AGL Gas Import Jetty Project

AGL Wholesale Gas Limited

Flora and Fauna Assessment

IS210700-EP-RP-002 | Final

30 August 2018

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Contents

Glossary and Abbreviations ..... **iii**
Executive Summary ..... **iv**
1. Introduction **1**
1.1 Project overview 1
1.2 Purpose of this report 1
1.3 Assessment area 1
1.4 Site design overview 4
2. Method **7**
2.1 Desktop assessment 7
2.2 Field assessment 7
2.3 Assumptions and limitations 8
3. Results **9**
3.1 Native vegetation 9
3.2 Wetlands of International Importance (Ramsar wetlands) 18
3.3 Threatened communities 19
3.4 Threatened species 19
4. Overview of potential impacts **22**
5. Legislative and policy implications **24**
5.1 Environment Protection and Biodiversity Conservation (EPBC) Act 1999 24
5.2 Environment Effects Act 1978 24
5.3 Flora and Fauna Guarantee Act 1988 25
5.4 Planning and Environment Act 1987 25
5.5 Catchment and Land Protection Act 1989 26
5.6 Legislation summary 26
6. Management and Mitigation **28**
7. Conclusion **29**
8. References **31**

Appendix A. Flora taxa recorded in the assessment area
Appendix B. Potentially occurring threatened species
B.1 Potentially occurring threatened flora
B.2 Potentially occurring threatened fauna
Appendix C. Construction and operational impacts on marine birds
C.1 Introduction and scope
C.2 Construction and operational activities
C.3 Threatened and migratory marine birds
C.4 Potential impacts
C.5 Conclusion and recommendations
Appendix D. EPBC Act Protected Matters Search Tool Report

Glossary and Abbreviations

Abbreviation	Term	Definition
AGL	AGL Wholesale Gas Limited	The Project proponent
DELWP	Department of Environment, Land, Water and Planning (State)	
DoEE	Department of the Environment and Energy (Commonwealth)	
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)	
EVC	Ecological Vegetation Class	Indigenous (native) vegetation type
FFG Act	*Flora and Fauna Guarantee Act 1988* (State)	
FSRU	Floating Storage and Regasification Unit	An LNG carrier that is used for floating storage and also has regasification equipment on board that allows it to directly send out high pressure gas to the market.
Jacobs	Jacobs Group (Australia) Pty Ltd	
LGA	Local Government Area	
LNG	Liquefied Natural Gas	LNG is natural gas (predominantly methane, CH_4, with some mixture of ethane C_2H_6) that has been converted to liquid form by chilling for ease of storage or transport

Executive Summary

AGL Wholesale Gas Limited (AGL) is proposing to develop a Liquefied Natural Gas (LNG) import facility, utilising a Floating Storage and Regasification Unit (FSRU) to be located at Crib Point on Victoria's Mornington Peninsula. The project, known as the "AGL Gas Import Jetty Project" (the Project), comprises:

- The continuous mooring of a FSRU at the existing Crib Point Jetty, which will receive LNG carriers of approximately 300 m in length
- The construction of ancillary topside jetty infrastructure (Jetty Infrastructure), including high pressure gas unloading arms and a high pressure gas flowline mounted to the jetty and connecting to a flange on the landside component to allow connection to the Crib Point Pakenham Pipeline Project.

The Project's footprint within the landside component, will be limited to a gas flow line from the jetty to a valve, connecting to the natural gas transmission pipeline. However, a broader area on the landside component will be used during the construction phase. An indicative Site Establishment Layout shows the construction phase footprint on the landside component together with the adjacent roadside area. This Flora and Fauna Assessment assesses the existing terrestrial flora and fauna attributes of the whole landside component associated with the Project ('the assessment area'), including the proposed construction phase Site Establishment Layout.

Ecological values

The assessment area contains areas of native vegetation covering approximately 2 ha (in total) and comprises Heathy Woodland, Swamp Scrub (derived) and Coastal Dune Scrub. The assessment area also includes an open area of land of approximately 1 ha that is regularly slashed. Refer to Figure 3-4 for a map of the location of patches of native vegetation (i.e. Habitat Zones (HZ)) within the assessment area.

The assessment area is bisected by the jetty access road. To the north of this area, the land was cleared in the 1960s for the development of the jetty. It was subsequently planted with a mix of Australian natives and has also been re-colonised by locally indigenous native flora and a range of woody weeds. While low in quality and generally lacking a tree canopy, this area qualifies as native vegetation as defined by the Mornington Peninsula Planning Scheme. Land south of the jetty access road was also impacted in the 1960s, however not all vegetation was removed and a number of trees onsite predate this period. This area contains a moderate quality patch of Heathy Woodland.

In summary, this Flora and Fauna Assessment has identified the following:

- One EPBC listed threatened flora species has the potential to occur within the native vegetation in the south of the assessment area (south of the jetty access road), Dense Leek-orchid (listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the Victorian *Flora and Fauna Guarantee Act 1988*). However, AGL does not intend to remove any vegetation from this area of potentially significant vegetation.
- The assessment area is not considered significant habitat for threatened fauna.
- The assessment area is adjacent to the Western Port Ramsar site.

Impacts and legislative implications

Upon receipt of the findings of this Flora and Fauna assessment, particularly the outcomes of the field assessment of the land south of the jetty access road, AGL has advised that they will no longer pursue vegetation removal of the land south of the jetty access road. This will eliminate the potential for impact to the EPBC-listed threatened flora species, Dense Leek-orchid. Note: this report provides the full assessment findings for the land south of the jetty access road, based on the prior assumption that vegetation removal was required for use of this land as a materials laydown area.

Based on the updated indicative Site Establishment Layout, approximately 0.44 ha of native vegetation will require removal for the Project. This vegetation occurs within Habitat Zone 8 (HZ8) which is considered to be

regrowth less than 10 years old and exempt from planning scheme permit requirements. The indicative Site Establishment Layout also includes site establishment activities that will be undertaken as part of the Pipeline Project. HZ4 and HZ5 associated with vehicle routes and fence construction and HZ7 for personnel car parking are likely to be impacted as part of the Pipeline Project. HZ6 is also likely to be impacted, however the extent of vegetation removal is not yet known and this portion of the site forms part of the Pipeline Project and will be assessed in the referral for the Pipeline Project. Hence, HZ8 is the only area impacted associated with the Project. The following table provides a summary of State and Commonwealth legislation and policy implications as relevant to the Project and the ecological values of the assessment area.

Table 1 : Summary of legislative requirements applicable to the Project.

Policy/legislation	Project relevance
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	Dense Leek-orchid, listed as vulnerable under the EPBC Act, has potential to occur in HZ9, however AGL has advised that it will avoid vegetation removal on this part of the assessment area.
Environment Effects Act 1978	No referral under the *Environment Effects Act 1978* is required for the potential impacts on ecological values based on the criteria for referral under the *Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978.*
Flora and Fauna Guarantee Act 1988 (FFG Act)	Dense Leek-orchid, listed as threatened under this Act, has potential to occur in HZ9, however AGL has advised it will avoid vegetation removal on this part of the assessment area.
Victorian Advisory Lists (VicAdv)	Dense Leek-orchid, listed as Endangered, has potential to occur in HZ9, however AGL has advised they will not remove vegetation on this parcel of land. Consideration of impacts to VicAdv species is incorporated into assessment of an application to remove native vegetation (if required) under Clause 52.17 of the Mornington Peninsula Planning Scheme.
Planning and Environment Act 1987 Mornington Peninsula Planning Scheme Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017a)	Native vegetation patches occur within the assessment area. This Project will only impact HZ8 which has been considered regrowth less than 10 years old and exempt from permit requirements.
Catchment and Land Protection Act 1994 (CaLP Act)	Control measures to be included within the Project Construction Environmental Management Plan to prevent the spread of noxious weeds occurring on the site.

Given the extent of native vegetation and the type of native vegetation proposed to be impacted upon, the need for a referral under the *Environment Effects Act 1978* or the EPBC Act is not required from an ecological perspective for this Project.

1. Introduction

1.1 Project overview

AGL Wholesale Gas Limited (AGL) is proposing to develop a Liquefied Natural Gas (LNG) import facility, utilising a Floating Storage and Regasification Unit (FSRU) to be located at Crib Point on Victoria's Mornington Peninsula. The project, known as the "AGL Gas Import Jetty Project" (the Project), comprises:

- The continuous mooring of a FSRU at the existing Crib Point Jetty, which will receive LNG carriers of approximately 300 m in length
- The construction of ancillary topside jetty infrastructure (Jetty Infrastructure), including high pressure gas unloading arms and a high pressure gas flowline mounted to the jetty and connecting to a flange on the landside component to allow connection to the Crib Point Pakenham Pipeline Project.

The Project's footprint within the landside component will be limited to a gas flow line from the jetty to a flange, connecting to the natural gas transmission pipeline. However, a broader area on the landside component will be used during the construction phase. An indicative Site Establishment Layout shows the construction phase footprint on the landside component together with the adjacent roadside area. This Flora and Fauna Assessment assesses the existing terrestrial flora and fauna attributes of the whole landside component associated with the Project, including the proposed construction phase Site Establishment Layout.

There are several other separate activities that are related to the AGL Gas Import Jetty Project. These include the Crib Point Pakenham Gas Pipeline Project (Pipeline Project) which are the subject of separate assessment and approval processes carried out by separate entities.

1.2 Purpose of this report

Jacobs Group (Australia) Pty Ltd (Jacobs) was engaged by AGL to evaluate the existing terrestrial flora and fauna attributes considered present within the assessment area. The objectives of this report are to:

- Determine the terrestrial ecological values within the assessment area including the mapping of native vegetation, assessment of vegetation quality and assessment of the likelihood for threatened species to utilise the site (based habitat present and records in the vicinity of the assessment area)
- Undertake review of requirements under State and Commonwealth policies and legislation in relation to ecological issues
- Provide recommendations regarding opportunities to avoid or minimise impacts on identified ecological values, identify whether further assessments may need to be carried out, and identify potential permits and approvals likely to be required.
- Consideration of potential operational impacts to marine birds is provided separately to the three dot point objectives listed above. This is provided in Appendix C.

This report has been prepared in support of:

- A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act (EPBC) 1999*
- A referral under the Victorian *Environment Effects Act 1978*
- Identification of requirements under the *Flora and Fauna Guarantee Act 1988*
- Identification of requirements under the *Planning and Environment Act 1987*.

1.3 Assessment area

The Project's footprint within the landside component, will be limited to a gas flow line from the jetty to a flange, connecting to the natural gas transmission pipeline. However, a broader area on the landside component will be used during the construction phase. The assessment area is shown in Figure 1-1. It encompasses the portion of

the port allotment (2040 The Esplanade, Crib Point) and adjacent roadside identified in the indicative Site Establishment Layout, shown in Figure 1-2.

Biogeographically, the assessment area lies on the coast of the Gippsland Plain Bioregion. Coastal systems in this area are typically made up of Heathy Woodlands and Herb-rich Woodlands on sandy soils (DELWP 2017b).

The assessment area is included in the Port Zone under the Mornington Peninsula Planning Scheme. The assessment area and an extensive area to the north, west and south is subject to the Bushfire Management Overlay The adjacent land immediately to the north of the assessment area is in the Public Conservation and Resource Zone. The roadside area is within the Road Zone, Category 2. The assessment area is not subject to any other planning scheme overlays.

Figure 1.1 Location Map

AGL Gas Import Jetty Project

Legend

- Project Site
- Assessment Area
- LGA Boundary
- Major Road
- Minor Road
- Cadastre
- Land Subject to Inundation
- Waterbody

N

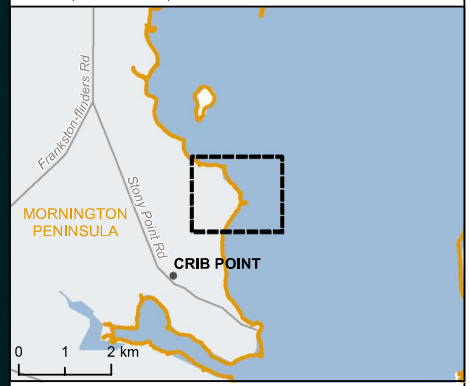
IS210700

GDA 1994 MGA Zone 55

0 200 400

Metres

DATA SOURCES
© Commonwealth of Australia (Geoscience Australia) 2006 Geodata Topo 250k Series 3; Vicmap Data © State of Victoria 2017.
Imagery: @ESRI Basemap, 2018.



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1.4 Site design overview

The focus of this report is the landside component of the AGL Gas Import Jetty Project, excluding the marine assessment. The indicative plans for the construction phase in this area are provided in the indicative Site Establishment Layout for the construction phase, shown in Figure 1-2. Note that this layout is indicative and encompasses site laydown and facilities for the AGL Gas Import Jetty Project, together with the Pipeline Project. The layout includes:

- Construction of secure fencing along the northern and eastern boundary
- New security hut
- Vehicle access
- Site offices
- Heavy machinery car park
- Personnel car park
- Materials laydown areas.

Figure 1-2 : Indicative Site Establishment Layout (Rev C) Source: AGL, 2018

The construction phase for the Project will take place over a period of approximately 6-12 months. No planting is proposed on site at this stage.

The layout for the post construction phase is currently being developed, however, it would not result in any additional flora and fauna impacts on the site.

1.5 Legislative and policy context

This table provides a brief overview of the legislation, policy and guidelines which are potentially relevant to this terrestrial flora and fauna assessment (which relates to the landside component of the AGL Gas Import Jetty Project, excluding the marine assessment) as well as the process required to be undertaken from a legislative point of review. The outcomes of the process inform Table 5.5.

Table 1.1 : Summary of policies/legislation as relevant to the Project

Policy/legislation	Description	Process
Commonwealth		
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The EPBC Act has significant implications for natural resource and environmental management in Australia. This Act provides for the listing of threatened species, threatened ecological communities and key threatening processes. It also relates to actions likely to have a significant impact on Matters of National Environmental Significance (MNES). There are nine MNES, of which 3 are relevant to this Project: • Ramsar Wetlands • Nationally threatened species and ecological communities • Migratory species.	Determine whether any MNES are likely to be 'significantly' impacted by the proposed works.
State		
Environment Effects Act 1978 (EE Act)	The EE Act provides for the assessment of actions that are capable of having a significant environmental effect. Actions which might have a significant environmental effect should be referred to the Victorian Minister for Planning, who decides if an Environment Effects Statement (EES) is required.	Determine whether the extent of removal of native vegetation and habitat for threatened species of state significance will trigger the need for a referral under the EE Act in relation to ecological matters.
Flora and Fauna Guarantee Act 1988 (FFG Act)	The FFG Act provides a framework for biodiversity conservation in Victoria. Threatened species and communities of flora and fauna, as well as threatening processes, are listed under this Act. A number of non-threatened flora species are also listed as protected under the FFG Act.	Determine if any FFG-listed flora or fauna species are likely to be affected or threatening processes occur by the proposed works. N.B. The FFG Act is currently under review with changes expected in 2018. This report has been prepared based on the current requirements of the legislation and these may change prior to the construction of the project.
Planning and Environment Act 1987	Applications to remove, destroy, or lop native vegetation in Victoria invoke Clause 52.17 (Native Vegetation) of the Victoria Planning Provisions which is given authority through this Act. A range of exemptions apply.	Determine whether native vegetation is present and will require removal. If native vegetation is to be removed, approval may be required and the appropriate offset requirements identified

Policy/legislation	Description	Process
Guidelines for the removal, destruction or lopping of native vegetation (Guidelines) (DELWP 2017a)	The approval process (if required) and offset requirements for impacts to native vegetation associated with Clause 52.17 (Native Vegetation) are undertaken in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017a). The Guidelines identify how impacts on biodiversity should be considered, including whether planning approval should be granted when assessing an application.	and obtained. (Consider whether any exemptions apply.)
DELWP Victorian Advisory Lists (VicAdv)	The DELWP Victorian Advisory Lists (VicAdv) are not a statutory list of threatened species, but rather list species for which conservation management is recommended by DELWP. The VicAdv lists are comprised of the Advisory List of Rare or Threatened Plants in Victoria – 2014 (DEPI 2014), the Advisory List of Threatened Vertebrate Fauna in Victoria – 2013 (DEPI 2013a), and the Advisory List of Threatened Invertebrate Fauna in Victoria – 2009 (DSE 2009). The potential for the site to provide habitat for VicAdv listed taxa is incorporated into the permit process and offset requirements for the removal of native vegetation under Clause 52.17 (Native Vegetation) (see above).	Determine if any species present are listed on the VicAdv lists and likely to be affected by the proposed works within the assessment area.
Catchment and Land Protection Act 1994 (CaLP Act)	The CaLP Act defines requirements to: • Avoid land degradation; • Conserve soil; • Protect water resources; and • Eradicate and prevent the spread and establishment of noxious weed and pest animal species. The Act defines four categories of noxious weeds: State Prohibited Weeds, Regionally Prohibited Weeds, Regionally Controlled Weeds and Restricted Weeds. Noxious weeds species and the category they are placed in is specific to individual CMA regions (the Project is located in the Port Phillip and Westernport CMA).	Determine whether any pest plant or animal species are present within the assessment area.

2. Method

2.1 Desktop assessment

A review of the following databases and documents was undertaken to provide information on threatened flora and fauna species and vegetation communities previously identified or modelled to occur within the assessment area; and other relevant planning matters relevant to the Project. The key intent is to review information on biodiversity values that may trigger any requirements under Commonwealth and/or State legislation.

- **Commonwealth Department of the Environment and Energy (DoEE):**
  - **Protected Matters Search Tool** (DoEE 2017): The Protected Matters Search Tool (PMST) highlights Matters of National Environmental Significance (MNES) relevant to the Commonwealth EPBC Act that are likely to occur within a 5 km radius of assessment area.
- **Victorian DELWP:**
  - **NatureKit** (DELWP 2017c): comprises large scale spatial data mapping and classification of native vegetation across Victoria; including modelled distributions of Ecological Vegetation Classes.
  - **Native Vegetation Information Management system (NVIM)** (DELWP 2017d): contains a range of datasets relating to native vegetation and statutory regulations in Victoria to support applications for the removal of native vegetation.
  - **Victorian Biodiversity Atlas (VBA)** (DELWP 2017e): comprises historical spatial data records of flora and fauna species from across the state. Records are added opportunistically, as flora and fauna surveys are conducted within Victoria for a variety of purposes. The mapping of flora and fauna distribution and determination of species' habitat preferences is an ongoing process.
  - **Planning Schemes Online** (DELWP 2017f) and **Planning Maps Online** (DELWP 2017g): provides the relevant zoning and planning overlays.

Available aerial imagery was also interpreted to inform the ecological assessment across the investigation area.

The assessment area has been subject to previous ecological assessments by Paul Kelly & Associates (PKA) and these reports were also reviewed:

- *Ecological (Flora & Fauna) Assessment Crib Point Jetty, Port of Hastings* (PKA 2015)
- *Southern Brown Bandicoot Isoodon obesulus obesulus survey at Crib Point Jetty, Port of Hasting* (PKA 2016)

2.2 Field assessment

A field assessment of the assessment area was conducted on 23 February 2018. The purpose of the field assessment was to identify the location and quality of native vegetation and fauna habitat based on the findings of an initial desktop assessment.

Native vegetation was mapped in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017a) as either:

Patch:

- an area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native, or
- any area with three or more native canopy trees where the drip line of each tree touches the drip line of at least one other tree, forming a continuous canopy, or
- any mapped wetland included in the Current wetlands map, available in DELWP systems and tools.

Scattered tree:

- a native canopy tree that does not form part of a remnant patch. A native canopy tree is a mature tree (i.e. it is able to flower) that is greater than 3 m in height and is normally found in the upper layer of the relevant vegetation type.

Other native vegetation:

- native vegetation that is not a remnant patch or scattered tree was incidentally noted.

2.3 Assumptions and limitations

Information from the desktop assessment is based on existing data only and is, therefore, only as reliable as the number of surveys previously undertaken and records entered into the Victorian Biodiversity Atlas (DELWP 2017e) (i.e. an area where many surveys have been taken in the past, will, most likely, have a more extensive list of species than areas where very little survey work has been undertaken). The accuracy of past surveys is also variable and point locations can be out by up to 1 km.

In addition to the number of previous surveys undertaken, there are other reasons why species, including threatened species, may not have previously been recorded. For example, at the time of historical site visits some plant species may not have been flowering and therefore not identified as being present within the area surveyed. Also, the data collected is likely to consist of opportunistic observations only, and, therefore, listed fauna species moving in and out of the area may not have been observed or recorded.

Similarly, the field survey was conducted over six hours and thus the only recorded species were those that can be readily identified at that time, heard or have distinctive signs, such as tracks, scats, diggings, etc. For this reason, while the flora recorded provides a good general representation of the values present it should not be considered an exhaustive list. In regards to fauna, many cryptic, nocturnal and mobile species would not have been observed during the survey.

None-the-less, the survey effort was adequate to address the requirements of the relevant legislation identified in this report.

The following legislative limitations are applicable to this document:

- The FFG Act is currently under review with changes expected in early 2018. This report has been prepared based on the current requirements of the report and these may change prior to the construction of the Project.

Spatial data

Spatial data was collected in the field using a hand-held Trimble device capable of sub metre accuracy. The accuracy of Vicmap cadastre in the area of interest is not of sufficient accuracy to represent the cadastral boundary relative to the ground truth data captured using higher accuracy methods. The area of interest is located in an area that was historically of unknown precision with known accuracy issues. Vicmap data in this region is generally within a 5 m tolerance but can be up to 10 m out in some parts where new plans of subdivision and spatial improvement programs have not occurred. By georeferencing the cadastre to imagery, the shape of the cadastral boundaries remains intact and provides a better representation relative to the ground truth data.

3. Results

3.1 Native vegetation

3.1.1 Ecological Vegetation Classes

This assessment relates only to the landside component of the AGL Gas Import Jetty Project, excluding the marine assessment.

Vegetation modelling provided by DELWP indicates that the assessment area contains areas of native vegetation as well as areas cleared of native vegetation (Figure 3-2). The modelling suggests, native vegetation within the assessment area consists solely of EVC 48: Heathy Woodland.

Historical photography available on the Port of Hastings website (Figure 3-1) shows the site was largely clear of native vegetation in the 1960's. Earthworks associated with the construction of the port infrastructure significantly affected the site such that is has been levelled and much of the sandy topsoil collected and mounded on the site's northern boundary. Since these operations, historical imagery shows that the infrastructure north of the jetty access road was removed by 1974; and by 1990, this portion of the site had been re-established with vegetation.

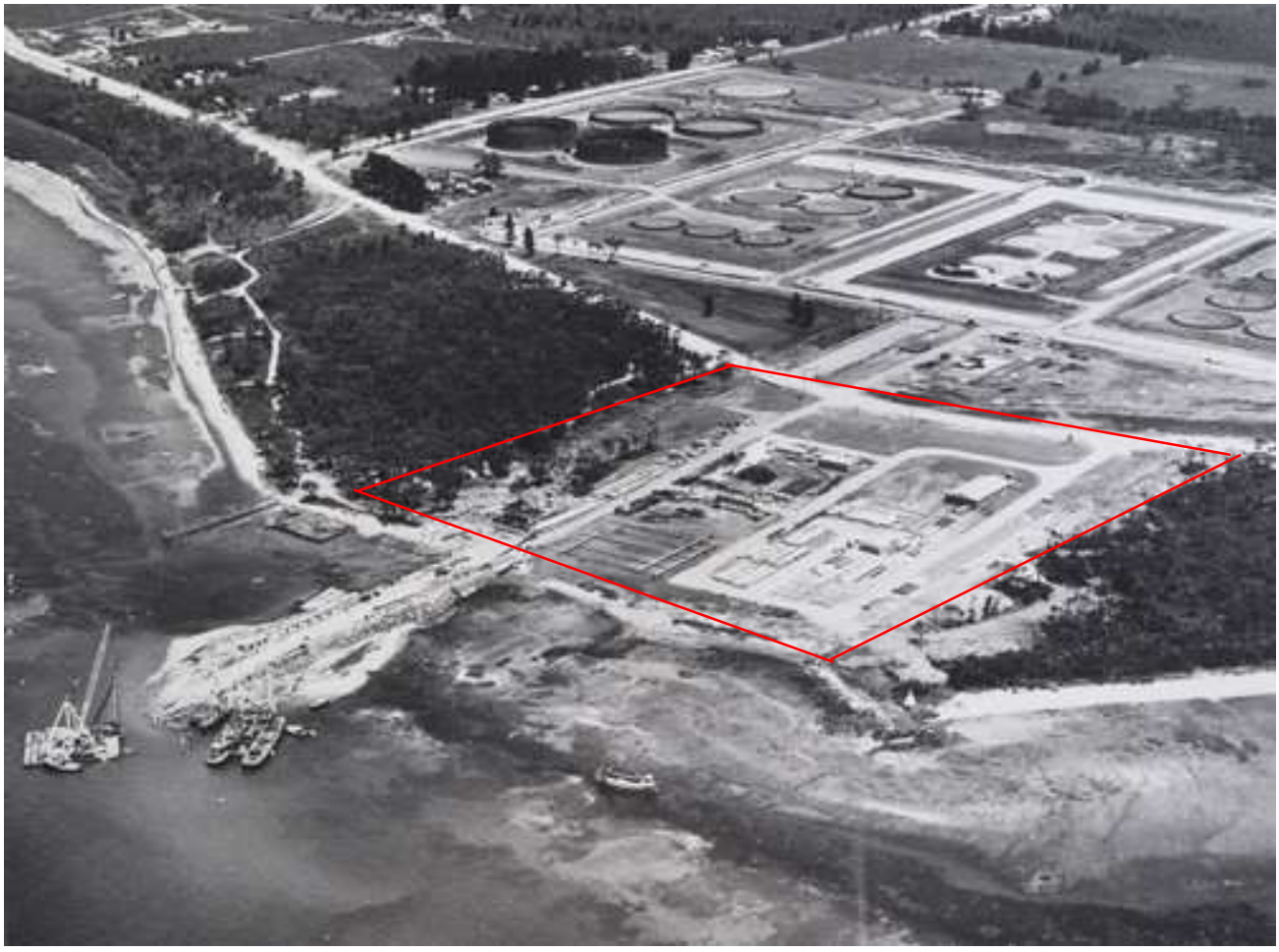


Figure 3-1 : Aerial imagery of Crib Point Jetty 1964-65 (Port of Hastings Development Authority 2018)

Figure 3.2 Ecological Vegetation Classes Modelled to Occur

AGL Gas Import Jetty Project

Legend

- Project Site
- LGA Boundary
- Major Road
- Minor Road
- Cadastre
- Land Subject to Inundation
- Waterbody

EVC 2005

- 9, Coastal Saltmarsh
- 16, Lowland Forest
- 48, Heathy Woodland
- 140, Mangrove Shrubland
- 175, Grassy Woodland
- 793, Damp Heathy Woodland

N

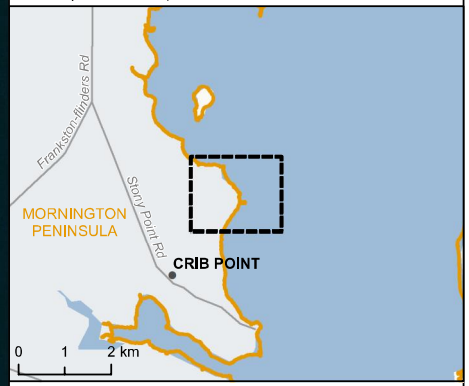
IS210700

GDA 1994 MGA Zone 55

0 200 400

Metres

DATA SOURCES
© Commonwealth of Australia (Geoscience Australia) 2006 Geodata Topo 250k Series 3; Vicmap Data © State of Victoria 2017. Imagery: @ESRI Basemap, 2018.



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Vegetation on site was previously assessed by PKA (2015) for quality and extent under the *Biodiversity Assessment Guidelines* (DEPI 2013b), The field assessment undertaken by Jacobs found the site to be generally consistent with the findings of this previous report, none-the-less a new assessment was undertaken to ensure consistency with the current *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017a). The location of native vegetation mapped by Jacobs is shown in Figure 3-4.

Heathy Woodland

North of jetty access road (HZ5-8)

The areas north of the jetty access road that were cleared of native vegetation in the 1960s have been replanted with a mix of Australian native shrub and tree species, and potentially some Victorian native species (HZ5 and HZ6). The vast proportion of the Victorian native cover is due to recolonisation of the site by locally indigenous shrubs such as Burgan *Leptospermum ericoides* spp. agg. and Prickly Tea-tree *Leptospermum continentale* (Figure 3-3) from the Heathy Woodland in adjacent bushland.

A high cover of weeds also occupies these areas including the Victorian native (but non-indigenous) Coast Wattle *Acacia longifolia* var. *sophorae* and the closely related *Acacia longifolia* var. *longifolia.* The former of these may be considered indigenous to front-line coastal vegetation in the local area but is a weed in Heathy Woodland, the EVC modelled to occur on the site and observed on the land adjacent. Other weeds at high cover include Bluebell Creeper *Billarderi heterophylla,* Monterey Pine *Pinus radiata,* Sweet Pittosporum *Pittosporum undulatum.* In some areas, HZ5 and HZ6 only just qualify as native vegetation patches as they are very close to the threshold requirement of 25% of the perennial vegetation cover being due to species native to Victoria.

Near the western fence line some indigenous Coast Manna Gums *Eucalyptus viminalis* subsp. *pryoriana* have regenerated within these patches. Due to the dense shrub layer and past disturbance there was very minimal groundstorey cover in these HZs, with most of the ground layer consisting of leaf-litter. However, sporadic occurrences of resilient natives such as Wallaby Grass *Rytidosperma spp.*, Variable Sword-sedge *Lepidosperma laterale* var. *laterale* and Variable Willow-herb *Epilobium billardierianum.*

Figure 3-3 : Prickly Tea-tree and Burgan provide much of the native vegetation cover north of the jetty access road. (23/2/2018)

Figure 3.4 Native Vegetation Map

AGL Gas Import Jetty Project

Legend

- Project Site
- Assessment Area
- LGA Boundary
- Land Subject to Inundation
- Cadastre (Vicmap) (modified to align with higher accuracy data)
- Contour (10m)

EVC Field Data (Jacobs, 23/02/2018)

- GipP00160, Coastal Dune Scrub
- GipP0048, Heathy Woodland
- GipP0053, Swamp Scrub

N

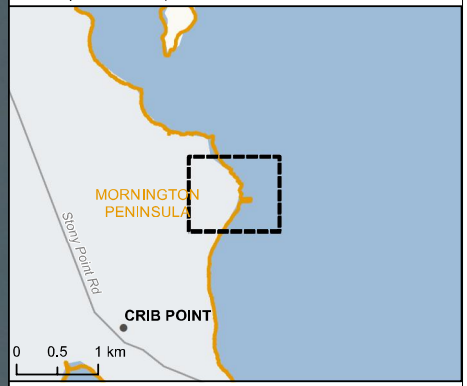
IS210700

GDA 1994 MGA Zone 55

0 100 200

Metres

DATA SOURCES
© Commonwealth of Australia (Geoscience Australia) 2006 Geodata Topo 250k Series 3; Vicmap Data © State of Victoria 2017.
Imagery: @ESRI Basemap, 2018.



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While much of the area north of the jetty access road has been previously planted out and/or re-colonised by shrubby species, there are also large open areas that are regularly slashed (Figure 3-5). These areas contain a mixture of exotic pasture grasses such as Brown-top Bent *Agrostis capillaris* and broad-leaf weeds amongst native species such as Burgan and Prickly Tea-tree that are kept low through regular slashing. Aerial imagery shows that much of these areas have been open and slashed since at least 1990 (Figure 3-6). However, some areas, namely the less fertile portions are dominated by native shrubs that are persisting under the slashing regime (i.e. HZ8; Figure 3-7). For the purposes of Clause 52.17, it is considered this vegetation (i.e. HZ8) is regeneration less than 10 years old and removal is exempt from the need for planning approval (if required).

Figure 3-5 : Looking south towards jetty access road across open areas that are regularly slashed (23/2/2018)

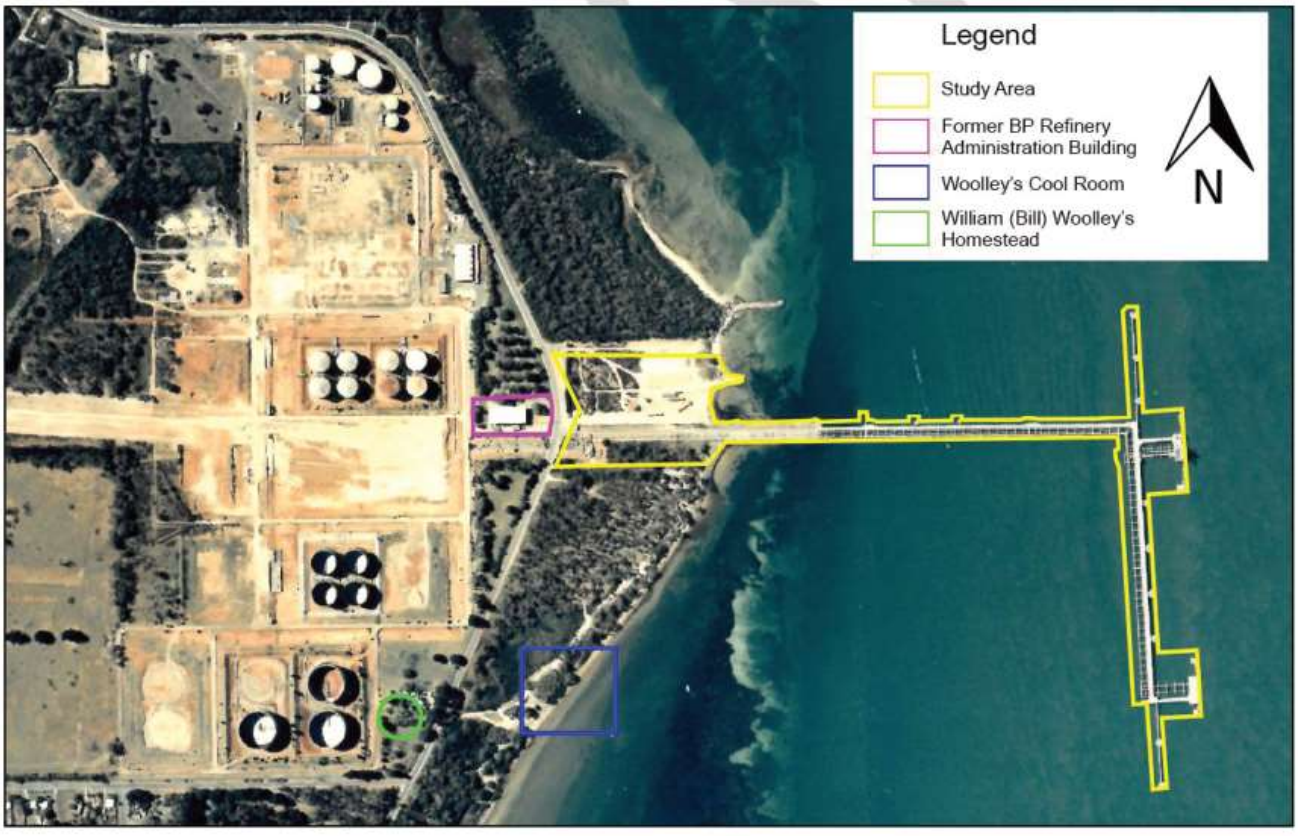


Figure 3-6 : Site aerial imagery 1990 (Source: Melbourne '89 Project 2004, run 45)

Figure 3-7 : Habitat Zone 8 consists of slashed native vegetation amongst areas of bare ground (23/2/2018)

A low quality patch of native vegetation (HZ7) also occurs outside the fenced portion of the site along The Esplanade. This patch contains the same indigenous species that have recolonised the internal portion of the site, including two mature Coast Manna Gums.

Figure 3-8 : Habitat Zone 7 is a patch of vegetation that has regenerated on the roadside (23/2/2018)

South of jetty access road (HZ9)

In the assessment area south of the jetty access road, it appears that past earthworks were not as extensive compared to the north of the jetty access road and the historical aerial imagery shows a scattered tree cover present in the 1960s. These trees generally remain today along with more recent recruits that have established. This area contains native vegetation (HZ9; Figure 3-9) which is significantly more diverse than other areas of the site. The canopy consists of Coast Manna Gum, Narrow-leaf Peppermint *Eucalyptus radiata* and Swamp Gum *E. ovata.* It is well developed and includes five Large Trees. Although the groundstorey is regularly being slashed and contains a high cover of re-sprouting Burgan, a relatively diverse native grassy cover also persists, including Kangaroo Grass *Themeda triandra,* Wallaby Grass *Rytidosperma* spp.*,* Spear Grass *Austrostipa* spp.*,* Weeping Grass *Microlaena stipoides* and Tussock-grasses *Poa* spp. other groundstorey species include Wattle Mat-rush *Lomandra filiformis*, Small-flower Flax Lily *Dianella brevicaulis*, Yellow Rush-lily *Tricoryne elatior,* Blue-bells *Wahlenbergia* spp., Common Raspwort *Gonocarpus tetragynus*, Bidgee-widgee *Acaena novae-zelandiae* and Bracken *Pteridium esculentum*. The shrub layer also includes Cranberry Heath *Astroloma humifusum,* Erect Guinea-flower *Hibbertia riparia,* Common Heath *Epacris impressa*, Coast Beard-heath *Leucopogon parviflorus,* Hedge Wattle *Acacia paradoxa,* Prickly Moses *Acacia verticillata*, Prickly Tea-tree, Black Wattle *Acacia mearnsii* and Cherry Ballart *Exocarpos cupressiformis*. Some of the species only occur nearby trees and other areas such as the edge of the site where slashing is prevented.

The weed cover is mostly attributed to woody weeds such as Sweet Pittosporum, Bluebell Creeper and Sallow Wattle; groundstorey weeds such as Sweet-vernal Grass *Anthoxanthum odoratum* are also evident.

Figure 3-9 : Habitat Zone 9 although slashed contains the highest quality native vegetation within the assessment area (23/2/2018)

Coastal Dune Scrub

Along the shoreline is a thin band of native vegetation that occurs on the sands that sit immediately above the intertidal zone. This has been assigned to EVC 160 Coastal Dune Scrub and includes three separate Habitat Zones (HZ1-3). It consists of a range of shrubs expected in frontline coastal vegetation such as Coast Wattle, Coast Saltbush *Atriplex cinerea* and Common Boobialla *Myoporum insulare* (Figure 3-10). Coastal Dune Scrub often occurs in a mosaic with EVC 879 Coastal Dune Grassland and elements of this EVC are also evident although the EVC itself is difficult to distinguish given the site's history of disturbance. Species common to both these EVCs evident on-site include Hairy Spinifex *Spinifex sericeus*, Knobby Club-sedge *Ficinia nodosa* and Karkalla *Carpobrotus rossii.* HZ2 occurs in an area of fill that extends as a small spit past the natural coastline, it generally consists of a few shrubs (mostly Coast Wattle) that have colonised the edges. The southern-most zone (HZ3), is the most low-lying and apparently more saline with a high cover of Glaucous Goosefoot *Chenopodium glaucum* and Hastate Orache **Atriplex prostrata.*

Figure 3-10 : Coastal Dune Scrub (Habitat Zone 1) (23/2/2018)

Swamp Scrub

A small area dominated by Swamp Paperbark *Melaleuca ericifolia* occurs in the far north-east of the assessment area. This area is HZ4 (Figure 3-11). It is a low quality remnant that has colonised a stormwater drain.

Figure 3-11 : Habitat Zone 4 is a patch of Swamp Paperbark that has colonised a stormwater drain (23/2/2018)

Table 3.1 : Summary of Habitat Zones

Habitat Zone (HZ)	EVC	Summary of native vegetation within zone
1	Coastal Dune Scrub	Strip of moderate quality coastal vegetation on narrow strip of coastal sand
2	Coastal Dune Scrub	Very small patch of shrubs around an area of raised fill
3	Coastal Dune Scrub	Small patch of low quality scrub and low chenopods adjacent the beach
4	Swamp Scrub	Thicket of Swamp Paperbark that has colonised a stormwater drain
5, 6	Heathy Woodland	Area that was previously cleared, level and contained port infrastructure that has since been planted with Australian natives and has also been recolonised by common indigenous shrubs
7	Heathy Woodland	Roadside strip of vegetation that has recolonised previously cleared area, low quality with two mature trees.
8	Heathy Woodland	Moderately diverse patch of Heathy Woodland with a mature developed canopy including large trees. The understorey is regularly slashed.
9	Heathy Woodland	Open area that is regularly slashed; mostly consists of Burgan; apparently was once consistent with HZ5

3.1.2 Scattered trees

There were no scattered trees; all indigenous canopy trees on site occurred within Habitat Zones.

3.1.3 Vegetation Quality Assessment

The vegetation quality assessment was undertaken using the habitat hectare method (DSE 2004), the results are presented in Table 3.2. HZ 1, 2 and 3 were not assessed given no impacts to native vegetation are proposed in these HZs.

Table 3.2 : Habitat hectare scores

Habitat Zone (HZ)			4	5	6	7	8	9
Bioregion			GP	GP	GP	GP	GP	GP
EVC #: Name			53 SS	48 HW	48 HW	48 HW	48 HW	48 HW
EVC Conservation Status		Max Score	E	LC	LC	LC	LC	LC
Site Condition	Large Old Trees	10	n/a	0	0	0	0	8
	Canopy Cover	5	0	0	0	0	0	5
	Understorey	25	10	15	15	5	10	20
	Lack of Weeds	15	6	0	0	4	7	7
	Recruitment	10	5	5	5	3	5	10
	Organic Litter	5	5	4	2	5	0	5
	Logs	5	n/a	2	0	0	0	0
	Standardiser	n/a	1.25	1	1	1	1	1
	Total	75	32.5	26	22	17	22	55
Landscape Context	Patch size	10	8	8	8	8	8	8
	Neighbourhood	10	3	3	3	3	3	3
	Distance to Core	5	4	4	4	4	4	4
	Total	25	15	15	15	15	15	15
Habitat Score		**100**	**47.5**	**41**	**37**	**32**	**37**	**70**
Habitat points = #/100		1	0.48	0.41	0.37	0.32	0.37	0.70
Habitat Zone area (ha)		(#.###)	0.019	0.406	0.722	0.035	0.51	0.4
Habitat Hectares		(#.###)	0.009	0.166	0.267	0.011	0.189	0.280

3.2 Wetlands of International Importance (Ramsar wetlands)

The EPBC Act enhances the management and protection of Australia's Ramsar wetlands. Ramsar wetlands are recognised as a matter of national environmental significance under the EPBC Act. The assessment area occurs adjacent but separate from the Western Port Ramsar wetland. Further discussion of the implications of the Project area occurring beside a Ramsar wetland is provided in Section 5.1.1.

3.3 Threatened communities

3.3.1 EPBC threatened communities

The assessment area does not support any EPBC-listed threatened ecological communities. The intent of this section is to acknowledge the values identified – Section 5 of this report, then discusses the legislative implications.

At the desktop level, the presence of EPBC-listed threatened ecological communities is indicated by a PMST search (DoEE 2017). EPBC-listed threatened ecological communities modelled as potentially occurring within the assessment area by the PMST are presented in Table 3.3. The likelihood of each EPBC-listed threatened ecological community has also been assessed.

Table 3.3 : EPBC-listed threatened ecological communities modelled as potentially occurring within the assessment area

Threatened ecological community	EPBC conservation status	PMST-modelled likelihood of occurrence	Jacobs-determined occurrence
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered	Community may occur within area	**Not present**
Subtropical and Temperate Coastal Salt Marsh	Vulnerable	Community may occur within area	**Not present**

3.3.2 FFG Act Threatened Communities

No FFG listed communities are mapped to occur on the site and none were observed to be present.

3.3.3 Threatened Ecological Vegetation Classes

The Bioregional Conservation status of the Ecological Vegetation Classes recorded in the assessment area are provided in Table 3.4. One EVC Swamp Scrub is Endangered in the bioregion. In this instance the expression of Swamp Scrub is considered artificial at the site, as its occurrence is the result of construction of a stormwater drain. Hence, this patch of vegetation is not considered to be a representation of an Endangered EVC.

Table 3.4 : Endangered EVCs recorded within the assessment area

EVC No	EVC Name	Bioregional Conservation Status
48	Heathy Woodland	Least Concern
53	Swamp Scrub*	Endangered*
160	Coastal Dune Scrub	Depleted

*The expression of Swamp Scrub is considered artificial at the site, as its occurrence is the result of construction of a stormwater drain.

3.4 Threatened species

Threatened flora and fauna species likely to occur within the assessment area were determined through a PMST search (DoEE 2017) and records within the Victorian Biodiversity Atlas (VBA) (DELWP 2017e) for a 5km buffer around the assessment area.

The PMST search (DoEE 2017) identifies the potential presence of threatened species listed under the EPBC Act (MNES). Refer to Appendix D for the PMST Report. The information generated in this report is from modelled rather than derived data, meaning that threatened species lists derived from VBA searches (DELWP

2017e) are considered more accurate. However, the PMST remains a useful tool for identifying the presence of any potential MNES in most cases.

The full review of taxa identified in the PMST and VBA search is presented in Appendix B and summarised in the sections below. Due to the diversity of habitat types and the presence of a Ramsar-listed wetland within the 5 km search area, there are a large number of records returned by the EPBC and VBA database search tools.

3.4.1 Threatened flora

The assessment area has the potential to support a number of threatened flora species. Seven threatened flora species were deemed to have a moderate likelihood of occurring within the assessment area. One of these species, Marsh Saltbush *Atriplex paludosa* subsp. *paludosa* has potential to occur in the Coastal Dune Scrub and adjacent shoreline. The other six species are orchid species with some potential to occur in the higher quality Heathy Woodland of HZ9. For five of these species, the Project is unlikely to provide significant habitat given its moderate quality, history of slashing and small area of impact. However, one species, Dense Leek-orchid *Prasophyllum spicatum* is considered to have a moderate likelihood of significant impact in the area south of the jetty access road (i.e. HZ9). It is discussed below.

Dense Leek-orchid

The Dense Leek-orchid *Prasophyllum spicatum* is listed under the EPBC Act as vulnerable, and threatened under the FFG Act. Only around 80 individuals are known from around eight populations ranging from south Gippsland (Wonthaggi) to the far south-east of South Australia (Duncan 2010). Duncan (2010) details two of these occur in Crib Point and one in nearby Stony Point Rail Reserve. Records within the VBA indicate the Crib Point sites are Disney Road approximately 1 km from the assessment area and Crib Point Bushland Reserve approximately 1.7 km from the assessment area. There are numerous records in the VBA that may be attributed to the Stony Point Rail Reserve, including records in the coastal vegetation contiguous with the assessment area that likely post-date the work of Duncan (2010). Throughout its range it occurs in coastal and near-coastal heathland and heathy woodland commonly containing Manna Gum and Narrow-leaved Peppermint. This vegetation occurs within HZ9 of the assessment area. Dense Leek-orchid generally occurs on sandy soils, with some sites seasonally waterlogged. Little is known of specific habitat requirements, and some sites have been disturbed by periodic fire or mowing; which has been reported to be required to stimulate flowering (Duncan 2010).

3.4.2 Threatened fauna

A review of the VBA (previously recorded species within 5 km of the assessment area) identified 67 threatened species in the vicinity of the site (51 birds; 2 frogs; 7 mammals; 4 reptiles; and 1 shark) (see Appendix B.2). The PMST report identified 53 EPBC listed species for consideration (see Appendix D). Many of these species are associated with the marine, inter-tidal and wetland environments that do not occur within the assessment area. Some of these species such as the Australian Fairy Tern (*Sternula neris nereis*), has the potential to nest in areas adjacent to the assessment area (above high water mark and below adjoining terrestrial vegetation) but these areas are not proposed to be impacted by the Project.

The species identified with the most potential to utilise the assessment area are Southern Brown Bandicoot *Isoodon obesulus obesulus*, Swift Parrot *Lathamus discolor* and Grey-headed Flying-fox *Pteropus poliocephalus*. All three are EPBC listed species.

The Southern Brown Bandicoot was formerly recorded in the local area however there is now doubt it is still locally present. Targeted surveying previously undertaken (PKA 2016) at the site did not identify this species. The habitat on-site provides marginal value for this species as dense vegetation below 1 m height is generally absent. It is considered that there would not be a significant impact to this species associated with the Project. It is also noted that the larger Project Site provides the opportunity to provide linking habitat between the bushland on public land to the north and south of the assessment area. Consideration of incorporation of a habitat link into the Project design is suggested, although this may need to utilise land outside of the assessment area.

The remaining two threatened fauna species, the Swift Parrot and Grey-headed Flying-fox were deemed to have a moderate likelihood of occurring within the assessment area and are considered to potentially irregularly visit the site for feeding but not make a significant use of it, and hence it would not be significantly impacted by the Project. These species are relatively well studied and the known records and distribution are sufficient to draw these conclusions.

Increased activity associated with ships, FSRU and landside operations may impact on some fauna through increased human presence, light and noise. It is not expected this will be significant for terrestrial species given the existing use of the site and the limited habitat available in proximity of the Project. Further discussion about the operational impacts of the facility on marine birds (pelagic and non-pelagic) is provided in Appendix C.

3.4.3 Migratory Species

The PMST report (DoEE 2017) identified 54 listed migratory species for consideration (see Appendix D). Migratory species included under the EPBC Act as MNES are species that migrate through Australia and are identified in an international agreement approved by the Minister.

Of the Migratory species identified in the PMST report, 21 are marine species that are not impacted by the proposed works within the assessment area. Five are terrestrial, some of which may utilise the assessment area for foraging, but this is expected to be very rare and it is not considered significant habitat for these species. Twenty-eight (28) are wetland bird species. The assessment area provides minimal habitat values for these species. Although some species such as the plovers and sandpipers may occasionally visit, it is not considered to be significant habitat.

In summary, the landside component of the Project is not expected to impact on migratory species listed under the EPBC Act due to the lack of significant habitat within the assessment area. Some of the migratory species have the potential to occasionally visit parts of the assessment area, however, given the assessment area's limited habitat values these species are not likely to be impacted by the landside component of the Project.

Increased activity associated with ships, FSRU and landside operations may result in some localised impacts on migratory fauna through increased human presence, light and noise. It is not expected this will be significant for terrestrial species given the existing use of the site and limited habitat available in proximity of the Project. Further discussion about the operational impacts of the facility on marine birds (pelagic and non-pelagic) is provided in Appendix C.

4. Overview of potential impacts

The focus of this report is the landside component of the AGL Gas Import Jetty Project, excluding the marine assessment. The current plans for this area are provided in the indicative Site Establishment Layout for the construction phase. Note that this layout is indicative and encompasses site laydown and facilities for the AGL Gas Import Jetty Project, together with the Pipeline Project. The layout includes:

- Construction of secure fencing along the northern and eastern boundary
- New security hut
- Vehicle access
- Site offices
- Heavy machinery car park
- Personnel car park
- Materials laydown areas.

The indicative Site Establishment Layout overlain with mapped Habitat Zones (HZ) is shown in Figure 4-1 below; and the Indicative Landside Disturbance Footprint is shown in Figure 4-2. It can be seen that impacts associated with this Project are proposed to occur to HZ8 for laydown, access and AGL site offices.

HZ4 and HZ5 associated with vehicle routes and fence construction and HZ7 for personnel car parking are likely to be impacted however these site establishment activities will be undertaken as part of the Pipeline Project. HZ6 is also likely to be impacted, however the extent of vegetation removal is not yet known. This portion of the site forms part of the Pipeline Project.

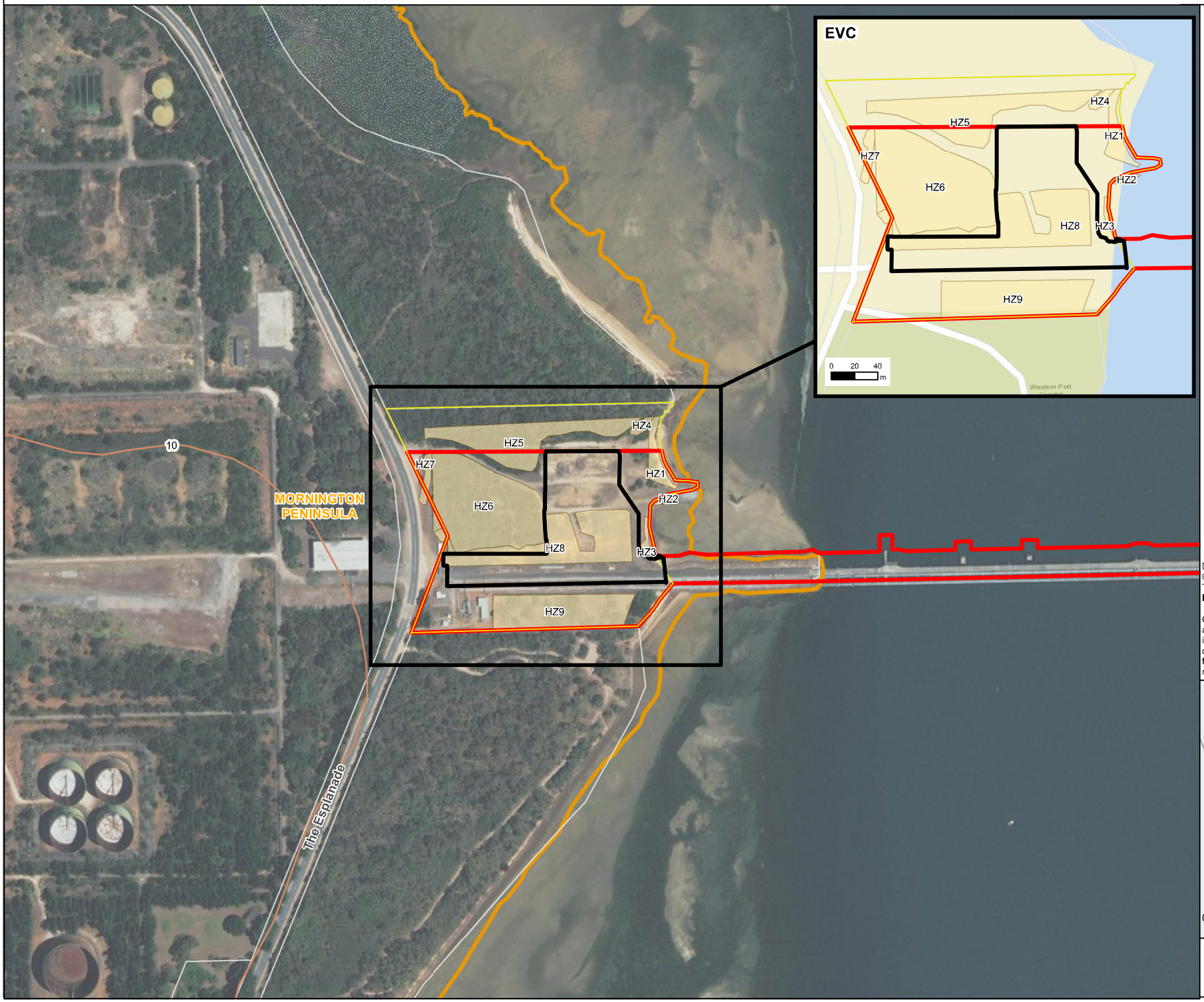
Hence any vegetation removal within HZ4, HZ5, HZ6 and HZ7 is not associated with this Project and has been excluded from this assessment.

The Coastal Dune Scrub (HZ1, HZ2 and HZ3) is not proposed to be impacted.

Figure 4-1 : Indicative Site Establishment Layout (Rev C) (Source: AGL 20/2/2018) and Habitat Zones (Jacobs 11/4/2018)

Figure 4.2 Native Vegetation Map

AGL Gas Import Jetty Project



Legend

- Project Site
- Assessment Area
- Indicative Landslide Disturbance Footprint
- LGA Boundary
- Land Subject to Inundation
- Cadastre (Vicmap) (modified to align with higher accuracy data)
- HZ
- Contour (10m)

N

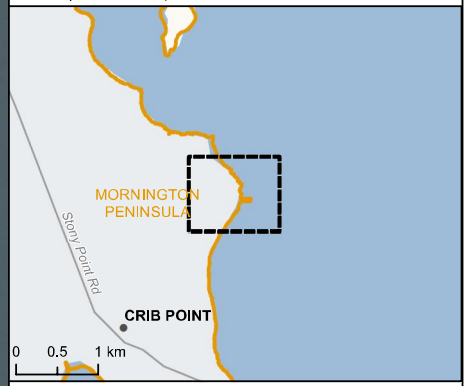
IS210700

GDA 1994 MGA Zone 55

0 100 200

Metres

DATA SOURCES
© Commonwealth of Australia (Geoscience Australia) 2006 Geodata Topo 250k Series 3; Vicmap Data © State of Victoria 2017. Imagery: @ESRI Basemap, 2018.



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5. Legislative and policy implications

Commonwealth and State legislation and key policy documents ensure that the environment is protected in the event of development. The specific legislative instruments and their environmental requirements as relevant to the Project, are presented in the sections below.

5.1 Environment Protection and Biodiversity Conservation (EPBC) Act 1999

Two Matters of National Environmental Significance (MNES) will require further consideration. These are discussed below.

5.1.1 Western Port Ramsar site

The EPBC Act enhances the management and protection of Australia's Ramsar wetlands. Ramsar wetlands are recognised as a MNES under the EPBC Act and as such, assessment is required should significant impacts occur. The assessment area is located adjacent to the Western Port Ramsar site.

An action is considered likely to have a significant impact on 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, dependent on 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.

Stormwater drainage and sediment loads being discharged into Western Port has the potential to constitute an impact to the Ramsar site. Stormwater control measures should be implemented on site to ensure no such discharge occurs through a Project Construction Environmental Management Plan.

With the above measure implemented, the Project's impacts on terrestrial ecology are not likely to have a significant impact on the Ramsar site and referral to the DoEE is not triggered by impacts on terrestrial ecology.

5.1.2 Dense Leek-orchid

The Dense Leek-orchid is listed under the EPBC Act as vulnerable, and threatened under the FFG Act. It is discussed in Section 3.4.1 and considered to be a moderate chance of occurring in HZ9 (i.e. treed southern area of the site). Further field surveys could be conducted during the flowering period for this species (August-November) to further assess for the presence of this species within HZ9 but Duncan (2010) suggests that fire may be required to stimulate the flowering of this species and therefore additional surveys may not be able to identify this species as the site has not been subjected to recent bushfires. In light of AGL's decision not to remove vegetation within HZ9, no further surveys are required.

5.2 Environment Effects Act 1978

The *Environment Effects Act 1978* requires consideration to be given to projects which have significant impacts on the Victorian environment as described in the Act. Under section 8(4) of the Act, a referral is required to be submitted to the Minister for Planning to determine whether an EES is required.

A project with potential adverse environmental effects that, individually or in combination, could be significant in a regional or State context should be referred. The criteria for referral are provided in the *Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978*. These criteria include potential clearing of 10 ha or more of native vegetation, potential long term loss of a significant proportion of known remaining habitat or population of threatened species, potential long-term change to the ecological character of a Ramsar wetland and potential loss of flora and fauna listed under the *Flora and Fauna Guarantee Act 1988.*

This terrestrial flora and fauna assessment has determined that the assessment area contains areas of native vegetation covering approximately 2 ha (in total) of Heathy Woodland. Terrestrial flora and fauna impacts of the Project will not trigger a referral under the *Environment Effects Act 1978* given the limited habitat and the types of native vegetation impacted.

5.3 Flora and Fauna Guarantee Act 1988

The Protected Flora List includes plants from three sources:

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

Dense Leek-orchid

The Dense Leek-orchid is listed as threatened under the *Flora and Fauna Guarantee Act 1988*. It is discussed in Section 3.4.1 and considered to be a moderate chance of occurring in HZ9 (i.e. treed southern area of the site). Further field survey could be conducted during the flowering period for this species (August-November) to further assess for the presence of this species but Duncan (2010) suggests that fire may be required to stimulate the flowering of this species and therefore additional surveys may not be able to identify this species as the site has not been subjected to recent bushfires.

Other protected Flora

As well as protecting threatened species, protected flora includes all members of the Asteraceae (daisies) family, all members of Epacridaceae (heaths), all members of Orchidaceae (orchids) and all Acacias (excluding Silver, Early Black, Lightwood, Blackwood and Hedge Wattles).

POHDA owns the port allotment. As this is not public land the protection of flora under the *Flora and Fauna Guarantee Act 1988* does not apply to this portion of the assessment area.

Sallow Wattle occurs on the roadside which is public land, a ‘Permit to Take’ is required for the works to kill, injure or disturb this protected flora species. This area will not be impacted by this Project, but may be impacted in association with the Pipeline Project.

5.4 Planning and Environment Act 1987

5.4.1 Guidelines for the removal, destruction or lopping of native vegetation

Clause 52.17 (Native Vegetation) of the Mornington Peninsula Planning Scheme applies the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017a) which provides a risk-based level of assessment to remove native vegetation.

The only area of native vegetation impacted associated with this Project is HZ8. This vegetation is considered an area of regeneration less than 10 years old and exempt from permit requirements.

5.5 Catchment and Land Protection Act 1989

Two noxious weeds were recorded in the assessment area; these are listed in **Table 5.1** . Care will be required to ensure that construction actions do not result in their spread.

Table 5.1 : Declared noxious weeds recorded

Scientific name	Common name	Control category
Cirsium vulgare	Spear Thistle	C
Dittrichia graveolens	Stinkwort	C

Control category legend:

- **State Prohibited Weeds (S)** either do not occur in Victoria but pose a significant threat if they invade, or are present, pose a serious threat and can reasonably be expected to be eradicated. If present, infestations of a State prohibited weed are relatively small. They are to be eradicated from Victoria if possible or excluded from the State. The Victorian Government is responsible for their eradication, but under Section 70(1) of the CaLP Act, it may direct land owners to prevent their growth and spread
- **Regionally Prohibited Weeds (P)** are not widely distributed in a region but are capable of spreading further. It is reasonable to expect that they can be eradicated from a region and they must be managed with that goal. Land owners, including public authorities responsible for crown land management, must take all reasonable steps to eradicate regionally prohibited weeds on their land
- **Regionally Controlled Weeds (C)** are usually widespread in a region. To prevent their spread, ongoing control measures are required. Land owners have the responsibility to take all reasonable steps to prevent the growth and spread of Regionally controlled weeds on their land.
- **Restricted Weeds (R)** pose an unacceptable risk of spreading in this State and are a serious threat to another State or Territory of Australia. Trade in these weeds and their propagules, either as plants, seeds or contaminants in other materials is prohibited.

5.6 Legislation summary

The following table provides a summary of the legislative requirements applicable to the Project.

Table 5.2 : Summary of legislative requirements applicable to the Project

Policy/legislation	Project relevance
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	Dense Leek-orchid, listed as vulnerable under the EPBC Act, has potential to occur in HZ9, however AGL has advised it will not remove vegetation on this parcel of land.
Environment Effects Act 1978	No referral under the EE Act is required for the potential impacts on ecological values based on the criteria for referral under the *Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978.*
Flora and Fauna Guarantee Act 1988 (FFG Act)	Dense Leek-orchid, listed as threatened under this Act, has potential to occur in HZ9, however AGL has advised it will avoid vegetation removal on this parcel of land.
Victorian Advisory Lists (VicAdv)	Dense Leek-orchid, listed as Endangered, has potential to occur in HZ9, however AGL has advised they will not remove vegetation on this parcel of land. Consideration of impacts to VicAdv species is incorporated into assessment of an application to remove native vegetation (if required) under Clause 52.17 of the Mornington Peninsula Planning Scheme.

Policy/legislation	Project relevance
Planning and Environment Act 1987 Mornington Peninsula Planning Scheme Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017a)	Native vegetation patches occur within the assessment area. This Project will only impact HZ8 which has been considered regrowth less than 10 years old and exempt from permit requirements.
Catchment and Land Protection Act 1994 (CaLP Act)	Control measures to be included within the Project Construction Environmental Management Plan to prevent the spread of noxious weeds occurring on the site.

6. Management and Mitigation

The following management and mitigation measures are recommended to minimise potential impacts to flora and fauna:

- Stormwater discharge generated during construction and post-construction should be managed on site to ensure that Western Port does not receive any stormwater discharge
- Optimise the Project footprint to minimise the need for clearing of native vegetation and associated permit and offset requirements.
- Implement a Project Construction Environmental Management Plan for the construction phase to minimise impacts to native vegetation and habitat.
- Consider opportunities to connect habitat and provide a subway to enable terrestrial fauna to travel between native vegetation to the north and south of the assessment area.

7. Conclusion

A Flora and Fauna Assessment has been completed to determine the terrestrial flora and fauna attributes of the landside component of the Project Site (the assessment area). The assessment considered the portion of the allotment and adjacent roadside identified in the initial indicative Site Establishment Layout to be affected by the Project and the Pipeline Project. The assessment comprised of a desktop study and a field assessment to determine the terrestrial ecological values within the assessment area, including extent and quality of native vegetation and likelihood of threatened species to utilise the site.

The assessment area contains areas of native vegetation covering approximately 2 ha (in total) and comprises Heathy Woodland, Swamp Scrub (derived) and Coastal Dune Scrub. The assessment area also includes an open area of land of approximately one hectare that is regularly slashed.

The assessment area is bisected by the jetty access road. To the north of this area, the land was cleared in the 1960s associated with the development of the jetty. It was subsequently planted with a mix of Australian natives and has also been re-colonised by locally indigenous native flora and a range of woody weeds. While low in quality and generally lacking a tree canopy this area qualifies as native vegetation under Clause 52.17 (Native Vegetation) of the Mornington Peninsula Planning Scheme, and will require planning permission for removal unless the removal falls within a specified exemption. South of the jetty access road was also impacted in the 1960s, however not all vegetation was removed and a number of trees onsite predate this period. This area contains a moderate quality patch of Heathy Woodland.

In summary, the assessment found:

- One EPBC listed threatened flora species has the potential to occur within the native vegetation in the south of the assessment area; Dense Leek-orchid (EPBC and FFG listed).
- The assessment area is not considered significant habitat for threatened fauna.
- The assessment area is adjacent to the Western Port Ramsar site.

Based on the indicative Site Establishment Layout native vegetation in the north and south of the assessment area was proposed for removal. Upon receipt of the findings of this Flora and Fauna assessment, particularly the outcomes of the field assessment of the land south of the jetty access road, AGL has advised that it will no longer pursue vegetation removal of the land south of the jetty access road (HZ9) and will instead avoid this removal. This will reduce the proposed area for native vegetation removal to approximately 0.44 ha and eliminate the potential for impact to the EPBC listed threatened flora species, Dense Leek-orchid. Furthermore, the native vegetation propose for removal is within HZ8, which is identified as an area of regeneration less than 10 years old and its removal is considered exempt from the need for a permit under the planning scheme.

The following table provides a summary of State and Commonwealth legislation and policy implications as relevant to the Project and the ecological values of the assessment area:

Table 7.1 : Summary interpretation of relevant legislation

Policy/legislation	Project relevance
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	Dense Leek-orchid, listed as vulnerable under the EPBC Act, has potential to occur in HZ9, however AGL has advised it will avoid vegetation removal on this part of the assessment area.
Environment Effects Act 1978	No referral under the EE Act is required for the potential impacts on ecological values based on the criteria for referral under the *Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978.*
Flora and Fauna Guarantee Act 1988 (FFG Act)	Dense Leek-orchid, listed as threatened under this Act, has potential to occur in HZ9, however AGL has advised it will avoid vegetation removal on this parcel of land.

Policy/legislation	Project relevance
Victorian Advisory Lists (VicAdv)	Dense Leek-orchid, listed as Endangered, has potential to occur in HZ9, however AGL has advised they will not remove vegetation on this parcel of land.
Planning and Environment Act 1987 Mornington Peninsula Planning Scheme Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017a)	Native vegetation patches occur within the assessment area. This Project will only impact HZ8 which has been considered regrowth less than 10 years old and exempt from permit requirements.
Catchment and Land Protection Act 1994 (CaLP Act)	Control measures to be included within the Project Construction Environmental Management Plan to prevent the spread of noxious weeds occurring on the site.

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Appendix A. Flora taxa recorded in the assessment area

Origin Key: (*) Exotic; (#) Native to Victoria but considered invasive to the assessment area; (P) Planted and not naturalised within the assessment area.

Family	Origin	Scientific Name	Common Name
Mimosaceae	#	*Acacia longifolia subsp. longifolia*	Sallow Wattle
Mimosaceae	#	*Acacia longifolia subsp. sophorae*	Coast Wattle
Mimosaceae		*Acacia mearnsii*	Black Wattle
Mimosaceae		*Acacia paradoxa*	Hedge Wattle
Mimosaceae	P	*Acacia spp.*	Wattle
Mimosaceae		*Acacia verticillata*	Prickly Moses
Rosaceae		*Acaena novae-zelandiae*	Bidgee-widgee
Alliaceae	*	*Agapanthus praecox subsp. orientalis*	Agapanthus
Poaceae	*	*Agrostis capillaris*	Brown-top Bent
Poaceae	*	*Aira spp.*	Hair Grass
Casuarinaceae		*Allocasuarina verticillata*	Drooping Sheoak
Ericaceae		*Astroloma humifusum*	Cranberry Heath
Chenopodiaceae		*Atriplex cinerea*	Coast Saltbush
Chenopodiaceae	*	*Atriplex prostrata*	Hastate Orache
Poaceae		*Austrostipa spp.*	Spear Grass
Pittosporaceae	*	*Billardiera heterophylla*	Bluebell Creeper
Brassicaceae	*	*Cakile maritima subsp. maritima*	Sea Rocket
Myrtaceae	P	*Callistemon spp.*	Bottlebrush
Aizoaceae		*Carpobrotus rossii*	Karkalla
Poaceae	*	*Cenchrus clandestinus*	Kikuyu
Gentianaceae	*	*Centaurium erythraea*	Common Centaury
Chenopodiaceae		*Chenopodium glaucum*	Glaucous Goosefoot
Asteraceae	*	*Cirsium vulgare*	Spear Thistle
Ranunculaceae		*Clematis microphylla s.l.*	Small-leaved Clematis
Poaceae	*	*Cortaderia selloana*	Pampas Grass
Poaceae	*	*Cynodon dactylon var. dactylon*	Couch
Cyperaceae	*	*Cyperus congestus*	Dense Flat-sedge
Cyperaceae	*	*Cyperus eragrostis*	Drain Flat-sedge
Poaceae	*	*Dactylis glomerata*	Cocksfoot
Hemerocallidaceae		*Dianella brevicaulis*	Small-flower Flax-lily
Convolvulaceae		*Dichondra repens*	Kidney-weed
Poaceae		*Distichlis distichophylla*	Australian Salt-grass
Asteraceae	*	*Dittrichia graveolens*	Stinkwort
Poaceae	*	*Ehrharta erecta var. erecta*	Panic Veldt-grass
Ericaceae		*Epacris impressa*	Common Heath
Onagraceae		*Epilobium billardierianum*	Variable Willow-herb
Poaceae		*Eragrostis brownii*	Common Love-grass
Ericaceae	*	*Erica lusitanica*	Spanish Heath
Asteraceae	*	*Erigeron bonariense*	Flaxleaf Fleabane

Family	Origin	Scientific Name	Common Name
Myrtaceae	#	*Eucalyptus botryoides*	Southern Mahogany
Myrtaceae		*Eucalyptus ovata*	Swamp Gum
Myrtaceae		*Eucalyptus radiata subsp. radiata*	Narrow-leaf Peppermint
Myrtaceae		*Eucalyptus viminalis subsp. pryoriana*	Coast Manna-gum
Euphorbiaceae	*	*Euphorbia peplus*	Petty Spurge
Santalaceae		*Exocarpos cupressiformis*	Cherry Ballart
Cyperaceae		*Ficinia nodosa*	Knobby Club-sedge
Aizoaceae	*	*Galenia pubescens var. pubescens*	Galenia
Asteraceae	*	*Gamochaeta purpurea s.l.*	Purple Cudweed
Haloragaceae		*Gonocarpus tetragynus*	Common Raspwort
Proteaceae	*	*Hakea drupacea*	Sweet Hakea
Dilleniaceae		*Hibbertia riparia*	Erect Guinea-flower
Poaceae	*	*Holcus lanatus*	Yorkshire Fog
Hypericaceae		*Hypericum gramineum s.l.*	Small St John's Wort
Asteraceae	*	*Hypochaeris radicata*	Flatweed
Juncaceae		*Juncus spp.*	Rush
Myrtaceae		*Kunzea ericoides s.l.*	Burgan
Poaceae	*	*Lagurus ovatus*	Hare's-tail Grass
Cyperaceae		*Lepidosperma laterale var. laterale*	Variable Sword-sedge
Myrtaceae		*Leptospermum continentale*	Prickly Tea-tree
Myrtaceae		*Leptospermum myrsinoides*	Heath Tea-tree
Xanthorrhoeaceae		*Lomandra filiformis subsp. coriacea*	Wattle Mat-rush
Xanthorrhoeaceae		*Lomandra filiformis subsp. filiformis*	Wattle Mat-rush
Xanthorrhoeaceae		*Lomandra longifolia*	Spiny-headed Mat-rush
Fabaceae	*	*Lotus spp. (naturalised)*	Trefoil
Myrsinaceae	*	*Lysimachia arvensis*	Pimpernel
Lythraceae		*Lythrum hyssopifolia*	Small Loosestrife
Rosaceae	*	*Malus pumila*	Apple
Myrtaceae	#	*Melaleuca armillaris subsp. armillaris*	Giant Honey-myrtle
Myrtaceae	#	*Melaleuca ericifolia*	Swamp Paperbark
Myrtaceae	P	*Melaleuca spp.*	Honey-myrtle
Poaceae		*Microlaena stipoides var. stipoides*	Weeping Grass
Malvaceae	*	*Modiola caroliniana*	Red-flower Mallow
Scrophulariaceae	#	*Myoporum insulare*	Common Boobialla
Oxalidaceae		*Oxalis exilis*	Shade Wood-sorrel
Oxalidaceae		*Oxalis perennans*	Grassland Wood-sorrel
Poaceae	*	*Paspalum dilatatum*	Paspalum
Pinaceae	*	*Pinus radiata*	Radiata Pine
Pittosporaceae	#	*Pittosporum undulatum*	Sweet Pittosporum
Plantaginaceae	*	*Plantago coronopus*	Buck's-horn Plantain
Plantaginaceae	*	*Plantago lanceolata*	Ribwort
Poaceae		*Poa labillardierei*	Common Tussock-grass

Family	Origin	Scientific Name	Common Name
Poaceae		*Poa spp.*	Tussock Grass
Dennstaedtiaceae		*Pteridium esculentum*	Austral Bracken
Rosaceae	*	*Rubus anglocandicans*	Common Blackberry
Rosaceae		*Rubus parvifolius*	Small-leaf Bramble
Polygonaceae	*	*Rumex conglomeratus*	Clustered Dock
Poaceae		*Rytidosperma caespitosum*	Common Wallaby-grass
Poaceae		*Rytidosperma geniculatum*	Kneed Wallaby-grass
Poaceae		*Rytidosperma racemosum var. racemosum*	Slender Wallaby-grass
Poaceae		*Rytidosperma setaceum*	Bristly Wallaby-grass
Poaceae		*Rytidosperma spp.*	Wallaby Grass
Cyperaceae		*Schoenus apogon*	Common Bog-sedge
Cyperaceae		*Schoenus spp.*	Bog Sedge
Poaceae	*	*Setaria spp. (naturalised)*	Pigeon Grass
Solanaceae	*	*Solanum nigrum s.l.*	Black Nightshade
Asteraceae	*	*Sonchus asper s.s.*	Rough Sow-thistle
Poaceae		*Spinifex sericeus*	Hairy Spinifex
Poaceae	*	*Sporobolus africanus*	Rat-tail Grass
Poaceae		*Themeda triandra*	Kangaroo Grass
Hemerocallidaceae		*Tricoryne elatior*	Yellow Rush-lily
Poaceae	*	*Vulpia spp.*	Fescue
Campanulaceae		*Wahlenbergia spp.*	Bluebell

Appendix B. Potentially occurring threatened species

B.1 Potentially occurring threatened flora

Scientific name	Common name	Last record	Conservation status	Habitat	Likelihood of occurrence	Likelihood of significant impact*
Atriplex paludosa subsp. *paludosa*	Marsh Saltbush	1988	VicAdv Rare	Locally common on the fringes of coastal and near coastal saltmarshes west from Wilsons Promontory.	**Moderate**: although not-observed on site, it may potentially occur fringing the coastline (e.g. HZ1,2,3)	**Low**: species unlikely to be present within Project footprint.
Avicennia marina subsp. *australasica*	Grey Mangrove	1989	VicAdv Rare	Locally common on tidal mudflats, (bays, estuaries and creek mouths) from the western half of Port Phillip Bay to corner inlet.	**Low:** species not observed on site	**Low**: species unlikely to be present within Project footprint.
Diuris punctata var. *punctata*	Purple Diuris	1998	VicAdv Vulnerable FFG Listed	Moist areas in box, red gum and sclerophyll woodlands, grassy low open forest.	**Moderate**: potentially present within HZ9	**Low**: Project footprint is unlikely to represent important habitat for this species.
Euryomyrtus ramosissima subsp. *prostrata*	Nodding Baeckea	1989	VicAdv Rare	Scattered discontinuously in coastal Victoria from Moonlight Head in the Otway Range, to Mallacoota, with an isolated inland record in the Grampians. Confined to heathlands and heathy woodlands. Flowers mostly Jun-Feb.	**Low**: habitat potentially present within HZ9 but not observed	**Low**: Project footprint is unlikely to represent important habitat for this species.
Exocarpos syrticola	Coast Ballart	1988	VicAdv Rare	Confined to coastal dunes and cliffs on and west of Wilsons Promontory, but locally common.	**Low:** not observed and marginal habitat	**Low**: Project footprint is unlikely to represent important habitat for this species.
Lawrencia spicata	Salt Lawrencia	1991	VicAdv Rare	An occasional component of saltmarsh communities along the coast, rare in saline depressions and around salt lakes of south western Victoria.	**Low:** not observed and marginal habitat	**Low**: species unlikely to be present within Project footprint.

Scientific name	Common name	Last record	Conservation status	Habitat	Likelihood of occurrence	Likelihood of significant impact*
Prasophyllum spicatum	Dense Leek-orchid	2009	EPBC Vulnerable FFG Listed VicAdv Endangered	Grows in coastal heath and sandhills. Flowers August to November.	**Moderate**: habitat potentially present within HZ9 and this species known to occur in the bushland around Crib Point	**Moderate-Low**: given there a several populations of this species in the nearby vicinity, it warrants further investigation
Thelymitra orientalis	Hoary Sun-orchid	2003	VicAdv Vulnerable	Grows in damp heathy flats and seepage areas usually in peaty white sands. Nearby records are from French Island.	**Moderate-Low**: potential habitat present within assessment area.	**Low**: Project footprint is unlikely to represent important habitat for this species.
Thelymitra X irregularis	Crested Sun-orchid	1999	VicAdv Rare	Believed to be a natural hybrid between T. ixioides and T. carnea or T. rubra, sporadically occurring where parents-species grow intermingled	**Moderate-Low**: habitat potentially present within HZ9.	**Low**: Project footprint is unlikely to represent important habitat for this species.
Thelymitra X macmillanii	Crimson Sun-orchid	2009	VicAdv Vulnerable	Thought to be a hybrid (T. antennifera & T. carnea) and generally occurs where parent species are found.	**Moderate-Low**: habitat potentially present within HZ9.	**Low**: Project footprint is unlikely to represent important habitat for this species.
Thelymitra X merraniae	Merran's Sun-orchid	1999	VicAdv Endangered FFG Listed	Rare in heathland and heathy woodlands.	**Moderate-Low**: habitat potentially present within HZ9.	**Low**: Project footprint is unlikely to represent important habitat for this species.
Triglochin minutissima	Tiny Arrowgrass	1991	VicAdv Rare	Scattered on damp saline soils near salt-lakes, and forming part of herbfield in coastal saltmarshes. Fruits Aug-Nov.	**Low**: not observed on site and marginal habitat available.	**Low**: species unlikely to be present within Project footprint.

B.2 Potentially occurring threatened fauna

Scientific name	Common name	Last record	Conservation status	Habitat	Likelihood of occurrence	Likelihood of significant impact*
Birds						
Actitis hypoleucos	Common Sandpiper	2007	**Vic.Adv.** Vulnerable	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Anas rhynchotis	Australasian Shoveler	2006	**Vic.Adv.** Vulnerable	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Anthochaera phrygia	Regent Honeyeater	NA	**EPBC** Endangered	Dry open forest, woodlands, or red ironbark, yellow box, white and yellow gum, mistletoe on river she-oaks, trees in farmlands, streets, gardens. [1]	**Low** – suitable habitat not present	**Low –** Species unlikely to be present
Ardea modesta	Eastern Great Egret	2013	**Vic.Adv.** Vulnerable **FFG**	Freshwater wetlands, pastures and croplands, tidal mudflats, floodplains. [1]	**Low** – suitable habitat not present	**Low –** species unlikely to be present.
Arenaria interpres	Ruddy Turnstone	1992	**Vic.Adv.** Vulnerable	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Aythya australis	Hardhead	2006	**Vic.Adv.** Vulnerable	Deep, permanent wetlands, large open waters, brackish coastal swamps, farm dams, ornamental lakes sewage ponds. [1]	**Low** – suitable habitat not present	**Low –** species unlikely to be present.
Biziura lobata	Musk Duck	2006	**Vic.Adv.** Vulnerable	Deep, permanent wetlands, large open waters, brackish coastal swamps, farm dams, ornamental lakes, sewage ponds. [1]	**Low** – suitable habitat not present	**Low –** species unlikely to be present.
Botaurus poiciloptilus	Australasian Bittern	2007	**Vic.Adv.** Endangered **FFG** **EPBC** Endangered	Usually tall reedbeds, sedges, rushes, cumbungi or lignum. Also occurs on rice fields, drains in tussocky paddocks and occasionally on saltmarshes and brackish wetlands. [1]	**Low** – suitable habitat not present	**Low –** species unlikely to be present.

Scientific name	Common name	Last record	Conservation status	Habitat	Likelihood of occurrence	Likelihood of significant impact*
Calidris canutus	Red Knot	NA	**EPBC** Endangered	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Calidris ferruginea	Curlew Sandpiper	1992	**Vic.Adv.** Endangered **EPBC** Critically Endangered	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Calidris tenuirostris	Great Knot	NA	**EPBC** Critically Endangered	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Charadrius leschenaultii	Greater Sand Plover	NA	**EPBC** Vulnerable	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Charadrius mongolus	Lesser Sand Plover	NA	**EPBC** Endangered	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Diomedea antipodensis	Antipodean Albatross	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C
Diomedea antipodensis gibsoni	Gibson's Albatross	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C
Diomedea epomophora	Southern Royal Albatross	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C
Diomedea exulans	Wandering Albatross	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C
Diomedea sanfordi	Northern Royal Albatross	NA	**EPBC** Endangered	Pelagic	Refer to Appendix C	Refer to Appendix C
Egretta garzetta nigripes	Little Egret	1987	**Vic.Adv.** Endangered **FFG**	Tidal mudflats, saltmarshes, mangroves, freshwater wetlands, sewage ponds. [1]	**Low** – suitable habitat not present	**Low –** species unlikely to be present.
Fregetta grallaria grallaria	White-bellied Storm-Petrel	NA	**EPBC** Vulnerable	Intertidal Zone	Refer to Appendix C	Refer to Appendix C

Scientific name	Common name	Last record	Conservation status	Habitat	Likelihood of occurrence	Likelihood of significant impact*
Grantiella picta	Painted Honeyeater	NA	**EPBC** Vulnerable	Mistletoes in eucalypt forests/woodlands; black box on watercourses; box-ironbark-yellow gum woodlands; paperbarks, Casuarinas; mulga, other acacias; trees on farmland; gardens. [1]	**Low** – suitable habitat not present	**Low –** species unlikely to be present.
Haliaeetus leucogaster	White-bellied Sea-Eagle	1998	**Vic.Adv.** Vulnerable **FFG**	Coasts, inlands, estuaries, inlets, large rivers, inland lakes, reservoirs. [1]	**Low –** Limited habitat available	**Low –** species unlikely to be present.
Hirundapus caudacutus	White-throated Needletail	2007	**Vic.Adv.** Vulnerable	Predominantly aerial in Australia, from heights of less than 1 m up to more than 1000 m above the ground. [1]	**Low –** Limited habitat available	**Low –** species unlikely to be present.
Hydroprogne caspia	Caspian Tern	1996	**Vic.Adv.** Near Threatened **FFG**	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Lathamus discolor	Swift Parrot	NA	**EPBC** Critically Endangered	Open grassy woodland, with dead trees, near permanent water and forested hills, coastal heaths, pastures with exotic grasses, weeds, roadsides, orchards. [1]	**Moderate** – Eucalypts in the southern portion of the site may provide temporary refuge for their migration north.	**Low** – Limited habitat available
Lewinia pectoralis pectoralis	Lewin's Rail	2007	**Vic.Adv.** Vulnerable **FFG**	Swamp woodlands, rushes, reeds, rank grass in swamps, creeks, paddocks; wet heaths. [1]	**Low –** Limited habitat available	**Low –** species unlikely to be present.
Limosa lapponica	Bar-tailed Godwit	1992	**EPBC** Vulnerable	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Limosa lapponica menzbieri	Northern Siberian Bar-tailed Godwit	NA	**EPBC** Critically Endangered	Intertidal Zone	Refer to Appendix C	Refer to Appendix C

Scientific name	Common name	Last record	Conservation status	Habitat	Likelihood of occurrence	Likelihood of significant impact*
Macronectes giganteus	Southern Giant-Petrel	1988	**Vic.Adv.** Vulnerable **FFG** **EPBC** Endangered	Pelagic	Refer to Appendix C	Refer to Appendix C
Macronectes halli	Northern Giant Petrel	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C
Neophema chrysogaster	Orange-bellied Parrot	NA	**EPBC** Critically Endangered	Moves seasonally between Tasmanian breeding grounds and feeding areas on mainland south-east coast. In Victoria mostly limited to saltmarsh in western Port Phillip Bay but also Corner Inlet, Western Port and Discovery Bay. Occasionally feed in adjacent areas of wet pasture and weedy areas and chenopods such as Glaucous Goosefoot and Hastate Orache.	**Low** – limited habitat present.	**Low –** species unlikely to be present in impact areas
Numenius madagascariensis	Eastern Curlew	2016	**EPBC** Critically Endangered	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Numenius phaeopus	Whimbrel	1992	**Vic.Adv.** Endangered	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Oxyura australis	Blue-billed Duck	2006	**Vic.Adv.** Vulnerable **FFG**	Found on temperate, fresh to saline, terrestrial wetlands including sewerage ponds, rivers, salt lakes and saltpans. Preferring deep, permanent open water within or near dense vegetation. [1]	**Low** – suitable habitat not present	**Low –** species unlikely to be present.
Pachyptila turtur subantarctica	Fairy Prion (southern)	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C

Scientific name	Common name	Last record	Conservation status	Habitat	Likelihood of occurrence	Likelihood of significant impact*
Phoebetria fusca	Sooty Albatross	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C
Pseudemoia rawlinsoni	Glossy Grass Skink	2007	**Vic.Adv.** Vulnerable	Prefers damp sites including wet forest and wetlands.[3]	**Low** – limited habitat present	**Low –** species unlikely to be present.
Pterodroma leucoptera leucoptera	Gould's Petrel	NA	**EPBC** Endangered	Pelagic	Refer to Appendix C	Refer to Appendix C
Rostratula australis	Australian Painted Snipe	NA	**EPBC** Endangered	Well-vegetated shallows and margins of wetlands, dams, sewage ponds; wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub, open timber.	Low	Low
Sternula nereis nereis	Australian Fairy Tern	1992	**EPBC** Vulnerable **Vic.Adv.** Endangered **FFG**	Nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation.	**Moderate –** some but limited potential to nest on beach area. More likely to use nearby areas and adjacent bushland.	**Low –** species unlikely to be present in impact areas
Thalassarche bulleri	Buller's Albatross	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C
Thalassarche bulleri platei	Northern Buller's Albatross	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C
Thalassarche cauta cauta	Shy Albatross	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C
Thalassarche cauta steadi	White-capped Albatross	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C
Thalassarche chrysostoma	Grey-headed Albatross	NA	**EPBC** Endangered	Pelagic	Refer to Appendix C	Refer to Appendix C
Thalassarche impavida	Campbell Albatross	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C

Scientific name	Common name	Last record	Conservation status	Habitat	Likelihood of occurrence	Likelihood of significant impact*
Thalassarche melanophris	Black-browed Albatross	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C
Thalassarche salvini	Salvin's Albatross	NA	**EPBC** Vulnerable	Pelagic	Refer to Appendix C	Refer to Appendix C
Tringa brevipes	Grey-tailed Tattler	1991	**Vic.Adv.** Critically Endangered **FFG**	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Tringa nebularia	Common Greenshank	2006	**Vic.Adv.** Vulnerable	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Tringa stagnatilis	Marsh Sandpiper	1992	**Vic.Adv.** Vulnerable	Intertidal Zone	Refer to Appendix C	Refer to Appendix C
Fish						
Galaxiella pusilla	Dwarf Galaxias	NA	**EPBC** Vulnerable	Variety of connected drainage areas (creeks, rivers and drains) across the west Gippsland plain. [2]	**Low** – suitable habitat not present	**Low –** species unlikely to be present.
Prototroctes maraena	Australian Grayling	NA	**EPBC** Vulnerable	Clear, moderate to fast-flowing water in the upper reaches of rivers. Typically found in gravel-bottom pools. Often form aggregations below barriers to upstream movement.[2]	**Low** – suitable habitat not present	**Low –** species unlikely to be present.
Frogs						
Litoria raniformis	Growling Grass Frog	NA	**EPBC** Vulnerable	A largely aquatic species found among vegetation within or at the edges of permanent water – streams, swamps, lagoons, farm dams and ornamental ponds. Often found under debris on low, often flooded river flats. Frequently active by day. [3]	**Low** – suitable habitat not present.	**Low –** species unlikely to be present.

Scientific name	Common name	Last record	Conservation status	Habitat	Likelihood of occurrence	Likelihood of significant impact*
Pseudophryne semimarmorata	Southern Toadlet	1999	**Vic.Adv.** Vulnerable	Found in a variety of damp situations in sclerophyll forests under logs, leaf-litter etc. where it lives in small tunnels during the breeding season (March-May). [3]	**Low** – suitable habitat not present	**Low –** species unlikely to be present.
Mammals						
Antechinus minimus maritimus	Swamp Antechinus	NA	**EPBC** Vulnerable	Highly fragmented distribution across coastal (to elevation of 220m) southern Victoria. Prefers damp sites, dark sites, generally swampy areas dominated by sliky tea tree. [3]	**Low –** Suitable habitat not present.	**Low –** species unlikely to be present.
Eubalaena australis	Southern Right Whale	2009	**Vic.Adv.** Critically Endangered **FFG** **EPBC** Endangered	Marine	NA	NA
Isoodon obesulus obesulus	Southern Brown Bandicoot	1980	**EPBC** Endangered	Prefers sandy soil with scrubby vegetation and / or areas with low ground cover that are burnt out from time to time. [4]	**Moderate–** Limited recent records in the vicinity and doubt it is still locally present, however marginal habitat present on site. Previous targeted survey (PKA, 2016) did not locate the species at the time of survey.	**Low –** site unlikely to represent significant habitat for this species; however opportunities to link habitat either side of site.
Megaptera novaeangliae	Humpback Whale	2013	**Vic.Adv.** Vulnerable **FFG** **EPBC** Vulnerable	Marine	NA	NA

Scientific name	Common name	Last record	Conservation status	Habitat	Likelihood of occurrence	Likelihood of significant impact*
Petauroides volans	Greater Glider	NA	**EPBC** Vulnerable	Largely restricted to Eucalypt forests and woodlands, preferring montane areas with diverse Eucalypt assemblages. [4]	**Low** – Not known to occur on the Mornington Peninsula	**Low –** species unlikely to be present.
Pseudomys fumeus	Smoky Mouse	NA	**EPBC** Endangered	A variety of vegetation communities from coast to mountains, reliant on heath/pea species and rock/log debris on the ground. Susceptible to introduced carnivores. [4]	**Low** – Not known to occur on the Mornington Peninsula	**Low –** species unlikely to be present.
Pteropus poliocephalus	Grey-headed Flying-fox	NA	**EPBC** Vulnerable	Camps of this species are found in gullies, typically not far from water and usually in vegetation with a dense canopy. [4]	**Moderate** – species may potentially utilize the area for temporary feeding, but unlikely to make significant use of the area for breeding.	**Low** – Species unlikely to make significant use of the area.
Reptiles						
Caretta caretta	Loggerhead Turtle	NA	**EPBC** Endangered	Marine	NA	NA
Chelonia mydas	Green Turtle	NA	**EPBC** Vulnerable	Marine	NA	NA
Dermochelys coriacea	Leatherback Turtle	NA	**EPBC** Endangered	Marine	NA	NA
Lissolepis coventryi	Swamp Skink	2010	**Vic.Adv.** Vulnerable **FFG**	Confined to humid microhabitats such as marshlands and the margins of creeks, swamps and lakes. [3]	**Low** – suitable habitat not present	**Low –** habitat unlikely to be present.
Sharks						
Carcharodon carcharias	Great White Shark	NA	**EPBC** Vulnerable	Marine	NA	NA

*Note marine birds are discussed in Appendix C and other marine fauna are addressed in CEE (2018a).

Appendix C. Construction and operational impacts on marine birds

C.1 Introduction and scope

Increased activity associated with ships, FSRU and landside operations may affect flora and fauna. Consideration of the impacts to marine flora and fauna has been undertaken by CEE (2018a); however this work did not include consideration of birds. The impacts of the development on terrestrial flora and fauna is considered in the body of this report. Flora is generally not directly vulnerable to construction or operational activities relating to human activity, noise and increased light. Thus the focus of this appendix is on the construction and operational impacts on marine birds. The term 'marine birds' has been used in the broad sense in this appendix to consider any species that may utilise marine habitat, this includes intertidal and pelagic areas, such that all potential impacts to avifauna are considered across this whole report.

C.2 Construction and operational activities

C.2.1 Current operations

The Port of Hastings is one of Victoria's four commercial trading ports. Its channels offer the deepest navigable commercial waters in Victoria with an annual capacity of over 2000 vessel movements per annum. The Port's main trade commodities include crude oil, LPG, unleaded petrol, diesel and steel. The Port's facilities include the Stony Point jetty and depot, Crib Point jetty and liquid berths 1 and 2, Long Island Point bulk liquid and gas berth and the BlueScope Steel jetty, owned by BlueScope (POHDA 2017).

The Port of Hastings reported that 100 ships visited the port waters in 2016/17 (POHDA 2017). The Crib Point Jetty is currently used by United Petroleum (United) for the import of fuel which is delivered by ship and transferred by pipeline to their terminal in Hastings. It is understood that on average approximately one United ship per month berths at the Crib Point Jetty.

C.2.2 Proposed operations

A description of the key construction and operational activities of the Project is provided below.

The AGL Gas Import Jetty Project will utilise a FSRU to be continuously moored at Crib Point Jetty to receive LNG cargoes from visiting LNG carriers, store the LNG and regasify it as required to meet demand for high pressure pipeline gas. The FSRU is essentially an LNG carrier with equipment on board to warm and regasify LNG. Gas from the FSRU will be received by a gas flowline positioned on the jetty and connecting with the Pipeline Project's "End of line Facilities".

The FSRU supplies heat to vaporise the LNG from sea water pumped through heat exchangers on the vessel.

Four reciprocating gas engines, located on the FSRU, will be used to provide all the power required on board, i.e. for driving the compressors, pumps, ventilation fans, general utility, etc. The engines will also provide electric power for propulsion of the FSRU. When no gas is exported, one engine will operate at reduced capacity to support all utility power needs on the FSRU. The other three engines will not be operational. During gas send out, all four engines will operate at varying capacities to support the gas vaporisation, pressurisation and export processes. The operating capacities will depend on the gas export rate.

There will also be an emergency diesel generator. This will only be used for back-up power requirements.

The LNG once pressurised and vaporised on board the FSRU will be delivered as high pressure gas vapour to the gas flowline on the jetty via gas unloading arms (these components are all part of the AGL Gas Import Jetty Project). The gas flowline will connect to the Pipeline Project's "End of line Facilities" situated on approximately 1.5 Ha of area adjacent to the Crib Point Jetty. The "End of Line Facilities" include metering, pressure let down, pig traps, and odourisation, quality analysis, nitrogen injection and emergency shut down facilities.

Installation of the Jetty Infrastructure is anticipated to commence in 2019 with an anticipated construction timeframe for the Project of approximately six months. Operation is expected to commence in 2020.

Upon completion, depending on demand, between 12 to 40 LNG ships per year would moor alongside the FSRU at Crib Point to resupply the FSRU with LNG. The Port of Hastings reported that 100 ships visited the port waters in 2016/17 (POHDA 2017). Hence the Project will see a predicted increase of between 10% to 40% in current shipping movements.

C.3 Threatened and migratory marine birds

C.3.1 Database records

The Victorian Biodiversity Atlas (VBA) (DELWP 2017e) lists 18 threatened marine birds with records within 5 km of the landside project area. These taxa are listed in Appendix B - the birds listed in this Appendix use intertidal and pelagic habitat as well as some species that were described as potentially using terrestrial areas of the landside component such as the Fairy Tern and White-bellied Sea-Eagle. Five of these are EPBC-listed:

- Bar-tailed Godwit *Limosa lapponica*
- Curlew Sandpiper *Calidris ferruginea*
- Eastern Curlew *Numenius madagascariensis*
- Fairy Tern *Sternula nereis nereis*
- Southern Giant-Petrel Macronectes giganteus

Seven are FFG-listed:

- Caspian Tern *Hydroprogne caspia*
- Eastern Great Egret *Ardea modesta*
- Fairy Tern *Sternula nereis nereis*
- Grey-tailed Tattler *Tringa brevipes*
- Little Egret *Egretta garzetta nigripes*
- Southern Giant-Petrel *Macronectes giganteus*
- White-bellied Sea-Eagle *Haliaeetus leucogaster*.

The EPBC PMST lists a further 23 EPBC-listed threatened marine birds as potentially occurring within this 5 km buffer and an additional 17 migratory marine birds (Appendix D). This provides for a total of 58 marine birds that may use the Project area.

C.3.2 Potential habitat

Waterbird habitat within the Western Port Ramsar site was identified and mapped by Hansen, Menkhorst et al. (2011) and is presented in Figure C-1. It identifies the known roost sites and identifies areas where they forage in proximity to these roost sites as primary foraging habitat. Other intertidal areas are identified as secondary foraging habitat. The intertidal areas around Crib Point are identified as secondary foraging habitat and primary foraging habitat extending to the north. The nearest known roosting sites are some 4 km north, 6.5 km south and 4 km east.

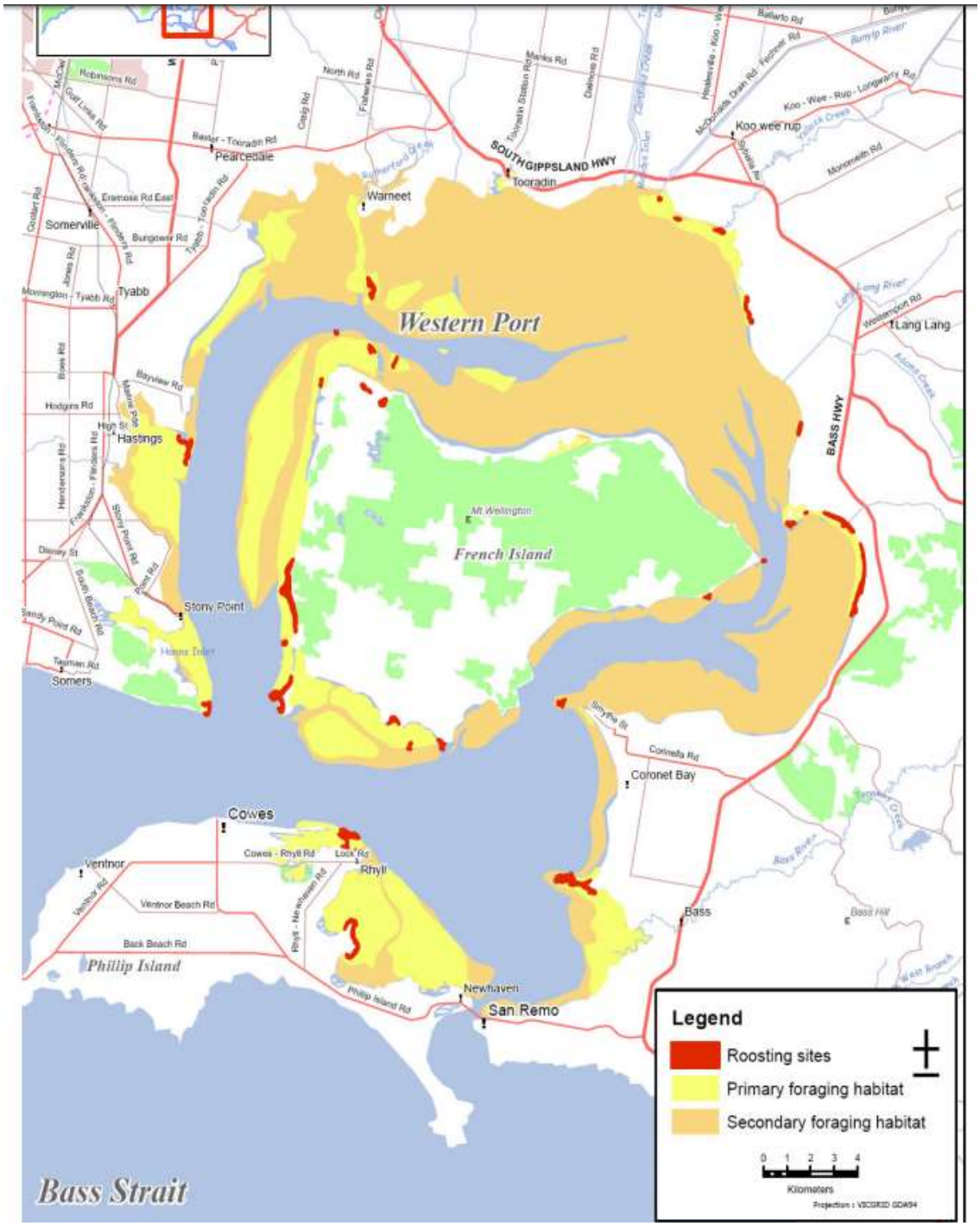

Figure C-1: Habitat for waterbird roosting and foraging

Source: Hansen, Menkhorst et al. (2011)

Figure C-2 shows the potential foraging habitat in the intertidal zone adjacent the Crib Point Jetty. The adjacent beach areas provide potential roost areas but there are no known records of marine birds roosting in the area.

Figure C-2: Intertidal zone adjacent project site provides foraging habitat for marine bird. Above high tide provides potential roosting habitat.

C.4 Potential impacts

The most commonly identified threats to wading birds in Western Port were listed by Hansen, Menkhorst et al. (2011) and are provided below. Those in bold are potentially relevant to the Project:

- **Habitat loss and modification**
- **Disturbance from beach users** (walkers, joggers, dog walkers, etc.)
- **Disturbance from water users** (fishing, sailing, personal water craft and similar)
- Nest loss (trampling, storm or tidal inundation)
- **Bird injury &/or mortality** (predation, collision with vehicles or vessels, tangling in fishing line)
- Competition
- Aircraft activity.

There are a range of potential impacts to marine birds associated with construction and operation of the FSRU. This include increased human activity, noise, light and physical changes to the environment such as habitat loss

and changes to sea water currents, temperature and changed chemical composition. These are discussed further below.

Birds that use the intertidal areas are most likely to be influenced by the Project. Pelagic species are less likely to be impacted by the project given the vast area of open water that they use.

C.4.1 Human activity

Human activity includes not only the increased presence of humans within the project area but the presence of machinery and infrastructure such as vehicles (e.g. cars and ships) and the FSRU. Human activity can disrupt and affect the behaviour of birds by being perceived as a threat that results in interruption of essential activities such as feeding, roosting and breeding. Ongoing interruption can result in habitat and resources becoming unviable as the energy utilised in response to threats may outweigh the benefits gained or prevent the build-up of energy stores essential for migration. The physical presence of infrastructure can likewise interrupt these activities by physically displacing birds from space and resources they would otherwise use.

C.4.2 Noise

Increased noise due to operation of the FSRU has the potential to affect birds. While the Environmental Noise Assessment (Jacobs 2018) prepared for the Project focusses on impacts to residential areas, it modelled the various sound levels associated with the operation of the Project such as mooring of the LNG carrier, FSRU operations as well as the Pipeline Project End of Line Facilities. Figure C-3 and Figure C-4 presents the results of the modelling for two typical scenarios in the vicinity of the Project Site (additional noise contour maps are provided in Appendix C of the Environmental Noise Assessment (Jacobs 2018)). Monitoring of current noise levels was undertaken at a number of residential locations to inform noise modelling investigations, but monitoring was not conducted specifically at the Project Site or adjacent habitat.

The assessment concluded that operations of the AGL Gas Import Jetty Project and the Pipeline Project End of Line Facilities comply with the Noise from Industry in Regional Victoria, Publication 1411 (NIRV). Operations of the AGL Gas Import Jetty Project and the Pipeline Project End of Line Facilities will not increase the existing noise levels (at the closest residential sensitive areas) when United Petroleum (the existing user of Crib Point Jetty) is operating simultaneously.

Birds that use the intertidal areas are most likely to be influenced by noise pollution. Pelagic species are less likely to be impacted given the vast area of open water than utilise. Further investigation of the change from existing noise conditions and identification of birds that use the area could inform a literature review examining how certain taxa may be affected. The extent of these investigations will be determined in consultation with the regulators.

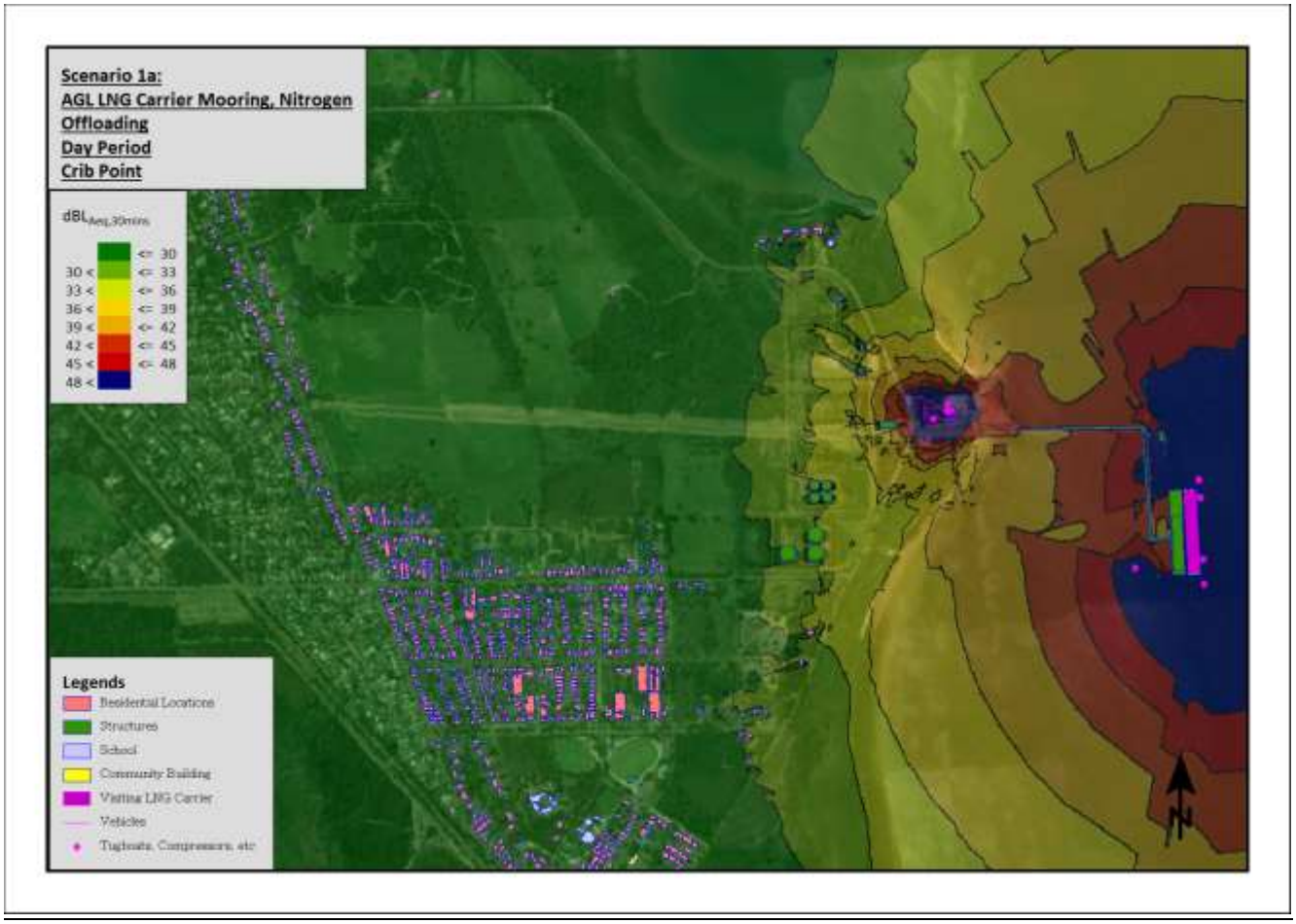

Figure C-1 : Noise modelling for mooring of LNG carrier (Day Period)

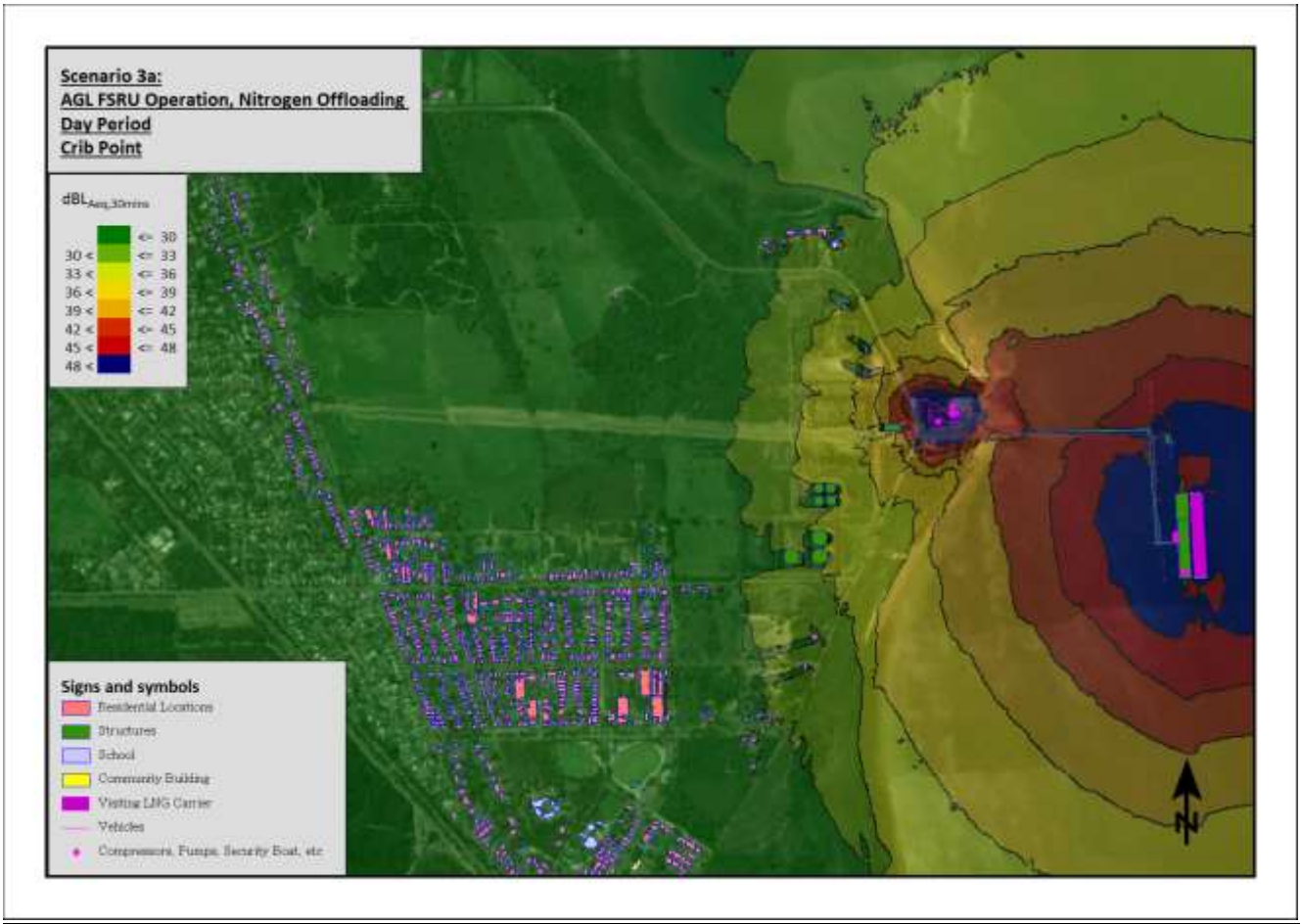

Figure C-2 : Noise modelling for regasification in progress (Day Period)

C.4.3 Physical changes associated with FSRU operation

The operation of the FSRU relies on the use of seawater to enable the regasification of LNG. Risks to birdlife associated within this include potential entrainment in the unit, cold-water discharge, and chlorine residual in the seawater discharge (CEE 2018a). Each of these will be briefly considered below.

Entrainment

The operation of the heat exchange system on the FSRU will require a daily volume of up to 450,000 m^3 (450 ML/day) of seawater from Western Port to be pumped at a rate of 5.2 m^3/s through heat exchangers on-board the FSRU. This will result in the production of a current for the intake of water. The heat exchanger intake will be designed to minimise potential effects of seawater entrainment on mobile animals in the water column, including being placed mid-way in the water column (4 m below low-tide and 5 m above the sea floor), provided with an intake grill and a perpendicular intake velocity (0.1 to 0.15 m/s) to the ambient current. Large and small mobile animals can avoid being drawn into the intake by detecting the intake and swimming away from the screens (CEE 2018a).

Effects of cold-water discharge and chlorine residual

A plume of colder seawater with chlorine residual will be discharged from the FSRU. Plume modelling of the discharge was undertaken by (CEE 2018b) with an area 1 km north and south and approximately 250 m either side (east and west) of the FSRU, in water depth from approximately 12.5 m to 17 m to be affected. Benthic habitats, including inter-tidal zones in water depths less than less than 12.5 m will be unaffected by the direct effects of FSRU operation (CEE 2018a). Within this area impacts to plankton and larva may result (CEE 2018a). There is not likely to be direct effects to marine birds associated with discharge, however there may be influences to birds that use feed resources of the open sea, if fish and plankton populations are affected. The

scale of the impact (less than 1.5% of the Ramsar area) suggest this impact will not be significant given that mostly pelagic species occupy vast areas of ocean. CEE (2018a) considers that there will be a negligible risk to waterbird populations.

C.4.4 EPBC Act significant impact guidelines

Significant impact criteria are provided for species listed as threatened and migratory under the EPBC Act (Department of the Environment 2013). Significant impact criteria for endangered species include if there is a real chance or possibility that an action 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.

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.

C.5 Conclusion and recommendations

Fifty-eight marine birds have been identified that may use the Project area. Intertidal species are more likely to be affected than pelagic species. The current use of the Crib Point jetty and adjacent areas, the scale of the proposed impacts associated with the Project and the known information regarding use of the area by marine birds suggests that there are unlikely to be significant impacts to threatened and migratory marine birds. However, further investigation is recommended to confirm this and inform management measures, including:

- Collection of any additional survey records for the area such as data held by Birdlife Australia
- Appropriate surveys to further detail and understand waterbird use of the Project area and adjacent habitat
- Further investigation of current noise levels in comparison to predicated noise levels and literature review of potential impacts
- Review the outcome of further investigations on the influence of the FSRU on plankton and larva (refer to CEE 2018a) and consider associated impacts on bird food resources.

The extent of these investigations will be determined in consultation with the regulators.

Appendix D. EPBC Act Protected Matters Search Tool Report

Australian Government
Department of the Environment and Energy

EPBC Act Protected Matters Report

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

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

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

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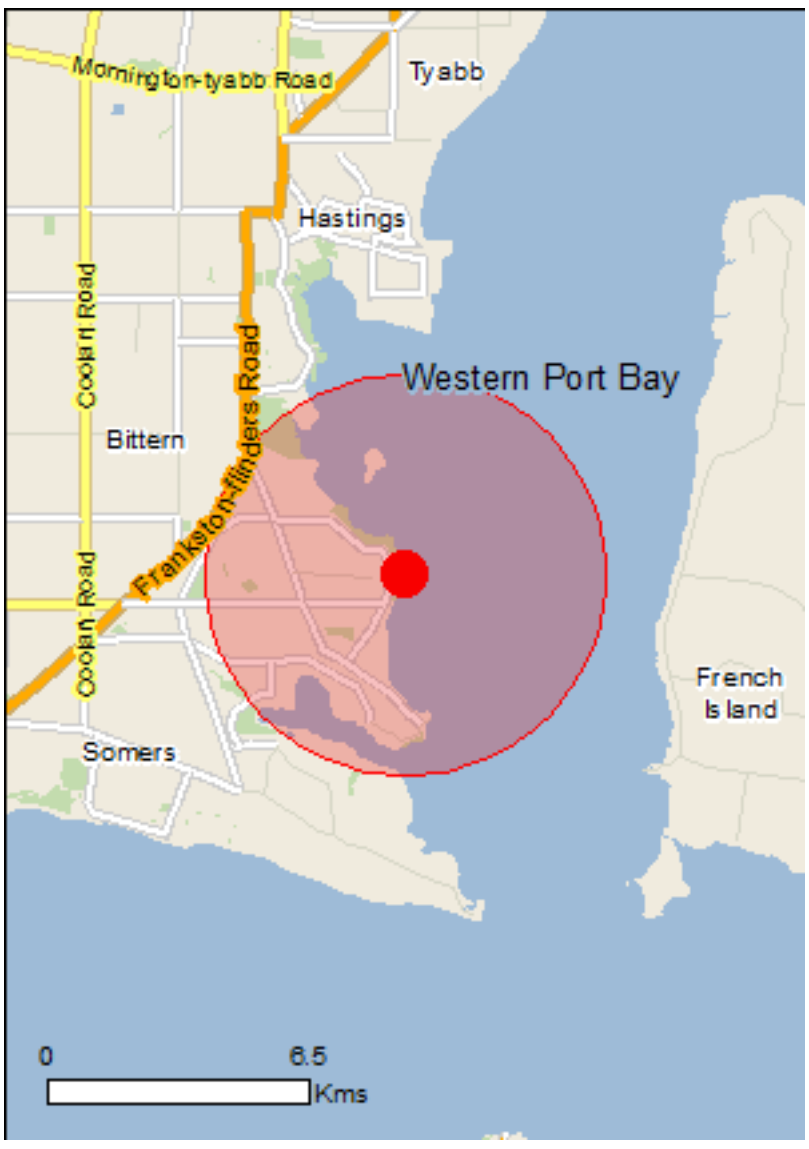
Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

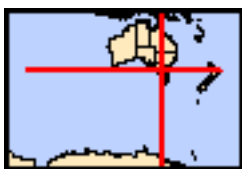
Caveat
Acknowledgements



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates

Buffer: 5.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	53
Listed Migratory Species:	54

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	1
Commonwealth Heritage Places:	2
Listed Marine Species:	68
Whales and Other Cetaceans:	7
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

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

State and Territory Reserves:	3
Regional Forest Agreements:	None
Invasive Species:	46
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar) [Resource Information]

Name	Proximity
Western port	Within Ramsar site

Listed Threatened Ecological Communities [Resource Information]

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

Name	Status	Type of Presence
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered	Community may occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Name	Status	Type of Presence
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Fregetta grallaria grallaria White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Migration route likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding likely to occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Foraging, feeding or related behaviour likely

Name	Status	Type of Presence
		to occur within area
Thalassarche cauta steadi White-capped Albatross [82344]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Fish		
Galaxiella pusilla Eastern Dwarf Galaxias, Dwarf Galaxias [56790]	Vulnerable	Species or species habitat likely to occur within area
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area
Frogs		
Litoria raniformis Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog [1828]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Antechinus minimus maritimus Swamp Antechinus (mainland) [83086]	Vulnerable	Species or species habitat likely to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area
Isoodon obesulus obesulus Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat known to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat may occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Pseudomys fumeus Smoky Mouse, Konoom [88]	Endangered	Species or species habitat may occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Plants		
Caladenia orientalis Eastern Spider Orchid [83410]	Endangered	Species or species habitat may occur within area
Glycine latrobeana Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
[Prasophyllum frenchii](#)		
Maroon Leek-orchid, Slaty Leek-orchid, Stout Leek-orchid, French's Leek-orchid, Swamp Leek-orchid [9704]	Endangered	Species or species habitat likely to occur within area
[Prasophyllum spicatum](#)		
Dense Leek-orchid [55146]	Vulnerable	Species or species habitat likely to occur within area
[Pterostylis cucullata](#)		
Leafy Greenhood [15459]	Vulnerable	Species or species habitat may occur within area
Reptiles		
[Caretta caretta](#)		
Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
[Chelonia mydas](#)		
Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Dermochelys coriacea](#)		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Sharks		
[Carcharodon carcharias](#)		
White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
[Apus pacificus](#)		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
[Ardenna carneipes](#)		
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area
[Diomedea epomophora](#)		
Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
[Diomedea exulans](#)		
Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
[Macronectes giganteus](#)		
Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
[Macronectes halli](#)		
Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
[Phoebetria fusca](#)		
Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
[Sternula albifrons](#)		
Little Tern [82849]		Species or species habitat may occur within area
[Thalassarche bulleri](#)		
Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area

Name	Threatened	Type of Presence
Thalassarche cauta		
Tasmanian Shy Albatross [89224]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Thalassarche chrysostoma		
Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area
Thalassarche melanophris		
Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
Balaena glacialis australis		
Southern Right Whale [75529]	Endangered*	Species or species habitat known to occur within area
Caperea marginata		
Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area
Carcharodon carcharias		
White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Caretta caretta		
Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas		
Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Lagenorhynchus obscurus		
Dusky Dolphin [43]		Species or species habitat may occur within area
Lamna nasus		
Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area
Megaptera novaeangliae		
Humpback Whale [38]	Vulnerable	Species or species habitat may occur within area
Migratory Terrestrial Species		
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat known to occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Species or species habitat likely to occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species

Name	Threatened	Type of Presence
		habitat known to occur within area
[Arenaria interpres](#) Ruddy Turnstone [872]		Roosting known to occur within area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Roosting known to occur within area
[Calidris canutus](#) Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
[Calidris ruficollis](#) Red-necked Stint [860]		Roosting known to occur within area
[Calidris tenuirostris](#) Great Knot [862]	Critically Endangered	Roosting known to occur within area
[Charadrius bicinctus](#) Double-banded Plover [895]		Roosting known to occur within area
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
[Charadrius mongolus](#) Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Roosting may occur within area
[Gallinago megala](#) Swinhoe's Snipe [864]		Roosting likely to occur within area
[Gallinago stenura](#) Pin-tailed Snipe [841]		Roosting likely to occur within area
[Limicola falcinellus](#) Broad-billed Sandpiper [842]		Roosting known to occur within area
[Limosa lapponica](#) Bar-tailed Godwit [844]		Species or species habitat known to occur within area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
[Numenius minutus](#) Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
[Numenius phaeopus](#) Whimbrel [849]		Roosting known to occur within area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat may occur within area
[Pluvialis fulva](#) Pacific Golden Plover [25545]		Roosting known to occur within area
[Pluvialis squatarola](#) Grey Plover [865]		Roosting known to occur within area

Name	Threatened	Type of Presence
Tringa brevipes		
Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola		
Wood Sandpiper [829]		Roosting known to occur within area
Tringa incana		
Wandering Tattler [831]		Roosting known to occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis		
Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Xenus cinereus		
Terek Sandpiper [59300]		Roosting known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Defence - HMAS CERBERUS

Commonwealth Heritage Places [Resource Information]

Name	State	Status
Natural		
HMAS Cerberus Marine and Coastal Area	VIC	Listed place
Historic		
HMAS Cerberus Central Area Group	VIC	Listed place

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Arenaria interpres		
Ruddy Turnstone [872]		Roosting known to occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Roosting known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur

Name	Threatened	Type of Presence
		within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Roosting may occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Roosting known to occur within area
Heteroscelus incanus Wandering Tattler [59547]		Roosting known to occur within area
Himantopus himantopus Black-winged Stilt [870]		Roosting known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur

Name	Threatened	Type of Presence within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Migration route likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area
Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Foraging, feeding or related behaviour likely to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur

Name	Threatened	Type of Presence within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Sterna albifrons Little Tern [813]		Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Tasmanian Shy Albatross [89224]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche sp. nov. Pacific Albatross [66511]	Vulnerable*	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to occur within area
Mammals		
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area
Arctocephalus pusillus Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat likely to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Name	Threatened	Type of Presence
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area

Whales and other Cetaceans [Resource Information]

Name	Status	Type of Presence
Mammals		
Caperea marginata		
Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area
Delphinus delphis		
Common Dophin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis		
Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area
Lagenorhynchus obscurus		
Dusky Dolphin [43]		Species or species habitat may occur within area
Megaptera novaeangliae		
Humpback Whale [38]	Vulnerable	Species or species habitat may occur within area
Tursiops aduncus		
Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str.		
Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves [Resource Information]

Name	State
Crib Point G228 B.R.	VIC
Crib Point G229 B.R.	VIC
Warrengine Creek SS.R.	VIC

Invasive Species [Resource Information]

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

Name	Status	Type of Presence
Birds		
Acridotheres tristis		
Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis		
Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos		
Mallard [974]		Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Carduelis chloris European Greenfinch [404]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Turdus philomelos Song Thrush [597]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus scandens Asparagus Fern, Climbing Asparagus Fern [23255]		Species or species habitat likely to occur within area
Carrichtera annua Ward's Weed [9511]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]		Species or species habitat likely to occur within area
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Genista linifolia Flax-leaved Broom, Mediterranean Broom, Flax Broom [2800]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Protasparagus densiflorus Asparagus Fern, Plume Asparagus [5015]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Ulex europaeus Gorse, Furze [7693]		Species or species habitat likely to occur within area

Nationally Important Wetlands	[Resource Information]
Name	State
Western Port	VIC

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-38.34889 145.21722

Acknowledgements

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-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
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