasonally); and/or, • Previous records of the species in the local area (DEECA 2023d); and/or, • The study area contains some characteristics of the species' preferred habitat.
3	Low Likelihood	• The species is likely to visit the study area occasionally or opportunistically whilst moving to more suitable sites; and/or, • There are only limited or historical records of the species in the local area (i.e. more than 20 years old); and/or, • The study area contains few or no characteristics of the species' preferred habitat.
4	Unlikely	• No previous records of the species in the local area; and/or, • The species may fly over the study area when moving between areas of more suitable habitat; and/or, • Out of the species' range; and/or no suitable habitat present.

Table A2.2.3 Significant fauna recorded or predicted to occur within 10 kilometres of the study area.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
NATIONAL SIGNIFICANCE							
Antechinus minimus maritimus	Swamp Antechinus	18	2022	VU	vu	4	This species prefers dense vegetation such as heathland, tussock grasslands, damp gullies, swamps and shrubby woodland. Limited suitable habitat present within creekline(s) in the study area, but these areas are modified and unlikely support a population. There are also limited records in the landscape around the study area.
Anthochaera phrygia #	Regent Honeyeater	-	-	CR	cr	4	Limited suitable habitat and no records within the landscape.
Arctophoca tropicalis	Subantarctic Fur Seal	2	2018	EN	-	5	No suitable habitat.
Balaenoptera borealis #	Sei Whale	-	-	VU	-	5	No suitable habitat.
Balaenoptera musculus #	Blue Whale	-	-	EN	en	5	No suitable habitat.
Balaenoptera physalus #	Fin Whale	-	-	VU	-	5	No suitable habitat.
Botaurus poiciloptilus	Australasian Bittern	12	2020	EN	cr	4	No suitable habitat.
Calidris canutus #	Red Knot	-	-	EN	en	4	No suitable habitat.
Calidris ferruginea	Curlew Sandpiper	4	2017	CR	cr	4	No suitable habitat.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Calidris tenuirostris	Great Knot	1	1999	CR	cr	4	No suitable habitat.
Callocephalon fimbriatum	Gang-gang Cockatoo	43	2016	EN	-	3	Likely to occasionally forage in broader area, however the works are unlikely to impact this species.
Carcharodon carcharias #	Great White Shark	-	-	VU	en	5	No suitable habitat.
Caretta caretta #	Loggerhead Turtle	-	-	EN	-	5	No suitable habitat.
Charadrius leschenaultii	Greater Sand Plover	1	1973	VU	vu	4	No suitable habitat.
Chelonia mydas #	Green Turtle	-	-	VU	-	5	No suitable habitat.
Climacteris picumnus victoriae #	Brown Treecreeper (south-eastern)	-	-	VU	-	4	Marginal suitable habitat (Lowland Forest). Species utilises dry woodland habitats dominated by Stringybark and other rough barked Eucalyptus species. Lowland Forest vegetation not dominated by preferred Eucalyptus species and area too wet due to the combination of high rainfall and near-coastal siting.
Dasyurus maculatus maculatus (SE mainland population) #	Spot-tailed Quoll	-	-	EN	en	4	No suitable habitat.
Delma impar #	Striped Legless Lizard	-	-	VU	en	4	No suitable habitat.
Dermochelys coriacea #	Leatherback Turtle	-	-	EN	cr	5	No suitable habitat.
Diomedea antipodensis #	Antipodean Albatross	-	-	VU	-	4	No suitable habitat.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Diomedea epomophora #	Southern Royal Albatross	-	-	VU	cr	4	No suitable habitat.
Diomedea exulans	Wandering Albatross	2	2019	VU	cr	4	No suitable habitat.
Diomedea sanfordi #	Northern Royal Albatross	-	-	EN	-	4	No suitable habitat.
Eubalaena australis	Southern Right Whale	83	2021	EN	en	5	No suitable habitat.
Falco hypoleucos #	Grey Falcon	-	-	VU	vu	4	Suitable habitat present, however the works are unlikely to impact this species.
Galaxiella pusilla #	Dwarf Galaxias	-	-	VU	en	4	No suitable habitat.
Grantiella picta #	Painted Honeyeater	-	-	VU	vu	4	Suitable habitat present, however there are limited records within the landscape.
Halobaena caerulea	Blue Petrel	1	1974	VU	-	4	No suitable habitat.
Hirundapus caudacutus	White-throated Needletail	14	2008	VU	vu	3	Limited preferred open forest vegetation present, closest records (3km) are old (>20 yrs.).
Isoodon obesulus obesulus	Southern Brown Bandicoot	23	2022	EN	en	4	Prefers dense vegetation including wetland fringes and heathland. Closest record is old (>20 yrs.).
Lathamus discolor #	Swift Parrot	-	-	CR	cr	4	No suitable habitat.
Limosa lapponica	Bar-tailed Godwit	6	2016	VU	vu	4	No suitable habitat.
Lissolepis coventryi #	Swamp Skink	-	-	EN	en	4	Potentially suitable habitat (Swampy Riparian

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
							Woodland) low quality and not proposed to be impacted.
Litoria raniformis	Growling Grass Frog	4	2002	VU	vu	4	Preferred habitat present (waterbody containing submerged, floating and fringing vegetation), however there are limited records within the broader landscape.
Macronectes giganteus	Southern Giant-Petrel	1	2013	EN	en	4	No suitable habitat.
Macronectes halli	Northern Giant-Petrel	3	2019	VU	en	4	No suitable habitat.
Mastacomys fuscus mordicus	Broad-toothed Rat	1	1995	VU	vu	4	Species is typically found is wet habitats, including woodlands and forests. Limited suitable habitat present, and the project works are unlikely to impact this species.
Miniopterus orianae bassanii	Southern Bent-winged Bat (southern ssp.)	2	2013	CR	cr	4	Limited suitable habitat, however, the project is unlikely to impact this species.
Mirounga leonina	Southern Elephant Seal	1	1977	VU	-	5	No suitable habitat.
Nannoperca obscura	Yarra Pygmy Perch	4	2008	VU	vu	4	No suitable habitat.
Neophema chrysogaster	Orange-bellied Parrot	3	2005	CR	cr	4	No suitable habitat.
Neophema chrysostoma	Blue-winged Parrot	90	2016	VU	-	3	While suitable habitat may be present in the wider

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
							landscape , no potential woodland habitat will be impacted by the project (Lowland Forest and Damp Heath Scrub proposed to be impacted).
Neophoca cinerea	Sea-lion	4	2019	EN	en	5	No suitable habitat.
Numenius madagascariensis	Eastern Curlew	1	2006	CR	cr	4	No suitable habitat.
Pachyptila turtur subantarctica #	Fairy Prion (southern)	-	-	VU	-	4	No suitable habitat.
Petaurus australis	Yellow-bellied Glider	2	2001	VU	-	4	No suitable habitat.
Phoebetria fusca #	Sooty Albatross	-	-	VU	cr	4	No suitable habitat.
Potorous tridactylus trisulcatus	Long-nosed Potoroo	3	1984	VU	vu	4	Closest records old - most recent 1984, preferred coastal heath and sclerophyll forest vegetation types not present within study area
Prototroctes maraena #	Australian Grayling	-	-	VU	en	5	No suitable habitat.
Pseudomys novaehollandiae #	New Holland Mouse	-	-	VU	en	4	No local records. No potential habitat within pipeline corridor (open heathlands).
Pterodroma leucoptera leucoptera #	Gould's Petrel	-	-	EN	-	4	No suitable habitat.
Pterodroma mollis #	Soft-plumaged Petrel	-	-	VU	-	4	No suitable habitat.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Pteropus poliocephalus #	Grey-headed Flying-fox	-	-	VU	vu	4	Suitable habitat, however, this species is unlikely to be impacted by the works.
Rostratula australis #	Australian Painted Snipe	-	-	EN	cr	4	No suitable habitat.
Stagonopleura guttata #	Diamond Firetail	-	-	VU	vu	45	While suitable habitat may be present in the wider landscape, species prefers open forests with relatively little tree density. No potential habitat within the study area.
Sternula nereis	Fairy Tern	1	1992	VU	cr	4	No suitable habitat.
Sternula nereis nereis #	Australian Fairy Tern	-	-	VU	cr	4	No suitable habitat.
Thalassarche bulleri #	Pacific Albatross	-	-	VU	en	4	No suitable habitat.
Thalassarche bulleri platei #	Northern Buller's Albatross	-	-	VU	-	4	No suitable habitat.
Thalassarche carteri	Indian Yellow-nosed Albatross	2	2019	VU	en	4	No suitable habitat.
Thalassarche cauta	Shy Albatross	8	2013	EN	en	4	No suitable habitat.
Thalassarche chrysostoma #	Grey-headed Albatross	-	-	EN	en	4	No suitable habitat.
Thalassarche impavida #	Campbell Albatross	-	-	VU	-	4	No suitable habitat.
Thalassarche melanophris	Black-browed Albatross	9	2019	VU	-	4	No suitable habitat.
Thalassarche salvini #	Salvin's Albatross	-	-	VU	-	4	No suitable habitat.
Thalassarche steadi #	White-capped Albatross	-	-	VU	-	4	No suitable habitat.
Thinornis cucullatus	Hooded Plover	43	2019	VU	vu	4	No suitable habitat.
Thinornis cucullatus cucullatus #	Eastern Hooded Plover	-	-	VU	vu	4	No suitable habitat.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
STATE SIGNIFICANCE							
Accipiter novaehollandiae	Grey Goshawk	103	2018	-	en	3	Preferred tall closed forest habitat absent from study area, closest record (1996), most proximate records are old.
Actitis hypoleucos	Common Sandpiper	2	2000	-	vu	4	No suitable habitat.
Anseranas semipalmata	Magpie Goose	1	2004	-	vu	4	Limited suitable habitat.
Antigone rubicunda	Brolga	2	2000	-	en	3	Species may utilise inundated paddocked areas, closest record (2000), records limited to Peterborough coastal reserve.
Ardea alba modesta	Eastern Great Egret	7	2019	-	vu	4	Limited suitable habitat, however, the project is unlikely to impact this species.
Ardea intermedia plumifera	Plumed Egret	9	2010	-	cr	4	Suitable habitat, however, this species is unlikely to be impacted by the works.
Arenaria interpres	Ruddy Turnstone	1	1995	-	en	4	Suitable habitat, however, this species is unlikely to be impacted by the works.
Aythya australis	Hardhead	5	2002	-	vu	4	Suitable habitat, however, this species is unlikely to be impacted by the works.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Biziura lobata	Musk Duck	6	2018	-	vu	4	Suitable habitat, however, this species is unlikely to be impacted by the works.
Calamanthus pyrrhopygius	Chestnut-rumped Heathwren	1	1995	-	vu	4	Suitable habitat, however, this species is unlikely to be impacted by the works.
Dasyornis broadbenti caryochrous	Rufous Bristlebird (Otway)	170	2011	-	vu	4	Suitable habitat is present and there are recent records, however the works are unlikely to impact this species.
Egretta garzetta	Little Egret	11	2019	-	en	3	Limited suitable habitat present, most records largely confined to Peterborough coastal reserve.
Falco subniger	Black Falcon	4	2008	-	cr	3	Suitable habitat present and recent records, however the works are unlikely to impact this species.
Geocharax tasmanicus	Otway Bush Yabby	8	2010	-	en	3	No high-quality riparian vegetation present, waterways present were predominately informal farm drainage lines.
Haliaeetus leucogaster	White-bellied Sea-Eagle	13	2017	-	en	3	Suitable habitat present and recent records, however the works are

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
							unlikely to impact this species.
Hieraaetus morphnoides	Little Eagle	8	2008	-	vu	3	Suitable habitat present and recent records, however the works are unlikely to impact this species.
Hydroprogne caspia	Caspian Tern	11	2017	-	vu	4	No suitable habitat.
Hyridella narracanensis	Narracan Corrugated Mussel	7	2015	-	en	5	No suitable habitat.
Ixobrychus dubius	Australian Little Bittern	1	1994	-	en	4	Suitable habitat present and recent records, however the works are unlikely to impact this species.
Lewinia pectoralis	Lewin's Rail	5	2000	-	vu	4	No suitable habitat.
Megaptera novaeangliae australis	Southern Humpback Whale	9	2019	-	cr	5	No suitable habitat.
Ninox connivens	Barking Owl	1	1995	-	cr	3	Inhabits open woodland forest habitats where forests adjoin farmlands. Prefers box-ironbark woodlands (not present), high association with hollows, strong spatial association with hydrological features such as rivers and wetlands (Taylor & Kirsten 1999).

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Ninox strenua	Powerful Owl	20	2011	-	vu	3	Preferred dry forest with large, live (old growth 150+ years) hollow bearing trees absent, no records <10km.
Numenius phaeopus	Whimbrel	1	1995	-	en	4	No suitable habitat.
Pluvialis fulva	Pacific Golden Plover	2	2007	-	vu	4	No suitable habitat.
Pluvialis squatarola	Grey Plover	2	2007	-	vu	4	No suitable habitat.
Pseudophryne semimarmorata	Southern Toadlet	31	2002	-	en	3	Generally found at lower elevations in damp areas usually under leaf litter, logs or rocks in forests, woodlands, heaths and grasslands but not necessarily near permanent water. Study area contained limited permanent water. Forest understory generally did not contain a high coverage of leaf litter or rocks. Closest record 2.5km is old (>20 yrs.).
Sminthopsis leucopus	White-footed Dunnart	5	1998	-	vu		Limited preferred habitat (heathland with a dense understorey vegetation, hollows for nesting.)
Spatula rhynchotis	Australasian Shoveler	5	2019	-	vu	4	No suitable habitat.
Sternula albifrons	Little Tern	1	2001	-	cr	4	No suitable habitat.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in study area	Rationale for likelihood of occurrence
Stictonetta naevosa	Freckled Duck	1	2004	-	en	4	Suitable habitat present, however the works are unlikely to impact this species.
Tringa brevipes	Grey-tailed Tattler	1	2000	-	cr	4	No suitable habitat.
Tringa nebularia	Common Greenshank	1	1999	-	en	4	No suitable habitat.

Native vegetation removal report

This report provides information to support an application to remove, destroy or lop native vegetation in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation*. The report **is not an assessment by DELWP** 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.

Date of issue: **07/10/2023**
Time of issue: **8:50 am**

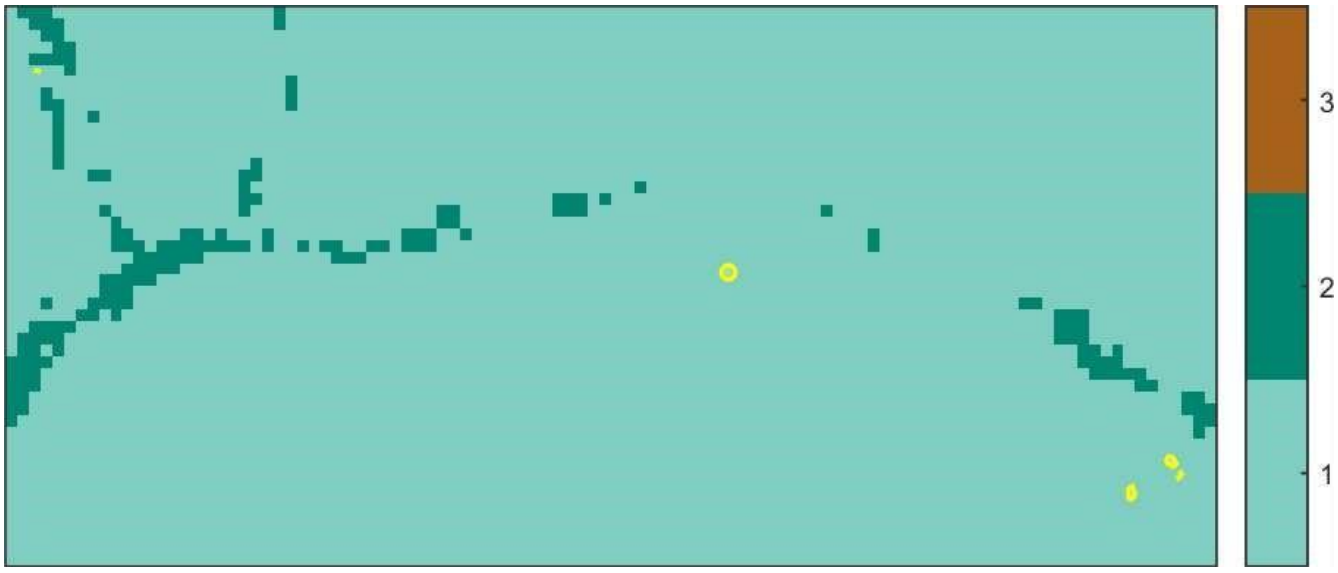
Report ID: EHP_2023_167

Project ID	EHP16117_Timboon_VG94_28092023

Assessment pathway

Assessment pathway	**Intermediate Assessment Pathway**
Extent including past and proposed	0.131 ha
Extent of past removal	0.000 ha
Extent of proposed removal	0.131 ha
No. Large trees proposed to be removed	2
Location category of proposed removal	Location 1 The native vegetation is not in an area mapped as an endangered Ecological Vegetation Class (as per the statewide EVC map), sensitive wetland or coastal area. Removal of less than 0.5 hectares in this location will not have a significant impact on any habitat for a rare or threatened species

1. Location map



Offset requirements if a permit is granted

Any approval granted will include a condition to obtain an offset that meets the following requirements:

General offset amount[1]	0.050 general habitat units
Vicinity	Corangamite Catchment Management Authority (CMA) or Corangamite Shire Council
Minimum strategic biodiversity value score[2]	0.283
Large trees	2 large trees

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 mapped at the site.

Appendix 3 includes maps showing native vegetation to be removed and extracts of relevant species habitat importance maps

1 The general offset amount required is the sum of all general habitat units in Appendix 1.

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

Next steps

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

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

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

Refer to the *Guidelines for the removal, destruction or lopping of native* vegetation (the Guidelines) for a full list of application requirements This report provides information that meets the following application requirements:

- The assessment pathway and reason for the assessment pathway
- A description of the native vegetation to be removed (met unless you wish to include a site assessment)
- Maps showing the native vegetation and property
- The offset requirements determined in accordance with section 5 of the Guidelines that apply if approval is granted to remove native vegetation.

Additional application requirements must be met including:

- Topographical and land information
- Recent dated photographs
- Details of past native vegetation removal
- An avoid and minimise statement
- A copy of any Property Vegetation Plan that applies
- A defendable space statement as applicable
- A statement about the Native Vegetation Precinct Plan as applicable
- An offset statement that explains that an offset has been identified and how it will be secured.

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

For more information contact the DELWP Customer Service Centre 136 186

www.delwp.vic.gov.au

Appendix 1: Description of native vegetation to be removed

All zones require a general offset, the general habitat units each zone is calculated by the following equation in accordance with the Guidelines:

General habitat units = extent x condition x general landscape factor x 1.5, where the general landscape factor = 0.5 + (strategic biodiversity value score/2)

The general offset amount required is the sum of all general habitat units per zone.

Native vegetation to be removed

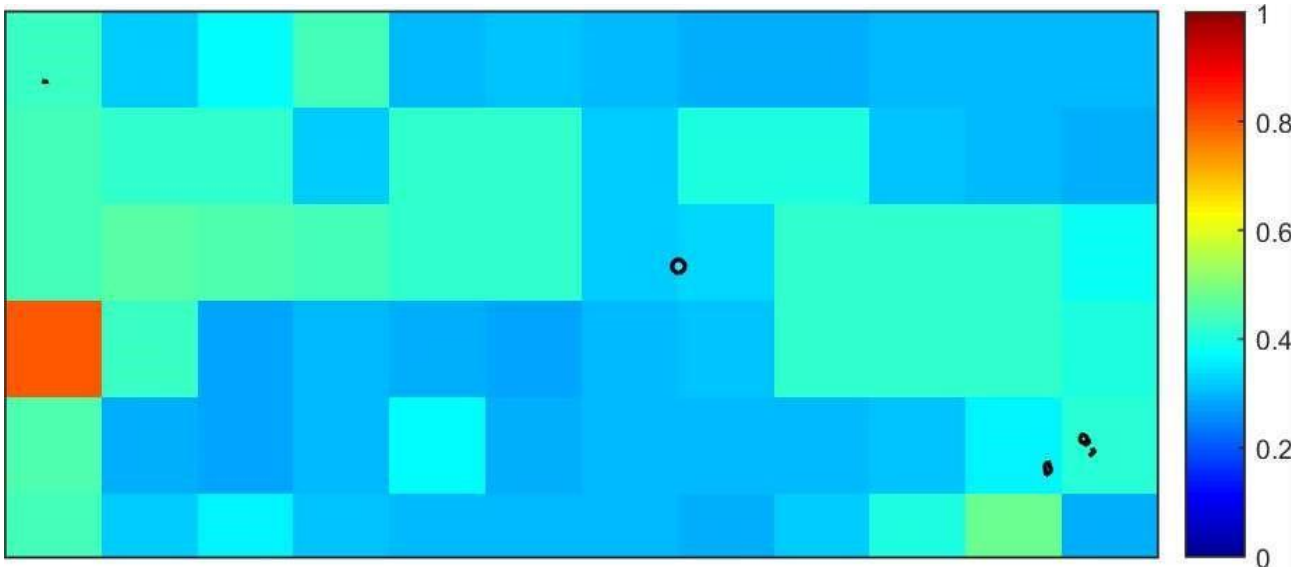
Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	**Type**	**BioEVC**	**BioEVC conservation status**	**Large tree(s)**	**Partial removal**	**Condition score**	**Polygon Extent**	**Extent without overlap**	**SBV score**	**HI score**	**Habitat units**	**Offset type**
1-TN	Scattered Tree	wap_0165	Vulnerable	1	no	0.200	0.070	0.070	0.326		0.014	General
2-I	Patch	wap_0016	Vulnerable	0	no	0.280	0.001	0.001	0.430		0.000	General
3-H	Patch	wap_0016	Vulnerable	1	no	0.570	0.030	0.030	0.410		0.018	General
4-H	Patch	wap_0016	Vulnerable	0	no	0.570	0.000	0.000	0.410		0.000	General
5-H	Patch	wap_0016	Vulnerable	0	no	0.570	0.030	0.030	0.360		0.017	General
6-A	Patch	wap_0165	Vulnerable	0	no	0.270	0.001	0.001	0.410		0.000	General

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

This is not applicable in the Intermediate Assessment Pathway.

Appendix 3 – Images of mapped native vegetation

2. Strategic biodiversity values map



3. Aerial photograph showing mapped native vegetation

4. Map of the property in context

Yellow boundaries denote areas of proposed native vegetation removal.

Report of available native vegetation credits

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

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

Date and time: 05/10/2023 10:30 **Report ID: 21187**

What was searched for?

General offset

General habitat units	Strategic biodiversity value	Large trees	Vicinity (Catchment Management Authority or Municipal district)	
0.05	0.283	2	CMA	Corangamite
			or LGA	Corangamite Shire

Details of available native vegetation credits on 05 October 2023 10:30

These sites meet your requirements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
BBA-0114	0.545	180	Corangamite	Colac Otway Shire	Yes	Yes	No	VegLink
BBA-0126	0.760	6	Corangamite	Moorabool Shire	Yes	Yes	No	Contact NVOR
TFN-C0140	0.292	30	Corangamite	Greater Geelong City	Yes	Yes	No	TFN
VC_CFL-3080_01	6.019	101	Corangamite	Golden Plains Shire	Yes	Yes	No	Bio Offsets
VC_CFL-3699_01	1.834	45	Corangamite	Colac Otway Shire	Yes	Yes	No	Contact NVOR
VC_CFL-3718_01	9.375	918	Corangamite	Corangamite Shire	Yes	Yes	No	Bio Offsets
VC_CFL-3739_01	5.729	279	Corangamite	Colac Otway Shire	Yes	Yes	No	Bio Offsets
VC_CFL-3745_01	0.078	43	Corangamite	Greater Geelong City	Yes	Yes	No	Bio Offsets
VC_CFL-3786_01	3.112	609	Corangamite	Corangamite Shire	Yes	Yes	No	VegLink
VC_CFL-3787_01	9.579	895	Corangamite	Colac Otway Shire	Yes	Yes	No	VegLink
VC_CFL-3798_01	2.368	232	Corangamite	Colac Otway Shire	Yes	Yes	No	Contact NVOR

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

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

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

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

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

There are no potential sites listed in the Native Vegetation Credit Register that meet your offset requirements.

LT - Large Trees *CMA - Catchment Management Authority* *LGA - Municipal District or Local Government Authority*

Next steps

If applying for approval to remove native vegetation
Attach this report to an application to remove native vegetation as evidence that your offset requirement is currently available.

If you have approval to remove native vegetation
Below are the contact details for all brokers. Contact the broker(s) listed for the credit site(s) that meet your offset requirements. These are shown in the above tables. If more than one broker or site is listed, you should get more than one quote before deciding which offset to secure.

Broker contact details

Broker Abbreviation	Broker Name	Phone	Email	Website
Abezco	Abzeco Pty. Ltd.	(03) 9431 5444	offsets@abzeco.com.au	www.abzeco.com.au
Baw Baw SC	Baw Baw Shire Council	(03) 5624 2411	bawbaw@bawbawshire.vic.gov.au	www.bawbawshire.vic.gov.au
Bio Offsets	Biodiversity Offsets Victoria	0452 161 013	info@offsetsvictoria.com.au	www.offsetsvictoria.com.au
Contact NVOR	Native Vegetation Offset Register	136 186	nativevegetation.offsetregister@delwp.vic.gov.au	www.environment.vic.gov.au/native-vegetation
Ecocentric	Ecocentric Environmental Consulting	0410 564 139	ecocentric@me.com	Not avaliable
Ethos	Ethos NRM Pty Ltd	(03) 5153 0037	offsets@ethosnrm.com.au	www.ethosnrm.com.au
Nillumbik SC	Nillumbik Shire Council	(03) 9433 3316	offsets@nillumbik.vic.gov.au	www.nillumbik.vic.gov.au
TFN	Trust for Nature	8631 5888	offsets@tfn.org.au	www.trustfornature.org.au
VegLink	Vegetation Link Pty Ltd	(03) 8578 4250 or 1300 834 546	offsets@vegetationlink.com.au	www.vegetationlink.com.au
Yarra Ranges SC	Yarra Ranges Shire Council	1300 368 333	biodiversityoffsets@yarraranges.vic.gov.au	www.yarraranges.vic.gov.au

For more information contact the DEECA Customer Service Centre 136 186 or the Native Vegetation Credit Register at nativevegetation.offsetregister@delwp.vic.gov.au