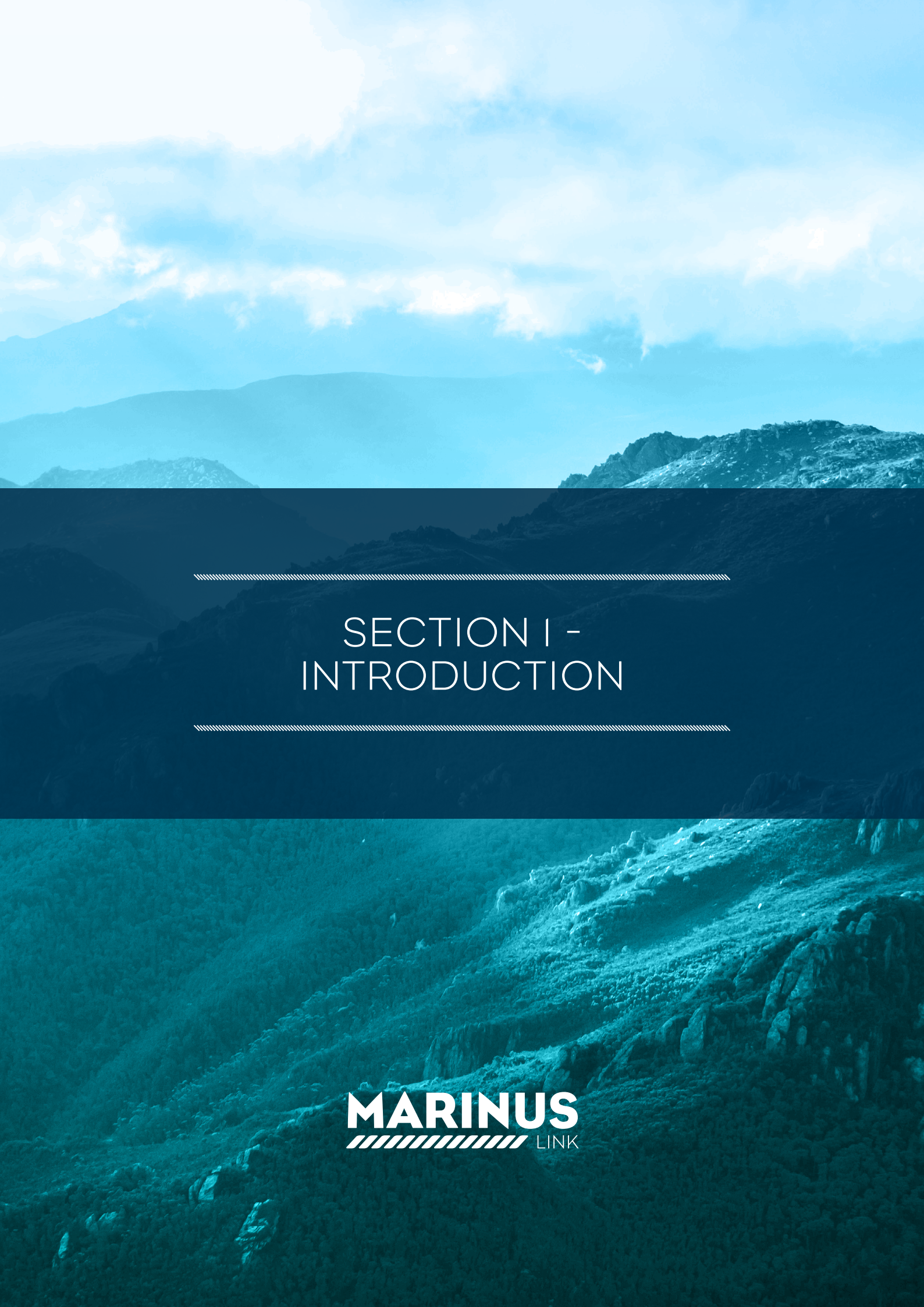


SECTION I - INTRODUCTION

MARINUS LINK

1. Introduction

1.1 Proposal overview

Marinus Link (**the project**) is a proposed 1500 megawatt (MW) high voltage direct current (HVDC) electricity and telecommunications interconnector between Tasmania and Victoria (refer to Figure 1-1). It would enable the flow of electricity between two states, delivering low-cost, reliable and clean energy for customers in the National Electricity Market (NEM).

The project would be implemented as two 750 MW circuits to meet transmission network operation requirements in Tasmania and Victoria. Each 750 MW circuit would comprise two power cables and a fibre-optic communications cable bundled together in Bass Strait and laid in a horizontal arrangement on land. The two 750 MW circuits would be installed in two stages.

The project includes components within Tasmanian, Commonwealth and Victorian jurisdictions. The key Tasmanian project components for each 750 MW circuit are:

- A high voltage alternating current (HVAC) switching station and two HVAC-HVDC converter stations at Heybridge to connect the project to the 220 kilovolt (kV) transmission network (the subject of a separate Heybridge Converter Station Environmental Impact Statement (EIS)).
- Two subsea cable landfalls and shore crossing using horizontal directional drilling (HDD) at Heybridge and the installation and operation of underground and subsea cables extending into Bass Strait (**the proposal, the subject of this Heybridge Shore Crossing EIS**).

This EIS has been prepared by Marinus Link Pty Ltd (**MLPL, the proponent**) for the proposal. The proposal involves:

- The construction of two temporary HDD launch pads.
- The construction of six HDD bores, and cable installation, from the HDD launch pads and drilled below Bass Highway and the Western Line Railway extending approximately 1 kilometre (km) into Bass Strait (at approximately 10 m water depth). All six HDD bores would be constructed in Stage 1 of the proposal.
- The installation, operation and decommissioning of subsea cables from the HDD exit point (at approximately 10 m water depth) to within 3 nautical miles (NM) within Tasmanian coastal waters. Once in Bass Strait, the subsea cables for each stage would be laid in two circuits that each comprise two power cables and one fibre-optic cable.

Key features of the proposal are further described in Section 2.

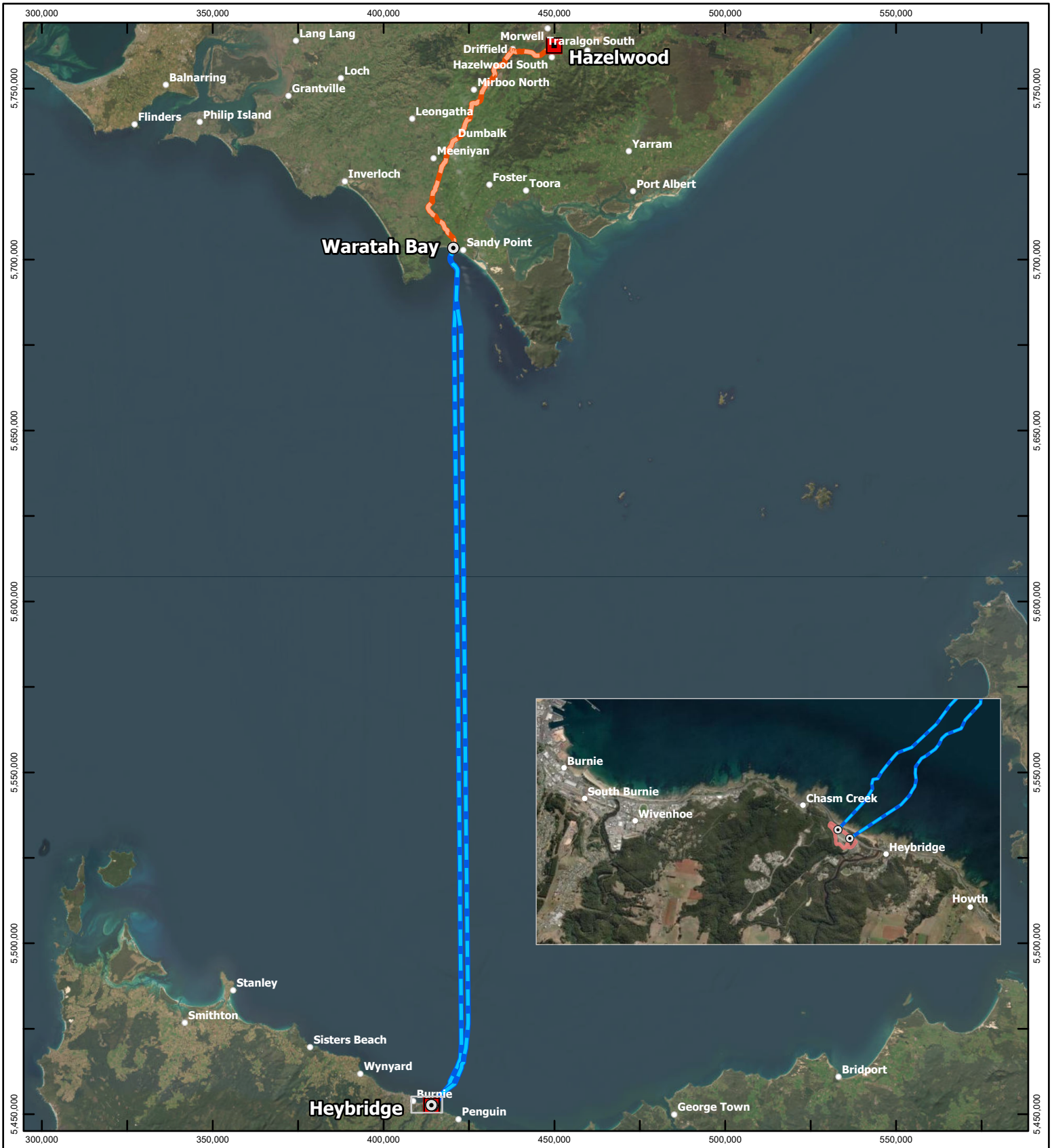


Figure 1-1: The project

Legend

- Proposed Converter Station
- HVDC Landfall
- Proposed Underground HVDC Cable
- Proposed HVDC Subsea Cable

Scale: 1:1,500,000 @ A4

Spatial Reference: GDA2020 MGA Zone 55

N

0 12.5 25 50 75 100

Kilometres

MARINUS LINK

Acknowledgements and Sources:

Data Source: Data is held by the Marinus Link GIS Data Repository.
Background Image: ESRI - Earthstar Geographics
Figure Produced By: Marinus Link for the Tasmanian Heybridge Converter Station EIS.
Date Figure Exported: 29/11/2024

1.2 The proponent

MLPL is the proponent for the project. MLPL details are below in Table 1-1.

Table 1-1 Proponent details

Name of proponent	Marinus Link Pty Ltd
Registered address	Level 1, 74 Elizabeth Street, Hobart, TAS 7000
Postal address	PO Box 721, Hobart TAS 7001
ABN/ACN	ACN 630 194 562 ABN 47 630 194 562
Contact details	Name: Kate Guard, Head of Environment & Planning Email: Kate.Guard@marinuslink.com.au Telephone: 1300 765 275

MLPL was formed in 2018 for the purpose of construction and operating the project. MLPL was established initially as a wholly owned subsidiary of Tasmanian Networks Pty Ltd (TasNetworks). TasNetworks is owned by the State of Tasmania and owns, operates, and maintains the electricity network in Tasmania.

In October 2022, the Commonwealth, Tasmanian and Victorian governments signed a Letter of Intent which outlined agreement for the delivery of the project, including a joint ownership model, concessional financing and cost allocation agreement for the project, based on costs as they were understood, before MLPL released tenders to the international market.

In March 2024, the Commonwealth, Tasmanian and Victorian governments agreed to new arrangements which saw the Commonwealth increase its equity share in the project to 49%, and Tasmania's equity share reduced to approximately 17.7%. Victoria's equity share remains at 33.3%. MLPL is now jointly owned by the Commonwealth, Victorian and Tasmanian governments.

As MLPL is a corporation created for the purposes of the project, it has not itself developed or operated any other relevant projects and has no past or present proceedings against it under a Commonwealth, state, or territory law. MLPL benefits from the experience of each of its government owners in planning, delivering, and operating large-scale transmission and nationally significant projects. MLPL is committed to good industry practice to deliver long term benefits to stakeholders with a focus on compliance with relevant legislative and regulatory requirements.

In addition to the development of the *Environment and Sustainability Policy* (available at: https://www.marinuslink.com.au/wp-content/uploads/2023/12/Marinus-Link-Environment-and-Sustainability-Policy.pdf), MLPL has developed and implemented a range of health, safety and community engagement initiatives which include a Safety and Wellbeing Policy, Communications and Engagement Strategy and a Sustainability Framework.

MLPL has dedicated environment and planning, safety and wellbeing, and communications and engagement teams, supported by expert consultancies. MLPL's management team and key staff have extensive experience in the delivery of large, complex, and multi-jurisdictional projects. MLPL would implement an Environmental Management System (EMS) developed in accordance with ISO 14001:2015 Environmental

management systems to manage compliance with regulatory requirements, approvals and the Environmental Management Framework developed for the project (refer to Section 8 for further details).

1.3 Project overview

The project includes components in Tasmanian, Commonwealth and Victorian jurisdictions (discussed further in Section 1.6). In summary, the project key features for each 750 MW circuit (refer to Figure 1-1) include:

Tasmania and its coastal waters (from mean high watermark to 3 nautical mile limit):

- A HVAC switching station and HVAC-HVDC converter station at Heybridge to connect the project to the 220 kV transmission network (see the Heybridge Converter Station EIS).
- Two subsea cable circuit landfalls and shore crossing using HDD at Heybridge (each cable circuit comprising 2 electrical and 1 fibreoptic cables so 6 HDD crossings in total) and the installation and operation of subsea cables extending to 3 nm into Bass Strait (the subject of this EIS).

Commonwealth waters:

- Installation and operation of subsea cables extending approximately 255 km across Bass Strait from the Tasmanian coastal waters' boundary (3 nm offshore) to the Victorian coastal waters boundary (3 nm offshore).

Victoria and its coastal waters:

- Two subsea cable circuit landfalls and shore crossing (using HDD) at Waratah Bay (each cable circuit comprising two electrical and one fibreoptic cables so six HDD crossings in total).
- Installation and operation of subsea cables extending 3 nm off Waratah Bay.
- Land-sea cable joint or transition station where the subsea cables would connect to the land cables in Victoria.
- Underground land cables (approximately 90 km in length) from the land-sea cable joint to the converter station at Hazelwood.
- HVAC-HVDC converter station at Hazelwood where the project would connect to the existing Victorian 500 kV transmission network.

1.4 Project timeline

The project is currently progressing through the design and approvals phase. An outline of the project timeline is provided in Figure 1-2 (noting the timelines are subject to approvals, access, weather, construction and market constraints).

The project is proposed to be implemented as two stages, with each stage consisting of one 750 MW HVDC circuit link between Tasmania and Victoria. The two 750 MW circuits, and supporting converter stations, would be installed separately as follows:

- **Stage 1** – eastern symmetrical monopole (circuit) and associated converter station infrastructure at Heybridge and Hazelwood anticipated to be commissioned by the end of 2030. Civil works, HDD drilling and installation of cable conduits and joint pits for both stages would be completed in Stage 1. This would minimise the extent of works associated with Stage 2 and provide for the efficient delivery of the second circuit at a time determined by market demand.
- **Stage 2** – western symmetrical monopole (circuit) and additional converter station infrastructure anticipated to be commissioned after Stage 1, according to market demand.

Figure 1-2 Project timeline

1.5 Project objectives

The objective of the project is to support Australia's transition to renewable energy by providing the NEM with greater market access to Tasmania's wind and hydro power and proposed pumped hydro long duration energy storage resources. By increasing energy exchange between Tasmania and Victoria, the project is expected to unlock renewable energy generation opportunities and cost-effective energy storage in Tasmania, and support affordable, reliable and clean energy across the NEM.

The project has the following objectives/key benefits:

- Significant enabler of energy transition to renewables through better access to hydro resources, wind generation and future pumped storage in Tasmania.
- Increased resilience for Tasmania, with additional trade capacity and reduced reliance on the single existing interconnector.
- Wholesale energy cost reductions in the NEM.
- Economic benefits through construction and operations.

- Increased telecommunications capacity and resilience between Tasmania and mainland Australia, with the potential for the creation of a data hub in Tasmania.

1.6 Legislative framework

1.6.1 Proposal

The proposal does not require a permit from Burnie City Council under the *Land Use Planning and Approvals Act 1993* (LUPA Act) because the proposal is not regarded as development by virtue of the *Electricity Supply Industry Act 1995*. The proposal would receive and be subject to a transmission licence under the *Electricity Supply Industry Act 1995.* This licence would allow the laying of cables on public lands in Tasmania, including the seabed within Tasmanian coastal waters.

A referral for the proposal was submitted to Environment Protection Authority Tasmania (EPA) on 8 July 2022, and it was determined that the proposal would be subject to environmental impact assessment by the EPA Board under Section 27 of the *Environmental Management and Pollution Control Act 1994* (EMPC Act).

The EPA Board issued EIS guidelines to provide guidance about what should be included in the case for assessment (this EIS) for the proposal. This EIS has been prepared in accordance with the *EIS Guidelines: Heybridge Shore Crossing for Marinus Link September 2022* (EIS guidelines).

The objectives of this EIS are to:

- Provide information on the potential environmental and social impacts of the proposal, and measures to be implemented to maximise positive outcomes and minimise adverse impacts.
- Allow for public consultation and comment on the proposal.
- Demonstrate that the proposal is consistent with the objectives of relevant legislation and policies.
- Provide a framework for decision makers (including the EPA Board) to assess the proposal and determine any conditions for approval.

A compliance table to reflect how this EIS responds to the relevant EIS guidelines is provided in Appendix A.

The EIS and its mitigation measures (summarised in Section 8) represent the environmental management commitments for the proposal. Both the EIS and mitigation measures have been informed by, and have been further developed from, the technical studies completed for the project.

This EIS would be assessed by the EPA Board in accordance with the requirements of the EIS guidelines and the process set out in section 24 and section 25 of the EMPC Act and associated regulations and policies.

1.6.2 Project

The project was referred to the Commonwealth Minister for the Environment on 5 October 2021. On 4 November 2021, a delegate of the Minister for the Environment determined that the project is a ‘controlled action’ and requires assessment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) by preparation of an EIS (reference EPBC 2021/9053). Specifically, it

was determined that the project has the potential for significant impacts to the following matters of national environmental significance (MNES):

- Listed threatened species and communities (sections 18 & 18A).
- Listed migratory species (sections 20 & 20A).
- Commonwealth marine areas (sections 23 & 24A).

The controlled action decision relates to the whole project. The Commonwealth and Victorian components of the project are being assessed as part of a separate EIS/Environment Effects Statement (EES) (combined EIS/EES) assessment process in accordance with the EPBC Act and the Victorian *Environment Effects Act 1978*. The combined EIS/EES was exhibited for public comment from 31 May 2024 to 12 July 2024. Feedback obtained from the public and stakeholders would enable the Commonwealth Minister for the Environment and Victorian Minister for Planning to make an assessment of the potential effects of the project on environmental matters relevant to their jurisdictions.

The Department of Climate Change, Energy, the Environment and Water (DCCEEW), the Victorian Department of Transport and Planning, and EPA Tasmania have agreed to coordinate and, where possible, integrate and align their assessment processes through administrative means. This agreed approach facilitated the preparation of a combined EIS/EES document to address the requirements of both the Victorian and Commonwealth governments, alongside the two separate EIS documents prepared for the Heybridge Converter Station and the Heybridge Shore Crossing (this EIS) to address the requirements of the EPA Board. The impacts on Commonwealth MNES within the proposal site are assessed in the combined EIS/EES.

Table 1-2 and Figure 1-3 provide an overview of the primary legislative framework for the project and the applicable environmental impact assessment documentation. In addition to the legislative framework applicable to the project, the proposal must comply with other environmental and planning legislation, policies, and guidelines. It would require additional licences and permits, including a licence under the Commonwealth *Offshore Electricity Infrastructure Act 2021* (OEI Act) to install, operate and decommission the subsea cables across Bass Strait.

Some of the key Tasmanian acts, regulations, and policies most relevant to the proposal include the following, with further detail on their application discussed in Section 6:

- *Environmental Management and Pollution Control Act 1994* (EMPC Act).
- *Threatened Species Protection Act 1995* (TSP Act).
- *Nature Conservation Act 2002* (NC Act).
- *Forest Practices Act 1985* and associated regulations and policies.
- *Living Marine Resources Act Management Act 1995*.
- *National Light Pollution Guidelines for Wildlife.*
- *Tasmanian State Coastal Policy 1996.*

- *Weed Management Act 1999* and *Biosecurity Act 2019*.
- *Dangerous Goods (Road and Rail Transport) Act 2010* and associated regulations.
- *Environmental Management and Pollution Control (Noise) Regulations 2016*.
- *Environmental Management and Pollution Control (Waste Management) Regulations 2020* (Waste Management Regulations).
- *Tasmanian Environmental Protection Policy (Noise) 2009* (Noise EPP).
- *Tasmanian Environment Protection Policy (Air Quality) 2004* (Air Quality EPP).
- *Water Management Act 1999*.
- *State Policy on Water Quality Management 1997*.

Table 1-2 Project legislative framework

Project component	Relevant planning framework	Environmental impact assessment	Assessment Authority
Tasmania			
Heybridge Converter Station	EMPC Act (Tas)	Heybridge Converter Station EIS	EPA Board
	LUPA Act (Tas)	Development Application	Burnie City Council
	EPBC Act (Cwth)*	Combined EIS/EES	DCCEEW
Heybridge Shore Crossing (including cabling in Tasmanian Coastal Waters) (the proposal)	**EMPC Act (Tas)**	**This EIS**	**EPA Board**
	EPBC Act (Cwth)	Combined EIS/EES	DCCEEW
Commonwealth waters			
Subsea cables across Bass Strait in the Commonwealth Marine Area	EPBC Act (Cwth)	Combined EIS/EES	DCCEEW
Victoria			
Hazelwood converter station. Shore crossing (including cabling in Victorian Coastal Waters). Transition station. Underground land cable.	*Environment Effects Act 1978* (Vic)	Combined EIS/EES	Department of Transport and Planning
	EPBC Act (Cwth)		DCCEEW

* EPBC Act requirements are addressed in the Commonwealth and Victorian combined EIS/EES

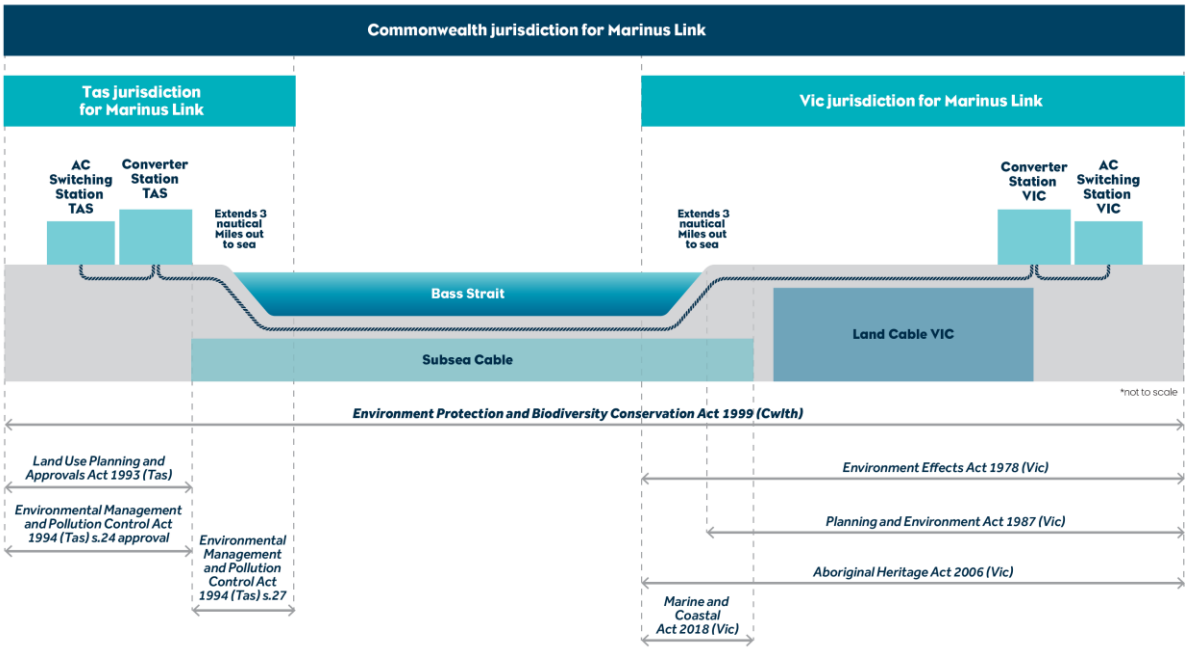


Figure 1-3 Key environment and planning legislation applicable to the project

1.6.3 Relationship to other development

As noted above, the proposal forms part of the broader Marinus Link project. TasNetworks is separately progressing the North West Transmission Developments (NWTD) project, required to enhance transmission capability in the north-west of Tasmania and support Marinus Link. The NWTD project is being assessed under the EPBC Act and the *Major Infrastructure Development Approvals Act 1999*. The NWTD project is required to provide additional network capacity and resilience to support the development of Marinus Link and the future demand from increased renewable energy generation in Tasmania. The NWTD project would connect to the Heybridge Converter Station (Figure 1-4). The switching station that forms part of the converter station is being assessed and approval sought by MLPL. It is expected that the switching station will be constructed and operated by TasNetworks.

The potential for cumulative impacts as of result of the proposal and NWTD have been assessed as part of this EIS (Section 6.14).

Figure 1-4:
Proposed site connections

Legend

- HVDC Landfall
- Proposed HVDC Subsea Cable
- Proposed NWTD Power Line
- Proposal Site
- Heybridge Converter Station Proposal Site
- Indicative Site Layout for the Heybridge Converter Station Proposal
- Elevation Contours (10m Interval)

Hydrography and Topography

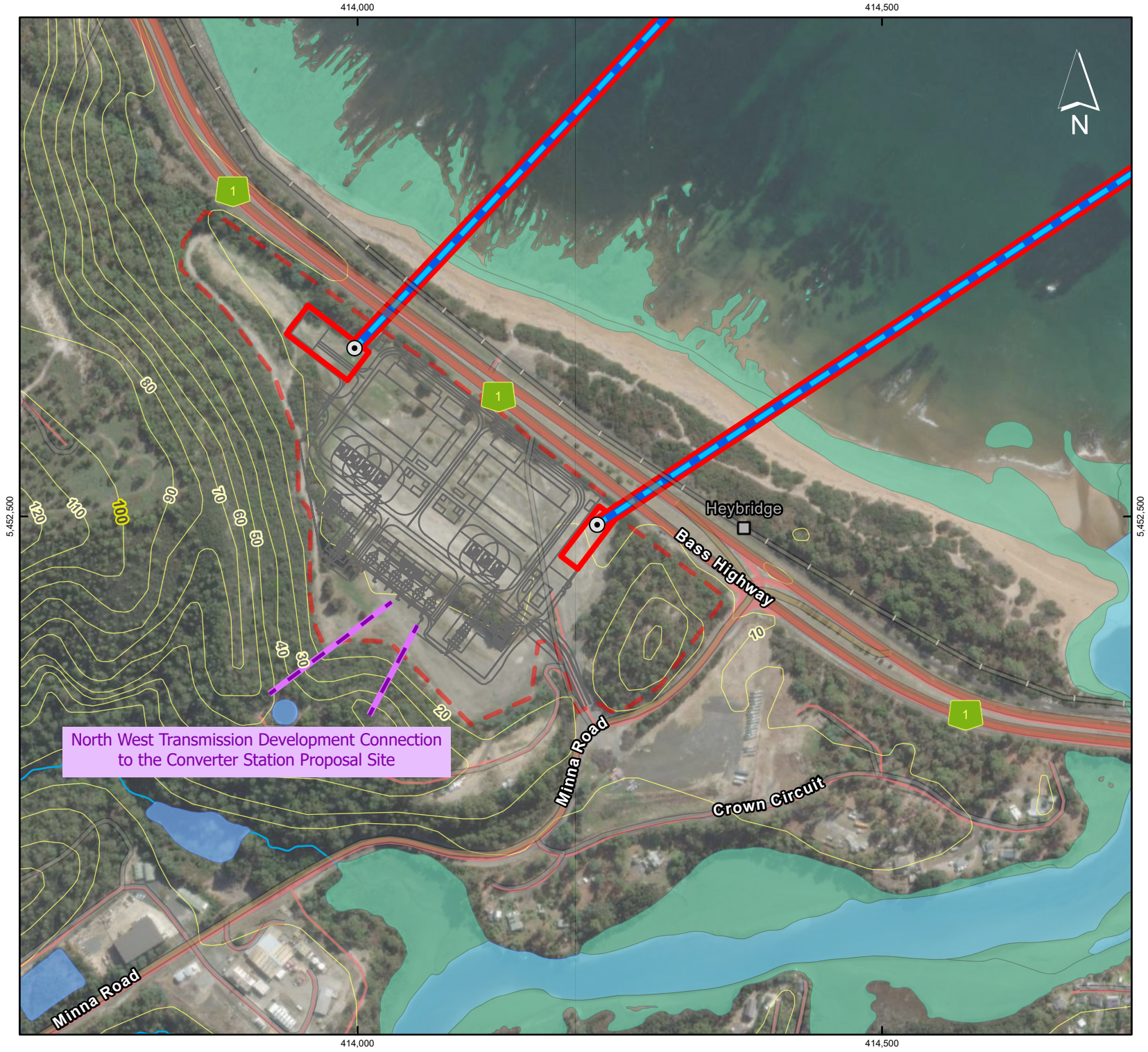
- Estuary
- Tidal Zone
- Water Body
- Major Road
- Minor Road

Scale: 1:5,000 @ A4

Spatial Reference: GDA2020 MGA Zone 55

0 50 100 200 300

Metre



MARINUS LINK

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Background Image: Esri Community Maps Contributors, DPIPWE, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, Foursquare, METI/ NASA, USGS, Maxar
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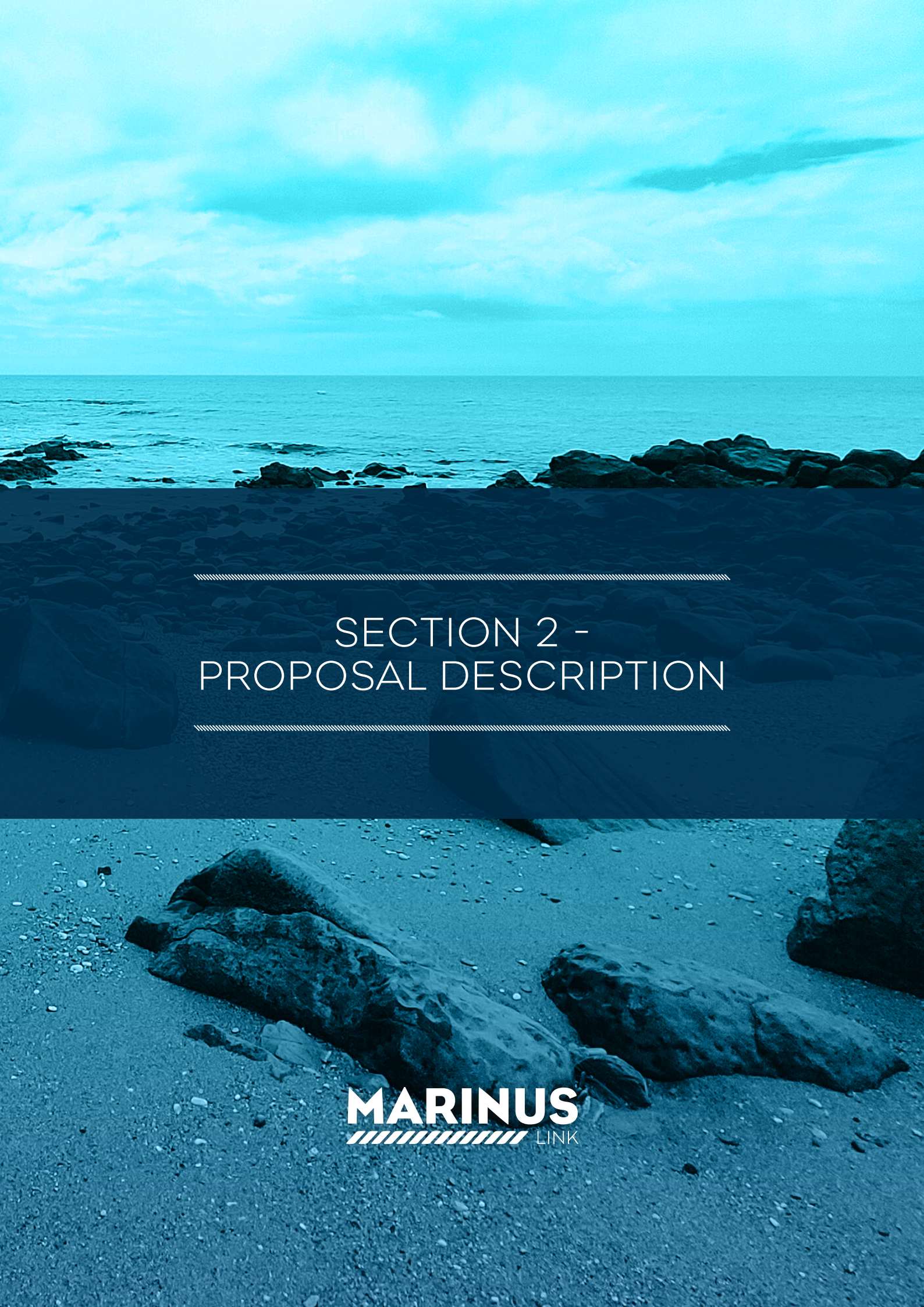


SECTION 2 - PROPOSAL DESCRIPTION

MARINUS LINK

2. Proposal description

This proposal description presents a feasible way that the project could be delivered and is the basis of the impact assessment presented in this EIS. An overview of the project is provided in Section 1.3. The final detailed design and construction methodology would be completed following project approvals and appointment of a principal contractor/s. It is noted that the final design would be required to be substantially in accordance with the proposal description in this EIS. The contractors' design and construction methods must comply with the approvals including mitigation measures and management plans approved by the EPA.

2.1 Proposal key features

The proposal involves the construction, operation, and decommissioning of the Heybridge Shore Crossing, which includes following components:

- Two temporary **HDD launch pads**, one at each of the western and eastern ends of the Heybridge Converter Station site.
- Six **HDD bores, and cable installation**, from the HDD launch pads and drilled below Bass Highway and the Western Line Railway extending approximately 1 km into Bass Strait (at approximately 10 m water depth).
- **Subsea cable installation from the HDD exit point** (at approximately 10 m water depth) to within 3 nm within Tasmanian coastal waters. Once in Bass Strait, the subsea cables for each stage would be laid in two bundles that each comprise two power cables and one fibre-optic cable.
- **Operation and decommissioning** of the subsea cable (within Tasmanian coastal waters consistent with the decommissioning of the length of the cables across Bass Strait).

A description of the construction and operation of the proposal are provided in Section 2.3 and 2.4 respectively. Detail relating to the decommissioning of the proposal is provided in Section 7.

2.2 Proposal site

The proposal site is partly located at Heybridge, west of the Blythe River mouth, within the Burnie City Council local government area (LGA). The title details and land tenure of the proposal site is included in Section 5.1. The proposal site location is shown in Figure 2-1 and an indicative site plan is provided in Figure 2-2.

The proposal site comprises three segments:

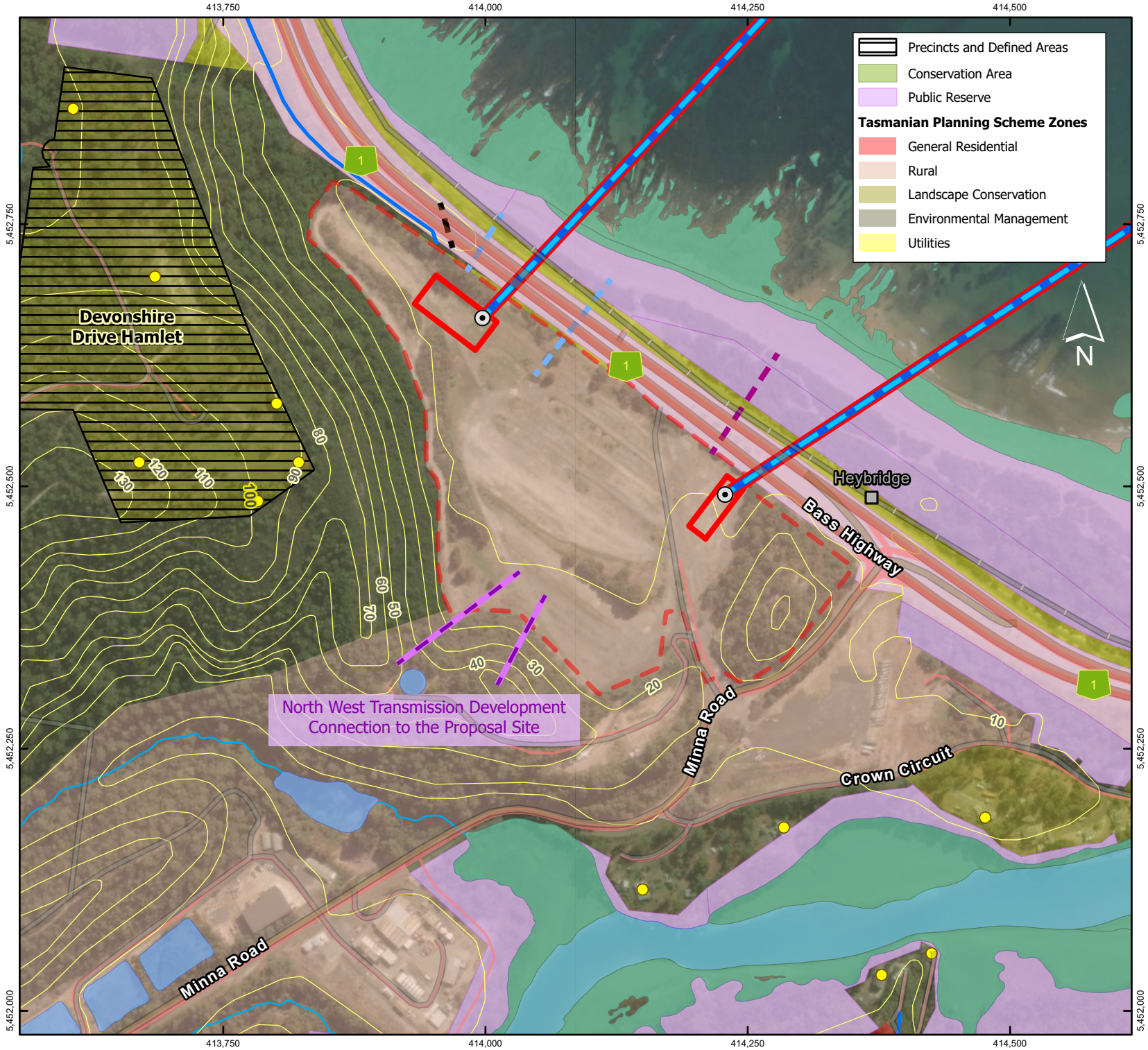
- The site of the HDD launch pads (**the launch pad site**). This is the proposed entry point for the HDD drilling head for the shore crossing and subsea cables. It is within the Heybridge Converter Station site. A draft internal site layout plan for the site of the HDD launch pads is provided in Figure 2-2.
- The location of the proposed underground shore crossings through which the cables would be installed (**the underground crossings).**

- The location of the cable alignments where the cables would be installed on the seabed to 3 NM (**the seabed alignments**).

Together these segments form the proposal site for the EIS. All permanent infrastructure would be within these sites. No off-site infrastructure would be required.

The existing environment of the proposal site and the planning, social and economic context in the vicinity of the proposal is further described in Section 5.

Figure 2-1: Proposal launch pad site location overview



Legend

- HVDC Landfall
- Proposed HVDC Subsea Cable
- Proposal Site
- Converter Station Proposal Site
- Proposed NWTD Power Line
- Noise Receptor Location

Existing Utilites and Infrastructure

- Former Rail Underpass
- Stormwater Pipe
- Tioxide Outfall Channel
- Taswater Reticulation Main

Hydrography and Topography

- Estuary
- Tidal Zone
- Water Body
- Watercourse
- Elevation Contours (10m Interval)
- Major Road
- Minor Road

Scale: 1:5,000 @ A4

Spatial Reference: GDA2020 MGA Zone 55

0 50 100 200 300

Metre

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Figure 2-2: Indicative site plan (construction)

Legend

- HVDC Landfall
- Proposed HVDC Subsea Cable
- Proposal Site
- Heybridge Converter Station Proposal Site
- Indicative Diesel Generator and Oil Tank
- No Go Zone - Priority Vegetation
- Construction Laydown Area - Temporary
- Major Road
- Minor Road

Scale: 1:3,500 @ A4

Spatial Reference: GDA2020 MGA Zone 55

0 25 50 100 150 200

Metre

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Figure 2-3:
Proposal features and components (operation)

Legend

- HVDC Landfall
- Proposed HVDC Subsea Cable
- Heybridge Converter Station Proposal Site
- No Go Zone - Priority Vegetation
- Major Road
- Minor Road

Scale: 1:3,500 @ A4

Spatial Reference: GDA2020 MGA Zone 55

0 25 50 100 150 200

Metre

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Date Figure Exported: 22/11/2024

2.3 Construction

2.3.1 Pre-construction phase

Prior to the commencement of construction, the proposal would be subject to ongoing detailed design, including finalisation of the construction methodology and low-impact site works.

This may include the following:

- Completion of all detailed engineering and design investigations required for final design.
- For areas identified as a contamination concern, carry out a review of further information and a detailed site investigation to confirm the extent of contamination (if any) prior to commencement of construction in accordance with MM CL01.
- Development of a Construction Environmental Management Plan (CEMP) (MM Gen02) and relevant sub plans.
- Completion of inspections and monitoring committed to in this EIS, including:
  - Surface water monitoring to establish baseline conditions prior to construction, where required (MM SW04).
  - Additional background noise monitoring at noise affected sensitive receptors in the vicinity of the proposal site (MM NV01).
- Surveys and utility location and verification to level A standard.
- Site preparation including installation of environmental controls as necessary and ground/site preparation.
- Obtaining written consents from the Department of State Growth, as the relevant road authority and representative of the Minister administering the *Roads and Jetties Act 1935*; TasRail, as the relevant rail infrastructure manager; and the relevant Crown and reserved land managers.
- Development of an emergency response plan for the proposal (MM Gen05).

2.3.2 Construction overview

The construction of the proposal comprises all work required to construct the proposal as described in this EIS (but excludes low impact works) and includes:

- Establishment of a **temporary access** to the HDD launch pad/s.
- **Earthworks** to construct the HDD launch pad, including remediation and/or disposal of contaminated soils, should they be disturbed for the purpose of these works.
- **HDD** of six bores from the HDD launch pads.
- **Subsea cable installation**, pull through of cables through the conduit to or from the HDD launch pads.
- Testing of the subsea cable.

The construction of the proposal is anticipated to be carried out in two stages over four to seven years as follows:

- Stage 1 would involve establishment of the HDD pads, the drilling of six bores and laying the eastern cable circuit.
- Stage 2 would involve laying of the western cable circuit.

Across the two stages, it is anticipated that the HDD of the six bores (the underground crossing) occurring in Stage 1 would take approximately 6 months to complete. This component being the longest duration of construction of the proposal.

2.3.2.1 Horizontal directional drilling

The following temporary works would be associated with the establishment of two HDD launch pads:

- Establishment of a hardstand/pad that would accommodate temporary site facilities including laydown/storage, temporary site office and amenities and the HDD equipment including the drill rig. The HDD launch pads would be fenced and designed to provide noise attenuation.
- Installation and anchoring of the HDD drill rig.
- Establishment of temporary HDD entry pit (approximately 4 m x 4 m).
- Establishment of temporary pit to capture drilling mud (cuttings).
- Any excavated or excess soils or water would be reused on site, unless they present a contamination risk, in which case they would be managed consistent with the impact assessment in this EIS (see Section 6).

These activities relate to Stage 1 and Stage 2 and would be undertaken during Stage 1 works. Figure 2-4 shows the conceptual shore crossing method. There would be six bores drilled from two HDD launch pads under Bass Highway and the Western Line Railway: one for each cable bundle (which includes two power cables and one fibre optic cable). An HDD rig would conduct the drilling, and the drill rig would be operated by a specialised HDD contractor. It is anticipated the drilling would take approximately 6 months to complete.

The installation of a cable by HDD involves drilling a pilot hole at an angle beneath the surface from an entry point at the HDD launch pad site then pushing the pilot through the subsurface until it emerges at the start of the seabed alignments. The underground crossings would be constructed approximately 10 m below ground at the coast. Each of the six HDD crossings would extend approximately 1 km offshore out along the seabed alignment and would emerge at an exit point (at approximately 10 m water depth).

Once the pilot holes are completed, the drill rig would enlarge the boreholes to allow steel casing and high-density polyethylene pipe to be installed through, cables would then later be pulled or pushed through.

Each of the six HDDs would produce approximately 200 m^3 of cuttings. Drilling fluids, comprising water and bentonite clay, a non-toxic, natural clay-based mineral, would be used to hydraulically drive the drilling head, maintain bore stability, act as a coolant and to wash in-situ material (the cuttings) from the drilled hole and to seal and line the borehole to facilitate insertion of the casing. During HDD drilling mud or fluids and cuttings are mixed, used and recycled in a closed system designed to avoid spills and seepage to the water table and adjacent watercourses. The drilling fluid would be recycled and reused. The drilling fluid cycle comprises the

HDD rig, a return sump and the solids control unit. The drilling fluid recirculating system at the HDD drill site extracts drill cuttings for reuse or for transportation offsite, depending on their properties.

Cuttings would be tested and treated where acid sulfate soils (ASS) are encountered. Waste drilling fluid would be pumped to road tanker for appropriate offsite treatment and disposal.

If a bore head is lost or malfunctions and cannot be recovered, it would not be retrieved. Rather, a new borehole would be drilled adjacent to the failed borehole. The failed borehole would be filled from the launch pad site with a cement slurry to seal and stabilise the borehole.

The HDD launch pad boreholes would be capped with steel plates and all equipment until each stage of cable installation is about to commence.

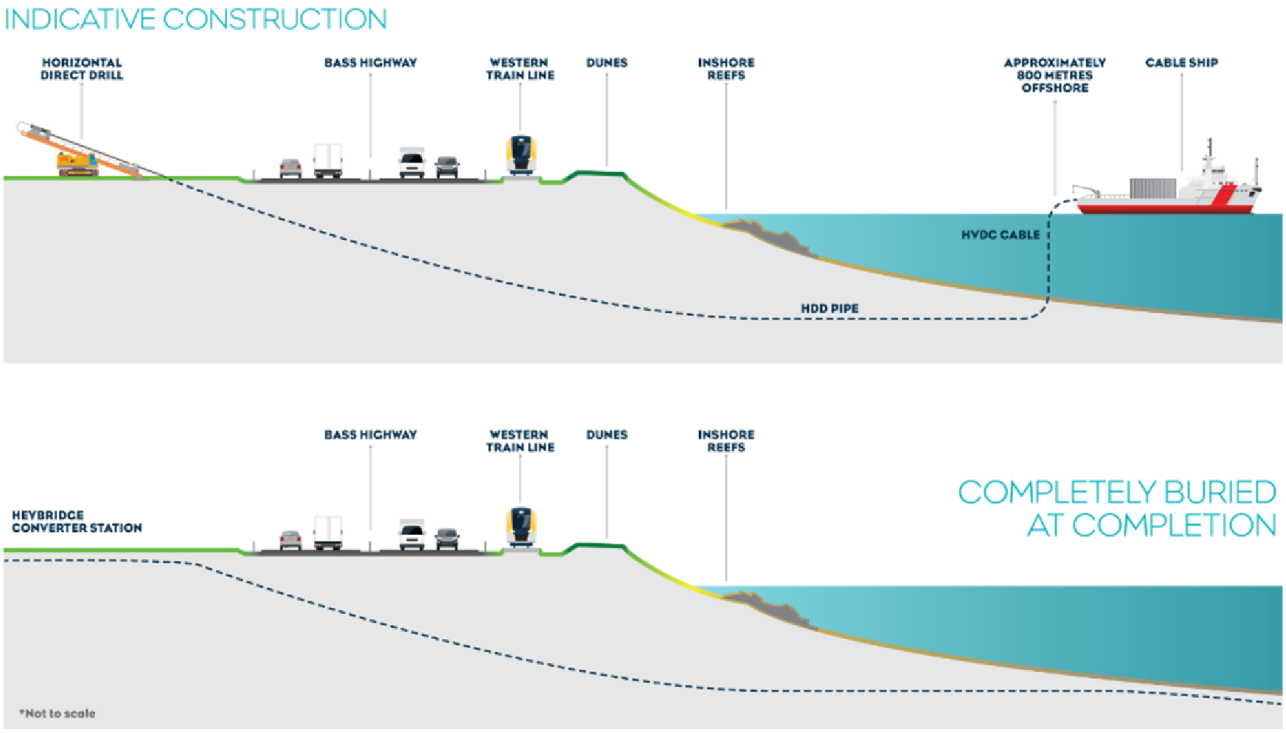


Figure 2-4 Cross section of shore crossing during and upon completion of construction

2.3.2.2 Subsea cable installation

An illustration depicting the subsea cable installation process is provided in Figure 2-5 and an illustration of the jetting trencher is shown in Figure 2-6. Subsea cable installation would be performed in Stage 1 and Stage 2. The sequence for installation of each cable circuit during Stage 1 and Stage 2 are described in Table 2-1.

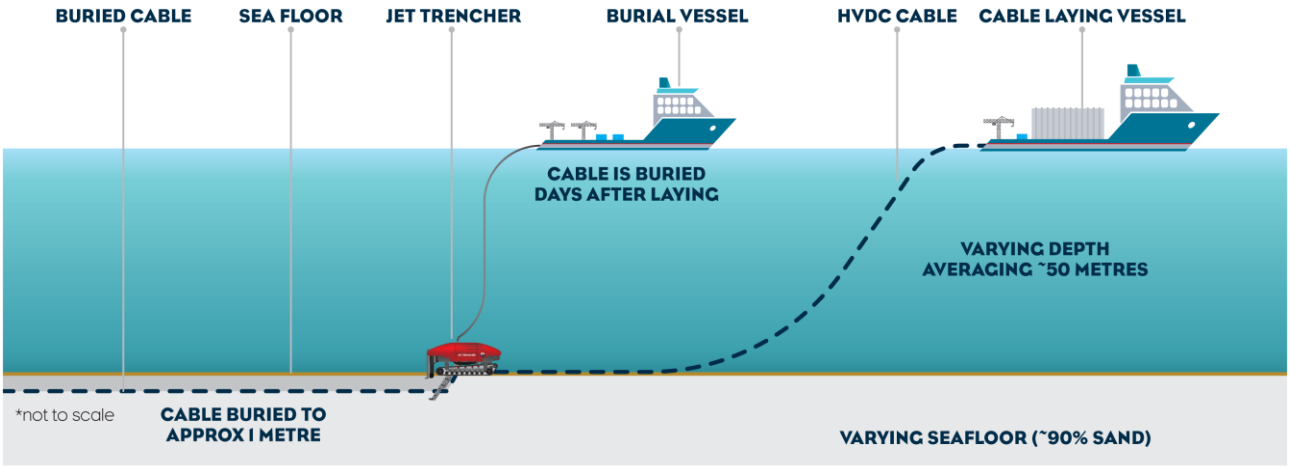


Figure 2-5 Subsea cable laying and burial

Subsea cable installation activity that is the subject of this EIS would occur in Tasmanian coastal waters. It is anticipated that there would be some locations within Tasmanian coastal waters where an adequate burial depth cannot be reached due to the presence of underlaid rocks. In these cases, mechanical trenching, rather than water burial, may be required. Where required, mechanical trenching would involve:

- Cutting rock using rotating chainsaw wheels.
- Laying of a bedding of rock, concrete or cast iron shells.
- Overlaying the cable circuit with rock and/or sand.

After each stage of burial activities have been completed, a survey (undertaken by remotely operated vehicle) would be completed to confirm the cable circuit has been buried correctly within the seabed alignments.

Table 2-1 Sequence of subsea cable installation

Construction sequence	Activity	Description
1	**Pre-lay survey**	Prior to laying each subsea cable, a pre-lay survey would be completed by a remotely operated vehicle to confirm the exact location of the cable route. A pre-lay grapnel run would follow and remove the debris from the seabed alignment. The grapnel would cut and collect any seabed debris along the seabed alignment such as discarded fishing nets, anchor chains to prevent these from damaging or impeding the works. The survey would identify precise crossing points of any existing infrastructure.
2	**Third party infrastructure crossing**	Where existing underwater infrastructure needs to be crossed by the cables, rock bedding and/or concrete mattress would be used to cover and protect the existing infrastructure. This would involve: • Conducting an engineering assessment of the structural integrity of the infrastructure to be crossed to determine its suitability for the crossing method. • Halting the pre-lay grapnel run approximately 250 m either side of where the infrastructure. • Laying rock over the infrastructure (commonly referred to as a ‘rock bridge’).

Construction sequence	Activity	Description
3	**Cable lay vessel**	The cable lay vessel used for the installation of each cable circuit would need to have two turntables, one for each power cable and a cable drum for the fibre optic cable. The power cables and fibre optic cable for each stage would be bundled and tied together using polypropylene rope and cable ties as the cables are unspooled and lowered over the back of the vessel to the seabed.
4	**Support vessels**	Once the cable circuit is laid on the seafloor, several smaller vessels (typically locally-owned commercial and charter or fishing vessels) would be deployed as guard vessels to ensure that no damage is done by third parties while the cable is exposed on the seabed.
5	**As laid survey**	A burial vessel would locate, bury and survey the as-laid location of the cable circuit on the seafloor. Geophysical and geotechnical surveys indicate the cable circuit would be buried using water jetting tools to fluidise the sand for the majority of Bass Strait, with small sections of harder substrate requiring mechanical trenching tools or rock mattressing to protect the cable. The subsea cable circuit would then be picked up from the seafloor and fed over the burial tools to avoid damage as the seabed is fluidised by water jetting. The subsea cable circuit is then lowered into the fluidised seabed off the back of the burial tool. The cables would be buried to a depth of between 0.5 m to 1.5 m depending on the substrate. The cable trench would backfill with sand and silt by natural processes. Rock mattresses or armouring, concrete mattresses or cast-iron shells may be required in Tasmanian nearshore waters and in the paleochannels to protect the cables where they are laid on hard substrate. Where the cables cross existing underwater infrastructure, the cables would be laid across the 'rock bridge', and then covered with further rock and/or concrete mattress to a minimum depth of 1 m to avoid anchor interaction.
6	**Cable protection**	Cable protection would be undertaken as a separate campaign. For offshore works, it is expected that at any one time there would be in operation one cable lay vessel, one burial vessel, and five guard vessels.

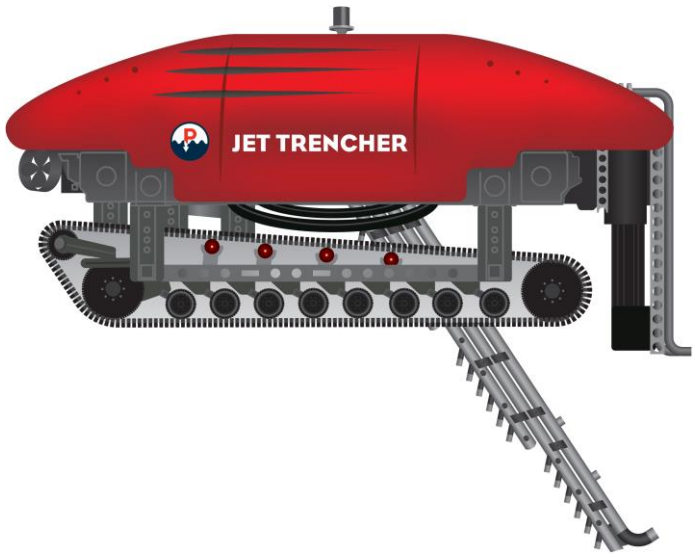


Figure 2-6 Jetting trencher

2.3.2.3 Existing infrastructure crossings

It is anticipated that the laying of the western cable circuit during Stage 2 would intersect the two existing disused outfall pipelines of the former tioxide plant within Tasmanian coastal waters. Preliminary design investigations indicate that the existing disused outfall pipelines would be crossed in accordance with the method described in Table 2-1.

2.3.3 Plant and equipment

Construction of the proposal would require the movement of equipment, plant, materials, and workforce personnel. The plant and machinery typically required for construction of the HDD launch pad component of the proposal includes:

- HDD drill rig/s.
- Heavy rigid, flatbed and light trucks.
- Light vehicles.
- Franna crane.
- Excavator.
- Water/mud pump/s.
- Generator/s.

For subsea cable installation within Tasmanian coastal waters, it is expected that at any one time there would be the following vessels and equipment in operation:

- One cable lay vessel.
- One burial vessel.
- Remotely operated vehicle.
- Water jetting tool.
- Up to five guard vessels.

Other plant/vessels that may be required to facilitate the subsea cable installation include:

- Mechanical trenching tool.

2.3.4 Raw materials and energy

It is anticipated that materials and equipment would be sourced locally where practicable. The proposal itself would not have any energy outputs. There is capacity for meeting energy needs from the grid and available fuel supplies. Water required for HDD drilling would be supplied from a hydrant at the Heybridge Converter Station site, with any rock and cement and aggregate necessary for HDD access and cable installation sourced from local suppliers in Northern Tasmania (or Victoria if the cable laying vessel arrives from a Victorian port) where practicable. Quantities of rock, cement and aggregate would be modest and within the capacity for local businesses to supply. If material (i.e. rock) is required is beyond the capacity of the local businesses, additional approvals would be sought by the construction contractor. The final source of construction materials would be confirmed with the construction contractor and during detailed design.

2.3.5 Construction hours

Construction of the following proposal components would be undertaken outside the prohibited hours of use in accordance with the *Environmental Management and Pollution Control (Noise) Regulations 2016* (EMPC Noise Regulations):

- Establishment of temporary access to the HDD launch pad/s.
- Earthworks to construction the HDD launch pad/s.

Refer to Table 2-2 for details relating to the prohibited hours of use for mobile machinery and portable equipment. Portable equipment includes any equipment that can be demounted and transported without major disassembly, such as power tool, gas or air compressor, generator, pump or cement mixer.

Table 2-2 Prohibited hours of use

Days of operation	Prohibited hours of use
Monday to Friday	Before 7:00 am and after 6:00 pm
Saturday	Before 8:00 am and after 6:00 pm
Sunday or Public Holiday	Before 10:00 am and after 6:00 pm

Construction activities that may be carried out within prohibited hours include:

- Works that are inaudible at the nearest residential sensitive receptor.
- Works in accordance with written consent provided by the Road Authority.
- Delivery of oversized materials as required by Department of State Growth.
- Emergency situations where it is required to avoid the loss of lives and property and/or prevent environmental harm.

With the exception of emergencies and subject to the terms of any licence, activities would not take place within prohibited hours of use without prior notification to nearby receptors and regulatory authorities (as required by condition of a licence).

Construction activities that would be undertaken during prohibited construction hours include the drilling of six bores from the HDD launch pad site. The drilling activity (for both stages) is anticipated to occur almost continuously for a total period of approximately 6 months.

Subsea cable installation for each stage of cable laying and burial, conducted predominantly at sea from a cable lay vessel (with various support vessels) would be undertaken 24 hours a day, but not continuously, for only periods of weeks at a time within Tasmanian coastal waters (e.g., two weeks for each cable landfall, two weeks for each cable circuit laying and two weeks for each cable burial). The entire Bass Strait cable lay would take up to three months over a 12-month window of construction.

2.3.6 Construction workforce

It is anticipated that during construction, the project is expected to add 1,297 full time equivalent (FTE) jobs in the North West Tasmania regional economy. During peak construction periods, the proposal and the Heybridge Converter Station are anticipated to together create 285 direct jobs per year in Tasmania.

The workforce would be made up of local, intrastate, interstate, and international personnel depending on the complexity of the work and the requirement for technical specialists. It is anticipated that local workers from North West Tasmania may make up approximately 45% of the construction workforce, with 30% from elsewhere within Tasmania. Non-local Tasmania workers would be expected to seek short-term accommodation in major townships across North West Tasmania, including Burnie and Ulverstone.

For the construction and installation of the subsea cable, a specialised subsea cable laying crew would be required. The cable lay vessel would be staffed by an 80 to 100 person crew working 24 hours, seven days per week in shifts. It is anticipated that the workforce associated with the cable lay vessel would be accommodated on the cable lay vessel during cable laying activities.

2.3.7 Transport and vehicle movements

Construction would require the movement of equipment, plant, materials, and workforce personnel. Access to the HDD launch pad site would be from Minna Road, off Bass Highway.

Worker parking would be provided within the Heybridge Converter Station site. Traffic movements for the proposal is anticipated to be up to 34 vehicle movements total during peak hours (am and pm), and up to 74 movements total daily.

The cables would arrive in Bass Strait loaded on a cable lay vessel. For Stage 1, the cable lay vessel would transport the cable lengths from the northern hemisphere to Port of Melbourne in Victoria. The cable lay vessel would mobilise from those ports to the eastern seabed alignment to land the cables and commence cable laying.

For Stage 2, the cable lay vessel would be re-supplied either from the northern hemisphere or with cable from a cable transport vessel in a Victorian or Tasmanian port before arriving at the western seabed alignment.

Section 6.13 includes a description of the volume, composition, origin, destination, and route for vehicle movements (including road, rail, shipping, and air) likely to be generated for the construction of the proposal.

2.3.8 Testing and commissioning

On completion of installation, the subsea cable (including within 3 NM) would be tested which would involve low voltage power being induced into the cable sheath to verify its integrity, and a HVDC test. It is anticipated the testing activity would take approximately three to four weeks requiring only handheld equipment. The testing would be initiated from either the proposal site or at the proposed cable landfall site in Victoria (Waratah Bay, at the transition bay) however personnel would be required at the other side for monitoring.

Commissioning of the HVDC land cable terminations would be undertaken as part of the testing and commissioning of the proposed Heybridge Converter Station and is detailed in the Heybridge Converter Station EIS.

2.3.9 Reinstatement

Following construction, the site reinstatement would include the following:

- Removal of plant and machinery, and temporary buildings not required for construction of Stage 2.
- Clear and clean working areas at completion of construction including treatment/removal of any weed infestations.
- Removal and appropriate disposal of hardstand and any temporary concrete foundations.
- Restoration of disturbed land (not required for a subsequent stage) to its pre-existing (or better) condition.

The CEMP will include these reinstatement measures (refer to Section 7).

2.4 Operation

There are no ongoing operational requirements related to the land component. Operational activities associated with the proposal are related to the subsea cables only. A cable monitoring system would be installed with the cable enabling remote monitoring for operations and maintenance purposes using the inbuilt fibre optic cables.

Additional activities related to the subsea cables are likely to include:

- Periodic inspection of the subsea cables by remotely operated vehicles.
- Servicing and repair of the subsea cables including scheduled minor and major outages.

The indicative maintenance schedule for the overall proposal is provided in Table 2-3.

Table 2-3 Indicative maintenance schedule for the project

Activity area	Asset area	Schedule
Periodic inspections	Cable/s	Year one then every two years
Service and repair	Cable/s	Years 10, 20 and 30

2.5 Decommissioning

The operational lifespan of the project is a minimum of 40 years. At this time, the project would be either decommissioned or upgraded to extend its operational lifespan. Decommissioning would be planned and carried out in accordance with regulatory requirements at the time, and in accordance with a decommissioning plan that would be prepared consistently with the project's OEI Act licence. Decommissioning activities are further discussed in Section 7.

SECTION 3 - RATIONALE AND PROJECT ALTERNATIVES

3. Rationale and project alternatives

3.1 Project rationale

3.1.1 Supporting energy transformation

Australia's eastern and south-eastern states operate as an integrated NEM, with five regions: Tasmania, Victoria, Queensland, New South Wales (including the Australian Capital Territory), and South Australia). These regions are able to trade electricity across boundaries based on available supply and demand.

The NEM is experiencing a rapid transition from dependence on fossil fuels toward a low emissions power system. Significant investments in generation, storage and transmission and system services are required to facilitate this transition. The Australian Energy Market Operator (AEMO) plays a crucial role in maintaining and improving system security and reliability in the NEM. Every two years, AEMO publishes an Integrated Service Plan (ISP), a comprehensive whole-of system plan for the efficient development of the NEM to achieve power system needs such as reliability and security (AEMO 2022).

The 2024 ISP is a plan for investment in the NEM to ensure a reliable and secure power system through Australia's transition to a net zero economy. It states that the energy transition is well underway and is by far the biggest transformation since it was formed 25 years ago. As renewable energy sources become the dominant source of generation, dispatchable resources are required to address the effect of variable weather conditions and therefore energy generation. The retiring coal capacity would need to be replaced with low-emission, dispatchable alternatives like large batteries and pumped hydro storage to support a reliable and secure NEM. As well as the shift from coal to firmed renewables and low emissions sources, the NEM would treble capacity to meet future demand, and facilitate a two-way flow of electricity across the networks (AEMO 2024).

The latest ISP states that about 90% of the NEM's coal fleet is forecast to retire before 2035 in the most likely future scenario, and the entire fleet before 2040. Renewables accounted for almost 40% of the total electricity delivered through the NEM in 2023, momentarily reaching greater than a 70% share in October 2023. Replacement investments are needed for Australia's electricity system to remain secure, reliable and affordable (AEMO 2024).

AEMO has identified Marinus Link as a 'critical project', marking it as 'actionable' in the 2020 ISP (July 2020), 2022 ISP (June 2022) and the 2024 ISP (June 2024). The ISP outlines a roadmap for the efficient development of the NEM over the next 20 years. The 2024 ISP suggests that actionable projects including Marinus Link 'should progress as urgently as possible' because its early delivery would provide 'valuable insurance against early coal closures or if the development of generation and storage slows' (AEMO 2024).

Tasmania has significant renewable energy generation potential, exceeding current demand within the state. In 2020, the Tasmanian Government legislated a target to double renewable energy generation in Tasmania by 2040 (based on 2022 renewable energy generation, refer to section 3C of the *Energy Co-ordination and Planning Act 1995* (Tas)). Not only are Tasmania's renewable energy and storage capacity resources

abundant, but they have also historically been cost-competitive when compared to similar developments on mainland Australia.

Energy trading between Tasmania and other NEM regions is currently made possible by Basslink, a 600 MW HVDC interconnector between George Town in Tasmania and Loy Yang in Victoria. However, Basslink's capacity is often highly utilised, limiting energy transmission between Tasmania and the other NEM regions. The project would substantially increase energy trading capacity between Tasmania and the rest of the NEM, allowing for surplus renewable energy generation above the current Basslink capacity to be available to the NEM. The additional transmission capacity would also allow storage of surplus renewable energy from the mainland when available, and dispatch of stored energy in times of high demand or low renewable energy output.

The project would unlock Tasmania's renewable energy and energy storage capacity, providing the infrastructure for power system security, reliability, and affordability in the NEM.

Tasmania's *Climate Change Action Plan 2023-25* was released on 1 June 2023, superseding its earlier Climate Action 21. These plans demonstrate Tasmania's long-standing commitment to addressing climate change and contributing to the global response. The 2023-25 plan sets a target to maintain net zero greenhouse gas (GHG) emission or lower from 2030 and a target to double Tasmania's renewable electricity production (from 2020 levels) by 2040, with an interim target of 150% by 2030. One of the actions to achieve this target is 'to progress national-scale renewable energy projects such as Marinus Link and the Battery of the Nation.'

3.1.2 Key objectives of the project

The key objectives of the project are:

- To be a significant enabler of Australia's energy transition to renewables through better access to hydro resources, wind generation and future pumped storage in Tasmania.
- Assist the Australian government achieve its international greenhouse emissions reduction and renewable energy generation targets, and in doing so contribute to the mitigation of climate change and demonstrate a climate adapted future.
- Increase energy resilience for Tasmania, with additional trade capacity and reduced reliance on the single existing interconnector.
- Wholesale energy cost reductions in the NEM.
- Economic benefits through construction and operations.
- Significantly increased telecommunications capacity and resilience between Tasmania and mainland Australia.

3.1.3 Cross-governmental support for the project

The Commonwealth, Tasmanian and Victorian governments have recognised Marinus Link as a project of national importance, consistently supporting it through various policies over the years:

- **Australia's Energy Ministers:** In September 2023, Australia's Energy Ministers recognised Marinus Link as a project of national significance. The Commonwealth Government is working closely with Tasmanian and Victorian governments to ensure the project's success.
- **The Commonwealth Government:** In April 2022, a $75 million grant was approved to support the completion of the Project Marinus Design and Approvals phase.
- **Infrastructure Australia:** In February 2021, Marinus Link was upgraded from a Longer-Term Priority Initiative to a High Priority Initiative on the Infrastructure Priority List. By February 2023, Infrastructure Australia named Marinus Link as an actionable network investment in the NEM to ensure future connectivity and reliability.
- **Tasmanian Government:** The Department of State Growth has listed Marinus Link as one of four Major Investment Projects that would drive investment stimulus, create jobs and reduce power prices. It is also part of the *Tasmanian Renewable Energy Action Plan* (December 2020) Priority One actions to double renewable electricity generation by 2040.
- **Infrastructure Victoria:** The Infrastructure Strategy 2021-2051 (December 2021) names Marinus Link as a project that can augment critical electricity transmission infrastructure and improve network resilience. The Victorian Government is encouraged to assist Marinus Link by progressing design and approvals.
- **Victorian Government:** The 2035 Emissions Reduction Target: Driving Real Climate Action document (May 2023) lists the acceleration of Marinus Link as a key transmission infrastructure project to achieve Victoria's transition towards renewable energy and to achieve emission reduction targets.

3.2 Proposal specific rationale

To facilitate the project objectives outlined in Section 3.1.2, for each proposed 750 MW circuit, electrical cables are required to connect transmission networks in Tasmania and Victoria. The site selection process for the location of the proposal is detailed in Section 3.3.

3.3 Route and site selection process

The project involved a comprehensive route and site selection process that considered technical, environmental, cultural and social constraints. Desktop assessments of ecological values, cultural heritage values and geomorphology were completed to inform the route selection process, with detailed consideration of options occurring since 2018.

The route selection process aimed to identify the "shortest, technically feasible route between connection points that minimises environmental, land use and cultural heritage impacts" (Marinus Link 2021). It adhered to best practice environmental management as defined by the EMPC Act, referencing and considering strategic foundations for the project and for various landscapes, minimising potential environmental and social harms, involving the community in project development and design (refer to Section 4), and addressing design limitations. The route and site selection process are outlined in Table 3-1.

More details about route and site selection are available in an online Marinus Link Route Options Report (Marinus Link 2021).

Table 3-1 Route and site selection process

Step	Route / site selection process	Relevant to this proposal?	Section where discussed
1	Identifying what connection is required (start and end points) and identifying what is proposed to be built (technical specification).	Yes	Section 3.3.1
2	Identifying the physical, biological and socioeconomic values that exist in the area of interest, considering the constraints and identifying the opportunities from these values.	Yes	Section 3.3.2
3	Identifying potential routes and site selection, including: • Identifying prudent and feasible corridors. • Identifying prudent and feasible routes within the corridors. • Identification of the converter station site.	Yes	Section 3.3.3
4	Evaluating the routes against route selection criteria and constraints, identifying the least constrained routes and ground-truthing the least constrained routes.	Yes	Section 3.3.3
5	Identifying a preferred route.	Yes	Section 3.3.4

3.3.1 Connection to grid

To support the NEM's transformation to predominately renewable energy generation, it was identified that an additional connection between Victoria and Tasmania is required to provide more dispatchable energy. This additional connection would allow for the efficient use of energy generated by current renewable energy developments and encourage new renewable energy development in both regions.

An economic analysis determined that a 1,500 MW transmission capacity would provide the highest net economic benefit (TasNetworks 2021). To achieve this, the best approach is to interconnect the electricity grids of Tasmania and Victoria by linking their 'grid backbones'.

The grid backbone is the primary transmission network of the NEM and is the strongest part of the energy network. This backbone is designed to handle large amount of energy transfer efficiently. In northern Tasmania, the grid backbone consists of a 220 kV double circuit transmission network, which includes the Sheffield, George Town and Palmerston substations, as well as the Farrell Substation. The grid backbone along the south coast of Victoria is the 500 kV transmission network between Loy Yang and Portland Alcoa substations.

Existing connection locations near the coast were preferred over new infrastructure and locations to reduce the length of land cables. Locations with proximity to existing and proposed renewable energy zones (REZ) also maximise the use of these areas. By connecting these strong points in the network, the interconnection can effectively manage the energy transfer between Tasmania and Victoria.

3.3.2 Existing values and constraints

The corridor and route selection process considered the environmental, physical and social context of the project through a review of relevant publicly available information and desktop studies. These values, summarised in Section 5, were identified early to guide the process and avoid impacts where practicable.

Identified environmental, social, and cultural heritage constraints and opportunities, along with statutory and regulatory requirements, the technical specifications and objectives of the project, and community expectations, formed the basis for the route and site selection criteria. These criteria were to select potential landfalls, shore crossings and converter site locations.

Constraints were categorised based on the level of constraint in the context of the proposed infrastructure, as shown in Table 3-2. While this constraints analysis was conducted for the entire project, only the constraints relevant to the proposal (along with their assigned category) are shown in Table 3-3 for the purpose of this EIS.

Table 3-2 Level of constraints

Level	Description
Very high	Areas or land uses where transmission infrastructure may have significant impacts that may be difficult to effectively mitigate. Avoiding these areas is an objective, although may not always be practical to achieve.
High	Areas or land uses where avoidance is prudent, but transmission infrastructure could be sited, and impacts mitigated with careful route selection and design or site-specific management measures or both.
Moderate	Areas or land uses where transmission infrastructure could be sited, and impacts can be managed with standard mitigation and site-specific measures that address the type and nature of constraint.
Low	Areas or land uses where transmission infrastructure is compatible with existing land uses or the impacts can be effectively mitigated or both.

Source: Marinus Link (2021)

Table 3-3 Route and site selection constraints relevant to the proposal

Category	Constraint
Very high	Marine and coastal parks declared under Tasmanian legislation
	Threatened (critically endangered) species listed under Tasmanian legislation
High	Threatened (endangered and vulnerable) species listed under Tasmanian legislation
	Threatened native vegetation and ecological communities listed under Tasmanian legislation
	Registered maritime archaeology sites (shipwrecks, etc.)
	Offshore oil and gas production leases
	Aquaculture sites
	Institute for Marine and Antarctic Studies scallop survey sites
	Marine hazard areas
	Marine critical habitat sites
	Australian fur seal colonies
	Little penguin biologically important areas (BIAs)
	Sponge garden sites
	Anchorages
Moderate	Seagrass beds or meadows
	Little penguin BIAs (foraging)
	Submerged reef
Low	Mineral and petroleum exploration licences and permits

Source: Marinus Link (2021)

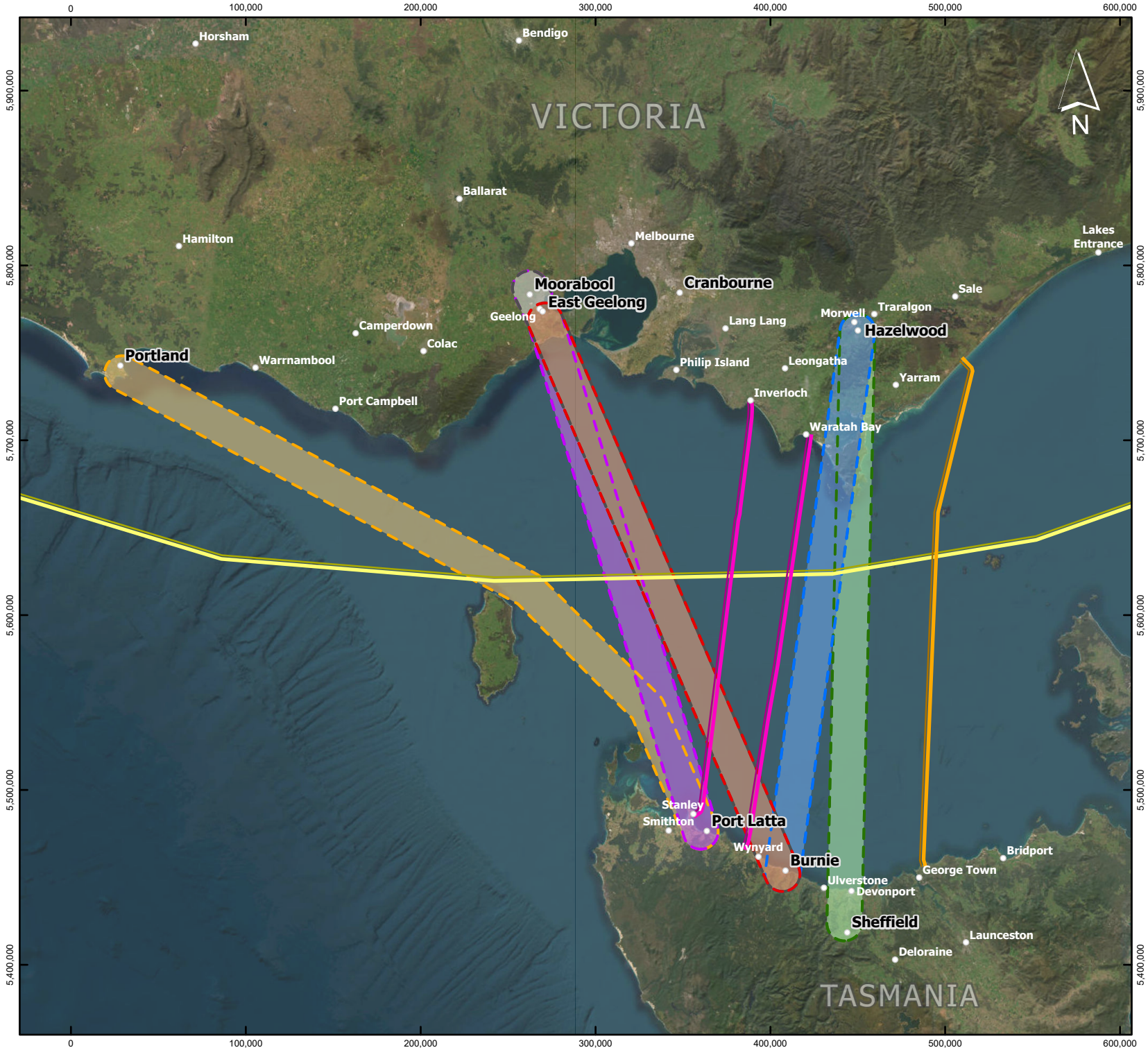
3.3.3 Assessment of potential sites

The following potential connection points were identified in Tasmania based on their capacity to support the energy transmission and their proximity to the coast:

- **Burnie Substation:** Connected via 220 kV overhead transmission line to Sheffield Substation and close to the North West Tasmania REZ.
- **Port Latta Substation:** Closest to North West Tasmania REZ and proposed renewable energy parks.
- **Sheffield Substation:** Strongest existing node in the grid backbone, close to the North West Tasmania REZ.

Based on these potential connection points and grid capacity, seven potential corridors that met the project objectives were identified and are shown in Figure 3-1.

Figure 3-1:
Potential corridor options



Legend

- Basslink Cable
- Telstra Cable
- Indigo Central Cable (Indicative Only)

Prudent and Feasible Corridors

- Burnie to East Geelong
- Burnie to Hazelwood
- Burnie to Moorabool
- Port Latta to Moorabool (via East Geelong)
- Port Latta to Portland
- Sheffield to Cranbourne
- Sheffield to Hazelwood

Scale: 1:3,000,000 @ A4

Spatial Reference: GDA2020 MGA Zone 55

0 25 50 100 150

Kilometres

MARINUS LINK

Acknowledgements and Sources:

Data Source: Marinus Link GIS Data Repository.
Background Image: Earthstar Geographics
Produced By: Marinus Link for the Tasmanian Heybridge Shore Crossing EIS.
Date Figure Exported: 22/11/2024

The seven corridor options identified in the corridor selection process were further investigated to identify potential routes within these corridors. The route selection was guided by criteria included project objectives, engineering considerations and constructability, as well as the constraints and opportunities identified for the project. The selection criteria relevant to the proposal is presented in Table 3-4 and Table 3-5.

Table 3-4 Landfall and route selection criteria

Criterion	Considerations
Cost	• Capital expenditure (construction costs) • Optimise overall route length and trade-off between onshore and offshore • Operating expenditure (maintenance and transmission energy loss costs)
Onshore (and landfall constructability)	• Ease of access • Disruption to existing access, services and businesses • Potential for relocation of existing services • Workspace including stringing for horizontal directional drills or horizontal bores • Potential for contaminated land • Potential for unexploded ordnance • Landform, geology and soil conditions including exposure to hard and/or fractured strata, and slope failure • Watercourse crossings • Geotechnical considerations • Land availability • Proximity to the shore
Offshore constructability	• Nearshore water depth • Nearshore littoral currents (and drift) • Velocity of currents • Subsea infrastructure crossings • Potential for shipwrecks and other obstructions • Potential for unexploded ordnance • Disruption to existing access, services and businesses • Constraints on port operation (channels and anchorages) • Seabed conditions (exposure to hard and/or fractured strata) • Seabed mobility (sand-waves or other mobile bed-forms)
Third party interference	• Exposure to dragged anchors • Exposure to excavation or deep ripping • Exposure to piling or other intrusive activities
Avoid incompatible seabed uses	• Anchorages • Ship graveyards • Shipping lanes • Fishing activities that impact the seabed (trawling, scallop dredging)
Avoid or minimise other subsea infrastructure crossings	• Submarine telecommunication cables • Subsea electricity interconnectors • Subsea oil and gas pipelines • Outfall pipelines
Transmission network security	• Geographic diversity to avoid single contingency events
Sensitive ecosystems	• Seagrass beds and meadows • Wader and migratory species foraging and nesting habitat

Criterion	Considerations
Marine archaeology (shipwrecks)	• Shipwrecks listed under Tasmanian, Commonwealth and Victorian legislation
Fisheries	• Aquacultures • Institute for Marine and Antarctic Studies scallop survey sites
Disposal site/potential contamination	• Ship graveyards • Outfall pipeline deposits

Source: Marinus Link (2021)

Table 3-5 Route and site selection criteria

Criterion	Considerations
Cost	• Capital expenditure (construction costs). • Operating expenditure (maintenance and transmission energy loss costs).
Available land for converter stations	• Sufficient space for facilities and distance from potentially sensitive receptors. • Stable landforms. • Suitable terrain, geology and geotechnical conditions. • Good access.
Avoid incompatible land	• Ammunition disposal grounds. • Cemeteries and crematoriums. • Defence training areas.
Transmission network security	• Geographic diversity to avoid single contingency events.
Capacity to facilitate renewable generation connections	• Connection point proximity to wind, solar and pumped hydro storage projects.
Opportunity for third party benefit / contribution	• Proximity to REZs.
Land tenure	• Freehold, Crown land, reserves. • Land holdings (small private and commercial properties).
Occupation	• Proximity to houses or sensitive businesses (noise from converter station site, amenity impacts).
Planning (zones and overlays)	• Zones, including residential, rural, agriculture, transport/access routes, etc. • Overlays (as applicable).
Land use	• Intensively farmed land with substantial infrastructure including berry farms, piggeries, poultry farms, vineyards, etc.
Native vegetation	• TASVEG (digital map of Tasmania's vegetation).
Threatened ecological communities	• Native vegetation communities listed under Tasmanian legislation.
Threatened species	• Records of threatened flora and fauna species listed under Tasmanian legislation.
Sensitive ecosystems	• Wader and migratory species foraging and nesting habitat. • Wetlands/groundwater dependent ecosystems.
Registered historical cultural heritage properties and places	• Historical cultural heritage sites listed under Tasmanian legislation.

Criterion	Considerations
Registered Aboriginal cultural heritage sites	• Aboriginal cultural heritage sites listed under Tasmanian legislation.

Based on the above selection criteria, converter station and subsequent shore crossing sites were identified for each corridor. The potential Tasmanian sites identified are listed in Table 3-6.

Table 3-6 Potential converter station sites

Potential corridor	Potential converter station sites in Tasmania
Port Latta to Portland	Mawbanna Plain, south-west of Port Latta
Port Latta to East Geelong	Mawbanna Plain, south-west of Port Latta
Burnie to East Geelong	**Heybridge**
Burnie to Moorabool	**Heybridge**
Burnie to Hazelwood	**Heybridge**
Sheffield to Cranbourne	Land adjacent to Sheffield Substation
Sheffield to Hazelwood	Land adjacent to Sheffield Substation

Source: Marinus Link (2021)

3.3.4 Preferred site

The Burnie to Hazelwood corridor, with the Tasmanian landfall at Heybridge, was identified as the least constrained route that met the project objectives of connecting with transmission backbones of each state.

The shore crossing at Heybridge was identified as less constrained than the Sheffield and Port Latta potential connection areas. The Sheffield based landfall was constrained by mobile cobbles and the site of penguin colonies. The Port Latta landfall was constrained by the offshore aquaculture facilities, shallow water impacting cable operations and a coastal reserve (Peggs Beach).

In relation to the preferred converter station site, this option was found to have several advantages:

- Good proximity to both Tasmanian REZ and proposed renewable generation projects.
- Good geographic diversity to support power system stability and supply redundancy.
- Sufficient space for proposal buildings and other infrastructure.
- Limited exposure to incompatible land issues.
- No significant Aboriginal cultural heritage sites or places were identified on or near the proposal site.
- The Heybridge location was considered suitable due to its proximity to the coast, allowing for the most direct route across Bass Strait.

A site at East Cam, immediately west of Burnie, was also considered and assessed as a location for the Burnie to Hazelwood corridor. However, the site was discounted after marine engineering studies identified significant constraints in the nearshore area (the region from the shoreline to just beyond where the waves break), such as rocky terrain. Additionally, the social impacts of constructing the HDD entry and exit points in an urban area, along with the necessary ancillary infrastructure in the semi-urban location, were considered too significant.

In late 2020, MLPL released the preferred Burnie-Hazelwood route to the public. The release of the proposed route was supported by extensive community engagement activities including webinars. Over the following two years, the preferred route has been refined to address issues and recommendations identified through technical investigations and public engagement. Changes have primarily been made to the Victorian component of the project due to the length of the underground route through Victoria (90 km).

MLPL sought to provide information and obtain feedback from the community and landholders on the preferred route and applied principles from the International Association for Public Participation's (IAP2) spectrum of public participation by:

- Informing the community and landholders of the proposed location of the route.
- Consulting on the proposed route.

3.3.5 Project alternatives

3.3.5.1 Technology alternatives

The shore crossing would be constructed using HDD to best avoid impacts to the intertidal area and coastal dunes. It is best practice environmental technology and its design and construction would reflect best practice environmental management as defined in the EMPC Act. HDD would be used despite HDD technology being more expensive than open trenching. Open trenching would impact the environment, and create significant disruptions associated with the temporary closure of Bass Highway and the Western Line Railway.

Consideration was given to the use of HVDC or HVAC and seabed or overhead cables in the development of the project. HVDC is a more efficient way to transmit electricity over long distances, reducing losses. HVAC provides greater flexibility for connection to generators and electricity users.

For the crossing of Bass Strait, undersea HVDC is the best option because:

- The construction of overhead cables across Bass Strait would be very technically challenging and result in higher impacts to vessel movements and use of Bass Strait during operation.
- HVDC has materially higher performance efficiency than HVAC so the amount of energy lost in transmission is reduced.
- No connection to generators or users is required for the Bass Strait crossing meaning a key benefit of HVAC is not needed for the project.

3.3.5.2 Basslink co-location

Co-location of the project transmission infrastructure along the Basslink interconnector was considered but ultimately not pursued due the inherent risk to Tasmania’s energy security. By geographically separating Marinus Link and Basslink the likelihood of both transmission circuits being damaged by a single event (e.g., from a ship anchor in marine environment, bushfire in terrestrial environment) is reduced, thereby enhancing energy security, which is a primary objective of the project.

Other project objectives and technical requirements that would not be met co-locating the project and Basslink include:

- The project objective of offsetting network investment by locating the interconnector near the North West Tasmania REZ would not be feasible using the Basslink corridor.
- Potential capacity constraints in the grid backbone between Basslink's Victorian connection site (Loy Yang) and Hazelwood Terminal Station.

3.3.5.3 No project

The project has been recognised by Australian and state government ministers as a project of national significance (Bowen 2022) as it supports Australia's transition to cleaner energy and provides critical national transmission infrastructure.

The rationale for the project is outlined in Section 3.1. If the project does not proceed, the following benefits would not be realised:

- **Energy transition:** The project provides the additional trading capacity between Tasmania and mainland Australia to support the transition of the NEM to a lower emissions system, while maintaining a secure and stable power system. The additional transmission capacity provided by the project would allow for higher amounts of renewable energy in the NEM, while providing firming capacity to replace the current stabilising function of coal fired generation and contributing to the mitigation of climate change (AEMO 2024).
- **Improving Tasmania's energy security:** The project would enable the continued trading, transmission, and distribution of electricity within the NEM. It would also reduce the risk of a single interconnector failure across Bass Strait and complement existing interconnector infrastructure within the wider NEM. The project is also expected to induce development of further renewable energy generation projects in Tasmania, offering additional energy security to Tasmania and the NEM (AEMO 2024).
- **Wholesale energy cost reductions:** The project is expected to generate consumer benefits from lower wholesale electricity prices across the NEM, as a result of increasing access to high quality renewable energy resources and reducing reliance on gas generation to provide dispatchable energy (FTI Consulting, Dec 2023): The effect of the reduction in wholesale electricity prices is expected to equate to annual reductions to consumers of:
  - $148 to $165 in energy bills in Tasmania for two cables, and $90 to $97 for one cable.
  - $70 to $78 in energy bills for Victorian consumers for two cables, and $51 to $56 for one cable.
  - Lower wholesale electricity prices across all states in the NEM ranging from $15 to $35 for two cables and $10 to $23 per household for one cable.
- **Economic benefits:** The project is predicted to provide the following economic benefits (EY 2023):
  - Construction (over a five-year period) is expected to provide $1,225 million in economic contribution for Tasmania as well as $1,477 million in economic contribution for Victoria. This consists of:
    - Stage 1 which is expected to provide $710 million in economic contribution for Tasmania and $856 million in economic contribution for Victoria.

    - Stage 2 which is expected to provide $515 million in economic contribution for Tasmania and $621 million in economic contribution for Victoria.
  - During the peak construction period (2027-2029), the project is expected to support an average of 1,316 jobs per year in Tasmania and 1,675 jobs per year in Victoria, consisting of:
    - Stage 1: 673 jobs per year in Tasmania and 857 jobs per year in Victoria.
    - Stage 2: 643 jobs per year in Tasmania and 818 jobs per year in Victoria.
  - Between 2030 and 2050, the operations of Project Marinus (including NWTD) are expected to provide $320 million in value add and support 996 job years in Tasmania, as well as $304 million in value add and 1,027 job years in Victoria.
- **Telecommunications capacity:** The project would significantly increase Tasmania's current optical fibre capacity by 150 times.

SECTION 4 - PUBLIC CONSULTATION

MARINUS LINK

4. Public consultation

Community and stakeholder consultation includes different forms of engagement, collaboration and information sharing between MLPL and other organisations or individuals. It has helped to identify issues and inform the impact assessments prepared for the EIS.

This section describes the engagement approach that has been undertaken by MLPL. It identifies the relevant stakeholders including individuals, organisations, and groups with an interest in the proposal (and the project). It details the engagement activities conducted during the planning and preparation of the EIS, the feedback received, and how this feedback has informed the development of the project, including the proposal.

Additionally, this section outlines the ongoing engagement proposed to be undertaken by MLPL.

4.1 Engagement approach

The project has adopted an engagement approach which involved actively seeking feedback from a representative cross-section of the community and stakeholders, providing easily accessible information and processes for providing feedback. The engagement has also addressed the requirements of the EIS process.

The approach and level of engagement required throughout the planning and assessment process was guided by the International Association for Public Participation (IAP2) engagement methods and the Guidance on Community Engagement (EPA Tasmania 2019b).

4.2 Engagement phases

The engagement strategy for the project was divided into four phases (shown in Figure 4-1), each designed to raise awareness, inform key stakeholders and the community about project progress, and capture feedback for reporting and assessment purposes. This phased approach ensured the use of best-practice tools to share and gather information.

The phases were aligned with the project's stages and key milestones. Phases 1 and 2 corresponds to the project planning, with the preparation and public exhibition of the EIS occurring in Phase 3. Phase 4 would involve ongoing consultation to support the project's engagement and communications activities, as it transitions into construction.

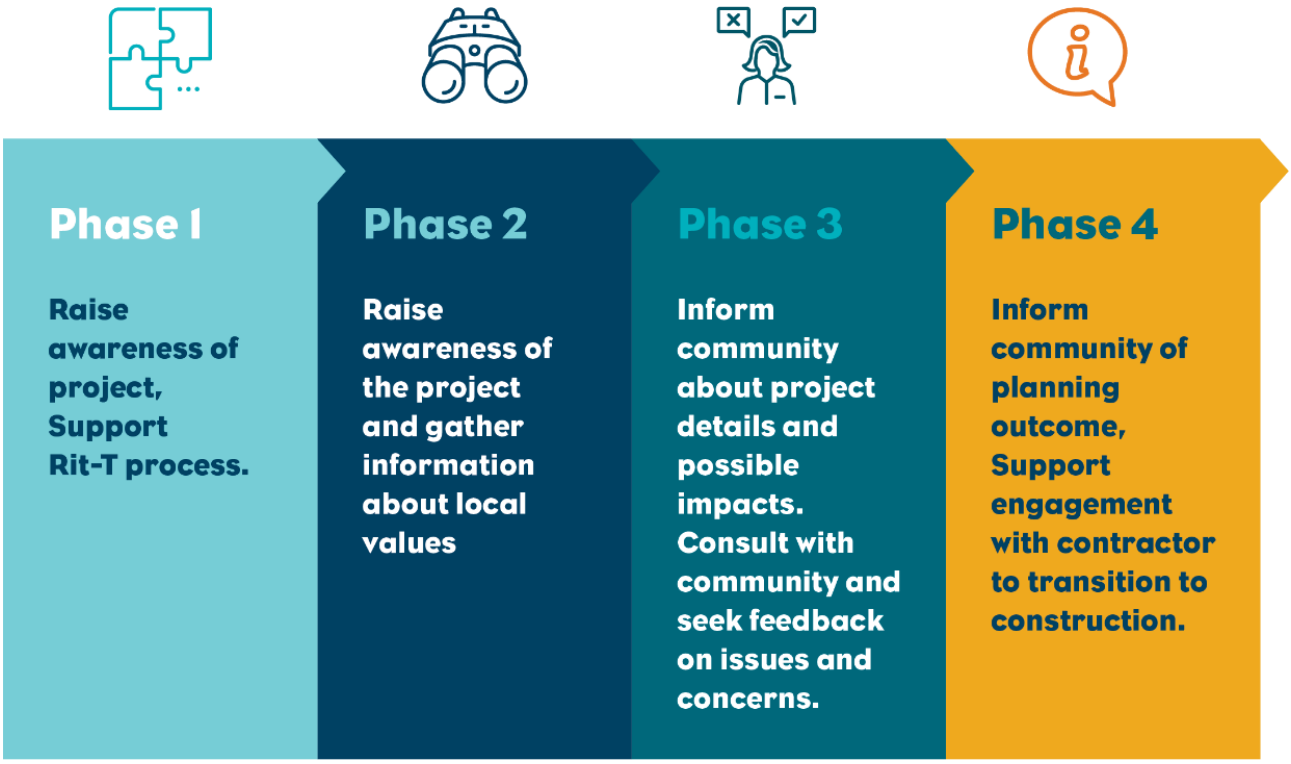


Figure 4-1 Marinus Link engagement phases

4.2.1 Phase 1 and Phase 2: Consultation before EIS preparation

4.2.1.1 Phase 1

Phase 1 took place over an 18-month period from July 2018 to December 2019. The purpose of this phase was to raise awareness about the project and inform stakeholders about the Feasibility Study, Business Case Assessment, and Regulatory Investment Test for Transmission processes.

4.2.1.2 Phase 2

Phase 2 took place from March to July 2021, after Heybridge was selected as the preferred site for the converter station in Tasmania. The purpose of this phase was to provide detailed information about the project, gather feedback from the community and stakeholders, and address any concerns.

4.2.1.3 Engagement activities

Consultation activities were undertaken during project planning from July 2018 to release of the EIS guidelines in September 2022. The initial engagement on the project focused on providing information about the proposed converter station and the shore crossing location. It also offered opportunities for stakeholders to provide feedback on key concerns (discussed in Section 4.2.1.2 and summarised in Table 4-4). Additionally, engagement aimed at building awareness of the project, outlining the next steps, explaining how to have their say, and where to get further information. A timeline of key engagement activities in Tasmania during this period is provided in Table 4-1.

During Phase 1, several engagement activities were conducted including community sessions, meetings with local councils, industry and business. These activities aimed to ensure that the community and stakeholders were well-informed and had opportunities to provide input on the project's early stages.

During Phase 2, community drop-in sessions and webinars were held particularly in relation to the release of the Marinus Link Route Options Report (Marinus Link 2021). Additional activities included community doorknocking in Heybridge in August 2022 to support the public release of the draft EIS guidelines. These efforts aimed to ensure comprehensive engagement and feedback collection (discussed in Section 4.2.1.2).

Stakeholders and the community were encouraged to attend and participate in the face-to-face drop-in sessions and an online webinar by invitation via letter box drops, newspaper advertisements, e-newsletters, posters, social media posts, and stakeholder e-mails. A summary of Phase 1 and Phase 2 engagement and communications activities is provided in Table 4-3.

Table 4-1 Timeline of key engagement activities in Tasmania during Phase 1 and Phase 2 EIS preparation

Timing	Activities
January 2019	• Presentation to Burnie City Council.
February 2019	• Meeting with Department of State Growth.
January 2020	• Meeting with Devonport Mayor Annette Rockliff. • Meeting with Tasmanian Seafood Industry Council.
February 2020	• Meeting with Burnie City Council.
March 2021	• Webinar surrounding the release of the Marinus Link Route Options Report (Dec 2020).
June 2021	• Heybridge drop-in information session. • Burnie drop-in information session. • Presentation to Tasmanian Seafood Industry Council. • Presentation to Marine and Safety Tasmania.
August 2021	• Works notification and Notice to Mariners on marine surveys in Bass Strait.
September 2021	• Presentation to Telstra (InfraCo asset managers).
November 2021	• Presentation to Optus (Indigo asset managers).
December 2021	• Works notification and Notice to Mariners on marine surveys in Bass Strait. • Presentation to UTAS School of Engineering.
February 2022	• Works notification and Notice to Mariners on marine surveys in Bass Strait x 3.
June 2022	• Works notification and Notice to Mariners for near shore surveys in Heybridge. • Public notice on storm incident during near shore surveys.
August 2022	• Heybridge door knock/letterbox drop. • Webinar (covering EIS guidelines and public comment period). • Works notification and Notice to Mariners for near shore surveys in Heybridge. • Presentation to Hawaiki Nui (proposed fibre optic cable in Bass Strait).

4.2.1.4 Communication tools

As mentioned in Section 4.2, Marinus Link and the NWTD project were part of 'Project Marinus' from 2017 to 2021, with all engagement activities integrated. In July 2021, the projects were separated. Therefore, the data in Table 4-2 and Table 4-3 reflect 'Project Marinus' communication tools and engagement activities and is not exclusive to the Marinus Link project. An overview of communications tools for Phase 1 and Phase 2 is outlined in Table 4-2.

Table 4-2 Communication tools during Phase 1 and Phase 2

Materials and tools	Details
Marinus Link website	Engagements were promoted through the website - www.marinuslink.com.au
Project Marinus online engagement portal	When Marinus Link was combined with the NWTD project, there was an engagement portal available to find out information and provide feedback - Community Engagement – TasNetworks (Phase 1).
Facebook	The Project Marinus Facebook page (no longer active) was used to advertise engagements during Phase 1 and 2. Engagements continued to be advertised on Marinus Link's new Facebook page (https://www.facebook.com/MarinusLink), which was created in in November 2021.
E-newsletter	E-newsletters were periodically sent to an online subscription list with project updates and upcoming engagement opportunities during Phase 1 and Phase 2.
Letterbox drops	Letterbox drops of flyers and letters were undertaken during Phase 1 and Phase 2. These were predominantly done to advertise upcoming engagement opportunities.
Radio and print media advertising	Local radio and newspaper ads were placed to advertise upcoming engagement opportunities during Phase 1 and Phase 2.
Posters in the community (and online)	Posters advertising upcoming engagement opportunities were placed in local public spaces such as libraries, cafes and council chambers as well as online community notice boards.
Works notifications/Notice to Mariners	Works notifications and Notices to Mariners were provided to Marine and Safety Tasmania and Bass Strait stakeholders during nearshore survey activity.

The summary of Phase 1 and Phase 2 communication and engagement activities is provided in Table 4-3.

Table 4-3 Summary of Phase 1 and Phase 2 communication and engagement activities

Platform	Quantity	Accessibility
Phase 1		
Face-to-face meetings	One recorded conversation	In-person
Presentations	Two recorded presentations	In-person and online presentations
Phase 2		
Face-to-face meetings	Three recorded conversations	In-person
Drop-in information sessions	Two sessions, 24 attendees	In-person
Works notifications/Notices to Mariners	Seven works notifications/ Notices to Mariners	Online notifications sent to stakeholders and subscribers, placed on social media and website
Door knocking	One door knocking exercise in Heybridge	In-person
Webinar	One online webinar	Live online and recorded

Platform	Quantity	Accessibility
Presentations	Seven presentations	In-person and online presentations
E-Newsletters	Two e-newsletters	Online
Letterbox drops	Two letterbox drops	Print distribution to Heybridge residents

4.2.1.5 Outcome of engagement

Community and stakeholder feedback during project planning was used to inform the design and development of the project. Feedback across all engagement activities and communication channels indicated that more information was wanted about the project's design, route, impacts, construction process and timing. Project-wide key areas of interest or concern were mostly related to:

- The project's purpose, timeline and construction phases.
- The project's ownership.
- Project costs – i.e., who pays and what that means for Tasmanians.
- How the project would affect electricity prices.
- Economic benefits of the project for Tasmania.
- Job creation opportunities.
- Planning and environmental approvals required as part of the project.
- Australia's changing energy market and the proponent's role in the clean/renewable energy transition.
- The project's affiliation with other renewable energy projects in the North West Tasmania region.
- Future community engagement opportunities

Many of these issues have guided the development of the project, and as relevant, the proposal. Key areas of interest and concerns raised during engagement activities prior to the preparation of the EIS, and how these have been addressed, are summarised in Table 4-4. The key issues summarised are those most relevant to the proposal.

Table 4-4 outlines the key issues raised and includes general project feedback as well as specific feedback related to the proposal. The mitigation measures referred to in the response to reduce potential impacts are further discussed in the relevant listed EIS section.

Table 4-4 Key issues raised by stakeholders in Phase 1 and Phase 2 prior to EIS preparation and proponent response

Theme	Issues raised	Response
Environment	General interest in potential impacts to the environment during construction and operations.	• Minimising impacts to the environment was considered during the development of the preferred route selection and construction methodology. • MLPL would use HDD to minimise the impacts of construction on the coastal areas. • MLPL is committed to minimising vegetation removal, disturbance to vegetation and fauna, habitat fragmentation and loss. • Potential environmental impacts have been assessed as part of the EIS (refer to Section 6).

Theme	Issues raised	Response
Construction impacts	General concerns about impacts to residents during construction and interest in construction duration.	• Minimising construction impacts, such as increased traffic, noise and dust, on local residents has been a key consideration during project development. • Traffic impacts of the project have been assessed, and measures developed to minimise the impact of increased traffic during the construction phase, where possible. • In Tasmania, most vehicles would travel from Burnie, Devonport or Launceston to Heybridge. The primary route would be Bass Highway with access to the launch pad on the Heybridge Converter Station site via Minna Road. • Construction traffic may increase delays from traffic turning onto Bass Highway from Minna Road during peak periods, however, these delays are expected to be minor. • A traffic management plan would be put in place to detail how the project would manage traffic impacts. Some measure may include: - Additional signage - Speed limit restrictions - Use of traffic controllers • Potential construction impacts have been assessed as part of the EIS (refer to Section 6).
Social	Concern about construction workforce housing availability.	• Housing availability and affordability is acknowledged as an issue for the local community. • A workforce accommodation strategy is being developed in consultation with key stakeholders to address the demand from the project construction workforce and the potential cumulative impact of other large-scale construction and infrastructure projects in the region (MM S02).
Jobs and procurement	Opportunity for use of local suppliers.	• An industry participation strategy would be developed, which would outline opportunities for prioritising and developing local participation.
	Concern about skilled worker availability.	• Engagement is being undertaken with government agencies, business networks and education service providers to identify skill gaps and opportunities.
Community benefits	Suggestions for financial or in-kind contributions to community development in the local area near Heybridge.	• Engagement on community benefits would commence with key local stakeholders and the North West Tasmanian community, following the development of an MLPL framework which incorporates the forthcoming statewide policy on community benefits from both Tasmania (ReCFIT) and Victoria (VicGrid) governments. • A community benefits sharing program is expected to be implemented at the project construction phase in 2026. • Until such time as the community benefits sharing program commences, MLPL would continue to support local initiatives in North West Tasmania, which currently include the MLPL / Burnie City Council Community Partnership Program and The Beacon Foundation In Schools Careers Program.

4.2.2 Phase 3: Consultation during EIS preparation

Phase 3 began in September 2022, following the release of the EIS guidelines, and continued through the preparation of the EIS. The objectives of this phase were to:

- Inform the community and stakeholders about the potential impacts of the project.

- Provide opportunities for the community and stakeholders to give feedback on the project and its potential impacts.
- Identify issues and opportunities important to the community and stakeholders to inform construction and impact mitigations.
- Ensure the project meets the requirements under relevant laws and regulations.

4.2.2.1 Engagement activities

Between September and December 2022, engagement activities included distributing community newsletters, attending local community markets, hosting drop-in information sessions, presenting at industry events, and holding ongoing stakeholder meetings and briefings.

In early 2023, the focus shifted to sharing information from the early findings of the technical studies and seeking feedback on the published EIS guidelines. Additionally, further feedback on potential impacts, perceived impacts and proposed mitigation measures was collected. Engagement activities during this period included community drop-in information sessions in Burnie, webinars, newspaper advertising, social media posts, and distributing community newsletters.

Engagement activities, undertaken following the release of the EIS guidelines and during EIS preparation, relevant to the proposal are summarised in Table 4-5.

Table 4-5 Timeline of key engagement activities in Tasmania during Phase 3 EIS preparation

Timing	Activities
September 2022	• Community newsletter. • Sulphur Creek drop-in information session (near Heybridge). • Burnie Farmers Market pop-up information stall. • Presentation to ExxonMobil. • Meeting with Optus (Indigo asset managers). • Presentation to Hibiscus Petroleum.
October 2022	• Burnie Show and Agri Expo pop-up information stall. • South East Trawl Fishing Industry Association presentation. • Works notification and Notice to Mariners for near shore surveys in Heybridge. • Meeting with Burnie City Council. • Meeting with Central Coast Council.
November 2022	• Rotary Club of Burnie presentation. • Works notification and Notice to Mariners for near shore surveys in Heybridge. • NWTD Meet the Projects presentation. • Meeting with Burnie City Council.
December 2022	• Community newsletter. • Burnie Farmers Market pop-up information stall. • Regional Development Australia presentation.
January 2023	• Bass Strait industry newsletter.
March 2023	• Tasmania Aboriginal Centre meetings. • Community newsletter. • Burnie drop-in information session x 2.
April 2023	• Community and stakeholder webinar.

Timing	Activities
	• Meeting with Aboriginal Heritage Tasmania.
June 2023	• Burnie City Council meeting. • Presentations to Tasmanian Aboriginal Community leaders. • Bass Strait industry newsletter.
July 2023	• Transmission Networks Service Providers Forum. • Heybridge drop-in information session. • NWTD Stakeholder Liaison Group Meeting.
September 2023	• Meeting with ReCFIT Tasmania. • The Energy Charter Ag + Energy Social Licence Roundtable.
October 2023	• Community newsletter. • Burnie Show pop-up info stall. • Roundtable with ReCFIT.
December 2023	• Marinus Link, Hydro Tas and NWTD engagement meeting.
February 2024	• Marinus Link, Hydro and NWTD engagement meeting. • Burnie City Council Community BBQ and Consultation Day pop up info stall.
April 2024	• Marinus Link, Hydro and NWTD engagement meeting. • Clean Energy Finance Company Heybridge site visit.
May 2024	• Agfest pop-up info stall. • Presentation to Cradle Coast Authority.
June 2024	• Presentation to Cradle Coast Authority. • Burnie drop-in information session. • Heybridge drop-in information session. • EIS/EES community webinar. • Marinus Link, Hydro and NWTD engagement meeting.
August 2024	• Cradle Coast Authority renewable energy roundtable with projects, agencies and local government. • Marinus Link, Hydro and NWTD engagement meeting. • Burnie City Council Consultation Day pop up info stall. • Presentation to NWTD Stakeholder Liaison Group. • Meeting with Burnie City Council. • Civil Contractors Federation Tasmania Civil Summit.
September 2024	• Community newsletter. • Tasmanian Major Projects Conference.
October 2024	• Burnie Show pop-up info stall. • Wynyard Tulip Festival pop-up info stall. • Burnie City Market pop-up info stall. • Wynard Farmers Market pop-up info stall.

4.2.2.2 Communication tools

A range of communication tools were used to support stakeholder and community engagement across all engagement phases, with a key focus on providing clear and easy to understand information in a range of online and hard copy formats.

The communication materials provided in hard and digital format can be found on the project's engagement page at www.marinuslink.com.au/engagement or the corresponding Digital Library page at www.marinuslink.com.au/digital-library/.

Engagement and communication tools utilised during the EIS consultation phase are outlined in Table 4-6 and Table 4-7.

Table 4-6 Communication tools during Phase 3

Materials and tools	Details
The project website www.marinuslink.com.au	The project website was subject to ongoing updates and iterations in line with the project's development, key findings, updates and news, and community feedback.
Newsletters/ community updates	Newsletters/ community updates provided information on the project including project updates, survey outcomes, details on upcoming engagement activities, and how stakeholders could contact the project team or provide feedback. Newsletters were distributed to letterboxes in Heybridge and sent digitally to an online subscription list. Project updates and Notices to Mariners were provided to Marine and Safety Tasmania and Bass Strait stakeholders during nearshore survey activity.
Fact sheets	A suite of fact sheets has been created to support people's understanding of the proposal and the broader project, and provide them with information to inform their feedback. Fact sheets were provided in hard copy and digital format and made available on the project's website www.marinuslink.com.au/digital-library/ Fact sheets included: • Abbreviations, definitions, and acronyms. • Community and Stakeholder Information Pack. • Managing Construction Impacts. • Route Options Report. • Undersea Construction. • Tasmania Converter Station. • Understanding the different approvals processes for Marinus Link – Tasmania. • Flora and Fauna. • Agriculture and Forestry. • Electromagnetic Fields (EMF) and Electromagnetic Interference. • Fisheries.
Maps	Maps were developed for face-to-face sessions and provided on the website to enable participants to view the location of the proposed project route more fully in relation to their property or interest. Map details included: • The subsea cable, shore landing and HDD locations. • The Heybridge converter station site including proposed launch pad locations. • Project in Tasmania including interactions with the NWTD.
Social media	Social media platforms were used to share project updates with followers. Social media links were provided to promote engagements, share updates on the website and to distribute newsletters.
E-newsletters	E-newsletters are periodically sent to an online subscription list with newsletters, project updates and upcoming engagement opportunities.
Letterbox drops	Letterbox drops of flyers and letters are sent to advertise upcoming engagements and important project updates.

Materials and tools	Details
Surveys	Surveys were carried out during engagements, and online via the website.
Radio and print media advertising	Project information sessions were advertised in regional newspapers.
Webinars	Webinars were recorded and uploaded onto the project's documents and resources page for future viewing.
Project communication channels	Communication channels were established to allow members of the community and stakeholders to reach out to MLPL to discuss issues or the project, outside of the engagement activities mentioned above. These channels included: • Email (team@marinuslink.com.au). • Phone hotline (1300 765 275). • Mail postal address (Marinus Link Pty Ltd, PO Box 606, Moonah, Tasmania 7009).

Table 4-7 Summary of Phase 3 communication and engagement activities

Platform	Quantity	Accessibility
The project website	186,000 site visits	Online
Newsletters/ updates	Three Bass Strait industry newsletters: • Sent to 80 key Bass Strait stakeholders. • Published on MLPL website. Five community newsletters: • Newsletters distributed to 160 letterboxes in Heybridge Tasmania. • 350 registered to the online subscription list. • Published on MLPL website.	In-person and online
Fact sheets	11 fact sheets developed for Tasmanian audiences	In-person and online
Signage	One site sign at the Heybridge Converter Station site	On site
Social media	167 posts relevant to Tasmania across Marinus Link's Facebook, LinkedIn and Instagram pages	Online
Surveys	14 engagement surveys	In-person and online
Radio and print media advertising	• Six print. • Two digital. • Two radio.	In-person, broadcast and online
Webinars	Two online webinars	Live and recorded online
Information sessions	• Six drop-in sessions. • 12 pop-up sessions.	In-person
Meetings with councils and organisations	20 meetings	In-person and online
Industry, stakeholder, student and community events, conferences and forums	29 events across all areas in Tasmania	In-person

4.2.2.3 Outcome of engagement

During preparation of the EIS, community members and stakeholders continued to have an interest in general project-wide information, including:

- Interest in the project and role in the transition of the energy industry.
- Project costs, impacts to service prices and economic benefits to Tasmania.
- Local employment and procurement opportunities.
- The project's affiliation with other renewable energy projects in the north-west region.

Key areas of interest and concerns raised during engagement activities throughout the development of the EIS, and how these have been addressed, are summarised in Table 4-8. Applicable EIS technical studies also included consideration of relevant issues listed in the EIS guidelines, which overlapped with some of the concerns raised by communities and stakeholders regarding potential impacts.

Table 4-8 Key issues raised by stakeholders during Phase 3 EIS preparation and proponent response

Theme	Issues raised	Response
Noise	Concerns about noise associated with the construction of the proposal.	• Construction noise has been considered in the Noise and Vibration Impact Assessment (Appendix H). The findings of this assessment are presented in Section 6.6. • A construction noise and vibration management plan would be developed in consultation with EPA Tasmania (MM NV02).
Traffic and transport	Concerns about increase of traffic and safety on local roads during construction, particularly at the Minna Road and Bass Highway intersection.	• MLPL acknowledges the importance of an efficient and safe traffic movement throughout the local area. • Construction traffic may increase delays from traffic turning onto the highway from Minna Road during peak construction periods, however these delays are expected to be minor. • A transport management plan would be implemented to minimise disruption to traffic and transport during construction (MM T01). • Engagement with local authorities is being undertaken and would continue throughout the different project phases, to manage potential traffic impacts associated with oversized deliveries of converter station equipment to the proposal site. • Potential traffic and transport impacts during construction have been considered in the Traffic and Transport Impact Assessment (Appendix M).
Environment	Interest in impacts to fauna at the proposal site.	• Significant ecological impacts are not expected, with the proposal site already cleared of vegetation prior to the development of the proposal. • Ecological impacts have been considered in Terrestrial Ecology Impact Assessment (Appendix B). The findings of this assessment are presented in Section 6.1.
Jobs and procurement	Suggestions to provide further detailed information about local job and procurement opportunities.	• MLPL is committed to maximising local content and would prepare an industry participation plan to outline the approach that contractors would need to take to verify that fair and reasonable opportunities are provided to local businesses (MM S05). • MLPL is registered on the ICN Gateway. Interested businesses were directed to that portal at all engagement sessions.

Theme	Issues raised	Response
		• MLPL developed an internal register for interested workers and directed potential candidates to register at all engagement sessions. This list would be provided to the successful contractor.
	Interest in skilled worker availability.	• Engagement is being undertaken with government agencies, business networks and education service providers to identify skill gaps and opportunities. • This engagement would continue throughout detailed design and a working group has been established to assess skills and training workforce needs throughout the different project phases.
Social	Concern about housing availability and affordability and how this would be impacted by Marinus Link's construction workforce.	• Housing availability and affordability is acknowledged as an issue for the local community. • A workforce accommodation strategy would be developed (MM S02) in consultation with key stakeholders to address the demand from the project construction workforce and the cumulative impact of other large-scale construction and infrastructure projects in the region. • Workforce accommodation has been considered in the Social Impact Assessment (Appendix K). The findings of this assessment are presented in Section 6.12.

Engagement with the community and key stakeholders would continue throughout the development, construction, and operation of the project. The EIS public exhibition process in Phase 3 would enable community members to learn more about the potential impacts associated with the proposal and proposed mitigation measures. It would also provide an opportunity for feedback and response from the proponent via a formal submission process.

4.2.3 Phase 4: Ongoing consultation

Following the public exhibition period, the project would transition to Phase 4. The steps taken to obtain project approvals, the outcomes of the assessment and opportunities for future engagement would be communicated to agencies, stakeholders and the broader community. This would involve supporting the principal contractor/s to transition to construction engagement and communication, with a seamless approach to engagement and communication with the local community. MLPL would develop an overarching community and stakeholder engagement framework in accordance with MM S03. The Community and Stakeholder Engagement Framework would outline expectations for the coordination of communications during constriction and the provision of consistent information to stakeholders and community. The Community and Stakeholder Engagement Framework would include a process for managing and responding to complaints received during construction. Complaints management would be consistent with *Australian Standard AS/NZS 10002: 2014 Guidelines for Complaints Management in Organisations*.

4.3 Stakeholders

MLPL is engaging with stakeholders to inform them of the potential impacts of the project. Table 4-9 details the stakeholders and types of engagement activities undertaken (refer to Section 4.2 for further engagement activity detail).

4.3.1 Tasmanian Aboriginal Community

MLPL have sought a best practice approach to engagement with the Tasmanian Aboriginal Community, acknowledging the critical role that the Tasmanian Aboriginal Community have in the conservation and sustainable use of the landscape and Sea Country.

MLPL has engaged with Aboriginal Heritage Tasmania and commenced engagement with members of the Tasmanian Aboriginal Community. MLPL has met with the Tasmania Aboriginal Centre, truwana Rangers and Community leaders and is committed to further ongoing meaningful engagement in Tasmania.

It is proposed to undertake a collaborative approach to Tasmanian Aboriginal Community engagement with other major project proponents and organisations (e.g., Renewables, Climate and Future Industries Tasmania (RECFIT), Hydro Tasmania, NWTD project) to plan coordinated engagement that is both culturally appropriate and addresses the needs of the Tasmanian Aboriginal Community.

Further discussions with stakeholders have advised that a state-wide and collaborative engagement approach is appropriate for engagement with the Tasmanian Aboriginal Community.

4.3.2 Stakeholder identification and engagement methods

The project team have engaged with Tasmanian stakeholders and community since July 2018. Initial stakeholder mapping was undertaken with a focus on community and environmental groups, government departments and agencies (federal, state and local), the Tasmanian Aboriginal Community and peak industry bodies. Stakeholders were categorised into themes based on their stakeholder type and method of engagement required. Engagement and communication activities undertaken with each stakeholder group are listed in Table 4-9, as relevant to the proposal and the Heybridge Converter Station.

Table 4-9 Stakeholder groups and engagement activities / tools

Stakeholder type	Stakeholder	Engagement activities / tools
Federal Government	• Australian Fisheries Management Authority • Australian Maritime Safety Authority • Regional Development Australia – Tasmania • CSIRO – Bass Strait Research • Department of Industry, Science and Resources (formerly the Department of Industry, Science, Energy and Resources) • DCCEEW (formerly the Department of Agriculture, Water and the Environment) • Department of Infrastructure, Transport, Regional Development and Communications and the Arts	• Meetings • Project updates • Notices to Mariners (during field surveys) • Emails • Website
State Government – Tasmania	• Department of Premier and Cabinet • Department of State Growth • Department of Natural Resources and Environment (formerly the Department of Primary Industries, Parks, Water and Environment) • Tasmania Parks and Wildlife Services • EPA Tasmania • Marine and Safety Tasmania	• Meetings • Project updates • Technical reference group (EPA only) • Emails • Website

Stakeholder type	Stakeholder	Engagement activities / tools
	• TasPorts • TasRail • TasNetworks (NWTD)	
Local government	• Burnie City Council • Cradle Coast Authority • Central Coast Council	• Meetings • Project updates • Emails • Website
Tasmanian Aboriginal Community	• Tasmanian Aboriginal Centre • Tasmanian Aboriginal Community groups and members • Aboriginal Heritage Tasmania	• Meetings • Project updates • Emails
Industry, advocacy organisations and associations	• Business Northwest • South East Trawl Fishing Industry Association • Tasmanian Seafood Industry Council • Scallop Fishermen's Association of Tasmania • Small Pelagic Fishery Resource Assessment Group • Tasmanian Abalone Council • Tasmanian Game Fishing Association • Sports Fishing Club of Tasmania • Dr Peter Gill, Blue Whale Study • Tasmanian Rock Lobster Fishermen's Association • TARFish Tasmania • ExxonMobil • Hibiscus Petroleum • Beach Energy	• Meetings • Project updates • Survey updates • Fact sheets • Emails • Website • Works notification (during surveys)
Local community	• Residents and businesses near the proposal site • North-west Tasmanian community • Tasmanians interested in the project • Echo Projects Pty Ltd	• Drop-in information sessions • Pop-up information stalls • Webinars • Newsletters • Project website • Social media • Fact sheets • Online surveys • Advertising • Emails • Website
Utilities/service providers/other project proponents	• Optus • Telstra • Basslink (APA Group) • Hawaiki Nui • Vocus Group • Mistral Energy Pty Ltd • NBN Co	• Meetings • Project updates • Emails • Cable crossing agreements • Website • Works notification (during surveys)

SECTION 5 - EXISTING ENVIRONMENT

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5. Existing environment

The proposal site (which comprises the launch pad site, the underground crossings, and the seabed alignments) is located at and offshore from Heybridge, west of the Blythe River, approximately 6.4 km east of the Burnie Port, and 40 km west of the Port of Devonport.

The proposal site is located within the Burnie City Council LGA and Bass Strait (within Tasmanian coastal waters). The proposal site extends from the HDD launch pad site at the corner of Minna Road and Bass Highway, under Bass Highway, the Western Line Railway and coastal land (protected by an informal Crown reserve) to Bass Strait shoreline extending to 3 NM.

The HDD launch pad site is located on the site of the proposed Heybridge Converter Station. The site was formerly a titanium dioxide plant which was demolished in 1998, and the site was rehabilitated thereafter. Following the decommissioning of the tioxide plant, the site was leased from Burnie City Council as a timber storage and loading yard between 2007 and 2020. MLPL purchased the site from Burnie City Council in January 2021, and it has been vacant since.

The underground crossings site comprises the land beneath the Heybridge Converter Station site, and beneath land that is mostly Crown land, including Bass Highway and its road reserves, the Western Line Railway corridor, the dunes between the highway and Tioxide Beach, and the coastal Crown land covered by the sea. The seabed alignments are located on coastal Crown land covered by the sea. The seabed alignment generally corresponds with paleochannels in the rock platform (i.e., prior channels of a river) that extend offshore from the beach.

The township of Heybridge is comprised of a cluster of residential dwellings, principally along the eastern bank of Blythe River and along the coastline. Within Heybridge, there are several recreational areas including the Heybridge Recreation Reserve, children's playgrounds and picnic seating. The proposal site is located adjacent to Bass Highway to the north and the Eagle Sea Estate residential development to the west. There are existing industrial land uses to the south of the proposal site.

5.1 Planning aspects

5.1.1 Land tenure

The proposal is primarily located above ground on one parcel and traverses beneath additional parcels. Each land parcel is identified in Table 5-1 and shown in Figure 5-1.

The proposal would cross under and on unallocated Crown land in the marine environment. Rights of way, easements and covenants are present on the proposal site.

Table 5-1 Cadastre and land tenure within the proposal site

Title reference	Property ID	Address	Land tenure	Owner/authority
CT184295/1	2920337	18 Minna Road Heybridge TAS 7316	Freehold Title (Private)	Marinus Link Pty Ltd

Title reference	Property ID	Address	Land tenure	Owner/authority
CT153919/100	N/A	Bass Highway, Heybridge TAS 7316	Freehold Title (Council road)	Marinus Link Pty Ltd
N/A	N/A	N/A (Bass Highway)	Crown Land	State Government
N/A	N/A	N/A (Western Line Railway)	Crown Land	TasRail
N/A	7630144	N/A (coastal land)	Crown Land	Department of Natural Resources and Environment Tasmania (NRE) (Property Services)
CT128754/1	N/A	Bass Highway, Heybridge TAS 7316	Freehold Title (Private)	Marinus Link Pty Ltd
N/A	N/A	N/A (coastal land)	Crown Land	NRE (Property Services)

5.1.2 Tasmanian Planning Scheme

The terrestrial components of proposal site are located within the Rural Zone, the Utilities Zone and the Environmental Management Zone (which extends 300 m offshore) under the provisions of the *Tasmanian Planning Scheme* (the Planning Scheme) (refer to Figure 5-2) The Planning Scheme is the state-wide planning scheme that sets out the requirements for use or the development of land in accordance with the LUPA Act.

The HDD launch pad site is located within the Rural Zone. The area immediately to the north, where the underground crossings would pass beneath Bass Highway and the Western Line Railway, is within the Utilities Zone and where the underground crossing passes underneath the coastal area it is located within the Environmental Management Zone (refer to Figure 5-2).

The proposal would be categorised as 'Utilities' use class in accordance with Table 6.2 of the Planning Scheme. Utilities is defined as:

> *'Use of land for utilities and infrastructure including: (a) telecommunications; (b) electricity generation; (c) transmitting or distributing gas, oil, or electricity; (d) transport networks; (e) collecting, treating, transmitting, storing or distributing water; or (f) collecting, treating, or disposing of storm or floodwater, sewage, or sullage. Examples include an electrical sub-station or powerline, gas, water or sewerage main, optic fibre main or distribution hub, pumping station, railway line, retention basin, road, sewage treatment plant, storm or flood water drain, water storage dam and weir.'*

A permit is not required for the proposal from the launch pad site to 300 m offshore because transmission infrastructure is not considered development by virtue of the operation of the *Electricity Industry Supply Act 1995*. Beyond 300 m offshore the Tasmanian planning scheme does not apply, so a permit cannot be obtained for that part of the proposal.

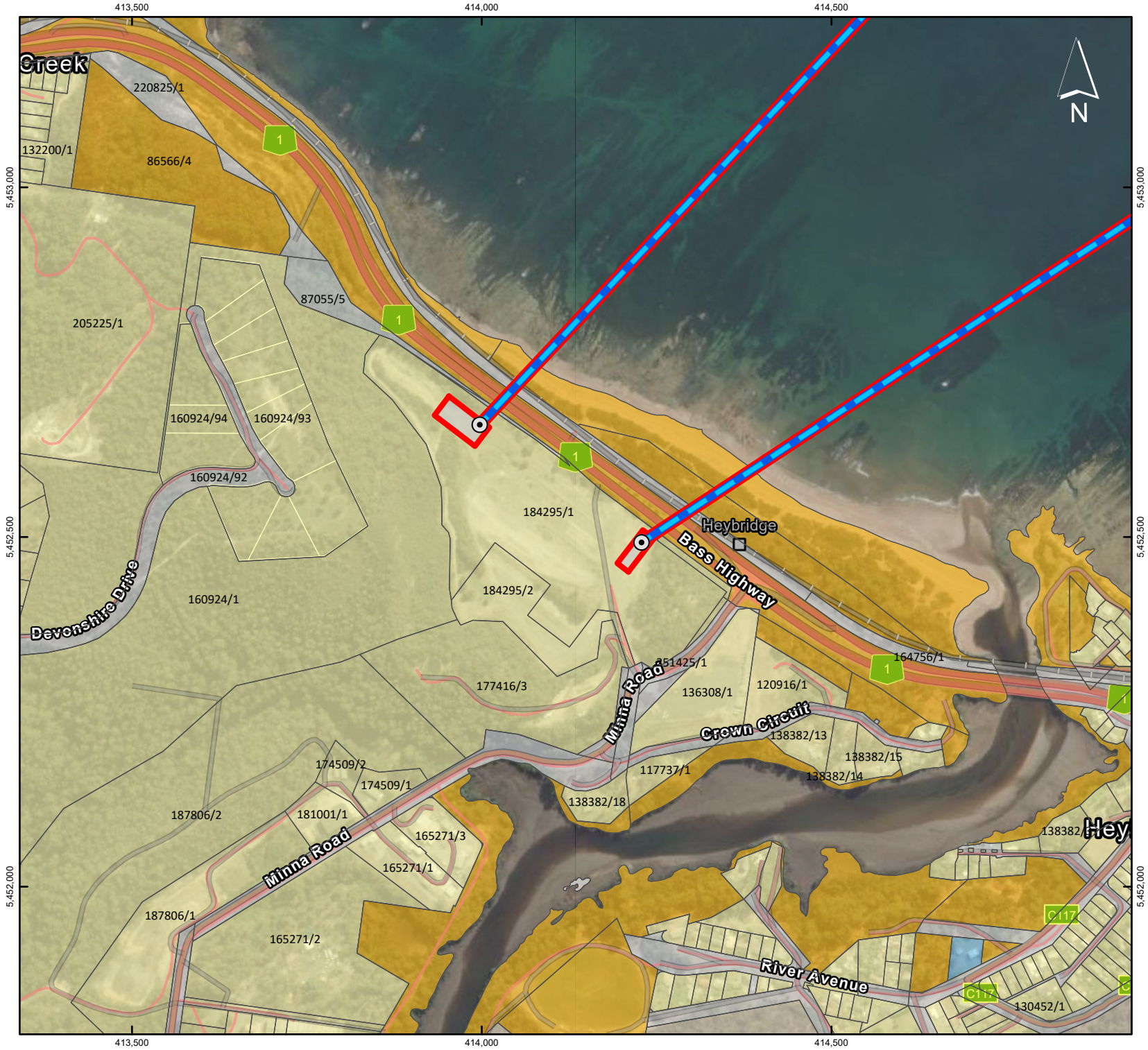
Nevertheless, ‘Utilities’ is a permitted use within the Rural Zone and the Utilities Zone so an assessment by Burnie City Council would not have been triggered. Utilities within the Environmental Management Zone is a discretionary use. This EIS and the assessment undertaken by the EPA Board would achieve the objectives of the Environmental Management Zone.

The proposal site is subject to several overlays and Table 5-2 describes their applicability to the proposal.

Table 5-2 Applicable codes

Overlay code	Affected parcels	Relevance to proposal
Bushfire Prone Areas	All parcels	The code applies to vulnerable use, hazardous use, or subdivision. The proposal does not include subdivision, and Utilities use in not considered a vulnerable use. A hazardous use is defined as per C13.3.1: '*hazardous chemicals of a manifest quantity are stored on a site; or explosives are stored on a site and where classified as an explosives location or large explosives location as specified in the Explosives Act 2012.*' There are no explosives to be stored on the proposal site. Although the proposal includes storage of hazardous quantities, they are not of ‘manifest quantity’, therefore the code is **not applicable** to the proposal.
Natural Assets Code	T1286, T0580, T0579, T0577	The code applies to areas identified as comprising priority vegetation and protecting the habitats of important flora and fauna. The proposal is **exempt from the provisions of this code** pursuant to clause C7.4.1(b) as it is a Level 2 Activity regulated by the EPA.
Coastal Erosion Hazard Code	T2000, T1287, T0579, T0580, T1286, T0577	The code requires that any use or development subject to risk from coastal erosion is appropriately located and managed. The proposal would **comply with the requirements of C10.6.3** and to achieve and maintain a tolerable risk from coastal erosion.
Coastal Inundation Hazard Code	T1286	The code requires that any use or development subject to risk from coastal inundation is appropriately located and managed. The proposal’s subsea cables would traverse through the low and medium bands of the Coastal Inundation Hazard area. The proposal would **comply with the requirements of C11.6.1** and to achieve and maintain a tolerable risk from coastal erosion.

Figure 5-1:
Land tenure in relation to the proposal site



Scale: 1:7,500 @ A4

Spatial Reference: GDA2020 MGA Zone 55

0 50 100 200 300 400

Metre

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Acknowledgements and Sources:

Data Source: Marinus Link GIS Data Repository and theLIST ©State of Tasmania .
Background Image: Esri Community Maps Contributors, DPIPWE, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, Foursquare, METI/ NASA, USGS, Maxar
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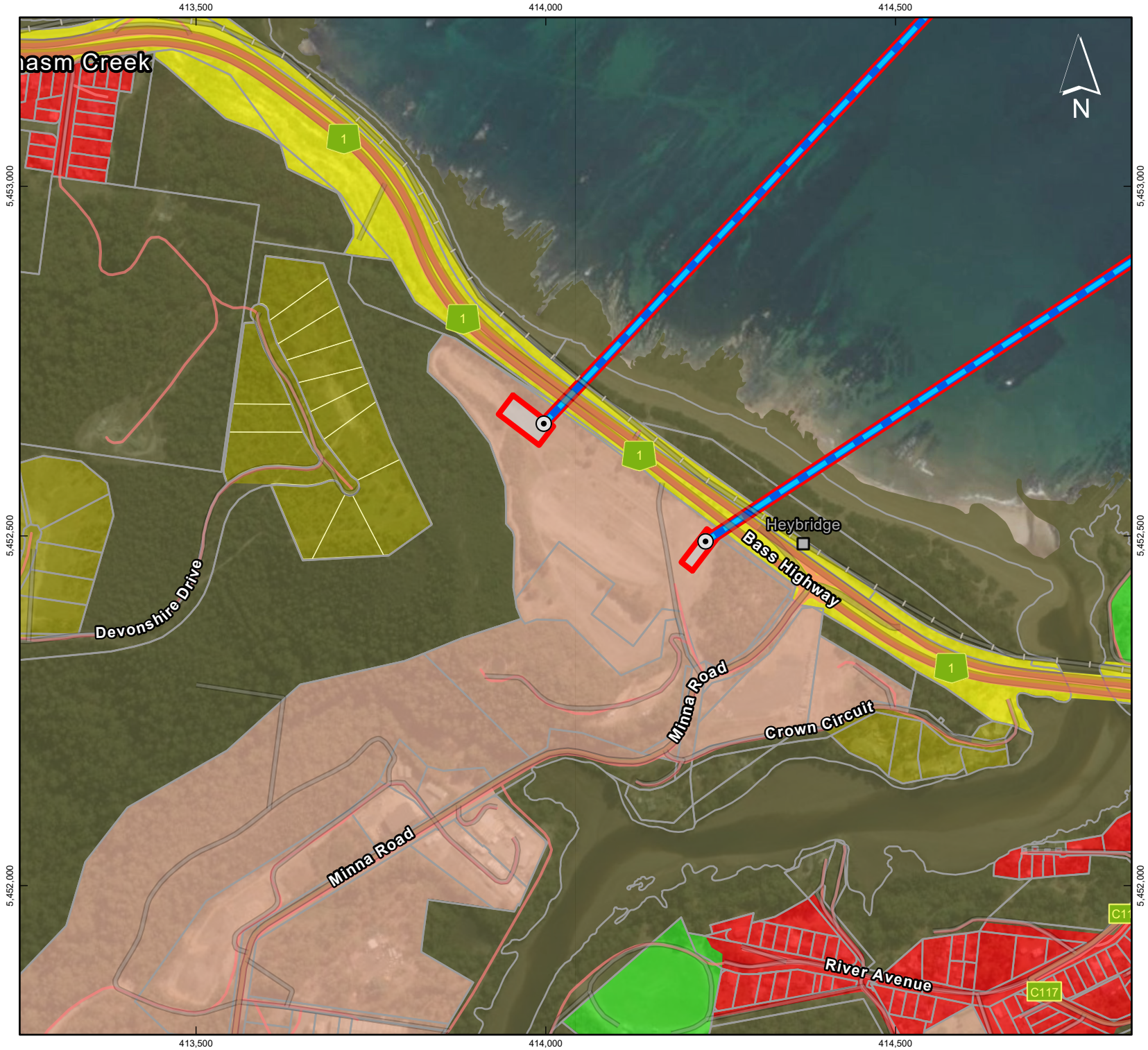
Figure 5-2:
Planning scheme zones in relation to the proposal site



Legend

- HVDC Landfall
- Proposed HVDC Subsea Cable
- Proposal Site
- Cadastral Parcels

Tasmanian Planning Scheme Zones

- General Residential
- Rural
- Landscape Conservation
- Environmental Management
- Utilities
- Recreation
- Major Road
- Minor Road

Scale: 1:7,500 @ A4

Spatial Reference: GDA2020 MGA Zone 55

0 50 100 200 300 400

Meters

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5.1.3 Land use history

The HDD launch pad site is located on part of the site of the former tioxide plant. The former tioxide plant was operational between December 1948 and June 1996. During its operation, an acid-iron liquor waste from the production process was discharged directly to Bass Strait via outfall pipelines. The former tioxide plant was demolished in 1998 and the site was rehabilitated thereafter. The site is not the subject of any current EPA Tasmania issued notices.

Following the decommissioning of the former tioxide plant, the site was leased from Burnie City Council as a timber storage and loading yard. MLPL purchased the site from Burnie City Council in January 2021, and it has been vacant since (refer to Photo 5-1 and Photo 5-2). For discussion on soils and potential contamination on this part of the proposal site, refer to Section 5.2.1 and Section 6.2.

The underground crossing does not have an operational land surface presence, but traverses under road, rail and foreshore reserve. The seabed alignments lie beneath sea areas used for shipping, fishing and recreational uses. The western seabed alignment is also partly traversed by the disused outfall pipelines of the former tioxide plant. For a discussion of the potential impacts on the marine environment, refer to Sections 6.3, 6.4 and 6.10.

Photo 5-1 Heybridge Converter Station site (where HDD launch pad site would be located), looking north towards Bass Strait

Photo 5-2 Heybridge Converter Station site (where HDD launch pad site would be located), looking north-west

5.1.4 Sensitive land uses

Figure 5-3 shows the location of sensitive land uses in proximity to the proposal. These include:

- Existing residential properties to the east of the proposal site, with houses ranging from 150 m to 400 m from the proposal site boundary.
- The Eagle Sea Estate development, which includes seven hamlets approved for residential subdivision. The closest subdivision to the proposal boundary is the Devonshire Drive hamlet which would comprise 15 residential lots. The closest lot is approximately 150 m from the proposal boundary.
- The foreshore and beach on the opposite side of Bass Highway, approximately 50 m from the proposal boundary.

Figure 5-3:
Sensitive land uses in relation to the proposal site

Legend

- HVDC Landfall
- Proposed HVDC Subsea Cable
- Proposal Site

Building Type

- Amenity
- Commercial Facility
- Community Venue
- Emergency Facility
- Industrial Facility
- Residential Building
- Shed
- Structure
- Tourist Feature
- Major Road
- Minor Road

Scale: 1:10,000 @ A4

Spatial Reference: GDA2020 MGA Zone 55

0 50 100 200 300 400 500

Meters

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Acknowledgements and Sources:

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Date Figure Exported: 22/11/2024

5.2 Environmental aspects

5.2.1 Soils, geology, and landform

5.2.1.1 Topography and bathymetry

The surface elevation of the onshore aspects of the proposal site ranges from 0 m to approximately 25 m above Australian height datum, with the land sloping from the southern portion of the proposal site towards the shore. Higher topographic elevations are present to the east and west (up to 40 m Australian height datum) outside the site boundary. Elevation contours are shows in Figure 5-4.

In Tasmanian coastal waters, the seabed slope gradually decreases from the coastline to the 40 m depth contour. Sharp changes in depth occur at intervals from the coastline to 3 km (approximately 1.6 NM) offshore, indicating reef habitat. The seabed reaches 40 m depth at approximately 6.5 km (3.5 NM) offshore.

5.2.1.2 Geology and geomorphology

The geomorphology, or landforms, of the proposal site and surrounding area are defined by elevation, slope and geomorphic processes (including human activity) and include:

- Coastal sand ridges and swales.
- Intertidal and subtidal zones.
- Blythe River estuary.
- Coastal terrace.

The proposal site and its surrounding area is mapped as being underlain by Quaternary Aeolian deposits, which are expected to overly the Precambrian aged Burnie and Oonah Formation bedrock, a marine sequence of interbedded sandstone and mudstone. The bedrock outcrops where the topography rises steeply around the proposal site to the west, south and east. The Oonah Formation also outcrops on the seafloor below low water mark out to and beyond the limits of emergence of the seabed alignments.

Ground investigations were undertaken on the Heybridge Converter Station site, including the launch pad site, to characterise the geological conditions, as summarised in Table 5-3.

Table 5-3 Summary of local geological conditions

Geological unit	Depth to top	Thickness	Description
Fill	0 m	0.15 to 2.2 m	Highly variable (silt to gravel)
Colluvium	0.15 to 0.25 m	0.15 to 2.75 m	Clay / silt
Aeolian	1.0 to 2.3 m	0.3 to 0.8 m	Silt to sand
Residual soil	0.2 to 2.2 m	0.3 to 2.6 m	Silt to gravel
Quartzwacke – Burnie and Oonah Formation	0.0 to 3.1 m	Base not encountered	Highly to slightly weathered quartzwacke

The seabed habitats for the Tasmanian coastal waters indicate that much of the seabed to approximately 4 km off the shoreline comprised of rock reef habitat, cobble habitat, sand and sand gutter habitat, seagrass (CEE, 2024). The reefs generally continue downwards to the seafloor to a depth of around 40 m where the State waters 3 NM limit lies.

Figure 5-4: Topography around the proposal site

Legend

- HVDC Landfall
- Proposed HVDC Subsea Cable
- Proposal Site
- Elevation Contours (5m Interval)
- Major Road
- Minor Road

Scale: 1:5,000 @ A4

Spatial Reference: GDA2020 MGA Zone 55

0 50 100 200 300

Metre

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Acknowledgements and Sources:

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Date Figure Exported: 22/11/2024

5.2.1.3 Soils and potential contamination

Soil types as mapped under the Australian Soil Classification within the proposal site and surrounding landscape are:

- Kurosols, developed on the Oonah Formation and colluvium.
- Dermosols, developed on the alluvial sediments of the Blythe River.
- Podosols, coastal sandy ridges north of Bass Highway.

Based on a review of the National Acid Sulfate Soils Atlas, there is a low probability (6-70%) that ASS exist across the onshore components of the proposal site (the launch pad site and the underground crossings). However, ASS testing undertaken on the proposal site has identified that ASS is present at depths from approximately 0.5 m below the ground surface. The presence of ASS is not continuous across the proposal site.

In terms of the seabed alignments component of the proposal site, ASS testing of sediments from the seabed did not identify ASS and the sediments are unlikely to be acid-generating.

There is known contamination present within the proposal site associated with the former tioxide plant, including naturally occurring radioactive materials in the titanium ore used at the site. Asbestos containing materials (ACM) have been identified on the ground surface and within fill soils and soil stockpiles on the Heybridge Converter Station site, and concentrations of petroleum hydrocarbons have been found in soils there. Given its past land use, the contaminated state of the Heybridge Converter Station site is not unexpected, and in its current state, would limit potential future uses of that land.

Limited groundwater sampling from the upper Quaternary sand aquifer undertaken for the proposal did not encounter significant groundwater contamination.

Further characterisation of the soil types and structures across the onshore components of the proposal site, and identification of the potential location and disturbance of contaminated soil as well as dispersive, acid sulfate or saline soils is discussed further in Section 6.2, 6.5 and the Contaminated Land and Acid Sulfate Soils Impact Assessment (Appendix C).

The western portion of the former tioxide plant site once contained an effluent tunnel that ran from the factory area, beneath Bass Highway, the rail line and the dune areas before emerging on Tioxide Beach. The tunnel is understood to have comprised a concrete structure approximately 200 m long, 1.2 m wide and 2.2 m high, and was covered with approximately 2 m of cover soils. Where the tunnel passed beneath Bass Highway, it comprised a 600 mm diameter concrete pipe. It is assumed that the tunnel was decommissioned and retained in-situ as crushed concrete and/or crushed rock backfill. The condition of any residual sediments or scale within the tunnel are unknown. The proposal is not in the near vicinity of the tunnel. A sediment quality field investigation of the Tasmanian nearshore seabed identified residual trace metal contamination present in surface and deeper sediment layers, with trace metals (nickel and chromium) and one metalloid (arsenic) being of potential ecotoxicological concern if mobilised and dispersed. The findings are further discussed in Section 6.3 and the Marine Ecology and Resource Use Impact Assessment (Appendix D).

5.2.2 Climate

5.2.2.1 Temperature, rainfall and wind

The region where the proposal site is situated is classified as temperate with no dry season, mild summers and cold winters. Based on climate data from the Burnie Automatic Weather Station (ID. 091344), located approximately 6 km west from the proposal site, the mean annual maximum temperature from 2014 to 2022 was 16.2°C and the mean annual minimum temperature was 10.8°C. The warmest month is January, with mean maximum and minimum temperatures of 20.6°C and 14.7°C respectively, and the coolest months of July and August recorded a mean maximum temperature of 12.6°C and mean minimum temperatures of 7.5°C and 7.1°C respectively.

The proposal site experiences mild to warm summers with average maximum temperatures of 20.2 to 21.7°C and with winter months having an average maximum temperature range of 12.8 to 13.5°C. The greatest potential for bushfire events is associated with a bushfire season which coincides with strong west to south-west winds, together with low rainfall and drought conditions.

The average annual rainfall recorded at the Burnie (Park Grove) weather station (ID. 091355) from 2010 to 2022, located approximately 8.4 km west from the proposal site, was 970.7 mm. The data from this weather station shows that the highest rainfalls occur during winter (with a mean rainfall of 120.2 mm in July) and the driest period is during summer (mean rainfall of 45 mm in February).

Wind data recorded at the Burnie Automatic Weather Station from 2009 to 2022 indicates that winds are generally moderate to strong with an average wind speed of 4.36 m/s. Approximately 67% of winds are from the south-west to north-west, and approximately 22% of winds are from the south-east (refer to Figure 5-5). There is some diurnal and seasonal variation in wind speed and direction throughout the year, with autumn and winter generally characterised by lighter and more southerly winds.

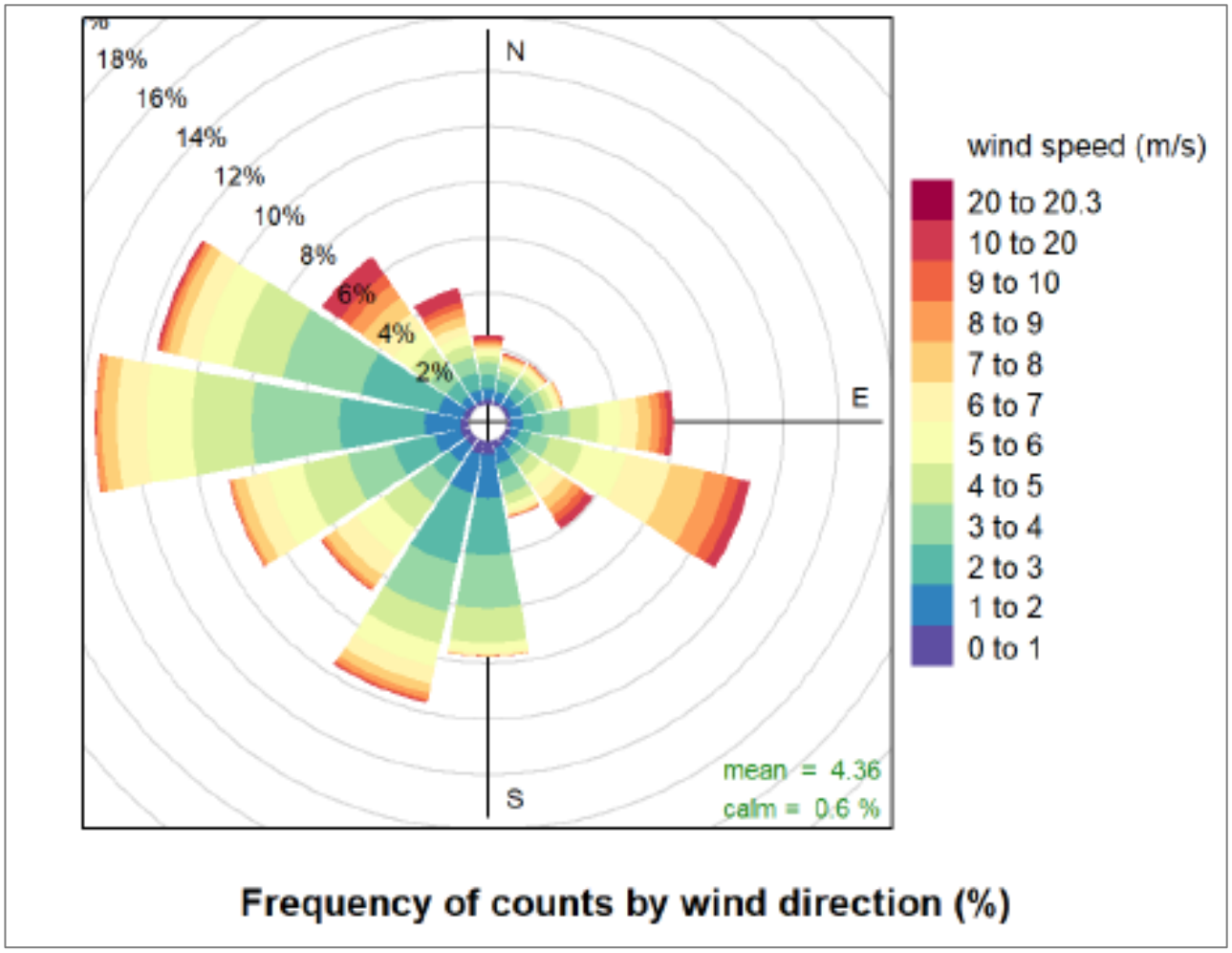


Figure 5-5 Annual distribution of wind speed and wind direction derived from BoM Burnie Automatic Weather Station (2009-2022)

5.2.2.2 Air quality

The key terrain features of the coastal town of Heybridge on Bass Strait play a large role in the predominant wind directions and wind speeds across the proposal site. The local meteorological conditions dictate the direction of transport of dust, and where and when the higher concentrations are likely to occur. In general, it is under hot, dry and windy conditions where dust emissions have the highest potential to adversely impact on air quality away from their point of release.

EPA Tasmania carries out air quality monitoring to determine its compliance with the National Environment Protection (Ambient Air Quality) Measure. EPA Tasmania also operates the Base Line Air Network of EPA Tasmania (BLANkET). The BLANkET network offers real time, indicative (non-reference) particulate monitoring using DRX DustTrak instruments. The BLANkET network data is compared against the reference monitor at Hobart in an attempt to validate the data. The BLANkET indicative data cannot be used to determine if an air quality standard has been exceeded but provides a good indication of particulate concentrations and how they change over time.

A review of the EPA Tasmania air monitoring stations within 50 km of the proposal site has been carried out to determine which site is most representative of the conditions experienced at the proposal site. Emu River

is the closest to the proposal site, approximately 8.6 km south-west, in an area with little in the way of emission sources. The ambient background concentrations selected to be representative of the proposal site conditions highlight the low background levels in the vicinity of the proposal site. A conservative approach has been taken where the highest ambient concentrations measured at Emu River in any year have been used to characterise ambient background concentrations for the assessment. It should be noted that monitoring at the Emu River site is conducted using real time, indicative (non-reference) particle monitoring as part of the Blanket network.

The highest background concentration with relation to the criteria is annual average particulate matter with a diameter less than 2.5 micrometres ($PM_{2.5}$) which equates to 34% of the criteria. These ambient backgrounds are used to inform the human health impacts of additional dust. These background concentrations were used in the air quality assessment to inform the assessment of potential health impacts from dust associated with the proposal (refer to Section 6.7 for further discussion).

5.2.3 Noise

The noise environment of the proposal site is characterised by conservation areas, forestry, roads, commercial uses and scattered residential properties. The existing noise at the proposal site is expected to be dominated by natural noise (such as wind and the ocean), commercial, forestry or traffic noise.

Human sensitive receptors in proximity to the proposal site include existing residences to the east and south-east of the proposal site and approved residential developments to the west and south-west.

As part of the noise and vibration assessment for the proposal, unattended monitoring was carried out at two representative sites to establish existing noise levels at the Heybridge Converter Station site, which would be the location of the HDD activity. The background noise levels for the two sites ranged from 38-42 decibels (dB) L_{A90} for the daytime to 32 dB L_{A90} for the nighttime and is consistent with expectations for the area. Refer to Section 6.6 for further discussion on the existing noise environment.

5.2.4 Flora and fauna

5.2.4.1 Vegetation

The vegetation at the launch pad site has largely been cleared with only remnant patches of vegetation and weeds remaining. *Eucalyptus amygdalina* coastal forest and woodland occurs as a remnant patch on an elevated area in the south-east corner of the Heybridge Converter Station site, is outside the proposal site.

The vegetation above the underground crossing is comprised of a narrow coastal strip of native vegetation up to 120 m wide growing on a sandy beach. Native vegetation communities are Coastal scrub (SSC) (not listed as threatened under the NC Act) and *Eucalyptus viminalis–Eucalyptus globulus* coastal forest and woodland (DVC) (listed as threatened under the NC Act). Figure 5-6 shows the native terrestrial vegetation communities relevant to the proposal site.

At Tasmanian coastal waters, the seabed is sandy at sites shallower than 30 m depth, comprising bare, medium to coarse sand and shell, with no associate biota visible. Seaweeds (red and green macroalgae) dominated the reef in summer from shoreline to 30 m depth, with the larger brown algae restricted to depths

less than 5 m. In winter, the seaweeds are absent, and reefs are characterised by bare rock with some encrusting red algae, encrusting invertebrates and solitary ascidians. As water depth increases from 31 m to 62 m, the seabed becomes flatter and sandier with a decreasing abundance of plants including green algae (*Caulerpa longifolia*).

5.2.4.2 Fauna

The dry forest, woodland and scrub associated with the low rises south of the launch pad site provides habitat for a range of fauna species including reptiles, mammals and birds. The swamp and wet forest communities located on the banks and floodplains of the Blythe River provide habitat for fish, crustacae and frog species.

No species listed under the TSP Act or the EPBC Act have been recorded on the proposal site, however TSP Act or EPBC Act listed species which may potentially occur within the proposal site are presented in Table 5-4. Refer to Section 6.1 for further discussion on terrestrial flora and fauna.

Table 5-4 EPBC Act and TSP Act listed fauna relevant to the proposal site

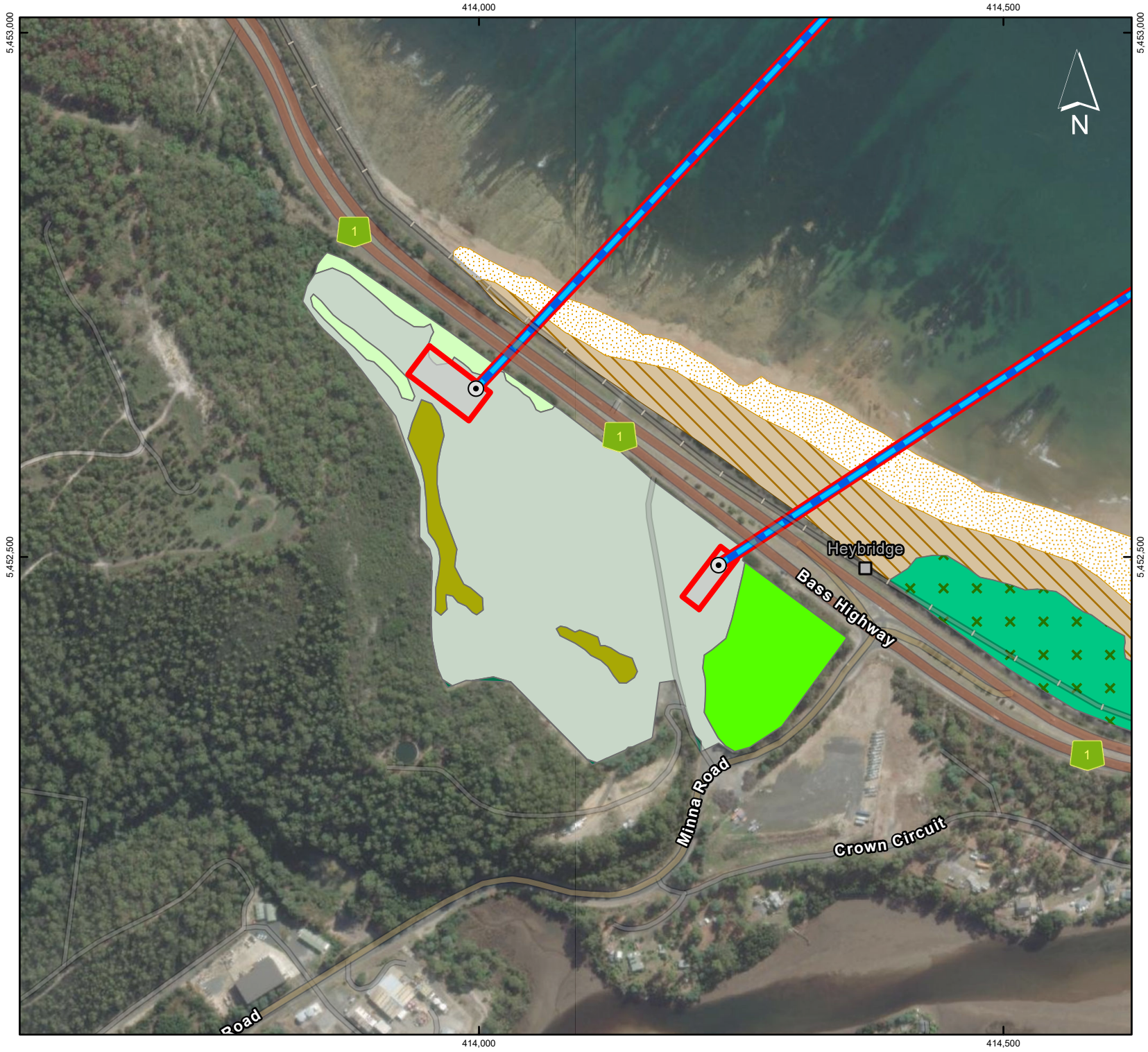
Scientific name	Common name	TSP Act	EPBC Act	EPBC Act Migratory/Marine	Likelihood of occurrence
Apus pacificus	Fork-tailed swift			Migratory	May occur
Aquila audax subsp. *fleayi*	Tasmanian wedge-tailed eagle	Endangered	Endangered		May occur
Dasyurus maculatus subsp. *maculatus*	Spotted-tailed quoll	Rare	Vulnerable		May occur
Haliaeetus leucogaster	White-bellied sea-eagle	Vulnerable		Marine	May occur
Hirundapus caudacutus	White-throated needletail		Vulnerable	Marine/Migratory	May occur
Sarcophilus harrisii	Tasmanian devil	Endangered	Endangered		May occur

May occur: the species/ecological community has been recorded in the study area and suitable species habitat exists or could exist in the survey area following detailed ecological studies.

Seventeen species of wetland birds (shorebirds or migratory) have potential to be present within Tasmanian coastal waters. Wetland bird species comprised of plovers, terns, sandpiper, snipes, godwits, and knots.

In nearshore waters close to the proposal site, subtidal rocky platforms and reefs are likely to support a wide diversity of marine fish. Marine fish species found in northern Tasmanian waters include reef fish that are permanent residents of coastal communities, migratory species that move between marine and freshwater in estuarine environments and offshore species that are transient visitors to inshore breeding and nursery habitats (Aquenal 2002). Due the proximity of the proposal site to nearby estuaries and Blythe River, the principal migratory and diadromous fish species potentially in the areas of potential impact of the proposal include the anadromous species (e.g., short-headed lamprey (*Mordacia mordax*), pouched lamprey (*Geotria australis*) and Australian salmon (*Arripis trutta*)), and catadromous species (short-finned eel (*Anguilla australis*) and long-finned eel (*A. reinhardtii*)).

Figure 5-6:
Native vegetation communities relevant to the proposal site



Legend

- HVDC Landfall
- Proposed HVDC Subsea Cable
- Proposal Site

Vegetation Communities

- [DAC] Eucalyptus amygdalina coastal forest and woodland
- [DOB] Eucalyptus obliqua dry forest
- [DVC] Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland
- [SSC] Coastal scrub
- [FUM] Extra-urban miscellaneous
- [FPU] Unverified plantations for silviculture
- [FWU] Weed infestation
- [OSM] Sand, mud

Scale: 1:5,000 @ A4

Spatial Reference: GDA2020 MGA Zone 55

0 50 100 200 300

Metre

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Acknowledgements and Sources:

Data Source: Marinus Link GIS Data Repository and theLIST ©State of Tasmania .
Background Image: Esri Community Maps Contributors, DPIPWE, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, Foursquare, METI/ NASA, USGS, Maxar
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5.2.5 Conservation values

The closest geoconservation site to the proposal site, identified in the Tasmanian Geoconservation Database, is Blythe Heads Folding. This site is located approximately 400 m to the north-west of the proposal site and the significance statement notes that it is a ‘Notable example of type'.

The nearest conservation reserve is Blythe River Conservation Reserve, located approximately 570 m south-east of the proposal site on the opposite side of Blythe River.

The proposal site does not intersect with any registered Commonwealth Heritage Places or other places with recognised historic heritage values. Eight maritime archaeological sites (shipwrecks) were identified as being possibly located within 5 km of the subsea cables within the Heybridge nearshore survey area.

5.2.6 Aboriginal cultural heritage

No Aboriginal sites or suspected features were identified during two field surveys conducted on the Heybridge Convertor Station site and the surveyed section of the adjacent coastal reserve and shore crossing. A search of the Aboriginal Heritage Register shows that there are no registered Aboriginal sites that are located within or in the immediate vicinity of the study area.

The Heybridge Convertor Station site has been heavily disturbed by previous industrial development and site rehabilitation works. As such, there is virtually no possibility of Aboriginal sites surviving within this landscape. The undisturbed steep and rocky knoll area to the south-east corner is unlikely to be a place where Aboriginal cultural artefacts are present.

The northern Tasmanian coastline has potential for presence of shell middens, for fish traps to be located in the intertidal zone, and seal hides to be located where cobblestone beaches are present. Field surveys conducted for the proponent confirmed that there is no evidence of fish trap features being present along the coast encompassing and adjacent to the proposal, between the mouth of the Blythe River and just south of Titan Point.

Discrete low-density shell midden deposits may have been present in the coastal area between the Heybridge Converter Station site and Tioxide Beach. However, this coastal reserve has been very heavily disturbed by the construction of the Western Line Railway and erosion repair works along the seaward face of the foredunes. If sites were present in this area, they are likely to have since been destroyed.

An underwater cultural heritage study identified that paleochannels located near the underwater component of the proposal site have the potential for remnants of Aboriginal cultural heritage (including artefact scatters, rock shelters and possible stone fish traps) given that the rivers have been important resources to Aboriginal people more than some 10,000 years ago when sea levels were lower. The underwater cultural heritage study did not identify any Aboriginal cultural heritage objects or artefacts in the seabed alignments.

The proponent will continue to work alongside the Tasmanian Aboriginal Community to identify cultural values of the landscape.

5.2.7 Landscape values and views

The foreshore areas along Tioxide Beach and the steep-sided vegetation areas to the west of the launch pad site and east of Heybridge contribute most to the existing landscape of the proposal site. These parts of the proposal site are within the Environmental Management Zone.

Recreational areas including the playing field for Cuprona Football Club to the south of Heybridge and foreshore areas at Blythe Head to the north of Bass Highway are also valued for their natural appearance, recreational uses, and biodiversity values.

The most sensitive landscape area is confined to coastal areas and foreshore locations, where the proposal would be underground.

The launch pad site does not contribute to the landscape values of the surrounding areas. However, there is a potential for construction there, primarily associated with the Heybridge Converter Station, to disrupt broader landscape values.

Visual impacts of the proposal have been considered in the Social Impact Assessment (Appendix K) and management of potential impacts is being addressed through the DA for the Heybridge Converter Station (refer to the Heybridge Converter Station EIS).

5.2.8 Water

5.2.8.1 Surface water

The onshore components of the proposal site are located within the Blythe River catchment. To the south of the launch pad site the Blythe River flows north towards the sea. Smaller tributaries are also located to the west and south-west. All stormwater flows to the north of the launch pad site and discharges under Bass Highway to Bass Strait. Figure 5-7 shows the watercourses and wetlands near the proposal site and its surrounds.

Water quality monitoring data is lacking in the Blythe River estuary, with monitoring stations largely located further up the catchment. Known factors influencing existing water quality in the Blythe catchment, river and estuary include:

- Forestry, cropping, dairy and other agricultural activities.
- Industrial activities (e.g., former tioxide plant and mineral processing operations).

Previous local investigations of the Blythe River estuary determined that the estuary is rated as being of low conservation significance and of a moderately degraded nature (Department of Primary Industries, Water and Environment (DPIWE) 2001). The protected environmental values (PEVs) for the Blythe River estuary include protection of aquatic ecosystems (modified ecosystems from which fish are harvested) and recreational water quality (for primary and secondary contact) and aesthetics (DPIWE 2000).

Flood mapping for the 0.5% annual exceedance probability (AEP) event indicates that the Blythe River is largely confined to its floodplain and does not interact with the onshore components of the proposal site. Modelling of existing flood depths for the 0.5% AEP event indicates significant ponding of water in the

northern extent of the Heybridge Converter Station site, with depths up to 1.6 m at the entrance to the outfall culvert that passes beneath Bass Highway.

Refer to Section 6.5 for further discussion on the existing surface water environment.

5.2.8.2 Bass Strait

Existing water quality in Bass Strait has been obtained from historical water quality data and water quality samples collected in 2020 and 2021 on the passenger ship *Spirit of Tasmania I*, which crosses the Tasmania nearshore west of Tamar Estuary entrance. Water quality summary data is shown in Table 5-5.

Table 5-5 Water quality summary data Tasmanian coastal waters

Statistics	Temperature (°C)	Turbidity (NTU)	Salinity (PSU)	Chlorophyll (mg/m^3)
Winter (1 June to 31 August 2021):				
No. of samples	51,191			
Average	13.705	1.136	33.260	0.400
Summer (1 December 2020 to 28 February 2021):				
No. of samples	71,219			
Average	17.532	0.521	35.073	0.295

Source: MV Spirit of Tasmania I water quality data (AODN 2021). NTU=Nephelometric Turbidity Units. PSU=Practical Salinity Units.

Based on the water quality data, the average temperature in Tasmanian coastal waters is around 13.7°C in winter (1 June to 31 August 2021) and 17.5°C in summer (1 December 2020 to 28 February 2021).

The average low surface turbidity values indicate high water clarity and low total suspended solids (TSS) concentrations. The Tasmanian coastal waters had lower surface salinity and higher chlorophyll concentrations in winter compared to summer.

Refer to Section 6.5 for further discussion on the existing surface water environment and Section 6.3 and Section 6.10 for further discussion on the existing marine water environment.

5.2.8.3 Groundwater

Groundwater beneath the proposal site, extending to the shore, is likely to be present within two primary aquifers:

- Quaternary sand aquifer, a shallow unconfined porous media aquifer represented by the unconsolidated Quaternary deposits of aeolian sand, and river and marine gravels, sand and clays.
- Bedrock aquifer, a fractured rock aquifer formed by the Precambrian aged Burnie and Oonah Formation turbidite sequence, likely to be weathered by the upper horizon. This aquifer may be confined or semi confined by the overlying Quaternary sand aquifer at the proposal site and unconfined to the south and west where the bedrock outcrops at surface.

Groundwater monitoring indicates that the water table is likely to be shallow across the proposal site, typically less than 1 m below ground level, and flow to the north (Bass Strait). Limited groundwater sampling from the upper Quaternary sand aquifer undertaken for the proposal did not encounter significant groundwater contamination. Refer to Section 6.5 for further discussion on groundwater within the proposal site.

Figure 5-7: Watercourses near the proposal site

Legend

- HVDC Landfall
- Proposed HVDC Subsea Cable
- Proposal Site

Hydrology

- Water Body
- Estuary
- Tidal Zone
- Wetland
- Watercourse
- Major Road
- Minor Road

Scale: 1:7,500 @ A4

Spatial Reference: GDA2020 MGA Zone 55

0 50 100 200 300 400

Metres

MARINUS LINK

Acknowledgements and Sources:

Data Source: Marinus Link GIS Data Repository and theLIST ©State of Tasmania .
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5.3 Socio-economic aspects

5.3.1 Community demographics

The below provides a summary of the community demographics of the population living in the local study area and regional study area. For further information, refer to Section 6.12 and the Social Impact Assessment (Appendix K).

As part of this EIS, the project community demographics are defined as the following:

- The **local study area:** Heybridge township, the area for the launch pad site and the underground crossing.
- The **regional study area:** is the two LGAs (Burnie City Council and Central Coast Council) potentially directly impacted by the project. Impacts on North West Tasmania, the state and the nation are considered where relevant.

5.3.1.1 Local context

The onshore components of the proposal site are located in the Heybridge township, which is a small rural town covering an area of 6.5 km^2 with a population of 442 people (ABS 2021). Heybridge shares land borders with Chasm Creek, Round Hill, Stowport, Cuprona, and Howth localities. Bass Strait is the northern border. Heybridge's history over the 20th Century is dominated by the construction, operation and eventual closure of the former tioxide plant. The factory, at its peak, produced 35,000 tons per annum of tioxide and employed up to 450 people (Summers 2006). At present day, Heybridge is a small coastal retirement town with proximity to waterways including Tioxide Beach at Heybridge and Blythe River.

5.3.1.2 Regional context

The onshore components of the proposal site in Heybridge are located in the Burnie City Council LGA, and immediately to the west of the Central Coast Council LGA, which is where most of the population of Heybridge lives.

Burnie City Council is located on land within the ancestral territory of the Plairhekenillerplue band of the North Peoples Tribe. The Burnie City Council LGA had an estimated residential population of 19,646 (ABS 2021). Most of the population lives along or close to the coast.

Central Coast Council LGA is located on the land of the Palawa/Pakana of the Punnilerpanner clan. The Central Coast Council LGA had an estimated residential population of 22,176 (ABS 2021). Most of the population lives along or close to the coast.

The regional study area is served by Bass Highway and Ridgley Highway and the township of Burnie is the primary population centre. Population and demographic data for Heybridge, Burnie City Council LGA and Central Coast Council LGA are included in Section 6.12.

5.3.1.3 Social values

The social values of Heybridge and the regional study area are discussed in Section 6.12. The community is tight knit, and the local areas are highly valued for their natural appearance, recreational uses and biodiversity values.

5.3.2 Economy

5.3.2.1 Regional economy

Agriculture, fishing, and plantation forestry are major industries in North West Tasmania. Agricultural enterprises include horticulture, dairy and medicinal crops. Forest products are exported through the Port of Burnie.

There are trading ports at Devonport and Burnie located to the east and west of the proposal site, with the major north coast fishing port at Stanley. Grange Resources operates the Port Latta pelletising and loading facility, a dedicated iron ore export business.

Tourism is a major industry within the North West Tasmanian region, with visitors attracted by the region's natural features and scenic coastline. Beaches and small coves along the North West Tasmanian coastline are popular with residents and tourists.

Devonport, situated east of the proposal site, acts as a gateway to the region. The freight and passenger ferry service, the Spirit of Tasmania, operates regularly between Devonport and Melbourne.

5.3.2.2 Local economy

At the Australian Bureau of Statistics (ABS) 2021 Census, the top industries of employment in the local and regional areas surrounding the proposal site are Health Care and Social Assistance, Education and Training, followed by Retail Trade. The other dominant industries of employment include Agriculture, Forestry and Fishing, Manufacturing, and Construction (ABS 2021).

At the ABS 2021 Census, labour force participation for Heybridge (53.7%), and regional areas were lower than that of the state (58.2%). Lower participation rates may be due to the comparatively aged population in the local and regional study areas.

5.3.2.3 Income and housing

The median household income in the local and regional areas is lower than the median household income in Tasmania (refer to Table 5-6).

Table 5-6 Median household income for areas relevant to proposal

Area	Heybridge	Burnie City Council LGA	Tasmania
Median household income ($/weekly)	$1,289	$1,225	$1,358
Median household income ($/annual)	$67,028	$63,700	$70,616

Source: ABS (2021)

Housing in the local and regional area is predominantly detached or separate houses, making up 96.4% of dwellings in Heybridge and 90.2% in Burnie City Council LGA.

In terms of housing availability, in the local study area, the vacancy rate in April 2023 was 0.7%, indicating a rental shortage. The region has experienced a rental shortage since COVID and has not yet recovered, with the rental vacancy rates for Burnie City Council LGA at 1.1%.