ETHOS URBAN

APA Crib Point Receiving Facility

Crib Point
Landscape and Visual Impact Assessment

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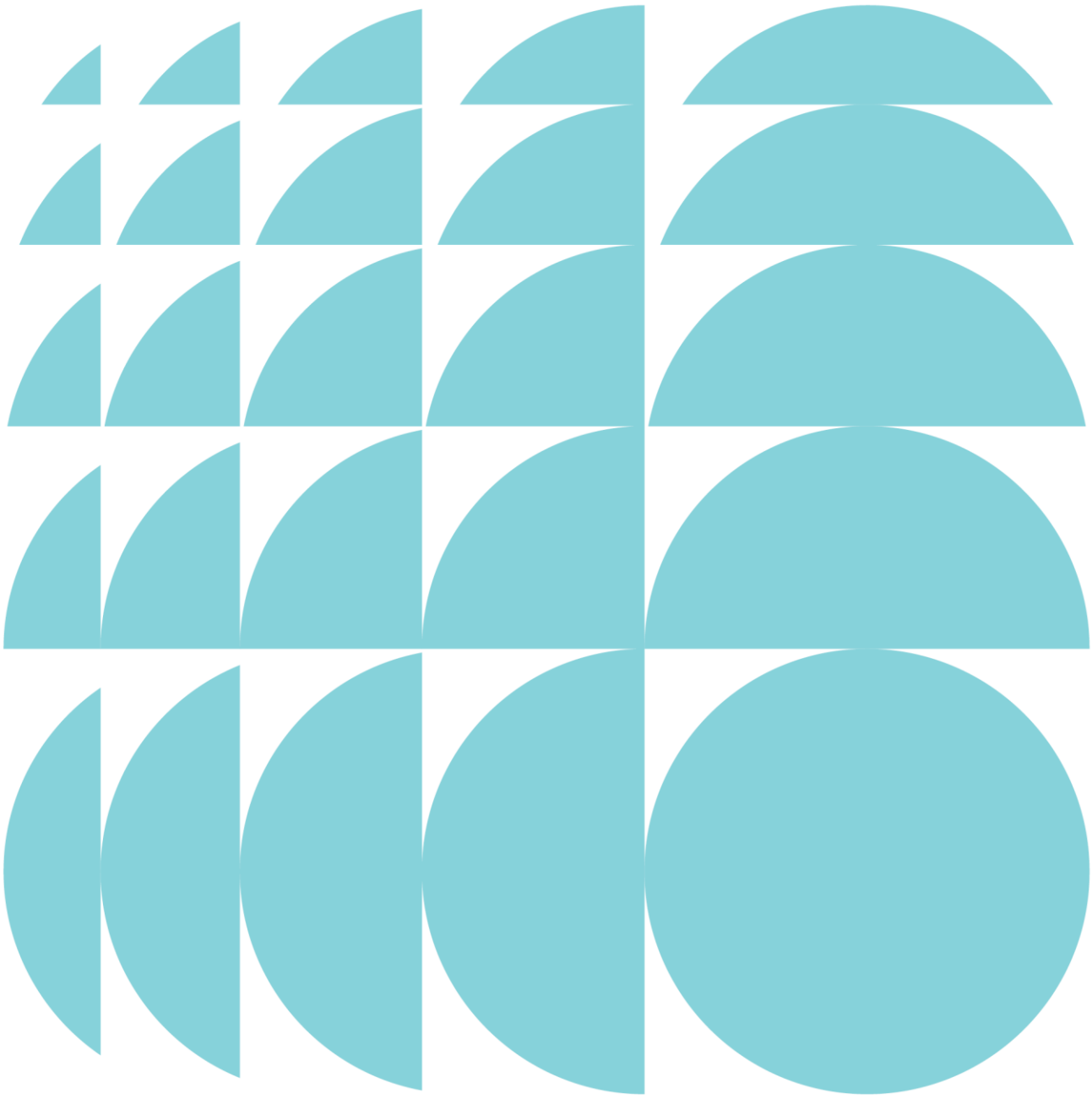

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1.0 Executive Summary

APA Transmission Pty Limited, a wholly owned subsidiary of the APA Group (together referred to as APA) is proposing to construct and operate an approximately 56 km in length high pressure gas pipeline which would connect AGL's proposed Gas Import Jetty at Crib Point to the Victorian Transmission System (VTS), near Pakenham.

This Landscape and Visual Impact Assessment (LVIA) relates to the Crib Point Receiving Facility (Receiving Facility), which is a component of the Crib Point to Pakenham Gas Pipeline Project (Pipeline Project). The Receiving Facility is situated at landside of the Crib Point Jetty, which is managed by Port of Hastings Development Authority (PoHDA) and would include metering, pigging facility, nitrogen storage tanks and injection, odourant plant, gas analysers and a vent stack.

Other activities that are related to the Receiving Facility and the broader Pipeline Project include the Gas Import Jetty Project, including the Floating Storage and Regasification Unit (FSRU) (collectively referred to as the Jetty Project), as well as upgrades to the Crib Point Jetty being carried out by PoHDA.

The Crib Point Jetty in Victoria has been selected as the preferred location for the Receiving Facility, building upon the existing maritime infrastructure already in place in an established, operating port. The Receiving Facility would provide a permanent onshore receiving facility to the continuously moored FSRU (part of the Gas Import Jetty Project) prior to transmitting the gas via the high pressure gas transmission pipeline (part of the Pipeline Project).

This LVIA assesses all components of the Receiving Facility, which are proposed to be established on an approximately 4.5 hectare (Ha) area adjacent to the Crib Point Jetty. The LVIA considers the potential landscape character and visual impacts of the Receiving Facility as a stand-alone project, and also considers the cumulative landscape and visual impacts of the Receiving Facility in combination with the associated Jetty Project. This assessment forms part of the broader planning and environmental assessments for the Pipeline Project.

This Landscape and Visual Impact Assessment is premised on a set of assumptions:

- Current design information informing the modelling of the Receiving Facility includes six (6) LIN storage tanks (8.5m in diameter and 20m in height) and ancillary works (all assumed to be 3m in height, other than the unloading gantry at 6m in height), two (2) new culverts along the existing 6m wide roadway, 2.5m high galvanised chain-wire(/link) type fencing topped with 3 strands of barbed wire.
- Finishes for the Receiving Facility would be a combination of beige, off-white and green.

With regard to the assessment of cumulative effects the following assumptions relate to the Gas Import Jetty Project components:

- The exact dimensions of the FSRU and LNG Carriers (length and width) will not be known until procurement tenders are complete. Therefore, standard height and general bulk and scale were benchmarked based on figures within Table 6: FSRU and LNG Carrier Dimensions in the Basis of Design report dated 11 August 2017 provided by AGL. These have been rounded up so the figures in this report are based on "not to exceed" calculations. The figures used to model the FSRU and LNG Carrier include a length of 295m and overall height of 40m.

This assessment establishes a baseline understanding of the Crib Point Jetty, onshore land adjacent to the jetty, and broader study area within a strategic policy context. Sensitive landscape receptors and visually sensitive receptors were then identified within this context and assessed under the assessment framework consistent with the Guidelines for Landscape and Visual Impact Assessment (LI & IEMA 2013). This assessment assesses the effects and subsequent impacts of the Receiving Facility on each of the identified receptors. The significance of these impacts could then be determined, accompanied by recommendations to mitigate potential impacts.

Landscape Character Assessment

Prevailing landscape characters were identified as sensitive receptors and assessed under the Landscape Impact Assessment (LIA) framework as described in Table 2, Table 3 and Table 5. The significance of the impact to these receptors was Low to Moderate.

The significance of the impact from the Receiving Facility on the assessed landscape receptors is considered to be of Low to Moderate significance.

The landscape character assessment outlined that the majority of areas surrounding the Subject site are within the Western Port Lowlands Character Area, characterised by undeveloped coastal areas with environmental values, and developed headlands with maritime uses, areas of vegetation and peri-urban settlements comprised of rural, residential and commercial uses. The Low to Moderate significance impacts on landscape receptors is considered acceptable taking into account the presence of port and maritime industry at this location and within the broader study area.

Visual Impact Assessment

As part of the associated *AGL Gas Import Jetty Project LVIA* (Ethos Urban 2018), visually sensitive receptors were identified and specific viewpoints were selected from within receptors and assessed against the Visual Impact Assessment (VIA) framework as described in Table 4 and Table 5. Five specific viewpoints were selected from within these receptors in order to assess the impact on the most sensitive receptors, and those that were considered of particular relevance to represent the potential effects of the Receiving Facility.

The Subject site contains the historically established Crib Point port and maritime industrial activities in accordance with the land use zoning, which operate in accordance with relevant approvals. From many viewpoints where the proposed Subject site is visible, a view of these structures and uses already exists and provides sound context for the continued development of maritime industrial activities, such as the Receiving Facility and the Jetty Project.

Key viewpoints with an unimpeded and relatively close view of the Subject site were assessed to have a Medium to High sensitivity to visual impacts. Views to the Receiving Facility from these viewpoints are subject to a range of intervening screening and vary in proximity to the Receiving Facility. The viewpoints with Medium to High visual sensitivity are those that would have less obstructed views of the Receiving Facility and that are less exposed to existing views to the port and maritime uses at Crib Point and in the broader study area.

Table 1 provides a summary of the visual impact assessment for the Receiving Facility in isolation, and the potential cumulative visual impacts having regard to the Jetty Project. Visual effects from the Receiving Facility would be generally Low or Moderate, with Moderate impacts primarily due to proximity to the Receiving Facility, the amount of intervening screening vegetation and the orientation of the primary view(s) from the assessed viewpoint.

Minor change to the visual impact assessment is predicted due to consideration of the proposal in whole (the cumulative effect). The cumulative effect of the FSRU boat and LNG carrier would change the significance of the visual impact at key viewpoints. Three of the five key viewpoints possess cumulative visual effects consistent with that of the Receiving Facility when considered in isolation. Two viewpoints possess key promoted vistas of the ocean which would be disrupted as a result of the Jetty Project. These views represent the most significant scale of change and the cumulative effect increases the significance of visual effects at this viewpoint. Nevertheless, many of the viewpoints provide an unimpeded view of the existing maritime land uses on the Crib Point headland which provides sound context for the development. Therefore, the proposal's cumulative effect on visual impact is considered to be of Moderate Significance.

Table 1 Summary of Visual Impact Assessment for the Receiving Facility and Jetty Project

	Viewpoint	Visual Sensitivity	Significance of Visual Effect (Receiving Facility)	Cumulative Significance of Visual Effect
5	Jacks Beach			
5(b)	Residential Uses	Medium	Low	Low
6	Victorian Maritime Museum			
6(a)	Submarine Lookout	Medium	Low	Moderate
6(b)	Maritime Museum	Medium	Moderate	Moderate
7	Woolley's Beach			
7(a)	Foreshore North	Medium – High	Low – Moderate	Moderate – High
9	French Island			
9(b)	The Pinnacles	Medium – High	Moderate	Moderate

Recommendations

With regards to the desired actions to mitigate the potential landscape and visual impacts of the Receiving Facility, we consider a number of recommendations that would improve the landscape and visual impacts of the proposal. These recommendations include:

- Provision of screening vegetation to be incorporated along the western edge of the Subject site adjacent to The Esplanade. This would reduce the visual impact of the proposed Receiving Facility from Jacks Beach and the Maritime Museum
- The tank finishes should be muted and non-reflective tones consistent with the Mornington Peninsula Shire Planning Scheme (even though no planning approval is required for the Facility).
- Lighting at the Receiving Facility be directed away from the nitrogen storage tanks, with the tanks utilising an external finish that minimise the reflectance of any lighting.

2.0 Introduction

2.1 Project Overview

APA Transmission Pty Limited, a wholly owned subsidiary of the APA Group (together referred to as APA) is proposing to construct and operate an approximately 56 km in length high pressure gas pipeline which would connect AGL's proposed Gas Import Jetty at Crib Point to the Victorian Transmission System (VTS), near Pakenham.

This Landscape and Visual Impact Assessment (LVIA) relates to the Crib Point Receiving Facility (Receiving Facility), which is a component of the Crib Point to Pakenham Gas Pipeline Project (Pipeline Project). The Receiving Facility is situated at landside of the Crib Point Jetty, which is managed by Port of Hastings Development Authority (PoHDA). The Receiving Facility comprises:

- The construction of an onshore Nitrogen facility for diluting rich gas including six (6) LIN storage tanks of 8.5m diameter and 20m high.
- Infrastructure associated with the operation of the facility including metering, pigging facility, nitrogen injection, odourant plant, gas analysers, control rooms, vent stack (all assumed to be 3m in height max.) and LIN unloading gantry (assumed to be 6m in height).
- The installation of a 2.5m security fence approximately 35m south of the northern most cadastre boundary.

Crib Point in Victoria has been selected as the preferred site for the Receiving Facility, building upon the existing maritime infrastructure already in place in an established and operating port managed by the PoHDA. The operations of the facility would include:

- Metering
- Pressure let down
- Pigging facility
- Nitrogen storage and injection
- Odourisation
- Quality analysis
- Vent stack and
- Emergency shut down facilities.

The Pipeline Project proposed by APA also includes:

- The construction of a high pressure gas pipeline of approximately 56km in length, 600mm in diameter and a minimum cover of 1.2m from ground level, that would connect to the Victorian Transmission System (VTS), near Pakenham.
- Two mainline valves (MLVs) that would be situated along the pipeline at kilometre point (KP) 12 and KP40. A typical MLV site comprises of a 10m x 10m fenced compound.

As a receiving location, Crib Point offers:

- An existing operational deep-water port in a sheltered bay,
- An existing under-utilized jetty of suitable size to be remediated to accommodate the FSRU at a dedicated berth,
- Connection to the existing high pressure gas transmission grid via the Pipeline Project.

2.1.1 Associated Projects

Other activities that are related to the Receiving Facility and the broader Pipeline Project include the Gas Import Jetty Project, including the Floating Storage and Regasification Unit (FSRU) (the Jetty Project), as well as upgrades to the Crib Point Jetty being carried out by PoHDA.

The FSRU would:

- Be continuously moored at the existing Crib Point Jetty,
- Receive LNG cargoes from visiting LNG Carriers of approximately 300m in length (only one LNG Carrier would be moored alongside the FSRU at any one time),
- Store the LNG, and
- Regasify LNG in order to supply high pressure pipeline gas to the market.

The associated Jetty Upgrade consists of ancillary topside jetty infrastructure (Jetty Infrastructure) including:

- High pressure gas unloading arms,
- High pressure gas flowline mounted to the jetty,
- Connection to a flange on the landside component to allow connection to the Pipeline Project.

2.1.2 Design Refinements

The associated Landscape and Visual Impact Assessment (LVIA) completed in July 2018 by Ethos Urban primarily assessed the impacts of the FSRU, the jetty upgrade, and associated onshore works (the works referred to as the Receiving Facility in this assessment) on Crib Point and its surroundings. As a design for the Receiving Facility had not been finalised at the time of preparing this LVIA in July 2018, a number of assumptions were made regarding the location, scale and form of the onshore infrastructure. This included an estimated Subject site area of 1.5 hectares adjacent to the Crib Point Jetty and an assumed built form similar to a large shed with a proposed maximum height of 8m.

The design of the Receiving Facility has since been refined and would include replacement of the previously assumed shed-like facility with the following infrastructure:

- The proposed development of six (6) LIN storage tanks of 8.5m in diameter and 20m in height,
- Increase in height of the facility to 20m from 8m, a difference of 12m,
- Infrastructure associated with the operation of the facility including metering, pigging facility, nitrogen injection, odourant plant, gas analysers, control rooms, vent stack (all assumed to be 3m in height max.) and LIN unloading gantry (assumed to be 6m in height),
- 4m wide vegetation clearing along the cadastre boundary for the installation of a perimeter fence.

This LVIA assesses all components of the Receiving Facility on an approximately 4.5Ha area adjacent to the Crib Point Jetty. The LVIA considers the Receiving Facility as a standalone project, and also considers the cumulative landscape and visual impacts of the Receiving Facility in combination with the associated Jetty Project.

2.2 Study Area

The Receiving Facility would be located landside of the Crib Point Jetty, around 65 km south-east of Melbourne (Victoria) on the Mornington Peninsula (the Subject site). The Subject site is situated on the Western Port coastline within the Shire of Mornington Peninsula and on land managed by the Port of Hastings Development Authority (allotment 2040, The Esplanade, Crib Point). For the purposes of this study the Subject site includes the onshore Gas Processing Facility, located at the head of the jetty, as depicted in Figure 1.

The study area for the purposes of this LVIA includes analysis of the surrounding area around the Subject site, as key landscape features and receptors outside of the Subject site may also be impacted by development within the Subject site boundary as shown in Figure 1 and Figure 2.

Figure 1: Study area and Subject site

Figure 2: Subject site Context Indicative Layout Plan

The Subject site was originally cleared for the BP Refinery and associated wharf in 1964-1965. Vegetation regrowth has occurred since, in particular in the north-western area of the Subject site, however the Crib Point Jetty and land immediately adjacent to the Crib Point Jetty, remains in use. Within the Subject site, the five buildings and pipe installation remain as shown below in Figure 3, Figure 4 and Figure 5. However, some of the approximate area to the north has been cleared of vegetation. A few of the pathways within this area are more pronounced, while those where the regrowth continues are barely visible.

Figure 3: Storage tanks associated with the Former Refinery (source: Jacobs)

Figure 4: Pipeline heading west from the Crib Point Jetty (source: Jacobs)

Figure 5: Support buildings associated with the Crib Point Jetty (source: Jacobs)

2.3 Purpose of Report

The purpose of this report is to assess the potential landscape character and visual impacts of the Receiving Facility and in doing so, determine the significance of the Receiving Facility's potential impacts upon visual receptors and landscape character in the broader surrounding area, and suggest potential mitigation measures for any effects. This assessment also considers the cumulative landscape and visual impacts of the Receiving Facility in combination with the associated Jetty Project.

For the purposes of this assessment, the significance of impacts has been determined by considering the sensitivity of the landscape or visual receptor and the magnitude of change expected as a result of the development.

2.4 Scope

The scope for this report comprises a Desktop Study and a Detailed Study. Further detail about each of these scopes is included in the following sections.

2.4.1 Desktop Study

The desktop study was used to identify relevant policy and legislation relating to the landscape and visual character and existing visual and landscape conditions for the study area. Key tasks included:

- Background Preparation
  - Draft methodology
  - Receive and collate spatial data
  - Review strategic / policy background
- Landscape and Visual Mapping
  - Mapping of landscape layers and key features
  - Identification of landscape significance / potential threats
  - Identification of views and potential receptor locations

- Viewshed analysis
- Identification of potential visual impacts
- Confirm priority receptor locations.

2.4.2 Detailed Study

The Detailed Study ground-truths the findings of the Desktop Study, and assesses the project's potential impacts on visual receptors and landscape character in the study area, and recommends potential mitigation measures to ameliorate potential adverse impacts.

- Site Survey
  - Ground-truthing and confirming landscape and visual character findings of Desktop Study
  - Confirming receptor locations for montages
  - Photography for montages
- Montage Preparation
  - Receive and collate three-dimensional modelling and data
  - Preparation of montages (five locations)
- Assessment of Landscape and Visual Impact & drafting of Detailed Study Report
  - Assessment of landscape impacts
  - Assessment of visual impacts
  - Assessment of significance of effects/impacts
  - Recommendations.

2.5 Limitations and Assumptions

This LVIA is limited by a number of assumptions that were required to be made at the outset of the assessment, as detailed below:

- The LVIA considers the Receiving Facility as a stand-alone project, and also considers the cumulative landscape and visual impacts of the Receiving Facility in combination with the associated Jetty Project
- The exact dimensions of some infrastructure associated within the Receiving Facility (mixer, injection point, pressure builder, control room, gantry) are not currently known and have been modelled as simple volumes to 3m in height (6m for the gantry).
- The scope of this study only considers daylight hours, and does not consider lighting as a finalised lighting design is not yet available for the Receiving Facility;
- Limitation and assumptions relating to the Jetty Project can be found in section 2.5 of the *AGL Gas Import Jetty Project LVIA* report (Ethos Urban, June 2018)
- This LVIA does not assess the proposed gas pipeline component of the Jetty Project (west of the Receiving Facility)
- The FSRU would be connected to shore facilities by a topsides pipeline installed on the existing pipe rack at the Crib Point Jetty. This pipe would be similar to pipelines already installed on the pipe rack and would have no additional visual impacts and can therefore be discounted for the purpose of this report.

Additional specific limitations and assumptions were made throughout the various stages of assessment. These are referred to in the relevant sections of this report.

3.0 Methodology

The methodology is derived from, and consistent with, the Guidelines for Landscape and Visual Impact Assessment (LI & IEMA 2013). There is no guidance on the assessment of landscape and visual impacts specific to Australia; however the Guidelines are an accepted professional guidance document and regularly used to assess potential landscape character and visual impacts of projects of a similar scale and nature.

3.1 Existing Conditions and Context

3.1.1 Background Information

The desktop study reviews relevant background information, including:

- Relevant legislation, policy and strategic documents
- Geographical information systems data sourced from Vic DataMart
- Additional relevant mapping and aerial photography

3.1.2 Landscape Character Analysis

From the above sources, landscape analysis plans were produced to map the following layers of the landscape in the broader study area:

- Geology, geomorphology and topography
- Hydrology and flooding patterns
- Vegetation cover and type
- Open space and recreational networks
- Historical and cultural features
- Community and tourist facilities.

Analysis of these layers identified the landscape Character Type of the study area; the broad area of common physical, environmental and cultural characteristics at a regional scale. A professional assessment of landscape character underpinned this part of the study, focussing on objective distinctions between character types, and the relationship between landscape Character Types and their constituent Character Areas. The landscape character analysis of this report refers to the Coastal Spaces Landscape Assessment Study (Planisphere, 2006) to determine the Subject site's landscape Character Type.

At a local scale, the Character Type has been divided into landscape Character Areas, which are separate geographical units within the same Character Type, or areas across which local conditions such as the density of settlement, pattern of viewing, or special landscape features vary. Landscape Character Types are designated a rating in terms of State, Regional or Local significance. Again, the landscape character analysis of this report refers to the Coastal Spaces Landscape Assessment Study to determine the Subject site's landscape Character Area and its significance. In addition to the designation of the broader landscape Character Areas' significance, consideration of the Subject site's key characteristics contributed to an identification of the broader study area's landscape value (high, medium or low). These key characteristics include landscape features and notable aesthetic, perceptual or experiential qualities.

Each landscape character area was assigned a level of sensitivity according to the matrix outlined in Table 2 below. The sensitivity of the landscape considered the landscape value (discussed above) against the Susceptibility to Change, which is an assessment of the capacity for the landscape to accommodate change. This is a professional judgement based on analysis of the environmental and physical characteristics of the Character Area, and the types of change or development that could generally be expected to occur. Sensitivity is rated as high, moderate or low. For example, landscapes less sensitive to a residential form of development might include those in which buildings can be sited amongst vegetation, or nestled into topography without being prominent in the viewed landscape. The level of existing alteration to the landscape is also a factor for consideration.

Table 2: Sensitivity of Landscape

		Susceptibility to Change		
		High	**Moderate**	**Low**
Landscape Value	**High**	High	High	Medium
	Medium	High	Medium	Low
	Low	Medium	Low	Low

To determine the capacity for the landscape to accommodate change, the study first identified the types of change or development that could generally be expected to occur within each landscape Character Area. The estimated changes were considered against the capacity of the landscape to accommodate these changes to determine the landscape's susceptibility to change. The capacity for the landscape to accommodate change considers the likelihood of topography or vegetation to screen change from representative viewpoints, and the variety of land cover / land uses in the area. For example, flat landscapes with minimal vegetation and a uniform land use/cover (i.e., pasture) have a low capacity to accommodate change.

3.1.3 Visual Character Analysis

The visual character of the study area was identified through the background literature review and ground-truthing. Potential places of visual significance in terms of natural, cultural or scenic value were identified and described in terms of the nature and frequency of views from that location.

Zone of theoretical visibility (ZTV) mapping identified land that, theoretically, is susceptible to the visual effects of the proposal. A site survey was conducted in September of 2017 to ground-truth the extent of this mapping. Within the area of visibility, clusters of people or places that would be visually affected by the changes were identified as 'visual receptors'. Visual receptors can include people who live or work in the area, people travelling through or by, people visiting promoted landscapes or attractions, and people engaged in recreation of various types.

The second site survey was conducted on 30 July 2018 to ground truth the findings of the desktop study, collect photographic records that portray the existing landscape character, inform the viewpoint selection and assessment of viewpoints, and provide data to produce photomontages. Landscape and visual receptor sensitivity was the primary factor in determining which areas of the project study areas were targeted for field results, with highly sensitive landscapes and visual receptors being the focus.

The viewpoints associated with each visual receptor were identified and categorised in terms of whether they are representative of a number of similar views (representative), specific viewpoints at key or promoted viewing locations (specific), or viewpoints that would demonstrate a particular effect or issue relating to the Receiving Facility (illustrative).

Each viewpoint was then assessed in terms of their sensitivity, with the following considered to identify the high, medium and low sensitivity receptors:

- Number of people likely to be affected
- Social and cultural value of receptor
- Visual characteristics of the existing views (nature of view, composition, foci and scale).

3.2 Significance Assessment

The outcomes of the landscape and visual analysis described in the preceding section were then brought together with the modelled effects of the Receiving Facility / cumulative development (described below) to predict the landscape and visual impact.

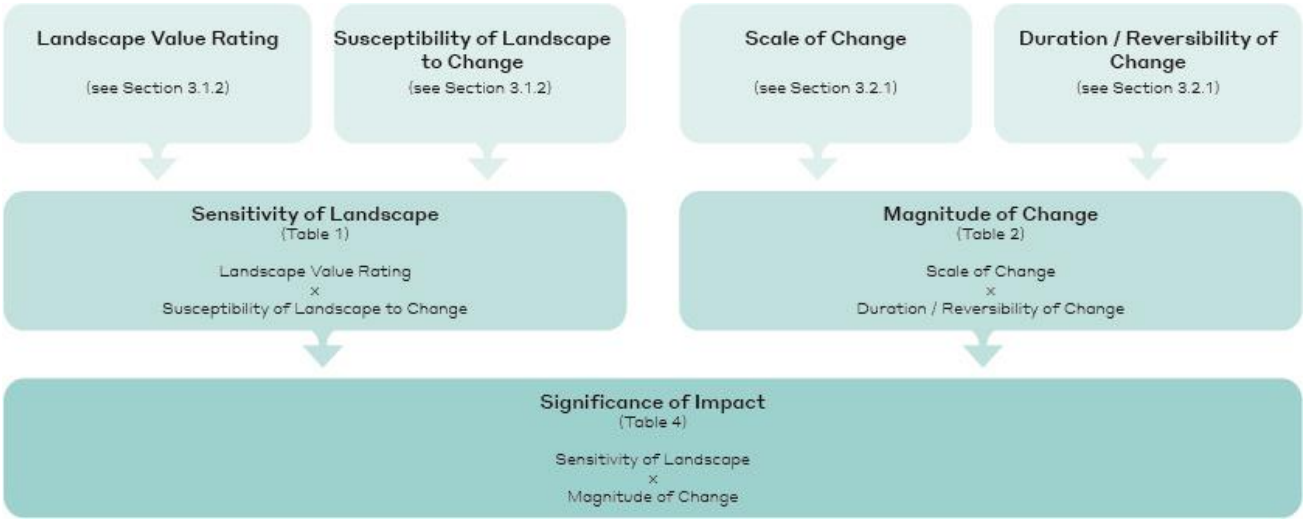


Figure 6: Landscape Impact Methodology Flowchart

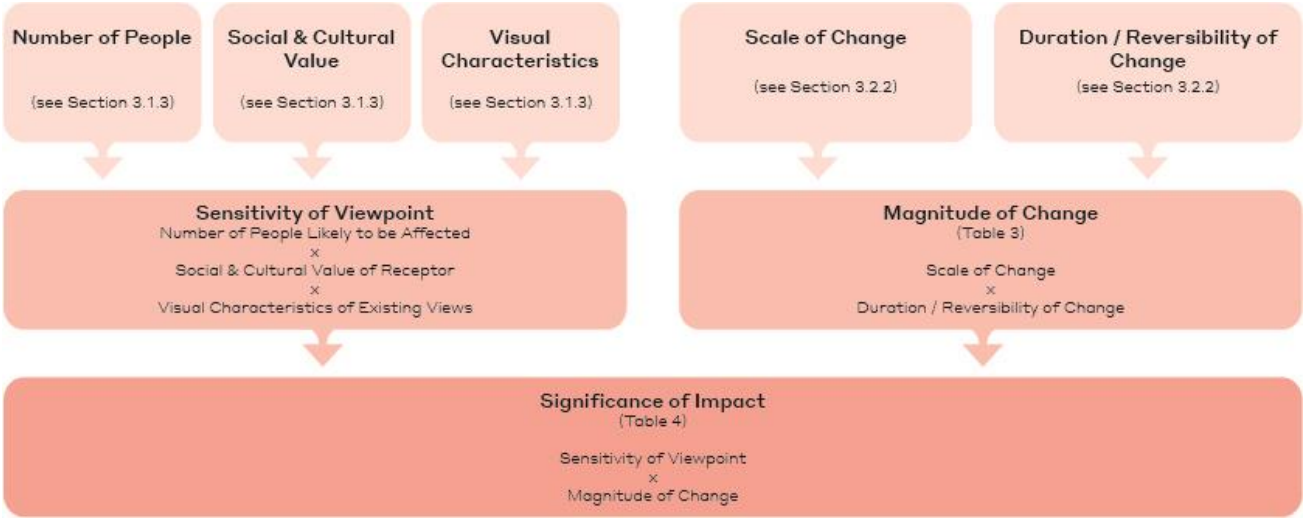


Figure 7: Visual Impact Methodology Flowchart

3.2.1 Identification of Landscape Effects

The estimated effects were described, and where relevant represented through the production of montages from sensitive visual receptor viewpoints or from illustrative viewpoints to demonstrate a particular effect.

The effect's magnitude of change on the landscape was assessed in terms of scale of change, the geographical extent of area influenced, and the duration and reversibility of the change. The scale of the change is classified as major, moderate, minor or insignificant as outlined in Table 3. Additionally, scale considers whether the impact affects a wide or restricted geographical area, taking into account:

- The extent of loss or modification of landscape elements
- The degree to which the loss or modification alters the visual and perceptual qualities of the landscape.

The duration of the change considers whether the change is persistent or has a limited life span, and the reversibility considers the practicality of removing the effect.

The magnitude of change is determined by assessing the scale of change against the duration and/or reversibility of the change as detailed in Table 3:

Table 3: Magnitude of Change – Landscape Effects

		Duration and/or Reversibility of Change			
		An ongoing and irreversible change	An ongoing change that is able to be reversed	A change with a limited life of 5-10 years	A change with a limited life of less than 5 years
Scale of Change	A major change affecting a wide area	Dominant	Considerable	Considerable	Noticeable
	A major change over a restricted area, or A moderate change over a wide area	Considerable	Considerable	Noticeable	Noticeable
	A moderate change over a restricted area, or A minor change over a wide area	Considerable	Noticeable	Noticeable	Imperceptible
	A minor change over a restricted area, or An insignificant change	Noticeable	Imperceptible	Imperceptible	Imperceptible
	An imperceptible change	Imperceptible	Imperceptible	Imperceptible	Imperceptible

3.2.2 Identification of Visual Effects

Visual receptor viewpoints were used to identify areas from which the Receiving Facility would be visible. Receptors or individual viewpoints where there was no view of the Receiving Facility did not warrant further assessment and were discounted as having negligible impact. Only visual receptor viewpoints that were expected to have at least partial views of the Receiving Facility were assessed through consideration of their visual character and in some instances the production of photomontages to ascertain the visual impact.

Photomontages

For visual receptors, the likely effects were described and represented through the production of montages from sensitive visual receptor viewpoints or from illustrative viewpoints to demonstrate a particular effect.

There were a number of programs/software, files and information sourced that were used in the preparation of the photo montages. Due to limited reliable data and information, there were multiple limitations and assumptions that were necessary to make during the photo montage process.

GIS layers attained from the VicDataMart website were translated into AutoCad files and georeferenced into Rhinoceros 3D. This included the following layers, contours (2.5m contour interval), Crib Point Jetty, georeferenced viewpoints (sites of photos) and georeferenced existing ‘markers’ (2-3 per montage/viewpoint). Layers without elevation data were assigned an elevation, which due to lack of available data, was estimated as necessary.

The software used in producing the montages include, Geographic Information Systems-MapInfo 16.0, AutoCad 2016, Rhinoceros 3D 5.0 Commercial and Adobe Photoshop CC 2018. Google Earth maps and the site surveys conducted on Monday 11th September 2017 and Monday 30th July 2018, also contributed to locating viewpoints and obtaining site photographs for which the 3D model was superimposed.

The photographs obtained during the site survey followed the accepted human eye equivalent standard of 50mm focal length on a full-size camera (‘full frame’, 35mm lens). The camera used for this exercise was a Panasonic Lumix DMC-TZ60 with a 1/2.3” sized sensor (‘cropped’), using a 53mm focal length which is the accepted

equivalent 35mm focal length of the human eye for this sensor size. All photos were captured at approximately eye level (1.6m approx.) and the GPS function switched on.
The 3D model was constructed using Rhinoceros 3D (Rhino). The elements that were built three-dimensionally are the Receiving Facility, two carrier vessels (a FSRU vessel and a LNG carrier vessel) and the existing jetty.

The onshore infrastructure proposed as part of the Receiving Facility include six (6) LIN storage tanks (8.5m in diameter and 20m in height) and ancillary works (all assumed to be 3m in height, other than the unloading gantry at 6m in height), two (2) new culverts along the existing 6m wide roadway, 2.5m high galvanised chain-wire(/link) type fencing topped with 3 strands of barbed wire.

With regard to the assessment of cumulative effects, the dimension of the proposed associated FSRU and LNG carriers are also provided. The exact dimensions of the Carriers (length and width) will not be known until procurement tenders are complete. Therefore standard height and general bulk and scale were benchmarked based on figures within Table 6: FSRU and LNG Carrier Dimensions in the Basis of Design report dated 11 August 2017 provided by AGL. This table identifies the common appearance of other vessels with the same or similar size and purpose based on a sample of 80,000 deadweight tonnage trading vessel dimensions. These have been rounded up so the figures in this report are based on “not to exceed” calculations. The figures used to model the FSRU and LNG Carrier are as follows:

- Overall length LOA 295m
- Overall height 40.0m
- Beam 46.4m
- Moulded depth 26.5m
- Laden tropical draft 12.6m;

All viewpoints were georeferenced into Rhino and given an estimated elevation due to only having 1-10m contour information. An additional 1.6m was added to the elevation of each viewpoint to account for the photographs taken at approximately eye level.

Two to three existing markers were chosen and approximately georeferenced in spatial mapping software and then imported into Rhino and assigned an approximate elevation and height. These markers include identifiers such as; existing tanks, residential properties, the jetty itself, appropriate vegetation (i.e., single trees) and other built forms. Building these markers ensures that the montages are geographically correct through the process of triangulation.

Cameras were placed within Rhino and set to a lens length of 36.0 to mimic the site survey photographs. The cameras were placed atop the georeferenced viewpoints (plus 1.6m) and a render produced. The Receiving Facility and vessels were rendered using a nondescript white/grey reflective colour to illustrate their approximate visual impact on the surrounding environment, however information regarding the true aesthetics of the onshore infrastructure and vessels was not provided.

The renders were then saved with the same pixel height and width as the site photos and superimposed onto the photos using Photoshop. Each photo montage was assessed, and the render cropped where necessary, to ensure any vegetation or built form in the foreground of the image is achieved and therefore an accurate representation of the visual impact. Additionally, the montages were produced to replicate the same time of day that the photographs were taken, to ensure the amount of daylight and angle of the sun is as accurate as possible.
All photomontages are as true as possible, however due to many limitations and lack of information provided, the margin of error is increased.

General Assumptions and Limitations within the preparation of the photomontages include;

- Contour information/elevation between 10m contours
- Site survey photographs captured at 1.6m eye level
- Margin of error within GPS settings of camera used on site
- Elevation of viewpoints
- Position/elevation/height of markers

- Dimensions and appearance of vessels and onshore infrastructure

Magnitude of Change – Visual Effects

The effect's magnitude of change on the viewpoint was assessed in terms of its size or scale of change, the geographical extent of area influenced, and the duration and reversibility of the change. The size or scale of the change describes the scale of the change (major, moderate, minor, or insignificant) considering the following, as well as whether it affects a wide or restricted geographical area within the view:

- The scale of loss or new features within the view
- The degree to which the loss or modification alters the compositional qualities of the view
- The nature of the view (i.e. extended view, filtered, glimpse).

The duration of the change considers whether the change is persistent or has a limited life span, and the reversibility considers the practicality of removing the effect.

The magnitude of change is determined by assessing the scale of change against the duration and/or reversibility of the change as detailed in Table 4:

Table 4: Magnitude of Change - Visual Effects

		Duration and/or Reversibility of Change			
		An ongoing and irreversible change	An ongoing change that is able to be reversed	A change with a limited life of 5-10 years	A change with a limited life of less than 5 years
Scale of Change	A major change to an extended area of view	Dominant	Considerable	Considerable	Noticeable
	A major change to a restricted or brief area of view, or A moderate change to an extended area of view	Considerable	Considerable	Noticeable	Noticeable
	A moderate change to a restricted or brief area of view, or A minor change to an extended area of view	Considerable	Noticeable	Noticeable	Imperceptible
	A minor change to a restricted or brief area of view, or An insignificant change	Noticeable	Imperceptible	Imperceptible	Imperceptible
	An imperceptible change	Imperceptible	Imperceptible	Imperceptible	Imperceptible

3.2.3 Significance of Impact

The magnitudes of change caused by the likely effects were then assessed against the sensitivity of the setting within which they are proposed to take pace, to determine the significance of the impact. This assessment was completed for both the landscape effects and visual effects, as per Table 5:

Table 5: Significance of Landscape/Visual Impacts

		Magnitude of Change			
		Dominant Change	**Considerable Change**	**Noticeable Change**	**Imperceptible Change**
Landscape / Viewpoint Sensitivity	**High**	Major	High	Moderate	Negligible
	Medium	High	Moderate	Low	Negligible
	Low	Moderate	Low	Low	Negligible
	Negligible	Low	Low	Negligible	Negligible

3.3 Cumulative Effects Assessment

For the purposes of this assessment, the cumulative effects of the proposal are assumed to be the result of the changes to the landscape and visual amenity by the proposed onshore Receiving Facility in conjunction with the proposed FSRU boat and LNG carrier (Jetty Project). In conjunction with the Receiving Facility, the impact of the associated Jetty Project is considered to provide an assessment of the potential cumulative impact on landscape character and key viewpoints.

The same assessment methodology for assessing impacts on landscape character and key viewpoints as descrubed in the sections above has been used to determine potential cumulative impacts.

The primary type of cumulative visual effect for the proposal is considered to be combined, where the observer is able to see the onshore facility and carrier from one viewpoint. The secondary type of cumulative visual effect are views in succession, where the observer is required to turn their head to see various developments at a single viewpoint. Assessment of these will provide an accurate representation of the most sensitive views.

4.0 Legislations and Policy

A review of the broader statutory framework and existing studies relating to landscape and visual qualities has informed the identification of the landscape and visual values of the Subject site and the broader Study Area.

4.1 Commonwealth Legislation

No Commonwealth legislation is specifically relevant to the Landscape and Visual Impact Assessment, however, Commonwealth legislation relating to environmental law relates to landscape.

4.1.1 Environment Protection and Biodiversity Conservation Act 1999

The Environment Protection and Biodiversity Conservation Act 1999 provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places—defined in the Act as matters of national environmental significance.

Proposals which may potentially impact on a matter of national environmental significance must be referred to the Department of the Environment and Energy. This includes threatened flora and fauna species and vegetation communities. It also includes nominated wetlands of international importance (often called ‘Ramsar’ wetlands after the international treaty under which such wetlands are listed). Most of the coastline and wetlands of Western Port are part of a Ramsar site.

4.2 State Legislation

No State legislation is specifically relevant to the Landscape and Visual Impact Assessment. However, various environmental, heritage and planning legislation is relevant as places of significance under these acts can relate to landscape and visual values.

4.2.1 Victorian Heritage Act 1995 & Victorian Heritage Register and Inventory

The Victorian Heritage Act provides for the protection and conservation of places and objects of cultural heritage significance. Under the Act, places and objects of significance to the State of Victoria are included on the Victorian Heritage Register, which provides the highest level of statutory protection.

4.2.2 Planning and Environment Act 1987

The Planning and Environment Act establishes a framework for planning the use, development and protection of land in Victoria. It sets broad objectives for planning in Victoria and the procedures for preparing and amending the Victorian Planning Provisions. The Project does not require planning approval under this Act, but the policies in the Mornington Peninsula Planning Scheme have been used to identify landscape and visual values in the Study Area.

4.3 State Planning Policy Framework

The State Planning Policy Framework (SPPF) includes several policies of relevance to the Landscape and Visual Impact Assessment.

4.3.1 Clause 11 Settlement

At clause 11.01-1 the policy states that 'networks of high quality settlements must be achieved by preserving and protecting features of rural land and natural resources and features to enhance their contribution to settlements and landscapes'.
At clause 11.04-2 strategies to effectively manage open space include the protection of 'sites and features of high landscape value'.

4.3.2 Clause 12 Environmental and Landscape Values

Clause 12.04-2 contains strategies for the protection of significant open spaces include ensuring 'sensitive landscape areas such as the bay and coastlines are protected, and that new development does not detract from their natural quality'.

4.3.3 Clause 18 Transport

Clause 18.03-1 recognises the transport and logistics role of the Port of Hastings in supporting the State's economy, with the objective to facilitate its ongoing sustainable operations and development. It also aims to support the effective and competitive operation of the port at local, national and international levels.

The clause also contains strategies to manage any impacts of the port and any related industrial development on nearby sensitive uses to minimise the impact of vibration light spill, noise and air emissions from port activities, and also to plan for and manage land in the environs the port so that development and use are compatible with port operations and provide reasonable amenity expectations.

4.4 Mornington Peninsula Planning Scheme

The study area is mostly coastline located adjacent to the Mornington Peninsula Shire. The following sections of the Mornington Peninsula Planning Scheme are relevant to the Landscape and Visual Impact Assessment.

4.4.1 Municipal Strategic Statement

Clause 21.04 Mornington Peninsula Strategic Framework Plan
Recognises and protects landscape areas of strategic importance around townships, due to their strong influence on the Peninsula's sense of place.

Clause 21.08 Foreshores and Coastal Areas
Objective one of this clause is to 'protect and enhance the natural ecosystems and landscapes of the coast for the benefit and enjoyment of present and future generations'. Strategies listed to achieve this objective include limiting development of new structures along the foreshore, containing development in coastal locations to existing settlements and ensuring that new construction and development is designed based on a site and landscape analysis.

Clause 21.10 Managing Port Area Development
Objective 1 of this clause aims to protect the long term value of Western Port for selected port and industrial purposes that depend upon or gain significant economic advantage from proximity to natural deep water channels

Objective 2 of this clause aims to ensure that port related development does not adversely affect or compromise the ecosystems of Western Port. Of relevance, the clause outlines that this is to be achieved by regulating building design, siting and landscaping so that any industrial development is visually integrated with the landscape.

4.4.2 Local Planning Policies

22.14 Mornington Peninsula Land Units
An objective of this policy is to 'promote the siting and design of buildings, including the choice of building materials that is responsive to landscape character'.

Under this clause, it is policy that areas and sites with significant landscape values be protected.
As part of the decision guidelines for Maintaining Landscape and Recreational Values, the impact of a new development on the landscape's quality and existing views must be considered.

4.4.3 Zones

The key zone provisions within the study area that relate to the Landscape and Visual Impact Assessment are those which may contain public areas or other land uses considered potentially sensitive receptors, shown on Figure 17 and as follows:

Public Use Zone (PUZ)
The PUZ aims to provide for uses that are consistent with the intent of the public land or reservation purpose.

PUZ7 allows for port uses via Clause 36.01-6.

Low Density Residential Zone (LDRZ)
Decision guidelines for subdivisions within the LDRZ suggest that 'the protection and enhancement of the natural environment and character of the area including the retention of vegetation and faunal habitat and the need to plant vegetation along waterways, gullies, ridgelines and property boundaries'.

Public Conservation and Resource Zone (PCRZ)
The aims of the PCRZ include the protection and conservation of the natural environment, and their processes, for their landscape values.
The PCRZ also aims to provide for appropriate resource based uses.

Public Park and Recreation Zone (PPRZ)
The PPRZ aims to recognise, protect and conserve significant areas where appropriate.

Green Wedge Zone (GWZ)
Aims of the GWZ include recognising and protecting green wedge land for landscape values and to protect and conserve the cultural-heritage significance of landscapes.
Decision guidelines within the GWZ suggest that proposed infrastructure services are sited and located in ways that minimise visual impact on the landscape.

4.4.4 Overlays

The key overlay provisions within the study area that relate to the Landscape and Visual Impact Assessment are those which aim to protect or enhance the visual amenity of natural and built environments that may potentially be considered sensitive receptors, shown on Figure 18 and as follows:

Heritage Overlay (HO)
The aim of the HO includes the conservation and enhancement of places of natural or cultural significance, and to ensure that development does not adversely affect the significance of these places.

Environmental Significance Overlay (ESO)
The ESO aims to identify areas of land where development may be constrained by environmental features, and to ensure that development is compatible with environmental values.

Significant Landscape Overlay (SLO)
The aim of the SLO is to identify any landscape considered to be significant, and to conserve and enhance the character of these landscapes.
Decision guidelines within the SLO suggest that buildings and works are designed to enhance or promote landscape character objectives within the area.

Vegetation Protection Overlay (VPO)
The aim of the VPO is to protect significant vegetation through the recognition of significant vegetation areas, along with encouraging the regeneration of native vegetation.

4.5 Other Strategies

4.5.1 Coastal Spaces Landscape Assessment Study (2006)

The Coastal Spaces Landscape Assessment Study assesses the landscape character and significance of all coastal areas of Victoria (excluding the metropolitan LGAs) and provides management recommendations. It identifies coastal landscape character types and areas through the documentation of geographical features, landscape features and patterns of viewing.
The study documents the 'South Gippsland Coastal Plains' landscape character type within proximity to the study area and lists the Wester Port Bay coastline as a significant landscape. More information is provided about the study findings as related to this study in section 6.1.2.

4.5.2 Western Port Ramsar Wetland Ecological Character Description

The Western Port Ramsar Wetland Ecological Character Description includes a detailed description of the ecological character of the Ramsar wetlands in Western Port, with an aim to protect and maintain wetland values. The document establishes benchmarks that assess and monitor the wetlands.
The document notes that shipping has the potential to impact wetland components through pollution or loss or fragmentation of wetland vegetation. These impacts could lead to subsequent impacts on the coastal landscape.

4.5.3 Victorian Coastal Strategy

The strategy is a long-term vision for the future of Victoria's coastlines. The document focuses on five distinct themes which include population growth, climate change, coastal land and infrastructure, environmental values and marine planning. Of relevance, the document notes that:

- Development between coastal settlements should ensure that visually significant landscapes and views are protected.
- Coastal landscapes provide aesthetic and psychological wellbeing benefits
- Natural landscapes help to shape and define settlements and communities
- New infrastructure developments should exhibit excellence in siting and design, such that it integrates with the coastal landscape & avoids detrimental environmental impacts.

4.5.4 Landscape Setting Types for the Victorian Coast 1998 and Design Guidelines for Structures on the Victorian Coast

Developed to assist in implementing the Victorian Coastal Strategy by encouraging sympathetic coastal development. It also aims to increase the understanding of landscape character of the coast through the identification of significant features and characteristics.

The guidelines recommend that development proposals should respect and respond to relevant landscape character, and that to minimise the visual impacts of projects assessment should be made on the capacity of the landscape to absorb change without creating visual impacts from prominent viewpoints.

4.5.5 Hastings South Coastal Management Plan

The plan identifies the significance of the coastal landscapes of the Mornington Peninsula and specifically provides strategic guidance for the use, development and management of the Hastings South Foreshore reserve.

The plan states that visual amenity can be improved with soft and hard landscape improvements. The document also identifies an objective for foreshore and coastal areas that aims to protect and enhance natural landscapes along the coast for the benefit of present and future generations.
Where economically beneficial developments are considered, the plan recommends that they are appropriately integrated with the coastal landscape.

4.5.6 Interim Green Wedge Management Plan

The plan sets out policy direction to continue the effective management of Mornington Peninsula's green wedge, and the protection of its many significant landscapes. The plan identifies that the Mornington Peninsula's green wedge area consists of local, state, national and international significance areas, along with landscapes that are classified by the National Trust as being highly significant.

A new direction identified as part of this management plan involves the foreshadowing of controls that will regulate the location of earthworks and other developments that may detract from landscape quality.

As part of the plans vision, it notes that coastal landscapes should be a place for all people to access for their health and wellbeing.

4.5.7 Marine Precinct Strategy

This document identifies the coastline of the Mornington Peninsula as being a significant asset that is subject to many users and demands. The strategy recognises that there is a need to identify the role and function of the coastline, along with environmental capacity, to maintain and enhance these spaces.

4.5.8 Port of Hastings Land Use & Transport Strategy

This document utilises the concept of 'port precincts' and includes the Crib Point precinct. The strategy identifies that the Crib Point precinct should continue to focus on liquid bulk trades (such as the existing oil and petrol) and make use of the existing deep-water access berths and pipelines.

5.0 Existing Conditions

The existing conditions assessment is based upon desktop analysis and a site survey conducted in September of 2017, with a site visit in July 2018 confirming no change to these conditions.

5.1 Geology, Geomorphology and Topography

Landscape characteristics are informed and defined by physical features and evident transitions in geology, geomorphology and topography. The study area of the Crib Point Jetty and associated areas are located along the edge of Western Port. The study area is low-lying, semi-rural with patches of settlement and industry, and includes areas of tall shrub-lands, mangroves, coastal wetlands, riparian vegetation and coastal woodlands.

Within the broader surrounding area, north of Bittern, tertiary alluvium has been formed by the emergence of the sea floor during Pliocene and early Pleistocene times. The topography of the study area and its surrounds, as depicted on the map below, is very flat and low-lying, with the vast majority of the area around the Crib Point Jetty lying between elevations of 10 and 20m above sea level.

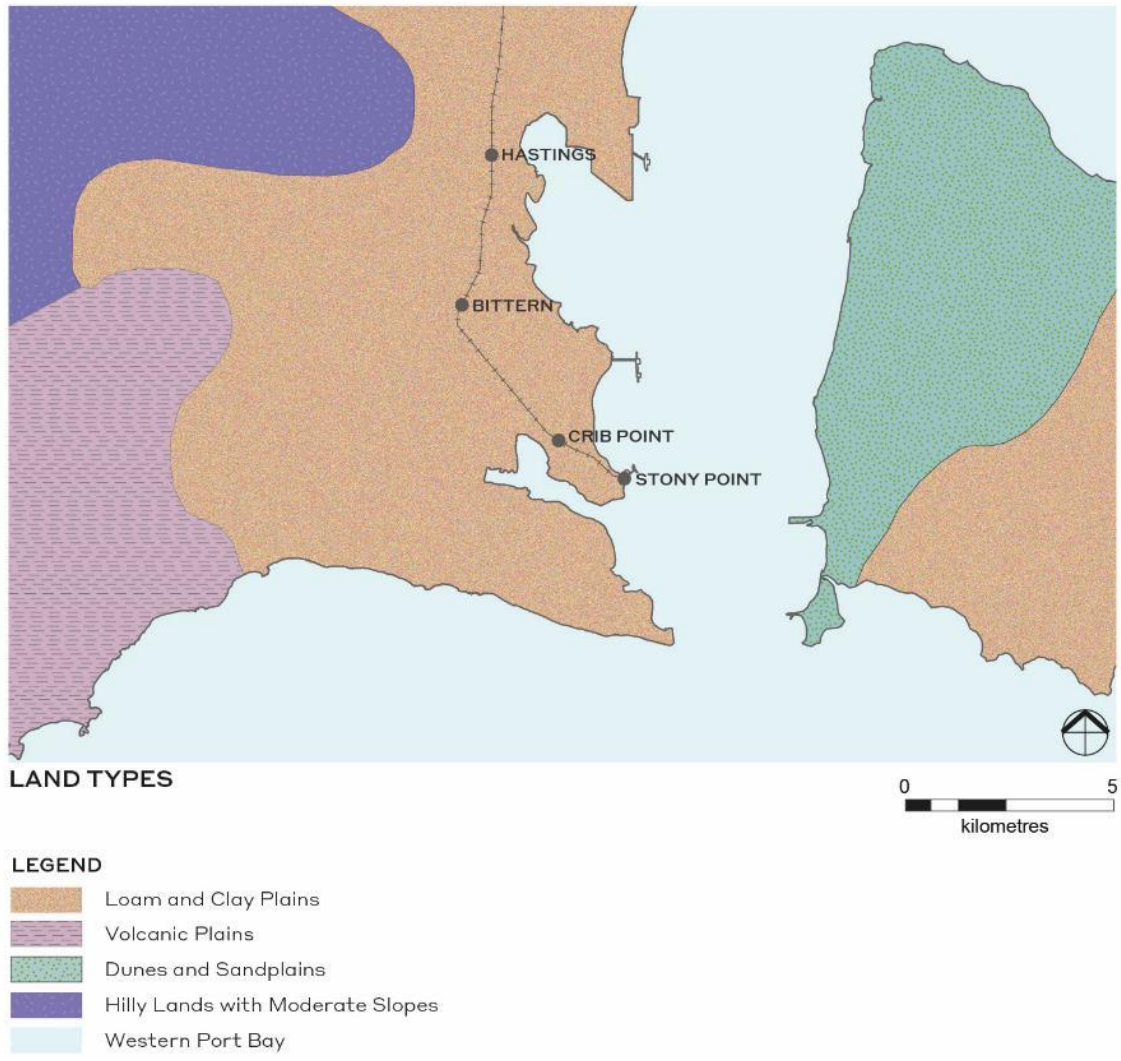
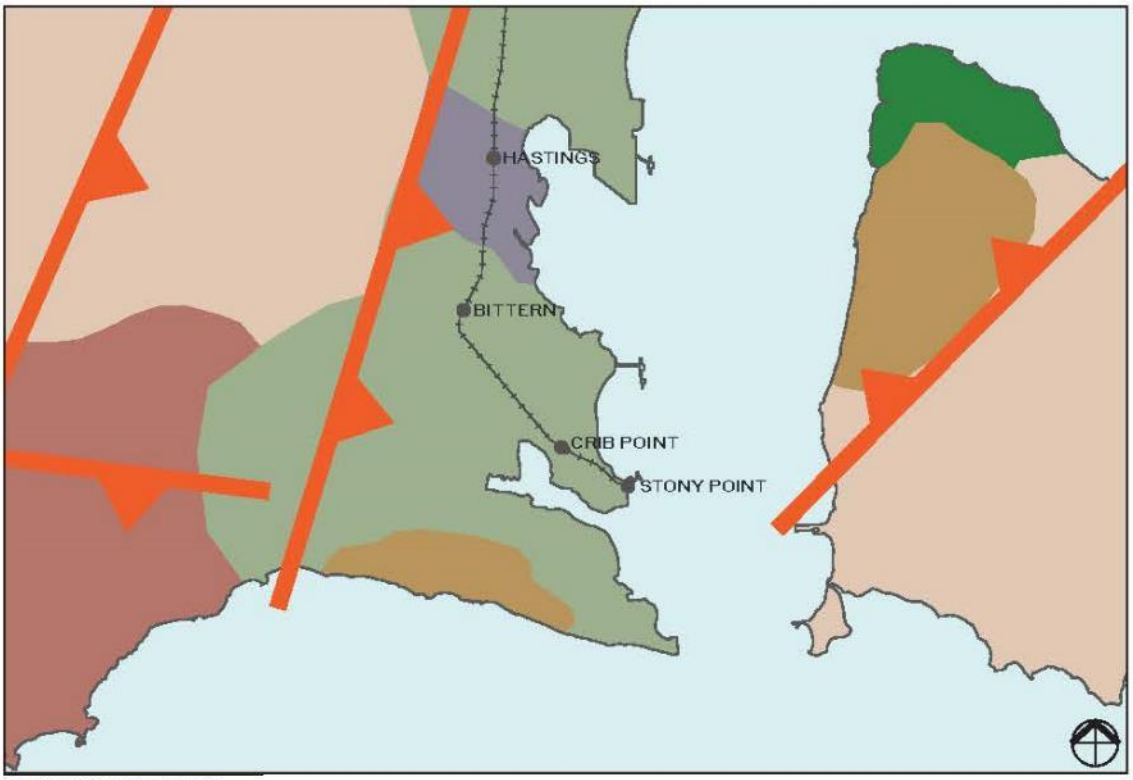


Figure 8: Land Types in the Study Area



LEGEND

- Coastal plains formed by the emergence of the sea floor during Pliocene and early Pleistocene times.
- Dissected Palaeozoic sedimentary, volcanic, granitic and metamorphic rocks; rugged to gently undulating terrain.
- Coastal sand barrier, beach ridge and dune complexes, often with inter-ridge swamps; Pleistocene tp Recent in age.
- Alluvial fans, aprons and high-level terraces consisting of gravels, sands silts and clays of Late Tertiary to Recent age.
- Flood plains and associated backswamps formed by existing streams; also swamps behind coastal, volcanic or tectonic barriers.
- Basalt - capped tablelands and residuals.
- Western Port Bay
- Normal Faults or monoclines, usually with prominent scarps eroded to varying degrees.

Figure 9: Physiography of the Study Area

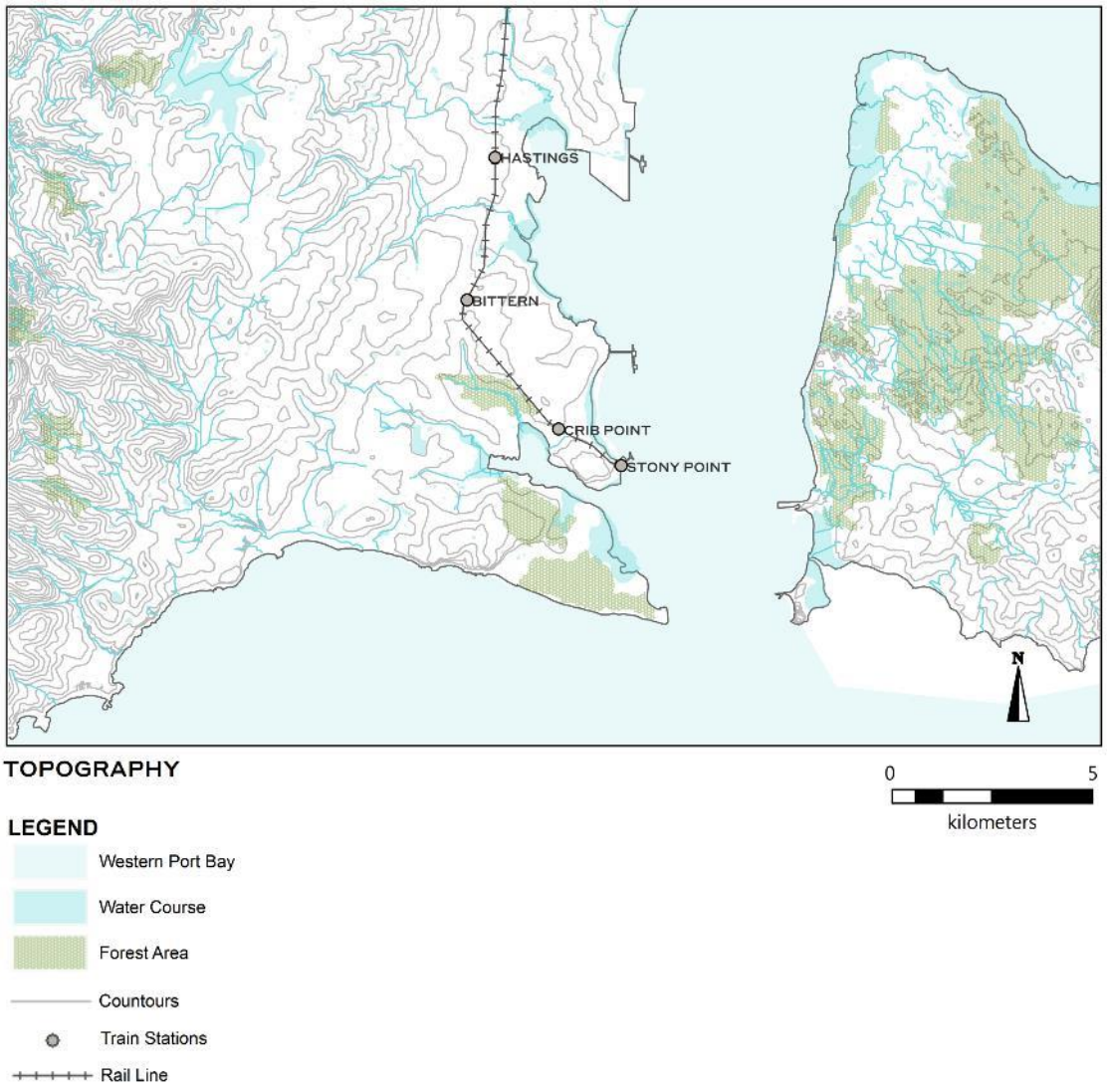


Figure 10: Topography of the Study Area

5.2 Hydrology

Planning scheme zones and overlays of the study area and its surrounds show that the land is not subject to overland water flows. However, hydrology mapping as shown below outlines areas of potential flooding within mangroves and coastal wetlands due to twice daily tides, with a range from 1.6m at Flinders to the west to approximately 2.2m at Tooradin to the north.

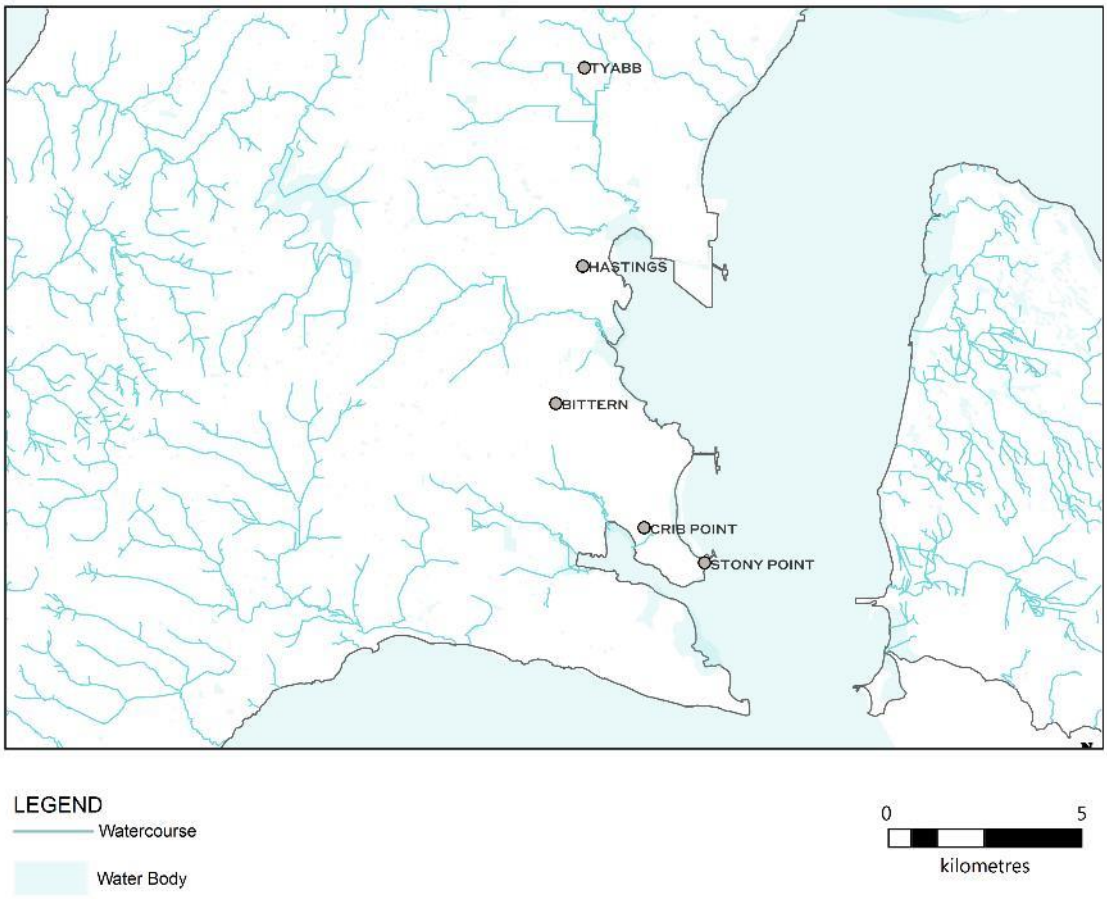


Figure 11: Hydrology of the Study Area

5.3 Vegetation

Vegetation surrounding the Crib Point Jetty is limited to and characterised as tall shrub-land and coastal wetlands. While the shrub-lands are dominated by woody plants, the wetlands located along the coastal edge of Western Port, consist of mangrove flats, coastal shrubs, saltmarsh and woodlands.

The Subject site sits within the 59,950ha Western Port Ramsar Site, the boundary of which largely follows the boundaries of the Crown land and Crown owned reserves around Western Port and is inclusive of Yaringa Marine National Park, French Island Marine National Park, Churchill Island Marine National Park, Sandstone Island (privately owned) and Elizabeth Island (privately owned). The Ramsar site supports various species of mangroves along the coastal fringe that are considered rare in Victoria including Creeping Rush (*Juncus revolutus*), Marsh Saltbush (*Atriplex paludosa*) and Salt Lawrencia (*Lawrencia spictata*).

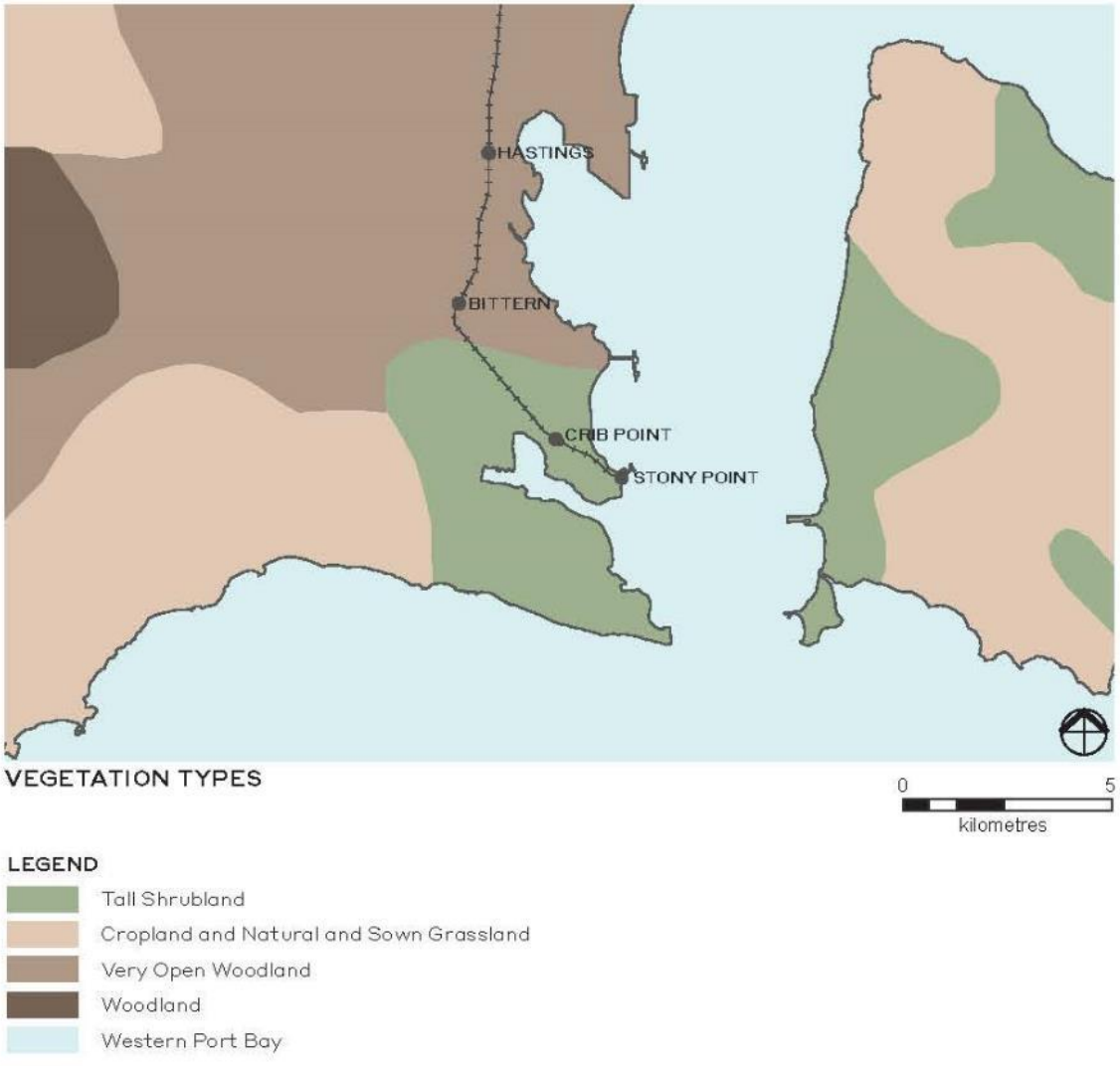


Figure 12: Vegetation Types in the Study Area

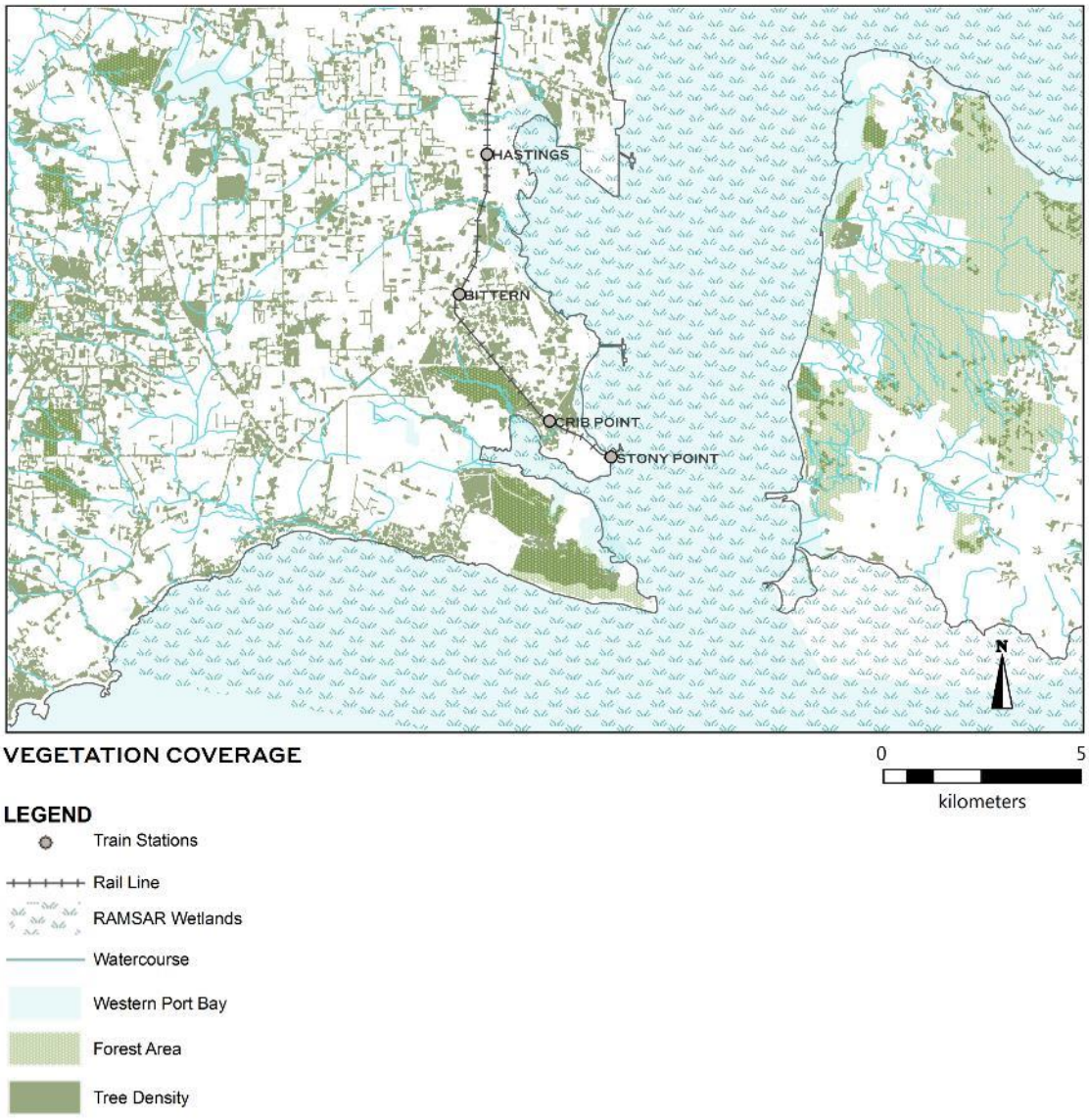


Figure 13: Vegetation Density in the Study Area

The map above demonstrates the tree density of the area and the extent of the Ramsar wetlands within Western Port.

The maps below, sourced the Victorian Department of Environment, Land, Water and Planning (2016), shows the location of EVC Groups in both the 1750's and 2005. The Subject site is cleared and flanked to the north and south by Heathy Woodland, as shown in red in Figure 16. The majority of identified visual receptors are located in areas of remnant Coastal Saltmarsh (Salt-tolerant / Succulent Shrublands) as shown in grey in Figure 14. The notable exception is the Pinnacles on French Island which is located in a remnant area of Sand Heathlands, as shown in dotted-red in Figure 14. The coastal context of the study area is largely represented by the EVCs of the broader site area (Coastal Saltmarsh and Heathy Woodlands).

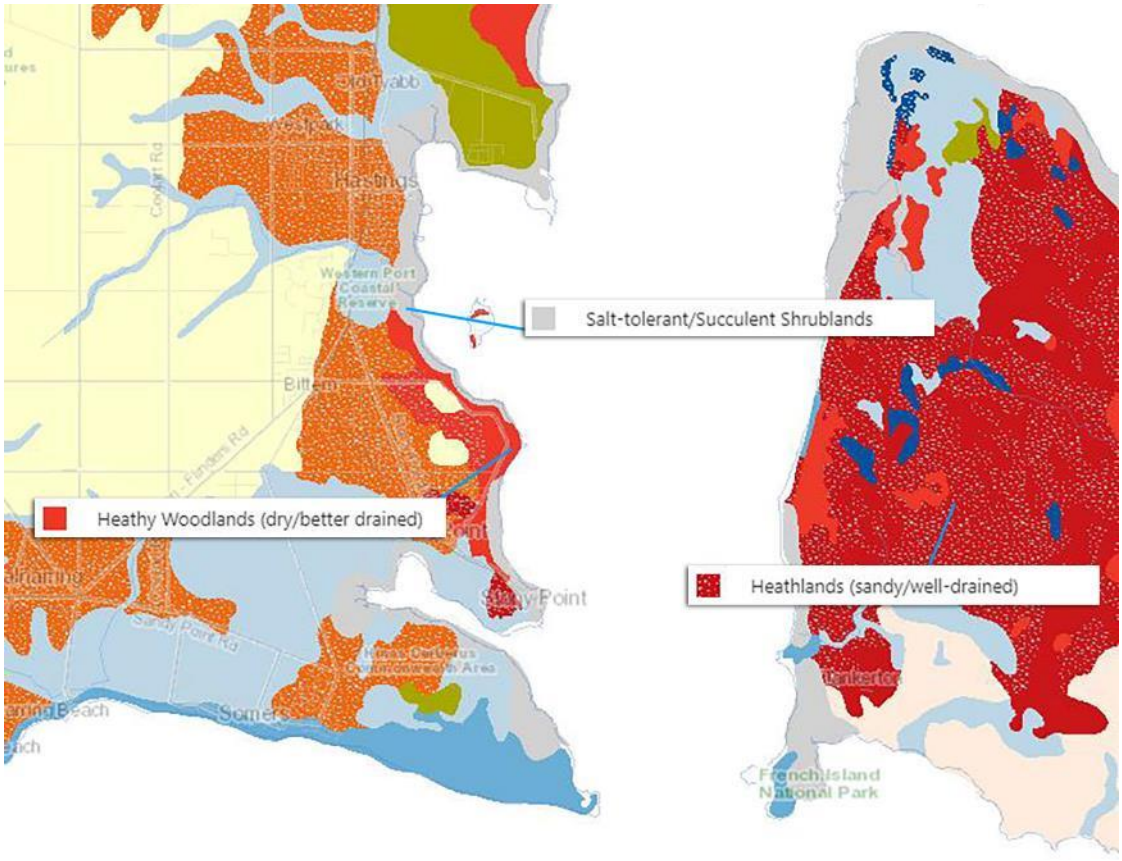


Figure 14: EVC Groups in the Study Area 1750s

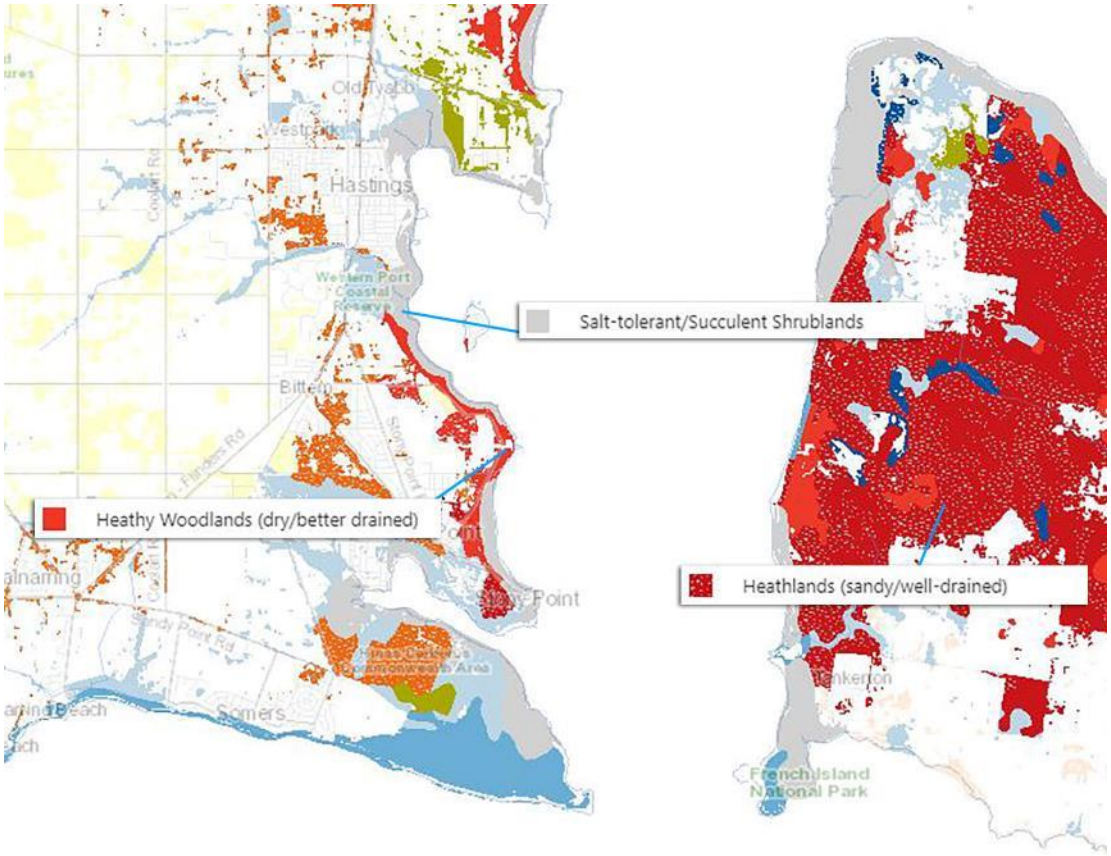


Figure 15: EVC Groups in the Study Area 2005

5.4 Settlement Pattern and Land Use

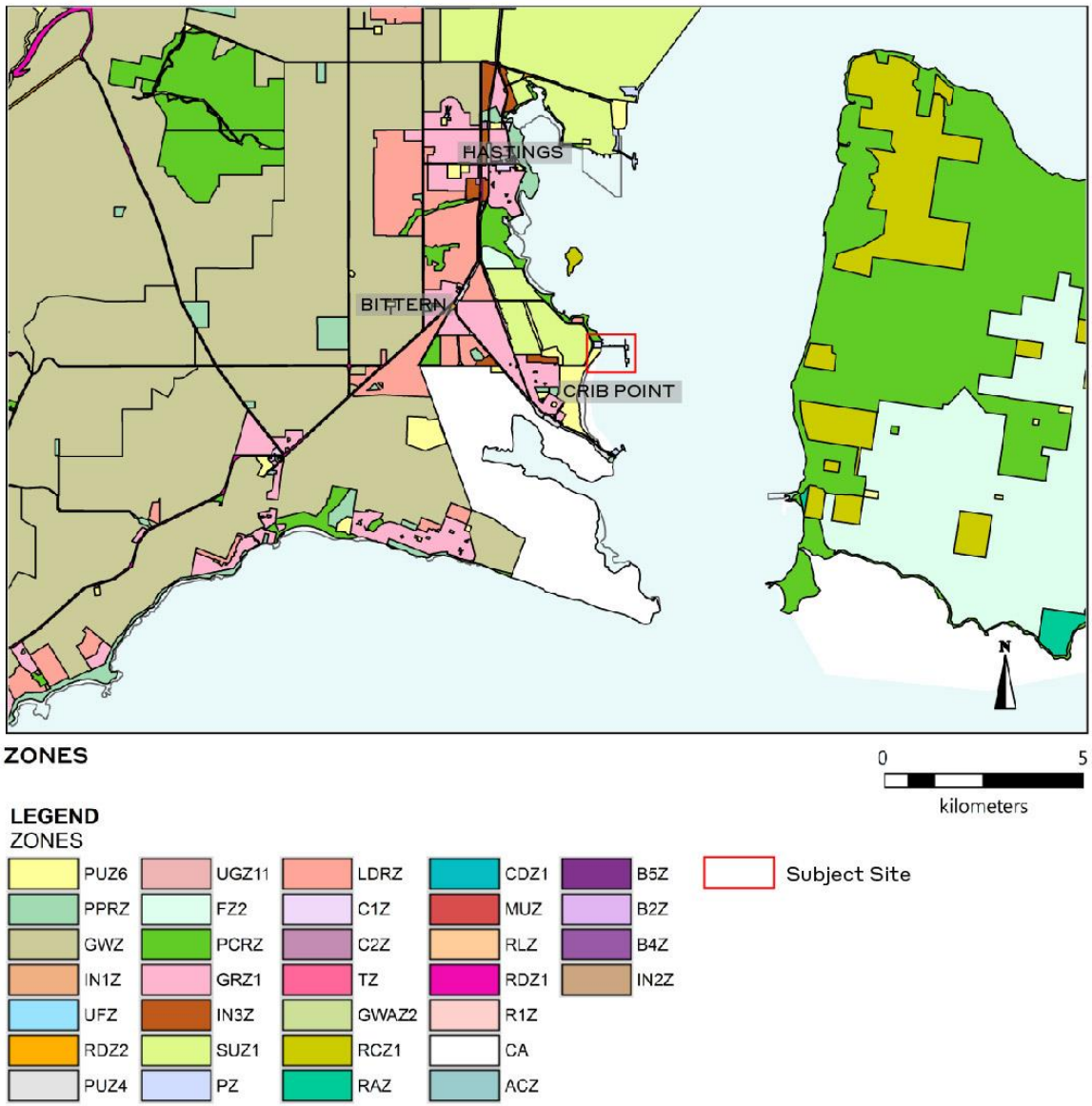


Figure 16: Zoning in the Study Area

The settlement pattern and land uses of the study area and its surrounds are depicted on the above Planning Zones and Land Uses maps.

The Crib Point Jetty and associated land is located within the Port Zone and is also subject to a Bushfire Management Overlay under the Mornington Peninsula Planning Scheme. The land to the immediate north is zoned as Public Conservation and Resource, to the south the land is within a Public Use Zone and the land to the west is zoned as Special Use under the Mornington Peninsula Planning Scheme.

Identified visual receptors of the Receiving Facility's development are located in the following zones and overlays of the Mornington Peninsula Planning Scheme:

- Special Use Zone 1
- Public Conservation & Resource Zone
- Rural Conservation Zone
- Low Density Residential Zone

- Public Use Zone
- Port Zone
- Road Zone 1
- Heritage Overlay
- Bushfire Management Overlay
- Restructure Overlay
- Environmental Significance Overlay

The land surrounding these immediate areas of the Crib Point Jetty, although essentially rural, have areas of low scale settlement and areas used for light industry. The majority of residential development is located more than 1km from the proposed onshore infrastructure and more than 1.7km from the berth, however there are a small number of properties both single and double storey located along The Esplanade, approximately 700 metres north west of the proposed onshore infrastructure and 1.4km north west of the berth. Directly west of the jetty along The Esplanade, is a large area of land that was the site of the Former Western Port Refinery. This area includes the Former BP administration Building and gatehouse and associated industrial plant facilities and buildings. The jetty is also located within 2km of the HMAS Cerberus, Royal Australian Naval Base, shown on the zoning map within the area zoned Commonwealth Land (CA), which is not subject to controls under the Mornington Peninsula planning scheme.

Within this rural landscape are open space and recreation reserves including Western Port Coastal Reserve, Crib Point Recreation Reserve and Cyril Fox Reserve to the south, Wooley's Beach Reserve to the immediate south, Jack's Beach Reserve to the north and the Woolley's Road Equestrian Reserve to the north-west.

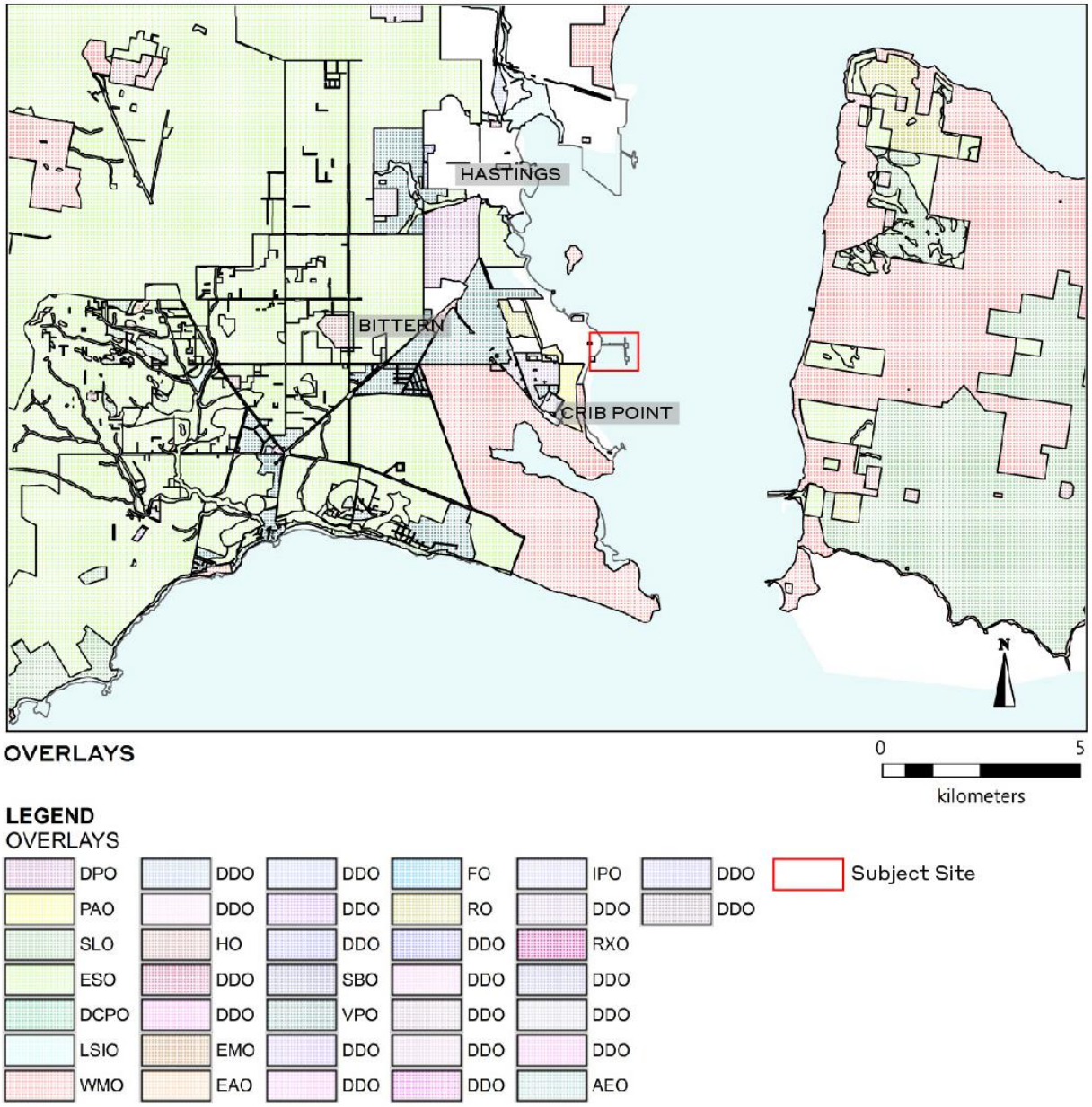


Figure 17: Overlays in the Study Area

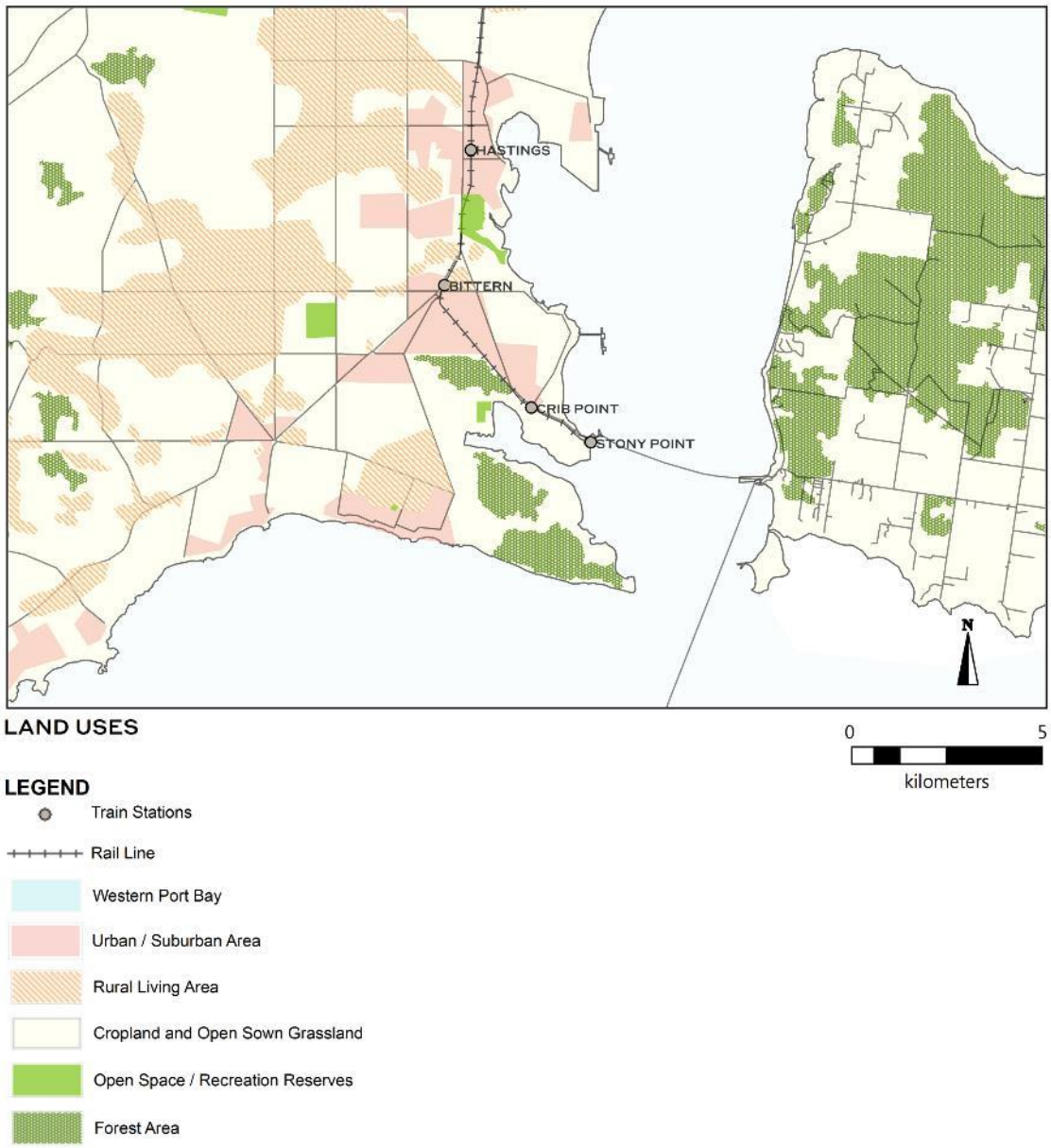


Figure 18: Land Uses in the Study Area

5.5 Natural and Cultural Values

A range of natural and cultural features have been identified through desktop analysis and the site survey conducted as part of this study. These include;

- The Western Port Ramsar Site, which is listed as an internationally significant wetland. It is of importance due to its terrestrial and marine flora and fauna, cultural heritage, potential recreational uses and views. Located within The Western Port Ramsar site are three Marine National Parks including; Yaringa, French Island and Churchill Island. The site has a total coastline of 263km and extends to within four local government jurisdictions; Mornington, Casey, Cardinia and Bass Coast.
- Heritage features proximate to the jetty include;
  - HO240 - Former BP Refinery Administration Building, designed by Melbourne architect Don Hendry Fulton and completed in 1965, is a State Level significant building due to its blending of structure and detail of ordered classical composition
  - H0274 - Crib Point Public Cemetery and HO270 - Tyabb Public Cemetery

- HO 324 - Jack's Tanning Pit located off Woolley's Road, which a stone pit that is an example of the area's first industry of tanning and/or hardening fishing nets and ropes
- Sandstone Island (privately owned) and French Island, accessible only via ferry

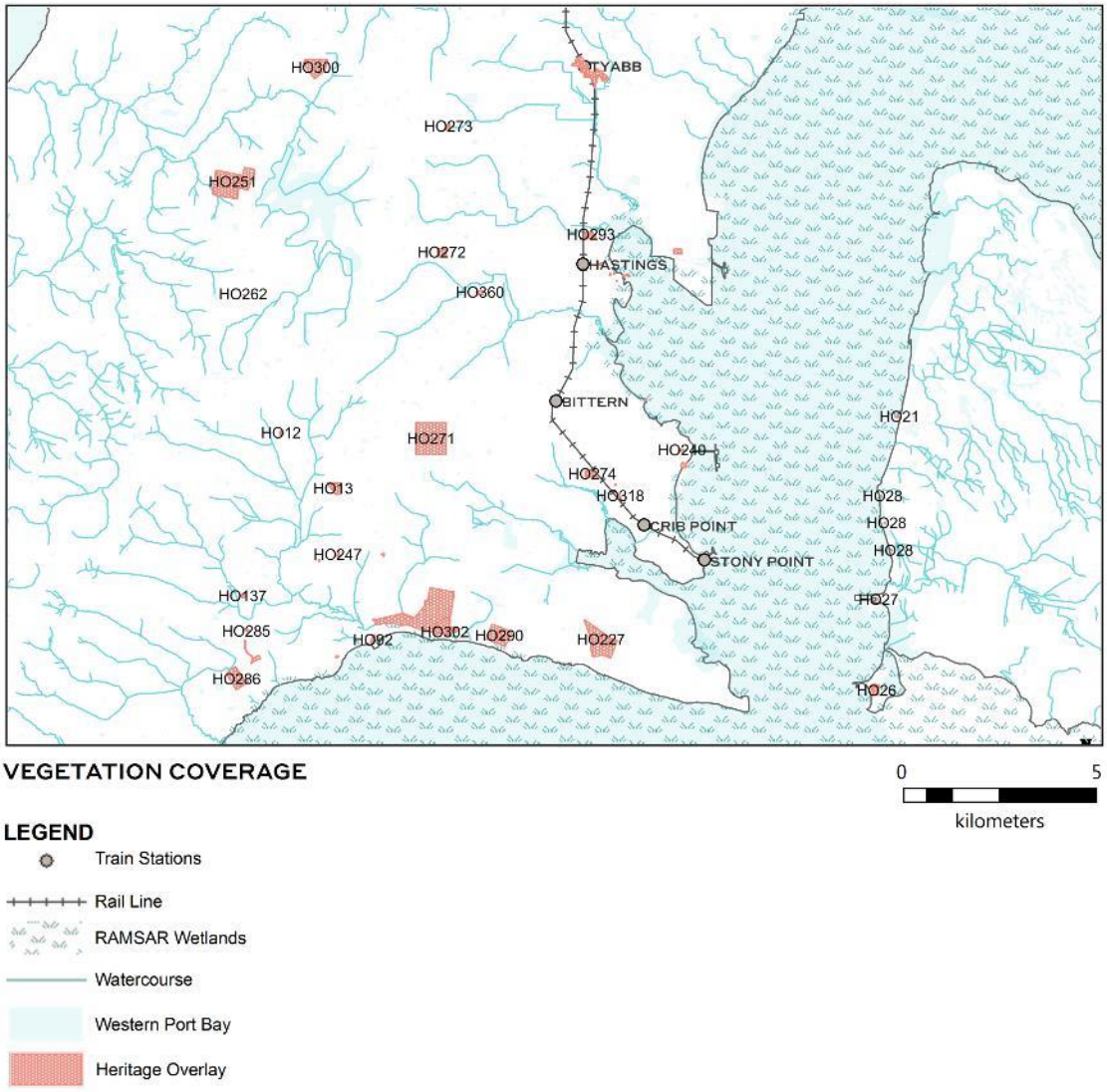


Figure 19: Heritage Overlay in the Study Area

5.6 Community and Tourism Value

The places of potential community and tourism value have been depicted on the map below. These places have been identified through desktop analysis and a site survey.

The Western Port area sustains various commercial and recreational activities such as, international and domestic shipping services, fishing, tourism, boating, aquaculture, bird watching and appreciation of the scenic qualities.

- Recreational and open space areas within close proximity to the Crib Point Jetty include; French Island, Tankerton Jetty and Reserve, Stony Point, Western Port Coastal Reserve, Crib Point Recreation Reserve, Cyril Fox Reserve to the south, Wooley's Beach Reserve, Jack's Beach Reserve, Woolley's Road Equestrian Reserve and Warringine Park with Bittern Coastal Wetlands Boardwalk and lookout.
- Community facilities within close proximity to the Crib Point Jetty include; Victorian Maritime Centre, HMAS Cerberus Naval Base, Crib Point Primary School, St Joseph's Catholic Primary School, Bittern Primary School, Crib Point Community House, Crib Point Pool, Crib Point Medical Centre and Western Port Secondary College.

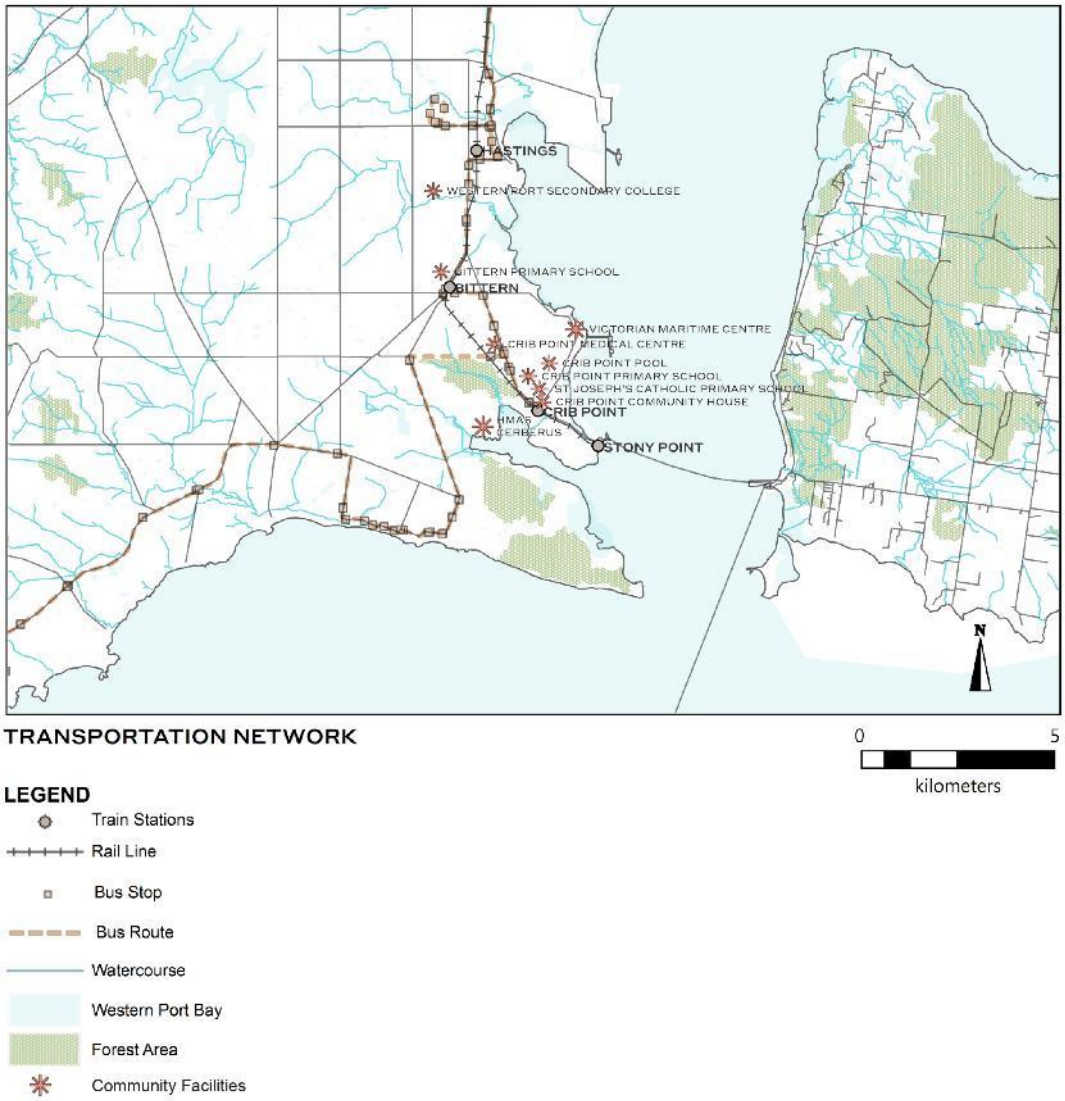


Figure 20: Transport Network in the Study Area

6.0 Landscape Character Analysis & Impact Assessment

6.1 Background

The Coastal Spaces Landscape Assessment Study (CSLAS) (Planisphere, 2006) defines landscape character as the 'interplay of geology, topography, vegetation, water bodies and other natural features, combined with the effects of land use and built development, which makes one landscape different from another. The landscape character of an area provides the basis for understanding the features, views, and combinations of landscape elements that are important, and how different types of development sit within the landscape."

An understanding of the broader landscape characteristics of the study area within its regional context is provided through review of existing bioregional mapping (Interim Biogeographic Regionalisation for Australia - IBRA) and the landscape characterisation of the eastern shore of Western Port in the Coastal Spaces Regional Landscape Assessment Study.

Table 6: Summary of Landscape Assessment

Receptor	Duration and/or Reversibility	Scale of Change	Magnitude of Change	Landscape Sensitivity	Significance of Landscape Impacts
Perceived Naturalistic Quality of Coastal Areas	An ongoing change that is able to be reversed	A moderate change over a restricted area	Noticeable	High	Moderate
Presence of Maritime Industry				Low	Low
Passive Recreational Uses at the Coastline				High	Moderate

6.1.1 Bioregional Classification

Biogeographic regions (bioregions) capture the patterns of ecological characteristics in the landscape, and also underlying environmental features and patterns of use of the land, providing a natural framework to recognise and respond to biodiversity values.

Under the Interim Bioregionalisation for Australia (IBRA) classification system, the study area is located within the South East Coastal Plain (SCP) region, and the SCP02 – Otway Plain sub-region:

> *Otway Plain, located in the south west Victoria, includes coastal plains and dunes, foothills with river valleys and swamps in the lowlands. Ridges mark the positions of successive shorelines associated with the long-term retreat of the sea. The floodplains and swamps are earths and pale yellow and grey texture contrast soils (Hydrosols) supporting predominantly Grassy Woodland and Plains Grassy Woodland ecosystems. The coastal plains around Anglesea have sandy soils of low fertility, while the volcanic soils of the Bellarine Peninsula and clay soils around Werribee are more fertile.*

6.1.2 Coastal Space Landscape Assessment Study

The Coastal Spaces Landscape Assessment Study doesn't extend to the metropolitan LGAs of Melbourne and as such doesn't cover the study area. However, it does define the eastern coastline of Western Port and the northern part of Phillip Island as the 'South Gippsland Coastal Plains' (areas 1.1 & 1.2 shown in green on Figure 22). The eastern coastline of Western Port is defined as the Western Port Lowlands Character Area:

Western Port Lowlands - This Character Area is located on the eastern edge of Westernport Bay. It is low-lying and mostly rural, with beaches, mangrove flats and coastal woodlands along a diverse coastal edge. ... The Character Area [study area] terminates in the south at the Anderson Peninsula, although it is likely to extend around Westernport Bay outside the study area for some distance to the north and west.

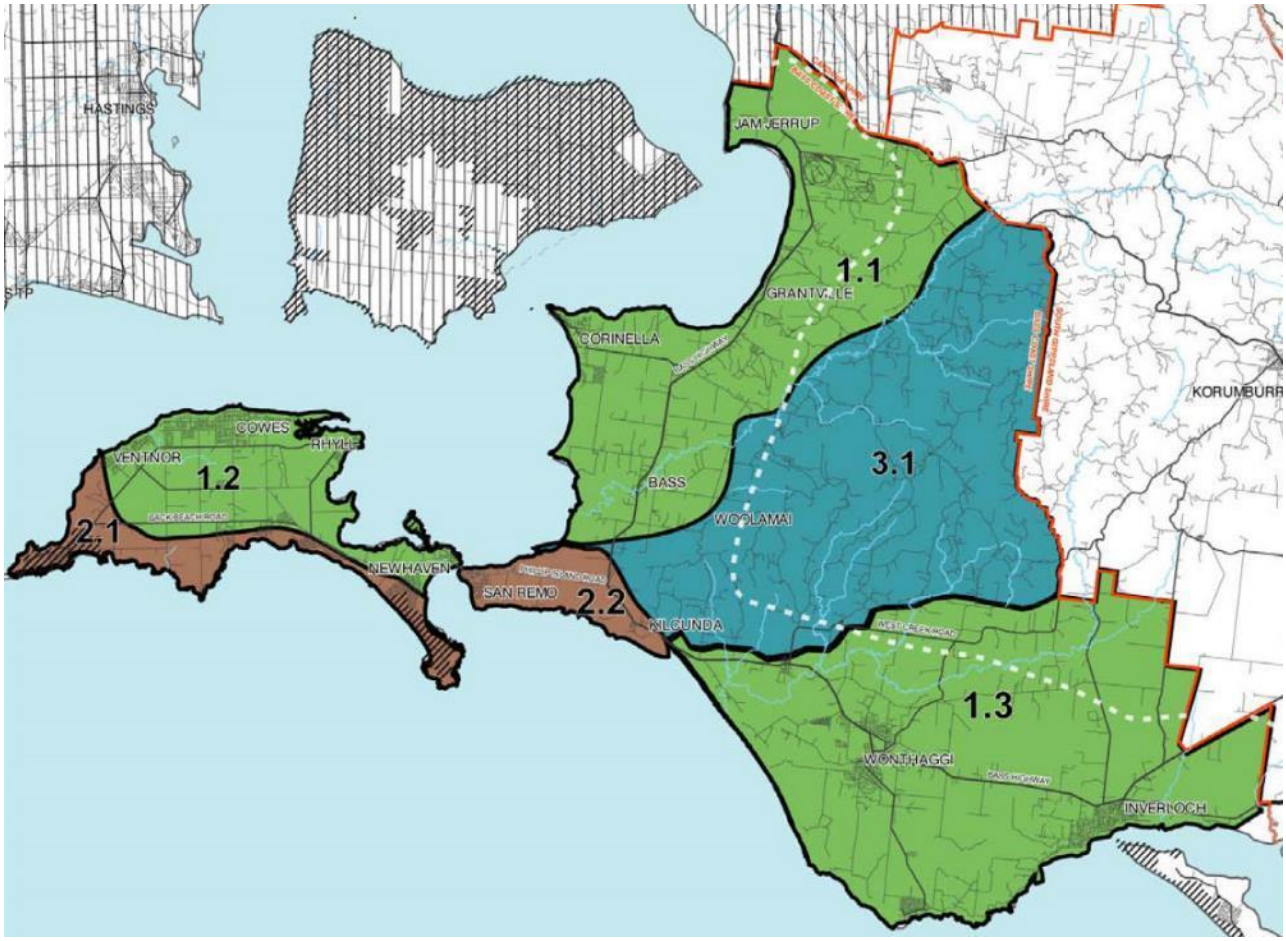


Figure 21: Character Types and Areas - Bass Coast Shire (CSLAS, 2016)

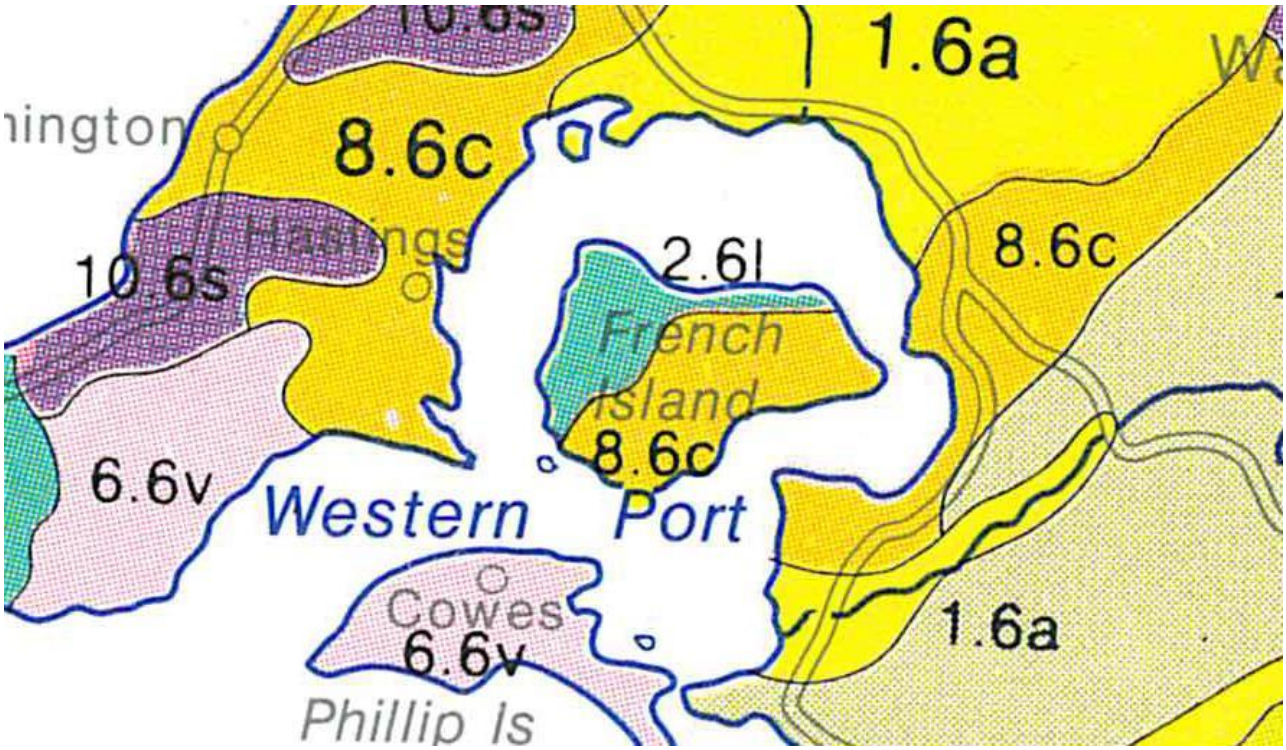


Figure 22: Victorian Land Types (Atlas of Victoria, 1982)

The Atlas of Victoria Land Types mapping shows this same area of Western Port coastline as 8.6c (gold) land type - Loam and clay plains, humid, tertiary alluvium. It also shows this land type extending across to the western side of Western Port. This supports the statement in the Western Port Lowlands Landscape Character Area that the area is "likely to extend around Westernport Bay outside the study area for some distance to the north and west". Given this it is considered appropriate to apply the Western Port Lowlands Character Area to the study area, although it should be acknowledged that the western side of Western Port is characterised by greater development than the east originally assessed in the Coastal Spaces Landscape Assessment Study.

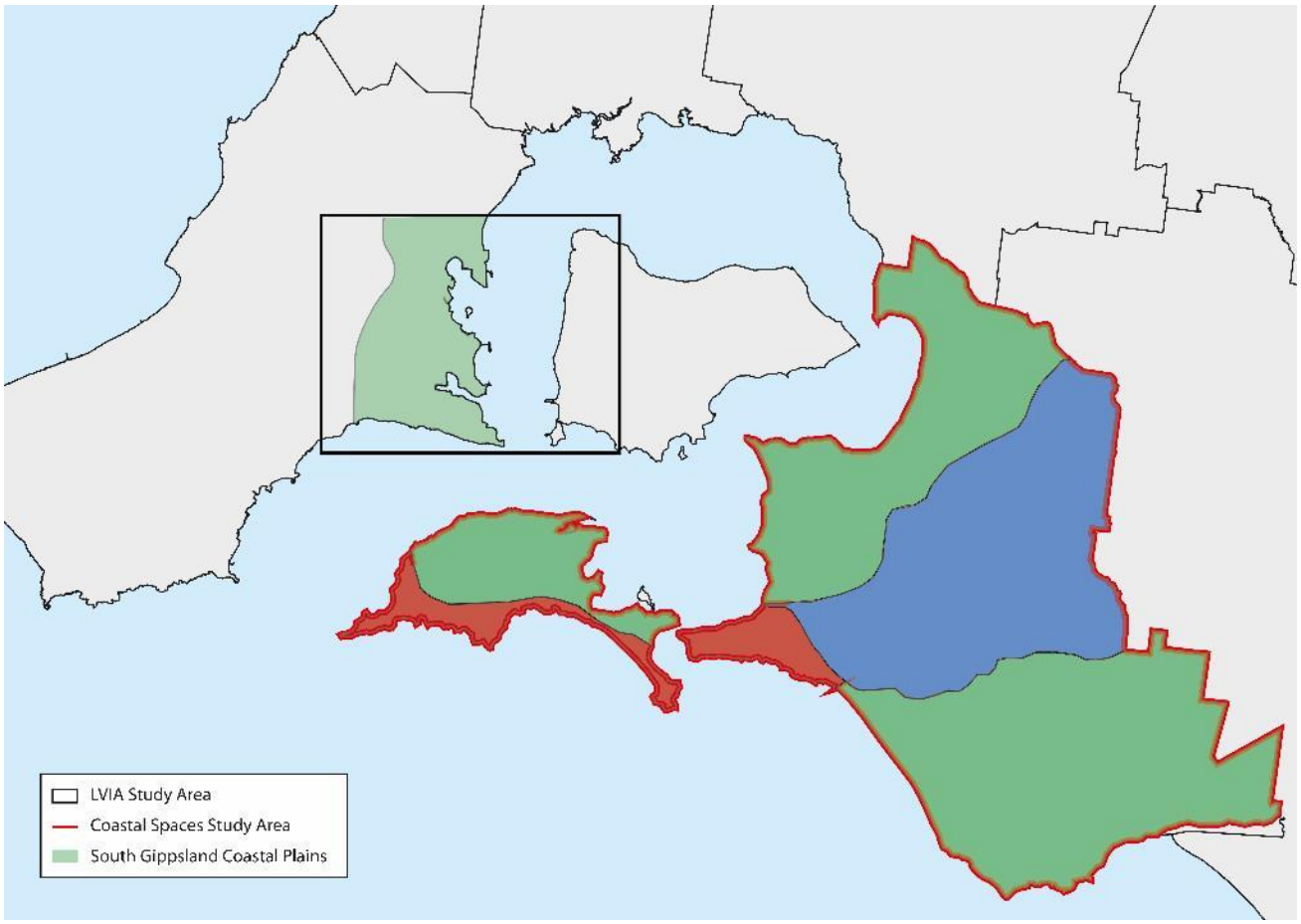


Figure 23: Extended Western Port Lowlands Character Area (Ethos Urban, 2017)

6.2 Landscape Character Area – Western Port Lowlands

6.2.1 Character Description

The Western Port Lowlands Character Area extends around the edge of Western Port, and is low-lying and largely rural to the east, tending to a peri-urban settlement mix of rural, industry and residential land use on the western side of Westernport Bay. Open space reserves separate settlement, especially at the coast where the diverse coastal edge includes beaches, mangrove flats and coastal woodlands, with infrastructure associated with maritime industry located on points and headlands. In the study area the low-lying topography, together with the stands of remnant vegetation or exotic plantings, restricts broader views in the study area to those along the shoreline and across Western Port to Sandstone and French Islands from coastal areas. The Character Area extends from Anderson Peninsula at the south of the eastern shore, around Western Port to Sandy Point south of the Subject site. Within the study area the Character Area extends inland to the foothills of Red Hill and Tuerong.

In the immediate context of the Subject site, the landscape character is represented by a juxtaposition of the undeveloped and naturalistic qualities of the wetland and foreshore reserves and the maritime industrial development located on points and headlands. North-south views along these headland points contribute to a greater sense of development along the coastline than is actually present. In contrast, the embayments and inlets of

the interstitial foreshore reserves focus views within and across Western Port beyond, creating a sense of an undeveloped coastline.

6.2.2 Described Landscape Values

The Subject site is within the coastal fringe of the Western Port Lowlands Character Area. This coastal landscape is valued for the visual qualities, including:

- Perceived naturalistic quality of the varied coastal edge, in particular the mangroves, salt marshes and beaches
- Waterbody of Western Port (key landscape feature within the study area)
- Remnant stands of woodland vegetation
- Native fauna, in particular birdlife
- Maritime associations of limited development along the coast
- Passive recreation uses at locations of access to wetlands and wider bay.

The diverse and natural coastline of Western Port within the Character Area is considered of local significance. Given the above values and visual qualities of this coastal edge, the broader landscape surrounding the Subject site is considered of High landscape value.

6.2.3 Landscape Sensitivity

Development that would cause likely changes to the landscape include coastal development beyond existing settlements, new structures along undeveloped stretches of foreshore, and development that is not visually integrated with the landscape and responsive to the landscape character. While the landscape is relatively flat, the stands of remnant vegetation in areas along the coast provide an opportunity to screen development. In addition, the likely changes to the landscape would be caused by development that is already present within the landscape Character Area and immediate setting. As such the landscape of the Subject site has a Moderate susceptibility to change.

Given the High landscape value and Moderate susceptibility to change, the landscape sensitivity of the Subject site is considered to be High.

6.3 Landscape Impact Assessment

The landscape features and values identified as landscape receptors potentially affected by the Receiving Facility are:

- The area's perceived naturalistic quality of the varied coastal edge
- The presence of maritime industry within the landscape, and
- The visual amenity of passive recreational uses at the coastline.

The following sections provide discussion on the Receiving Facility's potential effects on these landscape receptors and highlights potential landscape impacts to be assessed.

6.3.1 Perceived Naturalistic Quality of Coastal Areas

The Receiving Facility would increase the presence of industry within the landscape, and accordingly may reduce the perceived naturalistic quality of the varied coastal edge. Additionally, vegetation clearing to the west of the Subject site is proposed as part of the development and would negatively affect the perceived naturalistic quality of the area, although this impact would be muted by the presence of existing maritime infrastructure in the vicinity of the proposed vegetation clearing. The landscape receptor of these perceived naturalistic coastal edges would be negatively impacted by development encroaching within their visual catchments.

The High sensitivity of the surrounding landscape Character Area is considered appropriate to this receptor. The proposal represents an ongoing change able to be reversed, and of moderate scale applying to a restricted area. According to Table 2 these effects are considered a Noticeable magnitude of change to this receptor, which results in a Moderate significance of impact on this landscape receptor as per Table 5.

Additionally, the cumulative effects of the Jetty Project would increase the presence of maritime infrastructure and further reduce the perceived naturalistic quality of the coastal edge. The cumulative effects of this remain an ongoing change that is able to be reversed and of moderate scale applying to a restricted area. As there is no variation in this highly sensitive landscape Character Area, the cumulative magnitude of change to this receptor remains Noticeable and of Moderate significance of impact.

6.3.2 Presence of Maritime Industry

The existing presence of active maritime industry is a historically established component of the landscape character of the study area and Subject site. The Receiving Facility would increase this presence and would positively impact this landscape receptor.

The High sensitivity of the surrounding landscape Character Area can be moderated to Low for this receptor, given that this receptor also represents a negative effect on the wider landscape character. The proposal represents an ongoing change able to be reversed, and of moderate scale applying to a restricted area. According to Table 3 these effects are considered a Noticeable magnitude of change to this receptor, which results in a Low significance of impact on this landscape receptor as per Table 5.

The associated Jetty Project would also contribute to the presence of maritime industry in the area and positively impact this landscape receptor. The cumulative effects of the Receiving Facility in conjunction with the Jetty Project continue to represent an ongoing change able to be reversed and of moderate scale to a restricted area. This results in no change to the significance of impact, which remains Low for this landscape receptor.

6.3.3 Passive Recreational Uses at the Coastline

The visual amenity of passive recreational uses at the coastline is an important landscape receptor that is related to the first landscape receptor in the perceived naturalistic coastal areas. The visual amenity of these locations relates to the particular aesthetic characteristics of their outlooks. Given that the Subject site is within an area of existing maritime industry development, the Receiving Facility would not significantly alter the characteristics of the landscape as experienced from this receptor. (Note, this is not necessarily the case for the visual receptors within this receptor The visual impact on these receptors is considered separately).

The High sensitivity of the surrounding landscape Character Area is considered appropriate to this receptor. The proposal represents an ongoing change able to be reversed, and of moderate scale applying to a restricted area. According to Table 3 these effects are considered a Noticeable magnitude of change to this receptor, which results in a Moderate significance of impact on this landscape receptor as per Table 5.

Similarly, the associated Jetty Project is also located within the area of existing maritime industry development. As a result, the overall proposal would not significantly alter the passive recreational uses at the coastline. The cumulative landscape effect of this proposal continues to be an ongoing change able to be reversed and of moderate scale applying to a restricted area. As such, the cumulative effects are considered to be a Noticeable magnitude of change and of Moderate significance of impact on this landscape receptor.

7.0 Visual Character & Analysis

7.1 Summary

Table 7 provides a summary of the key viewpoints identified as part of the *AGL Gas Import Jetty Project LVIA* (Ethos Urban 2018), including the final assessed significance of visual impact from each viewpoint. These views were identified with consideration of future onshore infrastructure.
No new visual receptors are expected to be affected as a result of the Receiving Facility. The visual impact assessment of the Receiving Facility uses these previously identified views to determine the visual receptors and viewpoints that would likely be most affected by the Receiving Facility.

The five key views selected for visual impact assessment are the residential uses at Jacks Beach, Submarine Lookout, Maritime Museum, Woolley's Beach Foreshore North and The Pinnacles on French Island.

Table 7: Summary of AGL Gas Import Jetty Project Visual Impact Assessment (Ethos Urban, 2018).

	Viewpoint	Scale of Change	Visual Sensitivity	Significance of Visual Impact (AGL Gas Import Jetty Project)
1	Tyabb Cemetery			
1(b)	Adjacent Foreshore	A moderate change to a restricted or brief view	Low	Low
3	Warringine Park			
3(b)	Residential Uses (Warranqite Crescent)	A minor change to a restricted view	Medium	Low
3(c)	Boardwalk Lookout			Negligible
4	Sandstone Island			
4(a)	Sandstone Island	A moderate change to a restricted or brief view	Low	Low
5	**Jacks Beach**			
5(b)	**Residential Uses**	**A moderate change to a restricted or brief view**	**Medium**	**Low**
6	**Victorian Maritime Museum**			
6(a)	**Submarine Lookout**	**A moderate change to an extended view**	**Medium**	**Moderate**
6(b)	**Maritime Museum**	**A major change to an extended view**		
7	**Woolley's Beach**			
7(a)	**Foreshore North**	**A major change to an extended view**	**Medium – High**	**Moderate – High**
7(b)	Foreshore South			
8	Stony Point Pier			
8(a)	The Esplanade	A moderate change to a restricted or brief view	Medium	Moderate
9	**French Island**			

	Viewpoint	Scale of Change	Visual Sensitivity	Significance of Visual Impact (AGL Gas Import Jetty Project)
9(a)	Fairhaven Beach	**A moderate change to a restricted or brief view**	Medium	**Moderate**
9(b)	**The Pinnacles**		**Medium – High**	
9(c)	Tanketon Jetty & Reserve			
10	Residential Uses			
10(a)	Lorimer Street	A moderate change to a restricted or brief view	Medium	Low
11	Western Port			
11(a)	Western Port	A minor change to an extended view	Low – Medium	Low

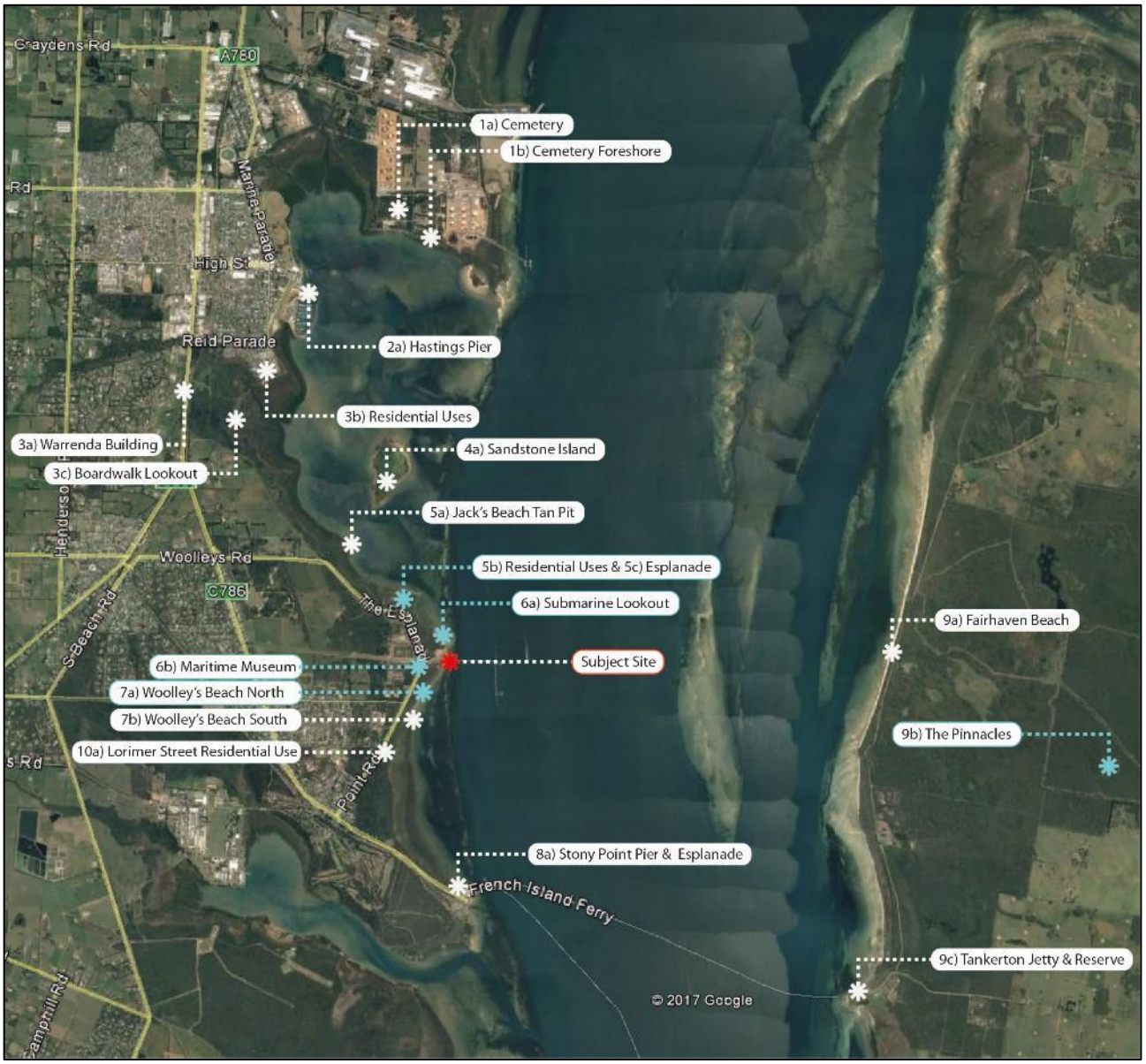


Figure 24: Visually Sensitive Receptors identified in the Study Area

The Subject site contains the historically established Crib Point port and maritime industrial activities in accordance with the land use zoning, which operate in accordance with relevant approvals. From many viewpoints where the proposed Subject site is visible, a view of these structures and uses already exists and provides sound context for the continued development of maritime industrial activities, such as the Receiving Facility and the Jetty Project.

As outlined in Table 7, views with a low visual sensitivity were omitted. Of the locations with a Medium level of visual sensitivity, it was considered that the viewpoints at Warringine Park and Stony Point Pier were located at a significant distance away from the Subject site and not representative of a key view to the Receiving Facility. The South Foreshore at Woolley's Beach was also omitted as the North Foreshore represents an identical view, albeit from a closer distance. The residential uses at Lorimer Street were initially considered for inclusion, but a site visit to the area in July 2018 confirmed that there is sufficient existing vegetation screening the viewpoint from the Receiving Facility and therefore further assessment was not required. Of the views from French Island, it was concluded that The Pinnacles viewpoint is suitably representative. Although located a significant distance away from the Subject site, the Pinnacles represents an important tourist destination and attracts regular visitors, who would have potential views to the Subject site.

7.1.1 Viewshed Analysis

In addition to the specific views analysis, a theoretical viewshed was generated using GIS data to highlight the areas surrounding the Subject site that possess views of the Receiving Facility and the overall proposal, as shown in Figure 25 and Figure 26 respectively. This allowed for confirmation that the selected visual receptors and viewpoints were mostly within visible zones. Representative viewsheds from the highest proposed point at the Receiving Facility (the top of a proposed storage tank, being 20 metres above ground level) and from the Receiving Facility and the FSRU have been used to develop the viewshed analysis.

A key limitation of this viewshed analysis is that it cannot determine the magnitude of impact that the proposal has on the views of the area. The magnitude of impacts is discussed in the following sections.

The proportion of area visible to the Receiving Facility is relatively low in comparison to the area visible to the FSRU. This variation is due to the difference in height of the two components of the proposal and the flat area of land surrounding the Subject site. In isolation, the Receiving Facility is visible from all directions, with a number of large gaps where visibility is screened by existing infrastructure. In conjunction with the FSRU boat and LNG carrier however, the visibility of the overall proposal is relatively high, with a large proportion of Crib Point possessing a direct or partial view of the Receiving Facility and/or the Jetty Project. The French Island shoreline is another area with high visibility of the Receiving Facility and Jetty Project, due to the lack of screening across the Western Port Bay – however the distance to the French Island shoreline would assist in ameliorating potential impacts. Inner areas of French Island are sufficiently distanced away from the Subject site and mostly do not have a direct line of sight to the Receiving Facility or Jetty Project.

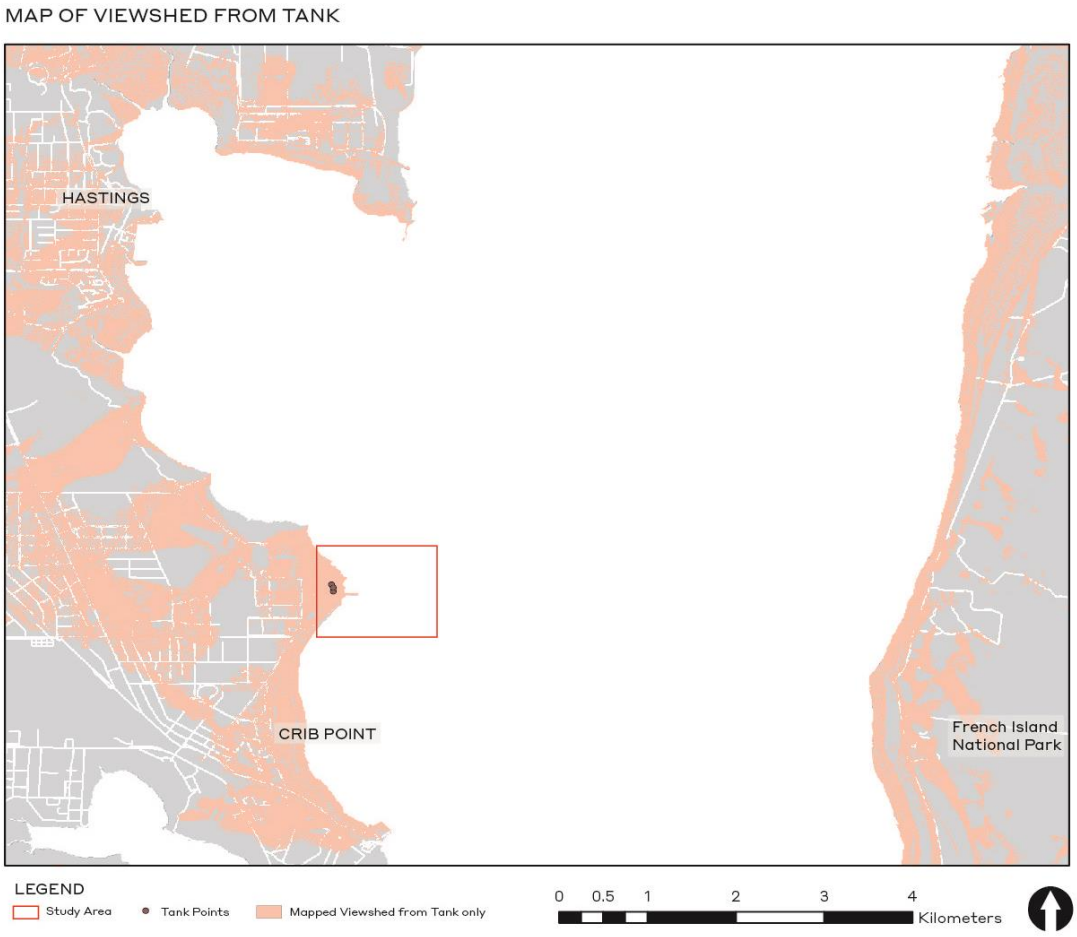


Figure 25: Theoretical viewshed from the Receiving Facility.

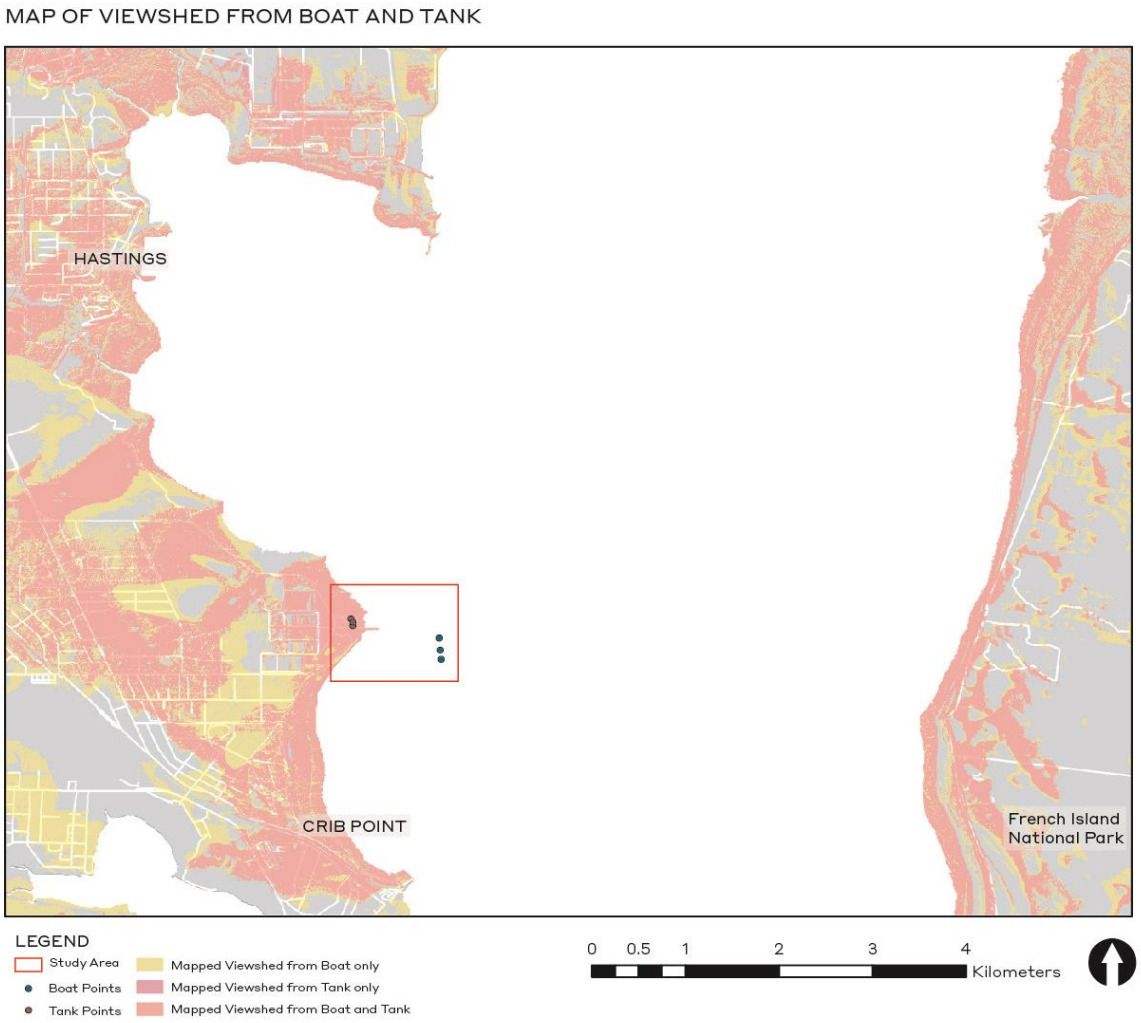


Figure 26: Theoretical viewshed from the Receiving Facility and FSRU.

7.2 Visual Receptors

The four selected visual receptors represent locations that would experience the greatest change in visual effect. These places include areas where people live, work or travel through, as well as publicised landscapes or locations intended for recreational use. These receptors include Jacks Beach, the Victorian Maritime Centre, Woolley's Beach and French Island and shown in Figure 24.

7.2.1 Jacks Beach

Jack's Beach is a public beach and reserve between approximately 1.3 – 2.6km north west of the Receiving Facility characterised by a largely undeveloped, low-lying coastal landscape and dense vegetation. This receptor contains the Jack's Beach Tanning Pit heritage item and is a publicised attraction. Dwellings to the north of the beach have permanent residential uses, and other areas are expected to be primarily used for passive recreation and sightseeing.

7.2.2 Victorian Maritime Centre

The Victorian Maritime Centre is located immediately adjacent and to the north of the Subject site. This receptor is characterised by low lying coastal land with flat topography and dense vegetation and contains promoted attractions such as the Maritime Museum (former BP Administration Building) and the HMAS Otama submarine lookout.

Primary uses within this receptor are expected to be passive recreation and sightseeing, while the Maritime Museum may attract a small amount of employment and functions.

7.2.3 Woolley's Beach

Woolley's Beach is located immediately adjacent and to the east of the Subject site. This location is characterised by low lying coastal land on public beach reserves, with flat and mildly undulating topography and patches of dense vegetation cover. It contains promoted heritage and environmental attractions with good vehicle and pedestrian access. Primary uses within this site are expected to be passive recreation and sightseeing.

7.2.4 French Island

French Island is a comparatively large location of potential receptors, approximately 170km² and at its closest point, approximately 4km east of the Subject site. It is primarily characterised by the French Island National Park, which constitutes approximately 70% of the island. The remaining areas are relatively undeveloped and sparsely populated with minimal infrastructure, services and amenities. Primary uses in this receptor are expected to include short-term accommodation and passive recreation with a focus on the natural environment and scenic amenity. Visitors are likely to spend at least a day with the possibility of longer term temporary trips, with a small number of persons residing permanently on the island.

7.3 Viewpoints

Within the four selected visual receptors, five key viewpoints were identified that most accurately represents the most significantly affected views within the Crib Point Jetty surroundings. These specific viewpoints were considered to be either representative of similar views in the area or a public promoted view expected to attract visitors. These viewpoints are highlighted in **Figure 24** above.

7.3.1 Viewpoint 5(b) Jack's Beach Residential Uses

Viewpoint 5(b) was selected as a representative viewpoint generally from the residential uses on private land on the northern side of The Esplanade and south east of Jack's Beach.

Figure 27: Jacks Beach – Viewpoint 5(b) Residential Uses facing South East

Visual Character

While the residential uses at this viewpoint are not publicly accessible, both the Receiving Facility and these residential uses were visible from ground level at Viewpoint 6(a), denoted in **Figure 24**. It is therefore expected that the outlook to the south east towards the onshore facility from viewpoints 5(b) and 6(a) would be similar, with a greater separation distance, higher elevation and more vegetation screening from the residential uses at viewpoint 5(b). However, this viewpoint is still required to be considered, as it represents a view that local residents would be expected to experience.

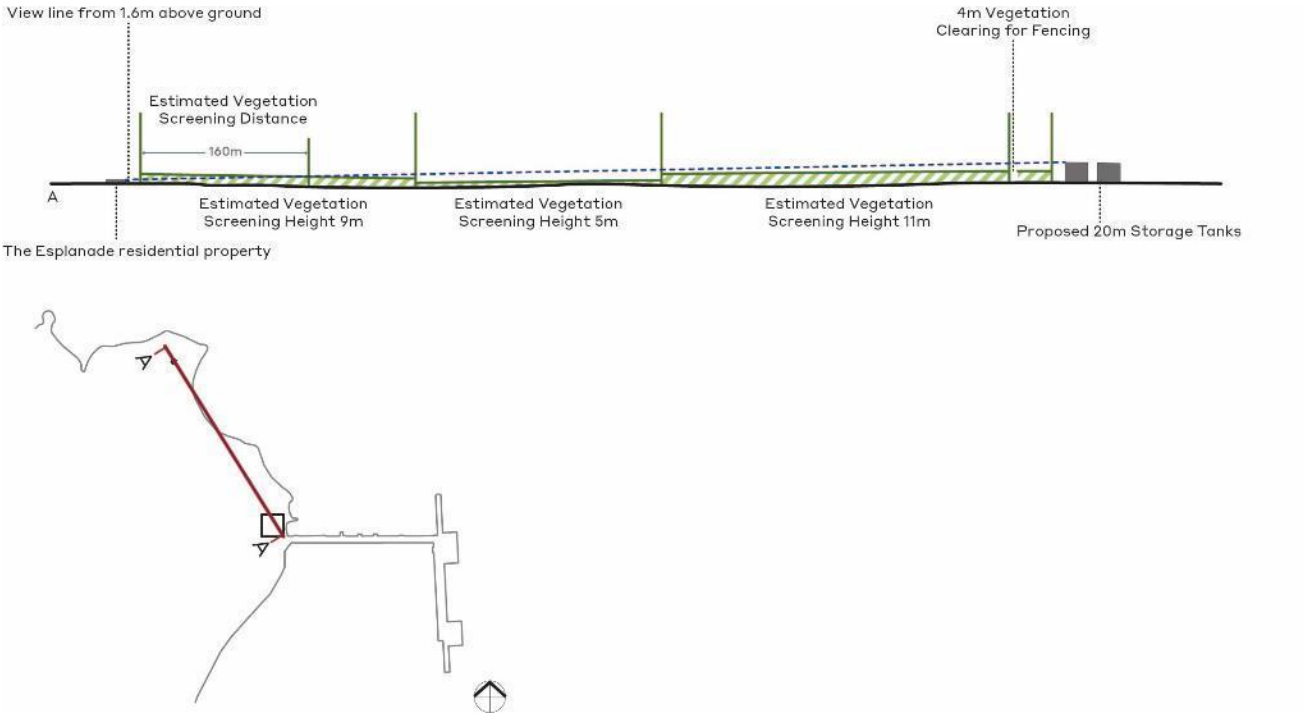


Figure 28: Section AA of View between viewpoints 5(b) and the Receiving Facility

Section AA in **Figure 28** demonstrates that it is expected that there would be a minimal view of the Receiving Facility from viewpoint 5(b), due to the difference in height between the existing intervening vegetation and proposed 20m in height tanks associated with the Receiving Facility. In combination with the human eye level of around 1.6m and the distance to the Receiving Facility, it is not expected that the proposal would be visible from this location.

The sensitivity of this viewpoint is considered Medium, given a low number of dwellings have an outlook towards the Receiving Facility, and considering the quality of this (filtered) outlook over Western Port and towards French Island.

Visual Impact Assessment

The Receiving Facility would not be visible at this location due to screening from the existing, intervening vegetation to the north of the Subject site. While this vegetation would be thinned as a result of the vegetation removal required as part of the development, the minor vegetation clearing would not be substantial enough to reduce the effect of screening. The magnitude of impact would also be mitigated by the unused tanks to the periphery of the viewpoint.

The drive along The Esplanade from the Jacks Beach residential uses towards the facility would result in a sequence of views of increasing magnitude of impact as the distance to the Receiving Facility is reduced. The visual effects upon this viewpoint would be an increased visual presence of port infrastructure on the landscape, albeit filtered by intervening vegetation and infrastructure.

The Receiving Facility is understood to be an ongoing change that is able to be reversed. This is because the proposal has a long-term duration, however the Receiving Facility and associated onshore infrastructure can be decommissioned and rehabilitated. This value is fixed and does not change depending on the nature of the receptor or viewpoint. The scale of change is considered to be a minor change to an extended area of view, due to the combination of a high separation distance between the viewpoint and Subject site, as well as the extended duration of the view as one travels down the Esplanade towards the Subject site. In accordance with Table 4, the resulting assessment is a Noticeable magnitude of change.

As a result of the increasing magnitude of impact along The Esplanade, the viewpoint has been assessed to have a Noticeable magnitude of change and a Medium viewpoint sensitivity. This results in a rating of the significance of visual effects at this viewpoint to be Low as determined by Table 5.

Figure 29: Wireframe positioning of combined projects from viewpoint 5(b), Jacks Beach Residential Uses looking South East.

Figure 30: Photomontage of Receiving Facility from Viewpoint 5(b), Jacks Beach Residential Uses looking South East.

Cumulative Effects

The Receiving Facility would not be visible from this viewpoint. The associated carriers as part of the Jetty Project are also not expected to be visible from this location. This is primarily due to the screening from existing vegetation and the Receiving Facility residing within the direct line of sight between the viewpoint and Crib Point Jetty. The cumulative visual effects from this viewpoint therefore remain the same, with no additional significant visual impact expected to be contributed by the Jetty Project.

Figure 31: Photomontage of combined projects from Viewpoint 5(b), Jacks Beach Residential Uses looking South East.

7.3.2 Viewpoint 6(a) Submarine Lookout

Viewpoint **6(a)** was selected as a specific public viewpoint from the submarine lookout beachfront, approximately 1km north west of the Receiving Facility.

Figure 32: Victorian Maritime Centre - Viewpoint 6(a) Submarine Lookout facing South

Visual Character

Viewpoint 6(a) is a promoted attraction (Submarine Lookout) with associated signposting and unconstructed pedestrian access, however vehicle access and parking are not provided beyond an unmarked gravel shoulder off The Esplanade. The low-lying elevation of this viewpoint allows for a far-reaching panoramic view which is foreground and sky heavy, with a middle ground of the ocean, the HMAS Otama submarine and the Subject site, and discrete glimpses of French Island in the background.

This viewpoint has potential to attract a moderate number of visitors due to its status as a promoted attraction, however is likely to be an inconsistent frequency due to the lack of vehicle access and parking.

The sensitivity of this viewpoint is expected to be Medium, given the cultural and environmental significance of the area, potential for a moderate number of visitors to the promoted attraction of the HMAS Otama submarine and the panoramic nature of the view.

Visual Impact Assessment

The Receiving Facility would be moderately visible from this location due to the proximity of the lookout with the infrastructure. Intervening vegetation would partially obscure views to the Receiving Facility from this viewpoint. As this location is a promoted lookout point that would attract a moderate amount of visitors, a high value is attached to this particular view. The visual effects upon this viewpoint would be an obscured increased visual presence of port infrastructure on the

landscape and a reduction in the presence of natural elements.

The Project is understood to be an ongoing change that is able to be reversed. This is because the proposal has a long-term duration, however is able to be moved or decommissioned. This value is fixed and does not change depending on the nature of the receptor or viewpoint. The scale of change is considered to be a moderate change to a restricted area of view, due to the current level of screening vegetation, through which the higher components of the receiving facility would be visible above naturalistic setting of the treed foreshore. In accordance with Table 4, the resulting assessment is a Noticeable magnitude of change.

This viewpoint has been assessed to have a Medium viewpoint sensitivity, as the location is a promoted lookout but contains limited access and view, resulting in a rating of the significance of visual effects on this viewpoint as Low as determined by Table 5.

Figure 33: Wireframe positioning of Receiving Facility from Viewpoint 6(a), Submarine Lookout facing South.

Figure 34: Photomontage of the Receiving Facility from Viewpoint 6(a), Submarine Lookout facing South.

Cumulative Effects

From this viewpoint, the infrastructure that would be visible are components of the Receiving Facility (shielded by intervening vegetation) and the Jetty project's FSRU ship and LNG carrier and its movements as shown in Figure 34 and Figure 36.

The retention of the existing vegetation to the south west of the viewpoint provides a moderate level of screening to the Receiving Facility, with the proposed gas storage tanks visible over the top of the tree line and its visual impact mitigated. The FSRU however has no such screening and would be directly visible in succession to the intended lookout view towards the HMAS Otama submarine.

While both the Receiving Facility and the FSRU and LNG carriers would be visible from this viewpoint, it is important to understand that there is a clear distinction between the visual effects of the two. The view towards the Receiving Facility and the view towards the boat and carrier location are two separate views from the same viewpoint, although part of a broader panorama. Therefore, these two views from this viewpoint are assessed in combination. In addition, the primary and promoted view from this viewpoint is toward the submarine to the East, away from the Receiving Facility and the Jetty Project.

The cumulative visual effect of the Receiving Facility and Jetty Project combine with a broader panorama, possessing a scale of change considered to be a major change to a restricted area of view and a medium viewpoint sensitivity. This results in a significant of visual effect rating of Moderate for this viewpoint.

Figure 35: Victorian Maritime Centre - Viewpoint 6(a) Submarine Lookout facing South East

Figure 36: Photomontage of the proposed FSRU boat and LNG carrier from Viewpoint 6(a), Submarine Lookout facing South East.

7.3.3 Viewpoint 6(b) Maritime Museum

Viewpoint **6(b)** was selected as a specific public viewpoint from the Maritime Museum and former BP Administration Building, immediately to the west of the Subject site.

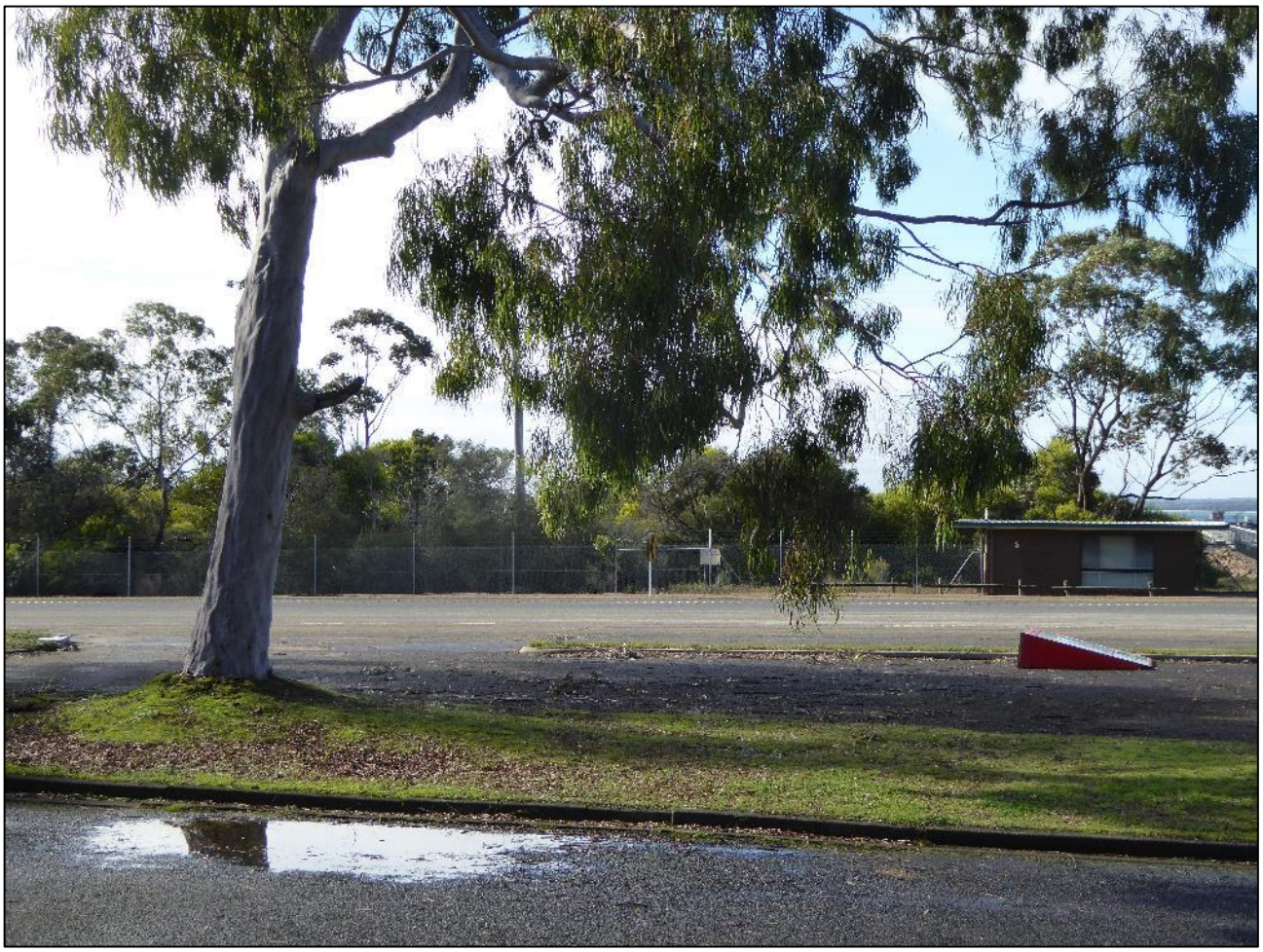


Figure 37: Victorian Maritime Centre - Viewpoint 6(b) Maritime Museum facing North East

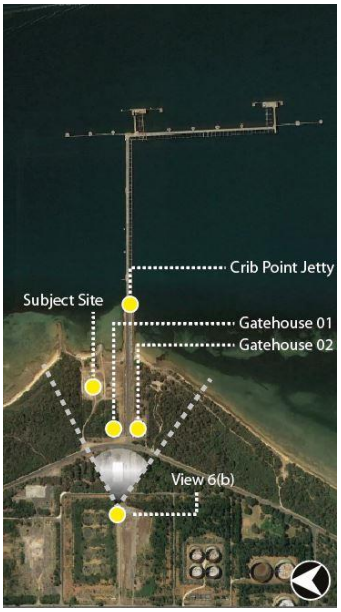
Visual Character

The signposting, ease of access and listing as a heritage item with significant cultural value identifies this viewpoint as a promoted attraction. Pedestrian and vehicle access is provided by way of a sealed crossover and car parking area. A moderate number of visitors are predicted at this location, with seasonal or consistent frequency.

Surrounding development and vegetation dominates the foreground and interrupts distant views. Only a narrow vista of the ocean, Crib Point Jetty and a background of French Island are visible at ground level. As part of the development of the Receiving Facility, vegetation along the western boundary of the Subject site would be cleared and reduce the opportunity for screening vegetation to The Esplanade and the Maritime Museum. It should be noted that the publicly accessible Maritime Museum is two storeys and a higher elevated aspect for less interrupted ocean views may be impeded as a result of the proposed tanks associated with the Receiving Facility.

The sensitivity of this viewpoint is considered to be Medium, given the potential for a moderate number of visitors at consistent frequencies, possibility of interrupted ocean views from the publicly accessible second storey, the promoted cultural and environmental significance of the Subject site and surrounds and the provision of constructed pedestrian and vehicle access and parking.

Visual Impact Assessment



The Receiving Facility would be highly visible from this location and would result in visual impacts given the scale of the proposed works and removal of intervening vegetation, including screening vegetation adjacent to The Esplanade. The context of the established maritime infrastructure comprising the majority of the view would limit the impact of change; however the Receiving Facility is expected to be visible from certain vantage points in the Maritime Museum and adjoining car parking area. The Project's visual effects upon this viewpoint would be an increased visual presence of maritime and port infrastructure on the landscape.

The Receiving Facility is an ongoing change that is able to be reversed. Additionally, the scale of change is considered to be a major change to an extended view, due to the close proximity of this viewpoint causing the Receiving Facility to be a significant element in the view from both the ground level and the second storey. In accordance with Table 4, the resulting assessment is a Considerable magnitude of change.

This viewpoint has been assessed to have a Considerable magnitude of change and a Medium viewpoint sensitivity, resulting in a rating of the significance of visual effects on this viewpoint as Moderate as determined by Table 5. Within the complementary context of the viewpoint being from a Maritime Museum, and the existing jetty and maritime industrial activities at the Subject site, the visual effects are considered to be significant yet appropriate, in terms of their impact on this view.

Figure 38: Wireframe positioning of the Receiving Facility from Viewpoint 6(b), Maritime Museum facing North East.

Figure 39: Photomontage of the Receiving Facility from Viewpoint 6(b), Maritime Museum facing North East.

Cumulative Effects

From this viewpoint, the infrastructure that would be visible is the Receiving Facility, with the associated boat and carrier (parts of the Jetty Project) partially visible from the Maritime Museum.

The photomontage below demonstrates the expected human view of the Subject site from the ground floor of the Maritime Museum, looking east towards the existing Crib Point Jetty. This view is mostly comprised of the existing port infrastructure, minimising the impact of change as discussed above. The Receiving Facility and FSRU are situated towards the peripheral of the view eastwards from the Maritime Museum, with the FSRU screened by existing port infrastructure and vegetation. Existing vegetation at the Subject site would be removed in order to facilitate the development of the Receiving Facility (this is reflected in Figure 39 above and Figure 41 below).

The cumulative visual effect of this proposal from the Maritime Museum is not significantly altered from that of the assessed visual impact of the Receiving Facility. The Receiving Facility and associated tanks remain the dominant feature of this proposal and are located in the direct line of sight looking generally eastwards from the viewpoint. The Receiving Facility would also positively contribute to the visual presence of maritime and port infrastructure of the landscape and reduce the cumulative visual impact.

Therefore, the cumulative visual effect of the Receiving Facility, boat and carrier continue to possess a scale of change considered to be a major change to an extended view with a medium viewpoint sensitivity. In accordance with Table 5, the resulting rating of significance of visual effect on this viewpoint is considered to be Moderate.

Figure 40: Victorian Maritime Centre - Viewpoint 6(b) Maritime Museum facing East.

Figure 41: Photomontage of the cumulative effects from Viewpoint 6(b), Maritime Museum facing East.

7.3.4 Viewpoint 7(a) Woolley's Beach North

Viewpoint 7(a) was selected to generally represent the view from areas along the northern part of the Woolley's Beach reserve.

Figure 42: Woolley's Beach - Viewpoint 7(a) Woolley's Beach North facing North

Visual Character

Viewpoint 7(a) is a promoted location with significant signposting and vehicle and pedestrian access. The viewpoint also contains public facilities including seating and amenities. A moderate number of visitors are expected at this viewpoint, with seasonal or consistent frequency.

Mature coastal vegetation marginally interferes with the panoramic, long-distance views from some aspects, but the promoted view facing east is primarily dominated by the ocean and flat topography, allowing for a dominating view of the sky. An unimpeded view of the Crib Point Jetty is visible in the middle-ground with discrete glimpses of French Island in the background.

The sensitivity of this viewpoint is considered to be Medium to High, given the potential for a moderate number of visitors, signposting and good vehicle and pedestrian access. Public facilities are orientated toward this viewpoint and place passive emphasis on the environmental and scenic value of the ocean.

Visual Impact Assessment

The Receiving Facility would be partially visible from this viewpoint given the scale of the development and distance to the Subject site. Vegetation exists between the Subject site and viewpoint, partially screening the Receiving Facility from this location. Moreover, the promoted view at this viewpoint is oriented towards the ocean, reducing the visual impact of the Receiving Facility.

The Receiving Facility would be an ongoing change that is able to be reversed. This value is fixed and does not change depending on the nature of the receptor or viewpoint. The scale of change is considered to be a moderate change to a restricted view, due to the combination of close proximity, scale of development and screening vegetation present in this setting. In accordance with Table 4, the resulting assessment is a Noticeable magnitude of change.

The change is also within the context of the maritime industrial activities at the Subject site and this viewpoint is assessed to have Noticeable magnitude of change in an area of Medium to High sensitivity. This results in a significance of visual effect rating ranging from Low to Moderate as determined by Table 5. Given the context of maritime industry at the Subject site and the promoted view directed away from the Receiving Facility, the visual impact caused by the Receiving Facility on this viewpoint is considered to be minimal.

Figure 43: Wireframe positioning (western boundary) of the Receiving Facility from Viewpoint 7(a), Woolley's Beach North facing North.

Figure 44: Wireframe positioning (eastern boundary) of the Receiving Facility from Viewpoint 7(a), Woolley's Beach North facing North.

Figure 45: Photomontage (western boundary) of Receiving Facility from Viewpoint 7(a), Woolley's Beach North facing North.

Figure 46: Photomontage (eastern boundary) of Receiving Facility from Viewpoint 7(a), Woolley's Beach North facing North.

Cumulative Effects

At this location, the infrastructure that would be most visible are the FSRU ship and LNG carrier associated with the Jetty Project, with the Receiving Facility only partially visible (due to intervening vegetation). The cumulative visual effects upon this viewpoint would include an increased visual presence of maritime and port infrastructure on the landscape.

While both the Receiving Facility and the ship and carriers associated with the Jetty Project would be visible from this viewpoint, similar to viewpoint 6(a), it is important to understand that there is a clear distinction between the visual effects of the two. The view towards the Receiving Facility and the view towards the boat and carrier location associated with the Jetty Project are two separate views from the same viewpoint, highlighting visual effects that are exclusive of each other. The views towards the Receiving Facility and the boat and carrier location associated with the Jetty Project do not align with each other and cannot be considered as additive cumulative effects. For this reason, the views from this viewpoint are assessed in succession.

Nevertheless, the boat and carrier location associated with the Jetty Project are expected to interrupt the broader scenic vista and are considered to contribute a negative impact on views from this viewpoint towards the open water. Therefore the scale of change at this view is considered to be a major change to an extended view and a resulting assessment of a Considerable magnitude of change. Accordingly, this viewpoint is measured to possess a Moderate to High significance of visual effect. A further assessment of this view can be found in the section 7.2.7.3 of the associated Jetty Project LVIA (Ethos Urban, 2018).

In consideration of the Subject site context and independence of views, the cumulative visual effect on this viewpoint is assessed to be consistent with the change to the most prominent view. The Receiving Facility would be largely screened by the existing vegetation at the viewpoint, with the most significant effects stemming from views to the boat and carrier location associated with the Jetty Project. The sensitivity of this view remains Medium to High and the proposal is considered to possess a cumulative scale of change equivalent to a major change to an extended view, primarily due to the view of the boat and carrier location associated with the Jetty Project. The resulting significance of visual effect on this viewpoint ranges from Moderate to High in accordance with Table 5.

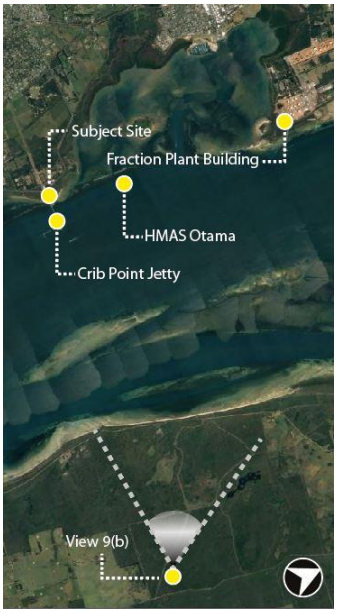
Figure 47: Woolley's Beach - Viewpoint 7(a) Woolley's Beach North facing East

Figure 48: Photomontage of the proposed FSRU boat and LNG carrier from Viewpoint 7(a), Woolley's Beach North facing East.

7.3.5 Viewpoint 9(b) The Pinnacles

Viewpoint 9(b) was selected as a specific viewpoint from ground level at The Pinnacles Lookout, as a promoted viewpoint with a high level of environmental and scenic amenity value approximately 7.1km east of the Subject site.

Figure 49: French Island - Viewpoint 9(b) The Pinnacles Lookout facing West.



Visual Character

The lookout has vehicle and pedestrian access and is the junction of several sections of the Pinnacles Track. A moderate number of visitors are expected at this promoted viewpoint with seasonal or consistent frequency.

The lookout has a 360-degree panoramic outlook dominated by vegetated foreground and sky due to the lower and mildly undulating surrounds. The background along the horizon is made up of the ocean and distant mainland and an unimpeded view of the Receiving Facility is expected.

Sensitivity at this viewpoint is expected to be Medium to High due to the role of The Pinnacles Lookout to focus on the environmental and scenic values in the immediate and distant surrounds.

Visual Impact Assessment

The Receiving Facility would be visible from this viewpoint given the scale of the proposed development. However, the distance to the Subject site from this viewpoint would substantially reduce the visual impact.

The Receiving Facility is understood to be an ongoing change that is able to be reversed. This is because the proposal has a long-term duration, however is able to be decommissioned. This value is fixed and does not change depending on the nature of the receptor or viewpoint. The scale of change is considered to be a moderate change

to a restricted or brief view, primarily due to the separation distance causing the Receiving Facility to be a small element in this setting. In accordance with Table 4, the resulting assessment is a Noticeable magnitude of change

This viewpoint has been assessed to have a Noticeable magnitude of change and a Medium to High viewpoint sensitivity, resulting in a rating of the significance of visual effects on this viewpoint as Moderate as determined by Table 5. Within the context of the proximity, existing jetty and maritime industrial activities at the Subject site, the modelled visual effects are considered to be neutral in terms of their impact on this view.

Figure 50: Wireframe positioning of combined projects from Viewpoint 9(b), The Pinnacles facing West.

Figure 51: Photomontage of the Receiving Facility from Viewpoint 9(b), The Pinnacles facing West.

Cumulative Effects

From this viewpoint, the infrastructure that would be visible are the Receiving Facility and the FSRU ship and LNG carrier and its movements associated with the Jetty Project. The proposal's cumulative visual effects upon this viewpoint would be an increased visual presence of maritime and port infrastructure on the Subject site landscape.

From this location, the cumulative visual impact of the Receiving Facility and Jetty Project would increase the total perceived bulk of port and maritime related infrastructure at the Subject site. However, the significant distance from this viewpoint to the proposed Subject site would result in the proposal becoming a small element in the context of this setting. As a result, the viewpoint has been assessed to possess a Noticeable cumulative magnitude of change within this Medium to High viewpoint sensitivity. Accordingly, the applicable rating of the cumulative significance of visual effects on this viewpoint remains Moderate.

Figure 52: Photomontage of the combined projects from Viewpoint 9(b), The Pinnacles facing West.

8.0 Conclusion and Recommendations

8.1 Landscape Character Impacts (Receiving Facility)

The significance of the impact from the Receiving Facility on the assessed landscape receptors is considered to be of Low to Moderate significance.

The landscape character assessment outlined that the majority of areas surrounding the Subject site are within the Western Port Lowlands Character Area, characterised by undeveloped coastal areas with environmental values, and developed headlands with maritime uses, areas of vegetation and peri-urban settlements comprised of rural, residential and commercial uses. is the Low to Moderate significance impacts on landscape receptors is considered acceptable taking into account the presence of port and maritime industry at this location and within the broader study area.

8.2 Landscape Character Impacts (Cumulative)

The assessment of potential cumulative effects of the Receiving Facility and the Jetty Project identified that no significant change to the landscape character assessment is expected compared to the assessment of the Receiving Facility in isolation. The proposal's cumulative impact on landscape receptors remains of Low to Moderate Significance.

8.3 Visual Impacts (Receiving Facility and Cumulative)

A number of viewpoints originally identified in the associated Jetty Project LVIA were omitted due their impact being assessed to be of Low significance, given they were found to have a distant, partial or obscured view of the Subject site.

The Subject site contains the historically established Crib Point port and maritime industrial activities in accordance with the land use zoning, which operate in accordance with relevant approvals. From many viewpoints where the proposed Subject site is visible, a view of these structures and uses already exists and provides sound context for the continued development of maritime industrial activities, such as the Receiving Facility and the Jetty Project.

Key viewpoints with an unimpeded and relatively close view of the Subject site were assessed to have a Medium to High sensitivity to visual impacts. Views to the Receiving Facility from these viewpoints are subject to a range of intervening screening and vary in proximity to the Receiving Facility. The viewpoints with Medium to High visual sensitivity are those that would have less obstructed views of the Receiving Facility and that are less exposed to existing views to the port and maritime uses at Crib Point and in the broader study area.

Table 8 provides a summary of the visual impact assessment for the Receiving Facility in isolation, and the potential cumulative visual impacts having regard to the Jetty Project. Visual effects from the Receiving Facility would be generally Low or Moderate, with Moderate impacts primarily due to proximity to the Receiving Facility, the amount of intervening screening vegetation and the orientation of the primary view(s) from the assessed viewpoint.

Minor change to the visual impact assessment is predicted due to consideration of the proposal in whole (the cumulative effect). The cumulative effect of the FSRU boat and LNG carrier would change the significance of the visual impact at key viewpoints. Three of the five key viewpoints possess cumulative visual effects consistent with that of the Receiving Facility when considered in isolation. Two viewpoints possess key promoted vistas of the ocean which would be disrupted as a result of the Jetty Project. These views represent the most significant scale of change and the cumulative effect increases the significance of visual effects at this viewpoint. Nevertheless, many of the viewpoints provide an unimpeded view of the existing maritime land uses on the Crib Point headland which provides sound context for the development. Therefore, the proposal's cumulative effect on visual impact is considered to be of Moderate Significance.

Table 8 Summary of Visual Impact Assessment for the Receiving Facility and Jetty Project

	Viewpoint	Visual Sensitivity	Significance of Visual Effect (Receiving Facility)	Cumulative Significance of Visual Effect
5	Jacks Beach			
5(b)	Residential Uses	Medium	Low	Low
6	Victorian Maritime Museum			
6(a)	Submarine Lookout	Medium	Low	Moderate
6(b)	Maritime Museum	Medium	Moderate	Moderate
7	Woolley's Beach			
7(a)	Foreshore North	Medium – High	Low – Moderate	Moderate – High
9	French Island			
9(b)	The Pinnacles	Medium – High	Moderate	Moderate

View 5b Jacks Beach Residential Uses

The Receiving Facility would not be visible at this location due to screening from the existing, intervening vegetation to the north of the Subject site. While this vegetation would be thinned as a result of the vegetation removal required as part of the development, the minor vegetation clearing would not be substantial enough to reduce the effect of screening. The magnitude of impact would also be mitigated by the unused tanks to the periphery of the viewpoint. The drive along The Esplanade from the Jacks Beach residential uses towards the facility would result in a sequence of views of increasing magnitude of impact as the distance to the Receiving Facility is reduced. The visual effects upon this viewpoint would be an increased visual presence of port infrastructure on the landscape, albeit filtered by intervening vegetation and infrastructure.

The cumulative visual effects from this viewpoint would be the same as for the Receiving Facility in isolation, with no additional significant visual impact expected to be contributed by the Jetty Project.

View 6a – Submarine Lookout

The location is a formal lookout but contains limited access and view and would attract a moderate number of visitors. The top of the Receiving Facility tanks would be partially visible above the naturalistic setting of the treed foreshore. The cumulative visual effect of the Receiving Facility and the Jetty Project within a broader panorama would marginally increase the significance of visual effect at this viewpoint and would increase the significance of the impact from Low to Moderate. This would be primarily attributable to the views from this location seaward, which would take in the Jetty Project.

View 6b – Maritime Museum

The Receiving Facility would be a significant element in the view from both the ground level and the second storey of this viewpoint. However, existing views from the viewpoint take in the port and maritime uses of the Subject site currently and the addition of the Receiving Facility would be in keeping with this context. Removal of screening vegetation between the Receiving Facility would occur. In consideration of these factors, the significance of the visual effect would be moderate.

The cumulative visual effect of the Receiving Facility and the Jetty Project would be consistent with the visual impact of the Receiving Facility, primarily due to these components being in keeping with the existing port and maritime related uses and associated views from this viewpoint.

View 7a – Woolley's Beach North

The Receiving Facility is within the context of the maritime industrial activities at the Subject site. Given this context, the presence and retention of intervening screening vegetation and the promoted view directed away from the Receiving Facility, the visual impact caused by the Receiving Facility on this viewpoint is considered to be minimal.

In consideration of the Subject site context and independence of views, the cumulative visual effect on this viewpoint is assessed to be consistent with the change to the most prominent view (attributable to views to the Jetty Project and resulting in a Moderate to High cumulative visual impact).

View 9b – The Pinnacles

The Receiving Facility would be visible from this viewpoint given the scale of the proposed development. However, the distance to the Subject site from this viewpoint would substantially reduce the visual impact. This viewpoint has been assessed to have a Noticeable magnitude of change and a Medium to High viewpoint sensitivity, resulting in a rating of the significance of visual effects on this viewpoint as Moderate. Within the context of proximity, and the presence of existing port and maritime activities at the Subject site, the modelled visual effects are considered to be neutral in terms of their impact on this view.

The cumulative visual impact of the proposed facility and Jetty Project would increase the total perceived bulk of port and maritime related infrastructure at the Subject site. However, the significant distance from this viewpoint to the Subject site would result in the proposal becoming a small element in the context of this setting. Accordingly, the applicable rating of the cumulative significance of visual effects on this viewpoint remains Moderate.

8.4 Recommendations

The following recommendations outline the desired actions to mitigate the potential landscape and visual impacts of the Receiving Facility:

- Provision of screening vegetation to be incorporated along the western edge of the Subject site adjacent to The Esplanade. This would reduce the visual impact of the proposed Receiving Facility from Jacks Beach and the Maritime Museum
- The tank finishes should be muted and non-reflective tones consistent with the Mornington Peninsula Shire Planning Scheme (even though no planning approval is required for the Facility).
- Lighting at the Receiving Facility be directed away from the nitrogen storage tanks, with the tanks utilising an external finish that minimise the reflectance of any lighting.

The assessment of the impact has been undertaken without consideration of these recommendations. It is considered that these changes would make a significant positive visual outcome to the project.

9.0 References

Landscape Institute and Institute of Environmental Management & Assessment [LI & IEMA] 2013, *Guidelines for Landscape and Visual Impact Assessment (third edition*), Routledge, London.

Ethos Urban 2018, *AGL Gas Import Jetty Project – Landscape and Visual Assessment Crib Point,* Melbourne, Victoria.