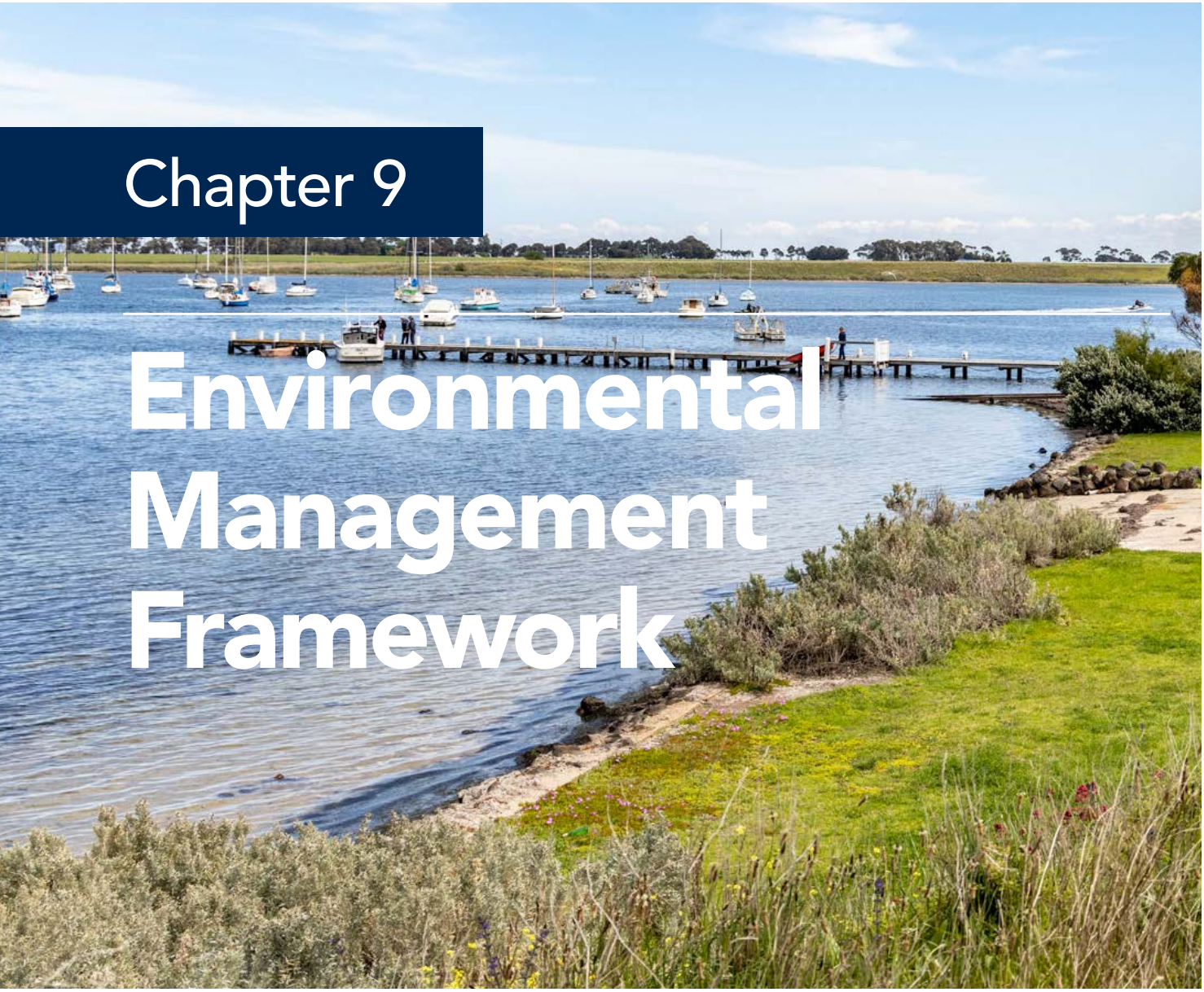

Chapter 9

Environmental Management Framework

This chapter presents the Environmental Management Framework (EMF) for the Viva Energy Gas Terminal Project (the project). The EMF outlines the environmental requirements of the project and how environmental effects will be managed.

The framework sets out the mitigation measures that would be implemented by the proponent to avoid, minimise or manage potential adverse effects of the project and identifies the relevant statutory approvals that will give effect to these measures. Roles and responsibilities of key stakeholders are defined in the EMF to ensure that there are clear accountabilities for the implementation of the environmental management requirements.

9.1 Overview

An EMF was developed as part of the Environment Effects Statement (EES) (Chapter 14 hereafter referred to as EES EMF). Development of the EES EMF and associated mitigation measures was guided by the Environment Effects Statement (EES) scoping requirements, relevant legislation, policy and guidelines including the statutory approvals and consents that will be required. The EES EMF and associated mitigation measures were also informed by impact assessments in the specialist studies completed for the original EES. In this chapter the EES EMF has been updated following the outcomes of the Inquiry and Advisory Committee (IAC) inquiry process and the Supplementary Statement studies.

The EMF outlines the relevant statutory approvals and consents required for the project and how mitigation measures will be incorporated within the approval conditions or within environmental management plans to be pursuant to statutory approvals. Viva Energy Gas Australia Pty Ltd (Viva Energy) will use the EMF, statutory approvals and consents and any associated environmental management plans to implement the mitigation measures and will monitor the implementation of the statutory approval conditions.

The mitigation measures outlined in the EMF have been developed to avoid, minimise and manage adverse environmental effects. The relevant statutory approval or consent that will give effect to the management and monitoring of potential effects are outlined in Section **9.3** (statutory approvals and consents). Environmental Management Plans (EMPs) will be prepared to incorporate the mitigation measures and these plans will be approved and enforced pursuant to the relevant statutory approval.

EMPs required under statutory approvals and consents will be subject to updates by Viva Energy to ensure commitments are incorporated and adhered to. Implementation of the approach outlined in this EMF and the subsequent statutory obligations would be effective in controlling adverse effects associated with the construction and operation of the project and would support achievement of the project objectives. They also provide a clear, transparent, robust and comprehensive approach to organisational responsibility and accountability arrangements.

9.2 Scoping requirements

Section 3.7 of the original EES scoping requirements establishes the requirement for an EMF to be prepared for the project:

> "The proponent is to provide an environmental management framework (EMF) for the project in the EES. The EMF will provide a transparent framework with clear accountabilities for managing and monitoring the environmental effects and hazards associated with the construction and operational phases of the project. The entity responsible for approval of management/environmental plans will be identified."

Table 9-1 outlines the original EES scoping requirements for the EMF along with the relevant section within this chapter where these requirements are addressed.

Table 9-1 Original EES Scoping requirements for the EMF

Original EES scoping requirement	Relevant section in this chapter
The EMF must outline how potential adverse effects on community, businesses and land uses from changes in air quality and noise, traffic, landscape and visual amenity will be avoided, minimised or mitigated.	**Section 9.7**
Describe the baseline environmental conditions to allow evaluation of the residual environmental effects of the project, as well as the efficacy of applied environmental management and contingency measures.	**Section 9.5**
Include an environmental management system, with organisational responsibilities, accountabilities and governance arrangements.	**Section 9.8**

Original EES scoping requirement	Relevant section in this chapter
Include an environmental risk register that is maintained during project implementation.	**Section 9.6**
Include environmental management measures proposed in the EES to address specific issues, including commitments to mitigate adverse effects and enhance environmental outcomes.	**Section 9.7**
Set out procedures for complaints recording and resolution.	**Section 9.14**
Set out procedures for auditing and reporting of performance including compliance with relevant statutory conditions and standards.	**Section 9.13**
Set out procedures to review of the effectiveness of the environmental management framework for continuous improvement.	**Section 9.9** and **Section 9.10**
The EMF should describe proposed objectives, indicators and monitoring requirements, including for (but not limited to) managing or addressing: • biodiversity values (including MNES and offsets); • marine sediment and water quality, and protection of marine environmental values; • landscape and visual values; • social outcomes and community engagement; • safety outcomes; • maintenance of the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site; • groundwater and surface water quality, surface water flow and groundwater regimes; • solid and liquid waste, including recycling and handling of potentially hazardous or contaminated waste, potential acid sulphate soils and other excavated spoil; • noise and emissions to air including greenhouse gases particularly with respect to managing impacts on amenity during construction; • Aboriginal and historic cultural heritage values; • transport management including managing temporary disruption and changed accessibility during construction; • emergency management; and • site reinstatement.	**Section 9.7** and **Section 9.11**

9.3 Statutory approvals and consents

This section provides an overview of the regulatory framework that would apply for the project to proceed. Further information on the regulatory framework for the project is provided in EES Chapter 5: *Legislative framework and approval requirements*. Viva Energy must obtain a number of statutory approvals as part of the regulatory approval process. **Table 9-2** and **Figure 9-1** outline the approvals and consents required for the project.

Table 9-2 Statutory approvals and consents

Legislation	Statutory approval authority	Statutory approval
Environment Protection and Biodiversity Conservation Act 1999 (Cth)	Commonwealth Minister for the Environment	Approval of the project which is a controlled action
Marine and Coastal Act 2018 (Vic)	Minister for Energy, Environment and Climate Change	Consent to 'undertake works on marine and coastal Crown land' (dredging) Consent for the 'use and development of marine and coastal Crown land' (Floating storage and regassification unit [FSRU], pier extension and piping from the FSRU to the existing refinery cooling water intake)
Environment Protection Act 2017 (Vic)	Environment Protection Authority (EPA)	Development Licence and Operating Licence for the installation and operation of the FSRU Development Licence or exemption for the Geelong refinery for a new prescribed activity and a modification to the existing Operating Licence for the Geelong refinery to permit new prescribed activity (as the holder of the current EPA Licence 46555 Viva Energy Refining Pty Ltd will be the applicant for this Development Licence)
Planning and Environment Act 1987 (Vic)	Minister for Planning	Planning Scheme Amendment (Specific Controls Overlay) to the Greater Geelong Planning Scheme
Pipelines Act 2005 (Vic)	Minister for Energy, Environment and Climate Change Energy Safe Victoria	Pipeline Licence to construct and operate a pipeline, including: • Environment Management Plan (EMP) • Safety Management Plan (SMP) • Pipeline Consultation Plan (PCP)
Aboriginal Heritage Act 2006 (Vic)	First Nations – State Relations and relevant Registered Aboriginal Party (Wadawurrung Traditional Owners Aboriginal Corporation [WTOAC])	Cultural Heritage Management Plan (CHMP)
Gas Safety Act 1997 (Vic)	Energy Safe Victoria (ESV)	Gas safety case

Legislation	Statutory approval authority	Statutory approval
Occupational Health and Safety Act 2004 (Vic)	WorkSafe Victoria (WSV)	Major Hazard Facility (MHF) Licence for FSRU and amendment to the current Geelong refinery MHF Licence for the treatment facility
Flora and Fauna Guarantee Act 1988 (Vic)	Minister for Energy, Environment and Climate Change Minister for Agriculture	A permit for vegetation clearance of FFG Act-listed threatened species or threatened communities on public land.

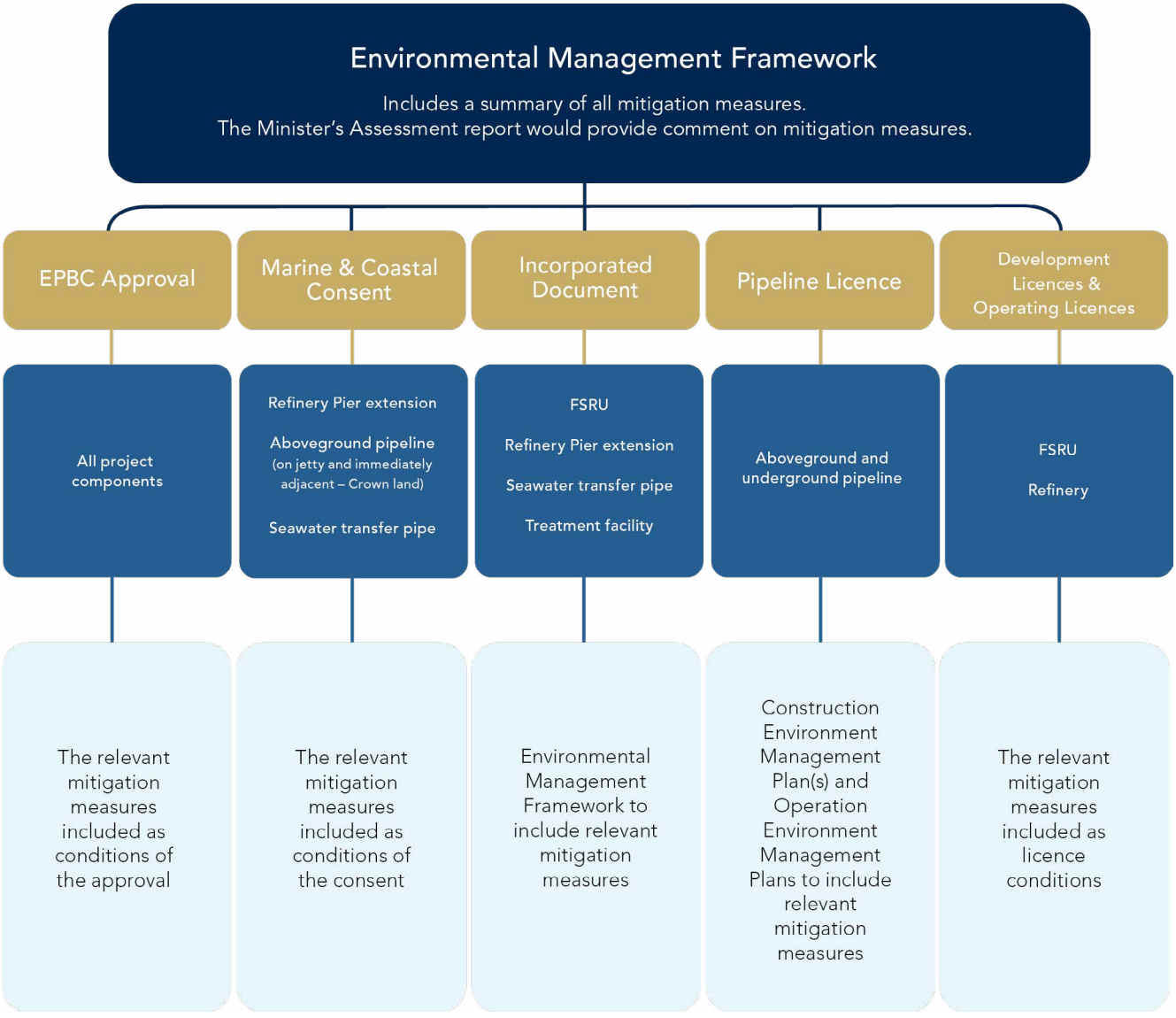

Figure 9-1 Key approvals for each project component

9.4 Roles and responsibilities

Viva Energy will be responsible for:

- Overseeing and engaging the contractors and consultants required for the detailed project design.
- Site investigations.
- Obtaining secondary approvals.
- Procurement.
- Construction delivery.
- Commissioning and operation of the project.

Viva Energy will also be responsible for supervising the contractor(s) and ensuring that project delivery complies with relevant statutory approvals. Viva Energy will be responsible for reporting compliance and/or environmental management performance to all relevant regulators, as required, under each approval or relevant statutory instrument.

The roles and responsibilities of the key stakeholders relevant to environmental management of the project are outlined in **Table 9-3**.

Table 9-3 Project roles and responsibilities

Stakeholder	Role	Responsibility
Government representatives including EPA, Minister for Planning, Energy Safe Victoria, WorkSafe Victoria, First Nations – State Relations and Minister for Energy, Environment and Climate Change	Regulators	• Incorporate mitigation measures as statutory approvals conditions or require that they be included in the environment management plans to be prepared and approved under the approval conditions • Administer and enforce statutory approvals • Review and approve, where necessary, relevant environmental management plans • Receive and review audit reports from the Independent Environmental Auditor(s), in compliance with relevant approval conditions, where required.
Victorian Minister for Planning	Regulator	• Review the EMF and mitigation measures in the Supplementary Statement and recommend adoption by relevant regulatory agencies in statutory approvals as part of the Minister for Planning's assessment of the EES and Supplementary Statement. • Approve the planning scheme amendment and conditions of the project incorporated document • Review the Environmental Management Framework required under the project incorporated document • Review the CEMP and OEMP required under the project incorporated document • Where relevant, administer and enforce approved environmental management plans as responsible authority for the administration and enforcement of the incorporated document through the planning scheme amendment.
Commonwealth Minister for Environment	Regulator	• Administer and enforce the Environment Protection and Biodiversity Conservation (EPBC) approvals for the project • Review and approve environment management plans as required under the relevant EPBC approvals • Administer and enforce environment management plans and strategies approved pursuant to those approvals • Receive audit or monitoring reports as required.

Stakeholder	Role	Responsibility
Wadawurrung Traditional Owners Aboriginal Corporation	Regulator	• Evaluate and approve the project CHMP, as the Registered Aboriginal Party.
Viva Energy Gas Australia Pty Ltd	Proponent	• Obtain applicable statutory approvals for the project • Prepare environment management plans, incorporating mitigation measures and other relevant legislative requirements and approval conditions • Develop contractor tender documentation reflecting requirements from approval conditions and clearly articulating requirements for incorporation of environment management plan compliance into tender responses • Review and approve contractor environment management plans prior to being submitted to statutory authorities for approval pursuant to relevant statutory approvals • Monitor contractor's compliance with approved mitigation measures and approvals conditions, as outlined in the environment management plans and take corrective action where required • Viva Energy will be responsible for compliance and/or environment management performance, compliance with statutory approvals and associated reporting to all regulators as required.
Project contractors and consultants	Proponent appointed for detailed project design, site investigations, obtaining secondary approvals, procurement, construction delivery and commissioning of the project	• Project contractors to prepare management plans in accordance with proponent tender documents, proponent environment management plans and other relevant legislative requirements, and approval conditions that have been obtained by Viva Energy • Ensure compliance with approved environment management plans during project delivery and take corrective action where required • Contractors will be responsible for reporting compliance with approved environment management plans and statutory approvals conditions to Viva Energy • Consultants may be responsible for obtaining secondary approvals on behalf of Viva Energy where required.
Independent Environmental Auditor(s) (IEA)	Proponent appointed independent auditor for review and verification	• Prior to commencement of work, assess contractors' management plans for adequacy in compliance with statutory approvals • Conduct audits of contractors' construction works and operations, at agreed intervals, to assess compliance with the CEMPs and OEMPs • Prepare audit reports for project proponent and recommend corrective and preventive actions as required • Submit relevant audit reports to the applicable regulator(s), as applicable • The IEA must include persons with expertise, based on qualifications and experience, appropriate to allow the roles specified for the IEA in the EMF to be properly carried out.

9.5 Existing conditions

Characterising the existing environmental, social and safety conditions in the area is important to develop an understanding of the baseline conditions without the project. The existing conditions assessment allows for the evaluation of the potential environmental, social and safety effects of the project, as well as the efficacy of applied environmental management and contingency measures.

The results of the existing conditions assessments were presented in each of the technical studies developed for the EES and have been updated in the Supplementary Statement studies, as required.

9.6 Risk screening

A risk-based screening approach was used for the original EES assessment in accordance with the requirements outlined in the 'Ministerial guidelines for assessment of Environmental Effects under the *Environment Effects Act 1978*' (page 14). The risk screening was undertaken to ensure that the level of investigation conducted in each technical study was adequate to inform an assessment of the significance 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.

The results of the risk screening were presented in each of the technical studies developed for the EES.

9.7 Impact assessment and mitigation measures

In the original EES an environmental impact assessment was undertaken for each of the 18 technical studies based on the defined area of study. This involved an assessment of the nature and extent of identified impacts that the project may have on the existing environment. A number of factors were taken into consideration when determining the significance of potential impacts and in particular, the magnitude, spatial extent and duration of potential impacts on the environment were considered.

Mitigations measures were recommended based on the results of the impact assessment and the hierarchy of controls by technical specialists in order to avoid, minimise, manage or offset potential environmental, social and safety impacts. Where possible, potential impacts were avoided through changes to the design e.g., modification of the pipeline route to avoid areas of environmental sensitivity and reduction of the project footprint to avoid areas of native vegetation. Where impacts could not be avoided, mitigation measures were recommended to minimise and manage potential impacts. Mitigation measures were also been recommended for performance monitoring throughout each phase of the project to monitor and evaluate the residual environmental effects of the project, as well as the efficacy of applied environmental management and contingency measures.

Table 14-4 of the EES EMF outlined the proposed mitigation measures for the project to provide controls on project activities that may impact on and give rise to risks for the following subject areas:

- Aboriginal cultural heritage.
- Air quality.
- Climate change.
- Contamination and acid sulfate soils.
- Greenhouse gas.
- Groundwater.
- Historic heritage.
- Landscape and visual.
- Light spill.
- Marine ecology and water quality.
- Noise and vibration.
- Safety, hazard and risk.
- Social and business.
- Surface water.
- Terrestrial ecology.
- Traffic and transport.
- Underwater noise.

Table 9-4 of this chapter provides an updated mitigation register based on the mitigation register previously presented in Viva Energy's Part C Submission to the IAC public hearing (Proponent Part C changes to mitigation register, 3 August 2022). The Part C Submission version of the mitigation register included changes to Table 14-4 of the EES EMF in response to both the expert conclaves held prior to the public hearing and submissions made during the hearing.

Following the hearing, the IAC recommended further changes in a version of the mitigation register in Appendix G of IAC Report No. 2. Therefore, the mitigation measures presented in this chapter reflect the changes to Table 14-4 of the EES

EMF presented in Viva Energy's Part C Submission, the adoption of recommendations from Appendix G of IAC Report No. 2 and the outcomes of the Supplementary Statement studies.

9.7.1 Supplementary studies and mitigation measures

Five specialist technical studies have been undertaken across the four subject areas in response to the Minister's Directions:

- Supplementary marine environment impact assessment.
- Supplementary threatened and migratory birds impact assessment.
- Supplementary air quality impact assessment.
- Supplementary noise impact assessment.
- Underwater Aboriginal cultural archaeological assessment.

In addition, WTOAC has been sponsored by Viva Energy to undertake a cultural values assessment in order to fulfil the requirement of Recommendation 12 of the Minister's Directions.

The sections below provide an explanation of the reasons for either retaining or making further changes to the mitigation measures relevant to the further work required by the Minister's Directions.

9.7.1.1 Aboriginal cultural heritage

Mitigation measure MM-AH01 has been revised to include updating the CHMP (CHMP 17816) following the undertaking of a cultural values assessment and an underwater Aboriginal cultural archaeological assessment, as required by Recommendation 12 in Table 1 of the Minister's Directions. The CHMP will be updated in consultation with the Registered Aboriginal Party (RAP) in accordance with the requirements of the *Aboriginal Heritage Act 2006* and associated regulations prior to submission of the CHMP to the RAP for evaluation (and a decision to either grant or refuse the CHMP).

The additional text, shown in blue, is consistent with the change recommended by the IAC (Report No. 2 Appendix G).

Furthermore, three new mitigation measures MM-AH02, MM-AH03 and MM-AH04, shown in red, have been adopted by Viva Energy to demonstrate a commitment to ongoing collaboration with WTOAC in assessing, and avoiding or mitigating, potential impacts on underwater cultural heritage and intangible cultural values, both onshore and offshore.

9.7.1.2 Air quality

In accordance with Recommendation 11 in Table 1 of the Minister's Directions the focus of the supplementary air quality study was to conduct a sensitivity analysis of the air quality modelling and confirm the acceptability of the air quality impact associated with the operation of the FSRU. The findings of the supplementary air quality study and the findings of the EES air quality impact assessment are consistent with respect to project related air emissions and the acceptability of impacts. Therefore, no mitigation measures have been added and no changes have been made to the two air quality mitigation measures relevant to operation of the FSRU, MM-AQ10 and MM-AQ11.

9.7.1.3 Light Spill

In accordance with Recommendation 9 in Table 1 of the Minister's Directions the supplementary threatened and migratory birds study considered a consolidated list of threatened and migratory bird species that could potentially be affected by the project, including marine species not previously assessed in the EES. The supplementary study concluded that light associated with construction and operation of the project in the existing modified environment is unlikely to significantly affect migratory shorebirds or seabirds. Therefore, no mitigation measures have been added. Light spill mitigation measure MM-LS02 (formerly incorrectly numbered MM-LS03) has been amended to reference the May 2023 version of the National Light Pollution Guidelines for Wildlife as shown in red.

Please note that the change to MM-LS02 recommended by the IAC (Report No. 2 Appendix G) has also been adopted as shown in blue.

9.7.1.4 Marine ecology and water quality

In accordance with Recommendations 1 to 8 in Table 1 of the Minister's Directions the objective of the supplementary marine environment study was to better establish the existing environment and the impacts of existing wastewater discharges from the refinery, refine the regional hydrodynamic model and re-run the modelling and confirm the EES conclusions based on the revised modelling. The findings of the of the supplementary marine environment study and the findings of the EES marine environment and water quality impact assessment are consistent and confirm the conclusions reached in the EES in relation to negligible to low impact from dredging, and current and future wastewater discharges.

Furthermore, the supplementary threatened and migratory birds study considered the consolidated list of threatened and migratory birds prepared to address Recommendation 9 of Table 1 of the Minister's Directions and the revised modelling and found that the conclusions reached in the EES remain unchanged and apply to the consolidated list, including marine species not previously assessed in the EES.

To minimise the potential impact of removal of seagrass during installation of the seawater transfer pipe, one new mitigation measure has been added, MM-ME20. MM-ME20 requires seagrass disturbance during excavation to be minimised as far as practicable, and seagrass transplantation to facilitate rehabilitation in accordance with the published Western Australian seagrass transplantation manual (Transplanting Posidonia Seagrass in Temperate Western Australian Waters: A Practical 'How To' Guide, BMT Oceanica, July 2013).The new mitigation measure is shown in red.

Mitigation measure MM-ME11 has been amended to reference the May 2023 version of the National Light Pollution Guidelines for Wildlife as shown in red.

Please note that changes to MM-ME04, MM-ME05, MM-ME06, MM-ME07 and MM-ME08 and the addition of mitigation measure MM-ME19 recommended by the IAC (Report No. 2 Appendix G) have also been adopted as shown in blue.

9.7.1.5 Noise

In accordance with Recommendation 10 in Table 1 of the Minister's Direction the purpose of the supplementary noise study was to further assess noise impacts from dredging and project operation. The study focused on characterisation of the pre-existing noise environment, determination of appropriate noise limits and demonstration of compliance with those noise limits.

Cumulative pre-existing industry and dredging noise levels are predicted to exceed the recalculated noise limits under noise enhancing weather conditions during the evening at one location and during the night at three locations. MM-NV04 has been revised, as shown in red, to include contingency measures to minimise the risk of unreasonable noise due to cumulative impacts during both the evening and night periods.

Pre-existing industry noise levels exceed the night time noise limit under noise enhancing weather conditions at three locations. Continued implementation of mitigation measure MM-NV05 will ensure that noise emissions from project operational activities are managed such that Project Noise Criteria are met and the project does not contribute to cumulative noise impacts.

MM-NV05 has been revised as shown in red to remove the requirements relating to further assessment of background and cumulative noise impacts and establishment of Project Noise Criteria, as these have been completed during the supplementary noise study as required by the Minister's Directions. Changes to MM-NV05 recommended by EPA at the conclusion of the supplementary noise study are also shown in red.

Please note that changes to MM-NV04 and MM-NV05 recommended by the IAC (Report No. 2 Appendix G) have also been adopted as shown in blue.

9.7.1.6 Terrestrial ecology

The supplementary threatened and migratory birds study considered the consolidated list of threatened and migratory birds prepared to address Recommendation 9 of Table 1 of the Minister's Directions. The study found that the conclusions reached in the EES terrestrial ecology impact assessment remain unchanged and apply to the consolidated list.

Therefore, no mitigation measures have been added. Mitigation measures TE07 to TE12 have been renumbered sequentially as TE04 to TE09. Terrestrial ecology mitigation measure MM-TE06 formerly TE09 has been amended to reference the May 2023 version of the National Light Pollution Guidelines for Wildlife as shown in red.

Please note that changes to MM-TE05 formerly TE08, MM-TE06 formerly TE09 and MM-TE07 formerly TE10 recommended by the IAC (Report No. 2 Appendix G) have also been adopted as shown in blue.

Legend for Table 9-4

Mitigation measures in Table 9-4 are marked as follows:

Blue text indicates changes recommended by the IAC Report No. 2 Appendix G (dated 5 October 2022). The majority of changes recommended by the IAC Report No.2 Appendix G (dated 5 October 2022) have been adopted, * indicates partial adoption.

Red text indicates changes made during the supplementary studies

Mitigation measures shaded grey are not relevant to the Recommendations for further work which are the scope of the Supplementary Statement process but are included to integrate the findings of the previous EES studies, to achieve a sound and effectively integrated body of work as required by the Minister's Directions.

Table 9-4 Mitigation measures

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
Aboriginal cultural heritage EES evaluation objective: To avoid or minimise adverse effects on Aboriginal and historic cultural heritage					
MM-AH01	**CHMP 17816 Conditions** The CHMP will be updated (as necessary) following the undertaking of a cultural values assessment to identify intangible values relevant to the project (both onshore and offshore) and an underwater Aboriginal cultural archaeological assessment for the proposed dredging area. The project will be delivered in accordance with conditions set out in CHMP 17816 to manage any potential harm to known Aboriginal places and values. Typical management conditions include, but are not limited to: • Conditions for harm avoidance and/or harm minimisation measures • Conditions for harm mitigation measures where appropriate, including requirements for surface artefact collection and/or salvage excavations and appropriate analysis and reporting • Conditions for the removal, custody, curation and management of Aboriginal cultural heritage (artefacts) identified during the CHMP. The CHMP will also provide necessary and appropriate mechanisms and processes to manage any potential harm to unknown Aboriginal places and values. Typical management of unknown Aboriginal places and cultural heritage values will include, but not limited to: • Contingency plans for the management of Aboriginal cultural heritage, including Aboriginal ancestral remains, unexpectedly identified during the construction phase of the project • Contingency plans for the removal, custody, curation and management of Aboriginal cultural heritage (artefacts) identified during the project • Review and compliance with the CHMP.	All	CHMP	Construction	Known or unknown Aboriginal cultural heritage values

Mitigation measures shaded grey are not relevant to the Recommendations for further work which are the scope of the Supplementary Statement process but are included to integrate the findings of the previous EES studies

Mitigation measures shaded grey are not relevant to the Recommendations for further work which are the scope of the Supplementary Statement process but are included to integrate the findings of the previous EES studies

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-AH02	**Cultural values assessment** Viva Energy will continue to collaborate with WTOAC in preparation of the cultural values assessment (CVA) and provide support for implementation of appropriate outcomes and recommendations relevant to the project.	All	Incorporated Document	Pre-construction Construction	Intangible Aboriginal cultural values
MM-AH03	**Cultural values** If the CVA identifies potential impacts of the project on land and sea country cultural values, Viva Energy will collaborate with WTOAC and FPSR to identify and adopt appropriate measures to avoid or mitigate impacts of the project on cultural values.	All	Incorporated Document	Pre-construction Construction	Intangible Aboriginal cultural values
MM-AH04	**Underwater cultural heritage** Viva Energy will continue to collaborate with WTOAC to identify appropriate measures to avoid or mitigate any potential impacts of the project on underwater cultural heritage values in the project area.	Refinery Pier extension Seawater transfer pipe Dredging	Incorporated Document CHMP	Pre-construction Construction	Known or unknown underwater Aboriginal cultural heritage values
Air quality EES evaluation objective: To minimise potential adverse social, economic, amenity and land use effects at local and regional scales					
MM-AQ01	**Dust suppression** Dust suppression will be used at construction areas as required using water sprays, water carts or other devices on: • unpaved work areas • sand, spoil and aggregate stockpiles • during the loading and unloading of dust generating materials.	Pipeline Treatment facility	Incorporated document Pipeline Licence	Construction	Airborne dust
MM-AQ02	**Restricted vehicle movements** After arrival at the project site, vehicles, plant and equipment will remain within the construction footprint and on public roads and designated tracks.	Pipeline Treatment facility	Incorporated document Pipeline Licence	Construction	Airborne dust
MM-AQ03	**Crushed rock on access tracks** Crushed rock will be placed on existing unsealed access tracks if required and as agreed with relevant stakeholders to prevent vehicle movements raising dust. Crushed rock will also be placed on access tracks subject to mud / slippery conditions.	Pipeline Treatment facility	Pipeline Licence	Construction	Airborne dust

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-AQ04	**Speed restrictions** Vehicle speed will be restricted to 40 km/h on the construction right of way (ROW) and unsealed access tracks / work areas.	Pipeline Treatment facility	Pipeline Licence	Construction	Airborne dust
MM-AQ05	**Covering vehicle loads** Construction vehicles with potential for loss of loads (such as dust or litter) will be covered when using public roads.	Pipeline Treatment facility	Incorporated document Pipeline Licence	Construction	Airborne dust Offensive odours
MM-AQ06	**Weather monitoring** Weather conditions will be monitored for extreme heat and/or wind events using systems such as the Bureau of Meteorology forecasts. Where conditions give rise to risks of air quality impacts at sensitive receptors, construction works will be stopped, or will not start, until the work can be done without such risk arising. Measures in MM-AQ01 will continue as required. The project will use existing refinery weather monitoring processes where appropriate.	Pipeline Treatment facility	Incorporated document Pipeline Licence	Construction	Airborne dust Offensive odours
MM-AQ07	**Dust monitoring** Observational monitoring of dust along the construction right of way (ROW) and at the treatment facility will be undertaken. A proactive approach to control or eliminate dust will be followed. If a dust source is observed ~~to be causing a hazard~~, then MM-AQ01 will be implemented. If dust levels cannot be contained with MM-AQ01 works will be modified or stopped until conditions are attained in which the work can resume without causing a dust hazard.	Pipeline Treatment facility	Incorporated document Pipeline Licence	Construction	Airborne dust
MM-AQ08	**Odorous soils management** In the event that odorous soils are uncovered during construction, the following measures will be undertaken: • Cessation of ground disturbance at the location and within the immediate vicinity. • Assessment of site contamination and determination of appropriate management actions in consultation with suitably qualified personnel. If odorous material is found to be contaminated, EPA will be notified if required in accordance with the requirements of the *Environment Protection Act 2017*.	Pipeline Treatment facility	Incorporated document Pipeline Licence	Construction	Offensive odours
MM-AQ09	**Equipment maintenance** Plant and equipment will be maintained in good condition to minimise spills and air emissions that may cause nuisance.	All	Incorporated document Consent under the *Marine and Coastal Act 2018* Pipeline Licence	Construction	Exhaust emissions

Mitigation measures shaded grey are not relevant to the Recommendations for further work which are the scope of the Supplementary Statement process but are included to integrate the findings of the previous EES studies

Mitigation measures shaded grey are not relevant to the Recommendations for further work which are the scope of the Supplementary Statement process but are included to integrate the findings of the previous EES studies

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-AQ10	**Maintenance of the FSRU burners** Maintenance of the burners in the boilers and engines will be undertaken regularly as per manufacturer's specifications.	FSRU	EPA Development Licence and Operating Licence	Operation	Pollutant emissions
MM-AQ11	**Monitoring FSRU emissions** An air quality monitoring program will be designed and implemented to confirm FSRU emission rates comply with design specifications.	FSRU	EPA Development Licence and Operating Licence	Operation	Pollutant emissions
MM-AQ12	**Minimisation of odorant emissions** The treatment facility will be designed and operated to minimise the risk of odorant releases as far as reasonably practicable. Arrangements will be put in place to monitor, record and publicly report all odorant releases, with a view to assessing and if necessary improving the performance of the odorant management arrangements	Treatment facility	EPA Development Licence and Operating Licence	Design Operation	Pollutant emissions
Climate change EES evaluation objective: To provide for safe and cost-effective augmentation of Victoria's natural gas supply having regard to projected demand and supply in context of the State's energy needs and climate policy.					
MM-CC01	**Implement adaptation measures** Climate projections will be factored into the basis of design, particularly the mooring analysis (alignment of FSRU and other vessels with the pier), materials and coatings choices and site hydrological modelling. This will be done using a risk-based design approach that, rather than simply picking a projection, considers the range of projections, the likely exposure of an asset (considering design life and projection timeframes), its criticality, sensitivity and adaptive capacity, in determining the appropriate design factors. Safety procedures and protocols will be updated to take into consideration severe weather conditions such as storm events and heatwaves	Refinery Pier extension FSRU Pipeline Treatment facility	Incorporated document EPA Development Licence and Operating Licence Pipeline Licence	Operation	Risks to the project from climate change (storm weather, extreme rainfall events, sea level rise and extreme heat events)

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
Contamination and acid sulfate soils (onshore)					
EES evaluation objective: To minimise adverse effects on water (in particular wetland, estuarine, intertidal and marine) quality and movement, and to the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.					
To minimise generation of wastes by or resulting from the project during construction and operation, including dredging and accounting for direct and indirect greenhouse gas emissions.					
MM-CO01	**Contaminated soils** • Contaminated soils (as identified within Zone 1 – the refinery) will be managed in accordance with: – *Environment Protection Act 2017* – ERS 2021 – PFAS National Environmental Management Plan 2.0 (2020) – EPA Victoria Publication: 1669.4: Interim Position Statement on PFAS (as amended or replaced from time to time) • Stockpiles of trench spoil will be managed in accordance with *APGA Code of Environmental Practice – Onshore Pipelines*. • Excess soils and HDD screened cuttings for off-site disposal will be sampled and classified in accordance with: – EPA Victoria Publication IWRG702: Soil Sampling (as amended or replaced from time to time) – EPA Victoria Publication 1828.2: Waste Disposal Categories - Characteristics and Thresholds (as amended or replaced from time to time) • Contaminated spoil for off-site treatment/disposal will be managed in accordance with: – Environment Protection Act 2017 and Environment Protection Regulations 2021 (as amended or replaced from time to time). – Any material imported for use as backfill will comply with the EPA Victoria Publication 1828.2 Waste Disposal Categories - Characteristics and Thresholds for 'Fill Material' (as amended or replaced from time to time) and the fill material determination. The backfill will be accompanied by relevant documentation confirming its compliance to the 'Fill Material' criteria.	Pipeline Treatment facility	Incorporated document Pipeline Licence	Construction	Mobilisation of contaminants Human health and environment impacts Offensive odours

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MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-CO02	**Contaminated groundwater** • Management strategies will be incorporated into the CEMP to manage contaminated groundwater in accordance with: – *Environment Protection Act 2017* – *Environment Reference Standard 2021* – PFAS National Environmental Management Plan 2.0 (2020). • A procedure which details the monitoring and management for any impact to the aquifer, human health and environment where groundwater is intercepted will be developed. • Management strategies to manage potential contaminated groundwater will be incorporated into the CEMP: – Disturbance of saturated soil and groundwater within the PFAS affected areas will be minimised (refinery and in vicinity of GW05) and the migration of PFAS into the surrounding soil or surface water will be prevented. Disturbance may be minimised by design of the infrastructure not to extend into the water table or to be bypassed by using HDD techniques. – Water from areas that have been identified as contaminated will not be discharged to the environment (land, waterways, sewer). – Where a wet-trench installation approach is not undertaken contaminated water will be sampled and either treated onsite, depending on contaminant encountered (this may require approval from the EPA Victoria) or disposed offsite to an EPA Victoria licensed facility.	Pipeline Treatment facility	Incorporated document Pipeline Licence	Construction	Mobilisation of contaminants Human health and environment impacts
MM-CO03	**Contaminant migration** Trench dewatering of groundwater or perched water will be avoided. In the unlikely event that dewatering of groundwater or perched water inflow is unavoidable, the trench will be dewatered prior to lowering the pipes.	Pipeline	Pipeline Licence	Design Construction	Mobilisation of contaminants Human health and environment impacts

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-CO04	**Unknown contamination** In the event that unknown contamination (including asbestos containing material) is encountered during construction: • Ground disturbance at the unknown contamination location and within the immediate vicinity will be ceased. • Site contamination will be assessed, and the appropriate remedial action will be identified. • The required remediation will be undertaken. • Such material may be identified by visual or olfactory observations, the presence of asbestos and/or other anthropogenic material.	Pipeline Treatment facility	Incorporated document Pipeline Licence	Construction	Mobilisation of contaminants Human health and environment impacts

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MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-CO05	**Acid sulfate soils** Where acid sulfate soil has been identified, or is encountered during construction: • Management strategies will be incorporated within the Construction Environmental Management Plan (CEMP) to manage potential ASS risk for a 'Medium' ASS hazard (CASS BPMG, 2010) in accordance with: – Industrial Waste Management Policy (Waste Acid Sulfate Soils) 1999 (as amended or replaced from time to time) – EPA Victoria Publication IWRG655.1: Acid Sulfate Soil and Rock (as amended or replaced from time to time) – Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soils (CASS BPMG, 2010) – National Acid Sulfate Soils Guidance (series of documents) 2018 • The CEMP must be approved by the Pipeline regulator in consultation with EPA Victoria. • Construction works will not occur during wet months unless conditions are such that land degradation and surface water management problems can be avoided, or appropriate mitigation measures implemented. • Relevant training will be provided to site-based personnel on the requirements of the ASS management procedure including the recommended time period over which soils may be temporarily stockpiled before treatment commences as recommended by the CASS BPMG (2010). • The duration of stockpiling will be minimised in accordance with the CASS BPMG (2010). • A procedure for managing the unexpected discovery of ASS/PASS will be included in the CEMP. • If ASSs are to be stockpiled for an extended time period (exceeding the CASS BPMG (2010) recommended short-term stockpiling durations), the potential generation of acidic leachate will be managed by treating the stockpile and or spreading a guard layer before stockpiling and/or covering the stockpile. The CEMP will include details for when or if the requirements for containment with bund and a leachate collection system is necessary. • Capture and manage run-off that has the potential to be impacted by stockpile material in accordance with the CASS BPMG (2010). • A procedure for management of abstracted groundwater including potentially acidic groundwater will be included in the CEMP.	Pipeline Treatment facility	Pipeline Licence	Construction	Mobilisation of contaminants Human health and environment impacts

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
	• Develop and implement a monitoring program as part of the CEMP in accordance with the CASS BPMG (2010) to measure the effectiveness of the management strategy and to provide an early warning of any environmental degradation or impact to surface water, groundwater and soils. • Include management procedure for trench dewatering that will limit PASS activation in accordance with the Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soils (CASS BPMG, 2010) and the National ASS Guidance 'Guidance for the dewatering of aid sulfate soils in shallow groundwater environments', in the CEMP. • A procedure for management of the impact of potentially acidic groundwater on underground infrastructure and the environment will be included in the CEMP.				
MM-CO06	**Drilling mud disposal** Drilling muds will be disposed in accordance: • The *Environment Protection Act 2017* and the Environment Protection Regulations 2021 - Schedule 5 of the Regulations will be used to classify drilling mud for appropriate disposal. Requirements for disposal of drilling mud will be confirmed at the time of construction. • APGA Code of Environmental Practice – Onshore Pipelines.	Pipeline	Pipeline Licence	Construction	Mobilisation of contaminants Human health and environment impacts
MM-CO07	**Hydrotest water** • Hydrostatic test water will be managed in accordance with ERS 2021 (Water) and APGA Code of Environmental Practice – Onshore Pipelines. • Water will be reused where practicable to conserve water and minimise the volume of water to be disposed of. • If water is unable to be reused or recycled, hydrotest water will be treated and disposed within the existing refinery or disposed of in accordance with Environment Protection Regulations 2021.	Pipeline	Pipeline Licence	Construction	Mobilisation of contaminants Human health and environment impacts

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MM-CO08	**Fuel and chemical leaks and spills** • Bulk fuel will be stored (if required) in self-bunded tanks in accordance with relevant Australian standards (AS1940-2017 and AS1692-2006). • Refuelling or maintenance of equipment, machinery and vehicles will be conducted at least 20 metres or as far away as is reasonably practical from any waterway with appropriate measures to contain spills. For sensitive sites (i.e., wetlands), refuelling or maintenance of equipment will be conducted no closer than 50 metres. • Hazardous materials will be stored in ventilated, self-bunded and secured containers in accordance with the *Occupational Health and Safety Act 2004* (OHS Act) and *Occupational Health and Safety Regulations 2007* (OHS Regulations). • Dangerous goods will be stored in accordance with the *Dangerous Goods (Storage and Handling) Regulations 2012* and the code of practice for the storage and handling of dangerous goods. • Routine and scheduled maintenance of vehicles and plant/machinery/equipment will be undertaken to minimise the potential for leaks/spills to occur. • Spill kits and firefighting equipment will be supplied with the chemicals required by legislation. • Dangerous goods and hazardous materials register will be maintained with current SDSs. • If a chemical leak or spill has occurred, the duty to respond to harm as per, Section 31 of the *Environment Protection Act 2017*, may be required.	All	Consent under the *Marine and Coastal Act 2018* Incorporated document Pipeline Licence Safety cases	Construction Operation	Mobilisation of contaminants Human health and environment impacts Occupational hazard
MM-CO09	**Waste management** • Waste will be managed in accordance with Environment Protection Regulations 2021 and the APGA Code of Environmental Practice – Onshore Pipelines, including establishment of appropriate and secured waste storage locations on-site, as required. • Waste management procedures will be developed and implemented. • Waste materials will be reused or recycled where practicable. • Wastes will be collected and transported by licensed contractors for disposal at appropriately licensed facilities. • Waste containers will be provided for different types of waste generated onsite. • Refuse containers will be lidded to mitigate fauna access.	All	Consent under the *Marine and Coastal Act 2018* Incorporated document Pipeline Licence	Construction Operation	Mobilisation of contaminants Human health and environment impacts Offensive odours

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
Greenhouse gas EES evaluation objective: To minimise generation of wastes by or resulting from the project during construction and operation, including dredging, and accounting for direct and indirect greenhouse gas emissions.					
MM-GG01	**Minimise embodied and transport emissions of materials** Low embodied energy and locally sourced materials will be considered and used where practicable to minimise embodied and transport emissions. This includes preference for cargoes with lowest net embodied emissions, so far as reasonably practicable. The proponent will develop criteria for a minimum proportion of supplementary cementitious material content in concrete, recycled steel, and recycled aggregates. The criteria will consider the location where materials are being sourced from to minimise associated transport emissions.	All	Incorporated document Pipeline Licence	Construction Operation	Embodied carbon Transport emissions
MM-GG02	**Managing quality of materials** Materials that are low maintenance and durable will be selected to avoid unnecessary replacement. The quality of key materials (i.e., pipe and mooring infrastructure) will be inspected before supplying to site to avoid additional transport and handling of materials.	All	Incorporated document Pipeline Licence	Construction	Transport emissions
MM-GG03	**Source local plant and equipment** Locally sourced plant and equipment (i.e., within Victoria) will be considered and used where practicable to reduce emissions associated with transport. Sourcing local plant and equipment where practicable will be included in the selection criteria for tendering of works associated with plant and equipment.	All	Incorporated document Pipeline Licence	Construction	Transport emissions
MM-GG04	**Coordination of construction activities** Construction activities will be coordinated to reduce unnecessarily extending the construction period and to avoid inefficient use of equipment.	All	Incorporated document Pipeline Licence	Construction	Direct greenhouse gas emissions
MM-GG05	**Sustainable procurement and resource management practices** Sustainable procurement and resource management practices will be adopted to avoid the inefficient use of materials, fossil fuels, and electricity. The proponent will refer to ISO 20400:2017 Sustainable procurement which provides guidance on integrating sustainability within procurement.	All	Incorporated document Pipeline Licence	Construction	Direct and indirect greenhouse gas emissions

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MM-GG06	**Local workforce** Local workforce will be engaged where possible. Interstate and international travel will be minimised and where appropriate replaced by virtual engagement. The proponent will complete a transport plan to detail how fuel emissions from employee transport would be minimised.	All	Incorporated document Pipeline Licence	Construction Operation	Transport emissions
MM-GG07	**Plant and equipment fuel efficiency** Selection of plant and equipment will incorporate consideration of fuel efficiency to reduce the consumption of fossil fuels.	All	Incorporated document Pipeline Licence	Construction Operation	Direct greenhouse gas emissions
MM-GG08	**Waste – avoid, reduce, reuse** Design will reduce the total quantum of materials required through design refinement and incorporate reuse materials during construction and operation of the project. The proponent will develop a waste management plan that considers waste reduction, segregation of waste, and disposal of waste to ensure that waste is correctly separated and diverted from landfill where appropriate.	All	Incorporated document Pipeline Licence	Design Construction Operation	Direct and indirect greenhouse gas emissions Waste emissions
MM-GG09	**Implementation of Energy Management Systems** An energy management system will be implemented in accordance with the International Organisation for Standardisation (ISO) 50001 *Energy Management Systems* (ISO 50001) for the operation of the FSRU. The ISO 50001 provides a framework for organisations to take a systematic approach to achieve continual improvement of energy performance and efficiency and reductions in greenhouse gas emissions. This framework is considered global best practice, and involves: • developing energy use baselines • developing energy management plans • identifying performance indicators • setting targets for improvement. Progress will be regularly monitored, reported, and reviewed. Greenhouse gas emissions reporting will include public reporting under the NGER scheme and Viva Energy's corporate Sustainability reporting. Implementation of this system will also involve external certification by ISO-accredited auditors (typically on a three year cycle) in which both compliance with the ISO standard and performance improvement will need to be demonstrated to maintain certification.	FSRU	EPA Development Licence and Operating Licence	Operation	Direct greenhouse gas emissions

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-GG10	**Emergency management procedures** Safety controls and emergency management practices will be put in place in the case of unplanned activities, incidents, and emergencies (i.e., unplanned maintenance or venting) to minimise the release of fugitive greenhouse gas emissions. Refer to MM-SHR07.	Pipeline Treatment facility FSRU	Pipeline Licence Incorporated document EPA Development Licence and Operating Licence	Operation	Direct greenhouse gas emissions
MM-GG11	**Certified carbon offsets*** Scope 1 and 2 emissions associated with the project will be quantified and offset to compensate for emissions produced during construction and annual emissions produced during operation. Project emissions must first be avoided or minimised as far as reasonably practicable, with remaining, actual emissions offset annually as above. ~~Note that offsets will only be considered for project emissions after measures that aim to avoid or minimise emissions have been adopted.~~	FSRU	Incorporated document	Construction Operation	Scope 1 and 2 greenhouse gas emissions
Groundwater EES evaluation objective: To minimise adverse effects on water (in particular wetland, estuarine, intertidal and marine) quality and movement, and to the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site					
MM-GW01	**Loss of registered bores** Through continued liaison with landholders the location of potentially affected bores (due to damage, destruction or loss of access) will be confirmed prior to construction and make-good arrangements agreed if required.	Pipeline	Pipeline Licence	Construction	Impact on local groundwater users
Historical heritage EES evaluation objective: To avoid or minimise adverse effects on Aboriginal and historic cultural heritage.					
MM-HH01	**Onshore unexpected finds protocol** An onshore unexpected finds protocol will be adopted and implemented if an unknown historic heritage site, value or object is discovered onshore during construction. The protocol will be incorporated into the Construction Environmental Management Plan (CEMP). An archaeology induction will be given by a historical archaeologist to all staff and contractors involved in ground disturbance works prior to their commencement. This protocol will include measures to be implemented if an unexpected find is encountered at any stage during construction.	Pipeline Treatment facility	Incorporated document Consent under the *Marine and Coastal Act 2018* Pipeline Licence	Construction	Impact or destruction to historical heritage places

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MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-HH02	**Offshore unexpected finds protocol** An offshore unexpected finds protocol will be adopted and implemented if an unknown historic heritage site, value or object is discovered offshore during construction. The protocol will be incorporated into the Construction Environmental Management Plan (CEMP). A maritime archaeology induction will be given by a maritime archaeologist to all staff and contractors involved in seabed disturbance works prior to their commencement. This protocol will include measures to be implemented if suspected maritime heritage material is encountered at any stage during construction.	Dredging Temporary loadout facility Refinery Pier extension Seawater transfer pipe	Incorporated document Consent under the *Marine and Coastal Act 2018*	Construction	Impact or destruction to historical heritage places
Landscape and visual EES evaluation objective: To avoid, minimise or offset potential adverse effects on native flora and fauna and their habitats, especially listed threatened or migratory species and listed threatened communities as well as on the marine environment, including intertidal and marine species and habitat values. To minimise potential adverse social, economic, amenity and land use effects at local and regional scales					
MM-LV01	**School Road screen planting** Large native Eucalyptus trees will be planted along the School Road boundary to screen the treatment facility from the road. Lower level understorey plantings of shrubs, groundcovers and grasses comprising primarily evergreen species will also be provided to ensure a layered screening effect on School Road. A copy of the landscape plan documenting the proposed screen planting must be reviewed by the relevant health and safety expert so as to assess potential gas safety impacts. The tree and shrub plantings should be indigenous species.	Treatment facility	Incorporated document	Operation	Impacts on visual amenity of road users
MM-LV02	**Colour of FSRU** The FSRU must be in muted colours, to reduce its visual impact as far a reasonably practicable, provided this is acceptable from a marine safety perspective.	FSRU	Incorporated document Consent under the Marine and Coastal Act 2018	Design Construction Operation	Impacts on visual amenity of the community

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
Light spill	EES evaluation objective: To avoid, minimise or offset potential adverse effects on native flora and fauna and their habitats, especially listed threatened or migratory species and listed threatened communities as well as on the marine environment, including intertidal and marine species and habitat values. To minimise potential adverse social, economic, amenity and land use effects at local and regional scales				
MM-LS01	**AS 4282: 2019 Control of the Obtrusive Effects of Outdoor Lighting and AS/NZS 1680.5 Interior and workplace lighting: Outdoor workplace lighting** Lighting within outdoor workspaces will be in accordance with requirements set out in standards and guidelines including AS 4282: 2019 and AS/NZS 1680.5.	Dredging Pipeline Treatment facility	Consent under the *Marine and Coastal Act 2018* Pipeline licence Incorporated document	Design Construction Operation	Impacts on light sensitive wildlife and species due to nighttime construction activities and the treatment facility
MM-LS02	**National Light Pollution Guidelines for Wildlife Including marine turtles, seabirds and migratory shorebirds May 2023 Version 2.0** The *National Light Pollution Guidelines for Wildlife* describes best practice for wildlife sensitive lighting design. Lighting on the extension to Refinery Pier will be in accordance with the design principles outlined in the guidelines which would result in reduced material requirements and energy use, minimise potential impacts to light sensitive species and lead to a reduction in greenhouse gas emissions. A Lighting Report will be commissioned at the detailed design stage to demonstrate that lighting for the project is consistent with the *National Light Pollution Guidelines for Wildlife* and AS4282:2019 Control of the Obtrusive Effects of Outdoor Lighting.	Refinery Pier	Incorporated document	Design Operation	Impacts on light sensitive wildlife and species due to light spill from the extension to Refinery Pier
Marine ecology and water quality	EES evaluation objective: To avoid, minimise or offset potential adverse effects on native flora and fauna and their habitats, especially listed threatened or migratory species and listed threatened communities as well as on the marine environment, including intertidal and marine species and habitat values. To minimise adverse effects on water (in particular wetland, estuarine, intertidal and marine) quality and movement, and the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.				
MM-ME01	**Reuse of discharge from the FSRU in the refinery** The reuse of discharge from the FSRU in the refinery for cooling water purposes will be maximised to ensure that: • the volume of seawater withdrawn from Corio Bay is minimised as far as reasonably practicable • the seawater discharge volume to Corio Bay is minimised as far as reasonably practicable • the residual chlorine discharge to Corio Bay is minimised as far as reasonably practicable • there is a reduction in temperature plume from existing refinery discharge	FSRU Refinery	EPA Development Licences and Operating Licences Consent under the *Marine and Coastal Act 2018*	Design Operation	Temperature, chlorine and entrainment impacts related to use and discharge of seawater

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MM-ME02	**Avoid dredging in spring growth season** The 8-week dredging program will avoid the spring season (September, October and November) as this is the period of the year where there is a high growth of seagrass and phytoplankton and key species of fish are in larval or juvenile stage.	Dredging	Consent under the *Marine and Coastal Act 2018*	Construction	Impacts to primary productivity and fishery replenishment from dredging
MM-ME03	**Limit duration of overflow from barges** To limit the extent of the turbidity plume in Corio Bay during dredging, the overflow period for barges associated with a small or medium-size backhoe dredge will be limited to 20 minutes while the overflow period for barges associated with a large size backhoe dredge will be limited to 14 minutes. This will limit the sediment spill rate to below 9 kg/sec and the extent of the turbidity plume.	Dredging	Consent under the *Marine and Coastal Act 2018*	Construction	Impacts to primary productivity and seagrass communities from dredging
MM-ME04	**Install a silt curtain ~~between dredging and refinery intake and seagrass~~ enclosing the dredge** A temporary silt curtain will be installed ~~between the dredging site and the existing refinery seawater intake and seagrass bed to minimise the number of days with elevated suspended solids concentration~~ enclosing the dredge to mitigate the dispersal of suspended solids from dredging.	Dredging	Consent under the *Marine and Coastal Act 2018*	Design Construction	Impacts to primary productivity and seagrass communities from dredging
MM-ME05	**Monitor turbidity and light attenuation during dredging, with threshold limits** Manage dredging program to minimise ecological risks associated with elevated turbidity as far as reasonably practicable. *Turbidity monitoring at edges of seagrass* Turbidity will be monitored during the dredging program continuously in north Corio Bay, with a minimum of three sites along the 3 m depth contour at the offshore boundary of the main seagrass beds proximate to dredging activity which may be affected by turbidity, including seagrass in the Ramsar site. The following limits are proposed as thresholds for action to restrict turbidity releases: • 12-hour concentration above 15 NTU (trigger warning) • 24-hour concentration above 12 NTU (action required)	Dredging	Consent under the *Marine and Coastal Act 2018*	Construction	Impacts to primary productivity and seagrass communities from dredging

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
	The above limits only apply insofar as turbidity is materially contributed to at the monitoring location by dredging activity (as compared with natural spikes in turbidity caused by storms, wave action and the like). *Turbidity monitoring at disposal ground* Turbidity will be monitored continuously at two sites 600 m inshore of the Point Wilson dredged material ground (DMG) to confirm that there is not regular transport of turbidity from barge disposal into shallow water near Point Wilson. *Concurrent light attenuation monitoring* Light attenuation will be monitored at the same six sites where turbidity is recorded. *Contingency measures - trigger actions* Where action is required to reduce turbidity these may include, without limitation, Actions that will be taken will most likely involve reducing the period of overflow from barges to zero, and slowing the dredging cycle of the backhoe, changes to use of silt curtains and dredging during current flows favourable to reduced dispersion of sediment towards seagrasses. Such actions will continue until turbidity drops below the trigger warning level.				
MM-ME06	**Seagrass and seabed biota monitoring in dredged area and Point Wilson dredged material ground** Monitoring will be undertaken to assess the effects of dredging on: • seagrass in the vicinity of the dredged area, including the Ramsar wetland and north-western Corio Bay • benthic fauna abundance, diversity and composition in the dredged area and the Point Wilson DMG (to detect any significant changes to infauna communities in the dredged area and the recovery of the Point Wilson DMG) The monitoring of effects on seagrass will include surveys before, during and after dredging to assess impacts on seagrass. Consideration should be given to the use of monitoring indicators developed by the Western Australian Marine Science Institution (WAMSI). A minimum of two baseline surveys will be made with a 3-month gap prior to dredging, and eight post-commissioning surveys in the same locations every 3 months for 2 years of benthic fauna abundance, diversity and composition to detect any significant changes to infauna communities in the dredged area and the recovery of the Point Wilson DMG.	Dredging	Consent under the *Marine and Coastal Act 2018*	Construction and operation	Impacts to primary productivity (seagrass) and seabed biota from dredging

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MM-ME07	**Monitoring of plankton during and after dredging** Plankton populations will be monitored at four sites in north Corio Bay (as used in the 2020-2021 plankton surveys) before, during and after the dredging period, at two weekly intervals. The purpose is to identify if there is a bloom of toxic phytoplankton as a result of release of nitrogen or toxic algal spores during dredging. Data on relevant water quality parameters will be collected in conjunction with the biological monitoring to assist in the interpretation of results. The phytoplankton surveys will commence 8 weeks before dredging and will continue for 8 weeks after dredging has been completed. The standard notifications to EPA and aquaculture will be made in the event that there is a bloom.	Dredging	Consent under the *Marine and Coastal Act 2018*	Construction	Impacts to primary productivity and plankton populations from dredging
MM-ME08	**Design seawater intake to minimise entrapment** The seawater intake will be designed to keep the intake velocity in the horizontal plane at a speed below 0.15 m/s at the intake screen to minimise capture of small and large fish and other free-swimming biota and provide the same level of protection as the existing refinery intake. The intake will also be provided with a screen with apertures less than 100mm to prevent large objects and seagrass from being carried into the seawater cooling system. When the refinery is not operating, the FSRU intake volume will be limited to minimise entrainment during late spring/early summer, as far as reasonably practicable.	FSRU	EPA Development Licence and Operating Licence Consent under the *Marine and Coastal Act 2018*	Design Operation	Entrapment impacts related to use and discharge of seawater
MM-ME09	**Locate seawater intake to minimise entrainment** To ensure that a very low percentage of fish larvae are entrained in spring and summer, the seawater intake on the FSRU will be located so that it is at least 2 m below the water surface (to avoid entraining biota from near the surface) and at least 2 m above the seabed (to avoid entraining biota from near the seabed).	FSRU	EPA Development Licence and Operating Licence Consent under the *Marine and Coastal Act 2018*	Design Operation	Entrainment impacts related to use and discharge of seawater
MM-ME10	**Design diffuser to achieve high dilution** The diffuser for cool water discharge from the FSRU will be designed to achieve a minimum initial dilution of 20:1 to ensure that the diluted discharge has a chlorine concentration less than the guideline values and a temperature change from ambient of less than 0.4°C.	FSRU	EPA Development Licence and Operating Licence Consent under the *Marine and Coastal Act 2018*	Design Operation	Temperature impacts related to use and discharge of seawater from the FSRU through the diffuser

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-ME11	**Design lighting to minimise adverse overspill** Best practice will be used in the design of the lights on the pier extension and will meet the requirements of AS 4282: 2019 *Control of the Obtrusive Effects of Outdoor Lighting* and the *National Light Pollution Guidelines for Wildlife May 2023 Version 2.0*.	Refinery Pier	Incorporated document Consent under the *Marine and Coastal Act 2018*	Design Operation	Impacts to fauna from light spill
MM-ME12	**Implement biosecurity measures on all vessels** There are well-established measures to control and minimise the introduction of marine pests in Corio Bay and all applicable measures will be implemented, including: • Antifoul coating to prevent the encrusting of biota on the hull; • Vessels from certain ports will be cleaned before entry; • Manage ballast water in accordance with the Australian Ballast Water Management Requirements (DAWR, 2017); • Manage vessel activities in accordance with the National System for the Prevention and Management of Marine Pest Incursions	FSRU LNG carriers	Consent under the *Marine and Coastal Act 2018* EPA Development Licence and Operating Licence	Operation	Impacts to the marine environment of Corio Bay through the introduction of marine pests
MM-ME13	**Manage cleaning and antifouling system on FSRU to avoid contamination** The anti-foul coating on the FSRU will be cleaned and maintained periodically. There are established procedures to collect scrapings from the hull and prevent them from accumulating on the seabed. Only approved antifoul coatings will be used for maintenance.	FSRU	Consent under the *Marine and Coastal Act 2018* EPA Development Licence and Operating Licence	Operation	Potential impacts to the marine environment from chemicals used on board the FSRU

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MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-ME14	**Continue to use and upgrade spill management procedures** Viva Energy and Ports Victoria have a well-established spill management plan. The existing plan will be updated as required and implemented. Where new and improved monitoring procedures are identified these will be implemented.	Refinery Pier FSRU	Incorporated document Consent under the *Marine and Coastal Act 2018* EPA Development Licence and Operating Licence	Operation	Potential impacts to the marine environment from chemicals used
MM-ME15	**Use pilots, tugs and comply with vessel speed restrictions** All vessels will be under the control of experienced and qualified captains and pilots and will only be operated in the dredged channel or for smaller vessels, within the defined operation area. The dredge spoil transport barges and LNG carriers will adhere to Ports Victoria's vessel speed requirements to limit the risk of marine mammal (including whale and dolphin) strikes. All vessels and tugs will slow down or stop where necessary if notified of a whale sighting or if a whale is sighted. If a whale is known to be present in the shipping channels, transit will cease until the channel is clear.	Refinery Pier FSRU LNG carriers	Incorporated document Consent under the *Marine and Coastal Act 2018* EPA Development Licence and Operating Licence	Construction Operation	Grounding of vessels leading to a spill into the marine environment Whale strikes
MM-ME16	**Minimise chlorine concentration at the discharge points** The seawater chlorination process at the FSRU and the refinery will be managed to minimise the concentration of chlorine in the seawater discharges, while also achieving the purpose of chlorination (which is to avoid internal biofouling).	FSRU Refinery	Consent under the *Marine and Coastal Act 2018* EPA Development Licences and Operating Licences	Operation	Chlorine impacts related to use and discharge of seawater

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-ME17	**Monitor rates and characteristics of all FSRU wastewater discharges** The flow rate, temperature and residual chlorine concentration of all discharges from the FSRU (excluding fire water, water curtain and ballast water) either from the refinery or directly from the FSRU into Corio Bay will be monitored and recorded. Monitoring will be conducted to keep a record of all discharges, confirm that the discharge rate, temperature and chlorine concentration are within the values stipulated in the licence conditions of the refinery EPA Licence (No. 46555) and FSRU EPA Licence and, if not, provide the trigger for remedial action.	FSRU Refinery	EPA Development Licences and Operating Licences	Operation	Chlorine and temperature impacts related to use an discharge of seawater
MM-ME18	**Avoid backflow between FSRU transfer pipe and refinery inlet** To avoid backflow at the refinery seawater intake, the discharge of seawater from the FSRU to the refinery inlet via the seawater transfer pipe must not exceed the refinery's intake of cooling water. The design of the connection between the seawater transfer pipe and the refinery seawater inlet channel will avoid backflow.	FSRU Refinery	EPA Development Licences and Operating Licences	Construction Operation	Chlorine and temperature impacts related to use and discharge of seawater
MM-ME19	**Monitoring of the effects of wastewater discharges on the marine environment** Monitoring will be undertaken to determine the effects of wastewater discharges from the FSRU (whether via the Refinery or directly from the FSRU into Corio Bay) on marine biota and communities. The monitoring will include but not necessarily be limited to seagrasses, macroalgae and marine fauna (such as mussels and sea squirts). Temperature profiles (and inferred chlorine concentrations) will be recorded at the ecological monitoring sites. The monitoring will map impacts on the ecosystem including seasonal variations, using the baseline monitoring of the impacts of existing discharges from the refinery undertaken in the Supplementary Statement in accordance with the recommendations in Table 1 of the Minister's Directions.	FSRU	EPA Development Licences and Operating Licences	Operation	Chlorine and temperature impacts related to use and discharge of seawater
MM-ME20	**Minimise direct impacts to seagrass during installation of the seawater transfer pipe.** A seagrass survey of the seawater transfer pipe alignment will be undertaken prior to installation of the seawater transfer pipe. The seawater transfer pipe installation method will minimise the area of seagrass disturbed during excavation as far as practicable and require excavated sediment to be replaced on top of the installed pipe as soon as possible following pipelay. Seagrass will be planted along the centreline of the seawater transfer pipe alignment to facilitate seagrass rehabilitation following the completion of construction. Transplantation of seagrass will be undertaken in accordance with the published Western Australian seagrass transplantation manual. (Transplanting Posidonia Seagrass in Temperate Western Australian Waters: A Practical 'How To' Guide, BMT Oceanica, July 2013).	Seawater transfer pipe	Incorporated Document Consent under the *Marine and Coastal Act 2018*	Construction	Seagrass removal during seawater transfer pipe installation

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MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
Noise and vibration EES evaluation objective: To minimise potential adverse social, economic, amenity and land use effects at local and regional scale					
MM-NV01	**Managing noise from construction activities** Construction noise and vibration will be managed consistent with Chapter 4 (Noise and vibration) of EPA Publication 1834 – Civil construction, building and demolition guide (November 2020) (as amended or replaced from time to time). This includes the development, prior to the start of any construction works, of a documented construction noise and vibration management plan (CNVMP) to manage noise and vibration during construction in consultation with the relevant stakeholders. The CNVMP must: • be prepared based on a documented review of the construction activities considered, of the sensitive receivers at risk of noise exposure, and of the local topography of the sites; • demonstrate how construction noise and vibration (including from dredging) and their impact will be minimised so far as reasonably practicable, supported by evidence of iterative considerations of works practices, equipment selection and mitigation measures; include contingency measures to address, wherever relevant, the risk of impact from noise that could not be sufficiently mitigated at source or during propagation; and • include a requirement for verifying, via inspections or audits, that all practices and actions to minimise impacts are well adhered-to and that continual improvement is effectively in place. The CNVMP will include as a minimum the following: • Avoid the generation of noise and vibration and adopt all mitigation measures to minimise the impact on sensitive receivers, so far as reasonably practicable. • All dredging activities to comply with MM-NV01a. • For construction activities other than dredging: – Conduct construction only during EPA normal construction hours (i.e., Monday to Friday 07:00 am to 6:00 pm, and Saturday 07:00 am to 1:00 pm) unless the works are justified and approved to be low noise impact works, managed impact works or unavoidable works, as required under MM-NV02. – Adherence with the mitigation and management requirements of Appendix C of the NSW Roads and Maritime Services Construction Noise and Vibration Guidelines for all unavoidable works and works carried out during normal working hours.	All	Incorporated document Consent under the *Marine and Coastal Act 2018* Pipeline Licence	Construction	Temporary amenity impacts on surrounding land uses from construction noise and vibration

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
	– When assessing construction noise, the risk of increased impacts due to intrusive characteristics such as tonality, impulse, intermittency or high energy in the low frequency range must be considered. This includes (but is not limited to) applying adjustments to measured or predicted construction noise levels for tonality, impulse and intermittency determined using the same procedures as those of Part I.B; 3.4 of EPA Publication 1826.4 (Noise Protocol) (as amended or replaced from time to time). – Compliance with the noise requirements of Table 4.3 of EPA Publication 1834 (as amended or replaced from time to time) for all low-impact and managed-impact works scheduled outside normal working hours. Noise criteria for weekend/ evening work hours must be determined from background measurements that represent the background at the location and time of impact, in the absence of industrial, commercial and trade noise, and are more stringent by 5 dB(A) where the construction programme exceeds 18-months. – Construction noise levels not to exceed an external noise level of 55 dB(A) for educational buildings (with internal teaching spaces), wherever reasonably practicable, or of 60 dB(A) in any case. While the actions to avoid or otherwise mitigate noise and vibration and their impacts must include, as a minimum, the measures in MM-NV06 and the following common practice techniques, the CNVMP should also consider alternative, quieter processes and equipment, wherever they are reasonably practicable. Common practice techniques include (but are not limited to): • Informing potentially noise-affected neighbours about the nature of construction stages and noise reduction measures. • Giving notice as early as possible for periods of noisier works such as excavation. Describing the activities and how long they are expected to take. Keeping affected neighbours informed of progress. • Appointing a principal contact person for community queries. • Providing 24-hour contact details through letters and site signage. Recording complaints and following a complaint response procedure suitable to the scale of works. • Within normal working hours, wherever it is reasonably practicable to do so: – scheduling noisy activities for less sensitive times, (for example, delay a rock-breaking task to the later morning or afternoon) – providing periods of respite from noisier works (for example, periodic breaks from jackhammer noise). • Using the lowest-noise work practices and equipment that meet the requirements of the job.				

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MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
	• Maintaining equipment and vehicles according to manufacturer ~~instructions~~ specifications • Locating site buildings, access roads and plant such that the minimum disturbance occurs to the locality. • Limiting times of operation of noisy equipment, vehicles and operations to reduce noise and vibration impacts. • Installing broadband reversing alarms on construction vehicles and machinery in preference to 'beeper' reversing alarms. The site will also be planned to minimise the need for reversing of vehicles. • Turning off plant and vehicles when not being used. • Taking care not to drop spoil, ~~and~~ construction materials and construction equipment that causes peak noise events. • All mechanical plant is to be silenced by the best practical means using current technology. • Mechanical plant, including noise-suppression devices, will be maintained to the manufacturer's specifications. Internal combustion engines are to be fitted with a suitable muffler in good repair. • Fit all pneumatic tools operated near a residential area with an effective silencer on their air exhaust port. • Testing of emergency equipment such as warning sirens will be scheduled during day-time hours wherever possible. • For works approved outside of normal working hours: – Plan quieter unavoidable work activities outside normal working hours. – Adopt low-noise or managed impact works. Avoid high noise impact works such as piling, concrete pours. – Schedule noisy unavoidable work when it is less likely to affect residents' sleep and for shorter periods, wherever possible. – Schedule respite periods if unavoidable work is near residents. Consult with residents who may be most affected about restricting the number of nights per week and/or per calendar month when works are being undertaken. – Stockpile material from unavoidable work activities that occur outside normal hours in, for example, an acoustic enclosure. Also restrict load- out to occur during normal working hours. – Train all workers regarding unavoidable work activities that occur outside normal working hours.				

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-NV01a	**Managing and assessing dredging noise** Dredging noise must be managed and assessed consistent with EPA Publication 691 (Guidelines for dredging) (as amended or replaced from time to time), assess noise from dredging activities as constituting noise from commercial, industrial and trade premises. A dredging noise management plan (DNMP) will be prepared and implemented that will inform how actions will be taken to: • manage emissions of noise and vibration and minimise their impacts, so far as reasonably practicable, and • prevent the emission of unreasonable noise (as defined In the Environment Protection Act 2017) by: – maintaining dredging noise levels within the Project Noise Criteria ~~determined in MM-NV-05~~ to ensure the noise limits set in Part 5.3, Division 3 of the Environment Protection Regulations 2021 are not exceeded; and – having regard to the factors in part (a) of the definition of unreasonable noise; and – managing low frequency noise, in accordance with EPA Publication 1996 (Noise guidelines: assessing low frequency noise) (as amended or replaced from time to time).	Dredging	Incorporated document Consent under the *Marine and Coastal Act 2018*	Construction	Temporary amenity impacts on surrounding land uses from construction noise and vibration
MM-NV02	**Out of hours construction** • The CNVMP ~~should~~ will include a framework for justification and approval of out-of-hours works that are planned to be undertaken, established in consultation with the relevant stakeholders including occupants of noise sensitive areas potentially affected by out of hours construction activities. • This framework should include a clear rationale for both unavoidable works and managed impact works, and response strategies with mitigation measures to reduce noise and vibration and their impacts, so far as reasonably practicable, consistent with EPA publications 1834 (Civil construction, building and demolition guide) and 1820.1 (Construction – Guide to preventing harm to people and the environment) (as amended or replaced from time to time). • Assessment and approval of out-of-hours works must be conducted by an Independent Environmental Auditor, or by someone who has no prior involvement in planning or delivery of the Project and Is able to make decisions free from influence or pressure related to the delivery of the project.	All	Incorporated document Consent under the Marine and Coastal Act 2018 Pipeline Licence	Construction	Temporary amenity impacts on surrounding land uses from construction noise and vibration Discomfort and reduced quality of sleep from work outside of normal hours

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	• In respect of unavoidable works – the necessity for such works to be carried out outside of normal working hours must be assessed and documented by an independent person with skills and expertise in risk/safety assessments; – the mitigation measures to reduce noise and vibration must be assessed and documented by ~~a~~ an independent person with skills and expertise in noise and vibration control. • In respect of managed-~~impact~~ works – the net benefit in terms of the project's environmental impacts, of conducting managed impact works out-of-hours must be assessed and documented by an Independent Environmental Auditor; – a person with skills and expertise in noise and vibration control must assess that managed-impact works are consistent with the definition from EPA publication 1834 (as amended or replaced from time to time), including that » the noise does not have intrusive characteristics such as impulsiveness, tonality, intermittency or high energy in the low frequency range; and » the risk of impacts is addressed adequately by limiting the emergence of construction noise levels LAeq above the background noise level LA90 at the time of noise impact. • Unavoidable works ~~should~~ will be assessed for approval by a person with skills and expertise in risk/safety assessment such as a Health Safety and Environment (HSE) specialist, who has no prior involvement in either planning or delivery of the Project and who can make decisions free from influence or pressure related to the delivery of the Project. This Includes: – Appointing a suitably qualified HSE representative to manage and approve unavoidable night work (10:00 pm to 7:00 am) applications by the Independent Environmental Auditor~~IEA~~. – Appointing a suitably qualified Independent Environmental Auditor to review and approve the implementation of noise and vibration mitigation and management during unavoidable night work (10:00 pm to 7:00 am) applications. • Justification of managed impact works is to include – an assessment that conducting these works out-of-hours will have a net benefit in terms on environmental impacts of the project, and – appointing a suitably qualified Independent Environmental Auditor to review and approve the implementation of and vibration mitigation and management during managed-impact works.				

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
	• Noise requirements for managed-impact works must be consistent with the definition of managed-impact works from of EPA publication 1834 (as amended or replaced from time to time), and including that – the noise does not have intrusive characteristics such as impulsiveness, tonality, intermittency or high energy in the low frequency range; and – address adequately the risk of impacts by limiting the emergence of construction noise levels LAeq above the background noise level LA90 at the time of noise impact. Common construction noise mitigation measures for out-of-hours works Where the construction works are justified and approved to occur outside of EPA normal working hours, mitigation measures will be implemented to minimise the impact on receivers, so far as reasonably practicable, including (but not limited to) the measures in MM-NV06 and the following onsite mitigation measures: • Limiting works in proximity to receivers to the arrival of staff on site and toolbox meetings between 6 am and 7 am. The use of plant equipment, generation of unnecessary noise and the movement of vehicles on the construction footprint will be avoided. • Providing respite periods by restricting the hours that very noisy activities can occur. • On Sundays, works at Lascelles Wharf will be limited to low noise impact works, as defined in EPA Publication 1834 (as amended or replaced from time to time). • Adopting engineering noise controls at the source (e.g., silencer, mufflers, enclosures) by the best practical means using current technology – r~~R~~eduction is typically in the range of 10 to 15 dB. • Installing onsite barriers such as hoardings or temporary enclosures to provide a noise barrier between any particularly noisy construction works and ~~the~~ residences - ~~R~~reduction is typically in the range of 5 to 10 dB.				

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MM-NV03	Vibration safe working distances Additional management measures will be undertaken where occupancies, structures and assets are within the safe working distances derived using the values in the following standards: • British Standard BS 6472-1:2008 Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting – Table 1 Vibration dose value ranges which might result in various probabilities of adverse comment within residential buildings • German Standard DIN4150-3:2016-12: Table 1 – Guideline values for vibration velocity for evaluating the effects of short-term vibration on structures • German Standard DIN4150-3:2016-12: Table 3 – Guideline values for vibration velocity for evaluating the effects of short-term vibration on buried pipework • An asset owner's utility standards.	All	Incorporated document Consent under the *Marine and Coastal Act 2018* Pipeline Licence	Construction	Temporary amenity impacts on surrounding land uses from construction noise and vibration Discomfort caused by vibration Changes to the natural behaviour of animals
MM-NV04	**Construction noise and vibration monitoring** Noise and vibration monitoring will be undertaken during construction at: • The nearest noise sensitive residential property or properties impacted by out-of-hours works to confirm the effective implementation of noise mitigation measures, per their design, and verify that levels set as criteria in the CNVMP are not exceeded. • The nearest building or assets that are within derived set back distances for human response or in response to a complaint • Where an asset owner's utility standards are at risk of being exceeded. Frequency and duration: • Attended measurements will be undertaken at the earliest stage (within the first 24 hours) for each construction activity identified to impact sensitive receiver locations during out of hours works. • The measurement duration will be adequate to represent a typical 15-minute period for the applicable evening or night period. • Continuous monitoring will be undertaken for any works scheduled outside of normal working hours (including unavoidable works) ~~modelled or~~ previously measured to be within 3dB or exceeding the low-impact and managed-impact noise levels.	All	Incorporated document Consent under the *Marine and Coastal Act 2018* Pipeline Licence	Construction	Temporary amenity impacts on surrounding land uses from construction noise Discomfort and reduced quality of sleep from work outside of normal hours Discomfort caused by vibration Changes to the natural behaviour of animals

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
	• For onshore pipeline construction, where the noise sources will be transient, measurements will be required for works at representative sensitive receivers where noise has been identified as a risk. Where noise levels modelled or measured at Geelong Grammar School or at other sensitive receivers, exceed the levels set in the CNVMP (as required in MM-NV01 and MM-NV02) these works will not be carried out other than during normal working hours, unless mitigation measures are applied to meet the requirements of MM-NV01 and MM-NV02. • Measurements shall be undertaken at the commencement of dredging and during meteorological conditions suitable to favourable noise propagation at Geelong Grammar School and other sensitive receivers. Where assessments conducted in accordance with EPA Publication 1826.4 (Noise Protocol) (as amended or replaced from time to time) indicate cumulative noise impacts (including the contributions from dredging, and from other commercial, industrial or trade premises) will exceed the evening or night period noise limits determined in accordance with the Noise Protocol, dredging operations shall cease ~~between the hours of 10pm and 7am until compliance is achieved. the night during those periods~~ until the relevant period limits are met. • Measurements will be undertaken in response to any community complaints, where noise emissions need to be verified to resolve the issue i.e., where the activity cannot simply be stopped or mitigated to avoid the risk due to noise. A response plan will be developed to manage potential impacts if construction noise criteria are not met, including: • Actions taken to rectify exceedance of nominated criteria e.g., stop works until noise monitoring confirms the exceedance is resolved or implement mitigation measures to manage impacts. • Actions to minimise risk of reoccurrence e.g., provide mitigation measures or alternative methods. • Name of person(s) responsible for undertaking the required actions.				

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MM-NV05	*Establishing and implementing operational noise controls* An operational noise management framework will be prepared that will inform, through all stages of the project, including design, equipment selection, construction, and installation, and operation, how actions will be taken to: • manage emissions of noise and vibration and minimise their impacts, so far as reasonably practicable, and • prevent the contribution of the project to cause cumulative emission of unreasonable noise (as defined In the Environment Protection Act 2017), by – not exceeding the noise limits set In Part 5.3, Division 3 of the Environment Protection Regulations 2021; and – having regard to the factors in part (a) of the definition of unreasonable noise; and – managing low frequency noise, in accordance with the Noise guidelines: assessing low frequency noise (EPA Publication 1996) (as amended or replaced from time to time). ~~*Regulatory noise limits, pre-existing industry noise and Project Noise Criteria*~~ ~~To inform the design, construction and operation of the project:~~ • ~~Background noise levels shall be measured and verified without the inclusion of noise from Viva Refinery and from other commercial, Industrial and trade premises, with noise limits of Part 5.3, Division 3 of the Environment Protection Regulations 2021 established accordingly.~~ • ~~Further assessment of the pre-existing noise from commercial, industrial and trade premises (from the Viva Refinery and from other commercial, industrial and trade premises) shall be carried out based on measurements taken over a period of at least 1-week to determine existing LAeq,30-min noise impacts and the likely cumulative noise impacts at Geelong Grammar School and at other noise sensitive areas. If background noise cannot be measured without impacts from the Viva Refinery, it will be measured during a period of plant shut down.~~ • ~~Establish and justify, supported by documented evidence, Project Noise Criteria to ensure that the noise from the Project, when combined with the pre-existing and approved noise from commercial, industrial and trade premises will not lead to an exceedance of the regulatory noise limits.~~	Treatment facility FSRU Dredging	Incorporated document EPA Development Licence and Operating Licence	Operation Dredging	Amenity impacts on surrounding land uses Discomfort and reduced quality of sleep from work outside of normal hours

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
	Plant design and selection • Ensure, via iterative reviews, that all reasonably practicable opportunities to reduce the emission of operational noise have been considered across the design, construction and operation of the project. • Engage a suitably qualified acoustic consultant to review detailed plant designs and noise emission data for plant and vessels, and provide noise mitigation advice. • Operational plant selection process must ensure that manufacturers' data or noise measurement data to be verified for all operational equipment to ensure that tonality is not present. • Low frequency noise emissions from operational plants, including (but not limited to) from the following items, which must be assessed and managed in accordance with EPA Publication1996 (as amended or replaced from time to time): – LNG carriers – FSRU vessels – Tugboat exhausts – Regasification boilers *Operational management plan* • Noise from the Project will be managed in accordance with the Environment Protection Regulations 2021, EPA Publication 1826 (as amended or replaced from time to time) and the General Environmental Duty, including cumulative noise impacts from any other industry. • Prepare an operational management plan, supported by documented evidence that details the approach that will be taken to meet the Project Noise Criteria. This plan will include: – how the noise from LNG carriers will be taken into account and managed: – details of equipment selections and mitigation measures adopted; and – scheduling to ensure all activities minimise noise emissions. For example, during the night period, limit the number of activities operating concurrently. • Review and update the operational management plan wherever necessary and relevant, including on the basis of any noise monitoring carried out to assess noise emissions from the Project, cumulative noise impacts or adverse noise character identified. • Additional cumulative impact management strategies will be developed in consultation with the relevant stakeholders.				

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MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
	Operational noise monitoring Operational noise monitoring will be undertaken to confirm operational noise levels and verify cumulative noise impacts. • Within the first 3 months of operation, conduct long-term noise monitoring (over a minimum of 1 month) in accordance with the Noise Protocol and the provisions of EPA Publication 1997 (as amended or replaced from time to time), to verify that the Project Noise Criteria and/or regulatory noise limits are not exceeded at Geelong Grammar School and other noise sensitive areas. The measurements shall be undertaken for all operating scenarios to verify the noise emissions. • Where operational compliance relies on the ongoing scheduling or managed hours of sources, permanent real-time noise monitoring shall be installed and carried out at any impacted receptors identified during the monitoring undertaken within the first 3 months of operation. Real-time monitoring data shall be made available to those relevant stakeholders. • Measurements will also be undertaken as part of the Environmental Management Plan in response to any community complaints. • Operational noise monitoring will inform ongoing updates to the operational management plan including potential scheduling of activities and mitigation measures if required. • Wherever the noise emissions from the Project are measured to exceed the Project Noise Criteria, or the cumulative Industry noise is measured to exceed the regulatory noise limits, additional attenuation and/or management controls shall be implemented and measurements repeated until compliance is demonstrated. • Further noise monitoring should be conducted to verify the effectiveness of the attenuation and/or management controls to prevent exceedances of the Project Noise Criteria and the regulatory noise limits. • Where management and scheduling for the operational activities is changed, the risk of exceedance of the Project Noise Criteria and the regulatory limits must be assessed, and wherever relevant further noise monitoring should also be conducted to verify compliance.				

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-NV06	**Construction noise mitigation measures – normal working hours** During normal working hours, mitigation measures must include, as a minimum: • A noise barrier will be installed ~~to~~ along the site boundary of the horizontal directional drilling site compounds at a minimum height of 2.4 m provided that modelling has confirmed this height to be sufficient to reduce construction noise impacts by at least 10dB. ~~For example, the use of~~ The noise barrier may include shipping containers or alternative screen to reduce noise emissions at the closest noise sensitive receivers. • Installation of enclosures or localised noise barriers around the construction equipment to provide a noise barrier between any particularly noisy construction works and the closest noise sensitive receivers. • Stationary equipment such as generators and pumps will be stored within shipping containers or suitable acoustic enclosures. • Where the construction works will occur for a number of consecutive days, consult with the affected residences and offer alternative accommodation or onsite noise mitigation measures for people ~~who that may require to~~ are working or studying from home. **Construction noise mitigation measures - outside of normal working hours** Where the construction works are justified and approved to occur outside of EPA normal working hours, all reasonably practicable mitigation measures will be implemented to minimise the impact on receivers as per MM-NV01 and MM-NV02, including the following additional onsite mitigation measures where~~ver~~ relevant: • When works are linear, schedule works to avoid the closest noise sensitive receiver locations during out of normal hours or avoid works during this period (e.g., avoid works on Saturday afternoons 1pm to 6pm at Geelong Grammar School and Macgregor Court, Lara). • Schedule noisy unavoidable work when it is less likely to affect residents' amenity (e.g., avoid weekends) and for shorter periods, wherever possible. • Where the construction works ~~would~~will occur for a number of consecutive days, consult with the affected residences and offer alternative accommodation or onsite noise mitigation measures for people ~~that may require to~~ who are working or studying from home.	All	Incorporated document Consent under the *Marine and Coastal Act 2018* Pipeline Licence	Construction	Temporary amenity impacts on surrounding land uses Discomfort and reduced quality of sleep from work outside of normal hours

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MM-NV07	**Unavoidable works, Horizontal Directional Drilling – noise control** Horizontal directional drilling (HDD) may be conducted outside of hours if approves as unavoidable works, in accordance with MM-NV02. Onsite mitigation to reduce the noise from HDD, and mitigate its impacts, so far as reasonably practicable will require the implementation of work practices, equipment selection and noise and vibration mitigation measures consistent with the process set out in MM-NV01. Actions to reduce noise from HDD entry and exit sites are to include, as a minimum, the following: • A noise barrier will be installed to provide an envelope between the compound and the site boundary at a minimum height of 2.4 m. • Any access gates will be solid and generally kept closed, especially at night. • Installation of enclosures or localised noise barriers around the HDD construction equipment to provide a noise barrier between any particularly noisy construction works and the residences. • Provide respite periods by restricting the hours that the very noisy activities can occur. • Stationary equipment such as bentonite treatment, generators and pumps will be stored within shipping containers or suitable acoustic enclosures. • Where the construction works will occur for a number of consecutive days, and particularly during the night period, consult with the affected residentsces and offer alternative accommodation or onsite noise mitigation measures for people ~~that may require to~~ who are working or studying from home. The impacts and the design of site-specific mitigation will be determined prior to construction, and confirmed during construction via onsite monitoring.	Pipeline	Incorporated document Consent under the *Marine and Coastal Act 2018* Pipeline Licence	Construction	Temporary amenity impacts on surrounding land uses Discomfort and reduced quality of sleep from work outside of normal hours

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-NV08	**Unavoidable works, Hydrotesting – noise control** Hydrotesting may be conducted outside of hours if justified and approved as unavoidable works, in accordance with MM-NV02. Mitigation to reduce the noise from Hydrotesting and minimise its impacts, so far as reasonably practicable, will require the implementation of works practices, equipment selection and mitigation measures consistent with the process set out in MM-NV01. Mitigation measures are to include, as a minimum, the following: • A noise barrier is advised to provide an envelope around the hydrotesting site at a minimum height of 2.4 m. • Any access gates will be solid and generally kept closed, especially at night. • Adopting engineering noise controls for ancillary equipment (e.g., silencer, mufflers, enclosures) by all practical means using current technology. • Selection of quieter equipment. • Stationary equipment such as bentonite treatment, generators and pumps will be stored within shipping containers or suitable acoustic enclosures. The impacts and the design of site-specific mitigation to reduce the noise emissions at source will be determined prior to construction and confirmed during construction via onsite monitoring.	All	Incorporated document Consent under the *Marine and Coastal Act 2018* Pipeline Licence	Construction	Temporary amenity impacts on surrounding land uses Discomfort and reduced quality of sleep from work outside of normal hours
Safety, hazard and risk EES evaluation objective: To provide for safe and cost-effective augmentation of Victoria's natural gas supply having regard to projected demand and supply in context of the State's energy needs and climate policy.					
MM-SHR01	**FSRU safety standards** The Floating Storage and Regasification Unit (FSRU) will be designed, constructed and operated to meet relevant safety standards. The FSRU will be designed, operated and maintained under the purview of DNV GL (or equivalent classification agency). It will comply with the Rules for Classification as required to retain its Class Notation. This will include requirements for inspection, maintenance and functionality of all on-board safety systems.	FSRU	MHF safety case for FSRU EPA Development Licence and Operating Licence	Design Construction Operation	Fire and explosions Cryogenic exposure Asphyxiation

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MM-SHR02	**Pipeline design and standards** The pipeline will be designed, constructed and operated in accordance with AS2885 and consistent with a T1 (Residential) environment. This will include completion of a Safety Management Study with the identification of threats and appropriate mitigation measures including increased depth of burial, heavier duty piping and protective slabs.	Pipeline works	Pipeline Licence Gas safety case	Design Construction Operation	Fire and explosion
MM-SHR03	**Facility standards** The Refinery Pier No. 5 extension, the equipment installed on Refinery Pier No. 5, and the Treatment Facility will be designed, operated and maintained in accordance with relevant Australian and international standards.	Refinery Pier Treatment facility	Pipeline Licence Gas safety case Amendment to Refinery MHF safety case	Design Construction Operation	Fire and explosions Cryogenic exposure Asphyxiation
MM-SHR04	**Automated systems – safety and process control** The operation of the FSRU, pipeline and Treatment Facility will be monitored using appropriately SIL rated process automation and shutdown systems. Abnormal conditions will alarm locally and remotely to fully attended control rooms. Operation out of the design / operation envelope has the potential to result in imminent loss of containment, which will result in an automatic shutdown of gas operations via closing of emergency shutdown valves with depressuring of inventory through vent stacks if and when required will to be initiated remotely by an operator in the control room to ensure safe release. The control, monitoring and shutdown systems will be fail-safe and be designed to best industry practices with redundancy.	Pipeline Treatment facility FSRU	Pipeline Licence Gas safety case Amendment to Refinery MHF safety case MHF safety case for FSRU EPA Development Licence and Operating Licence	Design Construction Operation	Fire and explosions Cryogenic exposure Asphyxiation
MM-SHR05	**Dangerous goods – storage and handling** Dangerous goods, as defined by the Australian Dangerous Goods Code, and flammable and combustible liquids will be stored and handled in accordance regulatory requirements (refer Table 3 1), EPA Victoria Publication 1698 – Liquid Storage and Handling Guidelines and all relevant Australian Standards – including but not limited to the requirements of: • AS1940 – The storage and handling of flammable and combustible liquids • AS1210 – Pressure vessels • AS4343 – Pressure equipment – hazard levels • AS3846 – The handling and transport of dangerous cargoes in port areas • AS2941 – Fixed fire protection installations – pumpset systems • AS/NZS60079 – Explosive atmospheres.	Treatment facility FSRU	Gas safety case Amendment to Refinery MHF safety case MHF safety case for FSRU EPA Development Licence and Operating Licence	Design Construction Operation	Fire and explosions Cryogenic exposure Asphyxiation

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-SHR06	Monitoring of chemical and fuel storage facilities Routine visual monitoring and recording of chemicals and fuel storage facilities will occur as part of routine operational practices.	Treatment facility FSRU	Gas safety case Amendment to Refinery MHF safety case MHF safety case for FSRU EPA Development Licence and Operating Licence	Construction Operation	Fire and explosions Cryogenic exposure Asphyxiation
MM-SHR07	**Emergency response plans** Emergency response plans, such as for spills, will be developed and implemented for both the construction and operations phases of the project.	Pipeline Treatment facility FSRU	Pipeline Licence Gas safety case Amendment to Refinery MHF safety case MHF safety case for FSRU EPA Development Licence and Operating Licence	Construction Operation	Fire and explosions Cryogenic exposure Asphyxiation

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MM-SHR08	**Fire and gas protection** The FSRU or LNG carrier will be provided with their own onboard fire protection and suppression systems. This is a requirement of the DNVB GL (or other equivalent classification society) class notation. Active fire protection and suppression will be provided for liquid fires and gas fires on Refinery Pier in compliance with Australian Standards. The design fire case for fire systems is a jet fire in the MLA area. The required firewater cooling rate is for the ship/shore manifold area, which is defined as the MLAs and associated piping and valves as well as for FSRU hull cooling. The diesel fuel supply will be designed for six hours of firewater per pump. The existing refinery current design will be upgraded to provide 2×100% or 3×50% capacity fire water pumps to provide 50% of the required firewater with the remaining firewater to be provided by firefighting tugs located with the Port of Geelong. Fire and gas detection will be provided in key locations piping on Refinery Pier and within the Treatment Facility. The storage vessel and pipework for the odorant at the Treatment Facility must have a fire rating coating of FRL240/240/240. It must be double contained with monitoring equipment in the intermediate space to monitor for leaks in the primary containment.	Pipeline Treatment facility Refinery Pier FSRU	Pipeline Licence Gas safety case Amendment to Refinery MHF safety case MHF safety case for FSRU EPA Development Licence and Operating Licence	Design Construction Operation	Fire and explosions
MM-SHR09	**Separation distance** The location of the FSRU provides sufficient separation distance from sensitive receptors (North Shore, Geelong Grammar School) to be outside impact zones for significant breach events. The refinery process area is located over 600m from the FSRU to minimise the potential for escalation of an incident from one facility to the other.	FSRU	MHF safety case for FSRU EPA Development Licence and Operating Licence	Design Operation	Potential offsite impacts and escalation risk
MM-SHR10	**Site safety advisor** A suitably competent person will be appointed as Site Safety Advisor during construction and will have on-site a set of the relevant safety data sheets (SDS) for hazardous and dangerous materials.	Pipeline works Treatment facility Refinery Pier	Pipeline Licence Gas safety case Amendment to Refinery MHF safety case	Construction	Public safety Workforce safety

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-SHR11	**Consideration of expert advice** Issues raised and recommendations made in the written expert evidence of Mr Martin Mannion and Dr Anand Pillay in the IAC hearings (Documents 70 and 69) must be explicitly considered and responded to in the further detailed design stages of the project.	LNG carriers FSRU Refinery Pier Pipeline	Pipeline Licence Gas safety case Amendment to Refinery MHF safety case	Design Construction Operation	Fire and explosions Cryogenic exposure Asphyxiation Navigation and berthing
Social and business EES evaluation objective: To minimise potential adverse social, economic, amenity and land use effects at local and regional scales					
MM-SB01	**Consultative mechanism for information and enquiries** A consultative mechanism will be developed: • to make information on changes to the waterside exclusion zone available to the community and stakeholders (in particular recreational fishing and boating clubs and Geelong Grammar School) • to make details of construction schedule (in particular disruptions to the road network) available to the community and stakeholders including Geelong Grammar School • to make the results of environmental monitoring available to the community and Geelong Grammar School • to make information relating to potential risks to human health and safety available to the community and stakeholders including Geelong Grammar School as required • for residents to make enquires, lodge complaints etc. during construction and operation.	All	Incorporated document Pipeline Licence Consent under the *Marine and Coastal Act 2018*	Construction Operation	Social impacts related to reduced access to areas near Refinery Pier for recreational activities such as fishing and boating Social and business impacts related to temporary disruptions to access points and the road network, temporary amenity impacts on sensitive receptors, and perceived safety risks

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MM-SB02	**Consultation and arrangements with Quantem** 'Business as Usual' arrangement between Viva Energy and Quantem will continue to minimise potential scheduling conflicts between the LNG carrier and ships at Berth 1 through clear communication, advanced notification and scheduling.	Refinery Pier	Incorporated document Consent under the *Marine and Coastal Act 2018*	Operation	Business impacts related to disruption to access to Berth 1
MM-SB03	**Employment plan** An employment plan will be prepared and implemented with a commitment to prioritise employing locals from northern Geelong suburbs, Indigenous groups and individuals from disadvantaged or low socio-economic backgrounds to enhance the employment benefits to the local community, as appropriate.	All	Pipeline Licence Incorporated document	Construction Operation	Creation of employment opportunities
MM-SB04	**Social procurement plan** A social procurement plan will be prepared and implemented to focus on utilising local businesses as much as possible. Viva Energy will partner with local not-for-profit community groups to assist with social procurement and employment of locals (i.e., Northern Futures, Give Where you Live).	All	Pipeline Licence Incorporated document	Construction Operation	Creation of employment opportunities
MM-SB05	**Community program** ~~To~~ Continue to work with the local community (e.g., Norlane Community Initiatives, Northern Futures, Give Where You ~~Live~~Live) and provide ongoing support that is aligned with their needs and delivers positive impact and social benefit consistent with Viva Energy's existing Community Program.	All	Pipeline Licence Incorporated document	Construction Operation	Social benefit to the local community
MM-SB06	**Community Reference Group** Establish and resource a dedicated Community Reference Group that includes representation from the Proponent and local community leaders and representative organisations with an agreed Terms of Reference to define the scope and methodology for, and oversee the implementation of, tasks associated with mitigations measures MM-SB01, MM-SB03, MM-SB04 and MM-SB05.	All	Pipeline Licence Incorporate Document	Construction Operation	Social benefit to the local community

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
Surface water					
EES evaluation objective: To minimise adverse effects on water (in particular wetland, estuarine, intertidal and marine) quality and movement, and to the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.					
MM-SW01	**Discharge water** Depending on rainfall, soil condition and the groundwater table, dewatering may be required particularly during pipeline trenching activities. The following mitigation measures are recommended for management of water from trenching activities: • Water collected from excavated areas will be recycled and reused for construction activities such as dust suppression. • Where discharge to waterbodies is unavoidable, water will be collected and treated if turbidity exceeds turbidity objectives prior to discharging. • Discharge to land will not occur within 50 metres of watercourses or be discharged directly into stormwater drains. • Construction activities to be in accordance with EPA Publication 1834 (as amended or replaced from time to time), and the requirements of the *Environment Protection Act 2017* • Site management mitigation measures will include appropriate placement of material stockpiles and chemical storages, covered loads, street sweeping and water quality monitoring, where required. • Discharge of water to land will avoid soil erosion or sedimentation of land or water. Sediment control devices such as silt fence to remove suspended solids and dissipate flow will be used where required. • Water will not be discharged to waterways, wetlands or into stormwater drains without approval from relevant authorities. • Water will be tested for pH and salinity prior to discharge to land. pH and salinity should not exceed acceptable limits in EPA guidelines. • Water that cannot be treated to meet the relevant discharge criteria will be disposed to an EPA Victoria licensed facility. • Relevant landholder(s) and water authorities will be consulted, and permission obtained prior to discharge to land. • Discharge will be to low gradient, stable, grassed areas and be undertaken in accordance with landholder requirements and through "irrigation type" systems to prevent scour or erosion. Visual monitoring during land discharge will be undertaken to ensure water does not enter existing waterways and/or wetlands. • Groundwater encountered during construction of the pipeline will be managed in accordance with the groundwater mitigation measures.	Pipeline	Pipeline Licence	Construction	Water quality impacts from dewatering

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MM-SW02	**Managing runoff** • Obstructions to flow will be removed. • Flow diversion banks will be placed upstream of spoil material if required. • An overflow spillway will be constructed to allow runoff from external catchments to pass over the spoil material at a controlled location without causing erosion. • During the works, sediment control devices such as bunding or silt fences will be set around stockpiled material, earthworks and disturbed areas to minimise loss of sediment to the receiving environment. • Temporary diversions will be provided to allow flow around the excavation area.	All	Pipeline Licence Incorporated document	Construction	Runoff from disturbed areas impacting water quality of receiving waterbodies
MM-SW03	**Watercourse trenching** Where trenching is undertaken over a watercourse the following mitigation measures will be undertaken: • Undertake works in accordance with APGA guidelines. • ~~Where practicable,~~ The trenched watercourse crossing will be constructed during no flow conditions and reinstated as soon as possible. • Weather forecasts will be monitored to avoid having open trenches at the waterway when high rainfall events are expected. • Where the watercourse is trenched, all obstructions to flow will be removed as soon as practicable after the pipe is laid and backfilled. • Trenching on both sides of the waterway will be fully excavated and prepared prior to undertaking the final section of trenching over the waterway. • Waterway reinstatement will be carried out in consultation with the CCMA. • The exposed trench within the watercourse will be reinstated immediately following the installation of the pipeline, including providing suitable compaction and revegetation. • Waterway reinstatement will be designed to avoid future erosion. This may include the use of riprap made of stones and fabric mesh to stabilise the waterway. • If necessary, a geofabric will be provided to prevent erosion and scour until the vegetation has established. • Visual monitoring will be undertaken downstream of the trench during flow events if the trench has not been reinstated. • Sediment control devices such as silt fences will be used to remove suspended solids and dissipate flow where required.	Pipeline	Pipeline Licence	Construction	Water quality impacts from watercourse trenching

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-SW04	**Capture and treat runoff from treatment facility** Runoff from the treatment facility after a rain event will be captured and managed by the controlled discharge facilities (CDF) in place at the refinery.	Treatment facility	Incorporated document	Operation	Runoff from the treatment facility impacting water quality of receiving waterbodies
Terrestrial ecology impact assessment EES evaluation objective: To avoid, minimise or offset potential adverse effects on native flora and fauna and their habitats, especially listed threatened or migratory species and listed threatened communities as well as on the marine environment, including intertidal and marine species and habitat values. To minimise adverse effects on water (in particular wetland, estuarine, intertidal and marine) quality and movement, and to the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.					
MM-TE01	**Complete works within construction right of way** Construction works will be completed within the 15-20 m construction right of way and additional designated works areas to restrict impacts on retained native vegetation and habitat.	Pipeline	Pipeline Licence	Design Construction	Vegetation loss as a result of the underground pipeline construction
MM-TE02	**Establish No-Go Zones** • No-Go Zones (NGZs) will be established to protect retained areas of native vegetation and the area of NTGVVP beyond the construction footprint. • NGZs will be fenced with highly visible fencing designed to last the duration of construction works. Fencing will be appropriately signed. • NGZs and works are limits will be clearly marked on all maps and construction drawings prior to commencement of the works and now works will occur outside of the marked footprints. • Fencing will be regularly inspected and maintained throughout the construction phase to ensure continued integrity.	Pipeline	Pipeline Licence	Construction Operation	Native vegetation and NTGVVP loss as a result of the underground pipeline construction
MM-TE03	**Minimise soil erosion** All earthworks will be undertaken in a manner that minimises soil erosion and adhere to the Construction Techniques for Sediment Pollution Control (EPA, 1991).	Pipeline Treatment Facility	Pipeline Licence Incorporated document	Construction	Impacts to retained vegetation and habitat as well as aquatic environments as a result of erosion

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MM-TE074	**Minimise impacts to trees** Large-scale excavation at the margins of construction works will be minimised where trees occur within 15 m to avoid impacts on the root zones (e.g., Between School and Torresdale Roads)	Pipeline	Pipeline Licence	Design Construction	Impacts to tree root zones during underground pipeline construction
MM-TE085	**Conduct an arborist assessment** An arborist assessment will be conducted prior to construction to identify those trees that will not be adversely impacted by the works, those that may not be impacted if protection measures are implemented, and those where loss is unavoidable. Protection measures recommended by the arborist will be implemented as required to minimise impacts.	Pipeline	Pipeline Licence	Construction	Impacts to trees during underground pipeline construction
MM-TE096	**Minimise disturbance, injury or death of wildlife** • Any open pits or trenches will be managed to reduce potential for fauna entrapment. The following measures will be implemented, with regular inspections and maintenance to ensure ongoing effectiveness of the measures: – Minimise the period trenches and other excavations are open – Design excavations with slopes less than 45o to provide exit ramps for fauna – Create 'ladders' to enable fauna to exit the excavations (e.g. branches, ropes, planks) – Ensure fauna are discouraged from work areas by erecting barriers where practicable. – A protocol included in the site induction around the procedure for finding trapped fauna. • Fencing required to define construction boundaries or to protect NGZs will be designed in accordance with relevant DELWP guidelines to limit fauna strike. • The number, type and layout of lights for lighting (if required) for night works or for security purposes will be selected and designed to minimise light spill and to only light up the construction area with reference to the National Light Pollution Guidelines for Wildlife May 2023 Version 2.0. The design will: – keep lights close to the ground – direct and shield lights to avoid light spill beyond the workspace – use lowest intensity lighting appropriate for the specific purpose – use lights with reduced or filtered blue, violet and ultra-violet wavelengths – avoid the use of LEDs if possible.	Pipeline	Pipeline Licence	Design Construction	Injury to sensitive and native fauna Night lighting disturbing native fauna

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
	• Night-time works will be minimised to reduce impacts of noise and light on nocturnal animals. • Pre-clearing survey will be conducted at all sites where trees and shrubs being removed to assess presence of fauna. • A suitably qualified wildlife handler ('wildlife spotter'), holding a relevant and current authorisation under the Wildlife Act 1975, will be engaged to salvage any wildlife encountered during the construction program. • If construction is undertaken during the Little Eagle breeding season, undertake a search for nests in trees within 200 metres of the proposed works. If a nest is found, works must be avoided within 200 metres of the nest.				
MM-TE~~10~~07	**Control spread and/or introduction of weeds and/or pathogens** • Hygiene measures will be implemented to ensure opportunities for the introduction and spread of weeds (importation of seeds and other vegetative material to the site) and pathogens are limited. This will include vehicle inspections and establishment of wash down facilities. • Fill that is clean and certified weed and contaminant free will be used, where possible. • High risk weeds from construction areas will be treated prior to works commencing. • Regular monitoring for ~~Outbreaks~~ of noxious and/or Weeds of National Environmental Significance (WoNS) within construction areas will be undertaken. Outbreaks that occurs due to construction activity will be managed. Spread into adjacent land will be prevented. • Weed management will be undertaken in accordance with the requirements of the *Catchment and Land Protection Act 1994* • All contract staff inductions will include details about the requirement for vehicles and equipment to be free of mud and plant material prior to entering work sites.	Pipeline Treatment Facility	Pipeline Licence Incorporated document	Construction	Introduction and spread of weeds and disease during construction from vehicle movements
MM-TE~~11~~08	**Reduce erosion, sedimentation and contamination risk to retained vegetation and habitat** Measures to manage erosion and sedimentation, address the management, handling, and storage of hazardous chemicals, and manage dust will be implemented to minimise impacts on retained vegetation and habitat and aquatic environments.	Pipeline Treatment Facility	Pipeline Licence Incorporated document	Construction	Impacts to retained vegetation and habitat as well as aquatic environments as a result of erosion
MM-TE~~12~~09	**Contractor/personnel awareness of ecological values** All contract staff will be inducted on the presence and location of ecological values and informed of all relevant protective measures and obligations while undertaking construction activities.	Pipeline Treatment Facility	Pipeline Licence Incorporated document	Construction	Impacts to retained vegetation and habitat

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Transport EES evaluation objective: To minimise potential adverse social, economic, amenity and land use effects at local and regional scales					
MM-TP01	**Ongoing stakeholder consultation** A community, business and relevant authority stakeholder and communications plan will be developed for transport with ongoing stakeholder consultation to be undertaken during the lifecycle of the project. This will consider findings from the Technical Report K: Transport Impact Assessment and from the Traffic Management Plan developed for the project. Stakeholder consultation, including, but not limited to DoT, City of Greater Geelong, Geelong Grammar School, TT Line (operator of the Tasmaina ferry service) and GeelongPort will be undertaken. Key notifications and agreements may include: • Pre-construction stage: – TMP agreement – Dilapidation surveys • Construction, operation and decommission or re-power stages – TMP measures and controls – Construction traffic monitoring – Road network monitoring, remediation protocols and maintenance requirements. • Prior to operation – Construction close-out meeting, infrastructure hand-back criteria	All	Pipeline Licence Incorporated document	Pre-construction Construction Decommissioning	Intersection capacity Potential road closures Disruption to public transport Disruption to other road and site users General construction heavy vehicle road use Over-dimensional loads road use Site access points upgrades Amenity impacts on the road network Disruption to emergency vehicle access Road conditions and maintenance Road section upgrades

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-TP02	**Traffic Management Plan** Prior to the commencement of construction (excluding preparatory works), TMP(s) will be developed and implemented to minimise disruption (to the extent practicable) to affected local land uses, traffic, car parking, on-road public transport, pedestrian and bicycle movements and existing public facilities during all stages of construction. The TMP will be developed in consultation with the relevant road management authorities and be informed and supported by the Stakeholder Consultation under MM-TP01, an appropriate level of transport analysis including measures outlined in the Transport Impact Assessment. The TMP will include: • any required regulatory approvals conditions resulting from the EES process and other secondary approvals. • A review of relevant policy, regulatory and protocol requirements which have informed the TMP. • Existing conditions review undertaken at the time of TMP development to verify conditions. Those provided as part of the Transport Impact Assessment can be used as a baseline. • Approved project scope as discussed in MM-TP01, including finalised details on construction extents, staging, vehicle types, final material sources, and peak construction impacts based on the refined detailed design and construction schedule • Consideration of cumulative impacts of other major projects operating concurrently in the local area, such as the traffic movements associated with the proposed relocation of the TTLine operations to Corio Quay and the construction of the Geelong Grammar School junior school. • Verification of final site access strategy, including access points and crossovers to the site. • Final nominated origins of any OD truck visitations for plant and equipment identified and final OD route assessments completed by the project transport contractor (see MM-TP08). • Mitigation measures outlined, including site access point requirements (e.g. vehicle size movements facilitated and Austroads intersection type requirements according to traffic demand warrants) and any requirements for OD delivery along derived transport routes.	All	Pipeline Licence Incorporated document	Pre-construction Construction Decommissioning	Intersection capacity Potential road closures Disruption to public transport Disruption to other road and site users General construction heavy vehicle road use Over-dimensional loads road use Site access points upgrades Amenity impacts on the road network Disruption to emergency vehicle access Road conditions and maintenance Road section upgrades

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	This may need to consider road section upgrades. Design drawings would need to be prepared for the above and sent for review and agreement with the relevant road authority at concept, functional and detailed design stages. • Following road condition and maintenance requirements considered: – Pre-condition (dilapidation survey) to provide an existing survey of public roads that may be used for access and designated for construction vehicle routes. – Consultation with road asset owners to agree on the extent of pre-condition (dilapidation survey) survey extents and survey requirements (specialist vehicle condition or photographic), road maintenance criteria, treatments and response timeframes, and post construction survey and asset hand-back agreements. • Depending on stakeholder requirements, other requirements may include specific traffic monitoring (maximum daily truck volumes), and specific bond payments for remedial works. • TMP control measures outlined, covering the following aspects: – Roles and responsibilities, including project management, co-ordination, public consultation, advertising and complaint procedures. – Road authority notification requirements. – Training and site induction requirements. – Contractor liaison protocol. – Roadside native vegetation requirements, including identification protocols and approvals (if required). – Vehicle access measures • Access requirements by vehicle type, including any regulator or stakeholder permits. • Road closure requirements. Management of any temporary or partial closure of roads and traffic lanes to maintain existing connectivity for local access, pedestrians and cyclists, in accordance with relevant road design standards and in consultation with landholders and any other relevant third parties. Traffic counts may need to be conducted to investigate suitable times for road and lane closures. Road closures to occur in off-peak periods when demands are low where possible (notably for OD vehicle deliveries). Minimise the number and duration of road closures.				

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
	• Development of suitable measures to ensure emergency service access is not inhibited due to project construction activities in consultation with emergency services, especially regarding any road closures on the public road network (see MM-TP05). • Construction staging and car parking requirements to ensure no car parking occurs outside of the project boundary and affects local land use or accessibility. If required car share or shuttle bus provisions will be considered to reduce the need for single vehicle worker occupancy. • Signage requirements with reference to Australian Standard AS 1742. Notably for this project this would include notification of: – Movement of trucks from site access points to/from major road connections. – No-truck access signage to ensure vehicles do not access restricted areas and to aid with wayfinding • Speed limits set for construction stage. Notably review of existing speeds along Shell Parade and near nominated site access points to consider safe system principles. • Verify operating and working hours during construction. These will need to be agreed with key stakeholders with a remit for the construction contractor to verify local bus routes/timings to ensure no conflicts occur. • Environmental measures considered such as (see also MM-TP07): – Management of dust / sedimentation – Noise and vibration. • Monitoring, inspection and auditing requirements detailed with regards to the TMP, including: – Addendum TMP triggers – Monitoring and inspection protocols outlined to ensure the integrity of the TMP given it will be viewed as a live document for the duration of the projects construction period. Reviews are typically undertaken on monthly basis with relevant stakeholders informed of any significant changes. – Auditing can include compliance and road safety audits. The TMP would be an overarching document to inform subsequent specific work site TMPs developed by works contractors. In addition, there may be a need for other specific TMPs, such as for the delivery of components via OD vehicles.				

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MM-TP03	**Road safety audits** Road safety audits (RSA), at various stages of project development, indicatively suggested at: • Existing condition and site access audits • Detailed design stage RSA's will be completed by a pre-qualified VicRoads RSA auditor and be independent to the project and notable the design team	All	Pipeline Licence Incorporated document	Pre-construction Construction Decommissioning	Site access points upgrades
MM-TP04	**Emergency access and evacuation plan** A contractor emergency evacuation plan will be developed outside the TMP report but reference to its production and Viva emergency evacuation protocols to be made. It will be produced in tandem between the developer, works contractor, local business and CFA.	All	Pipeline Licence Incorporated document Refinery MHF safety case amendment	Pre-construction Construction Operational Decommissioning	Disruption to emergency vehicle access
MM-TP05	**Sub TMPs** Sub TMPs will be completed by the relevant contractors, including for specific work activities (Worksite Traffic Management Plans). These will all consider and reference back to the overarching project TMP outlined previously. The sub TMPs will also outline more specific protocols and works contacts, for example: • Roles and responsibilities • Training • Incident and emergency procedures • Documentation and communication procedures	All	Pipeline Licence Incorporated document	Pre-construction Construction Decommissioning	Disruption to public transport Amenity impacts on the road network Disruption to emergency vehicle access

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-TP06	**OD transport route assessments** Formal OD transport route assessments will be completed by the project transport contractor from the nominated origin(s) along with all necessary mitigation measures and stakeholder approvals. Following this assessment, final routes options will be verified, and any impacts identified along with relevant stakeholders who may need to be contacted to facilitate the safe delivery of materials to the project sites. Potential impacts include clearance to potential obstructions, such as wires, structures (bridges and culverts), trees, and rail crossing infrastructure for OD vehicles.	All	Pipeline Licence Incorporated document	Pre-construction Construction	Over-dimensional loads road use
MM-TP07	**Operational transport plan** An operational transport plan will be developed considering appropriate stakeholder consultation in accordance with the MM-TP01. This plan will include identifying the suitable route(s) to accommodate the projected heavy vehicle movements, management measures at key intersections and permit requirements for access to roads that are not approved B-Double routes along the anticipated routes from each facility to the Refinery. Consideration to the safety and amenity impacts of proposed heavy vehicle routes during operation will be given where possible. Relevant road authorities will be consulted during the development of the Operational Transport Plan. As required, the Operational Transport Plan may be used to assess impacts to road assets and assist in any potential compensation to relevant road authorities should impacts occur.	Treatment facility	Incorporated document	Operation	Road network infrastructure Site access disruptions Safety impacts
Underwater noise EES evaluation objective: To minimise adverse effects on water (in particular wetland, estuarine, intertidal, and marine) quality and movement, and to the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.					
MM-UN01	**Minimise underwater noise impacts** Underwater noise must be minimised as far as reasonably practicable during construction and operation. Choose the quietest operational technique possible and reduce the number or duration of sound exposure periods to the absolute minimum necessary to achieve the construction targets: • Reduce the rate of penetration and the number of piles installed per day (hammer strikes). • Use noise dampening technologies at the source to reduce the initial sound production (primary noise mitigation) or placed in the path of propagating sound to reduce intensity (secondary noise mitigation).	Dredging Refinery Pier FSRU	Incorporated document Consent under the *Marine and Coastal Act 2018*	Construction Operation	Impacts on marine mammals during piling operations or other noisy aspects of jetty construction or FSRU operation

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MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-UN02	**Deter marine ~~animals~~ mammals and fish from construction area** Implement procedures to deter marine ~~animals~~ mammals and fish from the construction vicinity, including methods such as: • Using Acoustic Harassment Devices (AHDs) during (noise-) critical activities such as the onset of impact pile driving • Implementing a safety zone around loud sound sources by visual monitoring of the surrounding area prior to commencing loud activities and implement activity delays of 20 minutes based on time of last sighting • Using soft-start or ramp-up procedures. Develop implementation protocols for deterring marine mammals and fish from the construction vicinity, including guidance on the extent of the monitoring zone and how the visual monitoring should be carried out. The protocols must be developed by a suitably qualified marine biologist.	Dredging Refinery Pier	Incorporated document Consent under the *Marine and Coastal Act 2018*	Construction	Impacts on marine mammals and fish during piling operations or other noisy aspects of jetty construction
MM-UN03	**Noise awareness training** Train construction workers to understand potential for underwater noise impacts and endorse measures to reduce emissions (e.g., switching off machinery or equipment not required on a vessel while moored).	Dredging Refinery Pier FSRU	Incorporated document Consent under the *Marine and Coastal Act 2018*	Construction Operation	Impacts on marine mammals and fish during piling operations or other noisy aspects of jetty construction or FSRU operation

MM ID	Mitigation measure	Project component	Statutory implementation	Project timing	Potential impact
MM-UN04	**Performance monitoring and contingency mitigations~~, if required~~** After operation commences, commissioning underwater noise testing will be carried out to determine: • whether the noise emission levels are generally ~~in accordance with, or~~ lower than~~, those~~ the inherent noise levels predicted in the EES technical work (Technical Report A Appendix A-2); and • to detect whether any excessive noise is being emitted (atypical levels) for the equipment and shipping activity in question. If noise emissions levels ~~meaningfully exceed~~are not generally lower than those presented in the EES, or atypical sound levels are detected, then all reasonably practicable mitigation measures must be applied to reduce noise such as, without limitation, isolating noise producing equipment from the ship structure through resilient mountings / vibration isolation. The commissioning monitoring: • will be conducted for a period of two months, or four LNG carrier offload events, after the commissioning of the project; and • include testing/commissioning of the diffuser system, and during the first operational use of the diffuser system. Monitoring should be every 5 years, or such other period as approved by regulatory authorities, to ensure underwater noise emissions continue to be minimised for the life of the project.	FSRU	Incorporated document Consent under the *Marine and Coastal Act 2018*	Operation	Impacts on marine mammals and fish during FSRU operation

Mitigation measures shaded grey are not relevant to the Recommendations for further work which are the scope of the Supplementary Statement process but are included to integrate the findings of the previous EES studies

9.8 Environmental management documentation

The statutory approvals and consents that are required for the project to proceed will be implemented through a series of plans that will be required as conditions of approval. The plans will be required to implement and achieve compliance with relevant standards, guidelines and statutory approval obligations for the statutory approvals and consents outlined in Section 9.3 and to reflect the mitigation measures outlined in Section 9.7. Contractors will be responsible for reporting compliance to Viva Energy, who will be responsible for compliance and associated reporting to relevant regulators as required.

All contractor documents prepared for the project will be required to align with the documents and mitigation measures referenced in the statutory approvals and consents where relevant, as they detail mandatory conditions and contingency measures to protect environmental and social values throughout the life of the project.

Table 9-5 outlines the environmental management documentation that Viva Energy and their contractors will prepare and implement.

Table 9-5 Environmental management documentation

Documentation	Description
Project proponent	
Environmental Management Framework	This document sets out how the environmental aspects as described in the EES and Supplementary Statement for the design, construction and operation phases of the project will be managed. This EMF identifies mitigation measures that will define the environmental outcomes that must be achieved during design construction and operation of the project and will be incorporated into the required statutory approvals and consents.
Decision and Approvals	Minister's assessment of EES and Supplementary Statement to inform the conditions of the statutory approvals. • EPA Victoria Development Licences and Operating Licences Planning scheme amendment and incorporated document • EPBC Act approval • CHMP approval • Pipeline Licence for construction and operation • Marine and Coastal Act consent • MHF Safety case • Safety case for the gas pipeline
Construction Environment Management Plan (CEMP) and Operation Environment Management Plan (OEMP)	A CEMP and an OEMP will be prepared in accordance with the conditions stipulated in the incorporated document for the project. The CEMP will include detailed management protocols for the management of: • Air quality • Hazardous substances management, including contaminated land and waste management • Noise and vibration • Sediment, erosion and water quality (including surface water and groundwater) • Traffic and transport • Acid sulfate soil • Marine and terrestrial ecology.

Documentation	Description
	The OEMP will include detailed management protocols for the management of: • Air quality • Hazardous substances management, including contaminated land and waste management • Noise and vibration • Sediment, erosion and water quality (including surface water and groundwater) • Marine monitoring • Native vegetation offset management • Traffic and transport
Construction Environment Management Plan (CEMP) – pipeline	A CEMP has been prepared in accordance with the Pipelines Act 2005 Part 9 Division 3 Section 133 to accompany the Pipeline Licence application for approval by the Minister for Energy, Environment and Climate Change prior to commencing construction. The CEMP addresses the requirements of the Pipelines Act and Regulations and includes the pipeline related mitigation measures described in the EES and Supplementary Statement. The CEMP includes protocols for the management of: • Noise and vibration during construction • Acid sulfate soils management • Surface water discharge management • Wildlife management • Groundwater management • Air quality management.
Construction Safety Management Plan (CSMP) – pipeline	A CSMP has been prepared in accordance with the Pipelines Act 2005 Part 9 Division 2 Section 126 and Pipeline Regulations to accompany the Pipeline Licence for approval by Energy Safe Victoria, prior to commencing any pipeline construction.
Consultation Plan	A consultation plan will be prepared to describe the consultation approach during each of the stages of the project construction.
Cultural Heritage Management Plan (CHMP)	A CHMP will be prepared for the project work and is required to be approved by the Wadawurrung Traditional Owners Aboriginal Corporation as the Registered Aboriginal Party.
Gas Safety Case	A safety case will be prepared in accordance with the Gas Safety (Safety Case) Regulations 2018, which will describe threats to safety that are posed by the project, define how these threats are controlled and demonstrate that the controls are suitable.
FSRU Safety Case	The FSRU would be classified as a MHF under Part 5.2 of the Occupational Health and Safety Regulations 2017 when in port and would require preparation of a safety case to be approved by WSV.
Operational Environmental Management Plan (OEMP) – pipeline	The OEMP will detail Viva Energy's environmental management framework which seeks to mitigate the impact of pipeline operation on the environment. The OEMP will be prepared in accordance with Part 7 of the Pipeline Regulations 2017 and submitted to the Minister for Energy, Environment and Climate Change for acceptance.
Health, Safety and Environment System	Viva Energy has existing robust health, safety and environment management processes and procedures in place to comply with all relevant industry standards and government regulation which will be used and implemented for the project.

9.9 Change management

The CEMP(s) and OEMP(s) that are conditions of statutory approval will be controlled documents that will be subject to a revision and approvals process. Documents will be developed, approved, implemented and revised as necessary throughout the life of the project.

All contractor plans and documentation will be prepared and then approved by Viva Energy prior to any works commencing. Where required, contractor management plans will also be subject to regulatory approval from relevant government agencies.

Proponent and contractor documentation may require revisions and amendments based on:

- Continuous improvement due to changes in design and work practices
- Monitoring results
- Changes to legislation
- Risks, or as a result of findings from internal or external audits
- Incidents
- Complaints
- Other compliance obligations voluntarily taken by Viva Energy.

Contractors will be required to submit all major revisions of environmental documentation to Viva Energy for review and approval. Major documentation revisions are considered to be changes that affect work and construction practices, roles and responsibilities, social and environmental risks and overall project delivery.

9.10 Assessing environmental compliance

Approvals for the project will include compliance requirements for Viva Energy and contractors. To monitor compliance, Viva Energy and contractors will be required to develop and implement a compliance system, undertake environmental monitoring as required and report to the project proponent and relevant regulators and when required under the statutory approvals. Environmental compliance requirements will be included in all management plans.

The environmental compliance system to be adopted for the project may include the following:

- Defining non-conformance(s)
- Developing and maintaining a register of non-conformance(s)
- Defining responsibilities and timelines for addressing non-conformance(s)
- Monitoring, auditing and reporting requirements.

Implementing this compliance approach will inform the continuous improvement of the project's environmental performance. A complaints management procedure in accordance with AS/NZS 10002:2014 'Guidelines for Complaints Management in Organisations' will also be implemented (refer to Section 9.14).

9.11 Monitoring

A range of monitoring programs will be specified in the contractor management plans as relevant to monitor environmental compliance with the required mitigation measures and statutory approvals conditions. Monitoring frequency and monitoring parameters will be informed by regulatory requirements and scale of environmental risk. Monitoring may include periodic inspections of construction work areas and the operation of project elements constructed. The proposed monitoring to be undertaken for the project is summarised in **Table 9-6**, noting that these monitoring measures are a subset of the mitigation measures in Table **Table 9-4**.

Contractors will be required to implement monitoring programs in accordance with environmental documentation to verify that:

- The monitoring frequency is sufficient to identify non-conformance(s) with the mitigation measures, statutory approvals conditions, management documents and applicable legislation
- The range of parameters being monitored is adequate (this is particularly relevant if an activity has led to an incident or complaint)
- Changes to approved construction and operational activities are adequately covered by the monitoring programs.

Any proposed changes to a monitoring program will be subject to statutory decisions before implementation. Viva Energy will ensure the changes satisfy compliance with all relevant mitigation measures. The contractor will be responsible for the ongoing management of baseline and monitoring data.

Viva Energy will be responsible for verifying that all baseline and monitoring data meet the specified monitoring requirements as well as ensuring that all datasets are maintained and accessible to the relevant regulatory authorities.

Legend for **Table 9-6**

Blue text indicates changes recommended by the IAC Report No. 2 Appendix G (dated 5 October 2022)

Red text indicates changes made during the supplementary studies

Mitigation measures shaded grey are not relevant to the Minister's Recommendations for further work which are the focus of the Supplementary Statement process but are included to integrate the findings of the previous EES studies, to achieve a sound and effectively integrated body of work as required by the Minister's Directions.

Table 9-6 Monitoring requirements for the project

Relevant MM ID	Project component	Project phase	Description	Monitoring method and parameters	Monitoring frequency
Air quality EES evaluation objective: To minimise potential adverse social, economic, amenity and land use effects at local and regional scales					
MM-AQ06	Pipeline Treatment facility	Construction	Weather monitoring to determine if extreme heat and/or wind events require construction works to be modified to minimise dust impacts.	Weather conditions would be monitored for extreme heat and/or wind events using systems such as the Bureau of Meteorology forecasts and works will be modified if conditions are likely to result in air quality impacts at sensitive receptors. The project would use existing Refinery weather monitoring processes where appropriate.	Daily during construction
MM-AQ07	Pipeline Treatment facility	Construction	Observational monitoring of dust along the construction right of way (ROW) and at the treatment facility would be undertaken.	If dust is observed to be causing a hazard, then MM-AQ01 would be implemented. If dust levels cannot be contained works would be modified or stopped until the dust hazard is reduced to a manageable level.	Daily during construction
MM-AQ11	FSRU	Operation	An air quality monitoring program would be designed and implemented to monitor FSRU emissions and confirm FSRU emission rates comply with design specifications.	Stack testing would be conducted when the engines are being run on gas fuel. The concentration of the following pollutants would be sampled: • NO_2 • CO • Total VOC • Formaldehyde.	Annual

Mitigation measures shaded grey are not relevant to the Recommendations for further work which are the scope of the Supplementary Statement process but are included to integrate the findings of the previous EES studies

Relevant MM ID	Project component	Project phase	Description	Monitoring method and parameters	Monitoring frequency
Contamination and acid sulfate soils (onshore) EES evaluation objective: To minimise adverse effects on water (in particular wetland, estuarine, intertidal and marine) quality and movement, and to the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. To minimise generation of wastes by or resulting from the project during construction and operation, including dredging and accounting for direct and indirect greenhouse gas emissions.					
MM-CO05	Pipeline Treatment facility	Construction	An acid sulfate soils monitoring program would be developed as part of the CEMP in accordance with the CASS BPMG (2010) to measure the effectiveness of the acid sulfate soils management strategy and to provide an early warning of any environmental degradation or impact to surface water, groundwater and soils.	The monitoring program would measure the effectiveness of the management strategy for potential ASS risks ('Medium' ASS hazard) (CASS BPMG, 2010) in accordance with: • Industrial Waste Management Policy (Waste Acid Sulfate Soils) 1999 (as amended or replaced from time to time) • EPA Victoria Publication IWRG655.1: Acid Sulfate Soil and Rock (as amended or replaced from time to time) • Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soils (CASS BPMG, 2010) • National Acid Sulfate Soils Guidance (series of documents) 2018.	As per monitoring program
Greenhouse gas EES evaluation objective: To minimise generation of wastes by or resulting from the project during construction and operation, including dredging, and accounting for direct and indirect greenhouse gas emissions.					
MM-GG09	FSRU	Operation	Implementation of energy management systems in accordance with the International Organisation for Standardisation (ISO) 50001 Energy Management Systems (ISO 50001) for the operation of the FSRU will include conducting an audit on the FSRU to identify continual improvement of energy performance and efficiency and reductions in GHG emissions.	The energy management system would measure and review the progress of: • Energy use baselines • Energy management plans • Performance indicators • Targets for improvement.	External certification by ISO-accredited auditors on a 3-year cycle

Relevant MM ID	Project component	Project phase	Description	Monitoring method and parameters	Monitoring frequency
Marine ecology and water quality					
EES evaluation objective: To avoid, minimise or offset potential adverse effects on native flora and fauna and their habitats, especially listed threatened or migratory species and listed threatened communities as well as on the marine environment, including intertidal and marine species and habitat values. To minimise adverse effects on water (in particular wetland, estuarine, intertidal and marine) quality and movement, and the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.					
MM-ME05	Dredging	Construction	Monitor turbidity and light attenuation during dredging, with threshold limits, to confirm that turbidity increases are not consistently elevated and that there is not regular transport of turbidity from barge disposal into shallow water near Point Wilson.	*Turbidity monitoring at edges of seagrass* Turbidity will be monitored during the dredging program continuously in north Corio Bay, with a minimum of three sites along the 3 m depth contour at the offshore boundary of the main seagrass beds proximate to dredging activity which may be affected by turbidity, including seagrass in the Ramsar site. The following limits are proposed as thresholds for action to restrict turbidity releases: • 12-hour concentration above 15 NTU (trigger warning) • 24-hour concentration above 12 NTU (action required) The above limits only apply insofar as turbidity is materially contributed to at the monitoring location by dredging activity (as compared with natural spikes in turbidity caused by storms, wave action and the like). *Turbidity monitoring at disposal ground* Turbidity will be monitored continuously at two sites 600 m inshore of the Point Wilson dredged material ground (DMG) to confirm that there is not regular transport of turbidity from barge disposal into shallow water near Point Wilson. *Concurrent light attenuation monitoring* Light attenuation will be monitored at the same six sites where turbidity is recorded. *Contingency measures - trigger actions* Where action is required to reduce turbidity these may include, without limitation, reducing the period of overflow from barges to zero, and slowing the dredging cycle of the backhoe, changes to use of silt curtains and dredging during current flows favourable to reduced dispersion of sediment towards seagrasses. Such actions will continue until turbidity drops below the trigger warning level.	Continuous monitoring during dredging, commencing 2 months prior and extending for 2 months after dredging has been completed

Mitigation measures shaded grey are not relevant to the Recommendations for further work which are the scope of the Supplementary Statement process but are included to integrate the findings of the previous EES studies

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Relevant MM ID	Project component	Project phase	Description	Monitoring method and parameters	Monitoring frequency
MM-ME06	Dredging	Construction and operation	Seagrass and seabed biota monitoring in dredged area and Point Wilson DMG to assess the effects of dredging on seagrass in the vicinity of the dredged area including the Ramsar wetland and north-western Corio Bay and to detect any significant changes to infauna communities and recovery.	The monitoring of effects on seagrass will include surveys before, during and after dredging to assess impacts on seagrass. Consideration to be given to the use of monitoring indicators developed by the Western Australian Marine Science Institution (WAMSI). A minimum of two baseline surveys will be made with a 3-month gap prior to dredging, and eight post-commissioning surveys in the same locations of benthic fauna abundance, diversity and composition to detect any significant changes to infauna communities in the dredged area and the recovery of the Point Wilson DMG.	Before, during and after dredging Twice (with a 3-month gap) prior to dredging and every 3 months for 2 years post-commissioning
MM-ME07	Dredging	Construction	Monitoring of plankton during and after dredging to identify toxic phytoplankton blooms	Plankton populations will be monitored at four sites in north Corio Bay (as used in the 2020-2021 plankton surveys) before, during and after the dredging period, at two weekly intervals. The purpose is to identify if there is a bloom of toxic phytoplankton as a result of release of nitrogen or toxic algal spores during dredging. Data on relevant water quality parameters will be collected in conjunction with the biological monitoring to assist in the interpretation of results. The standard notifications to EPA and aquaculture will be made in the event that there is a bloom.	2 weekly intervals commencing 8 weeks before dredging, and continuing for 8 weeks after dredging has been completed
MM-ME17	FSRU	Operation	Monitoring of seawater discharges	Monitoring and recording of the flow rate, temperature and residual chlorine concentration of all discharges from the FSRU (excluding fire water, water curtain and ballast water) either from the refinery or directly into Corio Bay will be conducted. Monitoring will be conducted to keep a record of all discharges, confirm that the discharge rate, temperature and chlorine concentration are within the values stipulated in the licence conditions of the refinery Operating Licence and FSRU Operating Licence and, if not, provide the trigger for remedial action.	All seawater discharges

Relevant MM ID	Project component	Project phase	Description	Monitoring method and parameters	Monitoring frequency
MM-ME19	FSRU	Operation	Monitoring of the effects of seawater discharges	Monitoring will be undertaken to determine the effects of wastewater discharges from the FSRU (whether via the refinery or directly from the FSRU into Corio Bay) on marine biota and communities. The monitoring will include but not necessarily be limited to seagrasses, macroalgae and marine fauna (such as mussels and sea squirts). Temperature profiles (and inferred chlorine concentrations) will be recorded at the ecological monitoring sites. The monitoring will map impacts on the ecosystem including seasonal variations, using the baseline monitoring of the impacts of existing discharges from the refinery undertaken in the Supplementary Statement in accordance with the recommendations in Table 1 of the Minister's Directions.	All seawater discharges
Noise and vibration EES evaluation objective: To minimise potential adverse social, economic, amenity and land use effects at local and regional scales.					
MM-NV04	Pipeline	Construction	Construction noise and vibration monitoring	Noise and vibration monitoring will be undertaken during construction at: • The nearest noise sensitive residential property or properties impacted by out-of-hours works to confirm the effective implementation of noise mitigation measures, per their design, and verify that levels set as criteria in the CNVMP are not exceeded. • The nearest building or assets that are within derived set back distances for human response or in response to a complaint • Where an asset owner's utility standards are at risk of being exceeded. Frequency and duration: • Attended measurements will be undertaken at the earliest stage (within the first 24 hours) for each construction activity identified to impact sensitive receiver locations during out of hours works. • The measurement duration will be adequate to represent a typical 15-minute period for the applicable evening or night period.	Within the first 24 hours of each construction activity identified to impact sensitive receiver locations during out of hours work In response to complaints

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Relevant MM ID	Project component	Project phase	Description	Monitoring method and parameters	Monitoring frequency
				• Continuous monitoring will be undertaken for any works scheduled outside of normal working hours (including unavoidable works) ~~modelled or~~ previously measured to be within 3dB or exceeding the low-impact and managed-impact noise levels. • For onshore pipeline construction, where the noise sources will be transient, measurements will be required for works at representative sensitive receivers where noise has been identified as a risk. Where noise levels modelled or measured at Geelong Grammar School or at other sensitive receivers, exceed the levels set in the CNVMP (as required in MM-NV01 and MM-NV02) these works will not be carried out other than during normal working hours, unless mitigation measures are applied to meet the requirements of MM-NV01 and MM-NV02. • Measurements shall be undertaken at the commencement of dredging and during meteorological conditions suitable to favourable noise propagation at Geelong Grammar School and other sensitive receivers. ~~Where measurements indicate or confirm that cumulative noise impacts, including dredging and the refinery, will exceed the Night period noise limits defined by EPA Publication 1826,~~ Where assessments conducted in accordance with EPA Publication 1826.4 (Noise Protocol) (as amended or replaced from time to time) indicate cumulative noise impacts (including the contributions from dredging, from the refinery and from other commercial, industrial or trade premises) will exceed the evening or night period noise limits determined in accordance with the Noise Protocol, dredging operations shall cease ~~between the hours of 10pm and 7am until compliance is achieved.the night~~during those periods until the relevant period limits are met. • Measurements will be undertaken in response to any community complaints, where noise emissions need to be verified to resolve the issue i.e., where the activity cannot simply be stopped or mitigated to avoid the risk due to noise.	

Relevant MM ID	Project component	Project phase	Description	Monitoring method and parameters	Monitoring frequency
				A response plan will be developed to manage potential impacts if construction noise criteria are not met, including: • Actions taken to rectify exceedance of nominated criteria e.g., stop works until noise monitoring confirms the exceedance is resolved or implement mitigation measures to manage impacts. • Actions to minimise risk of reoccurrence e.g., provide mitigation measures or alternative methods. • Name of person(s) responsible for undertaking the required actions.	
MM-NV05	FSRU	Operation	Verification noise monitoring should be conducted on noise produced by the FSRU within 3 months of commencement to confirm noise emission and the schedule of activities.	Operational noise monitoring will be undertaken to confirm operational noise levels and verify cumulative noise impacts. • Within the first 3 months of operation, conduct long-term noise monitoring (over a minimum of 1 month) in accordance with the Noise Protocol and the provisions of EPA Publication 1997 (as amended or replaced from time to time), to verify that the Project Noise Criteria and/or regulatory noise limits are not exceeded at Geelong Grammar School and other noise sensitive areas. The measurements shall be undertaken for all operating scenarios to verify the noise emissions. • Where operational compliance relies on the ongoing scheduling or managed hours of sources, permanent real-time noise monitoring shall be installed and carried out at any impacted receptors identified during the monitoring undertaken within the first 3 months of operation. Real-time monitoring data shall be made available to those relevant stakeholders. • Measurements will also be undertaken as part of the Environmental Management Plan in response to any community complaints. • Operational noise monitoring will inform ongoing updates to the operational management plan including potential scheduling of activities and mitigation measures if required.	Within the first 3 months of operation (over a minimum of 1 month) To verify compliance if reliant on scheduling / managed hours of sources In response to complaints Following implementation of additional controls in the event of an exceedance

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Relevant MM ID	Project component	Project phase	Description	Monitoring method and parameters	Monitoring frequency
				• Wherever the noise emissions from the project are measured to exceed the ~~Noise Protocol noise limits,~~ Project Noise Criteria, or the cumulative Industry noise is measured to exceed the regulatory noise limits, additional attenuation and/or management controls shall be implemented and measurements repeated until compliance is demonstrated. • Further noise monitoring should be conducted to verify the effectiveness of the attenuation and/or management controls to prevent exceedances of the Project Noise Criteria and the regulatory noise limits. • Where management and scheduling for the operational activities is changed, the risk of exceedance of the Project Noise Criteria and the regulatory limits must be assessed, and wherever relevant further noise monitoring is advised should also be conducted to verify compliance.	
Safety, hazard and risk EES evaluation objective: To provide for safe and cost-effective augmentation of Victoria's natural gas supply having regard to projected demand and supply in context of the State's energy needs and climate policy.					
MM-SHR04	Pipeline Treatment facility FSRU	Operation	The operation of the FSRU, pipeline and Treatment Facility will be monitored using appropriately SIL rated process automation and shutdown systems. The control, monitoring and shutdown systems will be fail-safe and be designed to best industry practices with redundancy.	Abnormal conditions will alarm locally and remotely to fully attended control rooms. Operation out of the design / operation envelope has the potential to result in imminent loss of containment, which will result in an automatic shutdown of gas operations via closing of emergency shutdown valves with depressuring of inventory through vent stacks if and when required will to be initiated remotely by an operator in the control room to ensure safe release.	Continuous automated
MM-SHR06	Treatment facility FSRU	Operation	Monitoring of chemical and fuel storage facilities to prevent leaks/ spills.	Routine visual monitoring and recording of chemicals and fuel storage facilities will occur as part of routine operational practices.	As per OEMP

Relevant MM ID	Project component	Project phase	Description	Monitoring method and parameters	Monitoring frequency
Surface water					
EES evaluation objective: To minimise adverse effects on water (in particular wetland, estuarine, intertidal and marine) quality and movement, and the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.					
MM-SW01	Pipeline	Construction	Monitoring of discharge water from construction areas to ensure water quality does not exceed acceptable limits in EPA guidelines and that water does not enter existing waterways and/or wetlands.	Site management mitigation measures would include appropriate placement of material stockpiles and chemical storages, covered loads, street sweeping and water quality monitoring, where required. Water would be tested for pH and salinity prior to discharge to land. pH and salinity should not exceed acceptable limits in EPA guideline. Discharge would be to low gradient, stable, grassed areas and be undertaken in accordance with landholder requirements and through "irrigation type" systems to prevent scour or erosion. Visual monitoring during land discharge would be undertaken to ensure water does not enter existing waterways and/or wetlands.	Prior and during discharge of water from site
MM-SW03	Pipeline	Construction	Monitoring of watercourse trenching to avoid impacts to downstream waterbodies	Weather forecasts would be monitored to avoid having open trenches at the waterway when high rainfall events are expected. Visual monitoring would be undertaken downstream of the trench during flow events if the trench has not been reinstated.	Daily weather forecast monitoring in the week leading up to trenching of the watercourse Twice daily visual monitoring if there are flow events in the watercourse

Mitigation measures shaded grey are not relevant to the Recommendations for further work which are the scope of the Supplementary Statement process but are included to integrate the findings of the previous EES studies

Mitigation measures shaded grey are not relevant to the Recommendations for further work which are the scope of the Supplementary Statement process but are included to integrate the findings of the previous EES studies

Relevant MM ID	Project component	Project phase	Description	Monitoring method and parameters	Monitoring frequency
Underwater noise EES evaluation objective: To avoid, minimise or offset potential adverse effects on native flora and fauna and their habitats, especially listed threatened or migratory species and listed threatened communities as well as on the marine environment, including intertidal and marine species and habitat values.					
MM-UN02	Dredging Refinery Pier extension	Construction	Visual monitoring for marine animals to deter them from entering construction area where they may be adversely impacted by underwater noise.	Implement a safety zone around loud sound sources by visual monitoring of the surrounding area prior to commencing loud activities and implement activity delays of 20 minutes based on time of last sighting of marine mammals.	Prior to commencement of loud sound sources
MM-UN04	FSRU	Operation	Performance monitoring to confirm noise levels presented in the EES	After operation commences, commissioning underwater noise testing will be carried out to determine: • whether the noise emission levels are generally ~~in accordance with, or~~ lower than~~, those~~ the inherent noise levels predicted in the EES technical work (Technical Report A Appendix A-2); and • to detect whether any excessive noise is being emitted (atypical levels) for the equipment and shipping activity in question. If noise emissions levels ~~meaningfully exceed~~are not generally lower than those presented in the EES, or atypical sound levels are detected, then all reasonably practicable mitigation measures must be applied to reduce noise such as, without limitation, isolating noise producing equipment from the ship structure through resilient mountings / vibration isolation. The commissioning monitoring: • will be conducted for a period of two months, or four LNG carrier offload events, after the commissioning of the project; and • include testing/commissioning of the diffuser system, and during the first operational use of the diffuser system. Monitoring should be every 5 years, or such other period as approved by regulatory authorities, to ensure underwater noise emissions continue to be minimised for the life of the project.	At commencement of operation Every 5 years during operation

9.12 Environmental reporting

Viva Energy would be responsible for reporting compliance with mitigation measures and statutory approvals conditions to regulators. Reporting and external notification requirements will be outlined in detail within the contractor management plans including which matters require reporting, to which party and the timeframe within which the reporting should occur. Reporting will depend upon the terms of the statutory approvals, but may include:

- Monitoring results
- Compliance with requirements
- Non-conformances and corrective actions
- Complaints register and responses
- Notifications to the Registered Aboriginal Party and First Nations – State Relations, if a potential Aboriginal place or artefact is identified
- Notification to Heritage Victoria and the Department of Transport and Planning (DTP) if a heritage artefact is discovered
- Environmental incident notifications, including if contamination is encountered.

9.13 Audits

A suitably qualified professional would conduct independent audits at agreed intervals to monitor compliance with the mitigation measures, management systems obligations, statutory approvals conditions and relevant legislation and guidelines throughout all phases of the project. Specific details of the audit schedule will be included in Viva Energy's CEMPs and OEMPs. Audit regimes will be informed by the regulatory approval requirements applying to the FSRU and pipeline components of the project.

Audits would evaluate:

- Compliance with all relevant mitigation measures contained in the CEMPs and OEMPs
- Compliance with statutory approvals conditions issued for the project
- Conformance with any other relevant environmental management documentation
- Responses to non-conformances, complaints and incidents
- Compliance with safety requirements
- Implementation of monitoring programs.

Conformance and compliance will be assessed through a range of inspections, observations of project works, consultations with proponent, operators and contractors, reviews of records and meeting minutes as agreed between Viva Energy and the auditor. Viva Energy would make publicly available a summary of the independent audits and Viva Energy's response to the recommendations in the audits.

9.14 Complaints management

Stakeholders and members of the community will be able to raise issues or submit complaints about the proposed project. Through the complaints management process Viva Energy would seek to:

- Clarify and understand any concerns or complaints raised
- Consider and investigate concerns or complaints in a timely manner
- Communicate outcomes of reviews and investigations
- Commit to apply learnings from concerns or complaints

The project has established a toll free phone number (1800 515 093) to receive any feedbacks or complaints. All contact received through this channel would be lodged and responded to.

9.15 Contingency measures

Viva Energy and their contractors would have in place contingency measures to facilitate an efficient and effective response to unexpected environmental events that could arise during project construction and operation. While it is difficult to predict where contingency measures may be required during the construction and operational phases of the project, Viva Energy is committed to delivering on the mitigation measures outlined in the EMF and to ensuring compliance with regulatory requirements. In the event that unexpected issues arise, or non-compliance becomes evident during construction or operation, contingency plans would be developed and implemented to address the issue.

Events for which contingency measures will be prepared include (but are not limited to):

- The discovery of previously unidentified Aboriginal cultural heritage (see MM-AH01) or historic heritage objects or places (see MM-HH01 and MM-HH02)
- Emergency shutdown of abnormal operation

conditions (see MM-SHR04)
- Hazardous chemicals, fuel or waste spills (see MM-SHR07)
- Liquid fires and gas fires (see MM-SHR08)
- Construction work outside of EPA normal working hours (see MM-NV02)
- The discovery of unexpected legacy contaminated material(s) (see MM-CO04).

For issues such as air quality and noise emissions, where regulatory requirements are well understood, monitoring of performance during both construction and project operation will be a central element of Construction Environmental Management Plans (CEMP) and Operational Environmental Management Plans (OEMP).

While Viva Energy is unable to assess at this point where contingency measures may be required, some examples of the types of measures which could be adopted if needed include:

9.15.1.1 Air emissions

Viva Energy would undertake verification monitoring of air emissions produced by the FSRU within 3 months of commencement in accordance with current Victorian EPA requirements. Should verification monitoring detect unacceptable levels of air emissions, additional measures would be implemented to minimise emissions which could include:

- Alteration of discharge exhaust parameters to increase air dispersion, such as
  - vertical outlet orientation (instead of being tilted 45° aftwards)
  - increasing height of exhaust emission points
  - change to exhaust flow rate or temperature
- Operating FSRU engines when meteorology conditions (particularly wind direction and speed) are favourable
- Reducing the load and number of engines operating at any one time.

9.15.1.2 Noise emissions

Viva Energy would undertake verification monitoring of noise produced by the FSRU within 3 months of commencement in accordance with current Victorian EPA requirements. It is expected that the FSRU and associated equipment (tugboats, LNG carrier etc.) will comply with EPA requirements. Should verification monitoring detect unacceptable levels of noise emissions, additional measures could be implemented to minimise noise emissions which could include:

- FSRU, tugboat and LNG carrier source mitigation
  - Exhaust attenuators, mufflers or elbows
  - Substituting tugboats for quieter alternatives
  - Noise walls/enclosures constructed for noisy individual pieces of equipment
  - Reducing the load or number of engines operating at one time
- Activity scheduling
  - Restricting noisy activities such as mooring, closed loop FSRU operation and truck movements to daytime only
  - Scheduling noisy FSRU, tugboat and LNG carrier activities to commence when nitrogen unloading is not taking place
- Noise monitoring
  - Undertake additional attended noise monitoring to verify the noise emissions at sensitive receptors areas for operations during the day, evening and night periods.
  - Setup permanent unattended noise monitors in areas of concern with notification triggers when noise levels are approaching compliance levels. Where compliance levels are exceeded, investigate the issue accordingly to identify the noise source and verify the noise emissions. Where required, implement mitigation measures to eliminate or reduce the noise emissions.
  - Monitor wind conditions (e.g., speed and direction) to evaluate noise emissions under various weather conditions including worst case noise propagation conditions (i.e., prevailing wind direction from source to receiver).

As outlined above, it is not possible to identify where construction and operational contingency plans may be required at this stage of the project. However, this section has provided some examples of the types of measures which could be adopted in response to non-compliance or amenity concerns which could arise over the life of the project. Viva Energy is committed to minimising impacts on the environment, its neighbours and the wider community and would implement contingency measures as required.