

# **Central Queensland Coal Project**

## **Appendix 11 – Final ToR for EIS**

### **Environmental Impact Statement**



# **Terms of reference for the environmental impact statement for the Central Queensland Coal Project**

Proposed by Central Queensland Coal Pty Ltd

August 2017

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# 1 Purpose of this document

## 1.1 Introduction

This document sets out the scope and required content that the environmental impact statement (EIS) must include to allow the purposes of the EIS under section 40 of the *Environmental Protection Act 1994* (EP Act) to be achieved for the proposed project.

The key information requirements of the EP Act that must be addressed in the EIS are:

- the requirements of section 40 of the EP Act, which specifies the purpose of an EIS and of the EIS process
- sections 125, 126 and 126A which set out the general information requirements for applications for an environmental authority (EA)
- schedule 1 of the Environmental Protection Regulation 2008 (EP Regulation)—matters to be addressed by assessment under the bilateral agreement between the Commonwealth and the State of Queensland
- the environmental objectives and performance outcomes specified in Schedule 5, part 3, table 1 of the EP Regulation.

The EIS must provide all the information needed to enable the issuing of an EA for the project as set out in these terms of reference (TOR) in conjunction with the guidance material at:

<http://www.ehp.qld.gov.au/management/impact-assessment/eis-processes/eis-tor-support-guidelines.html>

While every attempt is made by the Department of Environment and Heritage Protection (EHP) to ensure the final TOR requires an assessment of all relevant matters, the final TOR may not be exhaustive. Therefore, the EIS for the proposed project must address other matters not covered in the final TOR if the following circumstances arise:

- studies reveal a matter that had not been foreseen when the TOR was finalised
- an issue not identified previously is considered contentious by the public, such as a public perception of potential environmental harm or nuisance even though the perception might be mistaken
- EHP directs the proponent in writing to address a matter as an information request under section 62 of the EP Act
- new or amended legislation or policies come into effect after the TOR has been finalised, regardless of whether or not the legislation or policies have been listed in the TOR. Transitional arrangements or exemptions may apply for individual projects
- the proponent makes amendments to the project that would result in a change in the nature, timing or location of any impacts.

If the information provided in the subsequent EIS submission stage is not adequate for EHP to make a decision, the EIS may be refused as a result of section 49(3) of the EP Act, where EHP must consider whether the EIS has addressed the final TOR reference in an acceptable form.

## 1.2 Information about the proposed Central Queensland Coal Project and assessment

### 1.2.1 Project proponent

The project will be developed and operated by Central Queensland Coal Proprietary Limited (Central Queensland Coal) and Fairway Coal Proprietary Limited (Fairway Coal). Both companies are private companies that are wholly owned subsidiaries of Mineralogy Pty Ltd. Central Queensland Coal was formerly known as Styx Coal Proprietary Limited but registered a change of name on 21 July 2017. The project proponent requested EHP change the project name from the Styx Coal Project to the Central Queensland Coal Project and have also notified the Australian Government Department of the Environment and Energy of the name change.

Central Queensland Coal is a privately owned Australian coal exploration and coal development company that holds mining concessions within the Styx Basin.

Central Queensland Coal's head office is located in Brisbane at the following address:

Central Queensland Coal  
Lv17, 240 Queen Street  
BRISBANE QLD 4000

Fairway Coal's head office is located in Brisbane at the following address:

Fairway Coal  
Lv17, 240 Queen Street  
BRISBANE QLD 4000

## 1.2.2 Project description

Central Queensland Coal and Fairway Coal (the joint proponents) are wholly owned subsidiaries of Mineralogy Proprietary Limited and propose to develop the Central Queensland Coal Project (the Project) located 130km northwest of Rockhampton in the Styx Basin in Central Queensland. The Project will be located within Mining Lease Application (MLA) 80187 and 700022, covering an area of approximately 3,028ha, which are adjacent to Mineral Development Licence (MDL) 468 and Exploration Permit for Coal (EPC) 1029 and 2128.

The Project will initially involve the mining of approximately 2 million tonnes per annum (Mtpa) with options of increasing to 5 or 10Mtpa of high grade thermal coal (HGTC) and/or semi-soft coking coal (SSCC). Development of the Project is expected to commence in 2018 and extend for approximately 20 – 25 years until the current reserve is depleted.

The Project consists of two open cut pit operations that will be mined using a truck and shovel methodology. The run-of-mine (ROM) coal will commence at 2Mtpa with options to ramp up to approximately 5Mtpa during Stage 1 (Year 1-2), where coal will be crushed and screened to HGTC with an estimated 95% yield. Stage 2 of the Project (Year 2-20) will include further processing of the coal within a coal handling and preparation plant (CHPP) which will be located in the Mine Industrial Area (MIA) to produce SSCC, with an estimated 80% yield. During Stage 2 of operation, production could potentially increase to a combined 10Mtpa of HGTC and SSCC.

A new train loadout facility (TLF) will be developed to connect into the existing North Coast Rail Line. The TLF will require all new infrastructure and connect to the existing north coast rail network which will allow transport of the product coal to the established coal loading infrastructure at the Dalrymple Bay Coal Terminal (DBCT). There also exists the option to utilise southern coal terminals in Gladstone. Since the preparation of the Project's Initial Advice Statement and the Referral of the Project to the Federal Department of the Environment and Energy, Central Queensland Coal has advanced its assessment of the proposed TLF. Option 3 is the preferred option for transporting coal to the existing north coast rail network and will be assessed as part of the environmental impact assessment.

The Project is located within the Livingstone Shire Regional Council area and is located on gently undulating plains and slopes. The nearest major regional centre is Rockhampton, located approximately 130km to the south of the Project.

The Project will require the hiring of 200 employees during construction and 250 employees during operations with an option to increase to 500 employees should operations increase to maximum throughput tonnages. The Project labour resources will be sourced from within the general local area (Marlborough, St Lawrence, Sarina, Mackay and Rockhampton) as a drive-in drive-out workforce. A small portion of the workforce is anticipated to come from outside the broader central Queensland coalfields area on a fly-in fly-out (FIFO) basis.

The current mine plan is based on commencing construction in Q1 2018 with first production in Q2 2018, following a construction period of approximately six months.

Key components of the Project include:

- two open cut pits with a maximum production rate of 10Mtpa (combined HGTC and SSCC)
- CHPP
- waste rock dumps, mine water dams and associated infrastructure
- internal haul roads and access roads
- MIA including the run of mine and product coal stockpiles, administration offices, workshops and fuelling facilities
- raw and potable water supply from local aquifers and surface water
- power requirements sourced from onsite generators located within the MIA
- offsite haul road and TLF Options 1, 2 and 3.

### **1.2.3 Environmental Protection Act 1994 (Queensland)**

On 16 December 2016 Fairway Coal submitted an application to EHP for approval to prepare a voluntary environmental impact statement for the proposed Styx Coal Project. On 27 January 2017, EHP issued a Notice of decision regarding preparation of a voluntary environmental impact statement granting approval of the preparation of a voluntary EIS for the proposed Styx Coal Project, now renamed the Central Queensland Coal Project.

### **1.2.4 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)**

The proposed project was referred on 22 January 2016 to the Australian Government Department of the Environment and Energy (EPBC 2016/7851). On 3 February 2017, the Department of the Environment and Energy determined the proposed project to be a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The controlling provisions are:

- sections 12 and 15A (world heritage values of a declared World Heritage property)
- sections 15B and 15C (the heritage values of a National Heritage place)
- sections 18 and 18A (Listed threatened species and communities)
- sections 20 and 20A (Listed migratory species)
- sections 24B and 24C (Great Barrier Reef Marine Park)
- sections 24D and 24E (a water resource, in relation to coal seam gas development and large coal mining development).

The project will be assessed under the bilateral agreement between the Commonwealth and the State of Queensland (section 45 of the EPBC Act) using the EIS prepared under the EP Act.

## 2 Content requirements for the EIS for the proposed Central Queensland Coal Project

The following sections outline the information requirements of an EIS for the proposed Central Queensland Coal Project. It is not necessary for the EIS to follow this specific structure, but the relevant requirements for each section must be included in the EIS.

## 3 Glossary

Provide a glossary of terms and a list of acronyms and abbreviations at the start of the EIS.

## 4 Executive summary

Describe the project and convey the most important and preferred aspects and environmental management commitments relating to the project in a concise and readable form.

## 5 Introduction

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

### 5.1 Project proponent

Provide information about the proponent(s) and their business, including:

- the proponent's full name, street and postal address, and Australian Business Number, including details of any joint venture partners
- the nature and extent of the proponent's business activities
- proponent's environmental record, including a list of any breach of relevant environmental laws during the previous 10 years
- the proponent's environmental, health, safety and community policies.

### 5.2 The environment impact statement process

Outline the steps of the environmental impact statement process, note which steps have been completed, and provide an estimated completion date for each remaining step. Highlight the steps in which the public will have the opportunity for input. The information in this section is required to ensure readers are informed of the process and are aware of their opportunities for input and participation.

Inform the reader how and when properly made public submissions on the EIS can be made, and outline how the submissions are taken into account in the decision-making process.

### 5.3 Project approvals process

Describe the approvals that are required to enable the project to be constructed and operated, and note the legislation under which the approvals are assessed and issued. Explain how the EIS fits into the assessment and approval processes for the environmental authority, leases, licences, and permits required by the proponent before construction and operations can start<sup>1</sup>. Describe the approvals process under the EPBC Act if this project is to be assessed under the bilateral agreement between the Queensland and the Australian Governments.

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<sup>1</sup> Guidance on typical associated approvals can be accessed from <https://www.business.qld.gov.au/industry>

## 6 Consultation process

Provide information on the development and implementation of a consultation plan for the people and organisations identified as affected or interested persons, or stakeholders for the project. Describe issues of potential concern to any and all stakeholders at various stages of the project from project planning to commencement, project operations and decommissioning. The description should at least include the following matters:

- the objectives of the consultation process
- timing of consultation
- the number and interests of the people and organisations involved in the consultation (particularly the affected and interested persons defined in sections 38 and 41 of the EP Act)
- methods of consultation and communication
- reporting and feedback methods of the consultation process
- an assessment explaining how the consultation objectives have been met
- an analysis of the issues raised and their completed or planned resolution, including any alterations to the proposed project as a result of the received feedback.

## 7 Project description and alternatives

Describe all aspects of the project that are covered by the EIS's assessment. If there are any aspects of the project that would be assessed separately, describe what they are, and how they would be assessed and approved.

The project description should include all on and off lease activities relevant to the project including construction, operation and decommissioning activities. If the delivery of the project is to be staged, the nature and timing of the stages should be fully described.

### 7.1 Proposed development

Describe and illustrate the following specific information about the proposed project, including but not limited to:

- project's title
- project objectives
- expected capital expenditure
- rationale for the project
- project description, including the nature and scale of all project components and activities
- whether it is a greenfield or brownfield site
- regional and local context of the project's footprint with maps at suitable scales
- proposed timing of the development, including construction staging and likely schedule of works
- relationship to other major projects or developments of which the proponent should reasonably be aware
- the workforce numbers for all project phases
- where personnel would be accommodated and the likely recruitment and rostering arrangements to be adopted
- proposed travel arrangements of the workforce to and from work, including use of a FIFO workforce.

### 7.2 Site description

Provide real property descriptions of the project land and adjacent properties, any easements, any existing underlying resource tenures, and identification number of any resource activity lease for the project land that is subject to application.

Describe and illustrate with scaled maps the key infrastructure in and around the site, including state-controlled and local roads, rail lines and loading yards, airfields, ports or jetties, electricity transmission infrastructure, pipelines, and any other infrastructure in the region relevant to the project.

Describe and illustrate the topography of the project site and surrounding area, and highlight any significant features shown on the maps. Map the location and boundaries of the project's footprint including all infrastructure elements and development necessary for the project. Show all key aspects including excavations, stockpiles, areas of fill, services infrastructure, plant locations, water or tailings storages, buildings, bridges and culvert, haul and access roads, causeways, stockpile areas, barge loading facilities and any areas of bed levelling. Include discussion of any environmental design features of these facilities including bunding of storage facilities.

Describe and map in plan and cross-sections the geology and terrestrial and/or coastal landforms of the project area. Indicate the boundaries of water catchments that are significant for the drainage of the site. Show geological structures, such as aquifers, faults and economic resources that could have an influence on, or be influenced by, the project's activities.

Describe and illustrate the precise location of the proposed project in relation to any designated and protected areas and waterbodies. This is to include the location of any proposed buffers surrounding the working areas; and lands identified for conservation, either through retention in their current natural state or to be rehabilitated.

Describe, map and illustrate soil types and profiles of the project area at a scale relevant to the site. Identify soils that would require particular management due to wetness, erosivity, depth, acidity, salinity or other feature, including acid sulfate soils. Complete an assessment of the potential for acid sulfate soils, risks associated with disturbance and proposed management and mitigation measures consistent with relevant government guidelines, policies and best practice management.

### **7.3 Proposed construction and operations**

Describe the following information about the proposal, and provide maps and concept/layout plans:

- existing land uses and any previous land use that might have affected or contaminated the land
- existing buildings, infrastructure and easements on the potentially affected land
- all pre-construction activities (including vegetation clearing, site access, interference with watercourses, wetlands and floodplain areas)
- the proposed construction methods, associated equipment and techniques
- road and rail infrastructure, and stock routes, including new constructions, closures and/or realignments
- location, design and capacity of all other required infrastructure, including water supply and storage, sewerage, electricity from the grid, generators and fuels (whether gas, liquid and/or solid), and telecommunications
- changes to watercourses and overland flow on or off the site, including stream diversions and flood levees
- any infrastructure alternatives, justified in terms of ecologically sustainable development (including energy and water conservation)
- hours of construction and operation
- the proposed extractive and processing methods, associated equipment and techniques
- the sequencing and staging of activities
- the proposed methods and facilities to be used for the storage, processing, transfer, and loading of product
- the capacity of high-impact plant and equipment, their chemical and physical processes, and chemicals or hazardous materials to be used
- any activity that would otherwise be a prescribed environmentally relevant activity if it were not undertaken on a mining or petroleum lease
- any new borrow pits, stream bed excavations, or expanded quarry and screening operations that may be required to service construction or operation of the project.

## 7.4 Feasible alternatives

Present feasible alternatives of the project's configuration (including conceptual, technological and locality alternatives to the project and individual elements) that may improve environmental outcomes. Summarise the comparative environmental, social and economic impacts of each alternative, with particular regard to the principles of ecologically sustainable development.

Discuss alternatives in sufficient detail to enable an understanding of the reasons for preferring certain options and courses of action while rejecting others.

Discuss the consequences of not proceeding with the project.

## 8 Assessment of environmental matters

For each matter in sections 8.1–8.16, the EIS must identify and describe the relevant environmental values, assess potential adverse and beneficial environmental, economic and social impacts of the project; and outline the management, monitoring, planning and other measures proposed to minimise any adverse environmental impacts of the project.

This must be addressed within the scope of the following requirements.

### Environmental values

- Identify and describe the environmental values that must be protected for all the relevant matters. For the purposes of the EIS process, 'environment' is defined in section 8 of the EP Act. Environmental values are specified in the EP Act, the EP Regulation (e.g. environmental objectives and performance outcomes as defined in schedule 5, part 3, tables 1 and 2), the *Vegetation Management Act 1999*, the *Nature Conservation Act 1992*, the *Regional Planning Interests Act 2014*, environmental protection policies (EPPs) and other relevant guidelines.
- Consider all available baseline information relevant to the environmental risks of the project, including seasonal variations. Describe the quality of all information, in particular the source of the information, how recent the information is, how the reliability of the information was tested, and any uncertainties in the information.

### Impact assessment

- Assess the impacts of the project on environmental values. Impact assessment must address:
  - both short-term and long-term scenarios, and state whether any relevant impacts are likely to be irreversible
  - consider when determining the scale of an impact, the impact's intensity, duration, cumulative effect, irreversibility, the risk of environmental harm, management strategies and offsets provisions
  - the potential for unforeseen impacts and the risks associated with unlikely but potentially major impacts
  - short, medium and long-term, permanent, temporary, positive and negative effects as well as impact interactions.

### Cumulative impacts

- Assess the cumulative impacts of the project and other activities on environmental values. Impact assessment must address:
  - the environmental values of land, air and water, public health and the health of terrestrial and aquatic ecosystems
  - the scale, intensity, duration or frequency of the impacts
  - impacts created by the activities of other adjacent, upstream and downstream developments and landholders.

## Management

- Propose and describe avoidance, mitigation and management strategies for the protection or enhancement of identified environmental values. Proposed strategies must:
  - adhere to EHP’s management hierarchy: (a) to avoid; (b) to minimise or mitigate; (c) to offset, if necessary and possible
  - include an adaptive management approach to provide confidence that, based on current technologies, the impacts can be effectively managed over the long-term
  - be described in context of EHP’s model conditions and/or site-specific, outcome-focussed conditions that can be measured and audited
  - identify and describe any global leading practice environmental management that would apply for unproven elements of a resource extraction or processing process, technology or activity.
- Demonstrate that the design of the project and its predicted outcomes:
  - meet the environmental objectives and outcomes listed in Table 1 of the EP Regulation; and the performance outcomes stated in Schedule 5 of the EP Regulation
  - are consistent with best practice environmental management during construction, operation, and decommissioning of the project
  - meet all statutory and regulatory requirements of the Commonwealth, state and local government, including any relevant plans, strategies, policies and guidelines.

**Table 1. Environmental objectives and outcomes relevant to the project**

Matter	Environmental objectives and outcomes <sup>#</sup>
<b>Land</b>	<p>The activity is operated in a way that protects to the greatest extent possible the environmental values of land including soils, subsoils, and landforms.</p> <p>The choice of the site, at which the activity is to be carried out, avoids or minimises serious environmental harm on areas of high conservation value and special significance and sensitive land uses at adjacent places.</p> <p>The location for the activity on a site protects all environmental values relevant to adjacent sensitive use.</p> <p>The design of the facility permits the operation of the activity in accordance with best practice environmental management.</p>
<b>Water</b>	<p>The activity will be operated in a way that protects environmental values of waters.</p> <p>The activity will be operated in a way that protects the environmental values of groundwater and any associated surface ecological systems.</p> <p>The activity will be managed in a way that prevents or minimises adverse effects on wetlands.</p>
<b>Water resources</b>	<p>With regard to water resources, the project must meet the following objectives:</p> <ul style="list-style-type: none"> <li>• equitable, sustainable and efficient use of water resources</li> <li>• maintenance of environmental flows and water quality to support the long term condition and viability of terrestrial, riverine, wetland, lacustrine, estuarine, coastal and marine ecosystems, in a way that maintains the ecological processes on which aquatic biota depend</li> <li>• Identification of environmental values and establishment of pre-disturbance (baseline) water quality objectives (WQOs) for surface- and ground- waters suitable for use as assessment criteria in accordance with appropriate national and state guidelines and policies</li> <li>• maintenance of the stability of beds and banks of watercourses, and the shores of waterbodies, estuaries and the coast</li> <li>• maintenance of supply to existing users of surface and groundwater resources, including during construction, operation and decommissioning of the project.</li> </ul>
<b>Flooding</b>	<p>The construction and operation of the project should aim to ensure that the risk and potential adverse impacts from flooding are avoided, minimised or mitigated to protect people, property and the environment.</p>

Matter	Environmental objectives and outcomes <sup>#</sup>
<b>Regulated structures</b>	<p>The design of the facility permits the operation of the site, at which the activity is to be carried out, in accordance with best practice environmental management<sup>#</sup>.</p> <p>The potential consequences of the failure of a regulated structure on human life and the environment require that the highest standards are used for their design, construction, operation, modification and decommissioning. The industry, government and the Australian National Committee on Large Dams Inc. (ANCOLD) have published several guidelines, which should be used to further develop objectives and outcomes for individual projects and the regulated structures they involve.</p>
<b>Flora and fauna</b>	<p>The activity will be operated in a way that protects to the greatest extent possible the environmental values of the land including flora and fauna.</p> <p>There will be no potential or actual adverse effect on a wetland as part of carrying out the activity.</p> <p>The project minimises serious environmental harm on areas of high conservation value and special significance and sensitive land uses at adjacent places.</p> <p>The location for the activity on a site protects all environmental values relevant to adjacent sensitive use.</p> <p>The project manages the impacts on the environment by seeking to achieve ecological sustainability, including, but not limited to, protected wildlife and habitat.</p> <p>Critical habitat receives special management considerations and protection through a management plan for the project.</p> <p>The project avoids significant residual impacts to matters of national environmental significance (MNES) and matters of state environmental significance (MSES), mitigates impacts where they cannot be avoided, and offsets any residual impacts.</p> <p>The project provides for the conservation of the marine environment, particularly the Great Barrier Reef Marine Park (GBRMP).</p> <p>The construction, operation and decommissioning of the project must be consistent with all statutory and regulatory requirements of the Commonwealth, state and local government and be consistent with their relevant plans, strategies, policies and guidelines that relate to the terrestrial and aquatic ecological environment.</p>
<b>Coastal environment</b>	<p>The project's objective for the coastal environment is that its activities are operated in a way that avoids or minimises adverse impacts on coastal environmental values, processes, and resources.</p> <p>The construction, operation and decommissioning of the project must be consistent with all statutory and regulatory requirements of the Commonwealth, state and local government and be consistent with their relevant plans, strategies, policies and guidelines that relate to the coastal environment. The coastal environment is taken to include estuarine, littoral and marine environmental values, and the amenity of important natural coastal landscapes, views and vistas.</p>
<b>Biosecurity</b>	<p>The construction, operation and decommissioning of the project must ensure:</p> <ul style="list-style-type: none"> <li>• the introduction and spread of weeds, pests (including marine pests) and disease, pathogens and contaminants are avoided or minimised</li> <li>• existing weeds and pests, including marine pests, are controlled and eradicated where practicable, including biosecurity threats and their management</li> <li>• the performance outcomes correspond to the relevant policies, legislation and guidelines, and that sufficient evidence is supplied (through studies and proposed management measures) to show these outcomes are achieved.</li> </ul>
<b>Air</b>	<p>The activity will be operated in a way that protects the environmental values of air.</p>
<b>Noise</b>	<p>The activity will be operated in a way that protects the environmental values of the acoustic environment.</p>
<b>Waste</b>	<p>Any waste generated, transported, or received as part of carrying out the activity is managed in a way that protects all environmental values.</p>
<b>Hazards and safety</b>	<p>The construction and operation of the project should ensure:</p> <ul style="list-style-type: none"> <li>• the risk of, and the adverse impacts from, natural and man-made hazards are avoided, minimised or mitigated to protect people and property</li> <li>• the community's resilience to natural hazards is maintained or enhanced</li> </ul>

Matter	Environmental objectives and outcomes <sup>#</sup>
	<ul style="list-style-type: none"> <li>• developments involving the storage and handling of hazardous materials are appropriately located, designed and constructed to minimise health and safety risks to communities and individuals and adverse effects on the environment</li> <li>• the project prevents or minimises the production of hazardous contaminants and waste</li> <li>• if the production of hazardous contaminants and waste is unavoidable, the project treats and/or contains hazardous contaminants until their disposal at an approved facility.</li> </ul>
<b>Cultural heritage</b>	The construction and operation of the project should achieve the purposes of the <i>Aboriginal Cultural Heritage Act 2003</i> with respect to the project site, and ensure that the nature and scale of the project does not compromise the cultural heritage significance of a heritage place or heritage area.
<b>Social and economic matters</b>	<p>The construction and operation of the project should aim to:</p> <ul style="list-style-type: none"> <li>• avoid or mitigate adverse social and economic impacts arising from the project</li> <li>• capitalise on opportunities potentially available for local industries and communities.</li> </ul>
<b>Transport</b>	<p>The construction and operation of the project should aim to:</p> <ul style="list-style-type: none"> <li>• maintain the safety and efficiency of all affected transport modes for the project workforce and other transport system users</li> <li>• avoid and mitigate impacts including those on the condition of transport infrastructure</li> <li>• ensure any required works are compatible with existing infrastructure and future transport corridors.</li> </ul>

<sup>#</sup> derived from Schedule 5 of EP Regulation and/or derived from current best practice environmental management and/or relevant legislation

## Conditions and commitments

- Sufficient evidence and detail must be provided in the EIS (through studies, proposed management measures and supporting information):
  - to demonstrate that the predicted outcomes for the project can be achieved
  - to meet the requirements of sections 125 and 126A of the EP Act as relevant to the specific project
  - for the administering authority to make recommendations about the suitability of the project, assess whether an approval should be granted and recommend draft conditions.

## Critical matters

- The detail in which the EIS deals with all matters relevant to the project should be proportional to the scale of the impacts on environmental values. When determining the scale of an impact, consider the impact's intensity, duration, cumulative effect, irreversibility, the risk of environmental harm, management strategies and offsets provisions. A critical matter is defined as an aspect of the proposal that has one or more of the following characteristics:
  - It has a high or medium probability of causing serious or material environmental harm, or a high probability of causing an environmental nuisance.
  - It is considered important by the administering authority, and/or there is a public perception that an activity has the potential to cause serious or material environmental harm or an environmental nuisance, or the activity has been the subject of extensive media coverage.
  - It is relevant to a controlling provision under the EPBC Act.
  - It raises obligations under any other legislation applicable for the proposed project (e.g. *Water Act 2000*).
- The final scope of critical matters will be determined by the administering authority when finalising the TOR. However, if a new additional critical matter becomes apparent after the final TOR is issued, the EIS should address that new matter.
- Critical environmental matters identified for this project which the EIS must give priority are:
  - MNES

- water quality and quantity
- flooding and regulated structure
- rehabilitation
- land
- flora and fauna
- transport

## 8.1 Climate

Describe the project area's climate patterns that are relevant to the environmental assessment, with regard to discharges to water and air, and the propagation of noise. Climate data should be provided in a statistical form including long-term averages and extreme values. It should also be graphically represented by bar charts, wind rose diagrams, or other means.

Assess the vulnerability of the area to natural and induced hazards, including floods, bushfires and cyclones. Consider the relative frequency and magnitude of these events together with the risk they pose to the construction, operation and rehabilitation of the project. Measures that would be taken to minimise the risks of these events should be described.

Assess the project's vulnerabilities to climate change (e.g. changing patterns of rainfall, hydrology, temperature and extreme weather events). Describe possible adaptation strategies (preferred and alternative) based on climate change projections for the region.

## 8.2 Land

Conduct the impact assessment in accordance with the EHP's *EIS information guideline—Land*, and, if any quarry material is needed for construction of project works including related infrastructure, use EHP's *EIS information guideline—Quarry material*.

Describe potential impacts of the proposed land uses taking into consideration the proposed measures that would be used to avoid or minimise impacts. The impact prediction must address the following matters:

- Any changes to the landscape and its associated visual amenity in and around the project area.
- Any existing or proposed mining tenement under the *Mineral Resources Act 1989*, petroleum authority under the *Petroleum and Gas (Production and Safety) Act 2004*, petroleum tenure under the *Petroleum Act 1923*, geothermal tenure under the *Geothermal Energy Act 2010* and greenhouse gas tenure under the *Greenhouse Gas Storage Act 2009* overlying or adjacent to the project site.
- Temporary and permanent changes to land uses of the project site and adjacent areas, considering actual and potential agricultural uses, regional plans and local government planning schemes, and any key resource areas that were identified as containing important extractive resources of state or regional significance which the state considers worthy of protection<sup>2,3</sup>.
- Identify any existing or proposed incompatible land uses within and adjacent to the site, including the impacts on economic resources and the future availability and viability of the resource including extraction, processing and transport location to markets.

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<sup>2</sup> <https://www.business.qld.gov.au/industry/mining/quarries/key-resource-areas>

<sup>3</sup> <http://www.statedevelopment.qld.gov.au/resources/guideline/spp/spp-guideline-mining-extractive-resources.pdf>

- Identify any infrastructure proposed to be located within, or which may have impacts on, the Stock Route Network<sup>4,5</sup> and the *Stock Route Management Act 2002*.
- Propose suitable measures to avoid or minimise impacts related to land use.

Assess the project against the requirements of the *Regional Planning Interests Act 2014*<sup>6</sup>, including any relevant Regional Plan. Further advice is provided in the '*DILGP Companion guide – A guide for state agencies and proponents on the requirements of the Regional Planning Interests Act 2014 in the planning and development process*' (Department of Infrastructure, Local Government and Planning, July 2016<sup>7</sup>) and the *DAFF Environmental Impact Assessment Companion Guide*' (Department of Agriculture, Fisheries and Forestry, August 2014<sup>8</sup>). Describe how the project will avoid or minimise impacts on any land identified as Strategic Cropping Land on the Trigger Map for Strategic Cropping Land<sup>9</sup>.

Show how the land form during and after disturbance will be stable over time and will meet any requirements of project or property plans under the *Soil Conservation Act 1986*.

Detail any known or potential sources of contaminated land that could be impacted by the project. Describe how any proposed land use may result in land becoming contaminated.

Identify existing or potential native title rights and interests possibly impacted by the project and the potential for managing those impacts by an Indigenous Land Use Agreement or other measure in accordance with the *Native Title (Queensland) Act 1993* and consistent with the Queensland Government *Native Title Work Procedures*<sup>10</sup>.

## 8.2.1 Rehabilitation

Conduct impact assessment in accordance with the EHP's *EIS information guideline—Rehabilitation*.

The EIS must provide information based on relevant guidelines (including the departmental 'Guideline: Rehabilitation requirements for mining resource activities'<sup>11</sup>), current best practice approaches and legislative requirements about the strategies and methods for progressive and final rehabilitation of the environment disturbed by construction, operation, and decommissioning of the project.

The EIS must propose completion criteria and a rehabilitation strategy which addresses the following considerations:

- a) develop rehabilitation criteria for disturbed areas and post mining land uses across the mine as outlined in *EHP Guideline: Rehabilitation requirements for mining projects*
- b) specify spoil characteristics, soil analysis, soil separation for use on rehabilitation
- c) explain any planned native vegetation rehabilitation areas and corridors
- d) explain development and rehabilitation of improved pastures and grazing landforms
- e) detail rehabilitation methods applied to disturbed areas, including map(s) to identify proposed rehabilitation types and methods in different areas
- f) describe landform design criteria including end of mine design

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<sup>4</sup> <https://www.qld.gov.au/environment/land/stock-routes/about/>

<sup>5</sup> [https://www.dnrm.qld.gov.au/\\_\\_data/assets/pdf\\_file/0010/99622/stock-route-management-strategy.pdf](https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0010/99622/stock-route-management-strategy.pdf)

<sup>6</sup> <http://www.dilgp.qld.gov.au/planning/regional-planning/regional-planning-interests-act.html>

<sup>7</sup> <http://www.dilgp.qld.gov.au/planning/regional-planning/rpi-act-forms-guidelines-and-fact-sheets.html>

<sup>8</sup> <https://publications.qld.gov.au/dataset/daff-environmental-impact-assessment-companion-guide/resource/7b1825c4-5e42-4cf8-aa2d-7fa55c2f5e4c>

<sup>9</sup> <https://www.dnrm.qld.gov.au/land/accessing-using-land/strategic-cropping-land>

<sup>10</sup> <https://www.dnrm.qld.gov.au/land/indigenous-land/queensland-government-native-title-work-procedures>

<sup>11</sup> <https://www.ehp.qld.gov.au/land/mining/guidelines.html>

- g) where suitable remnant vegetation sites are available, identify an appropriate number for the development of rehabilitation success criteria and comparison with progressive rehabilitation at the mine
- h) identify success criteria for rehabilitation areas
- i) detail how landform design will be consistent with the surrounding topography
- j) include detailed flood modelling for two year Average Recurrence Interval (ARI), 50 year ARI (i.e. 1 in 50), 100 year ARI (i.e. 1 in 100), 1,000 year ARI (i.e. 1 in 1,000) and the Probable Maximum Flood (PMF). Maps must illustrate the final landform and where mined areas and uncompacted overburden would lie in relation to all of these flood levels up to and including the PMF
- k) detail how surrounding environmental values will be protected
- l) describe rehabilitation indicators, projected progressive rehabilitation, and the monitoring program to be used
- m) develop a contingency plan for rehabilitation maintenance or design.
- n) assess waste in terms of acid forming potential; describe risks and proposed management
- o) provide rehabilitation goals, rehabilitation objectives, indicators of success and completion criteria for each mining domain for the agreed post mining land use
- p) details and commits to a progressive rehabilitation schedule for the life of mine which:
  - minimise the amount of land disturbed at any one time
  - minimise the residual loss of land and water bodies with ecological or productive value
  - quantifies the milestones that would be met during the progressive rehabilitation of the project site including a table that specifies goals, timing and minimum quantities of the progressive rehabilitation to be achieved for each mining domain at different stages over the life of the mine
  - specifies the timing, criteria and definition for successfully achieving the progressive rehabilitation goals for all relevant domains
- q) include rehabilitation methods, topsoil requirements for rehabilitation, the proposed cover designs for encapsulation of waste material, including performance and completion criteria, geotechnical, geochemical and hydrological studies that support their design and proposed rehabilitation monitoring program
- r) provide detailed description of the topsoil resources on site and how topsoil storage will be quantitatively and qualitatively managed (stripped, salvaged and stockpiled) for the life of the project to prevent topsoil loss from any disturbance areas and to ensure successful progressive revegetation and rehabilitation
- s) describe and illustrate the proposed final landforms including landform type, slope, regional ecosystem, retained voids, drainage design, and post mining land or infrastructure use agreed with background landholders. Maps of the proposed final topography should have contours at suitable intervals, and show waste dumps, and any dams that would not be removed and rehabilitated
- t) describe rehabilitation completion criteria that would be used to measure progress and completion in relation to the final land uses and wildlife habitat areas. Describe how the achievement of the objectives would be monitored, audited and reported, and how corrective actions would be managed
- u) include the staged design of the voids over the life of mine, including the estimated timing that works will commence and be completed, post mining land use, topography, geotechnical rehabilitation stability, post-mining hydrological interactions
- v) Notwithstanding that management techniques may improve over the life of the project, and legislative requirements may change, the EIS must give confidence that all potential high-impact elements of the

project (e.g. spoil dumps, voids, tailings and water management dams, creek diversions or crossings, borrow pits) are capable of being managed and rehabilitated to achieve acceptable land suitability, to be safe, stable, non-polluting and self-sustaining, and to prevent upstream and downstream surface and groundwater contamination

### 8.3 Water quality

The assessment of water quality is considered a critical matter given the proximity of the Great Barrier Reef World Heritage Area, the presence of a wetland of national significance within the project area, and usage of water resources for grazing purposes in the area.

Conduct impact assessment in accordance with the EHP's *EIS information guideline—Water*.

With reference to the Environmental Protection (Water) Policy 2009 and section 9 the EP Act, identify the environmental values of surface waters within the project area, downstream and upstream that may be affected by the project, including any human uses of the water and any cultural values.

Define and/or establish the relevant water quality objectives applicable to the environmental values, and demonstrate how these will be met by the project during construction, operation and decommissioning. Quantify sediment and contaminant load increases in streams and to the reef as a result of mining operations.

Detail the chemical, physical and biological characteristics of surface waters and groundwater within the area that may be affected by the project and at suitable reference locations using sufficient data to define background conditions and natural variation in accordance with appropriate national and state guidelines and policies.

Describe the quantity, quality, location, duration and timing<sup>12</sup> of all potential and/or proposed releases of contaminants addressing applicable standards from any relevant regional water quality management plans, strategies, or guidelines relating to water quality. Releases may include controlled water discharges to surface water streams, uncontrolled discharges when the design capacity of storages is exceeded, spills of products during loading or transportation, spills of product from the conveyor, contaminated run-off from operational areas of the site (including seepage from waste rock dumps), or run-off from disturbed acid sulphate soils.

Assess the likely impacts of any releases from point or diffuse sources on all relevant environmental values of the receiving environment, including environmentally sensitive areas; such as the Great Barrier Reef World Heritage Area and Broad Sound Directory of Important Wetlands in Australia (DIWA) nationally important wetland as well as near-field and mid-field locations. The assessment should consider the quality and hydrology of receiving waters and the assimilative capacity of the receiving environment.

Describe how impacts on water quality objectives and environmental values would be avoided or minimised through the implementation of management strategies that comply with the management hierarchy and management intent of the Environmental Protection (Water) Policy 2009. Appropriate management strategies may include the use of erosion and sediment control practices, and the separation of clean storm water run-off from the run-off from disturbed and operational areas of the site.

Describe how monitoring would be used to demonstrate that objectives were being assessed, audited and met. For example, provide measureable criteria, standards and/or indicators that will be used to assess the condition of the ecological values and health of surface water environments. Propose corrective actions to be used if objectives are not being met.

### 8.4 Water resources

The assessment of surface water and groundwater resources is considered a critical matter given the usage of water resources for grazing purposes in the area.

Conduct impact assessment in accordance with the EHP's *EIS information guidelines—Water*.

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<sup>12</sup> Duration and timing are important aspects of the risk characteristics that affect the impacts of mine and CSG water releases; e.g. for how long will water be released in total and when will it occur with respect to existing 'natural' flows

Describe present and potential users and uses of water in areas potentially affected by the project, including municipal, agricultural<sup>13</sup>, industrial, recreational and environmental uses of water.

Provide details of any proposed changes to, or use of, surface water or groundwater. Identify any approval or allocation that would be needed under the *Water Act 2000*.

Describe all aquifers that would be impacted by the project, including the following information:

- nature of the aquifer/s
- geology/stratigraphy - such as alluvium, volcanic, metamorphic
- aquifer type - such as confined, unconfined
- depth to and thickness of the aquifers
- groundwater quality and volume
- current use of groundwater in the area
- survey of existing groundwater supply facilities (e.g. bores, wells, or excavations)
- information to be gathered for analysis to include:
  - location
  - pumping parameters
  - drawdown and recharge at normal pumping rates, and
  - seasonal variations (if records exist) of groundwater levels
- proposal to develop network of groundwater monitoring bores before and after the commencement of the project.

Include maps of suitable scale showing the location of diversions and other water-related infrastructure in relation to mining infrastructure. Detail any significant diversion or interception of overland flow. Assess the potential impacts of any new water infrastructure (including diversions, pits, dams, etc.) and any proposed changes to water supply or take, on ground and surface water hydrology, quality and hydrological processes.

Describe the options for supplying water to the project and assess any potential consequential impacts in relation to the objectives of any water resource plan and resource operations plan that may apply.

Describe how 'make good' provisions would apply to any water users that may be adversely affected by the project.

Describe the proposed supply of potable water for the project, including temporary demands during the construction period. Also describe on-site storage and treatment requirements for waste water from accommodation and/or offices and workshops.

Describe the practices and procedures that would be used to avoid or minimise impacts on water resources.

Quantify the volume of all takes from the groundwater system (including pit dewatering, degassing, etc.) and assess the impacts on groundwater levels, quality and ecosystem interactions for each aquifer and any implications for surface-groundwater interactions.

#### **8.4.1 The Independent Expert Scientific Committee**

The EIS must include a specific section responding to the information requirements contained in the Independent Expert Scientific Committee's (IESC's) *Information guidelines for proposals relating to the development of coal seam gas and large coal mines where there is a significant impact on water resources* (Commonwealth of Australia, 2015<sup>14</sup>).

### **8.5 Flooding**

The assessment of surface water and groundwater resources is considered a critical matter given the use of the area for cattle grazing and the need to protect the environmental values of water resources.

Describe current flood risk for a range of annual exceedance probabilities (AEPs) up to the PMF for the project site. Use flood modelling to assess how the project may potentially change flooding and run-off characteristics on-site

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<sup>13</sup> <https://publications.qld.gov.au/dataset/daff-environmental-impact-assessment-companion-guide/resource/7b1825c4-5e42-4cf8-aa2d-7fa55c2f5e4c>

<sup>14</sup> <http://www.iesc.environment.gov.au/publications>

and upstream and downstream of the site. Maps and plans showing inundated and flooded areas for the full range of AEPs up to the PMF flood should be presented for the site, for the case before construction of the project, and also after mine closure. The assessment should consider all infrastructure associated with the project including levees, roads, and linear infrastructure, and all proposed measures to avoid or minimise impacts.

Evidence should be provided that the securing of storage containers of hazardous contaminants during flood events meets the requirements of Schedule 5, table 2 of the EP Regulation.

Describe and illustrate where any residual voids and mining features e.g. waste rock dumps would lie in relation to the extent of the PMF. Demonstrate that these features will not impact on the ecological functioning and physical processes of the floodplain and GBR in the longer-term.

Assess the project's vulnerabilities to climate change (e.g. changing patterns of rainfall, hydrology, temperature and extreme weather events). Describe possible adaptation strategies (preferred and alternative) based on climate change projections for the project.

## 8.6 Regulated structures

Conduct impact assessments on regulated structures in accordance with the EHP's *EIS information guideline—Regulated structures*, EHP's *Guideline on structures which are dams or levees constructed as part of environmentally relevant activities*<sup>15</sup>, and EHP's *Manual for assessing hazard categories and hydraulic performance of structures*<sup>16</sup>.

Describe the purpose of all dams or levees proposed on the project site. Show their locations on appropriately scaled maps, and provide plans and cross-sections, illustrating such features as embankment heights, spillways, discharge points, design storage allowances, and maximum volumes. Describe how storage structures and other infrastructure would be sited to avoid or minimise risks from flooding.

Where project infrastructure comprises dams or other structures for storing potentially hazardous materials, undertake a consequence category assessment for each dam or levee, according to the criteria outlined in EHP's *Manual for assessing consequence categories and hydraulic performance of structures*. The assessment must be undertaken for the three different failure event scenarios described in EHP's manual, i.e. for seepage, overtopping and dam break. Regulated structures must comply with the *Manual for assessing consequence categories and hydraulic performance of structures* in accordance with Schedule 5, table 2 of the EP Regulation.

Following the consequence category assessment, determine the consequence category ('low, significant, or high') according to table 1 of EHP's *Manual for assessing hazard categories and hydraulic performance of structures* and provide certified copies of these the consequence category determination for each of the proposed dams or levees.

Describe how risks associated with dam or storage failure, seepage through the floor, embankments of the dams, and/or with overtopping of the structures will be avoided, minimised or mitigated to protect people, property and the environment.

## 8.7 Flora and fauna

Describe the potential direct and indirect impacts on the biodiversity and natural environmental values of affected areas arising from the construction, operation and decommissioning of the project. Consider any proposed avoidance and/or mitigation measures. The EIS should provide information based on relevant guidelines, including but not limited to EHP's EIS information guidelines that cover flora and fauna, aquatic ecology, coastal issues, ground-dependent ecosystems, water, matters of national environmental significance, and biosecurity. The assessment should include the following key elements:

- identification of all significant ecological species and communities, including MSES and MNES, listed flora and fauna species, and regional ecosystems, on the project's site and in its vicinity
- terrestrial and aquatic ecosystems (including groundwater-dependent ecosystems) and their interactions
- biological diversity

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<sup>15</sup> <http://www.ehp.qld.gov.au/assets/documents/regulation/era-gl-structures-dams-levees-eras.pdf>

<sup>16</sup> <https://www.ehp.qld.gov.au/assets/documents/regulation/era-mn-assessing-consequence-hydraulic-performance.pdf>

- the integrity of ecological processes, including habitats of listed threatened, near threatened or special least-concern species
- connectivity of habitats and ecosystems
- the integrity of landscapes and places, including wilderness and similar natural places
- chronic, low-level exposure to contaminants or the bio-accumulation of contaminants
- impacts (direct or indirect) on terrestrial and aquatic species and ecosystems whether due to: vegetation clearing; hydrological changes; discharges of contaminants to water, air or land; noise; etc.
- impacts of waterway barriers on fish passage in all waterways mapped on the Queensland Waterways for Waterway Barrier Works spatial data layer.

Describe any actions of the project that require an authority under the *Nature Conservation Act 1992*, and/or would be assessable development for the purposes of the *Vegetation Management Act 1999*<sup>17</sup>, the *Regional Planning Interests Act 2014*, the *Fisheries Act 1994* and the *Planning Act 2016*. Features to consider include regional ecosystems, environmentally sensitive areas, wetlands, nature refuges, protected areas and strategic environmental areas.

Propose practical measures to avoid, minimise, mitigate and/or offset direct or indirect impacts on ecological environmental values. Assess how the nominated quantitative indicators and standards may be achieved for nature conservation management. Address measures to protect or preserve any listed threatened, near-threatened or special least concern species.

Propose measures that would avoid the need for waterway barriers, or propose measures to mitigate the impacts of their construction and operation.

Assess the need for buffer zones and the retention, rehabilitation or planting of movement corridors. The assessment should take account of the role of buffer zones in maintaining and enhancing riparian vegetation to enhance water quality and habitat connectivity.

Propose rehabilitation success criteria, in relation to natural values, that would be used to measure the progressive rehabilitation of disturbed areas. Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed. Proposals for the rehabilitation of disturbed areas should incorporate, in suitable habitat, provision of nest hollows and ground litter.

Specifically address any obligations imposed by State or Commonwealth legislation or policy or international treaty obligations, such as the China–Australia Migratory Bird Agreement, Japan–Australia Migratory Bird Agreement, or Republic of Korea–Australia Migratory Bird Agreement.

### 8.7.1 Offsets

For any significant residual impacts, propose offsets that are consistent with the following requirements as set out in applicable State and Commonwealth legislation or policies:

- Where a significant residual impact will occur on a prescribed environmental matter as outlined in the Environmental Offsets Regulation 2014, the offset proposal(s) must be consistent with the requirements of Queensland's *Environmental Offsets Act 2014* and the latest version of the Queensland Environmental Offsets Policy<sup>18</sup>.
- Where the Commonwealth offset policy requires an offset for significant impacts on a MNES, the offset proposal(s) must be consistent with the requirements of the EPBC Act Environmental Offsets Policy (October 2012), the *Offsets Assessment Guide* and relevant guidelines<sup>19</sup> (refer also to Appendix 3 of this TOR).

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<sup>17</sup> This is notwithstanding that the Vegetation Management Act 1999 does not apply to mining projects. Refer also to <https://www.qld.gov.au/environment/land/vegetation/clearing/>

<sup>18</sup> <https://www.qld.gov.au/environment/pollution/management/offsets/>

<sup>19</sup> <http://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy>

## 8.8 Coastal environment

Conduct impact assessment in accordance with the EHP's *EIS information guideline—Coastal*.

Provide illustrated details of the existing coastal zone that is potentially affected by the project, and describe and illustrate any proposed works in the coastal zone, including a schedule of ongoing maintenance requirements. The description should at least address the following matters:

- state or Commonwealth marine parks in the region of the project's site
- separately mention marine plants and any fish habitat areas protected under the *Fisheries Act 1994*

Assess the potential impacts of the project's activities in the coastal zone.

Propose measures to avoid or minimise the potential impacts of the project's activities in the coastal zone. If acid sulfate soils would be disturbed, describe measures to avoid oxidation of the sulfides or to treat and neutralise the acid if it forms.

Detail any residual impacts that cannot be avoided, and propose measures to offset the residual loss.

Develop and describe suitable indicators for measuring coastal resources and values, and set objectives to protect them in accordance with relevant State Planning Policy July 2014, guidelines and legislation. Refer to EHP's guidelines on coastal development.

Detail a monitoring program that would audit the success of mitigation measures, measure whether objectives have been met, and describe corrective actions to be used if monitoring shows that objectives are not being met.

## 8.9 Biosecurity

Conduct impact assessment in accordance with the EHP's *EIS information guideline—Biosecurity*.

Propose detailed measures to remove, control and limit the spread of pests, weeds disease, pathogens and contaminants on the project site and any areas under the proponent's control, particularly declared plants and animals under Queensland's *Biosecurity Act 2014*, the Commonwealth *Biosecurity Act 2015* and weeds of national significance (WONS).

Weed and pest animal management measures should be aligned with local government pest management priorities.

Detail a monitoring program that would audit the success of measures, whether objectives have been met, and describe corrective actions to be used if monitoring shows that objectives are not being met.

## 8.10 Air

Describe the existing air environment at the project site and the surrounding region.

Provide an emissions inventory and description of the characteristics of contaminants or materials that would be released from point and diffuse sources and fugitive emissions when carrying out the activity (point source and fugitive emissions). The description should address the construction, commissioning, operation, upset conditions, and closure of the project.

Predict the impacts of the releases from the activity on environmental values of the receiving environment using established and accepted methods and in accordance with the EP Regulation, Environmental Protection (Air) Policy 2008 (EPP (Air)), and EHP's *EIS information guideline—Air*. The description of impacts should take into consideration the sensitivity and assimilative capacity of the receiving environment and the practices and procedures that would be used to avoid or minimise impacts. The impact prediction must address the cumulative impact of the release with other known releases of contaminants, materials or wastes associated with existing development and possible future development (as described by approved plans and existing project approvals). It should also quantify the human health risk and amenity impacts associated with emissions from the project for all contaminants whether or not they are covered by the National Environmental Protection (Ambient Air Quality) Measure or the EPP (Air).

Describe the proposed mitigation measures and how the proposed activity will be consistent with best practice environmental management. The EIS must address the compatibility of the project's air emissions with existing or potential land uses in surrounding areas. Potential land uses might be gauged from the zonings of local planning schemes or State Development Areas.

Describe how the achievement of the objectives would be monitored, audited and reported, and how corrective actions would be managed.

Proponents are responsible for determining if they have obligations under the Commonwealth *National Greenhouse and Energy Reporting Act 2007* (NGER Act) and ensuring that information provided in their NGER report meets the requirements of this Act and its subordinate legislation<sup>20</sup>.

Provide an inventory of projected annual emissions for each relevant greenhouse gas, with total emissions expressed in 'CO<sub>2</sub> equivalent' terms. Estimate emissions from upstream activities associated with the proposed project, including the fossil fuel based electricity to be used. Briefly describe the methods used to make the estimates. NGER guidelines can be used as a reference source for emission estimates and supplemented by other sources where practicable and appropriate. Coal mining projects must 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 at the project site.

Assess the potential impacts of operations within the project area on the state and national greenhouse gas inventories and propose greenhouse gas abatement measures, including:

- a description of the proposed measures (alternatives and preferred) to avoid and/or minimise greenhouse gas emissions directly resulting from activities of the project, including such activities as transportation of products and consumables, and energy use by the project
- an assessment of how the preferred measures minimise emissions and achieve energy efficiency
- a comparison of the preferred measures for emission controls and energy consumption with best practice environmental management in the relevant sector of industry
- a description of any opportunities for further offsetting greenhouse gas emissions through indirect means.

## 8.11 Noise and vibration

Describe and illustrate the locations of any sensitive receptors that are listed in Schedule 1 of the Environmental Protection (Noise) Policy 2008. Also describe any other environmental values that could be impacted by emissions from the proposed project.

Fully describe the sources and characteristics of noise and vibration that would be emitted during the construction, commissioning, operation, upset conditions, and closure of the project. Conduct noise and vibration impact assessment in accordance with the EHP's *EIS information guideline—Noise and vibration*. The assessment must address low-frequency (<200Hz) noise emissions and potential cumulative impact of the project with other emissions of noise from any existing developments and known possible future development in the area.

Describe how the proposed activity would be managed to be consistent with best practice environmental management. The EIS must address the compatibility of the project's noise emissions with existing or potential land uses in surrounding areas. Potential land uses might be gauged from the zonings of local planning schemes or State Development Areas.

Describe how the achievement of the environmental management objectives would be monitored, audited and reported, and how corrective actions would be managed.

## 8.12 Waste management

Conduct impact assessment in accordance with the EHP's *EIS information guidelines—Waste management*.

Describe all the expected waste streams from the proposed project activities during the construction, operational, rehabilitation and decommissioning phases of the project. Waste streams for resource projects would typically include: waste rock, tailings and coarse rejects from mining and mineral processing; salt from petroleum and gas projects; and brackish, saline or mine affected water from all types of resource projects.

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<sup>20</sup> <http://www.cleanenergyregulator.gov.au/NGER>

Describe the quantity, and physical and chemical characteristics; hazard and toxicity of each significant waste, as well as any attributes that may affect its dispersal in the environment, and its associated risk of causing environmental harm.

Define and describe the objectives and practical measures for protecting or enhancing environmental values from impacts by wastes.

Assess the proposed management measures against the preferred waste management hierarchy, namely: avoid waste generation; cleaner production; recycle; reuse; reprocess and reclaim; waste to energy; treatment; disposal. This includes the generation and storage of waste.

Describe how nominated quantitative standards and indicators may be achieved for waste management, and how the achievement of the objectives would be monitored, audited and managed.

Detail waste management planning for the proposed project especially how measures have been applied to prevent or minimise environmental impacts due to waste at each stage of the project.

Use a material/energy flow analysis to provide details of natural resource use efficiency (such as energy and water), integrated processing design, and any co-generation of power and by-product reuse.

Identify the quantity, quality and location of all potential discharges of water and contaminants (including treated wastewater/sewage) by the project. Describe whether the discharges would be from point sources (whether uncontrolled and controlled discharges) or diffuse sources (such as irrigation to land of treated wastewater/sewage effluent), and describe the receiving environment (such as land or surface waters).

Provide a risk assessment of the potential impacts on surface waters (in the near-field or far-field) due to any controlled or uncontrolled discharges from the site. The EIS should address the following matters with regard to every potential discharge of contaminated water:

- Describe the circumstances in which controlled and uncontrolled discharges might occur
- Provide stream flow data and information on discharge water quality (including any potential variation in discharge water quality) that will be used in combination with proposed discharge rates to estimate in-stream dilution and water quality. Chemical and physical properties of any waste water (including concentrations of constituents) at the point of entering natural surface waters should be discussed along with toxicity of effluent constituents to human health, flora and fauna
- Provide an assessment of the available assimilative capacity of the receiving waters given existing background levels and other potential point source discharges in the catchment. Options for controlled discharge at times of natural stream flow should be investigated to ensure that adequate flushing of waste water is achieved
- Provide water quality limits that are appropriate to maintain background water quality and protect water uses
- Describe the necessary streamflow conditions in receiving waters under which controlled discharges will be allowed.

Provide relevant information on existing and proposed sewage infrastructure (related to environmentally relevant activity (ERA) 63) by referring to relevant EHP policies and guidelines<sup>21</sup>, depending on the proposed collection (sewer infrastructure), treatment of sewage, and proposed reuse/disposal of treated wastewater and sewage wastes generated. For activities associated with ERA 63, the EIS must include:

- the preferred location and capacity of the proposed sewage treatment plant (STP) system(s) with specific reference to the 'daily peak design capacity' of equivalent persons
- inputs the STP would receive from the mine camp(s) (e.g. any infiltration of groundwater into the sewer collection system, trade waste from camp cafeteria), whether the effluent coming from the MIA would be contaminated with other industrial pollutants, and whether these contaminants would have any adverse effects on wastewater treatment

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<sup>21</sup> E.g. <https://www.ehp.qld.gov.au/licences-permits/guidelines.html>

- the expected effluent quality and quantity, and suitable calculations showing the volume of any wet weather storage(s) and area(s) for sustainable effluent irrigation based on the equivalent persons (EP) of the facility/ies and location of the irrigation area(s)
- avoidance and mitigation measures associated with the generation, treatment and disposal/reuse of sewage generated
- identify any risks to the receiving environment including land and water quality.

Identify beneficial use options under the *Waste Reduction and Recycling Act 2011* as per the relevant guidelines for irrigation, drilling mud, and associated water. The uses might include aquaculture, coal washing, dust suppression, construction, landscaping and revegetation, industrial and manufacturing operations, research and development and domestic, stock, stock intensive and incidental land management. If effluent is to be used for dust suppression or other uses, demonstrate that the water quality is appropriate for that use from an environmental and public health perspective.

Provide maps and plans describing composting activities to produce a 'soil conditioner'; identify any risks to the receiving environment, and any potential impacts on water quality or land and how these would be managed. Demonstrate that the composted material (as 'soil conditioner') is suitable for its intended use in any proposed rehabilitation by referring to appropriate guidelines and Australian Standards.

## 8.13 Hazards and safety

Describe the potential risks to people and property that may be associated with the project in the form of a risk assessment for all components of the project and in accordance with relevant standards. The assessment should address the following matters:

- potential hazards, accidents, spillages, fire and abnormal events that may occur during all stages of the project, including estimated probabilities of occurrence
- hazard analysis and risk assessment in accordance with *AS/NZS ISO 31000:2009 Risk management—principles and guidelines* and with *HB203:2006 Environmental risk management principles and processes*
- demonstrate that any major hazard facility involving dangerous and hazardous materials is appropriately located in accordance with the *State Development Assessment Provisions, Module 13 – Major hazard facilities*
- identify all hazardous substances and any explosives to be used, transported, stored, processed or produced and the rate of usage; evaluate the risks associated with the secure storage, use and transportation of explosives to ensure the risks are within an acceptable standard in accordance with *Australian Standard AS2187.1*<sup>22</sup>
- potential wildlife hazards, including a development of a mosquito management plan in accordance with Queensland Health guidelines<sup>23</sup>, natural events (e.g. cyclone, storm tide inundation, flooding, bushfire) and implications related to climate change and adaptation
- describe natural hazards that may affect the site with at least a 1% AEP or 100 year ARI level, including mapping of the potential hazard areas at the site
- how siting, layout and operation of the development will avoid or mitigate the risks, particularly with regard to the release of hazardous materials during natural hazard events
- how natural processes and the protective function of landforms and vegetation will be maintained in coastal erosion and storm tide inundation areas
- include an assessment of the risk that the project will damage the infrastructure of the Bruce Highway
- show in plan view, and in a number of cross sections of suitable scale, the depth of the excavations in the North and South pits adjacent to the Bruce Highway. Discuss how geotechnical stability can be assured,

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<sup>22</sup> *Australian Standard AS 2187, Explosives-storage transport and use*

<sup>23</sup> E.g. Queensland Health – *Guidelines to minimise mosquito and biting midge problems in new developments*, available from <http://www.health.qld.gov.au/ph/documents/cdb/14804.pdf>

and erosion protection on exposed faces can be successfully implemented, on the long block of unmined material supporting the Bruce Highway across the middle of the Central Queensland Coal Project. Discussions should examine the case of maximum exposure on the face of the unmined material during mining operations, and on the long term stability of the Highway route after closure of the mine.

Provide details on the safeguards that would reduce the likelihood and severity of hazards, consequences and risks to persons, within and adjacent to the project area(s). Identify the residual risk following application of mitigation measures. Present an assessment of the overall acceptability of the impacts of the project in light of the residual uncertainties and risk profile.

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.

Assess the risk of spontaneous combustion for the proposed coal mine and provide the following information:

- describe the quality and quantity of carbonaceous waste material including coarse rejects and fine tailings stockpile at the mine site
- discuss the potential risk of spontaneous combustion from the coal and waste stockpile areas
- discuss the prevention and control measures adopted for spontaneous combustion, and
- describe likely impacts of spontaneous combustion incidents on the receiving environment
- develop and implement “spontaneous combustion management plan” by considering NSW spontaneous combustion management guidelines.<sup>24</sup>

Outline any consultation undertaken with the relevant emergency management authorities, including the Local Disaster Management Group.

## 8.14 Cultural heritage

Conduct impact assessment in accordance with the EHP’s *EIS information guideline—Indigenous cultural heritage and non-Indigenous cultural heritage*.

Unless section 86 of the *Aboriginal Cultural Heritage Act 2003* applies, the proponent must develop a Cultural Heritage Management Plan in accordance with the requirements of Part 7 of the *Aboriginal Cultural Heritage Act 2003*.

For non-Indigenous historical heritage, study, and describe, the known and potential historical cultural and landscape heritage values of the area potentially affected by the project. Any such study should be conducted by an appropriately qualified cultural heritage practitioner. Provide strategies to mitigate and manage any negative impacts on non-Indigenous cultural heritage values and enhance any positive impacts.

## 8.15 Social and economic

Conduct a social impact assessment (SIA) in accordance with the Coordinator-General’s *Social impact assessment guideline*<sup>25</sup> and the Coordinator- General’s Social impact assessment guideline (draft) (October, 2016) (or other guideline in place at the time of delivery of the SIA).

The SIA should be developed in consultation with the Coordinated Project Delivery Division in the Office of the Coordinator-General, Department of State Development, and describe the likely social impacts (positive and negative) on affected communities. The proposed mitigation measures are to be discussed.

Should the Strong and Sustainable Resource Communities Bill 2016 (SSRC Bill) be passed, the proponent must meet all requirements of the legislation that apply to the project.

Matters to be considered in the SIA are detailed in Appendix 4 of this TOR.

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<sup>24</sup> [http://www.resourcesandenergy.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0007/419515/MDG-1006.pdf](http://www.resourcesandenergy.nsw.gov.au/__data/assets/pdf_file/0007/419515/MDG-1006.pdf)

[http://www.resourcesandenergy.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0006/419514/MDG-1006-TR-spontaneous-combustion-management.pdf](http://www.resourcesandenergy.nsw.gov.au/__data/assets/pdf_file/0006/419514/MDG-1006-TR-spontaneous-combustion-management.pdf)

<sup>25</sup> <http://www.statedevelopment.qld.gov.au/resources/guideline/social-impact-assessment-guideline.pdf>

Describe the likely social impacts (positive and negative) on affected communities and the proposed mitigation measures to be implemented. The EIS should at least address community and stakeholder engagement, workforce management, housing and accommodation, local business and industry content, health, and community well-being.

Also assess the potential adverse and beneficial economic impacts of the project. Separately address the major stages of the project (e.g. construction, operation, decommissioning). Quantify economic impacts where suitable data and methodology can be applied; otherwise, qualitatively assess the impacts. The EIS should at least address: labour demand, including the ability for labour to be drawn from the existing local workforce, and the potential effects this may have on local businesses; and relevant prices, which might include wages, input costs and/or household goods and services.

Describe the strategies for accommodating the workforce over the life of the project.

The assessment should identify opportunities to capture the social and economic benefits of the project, including:

- Strategies and implementation plans enabling local suppliers of goods and services to receive full, fair and reasonable opportunity to tender for work throughout the life of the project through adopting policies such as the Queensland Resources and Energy Sector Code of Practice for Local Content administered by Queensland Resources Council
- Employment strategies and implementation plans for local and regional residents, including Indigenous people, women and people with a disability across Queensland
- Opportunities to support strategic development priorities within the agricultural<sup>26</sup> and tourism sectors
- Regional workforce development plans, including recruitment, training development programs and initiatives to be offered
- Strategies that promote the location of workers and their families in regional centres<sup>27</sup>
- A description of estimated proportions, use and characteristics of FIFO workers during the construction and operational phases of the project.

Identify recreational, commercial or indigenous fisheries potentially impacted and undertake consultation.

## 8.16 Transport

The EIS should include a clear summary of the total transport task for the project, including workforce, inputs and outputs, during the construction and operational phases. Proponents should make appropriate choices for modes of transport to ensure efficiency and minimise impacts on the community.

Undertake the impact assessment in accordance with the EHP's *EIS information guideline—Transport*. The methods used should include the following matters:

- for impacts on roads: a Road impact assessment (RIA) report in accordance with the *Guidelines for assessment of road impacts of development* (Department of Main Roads, 2006<sup>28</sup>), with traffic data in Department of Transport and Main Roads (DTMR) suitable formats
- for impacts on rail level crossings: the *Australian Level Crossing Assessment Model* (ALCAM).<sup>29</sup>

Present the transport assessment for each project-affected mode (road, rail, air and sea) as appropriate for each phase of the project. Provide sufficient information to allow an independent assessment of how existing transport

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<sup>26</sup> <https://publications.qld.gov.au/dataset/daff-environmental-impact-assessment-companion-guide/resource/7b1825c4-5e42-4cf8-aa2d-7fa55c2f5e4c>

<sup>27</sup> Refer to the Coordinator-General's Workforce Management Principles:

- anyone must be able to apply for a job, regardless of where they live:
- provided they can meet the requirements of the job, people must have choice where they live and be able to apply for jobs related to the project
- the percentage of FIFO workers must be less than 100%

<sup>28</sup> [https://www.tmr.qld.gov.au/-/media/busind/techstdpubs/Road-planning-and-design/Guidelines-for-assessment-of-road-impacts-of-development/GARID\\_Guidelines\\_200406.pdf?la=en](https://www.tmr.qld.gov.au/-/media/busind/techstdpubs/Road-planning-and-design/Guidelines-for-assessment-of-road-impacts-of-development/GARID_Guidelines_200406.pdf?la=en)

<sup>29</sup> <http://alcam.com.au/>

infrastructure will be affected by project transport at the local and regional level (e.g. local roads and state-controlled roads).

Discuss how identified impacts will be mitigated for each transport mode. Mitigation strategies may include works, contributions or other strategies that can be documented in a *Road-use Management Plan (RMP)*<sup>30</sup>. The strategies should be prepared in close consultation with relevant transport authorities (including local government). Strategies should consider the transport authorities' works programs and forward planning, and be in accordance with the relevant methodologies, guidelines and design manuals.

## 9 Commitments

The EIS must provide a consolidated description of all the proponent's commitments to implement avoidance, mitigation and management measures (including monitoring programs) relating to the potential impacts of the project.

## 10 Conditions

Propose conditions that may be placed on any approvals or licenses. For the EA, this may be taken directly from the existing model conditions and eligibility criteria and/or modified or developed to suit specific issues related to the project.

## 11 Appendices to the EIS

Appendices to the EIS should provide the complete technical data collected, and evidence used, to develop assertions and findings in the main text of the EIS.

No significant issue or matter including statements of uncertainty associated with assertions and findings should be mentioned for the first time in an appendix—it must be addressed in the main text of the EIS.

Include a table listing the section of the EIS, including sub-sections where each requirement of the TOR is addressed.

## 12 Spatial data presentation

Maps included in the EIS should have contours at suitable increments relevant to the scale, location, potential impacts and type of project, shown with respect to Australian Height Datum (AHD) and drafted to Geocentric Datum of Australia 1994 (GDA94). In relatively flat locations, contours should be at one metre intervals. Geographical coordinates should be presented as latitude and longitude against the GDA94.

All spatial data presented in the EIS must be made available to the administering authority in appropriate electronic form, such as shape files.

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<sup>30</sup> Contact the Department of Transport and Main Road on [MDP@tmr.qld.gov.au](mailto:MDP@tmr.qld.gov.au)

## Appendix 1 Glossary

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

Acronym/abbreviation	Definition
AADT	average annual daily traffic
AEP	annual exceedance probability
AHD	Australian height datum
ALCAM	Australian Level Crossing Assessment Model
ANCOLD	Australian National Committee on Large Dams
ARI	average reoccurrence interval
ARMIS	a road management information system
Bilateral agreement	an agreement between the Commonwealth and the State of Queensland under section 45 of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> relating to environmental assessment
CHPP	coal handling and preparation plant
CSG	coal seam gas
DAFF	Department of Agriculture, Fisheries and Forestry
DBCT	Dalrymple Bay Coal Terminal
DIDO	Drive in Drive out
DILGP	Department of Infrastructure, Local Government and Planning
DTMR	Department of Transport and Main Roads
EA	environmental authority
EHP	Department of Environment and Heritage Protection
EIS	environmental impact statement
EP	equivalent persons
EP Act	<i>Environmental Protection Act 1994</i>
EP Regulation	Environmental Protection Regulation 2008
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwlth)
EPC	exploration permit for coal
EPP	environmental protection policy (under the EP Act)
EPP (Air)	environmental protection policy (under the EP Act) for air
ERA	environmentally relevant activity
FIFO	fly-in-fly-out

GBRMP	Great Barrier Reef Marine Park
GDA94	Geocentric Datum of Australia 1994
HGTC	high grade thermal coal
Hz	hertz
IESC	Independent Expert Scientific Committee
MDL	mining development licence
MIA	mine industrial area
MLA	mining lease application
MNES	matters of national environmental significance
MSES	matters of state environmental significance
Mtpa	million tonnes per annum
NGER Act	<i>National Greenhouse and Energy Reporting Act 2007</i>
RIA	road impact assessment
RMP	road-use management plan
ROM	run-of-mine
SSCC	semi-soft coking coal
STP	sewage treatment plant
TLF	train loadout facility
TOR	terms of reference
WONS	weeds of national significance
WQO	water quality objective.

## Appendix 2 Policies, guidelines and references

- ANZECC and ARMCANZ, 2000, *Australian and New Zealand guidelines for fresh and marine water quality, Volume 1, The guidelines*, Australian and New Zealand Environment and Conservation Council, Agriculture and Resource Management Council of Australia and New Zealand, [www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.htm](http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.htm)
- Australian Level Crossing Assessment Model (ALCAM)*, [www.tmr.qld.gov.au/Travel-and-transport/Rail/Level-crossings/ALCAM.aspx](http://www.tmr.qld.gov.au/Travel-and-transport/Rail/Level-crossings/ALCAM.aspx)
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- Department of Environment and Heritage Protection, 2014, *Links to a range of guidelines and manuals in regards to mining and the EIS process*, Queensland Government, Brisbane, e.g.:
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## **Appendix 3 Terms of Reference for Matters of national environmental significance (critical matter) under the Environment Protection and Biodiversity Conservation Act 1999 requirements<sup>31</sup>**

### **Content of the EIS for matters of national environmental significance**

The proposed project was referred on 22 January 2016 to the Australian Government Department of the Environment and Energy (EPBC 2016/7851). On 3 February 2017, the Department of the Environment and Energy determined the proposed project to be a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The controlling provisions are:

- sections 12 and 15A (world heritage values of a declared World Heritage property)
- sections 15B and 15C (the heritage values of a National Heritage place)
- sections 18 and 18A (Listed threatened species and communities)
- sections 20 and 20A (Listed migratory species)
- sections 24B and 24C (Great Barrier Reef Marine Park)
- sections 24D and 24E (a water resource, in relation to coal seam gas development and large coal mining development).

The EIS must state the controlling provisions for the project and describe the particular aspects of the environment leading to the controlled action declaration under the EPBC Act. The EIS must address relevant impacts on the 'controlling provisions' and all matters relating to them and provide enough information about the project and its impacts to allow the Australian Government Environment Minister to make an informed decision on whether to approve the project under the EPBC Act.

The assessment of the potential impacts, mitigation measures and any offsets for residual significant impacts must be dealt with in a stand-alone section of the EIS that fully addresses the matters relevant to the controlling provisions. Requirements for MNES are set out in Appendix 3 (Matters of national environmental significance (critical matter) under the *Environment Protection and Biodiversity Conservation Act 1999* requirements of the TOR). The information provided on these matters must be consistent with the relevant aspects of other sections in the EIS, for example Section 8.7 Flora and fauna.

The EIS must also address the matters prescribed in section 6 and in Schedule 1 of the EP Regulation.

The project will be assessed under the bilateral agreement between the Commonwealth and the State of Queensland (section 45 of the EPBC Act) using the EIS prepared under the *Environmental Protection Act 1994* (EP Act).

#### **General content**

The following Terms of Reference (TOR) should be addressed by the proponent in a stand-alone section that primarily focuses on the matters of national environmental significance (MNES) listed above. This section (henceforth called the 'MNES section') should contain sufficient information to be read alone with reference to technical data or supplementary reports where appropriate. Any detailed technical information to support the text in the MNES section should be included as appendices to the draft Environmental Impact Statement (EIS).

If it is necessary to make use of material that is considered by the proponent to be of a confidential nature, the proponent should consult with the Department of the Environment and Energy on the preferred presentation of that material, before submitting it for approval for publication.

The MNES section should take into consideration the EPBC Act Significant Impact Guidelines that can be downloaded from the following web site: <https://www.environment.gov.au/epbc/policy-statements>.

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<sup>31</sup> provided by the Commonwealth Department of the Environment and Energy

The proponent should ensure that the MNES section assesses compliance of the action with the principles of Ecologically Sustainable Development as set out in the EPBC Act, and the objects of the Act at Attachment 1. A copy of Schedule 4 of the EPBC Regulations, which outlines the matters to be addressed by draft public environment report and environmental impact statement, is at Attachment 2.

### **Style**

The MNES section should be written so that any conclusions reached can be independently assessed. To this end all sources must be appropriately referenced using the Harvard standard. The reference list should include the address of any Internet webpages used as data sources.

Maps, diagrams and other illustrative material should be included where appropriate. The MNES section should be produced on A4 size paper capable of being photocopied, with maps and diagrams on A4 or A3 size and in colour where possible.

The proponent should consider the format and style of the document appropriate for publication on the Internet. The capacity of the website to store data and display the material may have some bearing on how the document is constructed.

### **Background and description of the action**

The MNES section must include background to the action and describe in detail all components of the action for example (but not limited to), the construction, operation and (if relevant) decommissioning components of the action. This must include the precise location of all works to be undertaken (including associated offsite works and infrastructure), structures to be built or elements of the action that may have impacts on MNES.

The description of the action must also include details on how the works are to be undertaken (including stages of development and their timing) and design parameters for those aspects of the structures or elements of the action that may have relevant impacts.

The MNES section must include 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. A map showing relevant regional projects must be provided.

The MNES section must provide details on the current status of the action as well as any feasible alternatives to the action to the extent reasonably practicable, including:

- if relevant, the alternative of taking no action
- a comparative description of the impacts of each alternative on the MNES protected by controlling provisions of Part 3 of the EPBC Act for the action, and
- sufficient detail to make clear why any alternative is preferred to another.

Short, medium and long-term advantages and disadvantages of the options should also be discussed.

Should the proponent wish to conduct development and associated offsets in stages, the EIS must include a description of stages, using maps where appropriate, and discuss any risks and or benefits of staging the action.

### **Description of the environment including MNES**

The MNES section must provide a description of the environment of the proposal site and the surrounding areas that may be affected by the action. It is recommended that this include the following information:

- A description of the location, extent and heritage values of the Great Barrier Reef World Heritage Area and National Heritage Place and the environment of the Great Barrier Reef Marine Park that may be impacted by the action.
- A description of the surface and groundwater resources which may be impacted by the action, and
- Listed threatened and ecological communities, and migratory species (including suitable habitat) that are likely to be present in the vicinity of the site, including details of the scope, timing (survey season/s) and methodology for studies or surveys used to provide information on the listed species/community/habitat at the site (and in areas that may be impacted by the project). Include details of:
  - how best practice survey guidelines are applied, and
  - how the surveys are consistent with (or a justification of divergence from) published Australian Government guidelines and policy statements.

The draft EIS must include a habitat assessment for each relevant listed threatened species and communities, and migratory species. The habitat assessment must include, but not limited to, the habitat area (in hectares), quality,

location and use specifications of known and potential suitable habitat in relation to the project disturbance area. The Department would expect the habitat assessment be informed by, at a minimum, a desktop assessment of relevant Commonwealth and State Government databases and the outcomes of field surveys.

The draft EIS must consider and discuss the value of suitable habitat present within the project site and how it may be impacted by the project (as per the requirements below).

### Relevant impacts

The MNES section must include a description of all of the relevant impacts of the action. Relevant impacts are impacts that the action will have or is likely to have on MNES. Impacts during the construction, operational and (if relevant) the decommissioning phases of the project should be addressed, and the following information provided:

- a description of the relevant impacts (direct, indirect and consequential) of the action on MNES taking account of any relevant approved Conservation Advices for listed threatened species and communities as well as any agreements or plans that cover impacts on MNES including (but not limited to): recovery plans, threat abatement plans for processes that threaten species; wildlife conservation plans, strategic assessments, etc.)
- provide an analysis of potential and likely impacts of the proposed action on the integrity and Outstanding Universal Value of the Great Barrier Reef World Heritage property
  - including on impacts relating to water quality – fine sediment and nitrogen, and impacts relating to habitat – seagrass, mangroves, saltmarsh and shallow reef
- provide an analysis of potential and likely impacts of the proposed action on the values of the Great Barrier Reef National Heritage place
- demonstrate how the proposed action will provide a net benefit for water quality in the Great Barrier Reef World Heritage property, consistent with The Reef 2050 Long-Term Sustainability Plan (2015), and
- reference the key values and attributes outlined in the Great Barrier Reef Outlook Report 2014 (Great Barrier Reef Marine Park Authority) that may be impacted by the proposed development
- a detailed analysis of the nature, extent and significance of the likely direct, indirect and consequential impacts relevant to MNES and/or their known and potential habitat, including likely short-term and long-term impacts (refer to the Significant Impact Guidelines 1.1 - Matters of National Environmental Significance for guidance on the various types of impact that need to be considered)
- a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible
- any technical data and other information used or needed to make a detailed assessment of the relevant impacts, including a description of the methodology used to determine whole of project impacts (in hectares) to habitat for listed threatened species and communities and listed migratory species; and
- an explanation of how Indigenous stakeholders' views of the action's impacts to biodiversity and cultural heritage have been sought and considered in the assessment, including where relevant, how guidelines published by the Commonwealth in relation to consulting with Indigenous peoples for proposed actions that are under assessment have been considered and applied, and
- where the proposal is a coal seam gas development or large coal mining development and likely to significantly impact on a water resource refer to the:
  - *Independent Expert Scientific Committee's (IESC) information guidelines for proposals relating to the development of coal seam gas and large coal mines where there is a significant impact on water resources.*
  - *Significant Impact guidelines 1.3: Coal seam gas and large coal mining developments - impacts on water resources.*

The project will be submitted to the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC). The draft EIS must include a completed checklist (located within the IESC Guidelines) to ensure that the information requirements for the IESC review have been addressed.

The MNES section should also provide a detailed assessment of any likely impact that this proposed action may facilitate on the following (at the local, regional, state, national scale):

- sections 12 and 15A (world heritage values of a declared World Heritage property)
- sections 15B and 15C (the heritage values of a National Heritage place)
- sections 18 and 18A (Listed threatened species and communities)
- sections 20 and 20A (Listed migratory species)
- sections 24B and 24C (Great Barrier Reef Marine Park)

- sections 24D and 24E (a water resource, in relation to coal seam gas development and large coal mining development).

The MNES section should identify and address cumulative impacts, where potential project impacts are in addition to existing impacts of other activities (including known potential future expansions or developments by the proponent and other proponents in the region and vicinity). The MNES section should also address the potential cumulative impact of the proposal on ecosystem resilience. The cumulative effects of climate change impacts on the environment must also be considered in the assessment of ecosystem resilience.

### **Proposed avoidance and mitigation measures**

#### **Avoidance and Mitigation Measures**

The MNES section must provide information on proposed avoidance and mitigation measures to manage the relevant impacts of the action on MNES.

The information provided must discuss how the proposed action is not inconsistent with:

- any relevant threat abatement plan for listed threatened species and communities
- any relevant recovery plan for listed threatened species and communities, and
- relevant conventions and agreements of which a migratory species is listed, including the Bonn Convention, CAMBA, JAMBA and agreements relevant to the conservation of the species.

The MNES section must include, and substantiate, specific and detailed descriptions of the proposed avoidance and mitigation measures, based on best available practices and must include the following elements:

- A consolidated list of measures proposed to be undertaken to avoid, mitigate and manage the relevant impacts of the action on MNES, including:
  - a description of proposed avoidance and mitigation measures to deal with relevant impacts of the action, including mitigation measures proposed to be taken by State/Territory governments, local governments or the proponent
  - assessment of the expected or predicted effectiveness of the mitigation measures, including the scale and intensity of impacts of the proposed action and the on-ground benefits to be gained through each of these measures
  - discussion of how the proposed mitigation and management measures are consistent with actions included in relevant Recovery Plans and Threat Abatement Plans for listed threatened species and communities
  - a discussion of how the proposed mitigation and management measures are consistent with the objectives of The Reef 2050 Long-Term Sustainability Plan (2015)
  - including how impacts to surface water flow and quality and to groundwater quality and groundwater regimes will be managed during construction, operation and decommissioning of the project
  - how final voids will be managed to avoid ongoing impacts to MNES following the end of the operational phase of the project
  - details of the rehabilitation of the site, including how this will be staged and the outcomes proposed to be achieved to ensure habitat for listed threatened species and communities is reinstated, and
  - any statutory or policy basis for the mitigation measures.
- A strategy for the continuing management, mitigation and monitoring of relevant MNES impacts of the action, including a description of the outcomes that will be achieved and any provisions for independent environmental auditing.
- A detailed outline of a Construction Environmental Management Plan (CEMP) for the continuing management, mitigation and monitoring of relevant impacts of the action on MNES. The CEMP outline must be consistent with the Department's Environmental Management Plan Guidelines (2014), and must include:
  - objectives
  - risk assessment
  - environmental management activities and mitigation measures
  - the timing of actions
  - a monitoring program, which must include:

- performance indicators (clear and concise criteria against which achievement of outcomes are to be measured), which are capable of accurate and reliable measurement
  - outcomes (time bound outcomes as measured by performance indicators), which might include milestones (interim outcomes)
  - monitoring requirements (timing and frequency of monitoring to detect changes in the performance indicators, to determine if outcomes are being achieved, and to inform adaptive management), and
  - trigger values for corrective actions
- potential corrective actions to be implemented if trigger values are reached, and how environmental incidents and emergencies will be managed
  - roles and responsibilities (clearly stating who is responsible for activities), and
  - auditing and review mechanisms.

### **Greenhouse Gases**

The MNES section is to outline the cumulative direct and indirect greenhouse gas emissions of the proposed action. An inventory of the projected greenhouse gas emissions associated with the proposed action is to be provided. This inventory should include scope 1 and 2 emissions and, for context, an outline of total global greenhouse gas emissions.

### **Environmental Outcomes**

The MNES section may include information on the outcomes that the proponent will achieve for matters of national environmental significance. Outcomes need to be specific, measurable and achievable, and must be based on robust baseline data. Outcomes must be developed in consideration of DOEE's *Outcomes-based Conditions Policy 2016* and *Outcomes-based Conditions Guidance 2016*, with suitable justification for considerations identified in the policy and guidance. The MNES section may include the details of specific environmental outcomes to be achieved, and reasoning for these in reference to relevant Recovery Plans, Conservation Advices and Threat Abatement Plans.

### **Residual significant impacts/offsets**

Environmental offsets are broadly understood to mean actions taken outside a development site that compensate for the significant residual impacts of that development. Offsets are not intended to replace avoidance and mitigation which are expected to be the primary strategies for managing the potential impacts of development proposals. Note: offsets do not make an unacceptable impact acceptable and do not reduce the likely impacts of a proposed action. Instead, offsets compensate for any residual significant impact.

The MNES section must provide details of:

- residual significant impacts on MNES that are likely to occur after the proposed activities to avoid and mitigate all impacts are taken into account
- where residual significant impacts are likely to occur, the reasons why the avoidance or mitigation of these significant impacts is not expected to be achieved.

The MNES section must include details of an offset package proposed to be implemented to compensate for the residual significant impact of the project if these are determined likely, as well as an analysis about how the offset(s) meets the requirements in the Department's Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy October 2012 (EPBC Act Offset Policy).

The offset package can comprise a combination of direct offsets and other compensatory measures, so long as it meets the requirements of the EPBC Act Offset Policy. Offsets should align with conservation priorities for the impacted protected matter and be tailored specifically to the attribute of the protected matter that is impacted in order to deliver a conservation gain. Proponents also have the option of using the Australian Government Reef Trust to deliver biodiversity-related offsets, for example for residual significant impacts relating to water quality and to habitat associated with the Great Barrier Reef.

Offsets should compensate for an impact for the full duration of the impact (i.e. should impacts be in perpetuity the offsets should also be in perpetuity).

Offsets must directly contribute to the ongoing viability of the MNES impacted by the project and deliver an overall conservation outcome that improves or maintains the viability of the MNES as compared to what is likely to have occurred under the status quo, that is, if neither the action nor the offset had taken place.

Offsets required by the State can be applied if the offsets meet the Department's EPBC Act Offset Policy. The outcomes of the offset strategy need to be specific, measurable and achievable, and should be based on robust baseline data.

Note: offsets do not make an unacceptable impact acceptable and do not reduce the likely impacts of a proposed action. Instead, offsets compensate for any residual significant impact.

The MNES section must include an offset strategy to compensate for significant residual impacts on MNES. The offsets strategy must include:

- objectives
- quantity of impacts which are being offset
- the type of offsets proposed (direct/indirect)
- the location (including a geo-referenced map) and suitability of proposed direct offsets
- current land tenure of any proposed offset and the method of securing enduring protection of the offset site and managing the offset for the life of the impact
- how any proposed staging of the overall development will impact the delivery of offsets
- specific environmental outcomes to be achieved, and reasoning for these in reference to relevant statutory recovery plans, conservation advices and threat abatement plans
- a completed 'offsets guide'. All figures used to determine the suitability of offsets including habitat quality scores at the project site must be derived using a suitably robust and repeatable framework. Details about each framework must also be provided
- risk assessment
- environmental management activities and mitigation measures or customize, by referring to specific measures as follows, including the timing of actions
- a monitoring program, which must include:
  - performance indicators (clear and concise criteria against which achievement of outcomes are to be measured), which are capable of accurate and reliable measurement
  - outcomes (time bound outcomes as measured by performance indicators), which might include milestones (interim outcomes)
  - monitoring requirements (timing and frequency of monitoring to detect changes in the performance indicators, to determine if outcomes are being achieved, and to inform adaptive management), and
  - trigger values for corrective actions
- potential corrective actions to be implemented if trigger values are reached, and how environmental incidents and emergencies will be managed
- roles and responsibilities (clearly stating who is responsible for activities)
- auditing and review mechanisms, and
- an analysis of how the offset package meets the requirements of the EPBC Act Offsets Policy.

### **Environmental record of person(s) proposing to take the action**

The information provided must include details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:

- the person proposing to take the action
- for an action for which a person has applied for a permit, the person making the application, and
- if the person proposing to take the action is a corporation, details of the corporation's environmental policy and planning framework must also be included.

### **Economic and social matters**

The economic and social impacts of the action, both positive and negative, must be analysed. Matters of interest may include:

- details of any public consultation activities undertaken, and their outcomes
- details of any consultation with Indigenous stakeholders
- projected economic costs and benefits of the project, including the basis for their estimation through cost/benefit analysis or similar studies, and

- employment opportunities expected to be generated by the project (including construction and operational phases).

Economic and social impacts should be considered at the local, regional and national levels. Details of the relevant cost and benefits of alternative options to the proposed action should also be included. Identification of affected parties is required, including a statement mentioning any communities that may be affected and describing their views.

Documentation must be provided substantiating how estimated benefit/cost figures have been derived.

### **Information sources**

For information given in the MNES section, the proponent must state:

- the source of the information;
- how recent the information is;
- how the reliability of the information was tested;
- what uncertainties (if any) are in the information; and
- what guidelines, plans and/or policies were considered.

### **Conclusion**

An overall conclusion as to the environmental acceptability of the proposal on each MNES should be provided, including:

- a discussion on compliance with the requirements of the EPBC Act, including the objects of the EPBC Act, the principles of ecologically sustainable development and the precautionary principle
- reasons justifying undertaking the proposal in the manner proposed, including the acceptability of the avoidance and mitigation measures, and
- if relevant, a discussion of residual impacts and any offsets and compensatory measures proposed or required for significant residual impacts on MNES, and the relative degree of compensation and acceptability.

## **Attachment 1**

### **The objects and principles of the EPBC Act; sections 3 and 3A**

#### **3 Objects of the Act**

- (a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance;
- (b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources;
- (c) to promote the conservation of biodiversity;
- (d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples;
- (e) to assist in the co-operative implementation of Australia's international environmental responsibilities;
- (f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and
- (g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.

#### **3A Principles of ecologically sustainable development**

The following principles are principles of ecologically sustainable development.

- (a) Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.
- (b) If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- (c) The principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

- (d) The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.
- (e) Improved valuation, pricing and incentive mechanisms should be promoted.

## Attachment 2

### Matters that must be addressed in a PER and EIS (Schedule 4 of the EPBC Regulations 2000)

#### 1 General information

The background of the action including:

- (a) the title of the action
- (b) the full name and postal address of the designated proponent
- (c) a clear outline of the objective of the action
- (d) the location of the action
- (e) the background to the development of the action
- (f) 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
- (g) the current status of the action, and
- (h) the consequences of not proceeding with the action.

#### 2 Description

A description of the action, including:

- (a) all the components of the action
- (b) the precise location of any works to be undertaken, structures to be built or elements of the action that may have relevant impacts
- (c) how the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts
- (d) relevant impacts of the action
- (e) proposed safeguards and mitigation measures to deal with relevant impacts of the action
- (f) any other requirements for approval or conditions that apply, or that the proponent reasonably believes are likely to apply, to the proposed action
- (g) to the extent reasonably practicable, any feasible alternatives to the action, including:
  - i. if relevant, the alternative of taking no action
  - ii. a comparative description of the impacts of each alternative on the matters protected by the controlling provisions for the action, and
  - iii. sufficient detail to make clear why any alternative is preferred to another
- (h) any consultation about the action, including:
  - i. any consultation that has already taken place
  - ii. proposed consultation about relevant impacts of the action, and
  - iii. if there has been consultation about the proposed action—any documented response to, or result of, the consultation, and
- (i) identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

#### 3 Relevant impacts

Information given under paragraph 2.01(d) must include

- (a) a description of the relevant impacts of the action;
- (b) a detailed assessment of the nature and extent of the likely short term and long term relevant impacts;
- (c) a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible;
- (d) analysis of the significance of the relevant impacts; and
- (e) any technical data and other information used or needed to make a detailed assessment of the relevant impacts.

#### **4 Proposed safeguards and mitigation measures**

Information given under paragraph 2.01(e) must include:

- (a) a description, and an assessment of the expected or predicted effectiveness of, the mitigation measures
- (b) any statutory or policy basis for the mitigation measures
- (c) the cost of the mitigation measures
- (d) an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing
- (e) the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program, and
- (f) a consolidated list of mitigation measures proposed to be undertaken to prevent, 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.

#### **5 Other Approvals and Conditions**

Information given under paragraph 2.01(f) must include:

- (a) details of any local or State government planning scheme, or plan or policy under any local or State government planning system that deals with the proposed action, including:
  - i. what environmental assessment of the proposed action has been, or is being carried out under the scheme, plan or policy, and
  - ii. how the scheme provides for the prevention, minimisation and management of any relevant impacts
- (b) a description of any approval that has been obtained from a State, Territory or Commonwealth agency or authority (other than an approval under the Act), including any conditions that apply to the action
- (c) a statement identifying any additional approval that is required, and
- (d) a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.

#### **6 Environmental record of person proposing to take the action**

Details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:

- (a) the person proposing to take the action, and
- (b) for an action for which a person has applied for a permit, the person making the application.

If the person proposing to take the action is a corporation—details of the corporation's environmental policy and planning framework.

#### **7 Information sources**

For information given the PER/EIS must state:

- (a) the source of the information, and
- (b) how recent the information is, and
- (c) how the reliability of the information was tested, and
- (d) what uncertainties (if any) are in the information.

## Appendix 4 Matters to be addressed in the social impact assessment

### Information requirements – social

1. The SIA should include:
  - a) a profile of key stakeholders
  - b) a social baseline study of potentially impacted communities within the SIA study area
  - c) an overview of state government legislation and policies and priorities which complement the mitigation measures for the project's social impacts
  - d) an explanation of sources used to gather information and analysis methods used. Discuss rationale for both primary and secondary data
  - e) a description of how the potentially impacted communities and affected stakeholders/other interested parties were engaged and consulted with during the development of the SIA
  - f) identification of potential social impacts and their likely significance, including duration
  - g) the proponent's proposed enhancement and mitigation/management measures
  - h) details of the proponent's proposed monitoring and reporting framework.

### *Social impact assessment study area*

2. Define the project's SIA study area (including the local, district, regional and state level as relevant), taking into account the:
  - a) potential for social impacts to occur
  - b) location of other relevant projects (existing or proposed)
  - c) location and types of physical and social infrastructure, settlements and land-use patterns
  - d) social values that might be affected by the project including integrity of social conditions, liveability, social harmony and wellbeing and sense of community
  - e) Indigenous social and cultural characteristics, such as native title rights and interests, and cultural heritage.

### *Social Baseline Study*

3. Undertake a targeted baseline study of the people residing within the project's SIA study area. This will provide a benchmark against which to identify the project's social issues, potential negative and positive social impacts, and the mitigation/management plans to address these impacts. The social baseline study should be based on qualitative, quantitative and participatory methods. It should be supplemented by community engagement processes and primary data collection, and should reference relevant data contained in local and state government publications, reports, plans, guidelines and documentation, including regional and community plans.

### *Community Engagement*

4. The baseline study, assessment of potential social impacts and development of appropriate mitigation measures and management plans should be informed by an inclusive and collaborative community and stakeholder engagement process. The engagement should commence at an early stage of the EIS process, and should include consultation with a broad range of stakeholder groups including affected landholders, local residents, community groups, Traditional Owner/Aboriginal and Torres Strait Islander representatives, state and local government agencies, and non-government organisations.
5. The community and stakeholder engagement process should be adequately described and documented in the EIS report. This should include details such as stakeholders consulted and how and when they were consulted, principles and processes adopted, overview of the consultation program and key events, stakeholder feedback

and issues raised (including the means by which these have been or will be addressed), and details of any negotiations or agreements required for impact mitigation and management.

## **Potential impacts and mitigation – social**

### *Impact assessment*

6. Assess and describe the type, level and significance of the project's social impacts (both negative and positive), based on the outcomes of the community engagement, social baseline study and impact analysis processes. This should include sufficient data to enable affected local and state authorities to make informed decisions about the project's effects. The potential social impacts will be identified by considering the potential changes to key aspects included in the social baseline study.
7. Impact assessment should include an assessment of the potential scope and significance of impacts at the local and regional level, considering factors such as population and demographic changes, workforce, lifestyles and amenity, community values, housing, local and regional planning outcomes, social infrastructure, and the health and social/cultural wellbeing of families and communities.
8. The impact assessment should also evaluate and discuss the potential cumulative social impacts resulting from the proposed project in combination with other existing or projects in advanced planning stages within the SIA study area. Key issues assessed should include:
  - a) population
  - b) workforce (construction and operation)
  - c) workforce accommodation
  - d) local and regional housing markets
  - e) use of and access to community infrastructure, services and facilities (including social and health services and facilities)
  - f) any existing legacy issue(s) or cumulative impact(s) which is/are not attributed to the present project proposal or advanced planned projects.
9. The impact assessment should describe:
  - (a) the impacts identified by the SIA process
  - (b) impacted stakeholders
  - (c) impacts, mitigation and management measures timing/timeframes
  - (d) description of the mitigation and management measures
  - (e) defined outcomes, and the performance indicators and targets to achieve the outcomes
  - (f) monitoring and reporting framework
  - (g) residual impacts (after mitigation/management) and how these will be addressed.

### *Management plans*

10. Management plans for the following are to be provided as part of the SIA:
  - a) community and stakeholder engagement
  - b) workforce management
  - c) housing and accommodation
  - d) local business and industry content
  - e) health and community wellbeing.

## Approved by

Chris Loveday

4 August 2017

### Signature

Chris Loveday  
Director, Impact Assessment and Operational Support  
Department of Environment and Heritage Protection  
Delegate of the chief executive  
*Environmental Protection Act 1994*

### Date

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