2025 Victorian Renewable Energy Terminal

Application Number: **02708** Commencement Date: **29/11/2024** Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

2025 Victorian Renewable Energy Terminal

1.1.2 Project industry type *

Transport - Water

1.1.3 Project industry sub-type

Terminal

1.1.4 Estimated start date *

01/06/2027

1.1.4 Estimated end date *

01/01/2077

1.2 Proposed Action details

1.2.1 Provide an overview of the proposed action, including all proposed activities. *

In 2023, the Port of Hastings Corporation (PoHC) submitted a referral under the EPBC Act for the Victorian Renewable Energy Terminal (the Terminal) Project. Following assessment, the Federal Minister for the Environment determined that the Terminal as proposed in the 2023 Referral would have 'clearly unacceptable' impacts. As part of this decision, the Minister provided a 'Statement of Reasons' document that outlined why it was determined that the Terminal Project could not proceed.

In response to the Minister's decision and the Statement of Reasons, PoHC have developed a substantially modified Project. Att 1 Statement of Reasons, sets out how the design and assessment of the Project specifically addresses each of the issues identified in the Ministers Statement of Reasons.

Proposed Action – This New Referral

PoHC proposes to develop and operate additional infrastructure within the existing port to serve as a laydown and assembly area for the development of Offshore Wind (OSW) along the coast of Victoria, to support meeting State and Commonwealth renewable energy generation targets. The Project would include onshore development, land reclamation, construction of a quay wall and apron and dredging. The Project would consist primarily of heavy-duty pavements or concrete decking on existing and reclaimed land and supported by piles. The Project would allow for storage of cargo and associated handling equipment for the pre-assembly of OSW components.

The Project Area is approximately 148.8ha with a Disturbance Footprint of 76.3ha.

The proposed Project comprises onshore and marine components, where 'onshore' refers to the final form of the Project (i.e. it includes reclaimed land).

The onshore component would be approximately 43 hectares (ha) in size (25ha of the existing Old Tyabb Reclamation Area (OTRA) site and 18ha of newly reclaimed land) and be made up of the following key areas:

- **Operational area –** Approximately 37ha; and
- **Quay apron –** Approximately 6ha; and
- **Revetment** required to the north and south of the reclamation area.

The marine components comprise the:

- **Quay wall;**
- **Shipping channel;**
- **Berth pocket;** and
- **Swing basin.**

Key onshore and marine components that would make up the Project are shown in Att 2, Fig 3,p10.

The construction of the Project would require onshore and marine works. The sequence of the onshore works would comprise:

- OTRA site clearance
- Ground improvement work
- Establishment of site offices, warehouse and car parks
- Service installation
- Pavement laying

The marine works would include:

- Quay wall establishment (retaining structure)
- Reclamation
- Dredging and scour protection.

The sequencing of marine works is dependent on the final design.

Construction

The final construction methodology is under development and will be progressed through the preparation of the Project's impact assessment.

Ground improvement

Ground improvement is required to ensure the ground surface at the Terminal would be sufficient to handle the heavy loads of OSW equipment. Due to varying existing ground conditions and site constraints, four ground improvement methodologies may to be implemented at different areas to reduce post-construction settlement. These include:

- Surcharging – Importing a layer of fill, known as surcharge, across an area to accelerate consolidation of soils beneath the load.
- Dynamic Compaction – Use of High Energy Impact Compaction to enhance soil density and strength by applying repeated high-energy impact
- Mass Soil Mixing – Mechanically blending in-situ soil with stabilising agents, such as cement or lime, to increase strength, stiffness and durability
- Mudcrete – Mixing dredged marine sediments with stabilising agents, such as cement or slag-lime blends, to produce a stronger, more stable fill material.

Quay Wall

The retaining structure proposed is a steel piled quay wall. The configuration outlined in the attachments is a twin wall quay structure comprising of two parallel rows of piles driven into the ground and connected by a system of tie rods at one or more levels. The space between the walls is generally filled with granular materials such as sand or gravel. The twin wall quay structure would be largely constructed by floating plant (pile driving rigs on barges). As the design progresses, variations on a steel piled quay wall will be investigated. An alternative configuration is to undertake all reclamation works initially and then construct the quay wall by land-based piling rigs. These, and potentially other similar configurations will be assessed during the impact assessment process to determine the optimal solution.

Reclamation

The reclamation process would operate in parallel with the dredging program. Prior to any reclamation works a 1,100m long temporary silt curtain would be installed around the planned reclaimed area to mitigate turbidity plumes from the reclamation process.

Dredging

For the Terminal to support the development of OSW, the approach channel depth would need to be deepened to account for tide changes and vessel draught. As a result, dredging would be required:

- Adjacent to the berth – deepening of the berth pocket would allow vessels to moor at all states of tide. A layer of scour protection rock would be installed to prevent seabed disturbance caused by vessel propellers, bow and side thrusters
- In areas of the approach channel and swing basin – to widen and deepen these areas so that the supply and offshore installation vessels can pass safely. This would consist of localised dredging (in specific areas) to ensure that at low states of tide, a navigable water depth is maintained within the channel

Dredging would be undertaken by a medium sized backhoe dredge, with a bucket of approximately 5m3 and three hopper barges. Dredging works would take place 24/7, dredged material will be transported to the reclamation area and incorporated into the new landform once the dredge material is treated.

The Project description (Att 2 Project Description) and preliminary impact assessments included in this referral have assumed that dredging would be required to develop the berth pocket, approach channel and swing basin and would be completed in a single campaign which would take approximately 5 months.

Depending on the outcome of further studies and refinement of the project design, there is a possibility that the berth pocket and quay wall will need to be deepened further to ensure that the seabed is stable enough to support the legs of jack up vessels. The amount of material required to be removed in this location will depend on the results of further geotechnical testing and impact assessment.

Operations

Onshore operational activities would typically include receival, storage, inspection, fit out and transport of large numbers of the foundation units (FOUs), wind turbine generators (WTGs) and electrical components. The operational area needs considerable storage capacity to stockpile large numbers of units due to the vulnerability of a long international supply chain.

OSW farm construction can be categorised into two separate scopes: the assembly and installation of FOUs and the assembly and installation of WTGs. The Terminal has been designed to accommodate both the assembly and installation of FOUs and the assembly and installation of WTGs at the same time within certain criteria and limitations.

The onshore load-on and load-off operations and movement around the Terminal would largely be facilitated by self-propelled modular transporters (SPMTs) and high-capacity cranes.

The key components of an OSW turbine and foundation would be shipped to the Terminal and stored and partially assembled on site. The following OSW equipment will likely be stored, prepared and partially assembled for OSW farm installation:

- Monopile and transition pieces
- Jackets and pin piles
- WTG towers
- Blades
- Nacelles

There are four distinct design vessel types that could transport and install turbines and foundations that would use the Terminal:

- WTG offshore installation vessels
- FOU offshore installation vessels
- Semi-submersible roll on roll off (RORO) vessels
- General cargo vessels

Typical OSW farm development would require use of the Terminal as an assembly port for a minimum two-year period. The construction of such a wind farm would comprise the following:

1. General cargo vessels would deliver the pin piles to the Terminal. Semi-submersible RORO vessels would deliver jacket foundations
2. Jack up installation vessel would pick up pin piles at the Terminal and install them at an OSW farm
3. Foundation installation vessel would load-in jacket foundations at the Terminal and install them at an OSW farm
4. WTG transportation vessels would deliver WTG components (blades, nacelles, tower sections) to the Terminal and tower sections would be assembled
5. WTG offshore installation vessel would load components at the Terminal and install them at an OSW farm

Maintenance Dredging and Seabed Levelling

It is not anticipated that regular maintenance dredging would be required as part of Terminal operations. The last recorded maintenance dredging program at the Port was in 1994 in the main shipping channel. Seabed levelling may be required, however has been historically infrequent in Western Port due to limited sediment build up as a result of fast moving currents.

Decommissioning

Decommissioning of the Terminal isn’t likely in the foreseeable future. The history of port assets of this scale and nature is that they are repurposed and upgraded. The design life of the facility is 50 years, with ongoing maintenance required if decommissioning is not likely to occur.

Related activities – Shipping Channel and Anchorage

It is necessary to amend the mapping of the shipping channel and nearby anchorage area should the Terminal be approved. At this stage, these changes have not been defined, however they will be near the existing shipping channel and anchorage and wholly within the declared Port of Hastings limits. Amendments to anchorages are implemented by Ports Victoria.

1.2.2 Is the project action part of a staged development or related to other actions or proposals in the region?

No

1.2.6 What Commonwealth or state legislation, planning frameworks or policy documents are relevant to the proposed action, and how are they relevant? *

Offshore Wind Policy and Construction Port(s)

The *Navigating our Port Futures: The Victorian Commercial Ports Strategy* (DTP 2022, S1, p34) identified the key role of ports in the construction of OSW farms. Ports are required for the receiving of OSW components from overseas and hosting their assembly and storage. The strategy commits support to the ports sector in servicing the transition to a net zero emissions economy by 2050 and commits the Port of Hastings Corporation (PoHC) to preparing an investment case for a new facility capable of supporting OSW construction and bulk trades.

In October 2022, the Victorian Government released *Offshore Wind Implementation Statement 1* (DEECA 2022, S2, p16), outlining plans for the establishment of an OSW industry. This was later confirmed in the Victorian Government's *Offshore Wind Implementation Statement 2* (DEECA 2023a, S3, p18) which nominated the Port of Hastings as the most suitable primary port to facilitate the first tranche of offshore wind projects and introduced the Terminal as the Project to deliver critical port capacity to meet Victoria's OSW ambitions. *Offshore Wind Energy Implementation Statement 3* (DEECA 2023b, Notice 8, p18) continued to reaffirm Port of Hastings as the primary assembly port (subject to environment and other approvals) for the Terminal, with operations expected to commence by late 2028. Most recently, *Offshore Wind Energy Implementation Statement 4* (DEECA 2025, Notice 10, p19) stated that the Victorian Government is actively assessing the role of deepwater ports, including the Victorian Renewable Energy Terminal at the Port of Hastings, to support the construction and assembly of Victorian offshore wind projects.

Further information regarding the need for ports to support emerging offshore wind is provided in Att 3_Offshore Wind Sector and Att 4_Why Port of Hastings.

Commonwealth Legislation

The EPBC Act is relevant as there are Matters of National Environmental Significance (MNES) present in the Project Area. Part of the Project is proposed to occur in a declared Ramsar wetland and there is known habitat for one species of threatened Swamp Skink *Lissolepis coventryi* and potential habitat for another four threatened terrestrial fauna species (Att 5, s5.4.1, p52). No threatened terrestrial flora species were identified during baseline surveys, however one patch of Subtropical and Temperate Coastal Saltmarsh was identified in the southern end of the Project Area (Att 5, s5.3.5, p49). Nineteen EPBC listed endangered and/or migratory waterbirds have been recorded or considered likely to occur within the Project Area (Att 6.2, s6.5.1, p112). Due to the transient nature of marine species it is difficult to determine which individual species will occur within the Project Area, however, four EPBC listed marine species have been identified as having the potential to be impacted by construction or operation activities (Att 7, s6, p106). The EPBC Act also incorporates aspects of Australia's commitments under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention).

Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention)

Western Port is a listed wetland under the Ramsar Convention. In accordance with the Ramsar Convention, Australia must formulate and implement its planning to promote the conservation of wetlands and, as far as possible, their wise use. Australia must notify other parties to the Ramsar Convention of changes, or likely changes, to the ecological character of a listed wetland. Att 8 Impacts on ECD addresses the Ramsar Convention by summarising the potential impacts to the ecological character of the Western Port Ramsar site and Att 9_Offset Strategy provides a plan to demonstrate any potential residual impacts to MNES can be offset, and feasible offset options are available.

State Legislation

The Project was referred by PoHC to the Victorian Minister for Planning under the Victorian *Environment Effects Act 1978.* In October 2023, the Minister for Planning determined that an EES is required due to the following key factors:

- Potential for significant effects on biodiversity values, including impacts on habitat of threatened species and communities, as well as risks to the conservation and ecological values of the Western Port Ramsar Site, including listed waterbird and migratory bird species
- Potential effects from construction and operation of the [facility] on the marine ecosystem through increased sedimentation, disturbance of potential acid sulphate soils, dredging and potential introduction of pest species
- Potential to impact cultural and historic heritage values, including submerged Aboriginal cultural values.

Key approvals likely to be required under Victorian legislation include:

- Planning approvals under the *Planning and Environment Act 1987*
- Cultural Heritage Management Plan (CHMP) under the *Aboriginal Heritage Act 2006*
- Consent under the *Marine and Coastal Act 2018*

FFG Permit under the *Flora and Fauna Guarantee Act 1988* (FFG Act).

1.2.7 Describe any public consultation that has been, is being or will be undertaken regarding the project area, including with Indigenous stakeholders. Attach any completed consultation documentations, if relevant. *

Consultation is a key aspect of the Project's development and design, and the environmental assessment process, and significant community and stakeholder engagement has been undertaken since 2022.

The consultation and engagement approach has been guided by best practice community engagement principles and aligns with Government policies, legislation and guidelines. The approach aims to build awareness, foster confidence and demonstrate that any impacts on the Western Port environment can be adequately managed, and that the Project will deliver tangible local and wider benefits.

The engagement approach has been structured into five key phases and a detailed outline of each phase is summarised in Att 10, s2.7p13. The Project is currently in the second and third phase of engagement.

1. **Early engagement** (2022 – Q3 2024) introduced the Project to the community and stakeholders through targeted briefings and established communication channels.
2. **Project introduction** (Q4 2024 – Q2 2025) aims to raise awareness, seek feedback, and identify community priorities through targeted briefings and meetings, information sessions, online webinars, meetings, site tours and provision of Project materials through the website and e-newsletters.
3. **EES preparation** (Q4 2024 – Q1 2026) focuses on sharing technical study outcomes, explaining construction impacts, collecting feedback and identifying areas where community can provide input into design and planning.
4. **Public exhibition of EES and inquiry hearing** (Q2 2026 – Q3 2026) encourages participation in the EES process through information sessions, events, submissions and the opportunity to participate in the public hearing.
5. **Minister's assessments** (Q4 2026 – Q1 2027) the Project team will report outcomes and outline next steps via media and digital updates.

PoHC has actively engaged with the community and stakeholders to gather feedback and ensure the technical work to inform the Project's design reflects local aspirations and interests wherever possible. Key groups involved in this consultation include:

- Traditional Owners
- Environment and conservation groups
- Community and recreation groups
- Local partnerships and educational/ scientific bodies
- Local, State and Commonwealth Government agencies
- Port users
- Business, industry and tourism groups
- Offshore wind proponents
- Water authorities.

Since the start of the Project's engagement, PoHC has collected, recorded, and carefully considered the feedback received, using it to inform the modified project design described in this new Referral. So far, the Project has generated strong community interest, with over 500 interactions summarised in Att. 10, S3.2, p16. Furthermore, in December 2024, the Victorian Department of Transport and Planning sought public feedback on the draft scoping documents and this feedback will be used to set out the matters to be investigated through the Environment Effects Statement process.

Feedback received to date has been categorised into five key themes which are assessment and approvals, project need and benefits, environmental concerns, operations and construction. The primary environmental concerns raised by the community and stakeholders relate to dredging and reclamation, impacts to flora and fauna at the project site and impact to the Western Port Ramsar Site / UNESCO Biosphere from construction and operation of port infrastructure.

Community feedback received to date has highlighted the values the community holds of the Western Port Ramsar Wetland and has highlighted the need to reduce impacts on the environment as much as possible through design. This feedback has contributed to the Project's design decisions and impact assessment

process which has resulted in the design improvements to reduce the dredging footprint through proceeding with the steel-piled quay wall structure. Stakeholder and community feedback has also guided the scope of assessment field studies, such as waterbird tagging and tracking work and ambient lighting assessments.

Ongoing feedback will continue to inform the Project and influence the assessment process going forward. A key channel for ongoing consultation is the establishment of a dedicated Community Reference Group. This group provides a forum for information-sharing between PoHC and the local community and two meetings have been held to date, with ongoing regular meetings planned.

The areas of the Project's development that will be informed by ongoing community and stakeholder feedback include (but are not limited to):

- Stakeholder and community knowledge of the area and issues of importance
- Priorities for technical assessments to ensure all relevant impacts are assessed
- Potential impacts and suggested mitigations.

See Att 10,s3.4,p20 for an overview of the consultation process and feedback to end of December 2024.

Traditional Owner Engagement

PoHC engaged the Bunurong Land Council Aboriginal Corporation (BLCAC), the Registered Aboriginal Party for the area, to undertake a Cultural Values Assessment (CVA) for the Project to inform the Project understanding and development. The CVA was completed in November 2023, however, at the request of the BLCAC the CVA cannot be made publicly available. The aim of the CVA is to contribute towards a better understanding of Bunurong traditional and cultural values so that they are embedded into future projects, processes and policies for the benefit of the broader Bunurong community.

The CVA provides a broad understanding of the landscapes and seascapes surrounding the Terminal and communicates Bunurong culture and stories as the Bunurong Elders, community members and knowledge holders would like them to be told. It also contains six recommendations that BLCAC request PoHC implement as part of the Project. The recommendations arising from research and consultation with members of the Bunurong community as part of the CVA have been incorporated into the Project.

See Att 14 - Cultural Values Recommendations for information relating to the status of the six CVA recommendations.

1.3.1 Identity: Referring party

Privacy Notice:

Personal information means information or an opinion about an identified individual, or an individual who is reasonably identifiable.

By completing and submitting this form, you consent to the collection of all personal information contained in this form. If you are providing the personal information of other individuals in this form, please ensure you have their consent before doing so.

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1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details

ABN/ACN	33737350749
Organisation name	PORT OF HASTINGS CORPORATION
Organisation address	1d Stony Point Road, Crib Point

Referring party details

Name	Natasha Reifschneider
Job title	Approvals Manager
Phone	03 5979 5500
Email	Natasha.r@portofhastings.vic.gov.au
Address	1d Stony Point Road, Crib Point

1.3.2 Identity: Person proposing to take the action

1.3.2.1 Are the Person proposing to take the action details the same as the Referring party details? *

No

1.3.2.2 Is Person proposing to take the action an organisation or business? *

Yes

Person proposing to take the action organisation details

ABN/ACN	33737350749
Organisation name	PORT OF HASTINGS CORPORATION
Organisation address	1d Stony Point Road, Crib Point

Person proposing to take the action details

Name	Matt Thorpe
Job title	Chief Executive Officer
Phone	03 5979 5500
Email	management@portofhastings.vic.gov.au
Address	1d Stony Point Road, Crib Point

1.3.2.14 Are you proposing the action as part of a Joint Venture? *

No

1.3.2.15 Are you proposing the action as part of a Trust? *

No

1.3.2.17 Describe the Person proposing the action's history of responsible environmental management including details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Person proposing to take the action. *

PoHC has a satisfactory record of responsible environment management since its establishment in January 2012.

PoHC has one incident of prosecution in 2020 due to native vegetation clearance under *Victorian Planning Scheme Clause 52.17*. This incident involved a contractor undertaking bushfire management vegetation clearance works, with inadequate supervision leading to unpermitted vegetation clearance.

1.3.2.18 If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

The Port of Hastings is located within Western Port; a listed Ramsar site, part of an Urban Biosphere Reserve and of which contains three Marine National Parks and five Special Management Areas. The PoHC's Environment Policy (Att 11_Environment Policy) has been developed with the environmental values of our locality at the forefront. The key Environment Policy Statement is:

'We endeavour to go beyond compliance and conservation by leading changes in our business and behaviours that will protect and restore the environment'.

The PoHC Environment Policy includes eight pillars:

- Ensuring a healthy Western Port
- Managing risk
- Maintaining a strong system
- Going beyond compliance
- Investing sustainably
- Empowering people
- Avoiding waste
- Being proactive and accountable.

PoHC is also has an Environmental Management System which is ISO 14001:2015 certified. The latest certification was obtained in August 2024.

1.3.3 Identity: Proposed designated proponent

1.3.3.1 Are the Proposed designated proponent details the same as the Person proposing to take the action? *

Yes

Proposed designated proponent organisation details

ABN/ACN	33737350749
Organisation name	PORT OF HASTINGS CORPORATION
Organisation address	1d Stony Point Road, Crib Point

Proposed designated proponent details

Name	Matt Thorpe
Job title	Chief Executive Officer
Phone	03 5979 5500
Email	management@portofhastings.vic.gov.au
Address	1d Stony Point Road, Crib Point

1.3.4 Identity: Summary of allocation

Confirmed Referring party's identity

The Referring party is the person preparing the information in this referral.

ABN/ACN	33737350749
Organisation name	PORT OF HASTINGS CORPORATION
Organisation address	1d Stony Point Road, Crib Point
Representative's name	Natasha Reifschneider
Representative's job title	Approvals Manager
Phone	03 5979 5500
Email	Natasha.r@portofhastings.vic.gov.au
Address	1d Stony Point Road, Crib Point

Confirmed Person proposing to take the action's identity

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	33737350749
Organisation name	PORT OF HASTINGS CORPORATION
Organisation address	1d Stony Point Road, Crib Point
Representative's name	Matt Thorpe
Representative's job title	Chief Executive Officer
Phone	03 5979 5500
Email	management@portofhastings.vic.gov.au
Address	1d Stony Point Road, Crib Point

Confirmed Proposed designated proponent's identity

The Person proposing to take the action is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

1.4 Payment details: Payment exemption and fee waiver

1.4.1 Do you qualify for an exemption from fees under EPBC Regulation 5.23 (1) (a)? *

No

1.4.3 Have you applied for or been granted a waiver for full or partial fees under Regulation 5.21A? *

No

1.4.5 Are you going to apply for a waiver of full or partial fees under EPBC Regulation 5.21A?

No

1.4.7 Has the department issued you with a credit note? *

No

1.4.9 Would you like to add a purchase order number to your invoice? *

No

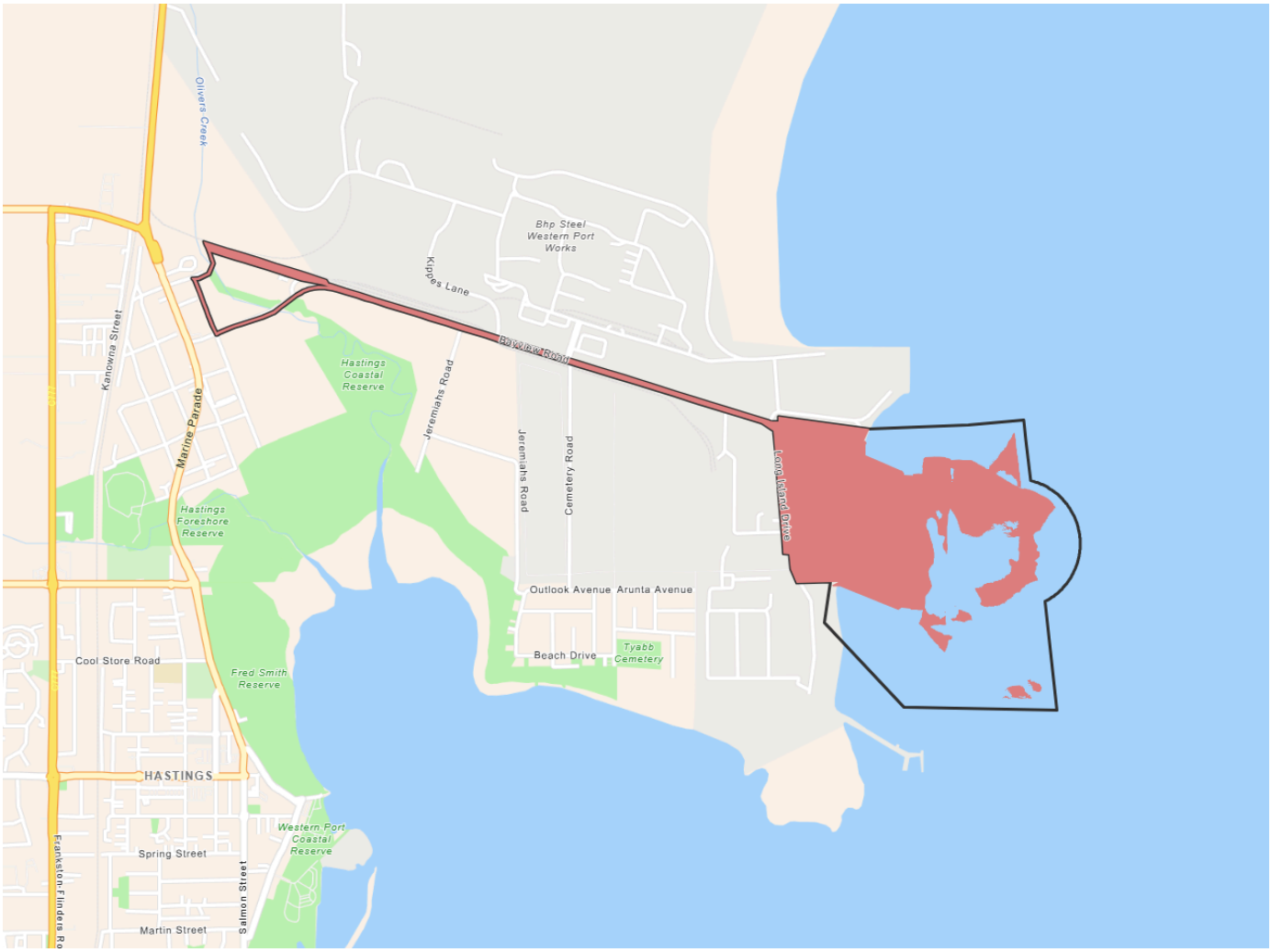
1.4 Payment details: Payment allocation

1.4.11 Who would you like to allocate as the entity responsible for payment? *

Person proposing to take the action

2. Location

2.1 Project footprint



Project Area: 148.80 Ha **Disturbance Footprint:** 76.29 Ha

2.2 Footprint details

2.2.1 What is the address of the proposed action? *

5 Long Island Drive, Hastings 3915

2.2.2 Where is the primary jurisdiction of the proposed action? *

Victoria

2.2.3 Is there a secondary jurisdiction for this proposed action? *

No

2.2.5 What is the tenure of the action area relevant to the project area? *

The Project has multiple existing tenures which can be characterised as follows:

- The OTRA site (the existing reclaimed land) is Crown land identified as Crown Allotment 76L Parish of Tyabb. The land is reserved for port purposes under the *Crown Land (Reserves) Act 1978* and PoHC has been appointed as the Committee of Management for the land
- The intertidal zone and seabed is unreserved Crown land that is managed by DEECA under the *Land Act 1958.* This land is within the area of declared port waters of the Port of Hastings established under the *Port Management Act 1995*
- Part of the land identified as required to provide utility service connections to the Project is proposed on the following types of tenure:
    - Primarily on Crown land reserved as road and managed by Mornington Peninsula Shire
    - Other areas of Crown land reserved for water management purposes
    - Two freehold land parcels (A\PS403309 and 1\TP902282).

3. Existing environment

3.1 Physical description

3.1.1 Describe the current condition of the project area’s environment.

The Terminal Project is situated within the Port of Hastings, which is a major transport gateway supporting key industries associated with refining/fractionation plants, steel production, gas and oil storage and load-in/out facilities. Principal imports and exports include oil, gas, fuel (petrol, diesel and aviation gas) and steel. The Terminal is located to the southeast of Melbourne, approximately 72km from Melbourne's CBD and 2.6km northeast of the centre of Hastings. As an operational port responsible for a significant share of Victoria's bulk liquid trade, access to the Port of Hastings is well established. Connected by rail directly to Frankston, the Port of Hastings is conveniently located and provides access to the greater Melbourne and Gippsland labour force.

The Port of Hastings comprises the following four jetty sites within Western Port:

- BlueScope Steel Industries Wharves
- Long Island Point Jetty
- Crib Point Jetty
- Stony Point Port Services Complex.

Port of Hastings Corporation owns all of these jetties except for BlueScope's wharves which are privately owned.

In addition to the above jetty sites the Port of Hastings currently contains a range of industrial uses reliant on access to the port, such as:

- Esso's Long Island Point Fractionation Plant
- BlueScope's Steelworks
- United Petroleum's Hastings Terminal
- Viva Energy's crude oil trans-shipment (at the Crib Point Jetty)

The Terminal is proposed to be situated between BlueScope's steel manufacturing plant and Esso's Long Island Point fractionation plant, at the OTRA site and in the adjacent waters.

The OTRA site borders the Western Port Ramsar site, an area identified to be of international importance, in particular as waterfowl habitat. The Ramsar site comprises approx. 60,000ha of waterway and land across much of Western Port, which is connected to Bass Strait by a wide channel between Flinders and Phillip Island, and a narrow channel between San Remo and Phillip Island.

Project Area

Part of the Project Area includes the OTRA site, which is predominantly a constructed environment, with most of the land having been reclaimed from waters that was previously part of Western Port and the associated foreshore. The current landform was established through the placement of fill and the construction of the southern bund wall, access roads and drainage channels. The OTRA site was created from material which was dredged during the extension of the shipping channel during the 1970s.

Most of the vegetation present is not remnant to the OTRA site, having been either planted or colonised within the placement of fill and subsequent sculptured landform. The site is relatively flat land supporting introduced pasture. The quality of vegetation within the site is generally low to moderate, reflective of the fragmented nature of the local landscape.

While most of the Project Area represents an artificial terrestrial environment and is largely clear of native vegetation, a narrow strip of native and planted vegetation along Long Island Drive does provide a corridor of treed vegetation. This narrow corridor provides some level of physical habitat connectivity between relatively large areas of remnant native coastal vegetation to the north and similar remnant native vegetation associated with the foreshore to the south at Long Island Point. The main central area of the OTRA is regularly slashed as part of maintenance of the pastured area.

The mudflats, Mangrove Shrubland and sand chenier to the south of the OTRA site form part of the Western Port Ramsar site. Vegetation at the western end of the utility corridor, along Barclay Crescent and Bayview Road, provides connectivity to the vegetation and habitat along Olivers Creek and subsequently Hastings Coastal Reserve and Foreshore Reserve.

Terrestrial waterbird habitat within the Project Area includes the wetland/saltmarsh within the southern extent of the OTRA site that provides both roosting and foraging opportunities for waterbirds. There is also land within the OTRA site that provides foraging opportunities for some species.

The Project Area also sits within the adjacent waters of Western Port, where coastal mudflats and seagrass exist that support foraging habitat for waterbirds. The shoreline between BlueScope's wharves and Esso's Jetty at high tide is characterised primarily by a narrow rocky and sandy strip, which provides roosting habitat for common waterbirds. Mangroves and saltmarsh occur on the chenier adjacent to the south of the OTRA, which also provides roosting habitat for common waterbirds such as herons, ibis, spoonbills, and cormorants. At low tide, intertidal mudflats and seagrass become exposed and offer foraging opportunity for waterbirds. The marine component of the Project is wholly within the declared Port of Hastings waters.

The Project Area is partly within the Western Port Ramsar site. The intertidal and marine environment is located within the Ramsar boundary and the terrestrial environment outside the Ramsar site. The mudflats, Mangrove Shrubland and sand chenier adjacent to the south of the OTRA site form part of the Western Port Ramsar site.

Zoning

The OTRA site is located immediately south of the BlueScope Steel Wharf. It is reclaimed land that is predominately vacant, with the exception of an access road around its northern and eastern perimeter, and a low lying saltmarsh area at its southern end. The land is not currently being utilised by PoHC.

The OTRA site is Crown Land reserved for 'port purposes' under the *Crown Land (Reserve) Act 1978.* The land is affected by the Port Zone, implemented by Planning Scheme Amendment C284morn in 2023, which allows for a range of port-related land uses including the previously proposed 'transport terminal'. This land is also partially affected by the Land Subject to Inundation Overlay – Schedule 1 and the Bushfire Management Overlay.

The offshore component of the Terminal is proposed on unreserved Crown land that is not within the boundary of the planning scheme and is therefore not affected by zoning or overlay controls.

Transport

The Project Area is in proximity to several key strategic roads within the Mornington Peninsula Shire Council which includes Western Port Highway, Frankston-Flinders Road and Mornington-Tyabb Road.

The Principal Freight Network (PFN) provides road and rail access to the Long Island Precinct. The PFN is a connected network of roads and rail that allows for the efficient movement of freight. Western Port Highway, Marine Parade and Barclay Crescent / Bayview Road / Long Island Drive form part of the road freight network and the Stony Point Line forms part of the rail freight network.

Dredging History

Significant dredging campaigns have been undertaken in and around the Project Area within Western Port. Up until 2015, approximately 2.75 million m3 has been dredged within Western Port. Most of this material (1.94 million m3) has been disposed offshore, at a range of dredge material grounds within Western Port. The remaining 810,000m3 has been disposed onshore, mostly at the OTRA site (Att 12, s2, p3).

Reclamation within Western Port dates back to the 1960's. Reclamation sites in Western Port include the OTRA, BlueScope and Stony Point. Further details regarding dredging and reclamation history is provided in Att 12_WP Dredging and Reclamation History.

3.1.2 Describe any existing or proposed uses for the project area.

The OTRA site is regularly slashed and is not currently being utilised for any specific purpose. The only development on site is a redundant concrete helicopter pad that is located south of the centre of the site along the eastern boundary.

The offshore component of the Terminal is within the Western Port Security Regulated Port Boundary, used for ship transit.

The proposed use for the site is the Victorian Renewable Energy Terminal.

3.1.3 Describe any outstanding natural features and/or any other important or unique values that applies to the project area.

The eastern portion of the Project Area (approximately 77% of the Project Area) is located within the Western Port Ramsar site, which was designated in 1982 as a wetland of international importance and given special recognition as Waterfowl Habitat under the Ramsar Convention. Western Port has been recognised for its diversity of native flora and fauna, particularly for its ability to support diverse assemblages of waterbirds and wetland vegetation, including seagrass, saltmarsh and mangroves. The ecological character of the Western Port Ramsar Site is the combination of the ecosystem components, processes and benefits and services that characterise the wetland at the time of listing, as set out in the ecological character description and associated 2016 addendum.

Western Port also contains the following three Marine National Parks, which are located outside the boundaries of the Project Area:

- Yaringa Marine National Park (located approximately 7km northeast of the Project Area)
- French Island Marine National Park (located approximately 12km east of the Project Area)
- Churchill Island Marine National Park (located approximately 20km southeast of the Project Area).

Western Port was designated as part of a Biosphere Reserve in 2002 for its' outstanding natural values, including a Ramsar wetland of international importance. It is recognised as an area of great biological diversity due to its unusually wide range of habitats including deep channels, seagrass meadows, mangroves, saltmarsh and melaleuca thickets. In addition, it supports many marine invertebrates and about 65% of Victoria's bird species. The Project Area is located within the boundaries of the Mornington Peninsula and Western Port Biosphere Reserve.

The Western Port Ramsar site occupies approximately 59,297ha. The portion of the Project Area and the Disturbance Footprint that lies within the Western Port Ramsar site makes up approximately 0.2% and 0.07% of the Western Port Ramsar site, respectively.

Based on the existing conditions outlined in Att 5_Onshore Ecology PIA, Att 6_Waterbrirds PIA and Att 7_Marine Ecology PIA, the critical components, processes and services unique to the ecological character of the Western Port Ramsar site (as outlined in the Western Port Ramsar Site Ecological Character Description and associated 2016 addendum) that are present within the Project Area include:

- A commercial port, which is listed as an ecosystem benefit and service in the Ecological Character Description and considered to be of national economic significance
- A narrow band of intertidal mudflats inshore of a naturally steep channel margin, containing intertidal and subtidal seagrasses
- A small patch of mangrove shrubland that extends from within the southern boundary of the Project Area south to Long Island Point
- Three EPBC Act listed migratory birds have been recorded within the Project Area; Caspian Tern, Crested Tern and Short-tailed Shearwater. No listed threatened species have been identified within the Project Area.

Other MNES relevant to the Project Area (and present on the OTRA site):

- Swamp Skink *Lissolepis coventryi* (endangered under EPBC Act and FFG Act) habitat located within the Coastal Saltmarsh and Tall Marsh vegetation on the OTRA site. Swamp skinks have been identified on the OTRA site

Other non-MNES listed under the EPBC Act considered relevant to the Project Area (and present on the OTRA site):

- Approximately 1.341ha of one EPBC Act listed Threatened Ecological Community is present within the OTRA site; Subtropical and Temperate Coastal Saltmarsh. It is noted this community lies outside the boundary of Western Port Ramsar site.

3.1.4 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The proposed onshore development area is a large open expanse and is relatively flat with a small depression in the south that has accumulated water. The OTRA site ranges from 6m to 2m (above sea level). Google Earth levels were used to determine existing surface profile and grading. The marine area reaches a maximum depth of 16m.

3.2 Flora and fauna

3.2.1 Describe the flora and fauna within the affected area and attach any investigations of surveys if applicable.

Marine Ecology

The marine environment of Western Port is characterised by a range of habitats, including seagrass, mangroves, saltmarsh, and unvegetated sediment (Att 7, Fig 5-2, p48). This environment supports a diverse range of fish species and marine invertebrates.

Detailed baseline studies have been undertaken (since 2023) to characterise the marine environment within the Project Area (fish, invertebrates, habitat mapping, water quality, seagrass) (Att 7, s5.4, s5.5, and s5.6). The key habitats that exist within Project Area are intertidal mudflats (including bare and vegetated mudflat), subtidal seagrass and deep channel habitat. These are broadly represented in Western Port. No EPBC listed flora or fauna have been identified within the Project Area during baseline surveys. One FFG listed seagrass species, *Heterozostera nigricaulis* (en), was identified in the intertidal and subtidal habitat within the Project Area.

Seven threatened marine species including one cetacean, three sea turtles, two fish and one shark were identified as potentially being present or having habitat present within the 15km from the Project Area. A further four migratory species were also identified as potentially being present or having habitat present within the 15km from the Project Area (noting some species were identified as both threatened and migratory), including three cetaceans and one shark (Att 7, s6, p106). Of the eleven species identified only the Humpback whale (Mi) is known to occur and the Southern right whale (EN, Mi) is considered likely to occur within close proximity to the Project Area activities (Att 7, s6.1, p106). A further two species, the Australian Grayling (VU) and White shark (VU, Mi), were considered to potentially occur in the Project Area (Att 7, s6.2, p110).

There are 63 humpback whale sightings recorded in Western Port and along the Victorian coastline between Cape Schanck and Cape Patterson between 1984 and 2023. Most sightings have been recorded along the open coast outside Western Port or in the Western Entrance. There is no evidence of Western Port being used for breeding behavior, such as nursing or resting by mother-calf pairs, rather occasional individuals visit Western Port for short periods (Att 7, s6.1.1.1, p107).

Southern right whale sightings are more abundant along the open coast, with a relatively even spread across the south coast of Phillip Island where there are many elevated view points, and off Flinders, Kilcunda and Cape Patterson, where there are also elevated viewpoints. (Att 7, s6.1.1.2, p108). There is no evidence of Western Port being used for breeding behaviour, such as nursing or resting by mother-calf pairs, rather occasional individuals visit Western Port for short periods (Att 7, s6.1.1.2, p109).

Feeding for both whale species is generally thought to occur in offshore waters and subsequently, does not occur within or in proximity to the Project Area (Att 7, s6.1.1).

The Australian grayling is distributed in coastal rivers in southeast mainland Australia and around Tasmania. The Bunyip River, Lang Lang River, and Cardinia Creek flow into Western Port and are known habitat for Australian grayling. These catchments all drain into Upper North Arm of Western Port (Att7, s6.1.2.1, p.110), over 10km from the Terminal Project Area.

Adult Australian grayling migrate to the freshwater estuary interface to spawn in autumn and winter during periods of higher stream flow. Larvae are then thought to be carried into the estuarine and/or marine environment before migrating back to freshwater adult habitat as juveniles (Att7, s6.1.2.1.2, p.110). Adult Australian Grayling do not live in the marine environment so will not occur in the Terminal Project Area. Weak swimming larvae are most likely transported into East Arm by prevailing currents from the Upper North Arm. Older juveniles may pass through the Terminal Project Area if they migrate north via the Lower North Arm to the streams in Upper North Arm. Any larvae that do pass through the Terminal Project Area will be very sparsely distributed. They are most likely to occur in Spring (September to November) given the peak period for fish returning to freshwater environments is October/November (Att7, s6.1.2.1.2, p.110).

White sharks are widely distributed throughout Australian waters and are generally found in shelf waters less than 100 metres and frequent rocky reefs and shallow bays (Att7, s6.2.1.2, p.111). They are more frequently observed around fur seal and Australian sea lion colonies in areas of South Australia and Western Australia. Key areas of seasonal aggregation by juvenile white sharks are located in New South Wales and Corner Inlet (90 Mile Beach in Victoria). White sharks transit coastal waters; however, the species is not documented using Western Port specifically, with only a single white shark sighting recorded within Western Port (from 1967) within the Victorian Biodiversity Atlas and the Atlas of Living Australia. Western Port lies near the proposed boundary separating the eastern and southwestern populations of white sharks in Australia and therefore occurrences are expected to be transient in this region (Att7, s6.1.2.2.2, p.111).

All other identified species were considered unlikely to occur within 15 km of the Terminal Project Area.

Migratory and Waterbirds

Terrestrial waterbird habitat within the Project Area includes the Coastal Saltmarsh within the southern extent of the OTRA site that provides both roosting and foraging opportunities for waterbirds. There is also adjacent cropped grassy land within the OTRA site that provides foraging opportunities for some species (Att 6.1, s6.3.2, p72).

The Project Area, at the shoreline, is characterised primarily by a narrow rocky and sandy strip, which provides roosting habitat for common waterbirds. A small stretch of mangroves occurs south of the OTRA wetland, on and adjacent to, the chenier, which also provides roosting habitat for common waterbirds such as herons, ibis, spoonbills, and cormorants. At low tide, intertidal mudflats and seagrass become exposed and offer foraging opportunity for waterbirds (Att 6.1, s6.3.2, p72).

The following threatened and/or migratory waterbirds are considered likely to occur within the Project Area (Att 6.2, s6.5.1, p112):

- EPBC Act listed threatened species:
    - Curlew Sandpiper (CR, Mi)
    - Eastern Curlew (CR, Mi)
    - Australasian Bittern (EN)
    - Common Greenshank (EN, Mi)
    - Australian Fairy Tern (VU)
    - Bar-tailed Godwit (VU, Mi)
    - Great Knot (VU, Mi)
    - Latham’s Snipe (VU, Mi)
    - Red Knot (VU, Mi)
    - Ruddy Turnstone (VU, Mi)
    - Sharp-tailed Sandpiper (VU, Mi)
    - Terek Sandpiper (VU, Mi)
- FFG Act listed threatened species:
    - Little Tern (Mi, cr)
    - Plumed Egret (cr)
    - Grey-tailed Tattler (Mi, en)
    - Australian Gull-billed Tern (en)
    - Little Egret (en)
    - Whimbrel (Mi, en)
    - Eastern Great Egret (v)
    - Caspian Tern (Mi, v)
    - Common Sandpiper (Mi, v)
    - Lewin’s Rail (v)
    - Pacific Golden Plover (Mi, v)
- Migratory species:

    - Broad-billed Sandpiper (Mi)
    - Common Tern (Mi)
    - Crested Tern (Mi)
    - Double-banded Plover (Mi)
    - Pectoral Sandpiper (Mi)
    - Red-necked Stint (Mi)
    - Short-tailed Shearwater (Mi)

Of the listed species considered likely to occur within the Project Area, the following four species have been recorded within the Project Area; the Eastern Great Egret (v), the Caspian Tern (Mi, v), the Short-tailed Shearwater (Mi) and the Crested Tern (Mi) (Att 6.2, App2, p201-224).

Terrestrial Flora and Fauna

Three EPBC Act listed threatened ecological communities (TECs) are considered likely to occur within the Project Area. Of the three identified communities, approximately 1.341ha of one EPBC Act listed Threatened Ecological Community is present within the Project Area; Subtropical and Temperate Coastal Saltmarsh (Att 5, s5.3.5, p49).

In addition to this, six FFG act listed flora species were recorded within the Project Area, with suitable habitat for one species also identified, as follows (Att 5, s5.3.2, p45):

- Recorded within the Project Area:
    - Marsh Saltbush (e)
    - Grey Mangrove (e)
    - Creeping Rush Juncus (e)
    - Salt Blown-grass (e)
    - Yellow Sea-lavender (e)
    - Pallid Sun-orchid (cr)
- Suitable habitat identified within the Project Area:
    - Salt Lawrencia (e).

No nationally significant terrestrial flora species have been identified within the Project Area (Att 5, s5.3.2, p45).

The following threatened and migratory terrestrial fauna species are considered likely to occur within the Project Area (Att 5, s5.4.1, p54):

- EPBC listed species:
    - Swamp Skink (EN)
    - Blue-winged Parrot (VU)
    - Grey-headed Flying-fox (VU)
    - White-throated Needletail (VU, Mi)
- FFG listed species:
    - Swamp Skink (e)
    - Glossy Grass Skink (e)
    - White-bellied Sea-Eagle (e)
    - Little Eagle (v)
    - Powerful Owl (v)
    - Grey-headed Flying-fox (v)
    - White-throated Needletail (v)
- Migratory species
    - Fork-tailed Swift (Mi)

Of the five species considered likely to occur, only the Swamp Skink were recorded within the Project Area. Swamp Skink were recorded during targeted surveys within the OTRA site in 2022 and 2023. Results of the targeted surveys indicate that within the Project Area the OTRA site provides suitable habitat for a range of reptile species, a total of eleven Swamp skink individuals were identified on site. In particular, the Tall Marsh surrounding the drainage line in the north of the OTRA site and Coastal Saltmarsh at the south of the OTRA site supports a substantial population of Swamp Skink.

While targeted surveys have not yet been undertaken along the proposed utility corridors, Swamp skink may also occur in suitable habitat in Swamp Scrub intersecting Olivers Creek (Att 5, s5.4.1, p56).

Note: Listed status as follows (EPBC Act, FFG Act); Critically Endangered (CR, cr), Endangered (EN, e), Vulnerable (VU, v), Migratory (Mi), Least Concern (LC).

3.2.2 Describe the vegetation (including the status of native vegetation and soil) within the project area.

The onshore component of the Project Area (including the onshore component of the Disturbance Footprint) is located outside of the Western Port Ramsar site boundary. The onshore area is predominantly reclaimed land, forming the OTRA site and the proposed utility corridor, located along Barclay Crescent, Bayview Road and Callanan Street. The majority of the study area is within the OTRA site and supports predominantly introduced vegetation of low ecological value. Native vegetation within the study area is of low to moderate quality in the OTRA site (Att 5, s5.3.1, p44). The utility investigation corridors are considered unlikely to support any EPBC Act listed threatened flora species or ecological communities (Att 5, s5.3, p43).

OTRA

The OTRA site was created from material which was dredged during the extension of the shipping channel during the 1970s. Most of the vegetation present is therefore not remnant to the site, having been either planted or colonised within the placement of fill and subsequent sculptured landform.

The majority of the OTRA site is relatively flat land supporting introduced pasture dominated by Toowoomba Canary-grass *Phalaris aquatica*, Yorkshire Fog *Holcus lanatus*, Tall Fescue *Festuca arundinacea* and a variety of other common pasture weeds with limited indigenous flora species. However, approximately 1.341ha of the EPBC Act listed Threatened Ecological Community (TEC) *Subtropical and Temperate Coastal Saltmarsh* has been identified in the Project Area (Att 5, s5.3.5, p49-50). The Subtropical and Temperate Coastal Saltmarsh TEC was not recorded on the OTRA site in 2022 due to the high levels of rainfall experienced prior to the assessment, resulting in a level of inundation and establishment of species inconsistent with the characteristics of saltmarsh vegetation (Att 5, s5.3.5, p50).

Including the TEC identified on the OTRA site, 7.6ha of native vegetation was identified within the Project Area during the existing conditions assessment in September 2024 including the following six Ecological Vegetation Classes (EVCs) (Att 5, s5.3, p41):

- EVC 53 Swamp Scrub (e)
- EVC 937 Swampy Woodland (e)
- EVC 3 Damp Sands Herb-rich Woodland (v)
- EVC 821 Tall Marsh (lc)
- EVC 9 Coastal Saltmarsh (lc)
- EVC 140 Mangrove Shrubland (lc)

Marine Environment

The marine environment within the Project Area can be broadly characterised as intertidal and subtidal habitats. The intertidal habitat extends from the high tide mark to approximately 5m below mean sea level (msl). The subtidal habitat is the remainder of the Project Area deeper than 5m below msl.

The intertidal zone within the Project Area is dominated by intertidal seagrass (*H. nigricaulis* / *Z. muelleri*) (14.8 ha), followed by bare mud/sandflat (9.0 ha) and Intertidal *Caulerpa cactoides* (1.4 ha). The mangrove forest, mangrove/mudflat and saltmarsh identified within the Project Area comprised approximately 0.4 ha, 0.4 ha and 0.1 ha, respectively (Att 7, s5.4.2, p54).

Surveys completed in 2023-2024 show subtidal seagrass meadows extend to between 3 and 7m below msl in this area, with shallower depth limits corresponding with the steepest seabed slopes and deeper depth limits where the seabed slope is less (Att 7, s5.6.5.1.3, p89). The mudflats in this area are strongly influenced by wave and current action, with mobile sand and seagrass meadows with scalloped edges offshore and sand inundated areas inshore (Att 7, s5.6.5.1.3, p89).

A patch of mangroves extends from the southern boundary of the Project Area south to Long Island Point. Mangroves in the area immediately south of the OTRA are within and adjacent to a lagoon formed behind a sand chenier that extends south from the sea wall. The Project Area contains a small area of saltmarsh and

reedbeds, located within the southern half of the OTRA. Saltmarsh habitat also occurs between the southern boundary of the Project Area and Long Island Point Jetty (Att 7, s5.6.4, p81).

The mudflats within the Project Area are east of the OTRA site. The narrow band of intertidal mudflats within the intertidal zone is typically exposed at low tide, the majority of which has previously been impacted by the OTRA land reclamation carried out in the early 1970s and is noted as secondary foraging habitat for waterbirds (Att 6.2, s8.1.1, p142).

Habitat mapping for the subtidal habitat within the Project Area was conducted in 2023-2024. Overall, the subtidal habitat mapping demonstrated the area supports a wide variety of subtidal habitats dominated by benthic habitat classes such as mixed epifauna on sand (34.8 ha), mixed seaweeds and epifauna on sand (30.8 ha), *Heterozostera nigricaulis*/*Halophila australis* meadow (13.8 ha) and burrows, tubes and sand (9.8 ha) (Att 7, s5.4.3, p57).

The wide range of benthic habitats and biodiversity described is consistent with the existing understanding of the diverse range of habitats present within Western Port which supports high biodiversity.

Soil Conditions (see Att 13)

Site investigations have been completed within the Project Area to assess for existing contamination and acid sulfate soils (ASS), both on land and within the proposed reclamation and dredging areas. The results from soil and sediment testing did not exceed human health criteria. Minor exceedances of soil ecological criteria were observed for arsenic, nickel and zinc, which are likely to be naturally occurring levels and not attributable to an industrial source of contamination. Concentrations of per- and polyfluoroalkyl substances (PFAS) within soil and marine sediments were below human health and ecological assessment criteria. Preliminary waste classification of soil and sediments indicate mostly Category D classification due to naturally occurring levels of arsenic.

Potential acid sulfate soils (PASS) have been identified within marine sediments and the OTRA site, with 10% of samples results exceeding the criteria triggering management of ASS. With the exception of one location along the boundary of the berth pocket and quay wall, PASS were not identified in areas requiring dredging.

3.3 Heritage

3.3.1 Describe any Commonwealth Heritage Places Overseas or other places recognised as having heritage values that apply to the project area.

There are no Commonwealth Heritage listings or other heritage listings within the Project Area.

3.3.2 Describe any Indigenous heritage values that apply to the project area.

The Traditional Owners of the land and waters on the Project site and surrounds are the Bunurong people. The Bunurong Land Council Aboriginal Corporation (BLCAC) is the Registered Aboriginal Party for the area on behalf of the Bunurong people.

PoHC engaged the BLCAC to undertake a Cultural Values Assessment (CVA) for the Victorian Renewable Energy Terminal Project to inform the project understanding and development. The CVA was completed in November 2023. However, at the request of the BLCAC the CVA cannot be made publicly available. The aim of the CVA was to contribute towards a better understanding of Bunurong traditional and cultural values so that they are embedded into future projects, processes and policies for the benefit of the broader Bunurong community.

The CVA provides a broad understanding of the landscapes and seascapes surrounding the site and communicates Bunurong culture and stories as the Bunurong Elders, community members and knowledge holders would like them to be told. Recommendations arising from research and consultation with members of the Bunurong community as part of the CVA have been incorporated into the Project. See Att 14 - Cultural Values Recommendations for information relating to the status of these recommendations.

The Project must prepare a Cultural Heritage Management Plan (CHMP) in accordance with the *Aboriginal Heritage Act 2006* and Aboriginal Heritage Regulations 2018. The purpose of the CHMP is to identify Aboriginal heritage values located within the Project Area. No known Aboriginal places are located within the Project Area. The potential for Aboriginal cultural heritage to be present is being assessed; the desktop (background research) and standard (pedestrian survey of the onshore component) assessments have been completed to date. The BLCAC continues to be consulted throughout the CHMP process. The CHMP is still ongoing.

An assessment of the potential for Underwater Aboriginal Cultural Heritage will be completed in line with the Department of Climate Change, Energy, the Environment and Water's *Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters Guidelines on the Application of* the *Underwater Cultural Heritage Act 2018*. The methodology for this assessment has been developed, however, the assessment is still ongoing.

3.4 Hydrology

3.4.1 Describe the hydrology characteristics that apply to the project area and attach any hydrological investigations or surveys if applicable. *

Surface Water (Att 15)

The Project Area is located in the Mornington Peninsula North-Eastern Creeks Catchment and the delineated sub-catchment of McKirdy Road Drain.

Drainage features were identified along the northern and southern boundaries, however, they lack pipe, culvert or channelised connections to Western Port and instead function as trapped ephemeral waterbodies. They have likely formed from anthropogenic means and retained their physical form as they are at the bottom of the catchment and the relatively small upstream catchment possesses good vegetation cover and limited gradients for overland flow. Consequently, a large portion of annual rainfall does not flow to Western Port via overland flow paths but is retained in these features and is lost by evapotranspiration.

Hydrological and flood modelling was completed to assess existing surface water conditions for stormwater (Att 15).

Groundwater (Att 13 and Att 16)

Key existing groundwater features are:

- 3 hydrostratigraphic units likely to be present (the Baxter and Sherwood Formations, potentially separated by lower permeability interface, and overlying bedrock, and reclamation fill)
- Groundwater levels varied between ~1 metre Australian Height Datum (mAHD) and 3.5mAHD from Jun to Sep 2024, with a general easterly groundwater flow direction toward the coast
- Recharge is from diffuse rainfall recharge
- Groundwater salinity is fresh to brackish, with electrical conductivity (EC) varying between 400 and 10,000 micro Siemens per centimetre (µS/cm) (the global average ocean EC is around 33,100 ± 2,300µS/cm)
- Hydraulic conductivity (K) from 6 site-specific pumping tests indicates a K of around 0.6m/day (6.9 x10^6m/s) for the Baxter Formation and around 0.04m/day (4.6 x10-7m/s) for the Sherwood Formation.

Groundwater monitoring at the OTRA site identified low-levels of groundwater contamination, which are considered to be representative of background groundwater quality in the area, with a number of potential sources of contamination upgradient of the Project Area.

1. Assessment of impacts to groundwater due to construction activities and permanent operational conditions will be completed based on the above understanding of natural hydrogeological conditions.

Coastal Processes (Att 8 & Att 17)

Western Port is a large coastal embayment divided into five segments. The Project Area is located on the western shoreline of the Lower North Arm and is part of the Western Port hydrodynamic system. Conditions at the Project Area are heavily influenced by conditions across Western Port, as below.

Tidal regime & hydrodynamics (Att 8, s5.1.1, p29)

- Hydrodynamics in Western Port are dominated by strong tidal currents, with a minor effect from wind-driven currents and negligible influence from flows of freshwater from the catchment. Ocean swells and wind waves are important to sediment transport processes in shallow areas and near the coastline
- Tides in Western Port are semi-diurnal, meaning there are typically two high and two low tides per day. The range and timing of tides in Western Port is driven by the tides in Bass Strait
- Flood and ebb tidal currents in Western Port are strong, particularly in the channels. Strong currents of up to 1m/s occur in the channels in Lower and Upper North Arm. Peak tidal currents near the Project area are around 0.8m/s during spring tides

- The tidal excursion (distance travelled by water between slack water periods) is up to 6km in North Arm, which distributes and mixes the water column thoroughly throughout the deeper channels and transports suspended sediments (predominantly from the Upper North Arm into the Lower North Arm and East Arm)
- The tidal prism, or the amount of water that enters Western Port during a spring tide, is 1,280,000 megalitres (based on a representative spring tide). This equates to 44% of the total high-tide volume of Western Port (2,900,000ML)
- Currents in Bass Strait are easterly limiting re-entrainment of water ebbing from Western Port with subsequent flood tides into Western Port. These effects combined result in a high rate of flushing. Flushing rates range from months in the Upper North Arm to days near the Western Entrance. The high rate of exchange of seawater with Bass Strait outweighs freshwater inputs which is such that Western Port cannot be considered an estuary
- Winds generate waves that are significant for sediment resuspension, especially over the mudflats in the Upper North Arm and the mud cliffs around Lang Lang in the east of Western Port and have some influence on currents. The summer wind regime is mostly southerly, and the winter mostly northerly to north westerly. Westerly and easterly winds are more likely to resuspend sediments in the Upper North Arm due to their longer fetch
- There is a slight clockwise circulation of water around French Island, driven by prevailing winds and the tides. Currents measured across North Arm showed that the volume of water moving around the top of French Island and into East Arm was very small. Analysis of the half tidal flux volumes across North Arm near Crib Point showed that 0.24% of the half tidal flux did not return on the ebb tide, with this portion travelling from North Arm into East Arm, further confirming that the volume of water moving from North Arm into East Arm is very small and the majority of water on the ebb tide moves back south through the North Arm to the Confluence Zone
- Hydrodynamics near the Project Area are dominated by the ebb and flood tidal currents. Peak ebb tidal currents tend to be stronger than flood tidal currents. Currents near the seabed tend to be weaker but share the same general pattern as those at the surface. Locally generated wind waves are also important to nearshore hydrodynamics of the Project Area. Ocean swells do not propagate to the site.

Water Quality (Att 7, s5.5.2, p62)

- The water quality in Western Port is the product of exchange with Bass Strait, internal hydrodynamics (waves and currents), wetland bathymetry and climate
- There are strong water quality gradients in Western Port from the Western Entrance into Upper North Arm.
- Water quality in Upper North Arm and Corinella is distinctly different to areas in the south of Western Port. Water clarity is typically low due to resuspension of sediments over the mudflats and channels by waves and currents, and erosion of the eastern shoreline near Lang-Lang by wave action
- Periodic and variable flows from the catchment bring nutrients and freshwater into the system leading to short-term surface plumes of low salinity, high nutrient water. Flushing rates range from a few days in the Western Entrance to a few months in Upper North Arm and the Corinella Segment.

To understand water quality parameters relevant to the Project, studies began in 2023 with monitoring of underwater light availability and light attenuation at a small number of sites. This was expanded to include continuous monitoring at 5 sites and monthly at 11 sites. Water quality objectives for physico-chemical indicators in Western Port are set by the Environmental Reference Standard 2023 made under the *Environment Protection Act 2017* (Vic). Over the 12-month period to Nov 2024 half the objectives were met: chlorophyll a, dissolved inorganic phosphorus, total suspended solids. Levels of total phosphorus, total nitrogen, dissolved inorganic nitrogen and light attenuation exceeded water quality objectives. Water quality monitoring was completed in May 2025.

Wetland Bathymetry (Att 17, s5.1.1, p35)

- The Western Entrance channel of Western Port is 20-30m deep and 10km wide. At the southwest corner of French Island, the Western Entrance channel splits into two. The main channel in the Lower North Arm remains 10-12m deep and 5km wide before becoming part of the Upper North Arm Channel. The Upper North Arm Channel is shallow, and splits into numerous dendritic channels
- There are expansive intertidal mudflats, particularly in the north and east of Western Port, with distinctive dendritic tidal channels intersecting the mudflats. Analysis of the most recent available bathymetry data confirms that at least 270 km2 intertidal mudflat still exists within the Western Port Ramsar site (Att 7, s5.4.2, p54)
- The western shoreline of Lower North Arm is in an area where the main channel through North Arm is at its closest point to shore and where land areas have been reserved for port related uses. There is a narrow band of intertidal mudflat inshore of a naturally steep channel margin, with depths of 15m or more just 250m from shore.

Geomorphology & Sedimentation (Att 7, s5.6.2, p76, Att17, s5.2, p.52)

- Sediment types throughout Western Port consist of fine sand and silt in intertidal areas (with patches of clay within intertidal mudbanks) and medium sand in subtidal channels, becoming coarser with depth. Channels are incised into Holocene peats and clays and tend not to move laterally due to erosion or sediment deposition
- The bottom of the main channels (10–30m depth) have well sorted medium to fine sand with shell debris, with areas of sand waves, and areas of higher energy (current) having coarse sands and pebble-to-boulder lag gravels
- Inferred sediment movements within the Project Area are northwards on the east side and southward on the west side (along the shoreline).

There is an estimated net export of fine sediments from Western Port that exceeds inputs from shoreline erosion and the catchment. This net loss has been estimated at 120kt/yr and assuming inputs of fine sediments remain below net export rates, and resuspension processes are not exacerbated, this process is expected to lead to an improvement in the light climate in Western Port over coming decades as legacy sediments from swamp draining and past catchment activities are flushed from the system.

4. Impacts and mitigation

4.1 Impact details

Potential Matters of National Environmental Significance (MNES) relevant to your proposed action area.

EPBC Act section	Controlling provision	Impacted	Reviewed
S12	World Heritage	No	Yes
S15B	National Heritage	No	Yes
S16	Ramsar Wetland	Yes	Yes
S18	Threatened Species and Ecological Communities	Yes	Yes
S20	Migratory Species	Yes	Yes
S21	Nuclear	No	Yes
S23	Commonwealth Marine Area	No	Yes
S24B	Great Barrier Reef	No	Yes
S24D	Water resource in relation to large coal mining development or coal seam gas	No	Yes
S26	Commonwealth Land	No	Yes
S27B	Commonwealth Heritage Places Overseas	No	Yes
S28	Commonwealth or Commonwealth Agency	No	Yes

4.1.1 World Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.1.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.1.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no World Heritage Properties within 10 km of the Terminal Project.

4.1.2 National Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.2.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.2.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no National Heritage Places within 10 km of the Terminal Project.

4.1.3 Ramsar Wetland

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Ramsar wetland
Yes		Western Port

4.1.3.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.3.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

The Project has the potential to both directly and indirectly impact the Western Port Ramsar site.

Construction of the Project involves reclamation (infill) of 18ha of seabed, including intertidal mudflat, intertidal seagrass and a small area of shallow subtidal seagrass habitat. The revetment area is an additional area of approximately 0.8ha. The conversion of marine habitat to wharf and hard stand area is considered a permanent change. This area accounts for 0.03% of the Ramsar site.

Construction will also involve dredging of the seabed to establish navigable depths in the approach channel, swing basin and berth pocket. This will result in a permanent modification of the existing habitat. This area accounts for approximately 0.04% of the Ramsar site.

The main indirect impact pathway on the Western Port Ramsar site associated with the Project is the increase in turbidity and increased light attenuation associated with dredging that will interact with the extensive intertidal and subtidal seagrass beds that are present along the western shoreline of the North Arm of Western Port.

There is potential for this change in water quality to adversely impact biodiversity and ecological integrity within the wetland however, the change is only likely to occur for the duration of dredging (approximately 19 weeks). Turbidity associated with dredging operations is predicted to return to ambient (background) levels within days to weeks of the cessation of dredging.

Turbid plumes during dredging activities may cause reduced productivity of seagrass meadows due to decreased light levels over the affected area.

Turbid plumes may also affect the health of marine invertebrates and fish, particularly their more sensitive egg and larval stages. This has the potential to occur within the immediate vicinity of the operating dredge, with plume intensity rapidly declining with increasing distance away from the dredge.

No temporary or permanent change in wetland water quality with regard to salinity, contaminants (pollutants), nutrients or temperature is predicted.

Refer to Att 8 for further information.

4.1.3.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

Yes

4.1.3.5 Describe why you consider this to be a Significant Impact. *

The Project was assessed as potentially meeting one of the five significant impact criteria for determining significant impacts to a declared Ramsar site outlined within the Significant Impact Guidelines 1.1 Matters of National Environmental Significance (Department of Environment, 2013). It was assessed that the that the Project will result in the following:

- Areas of the wetland being destroyed or substantially modified

The reclamation will result in the permanent removal (destruction) of 18.8ha of the Western Port Ramsar site and the dredging program will result in a modification to the dredge footprint and the turbidity and light attenuation for the duration of the dredging program. This change in water quality has the potential to adversely impact biodiversity and ecological integrity within the wetland, ceasing after the dredging is complete.

Please see Att 8 for more details.

4.1.3.7 Do you think your proposed action is a controlled action? *

Yes

4.1.3.8 Please elaborate why you think your proposed action is a controlled action. *

The Project is a controlled action because, while it meets one of the significant impact criteria for Wetlands of International Importance, preliminary impact assessments conclude that it is unlikely that it will result in adverse impacts on the ecological character of the broader Western Port Ramsar site or that these impacts would be considered unacceptable (Att 8, s6, p70). Over the last 18 months, field studies and expert assessment has been progressed against key areas of potential impact and confirmed the following:

Tidal Regime and Hydrodynamics

Changes to the tidal regime and hydrodynamics may cause changes to the condition of CPS within the Ramsar site, within the vicinity of the Project Area, in particular the critical CPS wetland bathymetry, geomorphology and sedimentation. Impacts on these aspects of ecological character may lead to flow-on impacts on habitats and biological assemblages (Att 7, s9.1.1, p155).

The Project is not expected to cause any regional changes to the hydrodynamic conditions of Western Port (Att 17, s7.2.2, p.96). Predicted changes to hydrodynamics will be negligible (unmeasurable in the field) beyond the immediate vicinity (approx 2km radius around the Project Area) (Att 17, s7.2.1, p92). The development is expected to reduce the tidal prism by 0.02% (Att 17, s7.1.2, p. 88). In addition, there is negligible demonstrable change (unlikely to be measurable in the field) to tidal range and phase (Att 17, s7.1.3, p88).

The small magnitude and localised changes to the tidal regime and hydrodynamics are considered to be insignificant relative to the scale and magnitude of this essential element within the broader Ramsar site. Therefore, these changes are considered highly unlikely to cause a change in ecological character (Att 7, s9.1.1, p155).

Wetland Bathymetry

The reclamation, revetments and construction of the quay wall will result in the loss of less than 13ha of existing intertidal mudflat. Dredging of the berth pocket, swing basin and navigation channels will result in the modification of up to 27ha of existing seabed bathymetry (Att 17, s7.1.1, p87).

Overall, impacts on wetland bathymetry due to reclamation and dredging are considered very unlikely to result in adverse impacts on the natural properties of the ecosystem, the overall ecological character of the wetland or its conservation and sustainable use (Att 7, s9.2.1, p159).

Geomorphology and Sedimentation

Modelling of suspended sediment plumes and sedimentation associated with dredging shows only minor potential interaction contained within the North Arm. Dredging will remobilise fine sediments already within Western Port rather than introduce new sediment (Att 17, s9.2, p121).

No sedimentation is predicted in Upper North Arm or East Arm due to the Project. Sedimentation in the Lower North Arm is unlikely to be measurable or cause any change in habitats given natural sediment redispersion processes (waves and currents) and sea level rise (Att 7, s9.2.2, p157).

Localised changes to hydrodynamics are predicted to affect coastal geomorphology and sediment transport and lead to changes in the shape and extent of the chenier located south of OTRA (Att 17, s9.1, p119). The impacts of these changes will be fully assessed as part of future investigations.

Overall, Project induced sedimentation is considered highly unlikely to cause longer term changes in the natural properties of the ecosystem or impact the overall ecological character of the wetland, its conservation or sustainable use (Att 7, s9.2.2, p157).

Water Quality

Dredging will generate turbid plumes (elevated suspended sediment concentrations). The suspended sediments will primarily comprise the finer fractions of the dredge material (coarser sediments will settle to the seabed quickly, within the near vicinity of dredging operations). The turbid plumes will reduce water

clarity which will reduce light availability over the affected area. Based upon the Project description, turbidity is predicted to return to ambient (background) levels within days to weeks following cessation of dredging (Att 7, s9.1.2, p156).

Other aspects of water quality, namely nutrient and contaminant levels, are not predicted to be significantly affected by the Project. Sediments to be dredged have been assessed to be uncontaminated, hence mobilisation of contaminants in dredge plumes will not be a significant issue. Sediments are low in nutrients and given the primary sources of nutrients in Western Port are from the catchment, Bass Strait and local nutrient cycling processes, mobilisation of nutrients in dredge plumes will not be a significant issue (Att 7, s9.1.2, p156).

The spatial and temporal scale and magnitude of predicted changes in water quality, given planned mitigation and management measures, is considered very unlikely to result in adverse impacts on biodiversity, ecological integrity, social amenity or human health (Att 7, s9.1.2, p156).

The short-term changes to water quality are considered highly unlikely to cause longer term changes in the natural properties of the ecosystem or impact the overall ecological character of the wetland, its conservation or sustainable use (Att 7, s9.1.2, p156).

Seagrass

Direct impacts to seagrass are anticipated to only occur within the Disturbance Footprint with approximately 9.38 ha of intertidal and subtidal seagrass anticipated to be removed. Indirect impacts to seagrass are predicted to be short term in nature and restricted to the Upper North Arm of Western Port. Short-term reduction in seagrass growth and productivity is predicted, however no loss of seagrass habitat due to turbid plumes is predicted. No die back or mortality of seagrass is likely from exposure to the turbid plumes (Att 7, s9.2.5, p158).

The direct impact to seagrass is anticipated to be minor in the context of the Western Port Ramsar site and the short-term impacts to seagrass are considered highly unlikely to cause longer term changes in the natural properties of the ecosystem or impact the overall ecological character of the wetland, its conservation or sustainable use (Att 7, s9.2.5, p158).

Mangroves

Approximately 0.02ha of mangroves are proposed to be removed (Att 7, s8.2.4.8, p142). However, it should be noted that PoHC are investigating the feasibility of moving the location of the revetments slightly north to avoid the removal of these trees.

Localised changes to coastal geomorphology are likely to be neutral with regard to the area of suitable mangrove habitat within the Ramsar site. As such no indirect impacts to mangroves are anticipated (Att 7, s9.2.4, p158).

As a result, it is considered highly unlikely that the Project will cause long term changes in the natural properties of the ecosystem or impact the overall ecological character of the wetland, its conservation or sustainable use due to impacts to mangroves (Att 7, s9.2.4, p159).

Saltmarsh

Although there will be direct loss of saltmarsh on the OTRA as a result of this Project, the entirety of the removal is inland from the Ramsar boundary on the OTRA site. Therefore, it is considered highly unlikely that the Project will cause long term changes in the natural properties of the Ramsar site or impact the overall ecological character of the wetland, its conservation or sustainable use due to impacts to saltmarsh (Att 8, s5.7.4, p51).

Waterbirds

Due to the highly modified nature of the Project Area and local landscape from past dredging and reclamation activities (including reclamation at BlueScope, the OTRA site, and disposal of dredged material at Long Island Point), adverse impacts at a local scale are expected to be minor for most waterbird values if appropriate mitigation measures are developed and implemented. However, while impacts to some values can be minimised and mitigated, they cannot be avoided altogether (Att 6.2, s11.2, p170).

Marine Invertebrates

The invertebrate studies completed to date show that infauna and epifauna and flora biodiversity and abundance have similar characteristics within the Project Area to other parts of Lower North Arm. No species, habitats or assemblages unique to the Project Area have been identified (Att 7, s9.2.6, p158).

Some localised impacts on marine invertebrate will occur as part of the reclamation (direct loss) and dredging (modification). The area of habitat available to marine invertebrate species within the Ramsar site is very large hence impacts on their populations within the Ramsar site are expected to be negligible.

Fish

Studies of marine habitats and fish biodiversity and abundance have demonstrated that the Project Area supports similar fish abundance and biodiversity to other parts of Lower North Arm and does not support any unique assemblages. The loss and modification of the small areas of marine habitat caused by construction of the Terminal is not expected to impact fish biodiversity or abundance more broadly within the Ramsar site, given the habitats are widely represented elsewhere in the Ramsar site (Att 7, s9.2.7, p159).

Threatened and Migratory species are discussed in subsequent sections.

Preliminary impact assessments have determined that impacts associated with the Project, including removal and modification of the Ramsar wetland will be localised and largely restricted to the footprint and immediate vicinity of the Project Area and will not result in broader impacts to the ecological character of the Western Port Ramsar site (Att 8, s6, p70).

The preliminary impact assessments (Att 5, Att 6, Att 7, Att 17) also describe viable mitigation measures (as detailed below in this referral form) that can be implemented to reduce potential impacts to the ecological character of the Western Port Ramsar site.

4.1.3.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

The preliminary impact assessments (Att 5, Att 6, Att 7) describe viable mitigation measures that can be implemented to reduce potential impacts to the ecological character of the Western Port Ramsar site. An overview of these for the essential elements and ecosystem components, processes and benefits and services that characterise the Western Port Ramsar site ECD are provided below.

Water Quality

Mitigation measures with direct relevance to water quality throughout Western Port include (Att 7, s10.1, 161-162):

- Selection of mechanical dredging equipment (e.g. backhoe dredger) rather than hydraulic dredging equipment (e.g. cutter suction dredger of trailing suction hopper dredger) to reduce the release of fines into the water column
- Avoiding the need for open water disposal of dredge spoil by incorporating land based (and bunded) reclamation into the design
- Minimising overflow of dredge material from hopper barges.

An additional mitigation measure that has not been modelled is the installation of a silt curtain (moon pool) around the backhoe dredger, in order to reduce the extent of the dredge plume.

Active environmental management of the dredging program, which includes the use of site-specific trigger values (i.e. limits for turbidity concentrations and light) will ensure that dredge-induced suspended sediment is actively managed (for instance by temporarily ceasing dredging if a trigger value is exceeded) ensuring ecological thresholds are not exceeded. Active management of dredge plumes will ensure that impacts to ecosystem functioning of seagrass and receptors including marine invertebrates and fish do not extend beyond the immediate area of dredging.

Flora – Seagrass

The mitigation measures designed to avoid or minimise adverse impacts to water quality (outlined above) are expected to avoid or minimise adverse impacts to seagrass.

In addition, the following contingency measures are proposed to inform the proposed mitigation measures (Att 7, s10.1, 161-162):

- Completion of collection of baseline water quality data to inform the development of management thresholds that trigger specific management actions
- Development of site-specific trigger values (i.e. limits for turbidity or light) to inform active management during dredging.

Flora – Mangroves

The mitigation measures designed to avoid or minimise adverse impacts to water quality (outlined above) are expected to avoid or minimise adverse impacts to mangroves.

In addition, to avoid direct loss of mangroves, options to move the location of the Terminal slightly north are being investigated. This would result in no direct loss of mangrove vegetation from the Project (Att 7, s10.1, 161-162).

Further mitigation measures proposed to minimise impacts to mangroves include (Att 5, s8.1, 107):

- Establish No-Go Zones around all vegetation not approved for removal

Flora – Saltmarsh

The mitigation measures designed to avoid or minimise adverse impacts to mangroves (outlined above) are expected to avoid or minimise adverse impacts to saltmarshes present in the Ramsar wetland.

Fauna – Waterbirds

The mitigation measures designed to avoid or minimise adverse impacts to water quality (outlined above) are expected to avoid or minimise adverse impacts to waterbirds.

In addition, the following mitigation measures are also proposed (Att 6.2, s9, p163-166):

- Limit noise and vibration impacts by incorporating standard operating procedures during construction
- Management of construction activities should be undertaken in accordance with EPA Victoria Publication 1834.1: Civil construction, building and demolition guide (2023) in respect to dust, odour and construction vehicle emissions to minimise amenity impacts during construction.
- Implementation of the National Light Pollution Guidelines for Wildlife (DCCEEW, 2023)

Fauna – Marine Invertebrates

The mitigation measures designed to avoid or minimise adverse impacts to water quality (outlined above) are expected to avoid or minimise adverse impacts to marine invertebrates.

Fauna - Fish

The mitigation measures designed to avoid or minimise adverse impacts to water quality (outlined above) are expected to avoid or minimise adverse impacts to fish.

In addition, the following mitigation measures are also proposed (Att 7, s10.1, 161-162):

- Application of standard mitigation and management procedures for marine piling, as set out in the *Underwater Piling and Dredging Noise Guidelines (DPTI, 2023)*:
    - Underwater noise modelling outputs will be used to calculate observation and shut down zones that apply to cetaceans (whales and dolphins). Shut down zone for cetaceans will be based on potential onset of hearing injury (temporary threshold shift, or TTS)
    - Standard operational procedures will be applied, namely:
        - Pre-start procedure (including observations by a level-2 qualified Marine Fauna Observer)
        - Soft-start procedure
        - Normal operation procedure
        - Stand-by operations procedure
        - Shut-down procedure
- Implementation of biosecurity measures on all construction vessels
- Implementation of the National Light Pollution Guidelines for Wildlife (DCCEEW, 2023)
- Review and update Port of Hastings spill management response and procedures.

To minimise and reduce the likelihood of direct impacts to fish resulting from dredging and placement activities, the following actions are also recommended during construction:

- Speed limits will be enforced for vessels to minimise the risks to marine fauna from vessel strike
- Disturbance to marine habitat will be restricted to the minimum required to enable the safe operation of the Project, in accordance with the relevant approval conditions.

Significant Species - Marine Ecology

The mitigation measures designed to avoid or minimise adverse impacts to fish (outlined above) are expected to avoid or minimise adverse impacts to significant marine species.

Significant Species - Waterbirds

Mitigation measures for waterbirds described above are also applicable to the impacts to significant waterbird species.

4.1.3.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

An EPBC Offset Strategy (Att 9) has been prepared for the Project. Section 4 of Att 9 describes potential compensatory measures for impacts to the Western Port Ramsar site.

During the consultation phase of preparation of the Offset Strategy, it was apparent that current threats to the Western Port Ramsar site within the jurisdiction of the responsible management agencies (i.e. Melbourne Water and the Victorian Department of Energy, Environment and Climate Action – Water and Catchments 'DEECA W&C') are being addressed. Based on the discussions with Melbourne Water and DEECA W&C, it is understood that compensatory measures for impacts to the ecological character of the Western Port Ramsar site should focus on protecting private land adjoining the Ramsar site to allow for the migration of the coastal shoreline under climate change, which will preserve existing mudflats and seagrass communities.

An offset package is proposed that includes a combination of direct compensatory measures and indirect offsets (i.e. funding scientific research). Port of Hastings Corporation will have the ultimate responsibility for implementing the compensatory measures and will require the support and input of Melbourne Water and DEECA W&C to implement.

An offset framework will be developed which explains how the impacts and compensatory measures proposed would be quantified to demonstrate how offsets will be used to respond to any potential impacts to the MNES including Swamp Skink, and the critical components of the Western Port Ramsar site - bathymetry (intertidal mudflats) and flora seagrass.

4.1.4 Threatened Species and Ecological Communities

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Threatened species

Direct impact	Indirect impact	Species	Common name
No	No	Amphibromus fluitans	River Swamp Wallaby-grass, Floating Swamp Wallaby-grass
No	No	Antechinus minimus maritimus	Swamp Antechinus (mainland)
No	No	Anthochaera phrygia	Regent Honeyeater
No	Yes	Ardenna grisea	Sooty Shearwater
Yes	No	Arenaria interpres	Ruddy Turnstone
Yes	Yes	Botaurus poiciloptilus	Australasian Bittern
No	No	Caladenia orientalis	Eastern Spider Orchid
Yes	Yes	Calidris acuminata	Sharp-tailed Sandpiper
Yes	Yes	Calidris canutus	Red Knot, Knot
Yes	Yes	Calidris ferruginea	Curlew Sandpiper
Yes	Yes	Calidris tenuirostris	Great Knot
No	No	Callocephalon fimbriatum	Gang-gang Cockatoo
No	No	Carcharodon carcharias	White Shark, Great White Shark
No	No	Caretta caretta	Loggerhead Turtle
No	Yes	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover
No	Yes	Charadrius mongolus	Lesser Sand Plover, Mongolian Plover
No	No	Chelonia mydas	Green Turtle
No	No	Climacteris picumnus victoriae	Brown Treecreeper (south-eastern)
No	No	Dasyurus maculatus maculatus (SE mainland population)	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)
No	No	Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth
No	No	Diomedea antipodensis	Antipodean Albatross

Direct impact	Indirect impact	Species	Common name
No	No	Diomedea antipodensis gibsoni	Gibson's Albatross
No	No	Diomedea epomophora	Southern Royal Albatross
No	No	Diomedea exulans	Wandering Albatross
No	No	Diomedea sanfordi	Northern Royal Albatross
Yes	Yes	Eubalaena australis	Southern Right Whale
No	No	Falco hypoleucos	Grey Falcon
No	No	Fregetta grallaria grallaria	White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian)
No	No	Galaxiella pusilla	Eastern Dwarf Galaxias, Dwarf Galaxias
Yes	No	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
No	No	Glycine latrobeana	Clover Glycine, Purple Clover
No	No	Grantiella picta	Painted Honeyeater
No	No	Hirundapus caudacutus	White-throated Needletail
No	No	Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern)
No	No	Lathamus discolor	Swift Parrot
No	No	Lepidium aschersonii	Spiny Peppercress
Yes	No	Limosa lapponica baueri	Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit
Yes	Yes	Lissolepis coventryi	Swamp Skink, Eastern Mourning Skink
No	No	Litoria raniformis	Southern Bell Frog,, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog
No	Yes	Macronectes giganteus	Southern Giant-Petrel, Southern Giant Petrel
No	Yes	Macronectes halli	Northern Giant Petrel
No	No	Melanodryas cucullata cucullata	South-eastern Hooded Robin, Hooded Robin (south-eastern)
No	No	Nannoperca obscura	Yarra Pygmy Perch
No	No	Neophema chrysogaster	Orange-bellied Parrot

Direct impact	Indirect impact	Species	Common name
No	No	Neophema chrysostoma	Blue-winged Parrot
Yes	Yes	Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew
No	No	Pachyptila turtur subantarctica	Fairy Prion (southern)
No	No	Pedionomus torquatus	Plains-wanderer
No	No	Petaurus australis australis	Yellow-bellied Glider (south-eastern)
No	No	Phoebetria fusca	Sooty Albatross
No	Yes	Pluvialis squatarola	Grey Plover
No	No	Potorous tridactylus trisulcatus	Long-nosed Potoroo (southern mainland)
No	No	Prasophyllum spicatum	Dense Leek-orchid
No	Yes	Prototroctes maraena	Australian Grayling
No	No	Pseudomys novaehollandiae	New Holland Mouse, Pookila
No	No	Pterodroma leucoptera leucoptera	Gould's Petrel, Australian Gould's Petrel
No	No	Pteropus poliocephalus	Grey-headed Flying-fox
No	No	Pterostylis chlorogramma	Green-striped Greenhood
No	No	Pterostylis cucullata	Leafy Greenhood
No	No	Pycnoptilus floccosus	Pilotbird
No	No	Rostratula australis	Australian Painted Snipe
No	No	Senecio psilocarpus	Swamp Fireweed, Smooth-fruited Groundsel
No	No	Seriolella brama	Blue Warehou
No	No	Stagonopleura guttata	Diamond Firetail
Yes	Yes	Sternula nereis nereis	Australian Fairy Tern
No	No	Thalassarche bulleri	Buller's Albatross, Pacific Albatross
No	No	Thalassarche bulleri platei	Northern Buller's Albatross, Pacific Albatross
No	Yes	Thalassarche carteri	Indian Yellow-nosed Albatross
No	Yes	Thalassarche cauta	Shy Albatross
No	Yes	Thalassarche chrysostoma	Grey-headed Albatross

Direct impact	Indirect impact	Species	Common name
No	No	Thalassarche impavida	Campbell Albatross, Campbell Black-browed Albatross
No	Yes	Thalassarche melanophris	Black-browed Albatross
No	No	Thalassarche salvini	Salvin's Albatross
No	Yes	Thalassarche steadi	White-capped Albatross
No	No	Thelymitra orientalis	Hoary Sun-orchid
No	Yes	Thinornis cucullatus cucullatus	Eastern Hooded Plover, Eastern Hooded Plover
Yes	Yes	Tringa nebularia	Common Greenshank, Greenshank
Yes	Yes	Xenus cinereus	Terek Sandpiper
No	No	Xerochrysum palustre	Swamp Everlasting, Swamp Paper Daisy

Ecological communities

Direct impact	Indirect impact	Ecological community
No	No	Natural Damp Grassland of the Victorian Coastal Plains
Yes	Yes	Subtropical and Temperate Coastal Saltmarsh

4.1.4.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.4.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

Threatened Marine Species

Of the seven EPBC Act listed marine species identified as potentially being present or having habitat present within 15km from the Project Area, the Southern right whale (EN, Mi) is known to occur and the Australian Grayling (VU) and White shark (VU, Mi) are considered to potentially occur within 15km from the Project Area (Att 7, s6, p.106).

The Project Area is considered poor habitat for the southern right whale, particularly resting or nursing southern right whale, due to the strong tidal currents and extensive intertidal mudflats. Project construction activities may cause southern right whale to avoid Lower North Arm during their winter migration and breeding period for one to two years (noting this will also reduce the likelihood of impacts to them).

Removal and/or modification of the Western Port Ramsar within the Project Area is not considered likely to have an impact on southern right whale important habitat, as the Lower North Arm of Western Port is considered unsuitable habitat for southern right whale reproductive activity and considered poor resting or nursing habitat, due to the strong tidal currents and extensive intertidal mudflats.

Potential adverse impacts to the southern right whale populations include underwater noise exposure during piling to construct the quay wall and vessel strike. Noise modelling was undertaken to characterise the noise emissions and the impulsive characteristics of piling noise. Underwater noise from piling will affect a relatively small area of the North Arm, for a period of less than one year. As mobile species, southern right whales will be able to move out of or avoid the area before adverse impacts occur. Therefore, exposure to adverse levels of underwater noise during construction is very unlikely (Att 7, s8.2.5, p144).

Ship movements in Western Port will increase above present levels during construction and operation of the Project, though are likely to remain within historic levels. The increase in the risk of vessel strike is considered negligible.

Based on the low frequency of transient visits by southern right whale to Western Port and the nature of the Project, it is very unlikely to cause mortality of southern right whale or to reduce their fitness or breeding success.

The Australian grayling is distributed in coastal rivers in southeast mainland Australia as well as around Tasmania. In Western Port, the Australian grayling occurs in the Bunyip River, Lang Lang River, and Cardinia Creek which flow into Upper North Arm. While adult Australian grayling live in freshwater, they migrate to spawn at the river/estuary interface during high flows from March to June and river outflow carries larvae into estuarine and marine environments where early growth and development of occurs. Larvae subsequently migrate back into freshwater adult habitats.

Australian grayling larvae may occur very sparsely in the Lower North Arm, so are potentially seasonally present in the Project Area. However, it is unlikely that significant proportions of Australian grayling larvae in Western Port disperse into or spend significant periods of time in Lower North Arm as extensive sampling of ichthyoplankton in Western Port has not detected any Australian grayling larvae (Att 7, s6.1.2, p110).

The key Project impact pathways relevant to the Australian grayling is the generation of turbid plumes during dredging and underwater noise due to piling. Exposure to suspended sediments may impact larvae above certain concentrations. Further work is to be undertaken to understand the potential impacts on fish and fish eggs, however, due to the low likelihood of occurrence of Australian grayling within the Lower North Arm it is not considered likely that dredging will have a significant impact on Australian grayling populations (Att 7, s8.2.1.5, p131).

Preliminary modelling of underwater noise shows that sound pressure level exposures within 70m of pile driving and 24hr sound exposure levels over an area of 15ha around pile driving could reach levels that may cause mortal injury or mortality to fish larvae (such as Australian grayling). The likelihood of individual Australian grayling larvae coming within such near proximity of the pile driving location is negligible, resulting in very low risk to the population over the course of pile driving activities (Att 7, s8.2.5.3, p150).

Threatened waterbirds

Twelve EPBC Act listed species have been considered to have a moderate or higher likelihood of occurrence within the Project Area (Att 6.2, s6.5.1, p112):

- Curlew Sandpiper (CR, Mi)
- Eastern Curlew (CR, Mi)
- Australasian Bittern (EN)
- Common Greenshank (EN, Mi)
- Australian Fairy Tern (VU)
- Bar-tailed Godwit (VU, Mi)
- Great Knot (VU, Mi)
- Latham's Snipe (VU, Mi)
- Red Knot (VU, Mi)
- Ruddy Turnstone (VU, Mi)
- Sharp-tailed Sandpiper (VU, Mi)
- Terek Sandpiper (VU, Mi)

It should be noted that, during baseline surveys conducted during 2023 and 2024 no EPBC Act threatened waterbirds were identified within the Project Area or its immediate surrounds (Att 6.2, s6.4.3, p98).

The relative abundance of waterbirds previously recorded and currently observed using the intertidal mudflats at and immediately adjacent to the Project Area is small when compared to records in more extensive and contiguous intertidal areas elsewhere in Western Port. This is likely as a result of the previous reclamation, the remaining narrow intertidal area supports less exposed mudflat area at high tide compared to adjacent less disturbed intertidal areas (Att 6.2, s8.1.1, p.142). The residual consequence of this removal has been assessed as minor to moderate given the relatively small extent of habitat removal, existing disturbance around the site, and lack of use of the Project Area by threatened species (Att 6.2, s8.4, p161).

There is the potential for indirect impacts to waterbird resources and habitats such as aquatic fauna, seagrass, mangroves and saltmarsh, as a result of construction dredging operations. Seagrass, invertebrates, and aquatic fauna such as fish and crustaceans are essential foraging resources and prey items for all waterbirds (Att 6.2, s8.1.2, p142). Although the impact to seagrass, invertebrates and aquatic fauna is not considered significant (Att 7, s9, p157), further analysis is required in order to fully assess the trophic impacts and implications to waterbirds.

Noise and vibration disturbance during construction have the potential to cause both direct and indirect impacts to waterbirds through the potential disturbance, displacement from sound source, direct impact on hearing of individuals and indirect impact through effects on prey species. However, it is not expected that airborne noise of the levels predicted for construction activities associated with the Project would have a measurable long-term effect on use of foraging habitat by any species of waterbird that use Western Port. Adjacent mudflats to the south of the Project Area, that occur immediately north of the Esso Jetty may experience disturbance at this local scale from construction noise, however species using this area are already subject to industrial noise from the Esso Jetty and fractionation plant operations (Att 6.2, s8.1.3, p145).

Potential impacts to migratory waterbird species are discussed below.

Terrestrial Flora and Fauna

At this stage of the Project, all vegetation within the Disturbance Footprint is considered lost and the exact quantity of vegetation to be removed will be determined at a later stage in the design. Currently, this constitutes the removal of approximately 5ha of Swamp skink habitat and potential habitat for an additional five EPBC listed species. In addition, habitat removal will result in the potential mortality of individuals and remnant populations being isolated from surrounding populations (Att 5, s7.1.4, p96).

There is also the potential for indirect impacts to occur from disturbance to remnant habitat outside of the Project Area resulting from changes to hydrological regime, sedimentation, erosion and pollution, or displacement of individuals from construction in the Project Area. The results of the forthcoming hydrogeological and surface water impact assessments will inform the determination of indirect impacts (Att 5, s7.1.4, p97).

There is the potential that within close proximity to construction works there may be a reduction in use of potential habitat by some species due to noise and vibration generated during both construction and operations. However, impacts during construction are considered more likely than during operations. Impacts from noise and vibration are likely to be greater for sedentary and ground-dwelling fauna with smaller home ranges and limited dispersal capability (Att 5, s7.1.1, p92).

At this stage in the Project, the lighting design for both construction and operations are yet to be defined or assessed. However, there is the potential to attract birds to Project infrastructure that could lead to increased risk of collisions and/or exhaustion resulting in grounding.

No flora species listed under the EPBC Act have been recorded within the Project Area or are considered likely to occur.

Threatened Ecological Communities

The Project will result in the direct loss of up to 1.341 hectares of the EPBC Act TEC *Subtropical and Temperate Coastal Saltmarsh (VU)* and may result in the modification of adjacent areas of the community over time through associated edge effects and/or indirect effects of sedimentation(Att 5, s10.2.1, p117). This community is listed as vulnerable under the EPBC Act and is therefore not a MNES for the purposes of Part 3 of the EPBC Act, according to the Significant Impact Guidelines 1.1. A significant impact criteria assessment has therefore not been undertaken for this community (Att 5, s10.2.1, p117).

4.1.4.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

Yes

4.1.4.5 Describe why you consider this to be a Significant Impact. *

Marine Ecology

An EPBC Act Significant Impact Criteria assessment was conducted for the EPBC Act listed species identified as potentially being present or having habitat present within the 15 km from the Project Area. The preliminary marine ecology assessment concluded that the Project is unlikely to have a significant impact on any of the identified EPBC Act listed species (Att 7, s11.1. p163).

Waterbirds

An EPBC Act Significant Impact Criteria assessment was conducted for 25 EPBC Act listed species that have been assessed as having a medium or higher likelihood of occurrence within the broader Western Port area. The following listed threatened species were assessed to possibly trigger a significant impact criteria (Att 6.2, s10.1.3, p168):

- Eastern Curlew (CE, Mi)
- Common Greenshank (CE, Mi)
- Curlew Sandpiper (CE, Mi)
- Black-tailed Godwit (E, Mi)
- Bar-tailed Godwit (E, Mi)
- Sharp-tailed Sandpiper (VU, Mi).

This has been determined on the basis that the proposed removal and reclamation of intertidal habitat may be considered to reduce the area of occupancy of the species, and/or adversely affect habitat critical to the survival of a species (Att 6.2, s10.3, p68).

However, the small extent of habitat removal, lack of current use of the Project Area, and localised nature of other effects makes it unlikely that the overall impacts to these listed threatened species will be significant. Further, it is unlikely that effects from noise and vibration, lighting, and disturbance to adjacent habitat will result in a significant impact to the above six listed waterbirds.

Threatened Flora and Fauna

The following six fauna species listed under the EPBC Act have either been recorded within the Project Area, or are considered to have a medium or higher likelihood of occurrence (Att 5, s.7.1.4, p96):

- Swamp Skink *Lissolepis coventryi* (endangered under EPBC Act and FFG Act).
- Orange-bellied Parrot *Neophema chrysogaster* (critically endangered under EPBC Act).
- Blue-winged Parrot *Neophema chrysostoma* (vulnerable under EPBC Act).
- White-throated Needletail *Hirundapus caudacutus* (vulnerable and migratory under EPBC Act, vulnerable under FFG Act).
- Grey-headed Flying-fox *Pteropus poliocephalus* (vulnerable under EPBC Act and FFG Act).
- Fork-tailed Swift *Apus pacificus* (migratory under EPBC Act).

An EPBC Act Significant Impact Criteria assessment was conducted for the six EPBC listed species listed above that are present on site or have been assessed as having a medium or higher likelihood of occurrence within the broader Western Port area.

Swamp Skink are present within the Project Area on the OTRA site in both the Coastal Saltmarsh and Tall Marsh vegetation. Suitable habitat is also present in Coastal Saltmarsh immediately south of the OTRA site and in Swamp Scrub intersecting Olivers Creek. This species will be directly impacted by the Project through habitat removal and potential mortality of individuals during vegetation clearing for construction. Swamp Skink are considered likely to be significantly impacted by the Project (Att 5, s7.1.4, p96). It is likely that the species also occurs throughout the surrounding area. Swamp Skink have previously been recorded to the south of the Project Area, along the rock wall supporting the Long Island Jetty, and databases indicate several species records from 2006 to 2010 immediately north, west and south of the Project Area (Att 5, s7.1.4, p97).

Potential indirect impacts may occur from disturbance to habitat resulting from changes to hydrological regimes, sedimentation, erosion and pollution, or displacement of individuals from construction in the Project Area. The results of the forthcoming hydrogeological and surface water impact assessments will be considered further in the context of indirect impacts to Swamp Skink habitat in the local area (Att 5, s7.1.4, p97).

The potential impacts on Swamp Skink were evaluated against the Significant Impact Criteria and concluded that the Project is likely to have a significant impact on Swamp Skink, as the Project (Att 5, s9.1, p111):

- Proposes to directly remove important habitat for Swamp Skink, including confirmed occupied habitat in the north and south of the OTRA site, and potential dispersal habitat through the OTRA site.
- Is likely to lead to a long-term reduction in available habitat, reduce the area occupied by Swamp Skink and adversely affect habitat critical to the survival of Swamp Skink through the direct removal of habitat.
- May result in population fragmentation by creating a dispersal barrier for individuals moving north and south within the Project Area and surrounding landscape.
- Has the potential to disrupt the breeding cycle of the population, as records of juveniles during targeted surveys suggest Swamp Skink is breeding within the Project Area.

The Project is considered unlikely to have a significant impact on Orange-bellied Parrot, Blue-winged parrot, White-throated Needletail, Grey-headed Flying-fox or Fork-tailed Swift for the following reasons (Att 5, s9.1, p111):

- Orange-bellied Parrot is considered to have a low likelihood of occurrence within the Project Area. The Project Area comprises a small component of low to moderate quality foraging resource for this species, and the broader geographic range of the species supports high availability of foraging resources
- Blue-winged Parrot has a high availability of foraging resources in the surrounding landscape, and the Project Area comprises a small component of low to moderate quality foraging resources for the species.
- White-throated Needletail may fly over or forage above the Project Area on occasion and may roost within trees on rare occasions. However, the species is predominantly considered an aerial species within Australia
- Grey-headed Flying-fox are assumed to utilise the Project Area on occasion for foraging; however, the extent of impact is limited to a small area of low to moderate quality potential foraging resources, and higher quality resources occur within the surrounding landscape. Further consideration of the temporary and ongoing impacts from noise and light pollution from the Project will be required as the data becomes available, however, with implementation of appropriate mitigations measures, this disturbance is unlikely to constitute a significant impact on the species
- Fork-tailed Swift is a wide ranging and highly mobile migratory species that may occasionally fly over the Project Area during the non-breeding season. The aerial behaviour of this species means they are not reliant on any particular terrestrial environment and are unlikely to be significantly impacted.

Threatened Ecological Communities

The Project will result in the direct loss and potential indirect loss of the EPBC Act TEC *Subtropical and Temperate Coastal Saltmarsh* (Att 5, s10.2.1, p117). This community is listed as vulnerable under the EPBC Act and is therefore not a MNES for the purposes of Part 3 of the EPBC Act, according to the Significant Impact Guidelines 1.1. A significant impact criteria assessment has therefore not been undertaken for this community (Att 5, s10.2.1, p117).

4.1.4.7 Do you think your proposed action is a controlled action? *

Yes

4.1.4.8 Please elaborate why you think your proposed action is a controlled action. *

Marine Ecology (Att 7, s11.1. p165)

Although seven threatened species were identified as potentially being present or having habitat present within 15 km of the Project Area and three of these threatened species were considered either known to occur or potentially occurring within 15 km from the Project Area, the significant impact assessment, conducted by RPS, concluded that the Project is unlikely to have a significant impact on all of the identified EPBC Act listed species.

Waterbirds (Att 6.2, s11.1.2, p170)

Although three EPBC listed threatened species were assessed to possibly trigger a significant impact criteria this has been determined on the basis that the proposed removal and reclamation of any intertidal habitat may be considered to reduce the area of occupancy of the species, and/or adversely affect habitat critical to the survival of a species. However, the small extent of habitat removal, lack of current use of the Project Area, and localised nature of other effects makes it unlikely that the overall impacts to these listed threatened species will be significant

Threatened flora and fauna (Att 5, s10.2, p114)

Although direct impacts to the Swamp Skink population and habitat within the Project Area cannot be avoided, an EPBC Offset Strategy has been developed to offset any residual significant impacts to Swamp Skink through a third-party offset. A suitable offset site that has known populations of Swamp Skink has been identified through discussions with an offset broker. PoHC are currently drafting a Memorandum of Understanding with the landowner to secure rights to the offset site (Att 9, p2).

4.1.4.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

At the current stage of the Project, further development and refinement of mitigation and contingency measures is required. Nevertheless, the key recommended measures for Swamp Skink are outlined in Att 5 (s8.1, p107-110). This includes developing a project-specific protocol for clearing of Swamp Skink habitat.

The mitigation measures (described previously) that are proposed to be implemented to reduce potential impacts to the ecological character of the Western Port Ramsar site, are also relevant to mitigating impacts to threatened species.

4.1.4.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

Offset requirements for Swamp Skink would be offset through a third-party offset. PoHC is currently in discussions with an offset broker to potentially secure an offset site in Gippsland, Victoria that has a known population for Swamp Skink. A Memorandum of Understanding is currently being drafted that will allow PoHC to reserve rights to the offset site whilst the Project seeks approval under the EPBC Act (Att 9, s5.1, p31).

An offset framework has been developed to assist with the assessment of Swamp Skink offsets using the EPBC Offset Assessment Guide (Att 9, s5.2, p16). The assessment would be done using the 'Area of Habitat' function in the Offset Assessment Guide.

4.1.5 Migratory Species

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Species	Common name
Yes	No	Actitis hypoleucos	Common Sandpiper
Yes	No	Apus pacificus	Fork-tailed Swift
No	Yes	Ardenna carneipes	Flesh-footed Shearwater, Fleshy-footed Shearwater
No	Yes	Ardenna grisea	Sooty Shearwater
Yes	No	Ardenna tenuirostris	Short-tailed Shearwater
Yes	Yes	Arenaria interpres	Ruddy Turnstone
Yes	Yes	Calidris acuminata	Sharp-tailed Sandpiper
Yes	Yes	Calidris canutus	Red Knot, Knot
Yes	Yes	Calidris ferruginea	Curlew Sandpiper
Yes	No	Calidris melanotos	Pectoral Sandpiper
Yes	No	Calidris ruficollis	Red-necked Stint
Yes	Yes	Calidris tenuirostris	Great Knot
No	No	Caperea marginata	Pygmy Right Whale
No	No	Carcharias taurus	Grey Nurse Shark
No	No	Carcharodon carcharias	White Shark, Great White Shark
No	No	Caretta caretta	Loggerhead Turtle
No	No	Charadrius bicinctus	Double-banded Plover
No	Yes	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover
No	Yes	Charadrius mongolus	Lesser Sand Plover, Mongolian Plover
No	No	Chelonia mydas	Green Turtle
No	Yes	Chlidonias leucopterus	White-winged Tern, White-winged Black Tern
No	No	Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth

Direct impact	Indirect impact	Species	Common name
No	No	Diomedea antipodensis	Antipodean Albatross
No	No	Diomedea epomophora	Southern Royal Albatross
No	No	Diomedea exulans	Wandering Albatross
No	No	Diomedea sanfordi	Northern Royal Albatross
Yes	Yes	Eubalaena australis	Southern Right Whale
Yes	Yes	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
No	No	Gallinago megala	Swinhoe's Snipe
No	No	Gallinago stenura	Pin-tailed Snipe
Yes	No	Hirundapus caudacutus	White-throated Needletail
Yes	No	Hydroprogne caspia	Caspian Tern
No	No	Lagenorhynchus obscurus	Dusky Dolphin
No	No	Lamna nasus	Porbeagle, Mackerel Shark
Yes	No	Limicola falcinellus	Broad-billed Sandpiper
Yes	Yes	Limosa lapponica	Bar-tailed Godwit
No	Yes	Limosa limosa	Black-tailed Godwit
No	Yes	Macronectes giganteus	Southern Giant-Petrel, Southern Giant Petrel
No	Yes	Macronectes halli	Northern Giant Petrel
No	No	Megaptera novaeangliae	Humpback Whale
No	No	Motacilla flava	Yellow Wagtail
Yes	Yes	Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew
No	No	Numenius minutus	Little Curlew, Little Whimbrel
Yes	No	Numenius phaeopus	Whimbrel
No	No	Phoebetria fusca	Sooty Albatross
Yes	No	Pluvialis fulva	Pacific Golden Plover
No	Yes	Pluvialis squatarola	Grey Plover
No	Yes	Stercorarius parasiticus	Arctic Jaeger, Arctic Skua

Direct impact	Indirect impact	Species	Common name
Yes	No	Sternula albifrons	Little Tern
No	No	Thalassarche bulleri	Buller's Albatross, Pacific Albatross
No	Yes	Thalassarche carteri	Indian Yellow-nosed Albatross
No	Yes	Thalassarche cauta	Shy Albatross
No	Yes	Thalassarche chrysostoma	Grey-headed Albatross
No	No	Thalassarche impavida	Campbell Albatross, Campbell Black-browed Albatross
No	Yes	Thalassarche melanophris	Black-browed Albatross
No	No	Thalassarche salvini	Salvin's Albatross
No	Yes	Thalassarche steadi	White-capped Albatross
No	No	Tringa brevipes	Grey-tailed Tattler
No	Yes	Tringa glareola	Wood Sandpiper
No	No	Tringa incana	Wandering Tattler
Yes	Yes	Tringa nebularia	Common Greenshank, Greenshank
No	Yes	Tringa stagnatilis	Marsh Sandpiper, Little Greenshank
Yes	Yes	Xenus cinereus	Terek Sandpiper

4.1.5.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.5.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

Marine Ecology

The migratory marine species identified as potentially being present or having habitat present within the 15 km from the Project Area and its surrounds, will either utilise the Project Area in a similar manner to listed marine species (i.e. humpback whale and white shark) or are considered unlikely to occur within the Project Area. Subsequently, the potential direct and indirect impacts to migratory marine species will be consistent with those identified above for threatened marine species.

Waterbirds

Migratory waterbirds will utilise the Project Area and its surrounds in a similar manner to listed waterbirds (with many species being both threatened and migratory) and as a result, the potential direct and indirect impacts to migratory birds will be consistent with those identified. It should also be noted that the construction of the Terminal does not have the capacity to disrupt migratory movements due to its small extent, localised nature and the current under utilisation of the waterbird habitat proposed to be removed.

Terrestrial Ecology

The only migratory terrestrial fauna that are considered to have a medium or higher likelihood of occurrence are also threatened species listed under the EPBC Act. As such, potential impacts to migratory terrestrial fauna are discussed above.

4.1.5.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

Yes

4.1.5.5 Describe why you consider this to be a Significant Impact. *

Marine Species

Ten migratory species have been identified (including threatened species) as having the potential to occur within 15 km of the Project Area. Of these species only the humpback whale and the white shark are known to occur or considered to potentially occur within 15 km from the Project Area, respectively (Att 7, s6, p106-112).

Due to their transient nature, and relatively sparse amount of breeding or feeding habitat within the vicinity of the Project it is considered unlikely that both the humpback whale and white shark would be present within the vicinity of the Project Area. The preliminary marine ecology assessment concluded that the Project is unlikely to have a significant impact on any of the identified EPBC Act listed migratory species (Att 7, s6, p106-112).

Waterbirds

The construction of the Terminal will result in removal of defined important habitat for migratory shorebirds. All habitats for migratory shorebirds within the Western Port Ramsar site meet the criteria for important habitat as defined in EPBC Act Policy Statement 3.21—*Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species* by virtue of the designation of the Ramsar site (Att 6.2, s8.1.1, p142).

The Project has been assessed as likely to meet the criteria 'areas of the wetland being destroyed or substantially modified'. The proposed action is therefore likely to result in a significant impact to migratory species by resulting in the removal or substantial modification of areas that meet the definition of important habitat (Att 6.2, s10.1.1, p167).

In addition, the Western Port Ramsar site is also listed as an Important Bird Area (BirdLife International) on the basis that it regularly supports more than 1% of the global population of Red-necked Stint, Eastern Curlew, and Pied Oystercatcher, which have been recorded foraging and/or roosting within close proximity of the proposed action (Att 6.2, s8.4, p160).

Marine Species and Terrestrial Fauna

As above, The Project is considered unlikely to have a significant impact on White-throated Needletail or Fork-tailed Swift for the following reasons (Att 5, s9.1, p112):

- White-throated Needletail may fly over or forage above the Project Area on occasion and may roost within trees on rare occasions. However, the species is predominantly considered an aerial species within Australia

Fork-tailed Swift is a wide ranging and highly mobile migratory species that may occasionally fly over the Project Area during the non-breeding season. The aerial behaviour of this species means they are not reliant on any particular terrestrial environment and are unlikely to be significantly impacted.

4.1.5.7 Do you think your proposed action is a controlled action? *

Yes

4.1.5.8 Please elaborate why you think your proposed action is a controlled action. *

Marine Ecology

Humpback whale

Western Port does not serve as a reproductive area of biological importance (BIA) for mating, migration or resting for the humpback whale. Humpback whale primarily forage in sub-Antarctic waters but may forage opportunistically while migrating through Australian waters during their winter breeding migration. The majority of feeding in Australian coastal waters has been recorded in areas in Queensland, New South Wales and Western Australia, though sightings that may be associated with feeding have been observed in Victorian waters (Att 7, s6.1.1, p106).

A small number of transient humpback whales have been recorded within Western Port in most winters, with some of these records occurring within the Port of Hastings. There is no evidence available to suggest that Western Port is utilised as a breeding or calving area for humpback whales, rather occasional individuals visit Western Port for short periods (Att 7, s6.1.1, p106).

Lower North Arm including the Terminal Project Area is not considered important habitat for humpback whales due to the strong tidal currents and extensive intertidal mudflats. These conditions make it unsuitable for foraging, resting or breeding behaviours by humpback whale (Att 7, s6.1.1, p106).

White shark

Western Port does not serve as a reproductive area of biological importance (BIA) for mating, nor is it recognised as a nursery for the white shark. The closest known nursery area for this species in Victoria is located in Corner Inlet (Att 7, s6.1.2, p110).

The highest risk threats to the white shark population in Australian waters include mortality related to fisheries bycatch or illegal fishing and mortality related to shark control activities such as beach meshing or drumlining. These impact pathways are not relevant to the Terminal Project (Att 7, s6.1.2, p110).

As Western Port is not considered to be utilised by white sharks for foraging or breeding and Terminal Project Activities do not cause or exacerbate high risk threats, there is negligible impact to the white shark population (Att 7, s6.1.2, p110).

Furthermore, ten migratory species were identified as potentially being present or having habitat present within 15 km of the Project Area the significant impact assessment, conducted by RPS, concluded that the Project is unlikely to have a significant impact on all of the identified EPBC Act listed migratory species.

Waterbirds

Biosis' Waterbirds Preliminary Impact Assessment (Att 6) determined that the Project is likely to have a significant impact on listed migratory species because all habitats for migratory shorebirds within the Western Port Ramsar site meet the criteria for important habitat, and removal of any area of the wetland (Western Port Ramsar site) would constitute a significant impact under industry guidelines. In addition, the Western Port Ramsar site is also listed as regularly supports more than 1% of the global population of Red-necked Stint, Eastern Curlew, and Pied Oystercatcher (BirdLife International). However, while some impacts have been identified that meet defined significant impact criteria, it is expected that none of these impacts will be at an unacceptable level. (Att 6.1, S11.2, p172). This has been determined on the basis that the small extent of habitat removal, lack of current use of the Project Area, and localised nature of other effects makes it unlikely that the overall impacts to these migratory species will be significant. Furthermore, no migratory waterbird species (with the exception of the six listed species discussed above) were assessed to possibly trigger a significant impact criteria.

4.1.5.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

The mitigation measures identified for the EPBC Act listed species are considered relevant to managing potential impact to migratory species.

4.1.5.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

Offsets for migratory species where required will be calculated at a later stage in the design.

4.1.6 Nuclear

4.1.6.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.6.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The project is not a nuclear action.

4.1.7 Commonwealth Marine Area

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.7.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.7.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The shipping movements to and from the Terminal will pass by Defence land HMAS CERBERUS and will be less than 1 km from WEST HEAD GUNNERY RANGE which is Commonwealth land. Shipping movement will be within an existing shipping channel and is unlikely to result in impact on Commonwealth land.

4.1.8 Great Barrier Reef

4.1.8.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.8.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Terminal Project is not located near the Great Barrier Reef.

4.1.9 Water resource in relation to large coal mining development or coal seam gas

4.1.9.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.9.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The project is not in relation to large coal mining development or coal seam gas.

4.1.10 Commonwealth Land

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.10.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.10.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The shipping movements to and from the Terminal will pass by Defence land HMAS CERBERUS and will be less than 1 km from WEST HEAD GUNNERY RANGE which is Commonwealth land. Shipping movement will be within an existing shipping channel and is unlikely to result in impact on Commonwealth land.

4.1.11 Commonwealth Heritage Places Overseas

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.11.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.11.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no heritage places within 10 km of the Terminal Project.

4.1.12 Commonwealth or Commonwealth Agency

4.1.12.1 Is the proposed action to be taken by the Commonwealth or a Commonwealth Agency? *

No

4.2 Impact summary

Conclusion on the likelihood of significant impacts

You have indicated that the proposed action will likely have a significant impact on the following Matters of National Environmental Significance:

- Ramsar Wetland (S16)
- Threatened Species and Ecological Communities (S18)
- Migratory Species (S20)

Conclusion on the likelihood of unlikely significant impacts

You have indicated that the proposed action will unlikely have a significant impact on the following Matters of National Environmental Significance:

- World Heritage (S12)
- National Heritage (S15B)
- Nuclear (S21)
- Commonwealth Marine Area (S23)
- Great Barrier Reef (S24B)
- Water resource in relation to large coal mining development or coal seam gas (S24D)
- Commonwealth Land (S26)
- Commonwealth Heritage Places Overseas (S27B)
- Commonwealth or Commonwealth Agency (S28)

4.3 Alternatives

4.3.1 Do you have any possible alternatives for your proposed action to be considered as part of your referral? *

No

4.3.8 Describe why alternatives for your proposed action were not possible. *

An assessment was undertaken by the Department of Transport and Planning (DTP), with expertise across ports and supply chain logistics, OSW energy, environment and planning.

The assessment was produced in consultation with OSW developers, to assess the relative strengths of agreed ports to provide services for OSW proponents. The following requirements for OSW proponents were identified through this consultation:

- The need for 'a construction port to receive imported components from heavy lift vessels, assemble installation ready modules and to provide a home port base for installation vessels during construction campaigns'
- The need for deep channels so that installation vessels can safely access the port with minimal dwell time, as well as access to long and deep berths for loading and unloading components
- A large area of assembly and construction land adjoining the berth for easy loading and unloading. This area would also need to be strong enough to support the heavy componentry.

Furthermore, the chosen port would need to have limited competition with existing trades, which could delay development due to existing contracts.

The scope of the assessment did not include the many smaller Victorian local ports which do not have the necessary characteristics to support the scale and time line of OSW, or that would require development of a substantial new green field port.

The assessment concluded that "…the Port of Hastings is best placed to provide unimpeded access to OSW construction projects", where OSW construction projects in this context includes both OSW development in Victoria's Gippsland and Southern Ocean declared offshore wind areas.

The rationale for why Port of Hastings includes:

- Distance from Offshore Wind Zones: The Port of Hastings is the closest Victorian port to the Gippsland declared area. Proximity to the declared area allows for reduced sail times between the port and development area, reducing installation times and supply chain risks. This would lead to better outcomes for developers based on time and cost through minimising the potential impacts of weather on the construction program, and reducing the potential impact of the high rates for chartering specialist installation vessels.
- Deep channel: The channel into Western Port to reach the Port of Hastings meets shipping requirements of OSW developments. The channel is naturally wide and deep and tidal flows mean that it would require minimal maintenance dredging. In comparison, the channel to the Port of Geelong is long, single-lane and tidally constrained for larger vessels. It is also frequented by the Spirit of Tasmania and other trades, which could limit vessel capacity and movement during OSW construction and increase vessel chartering costs and logistic chain uncertainty.
- Available land: The Port of Hastings is the only assessed port with a feasibly large, suitably shaped and appropriately zoned site available adjacent to deep waters with the potential to be developed for OSW. These requirements are needed to develop an assembly and construction port that can fulfill the State's OSW targets. Port of Hastings also has an area large enough to store components manufactured overseas, protecting developers from supply chain risks. The Port of Hastings is supported by a labour catchment favourable to the constructions and operation of an OSW port and future OSW industry development.
- Ownership model: The Port of Hastings is operated by a government owned commercial entity, the Port of Hastings Corporation. As opposed to privately owned ports, it is subject to direction from State Government decisions and obligated to support State Government policy and necessary timelines. Developing a purpose-built OSW construction and assembly terminal and ensuring its future offshore wind development objectives could be difficult if there were competing commercial interests for the land and adjoining berth. All other ports assessed are privately owned, with competing existing trades that would likely require negotiation and may increase the time until a port is developed, and reduce logistics chain certainty for OSW developers.

The assessment found that there was no existing port in the viable vicinity of Victoria's declared offshore wind zones that had the available berths or land facilities to meet the requirements sought by the OSW project proponents. The assessment concluded that the Port of Hastings was the most feasible option to support construction of OSW projects in Victoria. See Att 4.

Design Development

The Terminal design has been developed through an iterative process across multiple phases to assess a range of alternatives and refine preferred options (Att 18). The following sections highlight the outcomes for each component.

Operational area and berth structure

Nine terminal forms/designs for the OTRA site were initially assessed to identify potential solutions that minimise environmental impacts whilst achieving the necessary functional outcomes. These included consideration of a perpendicular wharf, development of neighbouring land at BlueScope and/or Esso, various locations for the quay wall and various types of wharf.

The land backed quay wall was taken forward as the preferred option. The key functional requirement met by this option was the storage area of 26.4ha, which resulted in a total terminal area of 43ha (including 6ha for circulation, 6ha for quay apron and 2ha for offices and service areas).

Discrete event simulation was undertaken to model the storage area required for a typical OSW farm development. It was assumed that a minimum of 20% of components (for each of the foundation and turbine installation phases) were available in storage before installation began. The land backed quay wall option could sustain 20% of component stockpile (Att 18, Table 1).

Quay wall

The concrete caisson and twin wall quay structure were taken forward to the 10% design stage for detailed evaluation by engineers and technical specialists. The key differentiator in ecological impacts for the two options related to dredging. Dredging is required to facilitate construction to establish the retaining structure, berth pocket, approach channel and swing basin for the Terminal. The caisson design would require dredging of an area 1.54ha larger and a volume around 585,000m3 greater than the twin-wall quay design.

Potential adverse impacts on seagrass due to dredging required for the caisson design were substantial and this led to the exclusion of the option Att 7. Seagrasses are a critical component of the ecological character of the Western Port Ramsar site and support other critical components and services. There is potential for reduced productivity of seagrasses over a large area and for a long duration with the caisson design. Additionally, there is a risk that combined effects of sedimentation and turbidity will lead to intertidal seagrass mortality in some of the area affected by sedimentation. The preliminary impact assessment also found that there is potential for fine sediment loads released by capital dredging for the caisson design to delay predicted improvements to water quality in the wetland.

In comparison, the potential impacts of the twin wall quay structure across marine ecology, waterbirds and coastal processes indicated that that the impacts to the Ramsar site would be localised and largely restricted to the disturbance footprint and immediate vicinity within the existing industrial port precinct and broader impacts to the ecological character of the Western Port Ramsar site are not expected (Att 8). As the design progresses, variations of the twin wall quay structure will be investigated. The twin wall quay structure as currently shown is largely constructed by floating plant (pile driving rigs on barges) but an alternative piled structure arrangement is to undertake all reclamation works initially and then construct the quay wall by land-based piling rigs. This alternative, along with other variations on the twin wall quay structure option will be assessed in detail during the impact assessment process to determine the optimal solution.

Ground Improvement

Ground improvement is required to ensure the ground surface is sufficient to handle the heavy loads of OSW equipment. Surcharging, dynamic compaction and soil mixing/mudcreting provide cost-effective, environmentally conscious, and technically robust ground improvement strategies that can be tailored to the diverse geotechnical profiles likely to be found at the site. (Further details in Section 4 of Att 18)

Pavement Design

Unsealed granular pavement is the preferred pavement option scoring highly across environmental, economic and delivery criteria.

Dredging

Two options were preferred for dredging and disposal. These options were the use of a medium and large backhoe dredger and loading hopper barges with material to be transported to the new reclamation area. These options were preferable over others due to the:

- Ability to control dredge plume generation
- Reuse of all dredged material in the new reclamation area therefore no offsite disposal of dredged material and reduced import of fill
- No return of excess water from dredged material to Western Port.

Swing Basin

Locating the swing basin adjacent to the berth would allow the most efficient movement of vessels with minimal reversing required (if any). This option was considered the optimal option from a dredging, cost and operational impact perspective and is the preferred option.

Reductions in reclamation and dredging since initial referral

Following the “clearly unacceptable decision in 2023, the size of the reclamation has substantially reduced from 29ha to 18.0ha, achieving a ~35% reduction. The dredging envelope has also been substantially reduced, resulting in a ~ 70% reduction in area.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1_Statement of Reasons.pdf This document sets out how the modified design and impact assessments for the Terminal Project specifically addresses the issues identified in the Minister's Statement of Reasons.	26/05/2025	No	High
#2.	Document	Att 2_Project Description.pdf Provides a summary of the Victorian Renewable Energy Terminal Project	13/06/2025	No	High

1.2.6 Commonwealth or state legislation, planning frameworks or policy documents that are relevant to the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 4_Why Port of Hastings.pdf This document provides a summary of why Port of Hastings was selected as the preferred Port for Offshore wind in Victoria	06/06/2025		High
#2.	Document	Att 5_Onshore Ecology PIA.pdf Provides a summary of the existing ecological values and preliminary impacts from the project	05/05/2025	No	High
#3.	Document	Att 6.1_Waterbirds PIA Part 1.pdf Part one of the Preliminary impact assessment undertaken for Waterbirds	31/01/2025	No	High
#4.	Document	Att 6.2_Waterbirds PIA Part 2.pdf Part two of the Preliminary impact assessment undertaken for Waterbirds	30/01/2025	No	High
#5.	Document	Att 7a-e_Marine Ecology PIA Appendices.pdf Appendices for the Marine Ecology Preliminary Impact Assessment report	19/05/2025	No	High
#6.	Document	Att 8_Impacts on ECD.pdf This attachment provides a preliminary assessment of the potential impacts of the Project on the Western Port Ramsar Site	27/05/2025	No	High
#7.	Document	Att 9_Offset Strategy.pdf The document provides strategy for Offsetting impacts from the project	15/05/2025	No	High
#8.	Document	Att3_Offshore Wind Sector.pdf Provides a summary of port requirements for offshore wind	13/06/2025	No	High

#9.	Document	Att7_Marine Ecology PIA.pdf Marine Ecology Preliminary Impact Assessment of the project	19/05/2025	No	High
#10.	Link	Offshore Wind Energy Implementation Statement 1 https://www.energy.vic.gov.au/__data/assets/pdf_..			High
#11.	Link	Offshore Wind Energy Implementation Statement 2 https://www.energy.vic.gov.au/__data/assets/pdf_..			High
#12.	Link	Offshore Wind Energy Implementation Statement 3 https://www.energy.vic.gov.au/__data/assets/pdf_..			High
#13.	Link	Offshore Wind Energy Implementation Statement 4 https://www.energy.vic.gov.au/__data/assets/pdf_..			High
#14.	Link	Victorian Commercial Ports Strategy https://view.officeapps.live.com/op/view.aspx?sr..			High

1.2.7 Public consultation regarding the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 10_Consultation Summary.pdf Provides a summary of consultation undertaken for the project	16/01/2025	No	High
#2.	Document	Att 14_Cultural Values Recommendations.pdf Implementation of the Cultural Values Recommendations, summary of the progress to date.	09/10/2024	No	High

1.3.2.18 (Person proposing to take the action) If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 11_Environment Policy.pdf Port of Hastings Corporation Environment Policy, May 2025.	26/05/2025	No	High

3.1.2 Existing or proposed uses for the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 12_WP Dredging and Reclamation History.pdf Provides a summary of publicly documented dredging and reclaimation in Western Port	31/01/2025	No	High

3.1.3 Natural features, important or unique values that applies to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 5_Onshore Ecology PIA.pdf Provides a summary of the existing ecological values and preliminary impacts from the project	04/05/2025	No	High
#2.	Document	Att 6.1_Waterbirds PIA Part 1.pdf Part one of the Preliminary impact assessment undertaken for Waterbirds	30/01/2025	No	High
#3.	Document	Att 6.2_Waterbirds PIA Part 2.pdf Part two of the Preliminary impact assessment undertaken for Waterbirds	29/01/2025	No	High
#4.	Document	Att7_Marine Ecology PIA.pdf Marine Ecology Preliminary Impact Assessment of the project	18/05/2025	No	High

3.2.1 Flora and fauna within the affected area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 5_Onshore Ecology PIA.pdf Provides a summary of the existing ecological values and preliminary impacts from the project	04/05/2025	No	High
#2.	Document	Att 6.1_Waterbirds PIA Part 1.pdf Part one of the Preliminary impact assessment undertaken for Waterbirds	30/01/2025	No	High
#3.	Document	Att 6.2_Waterbirds PIA Part 2.pdf Part two of the Preliminary impact assessment undertaken for Waterbirds	29/01/2025	No	High
#4.	Document	Att7_Marine Ecology PIA.pdf Marine Ecology Preliminary Impact Assessment of the project	18/05/2025	No	High

3.2.2 Vegetation within the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document				

Att 13_Geotech Reports.pdf Marine and Terrestrial Geotechnical and Environmental Investigation Reports.			30/10/2024	No	High
#2.	Document	Att 5_Onshore Ecology PIA.pdf Provides a summary of the existing ecological values and preliminary impacts from the project	04/05/2025	No	High
#3.	Document	Att 6.2_Waterbirds PIA Part 2.pdf Part two of the Preliminary impact assessment undertaken for Waterbirds	29/01/2025	No	High
#4.	Document	Att7_Marine Ecology PIA.pdf Marine Ecology Preliminary Impact Assessment of the project	18/05/2025	No	High

3.3.2 Indigenous heritage values that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 14_Cultural Values Recommendations.pdf Implementation of the Cultural Values Recommendations, summary of the progress to date.	10/10/2024	No	High
#2.	Link	Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters https://www.dcceew.gov.au/parks-heritage/heritag..			High

3.4.1 Hydrology characteristics that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 13_Geotech Reports.pdf Marine and Terrestrial Geotechnical and Environmental Investigation Reports.	29/10/2024	No	High
#2.	Document	Att 15_Surface Water EC.pdf Provides a summary of surface water existing conditons on the project site	31/01/2025	No	High
#3.	Document	Att 16_Groundwater EC.pdf Provides a summary of groundwater existing conditions at the project site	16/01/2025	No	High
#4.	Document	Att 17_Coastal Processes PIA.pdf Provides a summary of preliminary impacts of the project on coastal processes	05/02/2025	No	High

#5.	Document	Att 17a_Geology and Geomorphology.pdf Appendix A of the Coastal processes PIA includes a literature review of Western Port	02/02/2025	No	High
#6.	Document	Att 17b_Catchment Model.pdf Appendix B to the Coastal Processes Assessment - Provide a Catchment Model for Western Port	05/02/2025	No	High
#7.	Document	Att 17c_Sediment Settling Behaviour.pdf Appendix C to the Coastal Process preliminary impact assessment and includes sediment settlement behaviour investigation report	02/02/2025	No	High
#8.	Document	Att 17c-a Marine Sediment RE2.pdf Appendix C-A of Attachment 17 - Marine Sediment	02/02/2025	No	High
#9.	Document	Att 17c-b Marine Sediment RE8.pdf Appendix C-B of Attachment 17 - Marine Sediment RE8	05/02/2025	No	High
#10.	Document	Att 17c-c Residual Sediment CB1_CB2.pdf Appendix C-C of Attachment 17 - Residual Sediment Cb1/Cb2	05/02/2025	No	High
#11.	Document	Att 17c-d Residual Sediment S1.pdf Appendix C-D of Attachment 17 - Residual Sediment S1	05/02/2025	No	High
#12.	Document	Att 17c-e Residual Sediment RE5.pdf Appendix C-E of Attachment 17 - Residual Sediment RE5	05/02/2025	No	High
#13.	Document	Att 17c-f Calibration certificate.pdf Appendix C-F of Attachment 17 - Calibration Certificate and Lab results	05/02/2025	No	High
#14.	Document	Att 17c-g QA QC Test.pdf Appendix C-G of Attachment 17 - Quality Assurance and Control Tests	05/02/2025	No	High
#15.	Document	Att 17d_Spectral Wave Model.pdf Appendix D to Attachment 17 includes spectral wave model for Western Port	05/02/2025	No	High
#16.	Document	Att 17e_Hydrodynamic Model.pdf Appendix E to Attachment 17 includes hydrodynamic model for Western Port	05/02/2025	No	High
#17.	Document	Att 17f_Ambient Suspended Sediment Model.pdf	05/02/2025	No	High

		Appenidx F to Attachment 17 includes representative ambient suspended sediment concerntration model for Western Port			
#18.	Document	Att 17g_Sediment Source Model.pdf Appendix G of Attachment 17 provides source terms for the dredge plume modelling	05/02/2025	No	High
#19.	Document	Att 17h_Risk Screening.pdf Appendix H to Attachment 17 provides the risk screening assessment	05/02/2025	No	High
#20.	Document	Att 8_Impacts on ECD.pdf This attachment provides a preliminary assessment of the potential impacts of the Project on the Western Port Ramsar Site	26/05/2025	No	High
#21.	Document	Att7_Marine Ecology PIA.pdf Marine Ecology Preliminary Impact Assessment of the project	18/05/2025	No	High

4.1.3.2 (Ramsar Wetland) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 8_Impacts on ECD.pdf This attachment provides a preliminary assessment of the potential impacts of the Project on the Western Port Ramsar Site	26/05/2025	No	High

4.1.3.5 (Ramsar Wetland) Why you consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 8_Impacts on ECD.pdf This attachment provides a preliminary assessment of the potential impacts of the Project on the Western Port Ramsar Site	26/05/2025	No	High

4.1.3.8 (Ramsar Wetland) Why you think your proposed action is a controlled action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 17_Coastal Processes PIA.pdf Provides a summary of preliminary impacts of the project on coastal processes	04/02/2025	No	High
#2.	Document	Att 5_Onshore Ecology PIA.pdf Provides a summary of the existing	04/05/2025	No	High

		ecological values and preliminary impacts from the project			
#3.	Document	Att 6.2_Waterbirds PIA Part 2.pdf Part two of the Preliminary impact assessment undertaken for Waterbirds	29/01/2025	No	High
#4.	Document	Att 8_Impacts on ECD.pdf This attachment provides a preliminary assessment of the potential impacts of the Project on the Western Port Ramsar Site	26/05/2025	No	High
#5.	Document	Att7_Marine Ecology PIA.pdf Marine Ecology Preliminary Impact Assessment of the project	18/05/2025	No	High

4.1.3.10 (Ramsar Wetland) Avoidance or mitigation measures proposed for this action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 5_Onshore Ecology PIA.pdf Provides a summary of the existing ecological values and preliminary impacts from the project	04/05/2025	No	High
#2.	Document	Att 6.1_Waterbirds PIA Part 1.pdf Part one of the Preliminary impact assessment undertaken for Waterbirds	30/01/2025	No	High
#3.	Document	Att 6.2_Waterbirds PIA Part 2.pdf Part two of the Preliminary impact assessment undertaken for Waterbirds	29/01/2025	No	High
#4.	Document	Att7_Marine Ecology PIA.pdf Marine Ecology Preliminary Impact Assessment of the project	18/05/2025	No	High

4.1.3.11 (Ramsar Wetland) Proposed offsets relevant to avoidance or mitigation measures

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 9_Offset Strategy.pdf The document provides strategy for Offsetting impacts from the project	14/05/2025	No	High

4.1.4.2 (Threatened Species and Ecological Communities) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 5_Onshore Ecology PIA.pdf Provides a summary of the existing ecological values and preliminary impacts from the project	04/05/2025	No	High

#2.	Document	Att 6.2_Waterbirds PIA Part 2.pdf Part two of the Preliminary impact assessment undertaken for Waterbirds	29/01/2025	No	High
#3.	Document	Att7_Marine Ecology PIA.pdf Marine Ecology Preliminary Impact Assessment of the project	18/05/2025	No	High

4.1.4.5 (Threatened Species and Ecological Communities) Why you consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 5_Onshore Ecology PIA.pdf Provides a summary of the existing ecological values and preliminary impacts from the project	04/05/2025	No	High
#2.	Document	Att 6.2_Waterbirds PIA Part 2.pdf Part two of the Preliminary impact assessment undertaken for Waterbirds	29/01/2025	No	High
#3.	Document	Att7_Marine Ecology PIA.pdf Marine Ecology Preliminary Impact Assessment of the project	18/05/2025	No	High

4.1.4.8 (Threatened Species and Ecological Communities) Why you think your proposed action is a controlled action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 5_Onshore Ecology PIA.pdf Provides a summary of the existing ecological values and preliminary impacts from the project	04/05/2025	No	High
#2.	Document	Att 6.2_Waterbirds PIA Part 2.pdf Part two of the Preliminary impact assessment undertaken for Waterbirds	29/01/2025	No	High
#3.	Document	Att 9_Offset Strategy.pdf The document provides strategy for Offsetting impacts from the project	14/05/2025	No	High
#4.	Document	Att7_Marine Ecology PIA.pdf Marine Ecology Preliminary Impact Assessment of the project	18/05/2025	No	High

4.1.4.10 (Threatened Species and Ecological Communities) Avoidance or mitigation measures proposed for this action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 5_Onshore Ecology PIA.pdf Provides a summary of the existing ecological values and preliminary impacts from the project	04/05/2025	No	High

4.1.4.11 (Threatened Species and Ecological Communities) Proposed offsets relevant to avoidance or mitigation measures

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 9_Offset Strategy.pdf The document provides strategy for Offsetting impacts from the project	14/05/2025	No	High

4.1.5.5 (Migratory Species) Why you consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 5_Onshore Ecology PIA.pdf Provides a summary of the existing ecological values and preliminary impacts from the project	04/05/2025	No	High
#2.	Document	Att 6.2_Waterbirds PIA Part 2.pdf Part two of the Preliminary impact assessment undertaken for Waterbirds	29/01/2025	No	High
#3.	Document	Att7_Marine Ecology PIA.pdf Marine Ecology Preliminary Impact Assessment of the project	18/05/2025	No	High

4.1.5.8 (Migratory Species) Why you think your proposed action is a controlled action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 6.1_Waterbirds PIA Part 1.pdf Part one of the Preliminary impact assessment undertaken for Waterbirds	30/01/2025	No	High
#2.	Document	Att7_Marine Ecology PIA.pdf Marine Ecology Preliminary Impact Assessment of the project	18/05/2025	No	High

4.3.8 Why alternatives for your proposed action were not possible

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 18_Project Design Development.pdf Provides an overview of project alternatives and designs considered.	19/05/2025	No	High
#2.	Document	Att 4_Why Port of Hastings.pdf This document provides a summary of why Port of Hastings was selected as the preferred Port for Offshore wind in Victoria	05/06/2025		High
#3.	Document	Att 8_Impacts on ECD.pdf This attachment provides a preliminary assessment of the potential impacts of the Project on the Western Port Ramsar Site	26/05/2025	No	High

#4.	Document	Att7_Marine Ecology PIA.pdf Marine Ecology Preliminary Impact Assessment of the project	18/05/2025	No	High

5.2 Declarations

Completed Referring party's declaration

The Referring party is the person preparing the information in this referral.

ABN/ACN	33737350749
Organisation name	PORT OF HASTINGS CORPORATION
Organisation address	1d Stony Point Road, Crib Point
Representative's name	Natasha Reifschneider
Representative's job title	Approvals Manager
Phone	03 5979 5500
Email	Natasha.r@portofhastings.vic.gov.au
Address	1d Stony Point Road, Crib Point

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ By checking this box, I, **Natasha Reifschneider of PORT OF HASTINGS CORPORATION**, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

Completed Person proposing to take the action's declaration

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	33737350749
Organisation name	PORT OF HASTINGS CORPORATION
Organisation address	1d Stony Point Road, Crib Point
Representative's name	Matt Thorpe

Representative's job title	Chief Executive Officer
Phone	03 5979 5500
Email	management@portofhastings.vic.gov.au
Address	1d Stony Point Road, Crib Point

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Matt Thorpe of PORT OF HASTINGS CORPORATION**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

✔ Completed Proposed designated proponent's declaration

The Proposed designated proponent is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Matt Thorpe of PORT OF HASTINGS CORPORATION**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

☐ I would like to receive notifications and track the referral progress through the EPBC portal. *