10.0 Coastal Issues and Soils

10.1 Existing Conditions

Coastal acid sulfate soils (CASS) occur naturally along many parts of Victoria's coastal zone, including Gippsland, and are largely benign if left undisturbed. However, if disturbed they can react with oxygen and produce sulfuric acid. This can be detrimental to the environment through impacts such as acidification of water and soil, de-oxygenation of water, and poor water quality. The generation of acid through inappropriate management of acid sulfate soils can also result in damage to concrete and steel. Coastal acid sulfate soils may be encountered both onshore and offshore depending on geological and historical conditions of the site.

A review of the Victorian Coastal Acid Sulfate Soil (VCASS) maps for far south-west Victoria indicates the coastline where option 2 of the subsea cabling lands has potential to contain acid sulfate soils, as this area is mapped as 'prospective'. **Figure 10.1** shows the location of prospective acid sulfate soils within the onshore Study Area. This area is the southernmost point of the Glenelg Estuary and Discovery Bay Ramsar Wetlands site. The coastline where the subsea cabling option 2 lands is not mapped as having potential to contain acid sulfate soils.

Figure 10.2 shows the potential for acid sulfate soil occurrence within the onshore Study Area as classified by Australian Soil Resource Information System (ARIS) Atlas of Australian Acid Sulfate Soils (AAASS). A review of the ARIS AAASS mapping indicates the potential for acid sulfate soil occurrence is extremely low probability (with very low confidence) across most of the onshore Study Area. The area north of Heathmere up to Heywood, and some small areas on the coast within the Ramsar site, is mapped as having low probability (with very low confidence) of acid sulfate soils occurring.

There is no mapping available to identify the presence of acidic or contaminated soils within the Victorian or Commonwealth marine environment. Further environmental and geotechnical investigations would be required to determine the presence of offshore contamination and/or acid sulfate soils, and if so, the potential for impacts to occur.

10.1.1 Potential Sources of Contamination

There are no existing landfills located within the onshore Study Area, however, there is one historic landfill located near the Portland township within the transmission route option 1. This landfill was closed in the 2016. The site is currently used as a transfer station, which is designed as a drop off facility for waste and recyclable materials which are then sorted and transferred to a specialised recycling or hazardous waste facility.

The Portland Aluminium Smelter is located within the transmission route option 1, which is a priority site listed on the EPA Priority Sites Register. A priority site is a site issued with a current clean up notice or pollution abatement notice, or a site issued with a current environmental action notice or other notice to manage contamination. At these sites, EPA Victoria considers that the condition of the site is not compatible with the current approved use without active management to reduce risks to human health and the environment. The Portland Aluminium Smelter priority site is listed as a current industrial site that requires ongoing management (notice number EAN-00001866).

The majority of the onshore Study Area is used for agricultural and forestry practices which are generally considered to be a low risk of contamination. Broad acre application of fertilisers, pesticides, or herbicides, have potential to result in contamination of soil and groundwater. Other land uses within the onshore Study Area that have potential to be a contamination risk include the Portland Airport and quarries such as Cape Grant. Further assessment would be required to determine the presence of contamination within the onshore Study Area and the potential for impacts to occur.

Table 10.1 Summary of Desktop Assessment Outcomes – Coastal and Soil Issues

Summary of Assessment Outcomes
• There is potential for coastal acid sulfate soils to be present where transmission route option 2 lands on the shoreline. The landing point of transmission route option 1 is not mapped as having potential for acid sulfate soils to be present. The remainder of the onshore Study Area is considered to have a low probability of containing acid sulfate soils. • Majority of the onshore Study Area is used for agricultural and forestry practices which are generally considered to be a low risk of contamination. There is one historic landfill located near the Portland township. • The Portland Aluminium Smelter is located north of the shoreline crossing of transmission route option 1, which is a priority site listed on the EPA Priority Sites Register. The site is listed as a current industrial site that requires ongoing management to reduce risks to human health and the environment (notice number EAN-00001866).

10.2 Potential Impacts

Following definition of the existing environmental context of the Project site and surrounding area, potential coastal and soil impacts have been identified with consideration of the Project design, construction, operation, and decommissioning activities in the context of the existing conditions. An overview of these potential impacts is provided in **Table 10.2.**

Table 10.2 Potential Impacts – Coastal Issues and Soils

Impact	Project Component	Phase
Construction activities such as excavation and trenching disturb acid sulfate soils resulting in potential impacts on the surrounding environment, such as leaching of acidic water into soil and groundwater.	Onshore	Construction
Prolonged excavations and stockpiling of acid sulfate soils exposed to rainfall results in acidic surface water runoff released into the surrounding environment.	Onshore	Construction
Inappropriate handling, storage, and disposal of acid sulfate soils results in impacts on human health via direct contract, ingestion, or recreation.	Onshore	Construction
Construction activities such as excavation and trenching disturb contaminated soils and/or sediments which results in the mobilisation of contaminants and adversely impacts on the surrounding environment.	Onshore and Offshore	Construction

Legend

- Southern Winds Offshore Wind Project Study Area
- Southern Winds Onshore Wind Project Study Area

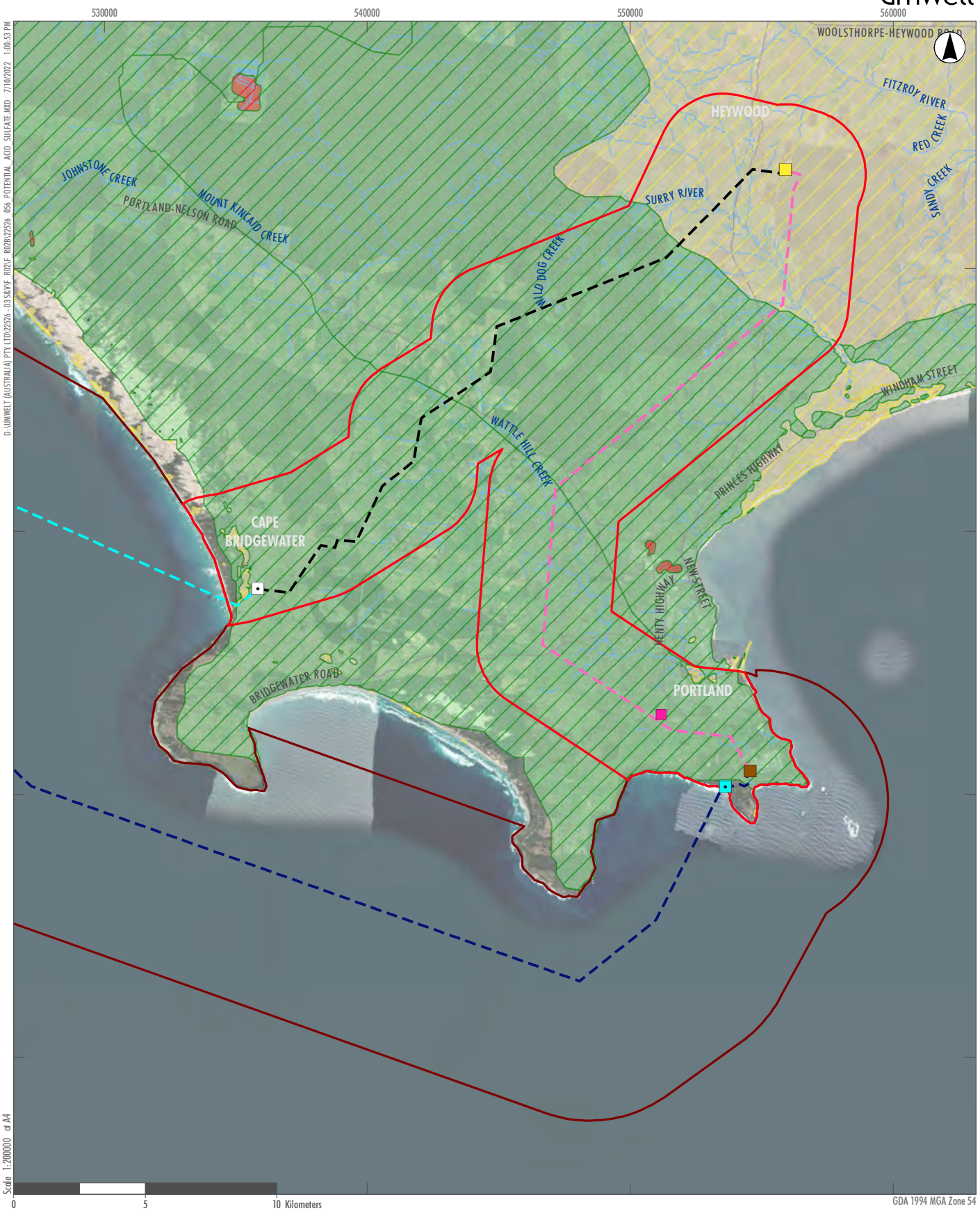
Southern Winds Offshore Wind Project Area consists of:

- Onshore transmission route option 1
- Onshore transmission route option 2
- Subsea cabling option 1
- Subsea cabling option 2
- Prospective coastal acid sulfate soils
- State Forest, National Parks, Reserves
- Transition joint bay option 1
- Transition joint bay option 2
- Portland aluminium smelter
- Roads
- Drainage line

FIGURE 10.1

Coastal Acid Sulfate Soils

Image Source: ESRI Basemap (2022) Data source: VIC Data (2022)



Legend

- Southern Winds Offshore Wind Project Study Area
- Southern Winds Onshore Wind Project Study Area

Southern Winds Offshore Wind Project Area consists of:

- Onshore transmission route option 1
- Onshore transmission route option 2
- Subsea cabling option 1
- Subsea cabling option 2

- Heywood terminal station
- Transition joint bay option 1
- Transition joint bay option 2
- Portland aluminium smelter
- Historic portland landfill
- Roads
- Drainage line

National ASS Atlas

- A4 High Probability/Very Low Confidence
- B4 Low Probability/Very Low Confidence
- C4 Extremely Low Probability/Very Low Confidence
- A - High Probability/Confidence Unknown
- B - Low Probability/Confidence Unknown
- C - Extremely Low Probability/Confidence Unknown

FIGURE 10.2

Potential Acid Sulfate Soils and Sources of Contamination

Image Source: ESRI Basemap (2022) Data source: VIC Data (2022)

11.0 Air Quality and Noise and Vibration

11.1 Existing Conditions

Existing conditions for air quality and noise and vibration are largely defined by the presence of sensitive receptors that have potential to be impacted as well as the background noise levels and air quality conditions to form a baseline on which to assess potential impacts. Background noise levels and air quality conditions have not been determined at this stage of assessment however, this section identifies nearby sensitive receptors that have potential to be impacted.

Construction and operation of the Project have potential to result in air quality and noise and vibration impacts on nearby sensitive receptors. Sensitive human receptors typically considered in an air quality and/or noise and vibration impact assessment include locations where people may live, work, or undertake recreational activities and where they may be affected by dust, air pollutants or noise emitted from a particular activity.

Majority of the onshore component of the Project is located in a predominantly rural setting, which is not likely to cause significant levels of pollution, however, the Portland Aluminium Smelter would be considered a major source of pollution within the onshore Study Area. The primary source of dust and particulate matter in the Study Area would be wind driven dust, disturbance of material due to farming and plantation activities, and wheel-generated dust from vehicles moving along unsealed roads. Background air quality would need to be investigated as part of the next phase of assessment to determine the existing air quality conditions for the Study Area. There are no known air quality monitoring stations within proximity to the Project Area, with the closest EPA ambient air monitoring station located in Geelong.

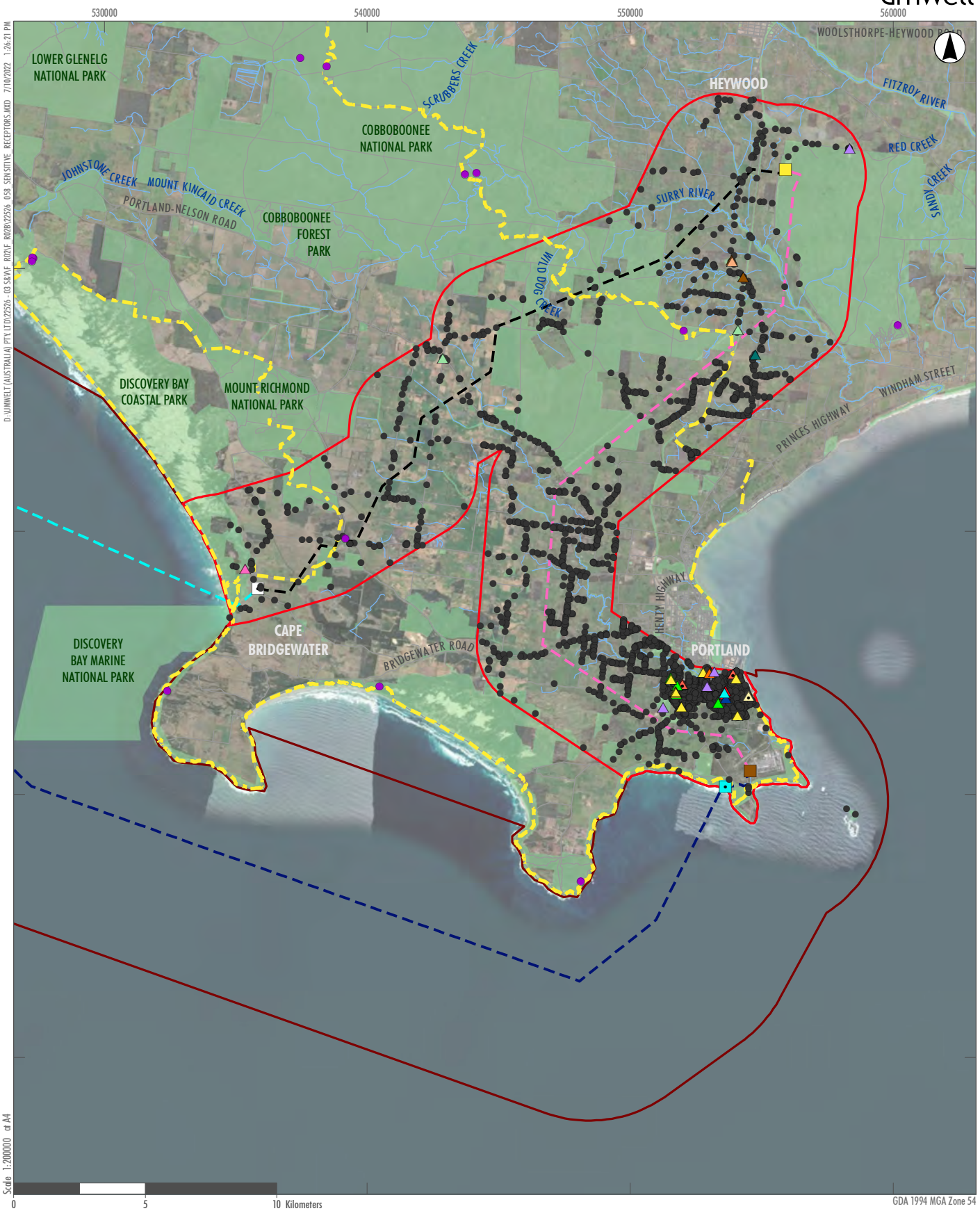
Background (ambient) noise levels are expected to be low in the Study Area due to a high portion of the land use being agricultural and nature reserves rather than urban settings. As such, receptor sensitivity to noise generated by the project for locations along the transmission route will likely be higher than those receptors near the Portland Aluminium Smelter (industrial noise contributions will raise the background) and near townships such as Portland. Background noise monitoring will be required in Phase 2 within the Study Area.

Desktop mapping identified a total of 4,355 sensitive receptors (habitable dwellings and campgrounds) within the onshore Study Area, and 38 within 350 m of onshore transmission route option 2. A summary of these sensitive receptors is provided in **Table 11.1** and shown on **Figure 11.1**.

Table 11.1 Sensitive Receptors within the Study Area

Sensitive receptor	No. within the Study Area	No. within 350 m of onshore transmission route option 2
Dwellings	4,352	37
Campgrounds	1	1

Sensitive ecological receptors that have potential to be impacted by air quality and noise and vibration are identified and discussed in **Section 4.0.**



Legend

- Southern Winds Offshore Wind Project Study Area
- Southern Winds Onshore Wind Project Study Area

Southern Winds Offshore Wind Project Area consists of:

- Onshore transmission route option 1
- Onshore transmission route option 2
- Subsea cabling option 1
- Subsea cabling option 2

- Campgrounds
- Residential dwellings within the Study Area
- Great South West Walk
- Heywood terminal station
- Transition joint bay option 1
- Transition joint bay option 2
- Portland aluminium smelter
- State Forest, National Parks, Reserves

- Roads
- Drainage line

Sensitive Receptors

- Aged Care
- Child Care
- Church
- Club House
- Coast Guard
- Fire Station
- Hall
- Museum
- Picnic Site
- Playground
- Primary School
- Rest Area
- Secondary School
- Telephone Exchange

FIGURE 11.1

Sensitive Receptors

Image Source: ESRI Basemap (2022) Data source: VIC Data (2022)

Table 11.2 Summary of Desktop Assessment Outcomes – Air Quality and Noise and Vibration

Summary of Assessment Outcomes
• Majority of the onshore Study Area is located in a predominantly rural setting, which is not likely to cause significant levels of pollution, however, the Portland Aluminium Smelter would be considered a major source of pollution within the onshore Study Area. • The primary source of dust and particulate matter in the Study Area would likely be wind driven dust, disturbance of material due to farming and plantation activities, and wheel-generated dust from vehicles moving along unsealed roads. • Majority of transmission route is agricultural land and nature reserves where background noise levels are expected to be low, whilst higher levels will be experienced near townships like Portland and industrial areas near the Portland Aluminium Smelter. • Desktop mapping indicates there are 4,352 dwellings (predominantly in Portland) and 1 campground located within the Study Area. Within 350 m of transmission route option 2, there are 37 dwellings.

11.2 Potential Impacts

Following definition of the existing environmental context of the Project site and surrounding area, potential air quality and noise and vibration impacts have been identified with consideration of the Project design, construction, operation, and decommissioning activities in the context of the existing conditions. An overview of these potential impacts is provided in **Table 11.3.**

Table 11.3 Potential Impacts – Air Quality and Noise and Vibration

Impact	Project Component	Phase
Generation of air emissions and dust from onshore construction works impacts on nearby sensitive receptors and local air quality.	Onshore	Construction
Exhaust emissions from vehicles, barges, and support vessels during construction impact on local air quality.	Offshore	Construction
Operation and maintenance activities generate air emissions impacting on nearby sensitive receptors and local air quality.	Onshore and Offshore	Operation
Noise and/or vibration from construction activities exceeds guideline/threshold levels potentially impacting on sensitive receptors (such as dwellings and public open space areas).	Onshore	Construction
Noise and/or vibration from offshore construction activities exceeds guideline/threshold levels potentially impacting on ambient noise levels.	Offshore	Construction
Noise and/or vibration from maintenance and operation activities associated with the onshore transmission line and transition joint bay exceeds guideline/threshold levels potentially impacting on sensitive receptors (such as dwellings and public open space areas).	Onshore	Operation

12.0 Transport

12.1 Existing Conditions

12.1.1 Road Network

The local road network within the Study Area consists of a combination of local and state government-owned (Glenelg Shire Council and Department of Transport) public road assets.

The arterial roads that intersect with the Study Area relate to transmission route option 1 (noting the preferred option will be to connect to the Portland Aluminium Smelter switchyard and not require works on the rest of the Portland-Heywood transmission line) are Portland - Nelson Road, Bridgewater Road, Henty Highway, Madeira- Packet Road and Princes Highway.

Portland- Nelson Road crosses both transmission route options east to west to the south of Cobboboonee Forest Park in the centre of the onshore Study Area. Bridgewater Road crosses the transmission line corridor for option 1 in the south, extending west from the Portland township, with Madeira Packet Road also located in the southern extent of the transmission route option 1. Henty Highway extends north from the Portland township and only slightly intersects with option 1. Princes Highway extends north to south from Heywood down to Portland, via Heathmere and intersects with the northern section of the option 1. The Study Area also intersects with other sealed and unsealed local roads.

An overview of the main arterial roads within the Study Area and the Annual Average Daily Traffic (AADT) for each road is provided in **Table 12.1.** AADT is the yearly volume of vehicles divided by 365 to determine an average daily traffic volume. The two-way AADT is also shown, which provides a two-way yearly volume for vehicles divided by 365. The traffic volumes provided are estimated volumes, not actual volumes. It is likely these main arterial roads would be used during construction of the Project.

C Class roads are generally two-lane sealed roads with shoulders. C Class roads provide important links between population centres and between these centres and the primary transport network. A Class roads provide a high standard of driving conditions on a single carriageway and are primary road links connecting Melbourne and other capital cities and major provincial centres. A Class roads serve the same purpose as M Class roads but carry less traffic.

Table 12.1 Arterial Roads within the onshore Study Area

Road Name	Type	Classification	AADT – All vehicles	AADT Two Way – All vehicles	AADT - Trucks	AADT Two Way - Trucks
Portland Nelson Road (between Wade Street and Heath Road).	Arterial	C Class	629	1200	275	520
Bridgewater Road (between Murphys Road and Blowholes Road).	Arterial	C Class	418	850	30	60

Road Name	Type	Classification	AADT – All vehicles	AADT Two Way – All vehicles	AADT - Trucks	AADT Two Way - Trucks
Henty Highway (between West Boundary Road and Madeira Packet Road).	Arterial Highway	A Class	3500	960	960	1900
Madeira Packet Road.	Arterial	C Class	456	930	29	60
Princes Highway (between Edgar Street and Henty Highway).	Arterial Highway	A Class	2000	4000	346	680

12.1.2 Public Transport

PTV shows the following public bus routes operating on weekdays within the Study Area:

- Hamilton - Portland Via Heywood operates along New Street, Henty Highway and Princes Highway within the study area. Services to Hamilton or Portland are once daily.
- Mount Gambier - Warrnambool via Melbourne/Geelong is operated by V/Line and takes the same route within the study area as the Hamilton – Portland route described above. There are approximately four-five daily services in either direction from Portland.

12.1.3 Airports

Portland Airport intersects with the onshore Study Area, within proximity to transmission route option 2, which is approximately 1 km at the closest point. Transmission route option 2 is located within the inner horizontal surface of the Portland Airport OLS, which may infringe on acceptable clearance limits of the OLS. Planning approval may be required if the transmission route exceeds the height of the contours on the OLS chart. The inner horizontal surface of the Portland Airport OLS is shown on **Figure 12.1.**

Table 12.2 Summary of Desktop Assessment Outcomes – Transport

Summary of Assessment Outcomes
• The local road network within the Study Area is a combination of State and locally owned roads, with several local roads unsealed. • Five arterial roads are located within the Study Area in the Portland Nelson Road, Bridgewater Road, Henty Highway, Madeira Packet Road and Princes Highway. • Public transport within the Study Area is limited with 2 public bus routes running through the Study Area. • The Portland Airport intersects with the onshore Study Area. Transmission route option 2 intersects with the inner horizontal surface of the Portland Airport OLS.

12.2 Potential Impacts

Following definition of the existing environmental context of the Project site and surrounding area, potential transport impacts have been identified with consideration of the Project design, construction, operation, and decommissioning activities in the context of the existing conditions. An overview of these potential impacts is provided in **Table 12.3.**

Table 12.3 Potential Impacts – Transport

Impact	Project Component	Phase
Construction vehicles result in changes to normal traffic and transport conditions, including increased traffic, increased safety risk and impacts on the operation of public transport.	Onshore	Construction
Construction works result in road closures and changes/disruptions to connectivity of the local road network, such as restricted access.	Onshore	Construction
Over dimensional (OD) vehicles required to transport infrastructure to site create 'pinch points' requiring road and/or intersection upgrades along the identified OD route.	Onshore	Construction
Local roads require upgrades to accommodate heavy construction and OD vehicles to ensure they are durable and to minimise safety risks.	Onshore	Construction
Operation and maintenance activities result in changes to normal traffic and transport conditions.	Onshore	Operation

Legend

- Southern Winds Offshore Wind Project Study Area
- Southern Winds Onshore Wind Project Study Area

Southern Winds Offshore Wind Project Area consists of:

- Onshore transmission route option 1
- Onshore transmission route option 2
- Subsea cabling option 1
- Subsea cabling option 2
- Heywood terminal station
- Transition joint bay option 1
- Transition joint bay option 2
- Portland aluminium smelter
- Local bus routes
- State Forest, National Parks, Reserves
- Roads
- Drainage line
- Portland airport
- Inner horizontal surface of the Portland airport

FIGURE 12.1

Local Transport Network

Image Source: ESRI Basemap (2022) Data source: VIC Data (2022); Department of Transport (2022)

13.0 Design Constraints and Recommendations

Based on the outcomes of the impact screening undertaken to identify potential impacts, relevant design constraints and opportunities that have potential to affect the suitability of the Project site have been identified. These should be taken into consideration by BFE to avoid or minimise potential impacts. A summary of the identified design constraints and recommendations is provided in **Table 13.1.**

Table 13.1 Project Design Constraints and Recommendations

Design Constraints and Recommendations	
Identified Design Constraints	Recommended Actions
Native vegetation, sensitive habitats, threatened species, communities and migratory species (EPBC Act and FFG Act) within the study area (both terrestrial and marine).	Avoid direct impacts on the Glenelg Estuary and Discovery Bay Ramsar Wetlands site and the Discovery Bay Marine National Park. Both sites have national environmental significance reflected in their designation under Commonwealth and international legislation. Where it is not feasible or prudent to avoid nationally significant conservation areas, carry out detailed investigations to understand the environmental features of these sites, to assist in route selection and construction methodologies that avoid/minimise potential impacts. Investigate route options for the transmission line that co-locates with other infrastructure and uses existing cleared/disturbed land to avoid/minimise impacts. Explore construction methodologies that avoid or minimise direct and indirect impacts on sensitive receiving environment (such as wetlands and habitat of threatened species and communities). This could include use of horizontal directional drilling (HDD) to avoid open trenching.
Offshore cabling has potential to impact on marine species through generation of EMF. Cabling laid on the seafloor (unburied) has a greater potential to result in EMF impact on marine species.	Consider opportunities to bury the offshore cabling at a sufficient depth (e.g. 1 to 1.5 m) to reduce EMF and subsequent impacts on marine fauna. This will need to be considered having regard to the benthic conditions along the offshore cabling route.
Areas of cultural heritage sensitivity within the Project Area contain a high likelihood of encountering unregistered and/or intangible cultural heritage material or sites.	While the Project cannot feasibly avoid all areas of cultural heritage sensitivity, Project design should avoid areas of cultural heritage sensitivity where possible, particularly within proximity to waterways. Waterways, plus land within 200 m of them, are considered areas of cultural heritage sensitivity. Coastal areas are mapped as culturally significant and previous studies along this coastline have identified cultural heritage material and sites, reflective of this significance. Extensive investigation and dialogue with traditional owners is required to assist in identifying shoreline crossing points for the cable, as well as possible construction methodologies that will avoid and minimise potential impacts on tangible and intangible cultural heritage.
Prospective coastal acid sulfate soils mapped where the subsea cabling meets the shoreline for option 2.	If coastal acid sulfate soils are found to be present, it is recommended to construct the underground cabling via horizontal directional drilling, rather than open cut trenching. This would minimise the degree of disturbance and exposure of acid sulfate soils. Particularly, as the shoreline crossing is within the Glenelg Estuary and Discovery Bay Ramsar Wetlands site, which has potential to be affected by the leaching of acidic water.

Design Constraints and Recommendations	
Inner horizontal surface of the Portland Airport OLS.	Transmission route option 2 should be sited to avoid intersecting the inner horizontal surface of Portland Airport (if an overhead transmission line). The current route would likely infringe on acceptable clearance limits of the OLS.
Areas of public land identified as being set aside for conservation purposes.	Avoid conservation land uses where possible. If not able to be avoided, use of existing linear infrastructure corridors (such as roads, access tracks and easements) should be prioritised.
Land use zones associated with public land.	Consider the objectives for these zones and ensure that the project infrastructure does not materially compromise these objectives.

14.0 Key Project Risks

The following table identifies key project risks which may affect the timing, cost, approvals, design, or other elements critical to the project viability and delivery success. These will also be captured in the project risk register.

Table 14.1 Key Project Timing, Cost, Approval and Design Risks

Project Risk	Recommendation
DCCEEW require up to two years of field survey data for several EPBC Act species and communities prior to submission of assessment for their approval.	Recommend an early discussion with DCCEEW on field survey data requirements and if 24 months is a minimum expectation. Ensure project schedule reflects the DCCEEW requirements and if necessary up to 24 months of ecological data collection from field surveys, in addition to assessment and reporting time prior to EPBC Act assessment submission to DCCEEW.
Construction and operation of the offshore infrastructure has the potential to have a significant impact on up to four matters of national environmental significance (MNES). Assessments in accordance with relevant significant impact guidelines, conservation advice and other policies and guidelines is likely to be complex, costly and time-consuming. Given the importance of the marine environment at this location, there is no guarantee that acceptable environmental impacts on MNES can be demonstrated. It is probable that significant effort will be required to design the project to avoid or minimise impacts, and that onerous management and mitigation measures are likely to be attached to any approval to carry out the action in the marine environment.	Prepare risk-based and integrated referrals under Commonwealth and State legislation, to inform decision-makers of the possible effects. Consult extensively with key subject matter experts in the preparation of a robust study program. The study program should identify all necessary studies to investigate possible significant impacts on MNES. Identify key potential marine impacts early, and identify opportunities to design the project to avoid or minimise these potential impacts prior to lodging consent applications. Use a risk-based approach to identify residual risks and uncertainties and to assist in identifying monitoring, management, and mitigation measures (including adaptive management). Liaise with relevant Commonwealth departments to ensure that the proposal is consistent with the preliminary risk assessments and due diligence being conducted as part of the offshore wind area 'Declaration' process by Commonwealth agencies.
The onshore transmission line through West Portland and Gorae generates significant community opposition. This is a higher risk for an overhead transmission line, however, opposition to an underground line may also occur.	Carry out consultation with stakeholders and the local community to understand their concerns around transmission lines. Investigate opportunities to refine the routes and/or design of transmission lines to minimise potential community opposition.
Feasibility licence required under the *Offshore Electricity Infrastructure Act 2021* to undertake intrusive marine studies. Timing dependent on declaration of offshore zone, before preparing and submitting licence application for approval. Project program implications.	Maintain regular engagement with DCCEEW and NOPSEMA to understand current status of offshore zone declarations and timing of Feasibility Licences in terms of preparation, assessment by regulators and approval.
Seasonal survey requirements for certain marine species.	Develop a study program of further assessments and commence field studies as early as possible with necessary approvals or licences to be obtained.

Project Risk	Recommendation
Community opposition particularly relating to cumulative impacts of offshore wind development.	Conduct a Socio-economic Impact Assessment and comprehensive community stakeholder engagement plan.
Poor community engagement practice results in lack of Project support/acceptance.	Implement a community engagement plan that identified key stakeholder groups and engagement strategies at different stages of the Project.
Poor engagement with Aboriginal communities and Traditional Owners results in lack of Project support/acceptance.	Engage with GMTOAC and other Aboriginal communities early to identify concerns and opportunities to develop an Aboriginal Engagement Plan.
Duration of Cultural Heritage Management Plan (CHMP). Discovery of unregistered heritage material or sites within the Project Area which could halt / delay the construction program or result in late design changes.	Undertake EE Act and EPBC Act referrals early to determine requirements for cultural heritage assessment and approvals. Commence a CHMP as soon as possible including a complex assessment. Engage with the RAP groups early and ongoing throughout the project. Gather their feedback to inform design and management.
Coincidence with several land use zones and overlays, including public land use zones, introduces permitting complexities that may require extensive consultation with stakeholders including public land managers.	Prepare and consult on a comprehensive planning approvals strategy (underway). Commence consultation with public land managers early to ensure technical, environmental and operational matters inform construction and operation.
Locating Project infrastructure with areas of determined Native Title may result in a requirement to enter an Indigenous Land Use Agreement (ILUA).	Commence discussions with the Native Title holder early on.
The SLO2 recognises the Bridgewater Lakes is of State significance for its outstanding visual and scenic qualities. SLO3 recognises the spectacular cliffs, pristine bays and dramatic coastal scenery of Cape Bridgewater and Cape Nelson are unique in Victoria and combine to make a landscape of state significance. SLO1 applies to coastal land extending from the South Australia-Victoria border east along Discovery Bay (outside the Study Area), which aims to protect locally significant views and vistas, to the ocean, the Glenelg River Estuary and other natural landforms from Nelson-Portland Road, the Great South West Walk and other publicly accessible locations. Satisfying decision makers that the objectives of this overlay can be met/not compromised with the insertion of Project infrastructure may require concerted effort.	Consult with key stakeholders including Councils, DELWP, local communities, local environment groups, local tourism operators and other associated stakeholders, to ensure that landscape and visual values are well understood.
Concerns regarding the visual effect of offshore wind turbines may lead to project opposition and planning objections.	Utilise high quality photomontages and 3D imagery to provide realistic views to the public and stakeholders during public engagement and consultation events.

15.0 Further Assessment Recommendations

The further assessments identified below in **Table 15.1** are recommended to be undertaken in the phase of the Project. These recommendations have been informed by the outcomes of this desktop assessment, State and Federal approval and assessment requirements, and our team's knowledge and experience of similar projects and environments. This will form the basis of the scope of environmental assessment for Phase 2 of the Project.

Table 15.1 Further Assessment Recommendations for the Project

Further Assessment	Critical or Seasonal Timing
Terrestrial Biodiversity Impact Assessment	Commence following completion on required field surveys
MNES Assessment	Commence following completion of required field surveys
Marine Ecology Impact Assessment	Commence following completion of required field surveys
Commonwealth Waters Impact Assessment	Commence following completion of required field surveys
Social Impact Assessment	None
Economic Impact Assessment	None
Agricultural Impact Assessment	None
Cultural Heritage Management Plan	Approval of CHMP
Aboriginal Cultural Heritage Impact Assessment	Requires input from the CHMP
Cultural Values Assessment	None
Non-Aboriginal Cultural Heritage Impact Assessment	None
Surface Water Impact Assessment	None
Groundwater Impact Assessment	None
Landscape and Visual Impact Assessment	None
Land Use and Planning Impact Assessment	None
Onshore Contamination and Acid Sulfate Soil Impact Assessment	None
Noise and Vibration Impact Assessment	None
Air Quality Impact Assessment	None
Transport Impact Assessment	None
Electromagnetic Interference Impact Assessment	None
Bushfire Risk Assessment	None
Safety, Hazard, and Risk Assessment	None
Greenhouse Gas and Climate Change Assessment	None
Aviation Impact Assessment	None
Transmission Line Route Options Assessment	None

16.0 Conclusion

Preliminary desktop assessments have been undertaken for the Project to characterise the existing conditions of the Study Area and identify potential impacts that may occur as a result of the construction, operation, and decommissioning of the Project. Key environmental and planning risks have also been identified which affect the timing, cost, approvals, design, or other elements critical to the Project viability and delivery success.

Potential impacts have been identified for a range of disciplines through desktop assessments including marine, biodiversity, social, hydrology, cultural heritage, land use, landscape and visual, coastal issues and soils, air quality, noise and vibration, and transport.

The outcomes of these assessments have identified the following key design refinement recommendations:

- All project infrastructure to avoid intersecting with the Glenelg Estuary and Discovery Bay Ramsar site and the Discovery Bay Marine National Park.
- Investigate opportunities for the transmission line to utilise co-location with other infrastructure and existing cleared/disturbed land (such as the Portland Aluminium Smelter or other renewable projects).
- Option 1 of the onshore transmission route would be located adjacent to or would utilise (as a double-circuit) the existing Heywood-Portland 500 kV transmission line. Utilising existing infrastructure and/or easements is an advantage for this transmission route option with regard to minimising environmental impacts.
- Option 1 of the subsea cabling and onshore transmission route is the recommended option as it is located at a greater distance from the Glenelg Estuary and Discovery Bay Ramsar site. Option 1 also intersects with Cobboboonee Forest Park to a lesser degree (if it all, should works on the existing Portland-Heywood transmission line be required) than option 2, which is an area of public land valued for conservation and recreation purposes.
- The siting of transmission route option 2 should be reviewed to avoid intersecting with the inner horizontal surface of Portland Airport (if an overhead transmission line). The current route would infringe on the acceptable clearance limits of the OLS.
- Explore construction methodologies (such as HDD) that avoid or minimise direct impacts on sensitive receiving environments (such as wetlands and habitat for threatened species and ecological communities).
- Bury subsea cabling at a sufficient depth to reduce electromagnetic fields.
- Design Project infrastructure to avoid areas of cultural heritage sensitivity where possible, particularly within proximity to waterways.
- Avoid areas of public land where possible, particularly public land set aside for conservation and recreation purposes.

The outcomes of these desktop assessment have also informed a list of further assessments that are recommended to be undertaken as part of the next phase of the Project. These recommendations are also based on relevant State and Federal approval and assessment requirements that the Project is likely to be subjected to.

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