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Dalvui Battery Energy Storage System (BESS)

Dalvui BESS Ecological Assessment

Tilt Renewables

14 February 2022
Rev 2

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Document control record

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Executive summary

Aurecon was commissioned by Tilt Renewables to undertake an ecological assessment to inform the design and planning approvals for the proposed Dalvui Battery Energy Storage System (BESS) at Terang in western Victoria.

The eastern (privately owned) portion of the Project area is comprised of land which has been long utilised for agriculture and was comprised exclusively of introduced pasture grasses. The portion of the Project area in the AusNet Terang Terminal Station TGTS comprised of planted trees and shrubs. Planted trees also occurred along McCrae Street and immediately adjacent to the eastern boundary of the Project area.

Native vegetation was limited to three small patches of Blackwood (*Acacia melanoxylon*); one patch which occurred in the adjoining rail reserve to the south of the Project area, and two small patches which occurred at the northern end of the adjoining tree line to the east of the Project area. Each of these three patches of native vegetation were classified as Scoria Cone Woodland (EVC 894) of low quality. No scattered trees (as defined in Clause 52.17 of the Corangamite Planning Scheme or the Department of Environment, Land Water and Planning's *Guidelines for the removal, destruction or lopping of native vegetation*) were recorded in the Project area.

Due to the limited area of native vegetation, absence of any significant habitats and long agricultural use of the Project area and surrounds, it was determined that no threatened flora, fauna or ecological communities are likely to occur in the Project area. As such, there are no implications for the Project under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), or Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act) or *Environment Effects Act 1978*.

Based on the current design, all infrastructure associated with the construction and operation of the Project is proposed to be located outside of all patches of native vegetation. As such, all native vegetation recorded can be retained. As such, the Project would not trigger the requirement for a permit under Clause 52.17 of the Corangamite planning scheme, and no native vegetation offsets are required.

No further ecological assessments are required to inform the environmental planning approvals for the Project. Where any works are required in close proximity to the areas of native vegetation recorded, appropriate vegetation protection zones should be established to ensure no construction vehicles or personnel enter these areas. Vegetation protection zones should be fenced and appropriately signed as 'no-go zones'.

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1 Introduction

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1.1 Project background

Aurecon was commissioned by Tilt Renewables to undertake an ecological assessment to inform the design and planning approvals for the proposed Dalvui Battery Energy Storage System (BESS) at Terang in western Victoria.

Tilt Renewables is proposing to install a BESS in Terang to help maintain reliable and affordable energy supply for Victoria. The intention is to combine the operation of the Dalvui BESS (herein referred to as 'the Project') with renewable energy generation to support Victoria's transition away from reliance on fossil fuels.

1.2 Purpose and scope

The purpose of the ecological assessment was to provide an assessment of the biodiversity values at the Project site, including an assessment of any potential impacts to native vegetation and/or significant flora, fauna and ecological communities. This assessment identifies the environmental approvals that may be triggered under state and federal legislation. This assessment also provides identification of any key risk areas of the Project site and recommendations for locating Project infrastructure to avoid impacts.

The scope of the ecological assessment was to:

- Undertake a review of existing ecological information for the Project site, including preparation of database searches for native vegetation, flora and fauna;
- Undertake an ecological field survey to determine the type, extent and quality of native vegetation and fauna habitat present in the Project area;
- Identify any significant ecological values (including threatened species or communities) that have potential to occur in the Project area;
- Identify the potential implications for the Project based on relevant biodiversity legislation and policy;
- Provide recommendations to assist with Project design and locating of Project infrastructure; and
- Identify the need for any future targeted surveys.

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1.3 Limitations

The outcomes of this report are limited to the ecological assessment undertaken for the Project site and immediate surrounds. This report is limited to the scope defined in Section 1.2. Should further information become available regarding the conditions at the Project site, Aurecon reserves the right to review the report in the context of the additional information.

Ecological assessments can be undertaken at any time of year, however seasonal variations can result in some flora and fauna not being detectable at certain times. Particularly, many flowering plant species are only detectable when producing flowers or fruits. In general, spring is considered the optimal period to undertake ecological field assessments in Victoria, particularly when assessing grassland sites. The spring timing of the ecological field survey that informed this assessment was suitable to ascertain the extent and condition of native vegetation and habitat in the Project area.

1.4 Location

The Project is located to the north east of the township of Terang, in western Victoria, approximately 184 kilometres west of Melbourne. The Dalvui BESS is proposed to be located within private property at 500 Dalvui Lane, which is situated immediately to the east of the Terang Terminal Station (TGTS). Access to the Project area is proposed via McCrae Street. The location of the Project area is presented in Figure 1.

The Project area for the ecology assessment included all land relevant to the Project and eastern side of Littles Lane from the northern extent of the Terang Terminal Station to the intersection with McCrae St, specifically:

- The area of private land proposed for the location of the BESS (as well as the adjoining tree row along the eastern boundary of the paddock);
- All land within the TGTS (as well as the adjoining AusNet land immediately to the north);
- Both sides of McCrae Street (east of the intersection with Littles Lane); and
- The section of rail reserve where it adjoins the Project area.

Note that no access was provided into the TGTS or the rail reserve for the ecology assessment. These areas were assessed visually from the adjoining land.

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2 Methods

2.1 Desktop assessment

The desktop assessment comprised a review of current databases for information on native vegetation and threatened flora, fauna and ecological communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), *Flora and Fauna Guarantee Act 1988* (FFG Act) and/or Department of Environment, Land Water and Planning (DELWP) Advisory lists.

The likelihood of occurrence was then considered for all threatened species and communities recorded or with potential to occur in the 5 km radius search area. Where a species was determined to have a 'High' or 'Moderate' likelihood of occurrence, it is considered further in light of the potential impacts from the Project.

The methods adopted for the database search, likelihood of occurrence and impact assessment are outlined in the following sections.

2.1.1 Database search

Information on the occurrence of flora, fauna and ecological communities was obtained from a circular search area with a radius of 5 km centred on the Project area (coordinates: latitude 38° 13' 57" S and longitude 142° 56' 08" E).

Records from the following databases were collated and reviewed for the search area:

- Protected Matters Search Tool (PMST) of the Australian Government Department of Agriculture, Water and the Environment (DAWE) for matters protected by the EPBC Act (DAWE 2020a, See Appendix F); and
- The Victorian Biodiversity Atlas (DELWP 2020a), for records of listed threatened flora and fauna species.

The following information was also reviewed for the Project area as part of the desktop assessment:

- The Victorian DELWP Native Vegetation Information Management System (NVIM) (DELWP 2020b);
- NatureKit (DELWP 2020c);
- VicPlan (DELWP 2020d); and
- Aerial imagery.

2.1.2 Likelihood of occurrence analysis for threatened flora and fauna

The likelihood of occurrence of all threatened flora and fauna species collated in the database search was considered for the Project area. The following threatened species were considered as part of this assessment:

- Flora listed as threatened under the EPBC Act;
- Fauna listed as threatened and/or migratory under the EPBC Act;
- Flora and fauna listed as threatened under the FFG Act; and
- Flora and fauna listed as 'critically endangered', 'endangered', 'vulnerable' or 'rare' on the DELWP Advisory List. Note that flora and fauna listed as 'near threatened' or 'data deficient' on this list only were not considered.

The likelihood of a species occurring within the Project area was classified as 'Negligible', 'Low', 'Moderate' or 'High' based on the consideration of:

- The presence/absence of previous records in the search region (as returned from the database search);
- The known habitat requirements and distribution of the species; and

- The suitability of habitat in the Project area (based on the findings of the ecology field assessment).

The likelihood of occurrence of ecological communities are also considered in this report.

Details of the ranking criteria used to determine likelihood of occurrence of threatened flora and fauna in the Project area is provided in Tables 1 and 2 respectively. Any listed threatened species or ecological communities determined as having a High or Moderate likelihood of occurrence require further consideration to determine the level of impact on these values from the Project.

Table 1 Likelihood of occurrence criteria for threatened flora species

Likelihood of Occurrence	Criteria
High	Recent reputable records of the species in the local vicinity (i.e. within the last 10 years)
	Known resident in the area based on site observations, database records or expert advice and/or the Project area contains high quality habitat
Moderate	Previous reputable records of the species in the local vicinity and/or the Project area contains moderate quality habitat
Low	Limited previous records of the species in the local vicinity; and/or, the Project area contains poor or limited habitat. May also be considered low if other environmental factors are present such as fragmented or isolated habitat
Negligible	No suitable habitat and/or the Project area falls outside the known species range

Table 2 Likelihood of occurrence criteria for threatened and migratory fauna species

Likelihood of Occurrence	Criteria
High	Known resident in the area based on site observations, database records or expert advice
	Recent reputable records (within 5 years) of the species in the local area
	The Project area contains the species' preferred habitat
Moderate	The species is likely to visit the Project area regularly (i.e. at least seasonally)
	Previous reputable records of the species in the local area
	The Project area contains moderate quality habitat
Low	The species is likely to visit the Project area occasionally or opportunistically whilst en-route to more suitable sites
	There are only limited or historical records of the species in the local area (>20 years old)
	The Project area contains few or no characteristics of the species' preferred habitat
Negligible	No previous records of the species in the local area
	Previous records of the species exist in the local area but >30 years old
	The species may fly over the area when moving between areas of more suitable habitat
	Out of the known species' range
	No suitable habitat present within the Project area
	Species is known to be regionally extinct

2.2 Field assessment

The ecological field assessment was undertaken on 19th October 2020. The Project area was assessed on foot. As noted in Section 1.3, the TGTS and adjoining section of the rail reserve to the south were assessed visually from other parts of the Project area.

The field survey was undertaken by Justin Sullivan, Senior Ecologist at Aurecon, who has appropriate skills in the identification of Victoria's flora and fauna, and accreditation to undertake the assessment of native vegetation as listed on DELWP's Vegetation Quality Assessment Competency Register. Relevant permits under the Victorian *Wildlife Act* 1975 (No. 10008909) and *Flora and Fauna Guarantee Act* 1988 (No. 10008817) were in effect for this work.

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2.2.1 Flora survey

A vegetative description of the Project area was recorded along with a list of all flora species observed. The presence of any suitable habitat for threatened flora species was recorded and mapped, to inform the likelihood of occurrence analysis as well as the potential requirement for future targeted flora surveys.

A Vegetation Quality Assessment (VQA) was undertaken for all patches of native vegetation identified in and immediately adjacent to the Project area. This assessment was consistent with DELWP's Habitat hectare method (DSE 2004) and the Victoria's *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017a).

2.2.2 Fauna survey

A list of all fauna species observed within the Project area was recorded through active searching and general observations. The presence of any suitable habitat for threatened fauna species was recorded and mapped, to inform the likelihood of occurrence analysis as well as the potential requirement for future targeted fauna surveys.

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3 Results

This section of the report presents the integrated results of the database review and ecological field assessment.

3.1 Database review

Types of native vegetation that may be present within the Project area were ascertained through the database review (DELWP 2020b; DELWP 2020c) and are discussed further in Section 3.2.2.

The database review of threatened species undertaken for the Project determined that nine threatened flora species and 36 threatened or migratory fauna species have previously been recorded or have the potential to occur within 5 km of the Project area. An analysis was undertaken to determine the likelihood of occurrence of these listed species in the Project area. The likelihood of occurrence analyses for listed flora and fauna are provided in Appendices D and E respectively, and discussed further in Sections 3.2.4 and 3.2.5.

3.2 Ecological assessment

3.2.1 Site description

The Project area is located in the western volcanic plains of Victoria, and several examples of historic volcanic eruption points are located nearby to the Project area. This includes Lake Keilambete (5 km to the north west of the Project area), and the since drained areas of Lake Terang (2 km to the south west) and Pejark Marsh (350 m to the north). Each of these lakes represent an example of a maar and tuff ring volcanic eruption point. Mount Noorat, an example of a scoria cone with crater eruption point, is located 5 km to the north of the Project area. Currently, the region is largely used for agricultural practices including cropping and grazing.

The eastern (privately owned) portion of the Project area is comprised of land which has been long utilised for agriculture. This area is divided into three large paddocks, each of which comprised exclusively of introduced pasture grasses, namely Yorkshire Fog, Timothy Grass, Sweet Vernal-grass and Annual Meadow-grass (Photo 1). Extensive pugging by stock was observed in the southern portion of the paddocks.

A row of trees exists immediately adjacent to the eastern border of the Project area (Figure 1). This row of trees mainly comprised planted Sugar Gums (non-native, see Photo 2), however one planted River Red-gum and two small, naturally occurring patches of native Blackwood were recorded at the northern end of the treeline (Photo 3).

The eastern (privately owned) portion of the Project area is bounded to the south by the Warrnambool line rail reserve. While most of the rail reserve adjacent to the Project area comprised of introduced pasture grasses, one patch of naturally occurring native Blackwood was recorded (Photo 4). Planted Elms (introduced) were also recorded in the eastern end of the rail reserve and at the northern end of the eastern tree line (under the existing power lines). The section of rail reserve that may be required to be utilised to provide access from the eastern end of McCrae street is heavily disturbed and comprised of various introduced grasses and broad leaf weeds (Photo 5).

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Photo 1: Introduced pasture in private land (eastern portion of Project area)



Photo 2: Planted Sugar Gums adjacent to eastern boundary of Project area



Photo 3: Two small patches of native Blackwood at northern end of treeline (HZs 2 and 3)



Photo 4: Large patch of native Blackwood in rail reserve, south of Project area (HZ 1)

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McCrae Street (east of Littles Lane) comprised an informal, grassed (unmade) road. Introduced grasses and weeds occur within and on both sides of the unmade road. Planted trees occur on both sides of McCrae Street, namely a row of Photinia on the northern side, and Lilly Pilly and non-native eucalypts and wattles on the southern side of the road. Other planted eucalypts, including Blue Gum, Swamp Gum and River Red-gum, existed in a row immediately south of McCrae Street in private land. A row of five planted Tortured Willow (introduced) occurred at the eastern end of McCrae Street (Photo 6). The intersection of McCrae Street and Littles Lane, as well as both sides of Littles Lane adjacent to the Project area, comprised of introduced grasses and broadleaf weeds.

The AusNet TGTS was fenced around the perimeter, though visual inspection was undertaken from outside the fence. The inner area of the terminal station comprised of hard surfaces and electrical infrastructure, while planted trees occur immediately inside the perimeter fence (Photo 7). Planted trees in this area were limited to introduced and non-indigenous species and included Giant Honey Myrtle, Large-leaf Cotoneaster and Photinia. The area to the north of the terminal station comprised introduced pasture grasses; a portion of this area was subject to excavation works at the time of the survey (Photo 8).

The Project area lies within the Victorian Volcanic Plain bioregion and falls within the Glenelg Hopkins catchment and Corangamite Shire Local Government Area (LGA). The privately owned (eastern) portion of the Project area, as well as the area along McCrae Street and the adjoining rail reserve, is currently zoned as Farming Zone (FZ1). The AusNet TGTS is currently zoned Public Use Zone – Service and Utility (PUZ1). No overlays cover the Project area.

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Photo 5: Introduced grasses in rail reserve at potential access location at end of McCrae Street



Photo 6: Planted Tortured Willows (introduced) at eastern end of McCrae Street



Photo 7: Planted trees and introduced grasses along and inside the TGTS



Photo 8: Excavation works north of the TGTS

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3.2.2 Native vegetation

The database review determined that prior to 1750, the Project area would have likely supported one main native vegetation type, namely Scoria Cone Woodland (EVC 894). This Ecological Vegetation Class (EVC) is modelled as historically occurring all around the perimeter of Pejark Marsh, which itself is likely to have supported Plains Grassy Wetland (EVC 125) prior to being drained for farming.

The site survey confirmed the presence of three small patches of native vegetation adjacent to the Project area, each which were comprised of Blackwood as the only native component. Each of these patches were classified as Scoria Cone Woodland (EVC 894) and have been assessed as three separate habitat zones (Habitat Zones 1-3, See Figure 1). A summary of the details of each habitat zone is provided in Table 3. Detailed results of the habitat hectare assessment are provided in Appendix B.

Table 3 Summary of details of native vegetation (habitat zones) recorded in the Project area

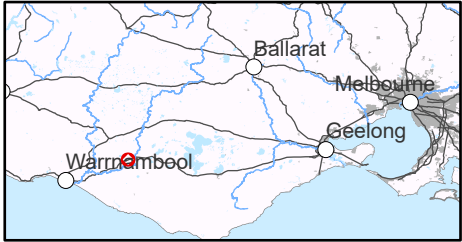
Habitat Zone	Ecological Vegetation Class	Description	Habitat Score (out of 100)	Area (ha)
1	Scoria Cone Woodland (EVC 894)	Patch of Blackwood trees including recruits	13	0.008
2		Single Blackwood	8	0.002
3		Patch of immature Blackwood trees including recruits	13	0.002

No scattered trees (as defined in Clause 52.17 or the Guidelines) were recorded in the Project area. Native eucalypts recorded in and adjacent to the Project area were deemed to be planted (for amenity) and therefore exempt from planning permit as per the planted vegetation exemption outlined in Clause 52.17. Such native tree species where planted for amenity are not considered further.

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Author: Nick Chen



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Legend

- Survey area
- Road
- Rail
- Watercourse

Project Information

- Indicative BESS Location
- Indicative Underground Cable
- Indicative Underground Cable and Access Track
- Option 1 TGTS 66kV Transformer
- Option 2 TGTS 66kV Transformer

Vegetation

- Scoria Cone Woodland (EVC 894)
- Planted trees

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

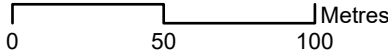
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Dalvui Battery Energy Storage Project

Project area and native vegetation

3.2.3 Ecological communities

Three EPBC Act listed threatened ecological communities were listed in the PMST as known or likely to occur within 5 km of the Project area (DAWE 2020a). These included:

- Grassy Eucalypt Woodland of the Victorian Volcanic Plain (Critically Endangered)
- Natural Temperate Grassland of the Victorian Volcanic Plain (Critically Endangered)
- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains (Critically Endangered)

No native vegetation that matched the criteria for any of the above EPBC Act listed communities occurred in the Project area.

There were no FFG Act listed ecological communities identified during the desktop assessment. This was confirmed during the ecology field assessment of the Project area.

It is confirmed that no EPBC Act or FFG Act listed ecological communities occur in the Project area.

3.2.4 Flora

The Project area almost exclusively comprised of introduced, non-indigenous or planted flora. During the field assessment, 33 flora species were recorded. Naturally occurring native flora was limited to one flora species, Blackwood (*Acacia melanoxylon*), which occurred within the tree line to the east and within the rail reserve to the south.

A full list of the flora species recorded in the Project area is provided in Appendix C. No threatened flora species were recorded within the Project area. The likelihood of the threatened flora species which were detected in the database searches occurring within 5 km of the Project area was considered in Appendix D. Due to the limited area of native vegetation, and long agricultural use of the area, it was determined that no suitable habitat for threatened flora exists, and that no threatened flora species are likely to occur in the Project area.

3.2.5 Fauna

Fauna habitat within the Project area consisted of farmland and planted trees. No significant hollows were readily observed in the planted trees in and adjacent to the Project area, however these trees would provide foraging and dispersal habitat for common fauna such as birds and arboreal mammals. A small area in the south of the eastern paddock was flooded at the time of the survey. This area was very small (2 x 2m) and was not considered to support any significant habitat for aquatic fauna species.

Limited fauna (13 species) were recorded in the Project area during the ecology survey, all of which were commonly recorded farmland species. Two of the 13 fauna species recorded were introduced.

A full list of the fauna species recorded in the Project area is provided in Appendix C. No threatened fauna species were recorded within the Project area. The likelihood of the listed fauna species detected in the database searches occurring within 5 km of the Project area was considered in Appendix E. Due to the lack of native vegetation and any significant habitat features, it was determined that no suitable habitat for threatened fauna exists, and that no threatened fauna species are likely to regularly occur in the Project area.

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4 Impacts and implications

Tilt Renewables is seeking planning approval from the Minister for Planning to install a BESS located in Terang, Victoria (the Project). The Project is being referred to as the Dalvui BESS. The Project will involve construction and operation of a BESS (with the option for the Project to be phased) with an indicative output of 196 MW / 392 MWh, optimising the energy storage capacity of the site. Key Plant of the BESS includes Battery Pack Containers, installation of a 66 kV transformer, 33 kV transformers and 3.5 MW inverters.

Ancillary infrastructure includes construction of an Operations and Maintenance (O&M) Building (that includes storage and site office), access track connecting the BESS from McCrae Street via an existing access point and permanent site carparking. A section of McCrae Street from the entrance of the TGTS to the existing access point will be upgraded to facilitate the Project's construction and ongoing operation.

The Project further involves connection upgrade works within the TGTS, connecting to the BESS via an underground connection along Little Ln and McCrae St. Installation of the 66 kV transformer will either be within the BESS or within the TGTS. Two options have been provided for installation of the 66 kV transformer within TGTS. Construction is estimated to extend over an 18-month period, with an operation life of approximately 25 years. This section outlines the impacts to ecological values based on the proposed development and outlines the implications under relevant environmental legislation and policy. The current design for the Project is provided in Appendix G. Based on the current design, all infrastructure associated with the construction and operation of the Project is proposed to be located outside of all patches of native vegetation. As such, all native vegetation recorded can be retained.

The following sections discuss the implications of the Project under relevant environmental legislation and policy.

4.1 Legislative and policy implications

4.1.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is Commonwealth legislation that provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, termed Matters of National Environmental Significance (MNES). Under the EPBC Act, an action that has, will have, or is likely to have, a significant residual impact on a MNES must be referred to the Commonwealth Minister for the Environment. The Minister will then determine whether the proposed action requires formal assessment and approval under the EPBC Act.

The results from the database search of the EPBC Act PMST identified multiple MNES potentially occurring within a 5 km radius search area. The MNES relevant to the Project area are summarised in Table 4, with threatened and migratory species tabulated and assessed in Appendix D and E.

Based on the assessment results presented in Section 3, no MNES are likely to occur in the Project area. As such, there are no implications for the Project under the EPBC Act.

Table 4 Matters of National Environmental Significance (MNES) with potential to occur within 5 km of the Project area

Matters of National Environmental Significance	Number of MNES with potential to occur within 5 km of the Project area
World Heritage Properties	None
National Heritage Places	None
Wetlands of International Importance	None
Great Barrier Reef Marine Park	None

Matters of National Environmental Significance	Number of MNES with potential to occur within 5 km of the Project area
Commonwealth Marine Area	None
Listed Threatened Ecological Communities	3 (Considered in Section 3.2.3)
Listed Threatened Species	30 (Considered in Appendix D and E)
Listed Migratory Species	13 (Considered in Appendix E)

4.1.2 Environment Effects Act 1978

The *Ministerial Guidelines for Assessment of Environmental Effects under the Environment Effects Act 1978* (DSE 2006) outlines the triggers for referral of a project to the Victorian Minister for Planning who will determine if an Environmental Effects Statement (EES) is required. Criteria relevant to flora and fauna are broadly summarised to include:

- Extensive removal of native vegetation (>10 hectares);
- Specified significant impacts to threatened species listed in Victoria; and
- Long term changes to Ramsar wetlands.

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Based on the results of the assessment, it is considered that the project will not trigger any of the EES referral criteria relevant to flora and fauna. As such, there are no implications for the Project under the *Environment Effects Act 1978* (EE Act).

4.1.3 Flora and Fauna Guarantee Act 1988

The FFG Act is the key piece of Victorian legislation for the conservation of threatened species and communities and for the management of potentially threatening processes. Under the FFG Act a permit is required from DELWP to take (kill, injure, disturb or collect) threatened or protected flora species from public land.

No FFG Act listed threatened or protected flora or fauna were recorded in the Project area. As such, there are no implications for the Project under the FFG Act.

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4.1.4 Planning and Environment Act 1987

The *Planning and Environment Act 1987* controls the planning and development of land in Victoria and provides for the development of planning schemes for all municipalities under the Planning Scheme and Planning Policy Framework.

Clause 12.01-2S (Native vegetation management) and Clause 52.17 (Native Vegetation) of the State Planning Policy Framework requires that the removal of native vegetation results in no net loss in the contribution made by native vegetation to Victoria's biodiversity, and that this is achieved by applying the three-step approach outlined in Victoria's *'Guidelines for the removal, destruction or lopping of native vegetation'* (the Guidelines):

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.

A planning permit is required under Clause 52.17 to remove, destroy or lop native vegetation, including dead native vegetation. Decision guidelines must be considered by the Referral and Responsible Authorities in deciding to grant or otherwise the planning permit. Exemptions to the requirement for a permit to remove

native vegetation are specified in Clause 52.17 and include themes such as regrowth, dead vegetation and planted vegetation.

The Guidelines are incorporated into the Victorian Planning Provisions to regulate the clearance of native vegetation across the state. The Guidelines use a risk-based approach to determine the significance of native vegetation based on the extent, quality and location of vegetation proposed to be removed. Further details on the application of the guidelines are provided in Appendix A.

No local overlays cover the Project area.

Native vegetation in/adjacent to the Project area was limited to three small patches of native vegetation. This included:

- One patch of naturally occurring native Blackwood, in the rail reserve immediately south of the Project area (Habitat Zone 1); and
- Two small, naturally occurring patches of native Blackwood at the northern end of the treeline, immediately adjacent to the Project areas eastern boundary (Habitat Zones 2 and 3).

Based on the current design (See Appendix G), all infrastructure associated with the construction and operation of the Project is proposed to be located outside of all patches of native vegetation. As such, all native vegetation recorded can be retained. As such, the Project would not trigger the requirement for a permit under Clause 52.17 of the Corangamite planning scheme, and no native vegetation offsets are required.

4.1.5 **Wildlife Act 1975 and Wildlife Regulations 2002**

The main legislation for protecting and managing fauna in Victoria is the *Wildlife Act 1975*. This covers indigenous vertebrate species (except declared pest species), invertebrate species listed under the FFG Act and some introduced game species. A Management Authorisation permit is required under the Act if salvage and relocation of fauna are to be undertaken as part of any removal of habitat. Given the lack of any significant habitat, this is not considered to be required for the Project.

4.1.6 **Catchment and Land Protection Act 1994**

The *Catchment and Land Protection Act 1994* (CaLP Act) identifies and classifies certain species as noxious weeds or pest animals and provides a system of controls on noxious species.

The CaLP Act also provides a legislative framework for the management of private and public land and sets out the responsibilities of land managers, stating that they must take all reasonable steps to:

- Avoid causing or contributing to land degradation which causes or may cause damage to land of another landowner;
- Protect water resources;
- Conserve soil;
- 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.

The Project area contains the following noxious weed species listed as regionally controlled within the Glenelg Hopkins Catchment Management Authority region:

- Blackberry (*Rubus fruticosus* spp. agg.)

Appropriate weed control and hygiene measures should be outlined in a Construction and Operational Environmental Management Plan for the Project.

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5 Summary and next steps

5.1 Summary

Aurecon undertook an ecological assessment of the site proposed for development of the Dalvui BESS at Terang. The assessment determined that the Project area largely comprised of land which had been long utilised for agriculture and comprised exclusively of introduced pasture grasses. Planted vegetation was recorded within the AusNet TGTS, as well as along McCrae Street and immediately adjacent to the eastern boundary of the Project area.

Native vegetation was limited to three small patches of Blackwood (*Acacia melanoxylon*); one patch which occurred in the adjoining rail reserve to the south of the Project area, and two small patches which occurred at the northern end of the adjoining tree line to the east of the Project area. Each of these three patches were classified as Scoria Cone Woodland (EVC 894) of low quality. No native scattered trees were recorded in the Project area.

Due to the limited area of native vegetation, absence of any significant habitats and long agricultural use of the Project area and surrounds, it was determined that no threatened flora, fauna or ecological communities are likely to occur in the Project area. As such, there are no implications for the Project under the EPBC Act, EE Act or FFG Act.

Based on the current design, all infrastructure associated with the construction and operation of the Project is proposed to be located outside of all patches of native vegetation. As such, all native vegetation recorded can be retained. As such, the Project would not trigger the requirement for a permit under Clause 52.17 of the Corangamite planning scheme, and no native vegetation offsets are required.

5.2 Next steps

No further ecological assessments are required to inform the environmental planning approvals for the Project.

Where any works are required in close proximity to the areas of native vegetation recorded, appropriate vegetation protection zones should be established to ensure no construction vehicles or personnel enter these areas. Vegetation protection zones should be fenced and appropriately signed as 'no-go zones'.

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Appendix A: Permitted clearing assessment (the Guidelines)

This section describes the Victorian permitted clearing guidelines and methods of applying those guidelines.

Risk-based Pathway

In Victoria, a permit is required to remove, destroy or lop native vegetation under Clause 52.17 of the Victorian Planning Provisions (VPP) empowered by the Victorian *Planning and Environment Act 1987*. These provisions are outlined in various guidelines discussed below.

In December 2017, the Victorian State Government released a set of reforms to regulate the approval and conditions associated with vegetation clearing.

The *Guidelines for the removal, destruction or lopping of native vegetation* (the Guidelines) outline how impacts on Victoria's biodiversity are assessed and the appropriate risk based pathway when an application to remove native vegetation is lodged (DELWP 2017a). The Guidelines are an incorporated document in all Victorian Planning Schemes and are applied alongside other requirements of the planning scheme when an application for a permit to remove native vegetation is considered by the responsible authority.

The risk based pathway approach categorises an application into one of three pathways. Taken from DELWP 2017a:

- Basic – limited impacts on biodiversity.
- Intermediate – could impact on large trees, endangered EVCs, and sensitive wetlands and coastal areas.
- Detailed – could impact on large trees, endangered EVCs, sensitive wetlands and coastal areas, and could significantly impact on habitat for a rare or threatened species.

The location of the vegetation removal is then assessed in terms of significance for biodiversity. Three location categories have been assigned by DELWP (2007a) and in terms of importance include:

- Location 3 – includes locations where the removal of less than 0.5 hectares of native vegetation could have a significant impact on habitat for a rare or threatened species.
- Location 2 – includes locations that are mapped as endangered EVCs and/or sensitive wetlands and coastal areas (section 3.2.1) and are not included in Location 3.
- Location 1 – includes all remaining locations in Victoria.

Once the risk pathway and the location significance are known, the application assessment pathway can be determined as per the table below.

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

The vegetation removal pathway then determines the level of assessment and information required in an application to remove, lop or destroy native vegetation.

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Appendix B: Vegetation quality assessment results

Habitat Hectare Criteria		Max score	HZ 1	HZ 2	HZ 3
Site Condition	Bioregion		VVP	VVP	VVP
	EVC		894	894	894
	Large Old Trees	10	0	0	0
	Canopy Cover	5	0	0	0
	Lack of Weeds	15	0	0	0
	Understorey	25	5	5	5
	Recruitment	10	5	0	5
	Organic Matter	5	2	2	2
	Logs	5	0	0	0
	Total Site Score		12	7	12
Landscape Value	Patch Size	10	1	1	1
	Neighbourhood	10	0	0	0
	Distance to Core	5	0	0	0
	Total Landscape Score		1	1	1
Final score	Habitat Score (out of 100)	100	13	8	13
	Condition Score (out of 1)	1	0.13	0.08	0.13

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Appendix C: Flora and fauna recorded in Project area

Origin	Common Name	Scientific Name	Recorded
Flora recorded in the Project area			
*	Annual Meadow-grass	<i>Poa annua</i> s.s.	X
*	Blackberry	<i>Rubus fruticosus</i> spp. agg.	X
	Blackwood	<i>Acacia melanoxylon</i>	X
*	Cape Weed	<i>Arctotheca calendula</i>	X
P *	Photinia	<i>Photinia serratifolia</i>	X
*	Cleavers	<i>Galium aparine</i>	X
*	Clover	<i>Trifolium</i> spp.	X
*	Common Sow-thistle	<i>Sonchus oleraceus</i>	X
*	Cut-leaf Crane's-bill	<i>Geranium dissectum</i>	X
P *	Elm	<i>Ulmus</i> spp.	X
*	English Daisy	<i>Bellis perennis</i>	X
*	Flatweed	<i>Hypochaeris radicata</i>	X
P #	Giant Honey-myrtle	<i>Melaleuca armillaris</i> subsp. <i>armillaris</i>	X
*	Glandular Willow-herb	<i>Epilobium ciliatum</i>	X
*	Large-leaf Cotoneaster	<i>Cotoneaster glaucophyllus</i>	X
P #	Lilly Pilly	<i>Syzygium smithii</i>	X
*	Mallow of Nice	<i>Malva nicaeensis</i>	X
*	Panic Veldt-grass	<i>Ehrharta erecta</i>	X
*	Prairie Grass	<i>Bromus catharticus</i>	X
*	Rat-tail Grass	<i>Sporobolus africanus</i>	X
P	River Red-gum	<i>Eucalyptus camaldulensis</i>	X
P #	Sallow Wattle	<i>Acacia longifolia</i>	X
P #	Southern Blue-gum	<i>Eucalyptus globulus</i>	X
*	Spear Thistle	<i>Cirsium vulgare</i>	X
P *	Sugar Gum	<i>Eucalyptus cladocalyx</i>	X
P	Swamp Gum	<i>Eucalyptus ovata</i>	X
*	Sweet Vernal-grass	<i>Anthoxanthum odoratum</i>	X
*	Timothy Grass	<i>Phleum pratense</i>	X
*	Toowoomba Canary-grass	<i>Phalaris aquatica</i>	X
P *	Tortured Willow	<i>Salix matsudana</i> 'Tortuosa'	X
*	Wild Oat	<i>Avena</i> spp.	X
*	Wild Radish	<i>Raphanus raphanistrum</i>	X
*	Yorkshire Fog	<i>Holcus lanatus</i>	X
Fauna recorded in the Project area			
	Australian Magpie	<i>Gymnorhina tibicen</i>	X
	Australian Wood Duck	<i>Chenonetta jubata</i>	X
(h)	Common Froglet	<i>Crinia signifera</i>	X
*	Common Starling	<i>Sturnus vulgaris</i>	X
*	House Sparrow	<i>Passer domesticus</i>	X
	Little Raven	<i>Corvus mellori</i>	X
	Long-billed Corella	<i>Cacatua tenuirostris</i>	X
	Pacific Black Duck	<i>Anas superciliosa</i>	X
	Red Wattlebird	<i>Anthochaera carunculata</i>	X
	Red-browed Finch	<i>Neochmia temporalis</i>	X
	Superb Fairy-wren	<i>Malurus cyaneus</i>	X

Origin	Common Name	Scientific Name	Recorded
	White-faced Heron	<i>Egretta novaehollandiae</i>	X
	Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>	X

* = introduced; # = species native to Victoria occurring outside its natural distribution; P = planted; (h) = heard only; X = recorded in Project area during survey.

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Appendix D: Likelihood of occurrence analysis of threatened flora

Common Name	Scientific Name	EPBC Act	FFG Act	DELWP Advisory	Habitat preference	Last Record in the search area	Likelihood of occurrence within the Project area
Adamson's Blown-grass	<i>Lachnagrostis adamsonii</i>	EN	L	vu	Occurs in and around saline depressions on the Volcanic Plain where recorded from Portalington west almost to the South Australian border.	N/A	No suitable habitat in the Project area. Negligible
Button Wrinklewort	<i>Rutidosia leptorhynchoidea</i>	EN	L	en	Confined to basaltic grasslands between Rokewood and Melbourne where endangered due to loss of habitat.	N/A	No suitable habitat in the Project area. Negligible
Clover Glycine	<i>Glycine latrobeana</i>	VU	L	vu	Widespread but of sporadic occurrence and rarely encountered. Grows mainly in grasslands and grassy woodlands.	N/A	No suitable habitat in the Project area. Negligible
Dense Leek-orchid	<i>Prasophyllum spicatum</i>	VU	-	en	Grows in coastal heath and sandhills. Localised across southern Victoria in coastal heathland and near-coastal heathy forest on sandy soils.	N/A	No suitable habitat in the Project area. Negligible
Maroon Leek-orchid	<i>Prasophyllum frenchii</i>	EN	L	en	Broad distribution across southern Victoria, but rare. Occurs in grassland, heathland and open forest on well-drained or water-retentive sand or clay loams.	N/A	No suitable habitat in the Project area. Negligible
River Swamp Wallaby-grass	<i>Amphibromus fluitans</i>	VU	-	-	Permanent swamps, lagoons, billabongs and dams.	N/A	No suitable habitat in the Project area. Negligible
Spiral Sun-orchid	<i>Thelymitra matthewsii</i>	VU	L	vu	Widely distributed but rare, in coastal sandy flats or slightly elevated sites (to 400 m) in well-drained soils (sandy loams to gravelly limestone soils) in open forest. Plants colonise disturbed sites and slowly disappear as these sites stabilise.	N/A	No suitable habitat in the Project area. Negligible
Swamp Everlasting	<i>Xerochrysum palustre</i>	VU	L	vu	Occurs in lowland swamps, usually on black cracking clay soils, scattered from near the South Australian border north-west of Portland to Bairnsdale district, but rare due to habitat depletion.	N/A	No suitable habitat in the Project area. Negligible
Swamp Fireweed	<i>Senecio psilocarpus</i>	VU	-	vu	Rare, restricted in Victoria to a few herb-rich winter-wet swamps throughout the south of the state, west from Sale, growing on volcanic clays or peaty soils.	N/A	No suitable habitat in the Project area. Negligible

Legend: EPBC Act: CR = critically endangered, EN = endangered, VU = vulnerable; FFG Act: L = listed as threatened; DELWP Advisory list: en = endangered, vu = vulnerable, r = rare; - = not listed

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Appendix E: Likelihood of occurrence analysis of threatened fauna

Common Name	Scientific Name	EPBC Act	FFG Act	DELWP Advisory	Habitat preference	Last Record in the search area	Likelihood of occurrence within the Project area
Birds							
Australasian Bittern	<i>Botaurus poiciloptilus</i>	EN	L	en	Frequents reedbeds, and other vegetation in water such as cumbungi, lignum and sedges.	N/A	No suitable habitat in the Project area. Negligible
Australian Painted-snipe	<i>Rostratula australis</i>	EN	L	cr	Inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. Also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains.	N/A	No suitable habitat in the Project area. Negligible
Common Greenshank	<i>Tringa nebularia</i>	M	-	vu	Found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity, typically with large mudflats and saltmarsh, mangroves or seagrass.	N/A	No suitable habitat in the Project area. Negligible
Common Sandpiper	<i>Actitis hypoleucos</i>	M	-	-	Utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins of rocky shores and rarely on mudflats.	N/A	No suitable habitat in the Project area. Negligible
Curlew Sandpiper	<i>Calidris ferruginea</i>	CR, M	en	L	Inter tidal mudflats in sheltered coastal areas. Non-tidal swamps, lagoons and bays near the coast, and ponds in saltworks and The wage farms must not be used for any purposes which may breach any	N/A	No suitable habitat in the Project area. Negligible
Eastern Curlew	<i>Numenius madagascariensis</i>	CR, M	vu	L	Largely restricted to Australia. Breeds in Russia and north-eastern China, arrives back to Australia in August to feed on crabs and molluscs in intertidal mudflats on the coast.	N/A	No suitable habitat in the Project area. Negligible
Fork-tailed Swift	<i>Apus pacificus</i>	M	-	-	Almost exclusively aerial. In Australia, they mostly occur over inland plains but sometimes above foothills or in coastal areas	N/A	Largely aerial. No preferred terrestrial habitat in the Project area. Negligible
Grey Falcon	<i>Falco hypoleucos</i>	VU	L	en	Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast.	N/A	No suitable habitat in the Project area. Negligible
Grey Goshawk	<i>Accipiter novaehollandiae</i>	-	L	vu	Occurs in coastal areas in northern and eastern Australia, found in most forest types, especially tall closed forests, including rainforests.	1/05/1956	No suitable habitat in the Project area. Negligible
Latham's Snipe	<i>Gallinago hardwickii</i>	M	-	nt	Occurs in a range of permanent and ephemeral wetlands including freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies)	2/02/1981	No suitable habitat in the Project area. Negligible
Musk Duck	<i>Biziura lobata</i>	-	-	vu	Associated with aquatic habitats. Broadly ranging throughout Australia.	1/12/1978	No suitable habitat in the Project area. Negligible

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Common Name	Scientific Name	EPBC Act	FFG Act	DELWP Advisory	Habitat preference	Last Record in the search area	Likelihood of occurrence within the Project area
Osprey	<i>Pandion haliaetus</i>	M	-	-	Occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. Found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia	N/A	No suitable habitat in the Project area. Negligible
Painted Honeyeater	<i>Grantiella picta</i>	VU	L	vu	Found in dry open forests and woodlands. The species is strongly associated with mistletoe.	N/A	No suitable habitat in the Project area. Negligible
Pectoral Sandpiper	<i>Calidris melanotos</i>	M	-	-	Prefers shallow fresh to saline wetlands and is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.	N/A	No suitable habitat in the Project area. Negligible
Plains-wanderer	<i>Pedionomus torquatus</i>	CR	L	cr	Inhabits sparse native grasslands and is often absent from areas where grass becomes too dense or too sparse. The species nests amongst native grasses and herbs, or sometimes amongst crops.	N/A	No suitable habitat in the Project area. Negligible
Rufous Fantail	<i>Rhipidura rufifrons</i>	M	-	-	Inhabits wet sclerophyll forests, often in gullies dominated by tall eucalypts, usually with a dense understorey and ferns.	N/A	No suitable habitat in the Project area. Negligible
Satin Flycatcher	<i>Myiagra cyanoleuca</i>	M	-	-	Inhabits heavily vegetated gullies in eucalypt-dominated forests and tall woodlands.	N/A	No suitable habitat in the Project area. Negligible
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	M	-	-	Prefers muddy edges of shallow fresh to brackish wetlands, with Mandak and Tergentoodges, bays, salt marsh or other low vegetation	N/A	No suitable habitat in the Project area. Negligible
Swift Parrot	<i>Lathamus discolor</i>	CR	L	en	Breeds in Tasmania and overwinters in Victoria. Found in dry sclerophyll forests and woodlands, suburban parks and gardens where it feeds on the nectar of flowering eucalypts, namely Grey, Red Ironbark, Mugga Ironbark, Yellow Gum and White Box. Also feed on lerp psyllids amongst Red Gum.	N/A	No suitable habitat in the Project area. Negligible
White-throated Needletail	<i>Hirundapus caudacutus</i>	VU, M	vu	L	Almost exclusively aerial, over a wide variety of habitats	1/03/1903	Largely aerial. No preferred terrestrial habitat in the Project area. Negligible
Yellow Wagtail	<i>Motacilla flava</i>	M	-	-	Regular non-breeding visitor in northern Australia mainly spring-summer, vagrant to the south. Wide range of habitats, including areas with low vegetation, often recorded near water.	N/A	No suitable habitat in the Project area. Negligible
Mammals							
Eastern Barred Bandicoot	<i>Perameles gunnii</i>	VU	L	x	Occurs in Tasmania in open habitats including woodlands and open forests with a grassy understorey. Now extinct in the wild in Victoria.	1/01/1951	No suitable habitat in the Project area. Extinct in Vic. Negligible

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Common Name	Scientific Name	EPBC Act	FFG Act	DELWP Advisory	Habitat preference	Last Record in the search area	Likelihood of occurrence within the Project area
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	VU	L	vu	Requires foraging resources and roosting sites. The primary food source is blossom from Eucalyptus and related genera but commonly forages on fruit trees in urban areas. Two known Flying Fox camps occur in the greater Melbourne region including one at Yarra Bend and one at Doveton.	N/A	Limited habitat in the Project area. Negligible
Long-nosed Potoroo	<i>Potorous tridactylus trisulcatus</i>	VU	L	nt	Occurs in a variety of wooded habitats in six known populations across Victoria.	N/A	No suitable habitat in the Project area. Negligible
Southern Bent-wing Bat	<i>Miniopterus schreibersii bassanii</i>	CR	L	cr	Roosts underground, predominantly in caves and mines. Foraging areas include forested areas, volcanic plains, wetlands, coastal vegetation (including beaches) and urban areas.	1/09/1965	No suitable habitat in the Project area. Negligible
Southern Brown Bandicoot	<i>Isodon obesulus obesulus</i>	EN	L	nt	Inhabits areas of dense ground cover in heathland, shrubland, sedgeland, heathy open forest and woodland. Suitable habitat includes any areas of vegetation (native or introduced) within the species range that comprises an understorey vegetation structure with 50–80% foliage cover in the 0.2–1 m height range.	N/A	No suitable habitat in the Project area. Negligible
Spot-tailed Quoll	<i>Dasyurus maculatus maculatus</i>	EN	L	en	Temperate and subtropical rainforests in mountain areas wet sclerophyll forest lowland forests open and closed eucalypt woodlands.	N/A	No suitable habitat in the Project area. Negligible
Swamp Antechinus	<i>Antechinus minimus maritimus</i>	VU	L	nt	Habitat includes dense wet heathlands, tussock grasslands, sedgelands, damp gullies, swamps and some shrubby woodlands.	N/A	No suitable habitat in the Project area. Negligible
Reptiles							
Corangamite Water Skink	<i>Eulamprus tympanum marnieae</i>	EN	L	cr	Found in grassy open woodland and cleared pastures dotted with ephemeral swamps and lakes, on rocky basaltic soils. Within these areas, the lizards inhabit rocky mounds or "stony rises", sheltering in rock crevices and man-made drystone walls.	N/A	No suitable habitat in the Project area. Negligible
Striped Legless Lizard	<i>Delma impar</i>	VU	L	en	Inhabits intact grassland habitats where it shelters in grass tussocks, under rocks and in cracks in the soil	N/A	No suitable habitat in the Project area. Negligible
Frogs							
Growling Grass Frog	<i>Litoria raniformis</i>	VU	L	en	Persists in waterways and other aquatic habitats in the greater Melbourne region. Key habitat features for the species includes submerged vegetation for egg-laying, rocks and logs for basking, permanent freshwater lagoons for breeding and cracks, as well as debris and dense vegetation for refuge.	N/A	No suitable aquatic habitat in the Project area. Negligible

Common Name	Scientific Name	EPBC Act	FFG Act	DELWP Advisory	Habitat preference	Last Record in the search area	Likelihood of occurrence within the Project area
Fish							
Australian Grayling	<i>Prototroctes maraena</i>	VU	L	vu	Occurs in streams and rivers on the eastern and southern flanks of the Great Dividing Range, from Sydney, southwards to the Otway Ranges of Victoria and in Tasmania. The species is found in fresh and brackish waters of coastal lagoons.	N/A	No suitable aquatic habitat in the Project area. Negligible
Dwarf Galaxias	<i>Galaxiella pusilla</i>	VU	L	en	Slow flowing, still shallow permanent and temporary freshwater habitats.	N/A	No suitable habitat in the Project area. Negligible
Little Galaxias	<i>Galaxiella toourtkoourt</i>	-	-	vu	The smallest known galaxiid species in the world. Found only in coastal drainages in western Victoria and eastern South Australia.	15/11/2007	No suitable aquatic habitat in the Project area. Negligible
Invertebrates							
Golden Sun Moth	<i>Synemon plana</i>	CR	L	cr	Occurs in grassy areas in the greater Melbourne region, mainly in areas dominated by native grasses such as wallaby grass and spear grass, but also in areas of introduced grasses such as Chilean Needle-grass.	N/A	Project area comprises of introduced pasture. No suitable habitat in the Project area. Negligible
Squeak Beetle	<i>Hygrobia australasiae</i>	-	L	vu	Occurs in stagnant water where the bottom is covered with a layer of mud and rotten plant debris.	17/05/1971	No suitable aquatic habitat in the Project area. Negligible

Legend: EPBC Act: CR = critically endangered, EN = endangered, VU = vulnerable, M = migratory; FFG Act: L=listed as threatened; DELWP Advisory list: cr=critically endangered, en = endangered, vu = vulnerable, nt = near threatened; - = not listed

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Appendix F: EPBC Act Protected Matters Search Tool (PMST) Report

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EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 14/10/20 09:30:41

[Summary](#)

[Details](#)

[Matters of NES](#)

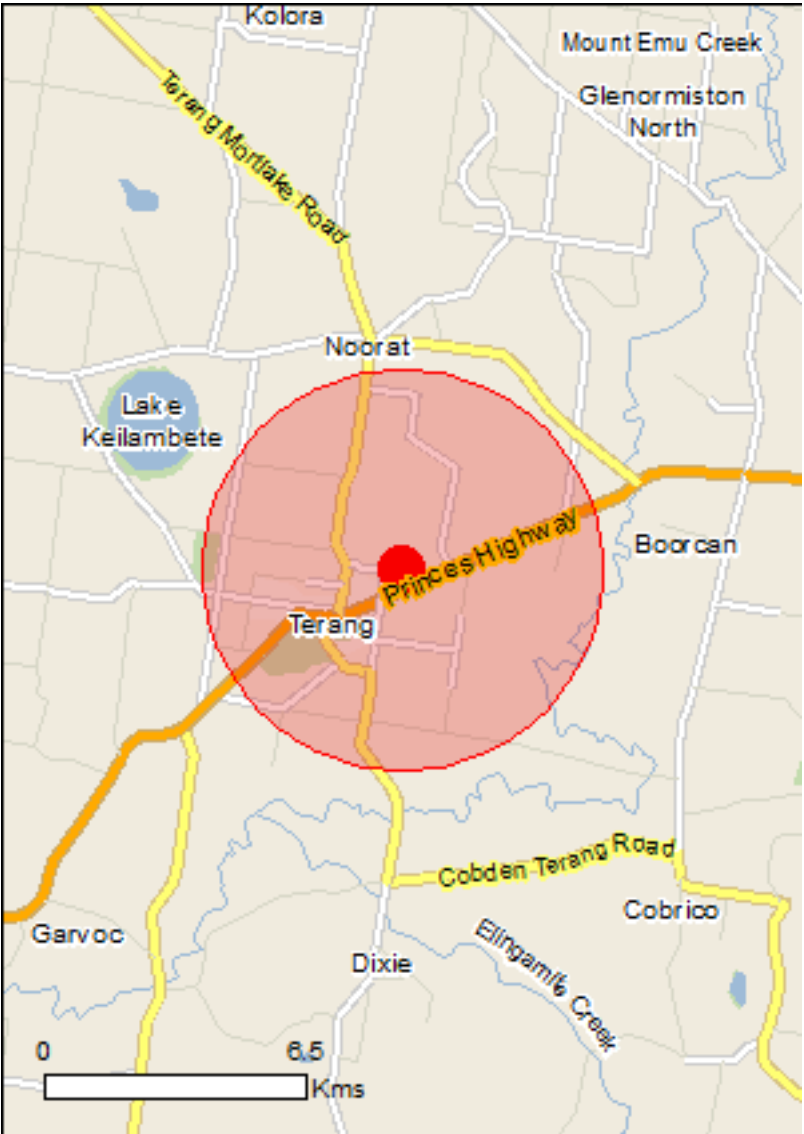
[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

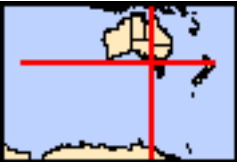
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[Buffer: 5.0Km](#)



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Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	30
Listed Migratory Species:	13

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	20
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	1
Invasive Species:	28
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

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Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Grassy Eucalypt Woodland of the Victorian Volcanic Plain	Critically Endangered	Community known to occur within area
Natural Temperate Grassland of the Victorian Volcanic Plain	Critically Endangered	Community likely to occur within area
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Critically Endangered	Community likely to occur within area

Listed Threatened Species

[Resource Information]

Name	Status	Type of Presence
Birds		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Fish		
Galaxiella pusilla Eastern Dwarf Galaxias, Dwarf Galaxias [56790]	Vulnerable	Species or species

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Name	Status	Type of Presence
Prototroctes maraena Australian Grayling [26179]	Vulnerable	habitat known to occur within area Species or species habitat may occur within area
Frogs		
Litoria raniformis Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat likely to occur within area
Insects		
Synemon plana Golden Sun Moth [25234]	Critically Endangered	Species or species habitat may occur within area
Mammals		
Antechinus minimus maritimus Swamp Antechinus (mainland) [83086]	Vulnerable	Species or species habitat may occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area
Isoodon obesulus obesulus Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat may occur within area
Miniopterus orianae bassanii Southern Bent-wing Bat [87645]	Critically Endangered	Species or species habitat likely to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE Mainland) [66645]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Plants		
Amphibromus fluitans River Swamp Wallaby-grass, Floating Swamp Wallaby-grass [19215]	Vulnerable	Species or species habitat may occur within area
Glycine latrobeana Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area
Lachnagrostis adamsonii Adamson's Blown-grass, Adamson's Blowngrass [76211]	Endangered	Species or species habitat may occur within area
Prasophyllum frenchii Maroon Leek-orchid, Slaty Leek-orchid, Stout Leek-orchid, French's Leek-orchid, Swamp Leek-orchid [9704]	Endangered	Species or species habitat likely to occur within area
Prasophyllum spicatum Dense Leek-orchid [55146]	Vulnerable	Species or species habitat may occur within area
Rutidosis leptorhynchoides Button Wrinklewort [67251]	Endangered	Species or species habitat may occur within area
Senecio psilocarpus Swamp Fireweed, Smooth-fruited Groundsel [64976]	Vulnerable	Species or species habitat likely to occur within area
Thelymitra matthewsii Spiral Sun-orchid [4168]	Vulnerable	Species or species habitat may occur within

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Name	Status	Type of Presence
area		
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Delma impar Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat may occur within area
Eulamprus tympanum marnieae Corangamite Water Skink, Dreeite Water Skink [64487]	Endangered	Species or species habitat may occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]	<div>This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright</div> <div>ADVERTISED PLAN</div>	Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur

Name	Threatened	Type of Presence within area
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Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]	ADVERTISED PLAN	Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]		Critically Endangered Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]	<div>This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright</div>	Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

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Extra Information

Regional Forest Agreements	[Resource Information]
----------------------------	--

Note that all areas with completed RFAs have been included.

Name	State
West Victoria RFA	Victoria

Invasive Species	[Resource Information]
------------------	--

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Carduelis chloris European Greenfinch [404]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]	<div>This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright</div>	Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]	<div>ADVERTISED PLAN</div>	Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Plants		
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area
Ulex europaeus Gorse, Furze [7693]	ADVERTISED PLAN	Species or species habitat likely to occur within area

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Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-38.2325 142.93556

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Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [Office of Environment and Heritage, New South Wales](#)
- [Department of Environment and Primary Industries, Victoria](#)
- [Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [Department of Environment, Water and Natural Resources, South Australia](#)
- [Department of Land and Resource Management, Northern Territory](#)
- [Department of Environmental and Heritage Protection, Queensland](#)
- [Department of Parks and Wildlife, Western Australia](#)
- [Environment and Planning Directorate, ACT](#)
- [Birdlife Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [Museum Victoria](#)
- [Australian Museum](#)
- [South Australian Museum](#)
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- [Queensland Herbarium](#)
- [National Herbarium of NSW](#)
- [Royal Botanic Gardens and National Herbarium of Victoria](#)
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- [Northern Territory Herbarium](#)
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- [Ocean Biogeographic Information System](#)
- [Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
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- [CSIRO](#)
- [Australian Tropical Herbarium, Cairns](#)
- [eBird Australia](#)
- [Australian Government – Australian Antarctic Data Centre](#)
- [Museum and Art Gallery of the Northern Territory](#)
- [Australian Government National Environmental Science Program](#)
- [Australian Institute of Marine Science](#)
- [Reef Life Survey Australia](#)
- [American Museum of Natural History](#)
- [Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

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The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

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Appendix G: Project design



Dalvui BESS
Indicative Site Layout Plan



Document prepared by

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