5. Potential impacts and mitigation measures

This section provides a high-level assessment of potential impacts to ecological values against:

- Potential for significant impacts to MNES under the SIC guidelines (Commonwealth of Australia 2013),
- Potential to satisfy criteria for referral under the EE Act as outlined in the ministerial guidelines (DSE 2006).

These preliminary assessments against MNES and EE Act referral criteria have been conducted without the application of mitigation measures or further design refinement.

Potential mitigation measures have been included below as a means to inform further design development and mitigation development for the project to avoid and further minimise these impacts. However, it is important to note that this current assessment is preliminary and is subject to confirmation and/or change based on the results of detailed field-based assessment of the study area and further surveys efforts to inform possible impacts.

5.1. Potential for significant impacts to MNES

MNES relevant to the project are summarised in Table 11. It includes an assessment against the EPBC Act policy statements published by the Australian Government which provide guidance on the practical application of EPBC Act.

The preliminary assessment of the project's potential impacts to biodiversity against the *Matters of National Environmental Significance, Significant Impact Criteria Guidelines 1.1 Environmental Protection and Biodiversity Conservation Act 1999* (Commonwealth of Australia 2013) indicate that the project could significantly impact the following MNES:

- EPBC listed species and communities
- Migratory species
- Wetlands of international importance (Ramsar sites)
- Commonwealth marine waters

The EPBC Act is likely to be triggered and referral of the proposed action to the Australian Government Minister for the Environment is therefore recommended to confirm if the project is a controlled action and further assessment and approval is required.

Table 11 Assessment of potential impacts against SIC guidelines under the EPBC Act (Commonwealth of Australia 2013)

MNES	Project specifics	Assessment against significant impact guidelines	Potential impacts to MNES
EPBC Act listed species	Study area contains populations of and / or habitat for 94 EPBC Act listed threatened species (incl. flora and fauna). The likelihood of these species occurring in the study area is assessed in Appendix A (flora) and Appendix B (fauna).	A total of 65 of these EPBC listed species are considered likely to occur within the study area. Therefore, it is possible that impacts from the project may result in significant impacts to EPBC Act listed threatened species.	Habitat destruction, loss, modification or fragmentation. Disturbance and disruption of life cycles. Collision with wind turbines and/or, to a lesser extent, overhead transmission lines, leading to mortalities. Introduction of disease and/or invasive species.
EPBC Act listed communities	Study area may contain up to three EPBC Act listed TECs with a conservation status of CR making them eligible for significant impact assessment against SIC guidelines.	Depending on the terrestrial impacts associated with the project, namely the onshore cable route, there is the potential for significant impacts to TECs.	Reduction in the extent of TECs. Fragmentation of TECs. Destruction of habitat and factors critical to the survival and persistence of TECs.
Migratory species	Study area contains wetlands, coastal and offshore habitat features that support up to 77 migratory species.	Depending on the terrestrial impacts associated with the project, namely the onshore cable route, there is the potential for significant impacts to migratory species. In addition, migratory species, specifically avifauna, may be at risk of collisions with offshore turbines.	Habitat destruction, loss, modification or fragmentation. Disturbance and disruption of life cycles. Collision with wind turbines and/or overhead transmission line leading to mortalities. Introduction of disease and/or invasive species.
Wetlands of international importance (Ramsar sites)	Study area contains the Gippsland Lakes Ramsar site and is within 10 kilometres of the Corner Inlet Ramsar site.	Depending on the terrestrial impacts associated with the project, namely the onshore cable route, it is possible that the project may significantly impact these Ramsar sites. In addition, migratory shorebird species that utilise these sites in larger numbers may be at risk from offshore operations.	Impacts to the lifecycles and potentially the survival of native species inhabiting the wetland (including migratory species). Impacts to the ecological integrity of the wetland through habitat loss or destruction. Indirect impacts through the introduction of pollutants, nutrients, disease and invasive species.

MNES	Project specifics	Assessment against significant impact guidelines	Potential impacts to MNES
Commonwealth marine waters	The offshore component of the study area includes Commonwealth marine waters within Bass Strait.	The marine environment within Bass Strait provides foraging and breeding habitat for numerous land-based marine predators including a range of seabird species and at least two fur seal species.	Habitat loss, modification or fragmentation. Disturbance and disruption of life cycles. Collision with wind turbines and/or overhead transmission line leading to mortalities. Introduction of disease and/or invasive species.

5.2. Preliminary MNES Significant Impact Assessment

A preliminary assessment of potential significant impact to each MNES is provided below. Note that we provide an assessment for terrestrial species, shorebirds and seabirds. An assessment for other marine species is beyond the scope of our report and has not been included here.

5.2.1. Critically Endangered or Endangered Species

An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:

- lead to a long-term decrease in the size of a population
- reduce the area of occupancy of the species
- fragment an existing population into two or more populations
- adversely affect habitat critical to the survival of a species
- disrupt the breeding cycle of a population
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat
- introduce disease that may cause the species to decline, or
- interfere with the recovery of the species.

Table 12 Preliminary assessment of significant impacts to Critically Endangered or Endangered species with a medium or higher likelihood of occurrence within the study area

Species/Species Group	Potential Impacts	Likelihood of Significant Impact
Flora: Eastern Spider-orchid, Dwarf Kerrawang, Matted Flax-lily, Maroon Leek-orchid, Metallic Sun-orchid.	Threatened flora are at risk of impact during the development stage, particularly in the proposed shore landing area. However, to determine the presence of threatened flora within the impact area will require an on-site assessment, and potentially targeted surveys for more cryptic species.	Likely (to be determined following an on-site assessment)
Terrestrial Birds: Gang-gang Cockatoo	Terrestrial birds could be potentially impacted during the construction phase, only if the onshore works result in disturbance to or removal of important habitat for these species. However, an on-site assessment is required to assess the availability of habitat for terrestrial birds.	Unlikely (to be determined following an on-site assessment)

Species/Species Group	Potential Impacts	Likelihood of Significant Impact
Bass Strait Migrants: Orange-bellied Parrot, Swift Parrot	Terrestrial birds which traverse Bass Strait are at risk of collision with offshore wind turbines if they pass through the study area. In addition, there is a potential for the onshore component of the study area to support suitable habitat for these species. Therefore, there is potential for these species to be impacted by onshore works during the construction phase. For species such as Orange-bellied Parrot, where population numbers are extremely low, any impact to the population (such as additional mortality) should be considered significant.	Likely (to be determined following a more detailed assessment)
Shorebirds and Waterbirds: Australian Painted-snipe, Australasian Bittern, Lesser Sand Plover, Eastern Curlew, Curlew Sandpiper, Red Knot, Great Knot.	Impacts to these species are most likely to occur during the construction phase, particularly if works impact the integrity of surrounding wetland environments. In addition to resident shorebirds, the onshore environment also supports large numbers of trans-equatorial migrants. It is likely that offshore impact area will be well beyond the range of these species. Furthermore, although flight heights during migration are still poorly understood for most species, available evidence suggests that migrating shorebirds travel at great heights and will likely be beyond the rotor-swept area should they traverse the offshore area. Uncertainty still exists with regard to the movements of shorebird species between Victoria and Tasmania and as such, impact to shorebirds may warrant further investigation.	Unlikely (to be determined following a more detailed assessment of the onshore habitat within the study area and surveys within the offshore area)
Seabirds: Gould's Petrel, Grey-headed Albatross, Shy Albatross, Southern Giant Petrel	The marine environment of Bass Strait supports recognized areas of high marine productivity and provides foraging opportunities for a range of seabird species. While none of the Critically Endangered or Endangered seabird species breed within close proximity to the study area, most are known to forage within these waters and the productive waters of the shelf-edge, particularly during the non-breeding period. However, given that the at-sea distribution of these species is still relatively poorly understood, it is possible that large numbers of individuals may occur within the offshore component of the study area and be at risk of collision with wind turbines.	Likely

Species/Species Group	Potential Impacts	Likelihood of Significant Impact
Terrestrial Mammals: Southern Brown Bandicoot	Terrestrial mammals could be potentially impacted during the construction phase, if onshore works result in disturbance to or removal of important habitat for these species. However, an on-site assessment is required to assess the availability of habitat for these species and targeted surveys may be required for cryptic species, to fully assess potential impacts.	Likely (to be determined following and on-site assessment)
Ichthyofauna: Macquarie Perch	Impacts to ichthyofauna are only expected to occur if onshore works impact the integrity of waterbodies utilised by these species.	Unlikely (to be determined following an on-site assessment)

5.2.2. Vulnerable Species

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

- lead to a long-term decrease in the size of an important population of a species
- reduce the area of occupancy of an important population
- fragment an existing important population into two or more populations
- adversely affect habitat critical to the survival of a species
- disrupt the breeding cycle of an important population
- modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat
- introduce disease that may cause the species to decline, or
- interfere substantially with the recovery of the species.

Table 13 Preliminary assessment of significant impacts to Vulnerable species with a medium or higher likelihood of occurrence within the study area

Species/Species Group	Potential Impacts	Potential Significance of Impact
Flora: River Swamp Wallaby-grass, Thick-lip Spider-orchid, Trailing Hop-bush, Strzelecki Gum, Dense Leek-orchid, Wellington Mint-bush, Green-striped Greenhood, Swamp Fireweed, Spiral Sun-orchid, Swamp Everlasting	Threatened flora are at risk of impact during the development stage, particularly in the proposed shore landing area. However, to determine the presence of threatened flora within the impact area will require an on-site assessment, and potentially targeted surveys for more cryptic species.	Likely (to be determined following an on-site assessment)

Species/Species Group	Potential Impacts	Potential Significance of Impact
Terrestrial Birds: Glossy Black-Cockatoo, Pilot Bird, Painted Honeyeater	Terrestrial birds are likely to be impacted during the construction phase, only if onshore works result in destruction to important habitat for these species. However, an on-site assessment is required to assess the availability of habitat for terrestrial birds.	Unlikely (to be determined following an on-site assessment)
Bass Strait Migrants: White-throated Needletail	Terrestrial birds which traverse Bass Strait are at risk of collision with offshore wind turbines if they pass through the study area. In addition, there is a potential for the onshore component of the study area to support suitable habitat for these species. White-throated Needletail, in particular, may warrant further consideration as this species is known to traverse Bass Strait more regularly than other migrants and wind turbines have been identified as a risk to the species.	Likely (to be determined following a more detailed assessment)
Shorebirds and Waterbirds: Australian Fairy Tern, Bar-tailed Godwit, Hooded Plover, Greater Sand Plover	Impacts to these species are most likely to occur during the construction phase, particularly if works impact the integrity of surrounding wetland environments. In addition to resident shorebirds, the onshore environment also supports large numbers of trans-equatorial migrants. It is likely that the offshore impact area will be well beyond the range of these species. Furthermore, although flight heights during migration are still poorly understood for most species, available evidence suggests that migrating shorebirds travel at great heights and will likely be beyond the rotor-swept area should the traverse the offshore area. Uncertainty still exists with regard to the movements of shorebird species between Victoria and Tasmania and as such, impact to shorebirds may warrant further investigation.	Unlikely (to be determined following a more detailed assessment of the onshore habitat within the study area and surveys within the offshore area)
Seabirds: Fairy Prion (subantarctic subspecies), Blue Petrel, Wandering Albatross, Black-browed Albatross, Indian Yellow-nosed Albatross, Sooty Albatross, Buller's Albatross, Northern Giant-Petrel, Southern Royal Albatross, White-capped Albatross, Campbell Albatross	The marine environment of Bass Strait supports recognized areas of high marine productivity and provides foraging opportunities for a range of seabird species. While none of the Vulnerable seabird species breed within close proximity to the study area, most are known to forage within these waters and the productive waters of the shelf-edge, particularly during the non-breeding period. However, given that the at-sea distribution of these species is still relatively poorly understood, it is possible that large numbers of individuals may occur within the offshore component of the study area and be at risk of collision with wind turbines.	Likely

Species/Species Group	Potential Impacts	Potential Significance of Impact
Terrestrial Mammals: Southern Greater Glider, New Holland Mouse, Grey-headed Flying-fox	Terrestrial mammals could be potentially impacted during the construction phase, if onshore works result in destruction to important habitat for these species. However, an on-site assessment is required to assess the availability of habitat for these species and targeted surveys may be required for cryptic species, to fully assess potential impacts.	Likely (to be determined following and on-site assessment)
Amphibians: Green and Golden Bell Frog, Growling Grass Frog	Amphibians could be potentially impacted during the onshore works via impact to the integrity of waterbodies and suitable aquatic habitats. It is likely that the study area will support suitable habitat for these species, although an on-site assessment is required to determine the extent of this habitat and assess potential impacts.	Likely (to be determined following an on-site assessment)
Ichthyofauna: Australian Grayling, Dwarf Galaxias	Impacts to ichthyofauna are only expected to occur if onshore works impact the integrity of waterbodies.	Unlikely (to be determined following an on-site assessment)

5.2.3. Critically Endangered or Endangered Ecological Communities

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

- reduce the extent of an ecological community
- fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines
- adversely affect habitat critical to the survival of an ecological community
- modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns
- cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:
  - assisting invasive species, that are harmful to the listed ecological community, to become established, or
  - causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or
- interfere with the recovery of an ecological community.

The results of this preliminary desktop review suggest that the study area may contain up to two EPBC Act listed TECs with a conservation status of Critically Endangered which makes them eligible for significant impact assessment against SIC guidelines. Depending on the terrestrial impacts associated with the project, namely the onshore cable route, there is the potential for significant impacts to TECs. However, an on-site assessment is required to determine the occurrence and extent of these threatened communities and fully assess the potential for significant impact.

5.2.4. Listed Migratory Species

An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:

- substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species
- result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or
- seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

Table 14 Preliminary assessment of significant impacts to Vulnerable species with a medium or higher likelihood of occurrence within the study area

Species/Species Group	Potential Impacts	Potential Significance of Impact
Migratory Shorebirds	It is likely that the offshore impact area will be well beyond the range of migratory shorebird species. Furthermore, although flight heights during migration are still poorly understood for most species, available evidence suggests that migrating shorebirds travel at great heights and will likely be beyond the rotor-swept area should the traverse the offshore area. However, further assessment may be required to determine the likelihood of migratory shorebirds to occur within the study area.	Unlikely (to be determined following a more detailed assessment of the onshore habitat within the study area and surveys within the offshore area).
Migratory Seabirds	Several species of migratory seabirds are expected to occur within the offshore area, including 14 species of albatross, two species of Giant-Petrel and three species of Shearwater. This includes Short-tailed Shearwater, the most numerically abundant seabird in south-eastern Australia, which breeds in large numbers at islands within 50 kilometres of the study area.	Likely

Species/Species Group	Potential Impacts	Potential Significance of Impact
Migratory Terrestrial Birds	Migratory terrestrial birds are likely to be impacted during the construction phase, only if onshore works result in destruction to important habitat for these species. However, an on-site assessment is required to assess the availability of habitat for terrestrial birds. It is unlikely that migratory terrestrial birds will traverse the offshore marine area and be at risk of collision with wind turbines.	Unlikely (to be determined following an on-site assessment)
Bass Strait Migrants	Terrestrial birds which traverse Bass Strait are at risk of collision with offshore wind turbines if they pass through the study area. In addition, there is a potential for the onshore component of the study area to support suitable habitat for these species.	Likely (to be determined following a more detailed assessment)

5.2.5. Wetlands of international importance (Ramsar sites)

An action is likely to have a significant impact on the ecological character of a declared Ramsar wetland if there is a real chance or possibility that it will result in:

- areas of the wetland being destroyed or substantially modified
- a substantial and measurable change in the hydrological regime of the wetland, for example, a substantial change to the volume, timing, duration and frequency of ground and surface water flows to and within the wetland
- the habitat or lifecycle of native species, including invertebrate fauna and fish species dependant upon the wetland being seriously affected
- a substantial and measurable change in the water quality of the wetland – for example, a substantial change in the level of salinity, pollutants, or nutrients in the wetland, or water temperature which may adversely impact on biodiversity, ecological integrity, social amenity or human health, or
- an invasive species that is harmful to the ecological character of the wetland being established (or an existing invasive species being spread) in the wetland.

Depending on the terrestrial impacts associated with the project, namely the construction of the onshore cable route, it is possible that the project may significantly impact these Ramsar sites through:

- Impacts to the lifecycles and potentially the survival of native species inhabiting the wetland (including migratory species). Impacts to the ecological integrity of the wetland through habitat loss or destruction.
- Indirect impacts through the introduction of pollutants, nutrients, disease and invasive species.

5.2.6. Commonwealth marine waters

An action is likely to have a significant impact on the environment in a Commonwealth marine area if there is a real chance or possibility that the action will:

- result in a known or potential pest species becoming established in the Commonwealth marine area
- modify, destroy, fragment, isolate or disturb an important or substantial area of habitat such that an adverse impact on marine ecosystem functioning or integrity in a Commonwealth marine area results
- have a substantial adverse effect on a population of a marine species or cetacean including its life cycle (for example, breeding, feeding, migration behaviour, life expectancy) and spatial distribution
- result in a substantial change in air quality or water quality (including temperature) which may adversely impact on biodiversity, ecological integrity; social amenity or human health
- result in persistent organic chemicals, heavy metals, or other potentially harmful chemicals accumulating in the marine environment such that biodiversity, ecological integrity, social amenity or human health may be adversely affected, or
- have a substantial adverse impact on heritage values of the Commonwealth marine area, including damage or destruction of an historic shipwreck.

Assessment of the impacts to Commonwealth marine waters is beyond the scope of this assessment. However, it is noteworthy that the marine environment within Bass Strait provides foraging habitat for numerous land-based marine predators including a range of seabird species and at least two fur seal species. In addition, the islands within Bass Strait provide breeding habitat for a number of these species (Schumann et al. 2014). While there are no known seabird or seal breeding colonies within the study area, several breeding species are known to breed within 50 kilometres of the study area, including Little Penguin, Short-tailed Shearwater, Black-faced Cormorant, Common Diving-Petrel, Fairy Prion, Pacific Gull, Australian Fur Seal and Long-nosed fur seal. It is highly likely that the at-sea distribution of these species will overlap with the offshore wind turbine area and that volant species may be at risk of collision with wind turbines.

Given the high mobility and dispersal capabilities of seabirds, particularly outside of the breeding period, it is also highly likely that species which overwinter within the Bass Strait marine environment may overlap with the study area.

5.3. Potential to satisfy criteria for referral under the EE Act

An assessment of the potential for the project to satisfy criteria for referral under the EE Act as outlined in the *Ministerial guidelines for assessment of environmental effects* (DSE 2006) is provided in Table 15.

The preliminary assessment of the project's potential impacts to biodiversity against the individual and combined referral criteria outlined in the *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978* (DSE 2006) indicate that the project could satisfy up to four of the individual potential environmental effects criteria and up to five of the combination of potential environmental effects criteria.

It is therefore likely that an EES referral will be required, although it should be noted that this current assessment is preliminary and is subject to confirmation and/or change based on the results of detailed field-based assessment of the study area and further surveys efforts to inform possible impacts.

5.4. Potential mitigation measures

The primary measure to reduce impacts to biodiversity values within the study area is to avoid and minimise removal of native vegetation and terrestrial and aquatic habitat. In addition, impacts to avifauna (including migratory species), specifically related to collision risks with wind turbines should be taken into account.

Preliminary mitigation measure which should be considered include:

- Avoiding / minimising unnecessary duplication of infrastructure e.g. utilise existing easements to connect to existing transmission network, co-locate project components with other infrastructure.
- Aligning the impact footprint through existing cleared land including agricultural land and plantations.
- Strategic use of horizontal directional drilling (HDD) / boring rather than open trenching methods for underground cables, particularly in sensitive areas such as beach landings and when crossing waterways.
- Further assessment to identify which avifauna species are likely to be at risk of collisions with wind turbines, to allow further exploration of mitigation options and design reconfiguration.
- Careful timing of activities around periods or areas of ecological significance (e.g. breeding sites and breeding seasons) to further minimise and/or avoid impacts.
- The development of a project specific Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP).
- Following this preliminary assessment (Phase 1) and further environmental assessments including potential targeted surveys, general project area and design refinement may be required to further avoid and minimise impacts.

Given the proximity of the project to the Star of the South project the potential for cumulative impacts also needs to be considered as the development approvals process proceeds.

Table 15 Assessment of referral criteria against the ministerial guidelines under the EE Act (DSE 2006)

Referral criteria	Project specifics	Potential for significant effects
Individual potential environmental effects		
Potential clearing of 10 ha or more of native vegetation from an area that: – is of an Ecological Vegetation Class identified as endangered by the Department of Sustainability and Environment (in accordance with Appendix 2 of Victoria's Native Vegetation Management Framework); or – is, or is likely to be, of very high conservation significance (as defined in accordance with Appendix 3 of Victoria's Native Vegetation Management Framework); and – is not authorised under an approved Forest Management Plan or Fire Protection Plan.	Study area contains large areas of native vegetation including EVCs identified as endangered (5 EVCs), vulnerable (7 EVCs) and depleted (1 EVC). Endangered and vulnerable EVCs can all qualify as being of high conservation significance if vegetation condition is high enough.	Depending on the terrestrial impacts associated with the project, and the siting of the onshore cable route and overhead transmission line, it is possible that more than 10 ha of such native vegetation may be cleared.
Potential long-term loss of a significant proportion (e.g. 1 to 5 percent depending on the conservation status of the species) of known remaining habitat or population of a threatened species within Victoria.	Study area contains known populations of and / or remaining habitat for threatened flora and fauna species.	It is possible that impacts from the project may lead to the long-term loss of a significant proportion of known remaining habitat and / or population of threatened species within Victoria. Potential species with a likelihood of occurrence are noted at Sections 4.6 and 4.7.
Potential long-term change to the ecological character of a wetland listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'.	Study area contains the Gippsland Lakes Ramsar wetland and is within 10 kilometres of the Corner Inlet Ramsar site.	Depending on the terrestrial impacts associated with the project, and the siting of the onshore cable route, it is possible that the project may lead to a long-term change in the ecological character of one or both of these wetlands. In addition, migratory shorebirds which utilise these wetlands in larger numbers may be at risk from offshore operations.
Potential extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems, over the long term.	Study area contains aquatic, estuarine and marine ecosystems.	It is possible that impacts from the project may lead to the extensive or major effects on the health or biodiversity of aquatic, marine and / or marine ecosystems over the long-term.

Referral criteria	Project specifics	Potential for significant effects
Combination of potential environmental effects		
Potential clearing of 10 ha or more of native vegetation, unless authorised under an approved Forest Management Plan or Fire Protection Plan.	Study area contains large areas of native vegetation.	Depending on the terrestrial impacts associated with the project, and the siting of the onshore cable route, it is possible that more than 10 ha of native vegetation may be cleared.
Matters listed under the *Flora and Fauna Guarantee Act 1988:* - potential loss of a significant area of a listed ecological community; or - potential loss of a genetically important population of an endangered or threatened species (listed or nominated for listing), including as a result of loss or fragmentation of habitats; or - potential loss of critical habitat; or - potential significant effects on habitat values of a wetland supporting migratory bird species.	Study area contains FFG Act listed ecological communities, populations and / or habitat for threatened species and wetlands that support migratory bird species.	It is possible that impacts from the project may significantly impact matters listed under the FFG Act.
Potential extensive or major effects on landscape values of regional importance, especially where recognised by a planning scheme overlay or within or adjoining land reserved under the *National Parks Act 1975.*	Study area contains areas of land within or adjoining land reserved under the National Parks Act and two wetlands of regional significance, namely Lake Denison and Jack Smith Lake.	It is possible that impacts from the project may result in extensive or major effects on landscape values of regional importance.
Potential extensive or major effects on beneficial uses of waterbodies over the long term due to changes in water quality, stream flows or regional groundwater levels.	Study area contains numerous waterbodies including lakes, rivers and creeks.	It is possible that impacts from the project may result in extensive or major effects on beneficial uses of waterbodies over the long-term due to changes in water quality, streamflows or regional groundwater levels.

6. Key ecological values and recommendations

This section summarises key ecological values, potential implications of the project under the EPBC Act and EE Act and provides recommendations on proceeding with the development application process while avoiding and / or minimising impacts to biodiversity.

Ecological values

Key ecological values identified within the study area are as follows:

- Extensive areas of native vegetation contained primarily within public land including:
  - Gippsland Lakes Coastal Park,
  - Holey Plains State Park,
  - Ninety Mile Beach Marine National Park.
  - Giffard (Rifle Range) Flora Reserve,
  - Stradbroke Flora and Fauna Reserve.
- Nineteen (19) Ecological Vegetation Classes (EVCs) within the Gippsland Plain bioregion including:
  - Seven (7) EVCs with a Bioregional Conservation Status (BCS) of Endangered,
  - Eight (8) EVCs with a BCS of Vulnerable,
  - One EVC with a BCS of Depleted.
- Over 300 wetlands are modelled within the search area including:
  - Two internationally important (Ramsar) wetlands - The Gippsland Lakes and Corner Inlet,
  - Two waterbodies of regional significance - Jack Smith Lake & Lake Denison.
- Numerous waterways and tributaries including:
  - Merriman Creek & associated tributaries
- Populations and / or suitable habitat for 91 threatened flora species of which 62 have been identified as likely to occur within the study area and will likely warrant further consideration. This includes:
  - Four (4) flora species listed under the EPBC Act only
  - Eleven (11) flora species listed under the EPBC Act and FFG Act
  - Forty-seven (47) flora species listed under the FFG Act only
- Populations and / or suitable habitat for 129 threatened fauna species of which 98 have been identified as likely to occur within the study area and will likely warrant further consideration. This includes:
  - Thirteen (13) flauna species listed under the EPBC Act only
  - Thirty-seven (37) fauna species listed under the EPBC Act and FFG Act
  - Forty-eight (48) fauna species listed under the FFG Act only

- Suitable habitat for 77 migratory species listed under the EPBC Act including:
  - Eight (8) terrestrial birds
  - Thirty-four (34) shorebirds, wetland birds and terns
  - Thirty-five (35) marine species (including 19 seabirds)
- Four (4) nationally (EPBC Act) listed and seven (7) state (FFG Act) listed threatened ecological communities.

Government legislation and policy

An assessment of the project in relation to key biodiversity legislation and policy is provided and summarised below.

Potential impacts to MNES under the EPBC Act

Our preliminary assessment of the project's potential impacts to biodiversity against the Matters of National Environmental Significance (MNES), *Significant Impact Criteria Guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth of Australia 2013) indicate that the project could significantly impact the following MNES:

- Listed threatened species and ecological communities
- Listed migratory species
- Wetlands of international importance (Ramsar sites)
- Commonwealth marine areas.

Further details are provided in Section 5.1.

Potential environmental effects under the EE Act

Our preliminary assessment of the project's potential impacts to biodiversity against the individual and combined referral criteria outlined in the *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978* (DSE 2006) indicate that the project could meet up to four of the individual potential environmental effects criteria and up to five of the combination of potential environmental effects criteria.

Further details are provided in Section 5.2.

Recommendations

The primary measure to reduce impacts to biodiversity values within the study area is to avoid and minimise removal of native vegetation and terrestrial and aquatic habitat. It is critical that this be considered during the design phase of the project, when key decisions are made about the location of project components such as built infrastructure / site compounds / access roads / temporary material storage etc.

This could be achieved by:

- Avoiding / minimising unnecessary duplication of infrastructure e.g. utilise existing easements to connect to existing transmission network, co-locate project components with other infrastructure.

- Aligning the impact footprint through existing cleared land including agricultural land and plantations.
- Strategic use of horizontal directional drilling (HDD) / boring rather than open trenching methods for underground cables, particularly in sensitive areas such as beach landings and when crossing waterways.
- Further assessment to identify which avifauna species are likely to be at risk of collisions with wind turbines, to allow further exploration of mitigation options and design reconfiguration.
- Careful timing of activities around periods or areas of ecological significance (e.g. breeding sites and breeding seasons) to further minimise and/or avoid impacts.
- The development of a project specific Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP).
- General project area and design refinement may be required to further avoid and minimise impacts following this preliminary assessment (Phase 1) and further environmental assessments including potential targeted surveys to identify potential impacts.

The results of this assessment should be:

- Used to inform the referrals process under both the EPBC Act and EE Act to develop an appropriate scope for the environmental impact assessment of the project.
- Integrated into project design to avoid and minimise impacts to biodiversity.
- Used to inform development of a project specific CEMP and OEMP.
- Used to inform development of an offset strategy for potential impacts to biodiversity.

The following recommendations are made with a view to progressing ecological assessment and project design:

- Undertake an ecological site inspection to delineate (and or confirm based on previous surveys) areas of the site in which listed ecological communities and habitat for listed flora and terrestrial fauna exist and to map portions of the site containing ecological values.
- On the basis of information obtained during the site visit, provide recommendations, if applicable, for any residual targeted investigations that may be necessary.
- Develop a study program for detailed ecological assessments to delineate the potential impacts of the offshore infrastructure (turbines, substations and undersea cables) on key species and communities.

It is important to note that for all species and ecological communities, this current assessment is preliminary and is subject to confirmation and/or change based on the results of detailed field based assessment of the study area.

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APPENDICES

Appendix A. Flora

The following abbreviations and symbols are relevant to this Appendix.

Code	Meaning	Reference
National listings (EPBC Act)		
EN	Endangered	*Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
VU	Vulnerable	
PMST	Protected Matters Search Tool	
State listings (FFG)		
cr	Critically endangered	*Flora and Fauna Guarantee Act 1988* (FFG Act)
e	Endangered	
v	Vulnerable	

Appendix A.1. Listed flora species

The following table includes threatened flora species that have potential to occur within the study area. The list of threatened species is sourced from the VBA and PMST (accessed on 31 August 2022). Where years are specified for the most recent database records, these refer to records from the VBA unless otherwise specified. Where no year is specified, the PMST has predicted that the species has potential to occur. A proportion of the flora habitat descriptions have been reproduced with permission from the Royal Botanic Gardens Victoria (RBGV 2020).

Table 16 Threatened flora species recorded or predicted to occur within 10 km of the study area

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
National significance								
Amphibromus fluitans	River Swamp Wallaby-grass	VU		2008	PMST	Swampy areas, mainly along the Murray River between Wodonga and Echuca with scattered records from southern Victoria.	**High**	Habitat suitable. Several recent records of the species from within the study area and within 1 km.
Caladenia orientalis	Eastern Spider-orchid	EN	e	1981		Heath and heathy woodlands in coastal areas between the Mornington Peninsula and Wilsons Promontory.	**Medium**	1 historical record of the species within 10 km of the study area. Some heathy woodland habitat is present, however it is limited.
Caladenia tessellata	Thick-lip Spider-orchid	VU		1975	PMST	Heathlands, heathy woodlands and lowland forest in coastal areas east from Port Phillip Bay.	**Medium**	Suitable habitat within the study area, although no recent records. Closest VBA record is from 1975.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Commersonia prostrata	Dwarf Kerrawang	EN	e	2012	PMST	Swampy, sometimes ephemeral, wetlands and lake margins, that are often dominated by Lepidosperma spp.	**High**	Many recent and historic records of species. Some patches of suitable habitat remain within the study area.
Dianella amoena	Matted Flax-lily	EN	cr	2019	PMST	Lowland grassland and grassy woodland, on well-drained to seasonally waterlogged fertile sandy loam soils to heavy cracking clays.	**Medium**	Multiple recent records within 10 km. Small amount of grassland habitat present.
Dodonaea procumbens	Trailing Hop-bush	VU		2011	PMST	Sandy or clay soils in low-lying, winter-wet areas in grasslands, woodlands, and low-open forest.	**Medium**	Suitable habitat present. No records within the study area, but nearby records in the same EVCs as those modelled in study area.
Eucalyptus crenulata	Buxton Gum	EN	e	2006		Alluvial soils in seasonally inundated depressions along river flats; records away from Buxton and Yering in the northeast are likely to be introductions.	**Negligible**	Well outside known natural range of the species. Records within 10 kilometres are almost certainly planted specimens as species is widely planted.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Eucalyptus strzeleckii	Strzelecki Gum	VU	cr	2021	PMST	Ridges, slopes and along the banks of streams on deep, fertile loam soils that are seasonally waterlogged; less commonly found on undulating or flat terrain.	**High**	Suitable habitat present and one recent record within the study area. Several other records within 10 km of study area.
Glycine latrobeana	Clover Glycine	VU	v	1882	PMST	Grasslands and grassy woodlands, particularly those dominated by Kangaroo Grass.	**Low**	No recent records within 10 km, only 1 historical record (1882). Grassland habitat limited within the study area, although this can be difficult to judge from aerial imagery.
Lepidium hyssopifolium s.s.	Basalt Peppercress	EN	e		PMST	Basalt plains grassland and woodland communities.	**Negligible**	No local records. Habitat not suitable. Outside normal range of the species.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Pomaderris vacciniifolia	Round-leaf Pomaderris	CR	cr	1924	PMST	Endemic in Victoria. Largely confined to moist forest and scrubs in the upper catchment of the Yarra, Plenty and Yea Rivers in an area bounded by Healesville, Marysville and Whittlesea, but also in the Tyers-Walhalla areas.	**Low**	2 historical records within 10 km. Some lowland forest habitat within the study area, however species likely to have been recorded if it is still present.
Prasophyllum frenchii	Maroon Leek-orchid	EN	e		PMST	Grassland and grassy woodland environments on sandy or black clay loam soils, that are generally damp but well drained.	**Medium**	No records within the study area or within 10km, however suitable habitat present and species is cryptic and widespread throughout coastal and near-coastal areas of southern Victoria.
Prasophyllum spicatum	Dense Leek-orchid	VU	cr		PMST	Heath and heathy woodlands.	**Medium**	No records within the study area, however suitable habitat present and species is cryptic and widespread throughout coastal and near-coastal areas of southern Victoria.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Prostanthera galbraithiae	Wellington Mint-bush	VU	e	2020	PMST	Heathy open forest, heathland and heathy woodland, usually on gravelly sand.	**High**	No records within the study area, but abundant records within 10 kilometres. Some suitable EVCs still present within the study area.
Pterostylis chlorogramma	Green-striped Greenhood	VU	e	2008	PMST	Heathy woodland; more specific habitat requirements are poorly known.	**Medium**	Several recent records within 10 km of study area and suitable habitat present based on EVC and TEC modelling. Species is cryptic, widespread throughout southern Victoria.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Senecio psilocarpus	Swamp Fireweed	VU			PMST	Seasonally inundated herb-rich swamps, growing on peaty soils or volcanic clays.	**Medium**	No records within 10 km of study area though species is easily overlooked. Species occurs throughout southern Victoria west from Sale. Suitable habitat present based on EVC and TEC modelling.
Thelymitra epipactoides	Metallic Sun-orchid	EN	e	1895	PMST	Moist or dry sandy loams or loamy sands, primarily in coastal heaths, grasslands and woodlands, but also in similar communities at drier inland sites.	**Medium**	1 historical record within 10km of. Suitable habitat present and species is cryptic and widespread throughout coastal and near-coastal areas of southern Victoria.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Thelymitra matthewsii	Spiral Sun-orchid	VU	e		PMST	Typically on well-drained soils on slightly elevated sites, but also on coastal sandy flats. Often in open situations following disturbance.	**Medium**	No records within the study area, however suitable habitat present and species is cryptic and widespread throughout coastal and near-coastal areas of southern Victoria.
Xerochrysum palustre	Swamp Everlasting	VU	cr	2009	PMST	Sedge-swamps and shallow freshwater marshes and swamps in lowlands, on black cracking clay soils.	**High**	Suitable swamp habitat may be present. Single record 4 km from study area from 1972.
State significance								
Acacia howittii	Sticky Wattle		v	2016		Moist forest. Natural occurrences are confined to South Gippsland and Central Highlands.	**Medium**	Historic and local records found within 10 kilometres of the study area. Some lowland forest remains within the study area, this could be suitable habitat.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Allocasuarina nana	Stunted Sheoak		e	2011		Known only from Mt Elizabeth and the upper Genoa River, growing in heath on sandstone in exposed situations.	**Medium**	Single local, recent record appears genuine. Very separate from other records on the NSW border.
Althenia marina	Sea Water-mat		cr	1990			**Medium**	Two historic records within the study area. Habitat appears suitable within the study area.
Amphibromus sinuatus	Wavy Swamp Wallaby-grass		e	2013		Confined to permanent swamps in cool sites.	**Medium**	3 recent records within 10 km. Some permanent swamps likely to be present.
Astrotricha parvifolia subsp. 1	Small-leaf Star-hair		cr	2012		Endemic in Victoria. Restricted to the Gippsland Lakes hinterland (Providence Ponds, Dutson, Robinson) and not recently collected. Regeneration mode and habitat not known.	**Medium**	No recent records within the study area, although several within 10 km. Appears local populations are restricted to roadsides.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Austrostipa rudis subsp. australis	Veined Spear-grass		e	1983		Cooler areas of moderate altitude, in open-forest on sandy or sandstone derived soils.	**Medium**	One historic record of the species within the study area. Suitable habitat within the study area and species is easily overlooked.
Avicennia marina subsp. australasica	Grey Mangrove		e	1986		Low energy coastlines in the inter-tidal zone.	**Low**	Several historical records within 10 km. Limited wet forest habitat within the study area. Some estuarine habitat present within the study area, although this is disjunct from recorded distribution of the species.
Billardiera scandens s.s.	Velvet Apple-berry		e	2012		Common in heathland, woodland and forests from near sea level to the subalps.	**Medium**	No recent records within the study area, although one recent record within 10km. Suitable habitat found within the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Bossiaea heterophylla	Variable Bossiaea		e	2015		Sandy soils in a range of habitats including heathland and open woodland.	**Medium**	Suitable habitat present. No recent records of the species within the study area, however numerous records within 10 km.
Brachyscome salkiniae	Elegant Daisy		v	1987		In forests and woodland on sandy or loamy soil, often on river banks and flats, throughout East Gippsland and extending west into the Latrobe Valley near Moe.	**Medium**	No recent records within 10 kilometres but several historic records. Suitable habitat may remain within the study area.
Caladenia aurantiaca	Orange-tip Finger-orchid		e	2003		Lowland forest and heathy woodlands, typically near the coast.	**Medium**	Numerous records within 10 km of study area. A cryptic species. Suitable habitat within the study area.
Caladenia vulgaris	Slender Pink-fingers		v	1995		Scattered across southern Victoria where sometimes locally common in heathland and coastal scrub on moisture-retentive sandy soils.	**Medium**	Suitable habitat present. Single record within 10 km of study area though species is cryptic.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Calochilus imberbis	Naked Beard-orchid		cr	2000		Mainly found in heath, heathy woodlands and lowland forests.	**Medium**	No recent or historic records within the study area, but several within 10 kilometres. Suitable habitat found throughout the study area.
Chiloglottis jeanesii	Mountain Bird-orchid		v	2012		Fern gullies and wet sclerophyll forests. Often grows with Chiloglottis cornuta and C. valida.	**Medium**	Small areas of suitable habitat likely present. Single recent record within 300 m of study area in Callignee State Forest.
Coronidium gunnianum	Pale Swamp Everlasting		cr	2013		Widespread and sometimes locally common, particularly in high-rainfall areas of Victoria; often in moist sites in open forests and woodlands.	**Medium**	No recent records within the study area, but recent records within 10 kilometres. Suitable habitat within the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Corybas aconitiflorus	Spurred Helmet-orchid		e	1995		Coastal scrubs, heath, heathy woodland and moist foothill forest in damp, shady sites.	**Medium**	One historical record within 10 km. Heathy woodland habitat present. Terrestrial orchid species are commonly cryptic, making them difficult to survey.
Corybas fimbriatus	Fringed Helmet-orchid		e	2012		Damp, shady locations within coastal scrub, heath, heathy woodland and lowland forest.	**High**	One recent record within the study area and one within 10 kilometres. Suitable habitat present.
Corymbia maculata	Spotted Gum		v	2021		In Victoria, naturally confined to a small population near Mt Tara in the east of the state.	**Not applicable**	Records around Sale and Traralgon are almost certainly planted as species is planted throughout south-eastern Australia.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Craspedia canens	Grey Billy-buttons		cr	2019		Low altitude grasslands between Cranbourne and Traralgon.	**Medium**	Single historic, but no recent records within the study area. Many recent records within 10 km, along Princes Highway. Some suitable habitat may be present.
Cullen parvum	Small Scurf-pea		e	2005		Lowland grasslands, including pastures and occasionally in otherwise disturbed grassy areas.	**Low**	2 recent records within 10 km, however suitable lowland grassland habitat not likely to be present within the study area.
Cyathea cunninghamii	Slender Tree-fern		cr	2004		Deep loamy humus soils on the banks of sheltered gullies in wet, hilly regions.	**Low**	Suitable habitat unlikely to be present within study area. Single record is over 9 km from study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Cycnogeton microtuberosum	Eastern Water-ribbons		e	2013		Common in fresh, still or slow-flowing water 50-120 cm deep, in small creeks, swamps and farm dams. Can also be found in stagnant water that is often highly eutrophic and humic from farmland run-off.	**Medium**	Many recent and historical records of the species occur within 10 km bordering a deep-water marsh south of Sale. Limited suitable habitat is likely to be present.
Cymbonotus lawsonianus	Bear's-ear		e	2009		Woodland communities.	**Medium**	Suitable habitat present. Several records within 10 km of study area.
Deparia petersenii subsp. congrua	Japanese Lady-fern		e	1989		Shaded, wet forests and river flats, often near or on rocks.	**Low**	Single historic record within 2 km of study area from 1989. Small areas of suitable habitat may be present.
Dianella longifolia var. grandis s.l.	Glaucous Flax-lily		cr	2000		Occurs in lowland plain grassland and grassy woodlands as well as around rocky outcrops at higher altitudes. Overall, rather rare in the State.	**Low**	Single record within 9 km of study area from 2000. Small areas of suitable habitat may be present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Diuris punctata var. punctata	Purple Diuris		e	2019		Fertile, loamy soils and periodically wet areas in lowland grasslands, grassy woodlands, heathy woodlands and open heathlands.	**High**	Several recent records within the study area. Heathy woodland habitat present.
Epilobium willisii	Carpet Willow-herb		x	1972		Confined to Lankeys Plain on the Dargo High Plains, occurring in moist depressions in grassland, but not noted in recent years.	**Low**	One historical record within 10 km. Suitable habitat not likely to be present, species not recorded in recent years.
Eragrostis trachycarpa	Rough-grain Love-grass		e	2012		Moist grassland or grassy woodland sites.	**Medium**	Single record within 8 km of study area from 2012. Small areas of suitable habitat may be present.
Eriocaulon scariosum	Common Pipewort		e	1973		Bog communities and drainage areas, often where there is running water.	**Low**	Single historic record within 8 km of study area from 2012. Small areas of suitable habitat may be present and species is easily overlooked.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Eucalyptus arenicola	Gippsland Lakes Peppermint		e	2015		Sandy soils in both coastal and near coastal environments.	**High**	Several recent and historic records within the study area. Suitable habitat found throughout the study area.
Eucalyptus bosistoana	Coast Grey-box		e	2011		Occurs mostly on loamy soils east from Woodside, around the Gippsland Lakes and near the coast, extending further inland (east) along the Cann and Genoa River Valleys. Commonly associated with Eucalyptus globoidea.	**High**	One record within the study area, another very close by. Suitable habitat throughout the study area.
Eucalyptus fulgens	Green Scentbark		e	2008		Forests and woodlands of the Gippsland Plain and adjacent foothills.	**High**	One recent record within the study area and several recent and historical records within 10 km. Woodland habitat present.
Eucalyptus globulus subsp. globulus	Southern Blue-gum		e	2021		Damp forest communities. Restricted to South Gippsland and the Otway Ranges.	**Medium**	No recent or historic records within the study area but recorded within 10 kilometres. Suitable habitat likely present within the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Eucalyptus kitsoniana	Bog Gum		cr	2021		Damp alluvial soils or boggy flats.	**Not applicable**	Recent records of this species are most likely to be planted as the study area occurs outside the natural range of the species and it is commonly planted.
Eucalyptus yarraensis	Yarra Gum		cr	2021		Valley flats and along stream on soils subject to periodic inundation or waterlogging.	**High**	Recent and historic records within the study area. Suitable habitat scattered throughout study area.
Euchiton umbricola	Cliff Cudweed		e	1982		Confined almost exclusively to shaded cliff-faces (often near waterfalls) and boulders above c. 1000 m.	**Low**	1 historical record within 10 km. Unlikely to be any suitable cliff-face habitat within the study area
Fimbristylis velata	Veiled Fringe-sedge		e	2013		Drying mud beside lakes and rivers and in seasonally wet depressions.	**Medium**	Several recent records within 10 km. Some suitable riparian habitat present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Geranium solanderi var. solanderi s.s.	Austral Crane's-bill		e	2006		Grasslands or grassy woodlands where hydrology is not a limiting factor.	**Low**	One recent record within 10 km. No Grassy woodland habitat likely to occur within the study area.
Grevillea chrysophaea	Golden Grevillea		v	2022		Silty sand and sandy loam soils in woodlands and heath.	**High**	Several recent and historic records within the study area. Suitable habitat found throughout the study area.
Hakea macraeana	Willow Needlewood		cr	2012		Known in Victoria from a single young plant in the Upper Genoa River, possibly originating from seed washed downstream from plants across the border in New South Wales.	**Not applicable**	Known from only a single, natural plant. Record within 10 km may be a planted individual.
Lachnagrostis robusta	Salt Blown-grass		e	1998		Confined to saline swamps and lake edges but widespread across the Victorian Volcanic Plain and occasionally in the southern Wimmera.	**Medium**	No recent records within 10 kilometres of the study area but two historic records. There is suitable habitat within the study area and species is easily overlooked.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Lachnagrostis rudis subsp. rudis	Rough Blown-grass		e	2011		Uncommon, occurs in moist, shaded forests and swamp margins near the coast.	**Medium**	One recent record within 10 km within riparian scrub. Some riparian scrub may occur within the study area.
Lachnagrostis semibarbata var. filifolia	Purple Blown-grass		e	1991		Wet marshes and slightly saline swamps and depressions, on heavy soils away from the coast.	**Medium**	Suitable habitat present, but no recent records within 10 kilometres of the study site. Two historic records within the study area. Species is easily overlooked.
Lachnagrostis semibarbata var. semibarbata	Purple Blown-grass		e	2000		Wet marshes and slightly saline swamps and depressions in plains communities.	**Medium**	Multiple historic records within 10 km of the study area. Species is easily overlooked.
Lawrencia spicata	Salt Lawrencia		e	1986		Fringe habitats of coastal saltmarsh communities.	**Low**	Several historical records within 10 km of study area. Limited coastal saltmarsh habitat in the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Leptorhynchos elongatus	Lanky Buttons		e	1994		Grassy Eucalyptus pauciflora woodlands in the eastern uplands; dry open-forest in the west and southern mallee.	**Low**	Single historic record within study area from 1994. Small areas of suitable habitat may be present.
Melaleuca armillaris subsp. armillaris	Giant Honey-myrtle		e	2021		Near coastal heath/scrub, rocky coast and foothill outcrops.	**Not applicable**	Study area well outside natural range of the species. Records are almost certainly planted as species is widely planted throughout Victoria.
Oxalis rubens	Dune Wood-sorrel		e	2003		Near coastal sites, often on sand dunes.	**Medium**	Recorded within 10 kilometres of the study area. Suitable habitat within the study area and species is easily overlooked.
Platysace ericoides	Heath Platysace		e	2003		Dry forests on coastal plains, foothills and lowland woodlands - typically on shallow, rocky soils.	**Medium**	One recent and historical record within 10 km of the study area. Suitable heathland habitat may be present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Poa billardierei	Coast Fescue		e	1979		Coastal dunes.	**Medium**	One historic record within the study area. Some suitable habitat present within the study area and species is easily overlooked.
Pomaderris apetala subsp. maritima	Tasman Pomaderris		e	1986		Occurs on low dunes and sea-cliffs at Wilsons Promontory (e.g. Lighthouse area), islands of Corner Inlet, and the western limit of the Ninety Mile Beach.	**Low**	One historical record within 10 km of the study area. Dune and sea-cliff habitat limited and study area disjunct from the natural distribution of the species.
Pomaderris aurea	Golden Pomaderris		e	1993		Dry foothill forests and heathy woodlands to wetter montane forests.	**Medium**	No recent records within 10 kilometres of the study area, however several historic records are close to the area. Suitable habitat can still be found in the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Pomaderris pilifera subsp. pilifera	Striped Pomaderris		e	2000		Occurs in hill country woodlands and open forests on well-drained clay loams.	**Medium**	Two records within 10 km of study area. Suitable habitat likely present but scattered in the study area.
Posidonia australis	Fibre-ball Weed		e	1960		In Victoria, only recorded from Barwon Heads, Jack Smith Lake and Corner Inlet. It grows in shallow water up to c. 15 m deep, in sandy soil with rhizomes just below the substrate surface.	**Medium**	Two historic records are from Jack Smith Lake which is outside study area. Suitable habitat may be present in Lake Denison. Species is easily overlooked.
Pseudanthus ovalifolius	Oval-leaf Pseudanthus		v	2000		Dry sandy or shallow, shale soils.	**Low**	Two records approximately 9 km from study area. Suitable habitat present but scattered in the study area. Species is relatively distinctive even outside of flowering period.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Pterostylis fischii	Fisch's Greenhood		e	2003		Grassy moist areas within open forest.	**Medium**	No recent or historic records within the study area but recorded within 5 km of study area. Areas of suitable habitat may be present. A cryptic species.
Pterostylis grandiflora	Cobra Greenhood		e	2011		Moist, shady slopes in open-forest, on well-drained soil.	**Low**	Several recent records within 10 km, however open forest habitat limited within the study area.
Pterostylis pedoglossa	Prawn Greenhood		e	1972		Heath and heathy woodland near the coast.	**Low**	A cryptic species with a single historic record within 5 km of study area.
Pterostylis X ingens	Sharp Greenhood		v	1967		Moist areas in open forest.	**Low**	A cryptic species with two historic records within 10 km of study area.
Pterostylis X toveyana	Mentone Greenhood		e	2013		Coastal scrub and moist areas of open-forest.	**Medium**	A cryptic species. Two recent records within 10 kilometres. Suitable habitat may persist in the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Pultenaea blakelyi	Blakely's Bush-pea		cr	1995		This species is tentatively treated as native in Victoria. It is currently known from a single collection on Private property near Traralgon, where it is not believed to have been planted. However, the absence of other records of this species in the general area does not support this idea.	**Negligible**	See description - single record for the state within 10 kilometres from study area.
Ranunculus amplus	Lacey River Buttercup		cr	2008		Shallow margins of freshwater swamps, billabongs and dams.	**Low**	One recent record within 10 km. Limited freshwater swamp habitat likely to occur within the study area.
Senecio diaschides	Shingle Fireweed		e	2011		Confined to river valleys in the east, with records from along the Avon, Macalister, Murrindal, Buchan and Snowy Rivers, commonly occurring on sand or among rocks near the watercourse.	**Medium**	One recent record within 10 km, some suitable river valley habitat likely to occur within the study area.
Senecio glomeratus subsp. longifructus	Annual Fireweed		v	2012		Areas adjacent to streams, swamps and saline flats.	**Medium**	One recent record within 10 km. Some stream habitat present, although limited swamp or saline flat habitat present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Sowerbaea juncea	Rush Lily		v	2020		Locally common in damp, near-coastal heath and woodland communities in the far east (from near Mario to the NSW border) with scattered, disjunct occurrences in the northern part of Wilsons Promontory and areas between Traralgon and Sale south to near Yarram.	**High**	Multiple records within 10 km of the study area including one from 2000 just 600 m away from study area.
Thelymitra hiemalis	Winter Sun-orchid		cr	2012		Brown Stringybark Eucalyptus baxteri or Promontory Peppermint E. willisii woodland, typically with a heathy understorey.	**High**	One recent record within the study area. Found along a roadside, so other remnant patches of habitat could be present in the study area.
Tmesipteris elongata	Slender Fork-fern		cr	1983		An epiphytic fern growing on tree ferns Dicksonia spp. in wet forests and rainforests.	**Low**	Several historical records within 10 km. Limited wet forest habitat within the study area.
Tmesipteris ovata	Oval Fork-fern		e	1983		An epiphytic fern growing on tree ferns Cyathea spp. in wet and damp forests, often on rainforest margins.	**Low**	Several historical records within 10 km. Limited wet forest habitat within the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Triglochin minutissima	Tiny Arrowgrass		e	2012		Scattered occurrences on damp saline soils near salt-lakes, and forming part of herbfields in coastal saltmarshes.	**Low**	One recent record within 10 km. Coastal saltmarsh limited within the study area.
Viola fuscoviolacea	Dusky Violet		e	1991		Damp alpine herbfields on Buffalo Plateau, Bogong High Plains, Mt Wellington and Nunniong Plateau.	**Medium**	A single historic record within 10 kilometres of the study site. Habitat not highly suitable, though some recent records have been identified outside of alpine herb fields.
Xanthosia leiophylla	Parsley Xanthosia		e	1978		Sandy heathland and heathy woodland.	**Medium**	One historic record within the study area. Suitable habitat scattered throughout the study area. Species is easily overlooked.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Zieria veronicea subsp. veronicea	Pink Zieria		e	2012		Sandy mallee and heathy mallee habitats within the Wimmera and southern Mallee.	**Medium**	One historic record within the study area and many recent and historic records within 10 kilometres. Suitable habitat scattered throughout the study area.

Appendix A.2. Threatened ecological communities

The following table includes the threatened ecological communities that have potential to occur within the project area. The list of threatened ecological communities has been compiled with reference to characteristics of FFG Act threatened communities (SAC 2013) and predictive output from the PMST (accessed on 31 August 2022).

Table 17 Threatened ecological communities predicted to occur within 10 km of the project area.

Community Name	Conservation status	Source
National significance		
Gippsland Red Gum (Eucalyptus tereticornis subsp. mediana) Grassy Woodland and Associated Native Grassland	Critically Endangered	PMST
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered	PMST
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	PMST
State significance		
Central Gippsland Plains Grassland Community	Threatened	NV2005_FFG_COMM
Coastal Moonah (Melaleuca lanceolata subsp. lanceolata) Woodland Community	Threatened	NV2005_FFG_COMM
Forest Red Gum Grassy Woodland Community	Threatened	NV2005_FFG_COMM
Plains Grassland (South Gippsland) Community	Threatened	NV2005_FFG_COMM
Sedge Rich Eucalyptus camphora Swamp Community	Threatened	NV2005_FFG_COMM

Appendix B. Fauna

The following abbreviations and symbols are relevant to this Appendix:

Code	Meaning	Reference
National listings (EPBC Act)		
EX	Extinct	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
CR	Critically endangered	
EN	Endangered	
VU	Vulnerable	
NT	Near threatened	
CD	Conservation dependent	
PMST	Protected Matters Search Tool	
State listings (FFG Act)		
x	Extinct	Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act)
xw	Extinct in the wild	
cr	Critically endangered	
e	Endangered	
v	Vulnerable	
cd	Conservation dependant	
P	Protected (fish only)	

Appendix B.1. Listed fauna species

The following table includes a list of threatened fauna species that have potential to occur within the study area. The list of threatened species is sourced from the VBA and PMST (accessed on 31 August 2022). Where years are specified for the most recent database records, these refer to records from the VBA unless otherwise specified. Where no year is specified, the PMST has predicted that the species has potential to occur.

Table 18 Threatened fauna species recorded or predicted to occur within 10 km of the study area

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
National significance								
Rostratula australis	Australian Painted-snipe	EN	cr	1979	PMST	Shallows of well-vegetated freshwater wetlands.	**Medium**	Suitable wetland habitat in surrounding areas.
Botaurus poiciloptilus	Australasian Bittern	EN	cr	1992	PMST	Shallow freshwater and brackish wetlands with abundant emergent aquatic vegetation.	**Medium**	Suitable wetland habitat present and contemporary records in surrounding areas
Falco hypoleucos	Grey Falcon	VU	v		PMST	Lightly timbered plains and Acacia scrub.	**Low**	No suitable habitat present and no records in surrounding areas

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Calyptorhynchus lathami	Glossy Black-Cockatoo	VU	cr		PMST	Forests and woodlands with Buloke Allocasuarina spp.	**Medium**	Distribution of this species extends to East Gippsland, slightly beyond the search area. However if suitable habitat exists, the species may occasionaly occur within the study area.
Callocephalon fimbriatum	Gang-gang Cockatoo	EN		2018	PMST	S Vic to E NSW. Forests and woodlands from coast to alpine areas. Autumn-winter dispersal from highlands to lower elevations. Forages in eucalypts, acacias and some exotic garden trees and shrubs.	**High**	Suitable habitat present and numerous recent records in surrounding areas

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Neophema chrysogaster	Orange-bellied Parrot	CR	cr	1984	PMST	Coastal vegetation including saltmarshes, dunes, pastures, shrublands, sewage plants, saltworks, islands, and beaches.	**Medium**	Suitable habitat present and contempory records in surrounding areas. Species migrates across Bass Strait between Victoria and Tasmania.
Lathamus discolor	Swift Parrot	CR	cr	2017	PMST	A range of forests and woodlands, especially those supporting nectar-producing tree species. Also well-treed urban areas.	**High**	Suitable habitat present and recent records in surrounding areas. Species migrates across Bass Strait between Victoria and Tasmania.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Hirundapus caudacutus	White-throated Needletail	VU	v	2019	PMST	An almost exclusively aerial species within Australia, occurring over most types of habitat, particularly wooded areas.	**High**	Suitable habitat present and recent records in surrounding areas. Species migrates across Bass Strait between Victoria and Tasmania.
Diomedea antipodensis gibsoni	Gibson's Albatross	VU			PMST	A marine, pelagic species that ranges widely throughout the Pacific region of the Southern Ocean. It visits off-shore waters of southern Australia.	**Low**	No records within the study area or nearby surrounding areas. Only Australian record off NSW
Fregetta grallaria grallaria	Storm-Petrel (Australasian)	VU			PMST	Occurs over deep pelagic waters of the continental shelf.	**Low**	Potential Ssp. of white-bellied Storm-Petrel. Not known to occur in Victorian waters

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Pachyptila turtur subantarctica	Fairy Prion (southern)	VU			PMST	Open ocean over continental shelves and slopes, and rarely coming close to shore except at breeding islands and during rough weather.	**Medium**	Ssp. breeds on sub-Antarctic islands but disperses north during winter. May occur off south eastern Australia in small numbers. May be difficult to distinguish from locally breeding Pachyptila turtur and thus cannot be excluded from likelihoods.
Pterodroma leucoptera leucoptera	Gould's Petrel	EN			PMST	The Gould's Petrel is a marine pelagic spending the majority of its time at sea. It has breeding colonies on Cabbage Tree Island and Boondelbah Island.	**Medium**	Historic records in surrounding areas including Wilsons Promontory. May be an occasional visitor to the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Thalassarche bulleri platei	Northern Buller's Albatross	VU			PMST	Buller's Albatross breeds in New Zealand and is a seasonal visitor to Victorian coastal waters where it occurs in pelagic and inshore waters.	**Low**	No records within the study area or nearby surrounding areas.
Halobaena caerulea	Blue Petrel	VU			PMST	A marine species, usually pelagic but sometimes observed over shallow waters. A regular visitor to southern Australian waters.	**Medium**	Historic records in surrounding areas including Wilsons Promontory. May be an occasional visitor to the study area.
Diomedea exulans	Wandering Albatross	VU	cr		PMST	Occurs from Antarctic to subtropical areas in the southern hemisphere. In Australia, observed over continental shelves often in areas of continental upwellings. Regularly recorded feeding in sheltered harbours, often gathering at sewerage outfalls.	**Medium**	Historic records in surrounding areas including Wilsons Promontory. May be an occasional visitor to the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Thalassarche melanophris	Black-browed Albatross	VU		2000	PMST	Breeds in antarctic and sub-antarctic islands, but commonly occurs in pelagic waters off the coast of Victoria.	**High**	Multiple historic and recent records in surrounding areas. Likely to pass through the study area.
Thalassarche carteri	Indian Yellow-nosed Albatross	VU	e	2000	PMST	Sub-Antarctic to subtropical waters off southern Australia, mostly in winter. Often close inshore. Breeds on Indian Ocean sub-Antarctic islands.	**High**	Historic records in surrounding areas including Wilsons Promontory. Likely to pass through the study area.
Thalassarche chrysostoma	Grey-headed Albatross	EN	e		PMST	Occurs in warmer areas over winter, its breeding grounds are found in the Antarctic and subantarctic islands. Generally, forages over the open oceans. There have been a small number of records over inshore and offshore areas along the Victorian coast.	**Medium**	Historic records in surrounding areas including Wilsons Promontory. May be an occasional visitor to the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Thalassarche cauta	Shy Albatross	EN	e	2000	PMST	Sub-Antarctic to temperate waters off southern Australia, in all months. Often close inshore. Breeds on Albatross Is. (Bass Strait); the Mewstone & Pedra Branca Is. (S. Tas.).	**High**	Multiple historic and recent records within the study area and in surrounding areas. Likely to be a pass through the study area frequently.
Phoebetria fusca	Sooty Albatross	VU	cr		PMST	Subantarctic and subtropical marine waters.	**Medium**	Limited records off the coast of Victoria, but could be an occasional visitor to the study area.
Macronectes giganteus	Southern Giant-Petrel	EN	e		PMST	Adults of this species are present all year round at Antarctic breeding colonies, from where immature birds disperse, some as far north as subtropical areas.	**Medium**	Historic records in surrounding areas including Wilsons Promontory. May be an occasional visitor to the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Thalassarche bulleri	Buller's Albatross	VU	e		PMST	Pelagic sub-antarctic to subtropical waters off SE Australia, mostly Mar - June. Infrequent in Bass Strait. Breeds on NZ islands.	**Medium**	Occasional records in surrounding areas. May be an occasional visitor to the study area.
Macronectes halli	Northern Giant-Petrel	VU	e	2000	PMST	Breeds in coastal habitats on subantarctic islands. Dispersal movements of juveniles are poorly known but have been observed along temperate coastal areas of Australia. Often seen around sewer outfalls or seal and penguin colonies.	**High**	Multiple historic and recent records in surrounding areas. Likely to pass through the study area frequently.
Diomedea epomophora	Southern Royal Albatross	VU	cr	1974	PMST	Pelagic sub-antarctic to temperate waters off SE Australia, may occur in all months but mostly Jul - Oct. Breeds on NZ islands.	**Medium**	Historic and recent records in surrounding areas including Wilsons Promontory. May be an occasional visitor to the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Diomedea sanfordi	Northern Royal Albatross	EN			PMST	Pelagic sub-antarctic to temperate waters off SE Australia, may occur in all months but mostly May - Sept. Breeds Chatham Is. and single mainland site in NZ.	**Low**	Not commonly seen over continental slope and pelagic waters, with sighting limited to marine environment off eastern Tasmania.
Diomedea antipodensis	New Zealand Wandering Albatross	VU			PMST	A marine, pelagic species that ranges widely throughout the Pacific region of the Southern Ocean. It visits off-shore waters of southern Australia.	**Low**	Uncommon visitor to south-eastern Australia, with sighting limited to marine environment off eastern Tasmania.
Thalassarche salvini	Salvin's Albatross	VU			PMST	Infrequent occurrence in pelagic sub-antarctic to temperate waters off southern Australia. Breeds on Indian Ocean and NZ islands.	**Low**	Uncommon visitor to south-eastern Australia.
Thalassarche steadi	White-capped Albatross	VU			PMST	Infrequent occurrence in pelagic sub-antarctic to temperate waters off southern Australia. May be more common off southern NSW. Breeds on Auckland Is group, NZ.	**Medium**	Occasional visitor to the pelagic environment off south-east Australia.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Thalassarche impavida	Campbell Albatross	VU			PMST	Antarctic to subtropical waters from pelagic to shelf-break water including off-shore waters of southern and eastern Australia, mostly in winter. Breeds on Campbell Is. (NZ).	**Medium**	Commonly recorded over deeper shelf waters off southern Australia. May occasionally occur within the study area.
Limosa lapponica baueri	Bar-tailed Godwit (baueri)	VU		1998	PMST	Bar-tailed Godwits inhabit estuarine mudflats, beaches and mangroves. They are common in coastal areas around Australia. They are social birds and are often seen in large flocks and in the company of other waders.	**High**	Multiple historic and recent records in surrounding areas. Suitable habitat present within the study area.
Sternula nereis nereis	Australian Fairy Tern	VU		2018	PMST	Fairy Terns inhabit coastal environments including intertidal mudflats, sand flats and beaches. Nests above high-water mark on sandy shell-grit beaches.	**High**	Multiple historic and recent records in surrounding areas. Suitable habitat present within the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Thinornis cucullatus	Hooded Plover	VU	v	2019	PMST	Year-round resident. Sandy ocean beaches, margins of estuaries and coastal lakes.	**High**	Multiple historic and recent records in surrounding areas. Suitable habitat present within the study area.
Charadrius mongolus	Lesser Sand Plover	EN	e	1980	PMST	Intertidal mudflats and sandbanks of sheltered bays and estuaries.	**High**	Multiple historic and recent records in surrounding areas. Suitable habitat present within the study area.
Charadrius leschenaultii	Greater Sand Plover	VU	v		PMST	Intertidal mudflats and sandbanks of sheltered bays and estuaries.	**High**	Multiple historic and recent records in surrounding areas. Suitable habitat present within the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Numenius madagascariensis	Eastern Curlew	CR	cr	1992	PMST	Large intertidal sandflats, banks, mudflats, estuaries, inlets, sewage farms, saltworks, harbours, coastal lagoons and bays.	**High**	Multiple historic and recent records in surrounding areas. Suitable habitat present within the study area.
Calidris ferruginea	Curlew Sandpiper	CR	cr	2017	PMST	Large intertidal sandflats, banks, mudflats, estuaries, inlets, sewage farms, saltworks, harbours, coastal lagoons and bays.	**High**	Multiple historic and recent records within study area and in surrounding areas. Suitable habitat present within the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Calidris canutus	Red Knot	EN	e	1998	PMST	Large intertidal sandflats, banks, mudflats, estuaries, inlets, sewage farms, saltworks, harbours, coastal lagoons and bays.	**High**	Multiple historic and recent records in surrounding areas. Suitable habitat present within the study area.
Calidris tenuirostris	Great Knot	CR	cr	1998	PMST	Large intertidal sandflats, banks, mudflats, estuaries, inlets, sewage farms, saltworks, harbours, coastal lagoons and bays.	**High**	Multiple historic and recent records in surrounding areas. Suitable habitat present within the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Pycnoptilus floccosus	Pilotbird	VU		1977	PMST	E Vic to SE NSW. Largely ground-dwelling among leaf litter, logs and lower storey vegetation of wet sclerophyll forests and rainforest. Less often, alpine and coastal woodlands.	**Medium**	Multiple historic and recent records in surrounding areas to the west of the study area. Some suitable habitat present within the study area.
Grantiella picta	Painted Honeyeater	VU	v		PMST	Dry open woodlands and forests. Typically forages for fruit and nectar in mistletoes and in tree canopies.	**Medium**	Recent records near Lake Tyers and habitat suitable.
Anthochaera phrygia	Regent Honeyeater	CR	cr	1979	PMST	A range of dry woodlands and forests dominated by nectar-producing tree species.	**Low**	Suitable habitat present within the study area, but population is regionally reduced to NE Vic.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Dasyurus maculatus maculatus (SE mainland population)	Spot-tailed Quoll	EN	e	1975	PMST	Rainforest and wet and dry sclerophyll forests and woodlands.	**Low**	No records within study area and population is sparsely distributed throughout south-eastern Australia.
Dasyurus viverrinus	Eastern Quoll	EN		1899		The Eastern Quoll is a medium-sized carnivorous marsupial that once occupied a broad range of forest, woodland and grassland habitats in Victoria. The species is now restricted to Tasmania and is considered to be extinct from mainland Australia.	**Low**	No records within study area and population is sparsely distributed throughout south-eastern Australia.
Antechinus minimus maritimus	Swamp Antechinus	VU	v		PMST	Dense wet heath and heathy woodland, sedgeland and dense tussock grassland.	**Low**	No records within study area and populations in surrounding areas are spatially restricted. Suitable habitat unlikely to occur in study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Petauroides volans	Southern Greater Glider	VU	v	2020	PMST	Wet and damp sclerophyll forest with large hollow-bearing trees.	**Medium**	Historic and recent records within the surrounding areas. Species may occur in study area if suitable habitat is present.
Petaurus australis	Yellow-bellied Glider	VU			PMST	Forest and woodland habitats at a range of altitudes.	**Low**	No records within the local area and the study area is beyond the normal range of this species.
Potorous tridactylus trisulcatus	Long-nosed Potoroo	VU	v		PMST	Forest, heathy woodlands and heathlands.	**Low**	No records within the surrounding area, with known range to be further east in Gippsland.
Potorous longipes	Long-footed Potoroo	EN	e	1900		Temperate rainforest, riparian forest and wet and dry sclerophyll forest.	**Low**	No recent records within the surrounding area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Mastacomys fuscus mordicus	Broad-toothed Rat	VU	v		PMST	Sub-alpine Woodland, Heathland, Sedgeland, and sedge-dominated areas within forest.	**Low**	No suitable habitat. No records within the surrounding area with known distribution further north of the study area.
Pseudomys novaehollandiae	New Holland Mouse	VU	e	2007	PMST	Coastal heathland, heathy woodland and dry sclerophyll forest.	**High**	Multiple historic and recent records within the study area and suitable habitat present.
Pseudomys fumeus	Smoky Mouse	EN	e		PMST	Coastal heath and heathy woodland, wet forest, sub-alpine heath and dry sclerophyll forest.	**Low**	No records within the study area and species distribution is fragmented across Victoria.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Mirounga leonina	Southern Elephant Seal	VU		2014		Occurs in antarctic and subantarctic areas. Victorian records likely to be of vagrants, which have been found on rare occasions along the entire Victorian coast, including Port Phillip and Hobsons Bay.	**Medium**	Vagrants occur on shore and off the coast of Victoria. May be an occasional visitor to the study area.
Eubalaena australis	Southern Right Whale	EN	e	2017	PMST	Migrates between summer feeding grounds in the Southern Ocean to warmer northern waters over winter, where it can be found along the Victorian coastline. The coast 8 km east of Warrnambool is a locally important calving and nursing site until late October or early November.	**High**	Multiple recent records within the study area and surrounding areas. Likely to pass through the study area.
Balaenoptera musculus	Blue Whale	EN	e		PMST	Found throughout the Southern Ocean, though migration paths appear to be diffuse and widespread. Often enters coastal waters, including Victoria (particularly the smaller subspecies Balaenoptera physalus).	**Low**	No records in the surrounding area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Balaenoptera physalus	Fin Whale	VU			PMST	Occurs worldwide with populations in the southern hemisphere undergoing extensive north-south migrations. Only one record in Victoria.	**Low**	Limited records off the coast of Victoria, particularly within the study area and surrounds.
Megaptera novaeangliae australis	Southern Humpback Whale	VU	cr	2013	PMST	Migrate between summer feeding grounds in the Southern Ocean to Northern waters where birthing and mating occurs. Increasingly recorded along the Victorian coast, occasionally entering Port Phillip and Western Port.	**High**	Commonly recorded of sout-eastern Australia and likely to pass through the offshore portion of the study area.
Balaenoptera borealis schlegelii	Southern Sei Whale	VU			PMST	An oceanic species recorded in Australian waters.	**Low**	No records in the surrounding area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Isoodon obesulus obesulus	Southern Brown Bandicoot	EN	e	1976	PMST	Heathland, shrubland, sedgeland, heathy open forest and woodland; also exotic vegetation, such as blackberry thickets and rank grasses where native vegetation has been removed.	**Medium**	Historic and recent records in surrounding areas including Wilsons Promontory. May occur if suitable habitat occurs in the study area.
Pteropus poliocephalus	Grey-headed Flying-fox	VU	v	1981	PMST	Rainforest, wet and dry sclerophyll forest, woodland and urban areas.	**Medium**	Historic and recent records in surrounding areas. May be an occasional visitor to the study area.
Chelonia mydas	Green Turtle	VU			PMST	Marine species with a pan-tropical distribution throughout the world. More abundant along the tropical coasts of Australia and the Great Barrier Reef. Green Turtles spend their first five to ten years drifting on ocean currents.	**Low**	Limited records in Bass Strait.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Dermochelys coriacea	Leathery Turtle	EN	cr		PMST	Marine species usually sighted along the eastern seaboard often in bays, estuaries and rivers. No major nesting events have been recorded in Australia.	**Medium**	Records in nearby bays and lakes. May be an occasional visitor to the study area.
Delma impar	Striped Legless Lizard	VU	e		PMST	Natural temperate grassland, grassy woodland and exotic grassland.	**Negligible**	No suitable habitat and study area is well beyond the species known distribution.
Caretta caretta	Loggerhead Turtle	EN			PMST	Loggerhead Turtles forage widely in the waters of coral and rocky reefs, seagrass beds and muddy bays throughout eastern, northern and western Australia. Nesting occurs in coastal environments of northern WA, NT and QLD.	**Low**	Limited records in Bass Strait.
Heleioporus australiacus	Giant Burrowing Frog	VU	cr		PMST	Forests, woodlands and heathland with slow-flowing streams or other waterbodies for breeding.	**Low**	No records in surrounding area and species distribution is largely restricted to East Gippsland.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Litoria aurea	Green and Golden Bell Frog	VU		2015	PMST	Still or slow-flowing waterbodies and surrounding terrestrial vegetation.	**High**	Numerous recent records in surrounding areas and suitable habitat present.
Litoria raniformis	Growling Grass Frog	VU	v	1978	PMST	Still or slow-flowing waterbodies and surrounding terrestrial vegetation.	**High**	Numerous recent records in surrounding areas and suitable habitat present.
Thunnus maccoyii	Southern Bluefin Tuna	CD	cd		PMST	The species is highly migratory, occuring globally in waters between 30-50 degrees Celsius.	**High**	Species is highly mobile and may occur in inshore waters and within the study area occasionally.
Carcharodon carcharias	Great White Shark	VU	e		PMST	Near coastal and offshore waters.	**High**	Likely to occur in coastal and offshore waters, particularly around fur seal colonies.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Prototroctes maraena	Australian Grayling	VU	e	2010	PMST	Adults inhabit cool, clear, freshwater streams.	**High**	Recent records from surrounding waterways. May occur within the study area depending on connectivity.
Galaxiella pusilla	Dwarf Galaxias	VU	e	2020	PMST	Slow-flowing or still freshwater wetlands such as swamps, drains and backwaters of streams.	**High**	Recent records from surrounding waterways. May occur within the study area depending on connectivity.
Macquaria australasica	Macquarie Perch	EN	e	1929		Streams with clear water and deep, rocky holes with abundant cover.	**Medium**	Records from surrounding waterways. May occur within the study area depending on connectivity.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Seriolella brama	Blue Warehou	CD	cd		PMST	The species occurs predominantly in coastal shelf, upper continental slope and seamount waters offshore from New South Wales, Tasmania, Victoria and South Australia. The species occurs at depths between 3 and 550 m.	**Medium**	Species typically occurs in offshore waters but may occassionally occur in shallower inshore waters.
Rhincodon typus	Whale Shark	VU			PMST	An oceanic and coastal, tropical to warm-temperate pelagic shark. In Australia, the Whale Shark is known from NSW, Queensland, Northern Territory, Western Australia and occasionally Victoria and South Australia.	**Low**	Rarely recorded in cool-temperate waters. May occasionally pass throught the study area.
Galeorhinus galeus	School Shark	CD			PMST	School Shark is most abundant in cold to temperate continental seas, from the surf line and very shallow water to well offshore. Females and juveniles utilise inshore coastal areas around Victoria, Tasmania and parts of South Australia for nursery areas.	**High**	Common species in Victorian waters from the coastal inshore to offshore environment.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Euastacus bispinosus	Glenelg Spiny Crayfish	EN	e	2003		Cool, shaded, flowing areas of rivers and streams, which have intact riparian vegetation and high water quality.	**Low**	Generally beyond the species known disctribution. Single record from the La Trobe River to the north of the study area.
State significance								
Lewinia pectoralis	Lewin's Rail		v	2018		Swamps, dense riparian vegetation and saltmarsh.	**Medium**	Recent records in surrounding area and suitable habitat present.
Ardeotis australis	Australian Bustard		cr	1847		Grassland, open dry woodlands of Mallee and mulga, arid heathland saltbush and bluebush.	**Low**	No recent records of the species within the surrounding area and unlikely to be suitable habitat within the study area.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Egretta garzetta	Little Egret		e	2018		Swamps, billabongs, floodplain pools, mudflats, mangroves and channels; breeds in trees standing in water.	**High**	Recent records within the study area and suitable habitat present
Ardea intermedia plumifera	Plumed Egret		cr	1991		Densely-vegetated freshwater wetlands including lakes, swamps and billabongs. Breeds in trees standing in water.	**Medium**	Recent records in surrounding area and suitable habitat present.
Ardea alba modesta	Eastern Great Egret		v	2019		Flooded crops, pasture, swamps, lagoons, saltmarsh, sewage ponds, estuaries, dams, roadside ditches. Breeds in trees standing in water.	**High**	Recent records within the study area and suitable habitat present
Ixobrychus dubius	Australian Little Bittern		e	1996		Freshwater swamps, lakes and rivers with dense reedbeds, saltmarsh and coastal lagoons.	**Medium**	Recent records in surrounding area and suitable habitat present.
Anseranas semipalmata	Magpie Goose		v	2007		Swamps, lakes, sewage ponds, flooded pasture, dams.	**High**	Recent records within the surrounding area and suitable habitat present

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Spatula rhynchotis	Australasian Shoveler		v	2019		Prefers large, permanent lakes and swamps with deep water, stable conditions and abundant aquatic vegetation. Less commonly recorded in small or shallow waters, such as billabongs, sewage ponds, freshwater rivers and densely vegetated farm dams. Forages in open water but nests in densely vegetated freshwater wetlands, where fringing vegetation may be an important habitat feature.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present
Stictonetta naevosa	Freckled Duck		e	2019		Large freshwater wetlands, generally with dense vegetation.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Aythya australis	Hardhead		v	2019		A mainly aquatic species preferring large, deep freshwater environments with abundant aquatic vegetation, including slow moving areas of rivers. Also occurs in brackish wetlands and may be found in deep dams and water storage ponds. Occasionally in estuarine and littoral habitats such as saltpans, coastal lagoons and sheltered inshore waters. Avoids main streams or rivers, except in calm reaches where aquatic flora is developed.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present.
Oxyura australis	Blue-billed Duck		v	2018		Open or densely vegetated wetlands.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present.
Biziura lobata	Musk Duck		v	2004		A largely aquatic species preferring deep water on large, permanent swamps, lakes and estuaries with abundant aquatic vegetation. Often occurs in areas of dense vegetated cover within a wetland. Less commonly recorded in small or shallow waters, such as billabongs, sewage ponds, freshwater rivers and densely vegetated farm dams.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Accipiter novaehollandiae	Grey Goshawk		e	2004		Rainforest, gallery forest, tall wet forest and woodland. Also partially cleared agricultural land.	**Medium**	Historic and recent records in surrounding areas and suitable habitat present
Hieraaetus morphnoides	Little Eagle		v	2005		Woodland and open areas. Rabbits are a key component of their diet. Nesting occurs in mature trees in open woodland or riparian vegetation.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present.
Haliaeetus leucogaster	White-bellied Sea-Eagle		e	2019		Coastal areas such as beaches and estuaries, inland wetlands and major inland streams.	**High**	Commonly recorded within the study area and surrounds. Suitable habitat present.
Lophoictinia isura	Square-tailed Kite		v	1986		Eucalypt woodlands, open forest and partially cleared farmland.	**Medium**	Scattered records in surrounding areas and suitable habitat present

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Falco subniger	Black Falcon		cr	2001		Woodlands, open country and around terrestrial wetlands areas, including rivers and creeks. Mostly hunts over open plains and undulating land with large tracts of low vegetation. Primarily occurs in arid and semi-arid zones in the north, north-west and west of Victoria, though can be forced into more coastal areas by droughts and subsequent food shortages.	**Low**	Historic and recent records in surrounding areas, although limited arid habitat suitable for hunting.
Ninox connivens	Barking Owl		cr	2005		Eucalypt forests and woodlands.	**Medium**	Recent records within the surrounding area and suitable habitat present.
Ninox strenua	Powerful Owl		v	2020		Eucalypt forests and woodlands, well-treed urban areas.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Tyto novaehollandiae	Masked Owl		cr	2006		A variety of lowland forests and woodlands.	**Medium**	Scattered records in surrounding areas and suitable habitat present
Pezoporus wallicus	Ground Parrot		e	1980		Coastal heathland and swamps.	**Low**	No recent records within the study area and surrounds
Phoebetria palpebrata	Light-mantled Sooty Albatross		cr	1991		Pelagic marine species.	**Medium**	Uncommon visitor to south-eastern Australia but has the potential to occur within the study area.
Gelochelidon macrotarsa	Australian Gull-billed Tern		e	1985		Floodplains, saltmarsh, claypans and flooded pasture.	**Low**	No recent records within the study area and surrounds.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Hydroprogne caspia	Caspian Tern		v	2019		Estuaries, inlets, bays, lagoons, inland lakes, flooded pasture, sewage ponds.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present.
Sternula albifrons	Little Tern		cr	2017	PMST	This bird is mostly recorded in sheltered coastal environments, including bays, lagoons and estuaries. Nests on sandy substrates containing much shell-grit, which provides good camouflage for their eggs.	**High**	Recent records within the surrounding area. Suitable habitat present.
Arenaria interpres	Ruddy Turnstone		e	2017	PMST	Mainly found on coastal beaches, exposed reefs, and rock platforms.	**High**	Recent records within the surrounding area. Suitable habitat present.
Pluvialis squatarola	Grey Plover		v	1981		Mudflats, saltmarsh, tidal reefs and estuaries.	**High**	Recent records within the surrounding area. Suitable habitat present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Pluvialis fulva	Pacific Golden Plover		v	2017	PMST	A range of coastal habitats including mudflats, sandflats rocky shores and saltmarsh.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present.
Numenius phaeopus	Whimbrel		e	1980	PMST	Coastal environments on mudflats, sandy shores and the crevices of rock platforms. The species is rarely recorded inland.	**High**	Recent records within the surrounding area. Suitable habitat present.
Tringa glareola	Wood Sandpiper		e		PMST	Well-vegetated shallow freshwater wetlands with emergent aquatic plants and dense fringing vegetation.	**High**	Recent records within the surrounding area. Suitable habitat present.
Tringa brevipes	Grey-tailed Tattler		cr	1977	PMST	Large intertidal sandflats, banks, mudflats, estuaries, inlets, sewage farms, saltworks, harbours, coastal lagoons and bays.	**High**	Recent records within the surrounding area. Suitable habitat present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Actitis hypoleucos	Common Sandpiper		v	1901	PMST	Migrates to Australia from Eurasia in August where it inhabits a wide variety of coastal and inland wetlands with muddy margins before departing north in March.	**High**	Recent records within the surrounding area. Suitable habitat present.
Tringa nebularia	Common Greenshank		e	2019	PMST	A variety of ephemeral and permanent inland wetlands and sheltered coastal wetlands.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present.
Tringa stagnatilis	Marsh Sandpiper		e	2018	PMST	Permanent or ephemeral wetlands, mudflats and saltmarshes in coastal and inland environments.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present.
Xenus cinereus	Terek Sandpiper		e	1977	PMST	Large intertidal sandflats, banks, mudflats, estuaries, inlets, sewage farms, saltworks, harbours, coastal lagoons and bays.	**High**	Recent records within the surrounding area. Suitable habitat present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Limosa limosa	Black-tailed Godwit		cr	1980	PMST	Non-breeding migrant to Australia. Shallow tidal, brackish or freshwater wetlands and margins. Generally concentrated in coastal habitats, but may occur widely across continent during migration passage.	**High**	Recent records within the surrounding area. Suitable habitat present.
Melanodryas cucullata	Hooded Robin		v	1999		Woodlands of eucalypt, Mallee, semi-cleared farmland.	**Medium**	Recent records in surrounding area and suitable habitat present.
Calamanthus pyrrhopygius	Chestnut-rumped Heathwren		v	2017		Woodland habitat with a dense, shrubby understorey.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present.
Climacteris affinis	White-browed Treecreeper		e	2004		Tall shrubland and low woodland dominated by acacias in arid and semi-arid regions.	**Medium**	Recent records in surrounding area and suitable habitat present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Stagonopleura guttata	Diamond Firetail		v	1977		Open forests and woodlands with a grassy ground layer.	**Medium**	Recent records in surrounding area and suitable habitat present.
Phascogale tapoatafa	Brush-tailed Phascogale		v	1962		Drier sclerophyll forests and woodlands.	**Low**	Limited historic records in surrounding areas.
Sminthopsis leucopus	White-footed Dunnart		v	2017		Lowland heathy woodland and forest, coastal scrub and coastal grasslands.	**High**	Recent records within the study area and surrounding area. Suitable habitat present.
Arctophoca forsteri	Long-nosed Fur Seal		v	2014		Breeds on islands off the southern Australian coast.	**High**	Commonly observed along the coast of south-east Australia and known to forage throughout the marine environment of Bass Strait.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Ornithorhynchus anatinus	Platypus		v	2014		A variety of freshwater waterbodies, particularly those with stable banks suitable for burrows, and shallow waters for foraging.	**Medium**	Scattered records in surrounding areas and suitable habitat present.
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat		v	1990		A variety of habitats, ranging from wet forests to desert.	**Medium**	Recent records in surrounding area and suitable habitat present.
Varanus varius	Lace Monitor		e	2017		A variety of wooded habitats, including woodlands; shelters in hollow trunks, limbs and logs.	**High**	Recent records within the study area and surrounding area. Suitable habitat present.
Lissolepis coventryi	Swamp Skink		e	2007		Densely vegetated swamps and associated watercourses, and adjacent wet heaths, sedgelands and saltmarshes.	**Medium**	Relatively recent records in surrounding areas and suitable habitat present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Pseudemoia rawlinsoni	Glossy Grass Skink		e	2008		Damp environments like drainage lines, soaks and the margins of creeks, particularly in dense vegetation including rank grass, reeds and sedges. Also the fringes of coastal saltmarshes.	**Medium**	Relatively recent records in surrounding areas and suitable habitat present.
Pseudophryne semimarmorata	Southern Toadlet		e	2020		A wide variety of woodland, forest and grassland habitats, where it shelters under leaf litter and other debris in moist soaks and depressions. Breeds in swamps and inundated habitats, and along creek lines.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present.
Uperoleia martini	Martin's Toadlet		cr	2020		Dry grasslands, woodlands and heathlands at scattered locations on the coastal border of eastern Victoria and New South Wales.	**High**	Recent records within the study area and surrounding areas. Suitable habitat present.

Scientific name	Common name	Conservation status		Most recent database record	Other records	Habitat description	Likely occurrence in study area	Rationale for likelihood ranking
		EPBC	FFG					
Nannoperca sp. 1	Flinders Pygmy Perch		v	2020		Slow flowing, deep shaded pool with abundant instream aquatic vegetation. A population occurs east of the La Trobe River in Gippsland.	**High**	Recent records within surrounding waterbodies. May occur within the study area depending on connectivity.
Austroaeschna (Austroaeschna) flavomaculata	Alpine Darner Dragonfly		v	2000		Mountainous habitats of New South Wales and Victoria.	**Medium**	Recent and historic records in surround areas to the west of the north of the study area.
Trapezites luteus luteus	Yellow Ochre Butterfly		e	1972		Eucalypt woodlands and grasslands, subalpine woodland and open woodland.	**Low**	No recent records within the study area or surrounding areas.
Euastacus neodiversus	South Gippsland Spiny Crayfish		e	1998		Streams in sclerophyll forest dominated by Mountain Ash Eucalyptus regnans, tree ferns Cyathea spp. and Lilly Pilly Acmena smithii.	**Medium**	Recent and historic records in surround areas to the west of the study area.

Appendix B.2. Migratory species (EPBC Act listed)

Table 19 Migratory fauna species recorded or predicted to occur within 10 km of the study area

Scientific name	Common name	Most recent record
Migratory species		
Gallinago stenura	Pin-tailed Snipe	PMST
Gallinago hardwickii	Latham's Snipe	2019
Plegadis falcinellus	Glossy Ibis	2017
Pandion cristatus	Eastern Osprey	1992
Hirundapus caudacutus	White-throated Needletail	2019
Apus pacificus	Fork-tailed Swift	2001
Pandion haliaetus	Osprey	PMST
Ardenna grisea	Sooty Shearwater	1972
Ardenna tenuirostris	Short-tailed Shearwater	2008
Ardenna carneipes	Flesh-footed Shearwater	PMST
Diomedea exulans	Wandering Albatross	PMST
Thalassarche melanophris	Black-browed Albatross	2000
Thalassarche carteri	Indian Yellow-nosed Albatross	2000
Thalassarche chrysostoma	Grey-headed Albatross	PMST
Thalassarche cauta	Shy Albatross	2000
Phoebetria fusca	Sooty Albatross	PMST
Phoebetria palpebrata	Light-mantled Sooty Albatross	1991
Macronectes giganteus	Southern Giant-Petrel	PMST
Thalassarche bulleri	Buller's Albatross	PMST
Macronectes halli	Northern Giant-Petrel	2000
Sterna hirundo	Common Tern	1987
Diomedea epomophora	Southern Royal Albatross	1974
Diomedea sanfordi	Northern Royal Albatross	PMST
Diomedea antipodensis	New Zealand Wandering Albatross	PMST
Thalassarche salvini	Salvin's Albatross	PMST
Thalassarche steadi	White-capped Albatross	PMST
Thalassarche impavida	Campbell Albatross	PMST
Philomachus pugnax	Ruff (Reeve)	PMST
Chlidonias leucopterus	White-winged Black Tern	2019
Hydroprogne caspia	Caspian Tern	2019
Thalasseus bergii	Crested Tern	2009
Sternula albifrons	Little Tern	2017
Arenaria interpres	Ruddy Turnstone	2017
Pluvialis squatarola	Grey Plover	1981
Pluvialis fulva	Pacific Golden Plover	2017
Charadrius mongolus	Lesser Sand Plover	PMST

Scientific name	Common name	Most recent record
Charadrius bicinctus	Double-banded Plover	2007
Charadrius leschenaultii	Greater Sand Plover	PMST
Charadrius veredus	Oriental Plover	1983
Numenius madagascariensis	Eastern Curlew	1992
Numenius phaeopus	Whimbrel	1980
Numenius minutus	Little Curlew	PMST
Limosa lapponica	Bar-tailed Godwit	1998
Tringa glareola	Wood Sandpiper	PMST
Tringa brevipes	Grey-tailed Tattler	1977
Actitis hypoleucos	Common Sandpiper	1901
Tringa nebularia	Common Greenshank	2019
Tringa stagnatilis	Marsh Sandpiper	2018
Xenus cinereus	Terek Sandpiper	1977
Calidris ferruginea	Curlew Sandpiper	2017
Calidris ruficollis	Red-necked Stint	2009
Calidris acuminata	Sharp-tailed Sandpiper	2018
Calidris canutus	Red Knot	1998
Calidris tenuirostris	Great Knot	1998
Calidris alba	Sanderling	1979
Calidris melanotos	Pectoral Sandpiper	PMST
Limosa limosa	Black-tailed Godwit	1980
Motacilla flava	Yellow Wagtail	PMST
Rhipidura rufifrons	Rufous Fantail	2019
Myiagra cyanoleuca	Satin Flycatcher	2015
Monarcha melanopsis	Black-faced Monarch	PMST
Balaenoptera borealis	Sei Whale	PMST
Lagenorhynchus obscurus	Dusky Dolphin	PMST
Eubalaena australis	Southern Right Whale	2017
Caperea marginata	Pygmy Right Whale	PMST
Balaenoptera musculus	Blue Whale	PMST
Balaenoptera physalus	Fin Whale	PMST
Megaptera novaeangliae australis	Southern Humpback Whale	2013
Orcinus orca	Killer Whale	PMST
Balaenoptera borealis schlegelii	Southern Sei Whale	PMST
Chelonia mydas	Green Turtle	PMST
Dermochelys coriacea	Leathery Turtle	PMST
Caretta caretta	Loggerhead Turtle	PMST
Isurus oxyrinchus	Shortfin Mako	PMST
Lamna nasus	Porbeagle	PMST
Carcharodon carcharias	Great White Shark	PMST
Rhincodon typus	Whale Shark	PMST

Appendix C. PMST output