

8 Environmental Management Framework

8.1 Introduction

This chapter presents the Environmental Management Framework (EMF) that has been developed for the West Gate Tunnel Project. The EMF provides a transparent and integrated governance framework for managing the environmental effects of the West Gate Tunnel Project to achieve acceptable environmental outcomes. The EMF includes Environmental Performance Requirements (EPRs) that define project-wide environmental outcomes that must be achieved during the further design, construction and operational phases of the project.

The West Gate Tunnel Project incorporated document included in each of the relevant planning schemes governing development of the West Gate Tunnel Project will require the preparation and implementation of an Environmental Management Strategy prepared to the satisfaction of the Minister for Planning consistent with this EMF and which responds to the final EPRs for the project. Compliance with the Environmental Management Strategy and EPRs would also be mandated and enforced by the Western Distributor Authority on behalf of the State through the contractual arrangements to be entered into between the State and Project Co for delivery of the project following project approval.

The EPRs contained in this chapter have been developed through the EES to address identified risks and impacts and to achieve delivery of environmental benefits. The performance-based approach taken by the EPRs aims to achieve environmental outcomes that provide a net community benefit, while allowing flexibility in the manner in which the EPRs are achieved. This approach enables consideration of design alternatives in detailed design, fostering innovation in ongoing design development and project implementation, without compromising on the environmental outcomes to be achieved.

The EMF outlines clear accountabilities for the delivery of the EPRs and compliance with all relevant environmental laws, approvals, approval conditions and environmental management plans and procedures to ensure that the environmental effects of the project and any hazards associated with its construction and operation are effectively managed.

The EMF also specifies the environmental management system to be adopted during construction and operation, and the processes to be followed in the preparation, review, approval and implementation of environmental management plans and procedures, including the construction environmental management plan and more detailed worksite environmental management plans. The EMF also provides for the regular review and updating of environmental management plans and procedures as well as independent monitoring, auditing and reporting of compliance.

Development of this EMF has been guided by the EES Scoping Requirements, relevant legislation, policy and guidelines, and has been informed by the environmental risk assessment and specialist environmental impact assessment studies completed for the EES. The risk assessment has been undertaken in accordance with the risk management standard ISO31000:2009.

Implementation of this EMF and EPRs would be effective in controlling adverse effects associated with development and operation of the project. Implementation of the EMF and EPRs in the manner proposed would also support beneficial environmental outcomes to be achieved by the project. The EMF is clear, transparent, robust and comprehensive with sound governance and accountability arrangements.

8.2 EES Scoping Requirements

The EES Scoping Requirements relevant to the EMF include the following evaluation objective:

To provide a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction and operation phases of the project, in order to achieve acceptable environmental outcomes.

The EMF as contained in this chapter addresses this objective in the following sections:

- Governance, including roles and responsibilities to provide a transparent framework for accountability (section 8.3)
- Compliance with environmental laws, approvals, approval conditions and consents to achieve acceptable environmental outcomes (section 8.4)
- Environmental risk and impact assessment approach for identifying potential environmental effects and hazards to be managed (section 8.5)
- EPRs to achieve acceptable environmental outcomes (section 8.6)
- Environmental management documentation to ensure environmental risks are appropriately managed at all levels and during all phases of project development (section 8.7)
- Environmental management strategy providing an overarching framework to address all environmental requirements (section 8.7.1)
- Environmental management system for achieving compliance (section 8.7.2)
- Environmental management plans covering both design and construction, and operation of the project (section 8.7.3)
- Evaluation and approval requirements, including monitoring, auditing and reporting (section 8.7.4).

8.3 Governance framework

As discussed in Chapter 1 *Introduction*, on 8 December 2015 the Victorian Government announced its intention to partner with Transurban to design, construct and operate the West Gate Tunnel Project. This would be formalised through a Project Agreement between the State and Transurban following completion of the EES assessment process and the issue of key project approvals. As the Project Agreement is yet to be entered into, this EMF refers to the State's future delivery partner as 'Project Co'.

The Western Distributor Authority within DEDJTR has been established to manage the Project Agreement on behalf of the Victorian Government.

The Project Agreement would specify Project Co's obligations for project delivery and include a requirement for Project Co to prepare an Environmental Management Strategy providing an overarching framework to address all environmental requirements including relevant environmental laws, project approvals, approval conditions, the EPRs and the technical requirements of the Project Agreement in relation to environmental management.

The Environmental Management Strategy would also need to be submitted to and approved by the Minister for Planning as a condition on the West Gate Tunnel Project incorporated document, prior to the commencement of any works other than preparatory works.

The Environmental Management Strategy must be consistent with this EMF, respond to the EPRs and incorporate an environmental management system that complies with AS/NZS ISO 14001. The Project Agreement would also include requirements to prepare a range of environmental management plans and procedures including:

- A Construction Environmental Management Plan (CEMP) and separate Worksite Environmental Management Plans (WEMPs) for the management of discrete issues, components or stages of the works
- An Operations Environmental Management Plan (OEMP) to govern the operational phase of the project.

These would be detailed plans governing the management of all project activities in a manner that meets, as a minimum, the requirements of all relevant environmental laws, approvals, approval conditions, this EMF and the EPRs. They will apply to the project as developed through detailed design regardless of the design alternative selected to meet specified environmental outcomes. These plans would need to be submitted to the State and the Independent Reviewer and Environmental Auditor (IREA) for review and, in the case of the CEMP and OEMP, approval prior to implementation and the commencement of activities relevant to the plans. The IREA would be jointly engaged by the State and Project Co to carry out independent reviews of activities and documentation and audit compliance with environmental management documents. Following expiration of the term of the IREA approximately two years after completion, the role of reviewing and approving revisions to the OEMP, conducting compliance audits and producing audit reports would be undertaken by an independent Environmental Auditor to be engaged by Project Co.

The CEMP and OEMP must also be regularly reviewed and updated with each revised plan submitted to and approved by the State and IREA prior to implementation. Updates to the CEMP are to occur at least every six months during construction and updates to the OEMP are to occur at least annually during the operation.

Compliance audits with each of the Environmental Management Strategy, CEMP, OEMP and each of the WEMPs must also be carried out on a regular basis by the IREA, with results provided to the State.

Project Co is required to appoint a dedicated Environmental Representative with authority and responsibility for environmental management during construction and operation of the project, including for ensuring any issues identified in the environmental audits are adequately addressed. Audit reports assessing compliance with the Environmental Management Strategy and environmental management plans must also be provided to the Minister for Planning and other statutory approval authorities as appropriate.

This governance framework is generally shown in Figure 8-1. The project environmental governance framework would operate within the wider framework of all relevant legislation and approvals. Specific requirements for environmental documentation including the matters required to be addressed in the CEMP, WEMPs and OEMP are outlined in section 8.7.

8.3.1 Roles and responsibilities

The key roles and responsibilities for ensuring compliance with the EMF and EPRs are described in Table 8-1.

Figure 8-1 Governance framework

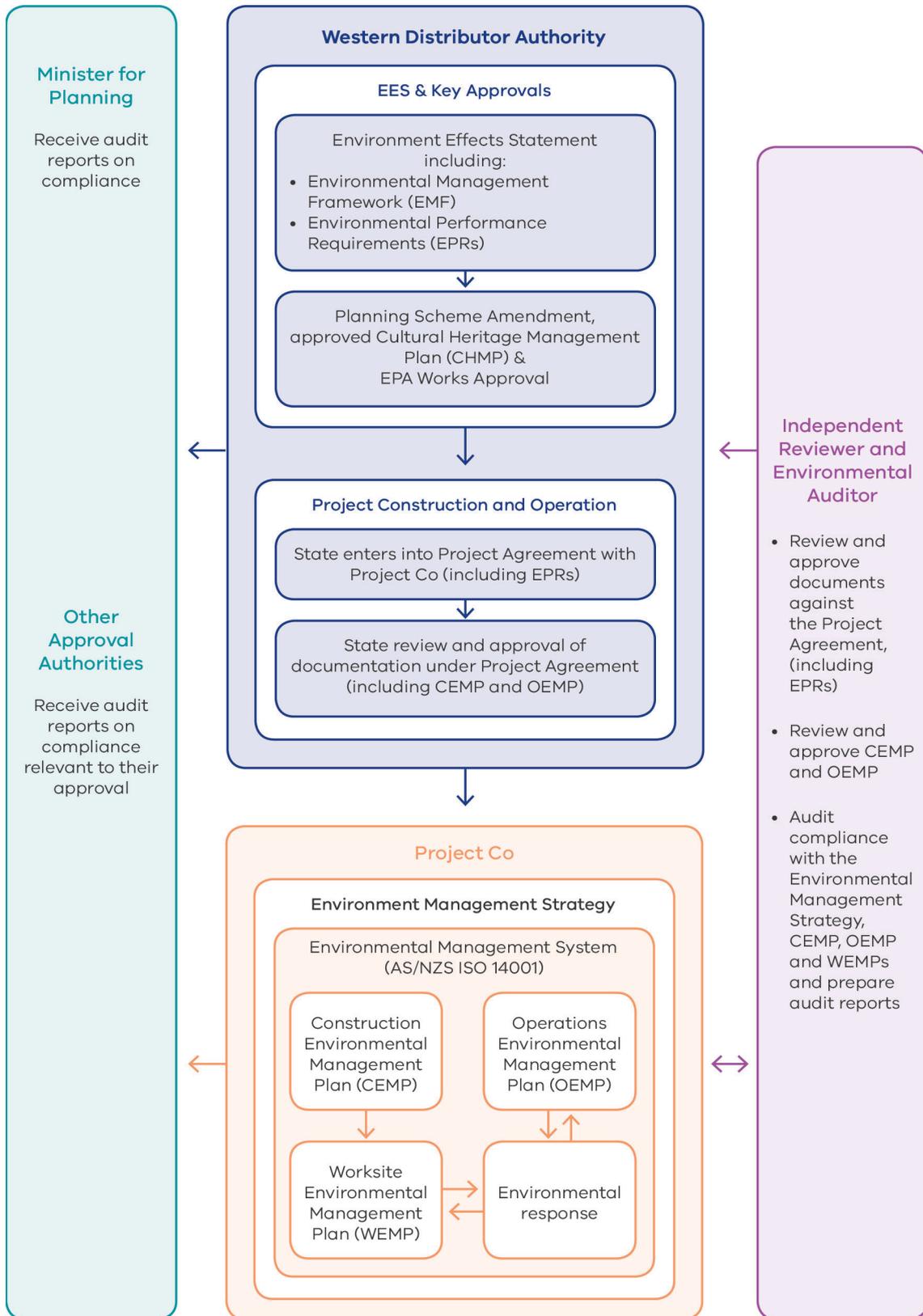


Table 8–1 Roles and responsibilities for environmental management

Organisation	Role	Responsibility
Minister for Planning	Regulation	<p>Review and approve the Environmental Management Strategy under the <i>West Gate Tunnel Project Incorporated Document</i>.</p> <p>Receive 6 monthly audit reports as to compliance with the Environmental Management Strategy and other management plans, or as otherwise agreed with the Minister for Planning.</p> <p>Administer and enforce approved Environmental Management Strategy as responsible authority for the administration and enforcement of the <i>West Gate Tunnel Project Incorporated Document</i>.</p>
Approval Authorities	Regulation	<p>Administer and enforce relevant approvals.</p> <p>Receive audit reports (or sub-reports) as to compliance with relevant approval.</p>
Western Distributor Authority	Proponent / State representative	<p>Obtain key project approvals comprising the planning scheme amendment, EPA Works Approval and approved Cultural Heritage Management Plan.</p> <p>Finalise the EPRs as part of the EES assessment process and before the planning scheme amendment is made including the incorporated document into the planning schemes.</p> <p>Mandate compliance with the EMF and EPRs as a condition of the Project Agreement.</p> <p>Jointly engage the IREA with Project Co.</p> <p>Ensure that the requirements of the EMF and the EPRs have been addressed and are complied with in the contractor's environmental management documentation.</p> <p>Prior to the commencement of work, verify that the contractor has complied with relevant EPRs.</p> <p>Review, evaluate and approve the CEMP and all revisions to the CEMP.</p> <p>Review and comment on the WEMPs, and receive all finalised WEMPs prior to the commencement of works covered by the WEMPs.</p> <p>Review, evaluate and approve the OEMP and all revisions to the OEMP.</p> <p>Receive audit reports from the IREA as to compliance with the approved Environmental Management Strategy, CEMP, WEMPs and OEMP and take corrective action as necessary.</p> <p>Provide six-monthly audit reports as to compliance with the Environmental Management Strategy and other management plans to the Minister for Planning and sub-reports to other approval authorities as appropriate, or as otherwise agreed by the Minister for Planning or approval authority.</p> <p>Liaise with regulators and other agencies as required.</p> <p>Prepare annual environmental reports to the Minister for Planning as per section 8.8.1.</p> <p>Conduct stakeholder engagement and community consultation activities as required.</p>

Organisation	Role	Responsibility
Project Co	Delivery	<p>Obtain all other project approvals and comply with all approval conditions and obtain necessary consents.</p> <p>Prepare and implement the Environmental Management Strategy as approved by the Minister for Planning.</p> <p>Jointly engage the IREA with the State.</p> <p>Engage a dedicated Environmental Representative with authority and responsibility for environmental management.</p> <p>Comply with all legislative requirements, approvals, approval conditions, the Environmental Management Strategy and EPRs for the duration of the concession period.</p> <p>Ensure that all contractors similarly comply with such requirements and take corrective action as necessary.</p> <p>Prepare and implement the CEMP as approved by the State and the IREA.</p> <p>Prepare and implement the WEMPs responding to the comments made by the State and the Independent Reviewer and as approved by the Environmental Representative.</p> <p>Prepare and implement the OEMP as approved by the State and the IREA.</p> <p>Attend to reviews of the CEMP and the OEMP and submit revised plans to the State and IREA for review and approval.</p> <p>Assist in the conduct of compliance audits by the IREA of each of the Environmental Management Strategy, CEMP, OEMP and WEMPs.</p> <p>Appoint an independent Environmental Auditor to review and approve revisions to the OEMP and conduct compliance audits, following expiration of the term of the IREA.</p> <p>Assist in the conduct of compliance audits by the independent Environmental Auditor.</p> <p>Assist Western Distributor Authority in the provision of six-monthly audit reports for submission to the Minister for Planning and sub-reports to other approval authorities as appropriate.</p> <p>Take any necessary corrective action required to address issues raised in the audit reports of the IREA or independent Environmental Auditor (as the case may be), to the satisfaction of the State and IREA or independent Environmental Auditor as appropriate.</p> <p>Prepare monthly environmental reports to Western Distributor Authority as per section 8.8.1</p> <p>Conduct stakeholder engagement and community consultation activities in consultation with Western Distributor Authority.</p>
Independent Reviewer and Environmental Auditor (IREA)	Review, Approve and Audit Compliance (during design, construction, commissioning and for at least two years after completion)	<p>Review adequacy of Project Co documentation against the Project Agreement, including the EPRs, and approve prior to implementation.</p> <p>Review and approve the CEMP and OEMP and all revisions prior to implementation.</p> <p>Review and comment on all WEMPs and receive all finalised WEMPs prior to implementation.</p> <p>Conduct audits of compliance with the Environmental Management Strategy, CEMP, OEMP and WEMPs, provide audit reports to the State and Project Co and require Project Co to take corrective action as required.</p> <p>Produce six-monthly audit reports to the State for the provision to the Minister for Planning and sub-reports to other approval authorities as appropriate.</p>

Organisation	Role	Responsibility
Independent Environmental Auditor	Review, Approve and Audit OEMP Compliance (following expiration of term of IREA)	<p>Review and approve all revisions to the OEMP prior to implementation.</p> <p>Conduct audits of compliance with the Environmental Management Strategy and OEMP provide audit reports to the State and Project Co and require Project Co to take corrective action as required.</p> <p>Produce six-monthly audit reports to the State for the provision to the Minister for Planning and sub-reports to other approval authorities as appropriate.</p>
Environmental Representative	Delivery	<p>Responsible for environmental management issues during construction and operation on behalf of Project Co.</p> <p>Review all environmental audit reports produced by the IREA and ensure issues identified are addressed.</p> <p>Approve WEMPs after responding to items raised by the State and IREA.</p>

8.4 Statutory approvals and consents

The Western Distributor Authority is responsible for preparing the EES for the project under the *Environment Effects Act 1978*. The Western Distributor Authority is also responsible for seeking the following key project approvals:

- Approval of the planning scheme amendment under the *Planning and Environment Act 1987* (Vic), which includes the *West Gate Tunnel Project Incorporated Document* into the relevant planning schemes to facilitate development of the project
- EPA Works Approval under the *Environment Protection Act 1970* (Vic) authorising construction and installation of a tunnel ventilation system for the purposes of the project
- An approved Cultural Heritage Management Plan under the *Aboriginal Heritage Act 2006* (Vic).

Project Co would be required as a condition of the Project Agreement to comply with the conditions of the statutory approvals and to obtain all other approvals, licences, permits and consents that may be required to deliver the West Gate Tunnel Project.

The statutory approvals and consents required for the project are summarised in the table below.

Table 8–2 Summary of main statutory approvals and consents

Act	Requirements	Responsibility	Implementation
Key approvals			
<i>Aboriginal Heritage Act 2006</i>	Cultural Heritage Management Plan (CHMP)	Western Distributor Authority	A draft CHMP has been prepared for the project in accordance with the <i>Aboriginal Heritage Act 2006</i> and is anticipated to be approved prior to the formal hearings on the EES. Western Distributor Authority would require Project Co to comply with the approved CHMP as a condition of the Project Agreement.
<i>Environment Protection Act 1970</i>	Works approval application for the tunnel ventilation system as scheduled premises under the <i>Environment Protection (Scheduled Premises and Exemptions) Regulations 2007</i>	Western Distributor Authority	A Works Approval application has been placed on public exhibition concurrently with this EES. Western Distributor Authority would require Project Co to comply with the Works Approval as a condition of the Project Agreement.
<i>Planning and Environment Act 1987</i>	Planning scheme amendments to permit use and development of the project under the Melbourne, Hobsons Bay, Maribyrnong, Port of Melbourne, Brimbank and Wyndham Planning Schemes.	Western Distributor Authority	A draft planning scheme amendment has been placed on public exhibition concurrently with this EES. The incorporated document proposed to be included in the relevant planning schemes requires compliance with the EMF and EPRs. Western Distributor Authority would require Project Co to comply with the incorporated document as a condition of the Project Agreement.
Other approvals			
<i>Environment Protection Act 1970</i>	Environmental discharge licence for the operation of the tunnel ventilation system	Project Co	Application for the discharge licence would be made following construction of the tunnel ventilation system.
<i>Flora and Fauna Guarantee Act 1988</i>	Permit for the removal of listed flora and fauna from public land	Project Co	Project Co would be required, as a condition of the Project Agreement, to obtain and comply with all FFG Act permits required for the project.
<i>Heritage Act 1995</i>	Consent to disturb an archaeological site	Project Co	Project Co would be required, as a condition of the Project Agreement, to obtain and comply with all consents that are required for the project.
<i>Coastal Management Act 1995</i>	Consent to use and develop coastal Crown land	Project Co	Project Co would be required, as a condition of the Project Agreement, to obtain and comply with all consents required for the project.

Act	Requirements	Responsibility	Implementation
<i>Road Management Act 2004</i>	Consent is required for the connection of the West Gate Tunnel Project to existing freeways (CityLink, West Gate Freeway and the Western Ring Road)	Project Co	Project Co would be required, as a condition of the Project Agreement, to obtain and comply with all requisite Road Management Act consents.
<i>Water Act 1989</i>	Approvals would be required for works to be undertaken in relation to groundwater and waterways, including: Moonee Ponds Creek, Maribyrnong River, Stony Creek and Kororoit Creek	Project Co	Project Co would be required, as a condition of the Project Agreement, to obtain and comply with all permits and licenses under the Water Act.
<i>Wildlife Act 1975</i>	Permit to take wildlife	Project Co	Project Co would be required, as a condition of the Project Agreement, to obtain and comply with any permit that may be required.

8.5 Risk and impact assessment

Environmental risk assessment has been central to the development of the EES for the West Gate Tunnel Project. It has enabled the key environmental risks associated with the project to be identified and prioritised in the specialist impact assessments. The environmental risk assessment considered construction and operation impacts, as well as planned and unplanned events. Attachment II to the EES contains further detail on the risk assessment and the risk register developed for the EES. Impacts associated with priority risks are assessed in volumes 2, 3 and 4 of this EES.

An iterative process was adopted for the risk and impact assessments for the EES to identify, assess and refine the EPRs for the project. The EPRs resulting from this process are presented in Table 8–6.

As part of preparation of the CEMP and WEMPs, a detailed assessment of risks associated with the detailed design of the project and specific work methods would be carried out. This assessment would consider the ability to meet the EPRs, and approval conditions. This detailed assessment would consider the issues identified through the EES process and the risks associated with delivery of the project works, and be consistent with AS/NZS ISO 31000 Risk management – principles and guidelines.

A current risk register would be required to be maintained by Project Co which would be a 'live' document to be updated through regular reviews, and in response to changes to activities, work methods, legislation and policy or the occurrence of incidents and complaints. The risk register would link risks to relevant EPRs that define the standard of management to be achieved to manage potential impacts associated with that risk.

8.6 Environmental performance requirements

EPRs have been developed to address the identified risks and impacts and to deliver environmental benefits and are presented in Table 8–6.

The EPRs are performance-based and expressed in terms of outcomes to be achieved for a net community benefit, while allowing flexibility in the detailed design response or specific measures to be put in place to achieve the requisite outcome. By enabling (where appropriate) consideration of specific design alternatives to achieve a particular outcome, the EPRs facilitate innovation in ongoing design development and project implementation. This performance based approach recognises that there is not necessarily only one way of achieving a particular outcome and that the optimum design alternative is a matter best resolved at detailed design within a transparent and robust environmental management framework.

Project Co and their contractors would be required to comply with and implement all EPRs, except where responsibility for their implementation would reside with the State. Specific issues that are addressed by the EPRs include:

- Environmental management
- Air Quality
- Business
- Cultural Heritage
- Contaminated soil and spoil management
- Ecology
- Greenhouse gas
- Ground movement
- Groundwater
- Land use
- Landscape and visual
- Noise and vibration
- Social
- Surface water
- Transport
- Waste management.

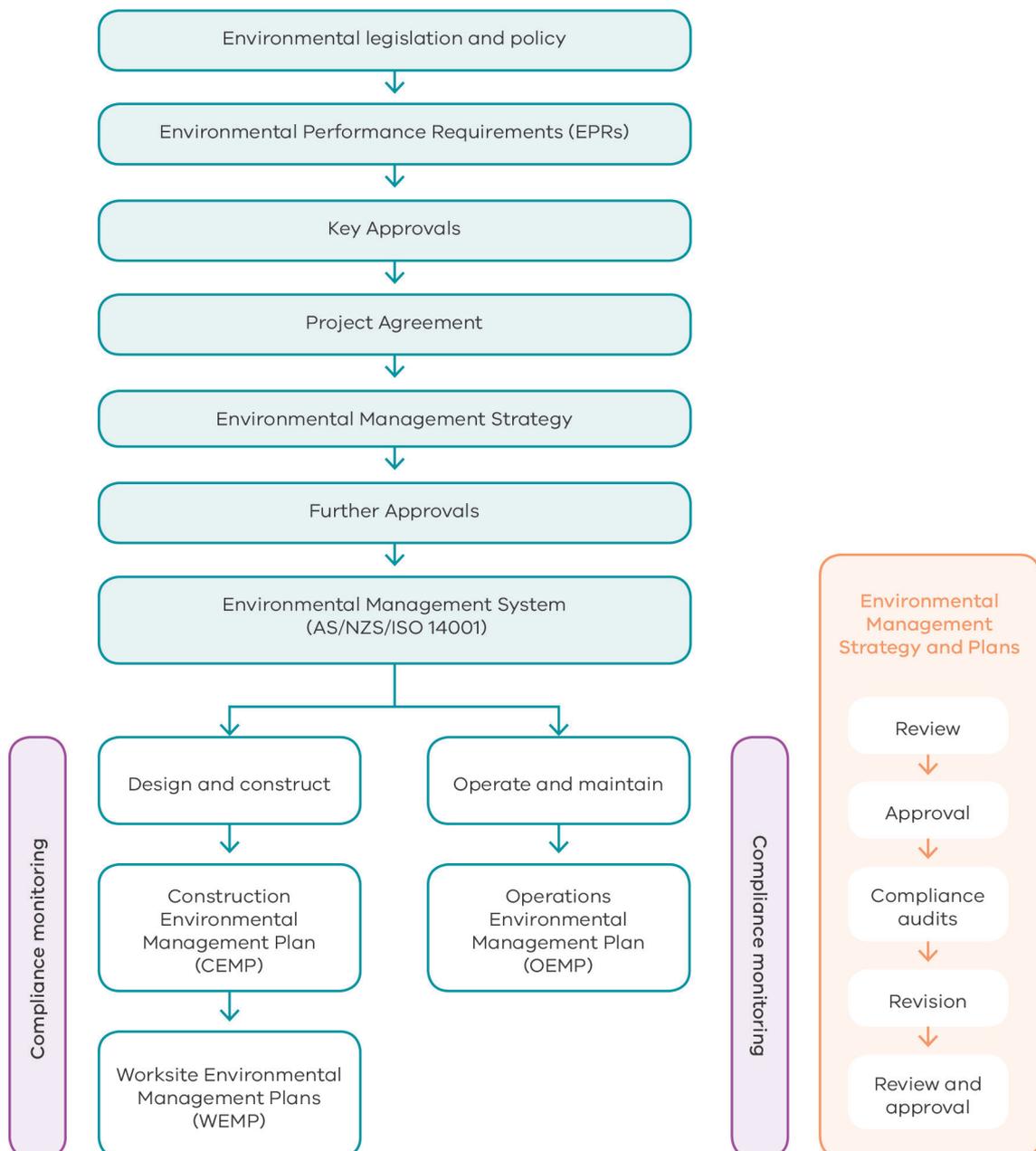
Chapter 4 *EES Assessment Framework* presents a summary of the environmental legislation and policy applicable to the project. Further detail is provided in Attachment I *Legislation and policy*. Applicable environmental legislation and policy were considered in the development of the EPRs.

The EPRs applicable to the project will be finalised during the EES assessment process and prior to the planning scheme amendment including the incorporated document into the planning schemes for the project. The EPRs (as finalised) will also be included in the Development and Urban Design Plans required by the incorporated document to be complied with.

8.7 Environmental management documentation

The documentation to implement the EMF is made up of a number of key documents from Western Distributor Authority (on behalf of the Victorian Government), Project Co (or its contractors) as well as relevant environmental legislation, approvals and approval conditions that must be complied with. The following figure outlines the key documents that make up the EMF.

Figure 8-2 Environmental management documentation



There are three levels of environmental management documentation, as set out in the following table. A detailed description of the documentation is set out in the remaining parts of this section.

Table 8–3 Levels of environmental management documentation

Description	Plans or documents
Level 1: Strategic plans and documents	
Plans that set the strategic direction and governance for the project	Environmental Management Framework Environmental Performance Requirements Environmental Management Strategy
Level 2: Management of project impacts	
Plans to manage project impacts	Construction Environmental Management Plan Operations Environmental Management Plan Related Documentation Construction Traffic Management Plan Communications and Community Engagement Plan
Level 3: Management of discrete issues or components	
Plans to manage localised or specific issues	Worksite Environmental Management Plans Specific plans required by the EPRs

8.7.1 Environmental management strategy

The Project Agreement would require Project Co to prepare and implement an Environmental Management Strategy providing an overarching framework to address all environmental requirements including relevant environmental laws, project approvals, approval conditions, the EPRs and the technical requirements of the Project Agreement in relation to environmental management. Preparation of the Environmental Management Strategy consistent with this EMF will also be a requirement of the West Gate Tunnel Project incorporated document.

The Environmental Management Strategy would need to comply with this EMF and incorporate an Environmental Management System that is AS/NZS ISO 14001 compliant.

The Environmental Management Strategy would need to be prepared to the approval and satisfaction of the Minister for Planning as a condition on the West Gate Tunnel Project incorporated document, prior to the commencement of any works other than preparatory works.

The Environmental Management Strategy would outline how the EPRs are to be implemented and require the preparation of various environmental management plans and procedures as described in the following sections (and as shown in Figure 8-2). The Environmental Management Strategy would be required to address:

- Processes and responsibilities for identifying environmental risks and potential impacts and managing environmental issues
- The EPRs and the process for identifying the specific measures to be put in place to achieve each of the EPRs
- A process for identifying and complying with all legislative requirements and the requirements of relevant statutory authorities, including approvals, permits, consents and licences
- Roles, responsibilities and authorities for environmental management

- An overview of environmental management documents for the project, including the CEMP, WEMPs, OEMP and other management plans and procedures including a description of their purpose, required content and how they relate to the environmental management system, the Environmental Management Strategy and each other
- Procedures for receiving, investigating and responding to complaints relating to environmental matters
- Processes and responsibilities for:
 - Training, competency and awareness
 - Communications and reporting
 - Control of documented information
 - Monitoring implementation of the Environmental Management Strategy and environmental management plans and procedures including implementation of appropriate monitoring programs to measure performance
 - Identifying and triggering contingency measures to be implemented under each of the CEMP, OEMP and other environmental plans as appropriate to ensure that adverse effects are adequately controlled if monitoring demonstrates more significant adverse effects than predicted or permitted
 - Auditing compliance with the Environmental Management Strategy, CEMP, OEMP and WEMPs, including by the IREA to audit compliance and provide reports on a regular basis
 - Reviewing, updating and obtaining approval for revisions to the approved Environmental Management Strategy, CEMP, OEMP and WEMPs
 - Management of subcontractors and suppliers
 - Auditing and evaluating compliance with legal and other requirements
 - Reporting and investigating environmental incidents
 - Identifying non-conformances and implementing corrective and preventative actions
 - Emergency and incident preparedness and response, including after-hours response, arrangements for containing environmental damage and attendance on-site in the event of an emergency
 - Any other project-specific requirements considered appropriate, including any new or revised EPRs resulting from the EES assessment process.

8.7.2 Environmental management system

Project Co would be required to operate in accordance with an environmental management system that complies with the current version of AS/NZS ISO 14001 Environmental management systems.

The purpose of the environmental management system would be to establish a plan-do-check-act system to identify and manage environmental risks and impacts across the project, and ensure comprehensive and integrated identification and management of environmental risks and issues through project design, construction, operation and maintenance.

8.7.3 Environmental management plans

Environmental Management Plans would be prepared covering design and construction activities and operation and maintenance activities for the project.

Construction Environmental Management Plan (CEMP)

The CEMP must be consistent with, and meet as a minimum, the requirements of all relevant environmental laws, approvals, approval conditions, the Environmental Management Strategy and the EPRs.

The CEMP would set out roles and responsibilities for ongoing development and implementation of the CEMP, verifying compliance before construction commences and monitoring its effectiveness during construction.

The CEMP would also contain detailed procedures and actions for meeting the EPRs for works, and include procedures for:

- Satisfying the EPRs and the requirements of approvals and approval conditions
- Assessing risk to inform management requirements for activities covered by the CEMP
- Managing specific activities and risks including controls and mitigation measures to be implemented, including implementation of contingency measures to address the potential for adverse effects to be greater than predicted or permitted
- Site induction and training and the process for identifying environmental training needs based on identified competency requirements for relevant project personnel
- Emergency/incident response training
- Monitoring, reporting and auditing including:
 - Conduct of quarterly audits of compliance with the CEMP by the IREA
 - Conduct of monthly environmental audits of implementation of the WEMPs including auditing the effectiveness of the WEMPs, by the IREA
- Provision of information to assist in the conduct of audit reports including compliance reports by the IREA
- Development, implementation, reviewing, updating and monitoring of site or activity specific WEMPs
- Managing environmental incidents including incident reporting and investigation
- Management of non-conformances with the CEMP, approvals or environmental requirements including the EPRs
- Corrective and preventative action
- Reviewing and updating the CEMP at least every six months and more frequently (as necessary) to take account of events or circumstances which may affect the manner in which the project activities are to be carried out including in response to an audit finding or additional approval.

The CEMP would also incorporate any additional reasonable requirements of relevant approval authorities and be developed, implemented and maintained in accordance with AS/NZS ISO 14001.

Operations Environmental Management Plan (OEMP)

The OEMP would address potential environmental impacts of operation and maintenance activities and must be consistent with and meet, as a minimum, environmental laws, approvals and approval conditions required by this EMF and the EPRs.

The OEMP would outline the regulatory framework under which the operation and maintenance activities would be undertaken and identify the potential risks of environmental damage to sensitive areas identified by environmental laws and approvals. The OEMP would also contain detailed procedures and responsibilities for:

- Development, implementation and monitoring of site or activity specific OEMPs
- Managing environmental incidents including incident reporting and investigation
- Monitoring and management of environmental issues and aspects, including implementation of contingency measures to address the potential for adverse effects to be greater than predicted or permitted
- A site induction and training plan to ensure all personnel are familiar with relevant plans and emergency response procedures
- Monitoring, reporting and auditing including the conduct of quarterly audits of compliance with the OEMP by the Independent Reviewer and Environmental Auditor during their term and thereafter by the independent Environmental Auditor
- Provision of information to assist in the conduct of audit reports including compliance reports by the Independent Reviewer and Environmental Auditor during their term and thereafter by the independent Environmental Auditor
- Management of non-conformances with the OEMP, approvals or environmental requirements including the EPRs
- Corrective and preventative action
- Reviewing and updating the OEMP at least annually and more frequently (as necessary) to take account of events or circumstances which may affect the manner in which the project activities are to be carried out including in response to an audit finding or additional approval.

The OEMP would be developed, implemented and maintained in accordance with AS/NZS ISO 14001.

Additional Plans required by the EPRs

The EPRs require the preparation and implementation of additional plans and procedures including the specific plans set out in Table 8–6 below.

Table 8–4 Preparation and implementation of additional plans required by EPRs

Plan	Prepared by	Parties with input	Relevant EPR
Complaints Management System (as part of CEMP)	Project Co		EPR EM4
Air Quality Management and Monitoring Plan	Project Co		EPR AQP6
Business Involvement Plan (as part of CCEP under EPR S2)	Project Co	To be prepared in consultation with relevant councils and affected stakeholders	EPR BP5
Cultural Heritage Management Plan	WDA	Approved by Secretary of the Department of Premier and Cabinet	EPR CHP1
Archaeological Management Plan (as part of CEMP)	Project Co	Investigations to be undertaken to the satisfaction of the Executive Director, Heritage Victoria	EPR CHP3
Heritage Interpretation Strategy	Project Co	To be developed and implemented in consultation with local councils	EPR CHP7
Tree Management Plan (as part of CEMP)	Project Co		EPR EP2
Landscaping Plan	Project Co	To be prepared in consultation with relevant councils	EPR EP6 EPR LVP4
Construction Noise and Vibration Management Plan	Project Co		EPR NVP3
Communications and Community Engagement Plan	Project Co	To be prepared in consultation with affected councils	EPR SP2
Public Transport Strategy	Project Co	To be developed with Public Transport Victoria	EPR TP1
Traffic Management Plan	Project Co	To be prepared in consultation with relevant road management authorities	EPR TP3

Consultation required by the Environmental Management Plans and EPRs

The process and timing for development of the environmental management plans and the specific plans and procedures required by the EPRs is to be set out in the Environmental Management Strategy approved by the Minister for Planning. This is to include the process and timing for consultation with relevant persons including Councils, statutory authorities such as Roads Corporation, Melbourne Water and the Environment Protection Authority or as required by the EPRs.

This will ensure that plans and procedures of a technical nature directly relevant to the functions of a specific statutory authority – such as Roads Corporation, Melbourne Water or the Environment Protection Authority – are appropriately developed in consultation with those agencies. It will also ensure that consultation occurs in accordance with the specific requirements of the EPRs, approvals and approval conditions.

Consultation may include meetings, workshops, and exchange of documentation and correspondence with relevant persons. The extent of consultation and outcomes will be documented to demonstrate compliance with the environmental management plans and specific plans and procedures required by the EPRs.

Contingency measures in Environmental Management Plans

The CEMP, OEMP and environmental plans will be required to include appropriate contingency measures to address the risk of adverse environmental effects occurring during construction or operation of the project. The plans will also identify the triggers for the implementation of such measures to ensure that adverse effects are adequately controlled in the event that monitoring, auditing or other means identifies:

- More significant adverse effects than anticipated or permitted
- Issues or risks not anticipated.

The contingency measures will be developed to comply with all relevant environmental laws, approvals, approval conditions, the Environmental Management Strategy and (to the extent relevant) the EPRs.

8.7.4 Environmental Management Strategy and Environmental Management Plan approval requirements

The Environmental Management Strategy and Environmental Management Plans would be controlled documents and would be developed, approved, implemented, updated and revised in accordance with Table 8–5.

Table 8–5 Environmental Management Strategy and Environmental Management Plans

Version	Description	Project Co	Independent Reviewer and Environmental Auditor*	Western Distributor Authority	Regulator
Environmental Management Strategy	Environmental Management Strategy	Prepare		Review, evaluate and approve	Review and approve by the Minister for Planning under the West Gate Tunnel Project incorporated document

Version	Description	Project Co	Independent Reviewer and Environmental Auditor*	Western Distributor Authority	Regulator
Implementation of approved Environmental Management Strategy	The approved Environmental Management Strategy is to be implemented prior to carrying out all but preparatory works and audited for compliance	Environmental Representative to be appointed and ensure issues identified in audit reports are addressed	Conduct six-monthly compliance audits and produce audit reports	Review of audit reports and action as necessary	Minister for Planning to receive audit reports and action as necessary
Amendments to Environmental Management Strategy	Any amendments to the Environmental Management Strategy	Prepare	Review required	Review, evaluate and approve	Review and approve by the Minister for Planning under the West Gate Tunnel Project incorporated document
Initial CEMP	CEMP	Prepare	Review, evaluate and approve	Review, evaluate and approve	
Implementation of approved CEMP	Approved CEMP is to be implemented prior to carrying out works, and audited for compliance	Environmental Representative to be appointed and ensure issues identified in audit reports are addressed	Conduct quarterly compliance audits and produce audit reports	Review of audit report and action as necessary	Statutory authorities to receive reports or sub-reports as necessary
Review and update CEMP	CEMP must be reviewed at least every six months and necessary amendments made to clarify or improve environmental management practices or to add new obligations and associated controls	Review and update	Review, evaluate and approve	Review, evaluate and approve	
Initial WEMPs	Separate WEMPS to be prepared for discrete issues, stages or components	Prepare to the satisfaction of the Environmental Representative	Review and comment	Review and comment	
Implementation of final WEMPs	WEMPs as approved by the Environmental Representative must be implemented and audited for effectiveness	Environmental Representative to be appointed and ensure issues identified in audit reports are addressed	Conduct monthly audits of WEMPs and produce audit reports	Review of audit report and action as necessary	Statutory authorities to receive reports or sub-reports as necessary

Version	Description	Project Co	Independent Reviewer and Environmental Auditor*	Western Distributor Authority	Regulator
Initial OEMP	OEMP	Prepare	Review, evaluate and approve	Review, evaluate and approve	
Implementation of approved OEMP	Approved OEMP is to be implemented, and audited for compliance	Environmental Representative to be appointed and ensure issues identified in audit reports are addressed	Conduct quarterly compliance audits and produce audit reports	Review of audit report and action as necessary	
Review and update OEMP	OEMP must be reviewed at least every 12 months and necessary amendments made to clarify or improve environmental management practices or to add new obligations and associated controls	Review and update	Review, evaluate and approve	Review, evaluate and approve	

* The role of the Independent Reviewer and Environmental Auditor in reviewing and approving revisions to the OEMP, conducting compliance audits and producing audit reports would be undertaken by the independent Environmental Auditor to be engaged by Project Co following expiration of the term of the Independent Reviewer and Environmental Auditor approximately two years after completion.

8.8 Performance management

Compliance with the approved Environmental Management Strategy (which must be consistent with this EMF) and the EPRs will be required by the incorporated document for the project. Compliance would be monitored through:

- Reporting to the Minister for Planning
- Monthly reporting by Project Co under the Project Agreement to the IREA and Western Distributor Authority on behalf of the State Government as per section 8.8.1
- Regular audits of compliance with the approved Environmental Management Strategy, CEMP, WEMPs and OEMP by the IREA during construction and for a period of at least two years following completion
- Provision of audit reports to Western Distributor Authority and Project Co
- Provision of audit reports to the Minister for Planning and sub-reports to other statutory approval authorities as required
- Monitoring of compliance against the Environmental Management Strategy, CEMP, WEMPs and OEMP by the Western Distributor Authority
- Monitoring of compliance against the approved Environmental Management Strategy by the Minister for Planning
- Monitoring of compliance with the approval conditions by the statutory authorities

- Implementation of contingency measures under the CEMP, OEMP and other environmental plans as appropriate to ensure that adverse effects are adequately controlled if monitoring, auditing or other means demonstrates more significant adverse effects than predicted or permitted or if issues or risks not anticipated are identified
- Implementation of remedial action in the event any non-compliance issue is identified.

This approach will ensure that the effectiveness of the EMF, the EPRs and the various environmental management plans and procedures developed and implemented for the project is monitored, measured, communicated and the subject of continuous review and improvement.

Such approach is founded on best practice principles in performance management ensuring that the potential for adverse effects associated with development and operation of the project are controlled and that beneficial environmental outcomes to be achieved by the project are supported.

8.8.1 Reporting

Project Co would be required to prepare environmental performance reports for Western Distributor Authority and the IREA monthly or as agreed by Western Distributor Authority.

Reporting would include:

- Status of current and planned works, key environmental issues and management measures
- Advice on any proposed changes to the Environmental Management Strategy, EPRs, CEMP, WEMPs or OEMP
- Records of compliance with EPRs and approval conditions and environmental legislation, policies and standards
- Copies of applications for consents, licences and approvals and the responses from authorities
- Details of complaints or incidents and corrective and preventative actions taken
- Summary of any consultation with regulatory authorities or other stakeholders including summary of key issues raised and how they have been responded to
- A copy of any environmental studies, monitoring results and analysis
- A summary of contingency measures implemented to address adverse effects not permitted, predicted or anticipated
- A copy of audit reports, and any review of the CEMP and OEMP.

The Western Distributor Authority would prepare environmental performance reports to the Minister for Planning at least annually, or as agreed by the Minister.

Table 8–6 Environmental Performance Requirements

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Environmental Management					
Environmental Management Framework – to provide a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction and operation phases of the Project, in order to achieve acceptable environmental outcomes	AS/NZS ISO 14001: Environmental management systems – requirements with guidance for use for construction and operation Legislation and policy as identified in all EPRs	To control adverse effects and support beneficial environmental outcomes in the delivery of the project.	EMP1	Environmental Management Strategy Prepare an Environmental Management Strategy to provide an overarching framework to address Environmental Requirements including relevant environmental Laws, Key Approvals, Approval conditions, the Environmental Performance Requirements (EPRs). The Environmental Management Strategy covers the construction and operations phases of the Project and is to be prepared to the satisfaction of the Minister for Planning under the Incorporated Document applicable to the Project. The Environmental Management Strategy must incorporate an Environmental Management System that complies with AS/NZS ISO 14001: Environmental management systems – requirements with guidance for use for construction and operation.	All
			EMP2	Environmental Management Plans Prepare and implement a Construction Environmental Management Plan (CEMP), Worksite Environmental Management Plans (WEMPs), Operations Environmental Management Plan (OEMP) and other plans as required by the Environmental Performance Requirements (EPRs) in accordance with the Environmental Management Strategy. The development of the Environmental Management Strategy, the CEMP, the WEMPs and OEMP must include consultation with relevant councils, VicRoads, Melbourne Water, EPA Victoria and other authorities as relevant. These consultation processes must be described in the Environmental Management Strategy. The CEMP should be prepared in accordance with EPA Victoria Publication 480, Environmental Guidelines for Major Construction Sites (EPA 1996).	All
			EMP3	Environmental compliance Appoint an Independent Reviewer and Environmental Auditor to review and approve the CEMP and OEMP to ensure compliance with the Environmental Management Strategy and EPRs and to undertake environmental audits of compliance with the approved Environmental Management Strategy, CEMP, WEMPs and OEMP.	Pre-construction, construction, operation
			EMP4	Complaints management system Prior to the commencement of works, other than preparatory works as referred to in the Incorporated Document), develop and implement a process for the recording, management, and resolution of complaints from affected stakeholders consistent with Australian Standard AS/NZS 100002: 2014 Guidelines for Complaint Management in Organisations. The complaints management system must be consistent with the Communications and Community Engagement Plan required under EPR SP2.	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Air Quality					
Health, amenity and environmental quality – to minimise adverse air quality, noise and vibration effects on the health and amenity of nearby residents, local communities and road users during both construction and operation of the Project.	<i>Environment Protection Act 1970</i> State Environment Protection Policy (SEPP) – Ambient Air Quality SEPP – Air Quality Management (AQM)	To manage Tunnel emissions to protect the beneficial uses of the air environment	AQP1	Tunnel ventilation system design Design and implement a tunnel ventilation system to meet the requirements of the SEPP (AQM) and in accordance with the requirements of the EPA Victoria Works Approval.	Detailed design, operation
			AQP2	Zero portal emissions Design and implement a tunnel ventilation system to achieve zero portal emissions.	Detailed design, operation
		To ensure in-Tunnel air quality is safe for motorists and others using the Tunnel	AQP3	In tunnel air quality Design and implement a tunnel ventilation system to introduce and remove air from the tunnels to meet in tunnel air quality requirements for carbon monoxide (CO) listed below including provision for the retrofitting of pollution control equipment. Achieve a longitudinal air velocity in the Tunnels not exceeding 10 metres/second. In tunnel air quality must meet the following CO standards: <ul style="list-style-type: none"> • Maximum peak value of 150ppm • 15 min. average of 50ppm • 2-hour average of 25ppm. 	Detailed design, operation
		To protect beneficial uses of the air environment for the surface sections of West Gate Tunnel Project	AQP4	Ambient air quality Develop and undertake an ambient air quality monitoring program to measure the air quality impacts of West Gate Tunnel Project, including at least one year of monitoring before operation, and five years post opening of the Freeway, or such lessor period as agreed with EPA Victoria. Results of the monitoring are to be made publicly available.	Construction, operation
			AQP5	In-tunnel air quality and ventilation structure emissions compliance Monitor the in-tunnel air quality and ventilation structure emissions during operation of the ventilation system to demonstrate compliance with EPR AQP3, SEPP (Air Quality Management) and the EPA Victoria licence to the satisfaction of EPA Victoria. Report the monitoring results publicly on a quarterly basis for five years post opening of the Freeway or such lessor period as agreed with EPA Victoria. Take remedial action if Environmental Requirements are not met, in consultation with EPA Victoria.	Operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
			AQP6	<p>Air quality during construction</p> <p>Manage construction activities in accordance with EPA Victoria Publication 480 Guidelines for Major Construction Sites, to maintain air quality to a standard which does not prejudice the health and amenity of nearby residents, open spaces and community facilities.</p> <p>Develop and implement an Air Quality Management and Monitoring Plan including in respect of dust, odour, and construction vehicle emissions to minimise impacts during construction.</p>	Construction
Business					
<p>Social, business, land use, public safety and infrastructure – to minimise adverse effects on the social fabric of the community, including with regard to community cohesion, access to community services and facilities, business functionality, changes to land use, public safety and access to infrastructure.</p>		To minimise impacts on business and commercial facilities	BP1	<p>Damage or impacts on third party property and infrastructure</p> <p>Through detailed design and construction, design and construct the works to minimise, to the extent practicable, impacts to, and interference with, third party property and infrastructure and to ensure that infrastructure and property is protected during construction and operation. Any damage caused to property as a result of the Project must be appropriately remedied.</p>	Detailed design, construction
			BP2	<p>Access and amenity for business and commercial facilities</p> <p>Access to and amenity for potentially affected business and commercial facilities must be protected, where practicable, by responding to the Project urban design principles and vision and implementing the principles of Crime Prevention Through Environmental Design.</p> <p>Any reduction in the level of access, amenity or function of any business or commercial facility must be minimised to the duration necessary to carry out the relevant construction related works.</p> <p>All permanent access to business and commercial facilities affected by the works is to be restored, or relocated as agreed with the relevant property owner, including associated landscaping and restoration works, and temporary access arrangements put in place for the duration of construction must be removed when construction has ceased.</p>	Detailed design, construction
			BP3	<p>Screening</p> <p>Screening must be erected at the boundary of construction sites that adjoin residential or commercial properties, consistent with the surrounding context, in consultation with affected property owners and occupiers.</p>	Construction
			BP4	<p>Impacts on operation of community, private recreation and council facilities</p> <p>Where the operation of community, private recreation and council facilities is directly impacted by the Project, mitigation and management measures must be implemented in consultation with the appropriate stakeholders to minimise these impacts to the extent practicable.</p>	All

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
		To minimise impacts on business through engagement during construction	BP5	<p>Business Involvement Plan</p> <p>As part of the Communications and Community Engagement Plan (see EPR SP2), develop and implement a Business Involvement Plan, in consultation with affected local Councils and other affected stakeholders, in advance of works (other than preparatory works as referred to in the Incorporated Document) commencing. Councils and affected stakeholders are to be consulted on progress of construction activities, including significant milestones, potential impacts, mitigation measures, changed traffic conditions and other matters which are of interest or concern to them. The plan must also include but not be limited to:</p> <ul style="list-style-type: none"> • Identification of relevant stakeholders • Procedures to disseminate information regarding construction progress and environmental management measures • Procedures through which the community can provide comment or feedback in relation to environmental management or delivery of the Project • Procedures that would be implemented to resolve any issues or disputes that may arise between parties relating to the environmental management or delivery of the Project. 	Pre-construction, construction
		To minimise impacts on utility assets	BP6	<p>Utility assets</p> <p>Through detailed design and construction, minimise impacts on utility assets, to the extent practicable, including but not limited to:</p> <ul style="list-style-type: none"> • Stormwater and sewer assets • Electricity transmissions assets (overhead and underground lines) • Gas and fuel pipelines • Communications lines (e.g. fibre optic cables). <p>To the extent relocations are required to facilitate the Project, protect and where required, modify utility assets to the satisfaction of asset owners.</p>	Detailed design, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
			BP7	<p>Gas utilities</p> <p>Unless agreed otherwise with the asset owner, ensure that:</p> <ul style="list-style-type: none"> • No works are undertaken within 3.0 metres of any licensed transmission gas pipeline or underground regulating station • Subject to the requirement below, clearances to all gas assets are as per the Conditions of Works as detailed in SP AusNet Technical Standards TS2607.1, TS2607.2 and TS2607.3, as amended or replaced from time to time • Risk assessments and safety studies detailing the impact on gas network infrastructure are completed in accordance with AS2885, which is the Standards Australia standard for the design, construction, testing, operations and maintenance of gas and petroleum pipelines that operate at pressure in excess of 1050 kPa, as amended or replaced from time to time. 	Detailed design, construction
			BP8	<p>Business disruption</p> <p>Minimise disruption to businesses to the extent practicable from temporary occupation of land.</p>	Detailed design, construction
			BP9	<p>Business acquisition process</p> <p>Minimise disruption to businesses to the extent practicable from the acquisition of interests in land, and work with business and land owners to endeavour to reach agreement on the terms for possession of the land.</p>	Design, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Cultural Heritage					
Cultural heritage – to avoid or minimise adverse effects on Aboriginal and historical cultural heritage values	<i>Aboriginal Heritage Act 2006</i>	To minimise impacts on sites of Aboriginal cultural significance	CHP1	Cultural Heritage Management Plan Comply with and implement the Cultural Heritage Management Plan (CHMP) approved under the <i>Aboriginal Heritage Act 2006</i> .	Detailed design, construction
	<i>Heritage Act 1995</i>	To minimise impacts on both known (identified) and unidentified archaeological historic sites and values and To protect structural integrity of known historic sites and values and To record historical values of buildings, streetscapes or relocate/ reuse small structures if feasible that are disturbed by the works	CHP2	Design and construction to minimise impacts on heritage Undertake detailed design of the permanent and temporary works to minimise impacts where practicable, on historic cultural heritage in consultation with Heritage Victoria and relevant local councils. Prior to commencement of works that affect heritage structures or places, develop and implement: <ul style="list-style-type: none"> Physical protection measures for heritage structures and places as appropriate A methodology for any required dismantling, storage or reinstatement of heritage fabric (with reference to the ICOMOS Burra Charter 2013). 	Detailed design, pre-construction, construction
			CHP3	Archaeological Management Plan Develop an Archaeological Management Plan detailing measures to avoid, minimise, mitigate and manage disturbance of archaeological sites and values affected by the works. Undertake investigations in accordance with the Guidelines for Investigating Historical Archaeological Artefacts and Sites, Heritage Victoria 2014 and to the satisfaction of the Executive Director, Heritage Victoria. The Management Plan must include: <ul style="list-style-type: none"> Requirements for background historical research, excavation methodology, research design, reporting and artefact management and analysis The incorporation of strategies relating to the protection of sites of archaeological interest in relevant master plans Protocols for managing previously unidentified historical archaeological sites discovered during the works. 	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
			CHP4	<p>Monitoring of heritage sites</p> <p>Undertake vibration monitoring during construction for heritage sites at risk of impact and monitor their condition during and post construction for settlement and structural integrity disturbance as a result of the proposed works. Report the results to the Executive Director and take remedial action, if required, to the satisfaction of the Executive Director, Heritage Victoria.</p> <p>(Also refer to GMP3 and NVP7)</p>	Construction
			CHP5	<p>Archival photographic records</p> <p>Prior to construction, undertake archival photographic recording (interior and exterior) of all heritage buildings, streetscapes or places disturbed by the works in accordance with Heritage Victoria's specification for the archival photographic recording of heritage places.</p>	Pre-construction
			CHP6	<p>Port Phillip Monument</p> <p>Develop and implement an approach to maintain a link between the Port Phillip Monument and the Maribyrnong River, including establishing an appropriate setting in consultation with the City of Melbourne which allows for interpretation, either on the existing or an alternative site.</p>	Detailed design, construction
			CHP7	<p>Heritage interpretation strategy</p> <p>In consultation with the relevant local councils, develop and implement a heritage interpretation strategy for the Project which seeks to explore historical and Aboriginal cultural heritage themes. The strategy must include an audit of existing heritage interpretation. The strategy may include installation of signage regarding local heritage places and is to have a particular focus on the Footscray/Maribyrnong River area, and the Moonee Ponds Creek area.</p>	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
			CHP8	<p>Shipwrecks</p> <p>To confirm the presence of shipwrecks at the Maribyrnong River crossing, including the Hilaria (S331) which is thought to be located on the west bank of the river, undertake preliminary high-resolution sonar scan of river environs within the area to be affected by the works and targeted diving for sub-surface anomalies within the area affected by the works. Based on the results of investigations, as appropriate develop management measures in consultation with Heritage Victoria; these could include consideration in the detailed design and a detailed program of archaeological investigation.</p> <p>If the Edina (S199) is affected by works, record appropriately and relocate, if practicable, to a more secure location within the Maribyrnong riverine landscape or include as part of an interpretation strategy for display in the local area, to the satisfaction of Heritage Victoria.</p> <p>Engage a suitably qualified and experienced maritime archaeologist to undertake these tasks.</p>	Pre-construction, construction
			CHP9	<p>Maribyrnong River front (Footscray)</p> <p>Where practicable in detailed design retain evidence of historical infrastructure and services in the vicinity of the Maribyrnong River front (Footscray), including rail tracks and the bluestone drain (Billy Button Creek). If removal is required, record in accordance with EPR CHP5.</p>	Detailed design
			CHP10	<p>Bluestone bridge</p> <p>Undertake any works at and/or in the immediate vicinity of the bluestone bridge over Kororoit Creek (HO259) in a manner which avoids to the extent practicable disturbing surviving evidence of early road surfacing, including to the approaches to the bridge.</p>	Construction
			CHP11	<p>Rail turntables</p> <p>Through detailed design, consideration must be given to minimising impacts on the rail turntables to the extent practicable. If it is necessary to remove both of the rail turntables, develop and implement a methodology for the salvage and storage of one of the turntables to provide the opportunity for future reinstatement at an alternative site.</p>	Detailed design

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Contaminated Soil & Spoil Management					
Waste Management – to manage excavated spoil generated by the project in accordance with the waste hierarchy and relevant best practice principles	<i>The Environment Protection Act 1970</i> SEPP – Prevention and Management of Contamination of Land	To protect the beneficial uses of land and minimise risk to human health and ecosystems from exposure to contaminated soils	CSP1	Contaminated soil requirements The CEMP must include processes and measures to manage contaminated soil that comply with relevant standards, guidelines, statutory requirements and best practice including but not limited to: <ul style="list-style-type: none"> • SEPP – Prevention and Management of Contaminated Land, 2002 • Environment Protection (Industrial Waste Resource) Regulations 2009 • Industrial Waste Management Policy (Waste Acid Sulphate Soils) 1999 • National Environment Protection (Assessment of Site Contamination) Measures 2013 • Environment Protection (Schedule Premises and Exemptions) Regulations 2007 • WorkSafe Occupational Health and Safety Regulations 2007 (Asbestos) • Relevant Industrial Waste Resource Guidelines. 	Construction
			CSP2	Contaminated soil and spoil management The CEMP must include requirements and methods for contaminated soil and spoil management developed in consultation with EPA Victoria. This must include undertaking a detailed assessment prior to any excavation of potentially contaminated areas to identify location, types and extent of any contaminated land and properties within or adjacent to the Project boundary, and sensitive land uses affected by construction activity outside the Project boundary, and assessing the potential impact for human health, environmental risk and odour. This assessment must include but not be limited to consideration of the following: <ul style="list-style-type: none"> • Potential contamination risks at the former quarry locations and landfills • Potential contamination risks associated with any alteration of the 220kV power lines and any other utilities • Potential contamination risks associated with any works to the North Yarra Main Sewer • Potential contamination risks and waste classification of the sediments in the Maribyrnong River and Moonee Ponds Creek • Potential impacts posed by contamination sources adjacent to the northern portal area • Presence of soil contamination where excavations are proposed in the South Dynon rail yards • Potential contamination risks in locations where public open spaces are proposed. 	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>CEMP must also include requirements and methods for:</p> <ul style="list-style-type: none"> • Characterising soil prior to disposal or reuse including PFAS chemicals • Identifying soil containing asbestos and if present, developing management strategies in accordance with the WorkSafe Regulations • Assessing geological formations with naturally enriched metals and applicable spoil management options and or off-site disposal to the satisfaction of EPA Victoria, in particular, tunnel spoil and the West Gate Freeway embankment material • Identifying suitably licensed facilities for the disposal or treatment of contaminated soil • Management of wastewater • Management of dust, potential stormwater run-off and seepage from stockpiled materials • Assessing potential for accumulation of potentially harmful gases and vapours during tunnelling from soil and groundwater contamination zones • Undertaking a baseline site assessment of areas proposed for construction laydown prior to use • Management of any air pollutants released as a result of disturbance of contaminated land, in accordance with requirements of SEPP (AQM) • Minimising cut and cover construction techniques in areas containing asbestos contamination • Protection of the beneficial uses of land associated with current and planned future use. 	
			CSP3	<p>Acid sulphate soil</p> <p>The CEMP must include requirements and methods for the management of waste acid sulphate soil material in accordance with EPA Victoria publication IWRG 2009, EPA Victoria Publication 655.1 Acid Sulfate Soil and Rock 2009, Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soil.</p> <p>This will include undertaking an acid sulphate soils risk identification process in accordance with the Victorian Coastal Acid Sulphate Soil Strategy, if soil and rock within the Project boundary are suspected to be acid sulphate soil and rock.</p>	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
		To minimise odour from the excavation and transportation of contaminated material to protect local amenity	CSP4	<p>Odour management</p> <p>The CEMP must include requirements and methods for odour management during the excavation, stockpiling and transportation of contaminated material.</p>	Construction
Ecology					
<p>Biodiversity – to avoid or minimise adverse effects on native terrestrial, aquatic and inter-tidal flora and fauna, and address opportunities for offsetting potential losses consistent with the relevant policy</p>	<p><i>Planning and Environment Act 1987</i> <i>Flora and Fauna Guarantee Act 1988</i> <i>Wildlife Act 1975</i></p>	To avoid where possible, and otherwise minimise adverse impacts on native vegetation and listed species and ecological communities	EP1	<p>Minimise vegetation removal and disturbance</p> <p>Develop and implement measures to avoid, where practicable, and otherwise minimise to the extent practicable impacts on native vegetation and fauna habitat through detailed design and construction, including:</p> <ul style="list-style-type: none"> • Minimising footprint and surface disturbance of temporary and permanent works and constrain works on or near the north side of the West Gate Freeway and Kororoit Creek intersection, Hyde Street Reserve, Yarraville Gardens, Stony Creek and Stony Creek Reserve, Maribyrnong River, Moonee Ponds Creek, Kororoit Creek, Dynon Road and areas of amenity planting including Footscray Road • Minimising works in or near wetlands and EVC habitats (such as the Kororoit Creek Riparian Woodland, Stony Creek Coastal Saltmarsh, Moonee Ponds Creek Brackish Wetlands and Plains Grassy Woodland and Swamp Scrub patches along Dynon Road) • Minimising footprint and disturbance of potential foraging habitat for Swift Parrot, Powerful Owl and Grey-headed Flying Fox • Minimising the removal of mature trees, planted and remnant native trees and remnant vegetation, particularly large amenity trees (>30 cm DBH) and those within or connected to public reserves and parks • Arboricultural assessments to inform detailed design and maximise tree retention and long-term viability of amenity plantings. <p>A pre-construction site assessment must be carried out to confirm the area and number of trees proposed to be impacted. Area and number of trees actually removed is to be confirmed through a post-construction assessment.</p>	Detailed design, pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
			EP2	<p>Vegetation protection measures</p> <p>The CEMP must include requirements and methods for:</p> <ul style="list-style-type: none"> • Fencing protected areas and no go zones to prevent access during construction. Fencing should be to a standard agreed with the relevant land manager • Pre-construction site assessment to confirm that vegetation and trees to be retained have been adequately protected from impact • Vegetation clearing controls and protection measures • Development and implementation of a Tree Management Plan for protection of retained trees based on the recommendations of Australian Standard 4970-2009 Protection of Trees on Development Sites • Implementation of appropriate measures to manage the risk of the spread and introduction of weeds and pathogens during construction. 	Pre-construction, construction
			EP3	<p>Reinstatement</p> <p>Areas affected by temporary works must be reinstated and appropriate vegetation selected for planting to tolerate the microclimate conditions including under new road structures, such as the elevated structure over Footscray Road, in consultation with the relevant council and the land manager.</p>	Construction
			EP4	<p>Fauna management measures</p> <p>The CEMP must include requirements and methods for:</p> <ul style="list-style-type: none"> • Undertaking pre-clearing surveys and inspections to confirm the on-site location of native fauna species • Relocating native fauna from pre-clearance survey areas as appropriate • Preparation of a translocation strategy for relocation of any significant fauna species including, where non-listed species are encountered; any individuals will be encouraged to leave the vegetation; and where nests are encountered, they will be relocated to a similar tree / habitat in close proximity • Reporting and actions to follow for management and offsetting purposes • The surveys and inspections to must be undertaken under the guidance of a suitably qualified ecologist, as well as any subsequent management or offset measures if required • Minimise lighting impacts in known fauna habitats • Incidental or unanticipated threatened flora and fauna finds to be reported immediately and any clearing works in the vicinity must be stopped until an evaluation of an appropriate response can be established. 	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
		To manage interactions with aquatic fauna habitat in Kororoit Creek, Stony Creek Maribyrnong River and Moonee Ponds Creek	EP5	<p>Works on waterways</p> <p>Through detailed design and construction, design, locate and construct structures to minimise, to the extent practicable, impact on riparian and aquatic habitat in Kororoit Creek, Stony Creek, Maribyrnong River and Moonee Ponds Creek.</p>	Detailed design, construction
		To replace affected planted vegetation	EP6	<p>Landscaping Plan</p> <p>Prepare and implement the Landscaping Plan that includes replacement of affected planted vegetation to achieve a canopy of equal (or greater) size of healthy, mature examples of the species. The plan must ensure the reinstatement of soils is of sufficient quality and volumes to support the long-term viability of replacement plantings. The plan must achieve a minimum tree replacement ratio of 3:1.</p> <p>The plan must be developed in consultation with the relevant council with regard to local policies and strategies including, as applicable:</p> <ul style="list-style-type: none"> • Greening the West Strategic Plan • City of Maribyrnong Street Planting Strategy • City of Melbourne Draft Urban Ecology and Biodiversity Strategy • City of Melbourne’s Tree Retention and Removal policy and Urban Forest Strategy • The relevant City of Melbourne Urban Forest Precinct Plan. <p>The re-establishment of trees must also consider the contribution that the replacement trees can make to the creation of habitat corridors and linkages where practicable.</p>	Detailed design, pre-construction, construction
			EP7	<p>Vegetation Offsets</p> <p>Native vegetation offsets must be provided in accordance with the Permitted Clearing of Native Vegetation – Biodiversity Assessment Guidelines (Department of Environment and Primary Industries, September 2013), except as otherwise agreed by the Secretary to the Department of Environment, Land Water and Planning.</p>	Construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Greenhouse gas emissions					
Health, amenity and environmental quality – to minimise adverse air quality, noise and vibration effects on the health and amenity of nearby residents, local communities and road users during both construction and operation of the Project.	<i>Environment Protection Act 1970</i>	To manage greenhouse gas emissions	GGP1	Greenhouse gas emissions Integrate sustainable design practices into the design process to minimise, to the extent practicable, greenhouse gas emissions arising from construction, operations and maintenance of the West Gate Tunnel Project. Include mandatory actions under the Protocol for Environmental Management (Greenhouse Gas Emissions and Energy Efficiency in Industry) for selection of best practice energy usage for the Tunnel ventilation and lighting systems.	Detailed design
			GGP2	Emissions reduction In detailed design, consider the selection of materials and monitor energy and carbon during construction, to target reductions for GHG emission impacts of materials and energy consumption in accordance with Mat-1 (Level 2) and Ene-1 (Level 2) credits of the Infrastructure Sustainability (IS) rating tool (v1.2).	Detailed design, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Ground Movement					
<p>Land stability – to avoid or minimise adverse effects on land and river bed or bank geomorphic stability from Project Activities, including Tunnel construction and crossings of the Maribyrnong River, Kororoit Creek, Stony Creek and Moonee Ponds Creek.</p>		<p>To minimise the likelihood of subsidence and lateral ground movement</p>	GMP1	<p>Geotechnical model and assessment</p> <p>Prepare a geotechnical model of representative geological and groundwater conditions prior to excavation and tunnelling in subject area(s) to identify geological structures and groundwater features. This model must include details of proposed excavations and tunnels, construction staging, and identify surface and sub-surface structures and infrastructure which could be impacted by the Project, including the specific attributes of those structures. This model must be used to assess the predicted settlement, ground movement, stress redistribution and horizontal strain profiles caused by excavation and tunnelling on adjacent property and infrastructure.</p> <p>Maintain the predictive model throughout the construction period and review against monitoring data (EPR GMP5), to regularly assess potential ground movement impacts.</p>	Pre-construction, construction
			GMP2	<p>Tunnel and portal drainage</p> <p>Through detailed design and construction, design tunnel and portal drainage and adopt construction methods which minimise adverse changes to groundwater levels during construction and operation to prevent or manage the effects of ground subsidence.</p> <p>In addition to the above, for the northern and southern portal areas design and implement engineering control measures to ensure dewatering does not result in adverse ground movement impact on property or infrastructure.</p>	Detailed design, construction
			GMP3	<p>Condition surveys and determination of settlement criteria for property and infrastructure</p> <p>Before works commence, and subject to receiving landowner consent on suitable terms, undertake condition surveys of property and infrastructure identified in the geotechnical model and assessment (EPR GMP1) as being at risk of damage by a suitably qualified professional. Post-construction condition surveys of those properties must be undertaken after construction of the Project is completed.</p> <p>The results of the condition surveys and the modelling undertaken under GM1 must be used to determine appropriate settlement criteria for the relevant property and infrastructure.</p> <p>Where potential for ground movement impacts could occur, consult with affected stakeholders. Any damage caused to property or infrastructure as a result of the Project must be rectified or the landowner or asset owner compensated.</p> <p>Establish an independent mediation process for the assessment of claims for property and infrastructure damage to operate up to three years post opening of the Freeway.</p>	Pre-construction, construction, operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
			GMP4	<p>Settlement criteria for utilities</p> <p>Settlement criteria for individual utility structures and infrastructure must be determined in consultation with the relevant authorities prior to commencement of any construction potentially affecting the individual utility or infrastructure.</p>	Pre-construction
			GMP5	<p>Ground movement monitoring</p> <p>Develop and implement a pre-construction, construction and post-construction program to monitor subsidence and lateral movement during construction activities and during operation.</p> <p>Implement a baseline ground movement monitoring plan prior to commencement of construction, in locations where construction activities with the potential to cause ground movement will occur, to assess background fluctuations.</p>	Pre-construction, construction, operation
			GMP6	<p>Mitigation of ground movement impact</p> <p>Implement appropriate mitigation measures should the geotechnical model (EPR GMP1), predictive groundwater model (EPR GWP4), or subsequent monitoring program identify exceedances of criteria identified in EPR GMP3 and EPR GMP4.</p>	Construction, operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Groundwater					
Hydrology and water quality – to avoid or minimise adverse effects on surface water and groundwater quality and hydrology in particular resulting from the disturbance of contaminated or acid-forming materials, and to maintain functions and values of floodplain environments.	SEPP – Groundwaters of Victoria	To protect beneficial uses of groundwater	GWP1	Groundwater management measures Prepare and implement a CEMP and an OEMP to include measures for management, monitoring, reuse and disposal of groundwater inflows during construction and operation that comply with relevant legislation and guidelines, including but not limited to: <ul style="list-style-type: none"> • State Environment Protection Policy Groundwaters of Victoria 1997 (Vic) • State Environment Protection Policy Waters of Victoria 2003 (Vic) • State Environment Protection Policy Prevention and Management of Contaminated Land 2002 (Vic) • Water Industry Regulations 2006 (Vic). 	Pre-construction, construction, operation
			GWP2	Protection of groundwater quality The CEMP must include requirements and construction methods that maintain groundwater quality, for example: <ul style="list-style-type: none"> • Use sealing products, caulking products, lubricating products and chemical grouts applied during tunnelling construction that do not diminish the groundwater quality • Use fluids for artificial recharge activities that do not diminish the groundwater quality • Ensure compatibility of construction material with groundwater quality to provide long term durability for tunnel design life • Develop drainage infrastructure that provides for the propensity of dissolved constituents in groundwater to precipitate out of solution and create clogging and maintenance risks • Develop a plan to assess, remove and dispose of contaminated groundwater and impacted soils associated with pile and pile cap excavation and construction. 	Construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
		To minimise changes to groundwater movements during construction and operation to manage potential impacts	GWP3	<p>Tunnel drainage design and construction methods</p> <p>Design long term tunnel drainage and adopt construction methods which minimise changes to groundwater levels during construction and operation to manage, mitigate and minimise:</p> <ul style="list-style-type: none"> • Mobilisation of contaminated groundwater • Dewatering and potential impacts of acid sulphate soils, including both unconsolidated sediments and lithified sedimentary rock • Protection of waterways and potential groundwater dependent ecosystems, including terrestrial ecosystems • Avoid any other adverse impacts of groundwater level changes such as subsidence. <p>Design contingency measures and/or controls as required to:</p> <ul style="list-style-type: none"> • Ensure maintenance of the base flow associated with a reduction or loss of groundwater discharge to Stony Creek or loss of water availability for terrestrial ecosystems. • Limit acidification should monitoring indicate a potential adverse impact to water levels or quality. <p>Design contingency measures and/or controls as required should movement of contamination be identified. Contingency measures to include consideration of:</p> <ul style="list-style-type: none"> • Improvements to barrier system and ground treatments at the portal to reduce inflows and drawdowns • Hydraulic control of the movement of the contaminated groundwater. <p>Implement engineering control measures and/or ground treatment to minimise to the extent practicable groundwater inflow during excavation, construction and operation of tunnels, cross passages and subsurface excavations.</p> <p>Implement measures to limit groundwater inflow during construction to excavations and drawdown should monitoring indicate acidification is occurring.</p> <p>Develop and implement a plan to mitigate and manage potential future displacement of contaminated groundwater in the vicinity of the NYM sewer, in accordance with State Environment Protection Policy Groundwaters of Victoria 1997(Vic) and State Environment Protection Policy Prevention and Management of Contaminated Land 2002(Vic), including:</p> <ul style="list-style-type: none"> • Investigate the properties identified as potentially contaminated and likely to be influenced by the changed groundwater conditions • Assess the influence of changed conditions on potentially contaminated groundwater at these properties • Assess the risk posed to human health and the environment, including the potential for vapour intrusion to indoor air of buildings • Develop contingency measures to control any adverse risks 	Detailed design, pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
			GWP4	<p>Predictive groundwater model</p> <p>Develop and maintain a predictive groundwater model throughout the construction period to assess the potential impacts of dewatering during construction and develop potential contingency measures.</p>	Pre-construction, construction
			GWP5	<p>Groundwater monitoring</p> <p>Develop and implement a pre-construction, construction and post-construction groundwater monitoring program to calibrate the predictive model prior to commencement of construction and verify the model predictions post-construction, manage construction activities and monitor during operation that as a minimum:</p> <ul style="list-style-type: none"> • Establishes a baseline condition for groundwater (quality, level, flow and GDE health) prior to the commencement of construction • Can be used to identify (and manage) changes to groundwater (quality, level, flow and GDE health) during construction and operation activities. • Can be used to assess (and manage) the impact of construction on: <ul style="list-style-type: none"> • Groundwater beneficial uses (or users of surface water, groundwater and land) • Areas considered a high contamination risk • Groundwater Dependant Ecosystems (e.g. Stony Creek, Yarraville Gardens) • North Yarra Main Sewer • Acid Sulphate Soils • Compressible materials • Portal, tunnel, and cross passage construction • Can be used to determine the requirement for intervention, and assess the effectiveness of mitigation measures proposed or implemented to protect groundwater • Can be used to calibrate and verify a predictive numerical model developed as part of the Project • Groundwater sampling undertaken consistent with EPA Victoria Publication 669 (2000) Groundwater Sampling Guidelines. 	Pre-construction, construction, operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
			GWP6	<p>Interception of groundwater</p> <p>The CEMP must include requirements and methods for management of groundwater interception during construction, including:</p> <ul style="list-style-type: none"> • Identification, treatment, disposal and handling of contaminated seepage water and/or slurries including vapours in accordance with relevant legislation and guidelines • Assessment of barrier/damming effects • Subsidence management • Dewatering and potential impacts on acid sulphate soils, including both unconsolidated sediments and lithified sedimentary rock • Protection of waterways and potential groundwater dependent ecosystems • Contingency actions when interventions are required. 	Construction
		To minimise impact on existing groundwater users	GWP7	<p>Impacts on groundwater users</p> <p>Conduct a review and confirm the status of potential use of extraction bores within the estimated construction drawdown area. Develop and implement if required a plan to maintain water supply to identified groundwater users.</p>	Pre-construction, construction
Land Use					
Built environment – to protect and enhance the function and character of the evolving urban environment including built form and public realm within the immediate and broader context of the works.	Planning and Environment Act 1987	To minimise impacts on existing and proposed future land use	LPP1	<p>Minimise design footprint</p> <p>Through detailed design, minimise the permanent footprint of the Project to the extent practicable to reduce adverse impacts on potentially affected land uses, particularly:</p> <ul style="list-style-type: none"> • Parks • Reserves/ gardens • Recreational and community facilities • Residential properties in proximity to the construction area • Commercial and industrial sites. 	Detailed design
			LPP2	<p>Recreation facilities</p> <p>Through detailed design and construction, minimise to the extent practicable any impacts on users of recreational facilities including Westgate Public Golf Course, Crofts Reserve, Hyde Street Reserve, Donald McLean Reserve, Railway Place and Miller Street Reserve, and McIvor Reserve. Access to, and amenity and function of recreation facilities is to be maintained to the extent practicable in consultation with the land manager.</p>	Detailed design, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
			LPP3	<p>Future development opportunities</p> <p>Do not preclude the possibility of a future road connection between Precinct 15 (Hobsons Bay Council) and Bradmill Precinct (Maribyrnong Council).</p> <p>Manage, to the extent practicable, the impacts on the future implementation of the draft Railway Place and Miller Street Reserve Concept Plan in consultation with City of Melbourne.</p> <p>Manage, to the extent practicable, the impacts on future built form of 48–54 Digital Drive, Digital Harbour in consultation with the landowner/developer.</p>	Detailed design
			LPP4	<p>Pedestrian connections</p> <p>Do not preclude the possibility of future pedestrian connections between:</p> <ul style="list-style-type: none"> • North and West Melbourne, E-Gate and Docklands to Moonee Ponds Creek (the Moonee Ponds Creek Trail / Capital City Trail) • Digital Harbour and West Melbourne by upgrading pedestrian crossings at the intersection of Wurundjeri Way and Dudley Street. 	Detailed design
			LPP5	<p>Public Land</p> <p>Through detailed design and construction reduce the disruption to the extent practicable, to current uses of public and council land resulting from temporary occupation.</p>	Detailed design, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Landscape and Visual					
Landscape, visual and recreational values – to minimise adverse effects on landscape and visual amenity values and to maximise the enhancement of these values where opportunities exist	<i>Planning and Environment Act 1987</i>	To minimise impacts on the built environment and landscape, including public open space, and to maximise opportunities for enhancement for public amenity and safety	LVP1	Urban design approach Detailed design development must respond to the West Gate Tunnel Project urban design principles and vision. In doing so it must minimise, to the extent practicable, landscape and visual impacts, and maximise opportunities for enhancement of public amenity, open space and facilities, resulting from the Project, in consultation with relevant stakeholders, particularly in relation to: <ul style="list-style-type: none"> Heritage assets Bridges and structures Existing landmark urban elements across the Project, including CityLink Open space including, Yarraville Gardens, Hyde Street Reserve, Donald McLean Reserve, Railway and Millers Street Reserve Community and recreational assets including the, Yarraville Community Centre, Yarraville Gardens, Westgate Golf Club, Spotswood Cricket/ Football Oval, W.L.J. Crofts Reserve, shared paths along Kororoit Creek, Maribyrnong River, Stony Creek, and Moonee Ponds Creek, various bowls and tennis clubs in the vicinity of the Project Residential interfaces Business interfaces. 	Detailed design
			LVP2	Reinstatement following temporary works Avoid direct impacts on the Yarraville Gardens unless agreed by the City of Maribyrnong. Reinstatement public open spaces, vegetation cover and facilities disturbed by temporary works to the reasonable satisfaction of the land manager.	Detailed design, construction
		To minimise the impact of light emissions	LVP3	Light spillage Detailed design of the works must minimise light spillage to protect the amenity of adjacent land uses to the extent practicable. The CEMP must include requirements and methods to minimise light spillage, to the extent practicable, during construction to protect the amenity of adjacent surrounding neighbourhoods, parks and community facilities including urban environments, in consultation with relevant stakeholders.	Detailed design, construction
			LVP4	Vegetation screening As part of the Landscaping Plan (refer EPR EP6), implement vegetation screening for visually impacted community spaces, including residential areas and public open spaces. The plan must include measures to ensure vegetation screening is used where practicable if Project infrastructure would be visible from residential areas and public open spaces.	Construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase						
Noise and Vibration											
<p>Health, amenity and environmental quality – to minimise adverse air quality, noise and vibration effects on the health and amenity of nearby residents, local communities and road users during both construction of the works and operation of the West Gate Tunnel Project</p>		<p>To minimise traffic noise impacts of West Gate Tunnel Project and local roads</p>	<p>NVP1</p>	<p>Traffic noise limits Design and construct the works to meet the following limits on traffic noise levels.</p> <table border="1" data-bbox="927 384 1917 1289"> <thead> <tr> <th data-bbox="927 384 1111 424">Aspect</th> <th data-bbox="1111 384 1917 424">External Traffic Noise Levels</th> </tr> </thead> <tbody> <tr> <td data-bbox="927 424 1111 1015"> <p>External traffic noise levels</p> </td> <td data-bbox="1111 424 1917 1015"> <p>a External traffic noise levels from the freeway* and Local Roads⁺ at Category A Buildings and Category B Buildings facing the traffic noise, being those adjacent to or with a direct line of sight to the freeway*, must be no greater than:</p> <ul style="list-style-type: none"> i 63dB(A) L_{10(18h)} measured between 6am and midnight for Category A Buildings; and ii 63dB(A) L_{10(12h)} measured between 6am and 6pm for Category B Buildings; and <p>b External traffic noise levels from the freeway* and Local Roads⁺ at Category A Buildings and Category B Buildings which do not fall within paragraph (a) above and which are adjacent to an identified section of Local Road⁺, must be no greater than the predicted traffic noise level under a 'no project' scenario. The 'no project' scenario must also assume that the road traffic noise attributable to the West Gate Freeway (without the project) is:</p> <ul style="list-style-type: none"> • 63dB(A) L_{10(18h)} measured between 6am and midnight for the relevant Category A Buildings; and • 63dB(A) L_{10(12h)} measured between 6am and 6pm for the relevant Category B Buildings. </td> </tr> <tr> <td data-bbox="927 1015 1111 1289"> <p>Applies at</p> </td> <td data-bbox="1111 1015 1917 1289"> <p>The noise criteria in paragraphs (a) and (b) above are to apply to the lowest habitable level of Category A Buildings and Category B Buildings existing and occupied or capable of being occupied at the time of announcing the design on 2 April 2017.</p> <p>In some cases off-site noise attenuation may be required to meet the noise criteria at any Category A or Category B Building. This may include implementation of noise attenuation measures in consultation with the owner of the relevant building to ensure that an equivalent level of attenuation is provided internal to the building.</p> </td> </tr> </tbody> </table>	Aspect	External Traffic Noise Levels	<p>External traffic noise levels</p>	<p>a External traffic noise levels from the freeway* and Local Roads⁺ at Category A Buildings and Category B Buildings facing the traffic noise, being those adjacent to or with a direct line of sight to the freeway*, must be no greater than:</p> <ul style="list-style-type: none"> i 63dB(A) L_{10(18h)} measured between 6am and midnight for Category A Buildings; and ii 63dB(A) L_{10(12h)} measured between 6am and 6pm for Category B Buildings; and <p>b External traffic noise levels from the freeway* and Local Roads⁺ at Category A Buildings and Category B Buildings which do not fall within paragraph (a) above and which are adjacent to an identified section of Local Road⁺, must be no greater than the predicted traffic noise level under a 'no project' scenario. The 'no project' scenario must also assume that the road traffic noise attributable to the West Gate Freeway (without the project) is:</p> <ul style="list-style-type: none"> • 63dB(A) L_{10(18h)} measured between 6am and midnight for the relevant Category A Buildings; and • 63dB(A) L_{10(12h)} measured between 6am and 6pm for the relevant Category B Buildings. 	<p>Applies at</p>	<p>The noise criteria in paragraphs (a) and (b) above are to apply to the lowest habitable level of Category A Buildings and Category B Buildings existing and occupied or capable of being occupied at the time of announcing the design on 2 April 2017.</p> <p>In some cases off-site noise attenuation may be required to meet the noise criteria at any Category A or Category B Building. This may include implementation of noise attenuation measures in consultation with the owner of the relevant building to ensure that an equivalent level of attenuation is provided internal to the building.</p>	<p>Detailed design, construction</p>
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				<p>* Freeway means the primary road connecting the West Gate Freeway (from the M80 interchange) with the Port of Melbourne, CityLink and the city to be constructed as a result of the Project and excludes:</p> <ul style="list-style-type: none"> • The sections of the West Gate Freeway east of the Williamstown rail line; and • The sections of the Project which comprise widening of arterial roads, but includes: • The Dynon Road eastbound exit ramp and Dynon Road westbound entry ramp to the western abutment of the existing Dynon Road bridge over the railway lines; and • The Wurundjeri Way Extension from Dynon Road to the point at which the elevated section of the road ties into Wurundjeri Way south of Dudley Street. <p>+ Local Road means</p> <ul style="list-style-type: none"> • The sections of Grieve Parade, Millers Road, Williamstown Road, Hyde Street, MacKenzie Road, Simcock Avenue and Dynon Road which extend 100 metres from the interchange of the relevant road with the Freeway; and • The sections of Footscray Road between the intersection of Footscray Road with the Footscray Road ramps and the Sims Street loop intersection with Footscray Road. 	
			NVP2	<p>Traffic noise monitoring</p> <p>Traffic noise must be measured prior to and upon opening of the Freeway, in accordance with the VicRoads Traffic Noise Measurement Requirements for Acoustic Consultants – September 2011, to verify conformance with the external traffic noise performance requirements set out in NVP1 above. Remedial action must be taken as soon as practicable in the event that the measured traffic noise levels demonstrate that the external traffic noise performance requirements set out in NVP1 are not met.</p>	Pre-operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
		Manage surface construction noise and vibration to protect amenity	NVP3	<p>Construction noise, vibration management, and monitoring</p> <p>Prepare and implement a Construction Noise and Vibration Management Plan (CNVMP) in accordance with the limits and methodologies outlined in the Noise and Vibration EPRs.</p> <p>The CNVMP must be informed by monitoring and modelling undertaken by a suitably qualified acoustic and vibration consultant prior to the construction works and include (but not be limited to):</p> <ul style="list-style-type: none"> • Identification of sensitive receptors potentially impacted by the construction stage of the Project • Identification of the scheduling, duration, activities and equipment with the potential to generate airborne noise or surface vibration impacts at the identified sensitive receptors • Implementation of construction noise and surface vibration limits • Updated noise and vibration modelling of the noise and vibration impacts • Noise and vibration monitoring commitments and response protocols for managing noise complaints and remedial action • Detail of practicable measures adopted to manage noise and surface vibration impacts that exceed the targets set out in the CNVMP • Details of the communication plan to be adopted throughout construction. 	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase																
			NVP4	<p>Construction Noise Targets</p> <p>1 Highly Sensitive Areas</p> <p>For Highly Sensitive Areas (based on AS/NZS 2107:2000) implement management actions if construction noise is predicted to or does exceed the internal and external noise levels below, and a noise sensitive receptor is adversely impacted.</p> <p>If construction exceeds the noise levels below:</p> <ul style="list-style-type: none"> • Consider the duration of construction noise • Consider the existing ambient noise levels • Consult with the owner or operator of the noise sensitive receptor • Consider any specific acoustic requirements of land uses listed below <p>To determine whether a noise sensitive receptor is adversely impacted.</p> <table border="1" data-bbox="936 699 1912 1294"> <thead> <tr> <th data-bbox="936 722 1391 754">Land use</th> <th data-bbox="1391 699 1912 754">Construction noise management level, L_{Aeq} (15 min) (applies when properties are in use)</th> </tr> </thead> <tbody> <tr> <td data-bbox="936 754 1391 826">Classrooms in schools and other educational institutions</td> <td data-bbox="1391 754 1912 826">Internal noise level 45 dB(A)</td> </tr> <tr> <td data-bbox="936 826 1391 866">Places of worship</td> <td data-bbox="1391 826 1912 866">Internal noise level 45 dB(A)</td> </tr> <tr> <td data-bbox="936 866 1391 986">Active recreation areas characterised by sporting activities and activities which generate their own noise, making them less sensitive to external noise intrusion</td> <td data-bbox="1391 866 1912 986">External noise level 65 dB(A)</td> </tr> <tr> <td data-bbox="936 986 1391 1121">Passive recreation areas characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example reading, meditation</td> <td data-bbox="1391 986 1912 1121">External noise level 60 dB(A)</td> </tr> <tr> <td data-bbox="936 1121 1391 1217">Community centres</td> <td data-bbox="1391 1121 1912 1217">Depends on the intended use of the centre. Refer to the recommended “maximum” internal levels in AS/NZS 2107:2016 for specific uses.</td> </tr> <tr> <td data-bbox="936 1217 1391 1257">Industrial premises</td> <td data-bbox="1391 1217 1912 1257">External noise level 75 dB(A)</td> </tr> <tr> <td data-bbox="936 1257 1391 1294">Offices, retail outlets</td> <td data-bbox="1391 1257 1912 1294">External noise level 70 dB(A)</td> </tr> </tbody> </table>	Land use	Construction noise management level, L_{Aeq} (15 min) (applies when properties are in use)	Classrooms in schools and other educational institutions	Internal noise level 45 dB(A)	Places of worship	Internal noise level 45 dB(A)	Active recreation areas characterised by sporting activities and activities which generate their own noise, making them less sensitive to external noise intrusion	External noise level 65 dB(A)	Passive recreation areas characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example reading, meditation	External noise level 60 dB(A)	Community centres	Depends on the intended use of the centre. Refer to the recommended “maximum” internal levels in AS/NZS 2107:2016 for specific uses.	Industrial premises	External noise level 75 dB(A)	Offices, retail outlets	External noise level 70 dB(A)	Construction
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				<p>2 Residential dwellings</p> <p>For residential dwellings, implement management actions if construction noise is predicted to or does exceed the noise targets in EPA Victoria Publication 1254 or the daytime management levels specified for noise at residences during recommended standard hours in Part 4.1.1 of the NSW Interim Construction Noise Guidelines (ICNG) with the hours amended to correspond to the EPA Victoria Publication 1254 hours as shown in the table below.</p> <table border="1" data-bbox="927 523 1917 1114"> <thead> <tr> <th data-bbox="927 555 1301 587">Time of day</th> <th data-bbox="1301 523 1917 587">Construction noise management level, L_{Aeq} (15 min) (applies when properties are in use)</th> </tr> </thead> <tbody> <tr> <td data-bbox="927 595 1301 707">7am–6pm Monday to Friday 7am–1pm Saturday</td> <td data-bbox="1301 595 1917 707">Noise affected Background $LA_{90}+10dB$ Source: NSW ICNG Chapter 4.1.1 Table 2, page 12</td> </tr> <tr> <td data-bbox="927 715 1301 826">7am–6pm Monday to Friday 7am–1pm Saturday</td> <td data-bbox="1301 715 1917 826">Highly noise affected 75d(BA) Source: NSW ICNG Chapter 4.1.1 Table 2, page 12</td> </tr> <tr> <td data-bbox="927 834 1301 1010">6pm–10pm Monday to Friday 1pm–10pm Saturday 7am–10pm Sunday and public holidays</td> <td data-bbox="1301 834 1917 1010">Noise level at any residential premises not to exceed background noise by: <ul style="list-style-type: none"> • 10 dB(A) or more for up to 18 months • 5 dB(A) or more after 18 months Source: EPA Publication 1254 Section 2</td> </tr> <tr> <td data-bbox="927 1018 1301 1114">10pm–7am Monday to Sunday</td> <td data-bbox="1301 1018 1917 1114">Noise inaudible within a habitable room of any residential premises Source: EPA Victoria Publication 1254 Section 2</td> </tr> </tbody> </table> <p><i>Notes</i></p> <ol style="list-style-type: none"> <i>The noise affected level represents the point above which there may be some community reaction to noise.</i> <i>The highly noise affected level represents the point above which there may be strong community reaction to noise.</i> 	Time of day	Construction noise management level, L_{Aeq} (15 min) (applies when properties are in use)	7am–6pm Monday to Friday 7am–1pm Saturday	Noise affected Background $LA_{90}+10dB$ Source: NSW ICNG Chapter 4.1.1 Table 2, page 12	7am–6pm Monday to Friday 7am–1pm Saturday	Highly noise affected 75d(BA) Source: NSW ICNG Chapter 4.1.1 Table 2, page 12	6pm–10pm Monday to Friday 1pm–10pm Saturday 7am–10pm Sunday and public holidays	Noise level at any residential premises not to exceed background noise by: <ul style="list-style-type: none"> • 10 dB(A) or more for up to 18 months • 5 dB(A) or more after 18 months Source: EPA Publication 1254 Section 2	10pm–7am Monday to Sunday	Noise inaudible within a habitable room of any residential premises Source: EPA Victoria Publication 1254 Section 2	
Time of day	Construction noise management level, L_{Aeq} (15 min) (applies when properties are in use)														
7am–6pm Monday to Friday 7am–1pm Saturday	Noise affected Background $LA_{90}+10dB$ Source: NSW ICNG Chapter 4.1.1 Table 2, page 12														
7am–6pm Monday to Friday 7am–1pm Saturday	Highly noise affected 75d(BA) Source: NSW ICNG Chapter 4.1.1 Table 2, page 12														
6pm–10pm Monday to Friday 1pm–10pm Saturday 7am–10pm Sunday and public holidays	Noise level at any residential premises not to exceed background noise by: <ul style="list-style-type: none"> • 10 dB(A) or more for up to 18 months • 5 dB(A) or more after 18 months Source: EPA Publication 1254 Section 2														
10pm–7am Monday to Sunday	Noise inaudible within a habitable room of any residential premises Source: EPA Victoria Publication 1254 Section 2														

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase																												
			NVP5	<p>Blasting trials and assessment</p> <p>Where blasting is proposed, a series of initial trials at reduced scale must be conducted prior to production blasting to determine site-specific blast response characteristics and to define allowable blast sizes to meet air blast overpressure and ground vibration limits. If blasting is required, an assessment of the potential noise and vibration impacts, and a strategy to minimise and manage those impacts must be prepared, including preparation of an appropriate community information program.</p>	Construction																												
		Manage construction vibration and regenerated noise impacts to protect amenity	NVP6	<p>Construction vibration targets (amenity)</p> <p>Implement management actions if the following guideline target levels for continuous vibration from construction activity to protect human comfort of occupied buildings (including heritage buildings) are not achieved (levels are calculated from the British Standard BS6472-1:2008).</p> <table border="1" data-bbox="929 651 1877 979"> <thead> <tr> <th rowspan="3">Type of space occupancy</th> <th colspan="4">Vibration Dose Values (m/s^{1.75})</th> </tr> <tr> <th colspan="2">Day (7am to 10pm)</th> <th colspan="2">Night (10pm to 7am)</th> </tr> <tr> <th>Preferred Value</th> <th>Maximum Value</th> <th>Preferred Value</th> <th>Maximum Value</th> </tr> </thead> <tbody> <tr> <td>Residential</td> <td>0.2</td> <td>0.4</td> <td>0.1</td> <td>0.2</td> </tr> <tr> <td>Offices, schools, educational institutions, places of worship</td> <td>0.4</td> <td>0.8</td> <td>0.4</td> <td>0.8</td> </tr> <tr> <td>Workshops</td> <td>0.8</td> <td>1.6</td> <td>0.8</td> <td>1.6</td> </tr> </tbody> </table> <p><i>Notes</i></p> <ol style="list-style-type: none"> <i>The Guideline Targets are non-mandatory; they are goals that should be sought to be achieved through the application of practicable mitigation measures. If exceeded then management actions would be required</i> <i>The VDVs may be converted to PPVs within a noise and vibration construction management plan.</i> 	Type of space occupancy	Vibration Dose Values (m/s ^{1.75})				Day (7am to 10pm)		Night (10pm to 7am)		Preferred Value	Maximum Value	Preferred Value	Maximum Value	Residential	0.2	0.4	0.1	0.2	Offices, schools, educational institutions, places of worship	0.4	0.8	0.4	0.8	Workshops	0.8	1.6	0.8	1.6	Construction
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			NVP7	<p>Construction vibration targets (structures)</p> <p>Construction vibration targets for structures are summarised in the tables below.</p> <p>Guideline values for the vibration velocity to be used when evaluating the effects of short term vibration on structures.</p> <table border="1" data-bbox="929 411 1870 949"> <thead> <tr> <th rowspan="3">Type of structure</th> <th colspan="4">Guideline values for velocity (mm/s)</th> </tr> <tr> <th colspan="3">Vibration at the foundation at a frequency of</th> <th rowspan="2">Vibration at horizontal plane of highest floor All frequencies</th> </tr> <tr> <th>1 to 10 Hz</th> <th>10 to 50 Hz</th> <th>50 to 100 Hz*</th> </tr> </thead> <tbody> <tr> <td>1. Buildings used for commercial purposes, industrial buildings, and buildings of similar design</td> <td>20</td> <td>20 to 40</td> <td>40 to 50</td> <td>40</td> </tr> <tr> <td>2. Dwellings and buildings of similar design and/or occupancy</td> <td>5</td> <td>5 to 15</td> <td>15 to 20</td> <td>15</td> </tr> <tr> <td>3. Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of intrinsic value (eg. Heritage buildings)</td> <td>3</td> <td>3 to 8</td> <td>8 to 10</td> <td>8</td> </tr> </tbody> </table> <p>*At frequencies > 100 Hz, the values given in this column may be used as a minimum</p> <p>Notes</p> <ol style="list-style-type: none"> <i>Vibration levels marginally exceeding those vibration levels in the table would not necessarily mean that damage would occur and further investigation would be required to determine if higher vibration levels can be accommodated without risk of damage</i> <i>For civil engineering structures (e.g. with reinforced concrete constructions used as abutments or foundation pads) the values for Type 1 buildings may be increased by a factor of 2</i> <i>Short-term vibration is defined as vibration which does not occur often enough to cause structural fatigue and which does not produce resonance in the structure being evaluated.</i> 	Type of structure	Guideline values for velocity (mm/s)				Vibration at the foundation at a frequency of			Vibration at horizontal plane of highest floor All frequencies	1 to 10 Hz	10 to 50 Hz	50 to 100 Hz*	1. Buildings used for commercial purposes, industrial buildings, and buildings of similar design	20	20 to 40	40 to 50	40	2. Dwellings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	3. Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of intrinsic value (eg. Heritage buildings)	3	3 to 8	8 to 10	8	
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				<p>Guideline values for the vibration velocity to be used when evaluating the effects of long term vibration on structures.</p> <table border="1" data-bbox="927 341 1868 735"> <thead> <tr> <th data-bbox="927 395 1406 432">Type of structure</th> <th data-bbox="1406 341 1868 432">Guideline values for velocity (mm/s) Vibration at horizontal plane of highest floor All frequencies</th> </tr> </thead> <tbody> <tr> <td data-bbox="927 432 1406 536">Buildings used for commercial purposes, industrial buildings, and buildings of similar design</td> <td data-bbox="1406 432 1868 536">10</td> </tr> <tr> <td data-bbox="927 536 1406 608">Dwellings and buildings of similar design and/or occupancy</td> <td data-bbox="1406 536 1868 608">5</td> </tr> <tr> <td data-bbox="927 608 1406 735">Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of intrinsic value (eg. Heritage buildings)</td> <td data-bbox="1406 608 1868 735">2.5</td> </tr> </tbody> </table> <p><i>Notes:</i></p> <ol style="list-style-type: none"> 1 <i>Vibration levels marginally exceeding those in the table would not necessarily mean that damage would occur and further investigation would be required to determine if higher vibration levels can be accommodated without risk of damage</i> 2 <i>Limits in the above table may need to be adjusted following a pre-construction condition survey</i> 3 <i>Long-term vibration relates to events that may result in a resonant structural response.</i> <p>Implement management actions if, due to construction activity, the DIN 4150.3 Guideline Targets for structural damage to buildings (for short-term vibration or long-term vibration) are not achieved.</p>	Type of structure	Guideline values for velocity (mm/s) Vibration at horizontal plane of highest floor All frequencies	Buildings used for commercial purposes, industrial buildings, and buildings of similar design	10	Dwellings and buildings of similar design and/or occupancy	5	Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of intrinsic value (eg. Heritage buildings)	2.5	
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EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase								
			NVP8	<p>Ground-borne (internal) noise targets</p> <p>Implement management actions as determined in consultation with potentially affected land owners to protect amenity at residences where the following ground borne noise guideline targets are exceeded during construction.</p> <table border="1" data-bbox="929 406 1870 566"> <thead> <tr> <th data-bbox="929 432 1288 470">Time of Day</th> <th data-bbox="1288 406 1870 470">Internal noise level measured at the centre of the most affected habitable room</th> </tr> </thead> <tbody> <tr> <td data-bbox="929 470 1288 518">Evening (6pm to 10pm)</td> <td data-bbox="1288 470 1870 518">L_{Aeq} (15 minute) = 40dBA</td> </tr> <tr> <td data-bbox="929 518 1288 566">Night (10pm to 6am)</td> <td data-bbox="1288 518 1870 566">L_{Aeq} (15 minute) = 35dBA</td> </tr> </tbody> </table> <p><i>Notes</i></p> <ol style="list-style-type: none"> Levels are only applicable when ground borne noise levels are higher than airborne noise levels. Management actions include community consultation to determine acceptable level of disruption and provision of respite accommodation in some circumstances. 	Time of Day	Internal noise level measured at the centre of the most affected habitable room	Evening (6pm to 10pm)	L _{Aeq} (15 minute) = 40dBA	Night (10pm to 6am)	L _{Aeq} (15 minute) = 35dBA	Construction		
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		To manage construction vibration to protect utility assets	NVP9	<p>Utility asset protection</p> <p>Prior to construction undertake condition assessments of above and below ground utility assets and establish construction vibration limits in consultation with asset owners to maintain asset integrity. Where construction vibration limits are not agreed with the asset owner, the guideline values in the table below apply.</p> <table border="1" data-bbox="929 909 1870 1141"> <thead> <tr> <th data-bbox="929 933 1500 973">Pipe Material</th> <th data-bbox="1500 909 1870 973">Guideline values for velocity measured on the pipe</th> </tr> </thead> <tbody> <tr> <td data-bbox="929 973 1500 1029">Steel (including welded pipes)</td> <td data-bbox="1500 973 1870 1029">100mm/s</td> </tr> <tr> <td data-bbox="929 1029 1500 1101">Clay, concrete, reinforced concrete, pre stressed concrete, metal (with or without flange)</td> <td data-bbox="1500 1029 1870 1101">80 mm/s</td> </tr> <tr> <td data-bbox="929 1101 1500 1141">Masonry, plastic</td> <td data-bbox="1500 1101 1870 1141">50 mm/s</td> </tr> </tbody> </table> <p><i>Notes</i></p> <ol style="list-style-type: none"> These values may be reduced by 50% when evaluating the effects of long-term vibration on buried pipework It is assumed pipes have been manufactured and laid using current technology. <p>Monitor vibration limits during construction to demonstrate compliance with agreed vibration limits. Identify contingency measures to be implemented if limits are not met. Where necessary rectify any defects that are attributable to the Project.</p>	Pipe Material	Guideline values for velocity measured on the pipe	Steel (including welded pipes)	100mm/s	Clay, concrete, reinforced concrete, pre stressed concrete, metal (with or without flange)	80 mm/s	Masonry, plastic	50 mm/s	Pre-construction, construction
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	SEPP N-1 – Control of Noise from Commerce, Industry and Trade	To minimise noise impacts of the tunnel ventilation system	NVP10	Tunnel ventilation system noise design Design and implement the tunnel ventilation system to achieve compliance with State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1 (SEPP N-1) and in accordance with the Works Approval. Provide detailed design to the satisfaction of EPA Victoria prior to commencement of the works permitted by the Works Approval.	Detailed design. operation
			NVP11	Tunnel ventilation system noise monitoring Measure noise from the tunnel ventilation system on commencing road operation and monitor noise from the tunnel ventilation system for up to five years post opening of the Freeway, or as agreed with EPA Victoria, to verify compliance with State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1 (SEPP N-1). Identify contingency measures to be implemented if noise level targets are not met.	Operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase												
		Manage construction blasting impacts to protect amenity	NVP12	<p>Amenity – Blast Vibration</p> <p>Implement management actions if the following vibration values are not achieved. Blasting activities must comply with Australian Standard AS2187.2-2006, Explosives – Storage and use Part 2 – Use of explosives for all blasting.</p> <table border="1" data-bbox="927 405 1921 919"> <thead> <tr> <th data-bbox="927 405 1115 469">Category</th> <th data-bbox="1115 405 1384 469">Type of blasting operations</th> <th data-bbox="1384 405 1921 469">Peak component particle velocity (mm/s)</th> </tr> </thead> <tbody> <tr> <td data-bbox="927 469 1115 612">Sensitive site</td> <td data-bbox="1115 469 1384 612">Operations lasting longer than 12 months or more than 20 blasts</td> <td data-bbox="1384 469 1921 612">5mm/s for 95% blasts per year 10mm/s maximum unless agreement is reached with the occupier that a higher limit may apply</td> </tr> <tr> <td data-bbox="927 612 1115 708">Sensitive site</td> <td data-bbox="1115 612 1384 708">Operations lasting less than 12 months or less than 20 blasts</td> <td data-bbox="1384 612 1921 708">10mm/s maximum unless agreement is reached with occupier that a higher limit may apply</td> </tr> <tr> <td data-bbox="927 708 1115 919">Occupied non-sensitive sites such as factories and commercial premises</td> <td data-bbox="1115 708 1384 919">All blasting</td> <td data-bbox="1384 708 1921 919">25mm/s maximum value unless agreement is reached with occupier that a higher limit may apply. For sites containing equipment sensitive to vibration, the vibration should be kept below manufacturer's specification or levels that can be shown to adversely affect the equipment operation</td> </tr> </tbody> </table> <p><i>Note</i></p> <p>1 Sensitive site includes houses and low rise residential buildings, theatres, schools and other similar buildings occupied by people.</p>	Category	Type of blasting operations	Peak component particle velocity (mm/s)	Sensitive site	Operations lasting longer than 12 months or more than 20 blasts	5mm/s for 95% blasts per year 10mm/s maximum unless agreement is reached with the occupier that a higher limit may apply	Sensitive site	Operations lasting less than 12 months or less than 20 blasts	10mm/s maximum unless agreement is reached with occupier that a higher limit may apply	Occupied non-sensitive sites such as factories and commercial premises	All blasting	25mm/s maximum value unless agreement is reached with occupier that a higher limit may apply. For sites containing equipment sensitive to vibration, the vibration should be kept below manufacturer's specification or levels that can be shown to adversely affect the equipment operation	Construction
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			NVP13	<p>Amenity – Blast Overpressure Implement management actions if the following overpressure values are not achieved. Blasting activities must comply with Australian Standard AS2187.2-2006, Explosives – Storage and use Part 2 – Use of explosives for all blasting.</p> <table border="1" data-bbox="927 405 1868 959"> <thead> <tr> <th data-bbox="927 432 1167 469">Category</th> <th data-bbox="1167 405 1406 469">Type of blasting operations</th> <th data-bbox="1406 432 1868 469">Peak Overpressure Value (dBL)</th> </tr> </thead> <tbody> <tr> <td data-bbox="927 480 1167 719" rowspan="2">Sensitive Site</td> <td data-bbox="1167 480 1406 592">Operations lasting longer than 12 months or more than 20 blasts</td> <td data-bbox="1406 480 1868 592">115 dBL for 95% blasts per year. 120dBL maximum unless agreement with occupier that a higher limit may apply</td> </tr> <tr> <td data-bbox="1167 592 1406 719">Operations lasting less than 12 months or less than 20 blasts</td> <td data-bbox="1406 592 1868 719">120dBL for 95% blasts per year. 125 dBL maximum unless agreement with occupier that a higher limit may apply</td> </tr> <tr> <td data-bbox="927 719 1167 959">Occupied non-sensitive sites such as factories and commercial premises</td> <td data-bbox="1167 719 1406 959">All blasting</td> <td data-bbox="1406 719 1868 959">125 dBL maximum value unless agreement is reached with occupier that a higher limit may apply. For sites containing equipment sensitive to vibration, the vibration should be kept below manufacturers specification or levels that can be shown to adversely affect the equipment operation</td> </tr> </tbody> </table> <p><i>Note</i> 1 Sensitive site includes houses and low rise residential buildings, theatres, schools and other similar buildings occupied by people.</p>	Category	Type of blasting operations	Peak Overpressure Value (dBL)	Sensitive Site	Operations lasting longer than 12 months or more than 20 blasts	115 dBL for 95% blasts per year. 120dBL maximum unless agreement with occupier that a higher limit may apply	Operations lasting less than 12 months or less than 20 blasts	120dBL for 95% blasts per year. 125 dBL maximum unless agreement with occupier that a higher limit may apply	Occupied non-sensitive sites such as factories and commercial premises	All blasting	125 dBL maximum value unless agreement is reached with occupier that a higher limit may apply. For sites containing equipment sensitive to vibration, the vibration should be kept below manufacturers specification or levels that can be shown to adversely affect the equipment operation	Construction
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Social					
Social, business, land use, public safety and infrastructure – to minimise adverse effects on the social fabric of the community in the project area, including with regard to community cohesion and access to community services and facilities, business functionality, changes to land use, public safety and access to infrastructure.	<i>Planning and Environment Act 1987</i>	To minimise impacts on social and community infrastructure	SP1	Urban design principles and vision Detailed design to protect and, where practicable, improve access to and amenity for potentially affected residents, open space, social and community infrastructure and commercial facilities by responding to the urban design principles and vision and implementing the principles of Crime Prevention Through Environmental Design.	Detailed design
		To minimise impacts on the community through engagement during construction and operation	SP2	Communications and Community Engagement Plan (CCEP) Develop and implement a Communications and Community Engagement Plan in consultation with affected local councils to engage and consult the community and potentially affected stakeholders and discuss progress of construction activities and operation. The plan must include: <ul style="list-style-type: none"> • Community issues identification, management and resolution approach and procedures • Enquiry management and record keeping approach and procedures • Approach to mitigating community impacts including dust, noise and light and any relevant policies (e.g. relocations policy) • Approach to changes to transport conditions for affected and potentially affected users, relevant stakeholders and relevant road authorities • How it will evaluate the effectiveness of community impact mitigation measures, including through noise and vibration monitoring • Incident and emergency communications, including notification methods and timeframes in the event of a major incident or overrun • Approach and processes to ensure that the workforce has appropriate community awareness and sensitivity • Any innovative communications tools and methods in the CCEP which would enhance the Project’s ability to effectively communicate with the community and stakeholders • Approach to notifying community, business, road user and other stakeholders affected by construction activities about impacts • The role and function of the Community Liaison Group (CLG) as developed by the State. The CCEP must address matters of interest or concern to the following stakeholders: <ul style="list-style-type: none"> • Municipalities • Recreation, sporting and community groups • Potentially affected residents and property owners • Potentially affected business • Other public facilities in proximity. 	Pre-construction, construction, operation

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			SP3	<p>Community Liaison Group participation</p> <p>Participate in the Community Liaison Group (CLG) that has been established by the State to facilitate community and stakeholder involvement for the construction phase of the Project. Participation must include:</p> <ul style="list-style-type: none"> • Attendance at meetings • Regular reporting of design and construction activities • Timely provision of relevant information, including response to issues raised by the group • Regular reporting and monitoring of impacts and discussion of mitigation measures and their effectiveness. 	Construction
Surface Water					
<p>Hydrology and water quality – to avoid or minimise adverse effects on surface water and groundwater quality and hydrology in particular resulting from the disturbance of contaminated or acid-forming materials, and to maintain functions and values of floodplain environments.</p>	<p><i>Water Act 1989</i> SEPP – Waters of Victoria</p>	<p>To maintain or improve existing surface water quality during operation and construction</p>	SWP1	<p>Design of discharges and runoff</p> <p>Meet State Environment Protection Policy (Waters of Victoria) for discharge and run-off from the Project to Kororoit Creek, Stony Creek, Maribyrnong River, Moonee Ponds Creek.</p>	Detailed design
			SWP2	<p>Water sensitive road design</p> <p>Integrate the stormwater treatment system into the design of the works in accordance with VicRoads Integrated Water Management Guidelines (June 2013) and the EPA Victoria Best Practice Environmental Management Guidelines for Urban Stormwater (2006).</p>	Detailed design
			SWP3	<p>Tunnel waste water</p> <p>Any proposed discharge of tunnel waste water from the site must be approved by the relevant authority prior to discharges occurring.</p>	Pre-construction
			SWP4	<p>Water quality monitoring</p> <p>Develop and implement a baseline surface water monitoring program prior to commencement of construction to assess background water quality in all receiving waters. This should be developed in consultation with the EPA Victoria and Melbourne Water.</p>	Pre-construction
			SWP5	<p>Spill containment design</p> <p>Design the capacity of the stormwater drainage system for all new roads and ramps to contain hazardous spills at or prior to every stormwater outlet, to the satisfaction of EPA Victoria, and develop procedures to be implemented in response to a hazardous spill.</p>	Detailed design

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			SWP6	<p>Management of chemicals, fuels, and hazardous materials</p> <p>Minimise chemical and fuel storage on site and store hazardous materials and dangerous goods in accordance with the relevant guidelines and requirements. Comply with the Victorian WorkCover Authority and Australian Standard AS1940 Storage Handling of Flammable and Combustible Liquids and EPA Victoria publications 480 Environmental Guidelines for Major Construction Sites and 347 Bunding Guidelines</p> <p>Develop and implement management measures for dangerous substances, including:</p> <ul style="list-style-type: none"> • Creating and maintaining a dangerous goods register • Disposing of any hazardous materials, including asbestos, in accordance with Industrial Waste Management Policies, regulation and relevant guidelines • Implementing requirements for the installation of bunds and precautions to reduce the risk of spills • Developing contingency and emergency response plans to handle fuel and chemical spills, including availability of on-site hydrocarbon spill kits. 	Construction
			SWP7	<p>Surface Water Management during construction</p> <p>The CEMP must include Surface Water Management requirements and methods for:</p> <ul style="list-style-type: none"> • Best practice sediment and erosion control and monitoring, in accordance with EPA Victoria publications 275 (1991), 480 (1996), and 960 (2004) • Maintenance of existing flow paths, drainage lines and floodplain storage • Location and bunding of any contaminated material (including tunnel spoil and stockpiled soil) to the 1% AEP flood level and to the satisfaction of EPA Victoria and the relevant drainage authority • A flood emergency management plan including consideration of scheduling works • Bunding of the tunnel portals to an appropriate level during the construction phase. 	Construction
		To limit the use of potable water during construction and preserve natural reserves	SWP8	<p>Use of non-potable water</p> <p>Where available and practicable, of suitable quality, and meets health and safety requirements, stormwater, recycled water, groundwater inflow to tunnels or other water sources must be used in preference to potable water for construction activities, including concrete mixing and dust control.</p>	Construction

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		To protect the bank stability of potentially impacted waterways	SWP9	<p>Bank stability</p> <p>Develop and implement appropriate measures to maintain bank stability of Kororoit Creek, Stony Creek, Maribyrnong River, Moonee Ponds Creek during construction to the satisfaction of Melbourne Water and in consultation with relevant local councils.</p>	Construction
			SWP10	<p>Waterway modifications</p> <p>Design and undertake modifications to all waterways in a way to mitigate the effects of changes to flow and minimise, to the extent practicable, the potential for erosion, sediment plumes and exposure of contaminated material during construction to the satisfaction of Melbourne Water and in consultation with relevant local councils. Maximise the visual and aesthetic amenity of the waterways having regard to relevant development plans and in consultation with Melbourne Water.</p>	Detailed design, construction
		To maintain existing levels of flood protection	SWP11	<p>Flood levels, flows and velocities</p> <p>Permanent works and associated temporary construction works must not increase flood risk (considering flood levels, flows and velocities) associated with overland flow paths to the requirements and satisfaction of Melbourne Water and in consultation with any other relevant drainage authority.</p> <p>Undertake modelling of the design of permanent and temporary works to demonstrate the resultant flood levels and risk profile to the requirements and satisfaction of Melbourne Water and in consultation with any other relevant drainage authority.</p> <p>Consider potential effects of climate change and sea level rise of 0.8m by 2100, with and without the works for both existing and proposed scenarios (for example future redevelopment in relation to Moonee Ponds Creek within the Arden – Macaulay Structure Plan area) in consultation with local councils</p> <p>Ensure that surface water from West Gate Tunnel Project does not encroach into underground SP AusNet electricity or gas assets.</p>	Detailed design, pre-construction, construction
		To maintain flood plain storage	SWP12	<p>Floodplain storage capacity</p> <p>Maintain existing floodplain storage capacity for overland flow paths potentially impacted by the Project in consultation with Melbourne Water and any other relevant drainage authority.</p>	Detailed design

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
		To protect people and assets from flood waters in the Tunnel	SWP13	<p>Tunnel portal flood risk</p> <p>Design tunnel portals to exclude surface flows from external catchments during the probable maximum flood.</p> <p>Develop and implement measures and plans to manage flood risk to the tunnel portals.</p> <p>Develop operation and maintenance plans for flood protection works.</p>	Detailed design, operation
		To maintain access to stormwater and other assets	SWP14	<p>Maintenance of Melbourne Water and other drainage assets</p> <p>Provide adequate clearances and access for ongoing maintenance of Melbourne Water and other drainage authority assets to the satisfaction of the relevant drainage authority.</p>	Detailed design
			SWP15	<p>North Yarra Main Sewer</p> <p>Design any proposed realignment to the North Yarra Main Sewer to the satisfaction of Melbourne Water.</p>	Detailed design

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Transport					
Transport capacity and connectivity – to increase transport capacity and improve connectivity to and from the west of Melbourne and, in particular, to increase freight movement via the freeway network instead of local and arterial roads, while adequately managing effects of the works on the existing broader and local transport networks, including road, public transport, cycling and pedestrian transport networks	<i>Road Management Act 2004</i> <i>Planning and Environment Act 1987</i>	To improve road-based transport connectivity between the west of Melbourne, the Port of Melbourne and the CBD and the wider metropolitan region and the State, while maintaining the connectivity of the existing local transport routes	TP1	Optimise design performance Optimise the design of the works in consultation with appropriate road management authorities as part of the detailed design process to: <ul style="list-style-type: none"> • Minimise adverse impact on travel times for all transport modes, including walking and cycling • Maintain, and where practicable, enhance the existing traffic movements at interchanges • Design interchanges and intersections to meet relevant road and transport authority requirements • Maintain, and where practicable, enhance pedestrian movements, bicycle connectivity, and shared use paths • Develop a strategy with Public Transport Victoria to minimise impacts on buses, trams and rail and, where practicable, enhance public transport facilities and services that cross or run parallel to the alignment of the Freeway • Minimise loss of car parking in consultation with relevant local councils. 	Detailed design
			TP2	Traffic monitoring Undertake traffic monitoring in selected streets identified in consultation with the relevant local council pre-construction, at six monthly intervals during construction, and up to two years after construction is complete. Implement local area traffic management works in consultation with the local relevant councils. Develop and implement traffic performance management along the West Gate Freeway during construction. Real time traffic information must be provided to drivers on the approach to the West Gate Freeway.	Pre-construction, construction, operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
		<p>To minimise disruption to motor vehicle traffic, parking, bicycle and pedestrian movements during construction and</p> <p>To minimise disruption to public and commercial transport during construction</p>	TP3	<p>Traffic Management Plans</p> <p>Develop and implement Traffic Management Plans with measures to minimise disruption, to the extent practicable, to motor vehicle traffic, parking, bicycle and pedestrian movements during construction in consultation with relevant road management authorities, including:</p> <ul style="list-style-type: none"> • Management of any temporary or partial closure of traffic lanes, including along: <ul style="list-style-type: none"> • Local roads, including provision for suitable routes for vehicles, cyclist and pedestrians to maintain connectivity for road and shared path users • CityLink traffic lanes and ramps • M1 and Footscray Road • Hyde Street, Francis Street, Whitehall Street • A strategy for maintaining the current capacity (number of lanes) during peak periods for works on the following key State roads – West Gate Freeway, Princes Freeway, M80, Footscray Road, Wurundjeri Way, Dudley Street, Williamstown Road, Millers Road, Grieve Parade • Restrict the number of local roads to be used for construction-related transportation to minimise impacts on amenity, in consultation with the relevant road authorities • Reinstate access to open space, community facilities, commercial premises and dwellings if disrupted, as soon as practicable • Provide suitable parking arrangements to accommodate the construction workforce whilst minimising traffic impacts on local roads, preventing construction-related parking on local roads or use of public car parks • Provide safe access points to laydown areas and site compounds • Implement a communications strategy (as set out in the CCEP) to advise affected users, potentially affected users, relevant stakeholders and the relevant road authorities of any changes to transport conditions • Maintain, where practicable, current local area traffic management measures during construction or reinstate upon completion in consultation with the relevant local councils • Haulage of bulk material to and from the construction areas to within a two km range of the works must be via roads operated by VicRoads, CityLink or the Port Manager or, subject to obtaining prior agreement by the relevant road authority, other parts of the road network. <p>The Traffic Management Plan may include Worksite Traffic Management Plans (WTMP) for discrete components or stages of the works having the potential to impact on roads, shared used paths, pedestrian paths or public transport infrastructure.</p>	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
			TP4	Public transport Develop and implement measures to minimise to the extent practicable disruption during construction to all impacted railway lines, tram and bus routes in consultation with VicTrack, Yarra Trams and Metro Trains Melbourne and to the satisfaction of Public Transport Victoria.	Pre-construction, construction
			TP5	Rail operations Minimise disruption to the rail infrastructure and operations in consultation with the relevant rail infrastructure stakeholders.	Detailed design, construction
		To minimise potential for accidents by managing road safety for all new road linkages	TP6	Design standards Design new works (including shared use facilities) in accordance with applicable design standards and undertake independent road safety audits after each stage of detailed design and after construction.	Detailed design, construction
			TP7	Traffic Management Liaison Group A Traffic Management Liaison Group (TMLG) must be established prior to the commencement of any works that may impact on existing roads, paths or public transport infrastructure. The TMLG must include representatives from the State, VicRoads and Project Co. Other relevant agencies as nominated by the State may be included as required. The TMLG will be a forum for exchange of information and discussion of issues associated with Traffic Management Plans. The TMLG must be provided with the Traffic Management Plans, details as to timing of implementation, information about construction traffic monitoring conducted by Project Co, and other reports as relevant. The TMLG must meet regularly until the completion of construction.	Pre-construction, construction
			TP8	River navigation Navigational channel of Maribyrnong River must not be impeded without approval of the relevant authority.	Construction
			TP9	Melbourne Metro Rail Authority interface Consult and coordinate with Melbourne Metro Rail Authority to manage and where possible minimise, cumulative impacts of construction vehicles.	Construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Waste Management					
<p>Waste management – to manage excavated spoil and other waste streams generated by the Project in accordance with the waste hierarchy and relevant best practice principles.</p>	<p><i>Environment Protection Act 1970</i></p>	<p>To manage all wastes from the construction and operation of the Project</p>	<p>WMP1</p>	<p>Waste management Develop and implement management measures for waste (excluding soils) minimisation during construction and operation in accordance with the <i>Environment Protection Act 1970</i> waste management hierarchy and management options, to address:</p> <ul style="list-style-type: none"> • Litter management • Construction and demolition wastes including, but not limited to, washing residues, slurries and contaminated water • Organic wastes • Inert solid wastes. 	<p>Detailed design, construction</p>

