

# Terms of reference for an environmental impact statement:

## Underground Bus and Train project

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**The Department State Development, Infrastructure and Planning is responsible for driving the economic development of Queensland.**

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## Part A. About these terms of reference

### 1. Statutory basis

- 1.1 The Coordinator-General has declared the Underground Bus and Train project to be a 'coordinated project for which an environmental impact statement (EIS) is required' under section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (SDPWO Act). This declaration initiates the statutory environmental impact assessment procedure of Part 4 of the Act, which requires a proponent to prepare an EIS for the project.
- 1.2 These terms of reference (TOR) set out the matters the proponent must address in an EIS for the project and are approved by the Coordinator-General under section 30 of the SDPWO Act.

### 2. EIS guidelines

- 2.1 This TOR must be read in conjunction with *Preparing an environmental impact statement: Guideline for proponents*, which explains the following:
  - participants in the EIS process
  - consultation requirements
  - EIS format and copy requirements.
- 2.2 In addition, some subject-specific guidelines are referenced throughout this TOR; refer to Appendix 1 for a list of policies and guidelines.

### 3. More information

- 3.1 For information about the project or the EIS process conducted under the SDPWO Act, visit [www.dsdip.qld.gov.au/cg](http://www.dsdip.qld.gov.au/cg)

## Part B. Content of the EIS

### 4. General approach

- 4.1 For the purposes of the EIS process, 'environment' is defined in Schedule 2 of the SDPWO Act and includes social and economic matters.
- 4.2 The EIS should give priority to the critical matters associated with the project (specified in section 10 of this TOR).
- 4.3 The detail at which the EIS deals with matters relevant to the project should be proportional to the scale of the impacts on environmental values. When determining the scale of an impact, consider its intensity, duration, cumulative effect, irreversibility, the risk of environmental harm, management strategies and offsets provisions.

### 5. Mandatory requirements of an EIS

- 5.1 For all the relevant matters, the EIS must identify and describe the environmental values that must be protected. Environmental values are specified in the *Environmental Protection Act 1994* (EP Act), the Environmental Protection Regulation 2008 (EP Regulation), environmental protection policies (EPPs) and relevant guidelines.
- 5.2 The assessment should cover both the short and long terms and state whether any relevant direct and indirect impacts are likely to be irreversible. Also discuss scenarios of unknown, unpredictable impacts.
- 5.3 Provide all available baseline information relevant to the environmental risks of the project. Provide details about the *quality* of the information provided, in particular: the source of the information; how recent the information is; how the reliability of the information was tested; and any uncertainties in the information.
- 5.4 Provide detailed strategies in regard to all critical matters for the protection, or enhancement as desirable, of all relevant environmental values in terms of outcomes and possible conditions that can be measured and audited. In general, the preferred hierarchy for managing likely impacts is: (a) to avoid; (b) to minimise/mitigate; and (c) if necessary, and possible, to offset. Where relevant, strategies should be described in the context of EHP 'model conditions'.
- 5.5 Impact minimisation measures should include ongoing monitoring and proposals for an adaptive management approach, as relevant, based on monitoring. The proposed measures should give confidence that, based on current technologies, the impacts can be effectively minimised over the long-term.
- 5.6 Present feasible alternatives of the project's configuration (including individual elements) that may improve environmental outcomes. Discuss the consequences of not proceeding with the project.
- 5.7 Demonstrate how the construction, operation and decommissioning (to the extent known) of the project would meet all statutory and regulatory requirements of the State and that the intended outcomes are consistent with current state policies and guidelines.

## 6. Further requirements of an EIS

- 6.1 The assessment and supporting information should be sufficient for the administering authority to decide whether an approval should be granted. Where applicable, sufficient information should be included to enable approval conditions, such as the existing model EA conditions, to be utilised.
- 6.2 To the extent of the information available, the assessment should endeavour to predict the *cumulative* impact of the project on environmental values over time and in combination with impacts created by the activities of other adjacent and upstream and downstream developments and landholders—as detected by baseline monitoring. This will inform the decision on the EIS and the setting of conditions. The absence of a comprehensive cumulative impacts analysis need not be fatal to the project. The EIS should also outline ways in which the cumulative impact assessment and management could subsequently be progressed further on a collective basis.
- 6.3 Include a consolidated description of all the proponent’s commitments to implement management measures (including monitoring programs). Should the project proceed, these should be able to be carried over into the approval conditions as relevant.
- 6.4 Provide all geographical coordinates throughout the EIS in latitude and longitude against the Geocentric Datum of Australia 1994 (GDA94).
- 6.5 The EIS should also describe the expected benefits and opportunities associated with the project.
- 6.6 An appropriate public consultation program is essential to the impact assessment process. The proponent should consult with Local, State and Commonwealth government agencies, and potentially affected local communities.
- 6.7 The EIS should describe the consultation that has taken place and how the responses from the community and agencies have been incorporated into the design and outcomes of the project.
- 6.8 Include, as an appendix, a public consultation report detailing how the public consultation plan was implemented, and the results.

## 7. Executive summary

- 7.1 The executive summary should describe the project and convey the most important and preferred aspects and environmental management options relating to the project in a concise and readable form. It should use plain English, avoid jargon, be written as a stand-alone document and be structured to follow the EIS. It should be easy to reproduce and distribute on request to those who may not wish to read or purchase the whole EIS.

## 8. Introduction

- 8.1 Clearly explain the function of the EIS, why it has been prepared and what it sets out to achieve. Include an overview of the structure of the document.

## Project proponent

- 8.2 Describe the proponent's experience, including:
- the designated proponent's full name, postal address and ABN, if relevant (including details of any joint venture partners)
  - the nature and extent of business activities
  - experience
  - environmental record, including a list of any breach of relevant environmental laws during the previous ten years
  - the proponent's environmental, health, safety and community policies.

## The environmental impact assessment process

- 8.3 Provide an outline of the environmental impact assessment process, including the role of the EIS in the Coordinator-General's decision-making process. The information in this section is required to ensure readers are informed of the process to be followed and are aware of any opportunities for input and participation.
- 8.4 Inform the reader how and when properly made public submissions on the EIS will be addressed and taken into account in the decision-making process.

## Project approvals process

- 8.5 Provide an outline of the approvals required to enable the project to be constructed and operated. Explain how the environmental impact assessment process (and the EIS itself) informs the issue of the leases/licences/permits/consents required by the proponent before construction can commence. Provide a flow chart indicating the key approvals and opportunities for public comment. Guidance on typical associated approvals can be accessed from [www.dsdip.qld.gov.au/cg](http://www.dsdip.qld.gov.au/cg)

# 9. Project description

## Proposed development

- 9.1 The EIS must describe and illustrate at least the following specific information about the proposed project:
- the project's title
  - the project, its objectives and expected capital expenditure
  - rationale for the project
  - the nature and scale of activities to be undertaken and whether it is a greenfield or brownfield site
  - the regional and local context of the project's footprint (with maps at suitable scales)
  - relationship to other coordinated projects and other major projects (of which the proponent should reasonably be aware)
  - relationship to existing and proposed infrastructure and services, and the opportunity for colocation

- the workforce numbers to be employed by the project during its various phases
- the proposed construction staging and likely schedule of works, including hours of operation.

## Site description

- 9.2 Provide real property descriptions of the project land and adjacent properties; any easements; any underlying resource tenures; and identification number of any resource activity lease for the project land that is subject to application. Key transport, state-controlled roads, rail, air, port/sea and other infrastructure or services in the region and to the site should be described and mapped.
- 9.3 Describe and illustrate the topography of the project site and surrounding area, and highlight any significant features shown on the maps. Maps should have contours at suitable increments relevant to the scale, location, potential impacts and type of project, shown with respect to Australian Height Datum (AHD) and drafted to GDA94.
- 9.4 Where appropriate, describe and map in plan and cross-sections the geology and landforms, including catchments, of the project area. Show geological structures, such as aquifers, faults and economic resources that could have an influence on, or be influenced by, the project's activities.
- 9.5 Where appropriate, describe, map and illustrate soil types and profiles of the project area at a scale relevant to the proposed project. Identify soils that would require particular management due to wetness, erosivity, depth, acidity, salinity or other feature.

## Design

- 9.6 Outline a reference design which addresses the design criteria and detail, with the assistance of schematics, the design criteria applied to the route, tunnels, portals, railway infrastructure and any underground and aboveground stations and infrastructure, including upgrades to existing stations. Consider ventilation outlet locations and design, drainage outlets, lighting, proposed tunnel management and control apparatus, vertical access to underground platforms, access for pedestrians, cyclists and interchanges with both private and other public transport modes.
- 9.7 Detail the extent to which the design criteria have considered the interface with the urban fabric, referring to regional plans, local government planning schemes and urban development area development schemes where appropriate.
- 9.8 Describe the anticipated design life of the project structures.

## Infrastructure requirements

- 9.9 Detail, with concept and layout plans, requirements for new infrastructure, or the upgrading and/or relocating of existing infrastructure to service the project. Infrastructure to be considered should include water supply, energy supply, telecommunications, stormwater, waste disposal and sewerage. Consider likely peak utilisation of electricity, water and wastewater facilities, demand management strategies and when/if additional capacity is required.

- 9.10 Discuss key approvals external providers will require for the proposed development to be constructed and operated.

## Climate

- 9.11 Describe the site's climate patterns that are relevant to the environmental assessment, with particular regard to discharges to water and air and the propagation of noise. Climate information should be presented in a statistical form including long-term averages and extreme values, as necessary.

## Proposed construction and operations

- 9.12 Describe the following information about the proposal:
- existing infrastructure and easements on the potentially affected land
  - the proposed extractive and processing methods, associated equipment and techniques
  - hours of operation for proposed construction works, including night time works
  - the sequencing and staging of activities
  - any activity that is a prescribed ERA
  - the capacity of high-impact plant and equipment, their chemical and physical processes, and chemicals or hazardous materials to be used
  - the known locations of new or altered works and structures and infrastructure necessary for the project at all stages of its development
  - the proposed spoil transport routes, receiving methods and locations
  - location of quarry operations the project may source materials from
  - the range of land uses and site layout
  - built form and design specifics
  - operation detail (e.g. hours of operation for project components)
  - the commissioning process including landscaping and the rehabilitation of affected areas after construction
  - management/ownership structure of final development (e.g. body corporate)
  - location and scale of parking requirements.

## 10. Assessment of critical matters

- 10.1 This section sets out the scope of critical matters that should be given detailed treatment in the EIS. A critical matter is an aspect of the proposal that has one or more of the following characteristics:
- (a) a high or medium probability of causing serious or material environmental harm or a high probability of causing an environmental nuisance
  - (b) considered contentious in the public domain, for example, has been the subject of extensive media coverage and/or there is a public perception that an activity has the potential to cause serious or material environmental harm or an environmental nuisance (regardless of the likelihood of occurrence)

- (c) has been identified (in a referral decision) as a specific controlling provision under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth).

10.2 The final scope of critical matters will be determined by the Coordinator-General when finalising the TOR. In the course of preparing the EIS, information may become available that warrants a change of scope.

## Land use

### Objectives

Development should be designed and operated to:

- (a) improve environmental outcomes
- (b) contribute to community wellbeing
- (c) contribute to social, economic and environmental sustainability.

### Information requirements

- 10.3 Discuss the proposal in the context of the South East Queensland regional plan, the Brisbane City Council City Plan and any relevant Priority Development Area Development Scheme
- 10.4 Provide a copy of the proposed plan of development (or local area plan) explaining how the plan may vary the Brisbane City planning scheme or a priority development area development scheme.
- 10.5 Discuss the compatibility of the project with the surrounding area and the Brisbane region, taking into consideration the proposed measures that would be used to avoid or minimise impacts. The discussion should include:
- existing and proposed land uses, in and around the project area, referring to regional plans and the local government planning scheme
  - any tenures overlying and adjacent to the project site, and any to be applied for as part of this project
  - state interests identified in the State Planning Policy (SPP)
  - locational factors influencing the choice of site.
- 10.6 Describe and illustrate the visual impact of the construction and operation of the project. Include major views, view sheds, outlooks and features contributing to the amenity of the area, including assessment from private residences.
- 10.7 Present feasible alternatives of the project's configuration (including individual elements) that may improve environmental outcomes.
- 10.8 Identify potential and actual areas of acid sulfate soils. Where potential areas are identified, further investigations (including field surveys) should be undertaken in accordance with the SPP and accepted industry guidelines.
- 10.9 Detail any known or potential sources of contaminated land. Describe how any proposed land use may result in land becoming contaminated.

- 10.10 Identify existing and potential native title rights and interests possibly impacted by the project and the potential for managing those impacts by an Indigenous Land Use Agreement or other measure.

## Flora and fauna

### Objective

Matters of environmental significance are valued and appropriately safeguarded to support healthy and resilient ecosystems and ensure the sustainable, long-term conservation of biodiversity and the social, economic, cultural and environmental benefits it provides.

### Information requirements

- 10.11 Describe the likely impacts on the biodiversity and natural environmental values of affected areas arising from the construction and operation of the project. Take into account any proposed avoidance and/or mitigation measures. The assessment should include, but not be limited to, the following key elements:
- matters of state environmental significance and national environmental significance
  - terrestrial and aquatic ecosystems (including groundwater-dependent ecosystems) and their interaction
  - biological diversity including listed flora and fauna species and regional ecosystems
  - the existing integrity of ecological processes, including habitats of threatened, near-threatened or special least-concern species
  - the integrity of landscapes and places, especially natural places
  - actions of the project that require an authority under the *Nature Conservation Act 1992* and *Water Act 2000* (for example, riverine protection permits) and/or would be assessable development for the purposes of the *Vegetation Management Act 1999* (VMA), the *Fisheries Act 1994* or the *Coastal Protection and Management Act 1995*
  - chronic, low-level exposure to contaminants or the bio-accumulation of contaminants
  - impacts on native fauna due to proximity to the site and site impacts (e.g. lighting, noise, waste).
- 10.12 Propose practical measures for protecting or enhancing natural values, and assess how the nominated quantitative indicators and standards may be achieved for nature conservation management. In particular, address measures to protect or preserve any threatened or near-threatened species.
- 10.13 Assess the need for buffer zones and the retention, rehabilitation or planting of movement corridors, and propose measures that would avoid the need for waterway barriers, or propose measures to mitigate the impacts of their construction and operation.
- 10.14 Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.

- 10.15 Where Queensland legislation or policy requires an offset for a significant residual impact on a particular natural environmental value, the offset proposal(s) shall be presented in a form consistent with relevant legislation and policy.

## Water quality

### Objective

Development is planned, designed, constructed and operated to protect environmental values of Queensland waters and supports the achievement of water quality objectives.

### Information requirements

- 10.16 Describe the hydrology within the study area in terms of water levels, discharges and freshwater flows.
- 10.17 Detail the biological, chemical and physical characteristics of surface waters and groundwater within the area that may be affected by the project. Include a description of water quality variability associated with climatic and seasonal factors, variability of freshwater flows and extreme events.
- 10.18 Identify the quantity, quality, location and timing of all potential discharges of water and wastewater by the project, whether as point sources (such as controlled discharges) or diffuse sources (such as irrigation to land of treated sewage effluent).
- 10.19 Describe the proposed management of existing and/or constructed waterbodies on the project site to maintain water quality, including any proposed exchange of tidal water.
- 10.20 Assess the potential impacts of any discharges on the quality and quantity of receiving waters taking into consideration the assimilative capacity of the receiving environment and the practices and procedures that would be used to avoid or minimise impacts.
- 10.21 Describe mitigation strategies and contingency plans for:
- potential accidental discharges of contaminants and sediments during construction and operation
  - stormwater run-off from the project facilities and associated infrastructure
  - flooding of relevant river systems, the effects of tropical cyclones and other extreme events
  - management of acid sulfate soils (see also paragraph 10.8).
- 10.22 Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.

## Hazards, health and safety

### Objectives

- (a) The risk of, and the adverse impacts from, natural hazards are avoided, minimised or mitigated to protect people and property and enhance the community's resilience to

natural hazards.

- (b) Developments are to be appropriately located, designed and constructed to minimise health and safety risks to communities and individuals and adverse effects on the environment.

## Information requirements

### General

- 10.23 Describe the potential risks to people and property that may be associated with the project in the form of a preliminary risk assessment for all components of the project and in accordance with relevant standards. The assessment should include:
- potential hazards, accidents, spillages, fire and abnormal events that may occur during all stages of the project, including estimated probabilities of occurrence
  - identifying all hazardous substances to be used, stored, processed or produced and the rate of usage
  - potential wildlife hazards, natural events (for example, cyclone, flooding, landslide) and implications related to climate change
  - how the project may potentially affect hazards away from the project site (for example, changing flooding characteristics).
- 10.24 Outline measures required to ensure that the proposed project avoids the release of hazardous materials as a result of a natural hazard event.
- 10.25 Provide details on the safeguards that would reduce the likelihood and severity of hazards, consequences and risks to persons, within and adjacent to the project area(s). Identify the residual risk following application of mitigation measures. Present an assessment of the overall acceptability of the impacts of the project in light of the residual uncertainties and risk profile.
- 10.26 Provide an outline of the proposed integrated emergency management planning procedures (including evacuation plans, if required) for the range of situations identified in the risk assessment developed in this section.
- 10.27 Outline any consultation undertaken with the relevant emergency management authorities, including the Local Disaster Management Group.

### Flooding

- 10.28 Describe flood risk for a range of annual exceedance probabilities (including Probable Maximum Flood) for the site, and assess how the project may change flooding characteristics. Take into consideration potential sea-level rise scenarios. Include a discussion of historical events.
- 10.29 The assessment should consider all infrastructure associated with the project including levees, roads and linear infrastructure and all proposed measures to avoid or minimise risks to life, property, community (including damage to other properties) and the environment during flood events.

## Social and economic

### Objectives

The construction and operation of the project should aim to:

- (a) avoid or mitigate adverse social and economic impacts arising from the project
- (b) capitalise on opportunities potentially available to affected communities.

### Information requirements

- 10.30 Describe the likely social impacts (positive and negative) on affected communities taking into account proposed mitigation measures.
- 10.31 Describe the likely impacts (positive and negative) of the project on the economies materially impacted by the project. The analysis should describe both the potential and direct economic impacts including estimated costs, if material, on industry and the community.

## Transport

### Objectives

The construction and operation of the project should aim to:

- (a) maintain the safety and efficiency of all affected transport modes for the project workforce and other transport system users
- (b) avoid or mitigate impacts on the condition of transport infrastructure
- (c) ensure any required works are compatible with existing infrastructure and future transport corridors.

### Information requirements

- 10.32 The EIS should include a clear summary of the total transport task for the project, including workforce, inputs and outputs during the construction and operational phases.
- 10.33 Present the transport assessment in separate sections for each project-affected mode (road, rail, air, sea, walking and cycling) as appropriate for each phase of the project.
- 10.34 Provide sufficient information to allow an independent assessment of how existing transport infrastructure and services will be affected by the project at the local and regional level (for example, rail services, local roads and state-controlled roads), recognising relevant transport plans (for example Passenger Transport Network Plan and Park and Ride Strategy).
- 10.35 Include details of the adopted assessment methodology for impacts on roads within the road impact assessment report, in accordance with the *Guidelines for Assessment of Road Impacts of Development*.

- 10.36 Discuss and recommend how identified impacts will be mitigated. Mitigation strategies are to be prepared in close consultation with relevant transport authorities and service providers (including Local Government).

## 11. Assessment of routine matters

- 11.1 The following subsections list the routine matters for coordinated projects, with (where applicable) a reference to the relevant objectives. In some cases, not all the matters may be relevant, while in others the list may not be exhaustive.
- 11.2 The proponent is not required to list every conceivable impact, but instead focus research and primary studies on impacts that were identified in the initial advice statement (IAS) and/or scoping meetings with the Office of the Coordinator-General.
- 11.3 For each routine matter identified below, the level of detail should be proportional to the risk or magnitude of impacts. As a minimum, the proponent should supply sufficient information that confirms the risks/impacts are not significant.

### Air

#### Objective

Development is planned, designed, constructed and operated to protect the environmental values of air.

#### Information requirements

- 11.4 Fully describe the characteristics of any contaminants or materials that may be released as a result of the construction or operations of the proposal, including point source and fugitive emissions. Emissions (point source and fugitive) during construction, commissioning, operations and upset conditions should be described.
- 11.5 Predict the impacts, both positive and negative of the releases from the activity on environmental values of the receiving environment using recognised quality assured methods. The description of impacts should take into consideration the assimilative capacity of the receiving environment and the practices and procedures that would be used to avoid or minimise impacts. The impact prediction must:
- address residual impacts on the environmental values (including appropriate indicators and air quality objectives) of the air receiving environment, with reference to sensitive receptors. This should include all relevant values potentially impacted by the activity, under the EP Act, EP Regulation and Environmental Protection (Air) Policy 2008 (EPP (Air))
  - address the cumulative impact of the release with other known releases of contaminants, materials or wastes associated with existing development and possible future development (as described by approved plans and existing project approvals)
  - quantify the human health risk and amenity impacts associated with emissions from the project for all contaminants whether or not they are covered by the National Environmental Protection (Ambient Air Quality) Measure or the EPP (Air).

- 11.6 Describe the proposed mitigation measures and how the proposed activity will be consistent with best practice environmental management. Where a government plan is relevant to the activity or site where the activity is proposed, describe the activity's consistency with that plan.
- 11.7 Describe how the achievement of the objectives would be monitored, audited and reported, and how corrective actions would be managed.

## Noise and vibration

### Objective

Development is planned, designed, constructed and operated to protect the environmental values of the acoustic environment.

### Information requirements

- 11.8 Fully describe the characteristics of the noise and vibration sources that would be emitted when carrying out the activity (point source and general emissions). Describe noise and vibration emissions (including fugitive sources) that may occur during construction, commissioning, upset conditions, and operation.
- 11.9 Predict the impacts of the noise emissions and vibration from the construction and operation of the project on the environmental values of the receiving environment, with reference to sensitive receptors, using recognised quality assured methods. Discuss separately the key project components likely to present an impact on noise and vibration for the construction and operation phases of the project.
- 11.10 Taking into account the practices and procedures that would be used to avoid or minimise impacts, the impact prediction must address the:
- activity's consistency with the objectives
  - cumulative impact of the noise with other known emissions of noise associated with existing development and possible future development (as described by approved plans)
  - potential impacts of any low-frequency (<200 Hz) noise emissions
  - potential vibration impacts on sensitive receptors and transport-related infrastructure.
- 11.11 Describe how the proposed activity, and in particular, the key project components described above, would be managed to be consistent with best practice environmental management for the activity. Where a government plan is relevant to the activity, or the site where the activity is proposed, describe the activity's consistency with that plan.
- 11.12 Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.

## Water resources

### Objectives

The construction and operation of the project should aim to meet the following objectives:

- (a) equitable, sustainable and efficient use of water resources
- (b) environmental flows, water quality, in-stream habitat diversity, and naturally occurring inputs from riparian zones support the long-term maintenance of the ecology of aquatic biotic communities
- (c) the condition and natural functions of water bodies, lakes, springs and watercourses are maintained—including the stability of beds and banks of watercourses
- (d) volumes and quality of groundwater are maintained and beneficial uses of water (such as spring flows and groundwater-dependent ecosystems) are not adversely impacted by the development.

### Information requirements

- 11.13 Provide details of any proposed impoundment, extraction, discharge, injection, use or loss of surface water or groundwater. Identify any approval or allocation that would be needed under the *Water Act 2000*.
- 11.14 Detail any significant diversion or interception of overland flow. Include maps of suitable scale showing the location of diversions and other water-related infrastructure.
- 11.15 Develop hydrological models as necessary to describe the inputs, movements, exchanges and outputs of all significant quantities and resources of surface water and groundwater that may be affected by the project. The models should address the range of climatic conditions that may be experienced at the site, and adequately assess the potential impacts of the project on water resources. The models should include a site water balance. This should enable a description of the project's impacts at the local scale and in a regional context including proposed:
  - (a) changes in flow regimes from structures and water take
  - (b) alterations to riparian vegetation and bank and channel morphology
  - (c) direct and indirect impacts arising from the development.

## Waste management

### Objective

Any waste transported, generated, or received as part of carrying out the activity is managed in a way that protects all environmental values.

### Information requirements

- 11.16 Describe all the expected significant waste streams from the proposed project activities during the construction and operational phases of the project.

- 11.17 Define and describe the objectives and practical measures for protecting or enhancing environmental values from impacts by wastes. Take into account best practice waste management strategies and the Environmental Protection (Waste) Policy 2000 and the Environmental Protection (Waste) Regulation 2000.
- 11.18 Assess the proposed management measures against the preferred waste management hierarchy, namely: avoid waste generation; cleaner production; recycle; reuse; reprocess and reclaim; waste to energy; treatment; disposal. This includes the generation and storage of waste.
- 11.19 Describe how nominated quantitative standards and indicators may be achieved for waste management, and how the achievement of the objectives would be monitored, audited and managed.
- 11.20 Provide details on natural resource-use efficiency (such as energy and water), integrated processing design, and any co-generation of power and by-product re-use as shown in a material/energy flow analysis.

## Cultural heritage

### Objective

The construction and operation of the project is planned, designed, constructed and operated to protect the cultural heritage values within the project area.

### Information requirements

- 11.21 Undertake research/studies as required under the *Aboriginal Cultural Heritage Act 2003* and, if required, develop a Cultural Heritage Management Plan in accordance with the requirements of Part 7 of the Act.
- 11.22 For non-Indigenous historical heritage, undertake a study of, and describe, the known and potential historical cultural and landscape heritage values of the area potentially affected by the project. Any such study should be conducted by an appropriately qualified cultural heritage practitioner. Provide strategies to mitigate and manage any negative impacts on non-Indigenous cultural heritage values and enhance any positive impacts.

## Appendices to the EIS

- 11.23 Appendices should provide the complete technical evidence used to develop assertions and findings in the main text of the EIS.
- 11.24 No significant issue or matter should be mentioned for the first time in an appendix—it must be addressed in the main text of the EIS.
- 11.25 Include a table listing the section of the EIS where each requirement of the TOR is addressed.
- 11.26 Include a glossary of terms and a list of acronyms and abbreviations.

## Acronyms and abbreviations

The following acronyms and abbreviations have been used in this document.

<b>Acronym/abbreviation</b>	<b>Definition</b>
AHD	Australian Height Datum
EIS	environmental impact statement
EP Act	<i>Environmental Protection Act 1994</i>
EP Regulation	Environmental Protection Regulation 2008
EPP	Environmental Protection Policy (under the EP Act)
ERA	Environmentally Relevant Activity
GDA94	Geocentric Datum of Australia 1994
Hz	<i>Hertz</i>
SDPWO Act	<i>State Development and Public Works Organisation Act 1971</i>
SPP	State Planning Policy
TOR	terms of reference
VMA	<i>Vegetation Management Act 1999</i>

## Appendix 1. Policies and guidelines

Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand 2000, *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, Australian Water Association (Artarmon) and NZ Water and Wastes Association (Auckland), viewed 19 December 2013, [www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html](http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html)

Australian Level Crossing Assessment Model (ALCAM), [www.tmr.qld.gov.au/Travel-and-transport/Rail/Level-crossings/ALCAM.aspx](http://www.tmr.qld.gov.au/Travel-and-transport/Rail/Level-crossings/ALCAM.aspx)

The Coordinator-General 2013, *Preparing an environmental impact statement: Guideline for proponents*, Department of State Development, Infrastructure and Planning, Brisbane, viewed 19 December 2013, <http://www.dsdiq.qld.gov.au/resources/guideline/cg/preparing-eis-proponents-projects-guideline.pdf>

The Coordinator-General, 2013 *Social impact assessment guideline*, Department of State Development, Infrastructure and Planning, Brisbane, viewed 10 January 2014, <http://www.dsdiq.qld.gov.au/resources/guideline/social-impact-assessment-guideline.pdf>

Department of Agriculture, Fisheries and Forestry, *Waterway Barrier Works Development Approvals: Fish Habitat Management Operational Policy FHMOP 008*, April 2013, Department of Primary Industries, Brisbane, 2012, viewed 19 December 2013, [http://www.daff.qld.gov.au/\\_\\_data/assets/pdf\\_file/0016/51415/FHMOP008.pdf](http://www.daff.qld.gov.au/__data/assets/pdf_file/0016/51415/FHMOP008.pdf)

Department of Environment and Resource Management 2009, *Queensland Water Quality Guidelines*, Department of Environment and Resource Management, Brisbane, viewed 19 December 2013, [www.ehp.qld.gov.au/water/guidelines/queensland\\_water\\_quality\\_guidelines\\_2009.html](http://www.ehp.qld.gov.au/water/guidelines/queensland_water_quality_guidelines_2009.html)

Department of Main Roads, *Guidelines for Assessment of Road Impacts of Development*, Department of Main Roads, Brisbane, 2006, viewed 19 December 2013, [www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Guidelines-for-assessment-of-road-impacts-of-development.aspx](http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Guidelines-for-assessment-of-road-impacts-of-development.aspx)

Department of State Development, Infrastructure and Planning 2013, *State Planning Policy*, Department of State Development, Infrastructure and Planning, Brisbane, viewed 19 December 2013, [www.dsdiq.qld.gov.au/about-planning/state-planning-policy.html](http://www.dsdiq.qld.gov.au/about-planning/state-planning-policy.html)

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