

## Appendix C – Terms of Reference Table

### 1. Introduction

Terms of Reference Requirement/Section Number	Cross-reference
Clearly explain the function of the EIS, why it has been prepared and what it sets out to achieve.	Vol 1:1.7
Provide an overview of the structure of the document.	Vol 1:1.7 and Table 1-2
<b>1.1. Project Proponent</b>	
Describe the experience of the project proponent, including the nature and extent of business activities, experience and qualifications, and environmental record, including the proponent's environmental, health, safety and community policies.	Vol 1:1.1
<b>1.2. Project Description</b>	
Provide a brief description of the key elements of the project, along with illustrations or maps.	Vol 1:2.3 and 2.4 Vol 2:2 Vol 3:2
Summarise any major associated infrastructure requirements. Detailed descriptions of the project should follow in section 2, Project description.	Vol 1:2 Vol 2:2 Vol 3:2
<b>1.3. Project Rationale</b>	
Describe the specific objectives and justification for the project, including its strategic, economic, environmental and social implications, technical feasibility and commercial drivers.	Vol 1:1.3
Discuss the status of the project in a regional, state and national context.	Vol 1:1.3 and 1.6

Terms of Reference Requirement/Section Number	Cross-reference
Discuss the project's compatibility with relevant policy, planning and regulatory frameworks.	Vol 1:1.9
<b>1.4. Relationship to Other Projects</b>	
Describe how the project relates to any other infrastructure projects of which the proponent should reasonably be aware, that have been or are being taken or that have been approved in the area affected by the project.	Vol 1:1.4
Discuss any potential opportunities for co-locating infrastructure under subsection 1.6, Co-location opportunities.	Vol 1:1.6
<b>1.5. Alternatives to the Project</b>	
Describe feasible alternatives including conceptual, technological and locality alternatives to the proposed project; and discuss the consequences of not proceeding with the project. Discuss alternatives in sufficient detail to enable an understanding of the reasons for preferring certain options or courses of action and rejecting others. This should include a discussion of the 'no action' option. Also, discuss the methodology adopted to discern between the feasible options.	Vol 1:1.5
<p>Explain the interdependencies of the project components, particularly with regard to how each of any infrastructure requirements relate to the viability of the project. This information is required to assess why the scope of the project is as it is and to ensure that the environmentally sustainable design principles and sustainable development aspects have been considered and incorporated during the scoping of the project.</p> <p>This section should also comply with the EPBC Act Regulations listed in section 2.01(g) of Schedule 4.</p>	Vol 1:1.5.4
<b>1.6. Co-Location Opportunities</b>	
Opportunities may exist for co-locating existing or proposed infrastructure, enabling efficiency gains and the mitigation of environmental, social and property impacts. The proponent should identify any proposals to develop infrastructure within the vicinity of the proposed project. Such proposals would be limited to those projects which are in the public arena during the period of preparation of this EIS and for which a proponent can be readily identified.	Vol 1:1.6

Terms of Reference Requirement/Section Number	Cross-reference
<p>Whilst it may be inappropriate for this EIS to evaluate the environmental impacts of other infrastructure not directly required for this project, the EIS should describe the broad implications of locating other forms of linear infrastructure within or near the proposed project infrastructure. Where co-location may be likely, the EIS should consider opportunities to coordinate or enhance any of the impact mitigation strategies proposed through cooperation with other proponents in the locality.</p>	Vol 1:1.6
<p>Discuss opportunities in sufficient detail to enable an understanding of the reasons for preferring certain options or courses of action and rejecting others.</p>	Vol 1:1.6
<p><b>1.7. Environmental Impact Assessment Process</b></p>	
<p><b>1.7.1 Methodology of the EIS</b></p>	
<p>Provide an outline of the environmental impact assessment process, including the role of the EIS in the Coordinator-General's decision-making process. Include information on relevant stages of the EIS development, statutory and public consultation requirements and any interdependencies that exist between approvals sought. The information in this section is required to ensure:</p>	Vol 1:1.7.1 and 1.7.3, and Figure 1-3
<ul style="list-style-type: none"> <li>▶ relevant legislation is addressed</li> </ul>	Vol 1:1.9
<ul style="list-style-type: none"> <li>▶ readers are informed of the process to be followed</li> </ul>	Vol 1:1.7.3
<ul style="list-style-type: none"> <li>▶ stakeholders are aware of any opportunities for input and participation</li> </ul>	Vol 1:1.7.3
<p><b>1.7.2 Objective of the EIS</b></p>	
<p>Provide a statement of the objectives of the environmental impact assessment process. The structure of the EIS can then be outlined as an explanation of how the EIS will meet its objectives. The purpose of the EIS is to:</p>	Vol 1:1.7
<ul style="list-style-type: none"> <li>▶ provide public information on the need for the project, alternatives to it and options for its implementation</li> </ul>	Vol 1:1.7.2 and 1.7.3

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>present the likely effects of the project on the natural, social and economic environment</li> </ul>	Vol 1:1.7.2 and 1.7.3
<ul style="list-style-type: none"> <li>demonstrate how environmental impacts can be avoided, managed or mitigated and offsets for any residual impacts</li> </ul>	Vol 1:1.7.2 and 1.7.3
Discuss the role of the EIS in providing information to formulate the environmental management plan (EMP) for the project.	Vol 1:1.7.2
<b>1.7.3 Submissions</b>	
Inform the reader how to properly make submissions and what form the submissions should take.	Vol 1:1.7.3
The reader should be informed as to how and when properly made public submissions on the EIS will be addressed and taken into account in the decision-making process.	Vol 1:1.7.3
Indicate any implications for submissions in the event of any appeal processes.	Vol 1:1.7.3
<b>1.8. Public Consultation Process</b>	
Outline methodology that would be adopted to:	
<ul style="list-style-type: none"> <li>Identify the stakeholders and how their involvement was facilitated</li> </ul>	Vol 1:1.8.2 Vol 4:Appendix I, Section 2
<ul style="list-style-type: none"> <li>identify the processes conducted to date and the future consultation strategies and programs including those during the operational phase of the project</li> </ul>	Vol 1:1.8 Vol 4:Appendix I, Section 3
<ul style="list-style-type: none"> <li>indicate how consultation involvement and outcomes were integrated into the EIS process and future site activities including opportunities for engagement and provision for feedback and action if necessary</li> </ul>	Vol 1:1.8.3 Vol 4:Appendix I, Sections 2.5, 3 and 6

Terms of Reference Requirement/Section Number	Cross-reference
Provide a list of the stakeholders consulted during the program; and details of any meetings held, presentations made, and any other consultation undertaken for the EIS process. Provide information about the consultation process that has taken place and the results.	Vol 1:1.8.2 and 1.8.4 Vol 4:Appendix I, Table 2-1 and Sections 3 and 6
<b>1.9. Project Approvals</b>	
<b>1.9.1 Relevant Legislation and Approvals</b>	
Describe and list Commonwealth, state and local legislation and policies relevant to the planning, approval, construction and operation of the project.	Vol 1:1.9 Vol 4:Appendix D,
Identify all approvals, permits, licences and authorities that will need to be obtained for the proposed project.	Vol 1:1.9.4 Vol 4:Appendix D
Outline the triggers for the application of each of these and identify relevant approval requirements.	Vol 1:1.9.4 and Table 1-3 Vol 4:Appendix D
Relevant Commonwealth Government legislation may include, but is not limited to:	
<ul style="list-style-type: none"> <li>▶ <i>Aboriginal and Torres Strait Islander Heritage Protection Act 1994</i></li> </ul>	Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Environment Protection and Biodiversity Conservation Act 1999</i></li> </ul>	Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Native Title Act 1993</i></li> </ul>	Vol 4:Appendix D
Outline and identify relevant Commonwealth obligations such as:	
<ul style="list-style-type: none"> <li>▶ Protection of World Heritage values</li> </ul>	Vol 1:11 Vol 4 Appendix J
<ul style="list-style-type: none"> <li>▶ migratory animals (China–Australia Migratory Bird Agreement (CAMBA), Japan–Australia Migratory Bird Agreement (JAMBA), Republic of Korea–Australia Migratory Bird Agreement (ROKAMBA) and Bonn Convention)</li> </ul>	Vol 1:11 Vol 4 Appendix J

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Biodiversity, climate and wetlands of international importance (Ramsar)</li> </ul>	Vol 1:11 Vol 4 Appendix J
Where relevant, refer to applicable Queensland legislation, which may include but is not limited to:	Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Aboriginal Cultural Heritage Act 2003 (ACH Act)</i></li> </ul>	Vol 1:1.9.3.9 Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Environmental Protection Act 1994 (EP Act)</i></li> </ul>	Vol 1:1.9.3.2. Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Fisheries Act 1994</i></li> </ul>	Vol 1:1.9.3.8 Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Forestry Act 1959</i></li> </ul>	Vol 1:9.3.13 Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Land Act 1994</i></li> </ul>	Vol 1:1.9.3.15 Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Land Protection (Pest and Stock Route Management) Act 2002</i></li> </ul>	Vol 1:1.9.3.17 Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Mineral Resources Act 1989</i></li> </ul>	Vol 1:1.9.3.5 Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Nature Conservation Act 1992 (NC Act)</i></li> </ul>	Vol 1:1.9.3.11 Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Queensland Heritage Act 1992</i></li> </ul>	Vol 1:1.9.3.10 Vol 4:Appendix D

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ <i>Queensland State Development and Public Works Organisation Act 1971 (SDPWO Act)</i></li> </ul>	Vol 1:1.9.3.1 Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Sustainable Planning Act 2009 (SPA)</i></li> </ul>	Vol 1:1.9.3.6 Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Torres Strait Islander Cultural Heritage Act 2003</i></li> </ul>	Vol 1:1.9.3.19 Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Transport Infrastructure Act 1994</i></li> </ul>	Vol 1:1.9.3.14 Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Transport Operations (Road Use Management) Act 1995</i></li> </ul>	Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Transport Planning and Coordination Act 1994</i></li> </ul>	Vol 1:1.9.3.19 Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Vegetation Management Act 1999 (VM Act)</i></li> </ul>	Vol 1:1.9.3.12 Vol 4:Appendix D
<ul style="list-style-type: none"> <li>▶ <i>Water Act 2000</i></li> </ul>	Vol 1:1.9.3.7 Vol 4:Appendix D

Terms of Reference Requirement/Section Number	Cross-reference
<p>Note that the Government intends to introduce and enact legislation in 2011 for regulating development on land determined to be strategic cropping land. If this EIS process is not finalised by the time the legislation comes into force, further requirements may be placed on the EIS process relating to land determined to be strategic cropping land prior to a decision being made. "Protecting Queensland's strategic cropping land: a policy framework" is available on the DERM website (<a href="http://www.derm.qld.gov.au/land/planning/pdf/strategiccropping/strategic-cropping-policy-complete.pdf">http://www.derm.qld.gov.au/land/planning/pdf/strategiccropping/strategic-cropping-policy-complete.pdf</a>) and provides details of the Government's current policy about strategic cropping land. For further information about the strategic cropping land policy framework, refer to the DERM website or email <a href="mailto:scenquiries@derm.qld.gov.au">scenquiries@derm.qld.gov.au</a>.</p> <p>Legislation on dealing with offsets in development assessment and conditions has recently been passed (see <i>Environmental Protection and Other Legislation Amendment Act 2009</i> proclaimed shortly).</p>	<p>Noted, Vol 1:1.9.3.18</p> <p>Vol 4:Appendix D</p>
<p><b>1.10. Relevant Plans</b></p>	
<p>Outline the project's consistency with the existing national, state, regional and local planning frameworks that apply to the project location. Refer to all relevant statutory and non-statutory plans, including water resource plans under the <i>Water Act 2000</i>, planning policies, guidelines, strategies and agreements.</p>	<p>Vol 4: Appendix D</p>
<p>This project is located within the Whitsunday, Hinterland and Mackay (WHAM) planning region. On 5 March 2011, the Queensland Government announced that a statutory regional plan will be prepared for the WHAM region, a draft of which is expected to be released for public comment in the first half of 2011. This plan is in an advanced state of finalisation, and will be recognised as a state interest under the Sustainable Planning Act 2009. An assessment of this project against relevant policies and provisions of the draft WHAM regional plan, once released, must be provided.</p>	<p>Vol 4: Appendix D</p>
<p>The project may potentially impact on the Central West and Central Queensland planning regions. An assessment of this project against the Central West Regional Plan (2009) must be provided.</p>	<p>This Regional Plan does not apply to the Project and has not been utilised in this assessment. Refer to Vol 4: Appendix D</p>



Terms of Reference Requirement/Section Number	Cross-reference
<p>The proposed mine site for this project lies within the Water Resource (Burdekin) Plan 2007 and the Water Resource (Great Artesian Basin) Plan 2006 areas. Any relevance of these plans, the Water Act 2000 and the Water Regulation 2002 to the project must be addressed as part of the EIS.</p>	<p>Vol 4: Appendix D</p>
<p><b>1.11. Environmentally Relevant Activities</b></p>	
<p>Briefly describe each environmentally relevant activity (ERA) and associated activities that are to be carried out in connection with the project. Present a detailed description of each ERA in section 3, Environmental values and management of impacts, and provide details of the impact on land, water, air, noise and any other relevant environmental values.</p>	<p>Vol 1:1.9.3 Vol 4: Appendix D</p>
<p>Permitting requirements for environmentally relevant activity 14 - electricity generation differs depending on connection to the grid. Should ERA 14- electricity generation be undertaken on the mining tenure, the EIS must identify if the plant will or intends to be connected to the State power network grid. Electricity generation undertaken on a mining tenure that is, or intends to be, connected to the State power network grid will require a separate development permit. Electricity generation undertaken on a mining tenure and utilized solely for mining activities contained within the mining tenure can be permitted under a mining environmental authority. If any electricity generated on the mining tenure is used for anything outside of the mining tenure, a separate development approval under the Sustainable Planning Act 2009 will be required.</p>	<p>Vol 1:1.9.3 Vol 4: Appendix D</p>
<p>The EIS must identify if construction/operation camps and extractive industries located off the mining tenure will be conducting an ERA, such as sewage treatment, motor vehicle workshops, abrasive blasting, and boilermaking.</p>	<p>Vol 1:1.9.4 Vol 4: Appendix D</p>
<p>If an ERA is to be undertaken, sufficient detail must be provided about the activity, potential environmental impacts and strategies to mitigate the environmental impacts. The permitting of ERA's under a development permit will require the submission of a Site Based Management Plan and should be a separate document from a mining Environmental Management Plan.</p>	<p>Vol 1:1.9.4 Vol 4: Appendix D</p>

Terms of Reference Requirement/Section Number	Cross-reference
<b>1.12. Accredited Process for Controlled Actions under Commonwealth Government Legislation</b>	
The EIS should address potential impacts on matters of national environmental significance (MNES) that were identified when the project was determined to be a controlled action.	Vol 1:11

## 2. Project Description

Terms of Reference Requirement/Section Number	Cross-reference
<b>2.1 Project Overview</b>	
Provide an overview of the project, including:	
<ul style="list-style-type: none"> <li>▶ Rationale explaining the selection of the preferred operating scenario, including details such as cost, environmental impacts and the operational efficiencies of each option</li> </ul>	Vol 2:2.2
<ul style="list-style-type: none"> <li>▶ Description of the key components of the project including the use of text and design plans where applicable</li> </ul>	Vol 2:2.5, 2.7 and 2.8 Vol 3:2.3
<ul style="list-style-type: none"> <li>▶ Expected cost, timing, and overall duration of the project (distinguishing between the mine and rail components)</li> </ul>	Vol 2:2.2.7 and 2.2.8 Vol 3:2.3
<ul style="list-style-type: none"> <li>▶ Summary of any environmental design features of the project.</li> </ul>	Vol 2:2.13 Vol 3:2.3.1
<b>2.2. Location</b>	
Describe, using maps at suitable scales, the regional and local context of the project and all associated infrastructure. Provide real property descriptions of the project. Maps should show the location of the project area (with GPS locations where known), in particular the:	
<ul style="list-style-type: none"> <li>▶ location and boundaries of current or proposed land tenures, that the project area is or will be subject to</li> </ul>	Vol 2:2.3 Vol 3:2.2 and Figure 2-1
<ul style="list-style-type: none"> <li>▶ location and boundaries of the project footprint, including easement widths and access requirements</li> </ul>	Vol 2:2.3 Vol 3:2.3

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>location of any proposed buffers surrounding the working areas (for construction and operation)</li> </ul>	
<ul style="list-style-type: none"> <li>location of existing infrastructure such as the state-controlled road network, local roads, railways, weirs, powerlines, as relevant</li> </ul>	Vol 2:Figure 2-2 Vol 3:Figure 2-2
<ul style="list-style-type: none"> <li>location of geomorphic features such as waterways (e.g. rivers, streams, creeks, other bodies of water) and wetlands</li> </ul>	Vol 2:Figure 2-2 and Figure 2-3 Vol 3:Figure 2-2
<ul style="list-style-type: none"> <li>location of any proposed project infrastructure requirements (e.g. site offices and accommodation sites, emergency locations), with reference to size, type and use, during all project phases, including clear identification of any new infrastructure which is proposed in the bed or on banks of a watercourse.</li> </ul>	Vol 2:2.11 Vol 3:2.6
<b>2.3. Construction Overview</b>	
<p>Provide the following information on the pre-construction, construction and commissioning of the project, including detailed plans where appropriate.</p> <p>This section should summarise information about volumes of construction inputs/traffic generation, including worker traffic and service vehicles, methods of transport, the routes (origin – destinations), over-dimensional vehicles services and any other construction related transport activities.</p>	Vol 2:2.6, 2.7, 2.8 and 2.9 Vol 3:2.7
<b>2.3.1 Pre-Construction Activities</b>	
<p>Describe all pre-construction activities, including:</p>	
<ul style="list-style-type: none"> <li>Any land acquisitions required, be it in full or as easements, leases etc</li> </ul>	Vol 2:2.6 Vol 3:2.7
<ul style="list-style-type: none"> <li>Nature, scale and timing for vegetation clearing</li> </ul>	Vol 2:2 and Vol 3:2



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Site access</li> </ul>	Vol 2:2 and Vol 3:2
<ul style="list-style-type: none"> <li>▶ Earthworks</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Interference with watercourses (e.g. rivers, streams, creeks, other bodies of water) and floodplain areas including wetlands</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Site establishment requirements for construction facilities, including access restriction measures and expected size, source and control of the construction workforce accommodation, services (water, sewage, communication, power, recreation) and safety requirements</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Temporary works</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The upgrade, relocation, realignment, deviation of or restricted access to roads and other infrastructure</li> </ul>	
<b>2.3.2 Construction</b>	
Describe construction elements of the project, including:	
<ul style="list-style-type: none"> <li>▶ Indicative construction timetable, including expected commissioning and start-up dates and hours of operation</li> </ul>	Vol 2:2.7
<ul style="list-style-type: none"> <li>▶ Description of major work programs for the construction phase, including an outline of construction methodologies</li> </ul>	Vol 2:2.7.3 and Section 2.7.4 Vol 3:2.7
<ul style="list-style-type: none"> <li>▶ Construction inputs, handling and storage including an outline of potential locations for source of construction materials</li> </ul>	Vol 3:2.7
<ul style="list-style-type: none"> <li>▶ Major hazardous materials to be transported, stored and/or used on-site, including environmental toxicity data and biodegradability</li> </ul>	Vol 2:2.7.7 and Vol 2:12.2.3 Vol 3:12.2.2.8
<ul style="list-style-type: none"> <li>▶ Clean up and restoration of areas used during construction, including camp site(s) and storage areas</li> </ul>	Vol 2:2.5

Terms of Reference Requirement/Section Number	Cross-reference
The EIS must identify if construction/operation camps and extractive industries located off the mining tenure will be conducting an ERA, such as sewage treatment, motor vehicle workshops, abrasive blasting, and boilermaking.	Vol 4:Appendix D,
If an ERA is to be undertaken, sufficient detail must be provided about the activity, potential environmental impacts and strategies to mitigate the environmental impacts. The permitting of ERA's under a development permit will require the submission of a Site Based Management Plan and should be a separate document from a mining Environmental Management Plan.	Vol 4:Appendix D,
<b>2.3.3 Commissioning</b>	
Describe the commissioning process including the associated environmental impacts.	Vol 2:2.8 Vol 3:2, Section
<b>2.4. Operation</b>	
Provide full details of the Operation for all elements of the project, including:	
<ul style="list-style-type: none"> <li>▶ Description of the project site, including concept and layout plans of buildings, structures, plant and equipment to be employed</li> </ul>	Vol 2:2.5 Vol 3:2.8
<ul style="list-style-type: none"> <li>▶ Nature and description of all key operational activities, including details of proposed rail project operations (e.g. number and type of trains, above and below rail operation and maintenance activities)</li> </ul>	Vol 2:2.8 Vol 3:2.8
<ul style="list-style-type: none"> <li>▶ Capacity of project equipment and operations</li> </ul>	Vol 2:2.2.6
<ul style="list-style-type: none"> <li>▶ Estimated numbers and roles of persons to be employed during the operational phase of the project</li> </ul>	Vol 2:2.8.2 Vol 3:2.8
<ul style="list-style-type: none"> <li>▶ Summary of traffic generation information and transport requirements for the operations of the mine and facilities associated with the project, including movement of workers.</li> </ul>	Vol 2:2.8.3

Terms of Reference Requirement/Section Number	Cross-reference
<b>2.5. Associated Infrastructure</b>	
<p>Detail, with concept and layout plans, requirements for new infrastructure or upgrading/relocating existing infrastructure to service the project. Consider matters such as transportation, water supply, energy supply, sewerage, stormwater, waste disposal, accommodation and telecommunications (including the type of communications to be provided to the mine and accommodation facilities, and the capacity of the communications service to allow for additional services, e.g. broadband access for radio over internet protocol that would facilitate other users' communications needs).</p>	<p>Vol 2:2.2 Vol 3:2.3</p>
<p>In considering associated infrastructure for supplying essential services (notably water and energy), provide a detailed explanation of preferred arrangements for the project (for example new water supply pipelines or energy supply lines).</p>	<p>Vol 2:2 and Vol 3:2</p>
<p>Provide a summary of typical designs for waterway crossings for relevant stream orders including waterway barrier works.</p>	<p>Vol 2:2 and Vol 3:2</p>
<p>The associated rail infrastructure component of the project should contain the:</p>	
<ul style="list-style-type: none"> <li>▶ Location of the preferred rail corridor, railway and associated rail infrastructure</li> </ul>	<p>Vol 3:2.2 and Figure 2-1</p>
<ul style="list-style-type: none"> <li>▶ Location and boundaries of land tenures, in place or proposed, to which the rail component is or will be subject</li> </ul>	<p>Vol 3:4.2 and Figure 4-10</p>
<ul style="list-style-type: none"> <li>▶ Point of interface between the main rail corridor, branch line and proposed balloon loop (including the Central Rail Line, the Capricorn Highway, other local government roads, any proposed rail infrastructure and other infrastructure such as pipelines)</li> </ul>	<p>Vol 3:2.4</p>
<ul style="list-style-type: none"> <li>▶ Location and boundaries of the rail project footprint showing all key aspects including excavations, stockpiles, areas of fill, watercourses, bridges, culverts, hardstands, open level crossings and occupational crossings etc</li> </ul>	<p>Vol 3:2</p>
<ul style="list-style-type: none"> <li>▶ Location of all proposed project rail transport and coal loading infrastructure</li> </ul>	<p>Vol 3:2</p>
<ul style="list-style-type: none"> <li>▶ Details of any proposed third party rail access arrangements, dependent on the final rail option pursued by the proponent</li> </ul>	<p>Vol 3:2</p>

Terms of Reference Requirement/Section Number	Cross-reference
<b>2.5.1 Water Distribution Infrastructure</b>	
Describe the process and criteria used to select the preferred design and preferred construction techniques, including:	Vol 2: 2.12.3
<ul style="list-style-type: none"> <li>▶ Method of extracting and/or releasing water from the storage</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Any treatment methods proposed</li> </ul>	
<ul style="list-style-type: none"> <li>▶ If distribution is by pipe:</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Provision for route refinement and right of way</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Pipeline design parameters, including capacity and design life</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Above-ground facilities—physical dimensions and construction materials for surface facilities along the pipeline route, including information on pipeline markers</li> <li>▶ The location and/or frequency of (if applicable) cathodic protection points, off-take valves, pump stations, balance tanks, control valves (isolation points), pigging facilities and any other project facilities and linkages to existing water supply infrastructure along the pipeline route</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Design measures to prevent inter-basin transfer of aquatic flora and fauna</li> </ul>	
<b>2.6. Decommissioning and Rehabilitation</b>	
Describe the options, strategies and methods for progressive and final rehabilitation of the environment disturbed by the project, including:	
<ul style="list-style-type: none"> <li>▶ Preferred rehabilitation strategy with a view to minimising the amount of land disturbed at any one time</li> </ul>	Vol 2:2.15 Vol 3:2.9



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>Showing, on maps of suitable scale, the final topography of any excavations, waste areas and dam sites</li> </ul>	Vol 2:4
<ul style="list-style-type: none"> <li>Means of decommissioning the project, in terms of removing equipment, structures and buildings, and the methods proposed for stabilising the affected areas</li> </ul>	Vol 3:2.9
<ul style="list-style-type: none"> <li>Options and methods for disposing of wastes from the demolition of the project infrastructure, discussing options in sufficient detail for their feasibility and suitability to be established</li> </ul>	Vol 2:10 Vol 3:10
<ul style="list-style-type: none"> <li>Discussion of future land tenure arrangements post decommissioning of the project</li> </ul>	Vol 2:4
<ul style="list-style-type: none"> <li>Strategy to ensure current and future surface and ground water quality is maintained at levels that are acceptable for users downstream of the site</li> </ul>	Vol 2:6 Vol 4 Appendix P and R
<ul style="list-style-type: none"> <li>Strategy to rehabilitate affected watercourses, including removal of any redundant waterway barriers</li> </ul>	Vol 2:13 and 14
<p>Discuss details of the impacts of the preferred rehabilitation strategy in the appropriate subsections of section 3, Environmental values and management of impacts particularly with regard to issues such as final landform stability (section 4.2.2), rehabilitation of plants (section 4.9.2) and the long-term quality of water in any final voids (section 4.5.2). Implications for the long-term use and fate of the site will also be addressed, particularly with regard to the on-site disposal of waste and the site's inclusion on the Environmental Management Register or the Contaminated Land Register.</p>	Vol 2:2 Vol 2:13 and 14
<p>Refer also to infrastructure that is not intended to be decommissioned. In this situation, describe the entity to which the infrastructure is intended to be transferred, along with the proposed environmental management regimes.</p>	Vol 2:2
<p>Describe topsoil management, addressing the transportation, storage and replacement of topsoil to disturbed areas. Address the identification and management of topsoil (including stripping, handling, limitation of compaction, placement, stockpile heights, and optimal storage times) that would ensure the continued viability of the native seed bank. Also, address the identification and management of topsoil that may be contaminated with weed or exotic species and that would be unsuitable for use in rehabilitation without treatment.</p>	Vol 2:13 and 14

Terms of Reference Requirement/Section Number	Cross-reference
<p>Describe any proposals to divert creeks during operations and, if applicable, the reinstatement of the creeks after operations have ceased. Rehabilitation will involve the re-establishment of vegetation communities along watercourses similar to the pre-cleared regional ecosystems in those areas. Where dams are to be constructed, describe proposals for the management of these structures after the completion of the project. Also, describe the final drainage and seepage control systems and longterm monitoring plans.</p>	<p>Vol 2:2.7.5, Vol 4 Appendix P</p>
<p>Describe and illustrate where final voids and uncompacted overburden and workings at the end of mining would lie in relation to flood levels up to and including the 'probable maximum flood level' based on the Bureau of Meteorology's 'probable maximum precipitation' forecast for the locality.</p>	<p>Vol 2:2</p>

### 3. Environmental Values and Management Impacts

Terms of Reference Requirement/Section Number	Cross-reference
<p>Detail the environmental protection and mitigation measures incorporated in the planning, construction, rehabilitation, commissioning, operations and decommissioning of all facets of the project. Measures should prevent, or where prevention is not possible, minimise environmental harm and maximise environmental benefits of the project. Describe preferred measures in more detail than other alternatives. Demonstrate the protection and/or enhancement of human health (as an environmental value) throughout the construction and operation of the project.</p>	<p>Vol 2:13 Vol 3:13</p>
<p>Discuss offsets with regard to impacts on EPBC Act matters, referring to the eight principles set out in the (former) Department of the Environment and Water Resources <i>Draft Policy Statement: Use of Environmental Offsets under the Environment Protection and Biodiversity Conservation Act 1999</i> and the accompanying discussion paper 5 dated August 2007 (or the finalised policy and discussion paper if available when the EIS is produced).</p>	<p>Vol 1:9</p>
<p><b>3.1. Climate, Natural Hazards and Climate Change</b></p>	
<p>Describe the climatic conditions that may affect management of the project. This includes a description of the vulnerability of the project area to seasonal conditions, extremes of climate and natural or induced hazards.</p>	<p>Vol 2:3.2.2, Vol 3:3.2.2</p>
<p>Provide a risk assessment and management plan detailing these potential threats to the construction and operation of the project.</p>	<p>Vol 2:12, Vol 3:3.3</p>
<p>The most recent information on potential impacts of climatic factors should be addressed in the appropriate sections of the EIS.</p>	<p>Vol 2:3 Vol 3:3</p>
<p>Include an assessment of climate change risks and possible adaptation strategies, and the following:</p>	
<ul style="list-style-type: none"> <li>▶ a risk assessment of changing climate patterns that may affect the viability and environmental management of the project</li> </ul>	<p>Vol 2:3.3, Vol 3:3.3</p>
<ul style="list-style-type: none"> <li>▶ the preferred and alternative adaptation strategies to be implemented</li> </ul>	<p>Vol 2:3.3.2, Vol 3:3.3</p>

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>commitments to undertaking, where practicable, a cooperative approach with government, other industry and other sectors to address adaptation to climate change</li> </ul>	Vol 2:8, Vol 3:8
<b>3.1.1 Flood Plain Management</b>	
Due to the site location, a comprehensive flood study should be included in the EIS, including:	
<ul style="list-style-type: none"> <li>quantification of flood impacts on properties surrounding and external to the project site from redirection or concentration of flows</li> </ul>	Vol 2:3.3, Vol 3:6 Vol 4:Appendix AB, Sections 1.5.3 and 5.4
<ul style="list-style-type: none"> <li>identification of likely increased flood levels, increased flow velocities or increased time of flood inundation as a result of the development</li> </ul>	Vol 2:3.2, Vol 3:6 Vol 4:Appendix P1, Appendix AB, Sections 1.5.3 and 5.4
The flood study should address any requirements of local or regional planning schemes for flood affected areas.	Vol 4:Appendix D
The study report should include details of all calculations along with descriptions of base data, any potential for loss of flood plain storage, and triangulated surface meshes produced in terrain modelling software.	Vol 3:6 Vol 4: Appendix P1, Appendix AB, Section 1.5
Refer to any studies undertaken by the local council in relation to flooding.	None undertaken
Provide details on:	
<ul style="list-style-type: none"> <li>potential impacts of floods at a range of flood intervals, including the probable maximum flood event</li> </ul>	Vol 3:6



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>potential impacts of flooding on environmental values due to the identified likely increased flood levels, increased flow velocities or increased time of flood inundation as a result of the project</li> </ul>	Vol 4:Appendix P1, Appendix AB, Sections 1.5.3, 4 and 5
<ul style="list-style-type: none"> <li>impacts and mitigation measures for flooding. Describe the construction of any flood protection levees with regards to construction material, design and methods</li> </ul>	
<b>3.2. Land</b>	
<b>3.2.1 Scenic Amenity and Lighting</b>	
<b>Description of Environmental Values</b>	
<p>Describe in general terms the existing character of the landscape and the general impression that would be obtained while travelling through and around it. Outline existing landscape features, panoramas and views that have, or could be expected to have, value to the community. Provide information in the form of maps and photographs, particularly where addressing the following issues:</p>	Vol 2:4.1, Vol 3:4.1 Vol 4:Appendix K, Section 3 Vol 4:Appendix X, Section 4
<ul style="list-style-type: none"> <li>Major views, view sheds, outlooks and features contributing to the amenity of the area, including assessment from private residences</li> </ul>	Vol 2:4.1, Vol 3:4.1 Vol 4:Appendix K, Section 3.5, Figure 3-1 and Figure 3-2 Vol 4:Appendix X, Section 4.6

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Focal points, landmarks, waterways (e.g. rivers, streams, creeks other bodies of water and wetlands) and other features contributing to the visual quality of the area and the project site(s)</li> </ul>	Vol 2:4.1, Vol 3:4.1 Vol 4:Appendix K, Section 3.4 Vol 4:Appendix X, Section 4.2
<ul style="list-style-type: none"> <li>▶ Character of the local and surrounding areas including vegetation and land use</li> </ul>	Vol 2:4.1, Vol 3:4.1 Vol 4:Appendix K, Sections 3.2 and 3.3 Vol 4:Appendix X, Sections 4.3 and 4.4
<p>At a level of detail appropriate to the scale of the project, describe the relevant geomorphology supported by illustrative mapping highlighting any significant features and associated environmental values.</p>	Vol 2:4.1, Vol 3:4.1 Vol 4:Appendix K, Sections 3.2 and 3.4, and Figure 3-2

Terms of Reference Requirement/Section Number	Cross-reference
<b>Potential Impacts and Mitigation Measures</b>	
Describe the potential beneficial and adverse impacts of the project on landscape character and visual qualities of the site and the surrounding area. Provide details about measures to be undertaken to mitigate or avoid the identified impacts.	Vol 2:4.1, Vol 3:4.1 Vol 4:Appendix K, Section 4 Vol 4:Appendix X, Sections 5.1 and 5.2
<b>Lighting</b>	
<p>Assess and describe all potential impacts of the project's lighting, during all stages, with particular reference to objectives to be achieved and management methods to be implemented to mitigate or avoid, such as:</p> <ul style="list-style-type: none"> <li>▶ The visual impact at night</li> <li>▶ Night operations/maintenance and effects of lighting on fauna and residents</li> <li>▶ The potential impact of increased vehicular traffic</li> <li>▶ The changed habitat conditions for nocturnal fauna and associated impacts</li> </ul>	Vol 2:4.1, Vol 3:4.1 Vol 4:Appendix K, Section 4.4
<b>3.2.2 Topography, Geology and Soils</b>	
<b>Description of Environmental Values</b>	
Provide maps locating the project in state, regional and local contexts. The topography should be detailed with contours at suitable increments, shown with respect to Australian height datum. On the maps, highlight and comment on significant features of the landscape and topography.	Vol 2.4.2, Vol 3:4.2 Vol 4:Appendix Y, Figure 1-1

Terms of Reference Requirement/Section Number	Cross-reference
<p>Provide a description, map and a series of cross-sections of the surficial and solid geology of the project area relevant to the project components. Describe geological properties that may influence ground stability, occupational health and safety, or the quality of stormwater leaving any area disturbed by the project. In locations where the age and type of geology is such that significant fossil specimens may be uncovered during construction/operations, the EIS must address the potential for significant finds.</p>	<p>Vol 2.4.2, Vol 3:4.2 Vol 4:Appendix Y, Section 2.2 and Figure 2-3</p>
<p>Review and discuss existing land system and land unit data of the Nogoia-Belyando Area and land management units identified within Lorimer, MS 2005, The Desert Uplands: an overview of the Strategic Land Resource Assessment Project, Technical Report, Environmental Protection Agency, Queensland, for the project area.</p>	<p>Vol 2.4.2, Vol 3:4.2 Vol 4:Appendix L, Section 1.3 Vol 4:Appendix Y, Sections 2.3.2 and 2.3.4</p>
<p>A soil survey of the project area should be conducted at 1:100,000 scale, following the standards in Land Suitability Assessment Techniques in the Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.</p>	<p>Vol 2.4.2, Vol 3:4.2 Vol 4:Appendix L, Section 2 Vol 4:Appendix Y, Sections 1.4 and 4</p>
<p>Review and discuss the relationship of the soils, land system and land unit data sets.</p>	<p>Vol 2.4.2, Vol 3:4.2 Vol 4:Appendix L, Section 2.4</p>
<p>Describe soil profiles according to the Australian soil and land survey field handbook grouped according to their parent material and position in the landscape and classified according to the Australian soil classification. Include the physical and chemical properties of the materials that will influence erosion potential, stormwater run-off quality, rehabilitation and agricultural productivity of the land</p>	<p>Vol 2.4.2, Vol 3:4.2 Vol 4:Appendix L, Section 2.3 Vol 4:Appendix Y, Section 2.3.4 and Figure 2-5</p>



Terms of Reference Requirement/Section Number	Cross-reference
Representative soils must be sampled down the profile for laboratory analysis as outlined in the Land Suitability Assessment Techniques	Vol 4:Appendix L, Section 4
Assess and document the depth and quality of useable topsoil and subsoil to be stripped and stockpiled for rehabilitation, and the physical and chemical properties of the soils	Vol 2.4.2, Vol 3:4.2 Vol 4:Appendix L, Section 3.3 and 3.4 Vol 4:Appendix Y, Sections 1.4 and 4
The State Planning Policy 2/02: Planning and Management of Development involving Acid Sulfate Soils should be addressed as part of the Rail Corridor (particularly option 3) investigations	Vol 2.4.2, Vol 3:4.2 Vol 4: Appendix D Vol 4: Appendix Y, Section
Acid sulfate soil investigations should be undertaken in accordance with the Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) in Queensland 1998	ASS not applicable to mine site. AMD included in Appendix V. Vol 4:Appendix Y, Section 4
An acid sulfate soil management plan should be prepared in accordance with the Queensland Acid Sulfate Soil Technical Manual – Soil Management Guidelines Version 3.8 (Dear et al, 2002)	ASS not applicable to mine site. AMD included in Appendix V. Vol 4:Appendix Y, Section 2.3.6

Terms of Reference Requirement/Section Number	Cross-reference
<b>Mineral Resources</b>	
Summarise the results of studies and surveys undertaken to identify and delineate the mineral, extractive and petroleum and gas resources within the project area (including any areas underlying or adjacent to related infrastructure including rail).	Vol 2:4.2
Describe in detail the location, tonnage and quality of the mineral, extractive and petroleum and gas resources within the project area (including underlying or adjacent to related infrastructure including rail) as indicated below. For coal projects, where possible, present the discussion on a 'seam by seam' basis and include the modifying factors and assumptions made in arriving at the estimates. Estimate and report the mineral resources in accordance with the Australasian Code for Reporting of Mineral Resources and Ore Reserves (the JORC Code), the principles outlined in the Australian Guidelines for the Estimating and Reporting of Inventory Coal, Coal Resources and Coal Reserves	Vol 1:2, Vol 2:2, Vol 2:4.2
In addition, provide maps (at appropriate scales) showing the general location of the project area, in particular, the:	Vol 2:4.2
<ul style="list-style-type: none"> <li>▶ Location and aerial extent of the mineral resources to be developed or mined</li> </ul>	Vol 2: 2 and 4
<ul style="list-style-type: none"> <li>▶ Location and boundaries of mining tenures, granted or proposed, to which the project area is, or will be subject</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Location of proposed mine excavation(s)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Location and boundaries of project sites</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Location and boundaries of any other features that will result from the proposed mining including waste/spoil dumps, water storage facilities and other infrastructure</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Location of any proposed buffers, surrounding the working areas</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Any part of the resource not intended to be mined and any part of the resource that may be sterilised by the proposed mining operations or infrastructure</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<b>Potential Impacts and Mitigation Measures</b>	
Provide details of any potential impacts to the topography or geomorphology associated with the project and proposed mitigation measures, including:	Vol 2:4.2, Vol 3:4.2 Vol 4:Appendix Y, Section 3.2.1
<ul style="list-style-type: none"> <li>▶ A discussion of the project in the context of major topographic features and any measures taken to avoid or minimise impact to such, if required</li> </ul>	Vol 2:4.1
<ul style="list-style-type: none"> <li>▶ The objectives to be used for the project in any re-contouring or consolidation, rehabilitation, landscaping, and fencing</li> </ul>	Vol 2:2 and Vol 3:2
Identify, for all permanent and temporary landforms, the possible soil erosion rate and describe the techniques used to manage the impact.	Vol 2:4.2, Vol 3:4.2 Vol 4:Appendix Y, Sections 2.1.3, 3, 3.3.2 and 4
Identify all soil types and outline the erosion potential (both wind and water) and erosion management techniques to be used.	Vol 2:4.2, Vol 3:4.2 Vol 4:Appendix Y, Section 2.3.4
An erosion-monitoring program, including rehabilitation measures for erosion problems identified during construction, must also be outlined and acceptable mitigation strategies provided.	Vol 3:4.2 Vol 4:Appendix Y, Sections 3.2.1, 3.3.2 and 4

Terms of Reference Requirement/Section Number	Cross-reference
<p>Include an assessment of likely erosion effects, especially those resulting from the removal of vegetation and construction of retaining walls both on-site and off-site for all disturbed areas</p>	<p>Vol 4:4.2, Vol 3:4.2 Vol 4:Appendix Y, Section 3.2.1, 3.3.2 and 4</p>
<p>Summarise methods proposed to prevent or control erosion with regard to:</p> <ul style="list-style-type: none"> <li>a) the Soil Erosion and Sediment Control—Engineering Guidelines for Queensland Construction Sites</li> <li>b) the Environmental Protection Authority (EPA’s) Guideline: EPA Best Practice Urban Stormwater Management: Erosion and Sediment Control</li> <li>c) preventing soil loss to maintain land capability/suitability and preventing degradation of local waterways</li> </ul>	<p>Vol 2:4.2, Vol 3:13</p>
<p>Discuss potential for acid generation by disturbing potentially acid forming materials, and propose methods for managing and mitigating impacts</p>	<p>Vol 3:4.2 Vol 4:Appendix Y, Section 2.3.6</p>
<p>Discuss the potential for acid generation by disturbing potentially acid forming materials during earthworks and construction; and propose measures for managing potentially acid forming materials and mitigating impacts for all site earthworks and construction activities. Should action criteria be triggered by acid generating potential as a result of testing, outline management measures in an acid mine drainage management plan, prepared in accordance with the assessment and management of acid drainage guideline of the Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland series, Managing Acid and Metalliferous Drainage and any other applicable best practice guidelines.</p>	<p>Vol 2:4.2, Vol 4:Appendix V</p>
<p>Discuss the potential for acid, saline, neutral or alkaline drainage from waste dumps. Characterise the potential quality of leachate from the mined waste under field conditions, including contaminants such as sulfate, pH, chloride, iron, major cations and anions, and any chemical species in sufficient quantity that is likely to cause environmental harm including nuisance</p>	<p>Vol 4:10.2, Vol 4:Appendix V</p>

Terms of Reference Requirement/Section Number	Cross-reference
Cross-reference to sections elsewhere in the EIS that assess in detail the potential impacts of any direct or indirect discharge of leachate on downstream sensitive environments or users of receiving waters	
<b>Resource Utilisation</b>	
Analyse the effectiveness of the mining proposal in achieving the optimum utilisation of the coal/mineral resources within the project area and consider its impacts on other resources.	Vol 2:4.2,
Demonstrate that the mining proposal will ‘best develop’ the mineral resources within the project area, minimise resource wastage and avoid any unnecessary sterilisation of these or any other of the state’s coal, mineral, and petroleum (including gas and coal seam methane) resources that may be impacted upon or sterilised by the mining activities or related infrastructure	Vol 2:4.2,
<b>Subsidence</b>	
Provide comprehensive surface subsidence predictions, taking into account factors such as topographic variations and geological complexities, including a full description of the methodology and an assessment of the reliability of the predictions. The results of the predictions will be shown on maps with one metre contour increments and a scale appropriate for assessing surface subsidence impacts	Vol 2:4.2,
Provide a detailed description of subsidence effects on surface and groundwater hydrology as well as on terrestrial ecosystems (including which vegetation communities and flora species are most likely to be effected by changes to surface hydrology)	Vol 2:4.2,
Propose mitigation measures to deal with any significant impacts that would result from subsidence. The EIS and EMP should provide a detailed subsidence management plan for remediation and monitoring of subsidence cracking and ponding; with an emphasis on limiting the impact to remnant vegetation habitats. The subsidence management plan should also address impacts on fish movement within watercourses	Vol 2:4.2,

Terms of Reference Requirement/Section Number	Cross-reference
<b>Land Disturbance</b>	
Develop a strategy that will minimise the amount of land disturbed at any one time. Describe the strategic approach to progressive rehabilitation of landforms and final decommissioning. Describe the methods to be used for the proposal, including backfilling, covering, re-contouring, topsoil handling and revegetation	Vol 4:Appendix Y, Sections 3.4.1 and 3.4.2
In relation to provisions of the Forestry Act 1959, DERM Forest Products (DERM FP) is to be advised of the footprint of the areas to be disturbed by the project, associated infrastructure and any rail alignment(s) at least 12 months in advance of any operations to allow for appropriate planning and salvage of suitable timber products from relevant lands and to identify quarry material on adjacent State lands that may be suitable to supply to the market	Noted
DERM FP must be advised of any use of quarry material either outside the mining lease area or not consistent with the mining operation	Noted
DERM FP request:	Noted
a) an assessment of the areas of State-owned land where commercial native forest log and fencing type timber will be affected and where salvage harvesting may be required 12 months in advance of any disturbance	Noted
b) the identification of the sources of quarry materials both on and off the alignment for each component of the project	
c) Where the forest products are not salvaged prior to clearing for the project then compensation is payable to DERM FP as determined by the Chief Executive	
Where waterways are proposed to be diverted, describe the impact on land use due to hydrology changes, both upstream and downstream, and detail any long-term monitoring plans. Also describe:	Vol 2:2 and 6
<ul style="list-style-type: none"> <li>▶ Rehabilitating diverted creeks during operations and reinstating the creeks after operations cease</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Removing dams or transferring responsibility for dams to the landholder and ongoing dam management</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ The final drainage and seepage control systems</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The rehabilitation objectives, indicators and completion criteria</li> </ul>	
<p>Describe the transfer of responsibility to the landholder and the ongoing maintenance and monitoring that would be required for any features of mining activity, such as dams, levee banks, waterway diversions, other waterway barriers and other infrastructure that would remain after the mine is decommissioned</p>	
<p>Demonstrate where final voids and uncompacted overburden and workings at the end of mining would lie in relation to flood levels up to and including the ‘probable maximum flood level’, based on the Bureau of Meteorology’s ‘probable maximum precipitation’ forecast for the locality from nearby watercourses such that the protection is sustainable for the foreseeable future. Management and maintenance arrangements should be supported by appropriate erosion and stability monitoring to substantiate long-term rehabilitation sustainability</p>	Vol 2:2, 3,4
<p>The EIS should include, but not be limited to:</p>	Vol 2:2 and 13
<ul style="list-style-type: none"> <li>▶ The predicted storage capacity of void water during annual exceedance probability 1 in 25, 1 in 50, 1 in 100, 1 in 200 and 1 in 1000-year rainfall events and potential for discharge</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The predicted quality of void water during potential release events</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The predicted impact on the environment caused by the release of any void water</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Modelling and assessment of practicable management measures to mitigate contaminant increases in storage dams</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Develop a monitoring program to be undertaken both during and after mining, to assess the performance of the proposed management measures</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Ability of the final void water to meet the rehabilitation criteria—being safe, stable and non-polluting</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<p>The mitigation measures for land disturbance to be used on decommissioning the site should be assessed in sufficient detail to decide their feasibility. In particular, the EIS should address the long-term stability of final voids and spoil dumps, safety of access to the site after surrender of the lease, and the residual risks that will be transferred to the subsequent landholder. Review and discuss alternatives to leaving a final void and derive a preferred option</p>	<p>Vol 2:2 and 13</p>
<p>A description of topsoil management should consider transport, storage and replacement of topsoil to disturbed areas. The topsoil management should also outline how soil from good quality agricultural land (GQAL) will be best utilised. Address minimising topsoil storage times (to reduce fertility degradation). Describe erosion and sediment control measures, particularly in relation to managing sodic and saline overburden material</p>	<p>Vol 4:4.2,</p>
<p>If geological conditions are conducive, the proponent should consider the possibility that significant fossil specimens (such as of dinosaurs or their tracks) may be uncovered during construction/operations and propose strategies for protecting the specimens and alerting the Queensland Museum to the find</p>	<p>Vol 2: 4.2 Vol 3:4.2 Vol 4: Appendix Y, Section 3.2</p>
<p><b>3.2.3 Land Contamination</b></p>	
<p>Provide the following:</p>	
<ul style="list-style-type: none"> <li>▶ mapping of any areas listed on the Environmental Management Register or Contaminated Land Register under the EP Act</li> </ul>	<p>Vol 2:4.3, Vol 3:4.3</p>
<ul style="list-style-type: none"> <li>▶ identification of any potentially contaminated sites not on the registers which may need remediation</li> </ul>	<p>Vol 2:4.3, Vol 3:4.3</p>
<ul style="list-style-type: none"> <li>▶ a description of the nature and extent of contamination at each site</li> </ul>	<p>Vol 2:4.2, Vol 3:4.3</p>
<p>The EIS should discuss the management of any contaminated land and potential for contamination from construction, commissioning and operation, in accordance with the Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland 16 and the National Environment Protection (Assessment of Site Contamination) Measure 1999</p>	<p>Vol 2:4.3 Vol 3:4.3</p>



Terms of Reference Requirement/Section Number	Cross-reference
Describe strategies and methods to be used to prevent and manage any land contamination resulting from the project, including the management of any acid generation or management of chemicals and fuels to prevent spills or leaks	Vol 4:4.3, Vol 3:4.3
State intentions concerning classifying land contamination after project completion	Vol 4:4.3, Vol 3:4.3
<b>3.2.4 Land use and tenure</b>	
Identify, with the aid of maps:	Vol 2:4.4, Figure 2-5 Vol 3:4.4
<ul style="list-style-type: none"> <li>▶ Land tenure, including reserves and extractive resource areas, tenure of special interest such as protected areas and forest reserves, identification of existing and proposed gas infrastructure, water pipelines, power lines and transport corridors, including local roads, state-controlled roads and rail corridors</li> </ul>	Vol 4:Appendix M, Figure 4-1, Figure 2-4, Figure 2-5, Figure 4-1 and Section 3 Vol 4:Appendix Z, Sections 2.4 and 3, and Figure 2-4
<ul style="list-style-type: none"> <li>▶ Zoning and precincts of applicable local government planning schemes, development schemes and regional plans</li> </ul>	Vol 4:Appendix M, Section 2.4 and Figure 2-4 Vol 4:Appendix Z, Section 2.1

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>Existing land uses and facilities surrounding the project</li> </ul>	Vol 4:Appendix M, Sections 2.3 and 2.4 and Figure 2-5 Vol 4:Appendix Z, Figures 2-1 and 2-4
<ul style="list-style-type: none"> <li>Provide land suitability maps of the mapped soil units and an agricultural land class map according to the <i>Planning Guideline: The Identification of Good Quality Agricultural Land Agricultural Land</i>. Comment on and assess any variation with the GQAL mapping shown in the planning scheme for the former Belyando Shire as required under <i>State Planning Policy 1/92: Development and the Conservation of Agricultural Land</i>. Identify any land shown as strategic cropping land on current trigger maps</li> </ul>	Vol 3:4.4, Table 2-5, Figure 2-7 and Table 2-6 Vol 4:Appendix Z, Sections 2.6 and 2.7
<ul style="list-style-type: none"> <li>Areas covered by applications for native title claims or native title determinations, providing boundary descriptions of native title representative body/ies. The proponent should also identify whether there are any necessary notifications required to the representative body/ies or evidence that native title does not exist</li> </ul>	Vol 4:Appendix M, Section 5 and Figure 2-5 Vol 4:Appendix Z, Section 5 and Figure 2-4

**Terms of Reference Requirement/Section Number**

**Cross-reference**

- ▶ Include the identification of affected stock routes in consultation with Stock Route Management Unit staff of the Department of Environment and Resource Management (DERM). Consider the impacts of this project on the management and operation of the Stock Route Network. Include potential impacts that are identified during the EIS process as the footprint of the development is finalised. Details should be provided on the location of proposed water pipelines, power lines and transport corridors, including local roads, state-controlled roads and rail corridors within and servicing the mining development that may impact on the Stock Route Network
- ▶ Distance of the project from residential and recreational areas
- ▶ Declared water storage catchments
- ▶ Location of the project in relation to environmentally sensitive areas

Vol 2:4.4,  
Vol 3:4.4  
Vol 4:Appendix M,  
Section 3.9 and  
Figure 3-2  
Vol 4:Appendix Z,  
Section 3.2 and  
Figure 3-2

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7.5.3  
Vol 3:4.4, Section  
2.6  
Vol 4:Appendix M,  
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Section 2.5 and  
Figure 2-3

Vol 2:4.4.4  
Vol 3:4.4  
Vol 4:Appendix Z,  
Section 2.10.3

Vol 3:4.4  
Vol 4:Appendix N1,  
Section 2.3.1

Terms of Reference Requirement/Section Number	Cross-reference
<p>Assess the suitability of the soils mapped in the project area for rain fed, broad acre cropping and beef cattle grazing according to the limitations and land suitability classification system in Attachment 2 of the Land Suitability Assessment Techniques in the Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland</p>	<p>Vol 2: 4.2 Vol 3:4.2 Vol 4: Appendix Y and Appendix L</p>
<p><b>Potential Impacts and Mitigation Measures</b></p>	
<p>Detail the potential for the construction and operation of the project to change existing and potential land uses of the project site and adjacent areas. Describe the following:</p>	<p>Vol 4:Appendix M, Section 6.2 Vol 4:Appendix Z, Section 3.2 and 3.3</p>
<ul style="list-style-type: none"> <li>▶ Impacts on surrounding land uses and human activities and strategies for minimisation, such as:</li> </ul>	<p>Vol 4:Appendix M, Section 6.2 Vol 4:Appendix Z, Section 6.2</p>
<ul style="list-style-type: none"> <li>– GQAL or strategic cropping land with particular reference to any residual impacts on the area, classor productivity of such land</li> </ul>	<p>Vol 4:Appendix M, Sections 6.2. Vol 4:Appendix Z, Section 3.3</p>
<ul style="list-style-type: none"> <li>– key resource areas (refer to State Planning Policy 2/07: Protection of Extractive Resources and its associated guideline)</li> </ul>	<p>Vol 4:Appendix M, Sections 2.6 Vol 4:Appendix Z, Section 3.4</p>

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>- residential and industrial uses</li> </ul>	Vol 4:Appendix M, Section 6.2 Vol 4:Appendix Z, Section 2.5
<ul style="list-style-type: none"> <li>▶ Possible effect on town planning objectives and controls, including local government zoning and strategic plans</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Constraints to potential developments</li> </ul>	Vol 4:Appendix M, Section 6.3 Vol 4:Appendix Z, Section 3
<ul style="list-style-type: none"> <li>▶ Management of the immediate environs of the project including construction buffer zones</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The identification of the potential native title rights and interests likely to be impacted upon by the project and the potential for managing those impacts by an Indigenous land use agreement or other native title compliance outcomes</li> </ul>	Vol 4:Appendix M, Section 5 Vol 4:Appendix Z, Section 2.11
<ul style="list-style-type: none"> <li>▶ Mitigation strategies for potential adverse impacts of the project on the state's stock route network in consultation with DERM's Stock Route Management Unit</li> </ul>	Vol 4:Appendix M, Section 6.3.1 and Figure 3-2 Vol 4:Appendix Z, Section 3.7
<ul style="list-style-type: none"> <li>▶ Proposed land use changes in any areas of high conservation value and information on how easement widths and vegetation clearance in sensitive environmental areas will be minimised</li> </ul>	Vol 4:Appendix M, Section 4 Vol 4:Appendix Z, Section 6.8

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>Potential issues involved in proximity and/or co-location of other current or proposed infrastructure services</li> </ul>	Vol 4:Appendix M, Section 3 Vol 4:Appendix Z, Sections 2.10
<ul style="list-style-type: none"> <li>Potential impacts on future road upgrades</li> </ul>	Vol 4:Appendix M, Section 6.3.2 Vol 4:Appendix Z, Section
<ul style="list-style-type: none"> <li>Identification of any land units requiring specific management measures</li> </ul>	Vol 4:Appendix M, Sections 2.6 and 2.7 Vol 4:Appendix Z, Section 3.3
Avoid sterilisation of, or impact on, any of the State's coal mineral and petroleum and gas (including coal seam gas) resources and state significant extractive resources arising from the construction of the project or related infrastructure. If impact on or sterilisation of these resources is argued as unavoidable, justification should be provided	Vol 4:Appendix M, Sections 2,5 and 6.2.2 Vol 4:Appendix Z, Section 3.4
<b>3.3. Nature Conservation</b>	
Detail the existing nature conservation that may be affected.	Vol 4:5 and Vol 3:5 Vol 4: Appendix AA, O and N1

Terms of Reference Requirement/Section Number	Cross-reference
Flora and Fauna Surveys should address species structure, assemblage, diversity and abundance	Vol 4:5 and Vol 3:5 Vol 4: Appendix AA, O and N1
Describe methodologies and standards used for flora and fauna surveys and compare them to best practice in the appendices in the EIS	Vol 4:5 and Vol 3:5 Vol 4: Appendix AA, O and N1
Identify key flora and fauna indicators of ongoing monitoring	Vol 4:5 and Vol 3:5 Vol 4: Appendix AA, O and N1
<b>3.3.1 Sensitive Environmental Areas</b>	
On a map of suitable scale, identify areas in proximity to the project that are environmentally sensitive. This should include areas classified as having national, state, regional or local biodiversity significance, or flagged as important for their integrated biodiversity values.	Vol 4:5 and Vol 3:5 Vol 4: Appendix AA, and N1
Refer also to both Queensland and Commonwealth Government legislation and policies on threatened species and ecological communities.	Vol 4:5 and Vol 3:5 Vol 4: Appendix AA, O and N1
<p>Areas regarded as sensitive with respect to flora and fauna have one or more of the following features that should be identified and mapped:</p> <ul style="list-style-type: none"> <li>▶ important habitats of species listed as extinct in the wild, endangered, vulnerable or near threatened under the <i>Nature Conservation Act 1992</i> (Qld) or as extinct, extinct in the wild, critically endangered, endangered, vulnerable and conservation dependent under the EPBC Act</li> </ul>	Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ regional ecosystems listed as ‘endangered’ or ‘of concern’ under state legislation, and/or ecological communities listed under the EPBC Act</li> </ul>	
<ul style="list-style-type: none"> <li>▶ good representative examples of remnant regional ecosystems or regional ecosystems which are described as having ‘medium’ or ‘low’ representation in the protected area estate as defined in the Regional Ecosystem Description Database (REDD)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ sites listed under international treaties such as Ramsar wetlands and World Heritage areas</li> </ul>	
<ul style="list-style-type: none"> <li>▶ sites containing near threatened or bio-regionally significant species or essential, viable habitats for near-threatened or bio-regionally significant species</li> </ul>	
<ul style="list-style-type: none"> <li>▶ sites in, or adjacent to, areas containing important resting, feeding or breeding sites for migratory species of conservation concern listed under the Convention of Migratory Species of Wild Animals, and/or bilateral agreements between Australia and Japan (JAMBA) and between Australia and China (CAMBA)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ sites adjacent to nesting beaches, feeding, resting or calving areas of species of special interest, for example, marine turtles, dugong and cetaceans</li> </ul>	
<ul style="list-style-type: none"> <li>▶ sites containing common species that represent a distributional limit and are of scientific value or which contain feeding, breeding or resting areas for populations of echidna, koala, platypus and other species of special cultural significance</li> </ul>	
<ul style="list-style-type: none"> <li>▶ sites containing high biodiversity, for example areas identified in both the Desert Uplands and Brigalow Belt North Biodiversity Planning Assessments, that are of a suitable size or with connectivity to corridors/protected areas to ensure survival in the longer term; such land may contain:               <ul style="list-style-type: none"> <li>– natural vegetation in good condition or other habitat in good condition (e.g. wetlands)</li> <li>– degraded vegetation or other habitat that still supports high levels of biodiversity or acts as an important corridor for maintaining high levels of biodiversity in the area</li> </ul> </li> </ul>	



**Terms of Reference Requirement/Section Number**

**Cross-reference**

- ▶ a site containing other special ecological values, for example, high habitat diversity and areas of high endemism
  - ▶ ecosystems that provide important ecological functions such as:
    - wetlands of national, state and regional significance
    - coral reefs
    - riparian vegetation
    - important buffer to a protected area
    - important habitat corridor between areas
  - ▶ sites of palaeontologic significance such as fossil sites
  - ▶ sites of geomorphological significance, such as lava tubes or karst
  - ▶ protected areas which have been proclaimed under the NC Act and *Marine Parks Act 1982* (Qld) or are under consideration for proclamation
  - ▶ areas of major interest, or critical habitat declared under the NC Act, high nature conservation value areas or areas vulnerable to land degradation under the VM Act.
- Areas of special sensitivity include:
- ▶ the marine environment and wetlands
  - ▶ wildlife breeding or roosting areas
  - ▶ any significant habitat or relevant bird flight paths for migratory species

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ bat roosting and breeding caves including existing structures such as adits and shafts</li> </ul>	
<ul style="list-style-type: none"> <li>▶ colonial breeding species</li> </ul>	
<ul style="list-style-type: none"> <li>▶ habitat of threatened plants, animals and communities</li> </ul>	
<ul style="list-style-type: none"> <li>▶ protected areas which have been proclaimed under the NCA, including the Bygana West Nature Refuge</li> </ul>	
<p>Discuss all the likely direct and indirect impacts of the project on species, communities and habitats of local, regional or national significance in sensitive environmental areas as identified above.</p>	
<p>Cover terrestrial and aquatic environments and address any fragmentation impacts.</p>	
<p>Also, include human impacts and the control of any domestic animals introduced to the area.</p>	
<p>Demonstrate how the project would comply with the following hierarchy:</p>	<p>Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA</p>
<ul style="list-style-type: none"> <li>▶ avoiding impact on areas of remnant vegetation and other areas of conservation value including listed species and their habitat</li> </ul>	<p>Vol 2:5 Vol 3:5</p>
<ul style="list-style-type: none"> <li>▶ mitigating impacts through rehabilitation and restoration including, where relevant, a discussion of any relevant previous experience or trials of the proposed rehabilitation</li> </ul>	<p>Vol 2:5 Vol 3:5</p>
<ul style="list-style-type: none"> <li>▶ measures to be taken to replace or offset the loss of conservation values where avoiding and mitigating impacts cannot be achieved</li> </ul>	<p>Vol 1: 9</p>
<p>Explain why the measures above would not apply in areas where loss would occur.</p>	<p>Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA</p>

Terms of Reference Requirement/Section Number	Cross-reference
Discuss the boundaries of the areas impacted by the project within or adjacent to an endangered ecological community, including details of footprint width.	Vol 2:5 Vol 3:5
Where the project area would impact upon a threatened community, the discussion should include reasons for the preferred alignment and the viability of alternatives.	Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA
Consider the high biodiversity values of Bygana West NR and, in accordance with mining best practice, first demonstrate ways to avoid impacting this area, second demonstrate mitigating measures and offsetting impacts relating to Bygana West Nature Refuge.	Vol 2:5
Address any actions of the project or likely impacts that require an authority under the NC Act, and/or would be assessable development for the purposes of the VM Act.	Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA
Outline how these measures will be implemented in the overall EMP for the project.	
<p>Where relevant, discuss environmental offset requirements in accordance with the <i>Queensland Government Environmental Offsets Policy</i> and take into account the applicable specific-issue offset policies as follows:</p> <ul style="list-style-type: none"> <li>▶ Policy for Vegetation Management Offsets</li> <li>▶ Mitigation and Compensation for Works or Activities Causing Marine Fish Habitat Loss</li> <li>▶ Draft Policy for Biodiversity Offsets</li> </ul>	Vol 1: 9
Proposals to offset unavoidable impacts to biodiversity values are to be made via use of the framework outlined in the draft Policy for Biodiversity Offsets, a specific issues offset policy in accordance with the Queensland Government Environmental Offsets Policy (QGEOP). The draft policy is due for finalisation in 2011. Any offset package should include offsets for the ecological values that will be lost as a result of the mine development and should be consistent with the principles of the Queensland Government Environmental Offset Policy 2008.	Vol 1: 9

Terms of Reference Requirement/Section Number	Cross-reference
Describe any departure from no net loss of ecological values.	Vol 1: 9
<b>3.3.2 Terrestrial Flora</b>	
Specifically assess any potential impacts on a Category A or B environmentally sensitive area and propose measures and impacts.	Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA
Describe and assess the potential impacts of any actions of the project or likely impacts that require an authority under the NC Act.	Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA
Provide vegetation mapping for all relevant project sites.	Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA
Survey and describe terrestrial vegetation within the affected areas at an appropriate scale (max. 1:10,000), showing: <ul style="list-style-type: none"> <li>▶ Location and extent of vegetation types</li> <li>▶ Location of vegetation types of conservation significance based on regional ecosystem types and occurrence of species listed as protected plants under the Nature Conservation (Wildlife) Regulation 2006 and subsequent amendments</li> <li>▶ Current extent of protected vegetation types of conservation significance within the protected area estate</li> <li>▶ Location of horticultural crops in the vicinity</li> <li>▶ Location and abundance of any exotic weed species</li> <li>▶ Any plant communities of cultural, commercial or recreational significance</li> </ul>	Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA

Terms of Reference Requirement/Section Number	Cross-reference
<p>Highlight sensitive or important vegetation types, containing:</p> <ul style="list-style-type: none"> <li>▶ Review of published information assessing the significance of the vegetation to conservation, recreation, scientific, educational and historical interests</li> <li>▶ A description of vegetation to indicate any areas of national, state, regional or local significance</li> </ul>	<p>Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA</p>
<p>Vegetation surveys should be undertaken at an appropriate number of sites, and satisfying the following:</p> <ul style="list-style-type: none"> <li>▶ Relevant regional vegetation management codes</li> <li>▶ Site date recorded in a form compatible with the Qld Herbarium CORVEG database</li> <li>▶ Minimum site size of 10 x 50 m</li> <li>▶ Complete list of species present at each site</li> <li>▶ Species structure, assemblage, diversity and abundance</li> <li>▶ Relative abundance of plant species present</li> <li>▶ Plant species of conservation, cultural, commercial or recreational significance</li> <li>▶ Survey data should include tree heights, canopy cover, species composition sufficient to determine the remnant status of the vegetation and identify the regional ecosystems</li> <li>▶ Specimens of species of conservation significance</li> </ul> <p>Existing information may be used instead of new survey work, provided that the data is derived from previous surveys at the site consistent with the above methodology</p>	

Terms of Reference Requirement/Section Number	Cross-reference
Discuss all foreseen direct and indirect impacts on vegetation and the potential level of environmental harm to the ecological values of the area	Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA
Provide digital spatial data of clearing within the railway corridor in ESRI shapefile format	Noted
Describe action plans for protecting rare or threatened species and vegetation identified as having high conservation value	Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA
Weed management strategies are required for containing existing weed species and ensuring no new plants are introduced	Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA
Measures to mitigate the impacts of the project on vegetation types identified as having high conservation values	Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA
<b>3.3.3 Terrestrial Fauna</b>	
Describe the terrestrial and riparian fauna occurring in the areas affected by the proposal, and include: <ul style="list-style-type: none"> <li>▶ Species diversity</li> <li>▶ Poorly known species and suspected of being near-threatened or threatened</li> <li>▶ Habitat requirements and sensitivity to changes</li> <li>▶ Existence of feral or introduced animals</li> </ul>	Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Existence (actual or likely) of any species / communities of conservation significance</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Habitat requirements and sensitivity to change</li> </ul>	
<ul style="list-style-type: none"> <li>▶ An estimate of commonness or rarity</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Use of the area by migratory and nomadic fauna (breeding or significant congregation)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Indication of how well any affected communities are represented and protected elsewhere in the bio-region</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Relevant site data</li> </ul>	
<p>The assessment of potential impact should discuss all foreseen direct and indirect effects, including:</p>	<p>Vol 2:5 Vol 3:5</p>
<ul style="list-style-type: none"> <li>▶ Direct and indirect impacts due to loss of range/habitat, food supply, nest sites, breeding/recruiting potential or movement corridors or as a result of hydrological change</li> </ul>	<p>Vol 4: Appendix N1, O, AA</p>
<ul style="list-style-type: none"> <li>▶ Impacts on species conservation significance</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Cumulative effects of direct and indirect impacts</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Identification of the conservation importance of identified populations at the regional, state and national levels</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Whether the proposal will bisect habitat areas</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Threatening processes leading to progressive loss</li> </ul>	
<p>Strategies for protecting rare or threatened species should be described</p>	<p>Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA</p>

Terms of Reference Requirement/Section Number	Cross-reference
Describe and assess the potential impacts of any actions of the project or likely impacts that will require an authority	Vol 4: Appendix D
Provide the following (mitigation strategies): <ul style="list-style-type: none"> <li>▶ Measures to avoid and mitigate the identified impacts</li> <li>▶ Details of the methodologies that would be used to avoid injuries to livestock and native fauna from the projects construction and operational works</li> <li>▶ Strategies for complying with the objectives and management practices of relevant recovery plans</li> </ul>	Vol 2:5 Vol 3:5 Vol 4: Appendix N1, O, AA
Outline how these measures will be implemented in the EMP	Vol 2:13, Vol 3:13
Outline EPBC or State recover plans for potentially affected threatened species	Vol 1:9
Address feral animal management strategies and practices	Vol 2:13, Vol 3:13
<b>3.3.4 Aquatic Ecology</b>	
Describe the aquatic flora and fauna occurring in the areas affected by the proposal, noting the patterns and distribution in the waterways (e.g. rivers, streams, creeks and other bodies of water) and any associated wetlands. The description of the flora and fauna present or likely to be present in the area should include: <ul style="list-style-type: none"> <li>▶ fish species, mammals, reptiles, amphibians, crustaceans and aquatic invertebrates occurring in the waterways within the affected area and any associated wetlands</li> <li>▶ any near-threatened or threatened aquatic species</li> <li>▶ reference to Ramsar wetlands of international importance in terms of proximity to proposal and likelihood of impacts</li> </ul>	Vol 2:5, Vol 3:5 Vol 4: Appendix O, AD, Section 2



**Terms of Reference Requirement/Section Number**

**Cross-reference**

- ▶ a description of the habitat requirements and the sensitivity of aquatic species to changes in flow regime, water levels and water quality in the project areas
- ▶ aquatic plants including native and exotic/weed species. Refer to Biosecurity Queensland’s Annual Pest Distribution Survey 2008 data and predictive maps and use the data in conjunction with Queensland Herbarium naturalised flora data to determine the occurrence of aquatic pest plants in the project area. Use Local Government area pest management plans to determine the occurrence of priority aquatic pest plants in the project area
- ▶ aquatic and benthic substrate
- ▶ habitat upstream and downstream of the project or potentially impacted due to currents in associated lacustrine and aquatic environments
- ▶ an identification of all types of groundwater-dependent ecosystems occurring within and outside the project area and potentially impacted by project activities.
- ▶ Include a description to Order or Family taxonomic rank of the presence and nature of stygofauna occurring in groundwater likely to be affected by the project.
- ▶ Sampling and survey methods should be in accordance with the best practice guideline currently published by the Western Australian Environmental Protection Authority – Guidance for the assessment of environmental factors No.54 (December 2003) and No.54a (August 2007).
- ▶ Assess the environmental water requirements for protecting the identified groundwater-dependent ecosystems. Groundwater-dependent ecosystems may include:
  - subterranean ecosystems
  - phreatophytic terrestrial and riparian vegetation

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>– springs and other wetlands</li> </ul>	
<ul style="list-style-type: none"> <li>– stream communities dependent on baseflow</li> </ul>	
<ul style="list-style-type: none"> <li>▶ aquatic substrate and stream type, including the locations and extent of any permanent and semi-permanent water holes or streams potentially affected by the mine and its operations and location.</li> </ul>	
<p>Describe the significance of national, state or regional wetlands including wetlands of international importance, and their values and importance for aquatic flora and fauna species.</p>	<p>Vol 2:5, Vol 3:5 Vol 4: Appendix O, AA,</p>
<p>A map is to be included which identifies aquatic ecosystems in the project area and regional scale.</p>	<p>Vol 4: Appendix O, AD,</p>
<p>Discuss the potential permanent and temporary impacts of the project on the aquatic ecosystems and describe proposed measures to avoid, minimise or mitigate actions, including:</p>	<p>Vol 2:5, Vol 3:5 Vol 4: Appendix O, AA,</p>
<ul style="list-style-type: none"> <li>▶ details of proposed stream diversions, causeway construction and crossing facilities, stockpiled material and other impediments that would restrict free movement of aquatic fauna</li> </ul>	
<ul style="list-style-type: none"> <li>▶ measures to avoid fish spawning periods, such as seasonal construction of waterway crossings and measures to facilitate fish movements through water crossings</li> </ul>	
<ul style="list-style-type: none"> <li>▶ details of alternatives to waterway crossings where possible</li> </ul>	
<ul style="list-style-type: none"> <li>▶ offsets proposed for unavoidable, permanent loss of fisheries habitat</li> </ul>	<p>Vol 1: 9.2.3</p>
<ul style="list-style-type: none"> <li>▶ a description of methods to minimise the potential for introducing and/or spreading weed species or plant disease</li> </ul>	<p>Vol 2:13, Vol 3:13</p>

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>measures to avoid or mitigate potential impacts on groundwater-dependent ecosystems. Describe the proposed monitoring for each identified groundwater-dependent ecosystem. In any groundwater aquifers found to contain stygofauna, describe the potential impacts on stygofauna of any changes in the quality and quantity of the groundwater, and describe any mitigation measures that may be applied</li> </ul>	
<ul style="list-style-type: none"> <li>monitoring of aquatic ecology health, productivity and biodiversity in areas upstream and downstream of the project area.</li> </ul>	Vol 2:13
Address any actions of the project or likely impacts that require an authority under the relevant legislation including the NC Act and/or the Fisheries Act 1994.	Vol 4: Appendix D
Outline how these measures will be implemented in the overall EMP for the project.	Vol 2:13, Vol 3:13
<b>3.4. Water Resources</b>	
<b>3.4.1 Description of Environmental Values</b>	
Describe the existing water resources that may be affected by the project in the context of environmental values as defined in such documents as the EP Act, Environmental Protection (Water) Policy 2009 (EPP (Water)), Australia and New Zealand Guidelines for Fresh and Marine Water Quality and the Queensland Water Quality Guidelines	Vol 2:6, Vol 3:6 Vol 4:Appendix P, Section 3 Vol 4:Appendix Q, Section 3 Vol 4:Appendix AC, Section 1.4

Terms of Reference Requirement/Section Number	Cross-reference
<p>Describe present and potential users and uses of water in areas potentially affected by the project, including municipal, agricultural, industrial and recreational uses of water, and reference to any licences held by users. Provide a detailed description of the quality and quantity of surface and groundwater resources in the area potentially affected by the project. Describe:</p>	<p>Vol 2:6, Vol 3:6            Vol 4:Appendix P, Section 4.4.2            Vol 4:Appendix Q, Section 4.1            Vol 4:Appendix AC, Section 2.2 and Figure 2-1</p>
<ul style="list-style-type: none"> <li>▶ existing surface and groundwater in terms of physical, chemical and biological characteristics</li> </ul>	<p>Vol 4:Appendix AC, Sections 2.3 and 2.3.2.1            Vol 4:Appendix R Section 4</p>
<ul style="list-style-type: none"> <li>▶ existing surface drainage patterns, flows, history of flooding including extent, levels and frequency and present water uses</li> </ul>	<p>Vol 4: Appendix AB, Sections 2 and 3            Vol 4:Appendix P Section 4</p>
<p>Describe the surface water and groundwater quality considering seasonal variations in depth and flow and all times of natural flow in ephemeral streams. Parameters should include a broad range of water quality indicators including, but not necessarily limited to:</p>	<p>Vol 4:Appendix P, Section 4</p>
<ul style="list-style-type: none"> <li>▶ Electrical conductivity</li> </ul>	<p>Vol 4:Appendix AC, Sections 2.3 and 2.3.2.1</p>
<ul style="list-style-type: none"> <li>▶ Major cations and anions</li> </ul>	



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Dissolved metals (including Al, Ag, As, B, Br, Ca, Co, Cr, Cu, Fe, Hg, Mo, Mn, Ni, Pb, Se, U, V, Zn)</li> <li>▶ Minor ions (such as ammonia, nitrite, nitrate, fluoride)</li> <li>▶ Hydrocarbons</li> <li>▶ Any other potential toxic or harmful substances</li> <li>▶ Turbidity</li> <li>▶ Suspended sediments</li> <li>▶ pH</li> </ul>	
<p>All sampling should be performed in accordance with the Monitoring and Sampling Manual 2009 or the most current edition. The description of water quality should include medians, ranges and percentiles appropriate for comparison with appropriate trigger levels and guidelines for the protection of aquatic ecosystems and downstream users.</p>	<p>Vol 2: 13 and 14 Vol 3:13</p>
<p>Investigate the relationship between groundwater and surface water to assess the nature of any interaction between the two resources and any implications of the proposed mine that would affect the interaction. If the project is likely to use or affect local sources of groundwater, describe the groundwater resources in the area in terms of:</p> <ul style="list-style-type: none"> <li>▶ Interaction with surface water</li> </ul>	<p>Vol 4:Appendix Q, Section 4.3 Vol 4:Appendix AC, Sections 2.5 and 2.6  Vol 4:Appendix R Section 6 and 7</p>
<p>Describe the environmental values of the surface waterways and groundwater of the affected area in terms of:</p>	<p>Vol 4:Appendix Q,</p>

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ values identified in the EPP</li> </ul>	Section 4 Vol 4:Appendix AC, Section 2
<ul style="list-style-type: none"> <li>▶ Physical integrity, fluvial processes and morphology</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Any impoundments</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Hydrology of waterways and groundwater</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Sustainability (quality and quantity)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Dependent ecosystems</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Existing and other potential surface and groundwater users</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Details of any proposed buffer widths between project activities and waterways</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Any water resource plans relevant to the affected catchments</li> </ul>	
<p>If the project is likely to use or affect local sources of groundwater, describe the groundwater resources in the area in terms of:</p>	
<ul style="list-style-type: none"> <li>▶ A comprehensive hydrogeological description covering: the coal seams and surrounding aquifers, both artesian and sub-artesian; inter-aquifer connectivity; flow of water; recharge and discharge mechanisms; and hydrogeological processes at work</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Current extraction regime</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Geology/stratigraphy</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Aquifer type</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Depth to and thickness of aquifers</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Depth to water level and seasonal changes in levels</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Groundwater flow directions</li> <li>▶ Interaction with surface water</li> <li>▶ Possible sources of recharge</li> <li>▶ Potential exposure to pollution</li> <li>▶ Current access to groundwater resources (bores, springs, ponds, etc)</li> </ul>	
<p>The groundwater assessment should also be consistent with relevant guidelines for the assessment of acid sulfate soils, including spatial and temporal monitoring, to accurately characterise baseline groundwater characteristics.</p>	
<p>For the taking of groundwater, the EIS should review the significance of groundwater in the project area, together with groundwater use in neighbouring areas. Specific reference should be made to relevant legislation or water resource plans for the region. The review should also assess the potential take of water from the aquifer and how current users and the aquifer itself and any connected aquifers will be affected.</p>	<p>Vol 4:Appendix AC, Section 2</p> <p>Vol 4:Appendix R Section 2</p>
<p>The review should include a survey of existing groundwater supply facilities (bores, wells, or excavations) to the extent of any environmental harm. Information gathered for analysis should include:</p>	<p>Vol 4:Appendix AC, Section 2</p>
<ul style="list-style-type: none"> <li>▶ location, type and status of existing water entitlements and associated infrastructure (bores, wells or excavations)</li> </ul>	<p>Vol 4:Appendix R Section 3</p>
<ul style="list-style-type: none"> <li>▶ pumping parameters</li> </ul>	
<ul style="list-style-type: none"> <li>▶ draw down and recharge at normal pumping rates</li> </ul>	
<ul style="list-style-type: none"> <li>▶ seasonal variations (if records exist) of groundwater levels</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<p>Develop a network of observation points that would satisfactorily monitor groundwater resources both before and after commencement of operations.</p>	
<p>The data obtained from the groundwater survey should be sufficient to enable specification of the major ionic species present in the groundwater, pH, electrical conductivity and total dissolved solids.</p>	
<p><b>3.4.2 Potential Impacts and Mitigation Measures</b></p>	
<p>Assess potential impacts, including long-term indirect impacts of the project on water resource environmental values identified in the previous section. Define and describe the objectives and practical measures for protecting or enhancing water resource environmental values, to describe how nominated quantitative standards and indicators may be achieved, and how the achievement of the objectives will be monitored, audited and managed. Address and describe the following matters, including provision of maps:</p>	
<ul style="list-style-type: none"> <li>▶ Potential impacts on the flow and the quality of surface and groundwater from all phases of the project, with reference to their suitability for the current and potential downstream uses and discharge licences</li> </ul>	<p>Vol 4:Appendix P, Sections 8.1 and 8.4 Vol 4:Appendix Q, Sections 5 and 6 (Water Quality)</p>
<ul style="list-style-type: none"> <li>▶ All likely impacts on groundwater depletion or recharge regimes</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The likely volume of groundwater to be dewatered during the operations, and its likely quality characteristics, including salinity</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The impacts on groundwater resources in each aquifer of any take of groundwater or dewatering as a result of the mine's operation, including any potential migration and risks associated with the inter-basin transfer of water</li> </ul>	
<ul style="list-style-type: none"> <li>▶ How extracted groundwater will be managed in the surface water management system to minimise the likelihood of discharging highly saline water</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Measures to prevent, mitigate and remediate any impacts on existing users or groundwater-dependent ecosystems</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The potential environmental impact caused by the project (and its associated project components) to local groundwater resources, including the potential for groundwater-induced salinity</li> </ul>	



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Response of the groundwater resource to the progression and cessation of the proposal</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Impact on the local groundwater regime caused by the altered porosity and permeability of any land disturbance</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The project's impact on the local groundwater regime caused by the altered porosity and permeability of any land disturbance</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Any potential for the project to impact on groundwater-dependent vegetation, including avoidance and mitigation measures</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Potential impacts of surface water flow on existing infrastructure, with reference to the EPP (Water) and the Water Act 2000</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Chemical and physical properties of any wastewater including stormwater at the point of discharge into natural surface waters, including the toxicity of effluent to flora and fauna</li> </ul>	Vol 4:Appendix P, Section 8.4
<ul style="list-style-type: none"> <li>▶ How contaminants and wastes are avoided, minimised, treated and managed in accordance with section 13 of EPP (Water)</li> </ul>	Vol 2: 13 and 14 Vol 3: 13
<ul style="list-style-type: none"> <li>▶ Environmental monitoring to check the effectiveness of mitigation measures</li> </ul>	Vol 4:Appendix P, Section 8.6
<ul style="list-style-type: none"> <li>▶ Potential impacts on other downstream receiving environments, considering the available assimilative capacity of the receiving waters, if it is proposed to discharge water to a riverine system</li> </ul>	Vol 2: 13 and 14 Vol 3: 13
<ul style="list-style-type: none"> <li>▶ If it is proposed to discharge water to a riverine system, mitigation measures for water treatment</li> </ul>	Vol 2: 13 and 14 Vol 3: 13
<ul style="list-style-type: none"> <li>▶ The results of a risk assessment for uncontrolled releases to water due to system or catastrophic failure, implications of such emissions for human health and natural ecosystems, and strategies to prevent, minimise and contain impacts</li> </ul>	Vol 2: 12 and Vol 3:12

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ The potential to contaminate surface and groundwater resources and measures to prevent, mitigate and remediate such contamination.</li> </ul>	<p>Vol 4:Appendix AC, Section 3.2</p> <p>Vol 4:Appendix R Section 3.2</p>
<p>Describe and address the impacts of subsidence, including but not limited to:</p> <ul style="list-style-type: none"> <li>▶ Surface water resources</li> <li>▶ Local drainage patterns</li> <li>▶ Floodplains and overland flows</li> <li>▶ Areas susceptible to higher levels of erosion, such as water course confluences</li> <li>▶ Ponding areas within the floodplain</li> <li>▶ Volumes of local and large-scale catchment runoff, including the interception of low flow events</li> <li>▶ Downstream users</li> <li>▶ Infrastructure within and above the watercourse</li> </ul>	<p>Vol 2:4</p>
<p>Assess any potential surface water and groundwater interaction as a result of subsidence of a watercourse. Also assess the potential impacts on the groundwater regime in alluvial and deeper aquifers due to altered porosity, permeability and interconnectivity from any land disturbance, including subsidence.</p>	<p>Vol 4:Appendix R, Sections 7</p> <p>Vol 4:Appendix AC, Section 2.5</p>

Terms of Reference Requirement/Section Number	Cross-reference
<p>Assess the potential impacts of subsidence on the sediment load within watercourses. Identify any existing Quarry Material Allocation Notice (QMAN) holders in, or downstream of, subsidence areas; and if there are any QMAN holders, assess whether there would be potential impacts on their resource or entitlement. Provide mitigation measures for any impacts on any QMAN holders.</p>	Vol 2:4
<p>Assess the impacts of subsidence on the ecological condition of the bed and banks, including fish passage</p>	
<p>Assess the impacts of subsidence effects on terrestrial ecosystems (including which vegetation communities and flora species are most likely to be affected by changes to surface hydrology). This section is to include a summary of international empirical research on the short-term and long-term impacts of subsidence on:</p>	Vol 2: 4, 5, 13
<ul style="list-style-type: none"> <li>▶ Aquatic ecosystems (including creeks, rivers and swamps)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Terrestrial ecosystems (including the impacts of lowered water tables on native vegetation)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Biota</li> </ul>	
<p>Detail measures that would mitigate the impacts of subsidence</p>	
<p>Describe and illustrate any proposed diversions of watercourses, including any staging and whether the diversions are proposed to be temporary or permanent.</p>	Vol 2:6
<p>Describe, using photographic evidence, the geomorphic condition of any watercourses likely to be affected by disturbance or stream diversion. The results of this description will form the basis for the planning and subsequent monitoring of rehabilitation of the watercourses during or after the operation of the proposal. Base the design of any diversions on the geomorphic condition of the original watercourses and demonstrate consideration of, and accordance with, best practice guidelines and reports, such as those produced by DERM or the Australian Coal Association Research Program for mines in the Bowen Basin. The EIS should contain enough information on each diversion to demonstrate the diversion can be constructed to meet engineering requirements and be monitored and managed in accordance with relevant best practice guidelines</p>	
<p>Outline the impacts on all surface water resources and changes to flow immediately downstream of the project by describing:</p>	Vol 2:6

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>Local overland flow catchment characteristics and estimated change to mean and median (50th percentile) annual run off from local overland flow catchments</li> </ul>	
<ul style="list-style-type: none"> <li>Change to flows including mean and median (50th percentile) annual flow, in watercourses immediately downstream of the site</li> </ul>	
<p>Describe the options for supplying water to the project, and assess the consequential impacts in relation to any water resource plan, resource operations plan and wild river declaration that may apply. Water allocation and water sources will be established in consultation with DERM. Detail the proposed capacities of water storages and indicate whether they would capture clean water (including overland flow) or would hold mine-affected water to comply with an environmental authority.</p>	<p>Vol 2:2 and Vol 3:2</p>
<p>Reference should be made to the properties of the land disturbed and processing liquid wastes, the technology for settling suspended clays from contaminated water, and the techniques to be employed to ensure that contaminated water is contained and successfully treated on the site</p>	<p>Vol 4:Appendix P, Section 4.4 Vol 4:Appendix Q, Sections 5.2 and 6.3</p>
<p>Describe the proposed stormwater drainage system and the proposed disposal arrangements, including any off-site services. Illustrate the description with figures and contours at suitable intervals (one metre contours in areas of low relief), showing drainage pathways and the locations and discharge points of sediment detention basins and any other stormwater quality improvement devices.</p>	<p>Vol 4:Appendix P, Section 6 and Figure 8-1</p>
<p>Describe management strategies in adequate detail to demonstrate best practice management and the environmental values of receiving waters will be maintained to nominated water quality objectives. Describe the monitoring programs that will assess the effectiveness of management strategies for protecting water resources during the construction, operation and decommissioning of the project. Such programs will include upstream and downstream sampling sites at the proposed area and at reference locations, i.e. non-impacted sites. Downstream monitoring will include sites located near the proposed discharge points in addition to other relevant downstream locations. Sites will include permanent and semipermanent water holes, known aquatic habitats, weirs or reservoirs. Obtain and discuss complementary stream flow data (where available) to aid interpretation. Outline how management strategies will be incorporated into appropriate sections of the EMP</p>	<p>Vol 4:Appendix P, Sections 6 and 8 Vol 4:Appendix Q, Sections 4.1, 5, 6 and 7</p>

Terms of Reference Requirement/Section Number	Cross-reference
Identify the principles and objectives of the proposed monitoring in the coal seams and surrounding aquifers and include a supporting rationale for the monitoring. The approach should describe the parameters to be monitored, the frequency of monitoring and the proposed recording mechanisms and reporting arrangements.	Vol 2:13
The EIS should outline all of the approvals required under the Water Act 2000, Water Regulation 2002 and subordinate legislation to complete the project, including construction and operational stages	Vol 4:Appendix P, Section 3 Vol 4:Appendix AC, Section 1.4
Address where there will be a requirement for a Quarry Material Allocation and an associated Development Approval under the Sustainable Planning Act	Vol 4:Appendix AC, Section 1.4
<b>3.5. Air Quality</b>	
<b>3.5.1 Description of Environmental Values</b>	
Describe the existing air quality that may be affected by the project in the context of environmental values as defined by the EP Act and Environmental Protection (Air) Policy 2008	Vol 4:Appendix AD and Appendix S 3.2, 3.3
<p>Discuss the existing air shed environment—both local and regional—including:</p> <ul style="list-style-type: none"> <li>▶ background levels and sources of particulates, gaseous and odorous compounds and any major constituent</li> <li>▶ pollutants including greenhouse gases which may be affected by the project</li> <li>▶ baseline monitoring results, sensitive receptors</li> <li>▶ gathering data on local meteorology and ambient levels of pollutants to provide a baseline for later studies or for modelling air quality environmental harms</li> </ul>	Vol 2:7 and Vol 3:7

Terms of Reference Requirement/Section Number	Cross-reference
Parameters should include air temperature, wind speed and direction, atmospheric stability, mixing depth and other parameters necessary for input to the models.	
<b>3.5.2 Potential impacts and mitigation measures</b>	
For air quality impacts and their mitigation:	Vol 4: Appendix AD and Vol 4: Appendix S Section 4 and 5
<ul style="list-style-type: none"> <li>▶ include an inventory of air emissions from the project expected during construction and operational activities</li> </ul>	
<ul style="list-style-type: none"> <li>▶ accurately describe the activities carried out on the site; include a process flow diagram clearly showing all unit operations to be carried out on the premises; and provide a detailed discussion of all unit operations</li> </ul>	
<ul style="list-style-type: none"> <li>▶ describe all pollution control equipment and pollution control techniques employed on the premises and the features of the proposal designed to suppress or minimise emissions, including dusts</li> </ul>	
<ul style="list-style-type: none"> <li>▶ describe the back-up measures that will act in the event of primary measures failing, to minimise the likelihood of upsets and adverse air impacts</li> </ul>	
<ul style="list-style-type: none"> <li>▶ provide an air emission inventory of the proposed site for all potential points, area and volume sources including fugitive emissions of dusts; provide a complete list of emissions to the atmosphere including SO<sub>x</sub>, NO<sub>x</sub>, CO<sub>2</sub>, particulates, PM<sub>10</sub> and PM<sub>2.5</sub></li> </ul>	
<ul style="list-style-type: none"> <li>▶ identify all expected emissions of the hazardous air pollutants and their emissions from known and fugitive sources</li> </ul>	
<ul style="list-style-type: none"> <li>▶ estimate emission rates, based on actual measurements of samples taken from similar facilities—either full-scale facilities operating elsewhere, or experimental or demonstration-scale facilities. Where this is not possible, use published emission factors and/or data supplied by manufacturers of process and control equipment</li> </ul>	
<ul style="list-style-type: none"> <li>▶ provide an impact assessment with relevant inputs of emissions and local meteorology to an air dispersion model to estimate the likely impacts on the surrounding environment. The model inputs should be as detailed as possible, reflecting any variation of emissions with time and including at least a full year of representative hourly meteorological data.</li> </ul>	



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>Estimate maximum ground level concentration and monthly average dust deposition values at the nearest sensitive receptor(s).</li> </ul>	
<ul style="list-style-type: none"> <li>Present the results of the dispersion modelling as concentration contour plots and concentrations at the discrete sensitive receptors.</li> </ul>	
<ul style="list-style-type: none"> <li>The predicted ground level concentration should be made for both normal and expected maximum emission conditions and the worst case meteorological conditions should be identified and modelled where necessary</li> </ul>	
<ul style="list-style-type: none"> <li>Describe the background ambient air concentration from the existing sources in the airshed and evaluate the cumulative impact on the receiving environment. Address both acute and cumulative impacts by considering the project in conjunction with existing and known future emission sources within the region</li> </ul>	
<ul style="list-style-type: none"> <li>Provide an averaging period for ground level concentrations of pollutants that are modelled. This should be consistent with the relevant averaging periods for air quality indicators and goals in the EPP (Air) and the National Environment Protection (Ambient Air Quality) Measure 1998. For example, the modelling of PM10 must be conducted for 1 hour, 24 hours and annual averaging periods</li> </ul>	
<ul style="list-style-type: none"> <li>Identify the worst case meteorological conditions based on the modelled ground level predictions and, using this information, develop dust mitigation measures for the mining activities.</li> </ul>	
<ul style="list-style-type: none"> <li>Describe the dust management plan that will be employed to mitigate adverse air impacts under the worst meteorological conditions</li> </ul>	
<ul style="list-style-type: none"> <li>Discuss the limitations and accuracy of the applied atmospheric dispersion models. The air quality modelling results should be discussed in light of the limitations and accuracy of the applied models</li> </ul>	
<ul style="list-style-type: none"> <li>Where there is no single atmospheric dispersion model that can handle the different atmospheric dispersion characteristics exhibited in the proposal area (e.g. sea breezes, strong convection, terrain features, temperature inversions and pollutant re-circulation), a combination of acceptable models will need to be applied</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>Identify ‘worst case’ emissions that may occur during operation. If these emissions are significantly higher than those for normal operations, it will be necessary to evaluate the worst-case impact as a separate exercise to determine whether the planned buffer distance between the facility and neighbouring sensitive receptors will be adequate</li> </ul>	
<ul style="list-style-type: none"> <li>Ground level predictions should be made at any sensitive receptor including proposed accommodation camps and any residential, industrial, agricultural, commercial and community developments believed to be sensitive to the effects of predicted emissions</li> </ul>	
<ul style="list-style-type: none"> <li>Discuss dust generation from construction activities, especially in areas where construction activities are adjacent to existing road networks or are in close proximity to sensitive receivers</li> </ul>	
<ul style="list-style-type: none"> <li>Discuss climatic patterns that could affect dust generation and movement</li> </ul>	
<ul style="list-style-type: none"> <li>Discuss vehicle emissions and dust generation along major road and rail haulage routes both internal and external to the project site</li> </ul>	
<ul style="list-style-type: none"> <li>Assess human health risk associated with emissions from the facility of all hazardous or toxic pollutants</li> </ul>	
<ul style="list-style-type: none"> <li>Discuss impacts on terrestrial flora and fauna</li> </ul>	
<p>Discuss potential air quality impacts from emissions with reference to the National Environment Protection (Ambient Air Quality) Measure 1998 and the EPP (Air).</p>	<p>Vol 4:Appendix AD, Sections 2.2 and 4</p>
<p>If an emission is not addressed in these legislative instruments, the emission should be discussed with reference to its risks to human health, including appropriate health-based guidelines/standards.</p>	<p>Vol 4:Appendix AD, Sections 4.4</p>
<p>To ensure that appropriate coal rail transport-related dust mitigation measures are implemented at the project, the proponent should consult with QR National’s Network Division to determine the likely requirements for new or upgraded coal-loading facilities, load controls and spray-on coal dust suppressant systems as a result of implementing the Transitional Environmental Program and <i>QR Coal Dust Management Plan</i> across all coal railways in Queensland.</p>	<p>Vol 4:Appendix AD, Section 4</p>



Terms of Reference Requirement/Section Number	Cross-reference
<b>3.6. Greenhouse Gas Emissions</b>	
<b>3.6.1 Description of environmental situation</b>	
Provide an inventory of projected annual emissions for each relevant greenhouse gas, with total emissions expressed in 'CO <sub>2</sub> equivalent' terms for the following categories:	Vol 2:8 and Vol 3:8 Vol 4:Appendix AE Section 3, Vol 4: Appendix T Section 3
<ul style="list-style-type: none"> <li>▶ Scope one emissions, where 'scope one emissions' means direct emissions of greenhouse gases from sources within the boundary of the facility and as a result of the facility's activities</li> <li>▶ Scope two emissions, where 'scope two emissions' means emissions of greenhouse gases from the production of electricity, heat or steam that the facility will consume, but that are physically produced by another facility</li> </ul>	
Briefly describe method(s) by which estimates were made.	Vol 2:8 and Vol 3:8 Vol 4:Appendix AE Section 1.5 and Vol 4: Appendix T Section 1.5
The Department of Climate Change <i>National Greenhouse Accounts (NGA) Factors</i> can be used as a reference source for emission estimates and supplemented by other sources where practicable and appropriate. Coal mining projects should include estimates of coal seam methane to be released as well as emissions resulting from such activities as transportation of products and consumables and energy use by the project.	Vol 4:Appendix AE, Section 1.5
As a requirement of the <i>National Greenhouse Accounts (NGA) Factors</i> , estimates should include the loss of carbon sink capacity of vegetation due to clearing and impoundment.	Vol 4:Appendix AE, Section 1.5
<b>3.6.2 Potential Impacts and Mitigation Measures</b>	
Discuss the potential for greenhouse gas abatement measures, including:	Vol 2:8.3 and Vol

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ A description of the proposed measures (alternatives and preferred) to avoid and/or minimise direct greenhouse gas emissions</li> <li>▶ An assessment of how the preferred measures minimise emissions and achieve energy efficiency</li> <li>▶ An indication of how the preferred measures for emission controls and energy consumption compare with practice in the relevant sector of industry with a view to achieving best practice environment management</li> <li>▶ A description of any opportunities for further offsetting greenhouse gas emissions through indirect means including sequestration and carbon trading.</li> </ul>	3:8.3, Vol 4: Appendix AE, Sections 3, Vol 4: Appendix T Section 4 and 5
<p>The environmental management plan in the EIS should include a specific module to address greenhouse abatement. That module should include:</p>	
<ul style="list-style-type: none"> <li>▶ Commitments to the abatement of greenhouse gas emissions from the project with details of the intended objectives, measures and performance standards to avoid, minimise and control emissions</li> <li>▶ Commitments to energy management, including undertaking periodic energy audits with a view to progressively improving energy efficiency</li> <li>▶ A process for regular review of new technologies to identify opportunities to reduce emissions and use energy efficiently, consistent with best practice environmental management</li> <li>▶ Any voluntary initiatives such as projects undertaken as a component of the national Greenhouse Challenge Plus program, or research into reducing the lifecycle and embodied energy carbon intensity of the project's processes or products</li> <li>▶ Opportunities for offsetting greenhouse emissions, including, if appropriate, carbon sequestration and renewable energy uses</li> <li>▶ Commitments to monitor, audit and report on greenhouse emissions from all relevant activities and the success of offset measures</li> </ul>	Vol 2:13 Vol 3:13

Terms of Reference Requirement/Section Number	Cross-reference
<b>3.7. Noise and Vibration</b>	
<b>3.7.1 Description of environmental values</b>	
Describe the existing noise and vibration environment that may be affected by the project in the context of environmental values as defined by the Environmental Protection (Noise) Policy 2008 (EPP (Noise)). DERM's Noise Measurement Manual <sup>40</sup> should be considered and references should be made to the EPA's Guideline: Noise and Vibration from Blasting	Vol 2:9, Section 2 Vol 3:9, Section 2 Vol 4:Appendix U, Section 2 Vol 4:Appendix AF, Sections 1.3 and 2
Identify sensitive noise receptors adjacent to all project components and estimate typical background noise and vibration levels based on surveys at representative sites. Include proposed accommodation camps as sensitive noise receptors	Vol 2:9, Table 2-1 Vol 3:9, Table 2-1 Vol 4:Appendix U, Sections 2.1 Vol 4:Appendix AF, Section 2
Discuss the potential sensitivity of such receptors and nominate performance indicators and standards. The locations of any noise sensitive receptors, as listed in Schedule 1 of EPP (Noise), should be identified on a map at a suitable scale	Vol 2:9, Section 2.2 and Figure 3-1 Vol 3:9, Section 2.2 and Figure 1-2 Vol 4:Appendix U, Sections 2.1, 1.3 Vol 4:Appendix AF, Sections 1.3, 2.1. and 3, Figure 1-2

Terms of Reference Requirement/Section Number	Cross-reference
<p>Where a railway is also proposed to be constructed and operated, conduct an assessment of the acoustic impacts of the rail in the context of:</p>	
<ul style="list-style-type: none"> <li>▶ The QR Code of Practice for Railway Noise Management for external design level noise criteria</li> </ul>	<p>Vol 3:9, Section 3.5.1 Vol 4:Appendix AF, Section 3</p>
<ul style="list-style-type: none"> <li>▶ Meeting indoor design level noise criteria to achieve average maximum sound level between 10:00 pm and 6:00 am of 45 decibels (dB)</li> </ul>	<p>Vol 3:9, Section 1.3.2 Vol 4:Appendix AF, Section 1.3</p>
<p><b>3.7.2 Potential impacts and mitigation measures</b></p>	
<p>Describe the impacts of noise and vibration generated during the construction and operational phases of the project. Noise and vibration impact analysis should include:</p>	<p>Vol 2:9.3 Vol 3:9.3</p>
<ul style="list-style-type: none"> <li>▶ The levels of noise and vibration generated, including noise contours, assessed against current typical background levels, using modelling where appropriate</li> </ul>	<p>Vol 4:Appendix AF, Section 3 Vol 4:Appendix U, Section 3</p>
<ul style="list-style-type: none"> <li>▶ Impact of noise, including low frequency noise (noise with components below 200 Hz) and vibration at all potentially sensitive receivers compared with the performance indicators and standards nominated above</li> </ul>	<p>Vol 4:Appendix AF, Section 3</p>

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Impact on terrestrial and aquatic fauna</li> </ul>	Vol 2:9, Section 4.8 Vol 3:9, Section 3 Vol 4:Appendix U, Sections 3.4 Vol 4:Appendix AF, Section 3
<ul style="list-style-type: none"> <li>▶ Proposals to minimise or eliminate these effects, including details of any screening, lining, enclosing or bunding of facilities, or timing schedules for construction and operations that would minimise environmental harm and environmental nuisance from noise and vibration</li> </ul>	Vol 4:Appendix AF, Section 3
<p>Any impact on human health at sensitive receptors (including accommodation camps) must be appropriately mitigated to achieve a satisfactory internal noise level for the preservation of health and well-being identified within the Environmental Protection (Noise) Policy 2008. Provide management options at sensitive receptors when noise attenuation at the source does not adequately reduce noise generation</p>	Vol 4:Appendix U, Section 3 Vol 4:Appendix AF, Sections 3.2, 3.3, 3.4 and 3.5, Figure 1-2 and Appendix C
<b>3.8. Waste</b>	
<b>3.8.1 Waste Generation</b>	
<p>Provide an inventory of all wastes to be generated by the project during the construction, operational and decommissioning phases of the project.</p>	Vol 2:10, Table 10-1 and 10-2 Vol 3:10, Tables 10-1

Terms of Reference Requirement/Section Number	Cross-reference
<p>In addition to the expected total volumes of each waste produced, include an inventory of the following per-unit volume of product produced:</p> <ul style="list-style-type: none"> <li>▶ The tonnage of raw materials processed</li> <li>▶ The amount of resulting process wastes</li> <li>▶ The volume and tonnage of any re-usable by-products</li> </ul>	Vol 2:10 and Vol 3:10
<p>Provide schematic diagrams of processes to be used at each distinct stage of the project, indicating each waste stream and its intended fate. This applies to all waste outputs—solid, liquid and gaseous—including fugitive emissions from coal seams, and recycling efforts such as stockpiling and reusing topsoil.</p>	Vol 2:10 Vol 3:10, Figure 10-1
<p>The schematic diagrams, or an associated table, will cross-reference the relevant sections of the EIS where the potential impacts and mitigation measures associated with each waste stream are described.</p>	
<p>Describe the physical and chemical characteristics and the variability of composition and generation rates of each waste material.</p>	Vol 2:10 Vol 3:10
<p>In each subsection on waste management, assess how the proposed methods for waste management at each stage of the project achieve the highest possible level on the waste management hierarchy with regard to the principles in the <i>Environmental Protection (Waste Management) Policy 2000</i>.</p>	Vol 2:10.1.5 Vol 3:10.4
<p>Describe how the project would achieve natural resource use efficiency (such as minimum use of energy and water, and minimum footprint on used land), integrated processing design, co-generation of power and by-product re-use as shown in a material/energy flow analysis. This information is required to enable the resource management agencies and other stakeholders to assess the efficiency of resource use, and allocation issues.</p>	Vol 2:10.1.5



Terms of Reference Requirement/Section Number	Cross-reference
<b>3.8.2 Waste management</b>	
<p>Having regard for best practice waste management strategies and the <i>Environmental Protection (Waste Management) Policy 2000</i> and the <i>Environmental Protection (Waste Management) Regulation 2000</i>, assess the potential impact of all wastes generated during construction and operation and provide details of each waste in terms of:</p>	<p>Vol 2:101.5 Vol 3:10</p>
<ul style="list-style-type: none"> <li>▶ The options available for avoidance/minimisation</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Operational handling and fate of all wastes including storage</li> </ul>	
<ul style="list-style-type: none"> <li>▶ On-site treatment methods proposed for any wastes</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Methods of disposal proposed to be used for any trade wastes, liquid wastes and solid wastes (including the need to transport wastes off site for disposal)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The potential level of impact on environmental values</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Measures to ensure stability of the waste storage areas and impoundments</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Methods to prevent seepage and contamination of groundwater from stockpiles and/or storage areas and impoundments</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Measures to minimise attraction of vermin, insects and pests</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Options available for using recycled materials</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Market demand for recyclable waste (where appropriate)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Decommissioning of the construction site</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
Provide details of waste management strategies (including reduction, re-use, recycling, storage, transport and disposal of waste) which demonstrate that waste minimisation and cleaner production techniques and designs have been implemented through the selection of processes, equipment and facilities to prevent or minimise environmental impacts.	Vol 2:10 and Vol 3:10
Provide information on the variability, composition and generation rates of all waste produced at the site and processing plant.	Vol 2:10 and Vol 3:10
Detail cleaner production waste management planning, especially how these concepts have been applied to prevent or minimise environmental impacts at each stage of the proposal.	Vol 2:10 and Vol 3:10
Present measures to improve natural resource use efficiency (e.g. energy and water), integrated processing design, any co-generation of power and by-product re-use, as shown in a material/energy flow analysis.	Vol 2:10 and Vol 3:10
This information is required to enable the resource management agencies and other stakeholders to assess the efficiency of resource use, and allocation issues.	
<b>Air emissions</b>	
Provide information on air emissions, including particulates, fumes and odours during the construction and operation stages of the project. Particulate emissions include those that would be produced by any industrial process, or disturbed by wind action on stockpiles and conveyors, or by transportation equipment (e.g. trucks—either by entrainment from the load or by passage on unsealed roads). The methods to be employed in the mitigation of impacts from air emissions should be described in section 3.5, Air quality.	Vol 2:7 and Vol3:7 Vol 4: Appendix AE Vol 4: Appendix S
<b>Excavated waste</b>	
Describe the materials to be excavated as waste; describe and illustrate the location, design and methods for constructing dumps for waste rock and any subsoil that will not be replaced in rehabilitation, including the following:	Vol 4: Appendix V Acid Mine Drainage
<ul style="list-style-type: none"> <li>▶ An estimation of the tonnage and volume of waste rock and subsoil to be excavated during the various stages of operation</li> </ul>	



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>– provide an estimate for each separate rock and soil type; describe the expected proportion and source of waste rock that is mineralised but currently uneconomical for processing</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A description of the chemical and physical properties of the waste rock and subsoil, and assessment of the properties that affect their erosion and leaching potential</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Undertake the characterisation of the waste in accordance with the Assessment and Management of Acid Drainage guideline of the <i>Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland series, Managing Acid and Metalliferous Drainage</i> and any other applicable best practice guidelines</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The characterisation of waste rock and subsoil will include, but not necessarily be limited to:</li> </ul>	
<ul style="list-style-type: none"> <li>– sulfides</li> </ul>	
<ul style="list-style-type: none"> <li>– metals</li> </ul>	
<ul style="list-style-type: none"> <li>– pH</li> </ul>	
<ul style="list-style-type: none"> <li>– conductivity and chloride of slurry samples</li> </ul>	
<ul style="list-style-type: none"> <li>– the Net Acid Producing Potential (NAPP) and Net Acid Generation (NAG) potential of the mined waste</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Pay particular attention to materials such as waste rock immediately above or below coal seams, where potentially acid forming material may be concentrated. The sampling effort must be sufficient to provide a statistically valid characterisation of each of the various types of waste rock, taking account of the geological variability and complexity within and between rock types</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A discussion of the potential for acid, neutral, alkaline or saline drainage from waste dumps</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Characterise the potential quality of leachate from the mined waste under field conditions, including contaminants such as sulfate, pH, chloride, iron, major cations and anions, and any chemical species in sufficient quantity that is likely to cause environmental harm including nuisance</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Cross-reference to sections elsewhere in the EIS that assess in detail the potential impacts of any direct or indirect discharge of leachate on downstream sensitive environments or users of receiving waters</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Use the estimated amounts and characteristics of excavated waste to develop appropriate measures for dealing with that waste, including designs for waste dumps, and alternatives for excavated waste disposal such as in-filling of voids, off-site options and treatment of contaminated soil. Assess the likely performance of the proposed waste disposal options with particular regard to:</li> </ul>	
<ul style="list-style-type: none"> <li>– segregating and encapsulating sub-economic but mineralised rock and/or potentially acid-forming rock</li> </ul>	
<ul style="list-style-type: none"> <li>– managing surface drainage and sub-surface leachate, both during operations at the mine and after mining ceases (note: avoid placing dumps across drainage lines that would pond water behind the dump and cause infiltration)</li> </ul>	
<ul style="list-style-type: none"> <li>– slope profiles and the stability and erosion potential of waste dumps</li> </ul>	
<ul style="list-style-type: none"> <li>– the intended land use after mining ceases, and the land management and maintenance requirements for the subsequent landholder</li> </ul>	
<ul style="list-style-type: none"> <li>▶ consideration of the physical, geo-mechanical and chemical properties of waste rock in both fresh and weathered forms when determining their suitability for constructing stable slopes and developing measures to avoid acid generation from waste rock dumps and backfilling operations</li> </ul>	
<ul style="list-style-type: none"> <li>▶ illustration of the location and cross-sections of the proposed dumps on maps, drawings and diagrams relative to topography and other natural features of the area.</li> </ul>	

**Terms of Reference Requirement/Section Number**

**Cross-reference**

**Tailings**

Describe the methods and materials that would be used to produce tailings waste (tailings should be understood to include any fine reject material) including the following:

Vol 2:2 and Vol 2:10.2

- ▶ State whether the methods to be used to produce and treat tailings would be novel or established. For novel methods, describe the testing undertaken to determine if the method would be suitable for the proposed use. For established methods, provide examples of where the method has been, or is being, used and assess the equivalence of those examples to the proposed use.
- ▶ Estimate the annual production of tailings waste at the various stages of the project.
- ▶ Describe how the methods used to produce and treat tailings would be in accordance with the waste management hierarchy and the tailings management principles in the tailings management guideline of the *Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland series*.
- ▶ Describe in detail the likely physical and chemical characteristics of the tailings waste and the likely chemical characteristics of wastewater from the pressing plant, the decant water from any tailings storage facility (TSF), and the pore water and leachate from any dump containing tailings.
- ▶ Describe and illustrate the proposed locations of any pits, dams, bunds or dumps that would be used for disposing of tailings.
- ▶ Describe and illustrate the proposed design of any TSF, including any cells for non-flowable tailings within waste rock dumps. Note: a shear strength of greater than 1000 pascals would generally be required of pastes suitable for dry tailings stacking, while pastes with lower shear strength must be contained in a regulated dam. However, the slumping and plastic properties of any tailings considered for disposal by dry stacking will be derived from tests on representative samples and reported in the EIS.
- ▶ Describe the source, and assess the suitability, of the materials to be used to construct containment systems. Describe any proposed staging of the construction for any TSF or disposal cells and demonstrate that the design has been produced by a suitably qualified and experienced engineer.

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Conduct, and report on, a risk assessment and describe how it has been used to derive the design storage allowance for any regulated dams. Assess whether the proposed design and methods of disposal would minimise the potential hazards and risks, particularly in relation to the potential impacts of failure caused by mass release from structural failure or contaminant release from overflow. Also, assess whether the proposed design maximises site efficiency, such as by minimising the footprint.</li> <li>▶ If some form of co-disposal of fine and coarse rejects is proposed, describe the range of proportions, size fractions and mixing method that would produce a stable deposit.</li> <li>▶ Describe the proposed discharge locations and conditions for any TSF. Describe the flow path any discharge would take, illustrated on contour maps, and provide an overview of the potentially affected receiving environment with particular regard to downstream sensitive ecosystems or users of receiving waters. Discharge should be taken to mean any planned or unplanned overflow or release, any leachate, or any potentially contaminated runoff leaving a TSF. Assess in detail the potential impacts of any discharge on downstream sensitive environments or users of receiving waters in the appropriate sections of the EIS and cross-reference to them in this section.</li> <li>▶ Describe the proposed monitoring network and regime that would be used to detect any leak from the TSF.</li> <li>▶ Describe the proposed measures to be used to decommission any TSF or dump used for the disposal of tailings. Assess any legacy issues for the subsequent landholder.</li> <li>▶ Provide a detailed description of tailings disposal facilities stability, capping and rehabilitation, including hydraulic performance of the tailings disposal facilities during operation and post-decommissioning.</li> </ul>	
<b>Solid waste disposal</b>	
Describe the quantity and quality of solid wastes (other than waste rock, subsoil and tailings addressed in other sections) and the proposed disposal methods.	Vol 2:10, Vol 3:10
The proposed location, site suitability, dimensions and volume of any landfill, including its method of construction, should be shown	Vol 2:10, Vol 3:10

Terms of Reference Requirement/Section Number	Cross-reference
<b>Liquid waste</b>	
Describe the origin, quality and quantity of wastewater and any immiscible liquid waste originating from the project, other than that addressed in other sections.	Vol 2:10, Vol 3:10
Pay particular attention to the capacity of wastes to generate acid, and saline or sodic wastewater.	
A water balance for the proposal and processing plant is required to account for the estimated usage of water.	Vol 2:2. 2:6
The EIS may need to consider the following effects:	Vol 2:2. 2:6
<ul style="list-style-type: none"> <li>▶ groundwater from excavations</li> </ul>	
<ul style="list-style-type: none"> <li>▶ rainfall directly onto disturbed surface areas</li> </ul>	
<ul style="list-style-type: none"> <li>▶ run-off from roads, plant and industrial areas, chemical storage areas</li> </ul>	
<ul style="list-style-type: none"> <li>▶ drainage (i.e. run-off plus any seepage or leakage)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ seepage from other waste storages</li> </ul>	
<ul style="list-style-type: none"> <li>▶ water usage for:           <ul style="list-style-type: none"> <li>– process use</li> <li>– dust suppression</li> <li>– domestic purposes</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>▶ evaporation</li> </ul>	
<ul style="list-style-type: none"> <li>▶ domestic sewage treatment—disposal of liquid effluent and sludge</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ water supply treatment plant—disposal of wastes</li> </ul>	
<b>3.9. Transport</b>	
<b>3.9.1 Existing Transport</b>	
<p>Present the transport assessment in separate reports for each project-affected mode (road, rail, air and sea) as appropriate. These assessment reports should provide sufficient information to allow an independent assessment of how existing transport infrastructure will be affected by project transport at the local and regional level.</p>	<p>Single report has been prepared across all modes as this is considered appropriate for the project.</p>
<p>They should also include all base data assumptions, including current condition of the affected network and its performance.</p>	<p>Vol 4: Appendix W Sections 1.5, 2.5, and 3.1-3.6</p>
<p>An overview map of the state-controlled road (SCR) network showing other major inventory features (e.g. bridges) should be included to enable the site to be fully understood in context of this network. The map should include the location of construction activities, access locations (existing and proposed) to the SCR network (if applicable), and potential crossings of the SCR network associated with the proposed rail line, as well as any construction camps likely to be used.</p>	<p>Vol 2:11, Section 6.1.3 Vol 3:11, Section 3.1 Vol 4:Appendix W and AG, Section 3.1 and Figure 1-1</p>

**Terms of Reference Requirement/Section Number**

**Cross-reference**

**3.9.2 Transport Tasks and Routes**

For all phases of the project, describe the following (for example traffic data should be presented as average annual daily traffic and percentage of vehicle by class— including light vehicles, heavy vehicles etc):

Vol 2:11  
Vol 3:11

- Expected volumes of project inputs and outputs of transported raw materials, wastes, hazardous goods, finished products

Vol 4:Appendix W,  
Sections 4 & 5  
Vol 4; Appendix  
AG, Section 3

- How identified project inputs and outputs will be moved through the transport network (volume, composition, trip timing, routes and haulage of materials)

Vol 4:Appendix W,  
Sections 4.2 &  
5.2.3  
Vol 4; Appendix  
AG, Section 3

- Traffic generated by construction and operational workforce personnel including visitors (volume, composition, timing and routes) and likely accommodation facilities including possible bussing strategies to manage peak hour travel from major accommodation centres

Vol 4:Appendix W,  
Sections 4.2.5,  
5.2.4  
Vol 4; Appendix  
AG, Sections 4 and  
5

- Likely heavy and oversize/indivisible loads (volume, composition, timing and routes) highlighting any vulnerable bridges and structures along proposed routes.

Vol 4:Appendix W,  
Sections 6.3 & 7.3  
Vol 4; Appendix  
AG, Sections 4 and  
5

Terms of Reference Requirement/Section Number	Cross-reference
<b>3.9.3 Potential impacts</b>	
Impact assessment reports should include:	Vol 2:11 Vol 3:11
<ul style="list-style-type: none"> <li>▶ Details of the adopted assessment methodology (for impacts on roads, the road impact assessment report in general accordance with the Guidelines for Assessment of Road Impacts of Development)</li> </ul>	Vol 4:Appendix W, Sections 6 & 7 Vol 4; Appendix AG, Sections 6 and 7
<ul style="list-style-type: none"> <li>▶ Description of input data and assumptions</li> </ul>	Vol 4:Appendix W, Section 2.4 Vol 4; Appendix AG, Section 2
<ul style="list-style-type: none"> <li>▶ A summary of consultation undertaken with transport authorities and Queensland Police Service (QPS) regarding scope of impact assessment and methodology</li> </ul>	Vol 4:Appendix W, Section 2.3 Vol 4; Appendix AG, Section 2
Assess project impacts on:	Vol 4; Appendix AG, Appendix W Sections 6 and 7
<ul style="list-style-type: none"> <li>▶ Capacity, safety, efficiency and condition of transport operations, services and assets (from either transport or project operations)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Any other proposed rail projects in the vicinity of the subject proposal</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Possible interruptions to transport operations</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Possible impacts on the existing road network from building the proposed rail infrastructure (e.g. haulage of construction inputs)</li> </ul>	



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Road safety and efficiency due to where and how rail crossings will be built</li> <li>▶ The natural environment within the jurisdiction of an affected transport authority (e.g. road and rail corridors)</li> <li>▶ The nature and likelihood of product-spill during transport if relevant</li> <li>▶ River fatigue for workers travelling to and from regional centres and key destinations</li> <li>▶ Any existing or proposed strategies for public passenger transport and active transport and address, where relevant, requirements of Part 2A of the <i>Transport Planning and Coordination Act 1994</i></li> <li>▶ Access to transport for people with a disability</li> </ul>	
<p>Detail any proposed new rail infrastructure to be constructed and operated.</p>	<p>Vol 3:2</p>
<p>For listed species with the potential to occur within or near the proposed site, provide an analysis of all direct and indirect impacts of the each railway option, including; habitat lost, edge effects, incursion of vertebrate pests, noise and disturbance, habitat fragmentation, as a direct source of mortality and cumulative impacts as a result of the presence of other linear infrastructure (eg where habitat becomes isolated between the proposed railway and other linear infrastructure).</p> <p>This section must discuss the uncertainties in information provided and risks to the viability of listed species populations locally, regionally and nationally.</p>	<p>Vol 4: Appendix AA Section 2</p>
<p><b>3.9.4 Infrastructure alterations</b></p>	
<p>Detail:</p>	<p>Vol 4:Appendix W, Sections 4</p>
<ul style="list-style-type: none"> <li>▶ Any proposed alterations or new transport-related infrastructure and services required by the project (as distinct from impact mitigation works)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Construction of any project-related plant and utilities, within or impacting on the jurisdiction of any transport authority</li> </ul>	



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>Requirements to upgrade existing level crossings due to increased project traffic during both the construction and operations phases of the project including community indirect costs and benefits and later staged upgrading requirements over the life of the mine</li> </ul>	
<b>3.9.5 Transport management mitigation strategies</b>	
<p>Discuss and recommend how identified impacts will be mitigated so as to maintain safety, efficiency and condition of each mode.</p>	<p>Vol 4:Appendix W, Sections 6.4.3 &amp; 7.3.3 Vol 4; Appendix AG, Sections 6 and 7</p>
<p>Prepare these mitigation strategies in close consultation with relevant transport authorities and QPS, considering each authority's works program and forward planning.</p>	<p>Vol 4:Appendix W, Sections 6.4.3 &amp; 7.3.3 Vol 4; Appendix AG, Sections 4 and 5</p>
<p>Use the findings of studies and transport infrastructure impact assessments to prepare a transport management plan.</p>	<p>Vol 3:13 Vol 4:Appendix W, Sections 6.4.3 &amp; 7.3.3 Vol 4; Appendix AG, Sections 4 and 5</p>
<b>3.10. Indigenous Cultural Heritage</b>	

Terms of Reference Requirement/Section Number	Cross-reference
<b>3.10.1 Description of existing Indigenous cultural heritage values</b>	
Describe the existing Indigenous cultural heritage values that may be affected by the project and the environmental values of the cultural landscapes of the affected area in terms of the physical and cultural integrity of the landforms.	Vol 1:5.1
Also describe how, in conjunction with the appropriate Indigenous people, the cultural heritage values were ascertained. This could include the results of any Aboriginal cultural heritage survey undertaken; the DERM Aboriginal Cultural Heritage Register and database; any existing literature relating to Indigenous cultural heritage in the project area.	Vol 1:5.1
<b>3.10.2 Potential impacts and mitigation measures</b>	
Define and describe the objectives and practical measures for protecting or enhancing Indigenous cultural heritage environmental values.	Vol 1:5.1
Describe how nominated quantitative standards and indicators may be achieved for cultural heritage management, and describe how the achievement of the objectives will be monitored, assessed and managed.	Vol 1:5.1
To the greatest extent practicable, significant cultural heritage areas should be avoided by the project. Assess the likely effects on sites of Indigenous cultural heritage values, including but not limited to the following:	Vol 1:5.1
<ul style="list-style-type: none"> <li>▶ Description of the significance of artefacts, items or places of conservation or cultural heritage values likely to be affected by the project and their values at a local, regional and national level</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Recommended means of mitigating any negative impact on cultural heritage values and enhancing any positive impacts</li> </ul>	
As a minimum, impact assessment, management and protection strategies should satisfy statutory responsibilities and duties of care.	Vol 1:5.1

Terms of Reference Requirement/Section Number	Cross-reference
<p>A 'native title agreement' (NT agreement) (as defined under the Aboriginal Cultural Heritage Act 2003 (ACH Act)), that includes management and protection strategies for Indigenous cultural heritage, or a Cultural Heritage Management Plan (CHMP) (as defined under the ACH Act) should be initiated during the EIS process. An NT agreement or an approved CHMP, in a form which complies with Part 7 of the ACH Act, will ensure that the project meets the Aboriginal cultural heritage duty of care imposed by the ACH Act.</p>	Vol 1:5.2
<p>If an NT agreement is not finalised or a CHMP has not been approved when the EIS is submitted to the Coordinator-General, provide the following:</p> <ul style="list-style-type: none"> <li>▶ An outline of the draft CHMP or draft plan within the NT agreement that addresses management and protection strategies for cultural heritage, subject to any confidentiality provisions, outlining the position of the relevant parties</li> <li>▶ Details of the proposed steps and timeframes for finalising the CHMP or NT agreement</li> </ul>	Vol 1:5.1 and 1:5.2
<p>An NT agreement or CHMP should be negotiated between the proponent and the appropriate native title/Indigenous parties and should address and include:</p> <ul style="list-style-type: none"> <li>▶ A process for including Indigenous people associated with the development areas in protecting and managing Indigenous cultural heritage</li> <li>▶ Processes for mitigating, managing and protecting identified cultural heritage sites and objects in the project areas, including associated infrastructure developments, during both the construction and operational phases of the project</li> <li>▶ Provisions for managing the accidental discovery of cultural material, including burials</li> <li>▶ A clear recording process to be developed to assist initial management and recording of accidental discoveries</li> <li>▶ A cultural heritage induction for project staff</li> </ul>	Vol 1:5.1 and 1:5.2

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ The development of a cultural heritage awareness program to be incorporated into the contractor/employee manual and induction manual. This is to be in the form of a plain language, short document which is easy for contractors and 'on-the-ground' staff to understand</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A conflict resolution process</li> </ul>	
<b>3.11. Non-Indigenous Cultural Heritage</b>	
<b>3.11.1 Description of existing on-Indigenous cultural heritage values</b>	
<p>Include a cultural heritage study that describes non-Indigenous cultural heritage sites and places, and their values.</p>	Vol 1:5.3
<p>Any such study should be conducted by an appropriately qualified cultural heritage practitioner and should include the following:</p>	
<ul style="list-style-type: none"> <li>▶ The desktop component of the cultural heritage study will include a literature review of:</li> </ul>	
<ul style="list-style-type: none"> <li>– local, regional and thematic histories</li> </ul>	
<ul style="list-style-type: none"> <li>– primary sources as appropriate</li> </ul>	
<ul style="list-style-type: none"> <li>– any existing literature available from Queensland Government sources or provided to the consultants by local community groups and organisations relating to the affected areas</li> </ul>	
<ul style="list-style-type: none"> <li>– any other relevant heritage surveys, reports and publications</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Consultation with:</li> </ul>	
<ul style="list-style-type: none"> <li>– the Australian Heritage Places Inventory</li> </ul>	
<ul style="list-style-type: none"> <li>– the Queensland Heritage Register and other information regarding places of potential non-Indigenous cultural heritage significance</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>– any local government heritage register</li> </ul>	
<ul style="list-style-type: none"> <li>– any existing literature relating to the heritage of the affected areas</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Liaison with relevant community groups/organisations (e.g. local historical societies) concerning:</li> </ul>	
<ul style="list-style-type: none"> <li>– places of non-Indigenous cultural heritage significance</li> </ul>	
<ul style="list-style-type: none"> <li>– opinion regarding significance of any cultural heritage places located or identified</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Locations of culturally and historically significant sites, shown on maps, that are likely to be impacted by the project</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A constraints analysis of the proposed development area to identify and record non-Indigenous cultural heritage places</li> </ul>	
<p>Describe a systematic field survey of non-Indigenous cultural heritage of the project footprint area undertaken by a qualified heritage professional.</p>	
<p>The report of the survey should address:</p>	
<ul style="list-style-type: none"> <li>▶ Legislative and regulatory framework</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Background research and relevant environmental data</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Methods used</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Results of field surveys, with an illustrated description (including location, photographs, maps etc.) of the significant artefacts, items, places or landscapes of conservation or cultural heritage values likely to be affected by the project</li> </ul>	
<ul style="list-style-type: none"> <li>▶ An assessment of the significance of artefacts, items or places of conservation or non-Indigenous cultural heritage value likely to be affected by the project and their values at a local, regional, state and national level</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<b>3.11.2 Potential impacts and mitigation measures</b>	
Assess any likely effects on sites of non-Indigenous cultural heritage values, including but not limited to the following:	Vol 1:5.3
<ul style="list-style-type: none"> <li>▶ Description of the significance of artefacts, items or places of conservation or non-Indigenous cultural heritage value likely to be affected by the project and their values at a local, regional, state and national level</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Recommended means of mitigating any negative impacts on non-Indigenous cultural heritage values and enhancing any positive impacts</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Strategies to manage places of historic heritage significance, taking into account community interests and concerns</li> </ul>	
As a minimum, investigation, consultation, impact assessment, management and protection strategies should satisfy statutory responsibilities and duties of care, including those under the <i>EPBC Act and Queensland Heritage Act 1992</i> .	
Assess the potential impacts on non-Indigenous historical cultural heritage values.	
Propose measures to avoid or mitigate impacts, and enhance identified values, in a historical heritage management plan.	
The historical heritage management plan will:	
<ul style="list-style-type: none"> <li>▶ Address the legislative requirements</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Include practical measures for recognising, reporting and preserving cultural heritage material</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Provide a process for managing yet undiscovered values should they become apparent during development of the project</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Describe training that will be provided to site personnel during the site induction</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Require a plain English manual summarising the training that will be given to all site workers for their future reference</li> </ul>	





## 4. Social Values and Management of Impacts

Terms of Reference Requirement/Section Number	Cross-reference
<b>4.1. Description of Existing Social Values</b>	
<p>The social impact assessment (SIA) should be conducted in consultation with the DEEDI Social Impact Assessment Unit. Consider matters such as the social and cultural area, community engagement, a social baseline study, a workforce profile, potential impacts and mitigation measures and management strategies.</p>	<p>Vol 1:3.1 Vol 4:Appendix F, Section 3, Section 4 and Section 5</p>
<b>4.1.1 Social and Cultural Area</b>	
<p>The SIA should define the project's social and cultural area of influence, including the local, district, regional and state level as relevant, taking into account the:</p>	
<ul style="list-style-type: none"> <li>▶ Potential for social and cultural impacts to occur</li> </ul>	<p>Vol 1:3.1 Vol 4:Appendix F, Section 8</p>
<ul style="list-style-type: none"> <li>▶ Location of other relevant proposals or projects</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Location and types of physical and social infrastructure, settlement and land use patterns</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Social values that might be affected by the project (e.g. including integrity of social conditions, visual amenity and liveability, social harmony and wellbeing, and sense of community)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Indigenous social and cultural characteristics such as native title rights and interests and cultural heritage</li> </ul>	
<b>4.1.2 Community Engagement</b>	
<p>Consistent with national and international good practice, the proponent should engage at the earliest practical stage with likely affected parties to discuss and explain the project, and to identify and respond to issues and concerns regarding social impacts</p>	<p>Vol 1:3.1.4 Vol 4:Appendix F, Section 2.10</p>

Terms of Reference Requirement/Section Number	Cross-reference
<p>Detail the community engagement processes used to conduct open and transparent dialogue with stakeholders. This dialogue should include the project’s planning and design stages and future operations including affected local and state authorities. Engagement processes will consider social and cultural factors, customs and values, and links between environmental, economic, and social impact issues. The Australian standard for consultation is the International Association for Public Participation’s Public Participation Spectrum</p>	<p>Vol 4:Appendix F, Section 2.10</p>
<p>Prepare a community consultation report detailing outcomes of consultations with stakeholders during the community engagement process.</p>	<p>Vol 4:Appendix F, Section 2.10</p>
<p><b>4.1.3 Social Baseline Study</b></p>	
<p>A targeted baseline study of the people residing in the project’s social and cultural area is required to identify the project’s critical social issues, potential adverse and positive social impacts, and strategies and measures developed to address the impacts. The social baseline study should be based on qualitative, quantitative, and participatory methods. It should be supplemented by community engagement processes, and reference relevant data contained in Local and State government publications, reports, plans, guidelines and documentation, including regional plans and, where available, community plans.</p>	<p>Vol 1:3.2 Vol 4:Appendix F, Section 2.6</p>
<p>The social baseline study should describe and analyse a range of demographic and social statistics determined relevant to the project’s social and cultural area including:</p>	<p>Vol 4:Appendix F, Sections 3, 4 and 5</p>
<ul style="list-style-type: none"> <li>▶ Major population trends/changes that may be occurring irrespective of the project</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Total population (the total enumerated population for the social and cultural area and the full-time equivalent transient population), 18 years and older</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Estimates of population growth and population forecasts resulting from the proposal</li> <li>▶ Family structures</li> </ul>	

**Terms of Reference Requirement/Section Number**

**Cross-reference**

- ▶ Age and gender distributions
- ▶ Education, including schooling levels
- ▶ Health and wellbeing measures
- ▶ Cultural and ethnic characteristics
- ▶ Indigenous population including age and gender
- ▶ Income including personal and household
- ▶ Labour force by occupation and industry including occupational skill groups and potential skills shortages
- ▶ Housing costs (monthly housing repayments (per cent of dwellings in each category), and weekly rent (per cent dwellings in each category), housing tenure type and landlord type, household and family type
- ▶ Housing availability and affordability:
  - the rental market (size, vacancy rate, seasonal variations, weekly rent by percentage dwellings in each category)
  - the availability and typical costs of housing for purchase
  - monthly housing repayments by percentage dwellings in each category
  - the availability of social housing
- ▶ Disability prevalence
- ▶ Social and economic index for areas, index of disadvantage—score and relative ranking
- ▶ Crime, including domestic violence

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Any other indicators determined through community engagement process as relevant</li> </ul>	
<p>The social baseline study should take account of current social issues such as:</p>	
<ul style="list-style-type: none"> <li>▶ Social infrastructure including community and civic facilities, services and networks (for definition see the <i>South East Queensland Regional Plan 2005–2026 Implementation Guideline No.5</i>)</li> </ul>	<p>Vol 4:Appendix F, Sections 3, 4 and 5</p>
<ul style="list-style-type: none"> <li>▶ Settlement patterns including the names, locations, size, history and cultural aspects of settlement in the social and cultural area</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Identity, values, lifestyles, vitality, characteristics and aspirations of communities in the social and cultural area, including Indigenous communities</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Land use and land ownership patterns, including</li> </ul>	
<ul style="list-style-type: none"> <li>– rural properties, farms, croplands and grazing areas including on-farm activities near the proposed activities</li> </ul>	
<ul style="list-style-type: none"> <li>– the number of properties directly affected by the project</li> </ul>	
<ul style="list-style-type: none"> <li>– the number of families directly and indirectly affected by the project including Indigenous traditional owners and their families, property owners, and families of workers either living on the property or workers where the property is their primary employment</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Use of the social and cultural area for forestry, fishing, recreation, business and industry, tourism, aquaculture, and Indigenous cultural use of flora and fauna</li> </ul>	

**Terms of Reference Requirement/Section Number**

**Cross-reference**

**4.1.4 Workforce Profile**

The SIA should include a profile of the workforce which describes the:

- ▶ Number of personnel to be employed, the skills base of the required workforce and the likely sources (i.e. local, regional or overseas) for the workforce during the construction and operational phases for each component of the project
- ▶ Estimated number of people to be employed during construction and operation, and arrangements for their transport to and from the project areas, including proposed use of regional or charter air services
- ▶ Estimates should be provided according to occupational groupings and variations in the workforce numbers for the duration of the project and show anticipated peaks in worker numbers during the construction period.

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Provide an outline of recruitment schedules and policies for recruiting workers, addressing recruitment of local, non-local and overseas workers including Indigenous workers, people from culturally and linguistically diverse backgrounds and people with a disability.

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If worker accommodation villagers are to be used to accommodate the workforce, provide details on the number, size, location (shown on a map), management, proximity to the construction site, and typical facilities for these sites for each phase of the project. Information should outline any local government or other regulatory approvals required for establishing and operating such camps, including building, health and safety and waste disposal purposes

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Provide information on the location of other major projects or proposals under study within the social and cultural area, together with workforce numbers.

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**4.2 Potential Impacts**

Terms of Reference Requirement/Section Number	Cross-reference
<p>Assess and describe the type, level and significance of the project's social impacts (both beneficial and adverse) on the local and cultural area, based on outcomes of community engagement processes and the social baseline study. Furthermore:</p>	<p>Vol 1:3.3 Vol 4:Appendix F, Section 8</p>
<ul style="list-style-type: none"> <li>▶ Describe and summarise outcomes of community engagement processes including the likely response of the affected communities, including Indigenous people</li> <li>▶ Include sufficient data to enable affected local and state authorities to make informed decisions about the project's effect on their business and plan for the provision of social infrastructure in the project's social and cultural area. If the project is likely to result in a significant increase in the population of the area, then the proponent should consult the relevant management units of the state authorities (including QPS) and summarise the results of the consultations</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Address direct, indirect and secondary impacts from any existing projects and the proposed project, assessing the size, significance, and likelihood of these impacts at the local and regional level. Consider the following: <ul style="list-style-type: none"> <li>– key population/demographic shifts; disruptions to existing lifestyles, the health and social wellbeing of families and communities; social dysfunction including alcohol and drugs, crime, violence, and social or cultural disruption due to population influx</li> <li>– the needs of vulnerable groups including women, children and young people, the aged and people with a disability</li> <li>– Indigenous peoples including cultural property issues</li> </ul> </li> </ul>	<p>Vol 4:Appendix F, Section 6 and Table 6-9</p>



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>– Local, regional and state labour markets during the construction and operational phases, with regard to the source of the workforce. Present this information according to occupational groupings of the workforce. Information is required as to whether the proponent, and/or contractors, is likely to employ locally or through other means and whether there are initiatives for local employment business opportunities and how these workforce strategies relate and align to state and Commonwealth resource work force planning, skill development and training strategies and policies</li> </ul>	
<ul style="list-style-type: none"> <li>– proposed new skills and training related to the project, including the occupational skill groups required and potential skill shortages anticipated</li> </ul>	
<ul style="list-style-type: none"> <li>– how much service revenue and work from the project would be likely to flow to the project’s social and cultural area</li> </ul>	
<ul style="list-style-type: none"> <li>– impacts of construction and operational workforces, their families, and associated contractors on housing and accommodation availability and affordability, land use and land availability. The capability of the existing housing and rental accommodation, to meet any additional demands created by the project should be discussed including direct impacts on Indigenous people.</li> </ul>	
<p>Evaluate the potential cumulative social impacts resulting from the project including an estimation of the overall size, significance and likelihood of those impacts. In this context, ‘cumulative impacts’ is defined as the additional impacts on population, workforce, accommodation, housing, and use of community infrastructure and services, from the project, and other proposals for development projects in the area which are publicly known or communicated by DEEDI, if they overlap the proposed project in the same timeframe as its construction period.</p>	Vol 1:8
<p><b>4.2.1 Mitigation Measures and Management Strategies</b></p>	
<p>For identified social impacts, social impact mitigation strategies and measures should be presented to address the:</p>	Vol 4:Appendix F

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Recruitment and training of the construction and operational workforces and the social and cultural implications this may have for the host community, including if any part of the workforce is sourced from outside the social and cultural area</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Local labour market impacts. A local employment plan should be developed that describes:</li> </ul>	
<ul style="list-style-type: none"> <li>– strategies to address anticipated skills shortages</li> </ul>	
<ul style="list-style-type: none"> <li>– employment initiatives and strategies to support local employment, including recruitment procedures for securing local employment and provisions for contractors</li> </ul>	
<ul style="list-style-type: none"> <li>– skills development and training opportunities, including apprenticeship programs and support programs targeted to local unemployed and vulnerable groups, including disadvantaged job-seekers, under-employed people</li> </ul>	
<ul style="list-style-type: none"> <li>– strategies which maximise employment opportunities for local participation and training and minimise impacts on other businesses and industry</li> </ul>	
<ul style="list-style-type: none"> <li>– plans, procedures and strategies for Indigenous employment</li> </ul>	
<ul style="list-style-type: none"> <li>– social inclusion strategies, where appropriate</li> </ul>	
<ul style="list-style-type: none"> <li>– cross-industry partnerships</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Worker accommodation requirements and impacts on housing affordability and availability as a result of worker accommodation requirements. An Integrated Housing Strategy (the strategy) should be developed in collaboration and consultation with relevant local authorities and state government agencies. The strategy should describe:</li> </ul>	
<ul style="list-style-type: none"> <li>– Projected size, nature and location of the workforce for the resource project (for both construction and operational phases) including the projected proportion of workers who will fly, drive or ferry in and out (FIFO or DIDO)</li> </ul>	



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>– Towns and cities in which FIFO or DIDO employees and their families are likely to be permanently residing</li> </ul>	
<ul style="list-style-type: none"> <li>– plans for accommodating the proportion of the workforce who will not readily access local accommodation</li> </ul>	
<ul style="list-style-type: none"> <li>▶ If worker accommodation villages and permanent operational villages are being considered to accommodate the workforce, address the management of health and safety issues associated with these accommodation types in consultation with relevant local authorities and state government agencies</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Demographic changes in the profile of the region and the associated sufficiency of current social infrastructure to support community health, safety and wellbeing; education, employment and training; policing and emergency services</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Adequate provision of education, training and employment opportunities for women, people with a disability and Indigenous peoples</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Collaborative stakeholder engagement strategies/partnership arrangements to develop and implement project benefit strategies and social impact mitigation measures.</li> </ul>	
<p>Describe any stakeholder engagement processes regarding the development and acceptance of proposed mitigation strategies and measures, and how practical management and monitoring regimes are proposed to be implemented.</p>	Vol 4:Appendix F
<p>Prepare a draft social impact management plan (SIMP) that promotes an active and ongoing role for impacted communities and local authorities through the project life cycle. The draft SIMP should be consistent with the Social Impact Assessment: guideline to preparing a social impact management plan (DIP 2010). The SIMP, which will be subject to external review, should focus on action plans to implement mitigation strategies and include performance measures against which annual progress can be reported and should cover:</p>	Vol 4:Appendix G
<ul style="list-style-type: none"> <li>▶ assignment of accountability and resources</li> </ul>	
<ul style="list-style-type: none"> <li>▶ updates on activities and commitments</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ mechanisms to respond to public enquiries and complaints</li> </ul>	
<ul style="list-style-type: none"> <li>▶ mechanisms to resolve disputes with stakeholders</li> </ul>	
<ul style="list-style-type: none"> <li>▶ periodic evaluation of the effectiveness of stakeholder engagement processes</li> </ul>	
<ul style="list-style-type: none"> <li>▶ practical mechanisms to monitor and adjust mitigation strategies and action plans</li> </ul>	

## 5. Economies and Management of Impacts

Terms of Reference Requirement/Section Number	Cross-reference
<b>5.1. Economy</b>	
<b>5.1.1 Description of affected Local and Regional Economies</b>	
Describe the existing economy in which the project is located and the economies materially impacted by the project. It should include:	Vol 4:Appendix H, Section 1 and Section 2
<ul style="list-style-type: none"> <li>▶ A map illustrating the local and regional economies (local government areas) that could be potentially affected by the project</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Gross regional product or other appropriate measure of annual economic production</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Population</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Labour force statistics</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Economic indicators</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The regional economy's key industries and their contribution to regional economic income</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Relevant government programmes and policies that affect the project</li> </ul>	Vol 4:Appendix H, Section 3.4
<ul style="list-style-type: none"> <li>▶ The key regional markets relevant to the project:</li> </ul>	Vol 4:Appendix H, Section 1 and Section 2
<ul style="list-style-type: none"> <li>– Labour</li> </ul>	
<ul style="list-style-type: none"> <li>– Housing and land</li> </ul>	
<ul style="list-style-type: none"> <li>– Construction and building inputs</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>– Regional competitive advantage and expected future growth</li> </ul>	
<p>With regard to the region's key industries and factor prices, provide information on:</p> <ul style="list-style-type: none"> <li>▶ Current input costs (wage rates, building costs, housing rent etc.)</li> <li>▶ Land values in the region by type of use</li> </ul>	<p>Vol 4:Appendix H, Sections 2.3, 2.4 and 2.11</p>
<p><b>5.1.2 Potential Impacts and Mitigation Measures</b></p>	
<p>Describe both the potential and direct economic impacts including estimated costs, if material, on industry and the community by assessing the following:</p> <ul style="list-style-type: none"> <li>▶ Property values</li> <li>▶ Industry output</li> <li>▶ Employment</li> <li>▶ Potential land severance issues as a result of proposed rail infrastructure and proposed mitigation measures (including rail crossings)</li> <li>▶ Indirect impacts likely to flow to other industries and economies from the development of the project (and the implications of the project for future development). Include the volume of extractive materials to be used (particularly limited local resources) and any measures proposed to mitigate identified impacts</li> <li>▶ Distributional effects of the proposal including proposals to mitigate any negative impact on disadvantaged groups</li> </ul>	<p>Vol 4:Appendix H, Sections 3.2</p>
<ul style="list-style-type: none"> <li>▶ Mitigation strategies to manage project impacts through relevant government policies and programmes</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<b>Strategies for Local Participation</b>	
The assessment of economic impacts should outline strategies for local participation, including:	Vol 4:Appendix H, Section 3.5.2
<ul style="list-style-type: none"> <li>▶ strategies for assessing the cost effectiveness of sourcing local inputs from the regional economy during the construction, operation and rehabilitation of the project</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Employment strategies for local residents including members of Indigenous communities and people with a disability, including a skills assessment and recruitment and training programs to be offered</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Strategies responding to relevant government policy, relating to:</li> </ul>	
<ul style="list-style-type: none"> <li>– Level of training provided for construction contracts on Queensland Government building and construction contracts, with regard to the Queensland Government Building and Construction Contracts Structured Training Policy (the 10 percent policy)</li> </ul>	
<ul style="list-style-type: none"> <li>– Indigenous employment opportunities, with regard to the Indigenous Employment Policy for Queensland Government Building and Civil Construction Projects (the 20 per cent policy)</li> </ul>	
<ul style="list-style-type: none"> <li>– Use of locally sourced goods and services, with regard to the Queensland Department of Employment, Economic Development and Innovation’s Local Industry Policy</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The potential impact on extractive resource availability in the regions both during and after construction and any economic consequences for the regions</li> </ul>	
<b>Impact upon Property Management</b>	
Address the current and future management processes for adjacent properties that are likely to be impacted by the project during construction and/or operation. Mention the:	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ impact of the project on existing agricultural land uses and management practices (e.g. disruption to stockyards, fences, water points, sowing or harvesting of crops, movement of livestock, agricultural machinery and any loss of agricultural land)</li> </ul>	Vol 4:Appendix H, Sections 3.2.3.6 and 3.3.3.6
<ul style="list-style-type: none"> <li>▶ Range of measures required to mitigate real and potential disruptions to rural practices and management of properties</li> </ul>	Vol 4:Appendix H, Section 3.5
<b>5.2. Sustainable Development</b>	
Provide a comparative analysis of how the project conforms to the objectives for ‘sustainable development’—see the National Strategy for Ecologically Sustainable Development	
This analysis should consider the cumulative impacts of the project (both beneficial and adverse) from a life-of-project perspective, taking into consideration the scale, intensity, duration and frequency of the impacts to demonstrate a balance between environmental integrity, social development and economic development.	Vol1:8 Table 8-9
This information is required to demonstrate that sustainable development aspects have been considered and incorporated during the scoping and planning of the project.	

## 6. Hazard and Risk

Terms of Reference Requirement/Section Number	Cross-reference
<b>6.1. Hazard and Risk Assessment</b>	
Describe the potential hazards and risks to people and property that may be associated with the project, which may include but are not restricted to:	
<ul style="list-style-type: none"> <li>▶ Identifying potential hazards, accidents, spillages and abnormal events that may occur during all stages of the project, including possible frequency of occurrence</li> </ul>	Vol 2:12.2 and Table 12-7 Vol 3:12 and Table 12-6
<ul style="list-style-type: none"> <li>▶ Identifying all hazardous substances to be used, stored, processed or produced and the rate of usage</li> </ul>	Vol 2:12.2.3 Vol 3:12 and Table 12-5
<ul style="list-style-type: none"> <li>▶ Potential wildlife hazards, natural events and implications related to climate change</li> </ul>	Vol 2:12.2.4 and Table 12-7 Vol 3:12 and Figures 12-2 and 12-3
A preliminary risk assessment for all components of the project shall be undertaken as part of the EIS process in accordance with Australia/New Zealand AS/NZS ISO 31000:2009 Risk management – Principles and guidelines. With respect to risk assessment:	Vol 2:12.2 Vol 3:12
<ul style="list-style-type: none"> <li>▶ EIS should deal comprehensively with external and on-site risks including transport risks</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Study should assess risks during the construction, operational and decommissioning phases of the project</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Analysis of the consequences of each hazard on safety in the project area should be conducted, examining the likelihood of both individual and collective consequences, involving injuries and fatalities to workers and to the public</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>Quantitative levels of risks should be presented from the above analysis</li> </ul>	
<p>With regard to fires, in consultation with emergency services agencies (including QPS), outline strategies to manage the provision of:</p>	<p>Vol 2:12.3.6 Vol 3:12</p>
<ul style="list-style-type: none"> <li>Fire management systems—to ensure the retention on-site of fire water or other fire suppressants used to combat emergency incidents</li> </ul>	
<ul style="list-style-type: none"> <li>Building fire safety measures—for any construction or permanent accommodation</li> </ul>	
<ul style="list-style-type: none"> <li>Details of any emergency response plans and bushfire mitigation plans under State Planning Policy 1/03:Mitigating the Adverse Impacts of Flood, Bushfire and Landslide</li> </ul>	
<ul style="list-style-type: none"> <li>On-site fire fighting equipment provided and the level of training of staff who will be tasked with emergency management activities</li> </ul>	
<ul style="list-style-type: none"> <li>Detailed maps showing the plant outline, potential hazardous material stores, incident control points, fire fighting equipment, etc</li> </ul>	
<ul style="list-style-type: none"> <li>An outline of any dangerous goods stores associated with the plant operations, including fuel storage and emergency response plans equipment, etc</li> </ul>	
<p>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).</p>	<p>Vol 2:12, Table 12-7 Vol 3:12, Table 12-6</p>
<p>Present a comparison of assessed and mitigated risks with acceptable risk criteria for land uses in and adjacent to the project area(s).</p>	<p>Vol 2:12, Table 12-7 Vol 3:12, Table 12-6</p>



Terms of Reference Requirement/Section Number	Cross-reference
Provide a risk management plan.	Vol 2:12 Vol 3:12
<b>6.2. Health and Safety</b>	
<b>6.2.1 Description of Public Health and Safety Community Values</b>	
Describe the existing health and safety values of the community, workforce, suppliers and other stakeholders in terms of the environmental factors that can affect human health, public safety and quality of life, such as air pollutants, odour, lighting and amenity, dust, noise and water.	Vol 2:12.4 Vol 3:12, Table 12-6
<b>6.2.2 Potential Impact and Mitigation Measures</b>	
Define and describe the objectives and practical measures for protecting or enhancing health and safety community values; describe how nominated quantitative standards and indicators may be achieved for social impacts management, and how the achievement of the objectives will be monitored, audited and managed.	Vol 2:12.4, Table 12-8 Vol 3:12, Table 12-6
Assess the cumulative effects on public health values and occupational health and safety impacts on the community and workforce from project operations and emissions. Assess the impact the project will have on regional health services and describe any necessary management strategies, including but not limited to consultation with the appropriate health service district.	Vol 2:12.4
Assess the potential for mosquito breeding sites to be created by the project. Where sites may be created, develop a 'mosquito management plan' for the entire site and in particular, areas where significant volumes of water will be ponded. Guidance is available in Queensland Health's Guidelines to minimise mosquito and biting midge problems in new development areas	Vol 2:12.2.4 Table 12-6
Recommend any practical monitoring regimes in this section.	Vol 2:12, Table 12-6

**Terms of Reference Requirement/Section Number**

**Cross-reference**

**6.3. Emergency Management Plan**

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. This includes strategies to deal with natural disasters during operation and construction.

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## 7. Cumulative Impacts

Terms of Reference Requirement/Section Number	Cross-reference
<p>Provide a summary of the project's cumulative impacts and describe these cumulative impacts both in isolation and in combination with those of existing or proposed project(s) publicly known or advised by DEEDI to be in the region, to the greatest extent practicable. Cumulative impacts should be assessed with respect to both geographic location and environmental values. Also assess cumulative impacts on the groundwater resources in the area, including impacts on existing users and any groundwater-dependent ecosystems. Present the methodology used to determine the cumulative impacts of the project, detailing the range of variables considered, including where applicable, relevant baseline or other criteria upon which the incremental aspects of the project have been assessed</p>	Vol 1:8



## 8. Environmental Management Plan

Terms of Reference Requirement/Section Number	Cross-reference
<p>The EMP should encompass both the construction and operation phases of the project. The EMP should be developed from, and be consistent with, the information in the EIS. The EMP must address discrete project elements and provide life-of-proposal control strategies. It must be capable of being read as a stand-alone document without reference to other parts of the EIS.</p>	<p>Vol 2:13 Vol 2:14 Vol 3:13</p>
<p>The EMP must comprise the following components for performance criteria and implementation strategies:</p>	
<ul style="list-style-type: none"> <li>▶ The proponent's commitments to acceptable levels of environmental performance, including environmental objectives, performance standards and associated measurable indicators, performance monitoring and reporting</li> </ul>	<p>Vol 2:13 Vol 2:14</p>
<ul style="list-style-type: none"> <li>▶ Impact prevention or mitigation actions to implement the commitments</li> </ul>	<p>Vol 3:13</p>
<ul style="list-style-type: none"> <li>▶ Corrective actions to rectify any deviation from performance standards</li> </ul>	
<ul style="list-style-type: none"> <li>▶ An action program to ensure the environmental protection commitments are achieved and implemented, including strategies in relation to:</li> </ul>	
<ul style="list-style-type: none"> <li>– continuous improvement</li> </ul>	
<ul style="list-style-type: none"> <li>– environmental auditing</li> </ul>	
<ul style="list-style-type: none"> <li>– monitoring</li> </ul>	
<ul style="list-style-type: none"> <li>– reporting</li> </ul>	
<ul style="list-style-type: none"> <li>– staff training</li> </ul>	
<ul style="list-style-type: none"> <li>– a rehabilitation program for land proposed to be disturbed under each relevant aspect of the proposal</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
The recommended structure of each element of the EMP is:	Vol 2:13
<ul style="list-style-type: none"> <li>▶ Element/issue—the aspect of construction or operation to be managed (as it affects environmental values)</li> </ul>	Vol 3:13
<ul style="list-style-type: none"> <li>▶ Operational policy—the operational policy or management objective that applies to the element</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Performance criteria—measurable performance criteria (outcomes) for each element of the operation</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Implementation strategy—the strategies, tasks or action program (to nominated operational design standards) that would be implemented to achieve the performance criteria</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Monitoring—the monitoring requirements to measure actual performance (e.g. specified limits to pre-selected indicators of change)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Auditing—the auditing requirements to demonstrate implementation of agreed construction and operation environmental management strategies and compliance with agreed performance criteria</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Reporting—format, timing and responsibility for reporting and auditing of monitoring results</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Corrective action—the action (options) to be implemented in case a performance requirement is not reached and the person(s) responsible for action (including staff authority and responsibility management structure).</li> </ul>	

## 9. Matters of National Environmental Significance

Terms of Reference Requirement/Section Number	Cross-reference
<p>This section of the EIS should be a stand-alone section and should address the issues relevant to the relevant controlling provisions of the EPBC Act. This section should bring together assessments of impacts on MNES in other chapters (e.g. water resources, flora and fauna, cumulative impacts) and produce a stand-alone assessment in a format suited for assessment under the EPBC Act.</p>	<p>Vol 4:Appendix J Matters of National Environmental Significance</p>
<p>Predictions of the extent of threat (risk), impact and the benefits of any mitigation measures proposed, should be based on sound science and quantified where possible. Provide references for all sources of information relied upon and estimate the reliability of predictions provided. Identify and evaluate any positive impacts.</p>	
<p>Offsets must be discussed with regard to impacts on EPBC matters. Reference should be made to the eight principles set out in the Department’s Draft Policy Statement: Use of Environmental Offsets under the Environment Protection and Biodiversity Conservation Act 1999.</p>	
<p>The extent of any new field work, modelling or testing should be commensurate with risk and should be such that when used in conjunction with existing information, provides sufficient confidence in predictions that well-informed decisions can be made. Obligations under and implications of any species recovery plans must be specifically addressed.</p>	
<p><b>9.1. Introduction</b></p>	
<p>Provide background to the project, including:</p>	<p>Vol 4:Appendix J, Section 1 Vol 1:11.1</p>
<ul style="list-style-type: none"> <li>▶ How the action relates to any other actions (of which the proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action</li> </ul>	
<ul style="list-style-type: none"> <li>▶ List of persons and agencies consulted during the preparation of the EIS</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>Names, qualifications and experience of the persons involved in preparing the EIS, including sub-consultants and reviewers</li> </ul>	
<b>9.2. Matters of National Environmental Significance</b>	
<p>Describe the matters protected under the EPBC Act that may potentially be affected by the proposed action. Include the listed threatened species, migratory species and ecological communities. This information will serve as a baseline against which impacts and management of the proposal and alternatives can be assessed.</p>	<p>Referred to throughout Appendix J, but summarised in Section 5.1</p>
<b>9.3. World Heritage Areas, National Heritage places and the Marine Park</b>	
<b>9.3.1 Description of Environmental Values</b>	
<p>Identify and describe the characteristics and values of the Great Barrier Reef World Heritage Area and National Heritage places that are likely to be impacted by the project. This is also to include a detailed discussion on the potential impacts of the proposal on the Great Barrier Reef Marine Park (the Marine Park).</p>	<p>Vol 4:Appendix J, Sections 2.1 and 2.2</p>
<b>9.3.2 Potential Impacts and Mitigation Measures</b>	
<p>Potential impacts on the World and National heritage values of the Great Barrier Reef and the Great Barrier Reef Marine Park (Marine Park) must be addressed in the EIS. The assessment of environmental variables such as water quality and other MNES, such as threatened species and communities, will be relevant to the assessment of impacts on the National and World heritage and the Marine Park.</p>	<p>Vol 4:Appendix J, Sections 2.3 and 2.4</p>
<p>The EIS should consider the potential impacts on the World and National heritage values under each of the criteria against which the place was listed. The criteria and examples of the values are available: <a href="http://www.environment.gov.au/heritage">www.environment.gov.au/heritage</a>.</p>	<p>Vol 1:11.2</p>
<p>The EIS is to also address the potential direct, indirect and consequential impacts on Great Barrier Reef World Heritage Area, National Heritage places and the Marine Park resulting from:</p>	<p>Vol 1:11.2</p>



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>Modification, destruction, fragmentation, isolation or disturbance of an important or substantial, sensitive or vulnerable area of habitat or ecosystem component such that an adverse impact on marine ecosystem health, functioning or integrity in the Great Barrier Reef Marine Park</li> </ul>	
<ul style="list-style-type: none"> <li>A substantial change in air or water quality (including temperature) which may adversely impact on biodiversity, ecological integrity, social amenity or human health</li> </ul>	
<ul style="list-style-type: none"> <li>Persistent organic chemicals, heavy metals, or other potentially harmful chemicals accumulating in the marine environment such that biodiversity, ecological integrity, social amenity or human health may be adversely affected</li> </ul>	
<ul style="list-style-type: none"> <li>The potential impacts on important amenities, navigation, culturally and historically significant sites, threatened or migratory species or sensitive habitats</li> </ul>	
<ul style="list-style-type: none"> <li>Loss or modification of in stream habitat important for species important to the values of the Great Barrier Reef World Heritage Area (including fragmentation, altered land use, fire regimes, altered nutrient cycle, altered hydrological cycles etc.).</li> </ul>	
<p>The EIS is to also include the following:</p>	Vol 1:11.2
<ul style="list-style-type: none"> <li>Baseline data on listed threatened migratory and marine species and any other species of conservation significance, including cetaceans and detail the likely effects of the proposed construction and operation on a population of a species or cetacean including its life cycle (for example, breeding, feeding, migration behaviour, life expectancy) and spatial distribution</li> </ul>	N/A
<ul style="list-style-type: none"> <li>Impacts resulting from potential changes to the water quality of the Great Barrier Reef arising from runoff from construction and operational activities; spills of contaminants during construction and operation, disturbance of potential acid sulphate soils and changes to the hydrology or quality of water in watercourses entering the World Heritage Area and Marine Park</li> </ul>	Vol 1:11.2

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>Baseline data on the nature, extent and value of benthic communities likely to be impacted by the proposal, including seagrass beds, and information on their regional significance, including as habitat for flora and fauna</li> </ul>	N/A
<ul style="list-style-type: none"> <li>Baseline information on surface and groundwater hydrology</li> </ul>	Vol 1:11.2
<ul style="list-style-type: none"> <li>Matters identified in Section 3.1 and likely impact on the Marine Park and World heritage values</li> </ul>	Vol 1:11.2
<p>A description of mitigation and management measures proposed to protect or enhance impacts on the Great Barrier Reef World Heritage Area, National Heritage Place and the Marine Park should be discussed within the EIS.</p>	Vol 1:11.2
<p><b>9.4. Listed Threatened Species</b></p>	
<p>Identify listed threatened species that could be affected, directly and indirectly, as a consequence of the proposal. Include the following information:</p>	<p>Vol 4:Appendix J, Sections 4.1, 4.2 and 5.1</p>
<ul style="list-style-type: none"> <li>Baseline information on the distribution, ecology, and habitat preferences of listed threatened species</li> </ul>	
<ul style="list-style-type: none"> <li>For listed threatened species provide details of the regional importance of the population</li> </ul>	
<ul style="list-style-type: none"> <li>For each of the identified threatened species provide a detailed discussion of known threats</li> </ul>	
<ul style="list-style-type: none"> <li>Listed threatened species that need to be addressed includes, but is not limited to:</li> </ul>	
<ul style="list-style-type: none"> <li>– <i>Acacia deuteroneura</i></li> </ul>	
<ul style="list-style-type: none"> <li>– <i>Acacia ramiflora</i></li> </ul>	
<ul style="list-style-type: none"> <li>– <i>Dichanthium queenslandicum</i> (King Blue-grass)</li> </ul>	
<ul style="list-style-type: none"> <li>– <i>Eucalyptus raveretiana</i> (Black Ironbox)</li> </ul>	

**Terms of Reference Requirement/Section Number**

**Cross-reference**

- *Leucopogon cuspidatus* (Northern beard heath)
- *Digitaria porrecta* (Finger panic grass)
- *Cycas ophiolitica* (Marlborough blue cycad)
- *Acacia ramiflora* (White's mountain Wattle)
- *Ozothamnus eriocephalus*
- *Geophaps scripta scripta* (Squatter Pigeon (southern))
- *Neochmia ruficauda ruficauda* (Star Finch (eastern), Star Finch (southern))
- *Poephila cincta cincta* (Black-throated Finch (southern))
- *Rostratula australis* (Australian Painted Snipe)
- *Furina dunmalli* (Dunmall's Snake)
- *Denisonia maculata* (Ornamental Snake)
- *Egernia rugosa* (Yakka Skink)
- *Paradelma orientalis* (Brigalow Scaly-foot)
- *Dasyurus hallucatus* (Northern Quoll)
- *Nyctophilus timoriensis* (Greater long-eared bat)

► Maps for listed threatened species showing:

Vol 4:Appendix J, Section 4.2.2

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>– all potential habitat for each species</li> </ul>	
<ul style="list-style-type: none"> <li>– habitat components important for each species such as breeding habitat</li> </ul>	
<ul style="list-style-type: none"> <li>– the location of known records (including those from databases and all surveys)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A description of mitigation and management measures proposed to protect or enhance listed threatened species.</li> </ul>	Vol 4:Appendix J, Section 5
<b>9.4.1 Listed Threatened Ecological Communities (TECs)</b>	
<p>Identify listed TECs that could be affected, directly and indirectly, by the proposal. Include baseline information on known distribution of the TEC (including a description of vegetation condition) and discuss the relative importance of the occurrence of the TEC that occurs in the proposed project area.</p>	Vol 4:Appendix J Section 4.2, and 5.1
<p>Address the following TECs:</p>	Vol 1:11.4.1
<ul style="list-style-type: none"> <li>▶ Brigalow (Acacia Harpophylla dominant and co-dominant)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Weeping Myall Woodlands</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Natural grasslands of the Queensland Central Highlands and the northern Fitzroy Basin</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin</li> </ul>	
<p>Include the following information:</p>	Vol 1:11.4.1
<ul style="list-style-type: none"> <li>▶ Known information on the distribution of TECs</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Maps showing the distribution of TECs in the project area</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Maps showing vegetation condition of TECs</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Regional importance of the TEC occurrence in the project area</li> <li>▶ For each of the identified TECs, a detailed discussion of known threats</li> <li>▶ A description of mitigation and management measures proposed to protect or enhance listed threatened ecological communities</li> </ul>	
<b>9.4.2 Listed Migratory Species</b>	
Identify listed migratory species that could be affected, directly and indirectly, as a consequence of the proposal. Include the following information:	Vol 4:Appendix J, Sections 6.1, 6.2, 6.3
<ul style="list-style-type: none"> <li>▶ A description of the distribution, ecology, and habitat preferences of listed migratory species</li> <li>▶ Listed migratory species that need to be addressed includes, but must not be limited to:               <ul style="list-style-type: none"> <li>– Merops ornatus (Rainbow bee-eater)</li> <li>– Monarcha trivirgatusi (Spectacled Monarch)</li> <li>– Monarcha melanopsis (Black-faced Monarch)</li> <li>– Hirundapus Caudacutus (White-throated Needle-tail)</li> <li>– Ardea alba s. lat (Great Egret)</li> <li>– Ardea ibis (Cattle Egret)</li> <li>– Apus pacificus (Fork-tailed Swift)</li> </ul> </li> <li>▶ Maps for listed migratory species showing:</li> </ul>	Vol 1:11.6.1

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>– All potential habitats for each species</li> <li>– Habitat components important for each species such as breeding habitats</li> <li>– The location of known records (including those from databases and all surveys previously conducted in the project area)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A description of any mitigation and management measures proposed to protect or enhance listed migratory species</li> </ul>	Vol 1:11.6.2
<b>9.5. Ramsar (Wetland of International Importance)</b>	
<b>9.5.1 Description of Environmental Values</b>	
Identify and describe the wetlands of international importance that are likely to be impacted by the project	Vol 4:Appendix J, Section 3.1 and 3.2
<b>9.5.2 Potential Impacts and Mitigation Measures</b>	
Provide relevant discussion concerning potential impacts, including:	Vol 4:Appendix J, Sections 3.3 and 3.4
<ul style="list-style-type: none"> <li>▶ Description of the location, extent and ecological characteristics and values of those wetlands that are potentially affected by the proposal (including the use of a map)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Substantial and measurable changes to the hydrological regime of the wetlands, for example a substantial change to the volume, timing, duration or frequency of ground and surface water flows to and within the wetland</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The habitat or lifecycle of native species, including invertebrate fauna and fish species, dependant upon the wetland being seriously effected</li> </ul>	



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ Substantial and measurable change in the water quality of the wetlands – for example, a substantial change in the level of salinity, pollutants, or nutrients in the wetland, or water temperature which may adversely impact on biodiversity, ecological integrity, social amenity or human health</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Invasive species that may be harmful to the ecological character of the wetlands, if introduced to or spread in the wetland</li> </ul>	
<p>A description of any mitigation measures proposed to protect or enhance impacts on the wetlands of international importance should be discussed within the EIS.</p>	<p>Vol 4:Appendix J, Sections 3.3 and 3.4</p>
<p><b>9.5.3 Species Surveys</b></p>	
<p>Adequate and detailed surveys are required to provide baseline information to further refine information described above and may provide a baseline for monitoring. This section should:</p>	<p>Vol 4:Appendix J, Section 1.6</p>
<ul style="list-style-type: none"> <li>▶ Justify survey methods used</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Describe the expertise of staff undertaking surveys</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Describe the survey effort, including targeted survey effort for EPBC-listed species</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Describe why certain areas required more detailed survey effort than other areas</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Describe how TECs were identified</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<b>9.6. Relevant Impacts</b>	
<p>Assess in detail the relevant impacts of the proposal addressing all the identified environmental values. Any technical data and other information used or needed to make a detailed assessment of the relevant impacts (reliability of forecasts and predictions, confidence limits and margins of error) should be indicated, and where necessary, included as an appendix. Risk assessment should be conducted and documented to address potential impacts, including direct and indirect impacts and those impacts possible in both the short and long-term, as well as consequential and cumulative impacts.</p>	<p>Referred to throughout Appendix J, but summarised in Sections 2.4, 3.4, 5.2 and 6.3</p>
<b>9.6.1 Land Clearing</b>	
<p>Clearly describe the potential impacts that clearing vegetation will have on listed species and communities, including but not limited to:</p>	<p>Vol 4:Appendix J, Sections 5.1.2 and 5.1.4</p>
<ul style="list-style-type: none"> <li>▶ The approximate area (in hectares) of native vegetation to be cleared as a result of all mining activities</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A map showing approximate area to be cleared</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A description of the impacts of fragmentation and edge effects</li> </ul>	
<ul style="list-style-type: none"> <li>▶ The impacts of vegetation loss on surface and groundwater hydrology</li> </ul>	
<b>9.6.2 Subsidence</b>	
<p>Provide a description of subsidence and subsidence effects. This section should include, but not be limited to:</p>	<p>Vol 4:Appendix J, Section 5.1.5</p>
<ul style="list-style-type: none"> <li>▶ A description of the causes of subsidence</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A description of long-wall mining and the physical process of subsidence</li> </ul>	
<ul style="list-style-type: none"> <li>▶ An overview of the historical underground mining techniques used for coal mining in Australia (including width of long-wall panels used in Australia over time), and the level of subsidence that occurred from different methods</li> </ul>	



Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ A detailed description of the known or likely subsidence effects on surface and groundwater hydrology</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A detailed description of subsidence effects on terrestrial ecosystems (including which vegetation communities and flora species are most likely to be affected by changes to surface hydrology)</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A summary of the impact of subsidence effects on freshwater ecosystems from existing long-wall mining in central Queensland, and other parts of Australia with similar underlying geology that have been undermined</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A description of the known impacts of subsidence on groundwater</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A description of any known incidents where subsidence effects have (or been implicated to have) caused damage to the environment in Queensland</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Geological features, such as faults, that may affect the level of subsidence or subsidence effects, must be described and mapped</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A detailed description and analysis of the likely level of subsidence from the proposed action, including maps showing expected subsidence level contours</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A detailed description of potential impacts to aquatic and terrestrial threatened species and ecological communities from subsidence effects as a result of the proposed mine</li> </ul>	
<b>9.6.3 Water Resources and Pollution</b>	
Describe all water consumption that will occur during the construction, operation and decommissioning of the proposed action, including but not limited to:	Vol 4:Appendix J, Section 5
<ul style="list-style-type: none"> <li>▶ A description of water sources</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>Approximate volumes (megalitres per annum) of all water that may be used during the operation of the proposed mine from the various sources</li> </ul>	
<p>Describe how much wastewater will be produced by the mine, what pollutants wastewater may contain, and how wastewater will be managed, including:</p>	Vol 4:Appendix J, Section 5
<ul style="list-style-type: none"> <li>A description of the expected impacts upon surface and groundwater from the mine</li> </ul>	
<ul style="list-style-type: none"> <li>A summary of the cumulative impacts on water resources for the proposed action with regard to present water use in the region, expected water consumption from the mine, loss of ground or surface water from subsidence, and indirect increases in water demand that may result from the mine</li> </ul>	
<b>9.6.4 Weeds and Exotic Fauna</b>	
<p>Identify and describe the potential impacts of the proposed action on exotic fauna and weeds within and adjacent to the study area including a description of the potential:</p>	Vol 4:Appendix J, Section 5
<ul style="list-style-type: none"> <li>For mining activities and infrastructure (such as roads) in increasing the threat of weeds and exotic fauna within and adjacent to the project area</li> </ul>	
<ul style="list-style-type: none"> <li>Impacts that an increase or change in exotic fauna or weeds may have on listed species and communities</li> </ul>	
<b>9.6.5 Impact Assessment for MNES</b>	
<p>Include a detailed assessment of the impacts of subsidence on listed threatened species, migratory species and TECs. Specific impacts that must be assessed in detail include (but should not be limited to):</p>	Vol 4 Appendix J
<ul style="list-style-type: none"> <li>for each of the identified threatened species, migratory species and TECs, discuss how potential impacts may affect threatened species, migratory species and TECs in the project area (and downstream of the project area) in the short-term and long-term</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<ul style="list-style-type: none"> <li>▶ A discussion of cumulative impacts upon threatened species, migratory species and TECs, where potential impacts are in addition to impacts of other existing or planned activities, considering threatening processes for threatened species, migratory species and ecological communities that occur in the project area</li> </ul>	
<b>9.7. Avoidance and Mitigation Measures to Reduce the Impacts to MNES</b>	
<p>Explore any feasible alternatives to the action, in particular, options to reduce the impacts on listed species and communities. Discuss how ecological values were defined in the referral to determine which features should be buffered and include sufficient details to make it clear why any alternative is preferred to another.</p>	<p>Vol 4:Appendix J, Sections 1.3</p>
<b>9.7.1 Avoidance</b>	
<p>Avoidance measures that must be considered in the EIS include potential options to the project as proposed in the referral, in regard to:</p>	<p>Referred to throughout Appendix J, but summarised in Sections 2.4, 5.1, 6.1 and 6.2</p>
<ul style="list-style-type: none"> <li>▶ Longwall setback (offset) distances to potential habitat for listed species and communities</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Longwall design (panel width and gap between longwall panels), including 'strip pillar mining'.</li> </ul>	
<b>9.7.2 Mitigation Measures</b>	
<p>Include the following regarding mitigation measures:</p>	<p>Referred to throughout Appendix J including Section 2.3, 3.3, 5.1, 6.2</p>
<ul style="list-style-type: none"> <li>▶ An outline of an EMP that sets out the framework for continuing management and mitigation</li> </ul>	
<ul style="list-style-type: none"> <li>▶ A description of how the mitigation measures will be funded in the long-term</li> </ul>	
<ul style="list-style-type: none"> <li>▶ Evidence demonstrating the efficacy of the proposed mitigation measures; include the results of studies that have been used to test and demonstrate the techniques proposed</li> </ul>	

Terms of Reference Requirement/Section Number	Cross-reference
<b>9.8. Proposed Offsets for Residual Impacts</b>	
<p>Provide a detailed description of proposed mitigation measures and offsets, and include:</p> <ul style="list-style-type: none"> <li>▶ A consolidated list of mitigation measures and offsets proposed to be undertaken or provided to minimise or compensate for the relevant impacts of the action, including mitigation measures proposed to be taken by state governments, local governments or the proponent</li> <li>▶ Detailed description of proposed offsets</li> </ul>	Vol 4: Appendix J, Sections 8
<b>9.9. Monitoring and Reporting</b>	
<p>This section of the EIS must:</p> <ul style="list-style-type: none"> <li>▶ Outline the environmental impacts to be monitored</li> <li>▶ Identify any baseline monitoring that will be required before the proposal commences</li> <li>▶ Identify the parameters to be monitored, and their response trigger values and response activities, along with procedural and compliance audit programs and reporting requirements and arrangements to be implemented</li> </ul>	Vol 4: Appendix J, Sections 9

## 10. Conclusions and Recommendations

Terms of Reference Requirement/Section Number	Cross-reference
<p>Make conclusions and recommendations with respect to the project, based on the studies presented, the EMP and conformity of the project with legislative and policy requirements.</p>	<p>Vol 1:12 Vol 2:15 Vol 3:14</p>



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