

# Technical Report M

Land use impact assessment

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## Viva Energy Gas Terminal Project Environment Effects Statement

25-Feb-2022  
Viva Energy Gas Terminal Project

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## Executive Summary

This technical report provides a land use impact assessment conducted to support the Environment Effects Statement (EES) for the Viva Energy Gas Terminal Project (the project).

In December 2020, the Victorian Minister for Planning issued a decision that the project required assessment through an EES under the *Environment Effects Act 1978* (Vic). The reasons for the decision were primarily related to the potential for significant adverse effects on the marine environment of Corio Bay and the potential for contributing to greenhouse gas emissions. Secondly, the EES was required to assess the effects of the project on air quality, noise, land use, Aboriginal and historic heritage, native vegetation, groundwater, traffic, and transport as well as visual amenity.

In January 2021, the project was also determined to require assessment and approval under the Commonwealth Environment Protection and *Biodiversity Conservation Act 1999* due to the potential for the project to have a significant impact on wetlands of international importance, listed threatened species and communities, and listed migratory species. The EES process is the accredited environmental assessment process for the controlled action decision under the EPBC Act in accordance with the bilateral agreement between the Commonwealth and Victorian governments.

## Overview

Viva Energy Gas Australia Pty Ltd (Viva Energy) is planning to develop a gas terminal using a ship known as a floating storage and regasification unit (FSRU) which would be continuously moored at Refinery Pier in Corio Bay, Geelong. The key objective of the project is to facilitate supply of a new source of gas for the south-east Australian gas market where there is a projected supply shortfall in coming years.

The FSRU would store liquefied natural gas (LNG) received from visiting LNG carriers (that would moor directly adjacent to the FSRU), and regasify the LNG as required to meet industrial, commercial, and residential customer demand. A 7 kilometre gas transmission pipeline would transfer the gas from the FSRU to the Victorian Transmission System at Lara.

The gas terminal would be located adjacent to, and on, Viva Energy's Geelong Refinery in a heavily industrialised setting and would benefit from Viva Energy's experience and capability as an existing Major Hazard Facility operator and from potential synergies between the two facilities such as reuse of the FSRU seawater discharge within the Geelong Refinery operations.

## Methodology

The methodology for this assessment comprised a desktop assessment of a study area encompassing a 500-metre catchment around all above ground project components and a 200-metre catchment either side of the underground gas transmission pipeline.

Existing conditions within the study area were reviewed to identify and describe the relevant planning policies and controls, and current land uses. This review formed the basis for the assessment of any potential impacts of the project to existing and reasonably foreseeable future land uses.

Once potential land use impacts were identified, mitigation measures were recommended to ensure that residual land use impacts would be minor or negligible.

## Existing conditions

The existing conditions review identified that the project benefits from broad planning policy support as it would reinforce the continued function of the Port of Geelong and deliver new employment opportunities in the industrial sector while responding to the study area's environmental sensitivities through the outcomes of this EES.

Most of the project's aboveground components would be situated within an established industrial area and port that is supported by state and local planning policies for future industrial development. This part of the study area is zoned for future industrial development related to the port. The proposed utility installation and wharf land uses associated with the project align with this existing land use.

The underground section of pipeline generally avoids direct impacts to sensitive land uses and follows the alignments of existing roads or existing pipeline routes beyond the boundary of the Geelong Refinery. The study area does include a number of sensitive land uses for which land use and amenity impacts were considered.

### **Construction impact assessment**

The relevant planning policies and guidelines allow for temporary construction activities associated with infrastructure that would deliver on the state and local aspirations to enhance the port's function for industrial uses. Policies are protective of the study area's biodiversity and environmental qualities and of existing sensitive land uses. In this context, the following potential construction impacts were considered:

- temporary land use changes
- temporary access disruptions
- temporary disruptions to existing port functions
- temporary amenity impacts to sensitive land uses.

### **Operation impact assessment**

The project's operational phase would deliver on strategic planning goals to enhance the role of the port and provide employment opportunities. In this context, the following potential operation impacts were considered:

- land use changes
- road disruptions associated with infrastructure maintenance
- visual impacts.
- amenity impacts to sensitive land uses

### **Decommissioning impact assessment**

Decommissioning activities would not result in land use impacts and no specific mitigations are required for the decommissioning stage.

### **Summary of residual impacts**

Mitigation measures are not anticipated to be required to avoid, minimise and mitigate potential adverse effects on land use. It is considered that the Incorporated Document, which requires the preparation and implementation of a CEMP and OEMP, including a TMP, and the consideration of DDO20 in detailed design, adequately mitigates any potential amenity impacts.

Residual construction impacts and the relevant mitigations are listed below.

- Preparation and implementation of a Traffic Management Plan would reduce impacts to minor residual impacts to road and infrastructure access during temporary construction activities across the extent of the study area.
- Preparation and implementation of a Construction Environment Management Plan would reduce impacts to:
  - minor residual impacts associated with temporary land use changes in areas where construction is required to occur
  - minor residual amenity impacts to sensitive land uses associated with temporary construction activities.

It is unlikely that the project's construction would detrimentally impact upon the current or foreseeable land uses and businesses within the study area. Additionally, construction would not conflict with any



applicable strategic plans or guidelines provided that the identified construction impacts are mitigated in line with the recommendations of this assessment.

Residual land use impacts associated with project operation are considered to be negligible to moderate. This is on the basis that impacts are low in magnitude and spatial extent and can be mitigated with the preparation and implementation of management plans. There is potential for a low probability, high consequence major incident to occur at the port, involving LNG once the gas terminal is operational. The impact of such an event on personnel and property (including the refinery) could be extremely high and is the premise for licensing the FSRU as a Major Hazard Facility.

Residual operation impacts and the relevant mitigations include:

- Preparation and implementation of an Operation Environment Management Plan which would result in:
  - negligible residual impacts associated with land use changes
  - negligible residual impacts associated with disruptions to roads during project maintenance.
  - low/negligible amenity impacts which could impact land use
  - low/negligible to moderate residual visual impacts.

It is unlikely that project operation would detrimentally impact upon the current or foreseeable land uses and businesses within the study area. Operation of the project is consistent with policies seeking to enhance the function of the port and does not conflict with policies and strategies relevant to areas outside of the Geelong Refinery.

## Abbreviations and glossary of terms

Abbreviation/Term	Definition
BOG	Boil Off Gas
CEMP	Construction Environment Management Plan
DDO20	Design and Development Overlay – Schedule 20
EES	Environment Effects Statement
Environment Effects Act	<i>Environment Effects Act 1978</i>
EP Act	<i>Environment Protection Act 2017</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESO2	Environmental Significance Overlay – Schedule 2
ESO4	Environmental Significance Overlay – Schedule 4
FZ	Farming Zone
FSRU	Floating storage and regasification unit
GED	General Environmental Duty
Council	Greater Geelong City Council
HDD	Horizontal directional drilling
IN2Z	Industrial 2 Zone
LSIO2	Land Subject to Inundation Overlay – Schedule 2
LUIA	Land Use Impact Assessment
LNG	Liquefied natural gas
LPPF	Local Planning Policy Framework
LVIA	Landscape and Visual Impact Assessment
Marine and Coastal Act	<i>Marine and Coastal Act 2018</i>
MHF	Major Hazard Facility
MLAs	Marine Loading Arms
MSS	Municipal Strategic Statement
OHS Regulations	<i>Occupational Health and Safety Regulations 2017</i>
OEMP	Operation Environment Management Plan
PCRZ	Public Conservation and Resource Zone
Pipelines Act	<i>Pipelines Act 2005</i>
P&E Act	<i>Planning and Environment Act 1987</i>
Port	Port of Geelong
Port Management Act	<i>Port Management Act 1995</i>
PPF	Planning Policy Framework
PPRZ	Public Park and Recreation Zone
PSA	Planning Scheme Amendment

Abbreviation/Term	Definition
PZ	Port Zone
RLZ	Rural Living Zone
ROW	Right of way
Refinery	Geelong Refinery
SBO	Special Building Overlay
Scheme	Greater Geelong Planning Scheme
SCO	Specific Controls Overlay
SWP	South West Pipeline
TRG	Technical Reference Group
TRZ	Transport Zone
TMP	Traffic Management Plan
VPPs	Victorian Planning Provisions
VTs	Victorian Transmission System

## 1.0 Introduction

This technical report provides a Land Use Impact Assessment (LUIA) conducted to support the Environment Effects Statement (EES) for the Viva Energy Gas Terminal Project (the project).

Viva Energy Gas Australia Pty Ltd (Viva Energy) is planning to develop a gas terminal using a ship known as a floating storage and regasification unit (FSRU), which would be continuously moored at Refinery Pier in Corio Bay, Geelong. The key objective of the project is to facilitate supply of a new source of gas for the south-east Australian gas market where there is a projected supply shortfall in coming years.

The FSRU would store liquefied natural gas (LNG) received from visiting LNG carriers (that would moor directly adjacent to the FSRU) and would convert LNG back into a gaseous state by heating the LNG using seawater (a process known as regasification) as required to meet industrial, commercial, and residential customer demand. A 7 kilometre gas transmission pipeline would transfer the gas from the FSRU to the Victorian Transmission System (VTS) at Lara.

The project would be situated adjacent to, and on, Viva Energy's Geelong Refinery, within a heavily developed port and industrial area on the western shores of Corio Bay between the Geelong suburbs of Corio and North Shore. Co-locating the project with the existing Geelong Refinery and within the Port of Geelong offers significant opportunity to minimise potential environmental effects and utilise a number of attributes that come with the port and industrial setting.

In December 2020, the Victorian Minister for Planning determined that the project requires assessment through an EES under the *Environment Effects Act 1978* (Vic). The reasons for the decision were primarily related to the potential for significant adverse effects on the marine environment of Corio Bay and the potential for contributing to greenhouse gas emissions. Secondly, the EES was required to assess the effects of the project on air quality, noise, land use, Aboriginal and historic heritage, native vegetation, groundwater, traffic and transport as well as visual amenity.

In January 2021 the project was also determined to require assessment and approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to the potential for the project to have a significant impact on the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site (a wetland of international importance), listed threatened species and communities, and listed migratory species. The EES process is the accredited environmental assessment process for the controlled action decision under the EPBC Act in accordance with the bilateral agreement between the Commonwealth and Victorian governments.

### 1.1 Purpose

This LUIA identifies, assesses and characterises potential environmental impacts on existing and future land uses associated with the construction, operation and decommissioning of the project to inform the preparation of the EES required for the project.

The report identifies and recommends mitigation measures to avoid, minimise and manage potential impacts which will inform the development of an Environmental Management Framework (EMF) for the project. The mitigation measures listed in the EMF would be implemented in the approvals and management plans for the project.

### 1.2 Why understanding land use is important

Project activities associated with the construction and operation of the project have the potential to impact existing and future land uses or land use policies. Land use impacts can be positive or negative, and occur:

- when a new use or development, or a change to an existing use or development, has an effect on the use, form, function, amenity or appearance of the existing land use, its environment and/or the character of a place or location
- where a change in an existing use or development now, or in the future, may have an impact on a seriously entertained or an introduced and now established project.

Land use impacts may include:

- a permanent use or change related to a use, which is inconsistent with existing or future land uses or land use policies, or which impacts on the viability of other lawfully established and desired land uses
- a temporary use or change related to a use, which is inconsistent with existing or future land uses or land use policies.

Understanding how the project may impact land use is important in informing the development of effective and appropriate mitigation measures to minimise or manage impacts during the construction and operation of the project.

### 1.3 Project area

The project would be located adjacent to, and on, the Geelong Refinery (the refinery) and the Refinery Pier in the City of Greater Geelong, 75 kilometres (km) south-west of Melbourne. The project area is shown in Figure 1. The project area is within a heavily developed port and industrial area on the western shores of Corio Bay between the Geelong suburbs of Corio and North Shore. The Geelong central business district is located approximately 7km south of the project.

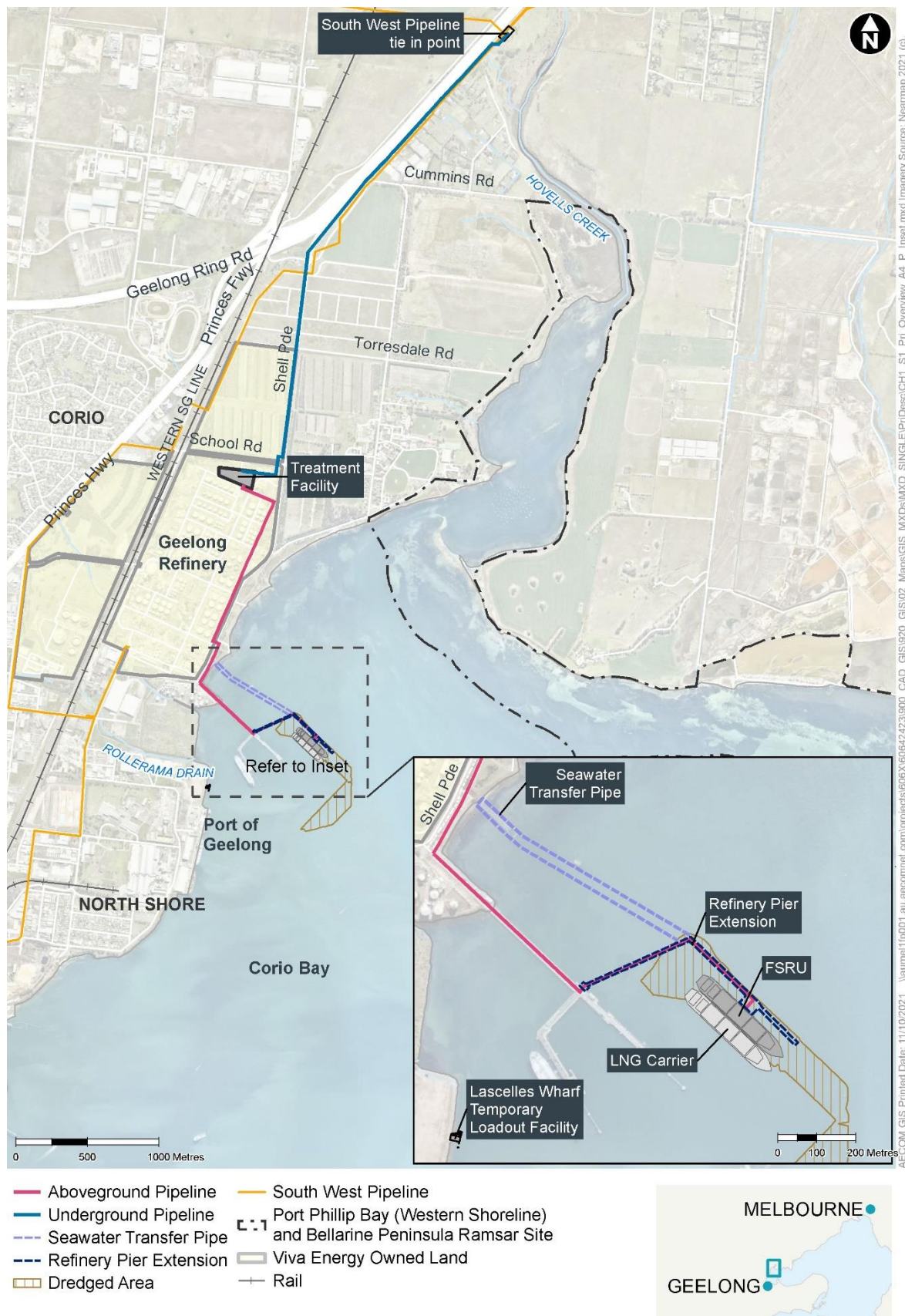
Corio Bay is the largest internal bay in the south-west corner of Port Phillip and is a sheltered, shallow basin at the western end of the Geelong Arm with an area of 43 square kilometres (km<sup>2</sup>). The Point Wilson/Limeburners Bay section of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site is located along the northern shoreline of Corio Bay approximately one kilometre to the north-east of the project.

The Port of Geelong has been in operation for over 150 years and is the largest industrial bulk cargo port in Victoria, annually attracting over 600 ship visits and handling more than 14 million tonnes of product. Geelong's shipping channels extend 18 nautical miles through Corio Bay from Point Richards through to Refinery Pier. Ports Victoria (formerly Victorian Regional Channels Authority) manages commercial navigation in the port waters in and around Geelong and is responsible for the safe and efficient movement of shipping, and for maintaining shipping channels and navigation aids. The channels are man-made having been deepened and widened through periodic dredging to support port trade development.

Refinery Pier is the primary location within the Port of Geelong for movement of bulk liquids. Vessels up to 265 metres in length currently utilise the four berths at Refinery Pier which service Viva Energy refinery operations. The majority of ship visits to the port are to Refinery Pier, with Viva Energy accounting for over half of the trade through the Port of Geelong.

The Geelong Refinery has been operating since 1954 with both the refinery and the co-located LyondellBasell plant being licensed Major Hazard Facilities (MHFs). A range of industrial activities are situated in the Port environs including wood fibre processing and chemical, fertiliser and cement manufacturing.

To the north of the Geelong Refinery, along the proposed underground pipeline corridor, the area is predominantly rural. There are several other existing Viva Energy-owned underground pipelines running between the refinery and the connection point to the South West Pipeline (SWP) at Lara. The proposed pipeline route follows already disturbed pipeline corridors, where possible, through a mix of land uses.



**Figure 1 Project overview**

## 1.4 Project description

This section summarises the project as described in Chapter 4 *Project Description* of the EES. Key components of the project include:

- extension of the existing Refinery Pier with an approximately 570 metre (m) long angled pier arm, new berth and ancillary pier infrastructure including high pressure gas marine loading arms (MLAs) and a transfer line connecting the seawater discharge points on the FSRU to the refinery seawater intake
- continuous mooring of an FSRU at the new pier berth to store and convert LNG into natural gas. LNG carriers would moor alongside the FSRU and unload the LNG
- construction and operation of approximately 3 km of aboveground gas pipeline on the pier and within the refinery connecting the FSRU to the new treatment facility
- construction and operation of a treatment facility on refinery premises including injection of nitrogen and odorant (if required)
- construction and operation of an underground gas transmission pipeline, approximately 4km in length, connecting to the SWP at Lara

The pier extension would be located to the north-east of Refinery Pier No. 1. The new pier arm would be positioned to allow for sufficient clearance between an LNG carrier berthed alongside the FSRU and a vessel berthed at the existing pier berth No. 1. Dredging of approximately 490,000 cubic metres (m<sup>3</sup>) of seabed sediment would be required to allow for the new berth pocket and swing basin.

The FSRU vessel would be up to 300m in length and 50m in breadth, with the capacity to store approximately 170 000m<sup>3</sup> of LNG. The FSRU would receive LNG from visiting LNG carriers and store it on board in cryogenic storage tanks at about – 160 °C.

The FSRU would receive up to 160 petajoules per annum (approximately 45 LNG carriers) depending on demand. The number of LNG carriers would also depend on their storage capacity, which could vary from 140,000 to 170,000 m<sup>3</sup>.

When gas is needed, the FSRU would convert the LNG back into a gaseous state by heating the LNG using seawater (a process known as regasification). The natural gas would then be transferred through the aboveground pipeline from the FSRU to the treatment facility where odorant and nitrogen would be added, where required, to meet VTS gas quality specifications. Nitrogen injection would occur when any given gas cargo needs to be adjusted (diluted) to meet local specifications. Odorant is added as a safety requirement so that the normally odourless gas can be smelt when in use. From the treatment facility, the underground section of the pipeline would transfer the natural gas to the tie-in point to the SWP at Lara.

### 1.4.1 Key construction activities

Construction of the project would occur over a period of up to 18 months. The key construction activities relate to:

- localised dredging of seabed sediments to enable the FSRU and LNG carriers to berth at Refinery Pier and excavation of a shallow trench for the seawater transfer pipe
- construction of a temporary loadout facility at Lascelles Wharf
- construction of the new pier arm and berthing infrastructure, and aboveground pipeline along Refinery Pier and through the refinery
- construction of the treatment facility on a laydown area at the northern boundary of the refinery
- construction of the buried pipeline
- construction at the tie-in point to the SWP at Lara.

There are no construction activities required for the FSRU component of the project. The vessel would be built, commissioned and all production and safety systems verified prior to being brought to site.



An estimated 490,000m<sup>3</sup> of dredging would be required, over an area of approximately 12 hectares (ha), adjacent to the existing shipping channel to provide sufficient water depth at the new berth and within the swing basin for visiting LNG carriers to turn. Dredging within the new berth would be undertaken to a depth of 13.1m and the swing basin would be dredged to a depth of 12.7m. The dredging footprint is shown in Figure 1. It is planned to deposit the dredged material within the existing dredged material ground in Port Phillip to the east of Point Wilson, approximately 26 km from the Refinery Pier.

The temporary loadout facility at Lascelles Wharf would be the first construction activity to take place in order to facilitate the Refinery Pier extension. This would involve the installation of 10 piles using hydraulic hammers.

Construction of the pier arm would be carried out once dredging was complete, primarily from the water using barge-mounted cranes. Steel piles would be driven into the seabed by cranes mounted on floating barges and pre-cast concrete and pre-fabricated steel components would be transported to the pier by barge and lifted into position. The installation of pier infrastructure such as the MLAs, piping from the FSRU to the existing refinery seawater intake and aboveground pipeline would also be undertaken from the water using barge-mounted cranes and construction support boats.

Installation of the 3 km above ground pipeline along the pier and through the refinery is anticipated to take 3.5 months to complete. The above ground pipeline would run along the pier to the existing pipe track east of Shell Parade within the pier foreshore compound. It would then pass through a road under-crossing to the existing refinery pipe track. The pipeline would then run north along the existing refinery pipe track to an existing laydown area where the treatment facility would be located.

The treatment facility would be located within an existing laydown area and cover an area of approximately 80m x 120m. Construction of the treatment facility would take up to 18 months and would be undertaken by specialist crews across distinct phases of work. These would include initial earthworks and civil construction, mechanical installation and electrical and instrumentation works.

The 4 km underground pipeline would be installed in stages over a 4 month period within a corridor which has been selected so as to avoid watercourses or other environmental sensitivities, where possible. Firstly, a construction right of way (ROW) would be established, clearly identified and fenced off where required. Typically, this would be between 15 and 20 m wide, and minimised where possible to reduce disturbance. Once the construction ROW is established, vegetation would be removed, and a trench excavated to a maximum depth of 2m and a maximum width of 1m for the pipeline to be placed. Following the placement of the pipeline, the construction ROW would be rehabilitated to its pre-existing condition as far as practicable for the purposes for which it was used immediately before the construction of that part of the pipeline.

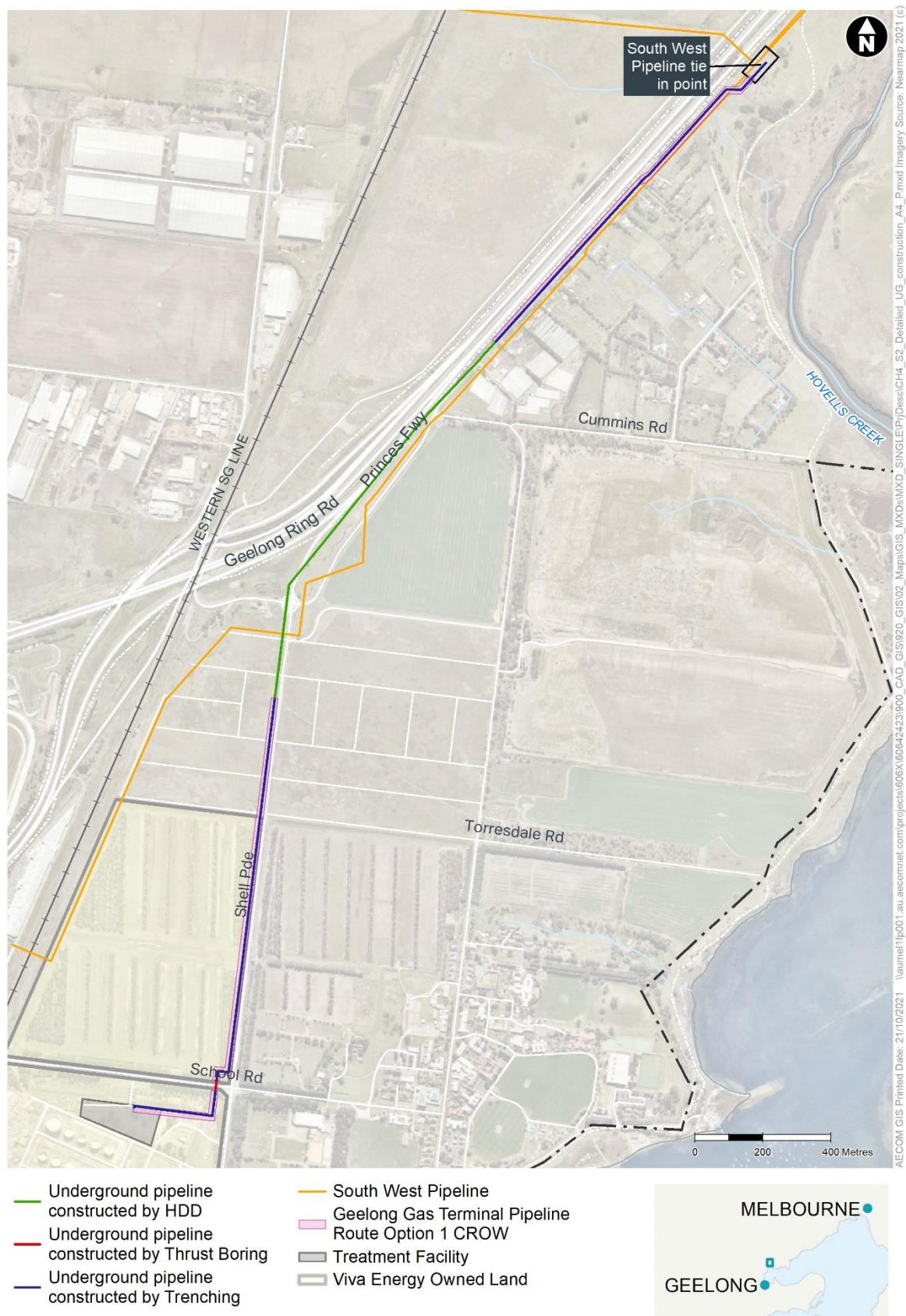
Trenchless construction (including thrust boring or horizontal directional drilling (HDD)) would be used to install the underground pipeline in areas that are not suited to open trenching techniques, such as at intersections with major roads. Trenchless construction would involve boring or drilling a hole beneath the ground surface at a shallow angle and then pushing or pulling a welded length of pipe through the hole without disturbing the surface. It is anticipated that the maximum depth of the trenchless section would be 25 m.

Construction at the tie-in point to the SWP at Lara would be undertaken by specialist crews across the distinct phases of works, as with the treatment facility.

The anticipated trenching, HDD and thrust bore locations are presented in Figure 2. It is possible that along the northern section of Macgregor Court the pipeline would also be constructed using HDD, however, this would be confirmed during detailed design.

During the construction phase of the project there would be temporary construction facilities for site offices, toilets/ablutions and workshop areas within the treatment facility works area and the temporary loadout facility at Lascelles Wharf.





**Figure 2 Proposed location of trenching construction techniques for the underground pipeline including open trenching, HDD and thrust boring**

#### 1.4.2 Key operation activities

The project is expected to be in operation for approximately 20 years. Key activities relating to project operation include:

- receipt of up to 45 LNG carriers each year at Refinery Pier – the number and frequency of LNG carriers arriving each year would depend on their storage capacity and gas demand
- regasification of LNG onboard the FSRU using seawater as a heat source, which would then be reused within the refinery as cooling water
- injection of nitrogen and odorant into the gas prior to distribution via the VTS
- monitoring and maintenance of the pipeline easement.

#### 1.4.3 Key decommissioning activities

The FSRU, which continues to be an ocean-going vessel throughout the operation of the project, would leave Corio Bay on completion of the project to be used elsewhere.

It is anticipated that the Refinery Pier berth and facilities would be retained for other port related uses. The underground pipeline would likely remain in situ subject to landholder agreements and either decommissioned completely or placed into care and maintenance arrangements.

The temporary loadout facility at Lascelles Wharf would be decommissioned following the completion of construction.

Decommissioning activities are subject to change, depending on legislative requirements at the time and potential repurposing of the infrastructure at the end of the project.

#### 1.4.4 Project activities relevant to the assessment

The following construction activities are relevant to the LUIA:

- construction of a temporary loadout facility at Lascelles Wharf and use of part of Lascelles Wharf as a construction compound and laydown area throughout the construction period.
- construction of the new pier arm, a potential boil off gas (BOG) line along the existing Refinery Pier and connecting into the refinery and berthing infrastructure, and aboveground pipeline along Refinery Pier and through the refinery
- construction of the treatment facility on a laydown area at the northern boundary of the refinery site
- construction of the buried pipeline and construction at the tie-in point to the SWP at Lara

During construction of the underground section of pipeline an up to 20 m wide right of way would facilitate the construction of the pipeline. Following completion of construction, a nominal 15 m easement (or licence on public land) is to be retained for operational purposes. Following construction, the land within the easement would be reinstated to its former condition. Viva Energy would place certain conditions on the easement including but not limited to:

- erection of structures or excavation of land below a certain depth;
- prohibition of planting of vegetation that may impact the integrity of the pipeline and line of sight between the pipeline warning markers; and
- alteration of the existing contour of the land.

Other than the restrictions placed on the easement landowners will have the right to use the land as allowed by its former condition.

The operation activities relevant to the LUIA mainly relate to the continuous mooring of the FSRU and receipt of up to 45 LNG carriers each year at the pier – noting that the number and frequency of LNG carriers arriving each year would depend on their storage capacity and gas demand. During operation a number of inspection and maintenance activities would occur including monitoring of the condition and integrity of the pipeline. The decommissioning activities relevant to the LUIA include the departure (i.e., removal) of the FSRU and the potential reuse of other infrastructure.

## 1.5 Planning Scheme Amendment (PSA)

The project is located at and adjacent to the existing Geelong Refinery and would be situated on land zoned Port Zone (PZ), Transport Zone (TRZ2), Industrial 2 Zone (IN2Z), Public Conservation and Resource Zone (PCRZ), Farming Zone (FZ) and Public Park and Recreation Zone (PPRZ) under the Greater Geelong Planning Scheme (the Scheme).

The proposed pier infrastructure, (including a gas pipeline mounted on pipe tracks on the pier), would be located in the PZ which extends into Corio Bay and surrounds the pier. The FSRU would be situated adjacent to the proposed pier infrastructure within Port of Geelong waters. It is anticipated that the PZ will need to be extended to ensure the pier infrastructure and FSRU fall entirely within PZ area. The Scheme applies to the municipal district of the City of Greater Geelong and land covered with water within the Port Phillip Coastal Area (comprising Corio and Port Phillip Bays) between the municipal boundary and Low Water Mark and 600 metres seaward of Low Water Mark.

The *Pipelines Act 2005* (Pipelines Act) provides that a permit is not required under the Planning and Environment Act 1987 (P&E Act) for the use or development of land, or the doing or carrying out of any matter or thing, for the purpose of a licenced pipeline. DELWP has confirmed that the entire pipeline from the FSRU to the tie in point at the SWP near Lara will be subject to a Pipeline Licence under the Pipelines Act and therefore the requirement for planning approval is removed.

**Table 1 Key project components**

Project Component	Project Detail	Pipeline Licence (Pipelines Act)	Planning Approval (P&E Act)
<b>Pier Works</b>	Extension of refinery pier, new berth and ancillary pier infrastructure, including non-gas piping, potential BOG line to the refinery and a diffuser	N/A	<b>Yes</b> – will be addressed in PSA and Incorporated Document
<b>FSRU</b>	Continuous mooring and use of a FSRU at the new Refinery Pier berth	N/A	<b>Yes</b> – will be addressed in PSA and Incorporated Document
<b>Treatment Facility Works</b>	Construction and operation of a treatment facility on refinery premises	N/A	<b>Yes</b> – will be addressed in PSA and Incorporated Document
<b>Gas Pipeline Works</b>	Construction and operation of approximately 3km of aboveground gas pipeline on the pier and within the refinery site, and the construction and operation of underground gas pipeline, approximately 4km in length, connecting the treatment facility to the SWP at Lara	<b>Yes</b> – Subject to a Pipeline Licence	N/A
<b>Temporary marine construction facilities</b>	Construction of a temporary loadout facility, construction compound and laydown area at Lascelles Wharf	N/A	<b>Yes</b> – will be addressed in PSA and Incorporated Document
<b>Dredging Works</b>	Works to enable the FSRU and LNG carriers to berth at Refinery Pier	N/A – consent required under the <i>Marine and Coastal Act 2018</i>	

The project involves a number of land use activities which Viva Energy considers are best characterised together as a Gas Terminal (an innominate land use). The key land use activities can be characterised using the Clause 73.03 (Land Use Terms) of the Scheme as follows:

- a "wharf" land use associated with Pier Works, FSRU and temporary marine construction facilities
- a "utility installation" land use associated with ancillary piping and the treatment facility.

Table 2 (below) outlines the relevant planning permit triggers for the project works subject to planning approval under the P&E Act.

**Table 2 Land Use Planning Permit Triggers**

Planning Control		Planning Trigger		
		Use	Buildings and Works	Removal of Vegetation
<b>Zone</b>	Port Zone	A permit is required under Clause 37.09-1 for the use of land for an innominate land use (Gas Terminal) and utility installation. No permit is required for the use of land for a wharf.	<p>A permit is required under Clause 37.09-4 to construct a building or carry out works for an innominate land use (Gas Terminal) and utility installation.</p> <p>Exempt works include works which provide for a wharf or shipping container storage and other storage and handling facilities (other than tanks for bulk liquid storage), navigational beacons and aids, terminals, and associated facilities.</p>	N/A
	Industrial 2 Zone	A permit is required under Clause 37.09-1 for the use of land for innominate land use (Gas Terminal), wharf and utility installation.	A permit is required under Clause 33.02-4 to construct a building or carry out works.	N/A
	Transport Zone	A permit is required under Clause 36.04-1 (Table of uses) for the use of land for an innominate land use (Gas Terminal), wharf and utility installation.	A permit is required under Clause 36.04-2 (Permit requirement) to construct a building or carry out works.	N/A
<b>Overlays</b>	Environmental Significance Overlay – Schedule 2	N/A	A permit is required under Clause 42.01-2 (Permit requirement) to construct a building or carry out works.	A permit is required under Clause 42.01-2 (Permit requirement) to remove, destroy or lop any vegetation, including dead vegetation



Planning Control		Planning Trigger		
		Use	Buildings and Works	Removal of Vegetation
	Land Subject to Inundation Overlay – Schedule 2	N/A	A permit is required under Clause 44.04-2 to construct a building or carry out works.	N/A
	Design and Development Overlay – Schedule 20	N/A	A permit is required under Clause 43.02-2 to construct a building or carry out works.	N/A
<b>Particular Provisions</b>	Native Vegetation	N/A	N/A	A permit is required under Clause 52.17-1 (Permit requirement) to remove, destroy or lop native vegetation, including dead native vegetation.
	Land Adjacent to the Principal Road Network	N/A	A permit is required to create or alter access to a road in a Transport Zone 2.	N/A

The existing pier is formally identified as Crown Allotment 294D, Parish of Moorpanyal (Pier Crown Land). The Pier Crown Land is not only declared Port of Geelong land included in the Port Zone in the Scheme, but also coastal Crown land under the *Marine and Coastal Act 2018* and will require consent under that Act. The Pier Crown Land is currently leased to Ports Pty Ltd. Land for the pier extension is currently unreserved Crown land. Onshore of the pier to the east of Shell Parade within the Port Zone, the land is freehold owned by Ports Pty Ltd.

To provide a consistent and holistic set of controls on the use and development of land for the project, rather than obtaining multiple approvals in a piecemeal fashion, a Specific Controls Overlay (SCO) should ideally be applied to all of the Pier Works land (including the Pier Crown Land), the FSRU, the Treatment Facility Works located on refinery premises and the temporary marine construction facilities located at Lascelles Wharf. The Gas Pipeline Works component will be subject to a Pipeline Licence, and therefore the requirement for planning approval is removed.

The draft Planning Scheme Amendment (PSA), which will be publicly exhibited with the EES for the project, would seek to apply the SCO to the land for the Pier Works, FSRU, Treatment Facility works and temporary marine construction facilities and allow for the application of an Incorporated Document to the project site. This will allow for a consistent planning framework to apply across the site and have the effect of allowing the land to be used and developed in a manner which would otherwise be restricted. This approach will provide for a co-ordinated and integrated planning process to facilitate the project.

The draft PSA seeks to:

- apply the SCO to allow the use and development of land for the proposed project in accordance with the specific controls in the Scheme and amend the schedule to Clause 72.03 to include the new Planning Scheme Map for the SCO;
- extend the PZ to reflect the extended Refinery Pier comprising the proposed new berth area for the FSRU given that part of the proposed project area currently sits outside the Scheme and has

no zoning controls, and amend the schedule to Clause 72.02 for consistency with the amended PZ; and

- amend the Schedule to Clause 45.12 (SCO) and Clause 72.04 to insert an Incorporated Document enabling the use and development of the land for a Gas Terminal; and
- make the Minister for Planning the responsible authority for the Gas Terminal Project by amending the schedule to Clause 72.01.

Whilst the Minister for Planning would be the responsible authority for the project, Council and other key stakeholders will have a role to play in the consultation of documents prepared in accordance with the Incorporated Document.

The proposed PSA would seek to apply the SCO to the land and adjoining areas that may be required for ancillary works such as road upgrades or additional construction lay down areas allowing for the application of an Incorporated Document for the project site.

The PSA is the most appropriate planning approval mechanism for the following reasons:

- The project is of State and regional significance.
- The use and development of the land for the project would be undertaken in accordance with the specific and comprehensive conditions contained in an Incorporated Document.
- The application of an Incorporated Document would ensure that there is an integrated and co-ordinated planning control for the proposed works across land of different tenures and subject to complex and multiple legislative requirements.
- The PSA can be jointly exhibited with the EES and Pipeline Licence application under the *Pipelines Act 2005*
- A thorough assessment of the potential environmental impacts of the project is currently being undertaken and will be presented in the EES which will be publicly exhibited prior to Ministerial assessment under the *Environment Effects Act 1978*.
- Viva Energy has undertaken, and continues to undertake, significant community consultation and consultation with relevant State Government decision makers and the Greater Geelong City Council regarding the project.
- A proposed PSA including the draft Incorporated Document can be prepared and publicly exhibited with EES for the project. This would allow the PSA to be the subject of public submissions and to be considered by the inquiry and advisory panel established for the EES in the event that such an inquiry is appointed.
- The Responsible Authority for the project should be the Minister for Planning rather than Greater Geelong City Council given the importance of the proposed infrastructure to the state of Victoria, the need to co-ordinate the requirements of a range of Victorian Government decision makers and the number of stakeholders with an interest in the project.

## 2.0 Scoping requirements

The scoping requirements for the EES set out the specific environmental matters to be investigated in the EES. The scoping requirements include a set of draft evaluation objectives. These objectives identify the desired outcomes to be achieved in managing the potential impacts of constructing and operating the project.

The following evaluation objective is relevant to the land use impact assessment:

- *Social, economic, amenity and land use – to minimise potential adverse social, economic, amenity and land use effects at local and regional scales.*

The scoping requirements of relevance to this land use impact assessment and where they are addressed in the report are shown in Table 3.

**Table 3 Scoping requirements relevant to land use**

Aspect	Scoping requirement	Section addressed
Key issues	<i>Potential for project works and operations to affect business operations or other existing or approved facilities or land uses.</i>	Section 6.2 (Construction impacts) Section 6.3 (Operation impacts)
	<i>Potential for increases in noise and vibration levels during project construction or operation to affect amenity adversely in adjacent existing land uses, residential and parkland areas.</i>	Section 6.2 (Construction impacts) Section 6.3 (Operation impacts)
	<i>Potential for temporary or permanent changes to use of or access to existing infrastructure in the project area and in its vicinity.</i>	Section 6.3 (Operation impacts)
Existing environment	<i>Identify existing and reasonably foreseeable land uses and businesses occupying land to be traversed by, adjacent to, or otherwise affected by impacts from the project.</i>	Section 5.0 (Existing conditions)
	<i>Identify strategic plans specifying or encouraging land use outcomes for land to be occupied by the project.</i>	Section 5.0 (Existing conditions)
Likely effects	<i>Identify implications for communities, current land uses and businesses and immediately foreseeable changes in land use.</i>	Section 6.2 (Construction impacts) Section 6.3 (Operation impacts)
	<i>Describe the likely extent and duration of temporary disruption to existing land uses arising from project construction.</i>	Section 6.2 (Construction impacts)
	<i>Describe potential impacts on public infrastructure including roads resulting from construction or operations activities.</i>	Section 6.2 (Construction impacts) Section 6.3 (Operation impacts)
Mitigation measures	<i>Identify options for mitigating impacts from project construction or operation on potentially affected land uses, businesses and community facilities including open space.</i>	Section 7.0 (Recommended mitigation measures)

Aspect	Scoping requirement	Section addressed
Performance objectives	<i>Describe any further measures that are proposed to enhance social outcomes, and either manage risks to landscape and recreational values, or enhance visual amenity outcomes both for existing land uses, residents living near the project and for visitors to the locality, to form part of the EMF</i>	Section 7.0 (Recommended mitigation measures)



### 3.0 Legislation, policy and guidelines

Table 4 summarises the key environmental legislation and policies that apply to the project in the context of this LUIP, as well as the implications for the project and the required approvals. Additional guidelines and technical criteria relevant to land use are described in Section 5.2.

**Table 4 Primary environmental legislation and associated information**

Legislation/ Policies	Description	Implications for the project	Approval required
<b>State</b>			
<b>Legislation</b>			
<i>Environment Protection Act 2017</i> (EP Act)	The EP Act seeks to prevent harm to public health and the environment from pollution and waste. The centrepiece of the laws is the general environmental duty (GED) which requires all Victorians to take reasonable and practical steps to reduce the human and environmental health risks of their activities	The EP Act requires that a Development Licence from the Environment Protection Authority (EPA) must be obtained before certain activities that have the potential to impact on the environment can be undertaken.	<ul style="list-style-type: none"> <li>• Development Licence and Operating Licence for the FSRU</li> <li>• Development Licence or exemption for the refinery</li> <li>• Modification to existing refinery Operating Licence</li> </ul>
<i>Planning and Environment Act 1987</i> (P&E Act)	The P&E Act establishes a framework for planning the use, development and protection of land in Victoria. The P&E Act provides for the preparation of planning schemes in each municipality consistent with the Victorian Planning Provisions (VPPs) and procedures by which planning schemes may be amended and planning permits obtained to govern land use and development. It also provides the context for the land use impact assessment.	The <i>Pipelines Act 2005</i> (the Pipelines Act) provides that a permit is not required under the P&E Act for the use or development of land, or the doing or carrying out of any matter or thing, for the purpose of a licenced pipeline.  The temporary loadout facility, pier extension, FSRU and treatment facility will not be subject to the provisions of the Pipelines Act and will therefore require planning approval under the Scheme.	PSA
<i>Pipelines Act 2005</i> (Pipelines Act)	This is the primary act governing the construction and operation of pipelines in Victoria. The Pipelines Act covers 'high transmission' pipelines	The project requires a Pipeline Licence under the Pipelines Act for the construction and operation of the pipeline.  In determining the application for a licence, the responsible Minister	Pipeline licence

Legislation/ Policies	Description	Implications for the project	Approval required
	for the conveyance of gas, oil and other substances. The Department of Environment, Land, Water and Planning (DELWP) and Energy Safe Victoria (ESV) are responsible for administering the Pipelines Act and the Pipelines Regulations 2017.	must consider comments received from the Minister for Planning or the relevant responsible authority on the effect of the proposed pipeline on the planning of the area through which it is to pass.	
<i>Marine and Coastal Act 2018</i> (Marine and Coastal Act)	The Marine and Coastal Act aims to protect and manage Victoria's marine and coastal environment. The Act provides an integrated and coordinated approach to planning and managing the marine and coastal environment by enabling protection of the coastline and the ability to address the long-term challenges of climate change, population growth and ageing coastal structures.	The Marine and Coastal Act applies to the development and use of coastal Crown land between the outer limit of Victorian coastal waters and 200m inland of the high-water mark of the sea. Consent from the Minister for Energy, Environment and Climate Change under the Marine and Coastal Act will be required for any works on marine and coastal Crown land. There are no approved local marine and coastal management plans prepared under the Marine and Coastal Act that apply to the project area.	Consent
<i>Occupational Health and Safety Act 2004</i> (OHS Act) <i>Occupational Health and Safety Regulations 2017</i> (Regulations)	The <i>Occupational Health and Safety Act 2004</i> (OHS Act) is the main workplace health and safety law in Victoria. The OHS Act seeks to protect the health, safety and welfare of employees and other people at work. It also aims to ensure that the health and safety of the public is not put at risk by work activities. The Regulations include requirements for safe operation of MHFs. WorkSafe also has functions under the OHS Act.	To operate a MHF in Victoria a licence must be granted by WorkSafe. The licensing process includes assessment, clarification and verification of a Safety Case.  Operators of a MHF must reduce risk to the surrounding area so far as is reasonably practicable where it cannot be eliminated. WorkSafe provides advice on residual risk to responsible authorities in the development of appropriate planning zones and determination of planning applications.  The extent of risk areas around a MHF are presented as an Inner Safety Area and an Outer Safety Area. The Inner Safety Area has a higher level of risk from potential low frequency - high consequence events than the Outer Safety Area.  WorkSafe is progressively providing maps to each authority	MHF Licence (FSRU)  An amendment to the existing refinery MHF Safety Case will be prepared for odorant storage at the treatment facility.

Legislation/ Policies	Description	Implications for the project	Approval required
		responsible for planning. These maps show the planning advisory areas for the MHF in their area affected by low frequency-high consequence events.	
<i>Gas Safety Act 1997</i> (Gas Safety Act)	<p>The purpose of the Gas Safety Act is to regulate the safety of gas supply and use in Victoria. The Act is administered by Energy Safe Victoria (ESV) whose objective is to facilitate the safe conveyance, sale, supply, measurement, control and use of gas.</p> <p>The Gas Safety Case Regulations make provision for safety cases in relation to gas facilities, provide for the reporting of gas incidents, and prescribe safety standards for the quality of gas and the testing of natural gas conveyed through a transmission pipeline.</p>	<p>The pipeline would require acceptance of a safety case by ESV.</p> <p>The nitrogen and odourant injection facilities within the treatment facility would also be subject to regulation by ESV under the Gas Safety Act subject to the owner or operator being declared to be a "gas company" under the Act.</p> <p>A safety case will be prepared in accordance with the Gas Safety Case Regulations, which must specify the safety management system to be followed in relation to the facility and would include a formal safety assessment that describes the hazards having the potential to cause a gas incident, a systematic assessment of risk and a description of measures undertaken to minimise that risk as far as practicable. This would be submitted to ESV for acceptance.</p>	Gas Safety Case for natural gas transmission infrastructure
<b>Policy</b>			
Greater Geelong Planning Scheme (the Scheme)	<p>The Scheme expresses Greater Geelong City Council's (Council's) growth aspirations in relation to land use and development and outlines strategies and objectives to be achieved in future infrastructure development.</p> <p>The Scheme contains planning controls, provisions and requirements for planning approval under various zones, overlays and particular provisions.</p>	<p>The temporary loadout facility, pier extension, FSRU and treatment facility are not covered under the Pipelines Act and will require planning approval under the Scheme. Planning approval would ordinarily be required for these works under the following key provisions:</p> <ul style="list-style-type: none"> <li>• Clause 37.09 (Port Zone) (PZ)</li> <li>• Clause 33.02 (Industrial 2 Zone) (IN2Z)</li> <li>• Clause 42.01 (Environmental Significance Overlay – Schedule 2) (ESO2)</li> <li>• Clause 44.04 (Land Subject to Inundation Overlay – Schedule 2) (LSIO2)</li> </ul>	PSA

Legislation/ Policies	Description	Implications for the project	Approval required
		<ul style="list-style-type: none"> <li>Clause 43.02 (Design and Development Overlay – Schedule 20) (DDO20)</li> <li>Clause 52.17 (Native Vegetation)</li> <li>Clause 52.29 (Land Adjacent to the Principal Road Network)</li> </ul> <p>A PSA is considered the most appropriate way to facilitate this planning approval through a coordinated and integrated process. The PSA will seek to apply a Specific Controls Overlay (SCO) to the land, which enables site specific controls to override other requirements of the Scheme and apply an Incorporated Document to the area where the SCO will be applied.</p> <p>The PSA will provide a single planning approval for all parts of the project that would ordinarily require a planning permit under the Scheme. It will exempt any requirement of the Scheme that would ordinarily apply.</p>	
<i>Marine and Coastal Policy March 2020 (Marine and Coastal Policy)</i>	The Marine and Coastal Policy guides the planning, management and sustainable use of the marine and coastal environment in Victoria and informs consents issued under the Marine and Coastal Act.	The project will need to align with the strategic directions and provisions of the Marine and Coastal Policy. The preparation of the Marine and Coastal Act consent application for the project will consider the policy.	Nil
<i>Plan Melbourne 2017-2050 (Plan Melbourne)</i>	Plan Melbourne is the Victorian Government's overarching strategic plan for metropolitan Melbourne and its surrounding areas, including the port. It sets out directions, initiatives and actions for land use, transport and infrastructure. Plan Melbourne is referenced in the state policies contained within the Scheme.	Plan Melbourne is relevant to the evaluation of the project and the PSA required to facilitate it. In particular, the PSA delivers on policies within Plan Melbourne that recognise the need to protect state-significant industrial precincts such as the existing refinery.	Nil

## 4.0 Methodology

This section describes how the land use assessment was conducted in order to understand the existing environment and potential impacts of the project on land use. The following sections outline the study methodology.

### 4.1 Existing conditions assessment method

#### 4.1.1 Study area

For the purposes of the LUA, the study area was identified to include land within:

- a 500-metre catchment around all above ground project components including the FSRU, the pier extension, the above ground pipeline along Refinery Pier and within the refinery the treatment facility and the temporary marine construction facilities
- a 200-metre catchment either side of the underground gas transmission pipeline connecting the treatment facility with the SWP near Lara.

These were identified as suitable distances for consideration of potential effects to surrounding land uses from the anticipated project infrastructure. This study area allows for both close analysis of land uses immediately abutting the project and consideration of the broader scope of land uses potentially impacted by its construction or operation. The study area is shown in Figure 3, and sensitive receptors within and surrounding the study area are shown in Figure 4.

Noting that land use planning boundaries are not always explicit or defined, some land use matters which may have impacts beyond any definable area are considered at a scale beyond the study area where appropriate. In particular, this LUA has considered land use and planning impacts at a broader scale, particularly in relation to strategic planning policy. The LUA has also considered land use impacts within the 1000 metre outer safety area as defined by Worksafe MHF guidance.

#### 4.1.2 Existing conditions review

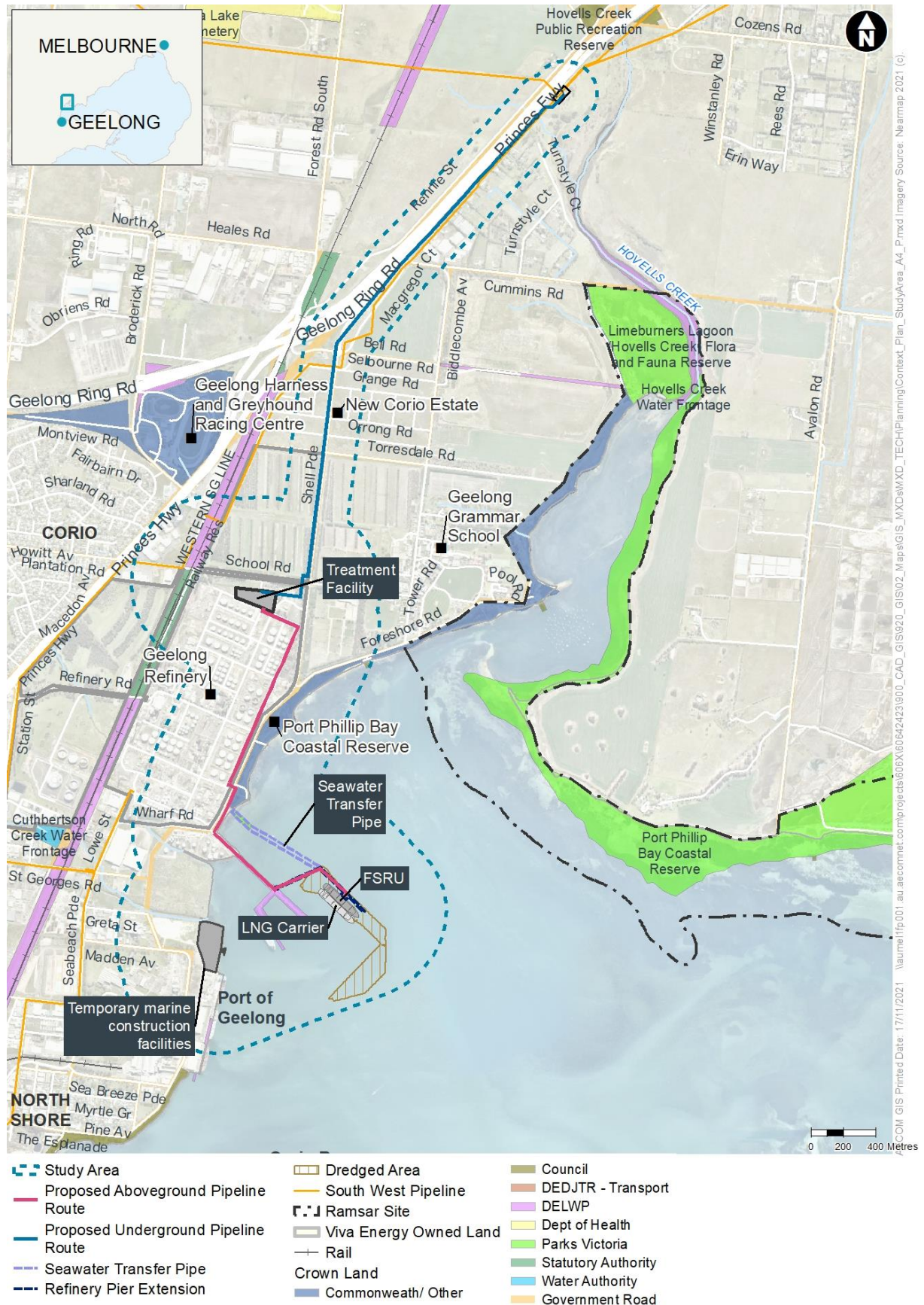
The purpose of the existing conditions review is to identify and describe relevant planning policy, strategy and planning controls and current land uses on affected parcels of land. This provides the basis for the assessment of any potential impacts of the project to existing and reasonably foreseeable future land use policies and conditions. This initial review was also used to inform the study area for the LUA.

#### 4.1.3 Desktop assessment and baseline data review

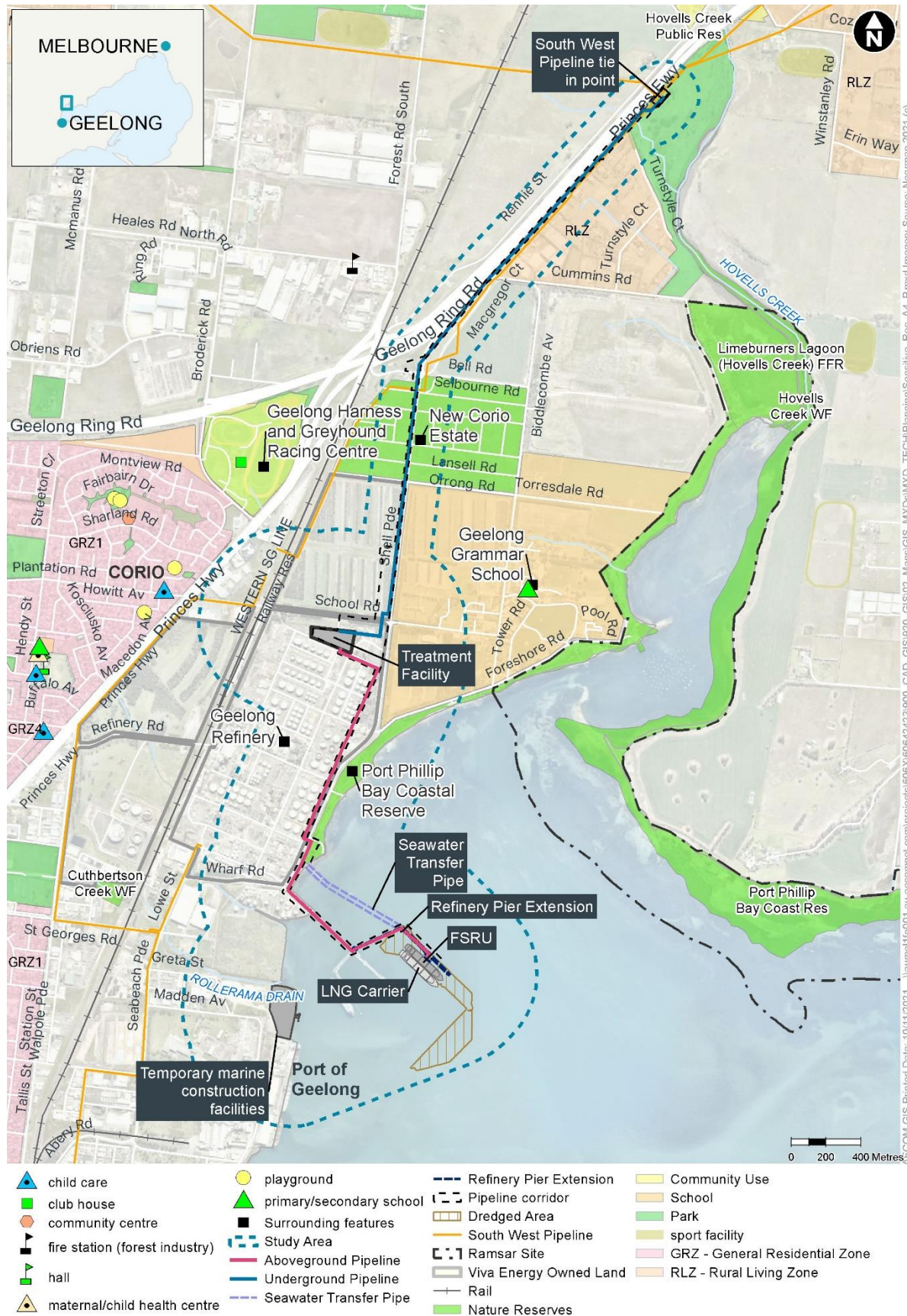
A desktop assessment of publicly available state and local government reports, literature and land use planning datasets were undertaken to understand the existing conditions. The following baseline data was reviewed as part of the desktop assessment:

- the planning framework which applies to the project, including:
  - state and local planning policies contained in the Scheme
  - other notable state and local government strategic planning policy
  - other strategic plans and land use plans identified by Council
  - zones, overlays and particular provisions contained in the relevant planning schemes, which is part of the expression of these policies and strategies
- current strategic planning work and future planning scheme amendments being considered by the Victorian Government and Council
- aerial imagery
- landholder and land manager details.









## 4.2 Risk screening method

A risk-based screening approach has been used for the project EES assessment in accordance with the requirements outlined at Page 14 of the Ministerial guidelines for assessment of environmental effects under the Environment Effects Act. The risk screening is undertaken to ensure that the level of investigation conducted in each technical study is adequate to inform an assessment of the significance and acceptability of the project's potential environmental impacts.

An environmental, social and economic issues risk screening tool was used to prioritise and focus the proposed investigations, assessments and approaches to avoiding, minimising or managing potential impacts. The issue screening process involved an evaluation of the potential environmental, social and economic issues associated with the project based on the information collected through a series of initial assessments undertaken into the potential effects of the project.

A risk workshop convened by a qualified risk practitioner and comprising technical specialists from the proponent, project design team and EES team conducted the initial risk screening. The risk screening process utilised knowledge of the project infrastructure and design, existing environment and land use setting to assess potential risks based on the specialised knowledge of the technical experts.

The purpose of the issues screening approach was to assist in identifying:

- significant issues, uncertainties and/or potential impacts that require more detailed characterisation and/or assessment within the EES
- matters or potential impacts considered to be already well understood or less significant.

A high, medium, or low screening value was assigned to potential issues to determine the level of assessment required to identify and investigate impacts.

Each potential issue was given a score (1, 2 or 3) against the categories of:

- community and stakeholder interest
- significance of assets, values and uses
- potential impact (spatial, temporal and severity).

The scores were added together, or the highest score across the three contributing categories was used, to give a 'screening value' of high, medium or low, which gives an indication of the level of impact assessment that is required. Issues that were assigned a screening value of high or medium required detailed assessment in the EES at a level commensurate with them being considered primary level issues.

Issues that were assigned a screening value of low were proposed to be documented and managed with some investigation and assessment in the EES at a level commensurate with them being considered secondary level issues.

### 4.2.1 Criteria and consequence ratings

Risks, issues, and potential impact pathways were identified for both construction and operation of the project. Table 5 defines the criteria and consequence ratings for each of the three categories that have been used to inform the issues screening. The sum of the scores against each of the three categories or the highest rating across any of the three contributing categories gives the 'screening value'. The screening values are then used to determine the level of assessment required as shown in Table 6.

Further information about the risk screening process is detailed in Chapter 7 *Assessment framework* of the EES.



**Table 5 Issues screening criteria and consequence ratings**

Rating	Community and stakeholder interest	Significance of assets, values and uses	Potential impact (spatial, temporal and severity)
1	Low interest and perceived impact	Locally significant asset, value or use	Potential for localised, temporary impact
2	Some interest and targeted perceived impacts	Regionally significant asset, value or use	Potential for significant temporary, or localised permanent impact
3	Broad community and stakeholder interest or impacts	State or nationally significant asset, value or use	Potential for significant permanent impact

**Table 6 Issue investigation categories**

Screening score	Screening value	Potential consequences	Complexity of mitigation	Level of assessment
7, 8 or 9 or the highest rating across any one of the three contributing categories is 3	High	Potential for elevated, longer term impacts, significant assets or values may be affected with enduring changes. Considers both impacts and benefits, or  Issue may not be well defined and insufficient information is available for the impact assessment, or  High level of community interest.	Stringent management measures may be required	Detailed assessment required
4, 5 or 6 or the highest rating across any one of the three contributing categories is 2	Medium	Potential for moderate level impacts, significant assets or values may be affected over an extended time frame with some resultant changes. Considers both impacts and benefits, or  Issue may be moderately understood, and some information is available, however more is required for the impact assessment, or  Medium level of community interest.	Standard management measures are available that can be adopted with some modification	Moderate assessment required
3 or the highest rating across any one of the three contributing categories is 1	Low	Potential for short term and localised impact. Asset or values may be temporarily affected but recovery expected, or  Issue is well understood and there is enough information available for the impact assessment, or  Low level of community interest.	Standard management measures are available.	Some assessment required

Further information about the risk screening process is detailed in Chapter 7 *Assessment framework*.  
Outcomes from the risk screening process are outlined in Section 4.2.2 below.

### 4.2.2 Risk screening results

The risk screening results shown in Table 7 show the key land use issues identified as part of the risk screening process for the project and presents the screening value for each issue. As indicated in Table 6, potential land use planning impacts were considered to be low primarily based on the existing industrial setting of the project and the significant separation distances of the project infrastructure from sensitive land uses.

**Table 7 Issue screening results for land use**

Aspect	Issue	Community & stakeholder perceived impacts	Significance of assets, values & uses	Potential impact (spatial, temporal & severity)	Screening Score	Screening Value
<b>Construction</b>						
Land use planning	Potential impacts on existing land uses such as residential, commercial, industrial, education or recreational uses	1	1	1	3	Low
<b>Operation</b>						
Land use planning	The proposed location and siting of the Project results in land use changes, access or ongoing amenity impacts that are inconsistent with existing or reasonably foreseeable land uses and policy	1	1	1	3	Low

### 4.3 Impact assessment method

The assessment of land use impact during construction, operation and decommissioning of the project included an assessment of implications for:

- existing and reasonably foreseeable land uses and businesses occupying land to be traversed by, adjacent to, or otherwise affected by impacts from the project
- strategic plans specifying or encouraging land use outcomes for land to be occupied by the project
- use of or access to existing infrastructure in the project area and in its vicinity
- recreational boating and other recreational activities from the project.

Other inputs which have also been reflected in the assessment include:

- review of the conclusions of other relevant EES specialist studies
- review and consideration of relevant existing and seriously entertained policies and strategies applicable to land affected by the project
- anticipation/speculation regarding potential land use changes well into the future.

#### 4.4 Stakeholder and community engagement

Stakeholders and the community were consulted to support the preparation of the project's EES and to inform development of the project and understanding of its potential impacts. Specifically, in regard to land use, no additional stakeholder consultation has taken place at the time of this draft. However, consideration was given to the land use related issues being raised with Viva Energy through the EES consultation process.

In accordance with the scoping requirements, a Technical Reference Group (TRG) was convened and chaired by DELWP on behalf of the Minister for Planning. The TRG has provided input throughout the EES process. EES Chapter 6 *Stakeholder and community engagement* provides a summary of the project's key engagement activities.

#### 4.5 Assumptions and limitations

Assumptions and limitations relating to this land use impact assessment are as follows:

- The works will be staged and sequential, limiting the duration of local construction works and land use impacts across individual properties or areas

##### 4.5.1 Linkages to other EES technical studies

This land use impact assessment has considered (noting above assumptions/exclusions at June 2021) the recommendations and conclusions of relevant EES specialist impacts assessments including:

- Technical Report H: *Air quality impact assessment* prepared AECOM (the Air Quality Impact Assessment)
- Technical Report I: *Noise and vibration impact assessment* prepared by AECOM (the Noise and Vibration Impact Assessment)
- Technical Report J: *Landscape and visual impact assessment* prepared by Hansen Partnership (the LVIA).
- Technical Report K: *Transport impact assessment* prepared by AECOM (the Transport Impact Assessment)
- Technical Report N: *Safety, hazard and risk assessment*
- Technical Report O: *Aboriginal cultural heritage impact assessment* prepared by Jem Archaeology (the Aboriginal Cultural Heritage Impact Assessment)

## 5.0 Existing conditions

### 5.1 Introduction and overview

The existing conditions section of this LUA is divided into two parts comprising:

- a review of planning policies, guidelines and strategic plans specifying or encouraging land use outcomes for land to be occupied by the project.
- a study area description identifying existing and reasonably foreseeable land uses and businesses occupying land to be traversed by, adjacent to, or otherwise potentially affected by impacts from the project

The key attributes of the project regarding impact to existing and reasonably foreseeable land uses, and businesses are:

- most aboveground components of the project would be situated within an established industrial area or port
- the underground section of pipeline avoids direct impacts on sensitive land uses and generally follows the alignments of existing roads or existing pipeline routes beyond the boundary of the refinery.

The key conclusions derived from the review of relevant policies and strategies include that:

- there is broad planning policy support for the project as it will reinforce the continued function of the port and deliver new employment opportunities in the industrial sector
- the project does not directly impact any residential zones or other sensitive land use zones which restrict industrial development
- two environmental significance overlays will require environmental impact mitigation measures which will be development through the EES.

### 5.2 Planning policies and guidelines

The relevant planning policies and guidelines that inform this land use impact assessment are discussed in detail in the following section.

#### 5.2.1 Planning Policy Framework

The Planning Policy Framework (PPF) comprises general principles for land use and development and land and outlines specific policies in relation to settlement, environment, housing, economic development, infrastructure and particular uses. The PPF is consistent between all Victorian planning schemes. The policies outlined in the PPF must be taken into account when responsible authorities are assessing planning permit applications.

The following clauses from the PPF are relevant to the project:

- Clause 11 (Settlement) aims to ensure that the needs of existing and future communities can be met by guiding the provision of housing, employment opportunities, recreation areas and facilities, open space and community infrastructure. Planning should recognise and contribute towards health and safety, a high standard of urban design and amenity, and protection of environmentally sensitive areas and natural resources amongst other values.
- Clause 11.01-1R (Settlement – Geelong G21) seeks to support the role of Central Geelong as a major regional city and guide positive development outcomes for its outer areas. This clause identifies Lara as a district town that should be supported through future planning.
- Clause 11.02-1S seeks to ensure an appropriate supply of land for sustainable urban development.
- Clause 12.01-1S (Protection of biodiversity) aims to assist the protection and conservation of Victoria's biodiversity, with strategies aimed at identifying key habitat and valuable biodiversity sites while strategically planning for the protection and conservation of biodiversity.

- Clause 12.01-2S (Native vegetation management) aims to ensure that native vegetation is protected through avoidance of the removal, destruction or lopping of native vegetation and by minimising the impacts of unavoidable native vegetation removal. Offsets should also be provided to compensate any biodiversity impacts.
- Clause 12.02-1S (Protection of coastal areas) aims to recognise the value of coastal areas to the community, conserve and enhance coastal areas and ensure sustainable use of natural coastal resources. Land use and planning should be coordinated with the requirements of the *Marine and Coastal Act 2018 (Vic)*. Development should protect and seek to enhance coastal biodiversity and ecological values.
- Clause 12.02-2S (Coastal Crown Land) aims to achieve coastal crown land development that provides an environmental, social and economic balance
- Clause 12.03-1S (River corridors, waterways, lakes and wetlands) seeks to protect water bodies and wetlands for their environmental, cultural and landscape values while ensuring development responds to and respects significant areas of environmental, conservation, cultural, open space, aesthetic, recreation and tourism assets.
- Clause 13.02-1S (Bushfire planning) seeks to strengthen the resilience of settlements and communities to bushfire by ensuring risk-based planning prioritises the protection of human life.
- Clause 13.03-1S (Floodplain management) aims protect floodplains and waterways including the flood storage function and the flood carrying capacity of rivers, streams and waterways.
- Clause 13.06-1S (Air quality management) aims to assist the protection and improvement of air quality.
- Clause 13.07-1S (Land use compatibility) aims to protect community amenity, human health and safety while facilitating appropriate commercial, industrial, infrastructure or other uses with potential adverse off-site impacts. Development of land should be compatible with adjoining and nearby land uses.
- Clause 13.07-2S (Major hazard facilities) seeks to minimise risks to human and property associated with major hazard facilities. This is relevant as the refinery is currently licensed as a major hazard facility, and the FSRU would also be licensed, under Regulation 5 of the *Occupational Health and Safety Regulations 2017*.
- Clause 14.01-1S (Protection of agricultural land) seeks to prevent the loss of Victoria's productive agricultural land through new development and urban land uses in agricultural areas.
- Clause 15.01-1S (Urban design) encourages the development of safe, healthy, functional and enjoyable urban environments. This clause contains strategies requiring that development should respond to this context and minimises detrimental impacts on amenity, on the natural and built environment and on the safety and efficiency of roads.
- Clause 15.03-1S (Heritage conservation) seeks to ensure that places of heritage significance are conserved by providing for the conservation and enhancement of places of aesthetic, archaeological, architectural, cultural, scientific, or social significance.
- Clause 15.03-2S (Aboriginal cultural heritage) seeks to ensure that places of Aboriginal cultural heritage significance are protected and conserved. The study area does include an area of cultural heritage sensitivity associated with Hovells Creek.
- Clause 17.01-1S (Diversified economy) acknowledges the need for a strong, diversified economy for Victoria. The clause outlines strategies aiming to strengthen existing employment areas and to harness interregional relationships to harness emerging economic opportunities.
- Clause 17.01-1R (Diversified economy – Geelong G21) outlines specific strategies for Greater Geelong which seek to build on the region's competitiveness and support industries that utilise skills within the region.

- Clause 17.03-1S (Industrial land supply) seeks facilitate industrial development by protecting land where appropriate buffer areas can be provided between proposed industrial land uses and nearby sensitive land uses.
- Clause 17.03-2S (Sustainable industry) seeks to facilitate the sustainable operation of industry by encouraging appropriate buffers between industrial activities and sensitive land uses.
- Clause 18.01-1S (Land use and transport planning) seeks to balance land use planning with the need to create a safe and sustainable transport system. This clause requires that transport plans must be prepared for all new industrial development.
- Clause 18.03-1S (Planning for ports) acknowledges the need to facilitate the ongoing, competitive, and sustainable operation and development of Victoria's commercial trading ports. This clause encourages the ongoing development of the port in accordance with its associated port development strategy. The clause also outlines the need to manage any impacts of industrial port development on nearby sensitive land uses.
- Clause 18.03-2S (Planning for port environs) seeks to ensure that new development within established ports does not prejudice their ongoing industrial function.
- Clause 19.01-1S (Energy supply) supports the development of energy facilities in appropriate locations where they take advantage of existing infrastructure and provide benefits to industry and the community.
- Clause 19.01-3S (Pipeline infrastructure) seeks to ensure that gas is safely delivered to users and to and from port terminals at minimal risk to people, other critical infrastructure and the environment. This clause outlines key strategies relevant to the project which seek to:
  - plan for the development of pipeline infrastructure subject to the Pipelines Act
  - plan new pipelines along routes with adequate buffers to residences, zoned residential land and other sensitive land uses and with minimal environmental impacts
  - provide for environmental management during pipeline construction and on-going operation.
- Clause 19.03-2S (Infrastructure design and provision) outlines the objective that planning should allow for the timely, efficient and cost-effective development of infrastructure to meet community needs.

### 5.2.2 Local Planning Policy

The Greater Geelong Municipal Strategic Statement (MSS) and Local Planning Policy Framework (LPPF) at Clause 21 and Clause 22 of the Scheme cover key local matters relating to environment, landscape and heritage, environmental risk, natural resource management, economic development and transport and infrastructure. The following parts of the LPPF are relevant to the project:

- Clause 21.01 (Introduction) sets out Council's vision that *"Geelong, coast country and suburbs is the best place to live through prosperity and cohesive communities in an exceptional environment"*.
- Clause 21.02 (City of Greater Geelong Sustainable Growth Framework) sets out principles to ensure that actions and development are aligned with the needs of Greater Geelong's present and future needs. Key strategies relevant to the project encourage new industrial development that engages the private sector and delivers employment outcomes while protecting biodiversity and natural systems.
- Clause 21.04 (Municipal Framework Plan) contains the Greater Geelong's Municipal Framework Plan (refer to Figure 5). This plan indicates that parts of the project is not proposed to occur on land that is within the settlement boundary for urban Geelong.
- Clause 21.05 (Natural Environment) acknowledges that Greater Geelong's rich diversity of flora and fauna, major waterways, large coastal areas and wetlands. This clause seeks to manage the impacts of development by encouraging the protection of waterways, biodiversity, coastal environments and requiring that development considers the risks associated with climate change, flooding and wildfire.

- Clause 21.06 (Settlement and Housing) outlines the expectation that Geelong will grow by an additional 152,000 people by 2036. The clause directs urban development and the majority of this population growth to established urban areas and new greenfield development sites. The clause identifies key future development areas. These do not intersect with the study area.
- Clause 21.07 (Economic Development and Employment) highlights the need to support ongoing employment and economic development in the Geelong region by setting aside land dedicated for industrial uses and minimising land use conflicts. This clause identifies the port as a key infrastructure base.
- Clause 21.12 (Geelong Port) recognises the vital importance of the port to Greater Geelong's economy. It is an objective of this clause to provide for the continued growth and development of the port while ensuring that port development is environmentally sustainable. Key strategies are to ensure facilitate increased throughput at the port by extending its existing berths and advocating for growth of the port.
- Clause 22.04 (Use and development in rural living and low density areas) clarifies that the Rural Living Zone should provide for residential use in a semi-rural environment but is not intended to foster large scale urban uses which accommodate large number of people.



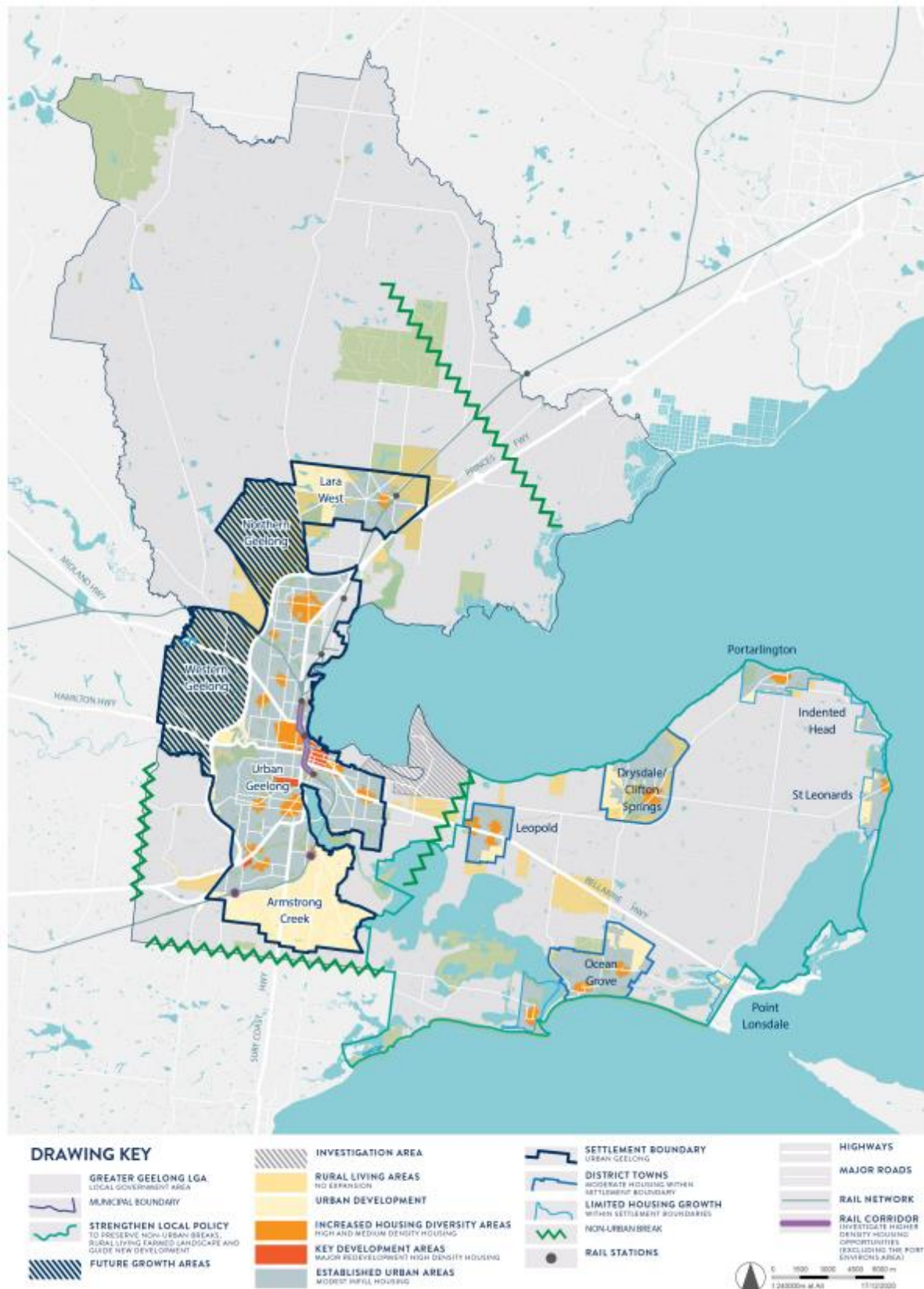


Figure 5 Greater Geelong Municipal Framework Plan (Clause 21.04 of the Scheme).



### 5.2.3 Particular Provisions

The following Particular Provisions contained within the Scheme are relevant to the project:

- Clause 52.02 (Easements, Restrictions and Reserves) seeks to ensure that easements and restrictions are applied appropriately to facilitate development that is consistent with the provisions and directions of the Scheme and that consider the needs of affected parties.
- Clause 52.06 (Car Parking) implements statutory car parking rate and design requirements relevant to land use, with the aim of ensuring an appropriate provision of car parking in Victoria. Column Car parking requirement rates at Clause 52.06-5 apply to the project. 2.9 car parks are required for every 100 square metres of floor area used for industry.
- Clause 52.17 (Native Vegetation) seeks to prevent a net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation through the application of planning permit triggers and offset requirements. Planning approval would be required under this clause to remove native vegetation.
- Clause 52.29 (Land Adjacent to the Principal Road Network) aims to ensure appropriate access to the Principal Road Network or land planned to form part of the Principal Road Network. Planning approval is required to create or alter access to a road in a Transport Zone 2 (TRZ2).
- Clause 53.10 (Uses and Activities with Potential Adverse Impacts) seeks to identify land uses and activities that may cause offence or unacceptable risks to if not designed and located appropriately. The clause outlines minimum required threshold distances for various land uses and activities from land in residential, rural residential and commercial zones, among others, or land used for a hospital or education centre. An application use land for an industry, utility installation or warehouse for a purpose listed in the Table to Clause 53.10-1 must be referred to the EPA Victoria under Section 55 of the P & E Act if the threshold distance is not to be met or no threshold distance is specified. The Table specifies 'gasworks' and 'industrial gases production' both have a one-kilometre threshold distance from the uses and activities to land mentioned above. The project area is located within one kilometre of one or more of the abovementioned zones and therefore, will be referred to the EPA Victoria.

### 5.2.4 Other key policies and guidelines

#### 5.2.4.1 Plan Melbourne 2017-2050, Victorian Planning Authority (2017)

Plan Melbourne provides the overarching strategic vision for growth in Metropolitan Melbourne and its surrounding areas including the City of Geelong. The vision set out in Plan Melbourne aims to enable Victoria to maintain its competitive advantages, including its energy resources, that create a diverse, flexible and resilient economy.

Plan Melbourne highlights the need to facilitate infrastructure investment that support balanced growth. This core principles underpins the overarching vision for growth and is specifically oriented towards encouraging projects that support sustainability, accessibility and prosperity outcomes. Plan Melbourne supports opportunities to develop new infrastructure in areas where temporary construction activities will not inhibit urban growth.

Plan Melbourne identifies the port as a significant transport gateway and highlights priorities to support future employment and economic development opportunities at major ports, while protecting them from incompatible land uses and encouraging complementary uses and employment generating activities.

#### 5.2.4.2 Victorian Waterway Management Strategy, Department of Environment and Primary Industries (2013)

The *Victorian Waterway Management Strategy* provides the framework for government, in partnership with the community, to maintain or improve the condition of rivers, estuaries and wetlands so that they can continue to provide environmental, social, cultural and economic values for all Victorians.

#### 5.2.4.3 The Geelong Region Plan, G21 Geelong Region Alliance (2015)

G21 is the alliance of independent organisations with a shared vision for the Geelong region, including municipalities of Colac Otway, Golden Plains, Greater Geelong, Queenscliffe and Surf Coast, as well

as the Victorian Government and over 100 community and business organisations. The *G21 Geelong Region Plan 2006-2007* (the Geelong Region Plan) provides a strategy for long term sustainable growth towards 2050 and highlights the major challenges of the region in relation to environment, land planning, community strength and economic growth.

G21's vision is that *'the Geelong region is Australia's most desirable destination for living, visiting, working and investing; it is renowned for its vibrant, cohesive community, exceptional physical environment and vigorous economy'*.

The Geelong Region Plan sets out five key directions that respond to the challenges and opportunities within the region:

1. *protect and enhance our environment*
2. *create sustainable settlements*
3. *strengthen our communities*
4. *refocus our economy"*
5. *make it happen.*

Direction 2 (Create sustainable settlements) set outs Policy 2.4 which seeks to provide land for industry and commerce. The port is identified for its economic importance to the region and the plan recognises the need to maintain industrial land to meet the demand for ongoing port related industry.

#### **5.2.4.4 Port of Geelong Port Development Strategy, Victorian Regional Channels Authority (2018)**

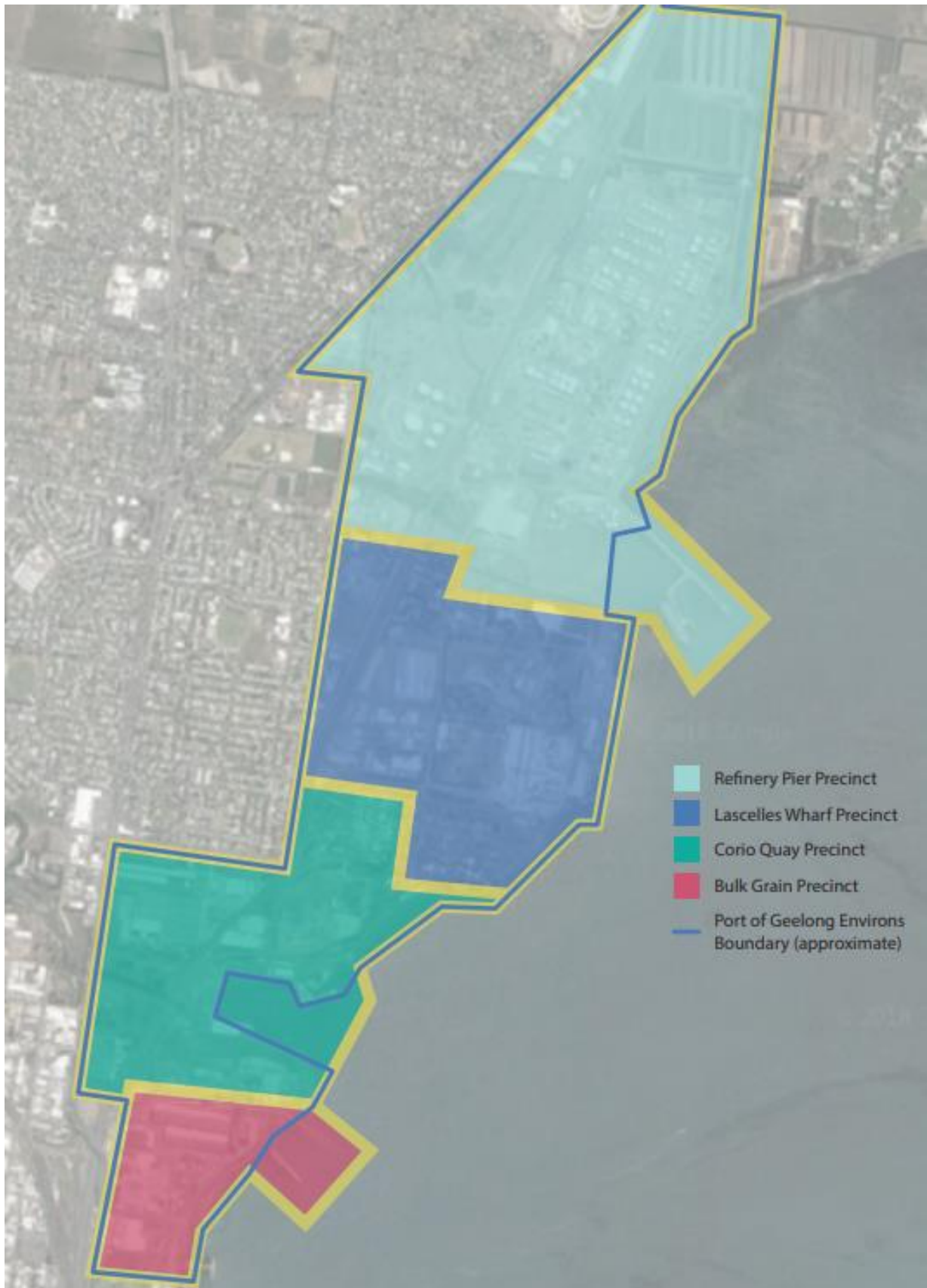
The *Port of Geelong Port Development Strategy 2018* (the Port Development Strategy) addresses the requirements of the *Port Management Act 1995* (the Port Management Act) and identifies the port's infrastructure and land use relative to its trade demands. Prime considerations include the need to protect port activities from surrounding land use encroachment and secure land for port expansion.

The Port Development Strategy highlights the port's vital role in connecting users and suppliers of dry, liquid and break bulk cargoes with national and international markets. Crude oil is the major trade through the port, with Viva Energy currently supplying approximately half of the state's fuel needs.

The Port Development Strategy highlights that the port is identified as a state significant infrastructure hub in a range of state and regional policies, including Plan Melbourne and the VPPs. The Port Development Strategy also acknowledges that the PZ applied to the port protects it from land use encroachment, while encouraging future development for port-related industries.

The Port Development Strategy identifies that the project area is located predominantly within the Refinery Pier Precinct (refer Figure 6). This precinct's primary role is to facilitate the movement of bulk goods. The precinct is separated between land holdings by Ports Pty Ltd and Viva Energy. The project area is also located within the Lascelles Wharf Precinct for the temporary marine construction facilities at Lascelles Wharf. The primary purpose of the Lascelles Wharf Precinct is the movement of dry bulk commodities and as a secondary location for storage and distribution of traded commodities.

The Port Development Strategy identifies that Viva Energy's land holdings present opportunities for further port related industrial development. It also recognises that the pier itself has reached operating capacity and that investment is required to enhance its capacity to accommodate larger vessels and more frequent ship traffic. Additionally, it is acknowledged in the Port Development Strategy that opportunities to increase the channel depth surrounding the pier should be explored.



**Figure 6 Port of Geelong environs and precincts (Port of Geelong Port Development Strategy 2018)**

#### 5.2.4.5 Geelong Port Structure Plan, City of Greater Geelong (2007)

The *Geelong Port Structure Plan 2007* (the Structure Plan) was adopted by Council in 2017. It provided a strategic framework for the development of the port and its surrounding port related land uses but is not included in the Scheme. The Structure Plan aimed to provide for the port's future viability while safeguarding residential amenity for the local community. Council has not amended the Structure Plan since its adoption and is not currently entertaining an amendment.

Figure 7 illustrates that the project area is located within 'Precinct 1 Refinery' and 'Precinct 2 Lascelles'. The Structure Plan emphasises the importance of the continued role of liquid bulk storage in Precinct 1 and dry bulk handling in Precinct 2.

The Structure Plan's objectives for Refinery Pier are listed below:

- *Retain the use of Refinery Pier and the core of the port facility in this Precinct for Liquid Bulk Storage, acknowledging that it is Council's preferred position to restrict the expansion and growth of toxic chemical storage in Geelong*
- *Ensure that new use and development in this precinct considers the impacts on the health, environment and safety of the community of Geelong*
- *Improve the environment and landscape that surrounds the core port facility, notably along the Corio Bay foreshore to the north of Refinery Pier and along the Princes Highway gateway.*

The Structure Plan's objectives for Lascelles Wharf are listed below:

- *Support the future expansion of Lascelles Wharf for dry bulk handling, particularly for non-hazardous goods.*
- *Reduce the amenity conflicts between existing industrial and port uses with nearby residential areas, acknowledging that both uses have rights to co-exist into the future.*

#### 5.2.4.6 Environment Strategy 2020-2030, City of Greater Geelong (2020)

The *Environment Strategy 2020-2030* seeks to define and communicate how the region's environment will be protected and improved. The relevant goals contained within the Environment Strategy aim to:

- position Greater Geelong as a zero-emission, climate ready city and region
- create greener community spaces
- contribute to a circular economy by reducing waste
- protect, enhance and restore our regions biodiversity
- achieve better integrated water management through planning and design.

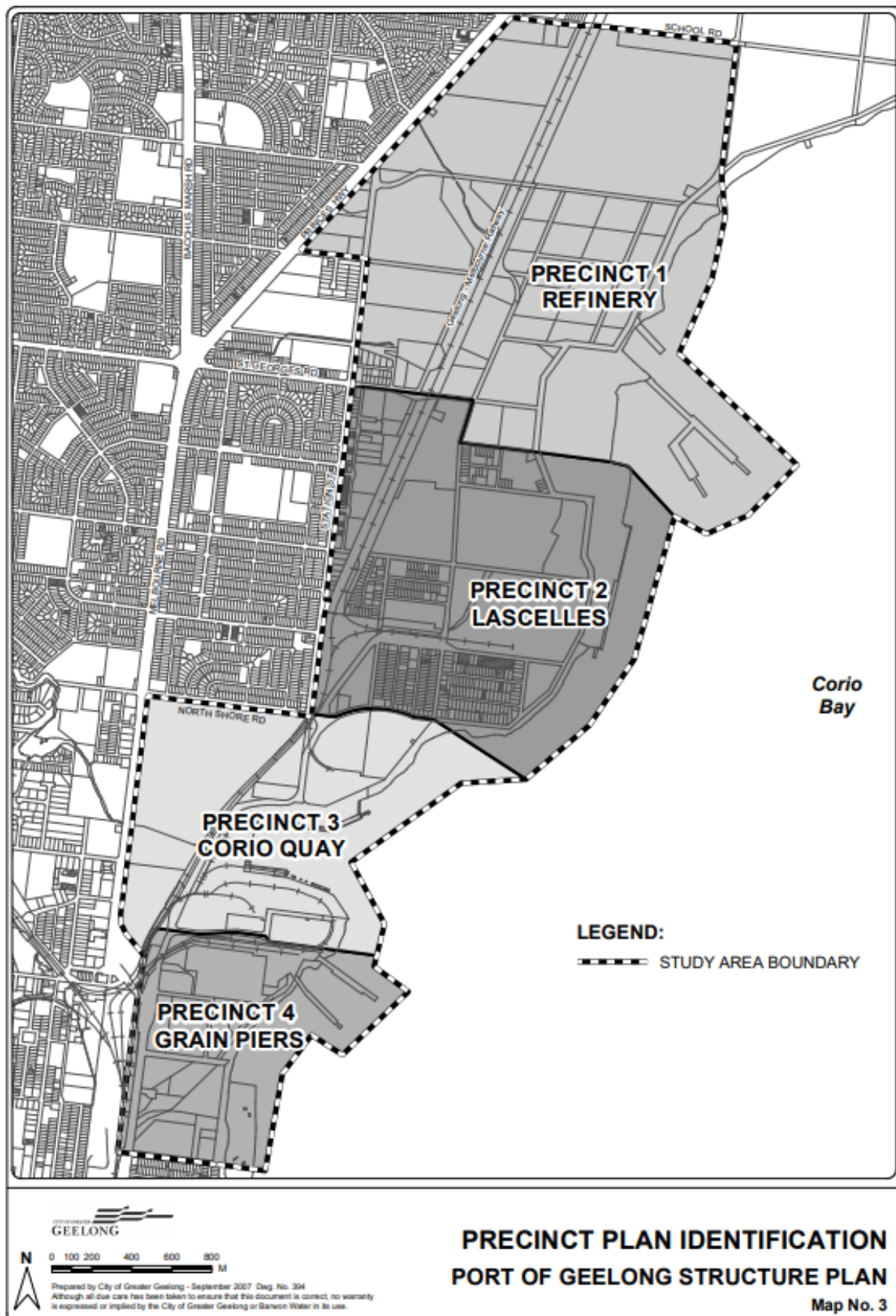


Figure 7 Precinct Plan (Port of Geelong Structure Plan)

### 5.2.5 Bushfire planning

It is noted that the entirety of the study area, except for land within the refinery, is within a designated bushfire prone area.

### 5.2.6 Planning Scheme Amendments

AECOM reviewed the register of current or recently completed amendments to the Scheme on 08 June 2021. No amendments were viewed to be significant to this project.

It is noted, however, that AECOM has reviewed Amendment C409 - Corrections to Planning Scheme, which was prepared by Council and is currently awaiting Ministerial Approval. This amendment proposed to change various provisions of the Scheme to correct mapping and ordinance anomalies; delete redundant controls; and correct provisions. The amendment does not propose changes to any controls which are relevant to the project.

It is also noted that Amendment C339ggee is on exhibition at the time of writing and as such can be considered a 'seriously entertained' amendment. The amendment implements the Lower Barwon and Lower Moorabool Flood Investigation (Dec 2018), Lara Flood Study (March 2020) and part of the Bellarine Peninsula - Corio Bay Local Coastal Hazard Assessment (Dec 2015). The Amendment does not propose to amend LSI02 which is the only relevant overlay affecting the study area.

### 5.2.7 Planning permit applications

AECOM reviewed Council's register of active planning permit applications to identify any proposals which may be relevant to the project. No active planning permit applications at properties within the study area were identified.

### 5.2.8 Planning zones

This section outlines the zones which apply to the study area. These are shown in Figure 8. Table 8 summarises the applicable zones and their relevant objectives. This table also confirms the applicability of each zone to the project by identifying what percentage of the project area is located within each zone.



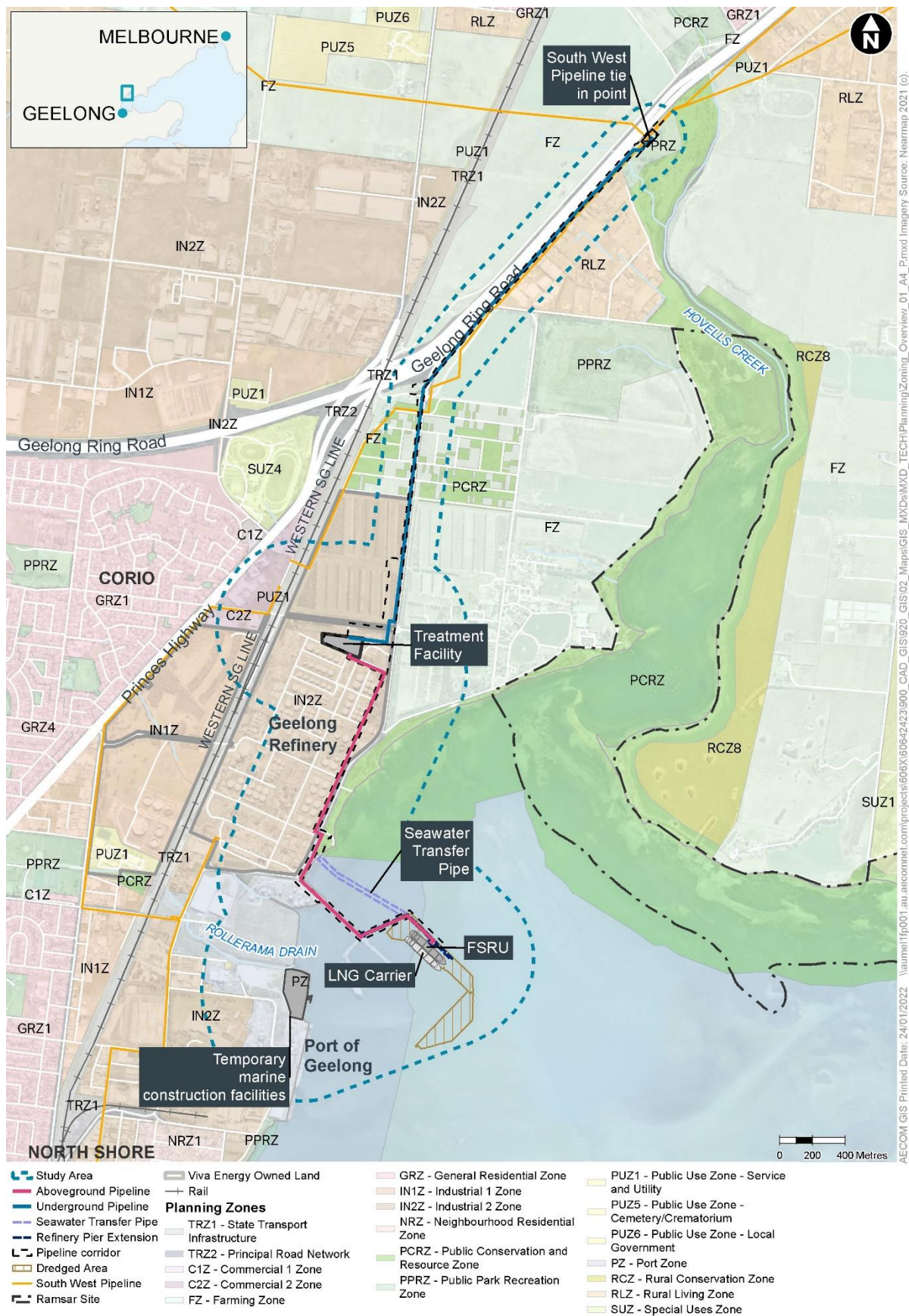


Table 8 Planning zones within the study area

Planning Zone	Relevant objectives	Applicability to project
Port Zone (PZ)	<ul style="list-style-type: none"> <li>To recognise the significant transport, logistics and prime maritime gateway roles of Victoria's commercial trading ports in supporting Victoria's economy.</li> <li>To provide for shipping, road and railway access and the development of each of Victoria's commercial trading ports as key areas of the State for the interchange, storage and distribution of goods.</li> <li>To provide for uses which derive direct benefit from co-establishing with a commercial trading port.</li> <li>To provide for the ongoing use and development of Victoria's commercial trading ports that support the relevant port development strategy prepared pursuant to the Port Management Act 1995 (Vic).</li> </ul>	A portion of the project area is located within this zone, comprising the pier extension, berthing infrastructure, temporary loadout facility and a section of the aboveground pipeline. Long term mooring of the FSRU and LNG carrier deliveries would occur in this zone.
Industrial 2 Zone (IN2Z)	<ul style="list-style-type: none"> <li>To provide for manufacturing industry, the storage and distribution of goods and associated facilities in a manner which does not affect the safety and amenity of local communities.</li> <li>To promote manufacturing industries and storage facilities that require a substantial threshold distance within the core of the zone.</li> <li>To keep the core of the zone free of uses which are suitable for location elsewhere so as to be available for manufacturing industries and storage facilities that require a substantial threshold distance as the need for these arises.</li> </ul>	A portion of the project area is located within this zone, comprising the potential BOG line, both aboveground and buried sections of the pipeline and the treatment facility
Rural Living Zone (RLZ)	<ul style="list-style-type: none"> <li>To provide for residential use in a rural environment</li> <li>To provide for agricultural land uses which do not adversely affect the amenity of surrounding land uses</li> <li>To protect and enhance the natural resources, biodiversity and landscape and heritage values of the area</li> <li>To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.</li> </ul>	A portion of the project area is located within this zone, comprising an underground section of the pipeline on the western verge of Macgregor Court
Farming Zone (FZ)	<ul style="list-style-type: none"> <li>To provide for the use of land for agriculture.</li> <li>To encourage the retention of productive agricultural land.</li> <li>To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.</li> <li>To encourage the retention of employment and population to support rural communities.</li> <li>To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.</li> </ul>	A portion of the project area is located within this zone, comprising sections of the underground pipeline within the 'Corio Native Grassland Reserve'. No aboveground project components would be located in this zone.

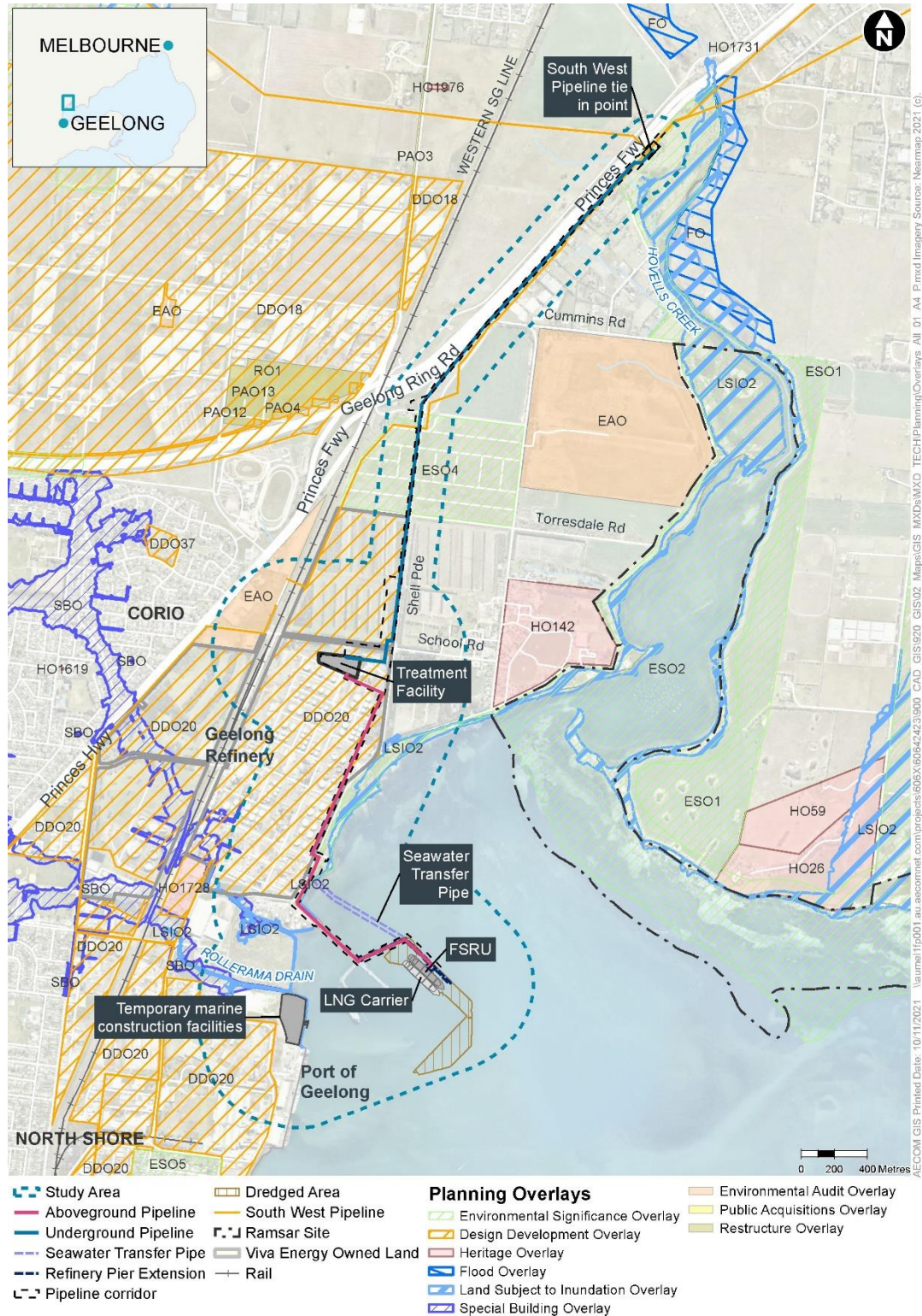


Planning Zone	Relevant objectives	Applicability to project
	<ul style="list-style-type: none"> <li>To provide for the use and development of land for the specific purposes identified in a schedule to this zone.</li> </ul>	
Public Park and Recreation Zone (PPRZ)	<ul style="list-style-type: none"> <li>To recognise areas for public recreation and open space.</li> <li>To protect and conserve areas of significance where appropriate.</li> <li>To provide for commercial uses where appropriate.</li> </ul>	A portion of the project area is located within this zone, comprising a buried section of the pipeline and the tie-in facility.
Public Conservation and Resource Zone (PCRZ)	<ul style="list-style-type: none"> <li>To protect and conserve the natural environment and natural processes for their historic, scientific, landscape, habitat or cultural values.</li> <li>To provide facilities which assist in public education and interpretation of the natural environment with minimal degradation of the natural environment or natural processes.</li> <li>To provide for appropriate resource based uses.</li> </ul>	A portion of the project area is located within this zone, comprising underground sections of the pipeline.
Transport Zone (TRZ)	<ul style="list-style-type: none"> <li>To provide for an integrated and sustainable transport system.</li> <li>To identify transport land use and land required for transport services and facilities.</li> <li>To provide for the use and development of land that complements, or is consistent with, the transport system or public land reservation.</li> <li>To ensure the efficient and safe use of transport infrastructure and land comprising the transport system.</li> <li>.</li> </ul>	A portion of the project area is located within TRZ2, comprising the potential BOG line (which would cross below the TRZ2 road) and a section of the aboveground pipeline (which would cross under Shell Parade in a culvert). The project area is approximately 500 metres east of TRZ1 which applies to the rail corridor.
Commercial 2 Zone (C2Z)	<ul style="list-style-type: none"> <li>To encourage commercial areas for offices, appropriate manufacturing and industries, bulky goods retailing, other retail uses, and associated business and commercial services.</li> <li>To ensure that uses do not affect the safety and amenity of adjacent, more sensitive uses.</li> </ul>	The project area is approximately 500 metres east of this zone which applies to the Corio commercial precinct north of School Road and east of the Princes Highway.

Planning Zone	Relevant objectives	Applicability to project
Public Use Zone – Schedule 1 (Service and Utility) (PUZ1)	<ul style="list-style-type: none"><li>• <i>To recognise public land use for public utility and community services and facilities.</i></li><li>• <i>To provide for associated uses that are consistent with the intent of the public land reservation or purpose.</i></li></ul>	The project area is approximately 500 metres east of this zone which applies to infrastructure within the Corio commercial precinct.

### 5.2.9 Planning overlays

This section outlines the overlays which apply to the study area. These are shown in Figure 9. A summary of the applicable overlays and their relevant objectives is provided in Table 9. This table also confirms the applicability of each overlay to the project by identifying what percentage of the project area is located within each overlay.



**Figure 9 Overview of planning overlays.**

Table 9 Planning overlays applicable to the study area

Planning Overlays	Relevant Objectives	Applicability to the project
Environmental Significance Overlay – Schedule 2 (ESO2)	<p>The broad objectives of the ESO are:</p> <ul style="list-style-type: none"> <li><i>To identify areas where the development of land may be affected by environmental constraints.</i></li> <li><i>To ensure that development is compatible with identified environmental values.</i></li> </ul> <p>The ESO2 applies to wetlands of regional, state, national or international significance. The specific objectives of the ESO2 are:</p> <ul style="list-style-type: none"> <li><i>To maintain the ecological character (the sum of the biological, physical and chemical components of the wetland ecosystem, and their interactions which maintain the wetland and its products, functions and attributes) of Ramsar wetlands.</i></li> <li><i>To protect natural resources and maintain ecological processes and genetic diversity.</i></li> <li><i>To protect and ensure the long-term future of terrestrial and aquatic habitat for native plants and animals, including shorebird feeding areas and roosts and species and communities listed under the Fauna and Flora Guarantee Act 1988.</i></li> <li><i>To encourage ecological restoration, regeneration and revegetation with indigenous species within the site and in adjoining areas.</i></li> <li><i>To maintain the function of the wetland or habitat area as part of the broader natural system, including maintenance of natural flows and flooding regimes.</i></li> <li><i>To prevent further loss of wetland habitat.</i></li> <li><i>To manage the site in order to maintain and/or improve its value as a conservation site for native plants and animals.</i></li> <li><i>To protect water quality and prevent water pollution in watercourses, water bodies, wetlands and groundwater.</i></li> <li><i>To protect cultural (including aboriginal and non-aboriginal heritage) values.</i></li> <li><i>To protect visual amenity.</i></li> </ul>	A portion of the project area is located within this overlay, comprising the seawater transfer pipe, and approximately 200m of aboveground pipeline located on existing pipe track east of Shell Parade, and a section of underground pipeline and the tie-in facility within Hovells Creek Reserve.
Environmental Significance Overlay – Schedule 4 (ESO4)	<p>The broad objectives of the ESO are:</p> <ul style="list-style-type: none"> <li><i>To identify areas where the development of land may be affected by environmental constraints.</i></li> <li><i>To ensure that development is compatible with identified environmental values.</i></li> </ul> <p>The ESO4 applies to grasslands within the Werribee Plains hinterland. The specific objectives of the ESO4 are:</p> <ul style="list-style-type: none"> <li><i>To enhance the environmental and landscape values of the area.</i></li> <li><i>To avoid the fragmentation of contiguous areas of native vegetation or native fauna habitat.</i></li> </ul>	A portion of the project area is located within this overlay, comprising sections of underground pipeline within the 'Corio Native Grassland Reserve'



Planning Overlays	Relevant Objectives	Applicability to the project
	<ul style="list-style-type: none"> <li><i>To ensure that any use, development or management of the land is compatible with the long-term conservation, maintenance and enhancement of the grasslands.</i></li> <li><i>To avoid the destruction of habitat for native fauna resulting from the modification of landform and disturbance of surface soils and rocks.</i></li> <li><i>To enable areas of environmental significance, due to their native vegetation or habitat values, to be identified.</i></li> </ul>	
Design and Development Overlay – Schedule 20 (DDO20)	<p>The DDO's broad objective is:</p> <ul style="list-style-type: none"> <li><i>To identify areas which are affected by specific requirements relating to the design and built form of new development.</i></li> </ul> <p>The DDO20 outlines design objectives for areas which are within industrial zones. The specific objectives of the DDO20 are:</p> <ul style="list-style-type: none"> <li><i>To improve the visual appearance and image of industrial areas through well designed site responsive developments.</i></li> <li><i>To facilitate economic development through efficient and functional industrial development.</i></li> <li><i>To provide a high level of amenity for workers and visitors to industrial areas.</i></li> <li><i>To minimise the potential for negative off-site effects to occur.</i></li> </ul> <p><i>To promote best practise storm water quality and reuse measures.</i></p>	A portion of the project area is located within this overlay, comprising both aboveground and buried sections of the pipeline and the treatment facility.
Land Subject to Inundation Overlay – Schedule 2 (LSIO2)	<p>The broad objectives of the LSIO are:</p> <ul style="list-style-type: none"> <li><i>To identify land in a flood storage or flood fringe area affected by the 1 in 100 year flood or any other area determined by the floodplain management authority.</i></li> <li><i>To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.</i></li> <li><i>To reflect any declaration under Division 4 of Part 10 of the Water Act, 1989 where a declaration has been made.</i></li> <li><i>To protect water quality in accordance with the provisions of relevant State Environment Protection Policies, particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).</i></li> <li><i>To ensure that development maintains or improves river and wetland health, waterway protection and flood plain health.</i></li> </ul> <p>The LSIO applies to areas which are susceptible to coastal inundation and hazard. The specific objectives of the LSIO2 are:</p> <ul style="list-style-type: none"> <li><i>To protect land vulnerable to coastal inundation from inappropriate development.</i></li> </ul>	A portion of the project area is located within the overlay, comprising the seawater transfer pipe, temporary load out facility and the aboveground pipeline on existing pipe tracks which crosses over the existing refinery cooling water intake race.

Planning Overlays	Relevant Objectives	Applicability to the project
	<ul style="list-style-type: none"> <li>To plan for projected sea level rises to ensure that the community and assets are not exposed to an unacceptable level of risk associated with the coastal impacts of climate change.</li> <li>To identify land in coastal areas that may be inundated by the combined effects of the 1% Average Event Probability (AEP) flood event plus 0.8 metre sea level rise.</li> <li>To ensure that any new development is suitably designed to ensure that it is compatible with the identified flood hazard and local drainage characteristics.</li> </ul>	
Special Building Overlay (SBO)	<p>The broad objectives of the SBO are:</p> <ul style="list-style-type: none"> <li>To identify land in urban areas liable to inundation by overland flows from the urban drainage system as determined by, or in consultation with, the floodplain management authority.</li> <li>To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.</li> <li>To protect water quality and waterways as natural resources by managing urban stormwater, protecting water supply catchment areas, and managing saline discharges to minimise the risks to the environmental quality of water and groundwater.</li> </ul>	The project area at Refinery Pier is approximately 200 metres east from this zone and at the construction area associated with the temporary marine construction facilities is approximately 50 metres south from this zone.
Environmental Audit Overlay (EAO)	<p>The broad objective of the EAO is:</p> <ul style="list-style-type: none"> <li>To ensure that potentially contaminated land is suitable for a use which could be significantly adversely affected by any contamination.</li> </ul>	The project area is approximately 500 metres east of this zone which applies to the Corio commercial precinct.



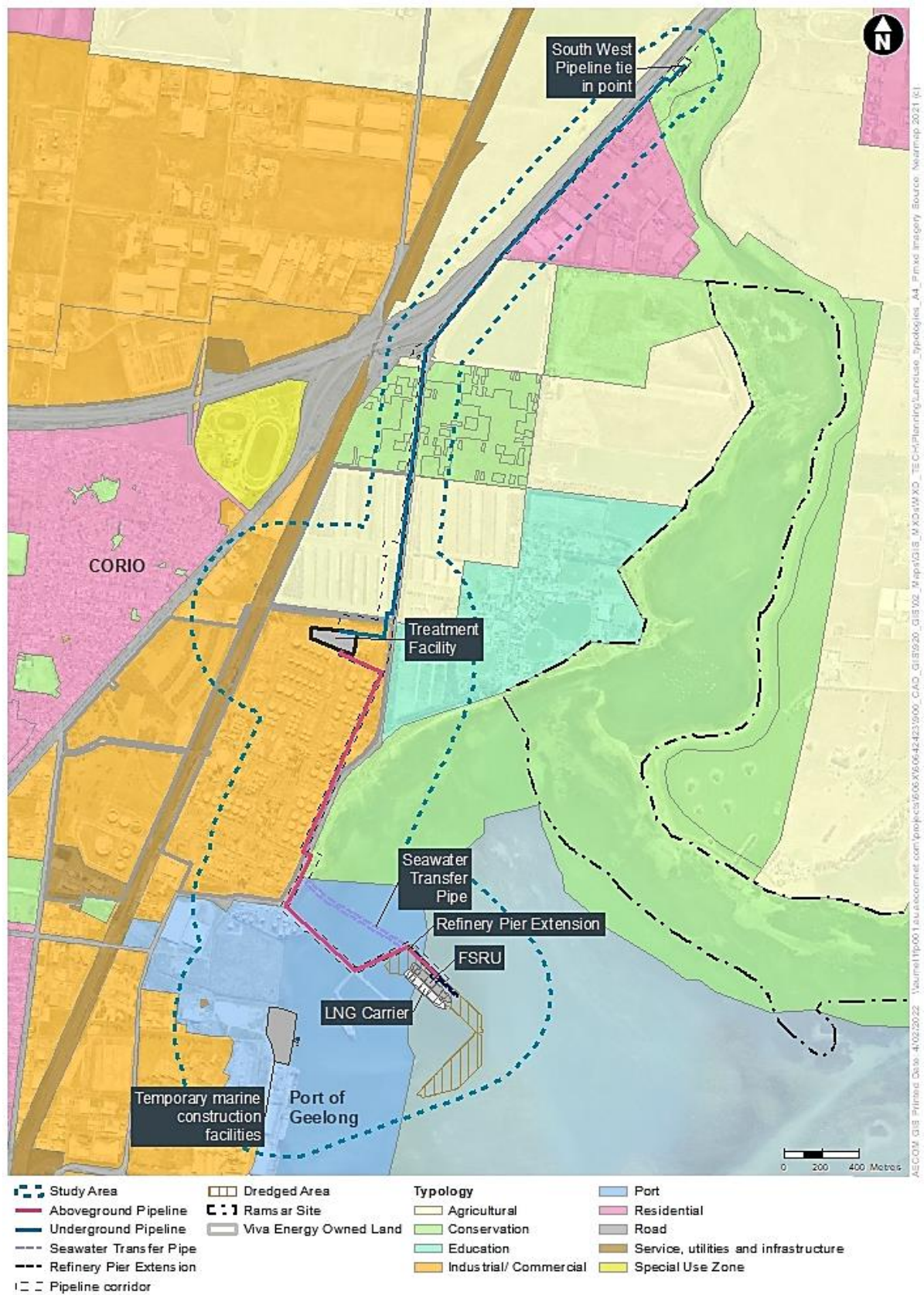
### 5.3 Land uses and typologies

Based on the assessment of policies, strategies and planning controls, land use typologies that are found within the study area were developed to assist in the determination of potential impacts. Within each typology there are notable individual land uses and precincts that are considered in the impact assessment sections of this report.

The land use typologies identified within the study area are summarised in Table 10 below and illustrated in Figure 10.

**Table 10 Land use typologies within the study area**

Typology	Description of typology
<b>Agricultural</b>	A range of land-dependant production-based land uses as outlined below: <ul style="list-style-type: none"> <li>• General Farming: farming of grains or other low-intensity products.</li> <li>• Grazing: livestock management requiring access to land for feeding.</li> </ul>
<b>Conservation</b>	Areas of high policy and planning control protection reflecting a particular conservation or ecological significance.
<b>Education</b>	Land use for school purposes, including teaching, recreation and residential facilities.
<b>Industrial</b>	Established intensive industrial land use comprising refinery operations and related ancillary uses.
<b>Commercial</b>	Established commercial land use comprising the Corio commercial precinct.
<b>Port</b>	Land set aside for existing and planned industrial or utility-based development associated with commercial port operations, including resource management and distribution.
<b>Road</b>	Established or planned road reserves.
<b>Residential</b>	Residential land uses typically comprise Rural/Low Density lots within the study area which are distinguished by larger lot sizes exceeding a typical subdivision pattern, comprising a single detached dwelling supported by landscaped areas or ancillary hobby farming activity. This typology is also characterised by its colocation with or proximity to agricultural land-uses outside of urban growth areas and established urban centres or townships. This typology also includes some areas of Corio which are located to the west of the project.
<b>Service, utilities and infrastructure</b>	Public land uses comprising community services and public infrastructure. Public land uses generally include local government services (i.e. government / municipal offices and facilities, depots and transfer stations) and public utilities. It is noted that some utilities exist in easements on private land which may not be characterised primarily as a utilities and infrastructure land use typology.



**Figure 10 Land Use Typologies**

## 5.4 Description of existing and reasonably foreseeable land uses in the study area

This section describes the proposed construction, operation and decommissioning activities relevant to the existing and reasonably foreseeable land uses and businesses within the study area. The purpose of this section is to inform the assessment of potential land use impacts. The study area is described from south to north, commencing at the temporary marine construction facilities and concluding at the SWP tie-in point. The description of existing conditions is organised into six parts:

- the temporary marine construction facilities at Lascelles Wharf
- the Refinery Pier extension
- onshore above ground pipeline section and treatment facility
- underground pipeline section between School Road and (unmade) Torresdale Road
- underground pipeline section between (unmade) Torresdale Road and Shell Parade - Rennie Street roundabout
- underground pipeline section from Shell Parade - Rennie Street roundabout to the SWP tie-in point.

### 5.4.1 Temporary marine construction facilities

The study area commences at Lascelles Wharf, which is an existing part of the Port that currently acts as a dry bulk handling precinct. The wharf is generally used as a laydown area (refer to Figure 11 for the existing view of the wharf). The wharf's existing industrial use is consistent with its zoning within the PZ, noting the seaward edge of the wharf is affected by the LSIO.



Figure 11 View of Lascelles Wharf from The Esplanade (Google Maps).

### 5.4.2 Refinery Pier extension

The study area continues at Refinery Pier, which is an existing part of the port that currently handles significant industrial shipping throughput. Refer to Figure 12. The existing pier's industrial use is consistent with its zoning within the PZ and it is not affected by any planning overlays.



Figure 12 View of the pier from Shell Parade (NearMap).



The pier's broader coastal surroundings play a role as a leisure and recreation destination for recreational boaters and visitors to the onshore parts of the Port Phillip Bay Coastal Reserve, which is within a PCRZ. The Reserve is affected by the LSI02 and the ESO2. Whilst a small portion of the study area is within the PCRZ, no project infrastructure is situated within this zone or the Reserve. Refer to Figure 13.



**Figure 13 The southern part of Port Phillip Bay Coastal Reserve viewed from Shell Parade (NearMap).**

While recreational boating within the study area is currently limited by the presence of a waterside exclusion zone around Refinery Pier, it is expected that the waters outside of the exclusion zone around Refinery Pier may continue to be used for recreational boating during all phases of the project. Specific construction activities proposed at the pier include localised dredging, the majority of which would occur in an area that is not currently zoned or affected by any planning overlays. Construction of the new pier arm, berthing infrastructure and aboveground pipeline from the FSRU along the length of the existing pier is also proposed in this part of the study area. It is anticipated that a temporary construction exclusion zone would be established and then the permanent exclusion zone extended to include the pier extension/new berth/swing basin.

Operation activities at the pier extension comprise the continuous mooring and use of the FSRU at the new berth and unloading of LNG from visiting LNG carriers moored alongside. The new berth would be located outside the extent of the PZ in an area that is not currently zoned.

Decommissioning in this part of the study area would see the FSRU, which remains an ocean-going vessel, depart for use elsewhere. It is anticipated that the pier infrastructure constructed for the project would remain in situ for future industrial use related to the port, subject to landholder agreements and maintenance arrangements being reached.

#### **5.4.3 Onshore aboveground pipeline and treatment facility**

This portion of the study area extends from its southernmost part to School Road, excluding the offshore parts of the study area associated with Refinery Pier which have been discussed above. This part of the study area is primarily located within the refinery but does include some land which is within the port and still located within the PZ.

This part of the study area accommodates Quantern bulk storage tanks (as shown in to Figure 12), large industrial warehouse buildings currently operated by Incitec Pivot Limited, a private enterprise in the resource and agricultural sectors. Refer to Figure 14. This area also includes part of the Rollerama Drain, which is affected by the SBO and the LSI02 and the Lascelles Wharf which is affected in part by the LSI02.



**Figure 14 Industrial development south of the pier that is within the study area but is not intersected by the project area (NearMap).**

Once onshore, the aboveground pipeline would run along the foreshore east of Shell Parade in an existing pipetrack compound for approximately 300m. To facilitate pipelay activities temporary access to the Port Phillip Bay Coastal Reserve adjacent to the pipetrack compound would be required during construction. The Reserve could continue to be used by visitors during all phases of the project.

The pipeline would then cross underneath Shell Parade and into the refinery on the western side. Shell Parade is located within TRZ2. The pipeline is then sited on existing pipe tracks adjacent to an internal refinery road. Refer to Figure 15. From this point, the pipeline travels north to the point at which it connects to the treatment facility, which is proposed to be located on an existing laydown area within the refinery. The entirety of the refinery site is subject to the DDO20 and is within the IN2Z.



**Figure 15 Pipeline corridor west of Shell Parade, viewed from Shell Parade (NearMap).**

The study area surrounding the treatment facility includes land within the FZ that forms part of the main campus for Geelong Grammar School. Refer to Figure 16. This campus accommodates the school's senior and middle schools, providing both day school and boarding facilities. The study area includes the school's equestrian centre and its adjoining paddocks (refer to Figure 17) and a cluster of four detached, single-storey residential buildings on the western side of The Estate (refer to Figure 18). This part of the study area also includes School Road, which is the school's primary road access. This road is not within the TRZ2 and is managed by Council.





Figure 16 The school viewed from School Road to the west, at the approximate boundary of the study area (NearMap)



Figure 17 Equestrian centre viewed from School Road (NearMap).



Figure 18 Residential buildings at The Estate, Corio (NearMap).

#### 5.4.4 Underground pipeline between School Road and (unmade) Torresdale Road

Between the treatment facility and Torresdale Road, the project comprises an underground pipeline that travels north, under School Road, and through undeveloped paddocks owned by Viva Energy. This stretch of the pipeline runs parallel with Shell Parade, which is within the TRZ2. Land on the western side of Shell Parade in this area is owned by Viva Energy and currently comprises rows of planted trees. This land is within the IN2Z and is subject to the DDO20. The ownership and zoning of this land indicate that it could accommodate industrial uses and development in the future. Further west, across the rail corridor, is land in the C2Z which makes up the Corio commercial precinct.



Land east of Shell Parade is within the FZ and also accommodates rows of planted trees. This land is owned by Geelong Grammar School.

#### **5.4.5 Underground pipeline between (unmade) Torresdale Road and Shell Parade - Rennie Street roundabout**

From the northern boundary of the Viva Energy owned-land at the unmade Torresdale Road, the pipeline continues north on the western side of Shell Parade to the Rennie Street roundabout as shown in Figure 19. This undeveloped land now designated as 'Corio Native Grassland Reserve' was originally subdivided in the 1970s without first being rezoned for residential development. Since each of the individual lots were sold for residential purposes, the Victorian Government has blocked initiatives to rezone the land for residential development and lots are either within the FZ or PCRZ. The current planning controls would restrict more intensive future urban development from occurring in this location. Development in this area is further limited by the ESO4, which was applied to the subdivision area to reflect the location of native grasslands. It is understood that Council has in place a voluntary purchase scheme and has purchased a number of individual lots in this subdivision to retain its current vacant state and to ensure the area's future as a native grassland reserve. Ecological studies conducted for the project EES indicate that the part of Corio Native Grassland Reserve within the project footprint, i.e. pipeline construction right of way, is entirely characterised by exotic species. No removal of native vegetation would be required by the project as the limited areas of native vegetation observed were more than 50 m from the proposed pipeline route.

On this basis, it is unlikely that this land would be developed for residential purposes in the future. Council has indicated that there is no support for any future conversion of this area to industrial uses and therefore the future land use is expected to remain as a Council managed native grassland reserve. Overall, development of any new land uses is unlikely to occur here in the foreseeable future.

The underground pipeline and its easement traverse the eastern extent of a single residential property at Rennie Street, Corio. The property is on land in the FZ, situated to the south-west of the Shell Parade – Rennie Street roundabout. The house can be seen in the distance in Figure 19.



**Figure 19** Vacant land, Corio Native Grassland Reserve, with defunct subdivision between Torresdale Road and the Shell Parade – Rennie Street roundabout viewed from Shell Parade (NearMap).

#### **5.4.6 Underground pipeline from Shell Parade – Rennie Street roundabout to the SWP tie-in point**

The pipeline crosses Rennie Street into the Princes Highway Exit road verge before turning northeast to run parallel with the Princes Freeway on the western side of Macgregor Court. Refer to Figure 20. This part of the study area includes a range of land use typologies.

The Princes Freeway occupies most of the study area west of the project from Rennie Street to the SWP tie-in point. The freeway is a major transport corridor within the TRZ2. Beyond the freeway to the west, the study area includes agricultural land within the FZ with some interspersed dwellings separated from the project by the road.



**Figure 20 The Princes Freeway viewed from Macgregor Court (NearMap).**

Land on the eastern side of Macgregor Court between Bell Road and Cummins Road is within the FZ and is currently vacant. It is possible that this land has been used historically for grazing and it is currently cropped. Its zoning alludes to future agricultural use and there are no current planning scheme amendments or policies that indicate it is being considered for intensified development.

Land uses on the eastern side of the proposed pipeline route between Cummins Road and the northern end of Macgregor Court reflect the RLZ zoning, with properties at 10 -110 Macgregor Court, Lara, accommodating dwellings with small adjoining hobby farms. (refer to Figure 21). It is noted that the pipeline is separated from these properties by Macgregor Court, which also falls within the RLZ in this location. At the northernmost end of Macgregor Court the underground pipeline and its easement traverse the western boundary of a single residential property.



**Figure 21 Dwellings within RLZ on the eastern side of Macgregor Court, Lara (NearMap).**

The tie-in point to the Victorian gas network is located within the Lara City Gate pipeline station in Hovells Creek Reserve which is zoned PPRZ. This Reserve is subject to the ESO2, which extends east to cover land located within the PCRZ. Refer to Figure 22. This PCRZ is associated with Hovells Creek, which is also subject to the LSIO.



**Figure 22 SWP tie in point viewed from the Princes Freeway (NearMap).**

## 6.0 Impact assessment

As outlined in section 1.2 understanding how the project may impact land use is important in informing the development of effective and appropriate mitigation measures to minimise or manage impacts during the construction and operation of the project. This section assesses the potential impact of the project on land use. This assessment is addressed in the following four categories:

- Strategic impacts
- Construction impacts
- Operation impacts
- Decommissioning impacts

As detailed in section 1.5, the key land use activities can be characterised as:

- a 'wharf' land use with an ancillary 'utility installation' land use associated with the ancillary piping
- a 'utility installation' for the treatment facility and pipeline

### 6.1 Strategic impact assessment

This section assesses the project against relevant state and local planning policies and provides an assessment of the project's likely strategic land use impacts.

#### 6.1.1 Plan Melbourne

The project will support Plan Melbourne's objectives for Geelong and for Victoria more broadly.

The addition of new energy infrastructure will create competitive advantages for Victoria, in turn enhancing economic resilience for Melbourne and Victoria in support of Plan Melbourne's overarching vision of maintaining competitive advantages, including energy resources that create a diverse, flexible and resilient economy.

This new infrastructure would be constructed in a location where construction activities will not inhibit urban growth, as the project sits outside of any identified urban growth areas.

The project would enhance the economic function of the port, supporting future employment and economic development opportunities at one of Victoria's established industrial nodes.

Accordingly, the project is assessed as being supportive of Plan Melbourne's aims to increase industrial development at appropriate locations and to enhance the role that Geelong plays in supporting continued economic growth for Victoria.

#### 6.1.2 State and local planning policies

In addition to supporting the intent of Plan Melbourne, the project achieves a high degree of compliance with the PPF as it relates to managing growth and development for Victoria. The project's consistency with the relevant clauses of the PPF is demonstrated below.

- The project supports Clause 11 (Settlement) by ensuring that the needs of existing and future communities are met through investment in Victoria's infrastructure for natural gas supply and distribution and port related industries. This is achieved without compromising the long-term continuation of existing land uses proximate to the project area and without limiting opportunities for urban growth.
- The project supports Clause 11.01-1R (Settlement – Geelong G21) by delivering employment and economic opportunities for Geelong and enhancing the port's operating capacity. This will in turn support Geelong's continued role as a key centre for urban growth.
- The project supports Clause 12.01-2S (Native vegetation management) through the EES process described above. It is expected that the Incorporated Document prepared as part of the PSA will include a condition requiring that offsets must be secured prior to any native vegetation removal, ensuring no net loss of Victoria's native vegetation. Ecological studies being conducted for the EES indicate that the project is unlikely to have significant impacts on native vegetation.

- The project supports Clause 12.02-1S (Protection of coastal areas) by locating the Refinery Pier extension within an established port environment, avoiding construction works in coastal areas that are not already developed with port infrastructure. Ecological and biodiversity values will be managed through the outcomes of the EES process.
- The project will enhance the economic function of coastal crown land adjacent to the port with the addition of the gas terminal, supporting the economic aspirations of Clause 12.02-2S (Coastal Crown Land). The project will be carefully managed through the EES process to ensure that it does not detrimentally impact upon the environmental and social values of this coastal crown land.
- The project will respond to the requirements of Clause 12.03-1S (River corridors, waterways, lakes and wetlands) through an assessment of impacts to water bodies and the subsequent adoption of appropriate mitigations recommended in the EES. Surface water studies conducted for the EES indicate that project area does not contain any natural watercourses and that impacts are unlikely on surface water values with appropriate management measures.
- The project responds to bushfire risks by limiting development in the bushfire prone area to the gas pipeline works and the SWI tie-in, therefore supporting the aims of Clause 13.02-1S (Bushfire planning) by avoiding increased risks to human life. It is also expected that the Incorporated Document as part of the PSA would require details of bushfire risk management must be approved prior to the commencement of construction.
- The project will consider and respond to potential groundwater impacts in accordance with Clause 13.03-1S (Floodplain management) through the EES process, which includes groundwater assessments for high-risk components of the project. Studies conducted for the EES indicate that potential impacts of the project on groundwater are low.
- The EES includes an air quality assessment that will recommend mitigations to manage air quality impacts in support of Clause 13.06-1S (Air quality management). Studies conducted for the EES indicate that air emissions from the project are likely to be generally confined to the project site and should not have adverse effects on sensitive land uses.
- This LUA demonstrates that the project is compatible with its surrounding land uses, and that temporary construction and ongoing operation impacts can be managed through the implementation of appropriate mitigation measures. The refinery site has substantial buffer areas separating it from sensitive land uses such as Geelong Grammar School. The extension to the Refinery Pier and the treatment facility would be located within an established port and industrial area where future industrial development is expected and planned for. The gas pipelines will have negligible impacts during operation as they are located underground, with the exception of the SWP tie-in point. Accordingly, the project will support the aims of Clause 13.07-1S (Land use compatibility).
- The project supports Clause 13.07-2S (Major hazard facilities) by locating the treatment facility within an existing MHF that currently functions with the appropriate protections and buffer areas required to minimise risks to humans and property. A safety case amendment for the refinery would be prepared to allow for the inclusion of odorant storage at the treatment facility. The FSRU would be considered a separate MHF, however one which benefits from the existing buffer zones and safety protections from co-location. The MHF safety areas are discussed further in Section 6.1.6.
- The project avoids impact to agricultural land by utilising existing road reserves and other disturbed corridors. The long-term viability of agricultural land near the project will not be diminished during project operation. Accordingly, the project supports Clause 14.01-1S (Protection of agricultural land).
- The project responds to Clause 15.01-1S (Urban design) through the location of the Refinery Pier extension within an existing port where the urban design context is defined by port-related industrial development. It also locates the treatment facility within a well-established industrial land use context (refinery).



- The project supports Clause 15.03-1S (Heritage conservation) by avoiding places of heritage significance recognised through the application of Heritage Overlays. The CHMP will ensure that any interaction with places of Aboriginal cultural heritage significance is managed appropriately. Similarly, the project will support Clause 15.03-2S (Aboriginal cultural heritage) through the preparation and implementation of the CHMP. The CHMP will outline site measures to ensure that items of aboriginal cultural heritage are managed appropriately, if encountered during construction.
- The project supports Clause 17.01-1S (Diversified economy) by facilitating employment and economic growth in the construction and energy industries. In addition, the project supports Clause 17.01-1R (Diversified economy – Geelong G21) by providing opportunities close to Central Geelong to provide employment opportunities as the region's population grows.
- The project will allow for industrial development in a key port-related industrial node that already benefits from generous buffers to nearby sensitive land uses in accordance with Clause 17.03-1S (Industrial land supply) and Clause 17.03-2S (Sustainable industry).
- The EES includes an assessment of transport impacts that will inform mitigations to ensure that the project will not result in long-term detrimental impacts to local transport networks. The project will further support Clause 18.01-1S (Land use and transport planning) with the preparation of a TMP for construction. Studies conducted for the EES indicate that the volumes of traffic generated by construction and operation of the project should not have material impacts on adjacent land uses.
- The project will facilitate the ongoing operation and development of the port, being one of Victoria's key trading ports. This development is consistent with the objectives of the Port Development Strategy, which identifies the potential need to expand the capacity of the pier and support development in the refinery. This development will occur in such a way that impacts to sensitive land uses are managed through this EES process. Accordingly, the project is supportive of Clause 18.03-1S (Planning for ports).
- The project can be broadly characterised as comprising industrial land use and development located in an established port in accordance with Clause 18.03-2S (Planning for port environs).
- The project supports Clause 19.01-1S (Energy supply) through the development of new energy infrastructure that will secure natural gas supplies for Victoria in the context of a gas shortfall forecast by the market regulator for Victoria while leveraging the port as an existing industrial asset.
- The project achieves strong consistency with the objectives of Clause 19.01-3S (Pipeline infrastructure) by proposing a solution that helps to secure Victoria's future gas supply, utilising a pipeline connected to an existing port terminal. The majority of aboveground components of the project will be located within an established port-related industrial context and the proposed pipeline alignment will leverage existing pipeline easements where possible. Adequate buffers to sensitive land uses can be provided and mitigations can appropriately minimise land use impacts.
- The project supports Clause 19.03-2S (Infrastructure design and provision) delivering infrastructure to meet community needs with regard to employment and resource security.

The project supports and implements local planning policies contained within the Scheme through the following:

- The project will support Council's vision for Geelong as it is articulated at Clause 21.01 (Introduction) by enhancing the region's prosperity through the delivery of new employment and economic opportunities associated with the construction and operation of new energy infrastructure within the region.
- The project's associated employment opportunities afforded through private sector engagement deliver on the aims of Clause 21.02 (City of Greater Geelong Sustainable Growth Framework). Further compliance with this clause is achieved through the EES process, which will ensure that environmental impacts are managed appropriately should the project receive a favourable assessment through the EES process.

- The project will not conflict with the objectives of Clause 21.04 (Municipal Framework Plan) as it is not located on land that is within the Geelong settlement boundary. The project will not encroach upon areas planned for future urban development.
- The project may result in some impacts to the natural environment. Clause 21.05 (Natural Environment) will be supported through the implementation of the mitigations recommended in the EES should the project receive a favourable assessment through the EES process. These will ensure that impacts to waterways, biodiversity and coastal environments are managed appropriately and that risks to the project from climate change, flooding and wildfire are appropriately addressed.
- The project does not place constraints on the region's ability to provide housing for Geelong's future population, as it will not limit urban development from occurring on land planned to accommodate it. Accordingly, the project does not conflict with the objectives of Clause 21.06 (Settlement and Housing).
- The project will leverage land which is already set aside for industrial uses to support ongoing employment and economic development. Accordingly, the project supports Clause 21.07 (Economic Development and Employment) and enhances the port's role as an infrastructure base.
- The project will facilitate the extension of the existing pier berths, facilitating increased throughput at the port. In doing so, the project supports the port's continued growth and development in accordance with Clause 21.12 (Geelong Port).
- The project will interact with properties within the RLZ, as described throughout this report. Clause 22.04 (Use and development in rural living and low density areas) clarifies that intensification of dwellings at these properties would not be supported by the LPPF, therefore reducing the magnitude of impacts associated with the project's location next to properties within the RLZ.

### **6.1.3 Geographical regions and natural assets**

The project responds to the existing geographical regions and natural assets by avoiding areas of high value where possible, such as the avoidance of the Port Phillip (Western Shoreline) and Bellarine Peninsula Ramsar site. The project makes use of existing infrastructure corridors thereby minimising impact to more sensitive land uses.

### **6.1.4 Transport and access**

The project benefits from existing suitable transport connections and would not directly impact any existing major transport corridors.

### **6.1.5 Regional infrastructure and economy**

The port is recognised in a range of relevant strategic plans and policy as a critical industrial node that has historically underpinned Geelong's broader regional economy. Its location, natural environment, proximity to Geelong's working population and access to Victoria's freight network all support its ongoing function as a major hub for port related use and development. The importance of the port's continued function has been fundamental in shaping its surrounding land uses, as well as the broader region's economic, social and environmental qualities.

This importance of the port is fundamental to the aims of the Geelong Region Plan, the Port Development Strategy and the Structure Plan. The project will support these strategies by increasing the port's throughput capability, expanding the Refinery Pier and supporting the role of the refinery as a key hub for infrastructure. This is achieved through the various employment and economic opportunities associated with construction and operation of the project. The project will also allow stakeholders to advocate for the value of the port by introducing a new piece of energy infrastructure that addresses Victoria's gas supply vulnerabilities.

These significant benefits will be balanced with a considered response to the port's environmental and social context in accordance with aims of the Victorian Waterway Management Strategy and the Environment Strategy 2020-2030. The EES process will deliver on the objectives of these strategies by ensuring that the full range of potential impacts are assessed and then mitigated appropriately.



Through these measures, the project can facilitate a use and development that will enhance the port's role within the regional economy without detrimentally impacting its surrounds.

#### 6.1.6 Safety, Hazard and Risk

##### 6.1.6.1 Major Hazard Facility

The refinery is an existing licenced and registered MHF. The proposed treatment facility will be located within the footprint of the existing MHF boundary. To operate an MHF in Victoria a licence must be granted by WorkSafe. The licensing process includes assessment, clarification and verification of a Safety Case.

The extent of risk areas around an MHF are presented as an Inner Safety Area and an Outer Safety Area. The Inner Safety Area has a higher level of risk from potential low frequency - high consequence events than the Outer Safety Area. An amendment to the existing refinery MHF safety case would be required for the treatment facility. The FSRU would be licenced and registered as a separate MHF.

Figure 23 and Figure 24 present the new Risk Profile Contours of the treatment facility and FSRU combined with the existing Geelong Refinery HFA Risk Profile Contours as presented in Technical Report N: *Safety, hazard and risk assessment*.

The inclusion of the treatment facility within the existing boundary of the refinery results in a minor increase of the existing Risk Profile Contours extent, just beyond Shell Parade. The 'once in 2,000,000 years likelihood of fatality', represented by the  $5 \times 10^{-7}$  risk contour considered tolerable for sensitive land uses (HIPAP No. 4):

- extends by approximately 50 metres to the east. The contour extends into open space utilised by Geelong Grammar School for outdoor equestrian activity however it does not extend to the school's Equestrian Centre building.
- extends by some distance to the north, likely in the range of 50 -150 metres, into the Viva Energy owned paddocks where there is negligible impact on the public.

The FSRU and LNG carrier will introduce new Risk Profile Contours, however when combined with the existing Risk Profile Contours, these pose negligible incremental risk within port waters and there would be no incursion onto sensitive land uses as a result of the project. Further, it noted that operators of MHF are required to manage risks and hazards, including by (*inter alia*)<sup>1</sup>:

- preparing an Emergency Plan with emergency services organisations and other stakeholders
- establishing a safety management system for the MHF
- preparing a safety case for the MHF.

##### 6.1.6.2 Measurement Length

Figure 25 presents the Measurement Length (ML) of the pipeline, as described in Technical Report N: *Safety, hazard and risk assessment*, being a 640 metre radius from the aboveground section of the pipeline, and a 560 metre radius from the belowground section of the pipeline.

The ML is defined as the distance to locations where people could suffer injury from heat radiation after 30 seconds exposure based on a full pipeline rupture if they are unable to be evacuated or seek shelter. The ML is overlayed on a map, and all land use (current and future) in that area must be assessed for its primary and secondary land use classification. Once the land use classifications are determined, this then influences the design requirements for the pipeline along the full length of the pipeline. For the project, the residential classification was the most stringent and was applied to the entire pipeline length even though it was not required and is a conservative approach. This includes designing the pipeline to the "no rupture" requirements.

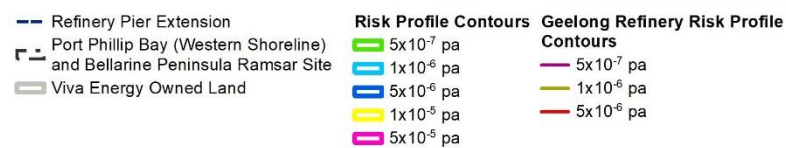
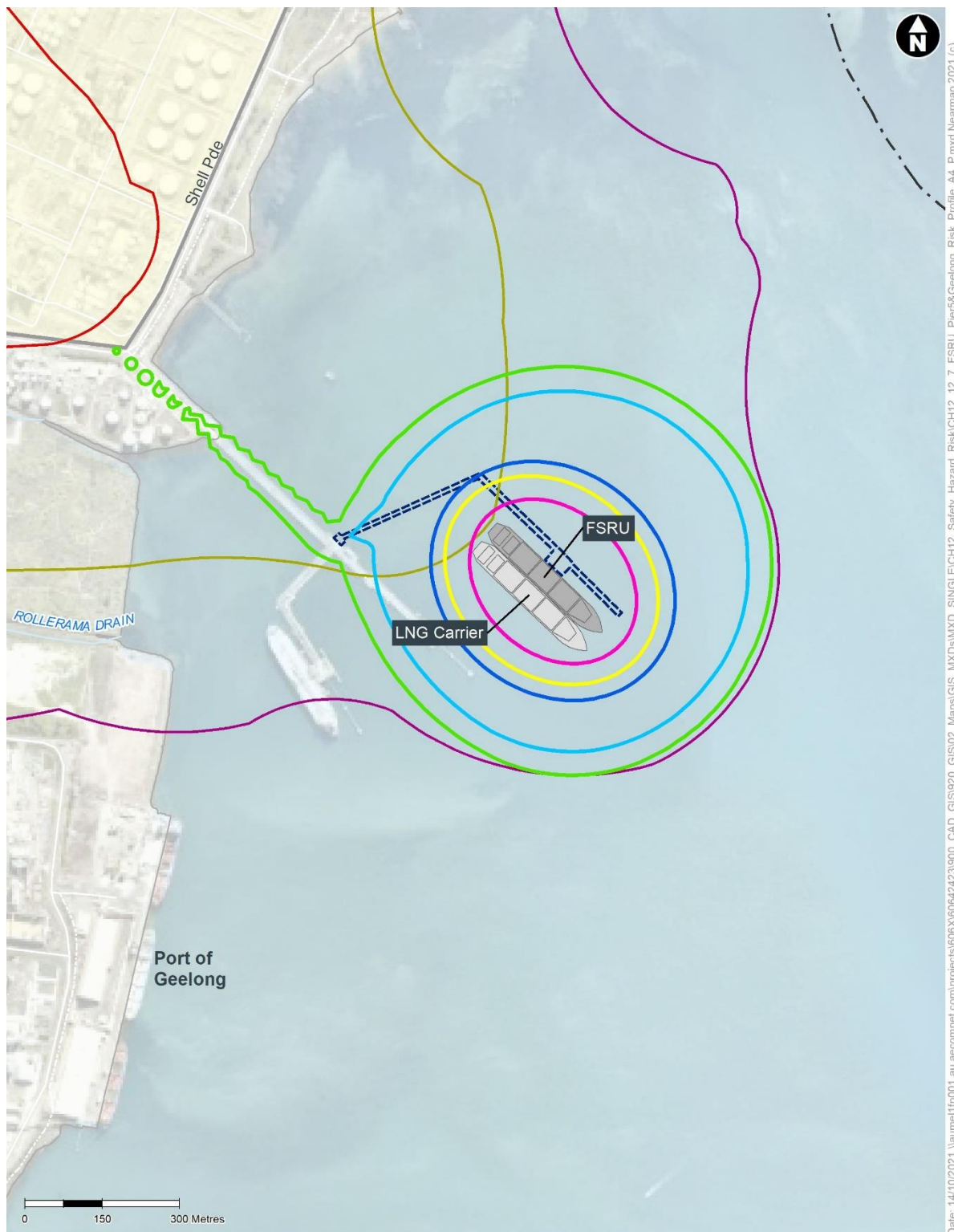
While the ML is generally larger than the LUA study area, based on the conclusions of the *Safety, hazard and risk assessment*, it is considered that land use impacts outside of the LUA study area would be negligible.

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<sup>1</sup> <https://www.safeworkaustralia.gov.au/safety-topic/industry-and-business/major-hazard-facilities>

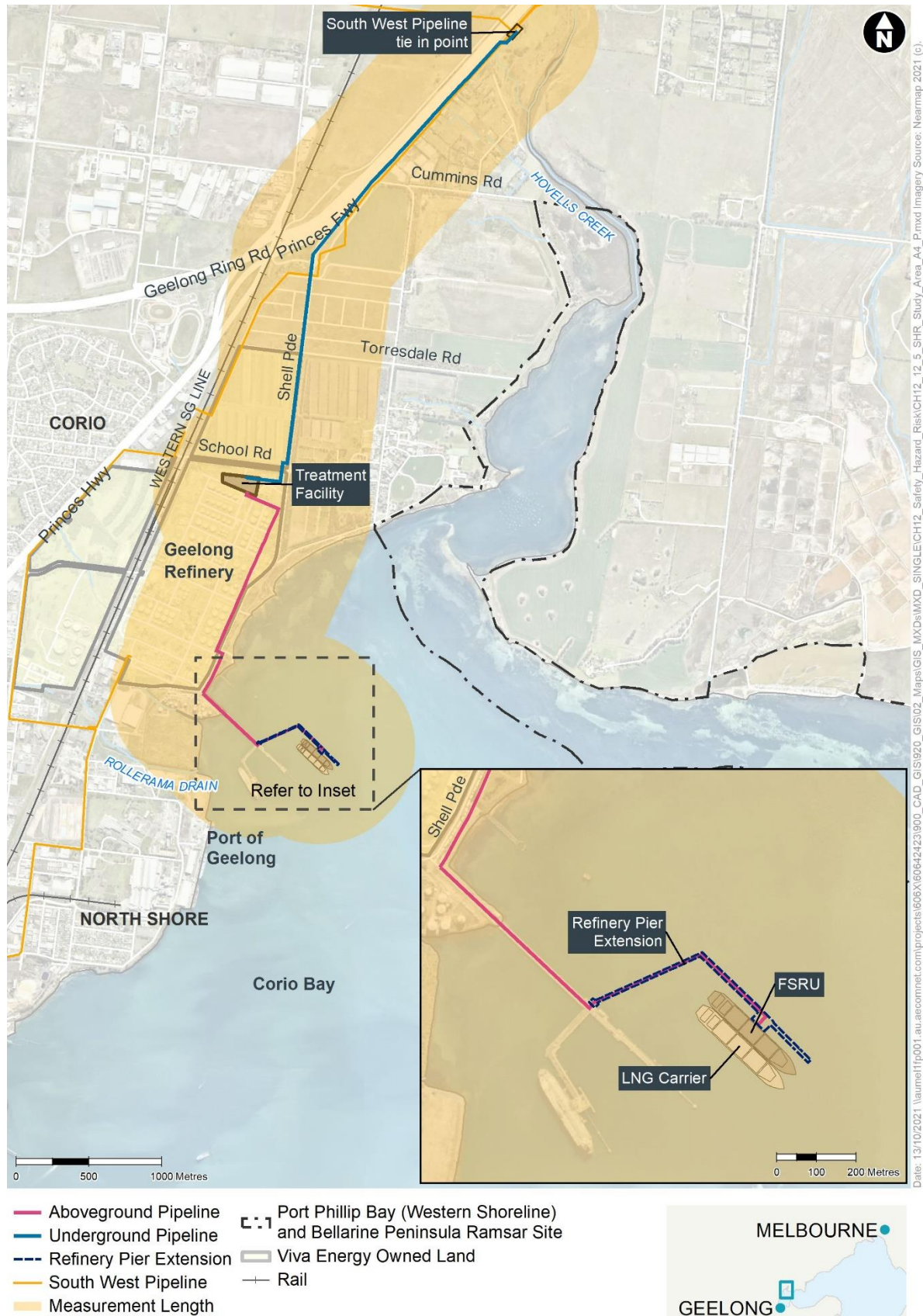


**Figure 23 Treatment Facility Risk Profile Contours and Geelong Refinery HFA Risk Profile Contours**



**Figure 24 FSRU and LNG carrier Risk Profile Contours and Geelong Refinery HFA Risk Profile Contours**





**Figure 25 Safety, Hazard and Risk Assessment – Project Measurement Length**

### 6.1.7 Overall response to strategic land use considerations

The project is considered to be consistent with relevant land use policy and existing land use, and positively responds to technical considerations and potential future impacts on land, affecting:

- Crown land
- Road reserves and existing infrastructure alignments
- Port and industrial land
- Where unavoidable, parts of land reserved for conservation purposes within the former New Corio Estate subdivision.

The project supports the overarching strategic imperatives of the port and its surrounds and is a positive response to the relevant policy and land uses. It will support the port's ongoing role as a key economic driver for Geelong by creating new employment opportunities and helping to secure Victoria's future energy supplies.

The project responds to the policy and strategies that protect the port environs and other land uses surrounding the project. This is achieved through a design that locates the majority of aboveground components within the existing port and refinery, where development of this nature is encouraged by policy. The underground component of pipeline adopts existing pipeline corridors where possible and avoid interactions with sensitive land uses.

The EES process enables the preparation of mitigations that will ensure an appropriate outcome where impacts to the surrounding context would otherwise occur. Accordingly, the strong economic benefits of the project will be balanced with positive outcomes for the surrounding area and the broader region. It is therefore viewed that the project is a positive response to the regional context that supports the ongoing implementation of the relevant strategies and policy.

## 6.2 Construction impact assessment

This section provides an overview of the potential land use impacts associated with construction of the project. The relevant planning policies and guidelines allow for temporary construction activities associated with infrastructure that would deliver on state and local aspirations to enhance the function of the port for industrial and utility uses such as the intensification of activity at the pier and new infrastructure for resource distribution. Policies are protective of the study area's biodiversity and environmental qualities and of existing sensitive land uses. Therefore, while construction of the project would be short-term temporary impacts must be managed to ensure that residual impacts are acceptable.

The key construction activities are described in detail at Section 1.4.1. The key construction activities relevant to this impact assessment can be summarised as:

- localised dredging of seabed sediments to enable the FSRU and LNG carriers to berth at Refinery Pier and excavation of a shallow trench for the seawater transfer pipe
- construction of a temporary marine construction area comprising a loadout facility, construction compound and laydown area at Lascelles Wharf
- construction of the new pier arm, a potential boil off gas (BOG) line along the existing Refinery Pier and connecting into the refinery and berthing infrastructure
- construction of the new aboveground pipeline along Refinery Pier and through the refinery
- construction of the treatment facility on an existing laydown area at the northern boundary of the refinery
- construction of the buried pipeline within a construction right of way of approximately 15-20 metres
- construction at the tie-in point to the SWP at Lara.

### 6.2.1 Access to roads and infrastructure during construction

Temporary construction activities may constrain access along existing roads within the study area, including Shell Parade, which is within the TRZ2. These activities may include increased vehicle movements for workers and material delivery and partial road closures during construction. These impacts would also extend to other key infrastructure, including parts of the port which rely on access from roads where construction activities are planned. Geelong Grammar School may also be impacted temporarily in respect of access due to increased construction traffic impacting users accessing the school, however only in a limited manner.

The magnitude of these impacts would vary based on the intensity of construction activities required relevant to the traffic on nearby roads. However, it is noted that material delivery and worker vehicles are consistent with the current use of roads in the vicinity of the project. Where construction activities would occur within a road reserve, they are typically situated on the verge to minimise impacts to the existing road pavement.

Depending on the construction methods utilised, there may be potential for short term access disruption to properties along Macgregor Court which would require mitigation measures to be developed in consultation with landowners.

The most intensive road and infrastructure disruptions would be localised within the existing port and industrial land use areas, particularly the refinery where the most substantial onshore construction activities are required for the aboveground pipeline and treatment facility. It is anticipated that a degree of road and infrastructure access disruption would occur across the extent of the project area, as detailed in Technical Report K: *Transport impact assessment*.

The duration of this impact would span the construction timeframe, however the duration of impacts to specific areas will be shorter based on a staged approach to construction. Temporary construction impacts related to access and traffic can be managed through the preparation and implementation of a Traffic Management Plan (TMP) as recommended in Technical Report K: *Transport impact assessment*. The TMP would ensure that changes to existing traffic conditions are managed safely and efficiently to reduce access impacts.

After preparation and implementation of the TMP, residual impacts to roads would constitute minor temporary changes to existing road conditions across the extent of the project area.

### 6.2.2 Temporary land use changes

The project would result in temporary land use changes over the short term during the construction phase of the project. These changes would comprise the establishment of a construction right of way for construction activities, including stockpiling and laydown, and temporary construction access areas.

Temporary land use changes could occur across the full extent of the project area where construction is required. Tangible changes are most likely to occur in areas where activities are required to occur on land currently functioning for an established land use, such as established industrial or port land, or recreational reserve.

The impacts on these land uses would likely include:

- temporarily restricted access to parts of the port land at Refinery Pier and Lascelles Wharf during construction activities
- temporarily restricted access to part of the foreshore within the Port Phillip Bay Coastal Reserve
- temporarily restricted access along the pipeline construction right of way during construction activities.

The extent of temporary land use changes would last for part of or all of the duration of construction activities. It is assumed that the project would adopt a staged construction approach, therefore temporary land use changes would be short term in localised areas.

The expected magnitude of this impact would be small, as land use changes would be temporary and would be recoverable after construction is complete. Additionally, the applicable planning zones and



overlays allow for temporary land use changes associated with construction provided that environmental considerations are addressed.

A Construction Environment Management Plan (CEMP) would be prepared and implemented for the project's construction phase, as required by the Incorporated Document and Pipeline Licence. Potential temporary land use change associated with restricted access for recreational activities to a small area of Hovells Creek Reserve during construction are anticipated to be managed by the various mitigation measures within the CEMP, which would specify the construction approach. Further, the CEMP will also regulate construction activities within the balance of the project land to ensure disruption is minimal.

The residual impacts of temporary land use changes would be minor following the preparation and implementation of a CEMP.

### 6.2.3 Amenity impacts to sensitive land uses

Construction activities may result in amenity impacts to sensitive land uses. Impacts associated with construction may relate to noise emissions and air emissions.

Technical Report H: *Air quality impact assessment* identified that emissions of interest for the construction of the project are expected to primarily relate to exhaust emissions from vehicle movements, and dust emissions from earthworks and materials handling associated with underground pipeline construction.

Technical Report I: *Noise and vibration impact assessment* identified that noise from construction works can be adequately managed by application of noise controls and general good practice techniques in accordance with EPA Publication 1834. In addition, scheduling of works during normal working hours where possible and implementation of onsite and offsite noise mitigation measures would assist in minimising potential impacts at sensitive receptors. All feasible and practicable measures would be implemented to avoid and minimise potential impacts during out of hours work including dredging and unavoidable works such as HDD and hydrotesting of the pipeline.

The magnitude of these impacts would be negligible where construction activities are contained within the existing refinery, as the refinery and the adjacent rail line offer a generous buffer for any sensitive land uses located to the west of the study area. The magnitude of impacts where construction activities occur outside of the existing refinery would need to be managed to avoid unacceptable impacts on sensitive land uses to the south and east of the study area, which include Port Phillip Bay Coastal Reserve and Geelong Grammar School, and to the north which include the resident in Rennie Street, residences situated along Macgregor Court, and Hovells Creek Reserve.

While amenity impacts would be most notable proximate to the abovementioned sensitive land uses, amenity impacts may be experienced across the full extent of the study area. Amenity may be reduced in any context where noise or air emissions exceed baseline conditions.

The duration of amenity impacts associated with construction activities will be temporary, lasting the duration of the construction program. With a staged approach to construction, impacts would be localised in specific areas for short periods of time as the program progresses.

Temporary amenity impacts during construction would be mitigated through the preparation and implementation of a CEMP supported by specialist noise and air quality investigations. Investigations would establish the baseline conditions and the CEMP would outline specific mitigations required during construction to reduce noise and air emissions.

Overall, there is a low potential for residual amenity impacts to sensitive land uses during construction provided that a CEMP is prepared and implemented.

### 6.2.4 Summary of residual construction impacts

Residual land use impacts associated with the construction of the project are considered to be minor on the basis that the impacts are temporary and can be mitigated with the preparation and implementation of management plans incorporating industry standard measures and any additional mitigation measures recommended as part of the relevant technical studies to avoid, minimise and manage potential amenity issues.

Residual construction impacts include:

- minor residual impacts to road and infrastructure access during temporary construction activities across the extent of the study area
- minor residual impacts associated with temporary land use changes in areas where construction is required to occur
- minor residual amenity impacts to sensitive land uses associated with temporary construction activities.

It is unlikely that the project's construction would have a substantial detrimental impact on current or foreseeable land uses and businesses within the study area. Additionally, construction will not conflict with any applicable strategic plans or guidelines provided that the identified construction impacts are mitigated in line with the recommendations of this assessment.

### 6.3 Operation impact assessment

This section provides an overview of the potential land use impacts associated with operation of the project.

#### 6.3.1 Land use changes

An easement would be introduced across the underground pipeline alignment, limiting the use of land within that easement and allowing occasional inspection and monitoring. This easement would limit structures and deep-rooted vegetation on this land. It is not expected that the impacts of this easement would be significant given the nature of land uses affected and the proposed location of the pipeline.

By locating the underground pipeline within an easement that utilises existing road corridors and previously disturbed areas such as within the refinery, the project minimises impacts on other land use typologies.

The pipeline easement would traverse two private properties located at 580 Rennie Street, Corio and 110 Macgregor Court, Lara, however the pipeline easement would be located adjacent to the boundaries of these properties and is therefore not anticipated to impact the existing or future use of the land for residential purposes.

Furthermore, the project will be located between existing underground pipeline easements within an infrastructure corridor which is separated from residential properties within the RLZ by Macgregor Court. Macgregor Court provides an additional buffer between the underground pipeline and the properties to the east. Accordingly, the magnitude of the impact of this land use intensification within a residential land use area in this context would be low.

The project intersects an area of conservation land adjacent to Shell Parade, which was previously subdivided for residential purposes. This area is within the PCRZ and has now been identified as an area containing native grassland (ESO4). The PCRZ aims to preserve land for conservation purposes. The current planning controls applying to this land are intended to restrict residential development from occurring. Greater Geelong City Council has in place a voluntary purchase scheme for the former subdivision however a number of land parcels traversed by the underground pipeline remain in private ownership and are subject to the controls of the FZ. The underground pipeline operation would not include aboveground activities except for infrequent inspection and monitoring, and therefore would not diminish the role of this land as a grassland reserve. Ecological studies conducted in support of the project EES indicate that the area of proposed pipeline easement within the Corio Native Grassland Reserve is entirely characterised by exotic species.

Accordingly, the magnitude of this land use impact would be low. Furthermore, as there is no planned or reasonably foreseeable development intended for this land, it is reasonable to expect that it will remain undeveloped, with the presence of the underground pipeline unlikely to impact future use of the land.

The extent of any impact from land use change would be localised to the pipeline easement within the RLZ and the PCRZ.

The duration of this impact will reflect the operational life of the project, including decommissioning period (refer section 6.4). As a result, the land use impacts are considered to be minor. An Operational Environment Management Plan (OEMP) would be prepared and implemented for the project's operation phase, as required by the Incorporated Document, which would further mitigate any potential impacts.

The residual impact of land use changes during operation is expected to be negligible following preparation and implementation of an OEMP.

### **6.3.2 Disruptions associated with infrastructure maintenance**

Planned and unplanned maintenance of the project during operation may result in some minor land use impacts by way of potential temporary disruptions to roads due to additional generated traffic movements. The magnitude of these traffic impacts is considered negligible, as additional traffic demand generated during maintenance operations are consistent with the existing use of road networks within the study area, and can be appropriately managed to ensure minimal disruption to roads through the OEMP. Maintenance may be required from time to time across the full extent of the project. This impact would be most notable when maintenance is required for the underground pipeline outside of the refinery. The maintenance would be undertaken via a pig launcher which would be temporarily installed at the treatment facility where the pig would be launched for underground pipeline cleaning, monitoring and maintenance. There may be periodic vegetation removal in the pipeline easement should deep-rooted vegetation with the potential to impact the integrity of the pipeline need to be cleared, however, no other specific aboveground activities are proposed. The OEMP will ensure that impacts are managed in a planned manner wherever possible, allowing for advance notification to affected properties if and where required, mitigating disruptions to adjacent properties within the RLZ.

Any specific maintenance activities for the above or below ground parts of the project would be localised to specific areas.

While maintenance would be required at various times throughout the project's operational life, any specific maintenance activities are likely to be temporary and short term.

Land use impacts associated with traffic generation during maintenance of the project would be mitigated through the preparation and implementation of an OEMP, including a TMP. The OEMP would outline management strategies to minimise the effects of increased traffic generation during maintenance. Detailed measures for managing traffic during the project's construction and operational phases can be found in the Technical Report K: *Transport impact assessment*.

The residual impacts of disruption associated with maintenance during project operation are expected to be negligible following preparation and implementation of an OEMP.

### **6.3.3 Visual impacts**

The project comprises a number of above ground elements that would result in a change to the existing visual landscape during operation. These elements include the FSRU, LNG carrier, the new Refinery Pier arm, the aboveground pipeline section on the pier and within the refinery, and the treatment facility.

These elements would alter the visual landscape as viewed from nearby coastal areas and reserves. Technical Report J: *Landscape and visual impact assessment* assessed the view from seven sensitive locations and through the development of a series of photomontage images concluded that potential impacts would range from low/negligible to moderate. It is not expected that changes to the visual landscape would diminish the ability of surrounding areas to provide current levels of recreational and leisure value, or to continue their existing land use function. The proposed project infrastructure generally sits lower than many of the existing elements as seen from each of the assessed views and does not obstruct the higher value views of the water or the native vegetation. Viewpoints that would experience moderate visual impacts would include the residential area to the west, School Road, nearby coastal areas (on the shores of Limeburners Bay) and Avalon Beach.

Due to the existing industrial context of the proposed infrastructure, mitigation measures were not considered necessary for the majority of sensitive viewpoints with the exception of the treatment facility as this would be visible from School Road. Technical Report J: *Landscape and visual impact*

*assessment* recommends planting of advanced native trees at this location to screen the view of the treatment facility from the road.

The land upon which the treatment facility is proposed to be located is subject to DDO20, which applies specific requirements relating to the design and built form of new development. Whilst the proposed treatment facility is located within an existing laydown area and is well setback from adjacent roads, a requirement for the detailed design of the treatment facility to respond to the objectives of the DDO20 will ensure that the broad objective of this control is met, and that a well-designed site responsive facility is delivered. The Incorporated Document requires consideration of DDO20 to be undertaken during detailed design for the project.

A more detailed assessment of potential landscape and visual impacts can be found in Technical Report J: *Landscape and visual impact assessment*.

#### **6.3.4      Amenity impacts to sensitive land uses**

During operation of the project, all modelled scenarios from the proposed infrastructure are predicated to comply with the Noise Protocol Night Limits at all nearby sensitive receptors. The noise limits for the night period (10am to 7am) are the most stringent criteria, and operational activities that comply with this criterion would also comply with the day and evening noise limits.

There is the potential for cumulative noise impacts from the existing industries, combined with the noise emissions from the project, at Geelong Grammar, Biddlecombe Avenue and School Road dwellings. However, it is considered highly unlikely that this exceedance would occur as it represents the 'worst case' night time scenario which would involve an LNG carrier moored adjacent to the FSRU operating at full production in closed loop mode with nitrogen trucks unloading nitrogen and nitrogen injection occurring simultaneously at the treatment facility. The concurrence of all these activities at night time would be unlikely to occur or be a rare event, and scheduling of activities to less sensitive day time hours would ensure this.

All modelled scenarios for the air quality impact assessment demonstrated there are no exceedances of adopted criteria at any of the sensitive, industrial or gridded receptor locations. Similar to the modelled potential noise impacts, it is expected that peak demand cases would be infrequent. The air modelling assessment demonstrates that air quality impacts from the FSRU operations would be minor and emissions are unlikely to have regionally or State significant effects on the air environment.

#### **6.3.5      Summary of residual operation impacts**

The project contributes to the overarching strategic imperatives of planning policy for industrial development in the region by enhancing the role of the port as an industrial base and by limiting social and environmental impacts through an alignment that avoids sensitive receptors and land uses. Operation of the project will ensure resource security for Victoria, while providing ongoing employment opportunities in the industrial sector.

Residual land use impacts associated with project operation are considered to be negligible to moderate. This is on the basis that potential land use impacts are low in magnitude and spatial extent, the project is in an already industrialised setting and potential impacts could be mitigated with the preparation and implementation of management plans. Residual operation impacts include:

- negligible residual impacts associated with land use changes
- negligible residual impacts associated with disruptions to roads during project maintenance
- low/negligible amenity impacts associated with noise and air quality that could impact land use
- low/negligible to moderate residual visual impacts

It is unlikely that project operation would detrimentally impact on the current or foreseeable land uses and businesses within the study area. Operation of the project is consistent with policies seeking to enhance the function of the port and does not conflict with policies and strategies relevant to areas outside of the refinery. However, there is potential for a low probability, high consequence major incident to occur at the port, involving LNG once the FSRU is operational. The impact of such an event on personnel and property (including the refinery) could be extremely high and is the premise for licensing the FSRU as an MHF.

## **6.4 Decommissioning impact assessment**

The departure of the FSRU from the pier and the subsequent conclusion of LNG carrier berthing is expected to occur approximately 20 years following commencement of the project. The conclusion of the approved use will remove any opportunity for land use impacts after project operation is complete. The FSRU's departure from the port would constitute a regular function of the port and its surrounding waters. Other parts of the project such as the underground pipeline are currently planned to be retained in situ, mitigating the requirement for specific decommissioning activities.

The retention of the new pier infrastructure, treatment facility and aboveground pipelines would constitute a long-term change to the visual landscape in the study area. However, it is not unreasonable to assume that infrastructure of this nature is consistent with a port and industrial land use.

Equally, it is expected that some sporadic maintenance and monitoring of the remaining project components would be required. This would be negligible in magnitude, and spatial extent, and therefore would not constitute a land-use impact that requires mitigation. Any subsequent redevelopment or use of the infrastructure would be subject to a separate assessment and approvals process.

### **6.4.1 Summary of residual decommissioning impacts**

Decommissioning activities are highly unlikely to result in land use impacts and no specific mitigations are required for the decommissioning stage.

## 7.0 Recommended mitigation measures

Mitigation measures are not anticipated to be required to avoid, minimise and mitigate potential adverse effects on land use. It is considered that the mitigation measures forming part of a CEMP and OEMP, including a TMP and MHF Emergency Plan, would adequately mitigate any potential amenity impacts. The Incorporated Document and Pipeline Licence require the preparation and implementation of a CEMP and OEMP, including the consideration of DDO20 in detailed design.

### 7.1 Performance monitoring

This assessment has identified that mitigation is not required as a result of land use impacts. The preparation of specialist management plans including the CEMP, OEMP and TMP, will contain performance evaluation and monitoring measures.



## 8.0 Conclusion

The objective of this assessment was to determine the extent, duration and magnitude of potential land use impacts associated with the construction, operation and decommissioning phases of the project and to identify mitigation measures. This assessment has considered the existing conditions within the study area and the planning policy context that guides land use within it.

Overall, it was identified that the project is consistent with the overarching state and local planning policies relevant to the study area, as it will enhance the role of the port and support industrial economic outcomes. These benefits are balanced with the approach of the project EES, which would result in potential social, economic, and environmental impacts being managed through mitigation measures incorporated into the EES should the project receive a favourable assessment in the EES process.

It was identified that construction activities would result in some minor residual land use impacts following the preparation and implementation of management plans which will be required under the PSA and the Pipeline Licence. Some potential negligible and minor land use impacts were identified for the project's operational phase but considered to be readily manageable through the recommended mitigation measures. No land use impacts were identified as having the potential to occur during decommissioning of the project and no mitigations were recommended for decommissioning. All residual land use impacts identified in this report are summarised at Section 8.1.

Overall, it is concluded that:

- the project achieves good compliance with strategic plans specifying or encouraging land use outcomes for land to be occupied by the project
- use of or access to existing infrastructure in the study area and in its vicinity would not be detrimentally impacted
- the project would not cause detrimental impacts to recreational boating and other recreational activities from the project.

### 8.1 Residual impacts

The residual land use impacts identified in this assessment include the following:

- minor residual impacts to road and infrastructure access during temporary construction activities across the extent of the study area
- minor residual impacts associated with temporary land use changes in areas where construction is required to occur
- minor residual amenity impacts to sensitive land uses associated with temporary construction activities
- negligible residual impacts associated with permanent land use changes
- negligible residual impacts associated with disruptions to roads during project maintenance during operation
- low/negligible to moderate residual visual impacts associated with operation of the project
- low/negligible residual amenity impacts that could impact land use during project operation.