# Ecological Assessment

## Thomastown Terminal Station

July 2022

**Project Number: 21-771**

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# Document verification

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# Acronyms and abbreviations

| Term | Definition |
|---|---|
| ASL | Above sea level |
| AWS | Automatic weather station |
| BOM | Australian Bureau of Meteorology |
| CaLP Act | *Catchment and Land Protection Act, 1994* |
| CEMP | Construction environmental management plan |
| Cwth | Commonwealth |
| DELWP | Department of Environment, Land, Water and Planning |
| DoEE | (Cwth) Department of the Environment and Energy |
| DSE | Department of Sustainability and Environment |
| EPBC Act | (Cwth) *Environment Protection and Biodiversity Conservation Act 1999* |
| ESD | Ecologically Sustainable Development |
| EVC | Ecological Vegetation Community |
| FFG | *Flora and Fauna Guarantee Act, 1988* |
| ha | hectares |
| km | kilometres |
| m | Metres |
| MNES | Matters of National Environmental Significance |
| P&E Act | *Planning and Environment Act, 1987* |
| sp/spp | Species/multiple species |
| The guidelines | Guidelines for the removal, destruction or lopping of native vegetation |
| VBA | Victorian Biodiversity Atlas |
| VQA | Vegetation Quality Assessment |

# Executive Summary

NGH Pty Ltd has been engaged by Beca Pty Ltd to undertake an ecological assessment at Thomastown Terminal located at 27 Pelmet Crescent, Thomastown to assess the potential impacts on threatened entities and determine the native vegetation present on site and subsequent offset requirements.

The proposal includes the construction of a Battery Energy Storage Systems (BESS). The study area extends across three lots - Lot 22 LP219848, Lot 2/PS401440 and Lot 1/TP865439 covering 21.11 hectares. The Study Area includes the existing Thomastown Terminal Station (13.30 hectares on Lot 1\TP865439 and part of Lot 2\PS401440) and the proposed development footprint for the BESS. The development footprint covers 2.33 hectares and includes the Battery Energy Storage Systems (BESS). The BESS will need to install transmission connection to Thomastown Terminal Station. The transmission lines which will be either overhead or underground.

The vegetation in the Study Area site includes:

- 6.70 hectares of exotic grasses
- 1.11 hectares of EVC 68 Creekline Grassy Woodland along the banks of Edgars Creek which is a mix of exotic vegetation, planted native vegetation and scattered native shrubs and herbs.
- 13.30 hectares of Thomastown Terminal Station infrastructure

The development footprint for the BESS will be located on the exotic grasses and there are several locations where the transmission line can cross Edgars Creek without impacting the creek or the vegetation on the creek. The BESS will also require a retention basin, channelling or piping to a stormwater outlet to Edgars Creek. There are currently three options for further consideration based on locations along Edgars Creek where there is exotic vegetation minimising impacts on native vegetation on the creek.

It is anticipated no planning permit is required under Clause 52.17 – Native Vegetation and no offsets are required. An ecological assessment was undertaken to determine if there was any planning permit triggers under Clause 52.17 of the *Planning and Environment Act, 1987* (P & E Act).

As part of this ecology report background searches and a site assessment was undertaken to determine the native vegetation on site and assessment potential impacts on threatened vegetation communities, flora and fauna. The threatened entities assessment included species listed under the *Flora and Fauna Guarantee Act 1988 (FFG Act)* and *Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 (EPBC)*. The results of this assessment determined:

- No EPBC or FFG listed vegetation communities are present on site
- EVC 68 Creekline Grassy Woodland has a Bioregional Conservation Status of Endangered, however this EVC is highly modified and will not be impacted by the proposal
- No threatened flora were present on site
- No threatened fauna were recorded on site.

The likelihood of occurrence determined the following species would have a moderate or low-moderate possibility of utilising the foraging or waterway connection through Edgars Creek:

- Moderate:
  - Yarra Pygmy Perch (*Nannoperca obscura)* listed as Vulnerable under EPBC
  - Grey-headed Flying-fox (*Pteropus poliocephalus)* listed as Vulnerable under FFG and EPBC.
- Low/Moderate:
  - Growling Grass Frog (*Litoria raniformis)* listed as Vulnerable under FFG and EPBC
  - Dwarf Galaxias (*Galaxiella pusilla)* listed as Vulnerable under EPBC and Endangered under FFG
  - Hardhead (Aythya australis) listed as Vulnerable under FFG
  - Spotted Harrier (Circus assimilis) not listed under FFG. Status listed as near threatened
  - Eastern Snake-necked Turtle (Chelodina longicollis) data deficient under FFG.

All other FFG and EPBC Act listed flora and fauna have a low likelihood of occurring on site.

Mitigation measures and recommendations are included in Section 6 and 7.

# 1. Introduction

NGH Pty Ltd has been engaged by Beca Pty Ltd to undertake an ecological assessment for the proposed infrastructure upgrades at Thomastown Terminal Station.

The purpose of this ecological assessment includes addressing the following information:

- Undertake a desktop search of threatened species and communities listed under the *Flora and Fauna Guarantee Act, 1988 (FFG)* and the *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC)*
- Undertake a desktop assessment of the EVC modelling and aerial imagery to determine if there is any native vegetation within the defined Study Area
- Determine any legislative requirements based on the assessments results background search results and EVC determination.
- Determine if any planning permit requirements are triggered under the *Planning and Environment Act, 1987* under Clause 52.17 – native vegetation.
- Undertake a site assessment to determine the extent of native vegetation and complete a habitat hectares assessment (if required) and determine any offset requirements.
- Summarise findings in an Ecological Report.

## 1.1 Locality

Thomastown Terminal Station is located on the corner of Epping Road and Campbellfield-Greensborough Road, Thomastown, Victoria as shown on Figure 1-1. The Thomastown Terminal Station is located in City of Whittlesea (LGA).

The property is dominated by exotic pastures grasses and herbs with some high threat weeds on the boundary of the Study Area. Edgars Creek flows in a south westerly direction through the site. Edgars Creek is dominated by exotic grasses and herbs, high threat weeds, revegetation and native vegetation. To the north, west and east the site is surrounded by commercial industrial land use with residential to the south.

## 1.2 Development proposal

The Study Area for the proposed Battery Energy Storage Systems *(*BESS*)* is located on Lot 22 LP219848, Lot 2/PS401440 and Lot 1/TP865439. The entrance is located at 27 Pelmet St, Thomastown.

The study area extends across three lots - Lot 22 LP219848, Lot 2/PS401440 and Lot 1/TP865439. The Study Area comprises open areas, Edgars Creek and existing infrastructure associated with Thomastown Terminal Station covering 21.11 hectares. Thomastown Terminal Station is located on Lot 1\TP865439 and part of Lot 2\PS401440. The open areas of the study area shows the creekline with revegetation up to 10m either side. The surrounding vegetation is exotic pasture grasses and a scatter of high threat weeds.

The Development footprint (proposed BESS) will be located on the northwest side of Edgars Creek (part of Lot 2\PS401440). The BESS will require connection to the Thomastown Terminal Station. The connection will be either overhead transmission or underground transmission. It is expected the transmission line connection will not impact any creek line vegetation and therefore no impacts the native vegetation on the site. The development footprint covers 2.33 hectares.

The BESS requires a retention basin, channelling or piping to a stormwater outlet to Edgars Creek. There are currently three options for further consideration based on locations along Edgars Creek where there is exotic vegetation minimising impacts on native vegetation on the creek.

The options include:

- Option 1 – follows the natural land contour from the proposed retention basin to Edgars Creek. All vegetation ground storey vegetation is exotic.
- Option 2 – is a direct line from the proposed retention basin to Edgars Creek. All vegetation ground storey vegetation is exotic. However, the sewer line and pit is located at the Creek.
- Option 3 – The vegetation from the proposed retention basin to Edgars Creek is exotic, however, there is a small mound between the retention basin and the creek where piping would be required.

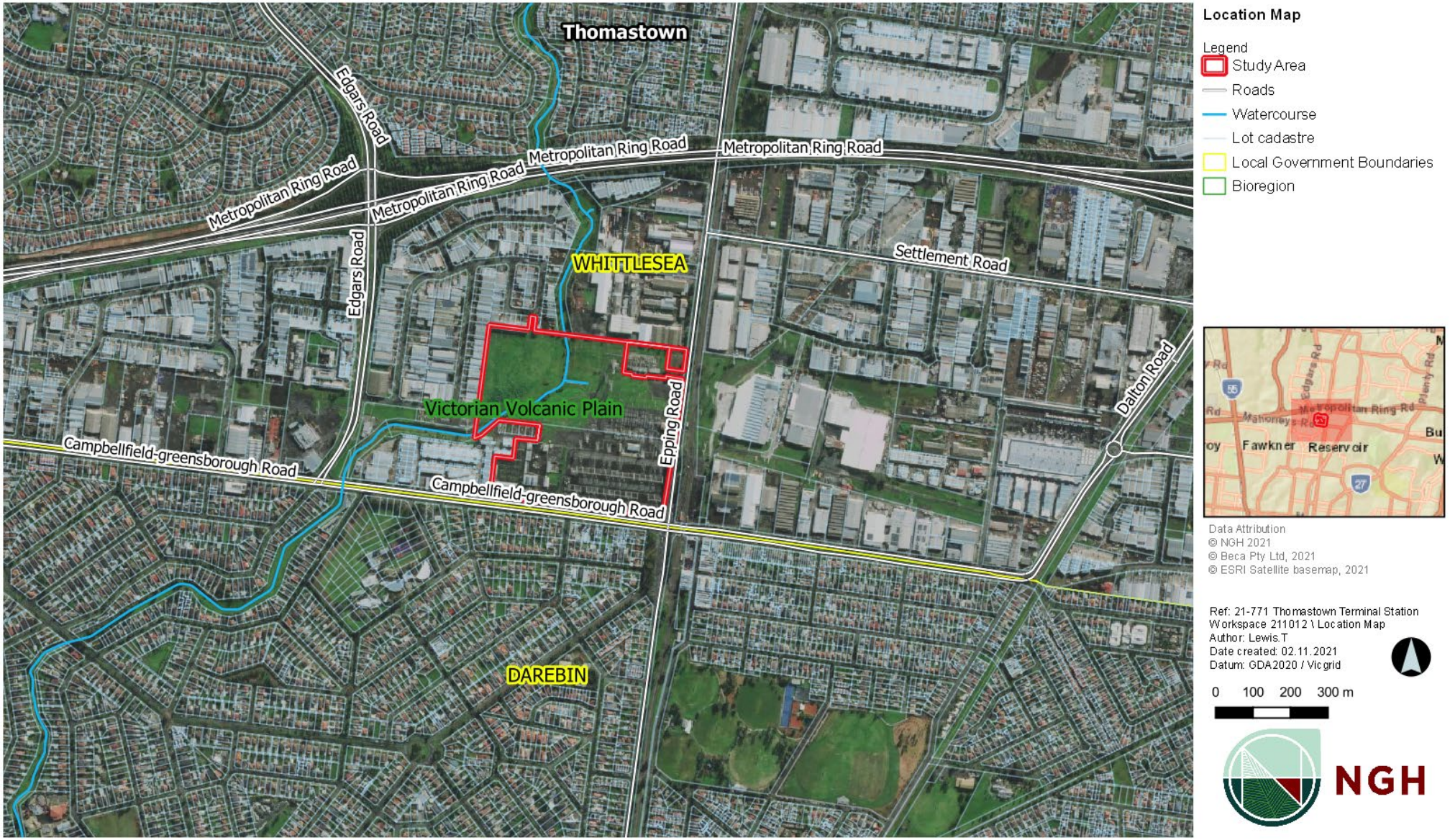


Figure 1-1 Location Map

## 1.3 Bioregion

Bioregions are determined by climate, geomorphology, soils and vegetation to classify the environment at a landscape scale (DELWP 2021). Victoria has 28 bioregions.

The Study Area is located in the Victorian Volcanic Plain Bioregion (DEWLP 2020). The geology in the Victorian Volcanic Plain (VVP) Bioregion is dominated by Cainozoic volcanic deposits. These deposits formed an extensive flat to undulating basaltic plain with stony rises, old lava flows, numerous volcanic cones and old eruption points and is dotted with shallow lakes both salt and freshwater (DELWP 2020).

The VVP bioregion soils as generally shallow reddish-brown to black loams and clays (DELWP 2020). They are fertile and high in available phosphorous. Older flows in the Cressy and Hamilton areas have allowed a greater development of deep soils. Dark saline soils occur around the margins of some lakes (DELWP 2020).

The soils are variable ranging from red friable earths and acidic texture contrast soils (Ferrosols and Kurosols) on the higher fertile plain to scoraceous material, and support Plains Grassy Woodland and Plains Grassland ecosystems (DELWP 2020).

## 1.4 Waterways and wetlands

One waterway flows through the Study Area, namely Edgars Creek. It flows from north to southwest through the Study area and is continuous in the landscape.

The nearest wetland is located 7.2 km northwest of the Study Area and is termed a Freshwater meadow. The next closest is located more than 8.5km southeast of the Study Area and is termed Shallow freshwater marsh, neither of the wetlands are connected to the hydroline within the Study Area. No wetlands of importance are present within 10km of the Study Area.

# 2. Legislative Requirements

This section details the legislative requirements in relation to the ecology assessment. Table 2-1 details the legislation and where it is assessed in the report.

Table 2-1 Legislative requirements for the assessment of the proposal

| Legislation | Requirements | Section of this Report |
|---|---|---|
| *Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 (EPBC)* | Matters of National Environmental Significance for threatened entities and RAMSAR wetlands | Section 5 |
| *Victorian Planning and Environment Act, 1987 (P&E)* | Municipal Planning Schemes including Planning Zones and Overlays<br>Clause 52.17 – Native Vegetation | Section 2.1 |
| *Victorian Flora and Fauna Guarantee Amendment Act, 2019 (formerly Flora and Fauna Guarantee Act 1988) (FFGA)* | Threatened entities and critical habitat listed in Victoria | Section 4.1.4 |
| *Victorian Wildlife Act 1975* | Protection of native fauna | Section 4.3 |
| *Catchment and Land Protection Act, 1994* | Declared noxious weeds and pest animals. | Section 4.4 |

## 2.1 Planning and Environment Act, 1987

The Planning and Environment Act was introduced in 1987. The purpose of this act is to establish a framework for planning the use, development, and protection of land in Victoria in the present and long-term interests of all Victorians. Each municipality has a Local Planning Scheme setting out policies and clauses specific to zones and overlays that relate to an area or parcel of land. The Study Area is in the Whittlesea Planning Scheme. The Study Area includes the following lots:

- Lot 22 LP219848 located at 27 Pelmet Crescent, Thomastown
- 1\TP865439 and Lot 2 PS401440 located at 15 High Street, Thomastown.

The zones and overlays for the Study Area are listed below:

- Land is predominantly Zoned Industrial 1 Zone (IN1Z)
- A small part of Lot 2\PS401440 in Edgars Creek in the north of the Study Area is Zoned Urban Floodway Zone (UFZ).

Other overlays include:

- Land Subject to Inundation (LSIO) - 1\TP865439 and Lot 2 PS401440
- Development Contributions Plan Overlay (DCPO) all lots
- Clause 52.17 – Native Vegetation – all lots

- Areas of Aboriginal Cultural Heritage Sensitivity – all lots.

The only planning permit triggers for these Zones and Overlays relevant to native vegetation or biodiversity is Clause 52.17 – Native Vegetation. All of the objectives and permit triggers would be addressed in a planning report which is not the purpose of this ecology assessment. Therefore, Clause 52.17 is addressed in more detail below and the other zones and overlays are not required to be addressed further.

### 2.1.1 Clause 52.17- Native Vegetation

Native plants that are indigenous to the region and important for biodiversity have the potential to be present in the Study Area. Based on an assessment of aerial imagery, native vegetation is likely to be present in the Study Area. This may include native trees, shrubs, herbs, grasses or aquatic plants. There are a range of regulations that may apply including need to obtain a planning permit under Clause 52.17 of the local planning scheme.

The purpose of Clause 52.17 is to ensure no net loss to Victoria's biodiversity as a result of the removal, destruction or lopping of native vegetation (DELWP 2017a). By applying the three-step approach, by avoiding, minimising and offsetting native vegetation loss set out in the native vegetation guidelines. The three-step approach includes:

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

The requirements to remove native vegetation in Victoria must consider the following criteria in Table 2-2.

Table 2-2 Planning permit requirements for native vegetation removal.

| Criteria |
|---|
| Has the assessment pathway and reason for the assessment pathway been determined? Has the location category of the native vegetation proposed to be removed identified? |
| A description of the native vegetation to be removed |
| Maps showing the native vegetation |
| The offset requirement determined in accordance with section 5 of the Guidelines. |
| Topographic and land information relating to the native vegetation to be removed, showing ridges, crests and hilltops, wetlands and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion, as appropriate. |
| Recent, dated photographs of the native vegetation. |
| Details of any other native vegetation approved to be removed, or that was removed without the required approvals, on the same property or on contiguous land in the same ownership as the applicant, in the five year period before the application for a permit is lodged. |
| An avoid and minimise statement. The statement describes any efforts to avoid the removal of |

| Criteria |
|---|
| and minimise the impacts on the biodiversity and other values of native vegetation, and how these efforts focussed on areas of native vegetation that have the most value. |
| A copy of any Property Vegetation Plan contained within an agreement made pursuant to section 69 of the *Conservation, Forests and Lands Act 1987* that applies to the native vegetation to be removed |
| Where the removal of native vegetation is to create defendable space, a written statement explaining why the removal of native vegetation is necessary. This is not required when the creation of defendable space is in conjunction with an application under the Bushfire Management Overlay. |
| If the application is under Clause 52.16, a statement that explains how the proposal responds to the Native Vegetation Precinct Plan considerations at decision guideline 6. |
| An offset statement explaining that an offset that meets the offset requirements for the native vegetation to be removed has been identified and how it will be secured. |
| A site assessment report of the native vegetation to be removed, completed by an accredited native vegetation assessor. |
| Information about impacts on rare or threatened species habitat. |

### 2.1.2 Native vegetation assessment pathway

The development footprint is located predominantly in assessment pathway Location 1 with small patches of Location 2 as shown on Figure 2-1. The native vegetation guidelines (DELWP 2017a) identify assessment pathways as basic, intermediate, and detailed and these are divided into three location categories across the state of Victoria. These assessment pathways are determined to reduce overall impacts to Victoria's biodiversity.

Table 3 (p. 19 of the guidelines; DELWP 2017a) shows the assessment pathway and location category thresholds below. The Study Area is in location 1 and no native vegetation is proposed to be removed. The revegetation on Edgars Creek would trigger a planning permit under Clause 52.17 – Native Vegetation, however this area will be avoided.


Figure 2-1 Native vegetation assessment pathway.

## 2.2 Flora and Fauna Guarantee Act, 1988

The *Flora and Fauna Guarantee Act 1988 (FFG Act)* was amended to the *Flora and Fauna Amendment Act in 2019.* The flora and fauna conservation and management objectives are:

a) to guarantee that all taxa of Victoria's flora and fauna, other than taxa specified in the excluded list, can persist, and improve in the wild and retain their capacity to adapt to environmental changes; and
b) to prevent taxa and communities of flora and fauna from becoming threatened and to recover threatened taxa and communities so their conservation status improves; and
c) to protect, conserve, restore and enhance biodiversity, including -
    a. flora and fauna and their habitats, and
    b. genetic diversity, and
    c. ecological communities, and
    d. ecological processes, and
d) to identify and mitigate the impacts of potentially threatening processes to address the important underlying causes of biodiversity decline, and
e) to ensure the use of biodiversity as a natural resource is ecologically sustainable, and
f) to identify and conserve areas of Victoria in respect of which critical habitat determinations are made.

*An assessment of the threatened vegetation communities and threatened species listed under the FFG Act has been undertaken. It has been determined there is low potential impact on all threatened species and threatened species from the proposed development.*

## 2.3 Wildlife Act 1975

Under the *Wildlife Act 1975* all native wildlife is protected in Victoria. It is an offence to kill, take, control or harm wildlife under the *Wildlife Act 1975*. It is also an offence to use poisons to kill, destroy or take wildlife. Severe penalties (including imprisonment and fines) apply to those found guilty of an offence under the Wildlife Act.

*There is no proposed native vegetation removal, however wildlife may be in the area proposed for clearing; fauna salvage and relocation of such wildlife may be required as part of the planning permit. Any handling of wildlife must be undertaken by qualified wildlife handlers to ensure no wildlife are injured.*

## 2.4 Catchment and Land Protection Act, 1994

Under the *Catchment and Land Protection Act, 1994* (CaLP Act*)* control of declared noxious weeds and pest animals will require ongoing management prior, during and post construction.

A weed management plan should consider any new and emerging weeds and any necessary prevention methods. Weed and pest animal management should consider best practice methods.

Appropriately qualified contractors should be engaged to undertake weed (Accredited Chemical Users Permit (ACUP)) and pest animal control (1080 and PAPP).

Hygiene practices for reducing and spreading weeds and pathogens should be included in any Construction Environmental Management Plan.

The weeds and pest animals recorded during the site assessment are addressed in Section 4.4

## Declared noxious weeds

In Victoria, the CaLP Act separates noxious weeds into four categories (DJPP 2019). The CaLP Act defines four categories of noxious weeds as:

- State Prohibited Weeds
- Regionally Prohibited Weeds
- Regionally Controlled Weeds
- Restricted Weeds.

## State prohibited weeds

State Prohibited Weeds may not occur in Victoria or any known infestations are very small. The Victorian Government is responsible for eradicating State Prohibited Weeds and all known infestations should be eradicated. These weeds are considered a significant threat if introduced (DJPP 2019).

## Regionally prohibited weeds

Regionally prohibited weeds are capable of spreading across a region and the aim should be to eradicate them. Regionally prohibited weeds are not widely distributed so landowners must take all reasonable steps to eradicate these weeds to prevent them spreading further. Landowners (including public authorities) are responsible for the eradication of these weeds on their land (DJPP 2019).

## Regionally controlled weeds

These regionally controlled weeds are usually widespread and highly invasive. Landowners need to take all reasonable steps to prevent the growth and spread of regionally controlled weeds on their land (DJPP 2019).

## Restricted weeds

Restricted weeds cannot be traded, and this includes plants, seeds or propagules or contaminants (DJPP 2019). Restricted weeds are at risk of spreading within Victoria or other States or Territories of Australia (DJPP 2019). It is a landowner's responsibility to prevent the spread of these weeds.

# 3. Method

## 3.1 Site assessment

The site assessment was completed by an NGH Senior Ecologist, Michelle Patrick and Field Ecologist Douglas Rovinsky on October 19, 2021 and June 24th 2022. The weather was cool, cloudy with recent rainfall on both days. The site assessment included an assessment of native vegetation, scattered tree assessment, and incidental fauna observations. The methods used are outlined in the following sections.

## 3.2 Background searches

The background searches included:

- A desktop search for threatened species using the Victorian Biodiversity Atlas (VBA). The VBA search included the Study Area and a buffer area of 5 km.
- An assessment of the threatened communities (FFG listed)
- A Matters of National Significance (MNES) desktop search with a 10 km buffer for nationally threatened flora, fauna and vegetation communities.

### 3.2.1 Assessment of threatened species and vegetation communities

Based on the background search results, the likelihood of occurrence (Table 3-1) is a broad way to categorise the likelihood of threatened flora and fauna presence based on the MNES results, VBA records and habitat features observed on site.

Table 3-1 Likelihood of threatened species being observed on site

| Likelihood of Occurrence | Reasoning |
|---|---|
| Nil/Absent | Suitable habitat is not present within the Study Area. |
| Low | Considered unlikely to occur due to older records, unsuitable or degraded habitat. |
| Moderate | Potential habitat occurs on site. Low record numbers or species not recorded in the area for many years. Considered that the species may occur infrequently. |
| High | Observed on site. Important habitat occurs onsite (i.e., nesting sites, suitable habitat). |

## 3.3 Flora

The flora survey was completed on foot. The flora survey includes using the habitat hectares methodology. The entire Study Area was assessed (as required under Clause 52.17 – Native Vegetation), to determine patches of native vegetation, scattered trees and any revegetation areas.

The methodology applied for the native vegetation assessment is described below in 3.3.1.

### 3.3.1 Native vegetation assessment

#### Native vegetation

The native vegetation assessment was undertaken based on the Guidelines of Clause 52.17 of the P&E Act for the removal, destruction or lopping, of native vegetation, (DELWP 2017). The guidelines state native vegetation is assessed to ensure it meets the following criteria:

- An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native; or
- Any area with three or more native canopy trees where the drip line of each tree touches the drip line of at least one other tree, forming a continuous canopy; or
- Any mapped wetland included in the current wetlands map, available in department of environment, land, water and planning (DELWP) systems and tools.

During the site assessment, the habitat hectare method was applied to any native vegetation patch determined to have greater than 25% perennial ground cover.

Results of the assessment are described in Section 4.

#### Scattered and large trees within a habitat zone

Based upon the criteria in the guidelines (DELWP 2017b), a scattered tree is defined as a tree that is indigenous to the area which is:

- A native canopy tree (large or small in size) that does not form part of a patch; or
- A large, scattered tree that is greater than or equal to the diameter at breast height (DBH) as determined by the EVC benchmark.

All large trees within a habitat zone were recorded where the tree was greater than the EVC benchmark DBH. All stags (dead canopy trees) were recorded if they were greater than 40 cm DBH. Within the habitat zone, only tree stags that are greater than the EVC benchmark DBH are recorded.

For each scattered tree, large tree or stag the following information was recorded:

- Plant species identified (including scientific and common name).
- Location recorded using a handheld GPS.
- DBH measured and recorded.
- Tree health.
- Presence of habitat features such as hollows or nests.

### 3.3.2 Ecological Vegetation Classes (EVC)

The vegetation communities found in the Wimmera Bioregion are termed Ecological Vegetation Classes (EVCs). These EVCs were mapped by the Victorian Government based on landscape attributes to determine the pre-European native vegetation extent (DSE 2004). Each Bioregion consists of a number of EVCs. Each EVC has pre-determined benchmarks which are used in the habitat hectare assessment to determine the site condition score (DSE 2004).

The Ecological Vegetation Class results are provided in Section 4.1.1.

### 3.3.3 EVC Conservation Status

Each EVC has a Bioregional Conservation Status based on the extent cleared or remaining since European settlement. Table 3-2 lists the criteria for the conservation status for Ecological Vegetation Classes (DELWP 2020).

The conservation status for each EVC found onsite is listed in Section 0

Table 3-2 Criteria for the conservation status for Ecological Vegetation Classes (Source: DELWP 2020)

| Category | Status Code | Criteria |
|---|---|---|
| Presumed Extinct | X | Probably no longer present in the bioregion (the accuracy of this assumption is limited by the use of remotely - sensed 1:100 000 scale woody vegetation cover mapping to determine depletion - grassland, open woodland and wetland types are particularly affected). |
| Endangered | E | Contracted to less than 10% of former range, OR<br>Less than 10% pre-European extent remains, OR<br>Combination of depletion, degradation, current threats and rarity is comparable overall to the above:<br>• 10 to 30% pre-European extent remains and severely degraded over a majority of this area; or<br>• naturally restricted EVC reduced to 30% or less of former range and moderately degraded over a majority of this area; or<br>• rare EVC cleared and/or moderately degraded over a majority of former area. |
| Vulnerable | V | 10 to 30% pre-European extent remains; OR Combination of depletion, degradation, current threats and rarity is comparable overall to the above:<br>• greater than 30% and up to 50% pre-European extent remains and moderately degraded over a majority of this area; or<br>• greater than 50% pre-European extent remains and severely degraded over a majority of this area; or<br>• naturally restricted EVC where greater than 30% pre-European extent remains and moderately degraded over a majority of this area; or<br>• rare EVC cleared and/or moderately degraded over a minority of former area. |
| Depleted | D | Greater than 30% and up to 50% pre-European extent remains; OR<br>Combination of depletion, degradation and current threats is comparable overall to the above and:<br>• greater than 50% pre-European extent remains<br>• and moderately degraded over a majority of this area. |
| Rare | R | Rare EVC (as defined by geographic occurrence) but neither depleted, degraded nor currently threatened to an extent that would qualify as |

| Category | Status Code | Criteria |
|---|---|---|
| | | Endangered, Vulnerable or Depleted. |
| Least Concern | LC | Greater than 50% pre-European extent remains and subject too little to no degradation over a majority of this area. |

## 3.4 Fauna

During the site assessment, incidental fauna observations were recorded. These observations included habitat features observed on site as well fauna activity such as sightings, scats, burrows, warrens, hollows, logs and rocky areas. No targeted surveys were undertaken as a part of this ecological assessment. Pest animal activity or sightings were included in this assessment.

## 3.5 Mapping

The site assessment was undertaken with the use of aerial imagery created using Quantum GIS. Features were mapped on site using a Samsung Android using QField. All data layers were sourced from the layers publicly available from the Victorian Government. Mapping accuracy is within a few metres.

# 4. Results

The results of the site assessment including a summary of EVCs, scattered trees, site observations of flora and fauna and assessment of threatened species habitat is provided in the following sections.

## 4.1 Flora

The results of the list of flora species identified whilst on site, are listed in Appendix A. The flora observations documented a total of 41 plant species. There were 2 native species, 4 planted native species and 35 exotic plants which included four high threat weed species.

A comprehensive species list is recommended to be compiled over many seasons and it is likely more flora species will be found across the site in wetter conditions.

The ecological vegetation class (EVC) recorded on site was EVC 68 Creekline Grassy Woodland.

The native vegetation are shown in Figure 4-7.

### 4.1.1 EVC 68 Creekline Grassy Woodland

EVC 68 Creekline Grassy Woodland benchmark description (DSE 2004) for the Victorian Volcanic Plains Bioregion as a Eucalypt woodland dominated by River Red-gum (*Eucalyptus camaldulensis*), a sparse shrub layer and mostly grassy/sedgy to herbaceous ground-layer.

This EVC occurs on low-gradient ephemeral to intermittent drainage lines, fertile colluvial/alluvial soils, and a wide range of geological substrates. The drainage lines may include a range of graminoid and herbaceous species tolerant of waterlogged soils (DSE 2004).

EVC 68 Creekline Grassy Woodland is located on Edgars Creek in the centre of the study area covering 1.11 hectares. Edgars Creek is highly modified with noxious weeds, planted native vegetation and some native shrubs and herbs but the ground cover is dominated by exotic grasses and herbs. This vegetation provides habitat for a range of birds in a locality which has limited habitat potential due to the industrial infrastructure.

At the time of the survey, Edgards Creek was polluted with rubbish and debris, fast flowing and relatively deep from the recent rain. The creek was impassable.

The planted native vegetation on the banks of Edgars Creek includes Prickly Moses (*Acacia verticillata*), Bursaria (*Bursaria spinosa subsp. spinosa*), River Red-gum (*Eucalyptus camaldulensis*). The native vegetation includes River Bottlebrush (Callistemon sieberi), Grassland Wood-sorrel (Oxalis perennans) and a Native Geranium (Geranium gardneri).

Examples of EVC 68 can be found in Figure 4-1 and Figure 4-2.

Figure 4-1. EVC 68 Creekline Grassy Woodland

Figure 4-2. EVC 68 Creekline Grassy Woodland

### 4.1.2 Large Trees

No large trees were recorded on site and thus no further assessment is required.

### 4.1.3 Exotic vegetation

The open areas of the Study Area are considered exotic with exotic grasses and scattered high threat weeds. These areas do not trigger a planning permit or offset for removal. These areas cover 6.70 hectares.

Figure 4-3. Exotic grasses looking north west

Figure 4-4. Exotic grasses looking north

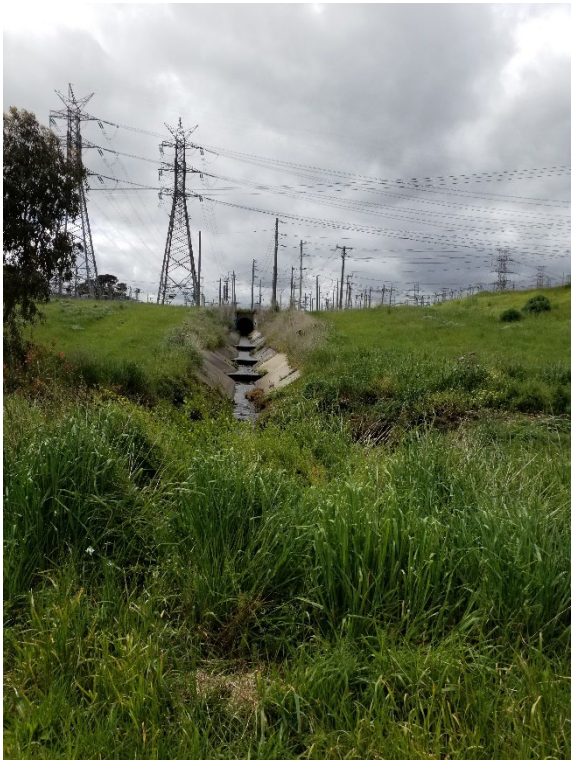

Figure 4-5. Exotic grasses and drain looking towards existing terminal station

Figure 4-6. Exotic grasses and transmission line


Figure 4-7 Vegetation in the Study Area

### 4.1.4 Stormwater outlet assessment

The stormwater outlet assessment from the BESS to Edgars Creek included three locations. These locations were selected to avoid impacting vegetation on Edgars Creek. The three options for further consideration were selected based on exotic vegetation and follow the natural elevation change towards the creek.

The options include:

- Option 1 – follows the natural land contour from the proposed retention basin to Edgars Creek. All vegetation ground storey vegetation is exotic.
- Option 2 – is a direct line from the proposed retention basin to the Edgars Creek. All vegetation ground storey vegetation is exotic. However, the sewer line and pit is located at the Creek. Preferred location for the stormwater outlet.
- Option 3 – The vegetation from the proposed retention basin to Edgars Creek is exotic, however, there is a small mound between the retention basin and the creek where piping would be required.

Photos for the three options are show in Figure 4-8, Figure 4-9 and Figure 4-10.

A map showing the stormwater outlets are shown in Figure 4-11.

Figure 4-8. Option 1 for the stormwater outlet

Figure 4-9. Option 2 Preferred location for the stormwater outlet.

Figure 4-10. Option 3 near the parcel boundary


Figure 4-11. Stormwater outlet options

## 4.2 FFG Threatened communities

EVC 68 Creekline Grassy Woodland has a Bioregional Conservation Status of Endangered. However, there is no impact on this EVC during the proposed BESS construction and operation.

The FFG listed vegetation communities that occur in the Victorian Volcanic Plains Bioregion includes:

- Western (Basalt) Plains Grasslands Community
- Western Basalt Plains (River Red Gum) Grassy Woodland

These two vegetation communities do not occur on site.

### 4.2.1 Threatened flora

From the Victorian Biodiversity Atlas results recorded 23 flora within 5kms of the Study Area. No threatened flora were recorded on site and as the site is highly modified, it is unlikely threatened flora persist at the site.

See Appendix B.1 for details of the threatened flora assessment.

## 4.3 Fauna

The results of the fauna assessment are described below.

### 4.3.1 Fauna results

The fauna recorded and observed during the site visit is listed in Table 4-1 below.

Table 4-1. Fauna results

| Scientific Name | Common Name | Status |
|---|---|---|
| *Turdus merula* | Common Blackbird | Exotic |
| *Sturnus vulgaris* | European Starling | Exotic |
| *Grallina cyanoleuca* | Magpie Lark | Native |
| *Anthochaera carunculata* | Red Wattlebird | Native |
| *Phylidonyris novaehollandiae* | New Holland Honeyeater | Native |
| *Malurus cyaneus* | Superb Fairy Wren | Native |
| *Lichenostomus penicillatus* | White plumed Honeyeater | Native |
| *Hirundo neoxena* | Welcome Swallow | Native |
| *Corvus mellori* | Little Raven | Native |
| *Anas superciliosa* | Pacific Black Duck | Native |

| Scientific Name | Common Name | Status |
|---|---|---|
| *Gymnorhina tibicen* | Australian Magpie | Native |
| *Crinia signifera* | Common Eastern Froglet | Native |

### 4.3.2 Threatened fauna

No threatened fauna were observed during the site assessment. The Victorian Biodiversity Atlas (VBA) search results listed 47 threatened fauna records within 5km of the Study Area. These species included:

- 32 birds including migratory birds
- 4 mammal
- 3 fish
- 3 reptiles
- 3 amphibians.

Based on the onsite habitat assessment, seven threatened fauna species were evaluated as a moderate or low-moderate likelihood of occurring. These fauna species include:

Moderate

- Grey-headed Flying-fox (*Pteropus poliocephalus)* listed as Vulnerable under FFG.

Low/Moderate

- Growling Grass Frog (*Litoria raniformis)* listed as Vulnerable under FFG
- Hardhead (*Aythya australis*) listed as Vulnerable under FFG
- Spotted Harrier (*Circus assimilis*) not listed under FFG. Status listed as near threatened
- Dwarf Galaxias (*Galaxiella pusilla*) listed as Endangered under FFG
- Eastern Snake-necked Turtle (*Chelodina longicollis*) data deficient under FFG.

The Grey-headed Flying-fox are likely to forage these areas. The closest camp is located at Yarra Bend. As there are limited food resources on this site and the Grey-headed Flying-fox forage an extensive area, the species is unlikely to be impacted the proposed development.

The Hardhead and Spotted Harrier are likely to utilise areas such as Edgars Creek for foraging. The proposed development is likely to have a low impact on these two birds as they are able to move throughout the landscape and no vegetation will be removed.

Growling Grass Frog, Dwarf Galaxias and Eastern Snake-necked Turtle are likely to be present in waterways connecting in the Catchment of Edgars Creek. This section of Edgars Creek is modified and there was evidence of pollutants such as rubbish and debris which reduces water quality and habitat requirements for these species, however the waterway connection and potential indirect impacts from construction require mitigation measures for Catchment health and habitat protection for these species downstream. Sediment control measures have been included in Section 6 of this report.

### 4.3.3 Targeted flora and fauna surveys

No targeted surveys are required.

## 4.4 Declared weeds and pest animals

### 4.4.1 Noxious weeds identified on site

The noxious weeds found on site are listed in Table 4-2.

Table 4-2 Declared noxious weeds in the Study Area.

| Scientific Name | Common Name | CaLP weed listing status |
|---|---|---|
| *Allium triquetrum* | Angled Onion | Restricted |
| *Cynara cardunculus* | Artichoke Thistle | Regionally Controlled |
| *Rubus fruticosus agg.* | Blackberry | Regionally Controlled |
| *Rosa rubiginosa* | Sweet Briar | Regionally Controlled |
| *Nassella nessiana* | Chilean Needle-grass | Restricted |
| *Foeniculum vulgare* | Fennel | Restricted |
| *Salix sp.* | Willow | Restricted |

### 4.4.2 Declared pest animals

There was no evidence of European Rabbit (*Oryctolagus cuniculus*) or the Red Fox (*Vulpes vulpes*) on site, however it is considered likely these two species are present in the locality.

# 5. Matters of National Environmental Significance

Under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), actions that have, or are likely to have, a significant impact on a Matter of National Environmental Significance require approval from the Australian Government Minister for the Environment (the Minister). The Minister will decide whether assessment and approval is required under the EPBC Act.

The nine matters of national environmental significance protected under the EPBC Act are:

a) world heritage properties
b) national heritage places
c) wetlands of international importance (listed under the Ramsar Convention)
d) listed threatened species and ecological communities
e) migratory species protected under international agreements
f) Commonwealth marine areas
g) the Great Barrier Reef Marine Park
h) nuclear actions (including uranium mines)
i) a water resource, in relation to coal seam gas development and large coal mining development.

*The matter relevant to the site is (d) listed threatened species and ecological communities. These matters are discussed below.*

### 5.1.1 Threatened communities

There were six threatened ecological communities identified in the Matters of National Significance search. These communities are listed in Table 5-1 below.

Table 5-1 MNES search results for Threatened Communities

| Vegetation Community | EPBC Status | VBA / MNES | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|
| **Grassy Eucalypt Woodland of the Victorian Volcanic Plain** | CE | MNES | Nil / Absent | Site highly disturbed and non-native dominated. | None |
| **Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia** | E | MNES | Nil / Absent | Site highly disturbed and non-native dominated. | None |
| **Natural Damp Grassland of the Victorian Coastal Plains** | CE | MNES | Nil / Absent | Site highly disturbed and non-native dominated. | None |
| **Natural Temperate Grassland of the Victorian Volcanic Plain** | CE | MNES | Nil / Absent | Site highly disturbed and non-native dominated. | None |
| **Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains** | CE | MNES | Nil / Absent | Site highly disturbed and non-native dominated. | None |

| Vegetation Community | EPBC Status | VBA / MNES | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|
| **White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland** | CE | MNES | Nil / Absent | Site highly disturbed and non-native dominated. | None |

### 5.1.2 RAMSAR wetlands

No RAMSAR wetlands are present on site or were recorded in the Matters of National Environmental Significance search results.

### 5.1.3 Threatened flora and fauna

There were 53 results from the MNES search results. A summary of the nationally threatened flora and fauna are:

- Flora - 17
- Reptiles - 1
- Invertebrates – 2
- Birds (including migratory) – 24
- Fish – 4
- Amphibians – 1
- Mammals – 4

From the likelihood of occurrence assessment (see Appendix B), 49 species were considered low or absent where there is limited suitable habitat due to the highly modified condition of the site. The species which were evaluated as moderate of low-moderate are listed below as the site conditions provide potential foraging habitat for the Grey-headed Flying Fox and Edgars Creek provides aquatic habitat for the Growling Grass Frogs, Yarra Pygmy Perch and Dwarf Galaxias.

Moderate

- Yarra Pygmy Perch (*Nannoperca obscura)* listed as Vulnerable
- Grey-headed Flying-fox (*Pteropus poliocephalus)* listed as Vulnerable.

Low/Moderate

- Growling Grass Frog (*Litoria raniformis)* listed as Vulnerable
- Dwarf Galaxias (*Galaxiella pusilla)* listed as Vulnerable.

Each of these four species are unlikely to impacted by the proposal. The Grey-headed Flying Fox camps are located at Yarra Bend and the colony moves throughout the broader region to forage. There is limited foraging habitat on site so and the proposal will not restrict the Grey-headed Flying Fox from foraging in this locality.

The Yarra Pygmy Perch, Growling Grass Frog and Dwarf Galaxias are limited to Edgars Creek. Edgars Creek is part of the Port Phillip Catchment and there are records of these species in the Catchment, however not on the site. The creek was rather deep and fast flowing during the site assessment but also in low condition with rubbish and debris present in the creek. There is limited habitat for these species at this location, however given other records upstream it is important to consider catchment connectivity. The creek would not be impacted by the proposal and further steps

would be implemented to ensure protection of the waterway to connect the BESS with the existing substation. This will include avoiding impacts to the creek for the connection by either under boring or sourcing a suitable crossing location for overhead transmission line.

# 6. Mitigation measures

The following mitigation measures are recommended prior to construction to reduce impacts to biodiversity.

The mitigation measures include:

- Fence off all native vegetation on Edgars Creek at the crossing point for the duration of construction.
- Erect signage to say ‘no-go zones’ tree protection areas.
- Take steps to avoid unnecessary harm or injury to wildlife.
- Sediment control measures should prevent surface water runoff carrying sediment into Edgars Creek for the duration of construction and during construction for the stormwater outlet.
- Sediment control can include sediment fencing using geotextile fabric which should remain in-situ until vegetation has re-established post construction for the BESS and stormwater outlet.

# 7. Conclusion

From the ecology assessment undertaken the following results were determined:

- The Ecological Vegetation Classes in the Study Area includes EVC 68 Creekline Grassy Woodland along the banks of Edgars Creek.
- No FFG or EPBC listed vegetation communities occur on site
- No threatened flora or fauna were observed
- The Grey-headed Flying-fox has a moderate likelihood of foraging in this area; however, the proposal will have a low impact for this species.
- The Hardhead and Spotted Harrier were determined to be low-moderate likelihood of foraging in this area; however, the proposal will have a low impact for these two birds.
- The Yarra Pygmy Perch, Growling Grass Frog, Dwarf Galaxias and Eastern Snake-necked Turtle have a moderate or low-moderate possibility of occurring on site due to the waterway connection through Edgars Creek. The proposal is likely to have a low impact in these species but as Edgars Creek connects to other creeks and streams in Port Phillip Catchment, mitigation measure for sediment control are recommended.

Three options are presented for the stormwater outlets. These areas were selected based on exotic vegetation and location of Edgars Creek to the retention basin.

There is no proposed native vegetation removal required for the proposed works therefore no planning permit trigger under Clause 52.17 – Native Vegetation of the *Planning and Environment Act, 1987.*

No EPBC Referral is required.

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# Appendix A Flora List

E – Exotic; N- Native; V – Vulnerable (FFG); CE – Critically Endangered (FFG);

CaLP weed listing R – Restricted; C – Regionally Controlled;

| *Scientific Name* | Common Name | Status | CaLP weed listing status |
|---|---|---|---|
| *Acacia verticillata* | Prickly Moses | P | |
| *Allium triquetrum* | Angled Onion | E | R |
| *Cynara cardunculus* | Artichoke Thistle | E | C |
| *Avena fatua* | Wild Oat | E | |
| *Hordeum leporinum* | Barley Grass | E | |
| *Rubus fruticosus agg.* | Blackberry | E | C |
| *Rosa Rubiginosa* | Sweet Briar | E | C |
| *Bursaria spinosa subsp. spinosa* | Bursaria | P | |
| *Callistemon sieberi* | River Bottlebrush | P | |
| *Stellaria media* | Chickweed | E | |
| *Nassella nessiana* | Chilean Needle-grass | E | R |
| *Dactylis glomerata* | Cocksfoot | E | |
| *Araujia sericifera* | Cruel Plant | E | |
| *Cynodon dactylon* | Couch | E | |
| *Foeniculum vulgare* | Fennel | E | R |
| *Festuca sp.* | Fescue | E | |
| *Holcus lanatus* | Yorkshire Fog | E | |
| *Fumaria bastardii* | Bastard's Fumitory | E | |
| *Aizoon pubescens* | Galenia | E | |
| *Geranium dissectum* | Cut-leaf Crane's-bill | E | |
| *Phytolacca octandra* | Red-ink Weed | E | |
| *Cenchrus clandestinus* | Kikuyu | E | |
| *Malva parviflora* | Small-flowered Mallow | E | |
| *Medicago polymorpha* | Burr Medic | E | |
| *Oxalis incarnata* | Pale Wood-sorrel | E | |

| *Scientific Name* | Common Name | Status | CaLP weed listing status |
|---|---|---|---|
| *Oxalis perennans* | Grassland Wood-sorrel | N | |
| *Ehrharta longifolia* | Annual Veldt-grass | E | |
| *Phalaris aquatica* | Toowoomba Canary-grass | E | |
| *Plantago lanceolata* | Ribwort | E | |
| *Lactuca serriola* | Prickly Lettuce | E | |
| *Eucalyptus camaldulensis* | River Red-gum | P | |
| *Rumex sp.* | Dock | E | |
| *Lolium perenne* | Perennial Ryegrass | E | |
| *Salix sp.* | Willow | E | R |
| *Sonchus oleraceus* | Sow Thistle | E | |
| *Gallium aparine* | Sticky weed | E | |
| *Trifolium repens var. repens* | White Clover | E | |
| *Tragopogon porrifolius* | Salsify | E | |
| *Brassica fruticulosa* | Twiggy Turnip | E | |
| *Vicia sativa* | Common Vetch | E | |
| *Geranium gardneri* | Native Geranium | N | |

# Appendix B Threatened Species

## B.1 Threatened Flora

EPBC Status – E: Endangered; V: Vulnerable, CE: Critically Endangered.

FFG Status – Listed (Listed under the FFG Act and the Victorian Advisory List includes the threatened status for each species. The Victorian Advisory List: E: Endangered; V: Vulnerable, R: Rare, NT: Near Threatened. Poorly known, data deficient and rare species listed in the VBA search results have been included in this threatened species assessment, however, are not currently listed under the FFG Act.

(NT = did not meet the criteria to be officially listed under the FFG Act, but they could possibly qualify or are close to qualifying in the near future

Th = threatened on the FFG Threatened List but no status provided

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Amphibromus fluitans* | River Swamp Wallaby-grass | Found in permanent swamps, principally along the Murray River between Wodonga and Echuca. | | CE | VBA | 3 | 2020-10-28 | Nil / Absent | Lack of suitable habitat. | None |
| *Amphibromus fluitans* | River Swamp Wallaby-grass | Found mostly in permanent swamps, lagoons, billabongs, dams, and roadside ditches. Requires moderately fertile soils with some bare ground, caused by seasonally fluctuating water levels. | V | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Caladenia amoena* | Charming Spider-orchid | Only known from two small populations NE of Melbourne; found in grassy dry forest *(Eucalyptus melliodora,* Box Ironbark). | E | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |
| *Cardamine tenuifolia* | Slender Bitter-cress | Scattered across southern Victoria in swamps or streams. | | E | VBA | 1 | 2005-01-26 | Low | Creek banks present through site; potential habitat present, though prefers swampy inundated land. | Low impact due to minimal effect of construction to habitat. |
| *Convolvulus angustissimus omnigracilis* | Slender Bindweed | Occurs throughout Victoria in grassland and grassy woodland. | | CE | VBA | 18 | 2011-02-15 | Low | Potential natural habitat of site; now highly disturbed. | Low impact due to minimal effect of construction to habitat. |
| *Coronidium gunnianum* | Pale Swamp Everlasting | Usually found at low elevation (<100 m) in grassland and riverine River Red Gum woodland on soils prone to inundation. | | CE | VBA | 37 | 2014-05-27 | Low | Highly disturbed site, but initially would have potentially been Eucalypt-lined creekline surrounded by open grassy woodland. | Low impact due to minimal effect of construction to habitat. |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Corymbia maculata* | Spotted Gum | Widely cultivated; only known native range in Victoria is the Mottle Range, south of Buchan. | | E | VBA | 6 | 2016-07-22 | Nil / Absent | Lack of suitable habitat. | None |
| *Cullen tenax* | Tough Scurf-pea | Generally found in drier parts of the state in grassland and grassy woodland on heavy soils. Usually on grey heavy clay soils in River Red Gum, Black Box, Coolabah, Myall, Bladder Saltbush, and Mitchell Grass | | V | VBA | 2 | 2020-09-21 | Nil / Absent | Lack of suitable habitat. | None |
| *Desmodium varians* | Slender Tick-trefoil | Mainly found in woodland and open forest. | | E | VBA | 1 | 2013-04-11 | Nil / Absent | Lack of suitable habitat. | None |
| *Dianella amoena* | Matted Flax-lily | Largely confined to drier grassy woodland and grassland communities south of the Dividing Range. | | E | VBA | 267 | 2020-06-05 | Nil / Absent | Lack of suitable habitat. | None |
| *Dianella amoena* | Matted Flax-lily | Occurs in lowland grasslands, grassy woodlands, valley grassy forest, and creek lines of herb-rich woodland. Typically found on well drained to seasonally wet fertile sandy loams to heavy cracking clays. | E | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Dianella longifolia* var. *grandis* s.l. | Glaucous Flax-lily | Lowland plains, grassland, and grassy woodlands. | | | VBA | 1 | 2020-09-11 | Low | Potential to occur in grassland area; highly disturbed location makes this less likely. | Low impact due to minimal effect of construction to habitat. |
| *Dianella* sp. aff. *longifolia* (Benambra) | Arching Flax-lily | Occurs in lowland plains, grassland, and grassy woodlands. | | E | VBA | 24 | 2020-04-16 | Low | Potential natural habitat of site; now highly disturbed. | Low impact due to minimal effect of construction to habitat. |
| *Diuris fragrantissima* | Sunshine Diuris | Currently known from only two populations, near Sunshine, Tottenham and Laverton North. Habitat was *Themeda triandra* dominated grassland with a high level of native herbs on heavy clay loam soils, or basalt soils with embedded basalt boulders. Sunshine Diuris grows in the inter tussock spaces. | E | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |
| *Diuris punctata* var. *punctata* | Purple Diuris | Occurs in open forests, woodlands, and grasslands. | | V | VBA | 2 | 1932-10-01 | Nil / Absent | Lack of suitable habitat. | None |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Dodonaea procumbens* | Trailing Hop-bush | Typically, in low lying, winter wet areas in woodland, low open forest, heathland, and grasslands. Populations have been found in sedge wetland, healthy woodland, and damp heathland in eastern Victoria. | V | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |
| *Eucalyptus leucoxylon connata* | Melbourne Yellow-gum | Grows in skeletal sandy soils, mostly confined to the Brisbane Ranges | | CE | VBA | 1 | 2011-02-03 | Nil / Absent | Lack of suitable habitat. | None |
| *Geranium solanderi* var. *solanderi* | Austral Crane's-bill | An uncommon species of damp to dryish, usually sheltered sites in grassy woodlands, often along drainage lines or in seepage areas. | | | VBA | 2 | 2010-11-03 | Low | *Geranium* spp. located on site. | Low impact due to minimal effect of construction to habitat. |
| *Glycine latrobeana* | Clover Glycine | Found in native grasslands, dry sclerophyll forests, woodlands, and low open woodlands with a grassy ground layer. Soils generally have a sandy component, and grasslands are typically dominated by *Themeda triandra*. | V | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Goodia medicaginea* | Western Golden-tip | Occurs sporadically in southwest and central Victoria, favouring relatively dry sites. | | | VBA | 3 | 2010-06-30 | Nil / Absent | Lack of suitable habitat. | None |
| *Grevillea rosmarinifolia* | Rosemary Grevillea | Found throughout NSW and Victoria, often naturalised from cultivated plants. Occupies sandy soils in full sun and is drought tolerant. | | E | VBA | 1 | 2003-06-24 | Nil / Absent | Lack of suitable habitat. | None |
| *Lachnagrostis adamsonii* | Adamson's Blown-grass | Confined to slow moving creeks, swamps, flats, depressions, or drainage lines that are seasonally inundated and usually moderately to highly saline. | E | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |
| *Lepidium hyssopifolium* | Basalt Pepper-cress | Generally found on open, bare ground with limited competition. Previously recorded from Eucalypt or Casuarina woodland with a grassy ground cover or tussock grassland, now can be found in weed-infested areas of heavy modification, high degradation, and high soil disturbance. Many populations are found | E | | MNES | | | Low | Area is heavily modified and dominated by exotic pasture grasses such as *Avena, Lolium,* and *Hordeum*. | Low impact due to minimal effect of construction to habitat. |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| | | among exotic pasture grasses. | | | | | | | | |
| *Leucochrysum albicans tricolor* | Hoary Sunray | Inhabits grassland, woodland, and forest habitats, generally on heavy soils. Can be found in natural or semi-natural vegetation and grazed or ungrazed habitat. Usually found on acidic clay soils derived from basalt. | E | | MNES | | | Low | Potential to occur on degraded grassy sites, but unlikely to have colonized a heavily disturbed, non-native grassland site. | Low impact due to minimal effect of construction to habitat. |
| *Melaleuca armillaris armillaris* | Giant Honey-myrtle | Naturally occurs in eastern Victoria in Gippsland; introduced as windbreak or ornament throughout the central and western parts of the state. Natural habitat is sandy heaths, elevated scrub above saltmarsh, riparian scrub, and foothill outcrops. | | E | VBA | 3 | 2011-01-17 | Nil / Absent | Lack of suitable habitat. | None |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Microseris scapigera* ssp. | Plains Yam-daisy | Found in moist depressions on basalt plains. | | | VBA | 9 | 2015-05-19 | Nil / Absent | Lack of suitable habitat. | None |
| *Nicotiana suaveolens* | Austral Tobacco | On sandy or stony soil on creek banks and rocky slopes; often in the understory of woodland or shrubland. | | E | VBA | 3 | 2010-12-20 | Nil / Absent | Lack of suitable habitat. | None |
| *Picris barbarorum* | Plains Picris | Found on river banks and floodplains on heavier alluvial soils, primarily in Qld, NSW. A single occurrence in Victoria since the 19th Century. | | V | VBA | 2 | 2011-10-24 | Nil / Absent | Highly unlikely to persist in the disturbed suburban site. | None |
| *Pimelea spinescens spinescens* | Plains Rice-flower | Occurs on basalt soils and in areas that received low levels of disturbance often associated with *Themeda triandra* grasslands. | CE | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |
| *Poa labillardierei* var. (Volcanic Plains) | Basalt Tussock-grass | Occurs near drainage lines; common tussock grass of stream sides and alluvial flats. | | CE | VBA | 3 | 2010-12-08 | Low | Creek banks present through site; potential habitat present. | Low impact due to minimal effect of construction to habitat. |
| *Pomaderris vacciniifolia* | Round-leaf Pomaderris | Occurs in damp forest and herb-rich foothill forest north-east of Melbourne. | CE | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Pterostylis chlorogramma* | Green-striped Greenhood | Grows in heathy and shrubby forests near the Victorian coast between Yarram and Edenhope. | V | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |
| *Pterostylis cucullata* | Leafy Greenhood | Occurs in coastal and montane habitats, either in protected areas of stabilized sand dunes, or on montane river banks of flood plains. | V | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |
| *Rhagodia parabolica* | Fragrant Saltbush | Occurs on steep rocky slopes and broad ridges, mostly between Sunbury and Geelong. Found in scattered locations in mallee to the northwest. | | E | VBA | 8 | 2020-10-28 | Nil / Absent | Lack of suitable habitat. | None |
| *Rutidosis leptorhynchoides* | Button Wrinklewort | Found in grassland and woodland communites, primarily in areas of open grass cover resulting from recurrent fire or grazing. | E | | MNES | | | Low | Low probability of suitable habitat. | Low impact due to minimal effect of construction to habitat. |
| *Senecio glomeratus longifructus* | Annual Fireweed | Grows adjacent to streams and swamps. | | | VBA | 2 | 2011-01-10 | Low | Creek banks present through site; potential habitat present. | Low impact due to minimal effect of construction to habitat. |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Senecio macrocarpus* | Large-fruit Fireweed | Most commonly occurs in grasslands on red-brown soils, grassy woodlands, and open woodlands, generally with undisturbed, low competition understories. | V | | MNES | | | Low | Low probability of suitable habitat. | Low impact due to minimal effect of construction to habitat. |
| *Senecio psilocarpus* | Swamp Fireweed | Restricted in Victoria to a few herb-rich winter-wet swamps throughout the south of the state, west from Sale, growing on volcanic clays or peaty soils. | V | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |
| *Tripogonella loliiformis* | Rye Beetle-grass | Scattered occurrences in dry areas of the state, usually on shallow solid overlying rock. | | | VBA | 13 | 2010-06-30 | Nil / Absent | Lack of suitable habitat. | None |
| *Xerochrysum palustre* | Swamp Paper Daisy | Found in wetlands including sedge-swamps and shallow freshwater marshes, often on heavy black clay soils. | V | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |

## B.2 Threatened Fauna

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| **Amphibians** | | | | | | | | | | |
| *Pseudophryne bibronii* | Brown Toadlet | Occurs in dry forests, woodland, shrubland, grassland, coastal swamps, heathland, and sub-alpine areas; preferring areas likely to be inundated after rain fall. | | E | VBA | 2 | 1991-03-05 | Low | Creek present through site; potential habitat present. | Low / Moderate impact due to minimal effect of construction to habitat. |
| *Pseudophryne semimarmorata* | Southern Toadlet | Found at lower elevations in damp areas usually under leaf litter, logs or rocks. It is recorded from forests, woodlands, heaths and grasslands but not necessarily near permanent water. | | E | VBA | 7 | 1965-04-24 | Low | Creek present through site; potential habitat present. Limited logs and leaf litter in creek. | Low / Moderate impact due to minimal effect of construction to habitat. |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Litoria raniformis* | Growling Grass Frog | Emergent vegetation in or at the edges of still or slow-flowing water bodies such as lagoons, swamps, lakes, ponds, and farm dams. Submerged vegetation is an important provider of egg-laying sites, calling stages, and food/shelter for tadpoles. Large and relatively permanent waterbodies with a high proportion of emergent vegetation cover are more likely to be occupied. | V | V | VBA + MNES | 138 | 2020-11-19 | Low / Moderate | Habitat unlikely; however, could be used as dispersal corridor. | Low / Moderate impact due to minimal effect of construction to habitat. |
| **Birds** | | | | | | | | | | |
| *Aythya australis* | Hardhead | Inhabit deep to shallow wetlands with open water and fringing emergent vegetation. Most common in the wetland systems of inland Australia. | | V | VBA | 156 | 2019-05-12 | Low / Moderate | Creek present through site; potential habitat present. | Low impact due to minimal effect of construction to habitat. |
| *Circus assimilis* | Spotted Harrier | Found in open grasslands, open woodland including acacia and mallee, inland riparian woodland, grassland and shrubland. It can be most commonly found in native grassland; however, it is also seen in agricultural land and inland wetlands for the purpose of foraging. | | | VBA | 4 | 2019-04-06 | Low / Moderate | Potential foraging habitat. | Low impact due to minimal effect of construction to habitat. |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Hieraaetus morphnoides* | Little Eagle | Seen over woodland and forested lands and open country, extending into the arid zone. It tends to avoid rainforest and heavy forest. Populations may benefit from clearing, which may open new feeding grounds, but they do not respond well to urbanisation. | | V | VBA | 19 | 2019-10-31 | Low | Potential foraging habitat. | Low impact due to minimal effect of construction to habitat. |
| *Porzana pusilla* | Baillon's Crake | Occurs in grassland, inland wetlands, and marine intertidal zones. | | | VBA | 8 | 2018-09-16 | Low / Moderate | Creek and grassy banks present through site; potential habitat present. | Low impact due to minimal effect of construction to habitat. |
| *Accipiter novaehollandiae* | Grey Goshawk | Preferred habitats are forests, tall woodlands, and timbered watercourses. | | E | VBA | 3 | 2017-09-16 | Low | Potential foraging habitat; uncommon in area. | Low impact due to minimal effect of construction to habitat. |
| *Anthochaera phrygia* | Regent Honeyeater | Primarily occurs in box-ironbark woodland, but also occurs in other forest types. Feeds on nectar and, to a lesser extent, insects and their exudates (lerps and honeydew). It mainly feeds on nectar from eucalypts and mistletoes and it prefers | | CE | VBA | 4 | 2001-01-13 | Low | Lack of suitable habitat or recent nearby records. | Low impact due to minimal effect of construction to habitat. |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| | | taller and larger diameter trees for foraging. | | | | | | | | |
| *Ardea alba modesta* | Eastern Great Egret | Freshwater wetlands and swamps. | | V | VBA | 18 | 2019-03-14 | Low | May use area as transient location between lakes/wetlands to the north and south | Low impact due to minimal effect of construction to habitat. |
| *Ardea intermedia plumifera* | Plumed Egret | Inhabits shallows in terrestrial wetlands, preferring freshwater swamps, billabongs, floodplains and wet grasslands with dense aquatic vegetation, and is only occasionally seen in estuarine or intertidal habitats. | | CE | VBA | 3 | 2004-01-02 | Low | Lack of suitable habitat or nearby records. | Low impact due to minimal effect of construction to habitat. |
| *Ceyx azureus* | Azure Kingfisher | Inhabits banks of vegetated creeks, lakes, swamps, tidal estuaries, and mangroves. | | | VBA | 3 | 2003-10-24 | Low | Potential foraging habitat; lack of recent or nearby records. | Low impact due to minimal effect of construction to habitat. |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Ninox connivens* | Barking Owl | Found in forest and woodland; however mostly absent from arid regions. Roosts in the outer dense foliage of trees, nests in tree hollows. | | CE | VBA | 11 | 2001-09-18 | Low | Potential foraging habitat; lack of suitable roosting or nesting habitat. | Low impact due to minimal effect of construction to habitat. |
| *Ninox strenua* | Powerful Owl | Open woodlands, with a preference for wetter, more timbered areas. | | V | VBA | 2 | 2001-11-05 | Low | Potential foraging habitat; lack of suitable roosting or nesting habitat. | Low impact due to minimal effect of construction to habitat. |
| *Nycticorax caledonicus* | Nankeen Night-Heron | Found in freshwater wetlands and swamps. | | | VBA | 56 | 2019-05-12 | Low | May use area as transient location between lakes/wetlands to the north and south | Low impact due to minimal effect of construction to habitat. |
| *Phalacrocorax varius* | Pied Cormorant | Open freshwater wetlands, swamps and coastal marine bays. | | | VBA | 11 | 2019-01-28 | Low | May use area as transient location between lakes/wetlands to the north and south | Low impact due to minimal effect of construction to habitat. |
| *Platalea regia* | Royal Spoonbill | Freshwater wetlands and swamps, and saltwater or brackish coastal areas. | | | VBA | 17 | 2019-04-07 | Low | May use area as transient location between lakes/wetlands to the north and south | Low impact due to minimal effect of construction to habitat. |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Plegadis falcinellus* | Glossy Ibis | Found in fresh water marshes at the edges of lakes and rivers, lagoons, flood-plains, wet meadows, swamps, reservoirs, sewage ponds, rice-fields and cultivated areas under irrigation. | | | VBA | 2 | 2002-05-17 | Low | Lack of suitable habitat or nearby records. | Low impact due to minimal effect of construction to habitat. |
| *Anseranas semipalmata* | Magpie Goose | Inhabits freshwater wetlands and nearby forests and grasslands. Rarely in coastal wetlands. | | V | VBA | 1 | 2007-01-08 | Nil / Absent | Lack of suitable habitat or nearby records. | None |
| *Biziura lobata* | Musk Duck | Usually seen in small numbers on the deep waters of well-vegetated fresh to saline lakes, swamps and occasionally shallow inlets and bays. | | V | VBA | 4 | 2019-12-05 | Nil / Absent | Lack of suitable habitat | None |
| *Botaurus poiciloptilus* | Australasian Bittern | Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (*Typha* spp.) and spike rushes (*Eleocharis* spp.). | | CE | VBA | 1 | 1977-01-01 | Nil / Absent | Lack of suitable habitat or nearby records. | None |
| *Chlidonias hybrida* | Whiskered Tern | Permanent and ephemeral shallow terrestrial freshwater to saline wetlands. Often around floodwaters, wetlands with submerged vegetation. | | | VBA | 3 | 1986-01-01 | Nil / Absent | Lack of suitable habitat. | None |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Chrysococcyx osculans* | Black-eared Cuckoo | Dry forests, mallee and woodlands. | | | VBA | 3 | 2002-09-01 | Nil / Absent | Lack of suitable habitat or recent nearby records. | None |
| *Dromaius novaehollandiae* | Emu | Varied habitat, temperate to tropical regions at all altitudes. Plains, scrublands, open woodlands, pastoral lands, semi-desert and margins of lakes. | | NT | VBA | 7 | 2019-05-25 | Nil / Absent | Lack of suitable habitat or nearby records. | None |
| *Egretta garzetta* | Little Egret | Wetlands, estuaries and tidal regions. | | E | VBA | 1 | 1977-01-01 | Nil / Absent | Lack of suitable habitat or nearby records. | None |
| *Falco subniger* | Black Falcon | Favours arid and semi-arid zones. It is usually found near watercourses or utilizing patches of isolated trees. It hunts over open wooded grasslands, saltbush plains, bluebush plains and other low vegetation. | | CE | VBA | 4 | 2018-08-15 | Nil / Absent | Lack of suitable habitat. | None |
| *Gallinago hardwickii* | Latham's Snipe | Usually inhabit open, freshwater wetlands with low, dense vegetation (e.g., swamps, flooded grasslands or heathlands, around bogs and other water bodies). | | | VBA | 14 | 2019-02-11 | Nil / Absent | Lack of suitable habitat. | None |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Hirundapus caudacutus* | White-throated Needletail | Recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy. They also commonly occur over heathland, but less often over treeless areas, such as grassland or swamps. | | V | VBA | 4 | 1992-03-03 | Nil / Absent | Lack of suitable habitat or recent nearby records. | None |
| *Larus pacificus* | Pacific Gull | Coastal areas and offshore islands. | | | VBA | 1 | 1987-04-01 | Nil / Absent | Lack of suitable habitat or recent nearby records. | None |
| *Lathamus discolor* | Swift Parrot | Inhabits dry woodland, especially ironbark forests. Forages on flowers and psyllid lerps in eucalypts. | | CE | VBA | 51 | 2019-04-07 | Nil / Absent | Lack of suitable habitat. | None |
| *Lewinia pectoralis* | Lewin's Rail | Prefers permanent, fresh-to-saline wetlands surrounded by dense vegetation. | | V | VBA | 1 | 1950-09-24 | Nil / Absent | Lack of suitable habitat. | None |
| *Oxyura australis* | Blue-billed Duck | Almost wholly aquatic and is seldom seen on land. Non-breeding flocks congregate on large, deep open freshwater dams and lakes in autumn. The daylight hours are spent alone in small, concealed bays within vegetation or communally in large, | | V | VBA | 6 | 2004-11-10 | Nil / Absent | Lack of suitable habitat | None |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| | | exposed rafts far from the shore. | | | | | | | | |
| *Pedionomus torquatus* | Plains-wanderer | Reliant on semi-arid, lowland native grasslands that typically occur on hard red-brown soils. | | CE | VBA | 2 | 1937-01-01 | Nil / Absent | Lack of suitable habitat. | None |
| *Pomatostomus temporalis* | Grey-crowned Babbler | Inhabits open Box-Gum woodlands on the slopes, and Box-Cypress-Pine and open Box woodlands on alluvial plains. | | V | VBA | 1 | 1890-10-05 | Nil / Absent | Lack of suitable habitat or recent nearby records. | None |
| *Stictonetta naevosa* | Freckled Duck | Permanent swamps or freshly flooded creeks containing Cumbungi and Tangled Lignum are favoured inland breeding habitat. | | E | VBA | 1 | 2019-04-14 | Nil / Absent | Lack of suitable habitat or nearby records. | None |
| **Fish** | | | | | | | | | | |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Nannoperca obscura* | Yarra Pygmy Perch | Occurs in lakes, ponds and slow-flowing rivers, but prefers small-medium sized, relatively shallow (1-2 m) freshwater streams with moderate to high flow. | V | | MNES | | | Moderate | Creek present through site; potential habitat present. | Low impact due to minimal effect of construction to habitat. |
| *Galaxiella pusilla* | Dwarf Galaxias | Occurs in slow flowing and still, shallow, permanent-temporary freshwater habitats such as swamps, drains, and backwaters of streams and creeks, often containing dense aquatic and emergent plants. | V | E | VBA + MNES | 1 | 2010-10-09 | Low / Moderate | Transient habitat only. | Low impact due to minimal effect of construction to habitat. |
| *Maccullochella peelii* | Murray Cod | Uses a diverse range of habitats from clear rocky streams to slow-flowing, turbid lowland rivers and billabongs. | V | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |
| *Prototroctes maraena* | Australian Grayling | Spends part of its lifecycle in freshwater and at least part of the larval and/or juvenile stages in coastal seas. Adults inhabit cool, clear, freshwater streams with gravel substrate and areas alternating between pools and riffle zones. | V | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |
| *Macquaria ambigua* | Golden Perch | Prefer warm, slow-moving, turbid sections of streams, favouring deep pools with ample cover. | | | VBA | 2 | 1990-03-01 | Nil / Absent | Lack of suitable habitat. | None |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Macquaria australasica* | Macquarie Perch | Occur in lakes and flowing streams, usually in deep holes with rock or gravel substrates. Favour waters with ample cover such as aquatic vegetation, snags, boulders and overhanging banks. | | E | VBA | 3 | 1970-01-01 | Nil / Absent | Lack of suitable habitat. | None |
| **Invertebrates** | | | | | | | | | | |
| *Hygrobiid australasiae* | Squeak Beetle | All species occur in lowland areas and are mainly found in stagnant water. They live in the mud, silt, and detritus of ponds. | | E | VBA | 1 | 1925-04-28 | Nil / Absent | Lack of suitable habitat or recent nearby records. | None |
| *Para Lucia pyrodiscus lucida* | Eltham Copper Butterfly | Known habitat is sparse dry woodland consisting mainly of Red Stringybark (*Eucalyptus macrorhyncha*), Red Box (*E. polyanthemos*), Long-leaved Box (*E. goniocalyx*) and Late Black Wattle *(Acacia mearnsii*). The butterflies have not been found in areas where *Notices* ant colonies do not occur. | E | | MNES | | | Nil / Absent | Lack of suitable habitat. | None |
| *Synemon plana* | Golden Sun Moth | Reliant on *Austrodanthonia* species of grasses and is almost confined to grasslands which are home to these grass species. | CE | V | VBA + MNES | 287 | 2014-11-19 | Nil / Absent | Lack of suitable habitat. | None |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| **Mammals** | | | | | | | | | | |
| *Pteropus poliocephalus* | Grey-headed Flying-fox | Requires foraging and roosting sites; uses vegetation communities including rainforest, open forest, closed and pen woodlands, *Melaleuca* swamps and *Banksia* woodlands. Feeds on commercial fruit crops, introduced tree species; primary native food source is blossom from *Eucalyptus* and related genera. | V | V | VBA + MNES | 3 | 2017-04-12 | Moderate | Foraging, feeding or related behaviour known to occur within area. | Low impact due to minimal effect of construction to habitat. |
| *Sminthopsis crassicaudata* | Fat-tailed Dunnart | Open habitat from grassland to desert. | | | VBA | 4 | 1991-03-12 | Low | Potential natural habitat on site; now highly disturbed. | Low impact due to minimal effect of construction to habitat. |
| *Antechinus minimus maritimus* | Swamp Antechinus | Found in closed heath, wet dense heath, open forest, open heath, swampy drainages, and tussock grassland with bracken and sedge growth. | V | | MNES | | | Low | Potential natural habitat on site; now highly disturbed. | Low impact due to minimal effect of construction to habitat. |
| *Ornithorhynchus anatinus* | Platypus | Freshwater streams and lakes. | | V | VBA | 2 | 1956-07-23 | Nil / Absent | Lack of suitable habitat; no records in general area since 1956. | None |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Dasyurus viverrinus* | Eastern Quoll | Once widespread across southeasters Australia in a range of habitat types including rainforest, alpine, dry sclerophyll, heathland and scrub; extinct on the mainland since the 1960s. | | E | VBA | 2 | 1902-01-01 | Nil / Absent | Lack of suitable habitat; no potential to occur. | None |
| *Dasyurus maculatus maculatus* | Spotted-tail Quoll | Preference for mature wet forest habitat. Requirements include suitable den sites such as hollow logs, tree hollows, rock outcrops or caves, ample prey, and areas of intact vegetation. | E | | MNES | | | Nil / Absent | Lack of suitable habitat | None |
| *Petauroides volans* | Greater Glider | Found in large patches of old growth forest and woodland habitat. | V | | MNES | | | Nil / Absent | Lack of suitable habitat | None |
| **Reptiles** | | | | | | | | | | |
| *Chelodina longicollis* | Eastern Snake-necked Turtle | Freshwater swamps, billabongs and slow-flowing rivers and creeks. | | | VBA | 28 | 2017-11-13 | Low / Moderate | Potential natural habitat on site; few records in general area. | Low impact due to minimal effect of construction to habitat |
| *Pseudemoia pagenstecheri* | Tussock Skink | Among medium to long grass tussocks in open grasslands where trees are absent or sparse. | | E | VBA | 4 | 2005-12-15 | Low | Potential natural habitat on site; few records in general area. | Low impact due to minimal effect of construction to habitat |

| Scientific Name | Common Name | Habitat | EPBC Status | FFG Status | VBA / MNES | Total Count | Most recent survey date | Likelihood of Occurrence | Reasoning | Potential Impact |
|---|---|---|---|---|---|---|---|---|---|---|
| *Emydura macquarii* | Murray River Turtle | Found primarily in the Macquarie River basin and major tributaries. | | CE | VBA | 4 | 2013-02-14 | Nil / Absent | Lack of suitable habitat. | None |

# Appendix C MNES Search Results